

Sasanian Palaces of Persis According to the Absolute Chronology: Qal'a-ye Doxtar and Palace of Ardašīr I (Ātaškada) at Firūzābād, and the so-called Palace of Sarvestān, Iran

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Abstract: There are a number of palaces and other monuments in southern, western, and north eastern Iran, as well as in modern Iraq, Azerbaijan, and to some extent Syria and Jordan which display architectural features recalling those of the monuments of Qal'a-ye Doxtar and of the Palace of Ardašīr I (so-called Ātaškada) near Firūzābād (Fars), considered to belong to the early Sasanian period, as well as of the complex located in Sarvestān (Fars), dated to the Early Islamic period. The construction date of the first two monuments and of the Sarvestān complex have so far been proposed on the basis of archaeological, architectural and historical elements, which allow only a tentative relative chronology. Here, an absolute chronology based on radiocarbon datings of wood samples from the buildings is presented to shed more light on their construction dates. The obtained ages suggest that the construction of the Firūzābād palatial monuments was accomplished during the reign of Ardašīr I (224-240 CE) and the beginning of the reign of Šābuhr I (240-270 CE) with a probability that the Palace of Ardašīr I was finished after the Qal'a-ye Doxtar. This fact is in accordance with other archeological and historical documents that suggest that the second palace was built after the establishment of the political stability at the beginning of the Empire. The absolute datings, however, revealed a complex timing for construction and use of the Sarvestān complex dating to post-Sasanian period and put an end on the ambiguous discussions about the chronology of this monument.

Keywords: Sasanian Empire, Persis, Firūzābād, Sarvestān, Zoroastrians, Fire Temple, timber

چکیده: در جنوب، غرب و شمال شرق ایران و همچنین در عراق، آذربایجان و تا حدودی در سوریه و اردن کاخ‌ها و یادمان‌هایی دیگر وجود دارد که ویژگی‌های معماری بخصوصی را به نمایش می‌گذارند که یادآور آثار قلعه دختر و کاخ اردشیر یکم (موسوم به آتشکده) در فیروزآباد فارس مربوط به اوایل دوره ساسانی و همچنین مجموعه‌ای در سروستان فارس است که به اوایل دوران اسلامی مرتبط می‌داند. تاریخ احداث دو سازه نخست در فیروزآباد و مجموعه سروستان بر اساس شواهد باستان‌شناختی، معماری و تاریخی بوده است که فقط تاریخ‌های نسبی به دست می‌دهند. در این مقاله تاریخ‌گذاری مطلق به روش رادیوکربن بر روی نمونه‌های چوب به دست آمده از بناها ارائه شده است. تاریخ‌های به دست آمده حاکی از آن‌اند که کاخ فیروزآباد در زمان اردشیر یکم (۲۲۴ تا ۲۴۰ م) و آغاز سلطنت شاپور یکم (۲۴۰ تا ۲۷۰ م) احداث شده و احتمال دارد که احداث کاخ اردشیر پس از قلعه دختر به پایان رسیده باشد. این دانسته با دیگر مدارک باستان‌شناختی و تاریخی همخوانی دارد مبنی بر این‌که کاخ اردشیر پس از تثبیت سیاسی در اوایل شاهنشاهی ساسانی احداث شده است؛ اما تاریخ‌گذاری مطلق، تاریخ پیچیده‌ای درباره احداث و کاربری مجموعه سروستان به دست داده که به پس از دوره ساسانی بازمی‌گردد و به ابهامات مربوط به گاه‌نگاری این یادمان پایان می‌دهد.

کلیدواژه‌گان: شاهنشاهی ساسانی، فارس، فیروزآباد، سروستان، زرتشتی‌گری، آتشگاه، چوب (الوار)

Introduction

The history of ancient Iran and, more generally, the Ancient Near East is marked with the rise and fall of the Achaemenid, the Macedonian-Seleucid, the Parthian (Arsacid) and finally the Sasanian empires lasting for more than one

millennium (Wiesehöfer, 2001). Many religious and political changes in Southwest Asia were the result of the cultural interactions between different nations under these imperial states and their neighbours since 559 BCE to the advent of Islam in 621 CE. Interactions with Greco-Roman

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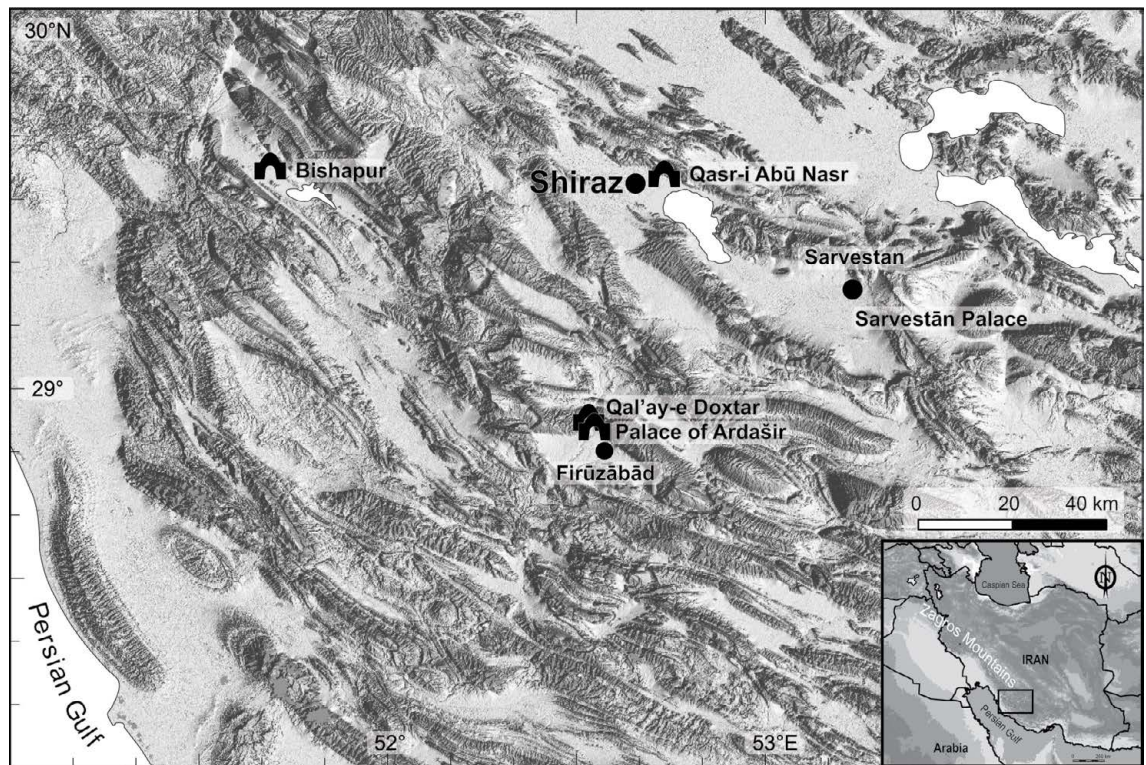


Fig. 1. Location map of the Sasanian monuments mentioned in the text.

and later Christian world also deeply impacted such developments. Among the major Iranian empires of the Antiquity, the Sasanian Empire brought about many developments in the fields of art, agriculture, and specifically architecture (Daryaee, 2013). The Sasanian state emerged, at the beginning of its formation, from Persis (modern Fars region in southern Iran). In fact, towards the end of the Parthian Empire, the local governments in Iran — especially from the Fars region — revolted (Christensen, 1944). One of these governments — that of the Bāzrangī family — ruled over Persepolis and Estakhr regions (Balami, 1957-58; Wiesehöfer, 1986). Ardašir ī Pābagān defeated the last Parthian king Artabanus IV (216-224 CE) in the well-known Battle of Hormozdgān (Shahbazi, 2004; Frye, 1983) and established the Sasanian Empire in 224 CE (Wiesehöfer, 1986; Daryaee, 2010). The first Sasanian King of Kings founded a number of great and magnificent palaces including the Qal'a-ye Doxtar (also Qal'eh Dokhtar), the Palace of Firūzābād also known as the Ātaškada ('fire temple'), and the Gur City all around the modern town of Firūzābād, at the beginning of

the third century CE (Huff, 1986: 2014). The key features of these great monuments of the early Sasanian era were that the arch, vault, and dome were used in the structures made of stone rubble and plaster with innovative features specific to Fars region (Huff, 1971; 1976; 2008). These architectural innovations in south-west Asia were so important that since the third century CE until a millennium later, arches, vaults, domes and techniques for creating them became a common historical architectural heritage in the Middle East.

A number of palaces and monuments in southern, western, north-eastern Iran, modern Iraq, Azerbaijan, and to some extent Syria and Jordan have been built on the basis of this style during a millennium (Fontana, 1986). These structures, in many aspects, follow the architecture of the early Sasanian monuments i.e. Qal'a-ye Doxtar and the Palace of Ardašir (Bier, 1986). Both of these monuments are attributed to the early Sasanian period based on relative chronologies (Huff, 1977). The other significant monument of this style is the building complex near Sarvestān in Fars, which is very similar to

other early Sasanian palaces with respect to architectural techniques. The so-called Palace of Sarvestān is considered as one of the most valuable architectural works in the history of art in Iran. The advanced techniques used for creating its vaults and arches, however, made it similar to the early Islamic monuments, especially the palaces of Al-Ukaiẓir (also Al-Ukhaidir) and Qasr al-Mshatta (Winter Palace) in southern Jordan (Bier, 1986). Ascribing the construction of this monument to the late Sasanian or early Islamic centuries is still a matter of controversy. Although it is suggested as a Zoroastrian religious monument belonging to 8th-10th centuries CE, there is still much uncertainty about the construction date of this monument. The archaeological excavations have only provided a relative chronology for the occupation and the use of this monument. Thus, the radiocarbon dating on samples of ancient wood utilized for the monument would provide the only undisputed chronological evidence to clarify the time of its construction and occupation. The results obtained from the archaeological excavations at Sarvestān and an absolute radiocarbon dating show some periods of settlement belonging to the early Islamic centuries (651-900 CE) until the Islamic middle period (900-1300 CE) that renders the chronology of the site even more complicated (Askari Chaverdi, 2009; Huff, 2014).

Up to now, the dates attributed to the Sasanian palaces of Qal'a-ye Doxtar and the Palace of Ardašīr, and partly the Sarvestān monument have been based on the examination of archaeological and architectural features, giving only a relative chronology. Recently, a study was devoted to date these palaces by radiocarbon dating of wood samples and the results were published in *Journal of Archaeological Sciences* (Djamali et al. 2017). However, most of the emphasis was on the wood use in the palaces and its implication in the history of arboriculture and architecture. The objective of this study is to present an absolute chronology for these monuments based on the radiocarbon dating results and then discuss in detail, the historical importance of our findings.

For more details on archaeobotanical aspects of the woods used in these palaces, the readers are referred to the above publication.

Materials and methods

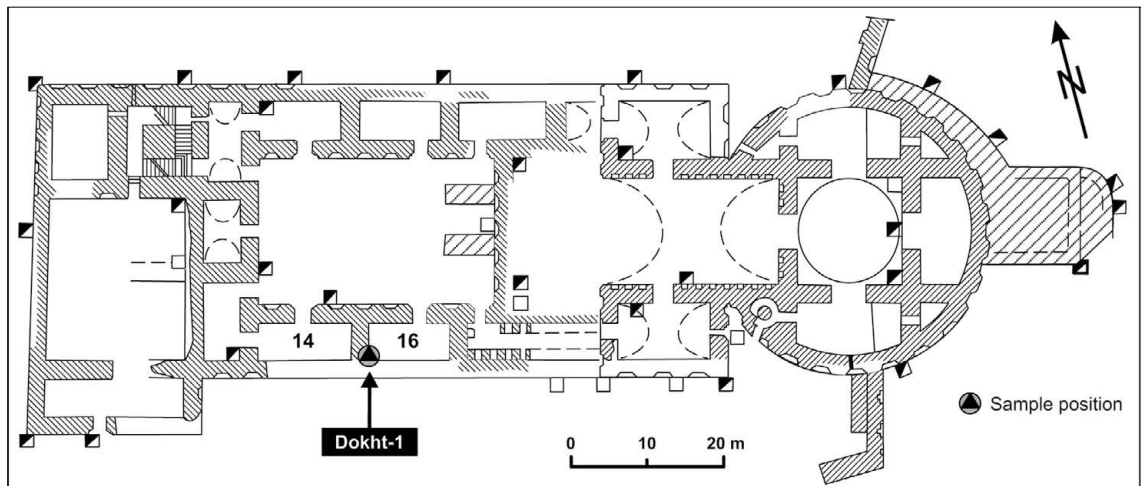
Five wood samples were examined for radiocarbon dating to provide absolute chronology for the three aforesaid monuments. All Wood samples were identified as Mediterranean cypress, *Cupressus sempervirens* L. (identification: Dr. Frédéric Guibal, Institut Méditerranéen de Biodiversité et d'Écologie, France). All samples were processed in Poznań Radiocarbon Laboratory for C¹⁴ age determination and C¹⁴ ages were then calibrated by means of the calibration software *Calib 7.1* (Stuiver et al. 1993) using Intcal13 calibration dataset recently published by Reimer et al. (2013). In order to demonstrate the importance of the provenance of the samples from an architectural context, a detailed description of the monuments is given below.

Qal'a-ye Doxtar: The palace-fortress complex known as the Qal'a-ye Doxtar (Fig. 1) is situated on a high rocky platform located in the Tang-e Āb gorge (Fig. 5), as the main access point to the plain of Firūzābād Plain from Central Fars (Huff, 1978). A small piece of timber was cut from the western part of the south wall of room 16, located at the southern side of the central courtyard of the building (Dokht. 1 in Figs. 2 and 5).

The palace of Ardašīr: This palace has been built at the north-western fringes of the Firūzābād Plain, a few kilometres to the south of Qal'a-ye Doxtar, facing a small circular lake formed by a perennial spring, originally enclosed in the complex with a masonry fence (Fig. 3). A wood sample was taken from the debris of the central *ayvān* giving access to the throne hall (*ayvān A*) (Ard-1 in Figs. 3 and 5).

The so-called palace of Sarvestān: The Sarvestān monument is located 75 km southeast of Shiraz in the middle of a plain and is now surrounded by cultivated lands. Built in stone rubble masonry with plaster and in some parts with fired bricks, the complex is composed of different sections linked together harmoniously and extending for about 40 m in a northeast-southwest direction. A

Fig. 2. The architectural plan of the Qal'a-ye Doxtar palace-fortress, Firūzābād, Fars, Iran (after Hugi 1977). The location of the dated sample (Dokht. 1) is shown in southeast corner of room 16.



main domed square hall, opening onto an open courtyard, is flanked by two side wings with vaulted halls and smaller domed halls. Whereas its function is still uncertain, the outstanding technical degree represented by its Sasanian-type architectural features has been recognized as the main element for dating it to the Early Islamic period.

Three wood samples, including two complete timber sections, were taken from different parts of the building of Sarvestān. Sample Sarv. 1 was taken from southwest part of the wall of room 9 in the western columned hall (Fig. 4); Sarv. 2 was taken from northwest pier under the small dome in room 10 (Fig. 4), and Sarv. 3 was taken from northeast wall pier under the squinch of the large dome in room 1 (Fig. 4). While Sarv. 2 is a small wood fragment with no clear position in a timber section found in the debris, the two other samples are the timber sections cut in place from the wall: the outermost layer from two latter samples, corresponding to the date of the cutting, was selected for radiocarbon age determination.

Results and discussion

Fig. 5 presents the summary report and graphic illustration for the obtained C^{14} ages. Radiocarbon age probability distribution curves for Qal'a-ye Doxtar, the palace of Ardašīr, and the "palace" of Sarvestān, respectively. The uncalibrated ages (uncal. BP) and calibrated age ranges with two sigma-range reported as calendar ages (cal. yr. CE) are shown to the lower right. Only age ranges

with highest probability (between parentheses) have been shown.

Early Sasanian monuments: Qal'a-ye Doxtar and the Palace of Ardašīr I

The highest probability for the age-range of the Qal'a-ye Doxtar wood sample falls between 115 and 224 CE, while that of the palace of Ardašīr I sample is dated between 124 and 257 CE (Fig. 5). The radiocarbon age-range for Qal'a-ye Doxtar (115-224 CE) is consistent with the emergence of the Sasanian Empire and the use of the fortress-like monument with both military and administrative functions as a political unit for Ardašīr I's revolt against the last governor of Persis and then against the Arsacid ruler. Available historical data on the timing of revolt and progressive power takeover of Ardašīr I (Daryae, 2013) is in perfect agreement with the obtained absolute age for the Qal'a-ye Doxtar palace-fortress complex. The age-range obtained for the palace of Ardašīr I (124-257 CE) shows that the palace was most probably completed under Ardašīr I (224-240 CE) or slightly later, at the beginning of the reign of Šābuhr I (240-270 CE). A gentle shift in age-range of about 33 years can be observed for the end of the probability curves (respectively) suggesting a decennial-scale younger age for the palace of Ardašīr I compared to Qal'a-ye Doxtar. For proposing this hypothesis, however, we assume a similar cutting age for both timbers and a similar sampling point in the chronological order of the tree rings.

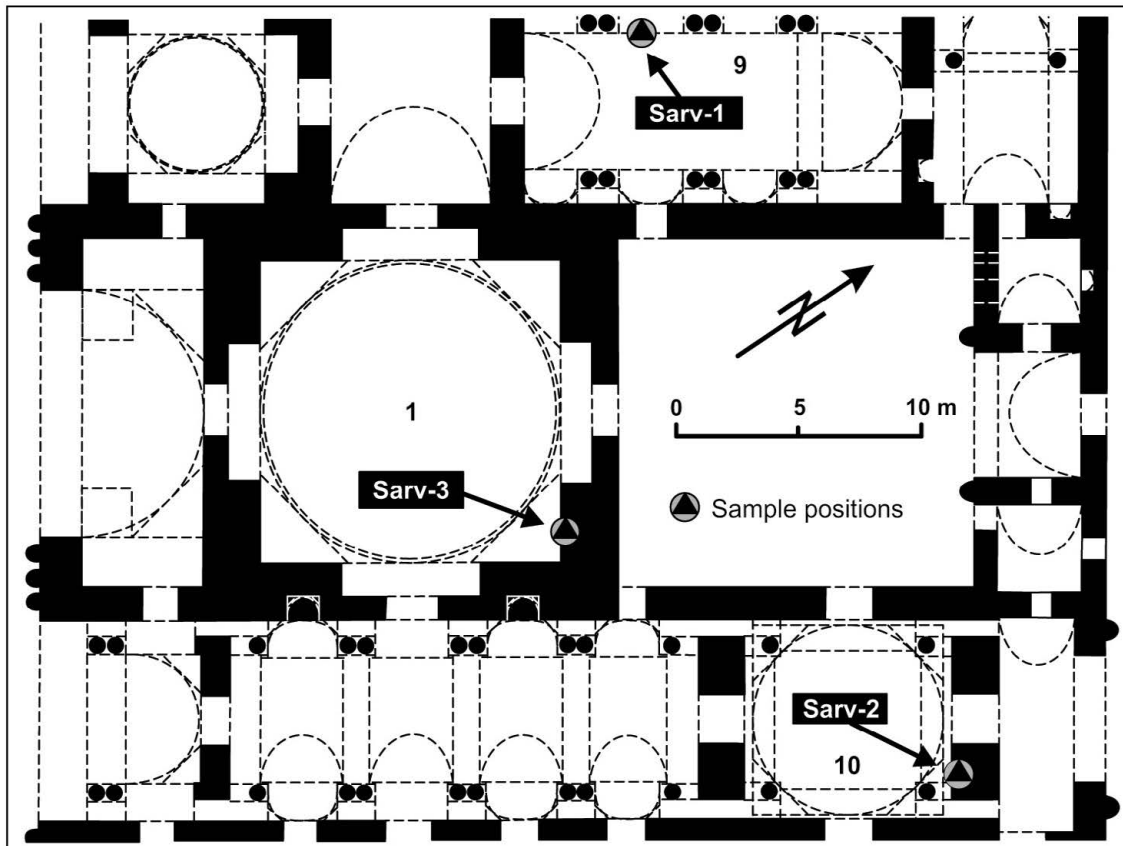
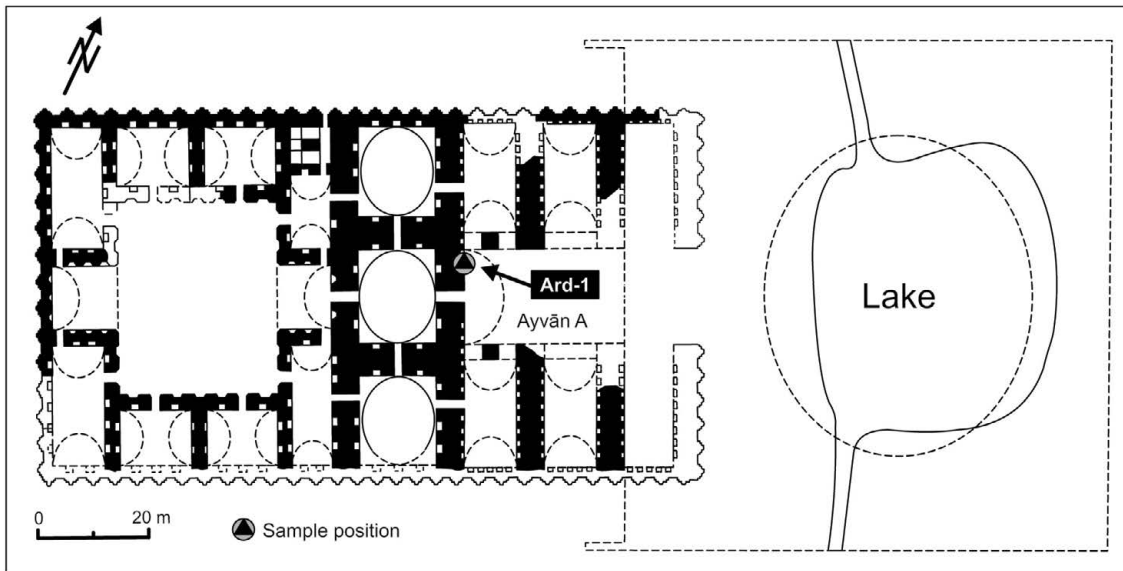


Fig. 3. Architectural plan of the palace of Ardašir I (Ātaškada) with the position of radiocarbon sample Ard. 1 from the debris of ayvān A (after Hugi, 1977).

Fig. 4. Architectural plan of monument known as the "palace" of Sarvestān, Fars, Iran with the position of radiocarbon samples (after Bier, 1986: Fig. 5).

Ernst Herzfeld was the first person who described the Qal'a-ye Doxtar and the palace near Firūzābād and attributed both constructions to the time of Ardašir I (Huff, 1999). The excavations carried out by Dietrich Huff at Qal'a-ye Doxtar, especially the coins found during

the excavations, revealed that the first period of construction and use of these monuments dates back to the beginning of the third century CE, i.e. the transition from the Parthian to the Sasanian empires (Huff, 1977). More importantly, Huff's research on the relative chronology of Qal'a-ye

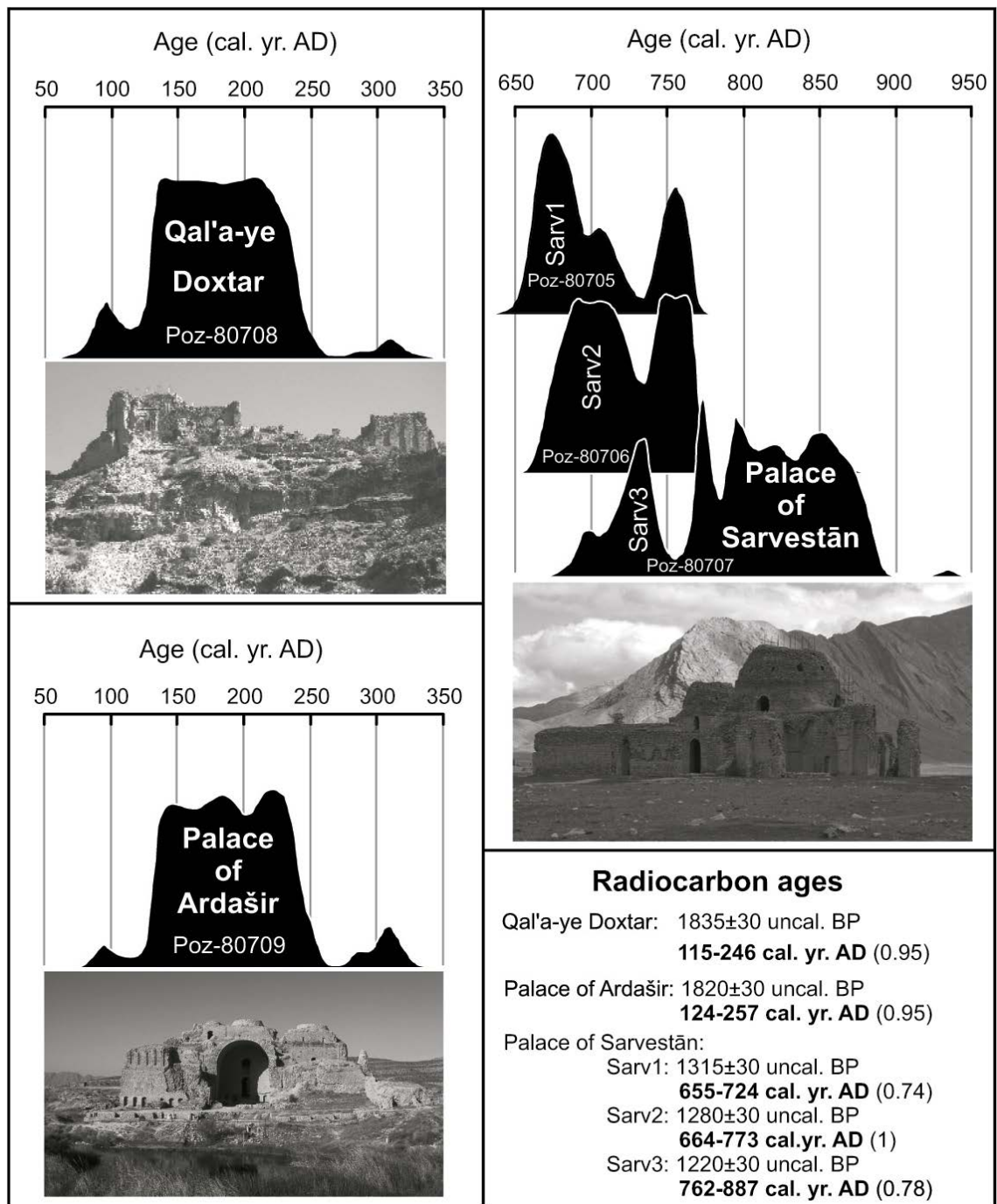


Fig. 5. Radiocarbon age probability distribution curves for Qal'a-ye Doxtar, the Palace of Ardašīr, and the "palace" of Sarvestān, respectively. The uncalibrated ages (uncal. BP) and calibrated age ranges with two sigma-range reported as calendar ages (cal. yr. AD) are shown to the lower right. Only age ranges with highest probability (between parentheses) have been shown.

Doxtar, on top of the Tang-e Āb range and of the palace of Ardašīr, in the plain, showed that based on the architectural techniques and structural experience of these monuments, the first palace-fortification predates the second palace (*ibid.*). The anteriority and posterity of the construction or the accomplishment of the construction of

these two monuments is an important issue that is also confirmed by our radiocarbon results (Fig. 5). The posterior construction of the palace of Ardašīr has a significant historical implication. Indeed, this residential palace with no remarkable fortification was constructed when the first Sasanian 'King of kings' managed to establish the

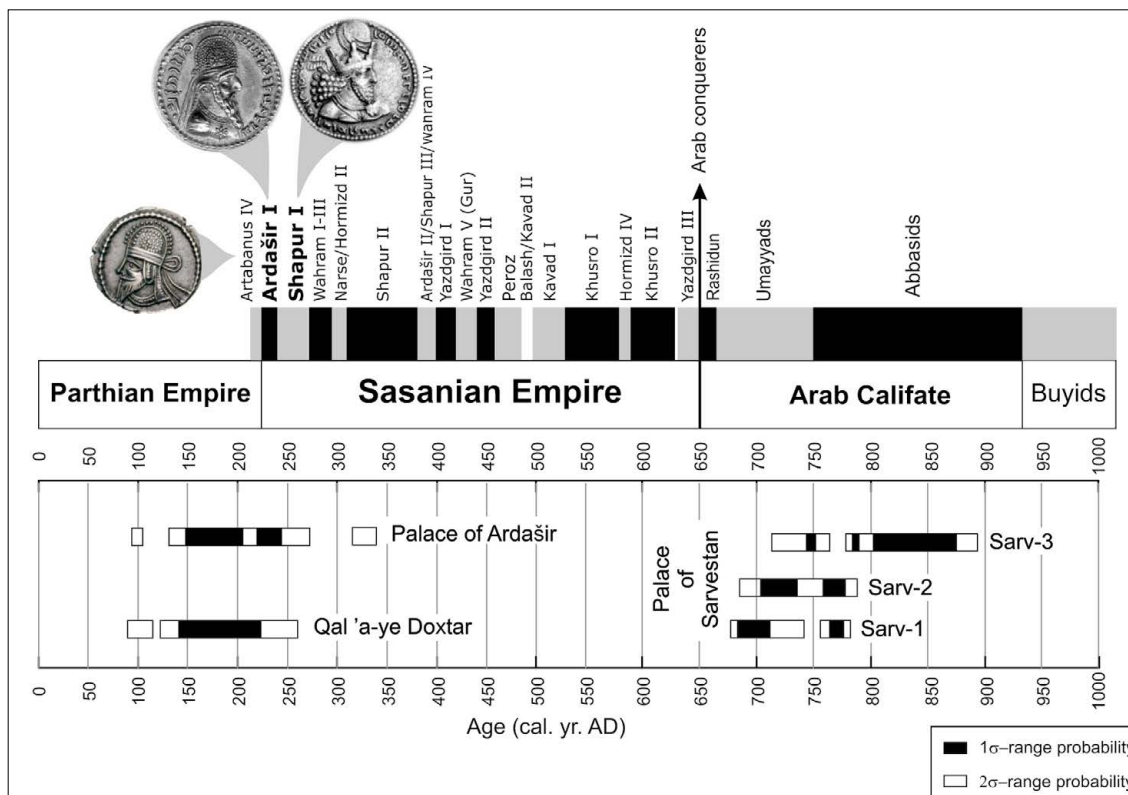


Fig. 6. Radiocarbon age-ranges of the five wood samples from the Sasanian monuments of Fars. Note that the construction of the Qal'a-ye Doxtar dates to the end of the Parthians and the power transition to the Sasanians. The age ranges revealed the posterior construction of the palace of Ardašir and its possible accomplishment under Ardašir I (224-240 CE) and/or Šābuhr I (240-270 CE).

political stability in the heartland of its empire and no longer needed to live in his fortified mountain castle-palace of Qal'a-ye Doxtar. The construction of the palace was part of Ardašir's ambitious program of drainage, canalization, land reclamation, agricultural development and establishment of a large circular city in the plain of Firūzābād (Huff, 2014).

Late Sasanian-Early Islamic monuments: the "palace" of Sarvestān

Chronology of the construction of the Sarvestān monument has always been faced with ambiguity. All three radiocarbon samples of Sarvestān monument provided age-ranges dating to the Islamic period (Figs. 5 and 6). Sarv. 1 and Sarv. 2 samples dated back to the middle 7th to middle/late 8th centuries CE (655-724 and 664-773 CE, respectively) and Sarv. 3 is still later, dating to the middle 8th to late 9th centuries CE (762-887 CE). The above dating results not only confirm the old radiocarbon age (775-870) CE presented by Huff (2014) but also confirm the recent archaeological finds and the revision of

older proposed chronologies for the monument. The first two ages mostly fall within the reign of the Umayyads (661-750 CE) with Sarv. 2 sample displaying a significant overlap with the beginning of the Abbasids Caliphate (Fig. 6). Sarv. 3 mostly corresponds with the Abbasids. Our results help to better secure the chronology for the construction and use of the Sarvestān monument.

In their research on the origin of the formation of this monument, the first western explorers and archaeologists like Flandin, Coste, Dieulafoy, de Morgan, Stein and Herzfeld have attributed it to the Sasanian era (Bier, 1986). This attribution was partly based on direct observation of architectural elements and partly on the early Islamic historical sources, which relate this building to the Sasanian period (Reuther, 1938). However, in recent decades, researchers have criticised the dating of many monuments attributed to the Sasanian era as well as their already accepted functional interpretation. One of these cases is Lionel Bier's research on Sarvestān monument (Bier, 1986). The results of his investigations revealed that

this monument was a Zoroastrian fire temple belonged to the early Islamic centuries and rather than a Sasanian Palace. His view was based on the information obtained from studying the architectural structure of this monument compared with similar monuments in Iran and Mesopotamia, without any data coming from archaeology. In fact, the first archaeological excavations in this monument and the surrounding areas were conducted in 2002, when a series of stratigraphic trenches were opened by the first author during three months in order to identify the settlement history in different parts of the Sarvestān region including the Sarvestān monument (Askari Chaverdi, 2011). The primary goal of stratigraphic investigations in Sarvestān was to retrieve the settlement sequence inside the monument. However, comparing the results of regional and extra-site excavations with those undertaken on-site revealed a complex history of regional settlement and occupation of the Sarvestān monument itself. The results of excavations inside the complex of Sarvestān showed that the area was already settled in the 7th century CE. Moreover, on the basis of the number of ceramic fragments, the occupation of the site reached its maximum extension during the early Islamic centuries, especially during the 10th century CE (Askari Chaverdi, 2009). Furthermore, the pottery artifacts found in archaeological excavations in this area suggest a continuation of settlement from the 11th through the 13th century CE. In the 15th century, the settlement moved to the modern town of Sarvestān, located approximately 12 km northwest of the “palace” of Sarvestān.

Sasanian and post-Sasanian architectural and socio-cultural changes

Based on the above new radiocarbon dating for construction time of the early Sasanian palatial monuments of Qal'a-ye Doxtar and the Palace of Ardašīr (first half of the 3rd century CE), and of the very late Sasanian and early Islamic monument of Sarvestān (mid-7th to late 9th centuries), this study sheds new lights on the history of Sasanian architecture and its

influences on the early Islamic architecture. We have now a robust scientific evidence that the first Sasanian architectural monument dates back to the beginning of the 3rd century CE, under Ardašīr ī Pābagān, the founder and then first ruler of the Sasanian Empire (Ardašīr I, 224-240 CE), while the date of Sarvestān monument (the “palace” of Sarvestān) can be traced back most probably to the beginning of the Islamic period, after the end of the last Sasanian King of kings, Yazdgerd III (633-651 CE). Understanding the exact chronology of Iranian architecture during the Sasanian and Islamic periods is essential to respond to such questions as to what extent these architectural developments have influenced the architecture of the Early Islamic residential palaces at Samarra and Ukhaidir (Bier, 1993: 61). The fact that the Sarvestān monument has been built or re-built just after the fall of the Sasanian in the mid-7th century CE, under the Umayyad, suggests that similar palatial buildings in Iraq, Jordan, and Syria have been inspired by Sasanian architecture.

The Sasanian monuments of Fars have been used during several periods since their construction time. For example, the Qal'a-ye Doxtar and the palace of Ardašīr at Firūzābād have been used not only throughout the Sasanian era (Huff, 2014), but, according to the archaeological findings, they were also extensively inhabited during the early Islamic centuries, especially under the Buyid period in the 9th -10th centuries CE. It was right at that period that the name of the circular city of Ardašīr Xwarrah (“Glory of Ardashir”) was changed to Gur and then to Firūzābād, in the same century (Huff, 1978: 140). In the same way, archaeological findings (Nowruzzi, 2003: 417) and historical documents (Mehryar, 2000: 70-81) suggest that there has had been settlement continuity and/or re-occupation also in Bishapur in the early Islamic centuries until the shift to Kazerun. Thus, in the course of the 7th century CE, settlement continuity or resettlement is attested in Bishapur, Firūzābād, as well as at Qasr-e Abu Nasr near Shiraz (Withcomb, 1985) and Bayza near Malyan. Our radiocarbon results also clearly show a similar settlement history

for the Sarvestān monument in 7th century CE, suggesting that the complex of Sarvestān was an emerging monument in the course of that century. It can thus be considered as a late Sasanian “architectural heritage” built in the early Islamic period.

The continuity of habitation attested at Sarvestān is not thus a unique feature of this site and is also well-known from other Sasanian cities and monuments in spite of political and religious transformations. However, to explain the fact that a new monument was built and continuously used for at least three centuries after the end of the Sasanians, Bier (1986) puts forward a new hypothesis according to which he suggests a new function for the Sarvestān monument. Indeed, during the very early Islamic period, the Umayyad Arabs and the commanders of their army were in conflict with the local political groups as well as with the powerful members of the Zoroastrian priesthood and needed to legitimize their rule over Persis (Daryae, 2010). However, the Zoroastrian religion was let to be practiced in Fars and the Sarvestān monument was most probably used as a Zoroastrian fire temple or religious monument for several centuries, a hypothesis that is reinforced by its architectural layout (Bier, 1986: 73).

It is also possible to assume that this monument was first constructed as a result of the political and religious interactions which took place during the post-Sasanian era, a period of confrontation characterised by Umayyad political and religious actions against the Zoroastrians of Fars. In such a socio-political context, the Zoroastrian religious society of the 7th-9th centuries CE managed to continue its activities using a network of interconnected religious centres in different parts of Fars, such as Sarvestān, Kazerun and finally the seat of the Ādur Farnbāg at Kariyan (southern Fars), until the Buyid Dynasty provided a new support to Zoroastrian community (Bier, 1986). In the 10th century, however, with the consolidation of the Islamic political society in Iran and the consequent Zoroastrian emigration to India, the Zoroastrian community in Fars turned into a religious minority.

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