



GEREH-SĀZĪ II. ARCHITECTURE

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The term *gereh-sāzī* refers to a form of geometric interlaced strapwork ornament that is commonly found in architecture and the minor arts throughout the Islamic world. In Persian Islamic architecture *gereh-sāzī* designs exist in a variety of media, particularly cut brickwork (*bannā'ī*), stucco, and cut tilework (mosaic faïence).

Perhaps the oldest reference in Persian to *gereh* as a mode of architectural decoration appears in Mīr Sayyed Aḥmad's introduction to the Amīr Ġayb Beg Album, written in 972/1564-65 (tr. in Thackston, pp. 355-56). The term *gereh-sāzī* (like the similar terms *kār-bandī* and *rasmī-bandī*) appears in the vocabulary of 19th to 20th-century Persian craftsmen working in both architectural decoration and woodwork (Wulff, p. 87; Neçipoğlu, p. 22). Several scrolls (*ṭūmār*) containing drawings of *bannā'ī*, *gereh-sāzī*, and *moqarnas* designs date from the late 15th to the early 20th century (Baklanov; Ra'nā-Ḥosaynī and Foşhatī; Neçipoğlu). In addition, it seems likely that books of practical geometry were employed when laying out these designs. Important examples of this type of text are the *Ketāb fī mā yaḥtāj elayh al-şāne' men a'māl al-handasa* of Abu'l-Wafā' Būzjānī (d. 388/998, q.v.) and the anonymous *Fī tadākol al-aşkāl al-motaşābehāt aw al-motawāfeqa* from the 11th-13th century (Neçipoğlu, pp. 167-75).



Gereh-sāzī takes the form of symmetrical geometric shapes, particularly six-, eight-, ten- or twelve-pointed star polygons combined with a range of convex polygons, and separated from one another by straps which often are given the appearance of “weaving” under and over one another. *Gereh-sāzī* is usually composed entirely with straight lines and angles although curvilinear elements are sometimes encountered. Like other modes of *gereh*, these strapwork compositions possess the potential for endless vertical and horizontal repetition over a two- or three-dimensional surface. This capacity for continual expansion is governed by strict adherence to an underlying geometric grid. The key to most *gereh-sāzī* designs is the employment of two-, three-, four-, or six-fold rotational symmetry around a set of regularly-spaced points (Lee, p. 183).

Sasanian architectural ornament includes repeated geometric and vegetal designs (*Survey of Persian Art* I, pp. 601-30, IV, pls. 171-72), but none of the surviving examples anticipate the structural complexity of *gereh-sāzī*. The antecedents for the sophisticated interlace patterns developed in the Islamic world may be sought in the architecture of Roman-Byzantine Syria (cf. Creswell, I, figs. 110-17, 119-26, 128). Examples of curvilinear interlaced strapwork with three-fold rotational symmetry are found in the Omayyad period in window grilles of the Damascus Great Mosque and the palace of ʔerbat al-Mafjar (Creswell, I, pp. 202-4, figs. 118, 127, 610), but no comparable examples are attested in Persia dating to this phase. Of more direct relevance to the evolution of *gereh-sāzī* in Persian architecture are the geometric interlace patterns on Central Asian brick buildings such as the mausoleum of ‘Arab Aṭā’ at Tīm (367/977-78; Neçipoğlu, fig. 88) and the mausoleum of Naşr b. ‘Alī (?) at Ūzgand (ca. 403/1012-13; Cohn-Wiener, p. 35, pl. IX). In the 10th century rectilinear geometric patterns are attested in the remaining portal of the Jūrjīr Mosque in Isfahan (built by the Buyid vizier Ebn ‘Abbād and rebuilt in 1663 by Moḥammad-Dāwūd Ḥakīm, hence Masjed-e Ḥakīm; Māfarrūkī, pp. 85-86; Honarfar, *Eşfahān*, pp. 40-43, 612-13) and the carved stucco of the columns in front of the *meḥrāb* in the Masjed-e Jāme’ in Nā’īn (ca. 350/960; Flury, pls. 1, 2) contains an example of simple knotted strapwork, but fully-developed *gereh-sāzī* does not appear in Persia before the 11th century. It seems likely that Baghdad was the source for this new style along with other new types of structural ornament such as the *moqarnas* dome (cf. Neçipoglu, pp. 99-101). Early Persian examples of *gereh-sāzī* panels are attested at the two mausolea of ʔaraqān (460-86/1067-93) southwest of Qazvīn (Varjāvand, pp. 315-49, pls. 151, 169), at the caravansary of Rebāṭ-e Māhī in Khorasan (early



12th cent.; Kleiss and Kiani, p. 96; [PLATE II](#)), and Gonbad-e Sorḡ near Marāḡa (542/1148; Maškūr, pp. 390-92, pl. 26). A carved stucco panel with geometric interlace patterns was also discovered in an excavated house at Sirāf, which appears to have been abandoned before about 1050 (Whitehouse, p. 14, fig. XIa). Other carved stucco panels with *gereh-sāzī* designs dating to the 11th or early 12th century have been excavated at Termeḡ (Rogers, fig. 2), Nišāpūr (Wilkinson, figs 1.84, 1.150, 3.42), and the *madrasa* at Rey (unpublished; Islamic Arts Museum, Tehran, no. 3267).

Gereh-sāzī remains an important part of the repertoire of architectural decoration during the Il-Khanid period. The mausoleum of Öljeitü in Solṡāniya (705-13/1305-13) contains numerous examples of complex strapwork designs in both *bannāʿī* and polychrome carved stucco. The stucco *mehṡrāb* made for the Emānzāda Rabīʿa Ḳātūn in ʿAštārjān near Isfahan (708/1308; Wilber, pl. 68) illustrates the way in which panels of *gereh-sāzī* are often integrated with other styles of ornament. In many buildings and renovations of the 14th century *gereh-sāzī* represents only a marginal aspect of the whole decorative scheme ([PLATE III](#)). This tendency was further accentuated during the Timurid period as elaborate vegetal compositions in cut tile and stucco became the ubiquitous mode of ornament. Fine examples of cut tile strapwork designs of this period are attested at the Gowhar-šād Mosque in Mašhad (821/1418; Golombek and Wilber, pls. 230, 234), the Ġiāṡīya Madrasa at Ḳargerd (846-48/1442-46; O’Kane, 1987, pls. 22.9-10), as well as a series of 15th- and 16th-century *menbars* (cf. O’Kane, 1986). In the architecture of Safavid, Qajar, and modern Persia, *gereh-sāzī* continues as a minor element of the decorative vocabulary ([PLATE IV](#)), although vegetal and figural motifs predominate. Geometric strapwork remains a more significant decorative form, however, in the post-Timurid monuments in Central Asia.

The Foṡḡatī ṡūmār, dating from the 19th century, contains twenty-four *gereh-sāzī* designs that are identified by name: *ṡabl andar ṡabl bā qofl-e yā Moḡammad*; *hašt zahra-ye ṡabldār bā qofl-e lā elāḡ ellā Allāḡ wa yā ʿAlī*; *mawj-e čahār lenga bā qofl-e lā elāḡ ellā Allāḡ wa yā Moḡammad yā ʿAlī*; *mürd mawj-e moqassemī*; *mürd-e panj radaʿī-e se zanjīra*; *mawj-e moqassemī*; *mürd-e panj radaʿī-e zanjīradār-e do baḡšī/mürd-e wakīlī-e do baḡšī*; *ṡabl andar ṡabl bā qofl-e Allāḡ o Moḡammad*; *mürd-e modāḡel-e šāḡadār*; *hašt-čahār lenga-ye morabbaʿ*; *mürd-e panj radaʿī-e yak zanjīra*; *modāḡel-e šāḡaʿī*; *ṡabl-haykalī-e zanjīra-ye do baḡšī*; *ṡabl-gonbadī*; *ṡabl-haykalī/ṡabl-gonbadī*; *ṡabl-e modāḡel-e šāḡaʿī*; *ṡabl-haykalī*; *mürd-e panj radaʿī-e zanjīra-ye do baḡšī*; *šeš*



morabbaʿ; mūrd-e wakīlī-e zanjīra-ye do baḳṣī; mūrd-e hašt morabbaʿ; mūrd-e haft rangī-e zanjīra-ye do baḳṣī; mawj-e zanjīradār; mawj-e moqassemī-e čahār lenga-ye bāzūband.

PLATE V. Styles of *gereh-sāzī* according to the *Foṣḥatī tūmār*:

PLATE Va. *mawj-e čahār lenga bā qofl-e lā elāh ellā Allāh wa yā Moḥammad yā ʿAlī.*

PLATE Vb. *mūrd-e haft rangī-e zanjīra-ye do baḳṣī.*

PLATE Vc. *hašt-čahār lenga-ye morabbaʿ.*

PLATE Vd. *šeš morabbaʿ.*

See also BRICK.

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