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Project Gallery

A monumental garden complex in Tabriz, Iran

Michael George Fradley[1], Bijan Rouhani[1] & Kristen Hopper[2]

[1] School of Archaeology, University of Oxford, UK
[2] Department of Archaeology, Durham University, UK
Author for correspondence: Michael George Fradley ✉ michael.fradley@arch.ox.ac.uk

Analysis of historic aerial photography has identified a possible monumental formal garden complex on the outskirts of Tabriz, Iran. Here, the authors describe this complex and explain why it is an important addition to our knowledge of elite Persian garden design practice that spread globally over time.

Keywords: Middle East, Persian, remote sensing, aerial photography

Introduction

The Endangered Archaeology in the Middle East and North Africa (EAMENA) project, based at the universities of Oxford, Leicester and Durham and supported by the Arcadia Fund, uses satellite and aerial imagery to identify, document and monitor archaeological sites across the Middle East and North Africa. While analysing historic imagery, a large, distinct enclosure feature was identified to the south-east of the city of Tabriz in north-western Iran (Figure 1). We hypothesise that this major feature, which was covered by urban expansion in the early 1990s, was a remnant of a monumental garden complex, potentially of the Safavid or Qajar periods (*c.* sixteenth–twentieth centuries).

The Persian Garden, represented by nine different examples across Iran, is a UNESCO World Heritage property, with its distinct features having influenced garden designs across the world. These form part of a wider group of approximately 150 garden sites identified across Iran, although many more were likely lost to land development over the past century. Few of these structures, identified on the ground or through historical sources, are on a scale comparable to this newly identified site in Tabriz. As early as the fourteenth century, Tabriz was known for its gardens and was often referred to as the 'Garden City' (Wilber 1962; Ebrahimi *et al.* 2016). While many of these historical gardens have been located, no prior records exist of the monumental garden complex presented here.

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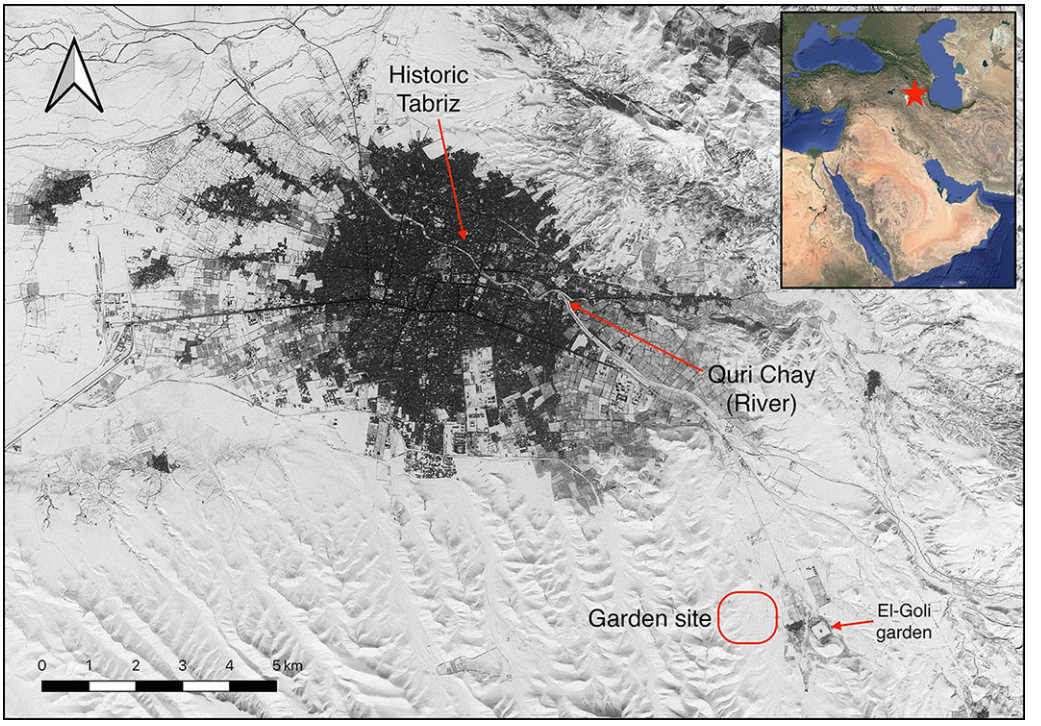


Figure 1. An annotated KH-7 satellite image of the Tabriz region captured on 5 February 1967 (source: USGS; Google).

Methods

An initial visual survey of Tabriz and its hinterland was undertaken using open-access satellite imagery accessed via Google Earth Pro. Digitised Royal Air Force photographs were also studied; these were taken on 3 August 1941 as part of the Anglo-Soviet invasion of Iran by 2 Photographic Reconnaissance Unit (2 PRU) using a Trimetrogon arrangement of three cameras mounted on a Hurricane aircraft, most likely at 17 000ft above ground level (The National Archives, Kew, UK: AIR 29/431/2). The photographs were scanned from prints held at a restricted military archive of the Ministry of Defence (UK) and were georectified and analysed alongside the US KH-7 Gambit image captured on 5 February 1967 and scanned by the United States Geological Survey (USGS). Potential archaeological features were visually identified on the historic imagery, spatially captured on GIS (geographic information systems) and subsequently uploaded to the EAMENA project open database (https://database.eamena.org). Digital scans of the prints are held by the EAMENA project, and negatives or prints of the same sortie may be held in the uncatalogued archives of the National Collection for Aerial Photography in Edinburgh.

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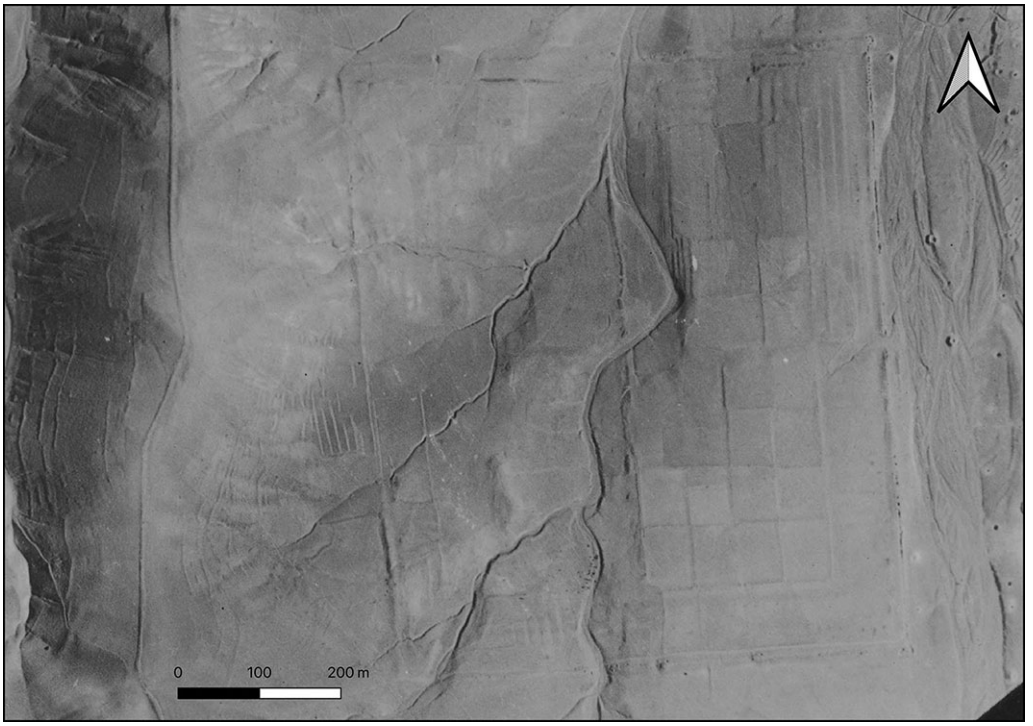


Figure 2. The garden site visible on georectified RAF photograph Tabriz/P/XME/007/3. Terracing visible to the immediate west of complex are later agricultural features (source: EAMENA).

Results

The possible garden site is visible across five of the digitised prints (see print Tabriz/P/XME/007/3 in Figure 2), although only from the angled port and starboard cameras. The site is also visible on the 1967 KH-7 scene, but with less detail visible than in the earlier aerial photographs. Topographically, the site is situated approximately 6km south-east of historic Tabriz, on the western slopes of a seasonal water channel feeding north toward the Quri Chay, the river that bisects Tabriz.

The site is defined by a large rectangular enclosure with an embankment measuring approximately 640×750m (0.48km^2). The east side appears to mark the principal façade of the complex, with a central entrance opening and circular 'turrets' visible on the north and south corners (Figure 3). The turret features are not repeated on the western façade, although this section appears less well preserved. The entrance opens out to the east onto a broad channel, with evidence of qanat wells (although these do not appear to connect to the enclosed complex). On the western side of the enclosure, the faint remains of a smaller rectangular enclosure appear to overlie the perimeter.

The site appears to be divided into eastern and western sections by a partially surviving embankment and a meandering water channel. The interior of the eastern section is largely composed of rectangular subdivisions divided by low walls or banks that measure

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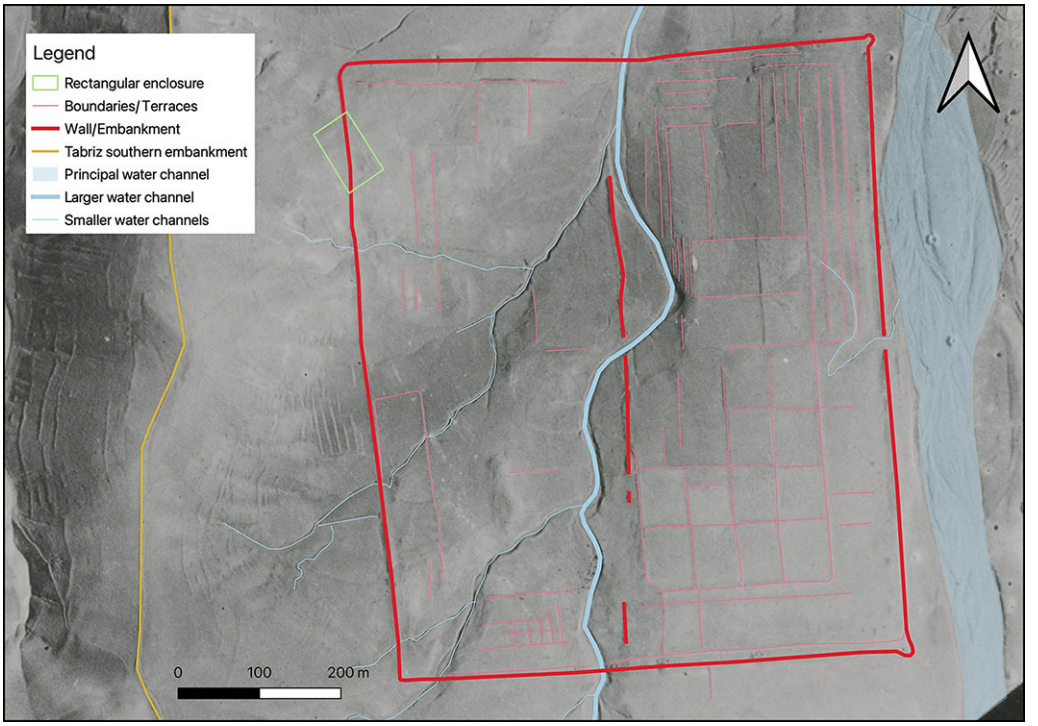


Figure 3. Basic mapping of the visible garden features (figure by authors).

approximately 50–55 × 65–75m, with areas of long, narrow terracing (approximately 10m wide) running around parts of the exterior, between the rectangular subdivisions and the external embankment of the site. The western portion of the site differs considerably, extending over sloping ground that rises to the west and subdivided by several small tributaries that run into the water channel with no visible evidence of canalisation. Very few archaeological features are observable in this section of the site, with only a few traces of terracing or internal subdivisions visible.

Analysis of lower-resolution Landsat data suggests the modern urban settlement of Tabriz spread over the site in the early 1990s and that it has largely been destroyed (Figure 4). More recent satellite imagery shows that a road cutting through the site was widened as a highway around 2010; open areas were infilled with building development from 2014 onwards. Small areas of parkland remain, leaving the possibility that subsurface deposits relating to this site may be preserved, depending on construction methods and extent of landscaping.

Discussion

The site is interpreted as a possible monumental garden complex, with an enclosed site made up of rectangular garden bays and linear terraces, based on parallels elsewhere in the region. Other interpretations cannot be completely discounted, however, and

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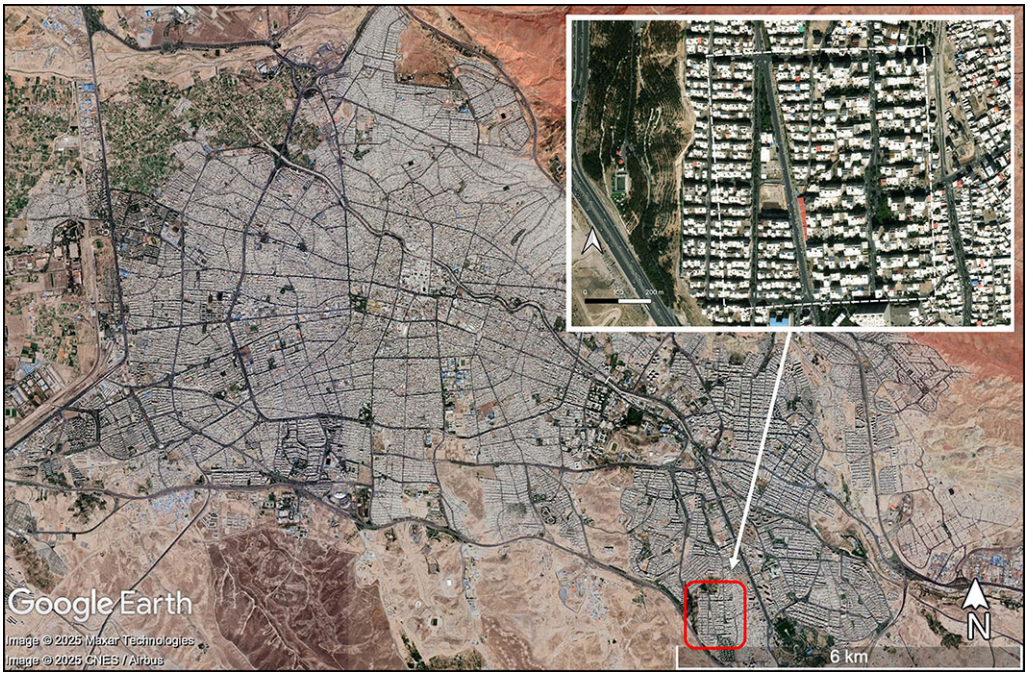


Figure 4. Satellite imagery showing expanse of modern Tabriz in 2022, with inset detail of the modern development on the garden site (source: Maxar and Airbus, via Google Earth).

culture-period attribution remains tentative. The gardens in Tabriz have been relatively well studied, and many lost gardens are recorded on historic mapping (Pouya *et al.* 2015; Ebrahimi *et al.* 2016), although the site presented here has not previously been identified. The scale of the complex would put it in the largest tier of identified Persian garden complexes.

It is possible that a monumental building complex may have been located in the relatively blank area in the central-west section of the garden, on rising ground overlooking the main valley channel and garden bays to the east. This garden is close to the only other monumental garden complex surviving in the Tabriz hinterland, the El-Goli (Shah Goli) water garden located around 800m to the east and dating to at least the early eighteenth century, but potentially earlier (Khansari *et al.* 1998: 118). Given the proximity of the two sites, it is possible they were connected in some way as part of a larger elite landscape.

Parallels to the formal layout of the site can be found in the Qajar period plans of the Bagh-i Shomal and in the Sahebabad Garden, both also in Tabriz (Wilber 1962: 214; Akbari *et al.* 2021). The smaller site of Fin Garden (Bagh-i Fin) in Kashan, central Iran, developed during the Safavid and Qajar periods, is similarly enclosed with ramparts and turrets (Wilber 1962). The Hezar-Jarib garden at Isfahan in central Iran consists of a rectangular layout with circular corner turrets, but is far larger, measuring around 1 × 1.5km and forming only part of the complexes of gardens that surrounded the city from the later sixteenth century (Khansari *et al.* 1998: 103). The Qajar-era garden at Qasr-i

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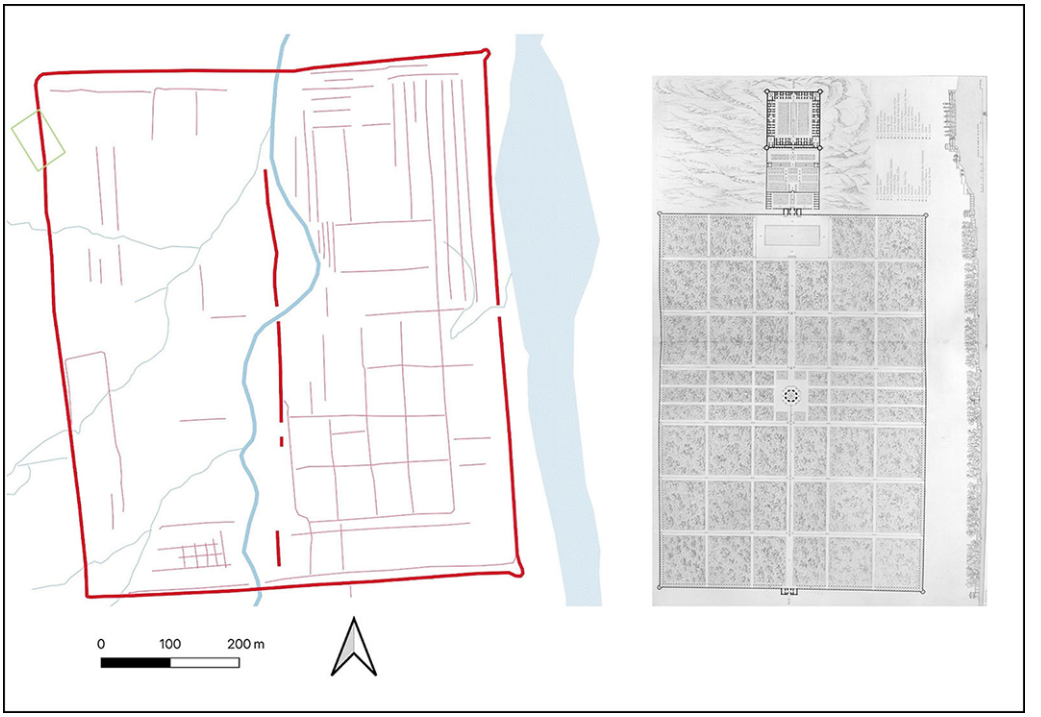


Figure 5. The layout of the garden site compared to that of the Qasr-i Qajar at roughly the same scale (source: EAMENA; Coste 1867).

Qajar (approximately 0.08km^2), now covered by modern Tehran, was smaller in size but had a similar overall shape, corner turrets and internal rectangular divisions (Wilber 1962: 161) (Figure 5).

Conclusion

A possible monumental garden site identified in historic aerial imagery contributes to our understanding of historic Tabriz, providing an important parallel to the better-known garden complexes of Isfahan and the wider corpus of Persian gardens. If the interpretation of the site is correct, it would be among the largest identified Persian garden sites in Iran, and the presence of non-canalised water channels, at odds with the rectilinear layout of the site, suggests a unique type. Despite the redevelopment of the garden site, it is ultimately fortuitous that this remarkable complex could be identified through access to historic aerial imagery.

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