

100 I

TIMURID ARCHITECTURE IN KHURASAN

Bernard O'Kane

PhD  
University of Edinburgh  
1982



To my parents  
with love and gratitude

This thesis has been composed by  
myself and the work is my own.

Bernard O'Keane

## LIST OF CONTENTS

	Page
ABSTRACT	i
ACKNOWLEDGMENTS	iv
PRELIMINARY REMARKS	vii
LIST OF PLATES	ix
LIST OF FIGURES	xxii
LIST OF ABBREVIATIONS	xxvi
Chapter	
I	
TYPOLOGY AND FUNCTIONS	1
Royal Residences	2
Fortifications	12
Dams and Canals	14
Cisterns and Baths	17
Bazars	19
Bridges	21
Caravanserais	21
Libraries	24
Hospitals	25
Mosques	26
Musallas	30
Madrasas	31
Khanqahs, mausoleums and hybrid structures	37
II	
BUILDING METHODS AND MATERIALS	46
Plans	46
Metrology and Grids	50
Architects and Craftsmen	59
Nisbas	64
The <u>arza dāsht</u>	68
Construction Tools	73
Building Materials	76
Scaffolding	81
Vaulting	82
Vaulting Profiles	85

	Stalactites	88
	Domes	91
III	DECORATION	101
	Brick	101
	Stone	104
	Stucco	107
	Painting	111
	Tilework	117
	Themes of Decoration	135
IV	PATRONAGE AND SOCIETY	147
	The Economy	148
	The Sultans	155
	Female members of the royal family	161
	Princes	168
	Amirs and Vazirs	171
	Religious groups	
	Pre-Timurid	178
	The reign of Tīmūr	180
	The reign of Shah Rukh	183
	The reign of Abū Sa <sup>c</sup> īd	191
	The reign of Sultan Husain	193
V	INNOVATION AND LEGACY	194
	Size	214
	Typology	214
	Plans	215
	Elevations	217
	Decoration	220
APPENDIX I	LIST OF BUILDERS AND CRAFTSMEN IN THE IRANIAN WORLD IN THE TIMURID PERIOD	224
APPENDIX II	INDEX OF QURANIC INSCRIPTIONS	244
BIBLIOGRAPHY		245
APPENDIX III	B. O'Kane, "The Madrasa al-Ghiyāsiyya at Khargird," <u>Iran</u> XIV (1976)	
APPENDIX IV	B. O'Kane, "Tāybād, Turbat-i Jām and Timurid Vaulting," <u>Iran</u> XVII (1979)	

## ABSTRACT

In recent decades a considerable number of medieval monuments have come to light in Iran and Afghanistan. With the increasing amount of material known it is becoming possible to write regional histories of Iranian architecture, or to study in depth the monuments of one region in a particular period.

Such is the approach here, with the focus on Khurasan in the Timurid period. The historical period is a clearly defined one, being virtually co-extensive with the ninth/fifteenth century, while in this period the medieval province of Khurasan was the hub of the Timurid empire.

The core of the thesis is a catalogue of all known extant monuments built in Khurasan in the reigns of the successors of Tīmūr. Only one of these monuments has been the subject of a scholarly monograph, while several are hitherto completely unpublished. Information is given in the catalogue on such features as historical background, methods of construction, chronology (if more than one building period is involved), decoration, epigraphy and function. This is supplemented by line drawings of plans and elevations, where necessary from measurements made in situ, and by several hundred photographs, selected from a cast of thousands.

In the first volume the monuments are placed in their historical and social context, relying not only on evidence from the buildings in the catalogue, but also on information on no longer extant structures which are mentioned in contemporary texts.

While the range of buildings was no greater than it had been in previous centuries, there is a new emphasis within this range. In terms of secular buildings, gardens with their attendant pavilions

assume a new importance in the urban development of Herat, the capital city. Secular mausoleums are conspicuously absent from the list, their place being taken by funerary madrasas. The latter were often combined with khanqahs, in a rapprochement of the ulama and Sufis unusual in Islam. An unusually wide range of buildings for Sufis, frequently funerary, also characterises the period.

There are still many problems to be solved with regard to construction methods. Although a certain amount of information can be deduced from the monuments themselves, in general the texts yield few clues on this matter. It seems likely that preliminary plans were drawn on paper, sometimes to quite a high degree of sophistication, frequently based on an underlying geometric rationale. Only one architect of the period, Qavām al-Dīn Shīrāzī, was famous enough to warrant mention in contemporary texts, although the increasing frequency with which craftsmen's signatures are found on buildings bespeaks the growing reputation of architectural crafts.

The technique of vaulting interiors underwent a radical transformation. Particularly important was the development of transverse vaulting with a new system of intersecting ribs which blurred the former clear-cut distinction between cube, zone of transition and dome.

The architecture of the period has a greater variety of types of decoration than was formerly acknowledged, with brick, stone and stucco counterpointing the better-known examples of coloured tilework. The examples of the latter, however, are justifiably famous for their range and brilliancy.

The patrons of architecture in this period belonged mostly to well-defined sections of society, including the Sultan and his family, the elite members of the governmental bureaucracy, the leading ulama

and Sufis of all shades whether, like <sup>c</sup>Abd al-Rahmān Jāmī, themselves patronised by the government, or of a humbler variety. The close links between the Sultans, the ulama and Sufis had concomitant effects on the number and types of religious buildings erected.

Viewed as a whole, the period is seen as one which brought radical and lasting changes to the style of architecture in Iran. Once the mantle of colour in architecture had been assumed, there was no casting it off - especially when later ages had before them the exemplars of the Timurid buildings of Khurasan, arguably the finest examples ever produced of the use of colour in architecture.

## ACKNOWLEDGMENTS

It is a pleasure to be able to acknowledge the help which I have received from many sources in the preparation of the thesis.

I have been most fortunate in having as a mentor Robert Hillenbrand. It is not given to every student to be able to work with a supervisor whose scholarly abilities are matched by his humanity. This thesis, and I myself, have much profited from his advice and encouragement.

In my initial studies in Persian, L.P. Elwell-Sutton kindly gave me much of his free time guiding me over the shoals of architectural and other texts. Mudarrisī Tabātabā'ī, as well as proving a valuable guide and host in Qum, allowed me to avail of his incomparable epigraphic talents in checking and reading several inscriptions which appear within the thesis. Some of these consist of Persian poetry; I remember with gratitude the help I have received from Abbas Daneshvari in elucidating several of the obscurer passages.

Having mentioned such distinguished authorities it is tempting to lay on their doorsteps the blame for errors and omissions; but to prevent any injustice I should point out that these must be ascribed to my own fallability.

I have received much help from fellow travellers and colleagues while in Iran and Afghanistan. In 1972 Gerard Murray proved enthusiastic above exploring architectural byways with a fellow amateur. On the same trip David Stronach, with whom it was later a pleasure to work in the British Institute of Persian Studies, guided my steps to Edinburgh.

Much-needed groundwork in field recording and stimulating discussion of monuments was afforded by an extensive field trip in 1973 in the genial company of Robert Hillenbrand, Tony and David Gye and

Oliver Barratt.

The much-appreciated award of a Fellowship from the British Institute of Persian Studies in 1974-5 enabled the bulk of the fieldwork for the thesis to be completed. Fīrūz Bagherzada kindly provided the necessary permissions for visiting the monuments. Numerous provincial offices of the Ministry of Culture and Art and the Sazman-i Hifazat smoothed my way. In particular Muhandis Dānishdūst, director of the Mashhad Sazman, was unfailingly helpful, and gave permission for the use of the many plans included in the thesis which are the work of his Office. Mahmūd Mustafavī of the same department personally introduced me to the caretakers of the various monuments in Mashhad, and greatly exceeded the bounds of his duties in his hospitality. Others of the same department - Messrs Mu<sup>C</sup>ammir, Nasr Allāhī and Kiyānī, were equally friendly and helpful.

Also in Mashhad, the late <sup>C</sup>Abd al-Hamīd Maulavī gave me the benefit of his great knowledge of the monuments of Khurasan: it was he who alerted me to the presence of the superb cenotaph in the Gunbad-i Khishti.

My fieldwork in Iran and Afghanistan was lightened by many companions, amongst whom I would particularly like to thank Annette Ittig, Sheila Blair, Raya Shani and Sandy Morton.

In Herat and the surrounding area I had help from the office of the Ministry of Art and Culture; in Ziyāratgāh I remember with particular affection the hospitality of Sayyid Na<sup>C</sup>īm and his family. Also in Herat Roberto Pagliero and Dirk von Eenhooge were kind enough to conduct me round their excavations at the citadel.

In Tashkent Liya Mankovskaya welcomed me warmly, and has since been kind enough to obtain for me several difficult of access Soviet publications.

Michael Rogers was kind enough to show me the tilework recovered from the ruins of the Mosque of Gauhar Shād, now in the British Museum.

I have had the benefit of discussion of various points with Lisa Golombek.

I have used many libraries in the course of preparation of the thesis; I am particularly grateful to the staffs of the Edinburgh University Library, the Creswell Library, the Bodleian Library and that of the School of Oriental and African Studies.

I would like to thank Ramez Elias who admirably drew several of the ground plans and details of decoration, and also the staff of the Photographic Section of the Department of Fine Art in Edinburgh for printing the photographs.

My thanks go also to my typist Kathy Carroll who has coped admirably with my writing and effected numerous improvements to the text's legibility.

My deepest gratitude goes to my parents. They have provided the moral and financial support which were necessary to see the thesis from its inception to its completion. Without their encouragement it could not have been finished. May it prove worthy of their faith in me.

## PRELIMINARY REMARKS

Transliteration The system adopted is that used in Iran, the Journal of the British Institute of Persian Studies, with the following exception: b is transliterated as z.

Major dynasties and toponyms of the larger provinces and their capitals are not rigorously transliterated, e.g. Seljuq, Il-Khanid, Timurid, Safavid, Khurasan, Azerbaijan, Kirman, Herat, etc. In addition the following are written without long vowels or underlining: amir, aivān, bannā'i, bāzār, bug<sup>c</sup>a, kārvānsarāy (caravanserai), darvīsh (dervish), dīnār, dīvān, gunbad, hazīra, imām, khānqāh, Kūfic, khvāja, madrasa, masjid, masjid-i jāmi<sup>c</sup>, mazar, mihrab, minbar, mu'adhhdhin (muezzin), musallā, naskhī, nasta<sup>c</sup>liq, pīshṭāq, qibla, Qur'ān (Quran), ribāt, sayyid, shāh, shaikh, Sūfī, sultān, thulth, ulamā' (ulama), vazir, waqf.

Quran The numbering of verses and translations are from M. Pickthall (various editions, the one used is Tehran 1352/1973), with the substitution in translation of God for Allah.

Catalogue The catalogue purports to include all Timurid monuments within Iranian and Afghan Khurasan. Monuments were recorded in situ as far as possible, an approach which excluded consideration of several buildings in what is now Soviet Turkmenistan. The medieval definition of Khurasan has been stretched a little to include one monument near Tabas (Cat. No. 30) which is stylistically related to those in the catalogue.

While I feel confident that virtually all Timurid buildings in Iranian Khurasan are included in the catalogue, undoubtedly others remain to be discovered in Afghanistan. For various reasons it was

impossible to do fieldwork in several areas of potential sites: north of Herat towards Kūshk, south, around Sabzivār (Isfizār), or along the route from Herat to Andkhuy. Nevertheless, the major buildings are probably all here. There may be more Kuhsāns or Qūsh Ribats (see Cat. Nos. 19, 59) waiting to be found, but more likely monuments of the size or quality of the Masjid-i Hauḏ-i Karbās (Cat. No. 21) are all that will come to light.

The scheme adopted for the catalogue is based on that of Wilber, The Architecture of Islamic Iran: the Il Khānid Period. The bibliographies in the catalogue are select, especially where illustrations of the major monuments of Herat and Mashhad are concerned. Authors are quoted in a shortened form; reference to that work in the footnotes (which are at the end of each entry) is given by the author's name alone. Where an author's name is mentioned in the text unsupported by a footnote, reference should be made to the bibliographical entry, which in this case will refer to one or, at most, two pages.

In catalogue entries the cardinal points are abbreviated by the initial letters; note also the following: HJ (horizontal joints), RJ (rising joints).

Illustrations Unless otherwise mentioned, all drawings are previously unpublished. The choice of photographs has been partly determined by the availability of published reproductions: if these are numerous, accordingly fewer are presented here.

Appendix I In order to increase the usefulness of this section, the list of builders and craftsmen has been extended to include the entire Iranian world in the Timurid period.

LIST OF PLATES

- |     |                                |   |
|-----|--------------------------------|---|
| 1)  | Herat: Citadel                 | NW tower: general view                              |
| 2)  | Herat: Citadel                 | mosaic-faience foundation<br>inscription            |
| 3)  | Herat: Citadel                 | <u>cuerta seca</u> tiles found in<br>excavation     |
| 4)  | Herat: Citadel                 | wall beside NW tower: <u>cuerta<br/>seca</u> tiles  |
| 5)  | Mashhad: Mosque of Gauhar Shād | exterior: general view                              |
| 6)  | Mashhad: Mosque of Gauhar Shād | exterior: sanctuary dome chamber                    |
| 7)  | Mashhad: Mosque of Gauhar Shād | exterior: rear of sanctuary<br>dome chamber         |
| 8)  | Mashhad: Mosque of Gauhar Shād | bazar entrance: detail of tile-<br>work             |
| 9)  | Mashhad: Mosque of Gauhar Shād | bazar entrance: detail of tile-<br>work             |
| 10) | Mashhad: Mosque of Gauhar Shād | bazar entrance: detail of tile-<br>work             |
| 11) | Mashhad: Mosque of Gauhar Shād | courtyard: general view                             |
| 12) | Mashhad: Mosque of Gauhar Shād | qibla aivan   |
| 13) | Mashhad: Mosque of Gauhar Shād | mihrab  |
| 14) | Mashhad: Mosque of Gauhar Shād | end of foundation inscription                       |
| 15) | Mashhad: Mosque of Gauhar Shād | detail of tilework beside qibla<br>aivan            |
| 16) | Mashhad: Mosque of Gauhar Shād | detail of tilework on corner<br>of courtyard        |
| 17) | Mashhad: Mosque of Gauhar Shād | tilework in gallery                                 |
| 18) | Gulistān dam                   | downstream face: general view,<br>after restoration |
| 19) | Gulistān dam                   | upstream face: general view,<br>after restoration   |
| 20) | Mashhad: Madrasa Parizād       | courtyard: view towards E aivan                     |
| 21) | Mashhad: Madrasa Parizād       | courtyard: view towards W aivan                     |

- 22) Mashhad: Madrasa Parīzād E aivan: inscription and soffit decoration
- 23) Mashhad: Madrasa Parīzād E aivan: detail of mosaic-faience medallion
- 24) Hindvālān: Masjid-i Jami<sup>c</sup> exterior: general view, from rear
- 25) Hindvālān: Masjid-i Jami<sup>c</sup> exterior: general view, from NW
- 26) Hindvālān: Masjid-i Jami<sup>c</sup> interior: SW dome chamber: zone of transition and dome
- 27) Hindvālān: Masjid-i Jami<sup>c</sup> interior: central dome chamber
- 28) Hindvālān: Masjid-i Jami<sup>c</sup> interior: SE dome chamber, zone of transition and dome
- 29) Hindvālān: Masjid-i Jami<sup>c</sup> interior: shabistān, general view
- 30) Akhlamad: dam downstream face: general view
- 31) Akhlamad: dam upstream face: general view
- 32) Akhlamad: dam detail of brick masonry in sluice
- 33) Bajistān: Masjid-i Jami<sup>c</sup> courtyard: view towards qibla aivan
- 34) Bajistān: Masjid-i Jami<sup>c</sup> foundation inscription at back of qibla aivan
- 35) Bajistān: Masjid-i Jami<sup>c</sup> interior of shabistān
- 35a) ibid vaulted room beside qibla aivan
- 36) Gāzur Gāh: Shrine of <sup>c</sup>Abdallāh Ansārī remains of tiled dado in jama<sup>c</sup>atkhana
- 37) Gāzur Gāh: Shrine of <sup>c</sup>Abdallāh Ansārī vestibule: tiled dado
- 38) Gāzur Gāh: Shrine of <sup>c</sup>Abdallāh Ansārī entrance aivan: mosaic-faience panel at base of bevel
- 39) Gāzur Gāh: Shrine of <sup>c</sup>Abdallāh Ansārī courtyard: NE bay, detail of Kufic inscription in mosaic-faience
- 40) Gāzur Gāh: Shrine of <sup>c</sup>Abdallāh Ansārī E aivan: detail of underglaze-painted tiles
- 41) Gāzur Gāh: Shrine of <sup>c</sup>Abdallāh Ansārī E aivan: mosaic-faience spandrel
- 42) Mashhad: Gunbad-i Khishti exterior: general view

- |     |  |  |
|-----|--|--|
| 43) | Mashhad: Gunbad-i Khishtī                                   | interior: general view                                     |
| 44) | Mashhad: Gunbad-i Khishtī                                   | interior: dome   |
| 45) | Mashhad: Gunbad-i Khishtī                                   | cenotaph: general view                                     |
| 46) | Mashhad: Gunbad-i Khishtī                                   | cenotaph: signature of mason                               |
| 47) | Mashhad: Gunbad-i Khishtī                                   | crypt: general view  |
| 48) | Uba: Masjid-i Jami <sup>c</sup>                              | exterior: general view from courtyard                      |
| 49) | Uba: Masjid-i Jami <sup>c</sup>                              | interior: general view                                     |
| 50) | Uba: Masjid-i Jami <sup>c</sup>                              | foundation inscription                                     |
| 51) | Mashhad: Madrasa Bālā Sar                                    | entrance facade  |
| 52) | Mashhad: Madrasa Bālā Sar                                    | entrance aivan, after restoration                          |
| 53) | Mashhad: Madrasa Bālā Sar                                    | entrance aivan, detail of portal screen                    |
| 54) | Mashhad: Madrasa Bālā Sar                                    | entrance aivan, detail of cork-screw moulding              |
| 56) | Mashhad: Madrasa Bālā Sar                                    | entrance aivan: tree of life panel                         |
| 55) | Mashhad: Madrasa Bālā Sar                                    | <u>cuerda seca</u> tiles of curved profile found in rubble |
| 57) | Mashhad: Madrasa Bālā Sar                                    | courtyard: view towards E aivan                            |
| 58) | Mashhad: Madrasa Bālā Sar                                    | courtyard: entrance to cell                                |
| 59) | Mashhad: Madrasa Bālā Sar                                    | E aivan: imprint of inscription on portal screen           |
| 60) | Mashhad: Madrasa Bālā Sar                                    | wooden doors at rear of E aivan                            |
| 61) | Turuq: Mausoleum   | exterior: general view                                     |
| 62) | Turuq: Mausoleum   | interior: general view                                     |
| 63) | Turuq: Mausoleum   | break in bond between aivan and niches                     |
| 64) | Turuq: Mausoleum   | area SE of dome chamber                                    |
| 65) | Turuq: Mausoleum   | NE upper room: blocked-up window                           |
| 66) | Herat: Masjid-i Jami <sup>c</sup> and Madrasa of Gauhar Shād | general view (after Mitford)                               |

- |     |   |  |
|-----|---|--|
| 67) | Herat: Masjid-i Jami <sup>c</sup> and<br>Madrasa of Gauhar Shād | general view (after Peacocke)                                  |
| 68) | Herat: Masjid-i Jami <sup>c</sup> of<br>Gauhar Shād             | minaret: general view  |
| 69) | Herat: Masjid-i Jami <sup>c</sup> of<br>Gauhar Shād             | minaret: detail showing under-<br>glaze-painted tiles          |
| 70) | Herat: Masjid-i Jami <sup>c</sup> of<br>Gauhar Shād             | foundation inscription   |
| 71) | Herat: Masjid-i Jami <sup>c</sup> of<br>Gauhar Shād             | foundation inscription   |
| 72) | Herat: Masjid-i Jami <sup>c</sup> of<br>Gauhar Shād             | detail of Kufic foundation<br>inscription                      |
| 73) | Herat: Masjid-i Jami <sup>c</sup> of<br>Gauhar Shād             | detail of Kufic foundation<br>inscription, showing date        |
| 74) | Herat: Masjid-i Jami <sup>c</sup> of<br>Gauhar Shād             | detail of tilework (photograph:<br>Victoria and Albert Museum) |
| 75) | Herat: Madrasa of Gauhar Shād                                   | general view (after Holdich)                                   |
| 76) | Herat: Madrasa of Gauhar Shād                                   | minaret: general view  |
| 77) | Herat: Madrasa of Gauhar Shād                                   | minaret: epigraphic medallion                                  |
| 78) | Herat: Madrasa of Gauhar Shād                                   | minaret: upper storey  |
| 79) | Herat: Madrasa of Gauhar Shād                                   | mausoleum: general view, before<br>restoration (after Pope)    |
| 80) | Herat: Madrasa of Gauhar Shād                                   | top of first dome  |
| 81) | Herat: Madrasa of Gauhar Shād                                   | space between second and third<br>domes                        |
| 82) | Herat: Madrasa of Gauhar Shād                                   | interior: general view   |
| 83) | Herat: Madrasa of Gauhar Shād                                   | interior: detail of painting<br>on soffit of recess            |
| 84) | Herat: Madrasa of Gauhar Shād                                   | tombstone of Gauhar Shād                                       |
| 85) | Mashhad: Madrasa Du Dar   | exterior: SE facade  |
| 86) | Mashhad: Madrasa Du Dar   | entrance aivan   |
| 87) | Mashhad: Madrasa Du Dar   | entrance aivan: side panel,<br>after restoration               |
| 89) | Mashhad: Madrasa Du Dar   | entrance aivan, panel to right<br>of doorway                   |

- 88) Mashhad: Madrasa Du Dar entrance aivan, panel to left of doorway
- 90) Mashhad: Madrasa Du Dar interior: vestibule
- 91) Mashhad: Madrasa Du Dar courtyard, towards S dome chamber
- 92) Mashhad: Madrasa Du Dar courtyard, SW aivan
- 93) Mashhad: Madrasa Du Dar SW aivan, end of stucco inscription with date
- 94) Mashhad: Madrasa Du Dar SW aivan, stalactite semi-dome showing moulded stucco
- 95) Mashhad: Madrasa Du Dar courtyard facade, upper storey, S corner, setting up of stucco pattern
- 96) Mashhad: Madrasa Du Dar S dome chamber, painting on dome
- 97) Mashhad: Madrasa Du Dar S dome chamber, detail of painting on dome
- 98) Mashhad: Madrasa Du Dar S dome chamber, painted panels in zone of transition
- 99) Mashhad: Madrasa Du Dar S dome chamber, painted inscription at base of dome
- 100) Mashhad: Madrasa Du Dar S dome chamber, cenotaph of Yūsuf Khvaja
- 101) Mashhad: Madrasa Du Dar E dome chamber
- 102) Mashhad: Madrasa Du Dar W dome chamber
- 103) Ziyārat-i Tīmūr Lang exterior: general view
- 104) Ziyārat-i Tīmūr Lang interior: zone of transition
- 105) Ziyārat-i Tīmūr Lang interior: zone of transition (after Pope)
- 106) Ziyārat-i Tīmūr Lang crypt: general view
- 107) Naukhandān: Tomb of Auliya Shādmīn exterior: general view
- 108) Naukhandān: Tomb of Auliya Shādmīn exterior: general view
- 109) Naukhandān: Tomb of Auliya Shādmīn interior: general view
- 110) Naukhandān: Tomb of Auliya Shādmīn interior: dome

- |   |   |
|---|---|
| 111) Naukhandān: Tomb of Auliya Shādmīn | interior: detail of inscription                               |
| 112) Kuhsān: Madrasa of Tūmān Āghā      | exterior: from W  |
| 113) Kuhsān: Madrasa of Tūmān Āghā      | exterior: from former courtyard                               |
| 114) Kuhsān: Madrasa of Tūmān Āghā      | interior: transverse vaulted hall                             |
| 115) Kuhsān: Madrasa of Tūmān Āghā      | interior: dome chamber, general view                          |
| 116) Kuhsān: Madrasa of Tūmān Āghā      | interior: dome chamber, painting in zone of transition        |
| 117) Kuhsān: Madrasa of Tūmān Āghā      | interior: dome chamber, detail of painted panels              |
| 118) Kuhsān: Madrasa of Tūmān Āghā      | interior: dome chamber, detail of painted panels              |
| 119) Herat, Gunbad-i Chūpān             | exterior: general view (after Niedermayer)                    |
| 120) Ghalvār: Masjid-i Hauḏ-i Karbās    | interior: general view  |
| 121) Ghalvār: Masjid-i Hauḏ-i Karbās    | interior: mihrab  |
| 122) Ghalvār: Masjid-i Hauḏ-i Karbās    | interior: detail of mihrab                                    |
| 123) Ghalvār: Masjid-i Hauḏ-i Karbās    | interior: epigraphic panel                                    |
| 124) Ghalvār: Masjid-i Hauḏ-i Karbās    | interior: detail of vaulting                                  |
| 125) Khargird: Madrasa al-Ghiyāthiyya   | epigraphic panel on niche beside entrance aivan               |
| 126) Khargird: Madrasa al-Ghiyāthiyya   | restoration of stalactites in mosque                          |
| 127) Khargird: Madrasa al-Ghiyāthiyya   | rear of vault in recess of lecture hall                       |
| 128) Mashhad: Masjid-i Shah             | exterior: entrance aivan and dome (after Pope)                |
| 129) Mashhad: Masjid-i Shah             | rear of entrance aivan (after Pope)                           |
| 130) Mashhad: Masjid-i Shah             | interior: central dome chamber, general view                  |
| 131) Mashhad: Masjid-i Shah             | interior: central dome chamber, detail of painting on squinch |
| 132) Mashhad: Masjid-i Shah             | crypt, general view   |

- 133) Mashhad: Masjid-i Shah roof: junction of aivan and drum
- 134) Rushkhvār: Masjid-i Jami<sup>c</sup> exterior: general view, from rear
- 135) Rushkhvār: Masjid-i Jami<sup>c</sup> aivan and dome chamber, from courtyard
- 136) Rushkhvār: Masjid-i Jami<sup>c</sup> aivan, general view
- 137) Rushkhvār: Masjid-i Jami<sup>c</sup> mihrab of aivan, detail of stucco decoration
- 138) Rushkhvār: Masjid-i Jami<sup>c</sup> dome chamber, interior, general view
- 139) Rushkhvār: Masjid-i Jami<sup>c</sup> dome chamber, interior, zone of transition
- 140) Rushkhvār: Masjid-i Jami<sup>c</sup> dome chamber, interior, detail of inscription with date
- 141) Rushkhvār: Masjid-i Jami<sup>c</sup> dome chamber, interior, detail of mihrab
- 142) Rushkhvār: Masjid-i Jami<sup>c</sup> dome chamber, interior, craftsman's signature
- 143) Khvāf: Masjid-i Jami<sup>c</sup> courtyard, view towards aivan
- 144) Khvāf: Masjid-i Jami<sup>c</sup> vault of recess in aivan
- 145) Khvāf: Masjid-i Jami<sup>c</sup> transverse vaulting in hall beside aivan (after Golombek)
- 146) Khvāf: Masjid-i Jami<sup>c</sup> detail of carved decoration on minbar
- 147) Khvāf: Masjid-i Jami<sup>c</sup> dome chamber, interior, general view
- 148) Sangvar, Mazar exterior, general view
- 149) Sangvar, Mazar interior, zone of transition
- 150) Sangvar, Mazar interior, detail of zone of transition
- 151) Jūkhvāh: Mazar-i Sipahsālār-i Mālik exterior, general view
- 152) Jūkhvāh: Mazar-i Sipahsālār-i Mālik interior, zone of transition
- 153) Jūkhvāh: Mazar-i Sipahsālār-i Mālik interior, detail of zone of transition

- |  |   |
|--|---|
| 154) Ghār-i Karukh                                       | distant view of cave  |
| 155) Ghār-i Karukh                                       | general view of shrine within cave                          |
| 156) Ghār-i Karukh                                       | mihrab at rear of shrine                                    |
| 157) Ghār-i Karukh                                       | epigraphic panel with name of Sultan Abū Sa <sup>c</sup> īd |
| 158) Ghār-i Karukh                                       | end of foundation inscription, with date                    |
| 159) Ziyāratgāh, Masjid-i Jami <sup>c</sup>              | exterior, general view, from rear                           |
| 160) Ziyāratgāh, Masjid-i Jami <sup>c</sup>              | exterior, entrance facade                                   |
| 161) Ziyāratgāh, Masjid-i Jami <sup>c</sup>              | entrance aivan, end of foundation inscription, with date    |
| 162) Ziyāratgāh, Masjid-i Jami <sup>c</sup>              | courtyard of madrasa and entrance aivan                     |
| 163) Ziyāratgāh, Masjid-i Jami <sup>c</sup>              | semi-domed niche in gallery of sanctuary                    |
| 164) Dih-i Manār, Khanqah of Shaikh Armānī               | exterior, general view                                      |
| 165) Dih-i Manār, Khanqah of Shaikh Armānī               | exterior, vaulting in upper niche                           |
| 166) Dih-i Manār, Khanqah of Shaikh Armānī               | interior, central dome chamber, general view                |
| 167) Dih-i Manār, Khanqah of Shaikh Armānī               | soffit of arch leading to central dome chamber              |
| 168) Pūrān, Buq <sup>c</sup> a of Jalāl al-Dīn Abū Yazīd | exterior, general view                                      |
| 169) Pūrān, Buq <sup>c</sup> a of Jalāl al-Dīn Abū Yazīd | exterior, N dome chamber                                    |
| 170) Pūrān, Buq <sup>c</sup> a of Jalāl al-Dīn Abū Yazīd | interior, N dome chamber                                    |
| 171) Āzādān, Mazar-i Abu'l-Walīd                         | exterior, general view                                      |
| 172) Āzādān, Mazar-i Abu'l-Walīd                         | exterior, entrance aivan                                    |
| 173) Āzādān, Mazar-i Abu'l-Walīd                         | exterior, spandrel of entrance aivan                        |
| 174) Āzādān, Mazar-i Abu'l-Walīd                         | interior, general view                                      |

- 175) Āzādān, Mazar-i Abu'l-Walīd interior, detail of mihrab
- 176) Herat, Mazar-i Shāhzāda exterior, general view  
 ᶜAbdallāh
- 177) Herat, Mazar-i Shāhzāda exterior, spandrel of niche in  
 ᶜAbdallāh lateral aivan
- 178) Herat, Mazar-i Shāhzāda interior, general view of main  
 ᶜAbdallāh dome chamber
- 179) Herat, Mazar-i Shāhzāda interior, detail of tilework in  
 ᶜAbdallāh main dome chamber
- 180) Herat, Mazar-i Shāhzāda interior, vault of axial recess  
 ᶜAbdallāh
- 181) Langar, Mausoleum of Qāsim-i exterior, general view  
 Anvār
- 182) Langar, Mausoleum of Qāsim-i interior, general view  
 Anvār
- 183) Langar, Mausoleum of Qāsim-i interior, general view of dome  
 Anvār
- 184) Langar, Mausoleum of Qāsim-i interior, recess with cenotaph  
 Anvār of Qāsim-i Anvār
- 185) Langar, Mausoleum of Qāsim-i interior, vaulting of niche in  
 Anvār gallery
- 186) Ribat-i Dahana-yi Dasht exterior, general view .
- 187) Ribat-i Qarahpīl exterior, general view, from NW
- 188) Ribat-i Qarahpīl interior, vestibule
- 189) Ribat-i Qarahpīl courtyard, towards N aivan
- 190) Ribat-i Qarahpīl interior, S stable
- 191) Ribat-i ᶜIshq exterior, general view, from  
 rear
- 192) Ribat-i ᶜIshq entrance aivan, general view
- 193) Ribat-i ᶜIshq courtyard, towards entrance  
 aivan
- 194) Ribat-i ᶜIshq interior of mosque
- 195) Ribat-i ᶜIshq vaulting of stables in NW corner
- 196) Ribat-i Qillī exterior, general view
- 197) Ribat-i Qillī courtyard, general view

- |  |  |
|--|--|
| 198) Ribat-i Qillī                     | interior, entrance vestibule             |
| 199) Ribat-i Qillī                     | interior, SW corner room                 |
| 200) Ribat-i Qillī                     | interior, S stables                      |
| 201) Hasanabad Chikina                 | outline of building with courtyard       |
| 202) Ribat-i Sangbast                  | exterior, entrance portal                |
| 203) Ribat-i Sangbast                  | interior, entrance vestibule             |
| 204) Ribat-i Sangbast                  | interior, stables behind entrance facade |
| 205) Ribat-i Sangbast                  | interior, stables behind lateral facade  |
| 206) Ribat-i Sangbast                  | courtyard, general view                  |
| 207) Gāzur Gāh: Namakdān               | exterior, general view                   |
| 208) Gāzur Gāh: Namakdān               | interior, general view of dome           |
| 209) Gāzur Gāh: Namakdān               | exterior, vaulting of upper niche        |
| 210) Turuq: dam                        | upstream face, general view              |
| 211) Turuq: dam                        | downstream face, general view            |
| 212) Turuq: dam                        | downstream face, detail of sluice        |
| 213) Ziyāratgāh: Masjid-i Chihil Sutūn | exterior, general view                   |
| 214) Ziyāratgāh: Masjid-i Chihil Sutūn | mihrab in summer prayer hall             |
| 215) Ziyāratgāh: Masjid-i Chihil Sutūn | winter prayer hall, general view         |
| 216) Ziyāratgāh: Masjid-i Chihil Sutūn | <u>chillakhāna</u>                       |
| 217) Ziyāratgāh: Masjid-i Gunbad       | exterior, general view                   |
| 218) Ziyāratgāh: Masjid-i Gunbad       | interior, general view                   |
| 219) Ziyāratgāh: Masjid-i Gunbad       | interior, detail of squinch              |
| 220) Ziyāratgāh: Masjid-i Gunbad       | interior, corner cell                    |
| 221) Gāzur Gāh: Zarnigār Khāna         | vaulting above original S entrance       |

- 222) Mashhad: aivan of ʿAlī Shīr detail of portal screen
- 223) Turbat-i Jām: ʿIdgāh front facade
- 224) Turbat-i Jām: ʿIdgāh rear facade
- 225) Turbat-i Jām: ʿIdgāh remains of vault of aivan
- 226) Turbat-i Jām: ʿIdgāh detail of semi-dome of mihrab
- 227) Ziyāratgāh: Khanqah of Mullā Kālān exterior, general view, from NE
- 228) Ziyāratgāh: Khanqah of Mullā Kālān exterior, general view, from SW
- 229) Ziyāratgāh, Khanqah of Mullā Kālān N aivan, detail of inscription
- 230) Ziyāratgāh, Khanqah of Mullā Kālān main dome chamber, detail of decoration
- 231) Jājarm: Masjid-i Jami<sup>c</sup> exterior, general view, from rear
- 232) Jājarm: Masjid-i Jami<sup>c</sup> courtyard, towards sanctuary
- 233) Jājarm: Masjid-i Jami<sup>c</sup> sanctuary, zone of transition
- 234) Jājarm: Masjid-i Jami<sup>c</sup> sanctuary, detail of mihrab
- 235) Jājarm: Masjid-i Jami<sup>c</sup> interior of shabistān
- 236) Khusraviyya, Mazar-i Bābā Husain va Bībī exterior, general view
- 237) Khusraviyya, Mazar-i Bābā Husain va Bībī interior, general view
- 238) Khusraviyya, Mazar-i Bābā Husain va Bībī interior, general view of dome
- 239) Khusraviyya, Mazar-i Bābā Husain va Bībī cenotaph, general view
- 240) Khusraviyya, Mazar-i Bābā Husain va Bībī cenotaph, signature of craftsman
- 241) Nīshāpūr: Mausoleum of Farīd al-Dīn ʿAttār interior, general view of tombstone
- 242) Nīshāpūr: Mausoleum of Farīd al-Dīn ʿAttār detail of tombstone
- 243) Nīshāpūr: Mausoleum of Farīd al-Dīn ʿAttār detail of tombstone

- 244) Langar: cistern exterior, general view
- 245) Ziyāratgāh: cistern exterior, general view
- 246) Bāgh-i Nazargāh: cistern exterior, general view
- 247) Bāgh-i Nazargāh: cistern interior, general view
- 248) Herat: cistern opposite citadel interior, general view
- 249) Herat: Madrasa of Sultan Husain NE and NW minarets, general view
- 250) Herat: Madrasa of Sultan Husain detail of SW minaret after excavation
- 251) Herat: Madrasa of Sultan Husain detail of tombstone of Sultan Husain's father
- 252) Nīshāpūr: Masjid-i Jami<sup>c</sup> rear of qibla aivan
- 253) Nīshāpūr: Masjid-i Jami<sup>c</sup> courtyard, view towards qibla aivan
- 254) Nīshāpūr: Masjid-i Jami<sup>c</sup> courtyard, view towards entrance aivan
- 255) Nīshāpūr: Masjid-i Jami<sup>c</sup> foundation inscription
- 256) Nīshāpūr: Masjid-i Jami<sup>c</sup> inscription above mihrab
- 257) Nīshāpūr: Masjid-i Jami<sup>c</sup> shabistān W of qibla aivan
- 258) Sibarz: Ziyārat of Khvaja Nizām al-Dīn exterior, general view
- 259) Sibarz: Ziyārat of Khvaja Nizām al-Dīn interior, general view
- 260) Ghuriyān: Masjid-i Jami<sup>c</sup> exterior, general view, from SW
- 261) Ghuriyān: Masjid-i Jami<sup>c</sup> courtyard, view towards NE
- 262) Ghuriyān: Masjid-i Jami<sup>c</sup> qibla aivan
- 263) Ghuriyān: Masjid-i Jami<sup>c</sup> interior, sanctuary, general view
- 264) Ghuriyān: Masjid-i Jami<sup>c</sup> interior, sanctuary, detail of dome
- 265) Herat: Masjid-i Jami<sup>c</sup> arcade W of S aivan, general view
- 266) Herat: Masjid-i Jami<sup>c</sup> arcade W of S aivan, detail of inset-technique dado

- 267) Herat: Masjid-i Jami<sup>c</sup> lower part of portal screen of S aivan and adjoining bay (after Schroeder)
- 268) Qūsh Ribat front facade
- 269) Qūsh Ribat rear facade
- 270) Qūsh Ribat interior, mosque, general view
- 271) Qūsh Ribat interior, mihmān-khāna, general view
- 272) Qūsh Ribat interior, dome in NE corner
- 273) Herat: Ghār-i Darvīshān entrance aivan
- 274) Herat: Ghār-i Darvīshān interior, showing squinch vault
- 275) Herat: Ghār-i Darvīshān exterior, detail of inscription
- 276) Kadkan: Mazar-i Nizām al-Mulk exterior, general view, from NE
- 277) Kadkan: Mazar-i Nizām al-Mulk exterior, general view, from SE
- 278) Kadkan: Mazar-i Nizām al-Mulk detail of painting in dome chamber
- 279) Kadkan: Mazar-i Nizām al-Mulk vaulting in shabistān
- 280) Kadkan: Mazar-i Nizām al-Mulk vaulting in niche in gallery of shabistān
- 281) Turbat-i Jām: Masjid-i Safīd detail of unfinished painting scheme
- 282) Turbat-i Jām: Masjid-i Safīd detail of unfinished painting scheme
- 283) Samarqand, Madrasa of Ūlugh Beg Kufic inscription in qibla aivan

## LIST OF FIGURES

- 1a) Arch profiles in the Shrine of Ahmad Yassavī (after Mankovskaya)
- 1b) Arch profiles in the Miftāḥ al-Hisāb (after Rosenfeld)
- 2) Map of Iran and Afghanistan showing location of monuments in the catalogue
- 3) Cat. no. 1. Herat, Citadel: elevation of N wall (after UNESCO)
- 4) Cat. no. 2. Mashhad, Mosque of Gauhar Shād: plan (after Survey)
- 5) Cat. no. 2. Mashhad, Shrine: plan (after Saadat)
- 6) Cat. no. 2. Mashhad, Shrine: section of Dār al-Huffāz (after Saadat)
- 7) Cat. no. 2. Mashhad, Shrine: section of Dār al-Siyāda (after Saadat)
- 8) Cat. no. 4. Mashhad, Madrasa Parīzād: plan (after Sazman-i Hifazat)
- 9) Cat. no. 4. Mashhad, Madrasa Parīzād: section (after Sazman-i Hifazat)
- 10) Cat. no. 5. Hindvālān, Masjid-i Jami<sup>c</sup>: plan
- 11) Cat. no. 8. Bajistān, Masjid-i Jami<sup>c</sup>: plan
- 12) Cat. no. 9. Gāzur Gāh, Shrine of Ansārī: plan (after Golombek)
- 13) Cat. no. 10. Mashhad, Gunbad-i Khishtī: plan
- 14) Cat. no. 10. Mashhad, Gunbad-i Khishtī: plan of crypt
- 15) Cat. no. 11. Uba, Masjid-i Jami<sup>c</sup>: sketch plan
- 16) Cat. no. 12. Mashhad, Madrasa Bālā Sar: plan (after Sazman-i Hifazat)
- 17) Cat. no. 12. Mashhad, Madrasa Bālā Sar: NS section (after Sazman-i Hifazat)
- 18) Cat. no. 12. Mashhad, Madrasa Bālā Sar: EW section (after Sazman-i Hifazat)
- 19) Cat. no. 13. Turuq, Mausoleum: plan
- 20) Cat. no. 14. Herat, Complex of Gauhar Shād: plan (after Schroeder)
- 21) Cat. no. 14. Herat, Complex of Gauhar Shād: plan (after Holdich)
- 22) Cat. no. 14. Herat, Complex of Gauhar Shād: plan of mausoleum (after Schroeder)

- 23) Cat. no. 15. Mashhad, Madrasa Du Dar: plan (after Sazman-i Hifazat)
- 24) Cat. no. 15. Mashhad, Madrasa Du Dar: plan of upper storey (after Sazman-i Hifazat)
- 25) Cat. no. 15. Mashhad, Madrasa Du Dar: roof plan (after Sazman-i Hifazat)
- 26) Cat. no. 15. Mashhad, Madrasa Du Dar: section of dome chamber (after Sazman-i Hifazat)
- 27) Cat. no. 15. Mashhad, Madrasa Du Dar: section on EW axis (after Sazman-i Hifazat)
- 28) Cat. no. 16. Ziyārat-i Tīmūr Lang: plan and section (after Wilber)
- 29) Cat. no. 17. Naukhandān, Tomb of Auliya Shādmīn (after Hillenbrand and Gye)
- 30) Cat. no. 18. Mausoleum of Jaghatain: plan (after Zamānī)
- 31) Cat. no. 19. Kuhsān, Madrasa of Tūmān Āghā: plan (after Pugachenkova)
- 32) Cat. no. 19. Kuhsān, Madrasa of Tūmān Āghā: section (after Pugachenkova)
- 33) Cat. no. 21. Ghalvār, Masjid-i Hauz-i Karbās: sketch plan and elevation
- 34) Cat. no. 25. Khargird, Madrasa al-Ghiyāthiyya: banna'i bricks on corner towers
- 35) Cat. no. 26. Mashhad, Masjid-i Shah: plan (after Sazman-i Hifazat)
- 36) Cat. no. 26. Mashhad, Masjid-i Shah: plan of crypts (after Sazman-i Hifazat)
- 37) Cat. no. 26. Mashhad, Masjid-i Shah: section (after Sazman-i Hifazat)
- 38) Cat. no. 26. Mashhad, Masjid-i Shah: elevation (after Sazman-i Hifazat)
- 39) Cat. no. 27. Rushkhvār, Masjid-i Jami<sup>c</sup>: plan (after Diez)
- 40) Cat. no. 27. Rushkhvār, Masjid-i Jami<sup>c</sup>: section
- 41) Cat. no. 28. Khvāf, Masjid-i Jami<sup>c</sup>: plan
- 42) Cat. no. 29. Sangvar, Mazar: plan (partly after Sazman-i Hifazat)
- 43) Cat. no. 32. Mazar-i Sharīf, Shrine: plan (after Niedermayer)
- 44) Cat. no. 33. Ziyāratgāh, Masjid-i Jami<sup>c</sup>: plan (after Pugachenkova)

- 45) Cat. no. 34. Dih-i Manār, Khanqah of Shaikh Armānī: plan (after Pugachenkova)
- 46) Cat. no. 35. Pūrān, Buq<sup>c</sup>a of Abū Yazīd: plan
- 47) Cat. no. 36. Āzādān, Mazar-i Abu'l-Walīd: plan
- 48) Cat. no. 37. Herat, Mazar-i Shāhzāda <sup>c</sup>Abdallāh: plan (after Shokoohy)
- 49) Cat. no. 37. Herat, Mazar-i Shāhzāda <sup>c</sup>Abdallāh: plan of upper storey (after Shokoohy)
- 50) Cat. no. 37. Herat, Mazar-i Shāhzāda <sup>c</sup>Abdallāh
- 51) Cat. no. 38. Mīr-i Ruzadār: plan (after Pugachenkova)
- 52) Cat. no. 39. Langar, Mausoleum of Qāsim-i Anvār: plan
- 53) Cat. no. 40. Ribat-i Dasht: sketch plan
- 54) Cat. no. 40. Ribat-i Qarahpīl: plan
- 55) Cat. no. 40. Ribat-i <sup>c</sup>Ishq: plan
- 56) Cat. no. 40. Ribat-i Qillī: plan (after Diez)
- 57) Cat. no. 40. Hasanābād Chikina: sketch plan
- 58) Cat. no. 42. Gāzur Gāh, Namakdān: plan (after Golombek)
- 59) Cat. no. 44. Ziyāratgāh, Masjid-i Chihil Sutūn: plan and section (after Pugachenkova)
- 60) Cat. no. 45. Ziyāratgāh, Masjid-i Gunbad: plan
- 61) Cat. no. 46. Gāzur Gāh, Zarnigār Khāna: plan (after Golombek)
- 62) Cat. no. 47. Mashhad, Shrine; aivan of <sup>c</sup>Alī Shīr: elevation (after Saadat)
- 63) Cat. no. 48. Turbat-i Jām, <sup>c</sup>Īdgāh: plan
- 64) Cat. no. 49. Ziyāratgāh, Khanqah of Mullā Kālān: plan
- 65) Cat. no. 50. Jājarm, Masjid-i Jami<sup>c</sup>: plan (after Diez)
- 66) Cat. no. 51. Khusraviyya, Mazar-i Bābā Husain va Bībī: plan
- 67) Cat. no. 52. Nīshāpūr, Mausoleum of Farīd al-Dīn <sup>c</sup>Attār: plan and tombstone (after Herzfeld)
- 68) Cat. no. 54. Herat, Madrasa of Sultan Husain: plan (after Bruno)
- 69) Cat. no. 54. Herat, Madrasa of Sultan Husain: plan of excavation of SW minaret (after UNESCO)

- 70) Cat. no. 55. Nīshāpūr, Masjid-i Jami<sup>C</sup>: plan (after Sazman-i Hifazat)
- 71) Cat. no. 56. Sibarz, Ziyārat of Nizām al-Dīn: plan
- 72) Cat. no. 57. Ghuriyān, Masjid-i Jami<sup>C</sup>: plan
- 73) Cat. no. 58. Herat, Masjid-i Jami<sup>C</sup>: plan (after Stuckert)
- 74) Cat. no. 58. Herat, Masjid-i Jami<sup>C</sup>: restored elevation of E portal (after Lézine)
- 75) Cat. no. 59. Qūsh Ribat: plan (after Pugachenkova)
- 76) Cat. no. 59. Qūsh Ribat: detail of window
- 77) Cat. no. 60. Herat, Ghār-i Darvīshān: plan
- 78) Cat. no. 61. Kadkan, Mazar-i Nizām al-Mulk: plan
- 79) Cat. no. 61. Kadkan, Mazar-i Nizām al-Mulk: plan of mezzanine floor

LIST OF ABBREVIATIONS

AA	<u>Arts Asiatiques</u>
ABC	Afghan Boundary Commission
AeI	<u>Āthār-é Īrān</u>
AI	<u>Ars Islamica</u>
AII	Wilber, <u>The Architecture of Islamic Iran</u>
AIUON	<u>Annali, Istituto Universitario Orientale de Napoli</u>
AJ	<u>Afghanistan Journal</u>
AMI	<u>Archaeologische Mitteilungen aus Iran</u>
AO	<u>Ars Orientalis</u>
AS	<u>Anatolian Studies</u>
AV	Saif al-Dīn, <u>Āsār al-vuzarā'</u>
BAIPAA	<u>Bulletin of the American Institute for Persian Art and Archaeology (later: <u>Bulletin of the Iranian Institute</u>)</u>
Barthold II	Barthold, <u>Four Studies II</u>
Barthold III	Barthold, <u>Four Studies III</u>
BEO	<u>Bulletin d'Études Orientales</u>
BMMA	<u>Bulletin of the Metropolitan Museum of Art</u>
BV	Vāsifī, <u>Badā'i<sup>c</sup> al-vaqā'i<sup>c</sup></u>
CHI	<u>Cambridge History of Iran</u>
CII	<u>Corpus Inscriptionum Iranicarum</u>
IV	Khvāndamīr, <u>Dastūr al-vuzarā'</u>
EI	<u>Encyclopedia of Islam</u>
EMA	Creswell, <u>Early Muslim Architecture</u>
GJ	<u>Geographical Journal</u>
HA	Hāfiz-i Abrū, <u>Jughrāfiyā</u>
HS	Khvāndamīr, <u>Tārīkh-i habīb al-siyar</u>

IS	<u>Iranian Studies</u>
ILN	<u>Illustrated London News</u>
JA	<u>Journal Asiatique</u>
JASB	<u>Journal of the Asiatic Society of Bengal</u>
JRAS	<u>Journal of the Royal Asiatic Society</u>
KA	Khvādamīr, <u>Khulāsāt al-akhbār</u>
KdO	<u>Kunst des Orients</u>
LMII	<u>Le Monde Iranien et l'Islam</u>
MA	Khvādamīr, <u>Makarīm al-akhlāq</u>
MF	Fasīh, <u>Mujmal-i Fasīhi</u>
MI	Vā <sup>c</sup> iz, <u>Maqsad al-iqbāl</u>
MN	Navā'ī, <u>Majālis al-nafā'is</u>
MS	<sup>c</sup> Abd al-Razzāq, <u>Matla<sup>c</sup> al-sa<sup>c</sup>dain</u>
NU	Jāmi, <u>Nafahāt al-uns</u>
OA	<u>Oriental Art</u>
RCEA	<u>Répertoire Chronologique d'Épigraphie Arabe</u>
REI	<u>Revue des Études Islamiques</u>
RGS	Royal Geographical Society
RJ	Isfizārī, <u>Rauzat al-jannāt</u>
RMH 4	Saljūqī, <u>Rasāla-yi mazārat-i Harāt, havāshī-yi ākhar</u>
RS	Mīr Khvānd, <u>Tārīkh-i rauzat al-safā</u>
Sazman-i Hifazat	Daftar-i Fannī-yi Sāzman-i Millī-yi Hifāzat-i Āsar-i Bāstānī-yi Khurāsān
SH	Marwārīd, <u>Sharaf nāma</u>
SI	<u>Studia Iranica</u>
<u>Survey</u>	Pope and Ackerman, eds., <u>A Survey of Persian Art</u>
TJY	Kātib, <u>Tārīkh-i jadīd-i Yazd</u>
TS	Daulatshāh, <u>Tadhkirat al-shu<sup>c</sup>arā'</u>
TY	Ja <sup>c</sup> far, <u>Tārīkh-i Yazd</u>

ZN Yazdī, Zafar nāma  
ZDMG Zeitschrift der Deutschen Morgenländischen Gesellschaft  
IOL India Office Library and Records  
MAE Creswell, The Muslim Architecture of Egypt  
RAS The Royal Asiatic Society

CHAPTER ONE:  
TYPOLOGY AND FUNCTIONS

The clearest division of building types is that of religious and secular. Although rulers such as Shah Rukh and Sultan Husain were seen to be champions of the sharī<sup>c</sup> and sponsored religious architecture on a grand scale, the dīvān was firmly centered in the ruler's palace—the Bāgh-i Zāghān in the case of Shah Rukh, the Bāgh-i Jahān Ārāy in Sultan Husain's. Although the Sultan may have attended Friday prayers in the Masjid-i Jami<sup>c</sup> and the ulama's advice may have been considered on various state affairs, the architectural divide between the religious and the secular remained firm.<sup>1</sup>

Within these categories distinctions are made more easily in the case of secular than religious buildings—but concomitantly much less evidence, either in the form of surviving buildings, or as references in literary texts, is available for interpretation.

Royal Residences      Apparently no equivalent to Tīmūr's Āq Sarāy at Shahr-i Sabz was built in Khurasan. Instead it was the idea of Tīmūr's residences in Samarqand that was followed: pleasure pavilions set amidst a garden. The Bāgh-i Zāghān was Shah Rukh's main seat of residence, but although there are copious references to temporary structures

- 
- 1) There is no record of fifteenth century rulers in Khurasan staying for periods in a madrasa or khanqah, as Tīmūr was known to do in Samarqand.

erected for nuptial and circumcision celebrations frequently described as chahār taqs, we are ill-informed on the kinds of permanent buildings which it contained.<sup>2</sup> Abd al-Razzāq's description of the reconstruction of the Bāgh-i Safīd in 813/1410-1 is somewhat more informative. After describing the building of the garden he gives an account of its pavilion:

"Each of its four stalactite-decorated (muqarnas) aivans reached to the arch of Saturn; the crenellations<sup>3</sup> of its lofty castle (qasr) reached the arc of Jupiter. The dadoes were of jasper inlaid with figurative decoration...skillful painters carried out a programme in every room and niche in the manner of a Chinese picture-gallery."<sup>4</sup>

This should not be accepted literally, of course, but it is clear at least that a crenellated pavilion was erected with aivans decorated with stalactites, and with carved stone dadoes and a decoratively painted interior.

The garden also had another pavilion, the Tarab Khāna (joy house) of which Bābur has fortunately left us an informative description, quoted in full in Cat. No. 42.

Two other gardens, the Bāgh-i Shahr and the Bāgh-i Jahān Ārāy, also figure prominently in the annals of the fifteenth century. The

2) A kūshk (pavilion) is first mentioned only after the death of Shah Rukh. See Allen, Catalogue, p. 212, and No. 653 in general, for other references.

3) The same word kungura is used to describe the battlements of the Āq Sarāy at Shahr-i Sabz. See M.E. Masson and G.A. Pugachenkova, "Skakhri Syabz pri Timure i Ulug Beke ("Shahr-i Sabz from Tīmūr to Ūlūgh Beg")-I," tr. J.M. Rogers, Iran XVI (1978), p. 119. The tents of Tīmūr also were decorated with merlons: see P.A. Andrews, "The Tents of Timur: an Examination of Reports on the Quriltay at Samarqand, 1404," Arts of the Eurasian Steppelands, ed. P. Denwood (London 1978), p. 145.

4) MS (1963 ed.), p. 111.

Bāgh-i Shahr also had a pavilion (qasr),<sup>5</sup> which may have been used by the bureaucracy in the first half of Shah Rukh's reign.<sup>6</sup> Largest of all was the Bāgh-i Jahān Ārāy which, as Khvādamīr notes, had several palaces (qusūr), arcades (tāghā), houses (khānahā) and aivans.<sup>7</sup> Some of these buildings would have been secluded harīm quarters, and one would expect to find situated on the perimeter of the compound structures such as kitchens and stables, which on account of their utilitarian nature would not be mentioned in historical texts.

It is clear then, that the history of the royal residence and the history of the garden and garden pavilion become inseparable in Khurasan in the fifteenth century. Other evidence for this comes from a treatise on husbandry composed in Herat in 921/1515-6 which concludes with a chapter on "The layout of the Chahār Bāgh and its Pavilion."<sup>8</sup> The term chahār bāgh, referring to a large garden divided by water channels or walks into several compartments (though not necessarily four), is used frequently in the sources for the royal gardens of Herat, and the implication of the chapter's title is that a pavilion was an essential element of its composition.

Only one fifteenth century garden pavilion in Khurasan has survived, the Namakdān (Cat. No. 42), but judging by miniature paintings and the description of the tarab khāna by Bābur (Cat. No. 42), it does not seem to be untypical. In each pavilion there is a large domed

---

5) Erected by Tīmūr in 801/1398-9. MF, III, p. 143; Allen, Catalogue, p. 209.

6) Until 825/1421-2 at least, when a suyurghāl of Shah Rukh was issued there. Allen, Catalogue, p. 209; Deny, "soyurgal," p. 255.

7) KA, p. 25. For other pavilions in this garden see Allen, Catalogue, p. 196.

8) Tarh-i chahār bāgh va Āimārat. Qāsim Haravī, Irshād, p. 280. The passage is discussed in Pinder-Wilson, "The Persian Garden," pp. 82-3, and a reconstruction of the plan of the garden and pavilion is given in <sup>ibid.</sup> Pl. XIII.

central space, with aivans in two storeys on the four main axes. Smaller aivans or vaulted balconies, or shāh-nishīns as Bābur calls them, are set on the diagonal axes. The garden pavilion could also be square, as the little-known example at Afūshta shows. This, datable to the fifteenth century from its mosaic-faience decoration, also has a central dome and aivans on the main axes in two storeys.<sup>9</sup>

While it might be difficult to visualise a life of courtly splendour taking place within the now whitewashed interior walls of the Namakdān, miniature paintings can provide a guide to the kind of decoration and furnishings to be found within. Floors were tiled, most often with plain brick, but sometimes with coloured hexagonal tiles. Interior recesses were often arranged in the form of a dais, the wall of the step having a tile pattern similar to that of the dado.<sup>10</sup> The wall above often had painted decoration on a white background, of stylised<sup>11</sup> or naturalistic<sup>12</sup> tree of life design. Two late fifteenth century miniatures show the walls of two upper chambers pierced with niches in which bottles of various shapes are placed,

- 
- 9) For this monument see M. Ferrante and E. Galdieri, "Architettura persiana," pp. 163-86.
- 10) B.W. Robinson, "Prince Bāysonghor's Nizāmī: a speculation," Ars Orientalis II (1957), Fig. 10. See also the comments on the dado area in R. Hillenbrand, Imperial Images in Persian Painting (Edinburgh, 1977), p. 21, Exhibit 24. One might also add that the tiles served a functional as well as a decorative role, in that they are less susceptible to dirt and smudges than a painted wall.
- 11) The Arts of the Book in Central Asia, ed. B. Gray (London, 1979), Ill. 89.
- 12) L. Binyon, J.V.S. Wilkinson, B. Gray, Persian Miniature Painting (London, 1933), Pl. XLIX-B. (Henceforth BWG)

prefiguring the widespread use of this motif in Safavid palace architecture.<sup>13</sup> This use is confirmed in a revealing anecdote of Vāsifī where he relates how a cat which was inadvertantly allowed to enter the chīnī khāna in Mīr <sup>c</sup>Alī Shīr's garden at Gāzur Gāh jumped up and dislodged some of the Chinese porcelain from the niches (tāgchahā) in which it was displayed.<sup>14</sup> Windows often have metal<sup>15</sup> or wooden<sup>16</sup> grilles. On upper walls windows composed of stained glass set in a carved stucco framework appear.<sup>17</sup> These, however, are not shown on the exterior—they were presumably protected from the elements by a sturdier outer window. Projecting upper balconies, sometimes precariously supported by wooden struts, were common.<sup>18</sup>

Access to the roof space was necessary for repairs, and could be effected by a covered stairwell.<sup>19</sup> Occasionally figures are shown on

- 
- 13) M.G. Lukens, "The Language of the Birds: the Fifteenth Century Miniatures," BMA XXV/9 (1967), Fig. 3; Arts of the Book ed. Gray, Ill. 111. According to A. Serajuddin, Architectural Representations in Persian Miniature Painting during the Timurid and Safavid Periods Ph.D. thesis, University of London, 1968, p. 62, a canopy like a Turkish fireplace used for the display of ceramic and metal vessels is represented in f. 45b of B.L. Add. 18113 (poems of Khvājū Kirmānī). The fifteenth century Shrine at Bīdākhavīd near Yazd has a similar architectural feature: O'Kane, "Timurid Stucco."
- 14) BV, I, p. 478.
- 15) Robinson, "Bāysonghor," Fig. 10. For a grilled window (panjara) donated by Shah Rukh to the Shrine at Mashhad see The Arts of Islam, Hayward Gallery 1976, exhibit 245; Samadī, Rāhnāmā, illustrated opp. p. 33.
- 16) Arts of the Book, ed. Gray, Ill. 89; BWG, Pl. LXXI-B.
- 17) See Chapter III.
- 18) Robinson, "Bāysonghor," Fig. 11; Arts of the Book, ed. Gray, Ill. 111; BWG, Pl. LXXI-B.
- 19) Arts of the Book, ed. Gray, Ill. 107.

the roof engaged in various tasks.<sup>20</sup> Many pavilions show lantern-like structures on the roofs;<sup>21</sup> in addition to letting in light it may have been possible to open parts of these for ventilation. Structures more specifically like bād-gīrs can also be seen<sup>22</sup> — Hāfiz-i Abrū remarks that all bād-gīrs in Herat faced north as the wind only blew from that direction.<sup>23</sup> In one miniature a chhatri-like structure is shown on the roof<sup>24</sup> which echoes those found on the aivans at Gāzur Gāh and Turbat-i Jām.

The area immediately surrounding the pavilion was usually paved, and frequently incorporated a water channel with a pool.<sup>25</sup>

Fabrics of different kinds added luxuriousness to the interiors. Carpets were spread on the dais of each alcove, and on these further velvet-brocaded and embroidered cloths and bolsters were used for reclining.<sup>26</sup> Cloth curtains were spread over doors and windows.<sup>27</sup> The most elaborate use of fabrics, however, was both as material and as furnishing for tents.<sup>28</sup> These were used in a garden setting

- 
- 20) E.g. catching birds, F.R. Martin, The Miniature Paintings and Painters of Persia, India and Turkey (London, 1912), Pl. 80A; lamentation, B. Gray, Persian Painting (Geneva, 1961), p. 122.
- 21) Lukens, op. cit., Figs. 1-3. Earlier examples can be seen in Il-Khanid manuscripts: see Rice and Gray, Rashīd al-Dīn, Pls. 54-5.
- 22) Serajuddin, op. cit., p. 100.
- 23) HA, p. 12.
- 24) B. Gray, Persian Miniatures from Ancient Manuscripts, UNESCO 1961, Pl. 8; Serajuddin, op. cit., p. 81.
- 25) Robinson, "Bāysonghor," Fig. 11. Water could even be found flowing through the pavilions: ibid., Fig. 10. See also the layout of the chahār bāgh based on the Irshād, n. 8 above.
- 26) Ibid., Fig. 10; Arts of the Book, ed. Gray, Ill. 89.
- 27) Arts of the Book, ed. Gray, Ill. 89.
- 28) The most thorough treatment is by Andrews, op. cit., pp. 143-87.

for the wedding and circumcision feasts mentioned above, and a late fifteenth century miniature juxtaposes a garden pavilion with a royal tent in what may be a representation of Sultan Husain's seat of government, the Bāgh-i Jahān Arāy.<sup>29</sup>

Finally, it may be observed that our knowledge of the development of the garden pavilion in Iran is still very limited.<sup>30</sup> One of the first examples to be represented in miniatures is also one of the finest, that of the three-storey castle of Humāyūn set in a garden, by Junaid.<sup>31</sup> The pavilion does appear to be square, however, whereas most of the later ones depicted are polygonal—the Namakdān being twelve-sided.<sup>32</sup>

Although in fifteenth century Herat the ruler's preference was for a residence some way outside the walled town and its citadel, this was not always the case in other provinces. Mīrzā Iskandar, who ruled Isfahan from 1409-14 A.D., built there a complex which included a palace, hammāms, bazars, a madrasa and a hospital, all surrounded by a double set of walls guarded by a moat.<sup>33</sup> In Yazd he also built a three-storeyed palace inside the citadel.<sup>34</sup> A little later, however,

---

29) Arts of the Book, ed. Gray, Ill. 111.

30) No trace remains of the "splendid garden kiosk" which Ghāzān Khān built in his suburb at Tabriz. See Wilber, AII, p. 17.

31) B. Robinson, Persian Drawings (New York, 1965), Pl. 4.

32) One may also compare the Çinili Kiosk in Istanbul, which in vaulting and decoration is purely Persian, and whose cruciform plan with ancillary corner rooms may be a reflection of Persian pavilions. For a plan and section see G. Goodwin, A History of Ottoman Architecture (London, 1971), p. 136.

33) J. Aubin, "Le mécénat timouride à Chiraz," Studia Islamica VIII (1957), pp. 75-6.

34) In 808/1405-6: qasr-i ʿālī sih tabaqa bisākht bā ghurfahā, TJY, p. 92.

in 814/1411-2 in Shiraz his palace was built outside the town fortress, to the north of the city<sup>35</sup>— at last he felt confident of his external and internal security. This confidence was certainly not lacking in Khurasan. As a final example one may note <sup>c</sup>Abd al-Razzāq's report of Shah Rukh's pilgrimage to Mashhad in Ramadān 821/Oct.-Nov. 1418, when he ordered a chahār bāgh and palace (sarāy) to be built east of the town for his stay on future pilgrimages.<sup>36</sup>

Other Residential Buildings There is much less evidence available for interpretation on this subject, one ignored by court historians and painters. It is possible, however, that the unchanging layout of the old city of Herat subsumes the possibility that dwellings within it have remained virtually unchanged for centuries:

"Most houses in the old city are rather small (thirty feet square is probably average) one or two-storied structures built of sun-dried brick faced with mud. The house is attached to thick compound walls at a corner and these form two of its sides. Functional differentiation of space within the house decreases with income; most are divided into two rooms, one of which is set aside as the harim."<sup>37</sup>

Many dwellings would have been even more rudimentary than those described above. The house of one notable shaikh in Herat seems to have been a single domed room,<sup>38</sup> and while asceticism may have inspired his choice, poverty undoubtedly decreed the same for numerous others.

---

35) Aubin, op. cit., p. 76.

36) MS, p. 379. It was used by Abu'l-Qāsim Bābur as his seat of residence in Mashhad in his brief period of power before his death: RS, VI, p. 802; MS, p. 1116.

37) P. English, "The Traditional City of Herat, Afghanistan," From Madina to Metropolis, ed. L.C. Brown (Princeton, 1973), p. 81.

38) MI, p. 72. The shaikh was buried in this room. For another case of burial in a house see MI, p. 92.

At the same time it should be realised that the actual dwellings now present in the old city are unlikely to be of any great antiquity, due to the continued necessity for repair of mud-brick structures—a recent study of mud-brick houses in an old quarter of Isfahan showed that none were likely to be more than 150 years old.<sup>39</sup> While it is likely that lower-class Timurid housing was similar to that described above, it is also possible, as English remarks, that that type of housing has remained constant over a thousand years or more, untouched by the fashions which dictated court architecture.

Another problem concerns the houses of the bourgeoisie and court officials: could one expect dwellings as fine as, say, those of the merchants in Safavid Julfa?<sup>40</sup> Apparently the answer must be yes, for although the gardens and buildings within them enumerated by Khvāndamīr in the Khulāsat al-Akhbār were built by members of the royal family (with the exception of Mīr <sup>c</sup>Alī Shīr), he informs us that for reasons of their great number he has had to leave out accounts of the fine gardens (or residences—mavādi<sup>c</sup>, literally places) and houses (manāzil) built by other amirs and government officials.<sup>41</sup> No clearer example could be given of the equation of garden with residence at that time. Earlier, Hāfiz-i Abrū describes how in the time of Shah Rukh ministers and nobles (irkān-i daulat va <sup>c</sup>aiyān-i haẓrat), each according to his own rank, engaged in erecting mansions, palaces, pavilions and gardens (dūr va gusūr va <sup>c</sup>imārat-i kākh va bāgh) and in raising up arches and arcades (tāq va rivāq).<sup>42</sup>

---

39) L. Golombek and R. Holod, "Preliminary Report on the Isfahan City Project," p. 582.

40) On these see K. Karapetian, Isfahan, New Julfa: Le Case degli Armeni, The Houses of the Armenians (Rome 1974).

41) KA, p. 26.

42) HA, p. 11; Allen, Timurid Herat, pp. 42-3.

A description in the Tārīkh-i Yazd of an early fifteenth century house built by a local qādī may not be untypical of houses of notables in Herat:

"He built three fine houses connected with each other in the Madrasa <sup>c</sup>Abd al-Qādriyya quarter, as well as a tall bād-gīr, a small garden with trees, a well and a cistern. Over the entrance he built a tall portal (sābāt), and an edifice on top of the stable, and a small garden on one side, all strong and finely built. Leading to the house which he built for his beloved son he erected a reception room (tanabī) and a bād-gīr and two covered balconies (shāh-nishīn) decorated with fine coloured glass."<sup>43</sup>

A laconic description of residential buildings is also provided by the Chinese ambassador Ch'en Ch'eng, who visited Herat before 1415 A.D.:

"The houses there are built of stone and resemble a high level terrace. The interior, comprising several tens of kien (a division of a room made by the framework, or a unit for measuring rooms), is empty. The doors and the windows show beautifully carved work adorned with gold and precious stones. They spread over the floor carpets, which they sit on cross legged."<sup>44</sup>

The "empty interior" probably refers to the absence of beds or chairs, but the reference to stone and the decorated windows and doors indicates the kind of upper-class residence in which an ambassador would have been likely to be accommodated.

The princely houses may have been similar to several which were found in Afghan Sistan, many of which consisted of a courtyard surrounded by small rooms on three sides with a large central aivan flanked by two-storey rooms on the fourth. Other examples with two

---

43) TY, p. 76.

44) Bretschneider, Mediaeval Researches, p. 287.

or even four aivans are also known.<sup>45</sup>

Not all houses in Herat were situated in gardens, however. Within the old city of Herat Sultan Ahmad Mirzā built one house on top of one of the towers of the city walls which was famous for the view it commanded over the gardens and pools inside and outside the town.<sup>46</sup>

Fortifications When Tīmūr captured Herat he laid waste the outer walls of the town but left the citadel intact.<sup>47</sup> This latter was built of mud-brick, but by 818/1415-6 had become sufficiently dilapidated for Shah Rukh to order a massive rebuilding programme,<sup>48</sup> evidence enough for the importance in which it was held. Along with the Qal'ā-yi Imād<sup>49</sup> it figured prominently in the annals of fifteenth century history in Khurasan. Each of these forts performed several functions. Their primary raison d'être was military, of course, and the defences of each were sufficiently strong to withstand frontal attack and necessitate conquest by siege.<sup>50</sup> In addition each acted

---

45) Fischer, "Reconnaissance," p. 152, Pls. 5-8.

46) RJ, I, pp. 80-1. Sultan Ahmad was the grandson of Mirānshāh and Sultan Husain's brother-in-law: see Barthold, III, p. 35.

47) MS, p. 300.

48) Ibid., p. 299.

49) The exact location of this fort is not known; it was probably in the mountains north of Tūs: see RJ, II, p. 208, where Shah Mahmūd is reported to have been in command of the territory in the vicinity of Tūs and Qal'ā-yi Imād in 862H.

50) Ūlūgh Beg was unable to take Qal'ā-yi Imād after conquering Herat upon Shah Rukh's death: MS, p. 948, Barthold, II, p. 149. Abū Sa'id left Herat after unsuccessfully besieging the fort for forty-one days in 1457 A.D.: Savory, "The Struggle for Supremacy in Persia after the Death of Tīmūr," Der Islam XL (1965), p. 47.

as a repository for the wealth of the treasury.<sup>51</sup> The Herat citadel had further uses, both as a prison<sup>52</sup> and as a place of execution.<sup>53</sup> In this respect it seems to have been like the Kōk Sarāy fort in Samarqand built by Tīmūr, which "served mainly as a treasury and state prison under both Timur and his successors."<sup>54</sup>

The inscriptions which adorned the Herat and Imād forts attest that they also served as a highly visible manifestation of the rulers in whose name they were dedicated.<sup>55</sup> The exceptional height (1m) of the foundation inscription of the Herat citadel ensured that this message was given maximum publicity. Miniatures also portray castles whose walls are gaily decorated with inscriptions and vividly coloured banna'i-technique.<sup>56</sup>

The lack of comparative material again makes it difficult to assess the Timurid contribution to military architecture, an architecture

- 
- 51) After Shah Rukh's death 40,000 tūmans were in the Herat citadel, together with 200 tūmans belonging to <sup>c</sup>Abd al-Latīf: MS, pp. 935, 945. After <sup>c</sup>Alā al-Daula's defeat by Ūlūgh Beg he went to the Qal<sup>c</sup>a-yi <sup>c</sup>Imād, opened the treasury, and dispensed money freely: MS, p. 940; Barthold, II, p. 149.
- 52) Barthold, II, p. 147. An unusual edifice is described by <sup>c</sup>Abd al-Razzāq: In 868H. Muhammad Jūkī b. <sup>c</sup>Abd al-Latīf was brought to the Herat fort and imprisoned "dar zandānī ki bi-surat-i manār dar mān-i hisār sākhta būdand": MS, p. 1278.
- 53) Barthold, III, pp. 57; 59.
- 54) Barthold, II, pp. 40-1.
- 55) For those on the Herat citadel see Cat. No. 1. The Qal<sup>c</sup>a-yi <sup>c</sup>Imād inscriptions were written by Maulānā Qādī <sup>c</sup>Abd al-Vahāb Mashhadī, and appropriately used the only verse from the Quran in which the word imād occurs: "with many-columned Iram, the like of which was not created in the lands," LXXXIX/7, (tr. Pickthall), MN, p. 27.
- 56) Arts of the Book, ed. Gray, Ill. 101; I. Stchoukine, Les Peintures des Manuscrits Tīmūrides (Paris, 1954), Pl. LXXXVIII.

whose form in any case is largely determined by the individual idiosyncrasies of the outcrop selected for fortification. The use of mortars became more frequent in the fifteenth century,<sup>57</sup> and this may have been a factor in the decision to rebuild the Herat fort in stone and baked brick, rather than the mud-brick of which it had been constructed previously.<sup>58</sup>

Dams and Canals The number and quality of dams of the Mongol period in Iran, and particularly in Khurasan, shows that sophisticated engineering techniques could be used to implement irrigation. Bābur enumerates four dams supposedly built by Sultan Mahmūd near Ghaznī, one of which was in working order at the time he wrote.<sup>59</sup> Tīmūr also undertook irrigation schemes, in areas as far apart as Kabul and Mughān near the Caspian, as well as in Transoxiana and Khurasan.<sup>60</sup> Shah Rukh was equally aware of their importance: encountering opposition from the local ruler in Zara, south of Farāh in Sistan, he retaliated by destroying three famous dams in the neighbourhood which were reputed to date from the time of Rustām, completing the ravage of the province which his father had undertaken earlier, and condemning it to the sterility it manifests to this day.<sup>61</sup>

The following year, however, shows him in the more familiar guise of builder. Marv had lain fallow for 194 years since its destruction by Chinghiz-Khān's son Tolui when in 812/1409-10 Shah Rukh ordered it

---

57) Khunjī, Tārīkh-i Ālam-ārā-yi Amīnī, abridged tr. by V. Minorsky as Persia in A.D. 1478-1490 (London, 1957), Annex II, "The Aq-qoyunlu and fire-arms."

58) MS, p. 301.

59) Bābur-nāma, tr. Beveridge, p. 219.

60) Barthold, II, p. 41.

61) MS (1963 ed.), p. 71.

to be rebuilt. The first step was to dam the Murghāb and rebuild the main canal, which, being twelve faraskhs long, took a full year, even using presumably the whole resources of the army.<sup>62</sup>

Three of the dams in the catalogue can be assigned to the reign of Shah Rukh (Kirāt, Akhlamad, Gulistān). While none of them may have been erected under his own patronage, it was apparently in his reign that a register of water distribution rights was drawn up for Herat.<sup>63</sup> This was later revised in Abū Sa<sup>c</sup>īd's reign.<sup>64</sup> A revision would in any case have been necessary after the building of the Jū-yi Sultānī by Abū Sa<sup>c</sup>īd's vizir Qutb al-Dīn Tā<sup>c</sup>ūs Simnānī.<sup>65</sup> It led from the Kūh-i Zanjir Gāh northeast of Gāzur Gāh to the Chashma-yi Māhiyān, one farsakh away to the west, and two hundred men were employed for two years on the project. Isfizārī's account of the consequences of its construction is particularly interesting,<sup>66</sup> since he relates that only after it was built did the area between the Injīl canal and the Jū-yi Sultānī become full of gardens and buildings. Abū Sa<sup>c</sup>īd died when it was being erected,<sup>67</sup> and so it was left to Sultan Husain to reap its potential benefits.<sup>68</sup>

Abū Sa<sup>c</sup>īd also repaired the Gulistān dam, while at the same time appropriating the lands it watered. In contrast Sultan Husain gave

---

62) Ibid., p. 95. The width of the canal at the dam was 20 gaz (12m), at its entrance to the city 15 gaz (9m); it was 5 gaz (3m) deep.

63) TQ, p. 81.

64) TQ, p. 15.

65) DV, pp. 385-7; RJ, I, p. 85; MS, p. 1343; Allen, Catalogue, No. 35.

66) Tr. in full in Allen, Catalogue, No. 35.

67) Ibid.

68) It is the buildings and garden which were erected under Sultan Husain which so materially transformed the northern suburbs of Herat. See Allen, Timurid Herat, pp. 47-58, 108-11.

the revenue from the dam at Salāma, built by Ghiyāth al-Dīn Kart, to support charitable buildings (biqā<sup>c</sup>-i khairāt).<sup>69</sup>

The description of Mīr <sup>c</sup>Alī Shīr's buildings by Khvāndamīr in the Makārim al-Akhlāq is the most comprehensive record of any fifteenth century architectural patron's building programme that we possess, but only two dams<sup>70</sup> are mentioned among the numerous bridges, cisterns and caravanserais. However, Daulatshāh also mentions his construction of a canal ten farsarkhs long from the Chashma-yi Gul in the district of Tūs to the town of Mashhad.<sup>71</sup>

The dams at Akhlamad and Kirāt are of the simplest kind, relying on sheer weight to keep back the water. The possibly tenth century Band-i Amīr near Persepolis is of the same type. That of Turuq, and possibly also the Gulistān dam, is vaulted, giving greater rigidity to the structure by curving slightly towards the upstream face. This technique, especially suited to a valley with close-set, high sides, was used in Iran at least as early as the Mongol period.<sup>72</sup> It is difficult to point to any Timurid innovation in dam building techniques other than that of positioning wells in external abutments, avoiding the structural weakening that would occur when they were set in the main body of the dam. Only four of the nine abutments of the Akhlamad dam have wells - the other five may have been added as much for their imposing symmetry as for extra rigidity.

The sheer size of dams attributable to the fourteenth and fifteenth centuries, together with the evidence that a prolific builder

---

69) RJ, I, pp. 199-200.

70) MA, f. 147a. The two dams were at Khairābād and Turuq; for the latter see Cat. No. 43.

71) TS, p. 376 (see Cat. No. 47).

72) Goblot, "Kébar," pp. 43-9.

such as Mīr <sup>C</sup>Alī Shīr built only two, suggests that the resources in manpower and money needed to erect them were limited to a few patrons.

Cisterns and Baths Nineteen cisterns and nine ḥammāms by Mīr <sup>C</sup>Alī Shīr are listed in the Makārim al-Akhlāq.<sup>73</sup> Several of these were in Herat, yet Khvāndamīr does not mention them in his account of the buildings of the city in the Khulāsat al-Akhbār. The obvious inference is that these structures were thought unworthy of mention by historians. <sup>C</sup>Abd al-Razzāq, however, mentions cisterns as among the charitable works of the amirs Jalāl al-Dīn Fīrūzshāh and Shah Malik.<sup>74</sup> There is no reason to assume that other patrons refrained from building them - cisterns are mentioned with regularity, usually as parts of larger complexes, in the Tārīkh-i Yazd and Tārīkh-i Jadīd-i Yazd.<sup>75</sup>

Most of those in the catalogue are simple structures, as befits their function, but the largest, that opposite the citadel of Herat (Cat. No. 53), shows with its elaborate transverse vaulting and central cupola that display could also play a prominent part in a primarily utilitarian building.

Only the plan of one securely dated fifteenth century bath in the Iranian world is known, that of Yazd.<sup>76</sup> However, the interior of a

---

73) MA, ff. 146b-147a.

74) MS, pp. 528, 840.

75) A chapter in the TY lists six of the most important cisterns, together with transcriptions of their inscriptions (pp. 184-90). Others in TJY are usually mentioned as part of larger ensembles (pp. 224-7). Some in Herat are also mentioned in MI, but with no indication of their date of erection.

76) That dated 825/1421-2 beside the Masjid-i Jami<sup>C</sup>. See Afshār, Yādgār II, p. 124, plan opp. p. 120. Cf. also the supposedly fifteenth century Ḥājjī Ḥammām in Baku: Gink and Turánsky, Azerbaijan, p. 53.

bath is depicted in one of the most famous miniatures of Bihzād, "The Caliph and the Barber." Apart from the whitewashed walls, it shows a setting not far removed from that of a palace, with fine tiled dadoes in the common washing room and, in the apodyterium, a window with an intricate wooden lattice.<sup>77</sup> The same story is illustrated in several sixteenth century Shiraz manuscripts,<sup>78</sup> in two of which the walls have painted patterns, rather than being white-washed. Again our ignorance of pre-Timurid buildings of this type makes comment on their development in the fifteenth century difficult, although the sophisticated plan of the baths at Yazd is barely surpassed by that of the finest remaining Safavid example, that of Ganj <sup>c</sup>Alī Khān at Kirmān.<sup>79</sup>

Of the very few references to fifteenth century hammāms in Herat which we do possess, only two are royal foundations, those of Malikat Āghā, probably attached to her complex in the city.<sup>80</sup> Others are by amirs - <sup>c</sup>Alika Kūkiltāsh<sup>81</sup> and <sup>c</sup>Alī Shīr,<sup>82</sup> and one was erected in the Bazar-i Malik by a member of the ulama who served under Shah Rukh.<sup>83</sup>

---

77) B. Gray, Persian Painting (Geneva, 1961), p. 117.

78) Hillenbrand, Imperial Images, exhibit 166; G. Guest, Shiraz Painting in the Sixteenth Century (Washington, 1949), Pl. 44B.

79) Masterpieces of Iranian Architecture, Ministry of Development and Housing (Tehran, 1971), p. 214.

80) For her complex, consisting of a Dār al-Hadīth and a Dār al-Siyāda, see Allen, Catalogue, Nos. 524, 528 and references; the two hammāms together with an otherwise unrecorded khanqah are mentioned in HS, III, p. 629.

81) MI, p. 87.

82) Allen, Catalogue, No. 411.

83) Maulānā Shuhāb al-Dīn <sup>c</sup>Abd al-Rahmān Lisān, who died in 858H. aged 63. HS, IV, p. 16.

One of the hammāms of Mīr °Alī Shīr was part of his complex on the Injīl. In fact it is probable that hammāms were attached to most architectural complexes. They are frequently mentioned in these contexts in the Tārīkh-i Yazd and Tārīkh-i Jadīd-i Yazd, and Mustaufī, writing in the fourteenth century, claims that Herat had 6,000 baths.<sup>84</sup> The importance of ablution in ritual purity was obviously a factor here, especially with those living in a religious community.<sup>85</sup>

Bazars Again, this is a building category on which the sources divulge little. Clavijo alone, for instance, mentions the great bazar which Tīmūr forged through the centre of Samarqand, brooking no opposition.<sup>86</sup> Hāfiz-i Abrū, however, describes in some detail the works of Shah Rukh in the Herat bazar:

"In former times the lanes of the bazar were not covered and on account of the dust and crush the merchants and traders were inconvenienced. He (Shah Rukh) ordered bazars to be made of baked brick and mortar; tall arches were built and the roof of the bazar covered over, with spaces left for light. The shops of that pleasant place were arranged in rows; the view of the onlookers was met by chambers (suffa) with smaller rooms (hujra) above. The bazar was a spectacle in the eye of the world and spring in the meadow of time. Its covered market (chahār sū) was a square with four equal sides, situated

---

84) Hamd Allāh Mustaufī, Nuzhat al-Qulūb, The Geographical Part, ed. and tr. G. le Strange (Leiden and London, 1915, 1919), p. 152 (text), p. 151 (tr.).

85) The first rule which Abū Sa°īd, the tenth century Sufi, drew up for his community of followers was that the disciple should always be in a state of ritual purity. As Schimmel points out, this is something required of every Muslim: A. Schimmel, Mystical Dimensions of Islam (Chapel Hill, 1975), p. 243.

86) Embassy, ed. and tr. Sreznevski, text, pp. 316-8, tr., pp. 278-80.

in the centre of the circle of charitable works (khair al-biqā<sup>c</sup>). From the four gates of the town four roads led to that place (the chahār sū)."<sup>87</sup>

This central covering of the bazar, and the vaulted areas leading up to it, survived, possibly in restored form, until the nineteenth century.<sup>88</sup> Its appearance may be estimated from the many surviving sixteenth century covered bazars in Bukhara,<sup>89</sup> and indeed, being probably the finest example of its time, may well have influenced and encouraged their erection. The concept was certainly not a new one, however: Shah Yahyā the Muzaffarid had built in the centre of Yazd a domed chahār sū with forty shops known as the Bazar-i Gunbad.<sup>90</sup> His mother also built a bazar with forty shops, each with, like the Herat bazar, a hujra above.<sup>91</sup> Sometime after 828/1424-5 the vizir Shams al-Dīn Muhammad Tāhir also built a bazar in Yazd, in the middle of which was a domed edifice (gunbad-khāna).<sup>92</sup> Tīmūr's bazar in Samarqand, mentioned above, was also roofed according to Clavijo.<sup>93</sup>

Some information is available on other Timurid bazars in Herat. <sup>c</sup>Alā' al-Daula also built a chahār sūq within the old city,<sup>94</sup> and the bazar of Shaikh Chāvush, outside the Malik Gate, was repaired by

---

87) HA, pp. 9-10; B.L. Or. 1577, f. 175a. The account of <sup>c</sup>Abd al-Razzāq follows this very closely: MS, pp. 108-9, tr. Allen, Catalogue, p. 89.

88) "The four principal Streets of the Town meeting in the Charsoo... The Streets near the Charsoo are Vaulted over," Map of Herat, Copied from a Plan by Capt. Sanders and Lt. North Engineers. July 1840. B.L. 51995. (2.).

89) Pugachenkova and Rempel, Pamyatniki Uzbekistana, Pls. 40-5.

90) TJY, p. 87.

91) Ibid., p. 88.

92) Ibid., p. 112.

93) Text, p. 317, tr., p. 279.

94) KA, p. 16.

Sultan Husain.<sup>95</sup> A two-storeyed tīm of hat-sellers in the Malik bazar was made waqf to Mīr °Alī Shīr's complex - this was presumably also vaulted.<sup>96</sup>

Bridges Almost our only literary evidence for Timurid bridge building is provided by the Makārim al-Akhlāq, where Mīr °Alī Shīr is credited with the erection of thirteen bridges and the repair of two.<sup>97</sup> Isfizārī also attributes the rebuilding of a bridge known as "Tavakulī or Bābā Kamāl" to Mīr °Alī Shīr, after the original had been destroyed in the disastrous flood of 898/1492-3.<sup>98</sup> The bridge at Tīrpul, one of those which he repaired, is still extant. The construction is typical of earlier Islamic bridges in Iran: brick arches set on protruding rubble piers, with smaller relieving arches above the piers, between the main spans.

The most important bridge in the Herat area, the Pul-i Mālān, was built in 505/1111-2 by Sultan Sanjar, according to Ḥāfiz-i Abrū.<sup>100</sup> The presence of an already existing bridge here, together with its distance from the main city, would have inhibited any display of the concept of the bridge as pleasure pavilion, as it was expressed in the Khvājū and Allāhvardi Khān bridges in Isfahan.

Caravanserais One should be wary of generalizing from the five remaining Timurid caravanserais in Khurasan, when it is likely that ten or even twenty times that number were built in the fifteenth century.

---

95) Ibid., loc. cit.

96) MN, p. کب, Allen, Catalogue, No. 410.

97) MA, f. 147a.

98) RJ, II, p. 100.

99) (Deleted)

100) HA, p. 16.

Mīr °Alī Shīr alone built forty-eight according to Khvādamīr,<sup>101</sup> although some of these were no doubt repairs. Two of Shah Rukh's amirs, Shah Malik and Jalāl al-Dīn Fīrūzshāh, are credited with many ribats by °Abd al-Razzāq,<sup>102</sup> and isolated mentions occur of ribats built by Shah Rukh's wife Malikat Āghā,<sup>103</sup> by Ahmad b. °Umar Shaikh,<sup>104</sup> by one of the ulama,<sup>105</sup> and by a vizir of Abū Sa°id.<sup>106</sup> The disappearance of most of these is hardly surprising when Khvādamīr notes a caravan-serai built by °Alīka Kūkiltāsh (d. 844/1440-1), which exceptionally was still largely intact at the time he wrote (928/1520-1).<sup>107</sup>

None have been attributed to the three main rulers of Khurasan in the fifteenth century, presumably because most of their building activities were concentrated on major projects in Herat. But it is unlikely that they did not build some, even if not in the vast quantity of Mīr °Alī Shīr.<sup>108</sup>

---

101) MA, ff. 146a-b.

102) MS, pp. 528, 840.

103) HS, III, 69.

104) BV, I, p. 463.

105) See n. 83.

106) MI, p. 29.

107) HS, III, p. 629: "ān buq°a dar kamāl-i vas°at va raf°at va tā ghāyat ki sinīn-i hijrī bi-sana-yi tisa° wa °ashrūn wa tisa°mi'a rasīda aksar-i buyūtāt-i ān °imārat bār khvāst." On the same page Khvādamīr notes that several structures, including caravan-serais, which Malikat Āghā (d. 844H.) had built were now in ruin. Bosworth, commenting on the sources for Ghaznavid architecture, notes that authors often referred to buildings which were erected a few decades before the time of writing, but which had since become ruinous or disappeared: The Ghaznavids (Beirut, 1973), p. 139.

108) For repairs of caravanserais by Shah Rukh and Sultan Husain see Allen, Catalogue, Nos. 548, 552.

The latter were erected in all parts of Khurasan, even as far away as Āstārābād, where Mīr <sup>C</sup>Alī Shīr was governor from 1487-8.<sup>109</sup> The three remaining on the routes from Āstārābād to Isfarā'in bear a clear family relationship in their building materials (rubble alone or rubble and baked brick) and plan, each with a four-aiwan courtyard surrounded by chambers, with stables behind them alongside the entrance and side walls. The Sangbast caravanserai is similar, but with extra stables on each side of the entrance. Qūsh Ribat (Cat. No. 59), however, seems to have eliminated the chambers round the courtyard, having stables on three sides and an elaborate complex of mosque and living rooms on the fourth. This may suggest that it was principally for the use of its founder Shujā<sup>C</sup> al-Dīn Muhammad. He and his accompanying officials might have stayed in the principal rooms, while the lower ranked members of his retinue would have had to occupy the stables area or even the open courtyard. At Ribat-i <sup>C</sup>Ishq and Sangbast (Cat. Nos. 50-1) the stables have raised niches and fireplaces, showing that stable-boys, animal-keepers, or those who could not afford the better courtyard accommodation would have stayed there.

The only access to the stables is through the entrance vestibule. This strict division of courtyard and stable areas sets apart the Timurid caravanserais from both their Seljuq and Mongol<sup>110</sup> predecessors and their Safavid successors, where access to the stables was usually on the diagonal axes of the main courtyard, and where the stables often

---

109) Barthold, III, pp. 47-50.

110) Cf. the caravanserais at Sarcham, Chahār Burj, Qal<sup>C</sup>a-yi Sangī and Chahārābād in M. Siroux, Anciennes Voies et Monuments Routiers de la Région d'Isfahān (Cairo, 1971), Figs. 14, 22-4; at Za<sup>C</sup>farānī and Āhūān in Herzfeld, "Damascus-II," Figs. 2, 43; and Ribat-i Sharaf in Godard, "Khōrāsān," Fig. 2.

continued round all four sides. Also noticeable in relation to the Mongol caravanserais is the increase of stable size over accommodation in cells around the central courtyard, a trend that was continued in the Safavid period. One would like to know whether this could be related to economic causes, such as a tendency for merchandise to be carried in caravans with a greater number of camels or whether, as suggested with Qūsh Ribat above, the founder was concerned primarily with his own comfort. As the latter shows (see Cat. No. 59), ribats could be the object of a waqf, but they could also be made waqf to another institution. They were thus revenue producing, and so the heavy expenditure on them by someone like <sup>c</sup>Alī Shīr may not have been entirely disinterested. Unfortunately, however, the evidence for any scale of fees seems to be lacking from the sources.

Both Sangbast and Qūsh Ribat have two-aiwan courtyards, again a form, which, although infrequent in earlier caravanserais, was a common variation in Safavid times.

Libraries The only library which Khvāndamīr mentions in the Khulāsat al-Akhbār is that of Sultan Ahmad Mīrzā,<sup>111</sup> the brother-in-law of Sultan Husain, but not someone who was a renowned bibliophile. Where then were the libraries of Shah Rukh, Bāysunghur, Sultan Husain and Muhammad Jūkī? The calligraphers and painters, no fewer than forty of whom were in Bāysunghur's employ,<sup>112</sup> would probably have occupied one or more of the several pavilions in the royal gardens (see above), where the books would have been easily accessible, and the work in progress capable of supervision. Some calligraphers also worked in

---

111) KA, p. 16.

112) According to Daulatshāh, TS, p. 264.

their own place of residence: Khvaja Mīrak Naqqāsh, for instance, completed his commission for the inscriptions of the Herat Jami<sup>c</sup> ordered by Mīr<sup>c</sup> Alī Shīr in his house (manzil).<sup>113</sup>

Hospitals (Dār al-Shifā') Khvādamīr mentions five hospitals in Herat: two inside the town (those of Malikat Āghā and<sup>c</sup> Abd Allāh<sup>c</sup> Amīr, renewed by<sup>c</sup> Alā' al-Daula) and three outside (by Shah Rukh, Sultan Husain and Mīr<sup>c</sup> Alī Shīr).<sup>114</sup> That of Mīr<sup>c</sup> Alī Shīr, and possibly also Malikat Āghā, was part of a larger complex. No information is given about their plans, so one cannot know whether they had a four-aiwan courtyard plan like earlier hospitals in Anatolia and Egypt,<sup>115</sup> or whether new directions were explored, as in the complex of Beyazid II at Edirne.<sup>116</sup>

Students attended Mīr<sup>c</sup> Alī Shīr's hospital under the supervision of the physicians, the head of whom, Nizām al-Dīn<sup>c</sup> Abd al-Hayy, was especially famous.<sup>117</sup> In 1490 A.D. Khvaja Ahrār prevailed on Mīr<sup>c</sup> Alī Shīr to release him in order to attend to him in Samarqand.<sup>118</sup> One of the physicians of Shah Rukh's time, Shams al-Dīn Muhammad b. Ādam, was even supposed to be able to heal patients by faith<sup>119</sup> - though whether in God or the physician is not specified.

The hospital staff could travel, if necessary. In Farāh in 820/1417-8 Shah Rukh was injured by a fall from his horse, and a bone setter (shikasta bandī) was sent from Herat. He had the improbable

---

113) MA, f. 177b.

114) KA, references in Allen, Catalogue, Nos. 526-30.

115) M. Rogers, The Spread of Islam (Oxford, 1976), p. 94.

116) Goodwin, History, Fig. 135.

117) RS, VII, p. 526.

118) Barthold, III, pp. 34-5; HS, IV, p. 342.

119) Barthold, II, p. 138; MF, III, p. 290.

name of Ustād Mīr Vai Kamāngar (the bowmaker!).<sup>120</sup>

Mosques The four-aiwan courtyard plan could still be regarded at the beginning of the fifteenth century as the standard plan for large-scale mosques in Iran. Five mosques in the catalogue use this plan: the Friday Mosques of Gauhar Shād in Mashhad and Herat, and those of Ziyāratgāh, Ghuriyān and Mīr °Alī Shīr.<sup>121</sup> Closely related are those with two aivans: the Friday Mosques of Turbat-i Jām, Bajistān and Nīshāpūr. As the mosques of Zūzan and Faryūmad show, the two-aiwan plan was well known in Khurasan, although the presence of a shabistān on one side of the courtyard at Bajistān shows that a more probable influence was the mosques of the Yazd area. While the Khvāf Masjid-i Jami° (Cat. No. 28) now only displays one aivan, the renovations of 1971 A. D. may have removed a second aivan across the courtyard and an older shabistān on the side of the courtyard, so it too may have had a plan related to Yazd.

Apart from Bajistān and Nīshāpūr, all the above have dome chambers behind the qibla aivan, though in the case of the Khvāf Masjid-i Jami° the dome chamber was introduced at a later stage.

In addition to this "standard" plan for congregational mosques, three smaller mosques (Masjid-i Chihil Sutūn, Ziyāratgāh; Masjid-i Hauz-i Karbās; Uba Masjid-i Jami°) display related plans based on the multiplication of one of the simplest units of architecture, the domed arcade. Perhaps surprisingly, this does not take the form of an earlier arrangement of three rows of three bays found in the Masjid-i Nuh Gunbad at Balkh or the Mosque at Hazāra, although the Uba Masjid-i

---

120) MS, p. 361.

121) Mirkhvānd mentions that the Jami° of °Alī Shīr had four aivans: RS, VII, p. 525.

Jami<sup>c</sup>, which has two rows of three bays, and the Masjid-i Hauz-i Karbās, which is essentially a single three bay unit, seem to be echoes of this tradition. The plan of the Masjid-i Chihil Sutūn, with a shabistān of three rows of seven bays, fronted by two open rows of three bays, shows that clarity of disposition could be an acceptable substitute for monumentality in a neighbourhood mosque.

Other mosques use the dome chamber as their principal unit, either alone, as in the Masjid-i Gunbad, Ziyāratgāh, or as a pair flanking an aivan, as at Rushkhvār. The Hindvālān Jami<sup>c</sup> is anomalous in that each of its three dome chambers were built separately in a line beside each other. None of these dome chambers are preceded by a pishtaq, as in Ūlugh Beg's Masjid-i Jami<sup>c</sup> at Shahr-i Sabz,<sup>122</sup> although the combination was still used for khanqahs/mausoleums such as the Tāybād buq<sup>c</sup>a or the Mausoleum of Abu'l-Valīd at Āzādān.

Only two mosques have a two-storey courtyard facade, those of Gauhar Shād at Mashhad and Herat. That at Mashhad is structurally redundant, being no more than a narrow upper gallery. It finds echoes in the blind niches to either side of the qibla aivan of the Ghuriyān and Ziyāratgāh Jami<sup>c</sup>s. This feature, however, looks back to the Varāmīn Jami<sup>c</sup><sup>123</sup> - the seeds of facade architecture have already been sown in a monument which has been called the "most perfect example of the classical Iranian mosque."<sup>124</sup>

Perhaps the most significant change in the mosque plan was Qavām al-Dīn's use of living chambers in two storeys in the Gauhar Shād

---

122) Popularly known as the Kōk Gunbad; the few remaining tiles of the foundation inscription include the phrase hadha'l-jāmi<sup>c</sup>.

123) Wilber, III, Pl. 129.

124) O. Grabar, "The Visual Arts 1050-1350," CHI, V, ed. J.A. Boyle (Cambridge, 1968), p. 629.

Jami<sup>c</sup> in Herat. This seems to have been a de facto recognition of the prevailing situation whereby mosques were still used for religious education, and as places of retreat for Sufis. The Chinese ambassador Ch'en Ch'eng's account of the Herat Masjid-i Jami<sup>c</sup>, which he visited before 1415 A.D., is particularly revealing:

"In the middle of the city (of Herat) there is a great building erected of clay. This is a college, called mo-de-rh-sai in the language of the country. In it a large copper vessel has been placed, which is several fathoms in circumference, with letters engraved on it. It resembles in shape the ancient (Chinese) vessels called ting (a large tripod vessel).

...in the middle of the college there is a great house in which the yu hio (travelling scholars, students) live. It is provided with rooms on all four sides and a gallery runs all around. The literary men are wont to repair to this college as the Chinese scholars to the ta-hio (university)."<sup>125</sup>

The reference to the bronze basin (776/1375) which still remains in the courtyard of the Friday Mosque eliminates all doubt as to the identity of the building.<sup>126</sup> One could also mention Nūr al-Dīn Ziyāratgāhī who after teaching in the madrasas of Mīr<sup>c</sup> Alī Shīr and Sultan Husain in Herat went to Balkh in 895/1489-90 to teach in the Masjid-i Jami<sup>c</sup> there.<sup>127</sup>

Evidence for use of mosques by Sufis comes from Vā<sup>c</sup>iz who records that dervishes and Sufis (auliyā Allāh) were wont to gather in the Masjid-i Panja in Herat, despite (or because of?) its reputation as a

---

125) Bretschneider, Mediaeval Researches, II, pp. 287-90.

126) The basin was made specifically for the Herat Jami<sup>c</sup> and so is always likely to have remained there. See Melikian Chirvani, "bassin," p. 13.

127) HS, IV, p. 347. On the use of mosques for education in the Mongol period see also Ettinghausen, "Some Comments," pp. 285-9.

place of spirits, where not anyone could remain alone at night.<sup>128</sup>

The Masjid-i Gunbad of Khvaja Nūr was often frequented by one of the most famous shaikhs of the early fifteenth century, Zain al-Dīn Khvāfī.<sup>129</sup> Like the Masjid-i Chihil Sutūn and Masjid-i Gunbad at Ziyāratgāh, it possessed a chilla-khāna for the practice of asceticism.

As a corollary, one should mention that Friday prayers could be performed in buildings other than mosques: in 904/1498-9 Mīr °Alī Shīr appointed a khatīb and muezzins to the Shrine at Gāzur Gāh specifically for giving the Friday prayer (namāz-i jum°a).<sup>130</sup> A dome chamber (gunbad) in the khanqah of °Alī Shīr's Ikhilāsiyya complex was to be used for Friday prayers when rain and snow prevented people living in the neighbourhood from reaching the Masjid-i Jami°.<sup>131</sup>

The use of an entrance complex in mosques is also probably a reflection of their multi-functional use. While one of the chambers on the side of the vestibule may have been used as a shabistān, the other, as in the Ziyāratgāh Jami°<sup>c</sup>, could contain a courtyard with cells for students, travellers or shaikhs. Or they could have functioned as a lecture hall (darskhāna) or assembly hall (jamā°atkhāna), as the case may have been in the Mosque of Gauhar Shād in Herat. The debt of the Masjid-i Shah in Isfahan to Timurid architecture has often been recognised, and it may have been Shah °Abbās' familiarity with Gauhar Shād's mosque (he grew up in Herat) which led him to incorporate two madrasas within its framework. Apart from this seventeenth century

---

128) "shabhā tanhā dar ān jā bi-sar burdan kār-i har kas nīst," MI, p. 58.

129) MI, p. 52; it was located near the Darb-i Khush.

130) KA, p. 24.

131) A khatīb, imam and Quran readers were specifically appointed to the dome chamber for that purpose. The information comes from the waqfiyya of the Ikhilāsiyya complex: MN, introduction, p. 15; Allen, Catalogue, p. 94.

example, it was only in the nineteenth century that the legacy of Gauhar Shād's mosque was fulfilled in buildings such as the Masjid-i Āqā Buzurg in Kāshān and the Masjid-i Sultānī in Simnān,<sup>132</sup> both of which contain living chambers around a central courtyard.

Musallas The musalla of Herat, alternatively called the Ādgāh or namāzgāh, situated at the foot of the Kūh-i Mukhtār to the north of the city, played a large part in religious ceremonial in the fifteenth century.<sup>133</sup> Apart from its traditional use as a place of communal prayer on feast days,<sup>134</sup> it was also used for funerary prayers before burial, even if the place of burial was some way removed from the musalla, as in the case of Sultan Husain's madrasa,<sup>135</sup> or Mīr Ālī Shīr's dome chamber beside his Masjid-i Jami<sup>c</sup>,<sup>136</sup> or the dome chamber erected for Kuchuk Mīrzā at Gāzur Gāh.<sup>137</sup>

In 863/1458-9 Abū Sa<sup>c</sup>īd erected a building (Āmārat) at the musalla,<sup>138</sup> which Khvāndamīr describes as an aivan.<sup>139</sup> This could

---

132) The madrasa set with the musalla in Yazd may also come within this category: see A. Godard, "Les Monuments du Feu," AeI, III (1938), pp. 72-9. For the Āqā Buzurg see Narāqī, Kāshān va Natanz, pp. 254-62; for Simnān see Mukhlisī, Simnān, pp. 91-106.

133) See Allen, Catalogue, No. 532.

134) E.g. Badī<sup>c</sup> al-Zamān's observances of the month of Ramadān, RS, VII, p. 318; HS, IV, pp. 372-3.

135) RS, VII, p. 240.

136) MA, f. 183a.

137) RS, VII, pp. 99-100.

138) MS, p. 1200; RS, VI, p. 828; Allen, Catalogue, No. 532. Allen ascribes the building to Abu'l-Qāsim Bābur, "an error doubtless occasioned by Abu'l-Qāsim Babur's confusing epithet, 'Sultan Sa<sup>c</sup>īd,'" as he remarks of Price's (correct) translation of KA. However, Abu'l-Qāsim had died in 861H., two years previously.

139) KA, p. 22.

also be used to describe what may be the only remaining Timurid musalla, that of Turbat-i Jām (Cat. No. 48); a large aivan flanked by smaller two-storey niches. This is sufficiently close to the sixteenth century example in Bukhara<sup>140</sup> and the seventeenth century one at Mashhad<sup>141</sup> to constitute a related family. In each case the flanking niches were not necessary for any liturgical function. Rather a virtue was made out of necessity, as they were used for buttressing the aivan.

Madrasas As far as can be judged from the surviving monuments, madrasas form the most homogeneous group of buildings of this period. All apparently had four-aivan courtyards, with, apart from the Madrasa of Tūmān Āghā, living chambers in two storeys in between.

Two major developments characterise madrasas in the fifteenth century, the entrance complex and the domed funerary chamber.

The entrance complex appears fully developed in a building with a madrasa-type plan, the Shrine at Gāzur Gāh. It subsequently occurs in the mosque - and presumably the madrasa - of Gauhar Shād in Herat and in the Khargird madrasa - all designed by the architect Qavām al-Dīn Shīrāzī. His no longer extant madrasa and khanqah for Shah Rukh built in 813/1410-1 in Herat, may have incorporated an earlier version of it. The lack of precedents makes it more likely that it was an innovation of Qavām al-Dīn. It is not found in earlier courtyard buildings in Transoxiana such as the madrasa and khanqah of Muhammad Sultan, or the Mosque of Bibī Khānum. Neither do fourteenth century - or earlier - parallels in Iran come to mind readily. The one example that has been quoted, the addition of the mosques to

---

140) E. Cohn-Wiener, Turan (Berlin, 1930), Pl. IV.

141) A. Godard, "Khōrāsān," AeI, IV (1949), pp. 125-37.

either side of the aivan at Turbat-i Jām<sup>142</sup> does not qualify - the two mosques are far from being symmetrical like later examples, and at least one of them, the Gunbad-i Safīd, had direct access to the adjacent building complex. Ūlūgh Beg's madrasas in Samarqand and Bukhara make only a half-hearted attempt at an entrance complex,<sup>143</sup> with the domed rooms at the extremities of the facade being self-contained, but with access from a lateral extension of the vestibule to some of the courtyard cells. It was this less rigid approach that was adopted for later madrasas in Transoxiana.<sup>144</sup>

Whether the madrasas of Herat in the second half of the fifteenth century employed an entrance complex is not known. It may be that they were already moving towards the greater flexibility displayed in sixteenth century examples (See n. 144). While the greater clarity of the madrasa plan with a self-contained entrance complex may have appealed to Qavām al-Dīn's intellectual rigour, those who used the buildings may have forced a change back towards shorter routes of communication.

Since pre-Seljuq times burial in madrasas in Iran was not uncommon.<sup>145</sup> The evidence from Yazd in the fourteenth century suggests that it was increasingly popular.<sup>146</sup>

This trend away from dynastic mausoleums was abruptly halted by Tīmūr with the Dār al-Siyādat in Shahr-i Sabz, the Gūr-i Mīr and the

---

142) Golombek, "Chronology," p. 37.

143) Plans in Pugachenkova, Zodchestvo, pp. 70, 74.

144) E.g. the sixteenth century kōsh madrasas in Bukhara, or the Shīr Dār in Samarqand, plans in Pugachenkova, and Rempel, op. cit., Figs. 30, 35.

145) Hillenbrand, Tomb Towers, I, pp. 228-9.

146) TY, TJY - the examples are too numerous to warrant listing in this context.

development of the Shah-i Zinda, and even Ūlūgh Beg built what was intended to be a dynastic mausoleum in Shahr-i Sabz.<sup>147</sup>

In Khurasan, however, almost all the rulers and notables of the court were buried in madrasas, often of their own erection. Apart from those buried in the Gauhar Shād, Sultan Husain, Tūmān Āghā and Du Dar madrasas, for which Allen's and my catalogue may be consulted, the following may be noted:

H.

- 844 Amir <sup>c</sup>Alīka Kūkiltāsh buried "in the dome chamber of the fine madrasa which he had built on the Khiyābān in Herat"<sup>148</sup>
- 844 Malikat Āghā, wife of Shah Rukh, buried "in the dome chamber of her spacious madrasa in Balkh"<sup>149</sup>
- 848 Amir Fīrūzshāh buried "in the dome chamber of the madrasa which he had built near the Pul-i Injīl"<sup>150</sup>
- 861 Bābur b. Bāysunghur buried "in the dome chamber on the qibla side of the Madrasa of Shah Rukh in Mashhad"<sup>151</sup>
- 893 Beka Sultan Begum, mother of Badī<sup>c</sup> al-Zamān buried "in the dome chamber of the Badī<sup>c</sup>iyya madrasa"<sup>152</sup>
- 899 Khvaja Kamāl al-Dīn Husain buried "in the dome chamber of the madrasa on the qibla side of the Masjid-i Jami<sup>c</sup> (of Herat) which he himself built"<sup>153</sup>

---

147) Masson and Pugachenkova, "Shakhri Syabz" -II, Iran, XVIII (1980), pp. 130-1.

148) HS, III, p. 629.

149) MS, p. 751.

150) MS, p. 840; HS, III, p. 633.

151) TS, p. 328; MS, p. 116; RJ, II, p. 189.

152) RS, VII, p. 108; HS, IV, p. 182.

153) HS, IV, p. 322.

- H.
- 903 Muhammad Mu'min b. Badī<sup>c</sup> al-Zamān buried in the Badī<sup>c</sup>iyya madrasa.<sup>154</sup>
- 904 Amir Husain Mu<sup>c</sup>ammā'ī buried "in the dome chamber of the Ikh<sup>l</sup>āsīyya madrasa"<sup>155</sup>
- 910 Amir Afdāl al-Dīn Kirmānī buried "in the madrasa which he himself had built beside the tomb of <sup>c</sup>Abdallāh Ansārī at Gāzur Gāh"<sup>156</sup>
- 912 Kuchuk Begum, daughter of Badī<sup>c</sup> al-Zamān, buried in the Badī<sup>c</sup>iyya madrasa<sup>157</sup>

The most notable absentee is Mīr <sup>c</sup>Alī Shīr, who was buried "in a dome chamber beside (dar janb) his Masjid-i Jami<sup>c</sup> which had been built for this purpose"<sup>158</sup> or in another account "in the tall place of prayer (adā' namāz) on the north (dar shumāl) of his Masjid-i Jami<sup>c</sup>."<sup>159</sup> Whether this was a separate dome chamber is not entirely clear - Khvādamīr makes no mention of the mausoleum in his description of Mīr <sup>c</sup>Alī Shīr's complex in the Khulāsat al-Akhbār.

Other burials of notables are usually near graves of saints or shaikhs e.g. the vizir Pīr Ahmad Khvāfī, builder of the Khargird madrasa and Tāybād buq<sup>c</sup>a, was buried in the building (<sup>c</sup>imārat) which he had built above the grave of Shaikh Zain al-Dīn Khvāfī,<sup>160</sup> and Kuchuk Mīrzā, a nephew of Sultan Husain, was buried in a dome chamber

---

154) HS, IV, p. 215.

155) KA, p. 38.

156) DV, p. 440.

157) RS, VII, p. 320; HS, IV, p. 215.

158) MA, f. 183a.

159) HS, IV, p. 255.

160) DV, p. 357.

at Gāzur Gāh.<sup>161</sup> Unlike Samarqand, with the <sup>c</sup>Ishrat Khāna and Āq Sarāy, there seems to have been no secular mausoleums of any great distinction built in Khurasan in the fifteenth century (with the possible exception of Mīr <sup>c</sup>Alī Shīr's dome chamber). The wealth that might have otherwise gone into these undertakings was now lavished on dome chambers within madrasas. Their internal decoration could clearly be of the highest possible quality, and the tall bulbous tile-covered domes which overspread the roofs of the madrasas must have satisfied the demands of most patrons for glory as well as piety.

It was probably on this account that patrons built more madrasas than any other kind of religious building - of the thirty-three in Herat listed by Khvādamīr in the Khulāsat al-Akhbār, at least twenty-one were built or restored in the fifteenth century.

The number of teachers for each madrasa could vary from one<sup>162</sup> to eight<sup>163</sup> - although the latter figure includes those teaching in both the Madrasa and Khanqah of Sultan Husain. Lessons could be given either in the aivans<sup>164</sup> or in the dome chambers<sup>165</sup> - the weather was probably the dictating factor here. An account of the staff necessary

---

161) RS, VII, pp. 99-100. Sufis could be buried in more humble surroundings: Khvaja Tarāzūdār (the weigher), for instance, was buried in a shop which he owned in the Bazar-i Fīrūzshāh within the old city: MI, p. 38.

162) E.g. in the Madrasa of Sultan Āghā, KA, p. 21.

163) KA, p. 17.

164) Khvādamīr's biographies of the Timurid ulama mention several to whom one of the suffas (sc. aivans) of a madrasa belonged, e.g. Shams al-Dīn al-Hanafī (HS, IV, p. 359), <sup>c</sup>Abd al-Hayy Rāzī (HS, IV, p. 615), Nizām al-Dīn Sayyidī (HS, IV, p. 616).

165) Jalāl al-Dīn <sup>c</sup>Atā' Allāh taught for some years "in the dome chamber which is now the tomb of Sultan Husain," HS, IV, p. 359.

for running a madrasa is found in two waqfiyyas pertaining to buildings in Herat; one of Mīr <sup>c</sup>Alī Shīr's complex,<sup>166</sup> the other of a building referred to as a junbad (gunbad), erected by <sup>c</sup>Alīka Kūkiltāsh,<sup>167</sup> which was evidently part of a madrasa. Those on Mīr <sup>c</sup>Alī Shīr's complex included two lecturers, two groups (halqa) of eleven students each, six Quran readers, one shaikh (head of the khanqah), a preacher (vā<sup>c</sup>iz), an imam or khatīb of the Masjid-i Jami<sup>c</sup>, a reader (muqrī), a cook for the khanqah, a cook's helper (tabaqchī), a cleaner (farrāsh) and two factotums (khuddām), a mutavallī, an inspector (mushrif) and an accountant (sāhib-i jam<sup>c</sup>).<sup>168</sup> The list of the employees of the gunbad of <sup>c</sup>Alīka Kūkiltāsh is very similar in kind: a lecturer, eleven pupils, a shaikh, an imam, a muezzin, five Quran readers, a factotum, a cook, a cook's assistant, a cleaner, a general overseer (sāhib-i jam<sup>c</sup>-i kull), an agricultural overseer (sāhib-i umūr-i nasq-i zarā<sup>c</sup>at) and an accountant (sāhib-i daftar-i jam<sup>c</sup>).<sup>169</sup> The properties made waqf to the gunbad were very extensive<sup>170</sup> and were to be renewed every ten years,<sup>171</sup> so it was obviously a major building.<sup>172</sup>

---

166) An abridged Persian translation of the Turkic original is given in the introduction to MN.

167) Avī, "Waqfnāma," p. 85; Haravī, "Waqfnāma," pp. 9-25.

168) MN, p. ٤ .

169) Haravī, "Waqfnāma," pp. 21-3.

170) They included properties from Balkh, Sarakhs, Bādghīs and various districts of Herat. See Avī, "Waqfnāma."

171) Haravī, "Waqfnāma," pp. 19-20.

172) The gunbad is described as being surrounded on three sides by a graveyard and by a khanqah on the fourth (Haravī, "Waqfnāma," p. 18). The obvious identification would be with the madrasa and khanqah which <sup>c</sup>Alīka Kūkiltāsh himself erected in Herat, but this was located, according to Khvādamīr (see Cat. No. 20), at the head of the Khiyābān, whereas the gunbad was located near the Musrikh (ibid.), i.e. further S near the hill on which the Shāhzāda <sup>c</sup>Abdallāh stands.

The lists of employees in these institutions are also similar to those in the Rukniyya and Amir Chaqmāq complexes in Yazd.<sup>173</sup> Of the four, that of Mīr °Alī Shīr stands out as being the only one to make provision for two lecturers and halqas of students.

Khanqahs, mausoleums and hybrid structures      The above waqfiyyas show to some extent the way in which khanqahs had become associated with madrasas. In addition to those of °Alī Shīr and °Alīka Kūkiltāsh, Shah Rukh, Amir Fīrūzshāh and Sultan Husain also built joint foundations of khanqahs and madrasas.<sup>174</sup>

The intellectual activity of the resident Sufis was not neglected - several of the fifteenth century ulama taught in madrasas and khanqahs in Herat.<sup>175</sup> The greatest literary figure of the age, Jāmī, was also Herat's most learned Sufi, and the historian °Abd al-Razzāq, the shaikh of Shah Rukh's khanqah from 867-887H.<sup>176</sup> must have written most of the Matla° al-Sa°dain within its walls. The fact that so many patrons built madrasas and khanqahs as part of a joint complex, together with the evidence of teachers moving freely from one to the other, is strong evidence of the way in which Sufism had penetrated the fabric of Timurid society in Herat - even if not to the extent in Transoxiana,

---

173) For the Rukniyya see Holod, Monuments, pp. 34-5; Afshār, Yādgār, II, pp. 473-5; for the complex of Amir Chaqmāq see Holod, Monuments, pp. 113-4; Afshār, Yādgār, II, pp. 176-8.

174) See Allen, Catalogue.

175) E.g. Sadr al-Dīn Ibrāhīm Mashhadī (HS, IV, p. 352); Burhān al-Dīn °Atā' Allāh al-Razī (HS, IV, p. 341); Amir Jalāl al-Dīn °Atā' Allāh (HS, IV, p. 359); Maulānā Khalīl Allāh (HS, IV, p. 343).

176) E.G. Browne, A Literary History of Persia, III (Cambridge, 1964), p. 429.

where the leading Sufi, Khvaja Ahrār, was the de facto ruler.<sup>177</sup>

Other activities, however, are more traditionally associated with khanqahs - the teaching of spiritual enlightenment by the master (murshid or pir) to his disciples, recital of communal prayers and provision of food and hospitality for the poor and the wayfarer.<sup>178</sup> Many other buildings, other than those specifically called khanqahs, however, also provided some of these facilities. Khvādamīr provides a useful guide in the Khulāsat al-Akhbār. Inside the town the Dār al-Siyādat of Sultan Husain supported a lecturer and a daily distribution of food.<sup>179</sup> Outside the city, the haziras of Bībī Muhibb, Sultan Ahmad Mīrzā and Fīrūza Sultan Begum all had lecturers, with the latter also providing food for the poor.<sup>180</sup> These were all evidently substantial buildings, possibly with residential accommodation for the lecturers and students or Sufis, and with a kitchen for preparing food. Two mausoleums also may have been Sufi centres: that of Chihil Gazī which had two lecturers,<sup>181</sup> and that of Abu'l-Walīdīn Āzādān, where on Wednesdays the shaikh and factotums dispensed hospitality.<sup>182</sup> Another guide is the list of Mīr <sup>c</sup>Alī Shīr's building activities for Sufis in the Makarim al-Akhlaq.<sup>183</sup> Among a series which is mainly composed of khanqahs we find a khanqah and jama'atkhāna (assembly hall) at the shrine (mazar) of Shams al-Dīn Batadgānī, the

---

177) On Khvaja Ahrār see Barthold, II, p. 168.

178) See especially J.S. Trimingham, The Sufi Orders in Islam (Oxford, 1971), Ch. VI "The Organization of the Orders;" A. Schimmel, op. cit., Ch. V "Sufi Orders and Fraternities."

179) KA, p. 15.

180) KA, pp. 20-2.

181) KA, p. 16.

182) KA, p. 24.

183) MA, ff. 145b-146a.

buildings (ḥimārat) at the shrines (mazar) of Jāmī, Khvaja Abu'l-Walīd, Ḥabdallāh Wāhid and Khvaja Yūsuf Hamadānī, a khanqah at the shrine of Shaikh Farīd al-Dīn ḤAttār, two langars, a building (ḥimārat) at the Pool of the Fishes (Chashma-yi Māhiyān), and a ḍār al-ḥuffāz, aivan and ghulūr-khāna at the Shrine of Imam Rīza in Mashhad where, in the latter, food was daily distributed (for the latter see Cat. No. 47).

The frequent merger of khanqah and mausoleum is evident from the above list, and another recent study has shown that other funerary monuments, buq<sup>c</sup>as, often had connotations of Sufi activity.<sup>184</sup> Unfortunately the epigraphical information is lacking for a collation of these terms - of the twenty-four buildings in the catalogue which seem to come under the categories of mausoleum or khanqah, the foundation inscriptions of only two remain - the Buq<sup>c</sup>a of Tāybād and the Shrine at Āzādān. The terms used for the latter are gunbad, binā' and mashhad, none of which give any indication as to function. Nor are the literary sources consistent in their terminology. The Shrine at Gāzur Gāh provides an extreme example; it has been referred to as: mazar, hazīra, buq<sup>c</sup>a, khanqah, āstāna and even ḥimārat va masjid-i jāmi<sup>c</sup>.<sup>185</sup> Another example of this freedom of terminology with buildings which housed Sufis is given by Khunjī, who in 914/1508-9 made a pilgrimage to the Shrine of Shaikh Ahmad Yassavī, referring to it as a mazar, buq<sup>c</sup>a and hazira, and describing one of its constituent parts as a khanqah.<sup>186</sup> Clearly any one of a number of terms could be used, almost interchangeably, for buildings with Sufi communities, khanqah, hazira, langar and buq<sup>c</sup>a being among the most common. Some of these had other connotations. Khvāndamīr frequently used buq<sup>c</sup>a to apply to

---

184) O'Kane, "Tāybād," pp. 94-5.

185) Ibid., p. 95.

186) Khunjī, Mihmān nāma, pp. 168, 256-7.

any religious building, and Golombek has shown how hazira originally referred to a grilled grave surround - and continued to have this meaning in fifteenth century Herat, in addition to its meaning as a large architectural complex beside, or over, a grave.<sup>187</sup>

It was remarked above that several of the ulama were reported by Khvādamīr to have taught in both madrasas and khanqahs. One of the most renowned, Kamāl al-Dīn Husain Vā<sup>c</sup>iz, author of the Anvār-i Suhailī, was especially versatile: on Fridays he preached in the Dār al-Siyādat of Sultan Husain and gave the Friday prayer in the Masjid-i Jami<sup>c</sup> of <sup>c</sup>Alī Shīr, on Tuesdays he preached in the Madrasa of Sultan Husain and on Wednesdays at the shrine (dar sar-i mazār) of Abu'l-Walīd at Āzādān. Towards the end of his life he would spend some Thursdays at the Hazira of Sultan Ahmad Mīrzā.<sup>188</sup> Religious instruction, then, could be carried out in any edifice. A khanqah, or building which functioned as one, could equally vary in size - from a small single chamber such as that beside the Imāmzāda Ja<sup>c</sup>far at Damghān<sup>189</sup> to the Hazira at Gāzur Gāh.

This makes the functional classification of our remaining buildings in the catalogue more difficult. Eight of them consist of single-storey dome chambers and these, mostly located in cemeteries and in some cases provided with crypts, are obviously mausoleums, with no structural evidence to suggest they served any other function. These are the Gunbad-i Khishtī and the dome chambers at Ziyārat, Naukhandān, Jaghatain, Sangvar, Jūkhvāh, Āzādān, Kusraviyya and Sibarz (Cat. Nos. 10, 16, 18, 20, 30, 36, 51, 56). Only for one of these do we have any historical references, that of Āzādān, where, as noted above, Kamāl

---

187) Gazur Gah, Ch. IV "Form and Function," esp. p. 107.

188) HS, IV, p. 345.

189) For its identification as a khanqah see Adle, "Note," p. 182.

al-Dīn Vā<sup>c</sup>iz preached on Wednesdays and the shaikh and his servants provided food for visitors.<sup>190</sup> However, Khvādamīr describes this activity as taking place dar sar-i mazār, at the shrine or place of pilgrimage, and as the shrine might be said to include the jamā<sup>c</sup>atkhāna which was built adjoining the dome chamber, the preaching and distribution of food may have taken place inside the former.

None of these mausoleums is of such high quality as those which were incorporated in madrasas (e.g. those of Tūmān Āghā or Gauhar Shād), although the best, Āzādān, Khishtī and Ziyārat, are not much inferior.

What of structures which are built near to graves, which frequently do not contain any signs of burial within them and which, in addition to a large dome chamber, contain a number of subsidiary rooms? Under this heading one can include the khanqahs of Mullā Kālān at Ziyāratgāh and Sadr al-Dīn Armānī at Dih-i Manār (Nos. 49, 34), the hazira at Gāzur Gāh (No. 9) and the buq<sup>c</sup>a at Tāybād (No. 24).

With regard to the hazira at Gāzur Gāh and the buq<sup>c</sup>a at Tāybād other studies have shown that there is good reason to believe that both were connected with Sufi activities.<sup>191</sup>

Recently, however, the identification of such buildings as the structures at Dih-i Manār and Ziyāratgāh have been questioned by Terry Allen.<sup>192</sup> He points out that no contemporary inscriptions remain which describe them as khanqahs, and compares them with the <sup>c</sup>Ishrat Khāna in Samarqand. The waqfiyya of the latter describes it as a gunbad and as far as religious activities are concerned only provides for reading the Quran at the graveside. This argument has

---

190) See n. 188.

191) See n. 187 and O'Kane, "Tāybād," pp. 94-6.

192) Catalogue, p. 147.

a number of problems, however. Firstly, the <sup>ᶜ</sup>Ishrat Khāna is indubitably a mausoleum - it has a crypt. But in the case of Dih-i Manār and Ziyāratgāh not only is there no direct evidence to suggest that they were mausoleums, there is also evidence to suppose that they were not, as in each case they are identified with a grave of a religious figure which is located outside the structure. Secondly, the <sup>ᶜ</sup>Ishrat Khāna is a secular mausoleum, having been built for a member of the royal family. What function should we then attribute to its numerous ancillary chambers? There are many more than would be needed for the Quran readers. Perhaps they served the same function as the numerous hawshes which were built in Mamluk Cairo, where the Sultan and his retinue would repair on major feast days. After many of the royal funerals of the late fifteenth century Khvāndamīr mentions that the participants partook of a funeral repast.<sup>193</sup> On one occasion, the feast at the end of Ramaḡān 911/Jan.-Feb. 1506, Sultan Badī<sup>ᶜ</sup> al-Zamān and the other court officials went to the ᶜidgāh and offered prayers for the repose of the soul of Sultan Husain. Then, as a meal (āsh-i ᶜazīm) had been ordered, the party returned to the royal madrasa where everyone consumed delicacies and sweetmeats.<sup>194</sup> A similar retinue could have been accommodated in the two storeys of rooms in the <sup>ᶜ</sup>Ishrat Khāna.

But what of the rooms in the structures at Dih-i Manār, Ziyāratgāh, Purān or Naukhandān? It is difficult to imagine them as the scene of a courtly banquet. They can be more easily envisaged as the abode of Sufis. Although most of the above buildings are situated in cemeteries, these were places in which Sufis were known to reside. According to

---

193) E.g. after the funeral of Sultan Husain; MS, IV, p. 320.

194) See n. 134 above.

Vā<sup>c</sup>iz, Bābā Hasan Turk was buried in the house (manzil) in which he had lived (it is located at the southern end of the Kھیābān cemetery), and a community of Sufis (fūqarā', literally the poor) then resided there.<sup>195</sup> They may have occupied the aivan and hujras which, in an alternative reading, were built beside his grave.<sup>196</sup> Vā<sup>c</sup>iz also mentions the buq<sup>c</sup>a of Khvaja Kula, which consisted of a dome chamber, suffa and cistern, where Sufis were also accommodated.<sup>197</sup>

While the smaller corner chambers on the catalogue monuments mentioned above could have been used as residences, the larger dome chamber could have functioned as a jamā<sup>c</sup>atkhāna or place of communal prayer, like that of Tāybād. But with other buildings where the ancillary rooms are rather larger than cells, such as the mazar at Pūrān or that of Shāhzāda <sup>c</sup>Abdallāh in Herat, it is more difficult to know whether these larger rooms were only for pilgrims, or occasionally or regularly for Sufis. One domed mausoleum in Herat was used for lectures, the Gunbad-i Chihil Gazi,<sup>198</sup> and either its main dome chamber or perhaps a smaller adjacent one such as exists in the Shāhzāda <sup>c</sup>Abdallāh may have been used for this purpose. Accommodation for a caretaker is another possibility for these chambers - the larger mausoleums would probably have had waqfiyyas providing for funds for someone to keep the building clean and carry out repairs.

But even those structures which did not have waqfs may have served to give shelter to dervishes who, as we have seen, were not averse to living in cemeteries. A brick-built dome chamber was better accommodation

---

195) MI, ed. Saljūqī, p. 94.

196) MI, ed. Haravī, p. 86. His tombstone is still extant: RMH 4, p. 41.

197) Ibid., p. 56.

198) See n. 181.

than most mud-brick residential housing of the day, requiring less maintenance, and while it may have been more exposed to the winter weather, this would not have been a significant drawback for an ascetic Sufi,<sup>199</sup> or for someone who was completely without any other form of accommodation. Whatever the intention of those who built these single chamber mausoleums, they must seldom have been unoccupied.

None of those Khanqahs which were built in concert with madrasas have survived. While the descriptions of Khvāndamīr are vague, it is likely that since so many were built as a pair they were made to resemble each other, with four-*aivan* courtyard plans. The Shrine at Gāzur Gāh may well be a reflection of this type. Its architecture and decoration are fully representative of the best of its period. The Khanqahs at Ziyāratgāh and Dih-i Manār are on a more modest scale. With central dome chambers and ancillary rooms in two storeys, their plans are probably not far removed from contemporary garden pavilions.

---

199) Cf. the miniature in the Freer Gallery showing a near-naked Sufi serenely seated outside an *aivan* in a blizzard: E. Atıl, 2,500 Years of Persian Art, p. 12, Pl. 37.

CHAPTER TWO:  
BUILDING METHODS AND MATERIALS

Plans Even a slight familiarity with Timurid architecture, with its cruciform dome chambers set within deeply recessed exterior niches, its use of intricate bevels and reveals, its virtuoso squinch nets and stalactite vaulting, must convey to the spectator some idea of the advance planning that was necessary before even the foundations of the larger buildings were laid. While the brick vaulting behind these sparkling facades may display less evidence of pyrotechnics, it may nevertheless, as in the Mausoleum of Gauhar Shād, consist of an elaborate network of intersecting arches and superposed domes which equally speak of careful forethought. Exactly what kind of preliminary planning took place is still a matter of some conjecture, but that it consisted of architectural drawings of some measure of sophistication is indicated by evidence of different kinds, which while perhaps individually circumstantial, cumulatively leaves no room for doubt on this point.

The advance in mathematics in the West from 1120-25 A.D. due to the availability of a translation from the Arabic of Euclid's Elements of Geometry has been cited as a major factor in the origins of the Gothic style, a style which was more dependent on advance planning - and hence drawings - than the prior Romanesque.<sup>1</sup> The study of

---

1) Harvey, The Master Builders, pp. 36, 41.

mathematics had long been an area of original and fruitful research in Islam. Arabic translations of Euclid were of course already available in the 'Abbasid period.<sup>2</sup> While "the scientists of Saljūq and Mongol Iran were the best of their age,"<sup>3</sup> it has been estimated that it was the Timurid period which saw the apogee of Islamic work in computational mathematics.<sup>4</sup> The astronomical tables of Ūlūgh Beg represent an advance on previous work, and the most important mathematician of his court, Ghiyāth al-Dīn Kāshī, included in one of his many treatises, the Miftāh al-Hisāb, tables for the setting-up of arches, domes and stalactite systems of different profiles, which will be discussed in greater detail below. The scientific climate, then, was certainly one which would enable and encourage the court architect at least to formulate his ideas graphically in order to have a building erected in conformity with them.<sup>5</sup> The only court architect about whom we have any biographical data, Qavām al-Dīn Shīrāzī, was also a skilled astrologer capable of producing an almanac of a quality to impress Shah Rukh.<sup>6</sup> He is therefore likely to have been an educated man and to have had the intellectual ability to enable him to benefit from this scientific climate.

- 
- 2) Nasr, Islamic Science, p. 82. In this context we may note that Nizāmī credited the legendary sculptor Farhād with a knowledge of Euclid and Ptolemy before beginning his apprenticeship to a master craftsman: Soucek, "Farhād and Taq-i Bustān," p. 45. As Soucek points out, this—itself is an indication of the rising status of the craftsmen of the time (ibid.).
  - 3) Kennedy, "The Exact Sciences," p. 679.
  - 4) Ibid., p. 667.
  - 5) Other mathematical treatises of use to the medieval architect are discussed in Bulatov, "U Istokov Arkhitekturny Nauki Srednogo Vostoka."
  - 6) HS, IV, p. 15.

Contemporary histories carry little direct evidence for the use of plans, although some passages are suggestive of this. The well-known account in the Tārīkh-i Khairāt of the erection of a garden pavilion for Tīmūr, where the interior decoration was being designed when the walls were scarcely off the ground,<sup>7</sup> is evidence that the elevation as well as the plan must have been carefully calculated in advance. Royal gardens and garden-pavilions are the structures whose erection is most commonly described in detail by the historians, the term used for the commencement of building operations frequently being tarḥ kishīdan or tarḥ andākhtan.<sup>8</sup> This alone need not imply that plans

---

7) Survey, pp. 1149-50. As the Persian original has never been published a transcription is given here:

و هنوز ارتفاع باغ بیک گز نارسیده از بیرون مرد و معقلی و از  
اندرون ازاره کاشی و سنک تراش بترتیب سنک تراشی و نقاش  
بطرح نقاشی مشغول گشته و نجاران بعمل نجاری و نقاری و  
خاتم بندی درها و زیلوبافان مساحت خانها و صفها معلوم کرده  
هر اندازه هر یک زیلوهها و شب مشعلها افروخته و بر سر هر کاری  
امراء بزرگ باز داشته و در مدت شانزده شبانروز قصر بدان طول  
و عرض و ایوان بدان رفعت باتمام رسانید

The term mard u ma<sup>c</sup>qilī seems to refer to work in banna'i-technique, cf. HA, p. 10, where mard bar ma<sup>c</sup>qilī is used. Two addenda to Minovi's translation could be suggested: the carpenters were also engaging in ivory inlay (naqqār), and the measurements of all the rooms (khānahā u suffahā) (rather than of the shāhnishīns) were taken for zīlūs.

8) See below, p. 60.

were drawn on paper - it would simply mean that the dimensions of the building were marked out on the site. On one occasion, however, Yazdī specifically mentions that the plan (tarḥ) was inscribed on a tablet (lah).<sup>9</sup> Īraj Afshār has recently assembled a series of quotations from texts up to the fourteenth century A.D. pertaining to this question. Among them are two extracts from the waqfiyya of the Rab<sup>c</sup>-i Rashīdī which explicitly stated that a plan (rasmi u tarḥi) was drawn on paper (kāghaz).<sup>10</sup> A normative use of drawn architectural plans also seem to be indicated by Daulatshāh's description of Qavām al-Dīn Shīrāzī, the court architect of Shah Rukh, as being skilled in construction: (muhandasi), drawing (tarāhi) and building (mi<sup>c</sup>marī).<sup>11</sup>

The earliest surviving Islamic architectural plans are, as far as is known, those in the collection of the Uzbekistan State Public Library.<sup>12</sup> They are drawn on paper which has been identified as of sixteenth century Samarqand origin. The change in architectural form from the Muzaffarid to the Timurid period was brought about in gradual transition, unaccompanied by radical changes in style. The process continued just as gradually in the fifteenth century. There is no reason to suggest that this stylistic conservatism was not paralleled by continuity in building techniques. In Europe, for instance, where there was a faster rate of stylistic change, it has been estimated that there was little change in design procedures from the twelfth until the end of the sixteenth century.<sup>13</sup> The plans in the Uzbekistan Library are therefore likely to be similar to fifteenth century or

---

9) ZN, I, p. 572.

10) "Mughaddamātī;" "Architectural Information."

11) TS, p. 257.

12) N. Baklanov, "Arkhitekturniye Chertezhi."

13) Harvey, The Mediaeval Architect, p. 113.

even earlier examples.

Metrology and grids Plans of four buildings have been preserved, a mausoleum, mosque, tīmcha (bazar) and water cistern, all of which are drawn on squared paper, suggesting the use of a modular unit.<sup>14</sup> The main unit of length in use in Iran in the fifteenth century was the gaz (cubit).<sup>15</sup> Its length with regard to architectural practice can be accurately fixed with regard to at least two buildings. In the Zafar Nāma Yazdī describes the large dome chamber of the Shrine of Shaikh Ahmad Yassavī as being a square of 30 gaz, the smaller dome chamber 11, and the two chahār suffas as 11 gaz each.<sup>16</sup> Mankovskaya's architectural survey of the building found that these corresponded with a gaz equal to 60.6cm, and that the plan of the whole building was neatly encompassed on a grid with each square equal to 60.6cm.<sup>17</sup> Yazdī also wrote that the 480 stone pillars of the Samarqand Friday

- 
- 14) A late sixteenth century Indian miniature also shows the use of a squared plan for a garden - Smart, "Graphic Evidence for Mughal Architectural Plans." Squared paper was also used for planning Romanesque structures, and for the mosaic floors of the Church of the Nativity of Bethlehem, where a module of two and a half Roman feet was used - Harvey, The Mediaeval Architect, p. 120.
- 15) It has also been demonstrated that cubits were used in earlier major Islamic buildings e.g. at Khirbat al-Mafjar and in the mosque of Ibn Tūlūn. It has been shown that three walls of the Palace at Khirbat al-Mafjar each measured 150 cubits. The cubit in this case was 44.75cm, a figure obtained from the graduated column in the reservoir of al-Muwaqqar (Hamilton, Khirbat al Mafjar, p. 41). Another graduated column, that of the Nilometer, provided the figure for the cubit of 54.04cm which was used in multiples (e.g. 300, 275, 260, 170, 35, etc.) for the principal dimensions in the mosque of Ibn Tūlūn (EMA<sup>2</sup>, p. 343).—
- 16) ZN, II, p. 16.
- 17) Mankovskaya, "K Izucheniyu," Fig. 12.

Mosque which Tīmūr built (the Mosque of Bībī Khānum) were set seven gaz apart,<sup>18</sup> which has been shown to be 60cm exactly in this case.<sup>19</sup>

Other Soviet scholars have sought for similar examples of the use of modular plans in medieval architecture, and the results have been collated by K.S. Kryukov.<sup>20</sup> With regard to buildings of the Timurid period only, a number of points can be deduced from his research.

Firstly, his results are not always in agreement with earlier attempts to establish a modular unit.<sup>21</sup> Secondly, while the length of the gazes which he claims were used for Timurid buildings vary from 60 to 105cm, most are contained within a fairly narrow range of between 60-67cm. Thirdly, despite earlier speculation, definite correlation could not be established between brick sizes and the length of the gaz in this series of buildings.<sup>22</sup>

---

18) ZN, II, p. 145.

19) Kryukov, "Modul," p. 162.

20) Ibid. As far as Safavid buildings in Iran are concerned we have only the preliminary report of Morichi ("Typological and Metrological Research at Isfahan"), which states that a gaz of 104cm was used in some of the major buildings in Isfahan. He too found that "the use of these units of measurement was naturally more exact in the project than in the actual building."

21) Ibid., table on pp. 157-8.

22) Even though Kāshī wrote that architects used baked or unbaked brick in measuring the course of construction - ibid., p. 159.



TABLE I

Building	<u>Gaz</u>	Brick Size
Gāzur Gāh, Shrine	67.2	
Madrasa of Gauhar Shād, Herat	60.0	26 x 26 x 5
Khargird, madrasa	60.8	25 x 25 x 6
Tāybād, buq <sup>c</sup> a	60.8 53.9	25-6 x 25-6 x 5
Turbat-i Jām, Gunbad-i Sabz	67.5	23 x 23 x 5
Turbat-i Jām, New Mosque	67.5	23-4 x 23-4 x 5
Turuq, mausoleum	60.6	26 x 26 x 6
Āzādān, Shrine	58.0	
Khanqah of Mullā Kālān, Ziyāratgāh	62.2	24-5 x 24-5 x 5
Masjid-i Jami <sup>c</sup> , Ziyāratgāh	56.0	24-5 x 24-5 x 6
Masjid-i Jami <sup>c</sup> , Ghuriyān	60.6	26-7 x 26-7 x 6

As can be seen from Table I, similar results can be obtained from buildings in the present catalogue.<sup>23</sup> In the buildings analysed, the length of the gaz seems to fall into two main categories, those of ca. 60.5cm and those of ca. 67.5cm. It is not surprising that there should be such variety. The names of many different types of gaz are recorded in the literary sources, such as the gaz-i buzurg<sup>24</sup> and gaz-i shar<sup>c</sup>.<sup>25</sup>

---

23) The gazes in the table have been obtained by taking a range of the most important measurements for each building and then establishing a figure between 50-70cm which when divided into these measurements gives most whole numbers or their near equivalents. Ideally these figures should be tested by matching a drawing of precise accuracy on a square grid representing the gaz to scale.

24) ZN, II, p. 386.

25) ZN, II. p. 387.

Nor is it surprising that Kryukov's analyses should in some cases produce different results from previous research. As can be seen in the one detail of the sixteenth century drawings which Baklanov published,<sup>26</sup> walls could be situated not just exactly on, but a little to either side or in the middle of the squares of the network. And this is in the drawing - in the building itself one would expect more variations due to inaccuracies in setting out the plan on the ground, or for adjustments which the masons in the course of erection may have made by eye. With a gaz of ca. 60cm which is but a small fraction of the total lengths used throughout the building, it is perhaps not surprising, as the figures for Tāybād in Table I show, that two different lengths of gaz can be posited for the same structure.

The three buildings in Table I which were erected by Qavām al-Dīn Shīrāzī (Mausoleum of Gauhar Shād, Khargird madrasa, Tāybād buq<sup>c</sup>a) all display the use of a gaz of almost identical length: 60-60.8cm. In contrast, those at Turbat-i Jām which were being erected concurrently use a gaz of 67.5cm. It may be that the use of a gaz of a certain length is more useful than stylistic evidence for ascribing buildings to one architect or another. For example, the Shrine at Gāzur Gāh seems to have been built on a gaz network of 67.2cm; one would therefore ascribe it more readily to Zain b. Mahmūd Shīrāzī, whose work at Turbat-i Jām used a gaz of 67.5cm, than to Qavām al-Dīn, who, as we have seen above, consistently used one of 60cm.<sup>27</sup>

As in the analyses of buildings in Transoxiana, there does not seem to be any exact correlation in Table I between brick sizes and

---

26) Baklanov, op. cit., Fig. 9.

27) Harvey, The Mediaeval Architect, p. 174, has shown how the profiles of mouldings in mediaeval European architecture is more useful than comparison of visual data for attribution to unknown architects.

the gaz used, although in each case walls of one gaz thickness could easily have been made by using two whole bricks and varying amounts of mortar and plaster revetment.

While it is thus indubitable that a grid of squares was used in many cases for setting out plans, this does not necessarily exclude the use of other means of geometrical setting-up, either in plans or in elevations. Again, most of the analysis in this field has been done by Soviet scholars. Mankovskaya has convincingly demonstrated a geometrical setting-up of the plan of the Shrine of Shaikh Ahmad Yassavī, which used the large central dome chamber as a starting point for the derivation of the other measurements.<sup>28</sup> She notes, however, that in defiance of this geometrical setting-up the minarets are of unequal width, and consequently the whole southern half of the building is askew from its theoretical alignment.<sup>29</sup> Such vagaries of construction, probably due to carelessness of the masons, make it more difficult to discover the geometric rationale of Timurid architecture. This is also the case with elevations, which, unlike ground plans, do not seem to have been designed with the aid of a square grid. Although it would be difficult to change a plan which had been marked out on the ground, it would not be hard for a mason to adjust certain elements of the elevation of a building in accordance with his visual judgement during the course of construction. The builders themselves were not always consistent in erecting forms which were supposed to be symmetrical, as the following table<sup>30</sup> of heights of the four minarets of the Madrasa of Sultan Husain shows:

---

28) Mankovskaya, op. cit., pp. 124-9, Fig. 13.

29) Ibid., p. 127.

30) Figures collated from UNESCO, The Citadel and the Minarets of Herat, pp. 36-7.

	SW	NW	NE	SE
bottom of stalactite cornice	48.15	46.79	47.38	49.30
beginning of decoration	<u>16.01</u>	<u>14.48</u>	<u>13.40</u>	<u>15.53</u>
	32.14	32.31	33.98	33.77

Such improvisation - or technical incompetence - is another reason why no satisfactory system of setting-out has yet been found for elevations of buildings in this period.<sup>31</sup> However, given the use of geometry in setting up arch profiles,<sup>32</sup> it would be surprising if it were not also used for preliminary drawings of elevations. Indeed those which included stalactites or squinch nets of necessity would have required geometrical setting-out. For the moment however, the proportional rationale - or rationales - behind such elevations must await the results of further research.

Apart from the use of drawings for plans and elevations, they were certainly also used for architectural decoration. The clearest case is perhaps that of epigraphy, where references to the calligraphers who designed inscriptions for different buildings abound in such works

---

31) Wilber found that several of the monuments in his catalogue of Mongol buildings had constructional inaccuracies - III, p. 45. Attempts have been made by M.S. Bulatov to relate the elevation of interior and exterior facades of dome chambers to their ground plans, or more specifically to the diagonals running from one corner of the dome chamber to the centre of the side opposite. Taking the side of the rectangle as 1, the length of their diagonal will thus be  $\frac{\sqrt{5}}{2}$ . His analyses do not seem to me to be entirely convincing, however, and my attempts to apply his method to several buildings in the catalogue have not produced significant results. See Bulatov, Geometricheskaya Garmonizatsiya.

32) See below, p. 85.

as the Majālis al-Nafa'is and the Gulistān-i Hunar. On buildings their signature begins with katabahu or its equivalent.<sup>33</sup> A full-sized cartoon of the inscription would have to be prepared. For use as a base for mosaic-faience this would have to be reversed. This could be done by pricking round the outlines of the design and joining up the lines of the pattern on the rear. The design in fact becomes a stencil, and this could also be used for transferring a design to  cuerda seca  tiles by pouncing.<sup>34</sup> An unfinished inscription in marble from the Blue Mosque of Tabriz shows nearly completed letters and decoration contiguous with a completely unblocked portion to its right. The ligatures emerge abruptly from the unworked marble. This could only have been possible if the mason was working from a full-size drawing.<sup>35</sup>

Squared paper would have been of great use in designing square Kufic inscriptions. This is well demonstrated by a colophon to a copy of Hāfiz-i Abrū's Majma<sup>c</sup> al-Tavarīkh, where the grid which the writer used to compose his inscription has not been erased.<sup>36</sup> One fifteenth century manuscript also displays a painted calligraphic design in

---

33) See below and Rogers, Patronage in Seljuk Anatolia, p. 411.

34) A modern application of this technique is described in Wulff, The Traditional Crafts of Persia, pp. 114-5. I have been informed by Dr. David James that nineteenth century inscriptions, perforated for transference to tilework, exist in the Kitābkhāna-yi Millī, Tehran. The technique was used in 15th century miniature painting, as numerous examples of pounced drawings in the H. 2153 and H. 2160 albums in the Topkapı Saray Library show.

35) See D. Wilber, "Builders and Craftsmen of Islamic Iran," Archaeology VII (1954), p. 41, Fig. 5.

36) Ettinghausen, "An Illuminated Manuscript," Fig. 2. The colophon is not contemporary with the manuscript, but the principle is no less valid for that.

various colours in square Kufic which may have been intended for transference to a building. In its centre there is a lozenge pattern where the use of a ruled square grid can be clearly discerned.<sup>37</sup> One advantage of the square grid is an easy transference to tiles or to walls, since the design does not have to be drawn on a 1:1 scale. Three walls prepared for such a transference can be seen in an unfinished fourteenth century decorative scheme in the vestibule leading from the large aivan to the Masjid-i Safīd in Turbat-i Jām.<sup>38</sup> On one wall a hexagon is divided into numerous lozenges by three series of parallel lines, and three Alīs have been roughly drawn in (Pl. 281). On another wall a central panel has been divided into squares. These are blank, but the area around them was designed for a cursive inscription with a smaller Kufic one above (Pl. 282). Part of the latter has been painted in, but only a spiral background shows where the cursive inscription was to run. They had not yet been painted when the work was interrupted, the spirals merely having been scratched with a compass on the plaster. They were drawn by the simplest possible method, that of semi-circular arcs, although even with this method the designer failed to keep a regular distance between successive spirals, that to one side being considerably wider than those in between.

Dating from the sixteenth century, however, is the earliest preserved roll of craftsmen's design sketches, now preserved in the State Public Library of Uzbekistan.<sup>39</sup> The roll is of paper, and in its fragmentary state measures 38 x 160cm. Again we find that the designs are drawn on squared paper, and in this case seem to have been intended

---

37) İpşiroğlu, Das Bild, colour ill. opp. p. 10.

38) Unpublished. For dating of this part of the Shrine see Golombek, "Chronology," pp. 34-6.

39) N.B. Baklanov, "Gerikh," Sovetskaya Arkheologiya IX (1947), Fig. 1.

for transference to banna'i masonry. There are five different geometric patterns and a design for a naskhi inscription of the type which can be seen encircling the square Kufic in the east aivan of the Shrine at Gāzur Gāh. Some of the geometric designs consist of only a fragment of the design that would be produced on the building: the mason would have to multiply his design by symmetry to achieve the desired result. The use of one quarter of the design is also a feature of later albums of architectural ornament used in Iraq, where it has been interpreted as a method used to confuse those who were not members of the family of masons to whom the scroll belonged.<sup>40</sup>

While it is probable that most albums of this type were compiled by the masons themselves, there is good evidence that the Royal Library contributed some designs. The drawing of square Kufic in the Istanbul album mentioned above is one example, while a report on the activities of a Timurid library is particularly suggestive:

"Khvaja <sup>c</sup>Abd al-Rahīm is engaged with designs (turūh) for bookbinders, illuminators, tent-makers and tile-mosaicists (kāshī-tarrāshān)."<sup>41</sup>

The very fine work which mosaic-faience (kāshī-tarrāshī) is capable of representing would make it possible for designs capable of serving as patterns for illuminations or bookbinding to be translated

---

40) Gailānī, The Origins of Islamic Art, pp. 142, 148. He refers to these scrolls as tmars. Two manuscripts of architectural patterns, supposedly nineteenth century, are also found in the Victoria and Albert Museum, London - See Science and Technology in Islam, Science Museum (London, 1976), p. 22.

41) Özergin, "Temürlü sanatına âit eski bir belga," p. 491. An English translation of the section of this document relating directly to architecture is given below, p. 68, where the provenance is further discussed.

into architectural terms.

Architects and Craftsmen It seems reasonable to assume that in the case of each major building one person was largely responsible for its design. By what terms was he known in contemporary, or near-contemporary, histories, or on the monuments themselves? As one architect, Qavām al-Dīn Shīrāzī, was particularly well-known both from literary sources and building inscriptions, we may begin with an examination of these:

I) Literary references

- a) Ustād Qavām al-Dīn<sup>42</sup>
- b) Ustād Qavām al-Dīn mi<sup>c</sup>mār-i Shīrāzī<sup>43</sup>
- c) Ustād Qavām al-Dīn (ma<sup>c</sup>rūf) dar muhandisī u tarāhī u mi<sup>c</sup>mārī<sup>44</sup>
- d) Qavām al-Dīn mi<sup>c</sup>mār<sup>45</sup>
- e) Ustād Qavām al-Dīn mi<sup>c</sup>mār-i Shīrāzī qadvat-i muhandisān-i zamān u marja<sup>c</sup>-i mi<sup>c</sup>māran-i daurān<sup>46</sup>

II) Inscriptions

- a) <sup>c</sup>amal al-<sup>c</sup>abd al-<sup>z</sup>ā<sup>c</sup>if al-faqīr al-muhtāj bi-<sup>c</sup>ināyat al-mulk  
(sic) al-rahmān Qavām al-Dīn ibn Zain al-Dīn Shīrāzī al-<sup>t</sup>aiyān<sup>47</sup>
- b) <sup>c</sup>alā yad al-<sup>c</sup>abd al-marhūm ustād Qavām al-Dīn Shīrāzī<sup>48</sup>

Clearly the most common appellation is ustād, used before the kunya, followed by mi<sup>c</sup>mār. The use of al-<sup>t</sup>aiyān (plaster-worker) has

---

42) HA, p. 10; MF, III, p. 284.

43) MS, p. 720.

44) TS, p. 257.

45) MN, p. 124.

46) HS, IV, p. IV.

47) Mosque of Gauhar Shād, Mashhad. Appendix I, No. 13.

48) Khargird madrasa, Appendix I, No. 36.

only been recorded for one other fifteenth century artist,<sup>49</sup> although Hāfiz-i Abrū also makes reference to Qavām al-Dīn's prowess in this skill.<sup>50</sup>

In the general accounts of the literary sources which mention the laying out of plans and commencement of building operations there is a slightly different emphasis. The following is a list of some of the principal Timurid sources, with abridged references to key words:

Samarqand, Bāgh-i Shumāl: ustādān va muhandisān jam<sup>c</sup> kardand<sup>51</sup>

Samarqand, Bāgh-i Shumāl: muhandisān va mi<sup>c</sup>mārān jam<sup>c</sup> shuda  
būdand; tarḥ bar lauh kishīdand<sup>52</sup>

Samarqand, Bāgh-i Dilgushā: muhandisān, bannāyān jam<sup>c</sup> būdand<sup>53</sup>

Samarqand, Bāgh-i Dilgushā: jam<sup>c</sup>-i bannāyān va muhandisān va  
mi<sup>c</sup>mārān būdand<sup>54</sup>

Samarqand, Masjid-i Jami<sup>c</sup>: ustādān, bannāyān-i muhandis tarḥ  
biyandākhtand<sup>55</sup>

Samarqand, Masjid-i Jami<sup>c</sup>: muhandisān, ustādān asās tarḥ  
andākhtand; <sup>c</sup>amala, pīshakārān zuhūr rasānīdand<sup>56</sup>

town of Bīlqān: muhandisān va mi<sup>c</sup>mārān tarḥ bar kishīdand<sup>57</sup>

Herat, madrasa and khanqah of Shah Rukh: muhandisān, bannāyān  
bi zuhūr āvurdand<sup>58</sup>

---

49) See Appendix I, No. 51.

50) HA, p. 10.

51) Shāmī, ZN, I, p. 167.

52) ZN, I, p. 571.

53) ZN, II, p. 13.

54) Shāmī, ZN, I, p. 169.

55) Shāmī, ZN, I, p. 212.

56) ZN, II, p. 144.

57) ZN, II, p. 385.

58) MS, p. 109.

Herat, Bāgh-i Safīd: muhandisān, bannāyān <sup>ḥ</sup>imāratī bannā  
mihādand<sup>59</sup>

Herat, Namāzgāh: mi<sup>ḥ</sup>mārān, bannāyān, muhandisān, sarkārān bi  
ishtighāl qiyām namāyand<sup>60</sup>

Herat, Bāgh-i Jahān Ārāy: muhandisān, fīlsūfān tāli<sup>ḥ</sup>-i vaqt  
ikhtiyār karda; mi<sup>ḥ</sup>mārān, bannāyān tarḥ bunyād namūdand;  
ustādān dar kār-i <sup>ḥ</sup>imārat qiyām namūdand; asnaf-i sunnā'  
talbīda; sarkārḥā bi umarā' va irkān-i daulat qism raft;  
mi<sup>ḥ</sup>mārān va sarkārān ta<sup>ḥ</sup>yīn namūdand<sup>61</sup>

Herat, Bāgh-i Jahān Ārāy: mi<sup>ḥ</sup>mārān-i muhandis va kārguzārān-i  
mu'assas tarḥ andākhtand; ustādān, bannāyān bi kār qiyām  
namūdand; asnaf-i sunnā' va hunarmandān talab farmūda; sarkārḥā  
bi umarā' va muqarribān va mulāzimān va muta<sup>ḥ</sup>aiyinān qismat  
yāft; ustādān va hunarmandān mashghūland<sup>62</sup>

Given the tendency of Islamic writers to multiply synonyms, it is difficult to interpret the prominence given to muhandisān in the above list, although the fact that it was used twice to qualify mi<sup>ḥ</sup>mārān and ustādān in the context of the start of building operations suggests that it would more closely approximate the "surveyor" rather than "architect." It was never used of Qavām al-Dīn, as we have seen, and in an extensive published list of pre-fifteenth century Islamic architectural craftsmen in Iran it only occurs once.<sup>63</sup> Turning to the list of fifteenth century craftsmen in the Iranian world (Appendix

---

59) MS, p. 111.

60) MS, p. 1200.

61) MS, pp. 1374-5.

62) RJ, II, pp. 317-8.

63) Wilber, "Builders and Craftsmen of Islamic Iran in the Earlier Periods," building no. 65.

I), we find that muhandis and mi<sup>c</sup>mār are never employed, although the unusual word rāza (architect) was used once.<sup>64</sup> The use of taiyān was mentioned above in connection with Qavām al-Dīn Shirāzī. Ustād is used very frequently after amāl, and is often followed by the craft of the person concerned, most usually bannā' or najjār,<sup>65</sup> with a nisba often occurring at the end of the name. On cenotaphs the signature of the carpenter comes at the end of the inscription, just before the date. On buildings, however, the signature is usually found on a panel or cartouche at a slight remove from the main foundation inscription, the one exception being the Masjid-i Jami<sup>c</sup> of Varzana, where it follows on from the signature of the calligrapher at the end of the foundation inscription. It is arguable, however, that its normal isolation need not imply a lesser status of the mason than, say, the calligrapher, whose name is usually displayed at the end of the foundation inscription. Although the size of the signatures of Qavām al-Dīn on the Mosque of Gauhar Shād in Mashhad and of Zain b. Mahmūd at Turbat-i Jām is less than one would expect a foundation inscription to be, their proximity to the ground makes them legible and conspicuous. In each case, the length of their signatures is extended by the inclusion of a string of pious adjectives ostensibly emphasizing their humility, but which in fact adds to the size of the space necessary for the signature as a whole and so increases rather than diminishes the architects' worldly glory. Such a procedure was also followed by the calligrapher Jalāl Ja<sup>c</sup>far in his signatures at Khargird and Tāybād. They are placed in separate panels at the base of the portal-screen of the entrance aivan, rather than at the end of the foundation

---

64) Appendix I, No. 61.

65) Only on one occasion was the Persian darūgar used instead of the Arabic najjār: ibid., No. 21.

inscription, which in each case is less immediately apparent, being at the back or on the side of the entrance aivan.

Usually, however, the calligrapher's name is placed after the date of the foundation inscription, often in smaller letters. The introductory word is usually katabahu (he wrote it), but other formulae such as hararahu,<sup>66</sup> namaqahu,<sup>67</sup> mashaqahu<sup>68</sup> and khatt-i<sup>69</sup> have also been used. They may sign themselves naqqāsh,<sup>70</sup> although in other cases the essentially scriptorial nature of their skills is indicated by other nisbas such as kātib,<sup>71</sup> munshī<sup>72</sup> or qādī.<sup>73</sup> However, one should not place absolute reliance on these nisbas as indicators of profession. The most famous bannā'i of the fifteenth century was a poet, who adapted his nisba from his father's profession.<sup>74</sup> Qavām al-Dīn's nisba of taiyān (plaster worker), so obviously inappropriate to the magnificent structures which he is known to have erected, was also presumably derived from his family's profession. Maulānā Hājji Naqqāsh was as famous as a potter and as the inventor of a mechanical clock in the library of Mīr<sup>c</sup> Alī Shīr as he was for his painting.<sup>75</sup>

---

66) Ibid., Nos. 79, 82.

67) Ibid., No. 4.

68) Ibid., No. 71.

69) Ibid., No. 8.

70) Ibid., No. 37.

71) Ibid., No. 93.

72) Ibid., No. 98.

73) Ibid., No. 61.

74) For a short biography of him see Vittor, The Herat School, pp. 396-7. His father was Ustād Muhammad Sabz Mi<sup>c</sup>mār (HS, IV, p. 348).

75) HS, IV, p. 348.

Nisbas A more vexing problem is that of geographical nisbas. Can they be a reliable guide to the place where craftsmen received their training?

It is for literary figures that the greatest evidence for variations in nisbas occur. In a manuscript of the Majma<sup>c</sup> al-Tavārikh in Istanbul Hāfiz-i Abrū himself signs the colophon as being Bihdādānī by lineage (mahtidan) and Haravī by birth (maulidan).<sup>76</sup> <sup>c</sup>Abd al-Razzāq Samarqandī's nisba must also be by lineage, since he was born in Herat and seems to have lived most of his life there.<sup>77</sup> There are in fact three possible ways of acquiring a nisba: either from residence, lineage or birthplace. Faḏl Allāh ibn Rūzbihān, the author of the Ālam Ārā-yi Amīnī was in his own words Khunjī by lineage, Shīrāzī by birth and origin, and Isfahānī by residence.<sup>78</sup>

This question is of particular concern in relation to what has been called "the school of Shiraz," a series of monuments built by five architects with Shīrāzī nisbas in Yassa/Turkestan City, Mashhad, Herat, Turbat-i Jām, Khargird and Tāybād.<sup>79</sup> While it is true that these monuments do display sufficient homogeneity to be called a school, it gives a misleading impression to then call it the "School of Shiraz." Firstly, there are no surviving monuments from Shiraz of the second half of the fourteenth century which could be said to be predecessors of the later buildings - they may have existed, but there is no reason why they should have been more advanced than those of

---

76) Ettinghausen, "An Illuminated Manuscript," p. 32. Bihdādān, more commonly Bihdādān, is located in the vilāyat of Khvāf (see Aubin, "Un santou quhistānī," p. 192), hence Fasīhī's attribution of the nisba Khvāfī to Hāfiz-i Abrū (MF, III, p. 266).

77) W. Barthold, M. Shafi, "<sup>c</sup>Abd al-Razzāk al-Samarkandī," EI<sup>2</sup>, p. 90.

78) Khunjī, tr. Minorsky, p. 1.

79) See Golombek, Gazur Gah, pp. 60-1.

Yazd and Isfahan, which were equally important urban centres under the Muzaffarids. This lack of evidence forces us to discount the statement that at the time of the Timurid conquest of Iran "in architecture Shiraz was the first school in Persia."<sup>80</sup> Secondly, after Tīmūr conquered Shiraz in 789/1387 any architects who were living there may well have been sent to Samarqand, as was Tīmūr's custom in other conquered cities. At any rate, Yazdī specifically states that after the second conquest of the city in 795/1393 Tīmūr ordered the skilled and learned to be transported to Samarqand.<sup>81</sup> Qavām al-Dīn, Ghiyāth al-Dīn and Zain al-Dīn, who were working almost fifty years after this date, may have been transported to Samarqand as boys at the beginning of their apprenticeship, or may even have been born and raised there, taking their nisba from their lineage.

Thirdly, there are several monuments built in a related style, such as the buq<sup>c</sup>a and mosque of Tūmān Āghā in the Shāh-i Zinda and her madrasa at Kuhsān, the madrasa of Ūlūgh Beg in Samarqand, the entrance portal to the courtyard in front of the Gūr-i Mīr, and the Masjid-i Shah in Mashhad, but the last two were built by architects with Isfahānī and Tabrīzī nisbas respectively.<sup>82</sup> A more accurate appellation would be the Timurid court style, rather than "the School of Shiraz."

Yet further possible ambiguity arises when a patronymic is mentioned in the craftsman's signature - a nisba at the end of such an inscription could equally apply to the last as to the first person mentioned.<sup>83</sup> Thus al-taiyān at the end of the signature of Qavām

---

80) Gray (ed.), The Arts of the Book in Central Asia, p. 121.

81) ZN, I, p. 442.

82) See Appendix I, Nos. 25, 46.

83) Rogers, Patronage, p. 430.

al-Dīn on the Mosque of Gauhar Shād could equally refer to his father Zain al-Dīn.

While amāl is most frequently used to introduce craftsmen's signatures, other formulae also occur, although here again we quickly encounter ambiguities. Yādgār, which occurs on the Bāzārcha-yi Kushk-i Nau in Yazd,<sup>84</sup> could equally apply to the calligrapher, the founder, or the mason. Where qualifying words such as ustād or bannā' are absent, however, and especially where the name is a long one, it may be preferable to regard the signature as that of the donor, if he is not mentioned elsewhere. This is the case in the Masjid-i Panja-yi Alī in Qum, where bi-amāl is used.<sup>85</sup>

Bi-ih̄timām or bi-sa'y normally introduces the donor (e.g. at Tāybād, Khargird and the Madrasa Du Dar), but in a number of cases, e.g. at Varzana and Khargird, it is used in addition to the names of the donor and architect. At Khargird the name is found in the niche to the right of the entrance aivan. Pope surmised that it might be the tile worker,<sup>86</sup> but the absence of either ustād or kāshī-tarrāsh would suggest another interpretation, more likely that of clerk of works. At Varzana the clerk's name appears in a panel immediately below the centre of the foundation inscription,<sup>87</sup> whereas at Nasrābād, some five years later, it is incorporated into the foundation

---

84) Appendix I, No. 41. In another occurrence, on the Khanqah at Nasrābād, the founder "kard...īn yādgār," where yādgār could equally refer to the building or to the inscription - Hunarfar, Ganjīna-yi Āthār-i Tārīkhī-yi Isfahān, p. 331.

85) Tabātabā'ī, Turbat-i Pākān, II, p. 122.

86) Survey, p. 1127.

87) Lutfallāh Hunarfar, Isfahān dar दौरa-yi jānīshīniyān-i Tīmūr, p. 18.

inscription,<sup>88</sup> immediately after the name of the founder. In the Blue Mosque in Tabriz, however, a separate tile-panel is again used, introduced this time by bi-sarkārī.<sup>89</sup> The record of these clerks on inscriptions is thus erratic and unsystematic, although their presence is attested often enough by literary sources on buildings which involved royal patronage. Khvaja Mahmūd Dāūd, who was blamed by Tīmūr for not making the entrance portal to the Bibī Khānum Mosque tall or wide enough seems to have been the clerk of works of that building.<sup>90</sup> When Abū Sa<sup>c</sup>īd ordered the erection of a building at the namāzgāh of Herat the work was finished to the utmost standards of perfection (dar ghāyat-i husn u bahā) through the efforts (bi-sa<sup>c</sup>y u ijtihād-i tamām) of Kamāl al-Dīn Mīrak son of Rashīd Khvaja Shams al-Dīn Muhammad sāhib divān,<sup>91</sup> and one can assume from his father's position that Kamāl al-Dīn was responsible for the building in an administrative sense rather than a literally constructional one. The extracts given above regarding the construction of the Bāgh-i Jahān Ārāy<sup>92</sup> shows that the work of supervision on a large-scale project could be divided up on successive hierarchical levels, with amirs and high government officials specifically receiving superintendencies (sarkārḥā).<sup>93</sup> It is interesting to note that in <sup>c</sup>Abd al-Razzāq's

88) Idem, Ganjīna, p. 329. It is also introduced by bi sa<sup>c</sup>y.

89) Tabātabā'ī, Naqshhā va nigāshṭahā-yi masjid-i kabūd-i Tabriz, p. 55.

90) ZN, II, p. 421.

91) MS, p. 1200.

92) See notes 61-2.

93) The concerted organization evident in this account is paralleled in the construction of Rumeli Hīṣār by Mehmed II in 1451-2 A.D., where provincial masons were engaged and vizirs were responsible for certain parts of the work - see Rogers, "Waqf and Patronage," pp. 101-2.

account mi<sup>c</sup>mārān are paired with sarkārān. As other types of artisans (ustādān and sunnā') are mentioned previously mi<sup>c</sup>mārān in this instance may designate persons who were acting in a purely administrative capacity. Evidence from Seljuq Anatolia also shows that on some medieval inscriptions mi<sup>c</sup>mar is more likely to refer to a supervisor with administrative capacity than to an architect.<sup>94</sup>

The arza dāsht Other importance evidence for the organization of architectural cadres comes from a report (arza dāsht) of the head of a Timurid library. As well as detailing work in progress on manuscripts and tents it contains the following report on buildings (imārāt):

"The stone-cut portal (dargāh-i sang-tarrāshī) is finished; it awaits the inscription and crenellations (kungira) of mosaic-faience (kāshī-tarrāshī) which are being prepared; the (paved) floor (farsh) of the passage (mamarr) is finished and the entrance doorway (dar-i dandān) to the picture-gallery (surat-khāna) has been arranged and the projecting balcony (mukhārija) installed.

The Old Castle (qasr-i qadīm). The dome from the edge (dāman) as far as the bottom of the stalactites (tā zīr-i muqarnas) has been painted; the pillars on the east side have been renewed.

The library (kutubkhāna) which was built for the painters has been finished and all the painters and calligraphers (kātibān) are in residence.

The stone-cutters are engaged in work on the pool (hauā).

The New Garden (bāgh-i jadīd). The wall specified to be six courses (dāy) - some (parts) are four courses (high), and some three, the work is in progress; the aivan and vestibule (dālān) have been erected, the King's bridge (shāh pul) in

---

94) Rogers, "Waqf and Patronage," p. 85.

front of the cut(-stone?) (tarrāshīda) aivan is about to be erected.

The Garden of the Square (bāgh-i maidān). Three courses of the qibla wall have been erected; the tile-mosaicists (kāshī-tarrāshān) who were employed on the stone portal are (now) unengaged; they will be employed on the dado of the aforementioned garden.

The plastering (gil) of the roof of the crane aviary (kulang-khāna)<sup>95</sup> with plaster (gach) of clay (khāk) and lime (āhak) has been finished."<sup>96</sup>

- 
- 95) One of the offices under Sultan Husain was the Amīr-i Qūsh Khāna (Amir of the Falcon House) which, as Terry Allen noted (Catalogue, p. 196), could well have been located in the Bāgh-i Jahān Ārāy.
- 96) Text in Özergin, op. cit., pp. 492-3. When the account of this manuscript was first published by Özergin, it was presumed to be a report by Ja<sup>c</sup>far Tabrīzī to his patron Bāysunghur (O. Aslanapa, "The Art of Bookbinding" in Gray, op. cit., p. 59, stated in addition that the report is dated Ramaẓān 830H., but does not give his source for this information.). Another unpublished study by P. Soucek apparently relocated the document to Samarqand, in the period after Bāysunghur's death (referred to in E. Grube, "The School of Herat from 1400 to 1450" in Gray, op. cit., p. 177, n. 13). Although numerous manuscripts, calligraphers, painters and binders are mentioned in the first part of the report, none of them definitely corresponds with the Herat school of painting. Two gardens are mentioned in the architectural section: the Bāgh-i Jadīd and the Bāgh-i Maidān. Although Herat had a Bāgh-i Nau in the fifteenth century, I have been unable to trace any mention of a Bāgh-i Jadīd in Herat or in any other major fifteenth century Iranian urban centre. However, two cities - neither of them Herat - had a Bāgh-i Maidān. Tīmūr stayed for a month in the Bāgh-i Maidān in Shiraz in 1393 A.D. (ZN, I, p. 439), and Khvāndamīr mentions a Bāgh-i Maidān in Samarqand when reporting events of 901/1495-6 (HS, IV, pp. 233, 278). The report was bound in the Topkapi Sarayi Library album H. 2153, which contains a wide variety of paintings whose provenance is controversial. However, it seems likely that a provenance in a major Timurid or Qara or

The report calls for comment on a number of points.

- 1) It should be emphasized that it refers only to artisans working under what must have been royal patronage. Such an extensive library staff as is mentioned in the first part of the report could only have been employed by a ruler or one of his sons.
- 2) While the passage quoted above to the effect that one of the illuminators was also working on a design for mosaic-faience shows that there were close links between the library and the building craftsmen, the fact there is a clear division in the original manuscript between the three sections of library, buildings and tents shows that each was to some extent administered separately. The report is clearly written by one of the library staff, however, who refers to himself as banda-yi kamtar va dharra-yi ahqar. Possibly the administrative system depicted here is an embryonic version of the Safavid buyūtāt or Royal Workshops, with the head of the library staff reporting to the equivalent of the Superintendent of the Royal Workshops (ʿālī-jāh nāzir-i buyūtāt) or one of his subordinates (vazīr, mustaufī or mushrif).<sup>97</sup>
- 3) Strong evidence for demarcation of labour between different teams of craftsmen is provided in the account of the portal, where the tile-mosaicists began their work only after the stone masons had finished. Independent evidence also suggests demarcation. Wilber noted that

---

Aq Qoyunlu urban centre can be established for them. This is not inconsistent with the internal evidence of the report, and so it can be used, with some reservations, as a model for architectural practice in Khurasan.

- 97) See Tadhkirat al-Mulūk, tr. Minorsky, pp. 48, 70-1, 118-9. Part of the duties of the Safavid superintendent of the buyūtāt was to instruct the chief architect (mi<sup>c</sup>mār-bāshī) to estimate sums for the repair of buildings each year: ibid., p. 50.

several fourteenth century monuments in Iran have uncompleted decoration.<sup>98</sup> Gauhar Shād's Friday Mosque in Herat was begun in 820H., although the date 821H. is found on her Friday Mosque in Mashhad, suggesting that while the tile-workers were completing the Mashhad mosque the brick masons had moved to Herat. Although her Friday mosque in Herat was finished in 841H. according to the stone foundation inscription, it must have been in use substantially earlier, as its imam and khātib died in 838H.<sup>99</sup> Her adjacent madrasa was also used as a tomb in 827H., long before its formal opening in 836H.<sup>100</sup> This suggests that in each case the building was made inhabitable as quickly as possible, before the final revetment was added. Khvādamīr's description of Mīr <sup>C</sup>Alī Shīr's repair work on the Herat Masjid-i Jami<sup>C</sup> gives us further strong evidence of demarcation. He first narrates how the muhandisān and mi<sup>C</sup>mārān rendered the fabric strong and safe in the course of six months, after which a commemorative poem was composed. Only after this stage did he think about adorning it (zīb u zainat u ārayish), and employing those capable of decorating it (muhandisān, kāshī-tarrāshān, hunarmandān-i naqqāsh, ustādān-i sang-tarrāshān).<sup>101</sup> From the Makārim al-Akhlāq we also learn that the tile-mosaicists' work on the mosque was held up because the calligrapher who contracted for the work, Mīrak Naqqāsh, was dilatory in producing the drawings.<sup>102</sup>

Looking over the list of craftsmen and calligraphers as a whole, one is struck first of all by the great increase of signed work. A

---

98) AII, p. 44.

99) MF, III, p. 275.

100) See Cat. No. 14.

101) KA, pp. 10-1.

102) MA, f. 176b.

recently compiled list for the period 1000-1400 A.D. gives approximately 80 masons (whether brick, tile or plaster), 8 calligraphers and 8 carpenters.<sup>103</sup> In Appendix I, covering only one quarter of the time span (and ignoring the entries based on textual information) there are 32 masons, 36 carpenters and fully 39 calligraphers. Of the latter figure of 39, thirteen include signatures on wood, whether doors or cenotaphs. There are no more Timurid buildings surviving than there are Mongol ones, and much less than Seljuq and Mongol combined, so this increase almost certainly reflects the growing prestige of the craftsman and calligrapher. It also reflects the inevitable divisions of labour which occur when a building is revetted in a material (tilework) which differs from that of its core (brick). On earlier buildings the mason responsible for the erection of a structure from its foundation would have been equally capable of facing it with decorative brickwork. Tilework demanded different skills, however, and as it covered increasingly greater proportions of the building the craftsman was more likely to sign his work. The increased space allotted to these signatures has been mentioned above, while the siting of the signature on the Varzana Masjid-i Jami<sup>c</sup> after the foundation inscription is notable as being the first instance of this in Persian epigraphy.

The several references to Qavām al-Dīn in the literary sources indicate a growing prestige for the court architect.<sup>104</sup> That his was an exceptional talent, however, is underlined by the absence of similar references to court architects in the second half of the fifteenth century. One may mention that the poet Bannā'ī evidently was happy to retain the nisba of his father while himself pursuing an exclusively

---

103) Wilber, "Builders and Craftsmen," aarp.

104) See above, p. 59. On this see also Bretanitsky, "O statue."

literary career. The more numerous literary references to calligraphers and painters is sufficient evidence of their status.

Construction Tools A number of fifteenth century miniatures depict building operations, and while they must be viewed with circumspection, their wealth of incidental detail provides a valuable compendium of various tools and techniques of the period.

The most elaborate is a double page scene by Bihzād showing the construction of Tīmūr's Friday Mosque in Samarqand.<sup>105</sup> In the upper left carpenters are engaged in a variety of tasks, one sawing, one planing and another roughing a board with an adze to prepare it for planing. These instruments can also be seen in several early fourteenth century illustrations of the story of the carpenter and the monkey in Kalīla va Dimna manuscripts, although in two of these the saw is more elaborate, in one case being a long two-handled saw, in the other a frame saw.<sup>106</sup> A round-headed mallet and a saw can be seen with other carpentry implements in one of the "Siyāh Qalam" miniatures.<sup>107</sup>

Further down the page two brick-cutters are chipping away with hammers, while a third man delivers a new load, held on his back with two loops of cord. Tīmūr's impatience with building projects is well illustrated by the overseer with raised stick who threatens the kneeling figures. Beside one of the kneeling brick-cutters is a straight rule and a right-angle. Another tool which one might expect to find in this context is described by Ghiyāth al-Dīn Kāshī, Ūlūgh

---

105) Grube, The Classical Style in Islamic Painting, Pls. 31/5-6.

106) B. Gray, op. cit., Pls. 77, 91, LXIX.

107) İpşiroğlu, Siyah Qalam, Pl. 60.

Beg's astronomer, in a letter to his father. He refers to a triangle with two equal legs used for determining whether surfaces were plane or not, and this has been interpreted as "an equilateral triangular frame of uniform stock" whose base would hang horizontally when the triangle was suspended from one corner.<sup>108</sup>

To the right of the brick-cutters the stone masons are working with hammers and small fine-pointed chisels. Other stone masons tools are shown in several illustrations of the story of Farhād and Shīrīn from Nizāmī; these include a variety of adzes of different sizes for rough hewing, some with straight heads, but mostly slightly curved.<sup>109</sup>

Beside the stone masons is a panel of tiles or mosaic-faience set in a brick surround, ready assembled for transference to the wall of the building. Further down on the same page stone is being transported by various means - man, horse and elephant-power.

The scene on the opposite page of masons constructing an arch is closely paralleled in Bihzād's later version of the Construction of the Castle of Khavarnaq.<sup>110</sup> Mortar is being mixed by men with spades at the bottom, and the identical figure of a man carrying a water-filled animal skin appears in both versions. What appear to be hollowed-out tree trunks are used for carrying the mortar, either by means of the ladder, or as in the later picture, by hauling it up with a rope. In the later picture bricks are transported to the scene in a wicker-work stretcher carried by two men, as well as by the same

---

108) E.S. Kennedy, "A Letter of Jamshīd al-Kāshī to His Father: Scientific Research and Personalities at a Fifteenth Century Court," Orientalia, XXIX (1960), tr. p. 198, commentary p. 210.

109) Soucek, "Farhād," Pl. III.

110) D.T. Rice, Islamic Art (London, 1976), Pl. 229.

man with a pile of bricks held on his back by cord that was in the Zafar Nāma miniature. These are delivered to the masons on the left who with adze and small pickaxe cut some of the bricks to the required shapes. They are conveyed to the top of the building by throwing from one man to another; the man on the middle level of the scaffolding has his arms stretched out awaiting the imminent launch of a brick from below. The mason at the top gives a final trimming with an adze before the brick is laid, no doubt shouting all the time, as Du Mans recorded of Safavid masons in 1660, "khisht bi-dih" (give me a brick), "gil bi-dih" (give me mortar) or "nīma bi-dih" (give me a half-brick).<sup>111</sup>

The scaffolding is portrayed realistically, the main wooden beams being tied together by cord, with a few planks providing a rather precarious platform for the mason to stand on. The absence of scaffolding in the earlier picture shows how dangerous it can be to try to interpret building techniques from miniatures; it probably reflects a lack of confidence on the part of the artist in depicting such a complicated spatial arrangement at an earlier stage of his career. Or pictorial considerations may have dictated his choice. Hence the evidence the later picture gives for building arches without centering<sup>112</sup> should be treated with caution. However, so many of the tools and techniques found in these miniatures correspond to even the recent practices of masons in Iran<sup>113</sup> that the positive evidence they give can be considered reliable.

---

111) R. Du Mans, Estat de la Perse en 1660, ed. C. Schefer (Paris, 1890), p. 208. The practice is reported in modern times by Wilber, AII, p. 54.

112) Hillenbrand, Imperial Images in Persian Painting, p. 57.

113) Cf. Wulff, The Traditional Crafts of Persia, Ch. III.

Building Materials a) Rubble. Although this is difficult to ascertain in most cases, rubble masonry seems to have been used frequently for foundations, e.g. at Qūsh Ribat, Khargird, Ziyārat and Turbat-i Jām. This was certainly not an invariable rule, however. The excavation of the southwest minaret of the Madrasa of Sultan Husain shows a brick foundation 90cm deep, leading down to stone slabs set around the base (Fig. 69), although rubble seems to have been used for the base of the adjoining walls. The use of brick in this case seems to indicate that the mason thought it a more resilient foundation when the high downward stress which a minaret would impart was involved, but the use of rubble for the dams at Akhlamad and Kirāt, and as a foundation for the Turuq dam, show that it was just as capable of withstanding stress.

Of the remaining caravanserais built by Mīr <sup>c</sup>Alī Shīr on the pilgrim route from Jurjān to Mashhad (Cat. No. 40) three are built completely of rubble, while one, Ribat-i <sup>c</sup>Ishq, also used brick for vaulting. In these buildings the rubble is laid in courses which vary from ca. 85-135cm, with the variations occurring not merely from building to building but also in successive courses of each building. This technique was also used in earlier buildings of rubble in Iran, e.g. in the caravanserai at Āhūān, where the courses vary from 40-60cm.

In some ways, however, the mausoleum of Auliya Shādmīn at Naukhandān (Cat. No. 17) is the most instructive rubble building in the catalogue. It is clearly the work of the same craftsman as the tomb at Ziyārat (Cat. No. 18), and while the detailing of the building is less fine than that of Ziyārat, the overall conception of the dome chamber does not seem to have been changed significantly by the use of a different building material. Even with our scanty knowledge of the typology of fifteenth century caravanserais in Iran, those in

rubble do not differ radically from those in brick. As a determinant of form, then, the use of rubble rather than brick was not of great significance.

b) Stone. In only one monument in the catalogue, the Ribat-i Qillī, is ashlar masonry used for the structure of part of a building. There was no equivalent in Khurasan to Tīmūr's Friday Mosque in Samarqand with its stone portals and hundreds of stone columns. What little stone was quarried was used either for tombstones or as a decorative revetment, and is further discussed under the latter heading in Chapter III. One should not assume from this, however, that there was a decline in the use of stone in greater Iran in the fifteenth century. In the provinces where stone was used most frequently in the Mongol period, Fars and Azerbaijan, despite the loss of so many buildings, the mausoleums of Khunj and the Palaces of the Khāns at Bākū provide evidence for the continuing tradition of building in stone where it could be easily quarried.

c) Brick. Fired bricks provide the core around which most of the monuments in the catalogue were built. The most frequent size is ca. 25 x 25 x 5cm, while most others vary from 23-27cm in length and from 4-6cm in depth. As might be expected from the smaller geographical framework, these display considerably less variation than those which Wilber tables for Il-Khanid Iran.<sup>114</sup> One should not assume from this, however, that there were only a few centres in which brick was produced. The ability of masons in ordinary circumstances to erect kilns in any location can be inferred in <sup>c</sup>Abd al-Razzāq's account of <sup>c</sup>Alā al-Daula's conduct at Chichiktū in 851/1447-8 when in order to obtain brick for a fort, he demolished cisterns (hauz), langars and

---

114) III, p. 48.

other charitable buildings (biqā<sup>c</sup>-i khair) - but only because the exceptional severity of the cold weather prevented kilns from being made.<sup>115</sup>

Most of the ingenuity which was spent on elaborate brickwork in the earlier Islamic architecture of Iran was now concentrated on tilework, often set within a framework of smaller banna'i bricks, well described by M.B. Smith as "a thin revetment of smoothly rubbed, under-baked brick laid in gač mortar, in even courses with precise bonding, the horizontal joints carefully raked, and the rising joints minute."<sup>116</sup> These are more fully considered in Chapter III, but it may be noted that the variety of these smaller bricks and the fact that in each case they were designed with a location on a specific part of a building in mind also points to their local manufacture.<sup>117</sup> Where necessary, bricks of unusual shape could also be made for a monument, as is shown by the pre-rounded bricks of the central column of the minaret of the Masjid-i Shah, Mashhad, or those of the engaged columns at the rear of the Khargird madrasa.

Only two monuments in the catalogue are substantially built of mud-brick (Nos. 27, 30). As is the case today in Iranian villages, the majority of vernacular monuments erected must also have been of mud-brick, but when so many monuments built of more permanent materials have been destroyed, it should be no surprise that almost none of these mud-brick structures have survived.<sup>118</sup>

---

115) MS, p. 924.

116) "Material for a Corpus of Early Iranian Islamic Architecture II: Manār and Masjdīd; Barsiān (Isfahān)," p. 16.

117) This has been pointed out by Wilber in relation to Il-Khanid bricks (AI, p. 48).

118) Although some late fourteenth century domestic residences may have survived in Sistan - see Chapter I, n. 45.

d) Mortar. The same wide range of colour, hardness and admixtures found in mortars of the Mongol period<sup>119</sup> still pertained in the fifteenth century. A fine gravel admixture was found in almost all mortars of the period. In a number of monuments where mud was mixed with the mortar, the colour was correspondingly darkened to brown. The consistency of this mortar with mud admixture could vary from hard, as in the khanqah at Dih-i Manār, to soft, as in the buq<sup>c</sup>a at Taybād. The better state of preservation of the latter suggests that the quality of the mortar was a minor factor in determining the stability of a building.

A special water-proof mortar (sārūj) of lime (āhak) rather than gypsum, mixed with burnt wood-ash or camel-thorn ash, was used for dams and some other buildings. Isfizārī, in his description of the fortress in his home town, describes the use of gach and sārūj for the buildings within, with baked brick (khisht-i pukhta) and lime mortar (āhak) used for the large rain-filled cisterns.<sup>120</sup>

e) Wood. The almost invariable use of wood for doors and cenotaphs falls outside the scope of this study. However, wood was used in a variety of ways structurally. In addition to the poplar and plane trees which, as Wilber mentions,<sup>121</sup> were commonly used in the Il-Khanid period, the pine, grown in large quantities in the region of Khvāf, was probably also used extensively.

The lintels of doorways and flat-headed windows were usually composed of a series of logs 10-15cm diameter laid parallel to each other, and subsequently covered with plaster. As many as seven in a row could be used, as in the main entrance portal of the madrasa at

---

119) AII, p. 49.

120) RJ, I, p. 108.

121) AII, p. 52.

Khargird. They could also be used even when, as was frequent in monuments of the first half of the fifteenth century, the embrasures of the windows sloped downwards, e.g. in the eight windows on the drum of the Masjid-i Shah, Mashhad.

In Seljuq<sup>122</sup> and Mongol<sup>123</sup> monuments wooden beams were often used in vaults, and especially in domes to provide resilience against stresses induced by settling or earthquakes. This feature was invariably found in those fifteenth century buildings which possessed double domes with high outer shells. As in previous centuries these were used in the form of a ring embedded in the dome, sometimes, as in the Madrasa of Tūmān Āghā, in two tiers, at ca. one-third and two-thirds of the height of the drum. They are also found in almost all of the radial buttresses inside double domes, in up to as many as three tiers (e.g. in the Gunbad-i Sabz at Turbat-i Jām). These buttresses could also be tied together laterally by wooden beams, as in the Gur-i Amīr, the Gunbad-i Sabz and the Masjid-i Shah, Mashhad.

One unusual use of wooden beams is encountered in the lecture hall of the madrasa at Khargird, where the ends of fifteen beams ca. 15cm diameter can be seen on each inner face of the octagonal lantern.<sup>124</sup> They presumably extend some way towards the outer shell of the lantern, in which case their role is one of support for the mass of brickwork above, lessening the stresses on the brickwork behind the delicate stalactites below. In the Masjid-i Jami<sup>c</sup> of Rushkhvār flat wooden corbels are used in the transition from octagon to dome, recalling the same feature in the Hārūniyya at Tūs.

---

122) R. Hillenbrand, "Saljuq Monuments in Iran, I.," Oriental Art, XVIII (1972), p. 65, n. 21.

123) AI, p. 53.

124) O'Kane, "Khargird," Pl. IVa.

Scaffolding As mentioned above, the miniature by Bihzād of the Construction of the Castle of Khavarnaq depicts scaffolding in use. Very long beams are used for the uprights, and these are tied to three tiers of shorter beams emerging from the sides of the aivan. Smaller beams from the back of the aivan form a lattice-work on which planks can be placed to provide a platform for the relay of bricks to the top of the monument, or on which the mason can stand as he lays the bricks on the top of the arch.

This scheme corresponds closely with what can be reconstructed from the scaffolding holes which remain in Timurid buildings. The buq<sup>c</sup>a at Tāybād may be taken as typical. The main facade is completely revetted with tile work of different kinds which cover all the scaffolding holes. Round the other sides of the building, however, are a regular series of scaffolding holes, each c. 15cm square (the width of two bricks plus joints), in three tiers c. 3.5, 5.25, and 7.0m high, each vertical row being c. 2m from its neighbour. Two tiers of scaffolding holes are also found at the back of the aivan, and one row appears further up just below the springing points of the row of arches behind the portal screen. In buildings which had a greater proportion of decorative revetment the number of scaffolding holes visible is correspondingly less - in the Shrine at Gāzur Gāh they appear only on the rear of the large east aivan, and at Khargird not at all, except in one or two places where the revetment has subsequently fallen away.<sup>125</sup> The presence of the holes beneath the revetment shows that the revetment was applied first to the upper parts of the building, with the scaffolding being progressively dismantled as the work got nearer to the ground. Only in one building in the catalogue, the

---

125) Ibid., Pl. Ib.

Madrasa of Tūmān Āghā at Kūhsān, is work in banna'i-technique pierced by scaffolding holes which were purposely left uncovered.

Where a building is not tall enough to warrant several tiers of scaffolding holes and, as is usually the case, is faced with arches, a single row of scaffolding holes will usually be found on the intermediate piers, just below the springing point of each arch. This would have enabled a platform to be erected at a height from which the mason would be able to reach all parts of the vault above.

Surprisingly, scaffolding holes appear less frequently in interiors, even in buildings with no plaster or tile revetment, such as the Masjid-i Jami<sup>c</sup> of Ziyāratgāh (Cat. No. 33). The Masjid-i Jami<sup>c</sup> of Ghuriyān (Cat. No. 57), however, has one at the bottom of each face of the squinch at zone of transition level, and in the mausoleum at Sibarz (Cat. No. 56) the holes below the springing point of each arch on the exterior are continued through to the interior.

Vaulting The main tools and techniques of medieval vaulting have been described in detail by Godard<sup>126</sup> and Wilber.<sup>127</sup> The ability of the masons to erect vaults without centering received detailed study, and the achievement of this by means of moulded plaster planks stiffened with reed, or by form boards, together with scaffolding and quick-setting gypsum mortar was also commented on. Surprisingly, however, neither of them quoted what is perhaps the earliest literary reference for this practice in the form of the vivid description by Du Mans:

---

126) "Voûtes Iraniennes," AeI, IV (1949), pp. 187-256.

127) AI, pp. 56-61.

"They make the walls quite straight without a level or trowel; except to coat them with kāhgil (mortar made with straw), which they do with a māla (trowel), which is only a steel plate half a foot long and four fingers wide with a wooden handle like a little bow. They attach the coating very successfully, making in less than no time vaults of all kinds, without centering; only, in order to begin a row of bricks they use a large slightly bent rod, and having positioned the first row of bricks with plaster, which dries here immediately, on the arcade, they continue to attach and smooth down their bricks, which in no time take the form of a vault."<sup>128</sup>

Chardin also remarks that masons used no scaffolding when constructing small domes and vaults.<sup>129</sup>

The extent to which vaulting had become synonymous with decoration in the fifteenth century can be appreciated from the sections on brick and plaster in Chapter III. This is not to deny that, say, the great variety of Seljuq vaults in the Isfahan Masjid-i Jami<sup>c</sup> fulfills a decorative role, but whereas they also play a structural role, all of Timurid plaster vaulting and even some brick vaults play no structural role whatever.

Where a plaster coating is omitted, however, as in the Masjid-i Jami<sup>c</sup> and Masjid-i Chihil Sutūn of Ziyāratgāh, there was no display of vaulting pyrotechnics. A considerable area of each of these mosques is taken up with multiplication of a single unit, the domed bay. While this provided an opportunity for constructing different varieties of squinch nets, the architect was content in the Masjid-i Jami<sup>c</sup> to repeat the same design, and in the Masjid-i Chihil Sutūn to alternate two designs for the total of twenty-eight bays. Technical ingenuity

---

128) Du Mans, op. cit., p. 208.

129) Voyages, ed. Langlès, IV, p. 116.

in vaulting was mostly reserved for plaster shells.

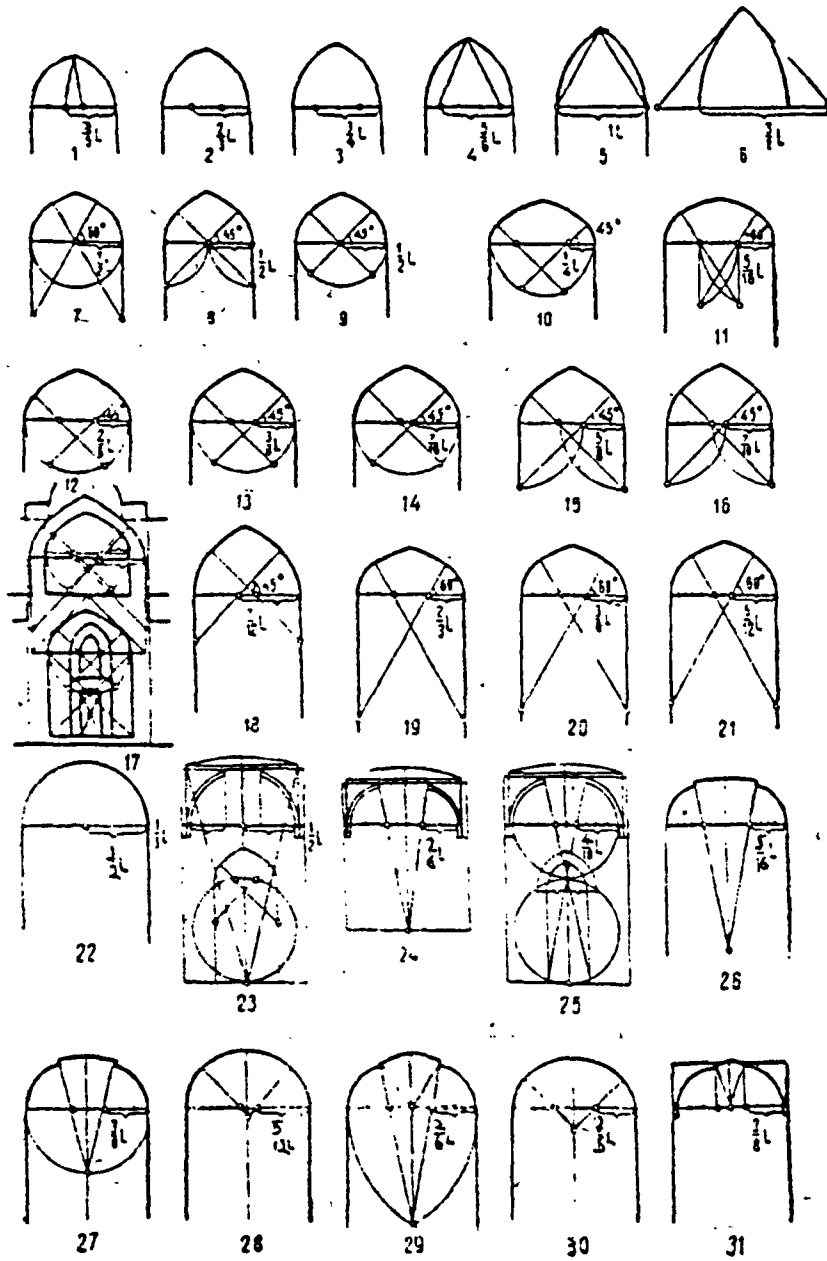
What sometimes appears as a pattern of brick bonding may on closer examination turn out to be plaster ribs, stiffened by means of reeds, as in a domed room of the Ribat-i <sup>C</sup>Ishq, or in the southeast upper domed room of the Khargird madrasa.<sup>130</sup> In the latter the ribs are added to a semi-dome which was formed by corbelling, and then unusually faced with vertically laid bricks.

When stalactites, on the other hand, were used to form a semi-dome, as in the recesses of the Khargird madrasa, it was not felt necessary to corbel the vault out behind to provide the requisite support; it was simply barrel-vaulted and the decoration affixed to it by means of ribs of half-bricks and plaster (Pl. 127). The general preference, then, especially in buildings which were plaster covered, was to erect the simplest brick shell possible, using corbelling and barrel-vaulting whenever practical.

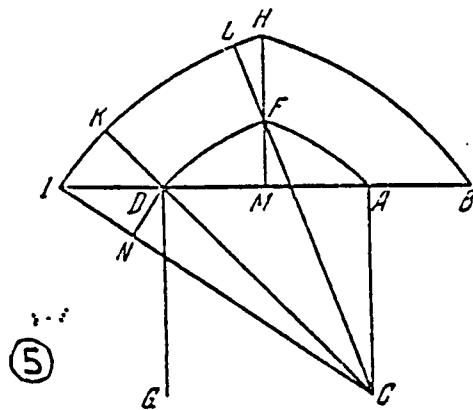
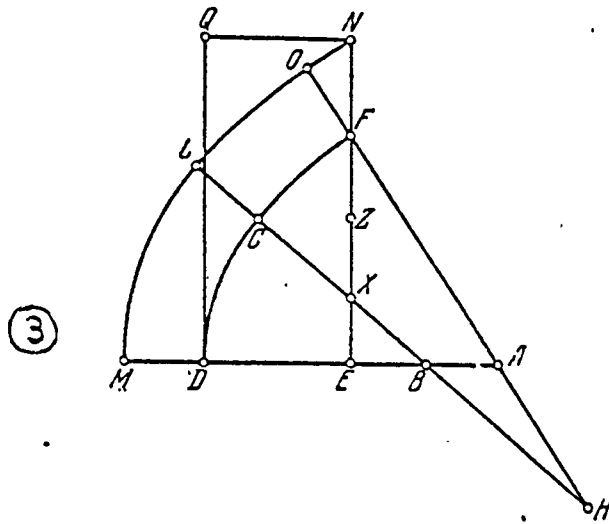
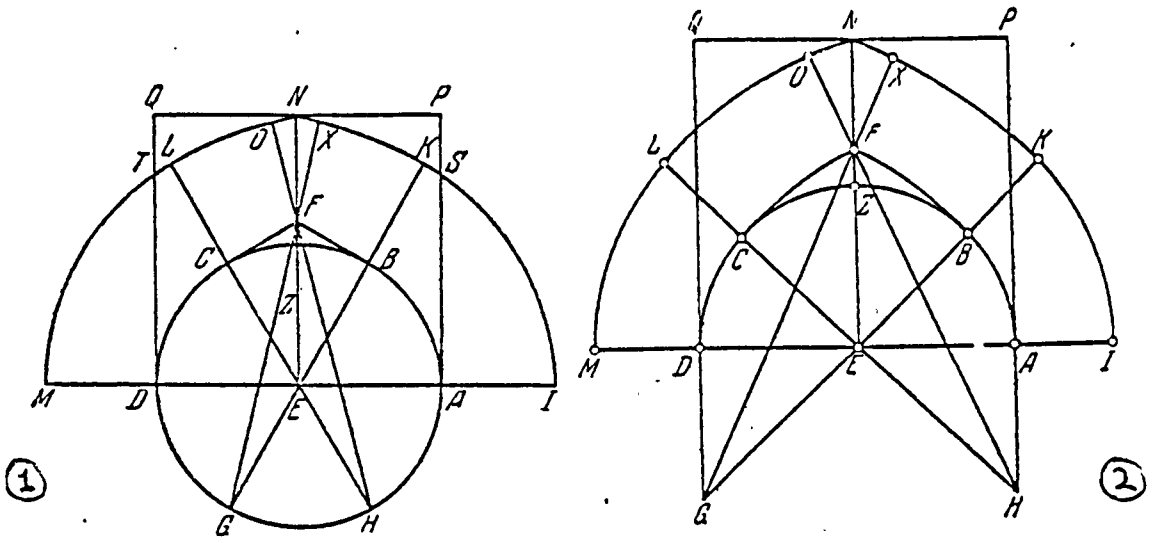
One might have expected some development in Khurasan of the tradition of transverse vaulting so brilliantly consummated in the southwest hall of the Yazd Madjid-i Jami<sup>C</sup>. While it was used for Gauhar Shād's Dār al-Huffāz in Mashhad a few years later, one is not sure whether to attribute subsequent lack of examples to the vagaries of destruction or a channeling of its concepts into new forms of dome chambers with intersecting ribs, such as those of Gauhar Shād in Herat or the madrasa of Khargird. Somewhat surprisingly, transverse vaults are combined with cloister vaults in a vigorous cross-fertilization in a number of provincial monuments, such as the Masjid-i Jami<sup>C</sup> of Bajistān and the mazar at Kadkan. In each case the central span of the cloister vault at each end of the bay is itself transversely vaulted. While at

---

130) O'Kane, "Khargird," Pl. VIc.



1a) Arch profiles in the Shrine of Khvaja Ahmad Yassavi (after Mankovskaya)



1b) Arch profiles in the Miftāh al-Hisāb  
(after Rosenfeld)

Bajistān these are pointed barrel-vaults (Pl. 35a), their profile at Kadkan is progressively modified into a keel-shape as it reaches its apex (Pl. 279). The scheme at Bajistān was repeated identically in Mīr <sup>c</sup>Alī Shīr's cistern opposite the Herat citadel (Pl. 248), which may indicate that at the end of the fifteenth century this modified cloister-vault was seen as the natural, even utilitarian way of vaulting a rectangular space.

Where an aivan was to be vaulted, however, the transverse vault was only infrequently used (e.g. for the smaller aivans of the Ziyāratgāh Masjid-i Jami<sup>c</sup>), the pointed barrel vault remaining popular throughout the period. If, however, the aivan was wider than it was deep, as was often the case with entrance aivans, it was usually vaulted by a semi-dome. Occasionally, as in the huge east aivan of Gāzur Gāh, the semi-dome could be inserted at the back of the aivan, or a visual substitute for it could be added, such as the rows of stalactites at the back of the lateral aivans at Khargird. However, the sheer size of such aivans as those of Tāybād or the Ziyāratgāh Masjid-i Jami<sup>c</sup> was sufficient to impress without the need for complicated vaulting.

Vaulting Profiles Even within the context of a single Timurid building, the range of vaulting profiles can vary very considerably. One of the best illustrations of this is the Shrine of Khvaja Ahmad Yassavī, where Mankovskaya has tabled the use of thirty-one different profiles: round, two, three and four-centred, and of various segmental types (Fig. 1a). It shows the range of types available for contemporary architects, and if those in Khurasan did not avail themselves of all types that were found in the Turkestan shrine, they employed several which were not represented there. The most important evidence

for the rationalisation of architectural practice in this regard comes from the Miftāh al-Hisāb, the treatise written by one of Ūlūgh Beg's chief astronomers, Ghiyāth al-Dīn Kāshī, in the first half of the fifteenth century. In a section entitled "On the Measurements of Arches and Vaults"<sup>131</sup> he shows five main ways for determining arch profiles, mentioning in some cases the spans for which such profiles are considered suitable. His first two methods are three-centred, and correspond exactly to nos. 7 and 8 of Fig. 1a. His third is four-centred (Fig. 1b), the shoulders being struck from a radius greater than half the span of the arch, producing a steep curve which Kāshī rightly assumes would be suitable for arches with a span of more than 10 adhru<sup>c</sup> (cubits), i.e. ca. 6.0m. Kāshī's fourth and fifth methods are two-centred (Fig. 1b). The latter is a depressed arch with apex not far above the springing line, and although the profile was not used for freestanding arches, a variant of it occurs above the rear window of the lateral aivans at Khargird, where it is used as a relieving arch.

It must be asked, however, to what extent Kāshī was following the practice of architects of his time, and to what extent he was laying down precepts which he himself thought ought to be followed? An indication that the latter may be more likely in some cases is the way in which he insists on specifying two parallel profiles corresponding to the thickness of the arch. The only profile that is normally seen by the observer, however, is the lower one, and once the builder had determined this with his first row of bricks no further consideration would have to be given to an upper profile, which would automatically

---

131) Eds. al-Damirdāsh and Hamdī, pp. 176-188; tr. B.A. Rosenfeld, pp. 162-179.

follow the shape of the lower as long as bricks of the same length were being used. While it is true that Kāshī's formulae could have been of use in preparing moulds for gypsum plaster planks, even with those it was the lower profile of the planks which was the decisive factor in determining the shape of the arch.

Mankovskaya pointed out that the largest arches in the Shrine of Khvaja Ahmad Yassavī were three-centred, according to her construction 9 (Fig. 1a). In Khurasan, however, such examples as the aivan at Tāybād (span of 10.3m) or the courtyard aivans at Khargird (span of 5.0m) used her construction 15 (Fig. 1a), a four-centred arch with the upper profiles struck from centres perpendicularly below the outer edges of the arch. One may compare this with typical Mongol four-centred examples illustrated by Wilber,<sup>132</sup> where the upper profiles are struck from centres nearer to the centres of the shoulder curves and so rise more steeply and with a more pronounced curve. The more gently curving upper profile of construction 15, whose height is only slightly greater than half its span, would seem to be typical not only of large-span Timurid arches, but of much of subsequent Safavid and Qajar architecture. While more fieldwork in the form of measured drawings is needed to verify this hypothesis, it would seem that the formulae worked out for Timurid arch profiles were adopted as the classic canon for later Iranian architecture, setting standards which were to continue unchanged for several centuries.

Some of the more exotic varieties of Mongol vaults, mainly those exhibiting double reverse curves,<sup>133</sup> do not appear in Khurasan in the

---

132) AI, pp. 68-9.

133) AI, Diagrams H, I, J, p. 71.

fifteenth century.<sup>134</sup> Broken-headed arches of varying profiles appear frequently, however, in the monuments of the court school of the second quarter of the fifteenth century, e.g. at Khargird, Tāybād, Kuhsān and Turbat-i Jām. Unlike most broken arches of the Mongol period, however, these were not purely decorative. Although the mouldings on either side of these arches are usually made of plaster,<sup>135</sup> the vaults which they enclose do play a structural role,<sup>136</sup> even though they follow the broken profile.

Stalactites The discovery of a plaster slab from the Palace of Abaqa Khān at Takht-i Sulaimān, with the plan of a stalactite vault scored on it, together with the analysis of the remains of a stalactite vault there, has provided valuable information about the design and construction of stalactite vaults in the Il-Khanid period.<sup>137</sup> It would have been a simple operation to make up the slab and sketch out the plan on site. The designer drew a plan which was only a visual shorthand of the final result, but one which an experienced mason would have had no difficulty in translating into the finished product. The different tiers and facets of the vault were made up of a strictly limited number of elements. These were prefabricated in plaster, probably by means of moulds. In the Miftāḥ al-Hisāb, Kāshī also has a section of the measurements of stalactites,<sup>138</sup> which consist, according to him, of five basic shapes:

---






134) One exception, closely corresponding to Wilber's Diagram J, is found on the small panels of blank arches beneath the stalactites in the lecture hall of Khargird.

135) O'Kane, "Khargird," Pl. VIa.

136) Ibid., Pls. IIb, VIb.

137) Harb, Ilkhanidische Stalaktitengewölbe.

138) Text, pp. 185-8, tr. pp. 174-9.

- 1) the square 
- 2) the rhombus 
- 3) the barleycorn 
- 4) the two-footed 
- 5) the almond 

Three of these shapes (1, 2 and 4) are found in the Takht-i Sulaimān sketch plan, while the others occur in the reconstructed plan. As well as scratching stalactite plans on stucco, however, it would also have been possible to draw them on paper. The sixteenth century sketchbook mentioned above also contained three pages showing stalactite designs within a square, which when doubled would have provided the plan for a rectangular niche, or when quadrupled, like that of the Takht-i Sulaimān panel, would have provided the plan for a dome. The only one of the three pages to have been published shows a design which is both drawn in fuller detail and is more complex than the Takht-i Sulaimān sketch.<sup>139</sup> This reflects not only the ease of working with a pen on paper, as opposed to scratching the design on plaster, but also the increased fluency of stalactite designs which had been attained by the sixteenth century. The published drawing shows a system of stalactites with a series of regular five, six and eight-pointed stars, an arrangement which can be compared with the stalactite semi-dome over the mihrab of the fifteenth century Masjid-i Jami<sup>c</sup> of Bundarābād near Yazd.<sup>140</sup>

Although the tombs of the Shah-i Zinda follow the Il-Khanid tradition in employing stalactite vaults over entrance portals, no example of this use of exterior stalactite decoration has survived in the

139) Pugachenkova, "Arkhitekturnie zametki," Fig. 11.

140) Afshār, Yādgār I, p. 503.

Timurid monuments in Khurasan. As exterior decoration it seems to have been confined almost exclusively<sup>141</sup> to the transition from a high drum to the outer shell of a double dome. This can range from a single tier (Turbat-i Jām, Madrasa Du Dar) to two (Kuhsān) up to the four tiers supporting the godrooms of the dome of the Mausoleum of Gauhar Shād. In all these examples the tiled stalactites are attached with plaster directly on to a brick core.

With interior stalactite systems, however, a completely different technique is used. They are invariably of plaster, and are always built in the form of a suspended shell. Behind this shell there is usually a pointed barrel-vault. In fourteenth and seventeenth century systems wooden struts can often be seen protruding from the back of this kind of vault; they were used in conjunction with large blobs of plaster to provide support for the stalactites. Surprisingly, this kind of support does not seem to have been used for any of the catalogue monuments. The damaged shells of the recesses of the mosque and lecture hall at Khargird display the method clearly. The recesses are divided into three compartments by means of ribs made up of half-bricks embedded in 12mm of plaster. The plaster envelope spanning these ribs, which in its lower stages is a stalactite vault and in its upper decorated with fan-like facetting, is supported both by brick-bats of varying sizes laid flat and embedded in plaster, and by diagonally-set plaster ribs ca. 45 x 78mm (Pl. 127). The rather amorphous mass of plaster and brick-bat backing together with the stalactites themselves may technically constitute a vault, but it is one which is supporting nothing other than its own weight, and whose

---

141) The only exception seems to be the weathered remains of stalactites on one exterior niche of the Masjid-i Gunbad, Ziyāratgāh.

fragility is emphasised by its frequent inability to do even this.

The stalactites themselves were not just made of plaster, however. The erection of modern scaffolding made an examination of the cells above the inner drum of the mosque at Khargird possible; they are composed of two elements: the arched outline of each cell made of reed-stiffened plaster, and a darker-hued infilling of softer, non-reinforced plaster (Pl. 126). In the modern restoration wooden arches have been used instead of those made of reed-reinforced plaster, but both types could obviously have been prefabricated on or off-site and would have been assembled like those used in the restoration, the arched outlines being erected first, with the plaster infilling being added at a later stage. The whole would then be given a smooth white plaster overcoating, painted if necessary. This overcoating which remains on most of the stalactites makes it difficult to determine whether they were all made in this way, or whether whole cells were prefabricated like those found at Takht-i Sulaimān. Perhaps the former is more likely - the added strength imparted to the stalactite shells by the reeds would have been all the more necessary when the cells were not set directly into the wall behind, as at Takht-i Sulaimān.

The design of stalactite systems obviously changed in several crucial ways in fifteenth century Khurasan. The visual effects of this phenomenon, however, are a corollary of the decorative role of stalactites, and it is in this context that their development is further discussed in Chapter III.

Domes As in the Seljuq and Mongol periods, the chahār tāq formation of four main arches remained the basis of the dome chamber. A pre-restoration photograph of the Mausoleum of Gauhar Shād (Pl. 79) shows

this clearly: the vertical lay of the main arches stands out in sharp relief against the horizontal lay infill. Four corner arches, also in vertical lay, spring from the haunches of the main arches to form an octagon. Their apices are higher than those of the main arches, a feature which may seem unusual, but which is also found in the Seljuq mausoleum of Abu'l-Faẓl at Sarakhs,<sup>142</sup> and in the Gunbad-i Chūpān (Pl. 119). However, it was the use of intersecting arches to transform the space within this standard shell which became the hallmark of Timurid vaulting techniques in the first half of the fifteenth century, and which was its most original contribution to the refashioning of interior space. The derivation of this technique from transverse vaulting and its effects has been the subject of a number of recent studies,<sup>143</sup> and so will not be considered in detail here. However, it is worthwhile looking at some monuments where the plaster facing of the vaulting has been destroyed, to see in what way these new techniques were structurally carried out.

Two buildings, the mausoleums of <sup>o</sup>Ishrat Khāna in Samarqand and of Qāsim-i Anvār at Langar, show similar solutions (Pls. 182-3). In each case the intersecting arches are made up of ribs of vertically laid bricks, varying from four (<sup>o</sup>Ishrat Khāna) to ten (Langar) bricks thick. The space between the intersecting arches and the outer squares of the dome chamber is filled with a semi-barrel vault, the bricks being laid at right angles to the intersecting arches.<sup>144</sup> The dome between the intersecting arches is simply corbelled out.

---

142) Pribytkova, Pamyatniki Arkhitektury, Fig. 4.

143) O'Kane, "Tāybād," pp. 101-3, with references.

144) Ibid., Pl. VIa.

The exterior of such a system is displayed in the buq<sup>c</sup>a at Tāybād, and in the virtually identical arrangement in the Mausoleum of Gauhar Shād, the latter being hidden from view under two higher domes. On the main axes the tops of the four intersecting arches can be seen adjoining the dome, each abutted by what appears to be a semi-dome, but which in fact continues down out of sight on either side, and is therefore the top of the semi-barrel vault mentioned above. Smaller arches bridge the diagonals of the main arches; in the mausoleum of Gauhar Shād these are abutted by smaller quarter-domes. In the mausoleum of Gauhar Shād there is a space between the lowest brick dome and the largely plaster dome beneath it, and also between the axial semi-barrel vaults and the plaster backing below (Pl. 80). The structure can be seen as one designed to provide a rigid shell from which to suspend, and at the same time isolate from structural stress, the fragile plaster shell below.

Occasionally, however, decorative plasterwork can be applied directly on to the brickwork in a dome chamber, as in the sanctuary dome chamber of the New Mosque at Turbat-i Jām, or in one of the recesses of the mausoleum at Langar. At Langar, however, this is revealed as a revetment on a revetment, as the brick rhomboidal faceting has fallen away in part showing the dome corbelled out above (Pl. 185). The further development of this trait, when the brick revetment becomes detached from the main dome and itself becomes an independent shell, similar to those in plaster which we have studied earlier, is discussed in Chapter III.

While the use of intersecting arches was the most characteristic feature of the interiors of fifteenth century dome chambers, the bulbous double dome on a high drum was undoubtedly its most conspicuous external development. Not that these features in themselves were

new - the tomb of Sultan Bakht Āghā (753/1352-3) adjoining the Dardasht portal in Isfahan and the Gūr-i Mīr both have double domes on a high drum, and the first moves towards the later pronounced swelling above the stalactite cornice at the top of the drum can be seen in the tomb of Shīrīn B ka Āghā in the Shah-i Zinda (787/1385-6) and in the smaller dome over the mausoleum in the Shrine of Khvaja Ahmad Yassavī. Later bulbous examples in Khurasan are the Mausoleum of Gauhar Shād and the Gunbad-i Sabz at Turbat-i Jām and, more bulbous still, the Masjid-i Shah in Mashhad. Alongside this tradition, however, are the double domes of the madrasa of Tūmān Āghā and Du Dar and the Gunbad-i Chūpān which, like the tomb of Sultan Bakht Āghā, do not bulge out above the stalactite cornice.

One characteristic of these dome chambers is that they were all mausoleums,<sup>145</sup> and each of them, with the exception of the Masjid-i Shah, was incorporated in a madrasa. In Chapter I it was noted how dome chambers within madrasas received the architectural wealth and attention which had been previously been given to secular mausoleums, as a result of the preference of all secular dignataries for burial in madrasas. The high double dome, however, still permitted them to retain the aura of magnificance which would have pertained to a free-standing mausoleum. It is worth recalling here that in previous centuries the most popular form of free-standing mausoleum was the tomb tower, a type of building whose chief characteristic is its emphasis on height. While this form was still popular along the Caspian littoral in the fifteenth century, it virtually disappeared

---

145) With the possible exception of Turbat-i Jām, as Jalāl al-Dīn Fīrūzshāh, the founder, was buried in his own madrasa in Herat (MS, p. 840).

from the rest of Iran in the same period. One might speculate whether there is a link between these two phenomena, i.e. whether the verticality which was the prerogative of the tomb tower was somehow transferred in the shape of a high drum and double dome to its replacement in mausoleums in madrasas. This appears to be less of a coincidence when one remembers that in the only other large group of Timurid buildings which regularly have dome chambers, the mosques of the Yazd area, these are single shell and not usually of pronounced height.

Why should there be this urge to preserve a tradition of verticality in Timurid mausoleums? While it has obvious connotations of secular power and status, it is still possible that, as in earlier centuries, a connection was made between verticality and paradise.<sup>146</sup>

---

146) On this see A. Daneshvari, A Stylistic and Iconographic Study of the Persian Tomb Towers of the Seljuk Period (forthcoming).

Other relevant evidence may be quoted here. An early 10th century A.D. text translated as The Antiquities of South Arabia refers to a tall palace thus:

"Twenty stories high the palace stood flirting with the stars and the clouds. If Paradise lies over the skies, Ghumdan borders on Paradise" (quoted by Grabar, Formation, p. 79). Earlier evidence may be found in the interpretation by K. Brisch (unpublished lecture, Oxford, 1979) of the scenes in mosaic of dwellings amidst rivers and trees in the Great Mosque in Damascus. He has pointed to the many passages in the Quran which describe paradise as a garden underneath which rivers flow, and also to three Sūras which refer to the presence of tall buildings in paradise e.g. XXIX/58: Those who believe in good work, them verily we shall house in lofty dwellings underneath which rivers flow. In another Sūra, the faithful are promised gusūr, which has been translated as follows:

Blessed is He Who, if He will, will assign thee better than (all) that - Gardens underneath which rivers flow - and will assign thee mansions. (XXV/10) (Footnote continued next page.)

One striking confirmation of this is found in a miniature from the Herat Mi<sup>c</sup>rāj Nāma (840/1436-7)<sup>147</sup> where the gates of paradise by the pool of Kauthar are depicted as tall chambers with faience-clad bulbous domes which bear a striking resemblance to the form of extant Timurid mausoleums.

Although reference above has been to buildings with double domes, it may be remembered that this description is not adequate for structures such as the Mausoleum of Gauhar Shād, which has a second dome at the level of the top of the drum. It seems also that the plaster shell of the vaulting is suspended below the lowest brick dome, (Pl. 80) so that in a way one can speak here of a quadruple dome system. However, this may be a question of terminology than anything else - the concept of a lower dome would equally apply to earlier buildings such as the Mausoleum of <sup>c</sup>Abd al-Samad at Natanz, making it a triple dome structure.

---

146) (Continued from previous page)

It may be remembered that three of the earliest tomb towers, the Gunbad-i Qābus, Radkan West and Pīr-i <sup>c</sup>Alamdār are all referred to in their inscriptions as gasr. In addition to its Quranic paradisial significance one could also recall that it was used in a Manichean hymn in pahlavī for the paradisial dwelling of the emperor (Adle and Melikian-Chirvani, "Les monuments," p. 252, n. 4).

While gasr was not used in subsequent tomb towers, the term rauda, which was indeed used for mausoleums of all kinds, became increasingly popular. It too was used as a synonym for paradise in the Quran. Occasionally the decoration of mausoleums can more specifically refer to paradisial themes; the interior painted decoration of the Kharraqān I tomb tower has been interpreted in this way (Daneshvari, op. cit.), and the paintings of gardens with rills and bird-filled trees in the mausoleum of the madrasa of Tūmān Āghā (Pls. 117-8) are unambiguously paradisial.

147) Séguy, The Miraculous Journey, Pl. 39.

In general, however, the monuments so far considered have had true double domes. Whether or not this bulges outwards at the base the construction is similar: from four (Turbat-i Jām) to fourteen (Gūr-i Mīr) buttresses, usually one to one and a half bricks thick, are arranged at equal intervals behind the upper shell, with a length of about half the internal radius of the drum. On occasion, as in the Masjid-i Shah, Mashhad and the Mausoleum of Farīd al-Dīn Ḥattār, four large armature-like arches, from one and a half to three bricks thick, are used to form a vault to give extra protection to the lower dome; in both buildings the buttresses sit on top of these armatures, while in the former an extra four buttresses are also situated midway between each armature.

Access to the space between the double dome is usually by means of a square aperture in the drum, sometimes reachable from the roof only by ladder. In some monuments these apertures at the present time cut through an inscription or decoration, indicating that these were originally sealed off, the architect not envisaging that any repair work would be necessary to this space.

Although the double dome was designed to be an effective means of emphasising exterior height while at the same time preserving the interior from unnatural elongation, there is more than a hint in some of the later monuments that the architect has taken the easy way out by extending the drum to gain exterior magnificence without a corresponding increase in the interior height. In the Madrasa of Tūmān Āghā, for instance, the height of the interior is less than that of the space between the inner and outer dome. Apart from the sense of waste felt when one realises that the largest interior vertical space of the monument remains unseen, the height of the interior in relation to its width is not sufficient to avert a certain feeling of claustrophobia.

In addition to the double dome on a high drum, double domes with only a small space between them continued to be built, as in the Ziyārat of Tīmūr Lang and the buq<sup>c</sup>a at Tāybād. In these cases the outer dome was used solely for protection.

Single-shell domes, of course, remained by far the most common type, as they were used for the more modest domed rooms found in madrasas and khanqahs, for instance. The great variety of fifteenth century arch profiles has been noted above, and as a dome is no more than an arch rotated through its centre, one is not surprised to find a wide variety of dome profiles of the same period. Characteristic of many of these small chambers are their depressed profiles.<sup>148</sup> This was in many cases necessitated by demands of space when the domes were on the lower floor of a two-storey building. Even in the upper storey, however, the same depressed profiles are often repeated, perhaps in order not to disturb the silhouette of the building, or, possibly even more important if the room was used as a living chamber, to make it easier to heat in winter.

The extreme example of the depressed domical vault is that of the crypts underneath dome chambers. Although the Vault of Jahāngīr at Shahr-i Sabz and the Gūr-i Mīr display examples which are still intact, the shattered crypts of the Mausoleum of Bībī Khānum in Samarqand and those of the Madrasa Du Dar in Mashhad show that it was possible to be over-ambitious. The crypt of the Gunbad-i Khishtī in Mashhad (Fig. 14), with its long rectangular central column, can be seen as a reaction against the flimsiness of this type.

Although the lack of imposing double-domed buildings from the second half of the fifteenth century may be due to the disappearance

---

148) O'Kane, "Khargird," Fig. 4.

of those madrasas which might have contained them, one is tempted to see the waning of the double dome as a corollary of the development of the pishtaq. The aivan of the Tāybād buq<sup>ca</sup>, and before it the towering arch at Turbat-i Jām, were themselves the major architectural focal points of their ensembles, and undoubtedly contributed to the subsequent downgrading of the role of the dome in mausoleums. The dome of the Tāybād buq<sup>ca</sup> wisely gave up the struggle to compete with the aivan - the result that would have accrued had it tried to do so may be gauged from the <sup>c</sup>Ishrat Khāna in Samarqand, where the drum was elongated to ludicrous proportions. Of the surviving buildings of the second half of the fifteenth century, however, only in the Mausoleum of Farīd al-Dīn <sup>c</sup>Attār at Nīshāpūr does the dome play a dominant role, prefiguring the Safavid tombs at Qadamgāh and Khvaja Rabī<sup>c</sup>. In structures such as the mausoleums of Shāhzāda <sup>c</sup>Abdallāh, Abu'l-Walīd and Qāsim-i Anvār, the dome is virtually invisible from the exterior - although it continued to be the architectural and decorative focal point of the interior. .

CHAPTER THREE:

DECORATION

Brick We have seen in the previous chapter that brick was used as a structural core for virtually all monuments of the Timurid period. In many buildings where unlimited finance was at hand this core was covered with a revetment of plaster in the interior and of tilework of one kind or another on the exterior. However, in smaller towns and villages where buildings were erected by local patrons of moderate means total revetment is the exception rather than the norm. Alternatively, with the amount of money at his disposal, a patron may have preferred a large, relatively undecorated building to a smaller richly-decorated one.

Many of the monuments in the catalogue display plain brick exteriors. These are usually laid in common bond, but occasionally other lays are used to decorative effect. The tops of the entrance buttresses of Qūsh Ribat have a pattern similar to the hazārbāf of Seljuq brickwork, with cross-shaped combinations of bricks in vertical lay forming a series of lozenges.<sup>1</sup> The bricks are laid with wider rising and horizontal joints than is usual, making the pattern stand out more vividly. The spandrels of the courtyard aivans have the same patterns, and similar ones can be observed on the intrados of the

---

1) Illustrated in Pugachenkova, "À l'étude des monuments timourides d'Afghanistan," p. 48.

arches leading into the central dome chamber of the Khanqah of Shaikh Sadr al-Dīn Armānī (Pl. 167).

The spandrels of the courtyard arches of the "New Mosque" at Turbat-i Jām display a novel use of brick lays. They are arranged so as to radiate perpendicular to the extrados of the arch, giving a fan-like impression.<sup>2</sup>

In monuments where banna'i-technique or mosaic-faience was used, small decorative bricks were often used as a framing device. The madrasa at Khargird may be taken as representative of this type. On the facade rectangular bricks 87 x 45mm with horizontal joints of 12mm are used to delineate the components which make up the facade: rectangular panels, arches and corner towers. The brickwork is most elaborate on the corner towers, where on the lower octagonal section special wedge-shaped bricks are used (Fig. 34). On the upper part of the towers the bricks form cross-shaped fields in which were inserted polychrome tiles.

In interiors decorative use of brick is confined to vaulting. This is seen at its simplest in the areas flanking the dome chambers of the "New Mosque" at Turbat-i Jām and the Masjid-i Jami<sup>c</sup> of Ziyāratgāh.<sup>3</sup> In the former the eight sides of the octagonal pillars are extrapolated to form arches, with pendentive-like filling of the interstices. It is virtually an equivalent in brick to the quadripartite Gothic ribbed groin vault, as exemplified in the Île-de-France from the thirteenth century onwards. The effect is starkly functional, with decoration being subordinate to, and arising from, primary structural considerations. The same might be said of the brickwork on the

---

2) O'Kane, "Tāybad," Pl. Vc.

3) Ibid., Pl. VIb.

outside of the domes of the sanctuary of the New Mosque at Turbat-i Jām and its counterpart at Tāybād.<sup>4</sup> There the combination of domes, semi-domes and supporting vaults is clearly expressed by brick whose decorative quality is emphasised by the use of flat, horizontal lays, especially over the swelling quarter-domes.<sup>5</sup>

Squinch nets are the most common areas where brickwork is used for decorative display in interiors. The basic unit of the squinch net can be seen in the bays immediately adjoining the sanctuary of the New Mosque at Turbat-i Jām, where four kite-shaped units make up an eight-sided dome. The smaller rooms of the Khanqah of Mullā Kālān provide good examples of the elaboration of this theme, with both twelve and twenty-sided domes being featured.

Two unusual displays of brick vaulting deserve mention: the transverse vaults of the mosque at Kadkan and the cistern opposite the citadel in Herat (Pls. 248, 279). In each case the use of uncovered brick allows us to see the brick lays which reflect the complicated lines of downward force, a feature which the whitish mortar used at Kadkan shows to its best advantage.

The final development of the use of brick as decoration is seen in the sanctuary dome of the Masjid-i Jami<sup>c</sup> of Ghuriyān. Fortunately a hole in the dome allows us to see that the elaborate squinch-net dome is no more than a shell, the real dome being simply corbelled out above (Pl. 264). The process which took place in the Seljuq and Mongol eras with stalactites has now been repeated with brick: a

---

4) Ibid., Pls. IVb, Vb.

5) The back of the lowest dome of the Mausoleum of Gauhar Shād is built in a very similar way (Pl. 80), although this is covered by two subsequent domes.

feature which was part of a structural core has become more and more elaborate until it becomes a revetment on another core.<sup>6</sup>

Stone The use of stone for structural purposes has been considered in Chapter II. Stone was highly prized as a building and decorative material, due to the scarcity of fifteenth century quarries. It was used only on the most sumptuous buildings, and then only as revetment. Some impetus was undoubtedly given by Timūr's extensive use of it for his Friday mosque in Samarqand. Bābur reports that he employed two hundred stone-masons from Fars, Azerbaijan, India and other countries.<sup>7</sup> There are still some remains of the original four hundred and eighty columns, together with parts of the principal arched stone entrance to the mosque.

Uba seems to have been the source for the finest stone used in Herat, as this account of Isfizārī shows:

"At one end of the town is a mountain which is a mine for a white stone just like marble. And they make stone dadoes (izārahā) from that stone, and columns, and thrones and funerary tablets and cenotaphs, and its uses are manifold. Many are its wondrous manifestations in Herat, among which are the carved mīl and lauh attached to one another at the grave of Khvaja <sup>c</sup>Abdallāh Ansārī, the like of which is nowhere to be found."<sup>8</sup>

- 
- 6) This feature can be seen in one of the corner rooms of the Āq Sarāy in Samarqand, where a very shallow ornamental brick dome was erected ca. 50cm below the real dome. Illustrated in Pugachenkova, "<sup>c</sup>Ishrat-Khaneh and Ak-Saray, Two Timurid Mausoleums in Samarqand," Pl. 7b.
  - 7) Bābur Nāma, tr. Beveridge (London 1969), p. 520. Bābur probably got his figures from Sharaf al-Dīn <sup>c</sup>Alī Yazdī, who conveys the same information: ZN, II, p. 144.
  - 8) RJ, I, p. 103. The mīl and lauh donated by Abu'l-Qāsim Bābar in 859/1454, is still intact; for (Footnote continued next page.)

There may also have been a quarry in Khvāf, as Khvādamīr reports that a large block of marble was bought at a high price from its owner in that vilāyat and transported to Herat to be carved as a minbar for its Masjid-i Jami<sup>c</sup>.<sup>9</sup>

The quarry at Uba was still in use, or at least known of, in the nineteenth century, as Yate reports, and he adds that the black marble was reputed to come from the hills north of Kandahar.<sup>10</sup> However, as buildings in Mashhad and Nīshāpūr also used black stone for cenotaphs and tombstones (see Cat. Nos. 10, 15 and 52) a more proximate source is more likely.

Stone was of course used throughout the period for tombstones and cenotaphs, some of which are outstanding examples of multi-level carving. When the need arose for decorative stone in building there was always a reservoir of skilled masons whose talents could be drawn upon. Given the plethora of finely-carved tombstones, it is in fact surprising that stone was not used more often for building.<sup>11</sup> Less surprising, as we shall see below, is that one of the main uses of stone for decoration was in inscriptions; the other main use being on dadoes.

---

8) (Continued from previous page.) further details see Saljūqī, Gāzur Gāh, pp. 38-40 and Golombek, Gazur Gah, Fig. 128.

9) KA, p. 12.

10) "Notes," p. 40.

11) Outside Khurasan there is also little use of it in the Timurid period. The sanctuary of the Blue Mosque in Tabriz had a marble mihrab and dado topped by an inscription (both unfinished); and several mosques in the Yazd area have carved stone mihrabs, e.g. the Masjid-i Mīr Chaqmaq, the Masjid-i Jami<sup>c</sup>, Taft.

Despite the availability of stone of different colours, as we have seen above, no attempt was made to imitate the ablaq of Mamluk architecture in Egypt and Syria. Where a variety of colour was needed to set off large expanses of stone, it was achieved by strips of tile, as in the dadoes of Tāybād and Gāzur Gāh. Stone could also be used by itself in the form of large rectangular slabs, as in the sandstone blocks facing one of the towers of the Herat citadel, and the black stone slabs of the Mosque of Gauhar Shād in Mashhad.

The use of engaged columns, often in marble, with delicately carved vase-shaped bases and stalactite capitals became more popular. Corners were frequently bevelled, especially on aivans, and the use of engaged columns beneath these, such as those on the entrance aivans of Gāzur Gāh and Tāybād, provided a means of visual support. These varied little in the fifteenth century, as can be seen from a comparison of those of Gāzur Gāh and the Herat Masjid-i Jami<sup>c</sup> (Pl. 265). Similar ones were used in the Aq Qoyunlu restoration of the Isfahan Masjid-i Jami<sup>c</sup>.<sup>12</sup>

Nine monuments in the catalogue have stone inscriptions. These vary from the crude (the Uba Masjid-i Jami<sup>c</sup>, Pl. 50), to one of the supreme examples of late plaited Kufic calligraphy, the marble plaques formerly on the minarets of the Mosque of Gauhar Shād in Herat (Pls. 72-3), now preserved in the Mausoleum of Gauhar Shād.<sup>13</sup> Only on the mihrab of the Mosque of Gauhar Shād in Mashhad was stone used for Quranic inscriptions (Pl. 13). The others are either foundation

---

12) See von Erffa, "A Tombstone of the Timurid Period," Fig. 6.

13) These are further discussed in the section on epigraphy below.

inscriptions<sup>14</sup> or records of waqfs.<sup>15</sup> It may well be that stone was preferred to other less durable materials by donors and patrons wishing their names to remain as a permanent record of their munificence.

Stucco Two main types of stucco decoration were employed in the Timurid era. One is a direct continuation of the Mongol style of plasterwork in high relief. The other main type arose from the increasing habit in the Mongol period of using a plaster coating for large areas of flat surface. In the Timurid period there is a tendency for complete interior surfaces to be covered with plaster and for forms which were previously structural, such as squinches and stalactites, to become plaster shells.

Where plaster was applied over a brick core it could be put on directly, but more usually a final facing of white plaster 3-6mm thick would be laid on top of a darker coating of plaster or kāhgil (mud mixed with straw) ca. 3cm thick.

In only one Timurid monument in Khurasan, the Madrasa Du Dar, is the Mongol high-relief style of plaster used extensively.<sup>16</sup> Outside of Khurasan, seven Timurid monuments have similar stucco, five in Qum and two in Varāmīn. The founder of the Madrasa Du Dar, Ghiyāth al-Dīn Yūsuf Khvaja, was also responsible for one of the above, the stucco work on the Masjid-i Jami<sup>c</sup> of Varāmīn. Recent research has shown that

---

14) I.e. the Mosque and Madrasa of Gauhar Shād, Herat, the Friday Mosques of Nīshāpūr, Bajistān, Uba and the shrine at Ghār-i Karukh.

15) I.e. the shrines at Gāzur Gāh and Āzādān.

16) Related work is found on one of the aivans in the Herat Jami<sup>c</sup>: see Allen, Catalogue, pp. 108-9.

he also had many connections with Qum, and that he very likely brought workmen from Qum for the stucco work in the Madrasa Du Dar.<sup>17</sup> The latest known example of this style was in Qum in 851/1447-8,<sup>18</sup> so the work on the Madrasa Du Dar is an expression of an anachronistic style in its last phase. For all that it retains some vitality, most noticeable in the fine inscriptions in the courtyard aivans (Pls. 92-3) and in the flat-domed vestibule (Pl. 90). Although the latter may be suspect in purely structural terms, the facets and tiers on different levels provide an original vehicle for a varied display of different patterns.

The use of plaster on squinches and stalactites to form a decorative shell is exemplified in the buildings of the court school of Herat, e.g. the Shrine of Gāzur Gāh, the buq<sup>c</sup>a of Tāybād and the madrasas of Gauhar Shād, Tūmān Āghā and Khargird. The New Mosque at Turbat-i Jām shows that at this time squinch-net vaulting was not invariably false, although the mausoleum of Qāsim-i Anvār at Langar has intricate plaster squinch-net vaults which do not reflect the brickwork below (Pl. 185).

A plaster moulding of prismatic triangles<sup>19</sup> is used in many of the above dome chambers as a means of emphasis on structural lines, especially on the star-like forms produced on the top of squinch nets.<sup>20</sup>

---

17) See O'Kane, "Timurid Stucco Decoration."

18) The tomb of Shāhzāda Zaid. See Tabātabā'ī, Turbat-i Pākān, II, pp. 76-8, Pl. 123; and O'Kane, "Timurid Stucco Decoration."

19) See O'Kane, "Tāybād," Fig. 9.

20) The motif is also found in stone, especially in Transoxiana, e.g. on the sarcophagus of Hākim of Tirmidh (G. Pugachenkova, Termez, Shakhriyabz, Khiva (Moscow, 1976), Fig. 22); at the top of the dado of the minaret of the Madrasa of Ūlūgh Beg, Samarqand, and on a minbar in the Madrasa of (Footnote continued next page.)

Comparable to this is another device found at Khargird, Kuhsān and the Masjid-i Hauz-i Karbās - that of arranging a geometric pattern in stucco by recessing one layer (Pl. 124). The effect obtained is similar to that of inset-technique (see below), although in this case the form is brought out by the play of light on surfaces of varying depth, rather than by contrast of colour and material.

One technique of stucco work which occurs in central Iran in the Timurid period is not found in Khurasan: the use of pre-cast blocks of stucco which interlock to form a decorative pattern. The only remaining example of this type of work seems to be in the Khanqah at Afūshta.<sup>21</sup>

One final form of stucco should be mentioned: its use as a latticed framework in windows, often containing pieces of coloured glass. This is evidently one of its most fragile applications, since so little has been found in situ - in Khurasan some excavated fragments have been found only in the Khargird madrasa. It is probable that future excavations will reveal more, however, as they have done in Uzbekistan at the Gur-i Mir, a pavilion of Ulugh Beg and the Ishrat-Khāna Mausoleum.<sup>22</sup> That the use of stained-glass windows was widespread from the fifteenth century onwards is evident from their frequent representations in miniatures. Sarajuddin has pointed out that the tarnished

---

20) (Continued from previous page.) Ulugh Beg, Ghūjdavān. Its antiquity is shown by its appearance on pottery found in a pre-Islamic layer in excavations in the Isfahan Jami<sup>c</sup>: see Galdieri, Isfahān: Masgid-i Ğum<sup>c</sup> a 2, Fig. 80.

21) Ferrante and Galdieri, "Architettura persiana poca nota: alcuni monumenti/timuridi ad Afushtè, presso Natanz," Figs. 15-16.

22) Pugachenkova, "Ishrat-Khaneh and Ak Saray, Two Timurid Mausoleums in Samarkand," Ars Orientalis, V (1963), p. 168.

silver which appears on roundels in buildings was probably intended to simulate glass.<sup>23</sup> These occur frequently from the beginning of the fifteenth century onwards.<sup>24</sup> The variety of colours and shapes which these windows assume becomes greater later in the century and especially fine ones are depicted in the royal Safavid manuscripts.<sup>25</sup> The use of coloured glass in Islamic architecture is however found from the earliest periods onwards - at Qusayr <sup>c</sup>Amrā, on houses in Sāmarrā, and on Ayyubid and Mamluk buildings in Syria and Egypt.<sup>26</sup>

- 
- 23) Serajuddin, Architectural Representations in Persian Miniature Painting during the Timurid and Safavid Periods, p. 81.
- 24) E.g. British Library Add. 18113, f. 12a, Khvājū Kirmānī: Humāy at the Court of the Fahgfūr of Chīn, 798/1396; F.R. Martin, The Miniature Paintings and Painters of Persia, India and Turkey (London, 1968), Pl. 46; Fogg Art Museum, Harvard, No. 1939.224: Tahmīna comes to Rustām's chamber, ca. 1410; B. Robinson, Drawings of the Masters: Persian Drawings (New York, 1965), Pl. 2; Chester Beatty Library, Dublin, P. 119, f. 16b, Sa<sup>c</sup>dī, Gulistān: the amorous prince, 830/1426, B.W. Robinson, Persian Paintings (London, 1965), Pl. 3; Hermitage, Leningrad, Ms. YP1000, f. 385b, Nizāmī, Khamsa: Nūshāba recognizing Iskandar's portrait, 835/1431, M.M. Ashrafi, Persian-Tajik Poetry in XIV-XVII Centuries Miniatures (Dushambe, 1974), Pl. 102. One possibly earlier representation appears in a mid-thirteenth century Maqāmāt: O. Grabar, "A Newly Discovered Illustrated Manuscript of the Maqāmāt of Harīri," Ars Orientalis, V (1963), Fig. 3.
- 25) S.C. Welch, Royal Persian Manuscripts (London, 1976), Pls. 67, 84, 107.
- 26) Qusayr <sup>c</sup>Amrā: M. Almagro et al., Qusayr <sup>c</sup>Amra (Madrid, 1975), p. 120; Sāmarrā: K.A.C. Creswell, A Short Account of Early Muslim Architecture (Harmondsworth, 1958), p. 287; Syria: some coloured glass was found in situ on the building known as the Jamī<sup>c</sup> al-Māridāniyya, in the Sālihiyya quarter of Damascus: <sup>c</sup>A.N. <sup>c</sup>Abbū, The Ayyūbid Domed Buildings of Syria, Ph.D. thesis, Univ. of Edinburgh, 1974, p. 136. Egypt: (Footnote continued next page.)

Painting In the fourteenth century it becomes increasingly frequent for interior walls to be covered with white plaster. The monotony of uninterrupted white space could be broken up in two ways: by the use of multi-faceted vaulting, or by painting - or, of course, by a combination of both. The number of Timurid monuments which do have painted decoration is few. The long hours of labour required for the finest work meant that it was a costly method of decoration, and the most elaborate schemes are found in buildings which had royal patrons such as Tūmān Āghā or Gauhar Shād, or wealthy government officials like Yūsuf Khvaja or Pīr Ahmad Khvāfi.

Pre-Timurid painting schemes are particularly well preserved in two buildings: the tomb of Rukn al-Dīn in Yazd and the main dome chamber at Turbat-i Jām.<sup>27</sup> The different elements which make up the vocabulary of Timurid painting are already found there: large and small inscriptions, in thulth and square Kufic, arabesques made up of floral elements and palmettes, either in large fields or smaller medallions, and geometric patterns. If we compare these schemes with two of the best preserved Timurid examples, those of the mausoleum of Gauhar Shād and the lecture hall of Khargird, the very different effect obtained with the same vocabulary may be understood more readily. Major differences are caused first of all by the different spatial qualities of the earlier and later dome chambers. In both earlier examples the paintings are broadly compartmentalized into different areas, i.e. dome, zone of transition and lower cube. The

---

26) (Continued from previous page.) MAE<sup>2</sup>, p. 91 . Given the amount that has survived intact in Egypt it is surprising that so much was destroyed in Iran.

27) Wilber, III, Figs. 141-3 (Yazd); Golombek, "The Chronology of Turbat-i Shaikh Jām," Pls. IIa-b, IIIa (Turbat-i Jām).

squinches and intervening arches receive distinctive treatment, as do the three panels of each wall. Each of these areas has its own pattern, one which is to a large extent unrelated to contiguous areas. In both the Madrasa of Gauhar Shād (Pl. 82) and the lecture hall of Khargird the wall surface above the geometrically painted dado is broken up by small blank arches which gradually merge into the honeycombed stalactites. There is thus no wide expanse of blank space where large-scale patterns could be used. The unit of stalactite quarter dome leading to a scallop-like shell is repeated, on different scales, many times in each dome chamber, and the individual decoration given to each niche and stalactite within these quarter-domes emphasises not only their number but also their underlying formal relationships. In contrast, the very disparate nature of the different parts of the dome chamber were emphasised by the painting in the earlier schemes.

Even where an uninterrupted space is available for decoration, as in the dome chamber of Yūsuf Khvaja in the Madrasa Du Dar, the result is quite different. Although the scheme is similar to that of the Rukniyya - a ring of small arabesques at the base of the dome, with a series of medallions leading up to a circular focal point at the apex (Pls. 96-7), the emphasis in the Madrasa Du Dar is on a much smoother transition between these elements. This is mainly achieved by decreasing the size of the medallions between the base and apex of the dome: instead of being visually arrested by them, as in the Rukniyya, the eye is led by their gradually decreasing size to the centre of the dome. The medallions are more homogenous in size and shape than those of the Rukniyya, and instead of a plain white ground an arabesque meander fills up the space between, echoing the shapes of the medallions themselves. In the area below this the mellifluous thuluth inscription at the base of the dome of the Madrasa Du Dar

(Pl. 99) contrasts less with the style of decoration above than the plaited Kufic of the Rukniyya. Just below the inscription of the Madrasa Du Dar eight small squinches are divided up into painted rectangular panels of different sizes, each with a medallion in the centre, giving a trompe l'oeil impression of stalactites (Pl. 98) - even when a larger space was available, the preference was for a greater number of related small-scale patterns, rather than the more typically Mongol use of a non-repeating pattern covering each of the squinch faces.

This trend is also followed in the Masjid-i Shah and the Zarnigār Khāna. The paintings in the latter are the best preserved of all those in the buildings in the catalogue, and its breathtaking splendour is such as to make one regret even more the fading of other schemes through neglect or decay. The paintings of the Zarnigār Khāna have been analysed by Golombek, who rightly points out their similarity to those of the <sup>c</sup>Ishrat Khāna and Āq Sarāy in Samarqand. She also notes their similarity to contemporary stone carving, such as the haft galam tombstones found around Herat, and extends the comparison with other media to carpets, postulating that carpet design may have inspired both painting and tombstones.<sup>28</sup> However, at least from the beginning of the fifteenth century very strong resemblances are found between different decorative media, including not only painting and stonework, but also tilework in all its forms, woodwork and manuscript illumination. The same "large leafy blossoms, the tightly curled petals, the serrated leaves"<sup>29</sup> are also found, for example, in the doors of the Gūr-i Mīr, the buq<sup>c</sup>a at Tāybād and the main shrine at the Shāh-i

---

28) Golombek, Gazur Gah, pp. 65-66.

29) Ibid.

Zinda,<sup>30</sup> in mosaic-faience arabesque panels such as those at Gāzur Gāh and Tāybād,<sup>31</sup> and in fifteenth century Qurans.<sup>32</sup> Considering our present lack of knowledge of fifteenth century carpets, it must be dangerous to attribute to them a priority in design. In any case carpets may well have been woven from painted cartoons supplied by the very artists who worked on manuscript illuminations or who were responsible for painting architectural interiors. This is clear from the passage in the arza dāsht mentioned in the previous chapter, which reports that: "Khvāja <sup>c</sup> Abd al-Rahīm is engaged with designs (turūh) for bookbinders, illuminators, tent-makers and tile mosaicists (kāshī-tarrāshān)."<sup>33</sup>

In the earlier examples of Timurid wall painting we have discussed the range of colours has been generally comparable to Mongol painted decoration: mostly dark-blue and red on a white background, with more sparing use of black, yellow, light-green, light-blue and, as in the Madrasa Du Dar and Mausoleum of Gauhar Shād, touches of gold leaf. In the Zarnigār Khāna the ground is dark-blue with gold used for the larger medallions, and dark-blue on a light-blue ground for the delicate floral sprays in between. The intensity of these dark-blue hues is best paralleled in the Gūr-i Mīr. They are also present in the Āq Sarāy in Samarqand, and they seem to have been the predominant colours in Uzun Hasan's palace and harem in Tabriz.<sup>34</sup>

---

30) Gūr-i Mīr: Survey, Pl. 1469 ; Tāybād: O'Kane, "Tāybād," Pl. IVa; Shāh-i Zinda: Pugachenkova and Rempel', Vidayushchiesya Pamyatniki Arkhitektury Uzbekistana, Pl. 77.

31) Golombek, Gazur Gah, Fig. 44; O'Kane, "Tāybād," Pl. Ib.

32) Lings, The Quranic Art of Calligraphy and Illumination, Pls. 81-3.

33) See above, p. 69, n. 96.

34) "The ceiling of the great hall of the palace is all decorated with beautiful gilding and . . . (Footnote continued next page.)

The painting in the monuments we have been considering is all in a related style. One could almost speak of it as the metropolitan court style, as one does of miniatures. Three Timurid buildings in Khurasan have paintings in quite a different style - one could call it provincial, although here this must refer to lack of court patronage, rather than implying geographical remoteness. These are the dome chambers at Khvāf, Rushkhvār and Jukhvāh (Cat. Nos. 27, 28, 30). The colours in the Khvāf Masjid-i Jami<sup>c</sup> are not original, but the way in which they are used, to pick out the lines of the hazārbāf of the squinches and dome, and to point the lozenge pattern of the intrados and spandrels of the zone of transition arches, is exactly paralleled in the Rushkhvār dome chamber, where the painting does seem to be contemporary.<sup>35</sup> Only the mihrab of the Rushkhvār dome chamber receives any detailed decoration in three panels of arabesques, and these are created by scraping away the painted surface to reveal the white plaster underneath.

---

34) (Continued from previous page.) ultramarine...The ceiling of the harem is ornamented with gold and ultramarine." The Travels of a Merchant of Venice, tr. C. Grey in Travels to Tana and Persia by Barbaro and Contarini; a Narrative of Italian Travels in Persia in the 15th and 16th Centuries, Hakluyt Society, First Series No. 49, 1873, reprinted New York, n.d., p. 175. But these colours were the most common in many Islamic societies, as the decoration of the wooden beam in the Nilometer or of many Mamluk buildings show. In the Khulāsat al-Akhbār of Khvādamir decoration in lājvardī (lapis blue) and tilā (gold) is the cliché by which finely painted interiors are described.

35) The Masjid-i Gunbad, Āzādān, Isfahan, 766-7/1364-6, is also a close analogue. The dome is divided by yellow and white painted plaster into eight segments with lozenge patterns. Wilber, III, Pl. 202.

Nothing remains of the rich murals which adorned the palaces of Tīmūr and Abū Sa'īd.<sup>36</sup> It is probable, however, that one would come to the same conclusions on them that have been reached on the paintings of the Chihil Sutūn: "the figurative paintings do not only correspond in general iconography and style...to the manuscript and album paintings of the seventeenth century, but they are identical in their principal form...function and meaning."<sup>37</sup> A series does survive however, of representations in mausoleums of scenes of flowering shrubs, trees, magpies and streams, the last of this series being the large dome chamber of the Madrasa of Tūmān Āghā (Pls. 117-8).<sup>38</sup> There is little recognisable change in the earliest and latest of these representations; perhaps the use of pictorial imagery in a mausoleum was so daring and unusual at the time that the artist did not feel free to tamper with the iconography. Their style is most

- 
- 36) The main sources for these are Tamerlane or Timur the Great Amir, from the Arabic Life by Ahmed ibn Arabshah, tr. J.H. Sanders (London, 1936), p. 310; and the Bābur Nāma, tr. Beveridge, pp. 78, 302. These are discussed in I. Stchoukine, Les Peintures des Manuscrits Timurides (Paris, 1954), Ch. I, "Les témoignages littéraires." One should also mention a representation of a monastery in TKS Hazine 2153, reproduced in R. Ettinghausen, "Some Paintings in Four Istanbul Albums," AO, I (1954), Figs. 59-62, in which mural paintings in the style of Herat miniatures of ca. 1425 are depicted.
- 37) E. Grube, "Wall Paintings in the Seventeenth Century Monuments of Isfahan," Iranian Studies, VII/3-4 (1974), p. 517.
- 38) The others are the Mausoleum of Shīrīn Beka Āqā 787/1385-6 and the Mausoleum of Bībī Khānum, illustrated respectively in J. Smolik, Die Timuridische Baudenkmäler in Samarkand aus der Zeit Tamerlans (Vienna, 1929), Pl. 37; G.A. Pugachenkova, Samarkand, Bukhara (Moscow, 1961), Fig. 28.

closely paralleled by the landscape elements in the British Museum Khvājū Kirmanī.<sup>39</sup> In contrast to the secular images there, the finely executed designs of Kuhsān convey with their gracefully stylized images of the ideal garden, a depiction of the paradise which the occupant of the tomb would aspire to enjoy after death.

Tilework The almost bewildering variety of tile decoration in Timurid architecture precludes exhaustive categorization into a usefully small or precise number of types. The following, however, may be used as a working guide:

- 1) individual tiles
  - a) underglaze-painted
  - b)  cuerda seca
  - c) monochrome glazed
- 2) mosaic-faience
- 3) banna'i-technique

Examples of tile decoration which do not fit exclusively into any of these categories (e.g. inset-technique) can usually be described as a combination of two or more.

1-a) Underglaze-painted tiles. In 1937 Riefstahl published an article on "Early Turkish Tile Revetments in Edirne" in which he postulated that Persian workmen were responsible for the blue-and-white tiles in the Murādiyya Jami<sup>c</sup> in Edirne.<sup>40</sup> The 'stumbling block to this theory was that at that time "no blue-and-white tiles of the early fifteenth century or earlier have as yet come out of Persia or

---

39) Stchoukine, op. cit., Pls. IV-VIII.

40) AI, IV (1937), pp. 249-81.


Transoxiana."<sup>41</sup> Recent research by J.M. Rogers<sup>42</sup> has shown that this objection may be said to have been removed.

There are infrequent occurrences of underglaze-painted tiles in the Shāh-i Zinda, and only four buildings in the catalogue display them (Cat. Nos. 2, 9, 14, 25). The sporadic nature of their production is further indicated by the lack of correlation between the types found in Khurasan, the earliest of which is found on the Mosque of Gauhar Shād in Mashhad. The passage leading from the northeast corner of the mosque to the bazar emerges in an aivan. On the sides of this are panels of mosaic-faience split up into a geometric pattern

---

41) Ibid., p. 270.

42) "A group of 14th Century Persian Blue and White Tiles," Zusammenfassungen der für den VII Internationalen Kongress für Iranische Kunst und Archäologie, vorgesehenen Vorträge (n.p., n.d.), no pagination. Two monuments may be added to his list. The engaged columns of the entrance portal of the Mausoleum of Abū Sa'īd at Mīāna are composed of what from a photograph seems to be alternate light-blue, dark-blue and underglaze-painted tiles. The latter are decorated in interlace, and like the others are specially curved to fit the engaged column: A. Karriev and V. Pilyavsky (eds.), Pamyatniki Arkhitektury Turkmenistana (Leningrad, 1974), p. 76. The Mausoleum of Ūljāytū at Sultāniyya has three types of underglaze-painted tiles. Since they are unpublished, a short description may be warranted:

a) h. ca. 15cm, w. at least 45cm, cavetto-shaped with sketch section , the hatched area underglaze-painted in blue and black on a white ground. The blue has run slightly in places. The design is of polylobed medallions enclosing lotus-blossoms, with a fleur-de-lys between them.

b) h. ca. 15cm, broken at the sides, with underglaze-painted dark- and light-blue and black on a white ground. Moulded decoration of blossoms and serrated leaves.

c) h. ca. 10cm, broken at the sides, underglaze-painted blue on a white ground, moulded lotus-blossoms.

by thin strips of underglaze-painted blue and white tiles (Pl. 10), with a design of leaves and small buds on a continuous stem, similar to that found on contemporary mosaic-faience dadoes. Inside the mosque, at gallery level between the aivans, are panels with raised plaques of underglaze blue and white tiles (Pl. 17). These areas have recently been subjected to savage restoration, and these tiles are almost certainly later than the foundation of the mosque. Where restoration has taken place in other areas, however, it reflects the design and colours, although not necessarily the technique, of the original. Blue and white alone are unusual colours for mosaic-faience of this period, so it is possible that these tiles replace originals with a similar design. Another place where this may have happened is on the bevels of the east and west aivans. The series of blue and white tiles here is identical with those framing the entrance aivan and the arch at the back of the east aivan at the Shrine of Gāzur Gāh (Pl. 40). They form a repeating design of four tiles, three having an addorsed Kufic inscription on a spiralling stem with small blossoms, the fourth a raised boss with sixteen-pointed medallions radiating from it. The spiralling stem and Kufic script, especially the sin with the outer teeth slightly higher than the other and the wāw with a gentle reverse curve on its tail, are almost exactly paralleled by the series of marble inscriptions from the minarets of the Mosque of Gauhar Shād in Herat (Pls. 72-3). There can be no doubt then that at Gāzur Gāh these blue and white tiles are contemporary with the date 832/1428-9 written in rectangular Kufic at the back of the eastern aivan, and that those of the Mosque of Gauhar Shād in Mashhad replace originals of identical design.

The remaining underglaze-painted tiles on the minaret of the Mosque of Gauhar Shād in Herat are quite different in character.

They are found on the twelve-sided zone on the base of the one remaining minaret (Pl. 69). Most have been removed,<sup>43</sup> but three remain intact on the east side. There are two types, one four-lobed, the other in the shape of a half medallion; both have arabesques identical to the mosaic-faience patterns set alongside them. In each case the white arabesques are slightly raised above the blue ground in a way similar to the tiles of Sultāniyya mentioned above. No blue and white tiles have been found on the Mausoleum of Gauhar Shād. Had they been predominant in the decoration of the madrasa one would have expected to find them there.

The blue and white tiles at Khargird have been previously discussed.<sup>44</sup> A thin line of underglaze black is used to outline the design here, which consists of white arabesques on a dark-blue ground,<sup>45</sup> as well as smaller tiles with dark-blue flowers on a white ground.

Later examples of blue and white tiles are rare in Timurid art. The Blue Mosque in Tabriz has some small square ones on an exterior wall. These, like some of its mosaic-faience decoration, could easily have been derived from Khargird.<sup>46</sup> So also could the blue and white tiles on the rear facade of the <sup>c</sup>Ishrat Khāna in Samarqand.<sup>47</sup>

Although Riefstahl was correct in positing the existence of fifteenth century blue and white tiles in Persia, those that remain do

---

43) The majority are visible in situ in von Niedermayer, Afghanistan, Pl. 159.

44) O'Kane, "The Madrasa al-Ghiyāsiyya at Khargird," pp. 79-92; Idem, "Tāybād," pp. 99-101.

45) This is the visual result obtained. In fact the arabesques are reserved in blue on a white ground.

46) O'Kane, "Tāybād," Pls. VIIId-e.

47) Hill and Grabar, op. cit., Fig. 59.

not support his thesis that Persian workmen were responsible for the dado of blue and white tiles in the Mosque of Murād II at Edirne. The latter show influences from Chinese fourteenth century porcelain, which are not often directly reflected in the Timurid tiles.<sup>48</sup> In contrast to cuerda seca tiles, it is difficult to view the fifteenth century blue and white tiles in Khurasan as a group. They are used in different ways - alone, as a frame, and in conjunction with mosaic-faience; and appear on various forms - minarets, portals and aivans. Apart from the two instances mentioned above, the use of underglaze-painted tiles in architecture dies out after the middle of the fifteenth century,<sup>49</sup> reappearing in quantity only in the nineteenth century.

Problems which remain to be answered with regard to these tiles are the location of their kilns, whether the kilns were used at the same time for making pottery vessels in the same technique and what, if any, reciprocal influence was there between tiles and pottery. Unfortunately much research remains to be undertaken to establish a

---

48) J. Carswell, "Six Tiles," Islamic Art in the Metropolitan Museum of Art, ed. R. Ettinghausen (New York, 1972), p. 100. The peony-like flowers of the tiles at Sultāniyya (n. 40 above) may derive from Chinese prototypes, but their depiction is already some way removed from peonies on Chinese porcelain.

49) Two isolated examples are an inscription in the Masjid-i Panja<sup>c</sup> Ali in Qum (886/1481-2) (Tabātabā'ī, Turbat-i Pākān, II, Pl. 179) and one large underglaze-painted tile (40 x 30cm) (892/1486-7) in the Masjid-i Chāduk in Haftādūr (Afshār, Yādgarhā-yi Yazd, I, p. 474). One may also mention lustre tiles here; a number from the second half of the fifteenth century are published in O. Watson, "Persian Lustre Ware, from the 14th to the 19th Centuries," LMII, III (1975), pp. 63-80.

corpus of fifteenth century pottery. On the basis of a preliminary study<sup>50</sup> there seems to be little correlation between these tiles and contemporary pottery.<sup>51</sup>

1-b) Cuerda seca tiles. This technique, is described by Lane as follows: "glazes of different colours would have run together if they had been painted side by side on a single slab...Islamic potters learned to circumvent this difficulty by painting lines of manganese purple pigment, mixed with a greasy substance that disappeared in the firing, between areas covered by glazes of different colours."<sup>52</sup> The forerunners of this technique in Iran are tiles in lājvardīna technique from Takht-i Sulaimān,<sup>53</sup> and tiled cenotaphs in the Shāh-i Zinda.<sup>54</sup>

Towards the end of the fourteenth century three buildings erected under Tīmūr's patronage show extensive use of cuerda seca tiles, similar to those used later in Khurasan, displaying a white slip with light- and dark-blue, manganese purple and brick-red glazes and touches of unfired gold leaf. The three buildings in question are the Āq

---

50) Grube, "Notes on the Decorative Arts of the Timurid Period," pp. 234-42.

51) One example of a close correlation, however, is between the thistle-like buds on the underglaze-painted tiles at Khargird (O'Kane, "Khargird," Pl. VIIb) and those on an underglaze-painted blue and white dish attributed to Kāshān, early thirteenth century (transparency VAS 972). At least one underglaze-painted green and white pot is known to have been made in Mashhad in the fifteenth century: a spittoon dated 838/1434-5: on this see Grube, "Notes," p. 235.

52) Lane, Victoria and Albert Museum, A Guide to the Collection of Tiles, p. 11.

53) The Arts of Islam, Hayward Gallery, April-July 1976, Nos. 388-9.

54) E.g. that of Qutham b. <sup>c</sup>Abbās 735/1334-5. G.A. Pugachenkova, Zodchestvo Uzbekistana (Tashkent, 1959), colour plate (no pagination).

Sarāy at Shahr-i Sabz, the Mosque of Bibī Khānum and the Shrine of Ahmad Yassavī. On the Āq Sarāy they cover large surface areas, their use being as prolific as that of later mosaic-faience. In the Mosque of Bibī Khānum, however, they are employed more sparingly. They appear in forms which were to be repeated in their appearances in Khurasan: in conjunction with brick tiles forming geometric patterns; and for the Quranic inscription and stalactite cornice on the drum of the main dome chamber.

One should also mention the appearance of cuerta seca tiles on a building in Kāshān which may be provisionally dated to the last quarter of the fourteenth century, the Chihil Dukhtarān.<sup>55</sup> The top of the inside of the dome is composed of eight triangular cuerta seca tiles, showing a limited colour range of white medallions and flowers on a dark-blue ground, with some red-brown and light-blue floral infilling. This seems to have been a false start, as the only two buildings west of Mashhad with pre-Safavid cuerta seca tiles are the Khanqah of Shah Rukh at Dānghān<sup>56</sup> and the Masjid-i Jami<sup>c</sup> at Simnān.<sup>57</sup> In a later Timurid building at Kāshān, the Imānzāda Tāj al-Dīn, the

---

55) Narāqī, Kāshān va Natanz, p. 249. The dome chamber resembles fourteenth century dome chambers in Yazd in the division of its lower cube into one large niche flanked by two smaller ones. The scheme was popular well into the fifteenth century, however, as the dome chamber of Māhān (840/1436-7) shows. In any case, the use of cuerta seca tiles would argue for a date towards the end of the fifteenth century.

56) C. Adle, "Note sur le 'Qabr-i Šāhruh' de Damghan," LMII, II (1974), pp. 174-85.

57) On the inscription dated 828/1425-6 on the sanctuary aivan.

same decorative scheme of a tiled circle at the apex of the dome was executed in mosaic-faience rather than cuerva seca tiles.<sup>58</sup>

The madrasa at Khargird retains enough traces of its revetment to reconstruct the original decoration in its entirety; and it provides evidence that the use of cuerva seca tiles outside Transoxiana has been considerably underestimated. They are used, in conjunction with banna'i bricks as at the Mosque of Bībī Khānum, on the corner towers flanking the entrance facade and for the revetment of the east and west aivans. Most other madrasas which survive from this period also have cuerva seca tiles: that of Gauhar Shād in Herat, Fīrūzshāh in Turbat-i Jām, Tūmān Āghā in Kūhsān and Bālā Sar in Mashhad.<sup>59</sup> Only small portions of the original decoration of these madrasas survive, and considering the relative importance of cuerva seca tile in the remaining parts of their decoration, they may have been used extensively in the original programme, either in aivans as at Khargird, or on flanking buttresses as in the Mosque of Bībī Khānum. Only a fragment remains of the inscription in cuerva seca tiles which decorated the walls of the citadel in Herat (Pl. 4), but it evidently played a prominent role on the exterior. In fragments of cuerva seca tiles which have been excavated near these walls (Pl. 3) the preservation of bright yellows and greens may be due to interment - the other tiles which have been exposed to the sun have faded to darker hues.

Few richly decorated buildings have survived from the second half of the fifteenth century in Khurasan. Some cuerva seca tiles are found on the dado of the arcades of the Herat Masjid-i Jami<sup>c</sup> which

---

58) Naraqī, op. cit., p. 180.

59) O'Kane, "Tāybād," Pls. VIIa-c.

show restoration work of Mīr <sup>C</sup>Alī Shīr; if these are indeed of the fifteenth century they show coarser patterns and more vivid colours which point to the later haft rangi tiles of the Safavid period.

Although on three of the monuments mentioned above, the madrasas of Gauhar Shād, Tūmān Āghā and Jalāl al-Dīn Fīrūzshāh (Cat. Nos. 14, 19, 22),  cuerda seca  tiles were used in the same location, for the inscription band and stalactites on the drum, their use is otherwise seemingly as haphazard as that of underglaze-painted tiles. One would have expected the most costly materials to be used in foundation inscriptions, but mosaic-faience and stone were the favoured media here. Underglaze-painted and  cuerda seca  tiles seem to have been an attempt at providing varieties of colours and textures at certain focal points of decorative schemes. This aim can only be judged a partial success however, as from ground level it is difficult for the unpractised eye to distinguish  cuerda seca  tiles from mosaic-faience. In the Herat Masjid-i Jami<sup>C</sup> the  cuerda seca  tiles are used in a position of lesser importance, on the dadoes of the piers (Pl. 266), and it is this kind of utilitarian use, coupled with a coarser palette, which provided the Safavids with the possibility of a large-scale inexpensive replacement for mosaic-faience.

l-c) Monochrome-glazed tiles. Monochrome-glazed tiles, usually hexagonal, and sometimes with gold leaf, had been used frequently on dadoes in Seljuq buildings in Anatolia. In Il-Khanid Iran, however, tiled dadoes normally consisted of a combination of star and cross lustre tiles. Towards the end of the fourteenth century these tend to be replaced by monochrome-glazed tiles, e.g. in the Shrine of Shaikh Ahmad Yassavī and the tomb of Tūmān Āghā in the Shāh-i Zinda, where dark-green hexagonal tiles are used. As only one colour was applied it was possible to obtain a deep, translucent glaze. We find

these also on the revetment added to the interior of the Khanqah of Shah Rukh at Dāmghān,<sup>60</sup> and in the Green Mosque and Tomb at Bursa.<sup>61</sup> At this time also light- or dark-blue hexagonal tiles become popular for dadoes, especially in the monuments of Yazd,<sup>62</sup> and in increasing numbers of buildings in Khurasan. These leave us unprepared, however, for the breathtaking innovation of the central dome chamber of the Masjid-i Shah, Mashhad, where the dark-green tiles continue above the dado to zone of transition level, emphasizing and visually strengthening the four main arches which carry the weight of the structure above (Pl. 130). The way is paved to one of the masterpieces of Safavid art, the Masjid-i Shaikh Lutfallah.<sup>63</sup>

Some of the tiles just below the dado inscription in the Masjid-i Shah were originally decorated with gold leaf, now visible only as an iridescence. This was not uncommon, appearing also on the tiles in the Green Mosque at Bursa and the Darb-i Imām, Isfahan.<sup>64</sup>

---

60) Adle, op. cit.

61) Dated 822/1419-20. G. Goodwin, A History of Ottoman Architecture (London, 1971), p. 62.

62) E.g. the mosque of Pīr Husain Dāmghānī 822/1419-20: Afshār, Yādgārā-yi Yazd, II, pp. 244-6; and the Mosque of Mīr Chaqmāq 841/1437, Survey, Pl. 440. Unfortunately the successive restorations of the Yazd Masjid-i Jami<sup>c</sup> in the early fifteenth century make it questionable whether any of the dadoes there date from the original founding of the mosque. Their absence from other Muzaffarid buildings suggests that they may have been installed in 819/1416-7, the date of restoration carried out by Shah Nizām in the name of Shah Rukh (Afshār, Yādgārā-yi Yazd, II, p. 126).

63) The latter was almost certainly anticipated by the smaller dome chamber of the Blue Mosque, Tabriz, which contains remains of vaulting covered with hexagonal dark-blue tiles. It is probable that the whole of the dome chamber above the marble dado was covered with these tiles.

64) Lane, Guide, p. 12. Gold was also used on overglaze-painted tiles: O'Kane, "Tāybād," Pls. VIIa-c.

2) Banna'i-technique. This term is used for "patterns which have the appearance of masonry, looking like courses of brick laid in fanciful, decorative schemes."<sup>65</sup> It is doubtful if these designs were originally executed in brick which was part of the actual structure of the fabric, as has been claimed.<sup>66</sup> The fore-runner of this technique is Seljuq and Ghaznavid brickwork, and patterns like those of Timurid banna'i-technique can be seen on the tomb towers of Kharraqān<sup>67</sup> and on the minarets of Mas'ūd III and Bahrām Shāh at Ghaznī, all of which have panels of square Kufic which were to become so popular later. The decorative brickwork in all three cases is a revetment. The first fully-developed appearance of tile-work used in this way seems to be in the Mausoleum of Ūljāytū, the fore-runner in so many types of tile decoration. Recently plaster has been removed from the sides of the main recesses, revealing banna'i-technique. It is clear, however, that like the brick and tile revetment of the dado, this is applied with plaster on top of a structural core. The designs anticipate those of the fifteenth century, consisting of pious aphorisms in square Kufic. These are even harder to read than the fifteenth century versions as the letters are in bisque tiles outlined in blue tiles. Already the letters are tilted at an angle of 45° from the horizontal, a constantly recurring motif in the fifteenth century.

Seen from close-up banna'i-technique patterns are harder to read, almost abstract. Unlike mosaic-faience, they make most impact when viewed from a distance. This made it particularly suitable for

---

65) Golombek, Gazur Gah, p. 58.

66) Loc. cit.

67) D. Stronach and T. Cuyler Young, Jr., "Three Seljuq Tomb Towers," Iran, IV (1966), Pl. VIIa.

exterior decoration, and on the base of the dome of the Mausoleum of Ūljāytū the huge letters of the square Kufic are conspicuous from far away.<sup>68</sup>

The main elements of banna'i-technique were crystallized in the major monuments of Transoxiana towards the end of the fourteenth century - the Shrine of Ahmad Yassavī, the Gūr-i Mīr and the Mosque of Bībī Khānum. Tīmūr's despotic power in Samarqand enabled him to order clearance of any existing structures on a site on which he wished to build,<sup>69</sup> and the resulting unencumbered exteriors were ideally suited to banna'i-technique. White, light- and dark-blue tiles are now used, giving a wider range of contrast; the dark-blue is often used as a frame for the pattern in light-blue. Dark-blue tiles with white inserts were a common variation: they appear frequently from the Āq Sarāy at Shahr-i Sabz onwards.<sup>70</sup> Unique to Samarqand, however, was the occasional use of dark-green banna'i-tiles, found on the Mosque of Bībī Khānum and the Madrasa of Ūlūgh Beg.

The efficacy of banna'i-technique for massive inscriptions was realised at Samarqand. There are two types: one a square Kufic, as on the drum of the Gūr-i Mīr; the other a banna'i-technique version of naskh, found on the drums of the dome chambers of the Mosque of

---

68) Seherr-Thoss, Design and Color in Islamic Architecture, Pl. 38.

69) Clavijo, Embassy to Tamerlane, tr. Le Strange, pp. 278-80.

70) E.g. on the Amīrzāda mausoleum in the Shāh-i Zinda, the Mosque of Bībī Khānum, Samarqand, the Herat citadel and the Mosque of Gauhar Shād, Mashhad. The same effect was obtained in Mongol buildings by using a small square white tile between two darker rectangular ones, e.g. on the Khvaja<sup>c</sup> Alām and Bāgh-i Qūsh Khāna minarets (Survey, Pls. 363a-b).

Bībī Khānum and for the Quranic inscription running around the top of three of the exterior walls of the Shrine of Ahmad Yassavī. Both these forms are found together at Gāzur Gāh on the panels on the sides of the east aivan.<sup>71</sup> The combination of two scripts with a wider range of colours, including amber-brown, and the virtuosity of the square Kufic panels results in an unsurpassed design showing the power of banna'i-technique at its best. This panel represents the peak of creativity in this medium in the fifteenth century. After this other monuments are content to repeat patterns which are variations of earlier ones. Once a standard repertory had been accumulated, the artists seemed little interested in further experimentation.

No banna'i-technique inscriptions seem to have been of historic content, although at Gāzur Gāh and the Madrasa of Tūmān Āghā dates in banna'i-technique record the completion of building.<sup>72</sup>

3) Mosaic-faience. Mosaic-faience, "a patterned arrangement of closely fitted small pieces of tile which have surface glazes of different colours,"<sup>73</sup> reached a high degree of sophistication in the second half of the fourteenth century. There are very few patterns of the fifteenth century whose antecedents cannot be found in the work of the Muzaffarid school or that of fourteenth century Transoxiana.<sup>74</sup> The aim of the mosaicists of the fifteenth century was mainly one of

---

71) Seherr-Thoss, op. cit., Pl. 65.

72) That at Gāzur Gāh is illustrated in Rogers, op. cit., p. 128.

73) Wilber, III, p. 84.

74) For some general remarks on the spread of tilework in this period see R. Hillenbrand, "The Use of Glazed Tilework in Iranian Islamic Architecture," Akten des VII. Internationalen Kongresses für Iranische Kunst and Archäologie, München, 7.-10. September 1976 (Berlin, 1979), pp. 545-554.

refinement, with some experimentation with the range of colours. At the same time, although we have seen that the use of cuerva seca tiles was more extensive in Khurasan than was formerly believed, mosaic-faience was used on areas which in Transoxiana had been covered with cuerva seca tiles or banna'i-technique, e.g. on minarets and engaged columns, or virtually covering whole facades as in the Mosque of Gauhar Shād in Mashhad.<sup>75</sup>

Whereas banna'i-technique with its rectangular tiles was ideal for geometric ornament of Kufic inscriptions, mosaic-faience is most suitable for cursive patterns - the floral forms of tree of life or spandrel designs, or the superb thulth inscriptions found in some of the major buildings of the first half of the fifteenth century.

The vertically climbing arabesque<sup>76</sup> was one of the most successful and popular mosaic-faience compositions. It appears on a wooden Quran stand dated 761/1360-1,<sup>77</sup> and in mosaic-faience on the Muzaffarid Madrasa in the Isfahan Masjid-i Jami<sup>c78</sup> (776-8/1374-7) and has continued its popularity through the Timurid, Safavid and Qajar periods down to the present day. On the Quran stand mentioned above, and on the Mausoleum of Shīrīn Beka Āqā in the Shāh-i Zinda<sup>79</sup> (787/1385-6) a vase is shown at the base of the tree of life, and this becomes the usual method of depiction throughout the fifteenth century and later.

---

75) A small number of fifteenth century mosques, mostly around Yazd, have minbars of mosaic-faience and several have mosaic-faience cenotaphs (see Afshār, Yadgarhā-yi Yazd, I, pp. 502-3, II, p. 1118, 1062). Neither of these uses has been found in Khurasan.

76) Golombek, Gazur Gah, pp. 57-8.

77) Grube, The World of Islam, Pl. 76.

78) Hunarfar, Ganjīna-yi Āthār-i Tārīkhī-yi Isfahān, p. 144.

79) Rogers, The Spread of Islam, p. 134.

The Shrine at Gāzur Gāh has four different mosaic-faience tree of life designs, one of which has been thoroughly analysed.<sup>80</sup> Another on the east aivan is worth examining in detail.<sup>81</sup> From a vase resting on a stand rises a large medallion composed of opposed calyx-leaf forms. In the centre is a lotus blossom on a blue stem. Other blossoms, some highly stylized, others perhaps peonies or camelias, appear on the same stem. On the spandrels above the cusped arch white vegetal forms are depicted on a black ground. One feature which springs to the eye is the similarity of the floral forms to fourteenth century Chinese blue and white ware. Two Middle Eastern collections contain representative examples of wares which would certainly have been available to Iranian tile mosaicists of the time.<sup>82</sup> These show that lotus and peony scrolls were particularly popular,<sup>83</sup> and in the vegetal elements between the blossoms of the lotus scrolls one finds forms very similar to those on the spandrels of the panel at Gāzur Gāh.<sup>84</sup> The admiration with which Middle Eastern ceramicists regarded Chinese blue and white ware in the fifteenth century is also shown by their marked influence

---

80) Golombek, Gazur Gah, pp. 57-8.

81) Excellent colour photo in Seherr-Thoss, op. cit., Pl. 63, but note that the panel is not, as stated in the caption, on the entrance facade. Pl. 62 is the tree of life panel analysed by Golombek; unfortunately it is printed with a strong blue cast - the colours should be checked by reference to Pl. 63.

82) J.A. Pope, Fourteenth-Century Blue-and-White: A Group of Chinese Porcelains in the Topkapu Sarayi Muzesi, Istanbul (Washington, 1952); Idem, Chinese Porcelains from the Ardabil Shrine (Washington, 1956). For the accessibility of these wares in medieval Iran, see the latter, Ch. II, "Routes from China to Iran."

83) Idem, Ardabil, Pl. 17; Topkapu, Pl. 18.

84) Idem, Ardabil, Pl. 18; Topkapu, Pl. 19.

on blue and white tiles executed in Syria, Turkey and Egypt,<sup>85</sup> although surprisingly, as we have seen above, this influence is less marked in Timurid blue and white tiles.

The vase from which the tree of life emerges rests on a stand with pointed feet. Although similar stands in metal seem to be unknown, a number of earlier vases with a scalloped base have been found.<sup>86</sup> Examples in miniatures tend to have no feet, although some are found in examples from the early sixteenth century.<sup>87</sup> One interesting feature of this motif, however, is the way in which it is misinterpreted in later mosaic-faience. If the stand is to create the illusion of supporting the vase, the part on which the vase rests must appear to curve round the back of the vase. In the buq<sup>c</sup>a of Tāybād this still occurs, but in later monuments such as the Darb-i Imām or the Buq<sup>c</sup>a of Shaikh Abū Mas<sup>c</sup>ūd in Isfahan the top of the stand is given a reverse curve outwards instead of in to go "behind" the body of the vase. In these later examples the artists have already lost sight of the original meaning of the stand. Despite this, the "stand" was felt

- 
- 85) J. Carswell, "Six Tiles," pp. 99-124. One could also mention the carved stone flowers on the portal of the Mosque of Sultan Hasan in Cairo, whose "most striking feature...is that they include lotus, paeony and chrysanthemum flowers, which look as though they have been taken straight from early Ming blue and white," Rogers, "Seljuk Influence on the Monuments of Cairo," p. 53.
- 86) E.g. The Arts of Islam, op. cit., No. 189, bronze vase from Khurasan, 12th-13th century A.D.
- 87) India Office No. 88, ca. 1505; Keir Collection III.215, where the stands, as well as the vases they support, are Chinese blue and white. Actual depictions of vases carrying flowers are very rare; for an example see B. Robinson, Persian Paintings (London, 1965), Pl. 30 (ca. 1600).

to be an integral part of any tree of life depiction with a vase; a much further stage of unintelligibility or pure pattern making is seen in the tree of life panel with peacocks at the entrance to the Masjid-i Shāh in Isfahan.<sup>88</sup>

The colours used for the tree of life designs at Gāzur Gāh are representative of those used throughout the Timurid period: dark-blue is the principal ground colour, with green and black used for smaller areas; the stems are light-blue, with flowers outlined in white or amber-brown with green and brick infilling, and medallions of amber-brown.

The mosaic-faience decoration of slightly later monuments such as the Madrasa of Khargird and the buq<sup>c</sup>a of Tāybād is broadly similar to Gāzur Gāh. Unfortunately only fragments remain of mosaic-faience decoration from the second half of the fifteenth century. It may be dangerous to generalize from these, but they do show some trends which were exaggerated in the Safavid period. These include the use of large medallions, not composed of opposing calyx-leaves, but of a much more irregular outline. They can be seen on the panel at the base of the portal screen of the northeast aivan of the Herat Masjid-i Jami<sup>c</sup>,<sup>89</sup> which forms part of Mīr<sup>c</sup> Alī Shīr's restoration of 904/1498-9. Also part of this restoration was the mosaic-faience revetment of the Ghurid portal.<sup>90</sup> The spandrels of the arch on the side of this aivan also have large medallions, and here one should note the way in which the outlines of the medallions and of the flowering scroll are thickened by the use of a margin of different colour on each side. On the

---

88) Seherr-Thoss, op. cit., Pl. 81.

89) Survey, Pl. 450B.

90) Melikian Chirvani, "Eastern Iranian Architecture: à propos of the Ghūrid Parts of the Great Mosque of Harāt," Pl. XV.

spandrels of the arches of the entrance facade of Gāzur Gāh the thickened outline is prominent, enabling one to assign them to the restoration work of 1014/1605-6.

Although mosaic-faience was normally used for cursive patterns, it could also be very effective in geometric patterns if the scale was not too large. The harlequin pattern at Gāzur Gāh is a good example;<sup>91</sup> its popularity is shown by its appearance towards the end of the fifteenth century on the Mausoleum of Shāhzāda <sup>C</sup>Abdallāh in Herat.<sup>92</sup> Square Kufic could also be rendered successfully. Again Gāzur Gāh provides some of the best examples on its east aivan, one of which being particularly innovative in that it shows square Kufic on a small scale filling the interstices of larger square Kufic letters.<sup>93</sup>

One other method of forming patterns may be mentioned: that of raising polygonal units of mosaic-faience above a mosaic-faience ground in such a way that if the raised plaques were moved contiguous to one another they would form a continuous plane. Its first appearance in tilework seems to be on the sanctuary aivan of the Mosque of Gauhar Shād in Mashhad,<sup>94</sup> and it occurs later on the Varzana Masjid-i Jami<sup>C</sup>, the Darb-i Imām and the Isfahan Masjid-i Jami<sup>C</sup>.

Inset technique. This "refers to patterns composed of a series of plaques which are themselves made up of mosaic-faience, majolica (read cuerra seca) or bisque tiles."<sup>95</sup> Like banna'i-technique, this can be

---

91) Seherr-Thoss, op. cit., Pl. 64.

92) Survey, Pl. 450A.

93) Seherr-Thoss, Pl. 65. A fine earlier example is on the side of the entrance aivan of the Kirman Masjid-i Jami<sup>C</sup>, where the letters are raised above a mosaic-faience ground.

94) Survey, Pl. 435D.

95) Golombek, Gazur Gah, p. 259.

used to cover extensive surfaces with geometric decoration.

As with many innovations in Timurid tilework, the first experiments in this technique appear to be in the Shāh-i Zinda, in the Anonymous Mausoleum II (ca. 1390-1400 A.D.), where plaques of mainly triangular and pentagonal tiles are set between raised strips of light-blue faience. The mosque of Bibī Khānum in Samarqand shows fully developed examples, particularly on the minarets of the sanctuary aivan. Here  cuerda seca  and plain brick tiles are used. Carved terracotta plaques are also seen on the engaged columns of the sanctuary aivan; they assume a more important role in the inset-technique of the Madrasa of Ūlūgh Beg, Samarqand, on the spandrels and on the sides of the entrance aivan. They do not seem to have been used in Khurasan at this period, however, despite the proximity of fourteenth century models in the Yazd Masjid-i Jami<sup>c</sup> and the Natanz Khanqah portals.

The first surviving Timurid monument in Khurasan to use inset-technique is the Mosque of Gauhar Shād, Mashhad,<sup>96</sup> although its use there is fully developed and hardly surpassed by later monuments. On the courtyard edge of the lateral aivans is a pattern with a raised border resembling that of the Anonymous Mausoleum II in the Shāh-i Zinda mentioned above. The other main inset-technique pattern, visible beside this and on the upper galleries (Pl. 17), uses mosaic-faience set between underglaze-painted tiles, centred on ten or twelve-pointed stars, like those on the minarets of the Mosque of Bibī Khānum. Whereas in the Mosque of Bibī Khānum the brick plaques were flush with the tiles between them, the corresponding underglaze-painted tiles at Mashhad are raised above the level of the mosaic-faience, adding an

---

96) Survey, Pl. 433.

extra dimension to the pattern and making it visually more readily understood. This use of varying depths is retained in later monuments which have major displays of inset-technique: Gāzur Gāh, the mādrasa at Khargird and the Masjid-i Shāh, Mashhad.<sup>97</sup>

Only one monument in the catalogue from the second half of the fifteenth century displays inset-technique, the Herat Masjid-i Jami<sup>c</sup>. On the dado of the arcade adjoining the south aivan the cuerta seca tiles are still slightly recessed between brick plaques; but the brick tiles and mosaic-faience covering the Ghurid portal are made as seamless as possible, even on the vault of the semi-dome, where mosaic-faience medallions are set flush between alternate strips of brick and dark-blue tiles, with rising joints reduced to an invisible minimum. Again, as with mosaic-faience, we find that the monument displays trends which were to become dominant in the Safavid period, where virtually the only type of inset-technique to be found is of this self-effacing two-dimensional variety.<sup>98</sup>

Themes of Decoration The major themes of decoration have been mentioned above, under the types involved. Their characteristics are summarized below.

- 1) Geometric. In accordance with M. Meinecke's classification<sup>99</sup> we may divide geometric ornament into two main types:
  - a) linear. In this type the lines are all set at right angles to one another. This was most easily achieved in banna'i-technique,<sup>100</sup> and

---

97) Despite the popularity of inset-technique in Khurasan at this time no examples seem to be known from contemporary Yazd.

98) E.g. on the Mausoleum of Khvaja Rabī<sup>c</sup>, Survey, Pl. 489.

99) Fayencedekorationem, I, pp. 137-45.

100) Previously brick was used. For a list of 11th-13th century A.D. examples see ibid., p. 140, n. 275.

it is in this medium that almost all designs of this type occur. They can either be set at right angles to the ground, or, more usually, tilted at an angle of  $45^{\circ}$  to it. The simple uncluttered patterns of this type are ideal for large-scale display, giving maximum visibility from a distant viewpoint.

b) polygonal. These designs are based on six, eight, ten or twelve-sided polygons. The setting up these figures is not as complicated as it may seem, since in each case all the lines will be parallel to the polygon with half the number of sides, i.e. a pattern with ten-pointed stars will have all lines parallel to a pentagon. The only instruments required to construct them are a ruler and compass.<sup>101</sup> The original flowering of this pattern type took place in twelfth century Khurasan in stucco, and then in terracotta,<sup>102</sup> so one can scarcely claim any great originality for the Timurid patterns of this type in Khurasan. Even the harlequin pattern at Gāzur Gāh,<sup>103</sup> which impresses by being "only a segment of the geometric design that was necessary for its creation"<sup>104</sup> is anticipated in twelfth century stucco decoration from Tirmidh.<sup>105</sup>

One feature the fifteenth century designers do insist on, however, is the absence of any curves in the outline of their geometric patterns. In contrast, regular arcs were common in earlier geometric designs

---

101) See I. El-Said and A. Parman, Geometric Concepts in Islamic Art (London, 1976), especially Ch. II.

102) Rogers, "The 11th Century - A Turning Point in the Mashriq?," Islamic Civilization 950-1150, ed. D.S. Richards, pp. 222-3.

103) Seherr-Thoss, op. cit., Pl. 64.

104) Hill and Grabar, op. cit., p. 85.

105) Rogers, "Turning Point," Fig. 2.

whether in architecture, metalwork or manuscript illumination,<sup>106</sup> and are even found in tilework in Nasrid architecture.<sup>107</sup>

The materials used for polygonal geometric ornament are usually mosaic-faience or inset-technique. The variety of colours thus permitted contrasts between different geometric units to be heightened. With inset-technique, a further contrast was possible between the rigid outlining of the pattern and the use of vegetal forms in plaques of mosaic-faience or cuerda seca tiles.

2) Vegetal. Whether on spandrels or rectangular panels, mosaic-faience was the most popular medium for the display of flowering tendrils, combining realistic and imaginary flowers in a way that still approximates our ideas of natural growth. One of the most striking features of these designs, however, is that they are all symmetrical, both in form and colour, around a vertical axis. On each side of the axis blossoms and stems twist and turn in the apparent randomness of nature; but the use of symmetry creates a balance, possibly designed to show that even nature is subject to a higher, divine order of harmony.<sup>108</sup>

The use of Chinese models for blossoms, in particular lotus and peony, has already been described. Other foliage is based on the fantastic blossoms of Mongol stucco work. On closer examination these

---

106) E.g. on the Mausoleum of Jalāl al-Dīn Husain, 1152 A. D., Hill and Grabar, op. cit., Fig. 113; on a silver plate, Khurasan, 11th century A. D., A.S. Melikian-Chirvani, Le Bronze Iranien (Paris, 1973), p. 12; on a Quran, 559/1164, Survey, Fig. 937.

107) Grabar, The Alhambra, Fig. 37.

108) The predilection for symmetry is also a major characteristic of architectural plans of the period. But a more mundane reason may be found for its prevalence in decoration: the pattern can be reversed and therefore only needs half the work of designing it.

latter may reveal a double layer of decorative meaning, in that their outlines are themselves made up of calyx-leaves, small medallions or other decorative motifs (Pl. 74).<sup>109</sup>

It has been remarked that this type of decoration "gives a tremendous sense of nervous life to the ornament," and that "the tendril appears more striking than the leaf or flower."<sup>110</sup> This is only true to a certain extent, however. Paradoxically, it is when the tendril is at its most stylized, arranged in concentric whorls,<sup>111</sup> that it dominates the decoration in its field and comes closest to assuming a life of its own. When, on the other hand, the field consists of a tangled weave of shoots sprouting in all directions<sup>112</sup> it is the flowers which predominate and most vividly communicate a sense of growth. A light-blue tendril also appears in concentric form as a background to most painted or mosaic-faience cursive inscriptions, where its sense of linear motion helps give an impetus to the script.

3) Three-dimensional. In the section on brick and stucco above forms were noted which did not have any structural function. At one time they may have been an integral part of the fabric of the building, but two forms in particular, stalactites and squinch nets, showed

---

109) One of the leaves in H. 2160 in the Topkapi Saray Library contains a study drawing consisting mostly of animal heads, but which also displays a comprehensive range of bifurcated calyx leaves, the main unit of Timurid arabesque design. See İpşiroğlu, Das Bild in Islam, Fig. 63.

110) Hill and Grabar, op. cit., p. 86.

111) I.e. the Khargird "type two" spandrel: O'Kane, "Khargird," Pl. VIIc; Golombek, Gazur Gah, Fig. 37.

112) I.e. Khargird "type three" spandrel: O'Kane, "Khargird," Pl. VIId; Seherr-Thoss, op. cit., Pl. 62.c

tendencies to become a decorative shell, concealing the real vaulting beneath them. Although they are built in three dimensions, and could therefore be argued to have a structural quality of their own, their essentially decorative quality is evident from the fact that their removal would in no way jeopardise the stability of the structure to which they are attached.

Plaster decorative stalactites had been used in the fourteenth century: the stalactite dome of the tomb of Shaikh <sup>c</sup>Abd al-Samad at Natanz is one of the finest examples. At the end of the fourteenth century in the Shrine of Ahmad Yassavī we see that the individual elements which make up the stalactite dome have been greatly reduced in size,<sup>113</sup> and this trend continues wherever they appear in Khurasan. With the reduction in size in each tier of stalactites the danger increases of the underlying geometry of the stalactites being lost in the multiplicity of individual units, leading to visual confusion. This is a stricture to which the stalactites at the back of the sanctuary of the Mosque of Gauhar Shād, Mashhad, are open.<sup>114</sup> There were certain ways of design which could overcome this. One was to construct some tiers with widely varying lateral depth, so that the appearance is given of furrows cascading down from the top of the vault.<sup>115</sup>

---

113) Sh. E. Ratiya, Mechet' Bibi-Khanyim (Moscow, 1950), Fig. 5.

114) Survey, Pl. 430. One could compare this with the same lack of control displayed in the stalactite dome of the entrance portal of the Mosque of Sayyidī Abū Madyan (739/1338-9), R. Bourouiba, L'Art Religieux Musulman en Algérie (Algiers, 1973), Pl. XXVI/I.

115) O'Kane, "Khargird," Pl. VIIa. For fourteenth century examples see the Muzaffarid madrasa in the Isfahan Masjid-i Jami<sup>c</sup> and the Masjid-i Kirmanī at Turbat-i Jām, Golombek, Gazur Gah, Figs. 145, 147 respectively.

Alternatively, the area to be decorated by stalactites could be broken up by ribs, enabling stalactite compositions at different levels to occupy the resulting compartments.<sup>116</sup> Only two dome chambers with stalactite decoration remain from the second half of the fifteenth century, that of Mullā Kālān at Ziyāratgāh and Shāhzāda<sup>c</sup> Abdallāh at Herat. These show a less elaborate use of stalactites than the earlier monuments. Whereas one may have expected the trend to approach the seemingly effortless dissolution of weight achieved in the stalactite domes of the Alhambra, the expression of this idea in the later Timurid and Safavid periods was more often an increasingly elaborate squinch net, rather than the stalactite dome. It is reasonable to assume that after such achievements as the stalactite domes of Khargird the architects realised that, as with the domes of the Alhambra, they had come to "the end of a historical development" and reached "despite all its perfection, a formal dead end."<sup>117</sup>

4) Epigraphy. Of all types of decoration in this period, epigraphy is the most common, appearing in all methods of decoration - tiles, mosaic-faience, plaster, brick, stone, and even appearing alone where no other theme of decoration has occurred.

a) Cursive scripts. The use of square Kufic and monumental naskhi in banna'i-technique has been mentioned above, but in other media cursive scripts are clearly predominant. Thulth is used almost exclusively for these cursive scripts - a factor that may appear somewhat surprising when almost all contemporary Qurans used muhaggaq, and most other manuscripts nasta<sup>c</sup>liq. In comparison with either of these

---

116) This first occurs at Gāzur Gāh. Its subsequent development is analysed: ibid., pp. 56-7.

117) Grabar, Alhambra, p. 182.

scripts thulth has less horizontal sweep, the depth and fullness of its curves are maximized, giving it a more stately monumental character. Increasingly, more use was made of the space alongside the uprights to end words or fit in short words. This could have led to a cluttered appearance, but it was avoided by increasing the height of the space in which the inscription ran. The alifs are thus much longer in proportion to the other letters than they are in any manuscript, adding to the effect of the script's monumentality. In the Safavid period this was carried one step further by separating the inscription into two lines on each panel. The result, however, is arguably of less stature than the more fluid disposition of Timurid inscriptions.

The most common colour for a thulth inscription, if it was in tile, was white on a dark-blue ground, with a light-blue spiral behind and an amber aphoristic Kufic formula above, taking up one-third to a quarter of the height of the panel. If it was a foundation inscription the name of the ruling monarch would often be in amber also. This colour scheme remained popular for centuries to come.

Among the numerous fine Timurid examples of thulth calligraphy the inscriptions of Jalāl Ja<sup>c</sup>far at Khargird and Tāybād are outstanding. Whether worked in faience or brick each letter swells and narrows in accordance with its original form, as if handwritten with a slanted nib. One may compare this with the inscription of 819/1416-7 on the portal of the Yazd Masjid-i Jami<sup>c</sup> where the letters have the same thickness throughout, giving them a rather leaden, lumpish quality.<sup>118</sup> Although part of the credit must go to the workmen who were responsible for transferring Jalāl Ja<sup>c</sup>far's calligraphy on to the

---

118) Afshār, Yādgārḥā, II, p. 965.

building, it would hardly be an exaggeration to call his work, with its combination of immense elegance and power, the highpoint of architectural thulth calligraphy in Iran.

The epigraphic medallion had enjoyed popularity before the Timurid period, but a form of this appears in Khurasan which was to gain currency in manuscripts and architecture in both Ottoman Turkey and Safavid Iran. This is the mirror-image medallion. One type of this is seen on panels on the remaining minaret of the Madrasa of Gauhar Shād, where the final letters of the words al-hamd li'llāh are intertwined to form a separate medallion (Pl. 77). Another form is represented in spandrels of the courtyard at Khargird, where one spandrel has a mirror-image of an epigraphic medallion on the other.

b) Kufic. Other than the square Kufic panels of banna'i-technique and mosaic-faience, the most common occurrence of Kufic in fifteenth century monuments was as a medium for pious phrases, repeated in the space of the uprights of a cursive inscription. The style of these Kufic inscriptions may vary considerably. On the mihrab of the Mosque of Gauhar Shād in Mashhad, for instance, the inner Kufic inscription in stone has an archaic appearance, with minimal attempts at foliation, whereas the outer Kufic in mosaic-faience has consistently foliated letters, with some going beyond this to elementary floriation (Pl. 13).

Only in one case was Kufic used for a foundation inscription. This is undoubtedly the masterpiece of Timurid Kufic, the rectangular panels from the minarets of the Mosque of Gauhar Shād in Herat.<sup>119</sup> The script here is plaited, and set against a floral spiral background. Its antecedents can be traced in a number of monuments, of which the

---

119) A.U. Pope, Persian Architecture (London, 1965), Fig. 258c.

Gunbad-i Surkh in Marāgha may be the first cited. Among the letters of the Kufic inscription over the entrance,<sup>120</sup> the semicircular arc of the nūn is most similar, although it is another characteristic which is relevant here, the use of right-angled foliated stems on the hastae, with purely decorative designs mirroring these at regular intervals. This device is also found in the ornamental Kufic headings of fifteenth century Qurans.<sup>121</sup> On the Āq Sarāy at Shahr-i Sabz the remains of a monumental Kufic in mosaic-faience can still be seen.<sup>122</sup> While the top of this inscription differs from the arrangement at Herat, having a regular series of medallions, the form of the letters is quite close, with the same tapering of the end of the nūn or rā'. At the back of the qibla aivan of the Ūlūgh Beg Madrasa, Samarqand, are two rectangular panels of mosaic-faience which not only have similar letters, but also include nearly identical examples of plaiting, with a flowering tendril behind (Pl. 283). This idea was executed in underglaze-painted tiles in the panels framing the east aivan at Gāzur Gāh (Pl. 40). The arrangement of the plaiting is somewhat different, but almost everything else is identical - the floriated L-shaped elements at the top, the flowering spiral scrolls and the shapes of the letters. The letters of the inscription are outlined with raised edges with a slightly convex section in between, a form whose sensuousness recalls its use in Mongōl stucco.<sup>123</sup> Unfortunately, the chain of development seems to end with the stone inscriptions on the minarets. Rather than inspiring craftsmen to surpass them, their

---

120) A. Godard, "Notes complémentaires sur les tombeaux de Marāgha," Āthār-é Īrān, I. (1936), Figs. 90-1.

121) Lings, op. cit., Pls. 82, 85, 89.

122) Hill and Grabar, op. cit., Pl. B.

123) For the latter see Survey, Pl. 531C.

perfection may have discouraged those whose work would have been measured against them.

It will be apparent from the preceding sections that the Timurid period was one in which, at least in buildings of court patronage, decoration was applied over a greater surface area than ever before in Iranian Islamic architecture. In such monuments as the Mosque of Bībī Khānum in Samarqand, the Mosque of Gauhar Shād in Mashhad, and most likely also the Mosque and Madrasa of Gauhar Shād in Herat, virtually the whole of the interior and exterior wall surfaces were revetted with a decorative veneer. The danger inherent in such a trend is that, instead of the decoration existing to enhance the architectural forms which it covers, the structure would become merely a prop for decorative panel after brilliant decorative panel, defeating by their quality and number the monumentality of the structure on which they are displayed. By and large, one may claim that such excesses were avoided. For instance, where tilework was used to cover extensive surfaces banna'i-technique was favoured, whose strong rectangular designs, whether on exterior walls or on arch soffits, contributed to a feeling of solid support. Dadoes of marble implied a firm foundation. Areas such as entrance aivans or mihrabs which were broken up into smaller decorative panels were united by an inscription band.

To what extent was the use of decoration a determinant of the form of the building itself? As far as stucco and brick squinch-net vaulting is concerned it is clearly the determining factor. With regard to the influence of panels of tilework one may usefully compare the Masjid-i Jami<sup>c</sup> of Ziyāratgāh with its more decorated counterparts,

e.g. the Mosque of Gauhar Shād, Mashhad. . . At Ziyāratgāh there is certainly some reduction in compartmentalization - most noticeable in the unhindered upward sweep of the sanctuary aivan with its flanking minarets,<sup>124</sup> but the entrance aivan and the vestibule display blind niches in brick, divided up just as they would have had to be for a faience revetment. The differences in form, then, are not so marked.

As in the Seljuq and Mongol periods the mihrab and pishtaq are the elements most often singled out for elaborate decorative treatment. A sense of progression, of increasingly elaborate decoration moving towards a focal point, was rarely aimed at or achieved, although the west-east axis of the Shrine at Gāzur Gāh, culminating in the superb east aivan, is a notable exception. This may be contrasted with the madrasa of Khargird, in many ways its architectural successor, where the four aivans of the courtyard are virtually identical.

---

124) B. Spuler and J. Sourdel-Thomine, Propylaen Kunstgeschichte, Die Kunst des Islam (Berlin, 1973), Pl. 319.

CHAPTER FOUR:  
PATRONAGE AND SOCIETY

By the beginning of the sixteenth century, on the eve of the Uzbek invasions which so easily extirpated the Timurid dynasty in Khurasan, Sultan Husain's court in Herat had achieved widespread reknown as a centre of culture and learning. Bābur says of it: "this whole habitable world has not such a town as Herī had become under Sl. Husain Mīrzā, whose order and efforts had increased its beauty as ten to one, rather, as twenty to one."<sup>1</sup> In Herat were to be found examples of architecture at its finest, and artists skilled in painting, music and letters.<sup>2</sup> The latter were drawn from the widest strata of society, from ink-makers and sweet-sellers in the bazar<sup>3</sup> to Sultan Husain himself. Bricks and mortar, however, are more costly materials than pen and paper, and so the range of those who were capable of financing major or even lesser monuments was certainly much narrower. Before going on to consider different groups of patrons, however, it is relevant to examine the economic basis of the state which provided the wealth drawn upon by these different groups.

---

1) Bābur-nāma, tr. Beveridge, p. 300.

2) See ibid., pp. 286-92.

3) Subtelny, The Poetic Circle at the Court of the Timurid, Sultan Sultan Husain Baiqara, and its political significance, p. 78.

booty as one of their primary objectives - if not in the preferred form of systematic recovery of ransom money from cities,<sup>4</sup> then in what could be subsequently recovered by plunder.

Among the cities which refused to surrender, there is one notable exception to the long list of those which were then sacked - that of Yazd. Even though it held out against Tīmūr he did not permit his soldiers to enter the city, presumably because this would have entailed the destruction of the looms which made the town the centre of the textile industry in Iran.<sup>5</sup> The campaign which Tīmūr fought in India is represented by the official histories as a holy war against the infidels,<sup>6</sup> but in the bulletin which he issued after taking Dehli he cites anarchy, oppression and the hindrance of trade as among the chief reasons for his invasion.<sup>7</sup> It has also been suggested by Bausani that Tīmūr's systematic expansion of his territory was based on controlling the major trade routes which led from different parts of Asia and Europe to Transoxiana. Those over which he had no control, such as the territories of the Golden Horde, he tried to close by destroying their major towns.<sup>8</sup> He was even interested in obtaining commercial treaties with European states, as the account of the archbishop Jean of Sultāniyya shows. He arrived in Paris in May 1403 as Tīmūr's ambassador to negotiate a trading agreement with Charles VI,

---

4) The procedure is described in Aubin, "Comment Tamerlan prenait les villes," p. 100.

5) Ibid., p. 114.

6) In the Zafar Nāma of both Yazdī and Shāmī; see ibid., p. 90.

7) "Abwāb-i āmad u shud-i tujjār masdūd gardānīda," Navā'ī, Asnād va mukātibāt, p. 70; Aubin, op. cit., p. 90.

8) The Persians, p. 125.

and also had in mind further treaties with Venice and Genoa.<sup>9</sup> The same source also affirms his concern for the safety and security of merchants in his territories: if anything was stolen, the district where this occurred was responsible for reimbursing the merchant with double his loss, and for paying to the treasury a fine of five times the amount.<sup>10</sup>

While the extremely well-organised postal system of Tīmūr was no doubt created with military purposes in mind, the existence of regular stages with fresh horses along the route witnessed by Clavijo<sup>11</sup> suggests that the caravan network was still in good repair. Clavijo presents other evidence for this in the arrival, during his stay in Samarqand, of a caravan of 800 camels from China.<sup>12</sup> He also describes the merchants in Bukhara as being very rich,<sup>13</sup> and of Samarqand says: "every year to the city much merchandise of all kinds comes from Cathay, India, Tataria and from many other quarters besides, for in the countries round the Samarqand territory trade is very flourishing."<sup>14</sup>

Unfortunately the sources for trade in fifteenth century Iran are extremely meagre - there does not seem to be the material which have made the study of the Mamluk economy so fruitful, for instance. One of Shah Rukh's first building projects in Herat was a reconstruction of the bazar, showing that he was conscious at an early stage of his career of the importance of trade.<sup>15</sup> The sources give several

---

9) Moranvillé, ed., pp. 434, 437.

10) Aubin, *op. cit.*, p. 91.

11) Tr. Le Strange, pp. 177-9.

12) *Ibid.*, p. 291.

13) *Ibid.*, p. 301.

14) *Ibid.*, p. 278.

15) Tīmūr also caused a new bazar to be built in Samarqand: see *ibid.*, pp. 278-9.

accounts of embassies from China in the early part of the fifteenth century; these seem to have been thinly disguised commercial ventures.<sup>16</sup> That which left Herat in 822/1419 with envoys from Shah Rukh, Ūlūgh Beg, Bāysunghur, Suyūrghatmish and Shah Malik was accompanied by a large number of merchants (bāzargānān), the full complement of the embassy consisting of over 500 men.<sup>17</sup> In letters which were sent with the embassy to China in 815/1412-3 Shah Rukh specifically mentions the value of trade: "from this point onwards let the roads be open so that the merchants may come and go in peace, as in this resides the prosperity of countries and their good reputation."<sup>18</sup> Brigandage reduced the number of embassies in the years after 1425, although in 1432 conditions had sufficiently improved for the Chinese Emperor to request protection for his merchants from Shah Rukh: "May the tradesmen of our country trade and traffic as they like. Will that not be an excellent thing?"<sup>19</sup> It is likely that on account of the petering out of the trade with China Shah Rukh wished to open up new commercial markets and so sent <sup>c</sup>Abd al-Razzāq on his embassy to India in 845/1441-2<sup>20</sup> - he could certainly have expected no political advantage from it. One of the most important land routes to India was through Balkh, from which trade Ūlūgh Beg is known to have profited.<sup>21</sup>

---

16) Compare the commercial and diplomatic contacts between the Mamluks and the Il-Khanids outlined in Rogers, "Evidence for Mamluk-Mongol Relations, 1260-1360," especially pp. 398-9.

17) Hāfiz-i Abrū, Zubdat al-tavarīkh, tr. Maitra, pp. 17-8.

18) MS, p. 237; tr. Quatremère, p. 221.

19) Bretschneider, Mediaeval Researches, II, p. 286.

20) MS, pp. 764 ff.

21) Barthold, II, p. 156.

Any commercial upsurge would have directly benefited the state coffers, as revenue was subject to tamgha, a tax which was first introduced by the Mongols, and which was a forerunner of V.A.T. in that it applied to all commercial transactions.<sup>22</sup> It was regarded by the ulama as being contrary to the sharī'a,<sup>23</sup> although Shah Rukh tried to sidestep this by simply calling it zakāt instead.<sup>24</sup> Ulūgh Beg was equally adamant in applying the tamgha;<sup>25</sup> it was only under the influence of Khvaja Ahrār that Abū Sa'īd was persuaded to repeal it in 1460.<sup>26</sup>

- 
- 22) Petrushevsky, "The Socio-economic Condition," p. 506, n. 3, notes that it was even levied on prostitutes. It was levied on goods in transit and on exports and imports of cities and on local commerce and manufactures, as the farmān published by Adle shows (Une Région frontalière iranienne, p. 290).
- 23) Barthold, II, p. 128.
- 24) Fragner, "The Economic Life of the Cities." The rate of the tamgha under Shah Rukh was 2 1/2% in 1440 (Hinz, "Ein orientalisches Handelsunternehmen," p. 330), whereas in the reign of Uzun Hasan it was fixed at 5% (Fragner, op. cit.). In a farmān dated 851/1447 the governor Amir Raḡī al-Dīn, who had received the province of Damghān as suyūrghāl from Shah Rukh, reduced the tamgha on the silk factory (dār al-harīr) from 7 to 5%, and fixed that on imported soap at 5%. He also exempted local soap and weaving products from the tamgha, while allowing the local populace to make their own soap (Adle, Une Région frontalière iranienne, pp. 278-9). It is interesting to note that the question of a state monopoly of soap making had become an issue earlier in Herat between Shah Rukh and the ulama; the sultan was eventually persuaded by one outspoken ʿālim to close the government factory (Hussaini, The Influence of Spiritual Forces on Society and Politics in Tīmūrid Iran, pp. 204-5; MS, pp. 719-20).
- 25) Barthold, II, pp. 128, 156.
- 26) Ibid., p. 173.

Whatever form of tax Sultan Husain used it was certainly depredatory. Despite claims to love of justice in his apologia,<sup>27</sup> an entirely different view is presented in two passages from Daulatshāh: "to escape from the tax collector's pillage the poet hides like a bat in a hole by day, and at night beseeches justice at the threshold of the tax-collector's door."<sup>28</sup> Daulatshāh also speaks of "the hard hearts of the wicked and bloodthirsty tax collectors of these times whose custom it is to covet the goods of the Muslims and whose faith consists of lying and slandering."<sup>29</sup> The tax collectors' activities must have played a part in the building boom in Herat in the second half of the fifteenth century.

In order to promote and maintain trade it must have been necessary to build and maintain a large network of caravanserais. These are infrequently mentioned in the sources for the first half of the fifteenth century, but the long list of those erected by Mīr <sup>c</sup>Alī Shīr<sup>30</sup> shows that those built earlier on the same routes were beyond repair, and that it was more profitable to erect new ones. As well as fees from travellers revenue would have been obtained by leasing space for shops.<sup>31</sup>

There is little information on the types of goods that were traded in the fifteenth century, although one document dated 1440 mentions trade between Herat and Saray in pearls, spices, precious woods

---

27) Gandjei, "Uno scritto apologetico," p. 161.

28) Quoted in ibid., p. 162.

29) Loc. cit.

30) MA, ff. 146a-b.

31) The ribat at Yazd-i Khvāst founded by Muhammad Shah Injū contained shops where all requisites for travellers were to be found (Ibn Battūta, tr. Gibb, II, p. 299).

(ebony and aloe) and silk, cotton and woollen textiles.<sup>32</sup> Herat was also an important slave market, where 20,000 slaves, from Turkistan and India, could be sold in the course of one year.<sup>33</sup>

As regards the merchants who financed these transactions we have equally little information, although the absence of their names in any of the sources suggests that members of the royal family and the chief amirs and vizirs would have monopolised trade.

It is these groups who were responsible for erecting the majority of buildings in the fifteenth century, but their main income was probably derived from land holdings. The Sultan had his own personal lands (khāssa), but those of his family and others were usually held in the form of suyurghāls. These were grants, free from taxation of any kind and often hereditary, which obliged the recipient to provide armed service for the sultan.<sup>34</sup> Under Timur relatively little land was distributed in the form of suyurghāls.<sup>35</sup> He preferred to retain his authority by granting governorships of provinces to his sons and grandsons, but retained the right to send his own armies and tax collectors into those provinces, and to switch around the holders to prevent them gaining too much power.<sup>36</sup> Grants of suyurghāls were considerably increased under Shah Rukh. Bāysunghur's income from the lands in Āstārābād, Simnān, (Persian) <sup>c</sup>Irāq, Kāshān and Fārs amounted to 6,000,000 kebek dinars.<sup>37</sup> The Amir <sup>c</sup>Alika Kūkiltāsh even

---

32) Hinz, "Ein orientalisches Handelsunternehmen."

33) Subtelny, op. cit., p. 6.

34) On the operation of suyurghāls see Bausani, The Persians, pp. 131-2.

35) Manz, "Administration and the Delegation of Authority," p. 203.

36) Ibid.

37) Bausani, op. cit., p. 132; TS, p. 265. According to the former a kebek dinar contains 9gm of silver.

had farms in Egypt with overseers to look after them.<sup>38</sup>

Many ulama were also beneficiaries of land grants; while these were generally small or medium size they were also usually free from any obligation.<sup>39</sup> The most powerful consequently had large sums at their disposal: Jāmī's estates around Herat produced a revenue of 100,000 dinars yearly,<sup>40</sup> and Khvaja Ahrār's land holdings in Transoxiana, valued at 5,000,000 dinars, rank him among the wealthiest men of his period.<sup>41</sup> The extent to which the ulama profited from suyurghāls may be estimated from Khunjī's account of the economic and political turmoil which was caused by the reforms of Qāzī<sup>c</sup> Isā at the beginning of Sultan Ya<sup>c</sup>qūb's reign. In a move designed as a preliminary to restoring the sharī<sup>c</sup>a at the expense of the yasa (the laws of Chingiz Khān), he cancelled all suyurghāls. Ironically, it was the ulama who reacted most strongly against this reform: many used to take out loans on their suyurghāls, hoping to repay when the next installment was due, and Khunjī quotes the case of one relative in Shīrāz who maintained 1000 of the poor and destitute (sc. dervishes) from the revenue of his suyurghāl. Waqfs were also evidently heavily dependent on suyurghāls, since another consequence was that most of the charitable institutions and khanqahs had to close down. The opposition of the ulama was so great that the reform was rescinded.<sup>42</sup>

---

38) Barthold, II, p. 123; MS, p. 746.

39) Fragner, "Economic and Trade Affairs."

40) Bausani, op. cit., p. 133.

41) Rogers, "Waqfiyyas," p. 187; Vittor, The Herat School, p. 208.

42) Minorsky, "The Qa-Qoyunlu and Land Reforms," pp. 452-4; Woods, The Aqquyunlu, pp. 156-7; Khunjī, Tārīkh-i ʿālam ārā-yi Amīnī, tr. Minorsky, pp. 94-6. Even though this shows the position in the Aq Quyunlu dominions, it is relevant not merely because many of the institutions of the (Footnote continued next page.)

After this brief account of the sources of wealth in Timurid society, let us move to those groups which used it to patronise architectural construction.

The Sultans As so often in Islamic society, it was the patronage of the Sultans themselves in the fifteenth century which set an example for others to follow. Tīmūr's monuments in Samarqand must have remained a constant reminder to his descendants in Herat of how it was possible to transform a city from a relatively backward provincial capital into one of the forcing grounds of a new architectural style, where shady pleasaunces on the outskirts of the town complemented the massive constructions within. Tīmūr's avowed aim in carrying off artisans of all kinds to Samarqand was to make it the most beautiful capital in the world - not so much from the aesthetic pleasure which such buildings erected by these artisans afforded, but because architecture on the grand scale was the art most calculated to inspire his subjects with awe. Hence the preoccupation with sheer size, manifested first in his building activities with the overpowering pishtaq of the Āq Sarāy in Shahr-i Sabz, and later by his orders

---

42) (Continued from previous page.) Qara and Aq Quyunlu and the Timurids were similar, but also because many of the suyurghāls which the shaikhs owned may have been granted by earlier Timurid rulers. For a nishān of Ya<sup>c</sup>qūb Beg concerning the appointment of a mutavallī of the shrine of Fātima in Qum which refers to precedents issued by Jahānshāh, Shah Rukh and Timur see Busse, Untersuchungen zum islamischen Kanzleiwesen, pp. 156-7.

for the demolition and rebuilding on a grander scale of structures which insufficiently reflected his own glory.<sup>43</sup>

While Tīmūr's architectural preoccupations can therefore be seen as a reflection of own megalomania, none of his descendants were able to sustain the same world conquering ambitions, and their architectural ambitions were correspondingly reduced. Apart from Tīmūr, only his wives and one grandson founded any buildings of importance in Samarqand within his lifetime; his successors in Herat however shared their patronage not only with their wives, but also with princes, amirs, vizirs, the ulama and Sufis.

As far as the rulers themselves were concerned, there was at least a theoretical basis for their sponsorship of architecture. Hāfiz-i Abrū in his Geography lists the following among the purposes of the righteous governor: "to dispense justice and liberality, to strengthen religion, to further truth and sure knowledge, to initiate charitable constructions (khayrāt) and carry out good works (mubarrāt), to control the empire, to maintain security on the roads, to develop the country (ta<sup>c</sup>mīr-i.bilād)."<sup>44</sup> Under the heading of "charitable constructions" would come khanqahs and madrasas, the latter one of the most popular types of Timurid foundation, which were intended to "strengthen religion," and to "further truth and sure knowledge." The references to maintaining security on the roads and developing the country also have architectural relevance, since the erection of caravanserais would further both these ends.

---

43) E.g. the entrance portal of his mosque the Friday Mosque in Samarqand. Yazdī merely affirms that the supervisor, Khvaja Mahmūd Dāūd, was publically blamed for this miscalculation (ZN, II, p. 421) while Ibn<sup>c</sup> Arabshāh avers that he paid for it with his life (tr. Sanders, pp. 222-3).

44) Lambton, "Early Timurid Theories of State," p. 5.

Hāfiz-i Abrū's precepts for the righteous governor are closely echoed by a letter of Shah Rukh to the Chinese Emperor, written in 815/1412-3. In it he says that the ruler is commanded by God to build in every district mosques, madrasas, khanqahs, monasteries (sawāmi<sup>c</sup>) and places of worship (mu<sup>c</sup>ābid) for the furtherance of the religious sciences and the faith.<sup>45</sup>

How did Shah Rukh's building record compare with his theoretical account of the divine ruler? While we do not by any means have a complete account of buildings erected by him, his major undertakings are at least clear. They include (in Herat unless otherwise stated):

Between 808-13	rebuilding of the bazars <sup>46</sup>
813	rebuilding of the Bāgh-i Safīd <sup>47</sup>
813	madrasa and khanqah <sup>48</sup>
818	rebuilding of the citadel (Cat. No. 1)
828	shrine at Gāzur Gāh (Cat. No. 9)
	dār al-shifā <sup>49</sup>
	mazar-i Khvaja Tāqī <sup>50</sup>
	masjid-i Bībī Sitti <sup>51</sup>
	Bāgh-i Nau <sup>52</sup>
	chahār bāgh, Mashhad <sup>53</sup>
	madrasa, Mashhad (see Cat. No. 12).

As noted above, his architectural activity began with the rebuilding of the bazar, indicating the importance which he attached to

---

45) MS, p. 224, tr. Quatremère, p. 218.

46) Allen, Catalogue, no. 89.

47) Ibid., no. 645.

48) Ibid., no. 486.

49) Ibid., no. 529.

50) Ibid., no. 598.

51) Ibid., no. 419.

52) Ibid., no. 642.

53) MS, p. 379.

commerce in his plans for the consolidation of Herat as his new capital. His next major projects were the rebuilding of a major garden, and the erection of a madrasa and khanqah beside the citadel. The latter combination was found in the complex of Muhammad Sultan in Samarqand and it was one which was to prove the most popular in Timurid Herat, with amirs and vizirs following Shah Rukh's example. The repair of the citadel in 818 was followed by only one other major building project, the construction of the shrine at Gāzur Gāh. The court architect was subsequently employed by Gauhar Shād and by the vizir Pīr Ahmad Khvāfī, with Shah Rukh content to sponsor only minor contributions. Perhaps he felt that buildings by members of his family and court added to his own lustre: the amir <sup>C</sup>Alīka Kūkiltāsh was able to mollify Shah Rukh's concern that he had bought land outside Timurid dominions by explaining that it was for the fame of the monarch: people could say that Shah Rukh owned a slave who bought property in Egypt.<sup>54</sup>

The political turmoil which engulfed Khurasan after Shah Rukh's death was accompanied by a severe economic depression as trade and especially agriculture declined. Architecture suffered accordingly. While two important buildings were erected in Abu'l-Qāsim Bābur's reign, the mosque at Anau and the Masjid-i Shah in Mashhad, they were built by members of his court, by a vizir and an amir respectively. He spent much of his time fighting his brothers Muhammad and <sup>C</sup>Alā' al-Daula, so that by the time of his death (861/1457), ten years after that of Shah Rukh, only two of his constructions are known: the lofty building (<sup>C</sup>imarāt-i <sup>C</sup>ālī) at the grave of Shaikh Bahā al-Dīn

---

54) MS, pp. 746-7; Barthold, II, pp. 123-4.

Umar and the Tarab Khāna in the Bāgh-i Safīd.<sup>55</sup> The construction of a pleasure pavilion in a garden coincides well with Abd al-Razzāq's description of his picnics in the hills near Mashhad, where musicians and dancers entertained the company.<sup>56</sup>

Despite being partially blinded by Abu'l-Qāsim, Alā' al-Daula managed to live on until 1460. It is not clear exactly when his Chahār Sūq and garden on the Khiyābān in Herat were erected,<sup>57</sup> although they could have been part of a complex designed to emphasise his claims to power after his brother's death.

For most of the next ten years Abū Sa'id was the dominant power in Khurasan, although he inherited a province which, according to Abd al-Razzāq, was completely destroyed.<sup>58</sup> None of the buildings which he erected - a palace, mausoleum, madrasa and aivan in Herat,<sup>59</sup> a hammām at the hot springs in Uba<sup>60</sup> - have survived. To judge from the lack of attention which they were accorded by contemporary accounts, however, they were not particularly impressive, a possible exception being the Āq Sarāy, with its echoes of Tīmūr's famous palace at Shahr-i Sabz. In addition to abolishing the tamgha, as noted above, Abū Sa'id also reduced or waived some agricultural taxes at the behest of Khvaja Ahrār.<sup>61</sup> Such philanthropy may well have reduced the funds available for building programmes.

---

55) Allen, Catalogue, nos. 582, 645.

56) MS, p. 1109.

57) Allen, Catalogue, nos. 634, 105.

58) MS, p. 120.: "bi kullī rū bi-kharābī dāsht."

59) Allen, nos. 675, 617, 533 (for the reading madrasa, see MI, p. 87), 532.

60) RJ, I, p. 102.

61) Aubin, "Abū Sa'id," p. 148.

In the long reign of Sultan Husain, however, we have a virtual building explosion which saw the suburbs pushed to the limits of the foothills far to the north of the old walled city.<sup>62</sup> The greater number of buildings listed in the histories of this period is not due to the availability of greater source material, but rather makes Bābur's claims of its expansion as ten- or twenty-fold less fanciful. This building activity was not due solely to Sultan Husain himself, of course, and it had in large measure been made possible by the construction of the Jū-yi Sultānī, watering the northern slopes of Herat, at the end of the reign of Abū Sa'īd.<sup>63</sup> Sultan Husain's building record is nevertheless impressive: major constructions include a madrasa (Cat. No. 54), khanqah, mosque (Cat. No. 33), dār al-shifā and dār al-siyāda<sup>64</sup> and largest of all the Bāgh-i Jahān Arāy and attendant pavilions,<sup>65</sup> besides a number of minor works.<sup>66</sup> It is rather surprising that after the extensive building activities of Shah Rukh and Gauhar Shād in Mashhad that that city received no attention in Sultan Husain's time, although his complex at Mazar-i Sharīf (Cat. No. 32) was an equally useful way of currying Shī'ī favour.

Fortunately we have other evidence which shows that Sultan Husain was well aware of the benefits which architectural patronage brought: in his apologia he boasts how his officials, unlike those of previous regimes, have restored the waqfs to their rightful beneficiaries, how

---

62) Allen, Timurid Herat, pp. 54-7, discusses this in greater detail.

63) Allen, Catalogue, no. 35.

64) Ibid., nos. 530-1.

65) Ibid., no. 632.

66) E.g. at Pūrān (Cat. No. 35). For a number of gardens which he may have erected see KA, p. 25. See also Allen, Catalogue, nos. 540, 598.

madrāsas and khanqāhs are flourishing, and how travellers and merchants are protected from brigands and the weather by caravanserais provided with regiments of soldiers.<sup>67</sup> While Sultan Husain is not renowned as a builder of caravanserais, he may have had in mind the numerous chains built by Mīr °Alī Shīr, who is singled out for special praise in the apologia. Sultan Husain's works show his concern to be regarded as the benefactor of all walks of society: of the Sunnī ulama and state-sponsored Sufism in his madrasa and khanqah, of more popular Sufism in the shrines of Jalāl al-Dīn Pūrānī and Khvaja °Abd Allāh Tāqī, and of the Shī°Cī community at Mazar-i Sharīf. His new seat of government, the Bāgh-i Jahān Ārāy, was a fitting symbol of his ascendancy over the arts.

Female members of the royal family There are no legal barriers to women holding property or land within Islam, and so it was theoretically possible for women to have the means to build and endow foundations. In practice, this was restricted to immediate members of the ruling sultan's family - mother, wives or daughters, whose personal fortunes were often due to grants from the sultan's khāssa or personal estate. Theoretically they had no place within the political hierarchy, and one would expect that this would prove a difficult obstacle to any attempt to compete with the sultan in architectural patronage. As often, however, practice does not quite match up with theory - it was a woman who was responsible for what were arguably the finest monuments of the Iranian world in the fifteenth century, the foundations of Gauhar Shād in Mashhad and Herat.

The tradition of architectural patronage by women, and also of

---

67) Gandjei, "Uno scritto," pp. 177-8.

their exercise of political power, has earlier precedents in Islamic society. Shajarat al-Durr showed that she had the ability to scheme and murder her way to power as brazenly as any of the later Mamluks.<sup>68</sup> Pādishāh Khātūn, a wife of Ābāqā Khān, was quite prepared for fratricide in pursuance of her plans for rule over Kirman.<sup>69</sup> After Tīmūr's death Khalīl Sultan b. Mīrānshāh committed "the height of folly and madness" by allowing himself to be swayed by his wife, Shād Mulk, in political and financial affairs.<sup>70</sup> For this heinous conduct she was subsequently tortured and publically humiliated.<sup>71</sup>

It was possible for women to be patrons of architecture on a large scale, however, without displaying any marked political ambitions. Such, for instance, was the case of Mahperi Khātūn, the wife of 'Alā' al-Dīn Kay Qubādh, builder of five caravanserais and a large complex in Kayseri.<sup>72</sup>

Tīmūr brooked no political opposition from anyone, but his wives were accorded a place of honour at his court. His principal wife, Sarāy Mulk Khānum, was the person permitted to sit closest to him at great feasts, and was also allowed to preside over feasts herself.<sup>73</sup> One of his wives, Qutlugh Turkān Āghā, who died in 785/1383-4, was reputed to have built several madrasas and khanqahs,<sup>74</sup> and it is those types of foundation which were erected by Sarāy Mulk Khānum and

---

68) For a brief biography, and her architectural works, see Creswell, MAE 2, pp. 135-9.

69) Rogers, "The Date of the Çifte Minare Medrese at Erzurum," pp. 92-3.

70) Barthold, II, p. 72; Ibn 'Arabshāh, tr. Sanders, p. 283.

71) Ibn 'Arabshāh, tr. Sanders, p. 283.

72) Bates, "Women as Patrons of Architecture in Turkey," p. 246.

73) Clavijo, tr. Le Strange, pp. 259, 268.

74) ZN, I, p. 260.

another wife, Tūmān Āghā. Tīmūr stayed at the madrasa of the former, opposite his Friday mosque which later came to be associated with her name (Bībī Khānum), while the khanqah of Tūmān Āghā in the Shāh-i Zinda was also used by him as a residence on a number of occasions.<sup>75</sup> Tūmān Āghā was also the founder of the complex at Kuhsān (Cat. No. 19). She seems to have been of an exceptionally pious nature, discernible not only in her foundations and her performance of the hājī, but also in reports of pilgrimages earlier in her life, to the shrine of Saif al-Dīn Bākharzī and other shaikhs at Bukhārā, and to the shrine at Mashhad.<sup>76</sup>

Before discussing female patrons further, let us first consider a list of buildings known to have been erected by women in Khurasan in the fifteenth century (in Herat unless otherwise specified).

Khanzāda Begum	khanqah, in the bazar <sup>77</sup>
Malikat Āghā	madrasa <sup>78</sup>
	khanqah <sup>81</sup>
	<u>dār al-shifā</u> , <sup>79</sup> <u>dār al-hadīth</u> <sup>80</sup>
	two <u>hammāms</u> <sup>81</sup>
	caravanserai, nine <u>farsakhs</u> north of Herat <sup>81</sup>
	madrasa, Balkh <sup>81</sup>

(List continued on following page.)

75) Bartol'd, "O Pogrebenii Timura," tr. Rogers, p. 73, nn. 63-5.

76) ZN, II, pp. 269-70.

77) Allen, Catalogue, no. 507. She was the wife of Mīrānshāh b. Tīmūr.

78) Ibid., no. 472.

79) Ibid., no. 528.

80) Ibid., no. 524.

81) HS, III, p. 629. The madrasa in Balkh was beside the <sup>c</sup>Akāsha gate: HS, III, p. 398.

(List continued from previous page.)

Tūmān Āghā <sup>82</sup>	ribat, Kuhsān madrasa, Kuhsān khanqah, Kuhsān
Gauhar Shād	madrasa and masjid-i jami <sup>c</sup> (Cat. No. 14) masjid-i jami <sup>c</sup> , <u>dār al-siyāda</u> , <u>dār al-huffāz</u> , Mashhad (Cat. No. 12)
Sultan Āqā	madrasa <sup>83</sup>
Zubayda Āqā	khanqah <sup>84</sup>
Fīrūza Sultan Begum	gunbad/hazira <sup>85</sup>
Khānum Sultan Begum	Madrasa-i Chahār Manār <sup>86</sup>

Although from the above it would appear that Malikat Āghā has the most impressive list of foundations, so little information on them is divulged by the sources that they do not seem to have been major constructions. At any rate, in 928/1521-2 when Khvādamīr was writing the Habīb al-Siyar most of her buildings were in ruins, as no successors had bothered to repair them.<sup>87</sup> Unfortunately almost nothing is recorded about her except that she was the mother of two sons by<sup>c</sup> Uman Shaikh b. Tīmūr, and after his death and marriage to Shah Rukh, she bore him Suyurghatmish. After her death in 844/1440-1 she was

---

82) See Cat. No. 19.

83) Allen, Catalogue, no. 490. This is not the wife of Tīmūr, as Allen asserts, but of Sultan Husain (RS, VII, p. 241). She was the mother of Abu'l-Hasan Mīrzā and Muhammad Muhsin Mīrzā. Bābur calls her Latīf Sultan Āghācha (tr. Beveridge, p. 269).

84) Allen, no. 523. Also a wife of Sultan Husain.

85) Ibid., no. 566. Mother of Sultan Husain.

86) Ibid., no. 453. Daughter of Sultan Husain.

87) HS, III, p. 629.

buried in the dome of her madrasa in Balkh, a building which Khvādamīr singles out for special praise.<sup>88</sup>

While Gauhar Shād's list is not as extensive as that of Malikat Āghā, the buildings themselves are outstanding by virtue both of their size and the richness of their decoration. The complex which she erected in Herat contained the dynastic mausoleum of the new capital, and the importance of her buildings in contemporary eyes can be measured by the extremely frequent allusions to them in the sources; considerably more, for instance, than to Shah Rukh's madrasa and Khanqah beside the citadel. Unlike the buildings of Malikat Āghā her complex in Herat was solidly built, the bulk of it surviving until its deliberate destruction by the British army in 1885.

Patronage of this kind, where her buildings eclipse those of her male contemporaries, is so rare that it demands urgent investigation of her status. This, as we shall see, was as exceptional as her buildings. The passions which she could arouse and her powers of persuasion are illustrated by an episode in 1441 when <sup>C</sup>Abd al-Laṭīf, whose upbringing had been entrusted to Gauhar Shād, fled to his father in Samarqand on account of her preferential treatment of Bāysunghur's son <sup>C</sup>Alā' al-Daula. She followed him to Samarqand and returned with him two months later.<sup>89</sup> The eldest of each of Shah Rukh's sons were brought up in Herat, possibly a move of Gauhar Shād to increase her political influence.<sup>90</sup> Fasīh records in 843/1439-40 that he was imprisoned by Gauhar Shād, a telling event which bespeaks arbitrary power over some of Herat's major citizens.<sup>91</sup>

---

88) Ibid.

89) Barthold, II, p. 141.

90) Ibid., p. 142.

91) MF, III, p. 287. Fasīh had been a vazir of Bāysunghur: see *DV*, p. 358; *AV*, pp. 341-2.

°Abd al-Latīf was certainly correct in divining her preference for °Alā' al-Daula. This manifested itself clearly in 1444 when Shah Rukh was thought to be dying. Although Muhammad Jūkī was Shah Rukh's own choice to succeed him,<sup>92</sup> by the time that Muhammad Jūkī had reached Herat from Balkh he found that Gauhar Shād had persuaded Jalāl al-Dīn Fīrūzshāh, the head of the army, to recognise °Alā' al-Daula as Shah Rukh's successor.<sup>93</sup>

Just before Shah Rukh actually died in 850/1446 he executed at Sāva the leading Shī°ī ulama who had supported Sultan Muhammad b. Bāysunghur in rebellion against his grandfather. The sources however reveal that Gauhar Shād was the instigator of this surprising act.<sup>94</sup> In a waqf bestowed by Sultan Muhammad on the Buq°a Shāhshahān in Isfahan Shah Rukh is described as the "Most just of sultans, he who represses the wickedness of the rebellious," and Aubin plausibly infers from this that Sultan Muhammad wished to ascribe all the blame for Shah Rukh's campaign against him to Gauhar Shād.<sup>95</sup>

Her machinations continued after Shah Rukh's death. Although she immediately nominated °Abd al-Latīf as commander of the army, she secretly tried to communicate with °Alā' al-Daula who was in Herat.<sup>96</sup> Word of this presumably reached °Abd al-Latīf, since he ordered her imprisonment. Little is recorded of her in the ensuing decade of chaos, but her end was characteristic: she was suspected by Abū Sa°id

---

92) TS, p. 297; Barthold, II, p. 144.

93) Barthold, II, p. 144; HS, III, p. 634; Vittor, *op. cit.*, p. 191.

94) Barthold, II, p. 145; Aubin, "Note sur quelques documents Aq Qoyunlu," p. 136.

95) *Ibid.*,

96) Barthold, II, p. 145.

of plotting against him in league with °Alā' al-Daula's son, and executed on his orders.<sup>97</sup> It should be remembered that this was in 1457 when Gauhar Shād must have been at least 75:<sup>98</sup> her reputation as a feared political opponent must have accompanied her as she advanced in age.

After this brief sketch of her career one could argue that Barthold exaggerated only slightly when he referred to her as "the real ruler of the kingdom."<sup>99</sup>

Only one other woman, Khadīja Begum, the wife of Sultan Husain, seems to have had any measure of political power in the second half of the fifteenth century,<sup>100</sup> but she is not known to have built anything. The list above includes a madrasa and a khanqah, each by a wife of Sultan Husain, a madrasa erected by a daughter and a hazira erected by his mother. The latter included a dome chamber and had lectures and distribution of food to the poor, and so must have been a substantial edifice.

It is worthwhile commenting on the type of buildings erected by women in this century. The most striking omission is any kind of secular residence or palace. This omission, however, is in keeping with contemporary Mamluk and Ottoman practices, where madrasas and

---

97) HS, IV, p. 68; Barthold, II, p. 173.

98) Her son Ūlūgh Beg was born in 1394.

99) Barthold, II, p. 142.

100) She persuaded Sultan Husain to transfer the governorship of Āstarābād from Muhammad Mu'min Mīrzā to her own son, Muzaffar Mīrzā, and later persuaded the vazir Nizām al-Mulk to order the execution of the former. Barthold, II, p. 57; BV, II, p. 333; Vittor, *op. cit.*, p. 194, n. 28; Bābur, tr. Beveridge, p. 268.

khanqahs or zāwiyas are among the most common foundations by women.<sup>101</sup> It is noteworthy that in the list above Gauhar Shād was the only one to have founded any mosques, and the two which she did erect are the paragons of her age. It is impossible to say whether she would have liked to inaugurate a new garden or seat of government in Herat such as Sultan Husain's Bāgh-i Jahān Ārāy, but by keeping within the bounds of patronage of religious buildings which would have been expected of a woman, she was able nevertheless to affirm her power by the might of her foundations. These, it may be emphasised again, are unique among those erected by women in that they were the finest of her day. Unwilling to make the same overt bid for power as Shajarat al-Durr, she was content to manipulate behind the scenes, while letting her complexes in Herat and Mashhad beacon her true status within society.

Princes The chaos into which the Timurid state was thrown after the death of Tīmūr, and later after the death of Shah Rukh, can be attributed to a number of factors, but chief among them was the policy under both Tīmūr and Shah Rukh of frequent transfer of their descendants among the posts available as governors of provinces. In this way it was possible to prevent the power of any prince from being concentrated for too long in one place.<sup>102</sup> To designate an official successor was to invite a power struggle: even without such a measure Tīmūr had to contend with insurrections by his son Pīr Muhammad, and Shah Rukh with his nephew Iskandar Sultan and his nephew Sultan

---

101) See Bates, op. cit., and 'Abd ar-Raziq, La femme au temps des Mamlouks en Egypte, pp. 19-27.

102) Manz, op. cit.

Muhammad b. Bāysunghur. Ūlūgh Beg was allowed to remain in Transoxiana for the duration of Shah Rukh's life but this was because, especially after Ūlūgh Beg's humiliating military reverses of 1427,<sup>103</sup> Shah Rukh realised that his son's ambitions were in the field of scholarly enterprise rather than military daring. When each prince was made governor of an outlying territory, he would naturally spend most of his cultural efforts in embellishing his new dominions. Ūlūgh Beg's patronage of architecture is well known,<sup>104</sup> and Iskandar Sultan and Sultan Muhammad b. Bāysunghur erected buildings in Yazd, Shiraz and Isfahan.<sup>105</sup> It is not surprising, therefore, that one finds few buildings erected by princes within Khurasan at this time, as the following list shows (in Herat unless otherwise specified):

Muhammad Jūkī b. Shah Rukh	Bāgh-i Nau Bāgh-i Zubayda <sup>106</sup>
Bāysunghur b. Shah Rukh	dam, Akhlamad (Cat. No. 6)
Badī <sup>c</sup> al-Zamān b. Sultan Husain	madrasa <sup>107</sup>
Sultan Ahmad	house <sup>108</sup> library <sup>109</sup> hazira <sup>110</sup>

---

103) Barthold, II, p. 103.

104) *Ibid.*, pp. 121-4.

105) For Iskandar Sultan see Aubin, "Le mécénat timouride à Chiraz," pp. 75-6; for Sultan Muhammad see *idem*, "Note," p. 135.

—106) Allen, *Catalogue*, nos. 641, 654.

107) *Ibid.*, no. 452. According to Allen it was built by his mother, but the passage which he cites is ambiguous. The ambiguity is resolved in KA, pp. 19-20, which asserts that Badī<sup>c</sup> al-Zamān erected it.

108) RJ, I, pp. 80-1.

109) and 110) (See following page.)

Bāysunghur was governor of Herat in his father's absences. His legacy as a bibliophile is well known, but this cultural leaning may be explained by an inability to borrow the court architect and his masons from Shah Rukh and Gauhar Shād: Qavām al-Dīn was probably occupied continuously from 813 with Shah Rukh's madrasa, khanqah and shrine at Gāzur Gāh, and with Gauhar Shād's complexes in Herat and Mashhad until shortly before Bāysunghur's death in 837/1434. The only construction attributable to Bāysunghur, the dam at Akhlamad, may be explained as an attempt to increase the revenue of Tūs, which belonged to him in suyurghāl.

<sup>c</sup>Alā' al-Daula succeeded his father as regent of Herat, and it is possible that the buildings erected by him, mentioned above under rulers, could have been constructed in Shah Rukh's lifetime. Muhammad Jūkī b. Shah Rukh is the only other prince known to have built in Herat at this time. He had been ruler of Garmsīr, then the territory around Kabul and later of Balkh,<sup>111</sup> so it may be wondered why he wished to erect buildings in Herat. The reason probably lies in Shah Rukh's consideration of him as his heir.<sup>112</sup> It may be remembered that Muhammad Sultan was likewise Tīmūr's choice to succeed him, and was also the only prince who erected a complex in Samarqand in Tīmūr's lifetime.

---

109) (From previous page.) Allen, Catalogue, no. 537. This is not Sultan Ahmad b. Abū Sa<sup>c</sup>īd, as Allen asserts, but the brother-in-law of Sultan Husain, the grandson of Mīrānshāh. See Barthold, III, p. 35.

110) (From previous page.) Allen, no. 595.

111) Barthold, II, p. 144.

112) Ibid.

The same pattern is repeated under Sultan Husain. His brother-in-law Sultan Ahmad was, like Bāysunghur and °Alā' al-Daula, in charge of Herat in the Sultan's absence,<sup>113</sup> and Badi° al-Zamān, Sultan Husain's eldest son, was the most powerful prince in the second half of the fifteenth century, and undoubtedly considered himself the man most likely to succeed his father. It is not known when his madrasa was built but, as the nishān-i tadris of Marvārīd shows, it was a substantial building, with fifty students.<sup>114</sup> Unfortunately, like all other buildings in this group it has disappeared, so one can only speculate whether it was as important a building, as, say, that of Ūlugh Beg in Samarqand.

Amirs and Vazirs Daulatshāh, after listing several of the monuments which Mīr °Alī-Shīr erected, laments that because of their great multitude he is unable to enumerate them all.<sup>115</sup> If one ignored the Makārim al-Akhlaq, and attempted to number the works of °Alī Shīr on the basis of the major Timurid sources, notably the Khulāsat al-Akhbār and Daulatshāh himself, the total would only amount to around one-sixth of the over one hundred and twenty structures with which he is credited in the Makārim al-Akhlaq. A single copy of the latter is known to have survived, so it is fortunate that in one case at least we have what must be nearly a full record of the building activities of one patron. There seems no reason to doubt the veracity of this list, which is corroborated both by other historians and by several buildings within the catalogue. To what extent then, can this list

---

113) Barthold, III, p. 35.

114) SN, f. 48b; tr. p. 59.

115) TS, p. 376.

be seen as representative of the most important Timurid amirs? There seems no doubt that while amirs and vazirs were among the most prolific patrons, Mīr °Alī Shīr's works are exceptional. But it does warn us that the monuments which the patrons in this chapter are known to have built are likely to be only a fraction of the real extent of their patronage. The names of hundreds of monuments are known from fifteenth century Herat.<sup>116</sup> Most of them probably date from the fifteenth century, but for the most part the names of their founders are not recorded. The monuments of Yazd are even better documented for this period,<sup>117</sup> and they are a reminder of the extent of patronage at this time by both local dignitaries and representatives of the Timurid court.

While no one vazir in the first half of the fifteenth century matched °Alī Shīr's output, several were nevertheless patrons of outstanding importance. Among the most notable were (in Herat unless otherwise specified):

Jalāl al-Dīn Fīrūzshāh	mosque <sup>118</sup>
	madrasa and khanqah <sup>119</sup>
	<u>chahār bāgh</u>
	madrasa, Turbat-i Jām (Cat. No. 22)
°Alīka Kūkiltāsh	madrasa and khanqah <sup>120</sup>
	charitable institutions ( <u>bunyad-i</u>
	<u>khair</u> ) in Marv <sup>121</sup>
	mosque in Samarqand <sup>122</sup>

(List continued following page.)

116) Allen, Catalogue.

117) TY; TJY.

118) Allen, Catalogue, no. 427.

119) Ibid., nos. 465, 505.

120) Ibid., nos. 450, 495.

121) MF, III, p. 283.

122) Barthold, II, p. 123.

Yūsuf Khvāja	Madrasa Du Dar, Mashhad (Cat. No. 15) repairs to Varamīn Jami <sup>c123</sup>
Shah Malik	mosque <sup>124</sup> <u>bāgh</u> <sup>125</sup> ribat, <sup>126</sup> near Kuhsān general notice describing him as the builder of madrasas, khanqahs, mosques, ribats and <u>hauzes</u> <sup>127</sup>
Amir Chaqmāq	madrasa <sup>128</sup> complex, Yazd <sup>129</sup>
Ghiyāth al-Dīn Pīr Ahmad Khvāfī	<u>Cimārat sar-i mazar-i Shaikh Khvāfī</u> <sup>130</sup> madrasa, Khargird (Cat. No. 25) buq <sup>c</sup> a, Tāybād (Cat. No. 24)

One factor is immediately evident in this list: in contrast with princes who usually build only in the provinces to which they were sent as governors, the amirs also erected substantial foundations in Herat. They were more likely to be recalled to Herat or transferred to different posts at short notice, and may have thought it wise to enhance their power base through examples of their munificence in the capital. Also noticeable from the list is the preponderance of buildings by amirs - of the above only Ghiyāth al-Dīn Khvāfī was a vazir. He was by far the most important of Shah Rukh's reign, holding power from 820/1416-7 until Shah Rukh's death. The two buildings of his which have survived, the madrasa at Khargird and the Buq<sup>c</sup>a of Tāybād,

---

123) O'Kane, "Timurid Stucco Decoration."

124) Allen, Catalogue, no. 416.

125) Ibid., no. 629.

126) HS, IV, p. 66.

127) MS, p. 568.

128) Allen, Catalogue, no. 454.

129) TJY, p. 97; Holod, The Monuments of Yazd, pp. 95-122.

130) Allen, Catalogue, no. 622.

are clearly among the forerunners of their time in design and decoration. They make up in quality for the greater number of buildings erected by contemporary amirs.

The position in the second half of the fifteenth century is very different. We have an extremely long list of buildings by <sup>c</sup>Alī Shīr,<sup>131</sup> and an almost insignificant amount by other amirs and vazirs, except for one vazir who was a close associate of <sup>c</sup>Alī Shīr, Khvaja Afzal al-Dīn Kirmānī. The latter was able to construct a mosque, madrasa, khanqah, hammām and bāghcha in Herat,<sup>132</sup> although these may have been erected after <sup>c</sup>Alī Shīr's death, in his period of greatest power as chief vazir. The two most important vazirs of Sultan Husain's reign, Nizām al-Mulk Khvāfī and Majd al-Dīn Muhammad b. Ghiyāth al-Dīn Pīr Ahmad Khvāfī, are only known to have built a chahār bāgh<sup>133</sup> and a mosque<sup>134</sup> between them. And although several amirs can be credited with buildings in this period<sup>135</sup> none of them, apart of course from <sup>c</sup>Alī Shīr, apparently erected multiple constructions or complexes as did the amirs of Shah Rukh's time. Why the discrepancy between the two halves of the century?

A number of factors seem to be at work here. Vittor has pointed out that many vazirs in the reign of Sultan Husain were executed and their property confiscated.<sup>136</sup> He attributes this high turnover to

---

131) MA, ff. 145b-147a; 151a. The monuments include 49 ribats and one shutur khān (camel stable), 19 hauzes, 18 mosques, 15 bridges, 9 hammāms, 6 khanqahs, 5 imārats, two langars and one idgāh, madrasa, dār al-huffāz and ghulūr khāna. As far as can be ascertained, the great majority of these are within Khurasan.

132) Allen, Catalogue, nos. 429, 449, 494, 655; HS, IV, p. 220.

133) Allen, no. 664.

134) Cat. No. 36.

135) Cat. Nos. 37, 59; Allen, nos. 458, 467, 476, 562 and 597.

136) Op. cit., p. 195, n. 30.

an attempt by Sultan Husain to curb their power. It certainly must have limited their capabilities as architectural patrons.

Another factor limiting the vazirs was the power of <sup>c</sup>Alī Shīr. He was Majd al-Dīn's greatest opponent, and with the help of Khvaja Afzāl al-Dīn Kirmānī, succeeded in getting him dismissed in 878/1473-4.<sup>137</sup> It is surely no coincidence that Majd al-Dīn's reappointment in 1487 coincided with <sup>c</sup>Alī Shīr's disfavour, when he was awarded the post of governor of Āstārābād in order to lessen his influence in the capital. Majd al-Dīn had earlier persuaded Sultan Husain to let him have a free hand in reorganising the treasury, and in Bābur's words had "made soldier and peasant grateful and content, filled the Treasury to abundance, and made the districts habitable and cultivated."<sup>138</sup> But after <sup>c</sup>Alī Shīr's return from Āstārābād a year later Majd al-Dīn's power waned again until "in face of opposition from the begs and men high in place, all being led by <sup>c</sup>Alī-sher Beg...by their effort and evil suggestion he was arrested and dismissed."<sup>139</sup> His successor Nizām al-Mulk and his two sons were less fortunate and, again on <sup>c</sup>Alī Shīr's advice, were executed.<sup>140</sup> What was the cause of the implacable opposition between <sup>c</sup>Alī Shīr and the vazirs whom Bābur praises so highly?

In order to answer this question one must discuss the related one of <sup>c</sup>Alī Shīr's personal finances. He obviously was able to command vast sums of money for his building enterprises, and indeed Barthold surmises that these may have been responsible for the financial crisis

---

137) Barthold, III, p. 40.

138) Tr. Beveridge, p. 282.

139) Ibid.

140) Ibid.; Barthold, III, pp. 58-9.

of the government which preceded °Alī Shīr's "exile" to Āstārābād.<sup>141</sup> Bābur however records that he accepted no gifts from Sultan Husain, but himself made numerous presents to the Sultan.<sup>142</sup> The extent of his generosity is described by Khvādamīr: on Sultan Husain's return from a trip to Balkh and Qandahār °Alī Shīr gave him 25 tūmāns of silver (200,000 dinars), 1,000 man of silk and 1,000 ass-loads of grain. He also distributed 100,000 other dinars among the main government officials.<sup>143</sup> No wonder he was so popular! However, it seems that these types of presents were no more than what Sultan Husain regarded as his due. When Majd al-Dīn's hidden treasury of goodies<sup>144</sup> was found Sultan Husain said "I was confident that when Majd al-Dīn received an expensive present he naturally offered it to me; now it is clear that he was untruthful."<sup>145</sup>

If Sultan Husain expected expensive presents, where then did °Alī Shīr obtain the money for them? For unlike many other amirs and vazirs, we are ill-informed on any major land holdings which he may have possessed as suyurghāls.<sup>146</sup> If he had no obvious legitimate source of income then he must, in connivance with the other amirs,

---

141) III, p. 46.

142) Tr. Beveridge, p. 242.

143) MA, f. 171a.

144) These included gold, jewels, fine books, costly goods, bezoar stones, Chinese plates and vases, silk kilīms and multicoloured tents (HS, IV, p. 197).

145) Ibid.; Barthold, III, p. 55.

146) The waqfiyya of his Ikhlasīyya complex lists mostly bazars in Herat and gardens in the near vicinity: MN, introduction, p. کب. And the stone waqfiyya of the shrine at Āzādān mentions only one village near Herat which he donated: Cat. No. 36.

have been creaming it from the state treasury.<sup>147</sup> This no doubt was the abuse which Majd al-Dīn set out to right. But whereas °Alī Shīr was careful to launder his income by recirculating part of it, mostly in the direction of Sultan Husain, Majd al-Dīn either was not so generous or, just as likely, was the victim of an elaborate frame-up by the amirs, led, as Bābur states, by °Alī Shīr. Sultan Husain may have been quite happy to turn a blind eye to °Alī Shīr's peculation as long as he received his own share. He may also have encouraged °Alī Shīr's building activities, perhaps with °Alīka Kūkiltāsh's excuse for owning land in Egypt in mind: that it should be done for the greater glory of his master, the sultan.<sup>148</sup>

As an example of this one could quote Sultan Husain's praise in his apologia of the caravanserais in his dominions.<sup>149</sup> While Sultan Husain is not particularly remembered as a constructor of caravanserais, 49 are numbered among °Alī Shīr's works in the Makarim al-Akhlāq. It is surely these to which Sultan Husain is referring.

The same document also provides the strongest confirmation, if any were needed, of the close bonds which existed between Sultan Husain and °Alī Shīr.<sup>150</sup> Although it is couched purely in terms of praise of his poetry, the sultan must have had a deep friendship for his amir to circulate such a document in his lifetime.

The Ikhlasīyya complex of Mīr °Alī Shīr has been compared to the Rashīdiyya in Tabriz,<sup>151</sup> and while the former was clearly on a much

---

147) The same conclusion was reached by Beveridge: Bābur Nāma, p. 282, n. 1.

148) See n. 38 and Barthold, II, p. 124.

149) Gandjei, op. cit., p. 178.

150) Ibid., pp. 180-1.

151) Allen, Timurid Herat, p. 98.

smaller scale, Mīr °Alī Shīr's works taken as a whole are certainly in the great tradition of sponsorship of architecture by Il-Khanid court officials.<sup>152</sup> One major change may be noted from the patterns of Il-Khanid patronage, however. Aside from that of the sultan, it was the vazirs, notably Rashīd al-Dīn and Tāj al-Dīn °Alī Shāh, who were the major patrons. Now, in the fifteenth century, it is the amirs, the military rather than the civil side of the government which produced the most important and most numerous patrons. This most likely reflects the greater homogeneity of the two sides of the state. Unlike the Mongol military chiefs, the Barlās tribe from which the Timurids were descended had come to power amidst a Muslim milieu, one which shared many of the same cultural values as the members of the Persian bureaucracy which served them.

Religious groups It is easy to draw up a list of possible sub-categories under the heading religious groups, such as Sunnī, Shī°ī, ulama, Sufi and sayyid. However, the lines of demarcation between each of these categories could very easily become blurred in the fifteenth century, and we will meet several instances of notable figures who could fit into more than two of these sub-categories, and others of whom it is difficult to say whether they were Sunnī or Shī°ī, Sufi or member of the ulama.

Pre-Timurid Already in the Seljuq period there was a rapprochement of Sufis with the state authorities; and sultans and other officials sponsored the construction of khanqahs.<sup>153</sup> As usual, a political as

---

152) Aubin, "Le patronage culturel en Iran sous les Ilkhans," pp. 107-8.

153) Klausner, The Seljuk Vezirate, pp. 72-3.

well as a religious interpretation can be given to this new departure, since it was a means of allying movements of potential social opposition with the aims of the state.<sup>154</sup> The madrasa system cultivated by the Seljuqs had already established influence over the orthodox ulama,<sup>155</sup> and the incorporation of Sufism within the framework of orthodoxy may have been the policy behind the construction of khanqahs by state officials.

The Il-Khanid period shows a trend of increasing interest by the state in popular piety. The complex of buildings around the tomb of Shaikh Bāyazīd Bistāmī by Ūljāytū is one such case of state sponsorship, and his example was followed in numerous other "little cities of God" by lesser state officials.<sup>156</sup>

In addition to a series of major shrines, numerous lesser ones sprang up, for whom our best evidence is Ibn Battūta. Everywhere on his journeys throughout Iran and neighbouring countries, in villages and towns, he was given hospitality by the shaikhs of what was evidently a well organised system of khanqahs.

It was mentioned in Chapter I that teaching was an activity that was carried on in many khanqahs. This may have commenced in an organised fashion in the Mongol period. For instance, as Allen has pointed out, the huge complex built by Rashid al-Din outside Tabriz contained a khanqah, but no madrasa.<sup>157</sup>

---

154) Ibid.

155) Ibid., p. 22.

156) Golombek, "The Cult of Saints and Shrine Architecture in the Fourteenth Century," Near Eastern Numismatics, Iconography, Epigraphy, and History: Studies in Honor of George C. Miles, ed. D. Kouymjian (Beirut, 1974), pp. 419-30; Blair, The Shrine Complex at Natanz, pp. 204-10.

157) Timurid Herat, p. 91.

Other segments of the religious population also received benefits from the Il-Khanid state. Ghāzān Khān founded several dār al-siyādas for the upkeep of sayyids, members of the prophet's family;<sup>158</sup> one was also built by Ūljāytū adjoining his tomb in Sultāniyya.<sup>159</sup> Again Ibn Battūta provides valuable evidence of this practice: in Shiraz he reported that more than 4,000 sharīfs (or sayyids), both children and adults, were receiving stipends.<sup>160</sup> Given this number for just one town, the total throughout the Il-Khanid realm must have been considerable.

The reign of Tīmūr Tīmūr's attitude to religious matters has been aptly described by Aubin as bare-faced opportunism,<sup>161</sup> although this could on occasion be tempered by the respect which he showed to Sufis and sayyids. Although nominally a Muslim, and therefore a follower of the sharī<sup>c</sup>a, Tīmūr was just as likely to observe the yasa, the Mongol code of law, if it suited his purposes better.<sup>162</sup> A good example of this ambivalence is his attitude towards wine. After conquering Baghdad in 795/1393 he ordered that the taverns be closed, but it seems that this was only effected by the governor which he left in charge after the departure of his army.<sup>163</sup> Wine and spirits flowed freely at the great nuptial celebrations of Tīmūr's grandsons at Kān-i

---

158) Bausani, "Religion in the Saljuq Period," p. 544.

159) Hāfiz-i Abrū, Ḥail-i Jāmi<sup>c</sup> al-Tavārīkh, p. 68.

160) Tr. Gibb, II, p. 313.

161) "L'opportunisme le plus ouvert," Matériaux pour la biographie de Shah Ni<sup>c</sup>matullah Wali Kermani, introduction, p. 11.

162) Haider, "The Sovereign in the Timurid State," pp. 62-3; Ibn Arabshāh, tr. Sanders, p. 299.

163) Aubin, "Tamerlan à Bagdad," p. 306.

Gil outside Samarqand,<sup>164</sup> and unlawful food was consumed as well.<sup>165</sup>

The revelry lasted for nearly two months, but as soon as they were over a decree was issued which prohibited the consumption of wine or any other unlawful act.<sup>166</sup> This would not only have assuaged the ulama, it would also have sobered up his army before their anticipated departure for China. Nevertheless, the immediate cause of Tīmūr's death just a few weeks later is reckoned to have been excessive consumption of wine.<sup>167</sup>

Tīmūr could even pit one faction of Islam against the other for his own purposes. To the Shī<sup>c</sup>ī Sarbadārs he appeared as the champion of orthodoxy,<sup>168</sup> while in Aleppo he was at pains to humiliate the ulama by making them acknowledge <sup>c</sup>Alī as the first caliph.<sup>169</sup> In Ibn <sup>c</sup>Arabshāh's account of his conversation, Tīmūr refers to the people of Damascus, who being followers of Yazīd, killed Husain<sup>170</sup> - perhaps an advance justification for his subsequent capture and sack of Damascus. While in Damascus his followers and their horses camped, gambled and drank wine in the Great Mosque, eventually setting it on fire.<sup>171</sup> Perhaps to cover his tracks for this conduct he allowed the Shī<sup>c</sup>īs in his retinue to dig up the graves of Mu<sup>c</sup>awiyya, Yazīd and Shimr, and scatter them over the ground.<sup>172</sup>

---

164) Claviyo, tr. Le Strange, pp. 266-7.

165) Ibn <sup>c</sup>Arabshah, tr. Sanders, p. 220.

166) ZN; II, p. 443.

167) Barthold, II, p. 53.

168) Ibid., p. 23; Shāmi, Zafar Nāma, p. 85.

169) Barthold, II, p. 23; Ibn <sup>c</sup>Arabshāh, tr. Sanders, pp. 129-30.

170) Ibn <sup>c</sup>Arabshāh, tr. Sanders, p. 129.

171) Aubin, "Comment Tamerlan prenait les villes," p. 87, n. 5.

172) Hussaini, op. cit., p. 215; Mu'īnī, Muntakhab al-Tavārīkh, p. 379.

In general, his conduct of war, in which muslims were massacred and sold into slavery, was clearly contrary to the sharī'a, yet his expeditions regularly received the sanction of the ulama.<sup>173</sup>

Nevertheless, he is reported to have respected the operation of waqfs,<sup>174</sup> and the office of ṣadr or supervisor of waqfs was already instituted under him.<sup>175</sup> His regard for Sufis is shown in his inclination to go out of his way to meet pious ascetics,<sup>176</sup> and in his willingness to suffer insult from idiots, provided they were of the religious variety.<sup>177</sup> This reverence could also be expressed in architectural terms, as the monumental shrine to the 6th/12th century dervish Khvaja Ahmad Yassavī witnesses.<sup>178</sup> Tīmūr was also able to make political capital of his popularity with dervishes, since he was able on account of it to recruit spies and propagandists among their number.<sup>179</sup>

His devotion to sayyids is also well-known. While there are no reports of foundations of dār al-siyādas in his reign, one contemporary waqf document does specify that stipends were to be given to

---

173) Hussaini, op. cit., p. 248.

174) Barthold, II, p. 72.

175) Aubin, "Le Khanat de Čagatai," p. 51.

176) E.g., in order to meet Zain al-Dīn Abū Bakr Taybādī he had to proceed from Kuhsān further west to Tāybād, even though his army was heading east to beseige Fūsinj. Barthold, II, p. 20-1.

177) In Andkhuy Bābā Sangā threw a piece of raw meat before Tīmūr who, however, put a favourable interpretation on it. Barthold, II, p. 20.

178) After performing a pilgrimage to the shrine in 797/1394-5 Tīmūr ordered its reconstruction: ZN, II, p. 16.

179) Aubin, "Le Khanat de Čagatai," p. 28.

poor sayyids.<sup>180</sup> Sayyid Baraka was a frequent companion of Tīmūr,<sup>181</sup> while others played chess with him,<sup>182</sup> and there is even a surprising report of sayyids implicated in a plot on his life being spared execution.<sup>183</sup> When the bazar ordered by Tīmūr in Samarqand destroyed the homes of the townspeople it was the sayyids who remonstrated with him. Despite their temerity in criticising his conduct in his own city ("to which he could produce the deeds next day, if necessary"), they were, as Clavijo himself remarks, fortunate to escape unharmed.<sup>184</sup> But other ascetics whose conduct was judged to be prejudicial to state security were not so fortunate, as the execution of the founder of the Hurūfī movement, Faẓl Allāh b. ʿAlī Āstārābādī by Tīmūr's grandson Mīrānshāh shows.<sup>185</sup>

The reign of Shah Rukh The two letters which Shah Rukh sent to the Chinese Emperor in 815/1412-3 extol the virtues of the just monarch in the true path of Islam,<sup>186</sup> and in one of them Shah Rukh mentions that the procedures and laws (yarghū, qā'id) of Chingiz Khān have been abolished.<sup>187</sup> Such then, was the impression that Shah Rukh wanted to create, but how far did the reality go towards fulfilling his statement? He seems, in fact, to have measured up to them very well. It is said that he never missed any of the obligatory prayers,<sup>188</sup> and

---

180) Hussaini, p. 248.

181) Barthold,—"O Pogrebenii Timura," p. 84.

182) Clavijo, tr. Le Strange, p. 235.

183) Barthold, II, p. 19.

184) Tr. Le Strange, pp. 279-80.

185) Trimmingham, The Sufi Orders in Islam, p. 82.

186) MS, pp. 222-7, tr. Quatremère, pp. 216-21.

187) MS, p. 226, tr. p. 220.

188) Hussaini, op. cit., p. 202; SH, f. 5a.

that huffāz read the Quran four times a week for his court.<sup>189</sup> Upon the opening of his madrasa he attended lessons with the rest of the amirs,<sup>190</sup> and he is supposed to have known sufficient Arabic to be able to read commentaries on the Quran.<sup>191</sup>

While it is also true, as Barthold reports,<sup>192</sup> that he ordered a stop to all consumption of wine, even accompanying the muhtasib to the houses of his sons to see that the order was carried out, the point to notice here might be the date at which this order was given - 844/1440-1, which suggests that wine flowed as freely as it had done in Samarqand up to that time. It was mentioned above that Shah Rukh tried at one stage to substitute the term zakāt for the tamgha,<sup>193</sup> the tax which was illegal according to the sharī<sup>c</sup>a - another indication that his renunciation of the laws of Chingiz Khān was not total.

About his personal piety, however, there seems to be little doubt. Within Herat he visited all the mazars twice a year,<sup>194</sup> and on his peregrinations within Khurasan his choice of routes was frequently determined by the location of mazars along the way, especially at the beginning of military campaigns.<sup>195</sup> The shrine to which he went on pilgrimage most frequently is that of Mashhad, with five visits recorded up to 822H., although only one more is mentioned subsequently.<sup>196</sup> In addition, however, he visited the shrines of Abū Sa<sup>c</sup>īd

---

189) Barthold, II, p. 113.

190) HS, IV, pp. 6-7.

191) Hussaini, op. cit., p. 202.

192) II, p. 113.

193) See n. 24.

194) MI, p. 37.

195) Aubin, "Réseau pastoral et réseau caravanier," p. 126.

196) A list is given in Sa<sup>nī<sup>c</sup> al-Daula, Matla<sup>c</sup> al-Shams, II, pp. 285-6.</sup>

at Mihna,<sup>197</sup> of the shaikhs at Sarakhs,<sup>198</sup> of Turbat-i Jām,<sup>199</sup> and of Abū Ishāq Ibrāhīm at Kāzīrūn.<sup>200</sup>

The buildings which Shah Rukh erected were mentioned above, and included the important religious complexes of his madrasa and khanqah near the citadel and the shrine at Gāzur Gāh. Several of the ulama were also builders in his reign. One of the lecturers in his madrasa, Khvaja °Azīz Allāh, had earlier built a madrasa for the Sufi shaikh Shihāb al-Dīn Bistāmī.<sup>201</sup> Two sadrs of Shah Rukh were also active, one building a mosque in the old city of Herat and repairing a ribat outside the city,<sup>202</sup> while another built a madrasa near the shrine at Āzādān.<sup>203</sup> One, Jalāl al-Dīn Qā'inī, built two madrasas.<sup>204</sup>

Not all of the ulama sponsored pious works, however. Maulāna Shihāb al-Dīn °Abd al-Rahmān Lisān became rich in Shah Rukh's service and was presented with 1,000 slaves. He built a caravanserai in the Bazar-i Fīrūzābād and a hammām in the Bazar-i Mālik.<sup>205</sup>

---

197) MS, tr. Quatremère, pp. 80, 268.

198) Ibid.

199) MS, p. 713.

200) MS, tr. Quatremère, p. 287.

201) Allen, Catalogue, no. 451.

202) HS, III, p. 640. The sadr was Maulānā Shams al-Dīn Muhammad Amin.

203) Allen, Catalogue, no. 470.

204) Ibid., nos. 466, 481.

205) He was quite aware of the value of money, and also had a sense of humour, as the following anecdote shows: on the day his hammām was finished a friend asked him what the entrance fee would be. "Eight marvī dinars," was the reply. His friend was astonished and asked for an explanation. The maulānā said: "my slaves and servants worked to finish the hammām and supply the materials, but as I hadn't a tinsmith I had to pay eight marvī dinars yesterday to have the door chains tinned." MS, IV, p. 16.

Sayyids were also awarded special respect by Shah Rukh. In addition to the dār al-siyāda of Gauhar Shād in Mashhad, another in Kirman is mentioned in this period.<sup>206</sup> On his first pilgrimage to Mashhad in 809/1406-7, Shah Rukh presented the sayyids with gifts.<sup>207</sup>

The sayyids there were likely to have been Shī<sup>c</sup>ī, of course, but when one moves on to consider the position of Shī<sup>c</sup>īs and Sufis in the period of Shah Rukh matters can become more complicated, since it was possible for a person to be a sayyid, a Sufī and a Shī<sup>c</sup>ī. In general Shī<sup>c</sup>īs seem to have been tolerated, provided they did not publically declare their allegiances. On Shah Rukh's return journey from his pilgrimage to Mashhad in 822/1419-20, for instance, Sayyid Zain al-<sup>c</sup>Abidīn was scourged on Shah Rukh's orders for cursing the companions.<sup>208</sup> But in Qūhistān the Ismā<sup>c</sup>īlīs still had a community,<sup>209</sup> while in Fārs Iskandar Sultan was overtly Shī<sup>c</sup>ī.<sup>210</sup>

The most worrying factions for Shah Rukh were probably those which espoused Shī<sup>c</sup>ism, often in connection with Sufism, as a means of social protest.<sup>211</sup> On the southwest of his empire Sayyid Muhammad b. Falah, claiming to be the Mahdī, was able to amass a band of popular followers and wrest a large area of Khūzistān from the vazir of Ibrahim Sultan.<sup>212</sup> Earlier, in Khurasan, Shah Rukh had had to contend with two subversive Sufī Shī<sup>c</sup>īs: Qāsim-i Anvār and Nūrbakhsh. The latter also had

---

206) Aubin, Deux Sayyids de Bam (Wiesbaden, 1956), pp. 50, 77.

207) Hussaini, op. cit., p. 220; MS, p. 61.

208) Hussaini, op. cit., p. 218; MS, p. 716.

209) Aubin, "Un santon Qūhistānī," p. 20.

210) Idem, "Le mécénat timouride à Chiraz," pp. 85-6. For Iskandar Sultan's interest in Hurūfism see ibid., p. 82.

211) For a general discussion of this phenomenon in the fifteenth century Iranian world see Hodgson, The Venture of Islam, II, pp. 493-500.

212) Minorsky, "Musha<sup>c</sup>sha."

pretensions to be the Mahdī, but after spending most of his life incarcerated on Shah Rukh's orders, he was freed on condition that he renounce his claim.<sup>213</sup> His murshid, Ishāq Khuttalānī, was less fortunate, suffering martyrdom at the hands of Shah Rukh's envoys.<sup>214</sup> Qāsim-i Anvār, on the other hand, was concerned with spreading claims not about himself but in favour of the Safavid da<sup>C</sup>va, having received his training from Ṣadr al-Dīn Mūsā at Ardabīl.<sup>215</sup> After the attempt on Shah Rukh's life by a man associated with the Hurūfīs in 830/1427, Qāsim-i Anvār was forced to leave Herat as he had been seen with the assassin. There was no direct evidence to implicate Qāsim-i Anvār of being a Hurūfī; his expulsion was due rather to his enthrallment of the young people of the city, from which it was argued trouble might follow.<sup>216</sup> He was eventually permitted to settle in Khargird-i Jām, away from any urban centre, where <sup>C</sup>Alī Shīr erected a fine mausoleum over his grave (Cat. No. 39). Although Jāmī later attempted to discredit his teaching, this can be seen as an attempt to minimise the effect of the Safavid da<sup>C</sup>va in Khurasan. Qāsim-i Anvār's verses figured prominently on two of the buildings in the catalogue,<sup>217</sup> a situation that would hardly have been countenanced had his teachings been considered heretical.

It is in the light of these subversive Shī<sup>C</sup>ī revolts that Shah Rukh's reaction to his grandson Sultan Muhammad's revolt in 1446 should be seen. The uprising was initiated by the Isfahānī Shī<sup>C</sup>ī sayyids,

---

213) Molé, "Les Kubrawiyya," p. 127.

214) Ibid.

215) Savory, "A 15th Century Safavid Propagandist at Herat," p. 190.

216) Ibid., pp. 192-3.

217) Nos. 15, 26.

who were later hanged by Shah Rukh at Sāva, probably at Gauhar Shād's instigation.<sup>218</sup> In this case, however, the idea of a popular uprising is rather wide of the mark as it was primarily the aristocratic ulama who were involved, and who wanted relief from oppressive taxes as much as a new religious or social order.<sup>219</sup>

In the light of these skirmishes with the forces of Shi'ism Shah Rukh's and Gauhar Shād's patronage of the shrine at Mashhad takes on a new interest. This is especially so when seen in conjunction with a report that Shah Rukh appointed Sunnī ulama at the Mosque of Gauhar Shād.<sup>220</sup> The rich presents which Shah Rukh donated to the shrine and its attendants, and the magnificent buildings which his wife erected would certainly have been a means of gaining favour with the Shi'ī community in Khurasan, although Mashhad was sufficiently removed from Herat to prevent this favour from having undue repercussions in the capital. At the same time the appointment of Sunnī ulama, forcing the Shi'īs to accept a quid pro quo for his patronage, was a way of checking the power of the Shi'ī ulama.

It was similarly advantageous for Shah Rukh to be on good terms with the various Sufi orders which were operative in his empire. There were several of importance.

Naqshbandī The order quickly spread in Transoxiana and Khurasan after the death of Bahā al-Dīn Naqshband in Bukhara in 791/1390.<sup>221</sup> Only two decades later the Naqshbandī shaikhs of Bukhara had an important part to play in the contest for succession after the death

---

218) Barthold, II, p. 145.

219) Aubin, Deux Sayyids de Bam, pp. 484-6; idem, "Note," p. 144.

220) Hussaini, op. cit., p. 220, quoting MN, p. 104.

221) Strictly speaking he was not its founder. See Trimmingham, op. cit., pp. 62-3 and Algar, "The Naqshbandī Order," pp. 130-3.

of Tīmūr: Shah Rukh's good relations with them seems to have been a potent factor in his struggle against Khalīl Sultan.<sup>222</sup>

In Khurasan the order was spread by Sa<sup>c</sup>d al-Dīn Kāshgharī (d. 860/1465) who in turn was the murshid of <sup>c</sup>Abd al-Rahmān Jāmī, one of the most prominent members of society in the reign of Sultan Husain. Contemporary with Jāmī, but based in Transoxiana was Khvaja Ahrār, who will be discussed further. The order was popular with all levels of society, including traders and the bāzārīs.<sup>223</sup>

Khalvatī The founder of this order, <sup>c</sup>Umar al-Khalvatī (d. ca. 800/1397), is contemporary with Bahā al-Dīn Naqshband, but in contrast to the Naqshbandīs he had most of his converts from the lowest social orders. They were regarded as ignoramus by both the ulama and other Sufis.<sup>224</sup> In Herat a cemetery of the Khalvatīs existed as early as 783/1381-2 and several burials were reported there in the fifteenth century.<sup>226</sup> A khanqah of the Khalvatīs also existed in Herat in the first half of the fifteenth century.<sup>227</sup> The biography of one minor Khalvatī murshid, Akhī Muhammad Shah of Sharakht in Quhistān (d. ca. 1410 A.D.), has survived in a single copy.<sup>228</sup> Although he had only a local following, he nevertheless had some arable land, and also possessed a khanqah. This had a muezzin, a woman to cook bread and a doorkeeper, the latter being a relative of Akhī Muhammad.<sup>229</sup> It is

---

222) Barthold, II, pp. 72-3.

223) Aubin, "Un santon Quhistānī," pp. 203-4.

224) Ibid., p. 204.

225) Savory, "A 15th Century Propagandist," p. 196.

226) Allen, Catalogue, no. 588.

227) Ibid., no. 506.

228) Aubin, "santon," pp. 186-7.

229) Ibid., p. 214. It was unroofed; Akhī Muhammad foretold that this defect would be remedied twenty years after his death.

worth mentioning this structure, crude though it seems to have been, because it was typical of perhaps hundreds of similar structures which were erected throughout Khurasan, but which have since disappeared.

Unlike the Naqshbandīs, the Khalvatīs practised spoken dhikr and sama<sup>c</sup> or music performances. This must have made them more attractive to the less intellectual side of the population, and so in parallel with the state-sponsored system of khanqahs built by Shah Rukh and his amirs, there must have been a much greater number of khanqahs and zāwiyas responding to the needs of the more popular Sufi orders such as the Khalvatīs.<sup>230</sup>

Kubrawī Ishāq al-Khuttalānī and Muhammad Nūrbaksh, mentioned above, both founded orders branching off from the parent tradition of Najm al-Dīn Kūbra.<sup>231</sup> A more orthodox adherent was Shaikh Bahā al-Dīn<sup>c</sup> Umar (d. 857/1453), one of the most respected members of the ulama in the reigns of Shah Rukh and Abu'l-Qāsim Bābur. Even though he admonished government officials in the Friday Mosque in Herat, Shah Rukh sought his approval.<sup>232</sup> On his return from the hājj in 846/1442-3 he told Jalāl al-Dīn Fīrūzshāh that while visiting the shrine of Ahmad Ghazzālī in Qazvīn that the shaikh appeared to him ordering that Mīrzā Sultan Muhammad be made governor of the province, and sure enough, with Shah Rukh's approval, the governorship was given to him.<sup>233</sup> Upon Bahā al-Dīn's death in 857/1453 Abu'l-Qāsim Bābur accompanied the funeral procession and erected a shrine at his grave.<sup>234</sup>

---

230) The same is likely to have been the case in contemporary Egypt: see L.E. Fernandes, The Evolution of the Khanqah Institution in Mamluk Egypt, Ph.D. thesis, Princeton University, 1980, Chap. VI.

231) Trimmingham, op. cit., pp. 56-7.

232) Hussaini, op. cit., p. 240.

233) Ibid., pp. 240-1; MS, pp. 773-4.

234) MS, p. 1064.

Members of two other Sufi orders may be mentioned whose political talents were made use of by Shah Rukh. In 839/1435-6 the head of the Kazirūnī order Shaikh Nūr al-Dīn Muhammad was sent on a diplomatic mission to Sultan Murād with a letter asking him not to give shelter to Iskandar Turkman.<sup>235</sup> Earlier Shaikh Zain al-Dīn Khvāfī<sup>236</sup> had been sent on a successful mission to Sistan to persuade the ruler there to submit to Shah Rukh.<sup>237</sup> The zāwiya which Shaikh Zain al-Dīn built in the mountains near Ziyāratgāh was no doubt one of many erected in the fifteenth century; only one example has survived.<sup>238</sup>

We have little information on other buildings erected by or for Sufis, apart from the major khanqahs which were attached to the madrasas of Shah Rukh and his amirs. Shaikh Shihāb al-Dīn Bistāmī (d. 807/1404-5) had two madrasas and two khanqahs built for him,<sup>239</sup> although it is reported that while he ordered appointments to be made for the madrasas, he himself refused to teach there.<sup>240</sup>

The reign of Abū Saʿīd A striking feature of Abū Saʿīd's reign is the dominant part played in it by the Naqshbandī shaikh Khvaja ʿUbaid Allāh Ahrār.<sup>241</sup> When Abū Saʿīd made Herat his capital after his conquest of Khurasan in 863/1458-9 Khvaja Ahrār became virtual ruler of Transoxiana, acquiring great tracts of land and wealth in the process.<sup>242</sup>

---

235) Ibid., p. 687; Hussaini, op. cit., p. 237.

236) He had affiliations with the Suhrawardī order, but started a branch known as the Khvāfiyya: Vittor, op. cit., pp. 161-2. See also Allen, Catalogue, nos. 543, 622.

237) Hussaini, op. cit., p. 237.

238) See Cat. No. 60.

239) Allen, Catalogue, nos. 451, 471, 507, 520.

240) MI, p. 70.

241) Barthold, II, pp. 167-74.

242) Rogers, "Waqfiyyas," p. 187.

This was of course explained in political terms: "If we acted only as shaykh in this age, no other shaykh would find a disciple. But another task has been assigned to us, to protect the Muslims from the evils of oppressors, and for the sake of this we must traffic with kings and conquer their souls, thus achieving the purpose of the Muslims."<sup>243</sup> But such political manipulation could work both ways, since Abū Sa<sup>c</sup>īd would no doubt have benefitted from Khvaja Ahrār's popularity with the masses. The sultan's political acumen is shown by the way he also patronised another Shaikh al-Islam in Samargand, Burhān al-Dīn, a man in the traditional intellectual mould of the ulama. He could thus call on either faction at his convenience.<sup>244</sup> In Herat he also found it politic to assuage the ulama, appointing the chief qāzī Qutb al-Dīn Ahmad al-Imām governor of the town in his absence.<sup>245</sup>

Nevertheless, even if gaining popularity was the main aim, several reductions of taxes benefitting the peasants were effected by Abū Sa<sup>c</sup>īd on Khvaja Ahrār's advice.<sup>246</sup> However, Abū Sa<sup>c</sup>īd ruthlessly repressed political opposition from Sufis. When Khvaja Mu'ayyad Dīvāna began claiming the throne and "granting" parts of Khurasan to his followers Abū Sa<sup>c</sup>īd had him secretly put to death.<sup>247</sup>

Despite Abū Sa<sup>c</sup>īd's close relations with religious groups, few buildings for them were erected in his reign. This may partly be ascribed to the poor economic situation of Khurasan, which before his

---

243) Algar, op. cit., p. 138.

244) Barthold, II, pp. 169-70.

245) When he left in 861/1456-7 to fight Muhammad Jūkī b. <sup>c</sup>Abd al-Latīf: Hussaini, op. cit., p. 208; MS, p. 1145.

246) Aubin, "Abū Sa<sup>c</sup>īd," p. 148.

247) HS, IV, p. 104; Vittor, op. cit., p. 199, n. 45.

accession had been laid waste by years of internecine war, and partly to the brevity of his reign of only ten years.

The reign of Sultan Husain In contrast with Shah Rukh and Abū Saʿīd, Sultan Husain was not a strict observer of the sharīʿa. But before examining his record on this matter in detail, let us look at the picture of himself in regard to religious affairs which Sultan Husain gave in his apologia.

He has much to say about charitable foundations, contrasting the conduct of his own honest sadrs with their corrupt predecessors who wasted the waqf income. Now, he boasts, students come from all parts of the Muslim world to join one of the 100 religious classes in Herat. Now the income of the charitable foundations is enough to meet the expenses of all the people, while near the madrasa are khanqahs where the poor and needy are happy and content. Before mosques were in a ruinous state, now there are so many that the accountant is not able to keep track of them all, and each one is as splendid as the Kaʿba. Whereas before the sharīʿa was in the hands of heretics, now it is rigorously observed.<sup>248</sup>

Fortunately we have Bābur's testimony which avers that it was only in the first six or seven years of his rule that Sultan Husain abstained from wine, after which he, his family and all the inhabitants of Herat took freely to illicit pleasures.<sup>249</sup> Unlike most of the earlier Timurid sultans, Sultan Husain does not seem to have made a habit on his travels, or in Herat, of performing ziyārats. He also did not fast, although a judicious respect for the sharīʿa is shown

---

248) Gandjei, op. cit., pp. 177-8.

249) Tr. Beveridge, p. 259.

by his acceptance of the qāzī's judgement against one of his sons who had killed a man.<sup>250</sup>

At the beginning of his reign he inclined toward Shī<sup>c</sup>ism, but on one occasion riots broke out after a fanatical preacher abused the Sunnis from the minbar of the idgāh.<sup>251</sup> Although Sultan Husain had wanted the names of the twelve imams mentioned in the khutba, Jāmī and the other ulama persuaded him to return to orthodoxy.<sup>252</sup> Although Bābur names Mīr <sup>c</sup>Alī Shīr as one of those who turned Sultan Husain towards orthodoxy, there is evidence of his own flirtation with Shī<sup>c</sup>ism in the form of the tombstone which he ordered for the grave of Shaikh Farīd al-Dīn <sup>c</sup>Attār (Cat. No. 52). <sup>c</sup>Alī Shīr's father was governor of Sabzivār, a staunchly Shī<sup>c</sup>ī town, and so <sup>c</sup>Alī Shīr was likely to have been exposed to Shī<sup>c</sup>ism in his youth.<sup>253</sup> As Barthold remarks, however, there was less rancour between the different factions in the fifteenth century than under the Uzbeks and Safavids.<sup>254</sup> Sultan Husain displayed great favour towards the Shī<sup>c</sup>ī Qāsim Faiżbaksh, son of the claimant to Mahdism, Muhammad Nūrbakhsh, although he incurred the displeasure of the ulama for doing so.<sup>255</sup> Sultan Husain's sympathies are of particular interest with regard to his founding of the shrine at Mazar-i Sharīf (Cat. No. 32). Although it was not unknown for tombs to be discovered by mystic intuition (kashf),<sup>256</sup> the ready acceptance by Sultan Husain of the site as the grave of <sup>c</sup>Alī and his

---

250) Ibid., p. 250; Hussaini, op. cit., p. 209.

251) MS, p. 1392; RJ, II, p. 289; Barthold, III, p. 33.

252) MS, p. 1391; Bābur Nāma, tr. Beveridge, p. 258.

253) Barthold, III, pp. 19-20.

254) Ibid.

255) Hussaini, op. cit., p. 209.

256) Aubin, "santon," p. 200.

immediate commencement of construction and endowment of waqf properties were no doubt hastened by his religious affinities. At the same time, as McChesney points out, Balkh was sufficiently remote from the intellectual centre of Herat to prevent it becoming a Shī'ī stronghold.<sup>257</sup> Here a parallel can be drawn with Shah Rukh's and Gauhar Shād's foundations at Mashhad.

While official patronage of Shī'ī shrines was thus encouraged, it was quite another matter if the spontaneous uprising of Shī'ī fervour came from the masses. This is shown by the reaction to the subsequent "discovery" of the tomb of 'Alī in Herat by a driver, which quickly attracted extremist Shī'īs. The muhtasib was ordered by Sultan Husain and the notables to disband the group, and promptly arrested or expelled the major troublemakers.<sup>258</sup>

Sultan Husain was also favourably disposed towards sayyids, as his predecessors had been. He built a dār al-siyāda, with a lecturer and sufficient funds to feed the poor and dervishes every day.<sup>259</sup> At this point, however, the number of claimants for the lucrative station of sayyid included so many pretenders that the head of the sayyids (the naqīb) was responsible for drawing up genealogical tables to separate the true from the false.<sup>260</sup>

The leading member of the ulama, the leading poet and scholar and the leading Sufi of the period are all fused in the person of 'Abd al-Rahmān Jāmī. It was he who was responsible for the dominant position

---

257) Waqf at Balkh, p. 113.

258) Ibid., pp. 114-5; HS, IV, p. 173; Barthold, III, p. 42.

259) Allen, Catalogue, no. 531.

260) SN, tr. Roemer, p. 149. A farman of Jahānshāh to the naqīb al-sādat of Qum dated 867/1463 also assigns the same duty: Aubin, "Note," p. 126.

of the Naqshbandī among court circles, due to his friendship with Mīr °Alī Shīr and Sultan Husain. Jāmī is singled out together with Mīr °Alī Shīr in Sultan Husain's apologia for special praise, although this is directed as much to his poetry as to his qualities as a spiritual leader.<sup>261</sup> Jāmī's Munsha°at contains records of a correspondence of over twenty letters to Sultan Husain, who used to seek his advice on matters of importance.<sup>262</sup> Jāmī's respect for the sharī°a even led him to criticise some of Sultan Husain's traits, such as his love of painting.<sup>263</sup>

Like earlier spiritual leaders, Jāmī was not above participating in politics. He frequently was called on to play the role of mediator in political disputes, for instance on behalf of Khvaja Ahrār, or of the vazir Majd al-Din Khvāfī.<sup>264</sup> He was also sent by Sultan Husain on a mission with Mīr °Alī Shīr to persuade a qāzī not to give up his position.<sup>265</sup>

However, Jāmī does not seem to have interpreted the Naqshbandī principle of khalvat dar anjuman in the same political way as Khvaja Ahrār,<sup>266</sup> and his role as upholder of the sharī°a was more important than his political one. This may explain why, in spite of his great friendship with Sultan Husain, nothing is known of his building activities, if there were any. Mīr °Alī Shīr was responsible for the

---

261) Gandjeī, op. cit., pp. 179-81.

262) Ibid., pp. 163-4.

263) Ibid.

264) Barthold, III, pp. 34, 53.

265) BV, II, pp. 161-2; Vittor, op. cit., p. 857, n. 11.

266) It was on the basis of this principle of the Naqshbandī order (intense devotion to God within the context of society) that Khvaja Ahrār justified his political activities: see above, n.243.

madrassa over his grave,<sup>267</sup> and it is again indicative of the close ties between Sufism and the state that a madrassa and not a khanqah was erected for him.

This identification of one group of Sufis with the state naturally led to bickering between state-supported groups and those who were more independent. Some Sufis, for instance, stigmatized the khanqahs which Sultan Husain and Mir <sup>C</sup>Alī Shīr erected as funded by unlawful means.<sup>268</sup> Jāmī in return severely censured the deviances from the sharī<sup>C</sup>a of other Sufis,<sup>269</sup> and accused the followers of Qāsim-i Anvār in Herat of being beyond the pale of the religion of Islam and guilty of contempt for the sunna.<sup>270</sup>

Other members of the ulama, however, were more active as patrons of architecture than Jāmī. One qāzī is known to have built a hazira,<sup>271</sup> and four madrasas from Sultan Husain's reign are named after prominent figures among the ulama.<sup>272</sup> One of these was built by a sadr of Sultan Husain, Khvaja Kamāl al-Dīn Husain. We have seen above how Sultan Husain in his apologia boasted of the efficiency and honesty of his sadrs. There were considerably more of them in Sultan Husain's time than in the reign of Shah Rukh. Khvādamīr prefaces his biography of fourteen of them with the explanation that the endowments in Sultan

---

267) See Allen, Catalogue, no. 479. His conjecture that the "Fennayah" mentioned by Price in his translation of KA refers to the madrassa of Jāmī is confirmed by KA, BL OR 1292, f. 389a, where it is explicitly stated that the madrassa of Jāmī, known as the Fanā'iyya, was among the works of <sup>C</sup>Alī Shīr.

268) Hussaini, op. cit., p. 244.

269) Ibid.

270) Savory, "A 15th Century Propagandist," p. 193.

271) Allen, Catalogue, no. 510.

272) Ibid., nos. 435, 459, 469, 488.

Husain's reign were so great that it was beyond the capacity of any one man to keep track of them, necessitating the appointment of two or three at a time.<sup>273</sup> However, Vittor has pointed out that this could be a parallel policy to Sultan Husain's multiple vazirs, in order to prevent power from accumulating in any one office.<sup>274</sup> He also mentions that most of the sadrs listed by Khvāndamīr were dismissed from office and their property confiscated,<sup>275</sup> a fact which hardly confirms Sultan Husain's claims to their honesty. One of them, Sayyid Shams al-Dīn Muhammad Andijānī, was accused of embezzlement of the funds of the shrine of Shaikh Luqman Paranda, the income of which amounted to 50,000 kebek dinars a year.<sup>276</sup> As there is no reason to assume that this was a particularly well-endowed shrine, this sum shows the considerable amounts of wealth which were tied up in religious endowments, and the consequent temptations for embezzlement.

+ + +

The general picture that one has of the state of religion in Timurid Khurasan is that it was flourishing. The number of madrasas erected in this period, both by the ulama and by members of the royal family and government officials, gives credance to Sultan Husain's description of Muslims from all over the world coming to attend one of the one hundred classes in his capital. As certain canons of architecture were formulated in Timurid society which remained virtually unchanged until the twentieth century, so too in the same period

---

273) HS, IV, p. 321.

274) Op. cit., p. 198, n. 42.

275) Ibid.,

276) HS, IV, pp. 322-3; Allen, Catalogue, no. 612.

the madrasa syllabus was standardized by means of authoritative commentaries upon the earlier classical works.<sup>277</sup> The Sufi tradition was no less important, with a rich collection of hagiographical literature pointing to its influence within society. The number of mazar nāmas (pilgrimage books), ranging from the relatively sophisticated example of the Maqsad al-Iqbāl to those which appealed to more popular Sufism,<sup>278</sup> are other manifestations of the religiosity of the age. This religiosity also found an acceptable outlet in architectural patronage, producing a wealth of buildings in Herat paralleled by only one other contemporary Islamic city, Cairo. The parallel extends not only to the number and types of buildings, but also to the relationships between the ruler, state officials, and religious groups.<sup>279</sup> Both later Mamluk and Timurid society witnessed the triumph of Sufism, whose leading members were firmly established as part of the ulama, and who consequently received the patronage, both political and architectural, of the most prominent members of the government.

---

277) Vittor, op. cit., p. 180.

278) See Aubin, "santon," p. 188, n. 3.

279) See n. 230 above and Rogers, The Spread of Islam, p. 100.

CHAPTER FIVE:  
INNOVATION AND LEGACY

Having considered in detail various features of Timurid architecture in Khurasan - its range, construction methods, decoration and social setting, it remains to view it in a broader perspective: to see how it differs from that of earlier periods, to elucidate some of its major trends, and to judge its impact on future generations.

The pace of architectural development in medieval Iran was generally a slow and steady one. It has been suggested, for instance, that the pre-Seljuq age witnesses "the elaboration of almost all the functions and techniques which will be part and parcel of a classical Iranian architecture in mosques, mausoleums, baked brick, muqarnas, from one to four aivāns around a courtyard, pishtāq and so forth."<sup>1</sup> Or again, "perhaps the most striking characteristic of Ilkhanid architecture is its readiness to copy Saljuq forms."<sup>2</sup> Given these general trends, it would be unrealistic to expect any sudden divergences in the architecture of the fifteenth century from that of the fourteenth.

Already in the Il-Khanid period many features were being developed which were to come to fruition in the fifteenth century. These include increasing use of colour, especially in the form of mosaic-faience on

---

1) Grabar, "The Visual Arts," CHI, IV, pp. 348-9.

2) R. Hillenbrand, "Islamic Architecture," R. Ferrier, ed., The Arts of Iran (forthcoming).

exteriors and a development of certain vaulting systems, especially transverse vaults, with at the same time the atrophy of other vaulting traditions, such as the squinch, which came to be disguised beneath a shell of plaster stalactites. These have been picked out among various trends of Il-Khanid architecture because they were taken up and developed in new ways in the fifteenth century, in transformations which will be discussed in greater detail below.

After the death of the Sultan Abū Sa<sup>c</sup>īd, the Il-Khanid empire split up into a number of smaller principalities, among the most important being the Jalāyirids, the Muzaffarids, the Karts and the Sarbadārs. Of the latter we have no known architectural remains, while virtually the only evidence which survives of Kartid architectural activity is their extension to the shrine at Turbat-i Jām.<sup>3</sup> The architecture in this extension is interesting in its links with Jalāyirid architecture, the latter best known from two monuments, the Madrasa Mīrjāniyya and the Khān Mirjān in Baghdad.<sup>4</sup> The links are of two kinds: firstly an extensive use of stucco as a medium of decoration and secondly the employment of transverse vaults. While the second feature is one which we have already mentioned as being an important component of fifteenth century Timurid architecture, the use here of stucco as a decorative medium can with hindsight be seen to be an archaic feature in almost its last creative flourish. It was not, with very few exceptions, taken up by the Timurids.<sup>5</sup>

---

3) See Golombek, "Chronology."

4) The most thorough recent publication is in T.J. al-Janābī, Studies in Mediaeval Iraqi Architecture, Ph.D. thesis, University of Edinburgh (1975), Chap. IV, "The Jalairid Architecture of Baghdad."

5) For the exceptions see O'Kane, "Timurid Stucco Decoration."

Rather it was the Muzaffarid school of architecture which the Timurids seem to have taken as their primary model. A brief examination of its finest monument, the madrasa attached to the Isfahan masjid-i jami<sup>c</sup>, will serve to illustrate the numerous features which are harbingers of the Timurid style.<sup>6</sup>

Starting with the qibla aivan, the variety both in colour and in types of tile decoration is close to that of the fifteenth century. The back of the aivan is taken up with a bold pattern of sacred names in banna'i-technique, in both light- and dark-blue brick, arranged at an angle of  $45^{\circ}$  - in the same manner, in other words, which was employed in Timurid monuments from the Shrine of Ahmad Yassavī onwards. The soffit of the aivan arch has a bold pattern in which large eight-sided mosaic-faience stars are arranged on a banna'i-technique background; a forerunner of the patterns on the lateral aivans of the Mosque of Gauhar Shād in Mashhad. It is also worth remarking on the composition of two of these stars, each with a pattern of eight square Kufic lozenges around a central naskhi medallion. Each of the lozenges has the Kufic arranged in a novel way, one phrase being repeated along each of the four sides, and the ascenders knotting together in the middle to form an octagon. The Āq Sarāy at Shahr-i Sabz, the Khargird madrasa and the Blue Mosque in Tabriz all have variations on this.<sup>7</sup>

The naskhi inscription on the soffit of the aivan arch is also prophetic. The ascenders are extended to a length unusual in earlier

---

6) This has never been adequately published, but see Hunarfar, Ganjīna, pp. 136-45 and Galdieri, Isfahan: Masğid-i Ğum<sup>c</sup>a, 1, for illustrations.

7) For the Āq Sarāy see Hill and Grabar, Islamic Architecture, Col. Pl. B; for Khargird and Tabriz cf. O'Kane, "Tāybād," Pls. VIII d-e.

inscriptions, and the resulting extra space is partly taken up with superposed letters of individual words. This is all on a floriated light-blue spiral scroll, the typical arrangement for fifteenth century thulth inscriptions. Only missing here is a smaller Kufic inscription in the upper space, although this was found earlier in the Madrasa Imāmī.

The walls of the aivan are pierced by six arches on each side: three at ground level, echoed by three in a gallery above - another parallel with the Mosque of Gauhar Shād in Mashhad. Between these upper arches are found elegant vertical climbing arabesques arranged in rectangular panels of mosaic-faience, a motif which was never to lose its popularity; and on the mosaic-faience spandrels of the arch leading from the aivan to the sanctuary is a pattern which reappears as Khargird type three.<sup>8</sup>

One more precursor may be mentioned here: on the soffit of the same arch is an inscription in naskhi, but made up of small rectangular tiles, giving it a stilted appearance. This recurs on the outer walls of the Shrine of Ahmad Yassavī, on the drum of the side dome chambers of the Mosque of Bibī Khānum, and in Khurasan on the east aivan at Gāzur Gāh and on the drum of the Madrasa of Tūmān Āghā.

This arch leads to the sanctuary, which displays transverse vaulting in its most developed pre-Timurid form. Aside from its height and lightness, the presence of a tall octagonal lantern in front of the mihrab, lit by eight large windows, is particularly important as another key factor in subsequent developments.<sup>9</sup>

---

8) O'Kane, "Khargird," Pl. VIIa.

9) On this see also O'Kane, "Tāybād," p. 102.

This madrasa was erected between 768-78/1366-77, but a mausoleum which was probably built shortly afterwards in Kunya Urgench shows that just before Tīmūr's dominion, Transoxiana had a very advanced architectural tradition of its own.

The tomb of Tughrābek/Tiyurabek Khānum, as it is usually called, is now thought to be the tomb of Husain and Yūsuf Sūfī, the latter of whom died in 781/1379.<sup>10</sup> It is remarkable both from a structural and a decorative point of view. In terms of structure it is notable for an almost baroque sense of movement created by its extremely open plan in which rectangular niches on the interior alternate with deeply gouged octagons on the exterior. The extraordinary hexagonal shape of the main dome chamber was not to be repeated, but the paring down of walls to a minimum is part of a trend which continues with increasing emphasis in the fifteenth century.

In terms of decoration, it is the employment of banna'i bricks on a large scale which is the new feature here. They are used for the whole of the exterior, in conjunction with panels of mosaic-faience, and the same combination is even repeated on all of the interior from zone of transition level upwards. The quality of the mosaic-faience is also close to Timurid examples. The tendrils of the arabesques in the zone of transition are finer than anything in Muzaffarid art, while the colours, too, with more use of white than in Muzaffarid examples, more closely approximate Timurid decorative schemes.

The great range of decorative techniques in the mausoleums of the Shah-i Zinda also shows that Transoxiana was a fertile ground for

---

10) Masson and Pugachenkova, "Shakhri Syabz - I," p. 124. Best illustrations are in A. Karriev, ed., Pamyatniki Arkhitektury Turkmenistana (Leningrad, 1974), pp. 194-209.

architectural inventiveness. The mausoleum of Shah Ahmad (ca. 1340-50 A.D.) has both underglaze-painted tiles and a series of deeply moulded tiles glazed in turquoise and white. These have no parallel in contemporary Iran, although their origin can be found in the decoration of the mosque at Zūzan.<sup>11</sup> The mausoleum of Buyān Qulī Khān in Bukhara probably displays the finest quality work in tiles of this kind, although they were used to great effect, together with underglaze-painted tiles, in such early Timurid monuments in the Shah-i Zinda as the mausoleum of Shād-i Mulk Āghā (773/1371) or the Amīrzāda mausoleum (788/1386). That the latter is contemporary with the mausoleum of Shīrīn Beka Āghā, which uses exclusively mosaic-faience on the exterior and painted plaster on the interior, shows the state of flux in the art of the time, and the number of possibilities open to the architect.

In any event it was the major grand-scale buildings of Tīmūr which firmly rejected the use of moulded glazed tiles of turquoise or dark-blue and white, and set the style for the coming century. These major works are the Āq Sarāy, the Mosque of Bībī Khānum, the Gūr-i Mīr and the Shrine of Ahmad Yassavī. These buildings have a number of features in common which set them apart from fourteenth century architecture as a whole, some of which were to influence strongly fifteenth century Timurid architecture.

Most conspicuous is their sheer size, designed to awe the onlooker with Tīmūr's power and might. The staggering bulk of the ruins of the Āq Sarāy alone convey this impression very forcefully even today, and Bābur was sufficiently impressed to write "few iwāns so fine can be shown in the world."<sup>12</sup> The entrance portal to the Mosque of Bībī

---

11) Godard, "Khorāsān," pp. 114-25.

12) Tr. Beveridge, p. 83.

Khānum, probably never finished because of Tīmūr's insistence that it be rebuilt higher, is almost as striking.

But whereas earlier fourteenth century architecture, as in the portals of the Ushtarjān and Yazd Jami<sup>C</sup>s, tried to convey the feeling of height by means of attenuated proportions, here the absolute height is such as to obviate the need for these trompe l'oeil effects. The difference is an important one, since it affects the whole system of proportion used for elevations. The arch profiles have a more sharply curving shoulder, and a more gently curving upper section than Mongol examples. While there was still a great deal of variety in Timurid arch profiles (Fig. 1a), nevertheless, as was suggested in Chapter II, the standard which was used for the large arches on aivans and pishtaqs seems to have remained the canon for Iranian architecture down to the twentieth century.

In terms of decoration these buildings also set the standard for their successors in Khurasan. One technique is firmly established as the main way in which large areas of wall surface are covered: banna'i bricks. Elsewhere there is a contest between mosaic-faience and cuerda seca tiles for priority in the decoration of key areas, especially spandrels and portal screens. At this stage the priority is with cuerda seca: it figures prominently on both the Mosque of Bībī Khānum and the Shrine of Ahmad Yassavī, and is about evenly matched with mosaic-faience on the Āq Sarāy pishtaq. The Gūr-i Mīr uses little of either in its original state. This has eliminated two other contenders which figured prominently in the decoration of monuments in the Shah-i Zinda, but which seem to be absent here: moulded turquoise and white glazed tiles and underglaze-painted tiles. The latter reappear in blue and white in Khurasan, but only in the first half of the fifteenth century, and in very limited quantities.

The interior decoration of these buildings consists for the most part of painted plaster, although that of the Gūr-i Mīr is unusual in that the painting is partly on top of moulded decoration on a composite base.<sup>13</sup> In contrast to the dome chambers of the Yazd and Sāva Jami's, the tomb of Husain and Yūsuf Sūfī and several mausoleums in the Shah-i Zinda, it was these painted interiors which served as models for the fifteenth century.

Two other aspects of these buildings remain to be discussed, namely their relationship to their surroundings and their plans. The two are interrelated: in this case the first has a direct bearing on the second.

A striking quality of these monuments is that each of them has a well-defined, regular, decorated exterior. They were meant to be viewed from outside, not simply from one main entrance portal, but from an open space which provided unimpeded passage to the spectator all round the building. This is certainly a contrast with earlier architecture in Iran, as those familiar with, say, the Friday Mosques of Ushtarjān, Yazd or Isfahan, or the Madrasa Imāmī in Isfahan will realise. In the case of the shrine at Yassa it is understandable that there might not have been any substantial buildings on the site other than the earlier mausoleum, but what of the space which must have needed to be cleared for the Gūr-i Mīr and the Mosque of Bībī Khānum, both within the old walled city of Samarqand? It seems that such was the importance to Timūr of this isolation of the building from its surroundings that he was prepared to order the destruction of any existing buildings on the site. In most Islamic cities such a move

---

13) Consisting apparently of silk paper, glue, ochre and gypsum: Rogers, review of Brentjes, Mittelasiien, Kunst des Islam, Biblioteca Orientalis XXVII/3-4 (1980), p. 246.

would be guaranteed to arouse the wrath of the muhtasib and the members of the ulama, since arbitrary confiscation of land is contrary to the sharī<sup>c</sup>a. But we have the well-documented occasion when Tīmūr ordered the destruction of houses in Samarqand in order to erect a bazar, and his subsequent refusal to pay compensation.<sup>14</sup> In the case of the Gūr-i Mīr Yazdī explicitly says that several houses in the vicinity were destroyed and a garden erected around it,<sup>15</sup> presumably with the same disregard for the rights of the owners as in the case of the bazar.

Cavalier as this treatment might be to the townspeople, it did give the architect a free hand in designing exactly what he wanted for the available space. With this freedom a symmetrical plan was the usual result, with a regularly disposed interior complementing an exterior in the form of a rectangle or, as with the Gūr-i Mīr, an octagon preceded by a pishtaq. The symmetry is absolute in the Mosque of Bībī Khānum and the Gūr-i Mīr, while that of the Shrine of Ahmad Yassavī is as close as the different functions of the parts of the complex would allow.

This symmetry was no doubt repeated in the numerous gardens which Tīmūr built to encircle Samarqand. The scale on which these were built and their number certainly seems to have been a departure from the norm.<sup>16</sup> It is extremely rare in earlier sources to find records of construction of more than one garden near a town, although Malikshāh is reported to have built four in Isfahan after making it

---

14) Clavijo, tr. Le Strange, pp. 278-81.

15) ZN, II, p. 421, "va khāna-yi chand ki dar havālī-yi ān būd vīrān sākhta."

16) For a brief account of these see D. Wilber, Persian Gardens and Garden Pavilions (Dumbarton Oaks, 1979), pp. 23-31.

his capital in 1372 A.D.<sup>17</sup> Perhaps it was these which Tīmūr wanted to emulate and surpass, or perhaps he desired something more ambitious: a re-creation in a suburban environment of the yailāq, the summer pastures in which tents would be pitched along a meadow, with the court and the flocks moving on from one pasturage to another when grazing was exhausted. Now in his gardens Tīmūr could realise all the pleasures of these streams and meadows, moving at caprice from one to the other, staying either in tents, or in pavilions with the attendant values of civilisation close at hand.

At this juncture it is worth changing scenes to Herat, since it was in the new capital that building in the fifteenth century was concentrated, and it is there where we would expect to find evidence of rejection or acceptance of Tīmūr's ideas of town planning by his successors.

The city over which Shah Rukh had first been made governor had a number of characteristics which played their own part in shaping the future development of the city. At its centre was a roughly square, densely populated walled area, quartered by four major bazar routes, with the citadel near the northwest corner. This plan had been in existence even before the tenth century A.D.<sup>18</sup> The city was devastated by the Mongols, which must have freed some of the intramural area for rebuilding. This may have been largely accomplished under the Karts, who also built a defensive wall to the north of the city, reaching as far as the Jū-yi Injīl, probably marking the northward extension of the Kartid suburbs.<sup>19</sup>

---

17) Pinder-Wilson, "The Persian Garden," pp. 75-6.

18) Gaube, Iranian Cities, pp. 51-4.

19) Allen, Catalogue, "Kartid Herat," pp. 228-31.

Since Shah Rukh, as we have seen, was a fairly strict follower of the shari<sup>c</sup>a, it was more difficult for him to build within the old city than it was for Tīmūr in Samarqand. Provided, however, that he was willing to pay compensation for property which was confiscated, and that no waqf property was involved, it would have been legally permissible to clear spaces for building operations. Presumably it was in this way that the site for his madrasa and khanqah near the citadel was acquired. Even though these have been destroyed, the sources do present enough information to suggest that the two buildings faced each other across a square, into which a communal gateway led. As Allen has pointed out, the madrasa and khanqah of Muhammad Sultan in Samarqand provided a prototype for this arrangement,<sup>20</sup> and under Ūlūgh Beg the composition was repeated in the madrasa and khanqah which faced each other across the Registan. The madrasa of Ūlūgh Beg at least is extant, and shows more evidence of the hold which the concept of externality had taken in Timurid architecture. The entrances on the long sides of the madrasa have now the form of aivans, forming a subsidiary axis to that of the main portal facing the Registan. As far as can be judged from the sketches of Mitford (Pl. 66) and Durand, such was also the case with the Mosque of Gauhar Shād in Herat.

Gauhar Shād's complex, it should be remembered, was built outside the walled city of Herat, and in fact, apart from Shah Rukh's initial complex, subsequent buildings of any great size or importance were built outside the city. Clearly the suburbs to the north, filling up as far as the Jū-yi Injīl in Shah Rukh's reign and to the foothills north of the city under Sultan Husain, were the preferred locations

---

20) Ibid., p. 140.

for new foundations. It was here also that the major gardens were located, fed by the rivulets leading from the Jū-yi Injīl, Jū-yi Nau and Jū-yi Sultānī, and it was in those gardens that feasts of marriage and circumcision were celebrated and where the day to day affairs of the dīvāns were carried on.

Four factors in all probably played a part in this extensive suburban development. Firstly, the example which Tīmūr had given in Samarqand. Secondly, the already cramped condition of the inner walled city, and the readily available meadowland sites to the north. Thirdly, where building complexes as opposed to gardens were concerned, the desire for a site that would permit the building to have both a regular ground plan and its concomitant, a decorated exterior which could be viewed from all sides. Fourthly, the desire which probably motivated Tīmūr's gardens in Samarqand, and one which is omnipresent in the art of the miniature in the fifteenth century: the love of the garden. It is perhaps impossible to disentangle this love from that of the nomad of his pasturage. But one passage in Bābur shows the lengths to which the Timurids would go to preserve the atmosphere of the yailāq: after visiting his aunts in the Madrasa of Sultan Husain he accompanied one of them, Khadīja Begum, "to the South College where Khadīja Begum's tents had been set up and where food was placed before us."<sup>21</sup> One does not normally conceive of a madrasa as a setting for tents, but such seems to have been the case here.

The gardens of Herat must have been largely intact when Shah<sup>c</sup> Abbās was growing up there, and it is no wonder that the courtly life which he would thus have experienced in such surroundings would have induced him to create his own version in the suburban extensions to

---

21) Tr. Beveridge, p. 301.

his capital, Isfahan. The pavilions which he would have encountered in the gardens in Herat, with one possible exception no longer extant, but whose forms are ascertainable from miniature paintings, must also have contributed to the pleasure pavilions which dotted the landscape from the Maidān-i Shah, along the Chahār Bāgh, to the Zayinda Rūd.

Before going on to consider the general trends of Timurid architecture in Khurasan, I would like to make two caveats. Firstly, it should be remembered that we have an imbalanced legacy from the first and second halves of the fifteenth century. Only in the first do we have a series of court sponsored buildings which permit us to appreciate the differences between those of the highest class and the run of the mill architecture which willy nilly will be produced whatever the state of patronage in the upper echelons. From the reign of Sultan Husain, however, we are missing his own madrasa and khanqah, the Ikhlāsiyya complex of Mīr <sup>c</sup>Alī Shīr and the Badi<sup>c</sup>iyya madrasa, to name just some of the buildings which might have been expected to encapsulate the most up to date styles and techniques. While overall a substantial number of buildings do survive from this period, their lack of decoration relative to their counterparts in the first half of the fifteenth century goes some way to explaining the quantity of these lesser monuments: the mood of the times, as exemplified in Sultan Husain's foundations at Pūrān (Cat. No. 35) and Ziyāratgāh (Cat. No. 33) or those of Mīr <sup>c</sup>Alī Shīr (Cat. Nos. 36, 39, 48-9), was generally in favour of quantity rather than quality.

Secondly, we shall be concerned for the most part in the following discussion with buildings which reflect the metropolitan court style of architecture, rather than provincial styles. While some of the latter can and do throw light on the way in which the major stylistic changes eventually filtered through to the provinces, in

general they were not forcing grounds for any new techniques or styles.

In the following discussion, the buildings will be considered in turn under the following main headings: size, typology, plans, elevation and decoration.

Size Compared with Tīmūr's buildings in Samarqand, or even with some Ilkhanid foundations such as the Mosque of <sup>C</sup>Alī Shah in Tabriz or the mausoleum of Ūljāytū, the major works in Herat and Mashhad are on a smaller scale. Even the largest of these, the Mosque of Gauhar Shād in Mashhad and the Shrine at Gāzur Gāh, do not approach the gigantism displayed in the Āq Sarāy or the Mosque of Bībī Khānum. It is rather by the harmony of their proportions and the perfection of their finish that the best Timurid architecture impresses. The madrasa at Khargird may serve as an example. Unlike, for instance, the madrasa of Ūlugh Beg in Samarqand, its emphasis is on a quietly stated horizontality. Arches, spandrels, inscription panels: its main architectonic forms are confidently outlined in colour, etched upon the senses with a jewel-like precision. Just as with fifteenth century illustrated manuscripts, size is no longer a virtue in its own right.

Typology Two main characteristics may be singled out here. First is the absence of any free-standing secular mausoleums. This is surprising since the massive examples of Sanjar, Ghāzān Khān and Ūljāytū were still standing. Tīmūr's response to them was to build the Dār al-Siyāda in Shahr-i Sabz and the Gūr-i Mīr, although neither was intended to be his own mausoleum.

The secular mausoleums that do exist from the fifteenth century are all part of funerary madrasas. One would be inclined to think that religious precepts against building tombs were a factor in this

development, were it not that so many mausoleums were built for religious figures. But in another way religion may indeed be a determinant, because the second most striking feature of fifteenth century building typology is the number of complexes consisting of a madrasa and khanqah. As we have seen in the previous chapter, this bears witness to the growing accommodation of Sufis as members of the ulama, and to the willingness of patrons of all kinds - the Sultan, princes, princesses, amirs and vazirs - to contribute to their welfare. With so much effort being expended on producing such magnificent complexes, it is hardly surprising that many founders should take advantage of the situation and include a mausoleum at the same time. But economy would not have been a matter of concern to those from whom one would most expect mausoleums - the Sultans. Here one can only speculate. Shah Rukh's religiosity may have made him indifferent to the matter, especially after what came to be his family's dynastic mausoleum in Herat was erected as part of Gauhar Shād's madrasa, and Sultan Husain was evidently satisfied with the spectacle of his mausoleum jutting out behind the qibla wall of his madrasa.

Plans While some of the smaller buildings in the catalogue erected in provincial towns such as Bajistān, Hindvālān or Khvāf, have irregular plans which adapt themselves to the urban environment, this is in contrast with most others, where symmetry was a highly desired feature. Such large-scale buildings as the Shrine at Gāzur Gāh, the madrasa at Khargird and the Ziyāratgāh Jami<sup>c</sup> display absolute or near absolute symmetry about their central axis, while even in the Mosque of Gauhar Shād in Mashhad, which had to be partially squeezed into an awkward space, the architect was able to give the impression from the courtyard that the structure was symmetrical.

On a smaller scale, it was possible for symmetry to be obtained

through two or more axes. This was the case with numerous pre-Timurid mausoleums, in particular tomb towers. Only two buildings in the Catalogue display such multiple symmetry, the tomb at Sibarz and the khanqah at Dih-i Manār (Cat. Nos. 34, 56). But other structures, notably the Shāhzāda <sup>c</sup>Abdallāh and the Mīr-i Ruzadār (Cat. Nos. 37-8), display a similar tendency. In each case it is as if an entrance complex has been added to a regular octagonal building. The entrance complex is a feature to which we will return, but as far as symmetry is concerned, it is worth noting that one of the most impressive examples of this occurs not far from Khurasan at the end of the fifteenth century in the tomb of Ūlugh Beg b. Abū Sa<sup>c</sup>īd and his son <sup>c</sup>Abd al-Razzāq at Ghaznī. This mausoleum has four axial pishtaqs leading to vestibules and a central dome chamber, with four small rooms inserted in the corners, a radially symmetrical plan which rightly has been interpreted as a possible link between earlier Timurid mausoleums and those of Humāyūn and Shah Jahān in India.<sup>22</sup>

Another building, the Khargird madrasa, also shows an almost perfect radial symmetry, emphasised by the bevelled corners of its courtyard, if the entrance complex is discounted. Such a passion for symmetry does emphasise at least one feature: that form still takes precedence over function. Whether library, lecture hall, personal accommodation or kitchen, the domed rooms in the corners are each laid out in the same way.

The incorporation of an entrance complex into the plans of many buildings is also a new feature. It first appears fully developed in

---

22) Hoag, "The Tomb of Ulugh Beg and Abdu Rassaqt (sic) Ghazni, a prototype for the Taj Mahal," Vth International Congress of Iranian Art and Archaeology, Memorial Volume, II (Tehran, 1972), pp. 102-7.

the Shrine of Gāzur Gāh. Its plan is comparable to Khargird in that it is an adaption of a madrasa plan, while the Masjid-i Jami<sup>c</sup> of Ziyāratgāh shows an interesting variation where the spaces to either side of the vestibule are arranged in slightly different fashion.

The vestibule in the entrance complex provides a change of scale from the entrance portal, and a frame through which the interior of the building can be seen. This sense of anticipation, of provision of multiple viewpoints, is also a product of another characteristic of fifteenth century plans: their increasing emphasis of a rhythmical succession of solids and voids by means of deep niches which transform square rooms into cruciform shapes. Walls are pared to a minimum, and the distinctions between exterior and interior become blurred. This was most apparent in garden pavilions, although the fact that only those at Afūshā and Gāzur Gāh survive suggests that their walls may have been pared down to somewhat less than the minimum. But it is visible too in the mausoleums of the period, such as those of Tūmān Āghā, Shāhzāda <sup>c</sup>Abdallāh and the Mīr-i Ruzadār (Cat. Nos. 19, 37-8), and in funerary khanqahs such as those at Ziyāratgāh or Dih-i Manār (Cat. Nos. 34, 49).

The tendency towards cruciform interiors was already apparent in the Gūr-i Mīr and Shrine of Ahmad Yassavī. It is not quite so marked in the main dome chamber of the latter, where the two side niches are not as deep as those on the main axis; but in the domed mausoleum the regular cruciform plan appears which features in such later key monuments as the madrasas of Gauhar Shād and Khargird, and the buq<sup>c</sup>a of Tāybād.

Elevations The importance of the dome chambers of the latter has influenced the way in which this cruciform ground plan is used in conjunction with new vaulting systems. In previous examples of transverse

vaulting, it was possible for a dome or lantern to be inserted in the middle of a section by means of extra cross-ribs, e.g. in the southwest prayer hall of the Yazd Jami<sup>c</sup> or in the sanctuary of the Muzaffarid madrasa in the Isfahan Jami<sup>c</sup>.<sup>23</sup> In the mausoleum of Gauhar Shād and the lecture hall at Khargird and their successors, the square itself is now treated like a transverse vault, with two ribs springing from each side intersecting to provide a smaller square which forms the basis for a further zone of transition leading to a dome. The starting points of these intersecting ribs are the sides of the cruciform niches of the square. The visual link between the cruciform niches and the vaulting above it can be further reinforced by dividing the vaulting of the niche in a similar way to that above it: again with two ribs, now forming two quarter-domes in the corners and a semi-dome in between.<sup>24</sup> A further consonance can be effected by the addition of extra ribs in the main vaulting space in line with the axes of those of the niches. As an extra refinement, the geometric relationship between the compartments thus formed can be underlined or contrasted by filling each with different kinds of decoration - tiers of stalactites dripping from a semi-dome, fan-vaulting radiating from a central axis, or by panels with recessed panels forming angular interlacing strapwork patterns.

The spectator is now confronted with an exciting, almost confusing architecture, with a psychological impact of much greater intensity than anything which Iranian architecture had previously produced. The complexity of ground plan has been matched by an elevation which is

---

23) For a more detailed discussion, with references to photographs, see O'Kane, "Tāybād," p. 102.

24) See O'Kane, "Khargird," Pls. IIIa, IVa, Fig. 6.

similarly staggered in its movement from one place to another. An interesting psychological by-product of this is the way in which, when viewed from the main axis ("Khargird," Pl. IVa), the grid of intersecting ribs seems to produce a rectilinear impression, while from a diagonal axis ("Khargird," Pl. IIIa) the network seems to be rather one of diamond-shaped lozenges.

Yet a physical description belies the speed at which the eye, aided by the axial sweep of the ribs, encompasses the flowing transition from dome to cruciform base.

The most important consequence of this vaulting system is that it broke the grip of the three-part "cube, zone of transition, dome" approach to the square chamber. Now with the aid of squinch nets or tiers of rhomboidal faceting the only limit to the varieties of possible domes/zones of transition (for the two now blend into one) was in the architect's imagination or the mason's technical capabilities. The dome chambers at Kuhsān, Turbat-i Jām, Tāybād, Sangvar, Ziyāratgāh and others show the inventiveness which could be applied to the new formulae. Although the inventiveness had its limitations in Safavid Iran, it was primarily in Uzbek architecture that the challenge of finding new variations on it was taken up.

Another interesting, if rather disquieting, trend apparent in the fifteenth century is one towards facade architecture. I am not referring here so much to the vaulting system just discussed. This could certainly qualify, since behind their plaster pyrotechnics the real supporting system of brick vaulting may assume quite a different shape.

But what of the seeds which were sown by the two false galleries beside the sanctuary aivan of the Varamīn Masjid-i Jami<sup>c</sup>? It is in the mosque of Gauhar Shād in Mashhad that this idea was nurtured, to the point where a blind gallery runs between each of the four aivans,

and also on the sides of three of the aivans. More modest expressions of the same idea are in the Ziyāratgāh and Ghuriyān jami<sup>c</sup>s, where again the bays beside the sanctuary aivan have blind upper storeys.

Other expressions in a similar spirit are the huge aivans of Tāybād and Gāzur Gāh, the latter also connected to the side aivans by only a curtain wall. The form of the aivan is frequently synonymous in the imagination with a portal, an idea which is frustrated in Gāzur Gāh. In the case of Tāybād the portal indeed leads to a majestic domed interior, but seen from the rear its combination of forms is less successful, with the portal screen of the aivan dwarfing the cube behind it.

Decoration In the chapter on decoration it was emphasised that the variety of types and techniques was greater than the period is usually given credit for, with fine examples in brick, stucco and stone illustrating this point.

But Timurid architecture is justifiably famous for its use of colour, in particular the use of coloured tiles on exteriors. It is this feature which I would now like to emphasise.

As on the Transoxianian monuments, banna'i-technique covers most of the exteriors, but whereas there mosaic-faience and  cuerda seca  were used almost equally for the remainder, now mosaic-faience has clearly taken over the prominent position. While numerous examples of  cuerda seca  tiles are found - many more than previously thought to be the case - they are restricted to a number of well-defined areas: on drums (Kuhsān, Turbat-i Jām, Madrasa of Gauhar Shād), in inset-technique (Khargird, Herat Jami<sup>c</sup>) or as a frame for arches (Mosque of Gauhar Shād, Mashhad, Bālā Sar madrasa). But nowhere, for instance, are they used on spandrels, which they occupy so prominently in the Āq Sarāy, the Mosque of Bībī Khānum and the Shrine of Ahmad Yassavī.

The palette of these cuerda seca tiles also undergoes a change in the fifteenth century, with those in the Herat Jami<sup>c</sup> displaying a new bright yellow ground. The links with Shah<sup>c</sup> Abbās' Isfahan have been mentioned before in connection with the layout of his new suburbs and the plan of his Masjid-i Shāh. It may also be no coincidence that cuerda seca tiles of this colour reappear in substantial quantities in Iran in the same mosque.

The mosaic-faience which now predominates has reached a full range of colours, with black/aubergine, white, light- and dark-blue, amber/ochre and green providing a luminous intensity, whether on a large or small scale, over a great range of patterns.

Perhaps spurred by the sudden influx of Chinese porcelain which must have accompanied the numerous exchanges of embassies with China in the early fifteenth century, blue and white underglaze-painted tiles appear at the same time, although their sporadic use and lack of homogeneity betrays a trial and error approach. They do not appear in Khurasan after the reign of Shah Rukh.<sup>25</sup>

The use of inset-technique, mentioned above, was superbly exploited as a means of varying texture and pattern, with some of its earliest manifestations, in the Mosque of Gauhar Shād in Mashhad and the Shrine at Gāzur Gāh, providing compositions that were imitated but never surpassed.

It was clear after the Timurid period, however, that there could be no return from the need to sheath whole structures in colour, where buildings of the highest class were concerned. This concept may have had within it its own seeds of decay, since a precarious balance must

---

25) Although examples are found in the Blue Mosque in Tabriz and the<sup>c</sup> Ishrat Khāna in Samarqand.

be struck between underlining or dissipating the architectonic lines of a building with colour. But that later epochs weighted the balance in favour of mere display is not an argument for disparaging the achievements of the Timurids in finding such a balance.

+ + +

The impact of Timurid architecture on their successors has been mentioned frequently in these pages. The most obvious heirs to their architectural tradition are the Uzbeks, heirs not only to the tradition of architecture in Khurasan, but also that of Transoxiana in the fifteenth century, whose major buildings bear a strong family resemblance to those of Khurasan.<sup>26</sup> One recent commentator has said

that "the Uzbeks may well have been unimaginative and derivative, reproducing the buildings of the later Timurids, whom they superseded, on much the same scale; but the proposition needs demonstration."<sup>27</sup> Given, however, the remarkable similarity between the madrasas of Khargird and Mīr-i ʿArab in Bukhara,<sup>28</sup> or the fact that the funerary mosque of Khwaja Abū Nasr b. Pārsā in Balkh, probably erected by ʿAbd al-Mu'min Khān in the late sixteenth century,<sup>29</sup> has been regarded by generations of Islamic art historians as a mid-fifteenth century building, the onus of proof should rather lie with those who assert that it was not derivative.

Some connections with Moghul architecture have been referred to above,<sup>30</sup> but it would be tedious to recount the very many links which

---

26) E.g. the Āq Sarāy and ʿIshrat Khāna in Samarqand.

27) Rogers, *op. cit.*, p. 243.

28) See O'Kane, "Khargird," p. 92, n. 67.

29) I hope to publish the evidence for this separately.

30) See n. 22.

have been mentioned with respect to Safavid architecture. Suffice it to say that the major elements of Shah <sup>C</sup>Abbās' Isfahan were deeply influenced by his architects' knowledge of Khurasan, and in particular Herat.

+ + +

If one word was needed to sum up the major trends in Timurid architecture in Khurasan - increasing use of colour, intricate ground plans, galleries with nothing behind them, complex vaulting systems - the most appropriate that suggests itself is theatricality. Not that this need have entirely pejorative connotations when applied to architecture, as lovers of the baroque will appreciate. There can be bad theatre - the intricately worked screen facade of the House of the Winds at Jaipur, for instance, or good theatre - the courtyard of the Mosque of Gauhar Shād in Mashhad, the dome chambers of Khargird and Tāybād, where the display is moderated by the underlying cohesion of form. While the appreciation of theatricality in architecture may be an acquired taste for those raised on more classical forms - whether Western or Islamic, the Timurids not only embraced this element with enthusiasm but also, if anyone can be said to have done so, mastered it.

## APPENDIX I:

## LIST OF BUILDERS AND CRAFTSMEN IN THE IRANIAN WORLD

## IN THE TIMURID PERIOD

## Additional abbreviations:

- Bivar Corpus Inscriptionum Iranicarum, Part IV, Persian Inscriptions down to the Early Safavid Period, Vol. VI, Mazandaran Province, Portfolio I, Eastern Mazandaran I,  
ed. A. D. H. Bivar and E. Yarshater
- Hunarfar Lutfallāh Hunarfar, Ganjīna-yi Āsar-i Tārikhī-yi Isfahān
- Lavrov L. I. Lavrov, Epigraficheskie Pamyatniki Severnogo Kavkaza X-XVII vv.
- Mayer L. A. Mayer, Islamic Woodcarvers and their Works
- Mishkuti Nusratallāh Mishkūtī, Fihrist-i bināhā-yi tārikhī va amākin-i bāstānī-yi Īrān
- Naraqī Hasan Narāqī, Āsar-i tārikhī-yi shahristānhā-yi Kāshān va Natanz
- Shishkin V. A. Shishkin, "Nadpisi v ansamble Shakhi-Zinda"
- Tabataba'i Mudarrisī Tabātabā'ī, Turbat-i Pākān, II
- Useinov M. Useinov, L. Bretanitskii, A. Salamzade, Istoriya Arkhitektury Azerbaidzhana
- YY I. Afshār, Yādgār-hā-yi Yazd
- Qadi Ahmad Qādī Ahmad b. Mīr Munshī, Calligraphers and Painters,  
tr. V. Minorsky, (Washington, 1959)

1) Mausoleum of Shād-i Mulk Āqā, 20 Jumādā II 773/29 Dec. 1371

glazed tiles on stalactites of portal:

<sup>c</sup>amal-i ustād Shams al-Dīn

<sup>c</sup>amal-i ustād ... al-Dīn

moulded glazed tile at base of engaged column of portal:

<sup>c</sup>amal-i Zain al-Dīn b. Shams Bukhārī

(Shishkin, pp. 60-1)

2) Mausoleum with signature of Ustād <sup>c</sup>Alī Nasafī, c. 1380 A.D.

glazed tiles at base of portal:

<sup>c</sup>amal-i ustād <sup>c</sup>Alī Nasafī

<sup>c</sup>amal-i ustād <sup>c</sup>Alī ...

(Shishkin, p. 62)

3) Shrine of Khvaja Ahmad Yassavī, 799/1396-7

<sup>c</sup>Izz al-Dīn (on door? - may have been confused with name  
of candlestick maker) (Mayer, p. 46)

<sup>c</sup>amal al-<sup>c</sup>abd Hājji Hasan Shirāzi

<sup>c</sup>amal-i Shams <sup>c</sup>Abd al-Wahhāb Shirāzi al-bannā

(Nourmoukhammedov, The Mausoleum of Hodja Ahmed Yasevi,

unnumbered plates captioned "Epigraphic frieze. West and  
east facades" and "Dome of burial-vault. Detail. Majolica  
decoration of the drum border.")

4) Shāhzāda Ibrāhīm, Qum, Shawwal 805/April-May 1403

end of stucco foundation inscription:

namaqahu al-<sup>c</sup>abd <sup>c</sup>Alī b. Husain al-Tūsī

(Tabataba'i, p. 74)

5) Mausoleum of Dirī Bābā, Marazī, 805/1402-3

...b. ustād Hājji

(Useinov, p. 376)

6) unknown location, Darband, 805/14-2-3

Mas<sup>c</sup>ūd b. Amīr al-Dīn

(Useinov, p. 375)

7) Mazar of Qutham b. <sup>c</sup>Abbās, wooden entrance door, 807/1404-5:

<sup>c</sup>amal-i Sayyid Yūsuf Shīrāzī

(Shishkin, p. 67)

8) Buq<sup>c</sup>a of Tūmān Āqā, Shāh-i Zinda, 808/1405-6

end of mosaic-faience Quranic inscription on portal:

khatt-i Shaikh Muḥammad b. Hājji Bandgarāy al-Tughrabāzī (?)

(Shishkin, p. 65)

A page of Quranic calligraphy in the Topkapi Saray Library

(H. 2152, f. 1b) is signed as follows: mashaqahu al-<sup>c</sup>abd al-

za<sup>c</sup>īf al-jirīb al-wāthiq Shaikh Muḥammad b. al-Hājji Muḥammad

al-Musharriḥī al-Tughrā'ī al-Tabrīzī fi thānī <sup>c</sup>ashara Ramaḥān

al-mubāarak sana tisa<sup>c</sup> wa thamān mi'a hijriyat nabawiyya; katabahu

bi dār al-sultāna Samarqand.

Cf. also ZN, II, p. 448, where the Egyptian ambassadors in

Samarqand were given a letter 3 x 70 gaz, written in gold by

"Maulānā Shaikh Muḥammad pisar-i Khvaja Hājji Bandgīr-i

Tabrīzī."

9) Imānzāda Sultan Zain al-<sup>c</sup>Ābidīn, Sārī, 809/1406-7 (date of  
wooden cenotaph)

in tiles (cuerta seca (?)) on exterior:

<sup>c</sup>amal-i Sayyid <sup>c</sup>Alī b. Sayyid Kamāl al-Dīn bannā-yi Āmulī

(Mishkuti, p. 185)

10) Masjid-i Jamī<sup>c</sup>, Sarāvar, 20 Dhū'l-Qada 811/7 April 1409

wooden minbar:

<sup>c</sup>amal-i ustād Hājji b. <sup>c</sup>Alī Khānsārī

(Sādiq Samīmī, "Yak Gardish-i <sup>c</sup>Ilmī," Majala-yi Bāstānshināsī

- 11) Imānzāda Ismā<sup>c</sup>īl, Isfahan, Muharram 812/May-June 1409

cenotaph:

<sup>c</sup>amal-i Husain Muqūn Isfahānī

(Mayer, p. 42)

- 12) Madrasa and Khanqah of Shah Rukh, Herat, 813/1410-11

architects:

Khvaja <sup>c</sup>Alī Hāfiz al-Tabrizī

Ustād Qavām al-Dīn

(HA, p. 10)

- 13) Mosque of Gauhar Shād, Mashhad, 821/1418-9

mosaic-faience panel at base of foundation inscription:

<sup>c</sup>amal al-<sup>c</sup>abd al-za<sup>c</sup>if al-faqīr al-muhtāj bi-<sup>c</sup>ināyat al-  
mulk al-rahmān Qavām al-Dīn b. Zain al-Dīn Shīrāzī  
al-Taiyān

end of mosaic-faience foundation inscription:

katabahu rajīan ilā Allāh Bāysunghur b. Shah Rukh b.

Tīmūr Kūrkānī

(Sanī<sup>c</sup> al-Daula, Matla<sup>c</sup> al-Shams, II (Tehran 1302/1884-5),  
p. 147)

- 14) Imānzāda, Raushanābād

inner door, Sha<sup>c</sup>bān 824/August 1421:

<sup>c</sup>amal al-ustād Qutb al-Dīn b. <sup>c</sup>Alī Nīshāpūrī

(Bivar, Pl. 45/1)

- 15) Mishlish - on wall of house, referring to construction of minaret,

825/1421-2:

kataba hadha'l-khatt Māmī b. Sulaimān

(Lavrov, p. 132)

- 16) Buq<sup>c</sup>a Tāhir va Muṭahhir, Hizār Khāl, Kujūr 828/1424-5  
brick tile, end of foundation inscription:  
katabahu Mahmūd b. Najīb al-Rustamdārī  
(M. Sutūda, Az Āstārā tā Āstārābād, III (Tehran, 2535/1976),  
p. 196.)
- 17) Afūshṭa, Maqbara-yi Sayyid Vāqif, 828/1424-5  
date from wooden tympanum above doorway, doors below signed:  
katabahu Ḥusain b. Bayāzid  
(Naraqī, p. 412)
- 18) Masjid-i Jami<sup>c</sup>, Natanz, Ramadān 828/July-Aug. 1425  
door:  
<sup>c</sup>amal-i ustād ... al-Dīn ... al-Isfahānī  
(J. Sauvaget, "Architecture de la Perse islamique," Bulletin  
des Études Orientales, VI (1936), p. 100.)
- 19) Langar, Ramadān 829/July-August 1426  
cenotaph:  
khaṭṭ hadha'l-ṣandūq Ahmad b. Yūsuf Sultāniyya  
(Bivar, Pls. 28-9)
- 20) Masjid-i Jami<sup>c</sup>, Yazd, ca. 829/1425-6  
work by calligrapher in mosaic-faience (kāshī-tarrāshīda) on  
cells of courtyard (no longer extant?):  
Maulānā Bahā al-Dīn Hazārasp  
(TJY, p. 95)
- 21) Buq<sup>c</sup>a Chihār Pādshāh, Lahijān, 1 Jumādā I 829/11 March 1426  
wooden cenotaph:  
katabahu Ḥasan b. <sup>c</sup>Alī al-Sālihi al-Ḥilānī  
(M. Sutūda, Az Āstārā tā Āstārābād, II (Tehran, 1351/1972,  
p. 105)

22) Shaikhānbar, Ramadān 834/May-June 1431

cenotaph:

ᶜamal-i ustād Mahmūd b. Shihāb al-Dīn darūgar

(Mayer, p. 49)

23) Shiraz, various monuments, ca. 835/1431-2

Mīrzā Ibrāhīm Sultan

"The inscription of the madrasas which he himself founded in Shiraz in those days, namely Dār al-Safā and Dār al-Aytām, were of his writing...In the building of the Zāhīriya, too, the inscriptions are by the Mīrzā, and on the raised platform of Shaikh Muslih al-Dīn Sa<sup>c</sup>di...the following ghazal of the poet was written in the royal writing of the Mīrzā on the glazed tiles of its pediment (īzāra): ...The prince carried out this work in the months of the year 835/1431-2."

(Qadi Ahmad, pp. 69-70)

24) Imāmzāda Abū Ja<sup>c</sup>far, Yazd, ca. Muharram 837/Aug.-Sept. 1432

in mosaic-faience, end of Quranic inscription, above stone of above date:

ᶜamal-i Muhammad Khushzabān Yazdī

(YY, II, p. 301)

25) Dhakhūr, stone panel, shortly after 4 Dhū'l-Hijja 836/22 July 1433:

ᶜāmala (?) Muhammad wa akhūhu Karīm al-Dīn ibnāhum

kātaba ᶜIsā b. Māmī al-Dhukhūrī

(Lavrov, p. 134)

26) Gūr-i Mīr, Samarqand, 838/1434-5

entrance portal to courtyard, central panel, mosaic-faience:

ᶜamal al-ᶜabd al-za<sup>c</sup>īf Muhammad b. Mahmūd bannā al-Isfahānī

(E. Blochet, "Les Inscriptions de Samarkand," Revue

Archeologique, 3me serie, XXIV, 1896, p. 69)

- 27) Tomb of the Shirvanshahs, Fortress of Bakinskaya, 839/1435-6:  
<sup>°</sup>Alī, or Muhammad <sup>°</sup>Alī, mi<sup>°</sup>mār  
 (Useinov, p. 376)
- 28) Imānzāda Ibrāhīm Abū Javāb, Bābulsār  
 N, E and W doors dated Muharram 841/July 1437; Jumādā I 858/  
 April-May 1454; Dhu'l-Hijja 857/Dec. 1453:  
 all by: ustād Muhammad b. <sup>°</sup>Alī al-Rāzī  
 (Hillenbrand, The Tomb Towers of Iran to 1550, p. 352)
- 29) Masjid-i Jami<sup>°</sup> of Gauhar Shād, Herat, 841/1437-8  
 end of stone foundation inscription:  
 katabahu Jalāl Ja<sup>°</sup>far  
 (Catalogue No. 14)
- 30) Masjid-i Mīr Chaqmāq, Yazd, Rajab 841/Dec. 1437-Jan. 1438  
 mosaic-faience, end of foundation inscription:  
 katabahu Muhammad al-Hakīm  
 (YY, II, p. 190)
- 31) Town wall, Darband, 842/1438-9  
 ustāz (sic) Hājj Ahmad  
 (Lavrov, p. 136)
- 32) Qal<sup>°</sup>a-yi <sup>°</sup>Imād, ca. 1440 A.D.  
 calligraphy by: Maulānā Qādī <sup>°</sup>Abd al-Wahhāb Mashhadī  
 (MN, p. 27)
- 33) Turbat-i Jām, Shrine, 844/1440-1, 846/1442-3  
 New Mosque, sgraffiato tile (846):  
<sup>°</sup>amal al-<sup>°</sup>abd al-<sup>°</sup>zaif Hājjī Zain b. Mahmūd al-Jāmi<sup>°</sup>  
 al-Shīrāzī  
 mosaic-faience panel on wall beside Madrasa of Fīrūzshāh:  
<sup>°</sup>amal al-<sup>°</sup>abd al-<sup>°</sup>zaif ustād Hājjī Mahmūd Zain Jāmi<sup>°</sup>-i  
 Shīrāzī  
 (Catalogue No. 22)

34) Imānzāda Yahyā, Sārī

window-panel, 11 Rabi<sup>c</sup> I 846/9 July 1442:

al-ustād Husain, and al-ustād Muhammad, najjār-i Gil  
(Bivar, p. 8)

doors with same date from above shrine, now in Iran Bastan  
Museum:

<sup>c</sup>amal-i ustād Husain b. ustād Muhammad al-najjār  
(The Arts of Islam Arts Council (London, 1976), p. 292)

undated door presently in shrine:

<sup>c</sup>amal-i Fakhr al-Dīn b. ustād <sup>c</sup>Alī Najjār  
(Bivar, Pl. 53/1)

wooden cenotaph, 20 Jumādā I 849/24 August 1445:

katabahu Fakhr al-Dīn Muṭahhar b. <sup>c</sup>Abdallāh al-Dā<sup>c</sup>i  
al-Hassanī al-Āmulī

<sup>c</sup>amal (?) al-ustād Husain al-najjār wa ustād Muhammad b.  
al-Hasan al-Gilānī al-najjār

(Bivar, Pls. 55/2-3, 56/1-3)

35) Madrasa Du Dar, Mashhad, Sha<sup>c</sup>bān 846/Dec. 1442-Jan. 1443

gravestone of Yūsuf Khvaja:

<sup>c</sup>amal al-<sup>c</sup>abd <sup>c</sup>Atā'allāh b. <sup>c</sup>Abdallāh Aslān  
(<sup>c</sup>Sanī al-Daula, Matla<sup>c</sup>, II, p. 257)

36) Buq<sup>c</sup>a, Tāybād, 848/1444-5

brick raised on light-blue tile ground, end of Quranic  
portal inscription:

katabahu al-<sup>c</sup>abd al-aḥqar Jalāl al-Dīn b. Muhammad b.  
Ja<sup>c</sup>far

(Catalogue No. 24)

37) Madrasa al-Ghiyāthiyya, Khargird

mosaic-faience panel, rear of W aivan, 846/1442-3:

Ḳalā yad al-Ḳabd al-marḥūm ustād Qavām al-Dīn Shirāzī...

bi Ḳamal al-Ḳabd ustād Ghiyāth al-Dīn Shirāzī

mosaic-faience, end of portal-screen inscription:

katabahu al-Ḳabd al-aḥqar Jalāl al-Dīn b. Muḥammad b.

JaḲfar

mosaic-faience panel, niche N of entrance aivan:

bi-saḲy banda-yi zaḲīf Khvāja Pīr Aḥmad Raiḥān

(Catalogue No. 25)

38) Masjid-i JamiḲ, Varzana, 848/1444-5

mosaic-faience, end of foundation inscription:

katabahu Sayyid Maḥmūd Naqqāsh Ḳamal al-Ḳabd Haidār b.

Pīr bannā Isfahānī

mosaic-faience panel in centre of entrance portal:

bi-saḲy al-Ḳabd al-Malik al-Ghuffār Ḳalī b. Sadr al-Dīn

Saffār

(Hunarfar, Isfahān dar daura-yi jānishīniyān-i Tīmūr, pp. 14-18)

39) Dār al-Siyāda, Afūshta, Muḥarram 849/April-May 1445

mosaic-faience, end of foundation inscription:

Ḳamal al-faqīr Shaikh Ḥasan b. Nizām al-Dīn bannā Isfahānī

(Naraqī, p. 409)

40) Hizār Khāl, Kujūr, BuḲa Ṭāhir va Muṭahhar, Jumādā I 849/Aug.-Sept. 1445

door:

sānaḲahu ustād Yūsuf b. najjār Firuzī

(Sutuda, Az Āstārā, III, p. 189)

41) Masjid-i Shaikh Dānyāl, Khunj, 849/1445-6

carved stone, above doorway to minaret staircase:

ustādān-i manāra ustād Maḥmūd Ḥājji Nūr al-Dīn b. Ḥājji

Muhammad, ustād Ḥājji Nūr al-Dīn...Muhammad, ustād...  
Jamāl...

- (G. Gropp, S. Nadjmabadi, "Bericht über eine Reise in West- und Südiran," AMI, n.f. III (1970), p. 222)
- 42) Bāzārcha-yi Kushk-i Nau, Yazd, beginning Muharram 850/March 1446  
mosaic-faience panel:  
yādgār-i <sup>c</sup>Alī b. Husain Sultān  
(YY, II, p. 806)
- 43) Sibarz, tombstone, 7 Dhū'l-Qa<sup>c</sup>da 849/4 Feb. 1446  
katabahu Mahmūd al-Isfar(z)ī  
(Catalogue No. 56)
- 44) Mausoleum, Hazra, 850/1446-7  
ustād Yūsuf b. ustād Zāhir; calligrapher Shaikh Sultān  
(Useinov, p. 376)
- 45) Masjid-i Jami<sup>c</sup>, Isfahan, Shawwal 851/Dec. 1446-Jan. 1447  
mosaic-faience, portal to mihrab hall of Ūljāytū:  
katabahu Sayyid Mahmūd Naqqāsh  
(Hunarfar, p. 123)
- 46) Buq<sup>c</sup>a-yi Shahshahān, Isfahan, ca. 850-2/1446-8  
painted, end of foundation inscription:  
katabahu al-<sup>c</sup>abd Sayyid Mahmūd Naqqāsh  
(Hunarfar, p. 338)
- 47) Masjid-i Shah, Mashhad, 855/1451-2  
mosaic-faience, beginning of portal inscription:  
<sup>c</sup>amal-i Khvājagī...Shams al-Dīn b. Muhammad bannā al-  
Tabrizī  
(Catalogue No. 26)
- 48) Khanqah, Nasrābād, 855/1451-2  
mosaic-faience, after Arabic verses above foundation

inscription:

katabahu Sharaf al-Dīn al-Sultānī

mosaic-faience, foundation inscription, after name of founder:

bi-sa<sup>c</sup>y banda-yi rājī Haidar Nāfijī

(Hunarfar, p. 329)

49) Imāmzāda Nūr, Gurgān, 857/1453-4

inner door, joiner:

Hājji Muhammad

(Bronstein, Survey, p. 2623, n. 15. Mishkuti, p. 191, gives

the date as 867/1462-3)

50) Masjid-i Jami<sup>c</sup>, Rushkhvār, 859/1454-5

scratched on plaster, above mihrab:

<sup>c</sup>amal-i ustād...b. ustād musāfir...ābādī va ibnuhu Ahmad

(Catalogue No. 27)

51) Lustre tiles, 860/1455-6

end of foundation inscription:

katabahu Nusra al-Dīn Muhammad (Metropolitan Museum of  
Art 39.94.26)

katabahu Nusra (Staatliche Museen, Berlin No. I.3904)

(O. Watson, "Persian Lustre Ware, from the 14th to the 19th  
Centuries," LMII, III (1975), pp. 68-9)

52) Masjid-i Mahala-yi Gudal-i Musalla, Yazd, ca. 860/1455-6

two tiles on minaret:

<sup>c</sup>amal-i yādgār-i mardān (1) Mahmūd Shujā<sup>c</sup> Taiyān(2)

(YY, II, p. 288)

53) Āq Mashhad, Imāmzāda

undated door:

<sup>c</sup>amal-i Saif al-Dīn b. Hājji najjār

wooden cenotaph, Rajab 860/June-July 1456:

ʿamal-i ustād Shāh Husain b. al-maghfūr ustād Muhammad  
najjār al-maʿrūf bi-Khvārrukh

(Bivar, Pls. 1, 2)

54) Masjid-i Jami<sup>c</sup>, Yazd, Dhū'l-Hijja 861/Oct.-Nov. 1457

mosaic-faience foundation inscription of Jahānshāh, entrance  
portal:

katabahu Muhammad al-Hakīm

(YY, II, p. 127)

55) Masjid-i Jami<sup>c</sup>, Yazd

inscription in stone in entrance vestibule dated 863/1458-9  
and 875/1470-1; in mosaic-faience on mihrab:

katabahu Kamāl

(YY, II, pp. 140, 144, 150. JM, III, p. 397 - Maulānā Kamāl  
al-Dīn b. Maulānā Shihāb al-Dīn al-mushtahar bi ʿassār wrote  
the inscriptions for many buildings in Yazd, including the  
Ḥazīra of Āqā Shams.)

56) Masjid-i Gauhar Shād, Mashhad

stone panel dated 862/1457-8 on pier outside Dār al-Ḥuffāz:

al-faqīr Shams al-Dīn b. Jaʿfar al-Mūsavī

(Sanī<sup>c</sup> al-Daula, Matla<sup>c</sup>, II, p. 152)

57) Āq Sarāy, Herat, ca. 863-73/1458-69

calligrapher:

Maulānā<sup>c</sup> Ashiqī

(MN, p. 41)

58) Masjid-i Maidān, Kashan, between 863-73/1458-69

mosaic-faience minbar:

ʿamal-i Haidar kashī-tarrāsh

(Naraqī, p. 207)

59) Imānzāda, Raushanābād, 865/1460-1

outer door:

ᶜamal-i ustād Nasrallāh najjār

(Bivar, Pl. 42/1)

60) Masjid-i Jami<sup>c</sup>, Bafrūiyya, 866/1461-2

mosaic-faience, above entrance door:

katabahu Fakhr al-Dīn

(YY, I, p. 97)

61) Masjid-i Jami<sup>c</sup>, Fīrūzābād, 866/1461-2

mosaic-faience, end of foundation inscription:

katabahu al-Hājj Sadr

(YY, I, p. 73)

62) Ghār-i Karukh, 867/1462-3

stone, end of foundation inscription:

...ki ihyā kard ustād Valī b. Muhammad rāza, katabahu

al-ᶜabd Ālī al-Nizāmī al-Qādī

(Catalogue No. 31)

63) Blue Mosque, Tabriz, 4 Rabī<sup>c</sup> I 870/25 Oct. 870

pier in main dome chamber, sgraffiato tile:

bi-sarkārī-yi ᶜIzz al-Dīn Qāpūchī b. Malak

(Tabātabā'ī, Naqshhā va Nigāshtahā-yi Masjid-i Kabūd-i Tabriz,  
p. 55)

mosaic-faience, after date on niches in entrance portal:

aqall al-ᶜibād Nimatallāh b. Muhammad al-bawwāb

(J. Sauvaget, "Notes épigraphiques sur quelques monuments  
persans," AI, V (1938), p. 106.

64) Imānzāda, Nīkā, 870/1465-6

joiner of door:

ustād Husain b. Ahmad al-Azārī

(Bronstein, Survey, p. 2622, n. 10)

- 65) Door, Metropolitan Museum of Art, 20 Ramadān 870/7 May 1466:

ustād Muhammad b. ustād Hasan

(Grube, "Notes," p. 279)

- 66) Imāmzāda Sayyid <sup>c</sup>Alī Ghaznavī, Tijin Gūka, 871/1466-7

cenotaph:

<sup>c</sup>amal-i ustād Muhammad b. Yādgār b. Hājji Musāfir Tabrizī

(Sutūda, Az Āstārā, II, p. 171)

- 67) Bāgh-i Jahān Ārā, Herat, after 873/1468-9

"the inscriptions on the building in the Jahān-Ārā Garden, known as the Murād garden, are entirely in his (Maulānā Sultan <sup>c</sup>Alī Mashhadī) writing"

(Qadi Ahmad, p. 102)

- 68) Imāmzāda Ahmad, Limrāsk, 873/1468-9

door:

<sup>c</sup>amal-i Husain b. ustād Ahmad najjār Sarāvī

(Mayer, p. 42)

- 69) Imāmzāda <sup>c</sup>Abdallāh, Gurgān, Ihu'l-Qada 873/May-June 1469

door by Mas<sup>c</sup>ūd b. Husain Khān Shirāzī, written by Yūsuf b. Shukhrī al-Darbandī

(Mayer, p. 51)

- 70) Tomb of Sultan Muhammad Tāhir, Bābulsār, 875/1470-1

cenotaph:

ustād Maulānā Shams al-Dīn b. Naṣrallāh al-Muṭahhar

(Hillenbrand, Tomb Towers, p. 355)

- 71) Khanqah, Taft, 876/1471-2

mosaic-faience, now in Iran Bastan Museum:

katabahu Mahmūd

(YY, I, p. 421)

72) Imāmzāda, Raushanābād, 877/1472-3

cenotaph:

mashaqahu al-<sup>c</sup>abd Mīrān al-Kātib

<sup>c</sup>amal-i ustād Hājji <sup>c</sup>Abdallāh

(Bivar, Pls. 41/1-2)

73) Cenotaph, Rhode Island School of Design, Ramadān 877/Feb. 1473

<sup>c</sup>amal-i ustād Ahmad najjār va(?) Hasan b. Husain

(Mayer, p. 27)

74) Imāmzāda, Lamzar, 878 (?)/1473-4

carpenter:

<sup>c</sup>Alī Qarūma (?)

(Bivar, Pl. 20/2)

75) Masjid-i Jami<sup>c</sup>, Bafrūiyya, beginning of Muharram 879/May 1474

iron plaques affixed to entrance doors:

right side: <sup>c</sup>amal-i Qutb Sharqāl haddād Bafrū'ī

left side: katabahu Shihāb al-Dīn Sharqāl haddād

(YY, I, p. 97)

76) Tomb, Bunaft, end of Rajab 879/December 1474

<sup>c</sup>amal-i <sup>c</sup>Alī b. Muhammad

(YY, I, p. 445)

77) Imāmzāda Bībī Halīma, Dahana-yi Gurgān

two tombstones, one undated, the other Ramadān 880/Jan.-Feb.

1479:

<sup>c</sup>amal-i ustād-i muhtaran-i ajall <sup>c</sup>Abd al-<sup>c</sup>Aziz ibn ustād

Hājji Ibrāhīm-i Tabrizī

(Bivar, Pls. 10/2, 12/2)

78) Masjid-i Jami<sup>c</sup>, Isfahan, 880/1475-6

mosaic-faience, on stalactites of SW aivan:

<sup>c</sup>amal-i Jamāl Khaddām al-Shaikh Muhammad b. Yūsuf al-bannā

(Hunarfar, p. 95)

- 79) Masjid-i Jami<sup>c</sup>, Ashkidhar, 20 Rabi<sup>c</sup> II 882/1 August 1477

on stone mihrab:

bi-sa<sup>c</sup>y az<sup>c</sup>af <sup>c</sup>ibād allāh Ahmad <sup>c</sup>Alī Hasan <sup>c</sup>Alī Aybak  
Ashkidhari

(YY, I, p. 139)

- 80) Takht of Sultan Husain, Gāzur Gāh, 882/1477-8

stone:

hararahu al-<sup>c</sup>abd Sultān <sup>c</sup>Alī al-Mashhadī

(Catalogue No. 9)

- 81) Turbat-i Imām, 883/1478-9

stone waqfnāma:

al-ustād Husain b. <sup>c</sup>Alī b. Ahmad al-Musāfir

(Sutūda, Az Āstārā, II, pp. 352-3)

- 82) Gunbad-i Safīd, Fīn, 884/1479-90

wooden door:

katabahu Muhammad <sup>c</sup>Alā

(signature unpublished, for date see Naraqī, p. 145)

- 83) Tomb of Shah Qalandar, Andujān, 885/1480-1

cenotaph:

hararahu al-<sup>c</sup>abd al-za<sup>c</sup>if <sup>c</sup>Abd al-Jalīl...Sāburī (?)

(W. Ivanov, "Tombs of Some Persian Ismaili Imams," Journal of the Bombay Branch of the Royal Asiatic Society, XIV (1938), p. 54)

- 84) Imānzāda, Safīdcha, 885/1480-1

cenotaph:

kātib...Fakhr al-Dīn b. Muhammad Hājji

ustād <sup>c</sup>Abdallāh Gīlānī

(Bivar, Pls. 47/2-3)

85) Masjid-i Panja-yi <sup>°</sup>Alī, Qum, 886/1481-2

underglaze-painted tiles, end of foundation inscription:

bi-<sup>°</sup>amal Murtaḍā A<sup>°</sup>zam Sayyid <sup>°</sup>Abdallāh b. <sup>°</sup>Atā'allāh  
al-Husainī

(Tabataba'i, p. 121)

86) Imānzāda Qāsim, Bābul, 888/1483-4

cenotaph:

ustād Ahmad najjār-i Sāravī

(Mishkuti, p. 182. Dorn noted inscriptions signed Muhammad najjār and Husain b. ustād Ahmad najjār Muharram 890/Dec. 1484-Jan. 1485 - Hillenbrand, op. cit., pp. 348-9)

87) Bībī Shahrbanū, Rayy, 888/1483-4

cenotaph:

<sup>°</sup>amal-i Husain wa akhūhu Muhammad abāhumā ustād al-marhūm  
Hasan najjār al-Wāsānī

(M.T. Mustafavī, "Sih binnā-yi tārikhī," Guzārishhā-yi Bāstānshināsī, III (1334/1955), p. 292)

88) Masjid-i Jami<sup>°</sup>, Ziyāratgāh, 889/1484-5

mosaic-faience, end of foundation inscription:

katabahu al-<sup>°</sup>abd Valī al-mudhnib

(Catalogue No. 33)

89) Masjid-i Shāh Valī, Taft, 2 Sha<sup>°</sup>bān 889/25 August 1484

mosaic-faience, entrance portal:

īn katāba Kamāl Shihāb

(YY, I, p. 420)

90) Mausoleum of Farīd al-Dīn <sup>°</sup>Attār, Nīshāpūr, 891/1406-7

tombstone:

<sup>°</sup>amal al-<sup>°</sup>abd al-za<sup>°</sup>if al-nahīf Muhyī al-Dīn b. Kamāl  
al-Dīn

(Catalogue No. 52)

- 91) Shāhzāda Husain, Sārī  
cenotaph 894/1488-9:  
    <sup>C</sup>amal-i Muhammad b. ustād Husain najjār  
    (Bivar, Pl. 62/2)
- 92) Mīr-i Shahīd, Herat, 23 Sha<sup>C</sup>bān 892/14 August 1487  
stone panel:  
    katabahu al-<sup>C</sup>abd Khalīfa al-Hāfiz al-Haravī  
    (Saljuqī, RMH 4, p. 98)
- 93) Imānzāda Bibī Sukaina, Bābulsār  
N door 893/1487-8; S door 911/1505-6:  
    by Shams al-Dīn b. ustād Ahmad najjār  
    (Mayer, p. 64)
- 94) Buq<sup>C</sup>a Shaikh Abu Mas<sup>C</sup>ūd, Isfahan, 895/1489-90  
mosaic-faience, end of foundation inscription:  
    katabahu al-<sup>C</sup>abd Kamāl b. Shihāb al-kātib al-Yazdī  
    (Hunarfar, p. 357)
- 95) Mazār-i Bābā Husain va Bibī, Khusraviyya, 17 Muharram 897/21 Nov.  
1491  
cenotaph:  
    <sup>C</sup>amal-i darvīsh Muhammad b. marhūm ustād Shāh Ahmad  
    Kārīzdarī (?) nāzamahu Hājji <sup>C</sup>Alī wa katabahu Faẓlallāh  
    (Catalogue No. 51)
- 96) Imānzāda <sup>C</sup>Abbās, Sārī  
cenotaph Jumādā II 899/March-April 1494:  
    <sup>C</sup>amal-i Shams al-Dīn b. ustād Ahmad Najjār Sārī  
    (Bivar, Pl. 65/1)  
doors Jumādā II 897/April 1492:  
    joiner Bahrām-i Sāravī

(Bronstein, Survey, p. 2622, n. 8)

97) Masjid-i Jami<sup>c</sup>, Khūnzā, 898/1492-3

wooden door:

<sup>c</sup>amal-i ustād Rashīd

(YY, I, p. 440)

98) Buq<sup>a</sup> Shāh Yalmān, Kāshān, 902/1496-7

lustre tile:

<sup>c</sup>amal-i Sayyid Qutb al-Dīn al-Husaini wa ghadāyari

(Watson, op. cit., p. 72)

99) Darb-i Kushk, Isfahan, 902/1496-7

mosaic-faience, end of foundation inscription:

katabahu Mu<sup>c</sup>īn al-munshī

(Hunarfar, pp. 358-9)

100) Qum, before 904/1498-9

"The inscriptions in the court of the cathedral mosque in the town of the faithful (Qum) and the inscriptions in the ayvān of the light-radiating mazār of Sultān-Sayyid Abū-Ahmad, which lies outside the Rayy gate of Qum, are in his (Ḥāfiz Qanbar Sharafī) writing"

(Qadi Ahmad, p. 73)

101) Masjid-i Jami<sup>c</sup>, Herat, 904-5/1498-1500

marble minbar:

ustād Shams al-Dīn sang-tarrāsh

(KA, p. 12)

inscriptions:

Sayyid Rūhallāh, known as Khvaja Mīrak naqqāsh

(MA, ff. 176b-177b. "The majority of the inscriptions of the buildings of Herat are in his writing" - HS, IV, p. 348)

102) Imānzāda Abū Jawāb, Bābulsār, 905/1499-1500

S door: joiner: Ḥasan b. ustād Bāyazīd

calligrapher: Taqī al-Āmulī

carver: ustād Ismā<sup>c</sup>īl najjār al-Rāzī

(Bronstein, Survey, p. 2622, n. 2)

door Muharram 906/July-August 1500

calligrapher: Ahmad al-Husain

carver: ustād Fakhr al-Dīn b. ustād <sup>c</sup>Alī

(Bronstein, Survey, p. 2622; n. 3)

103) Masjid-i Jami<sup>c</sup>, Khvāf, 908/1502-3

wooden minbar, after name of donor:

bi-<sup>c</sup>amal ustād Ṣadr al-Dīn b. ustād Najm al-Dīn Muḥammad

Al-Sajjādī

(Catalogue No. 28)

## APPENDIX II

## INDEX OF QURANIC INSCRIPTIONS

<u>Sūra</u>	<u>Cat. No.</u>	<u>Sūra</u>	<u>Cat. No.</u>
II/95	2	XXXVI/55	55
/137	2	XLI/33	26
/161-6	26	XLVIII/1-?	25
/163	15	/1-11	58
/255	16, 21	/1-14	27
/255-6	15 (twice), 52	/4-?	22
/255-7	2, 17	/28-9	15
III/8	17	LV/20-3	14
/16-9	15	/26-7	36
/18	19	LXII/8-11	2
/26	15	LXXII/17-18	44
IX/18	2	LXXXIX/27-30	55
/40	31	XCVIII/1	14
XVII/23-31 (?)	58	/1-2	2
/78-82	36		
/78-85	2		
XVIII/1-11	24		
/9-10	31		
XXIV/35-42	2		
XXX/17-9	2		

## I. PRE-1800

<sup>c</sup>Abd al-Ghafūr Lārī, Tārīkhcha-yi Mazār-i Sharīf, ed. Māyil Haravī (Kabul, 1349/1970).

<sup>c</sup>Abd al-Razzāq Samarqandī, Kamāl al-Dīn, Matla<sup>c</sup> al-sa<sup>c</sup>dain va majma<sup>c</sup> al-bahrain, ed. Muḥammad Shafī<sup>c</sup> (Lahore, 1360-8/1941-9).

Citations up to p. 127 are from the Lahore 1342/1936 edition; abridged extracts tr. E.M. Quatremère, "Notice sur l'ouvrage qui a pour titre: Matla-assadein ou Madjma-albahrein," Notices et Extraits des Manuscrits de la Bibliothèque du Roi XIV (1843), pp. 1-510.

Anon., Tadhkirat al-mulūk, tr. and commentary by V. Minorsky, E.J.W. Gibb Memorial, n.s. XVI (Cambridge, 1943).

Bābur, Zāhir al-Dīn Muḥammad, Bābur-Nāmeḥ, tr. A.S. Beveridge (London, 1922).

Chardin, Jean, Voyages du Chevalier Chardin en Perse et autres lieux de l'Orient I-XI, ed. L. Langlès (Paris, 1811).

Clavijo, Ruy Gonzalez de, Vida y hazañas del gran Tamorlan con la descripcion de las tierras de su imperio y señorío, ed. and tr. I. Sroznovski (St. Petersburg, 1881), reprinted London 1971, tr. G. Le Strange as Clavijo, Embassy to Tamerlane 1403-1406 (London, 1928).

Daulatshāh al-Samarqandī, Tadhkirat al-shu<sup>c</sup>arā', ed. Muḥammad Ramažānī (Tehran, 1338/1959).

Fasīḥ, Ahmad b. Jalāl al-Dīn Muḥammad Khvāfī, Mujmal-i Fasīhī I-III, ed. Mahmūd b. Farukh (Mashhad, 1339-41/1960-2).

- Hāfiz-i Abrū, Jughrāfiyā-yi Hāfiz-i Abrū, qismat-i rub<sup>c</sup>-i Khurāsān: Harāt, ed. Māyil Haravī (Tehran, 1349/1970).
- Idem, Zubdat al-tavarīkh, extract tr. and ed. K.M. Maitra as A Persian Embassy to China (Lahore, 1934), reprinted New York, 1970.
- Idem, Thail-i Jāmi<sup>c</sup> al-Tavarīkh-i Rashīdī, ed. Khānbābā Bāyānī (Tehran, 1350/1971).
- Ibn <sup>c</sup>Arabshāh, Ahmad, Kitāb aja<sup>c</sup>ib al-maqdūr fī akhbār Tīmūr, tr. J.H. Sanders as Tamerlane or Timur the great Amir (London, 1936).
- Ibn Battūta, The Travels of Ibn Battūta, tr. H.A.R. Gibb I-II (Cambridge, 1958-62).
- Ibn Taghrībirdī, Abu'l-Mahāsin Yūsuf, Al-Nujūm al-zāhirah fī mulūk Misr wa'l-Qāhira I-VI, ed. W. Popper (Berkeley, 1909-29), tr. W. Popper as Egypt and Syria under the Circassian Sultans 1382-1468 A.D. I-VII, University of California Publications in Semetic Philology, 13, 16-19, 22-3 (Berkeley, 1954-62).
- Isfizārī, Mu<sup>c</sup>īn al-Dīn Muḥammad Zamchī, Rauzat al-jannāt fī ausāf madinat Harāt I-II, ed. Sayyid Muḥammad Kāzīm Imām (Tehran 1338/1959).
- Ja<sup>c</sup>far b. Muḥammad b. Ḥasan Ja<sup>c</sup>fari, Tārīkh-i Yazd, ed. Īraj Afshār (Tehran 1343/1965).
- Jāmi, <sup>c</sup>Abd al-Rahmān, Nafahāt al-uns min hadrat al-quds, ed. Mihdī Tauhidīpūr (Tehran, 1337/1958).
- Kāshī, Jamshīd Ghiyāth al-Dīn, Miftāh al-hisāb, ed. Muḥammad Sa<sup>c</sup>īd al-Damirdāsh and Muḥammad Ḥamdī al-Ḥanafī al-Shaikh (Cairo, 1969), tr. B.A. Rosenfeld, ed. V.S. Segal and A.P. Yushkevich as Klyuch Arifmetiki (Moscow, 1956).
- Kātib, Ahmad b. Husain b. <sup>c</sup>Alī, Tārīkh-i jadīd-i Yazd, ed. Īraj Afshār (Tehran, 1345/1966).
- Khunjī, Fadlallāh b. Rūzbihān, Tārīkh-i <sup>c</sup>ālam ārā-yi Amīnī, tr. V.

- Minorsky as Persia in A. D. 1478-1490, RAS Monographs XXVI  
(London, 1957).
- Idem, Mihmān nāma-yi Bukhārā, ed. Manūchihr Sutūda (Tehran, 1341/1962).
- Khvādamīr, Dastūr al-vuzarā', ed. Sa'īd Nafīsī (Tehran, 1317/1938).
- Idem, Khulāsat al-akhbār, partially ed. Gūyā I<sup>c</sup>timādī as Fasli' az Khulāsat al-akhbār (Kabul, 1345/1966); British Library, Or. 1292.  
(Unless otherwise indicated, references are to the edition of I<sup>c</sup>timādī), extractstr. D. Price, Chronological Retrospect, or Memoirs of the Principal Events of Mahomedan History III/2 (London, 1821).
- Idem, Makarim al-akhlāq, ed. in facsimile by T. Gandjei, E.J.W. Gibb Memorial, n.s. XXVII (n.p., 1979).
- Idem, Tārīkh-i habīb al-siyar I-IV (Tehran, 1333/1954).
- Marwārīd, <sup>c</sup>Abdallāh, Sharaf nāma, facsimile text and tr. H.R. Roemer as: Staatschreiben der Timuridenzeit (Wiesbaden, 1952).
- Mīr Khvānd, Tārīkh-i rauzat al-safā I-X (Tehran, 1339/1960).
- Mu<sup>c</sup>īn al-Dīn Natanzī, Muntakhab al-tavārīkh-i Mu<sup>c</sup>īnī, ed. J. Aubin (Tehran, 1336/1957).
- Mūsavī, Tārīkh-i khairāt, British Library, Or. 4898.
- Mustaufī, Hamd Allāh, Nuzhat al-qulūb, The Geographical Part, ed. and tr. G. Le Strange (Leiden and London, 1915-1919).
- Navā'ī, Mīr <sup>c</sup>Alī Shīr, Majālis al-nafā'is, two sixteenth century Persian translations ed. <sup>c</sup>Alī Asghar Hikmat, with contributions by <sup>c</sup>Abd al-Hamīd Maulavī (Tehran 1322/1945).
- Navā'ī, <sup>c</sup>Abd al-Husain, ed., Asnād va mukātabāt-i tārikhī-yi Irān az Tīmūr tā Shāh Ismā<sup>c</sup>īl (Tehran, 2536/1977).
- Qādī Ahmad b. Mīr Munshī al-Husaynī, Gulistān-i hunar, tr. V. Minorsky as Calligraphers and Painters, Freer Gallery of Art Occasional Papers III/2 (Washington, 1959).

- Qāsim b. Yūsuf Haravī, Irshād al-zarā'a, ed. Muhammad Mushīrī (Tehran, 1346/1967).
- Idem, Rasāla-yi tariq-i qismat-i āb-i qulub, ed. Māyil Haravī (Tehran, 1347/1968).
- Saif al-Dīn Hājji b. Nizām <sup>c</sup>Aqīlī, Āsar al-vuzarā', ed. Mir Jalāl al-Dīn Husainī Armavī (Tehran, 1337/1958).
- Saif b. Muhammad b. Ya<sup>c</sup>qūb al-Haravī, Tārīkh nāma-yi Harāt, ed. Muhammad Zubair al-Siddīqī (Calcutta, 1944), reprinted Tehran 1973.
- Shāmī, Nizām al-Dīn, Zafar nāma I-II, ed. F. Tauer (Prague, 1937-56).
- Sharaf al-Dīn <sup>c</sup>Alī Yazdī, Zafar nāma I-II, ed. Muhammad <sup>c</sup>Abbāsī (Tehran, 1336/1957).
- Lord Stanley of Alderly, ed., Travels in Tana and Persia, Hakluyt Society Publications XLIX (London, 1873).
- Tāj al-Salmānī, Shams al-Husn, ed. and tr. H.R. Roemer (Wiesbaden, 1956).
- Vā<sup>c</sup>iz, Sayyid Asīl al-Dīn <sup>c</sup>Abdallāh, Maqsad al-iqbāl-i sultāniyya va marsad al-āmāl al khāqāniyya, ed. Māyil Haravī (Tehran, 1351/1972). Ibid., ed. Fikrī Saljūqī as Rasāla-yi Mazārāt-i Harāt, hissa-yi auval (Kabul, 1967). Unless otherwise indicated, references are to the edition of Haravī.
- Vāsifī, Zain al-Dīn Mahmūd, Badā'i<sup>c</sup> al-vaqā'i<sup>c</sup> I-II, ed. A.N. Boldyrev (Tehran, 1350/1972).

<sup>c</sup>Abd ar-Rāziq, Ahmad, La Femme au Temps des Mamlouks en Égypte (Cairo, 1973).

Adamec, L.W., ed., Herat and Northwestern Afghanistan. Historical and Political Gazetteer of Afghanistan Vol. III (Graz, 1975).

Adle, C., "Note sur le "Qabr-i Šāhruh" de Damghan," LMII II (1974), pp. 173-86.

Idem, Une Region frontalière iranienne: le Dāmḡān, Memoire rédigé sous la direction de J. Aubin I-II, Ecole Pratique des Hautes Etudes (IV<sup>e</sup> Section), Paris 1970.

Idem and A.S. Melikian-Chirvani, "Les monuments du XI<sup>e</sup> siècle du Dāmḡān," Studia Iranica I (1972), pp. 229-297.

Afghan, Khalīlī, Āsar-i Harāt I-III (n.p., 1309/1930).

Idem, "Ārangāh-i Sultān Husain Mīrzā," Āriyānā XII (1333/1954), pp. 7-10.

Afshār, Īraj, "Architectural Information through the Persian Classical Texts," Akten des VII. Internationalen Kongress für Iranische Kunst und Archäologie, München 7.-10. September 1976 (Berlin, 1979), pp. 612-6.

Idem, "Mughaddamātī dar bāra-yi tāriḡh-i mi<sup>c</sup>mārī dar Īrān bar asās-i mutūn-i fārsī," Hunar va Mardum CLXXIII (2535/1976), pp. 2-5.

Idem, Yādgārḡā-yi Yazd I-II (Tehran, 1348-54/1969-75).

Albarn, K., J.M. Smith, S. Steele, D. Walker, The Language of Pattern (London, 1974).

Algar, H., "The Naqshbandī Order: a Preliminary Survey of its History and Significance," Studia Islamica XLIV (1976), pp. 123-52.

Allchin, F.R. and N. Hammond, eds., The Archaeology of Afghanistan from earliest times to the Timurid period (London, 1978).

- d'Allemagne, H.-R., Du Khorassan au pays des Backhtiaris: trois mois de voyage en Perse I-IV (Paris, 1910).
- Allen, T., A Catalogue of the Toponyms and Monuments of Timurid Herat (Cambridge, 1981).
- Idem, Timurid Herat, Ph.D. thesis, Harvard University, 1981.
- Andrews, P.S., "The Tents of Timur: an Examination of Reports on the Quriltay at Samarqand, 1404," Arts of the Eurasian Steppelands, ed. P. Denwood (London, 1978), pp. 143-81.
- Anon., "Masjid-i jāmi<sup>c</sup>-yi Rushtkhvār-i Turbat-i Haidariyya," Āgāhī Nāma-yi Sazman-i Hifazat XVIII (2537/1978), p. 10.
- Anon., "A recent ride to Herat," Blackwoods Edinburgh Magazine CXXXVIII (1885), pp. 181-8.
- Anon., tr. M.F. Zafar, "The School of Khargurd," Afghanistan (March 1981), pp. 51-2.
- Arnold, T.W., Painting in Islam (Oxford, 1928).
- The Arts of Islam, Hayward Gallery 1976 (London, 1976).
- Aubin, J., "Abū Sa<sup>c</sup>īd b. Tīmūr," EI<sup>2</sup>, pp. 147-8.
- Idem, "Comment Tamerlan prenait les villes," Studia Islamica XIX (1963), pp. 83-122.
- Idem, "Le khanat de Čagatai et le Khorassan (1334-1380)," Turcica VIII/2 (1976), pp. 16-55.
- Idem, Matériaux pour la Biographie de Shah Ni<sup>c</sup>matullah Wali Kermani, Bibliothèque iranienne VII (Paris and Tehran, 1956).
- Idem, "Le mécénat timouride à Chiraz," Studia Islamica VIII (1957), pp. 75-88.
- Idem, "Note sur quelques documents Aq Qoyunlu," Mélanges Louis Massignon I (Damascus, 1956), pp. 123-47.
- Idem, "Le patronage culturel en Iran sous les Ilkhans: une grande famille de Yazd," LMII III (1975), pp. 107-18.

- Idem, "Réseau pastoral et réseau caravanier. Les grand'routes du Khurassan à l'époque mongole," LMII I (1971), pp. 105-30.
- Idem, "Un santón quhistānī de l'époque timouride," REI XXXV (1967), pp. 185-216.
- Idem, "Tamerlan à Bagdād," Arabica IX (1962), pp. 303-9.
- Avī, Mubāarak Yūnis Khvāja, "Waqfnāma muvarrakh 912H. marbūt-i Harāt," Āriyānā XXIX/4 (1350/1971), p. 85.
- Baklanov, N., "Arkhitekturniye chertezhi Uzbekkogo mastera XVI veka," Soobshcheniya Instituta Istorii i Teorii Arkhitektury, Akademiya Arkhitektury SSSR IV (1944), pp. 1-21.
- Barthold, V.V., Four Studies on the History of Central Asia, II Ulugh-Beg; III Mīr ʿAlī Shīr, tr. V. and T. Minorsky (Leiden, 1962-3).
- Idem, "O Pogrebenii Timura," see J.M. Rogers.
- Bates, Ü.Ü., "Women as Patrons of Architecture in Turkey," Women in the Muslim World, ed. Beck and Keddie (Cambridge, 1978), pp. 245-60.
- Bausani, A., tr. J.B. Donne, The Persians (London, 1971).
- Idem, "Religion under the Mongols," CHI V, ed. J.A. Boyle (Cambridge, 1968), pp. 544-9.
- Binyon, L., J.V.S. Wilkinson, B. Gray, Persian Miniature Painting (London, 1933).
- Bivar, A.D.H. and E. Yarshater, eds., CII. Part IV, Persian Inscriptions down to the early Safavid Period. Vol. VI Māzandarān Province. Portfolio I. Eastern Māzandarān I (London, 1978).
- Blair, S., The Shrine Complex at Natanz, Iran, Ph.D. thesis, Harvard University, 1980.
- Bosworth, C.E., The Ghaznavids: Their Empire in Afghanistan and Eastern Iran 944:1040 (Beirut, 1973).
- Brandenburg, D., Herat (Graz, 1977).

- Bretanitsky, L.S., "O statuse i professional'nikh znaniyakh zodchikh perednego vostoka XI-XVI vv.," Narody Azii i Afriki 1973/6, pp. 84-95, English summary, p. 254.
- Bretschneider, E., Mediaeval Researches from Eastern Asiatic Sources I-II (London, 1910).
- Browne, E.G., A Literary History of Persia III (Cambridge, 1964).
- Bruno, A., "The Planned and Executed Restoration of some Monuments of Archaeological and Artistic Interest in Afghanistan," East and West n.s. XIII (1962), pp. 99-185.
- Bulatov, M.S., Geometricheskaya Garmonizatsiya v Arkhitekture Srednei Azii (Moscow, 1978).
- Idem, "U istokov arkhitekturnoi nauki srednego vostoka," Narody Azii i Afriki 1973/1, pp. 92-100, English summary p. 252.
- Busse, H., Untersuchungen zum Islamischen Kanzleiwesen, Abhandlungen des Deutschen Archäologischen Instituts Kairo, Islamische Reihe I (Cairo, 1959).
- Byron, R., The Road to Oxiana (London, 1937).
- Idem, "Timurid Architecture. a) General Trends," Survey, pp. 1119-43.
- The Cambridge History of Iran, IV, The Period from the Arab Invasion to the Saljuqs, ed. R.N. Frye (Cambridge, 1975); V, The Saljuq and Mongol Periods, ed. J.A. Boyle (Cambridge, 1968).
- Caroe, O., "The Gauhar Shad Musalla (Mosque) in Herat," Asian Affairs LX (1973), pp. 295-8.
- Chekhovich, O.D., Samarkandskie Dokumenty XV-XVI vv. O Vladeniyakh Khodzhi Akhrāra v Srednei Azii i Afganistane. Pamyatniki Pis'mennosti Vostoka XXXI (Moscow, 1974).
- Clevenger, W.M., "Dams in Ḥorāsān: Some Preliminary Observations," East and West XIX (1969), pp. 387-94.
- Idem, "Some Minor Monuments in Khurasan," Iran VI (1968), pp. 57-64.

- Clinton, J.W., "Esthetics by Implication: What Metaphors of Craft Tell us about the "Unity" of the Persian Qasida," Edebiyât IV/1, 1979, pp. 73-96.
- Cohn-Wiener, E., Turan (Berlin, 1930).
- Conolly, A., Journey to the North of India, overland from England, through Russia, Persia and Affghaunistaun I-II (London, 1834).
- Creswell, K.A.C., Early Muslim Architecture I-II (Oxford, 1969).
- Idem, The Muslim Architecture of Egypt I-II (Oxford, 1952-9).
- Daneshvari, A., A Stylistic and Iconographic Study of the Persian Tomb Towers of the Seljuk Period (forthcoming).
- Deny, J., "Un soyurgal du timouride Šāhruḥ en écriture ouigoure," JA CCXLV (1957), pp. 253-66.
- Diez, E., Churasanische Baudenkmäler (Berlin, 1918).
- Dupree, N.H., The Road to Balkh (Kabul, 1967).
- English, B., John Company's Last War (London, 1971).
- English, P., "The Traditional City of Herat, Afghanistan," From Madina to Metropolis, ed. L.C. Brown (Princeton, 1973), pp. 73-94.
- von Erffa, H., "A Tombstone of the Timurid Period in the Gardner Museum of Boston," AI XI-XII (1946), pp. 184-90.
- Ettinghausen, R., "An Illuminated Manuscript of Ḥāfiz-i Abrū in Istanbul. Part 1," KdO II (1955), pp. 30-44.
- Idem, "Some Comments in Medieval Iranian Art (à propos the publication of the Cambridge History of Iran)," Artibus Asiae XXXI/4 (1969), pp. 276-300.
- Excavations in Iran; the British Contribution, Exhibition Catalogue, Organizing Committee of the Sixth International Congress of Iranian Art and Archaeology (Oxford, 1972).
- Farhang-i Jughrāfiyā'ī-yi Īrān, Vol. IX: Khurāsān (Tehran, 1329/1950).
- Fāzil, Mahmūd, "Madāris-i qadīm-i Mashhad 1," Majalla-yi Vahīd 1350/

- 1972, no. 10, pp. 1450-3.
- Idem, "Madāris-i qadīm-i Mashhad: (2) Madrasa-yi Du Dar," Majalla-yi Vahid IX/11 (1350/1971), pp. 1661-8.
- Idem, "Madāris-i qadīm-i Mashhad: (4) Madrasa-yi Bālā Sar," Majalla-yi Vahid 1351/1972, no. 1, pp. 40-43.
- Ferrante, M. and E. Galdieri, "Architettura persiana poco nota: alcuni monumenti timuridi ad Afushtè, presso Natanz," Palladio XXIII (1972), pp. 163-86.
- Ferrier, J.P., Caravan Journeys and Wanderings in Persia, Afghanistan, Turkistan and Beloochistan, tr. W. Gesse from an unpublished manuscript, ed. H.D. Seymour (London, 1856).
- Fischer, K., "Archaeological Reconnaissance in Afghan Seistan," in The Art of Iran and Anatolia from the 11th to the 13th Century A.D., ed. W. Watson (London, 1974), pp. 150-3.
- Forrest, G.W., ed., Selections from the Travels and Journals preserved in the Bombay Secretariat (Bombay, 1906).
- Fragner, B., "The Economic Life of the Cities: Commerce and Trade," CHI VI (forthcoming).
- Idem, "Economic and Trade Affairs from the Mid-fourteenth Century to the End of the Safavids," CHI VI (forthcoming).
- Fraser, J.B., Narrative of a Journey into Khorasan, in the years 1821 and 1822 (London, 1825).
- Frye, R.N., "Two Timurid Monuments in Herat," Artibus Asiae XI (1948), pp. 206-13.
- Gailānī, <sup>c</sup>Abd al-Rahmān, The Origins of Islamic Art and the Role of China, Ph.D. thesis, University of Edinburgh, 1974.
- Galdieri, E., Isfahān: Masġid-i Ğum<sup>c</sup>: 2. Il periodo al-i Būyide, The Al-i Buyid Period (Rome, 1973).
- Gandjei, T., "Uno scritto apologetico di Husain Mīrzā, Sultano del

- Khorāsān," AIUON V (1954), pp. 157-83.
- Gaube, H., "Innenstadt-Aussenstadt, Kontinuität und Wandel im Grundriss von Herāt (Afghanistan) zwischen dem X. und dem XV. Jahrhundert," G. Schweizer, ed., Beiträge zur Geographie orientalischer Städte und Märkte, Beihefte zum Tübinger Atlas des Vorderen Orients, Reihe B, no. 24 (Wiesbaden, 1977), pp. 214-40.
- Idem, Iranian Cities (New York, 1979).
- Ghauvās, Muhammad<sup>c</sup> Alam, "Qarya-yi Ziyāratgāh," I: Harāt, <sup>c</sup>Aqrab 1353/1974, pp. 5-8; II: Harāt, Qūs 1353/1974, pp. 5-8.
- Idem, Rahnamā-yi Harāt (Herat, 1347/1968).
- Ghulam, Y., Introduction to the Art of Arabic Calligraphy in Iran (Shiraz, n.d.).
- Gink, K. and I. Turánsky, Azerbaijan: Mosques, Turrets, Palaces (Budapest, 1979).
- Glatzer, B., "Das Mausoleum und die Moschee des Ghoriden Ghiyāt ud-Dīn in Herat," AJ VII/1 (1980), pp. 6-22.
- Goblot, H., "Kébar en Iran, sans doute le plus ancien des barrages-voûtes: l'an 1300," Arts et Manufactures, no. 154 (June 1965), pp. 43-9.
- Idem, "Du nouveau sur les barrages iranien de l'époque mongole," Arts et Manufactures, no. 239 (April 1973), pp. 15-20.
- Godard, A., "'The Architecture of the Islamic Period.' A Survey of Persian Art. Compte-Rendu," AI VIII (1941), pp. 3-12.
- Idem, The Art of Iran, tr. M. Heron, ed. J.M. Rogers (London, 1965).
- Idem, "Khorāsān," AeI IV (1949), pp. 7-150.
- Idem, "Historique du Masdjid-é Djum<sup>c</sup>a d'Isfahān," AeI I (1936), pp. 213-84.
- Idem, "Les Monuments du Feu," AeI III (1938), pp. 7-80.
- Idem, "Muhammad Ridā al-Imāmī," AeI III (1938), pp. 267-74.

Idem, "Voûtes iraniennes," AeI IV (1949), pp. 187-360.

Golombek, L., "Abbasid Mosque at Balkh," OA XV (1969), pp. 186-9.

Eadem, "The Chronology of Turbat-i Shaikh Jām," Iran IX (1971), pp. 27-44.

Eadem, "The Establishments of Gauhar Shād in the Musallā of Herat," appendix to The Timurid Shrine at Gazur Gah: an Iconographic Interpretation of Architecture, Ph.D. thesis, University of Michigan, 1968.

Eadem, "Khargird Revisited," Memorial Volume for A.U. Pope (forthcoming).

Eadem, "Palace in a Tepe: Life returns to a Persian chateau," Rotunda V/1 (1972), pp. 31-41.

Eadem, The Timurid Shrine at Gazur Gah (Toronto, 1969).

Eadem and R. Holod, "Preliminary Report on the Isfahan City Project," Akten des VII. Internationalen Kongresses für Iranische Kunst und Archäologie, München. 7.-10. September 1976 (Berlin, 1979), pp. 578-9

Goodwin, G., A History of Ottoman Architecture (London, 1971).

Grabar, O., The Alhambra (London, 1978).

Idem, The Formation of Islamic Art (New Haven and London, 1973).

Gray, B., ed., The Arts of the Book in Central Asia (London, 1979).

Idem, Persian Painting (Geneva, 1961).

Grube, E., The Classical Style in Islamic Painting (Edizioni Oriens, 1968).

Idem, "Notes on the Decorative Arts of the Timurid Period," Gura jāmanjarikā: Studi in Honore di Giuseppe Tucci (Naples, 1974), pp. 233-79.

Idem, The World of Islam (London, 1966).

Guest, G., Shiraz Painting in the Sixteenth Century (Washington, 1949).

Haidārī, Muḥammad, "Gauhar Shād Bīgum," Harāt XLI (1353/1974), pp. 33-5.

- Haider, M., "The Sovereign in the Timurid State (XIVth-XVth Centuries)," Turcica VIII/2 (1976), pp. 61-82.
- Hamilton, R.W., Khirbat al Mafjar, An Arabian Mansion in the Jordan Valley (Oxford, 1959).
- Hanaway, W.L., ed., CII. Part IV Persian Inscriptions down to the early Safavid Period. Vol. II Khorasan Province. Portfolio I. Khorasan I (London, 1977).
- Haravī, Māyil, "Az shāhkārhā-yi hunar-i Afghānistān," Āriyānā XXVIII/2 (1970), pp. 32-4.
- Idem, "Az shāhkārhā-yi hunar-i Taimūriyān-i Harāt: mihrāb-i zībā-yi masjid-i daura-yi Shāh Rukh Mīrzā," Hunar va Mardum XCI (1970), pp. 50-2.
- Idem, "Birkahā-yi Harāt," Āriyānā XXIX/6 (1350/1971), pp. 38-44.
- Idem, "Waqfnāma-yi buzurg muvarrakha 912 H.Q.," Āriyānā XXX/5 (1350/1972), pp. 9-25.
- Harb, U., Ilkhanidische Stalaktitengewölbe, AMI, Ergänzungsband IV (Berlin, 1978).
- Harvey, J., The Master Builders (London, 1971).
- Idem, The Mediaeval Architect (London, 1972).
- Herzfeld, E., "Damascus. Studies in Architecture, I," AI IX (1942), pp. 18-40.
- Idem, "Damascus. Studies in Architecture, II," AI X (1943), pp. 13-70.
- Idem, "Damascus. Studies in Architecture, III," AI XI (1946), pp. 1-71.
- Idem, "Damascus, Studies in Architecture, IV," AI XIII-XIV (1948), pp. 118-38.
- Idem, "Reisebericht," ZDMG N.F. V (1926), pp. 225-84.
- Hidāyatī, Muhammad <sup>c</sup>Alī, Āstāna-yi Rayy, majmū'a-yi asnād va farāmīn

- (Tehran, 1344/1965).
- Hill, D. and O. Grabar, Islamic Architecture and its Decoration  
(London, 1967).
- Hillenbrand, R., Imperial Images in Persian Painting (Edinburgh, 1977).
- Idem, "Islamic Monuments in Northern Iran," Iran VIII (1970), pp.  
204-5.
- Idem, "Mosques and Mausolea in Khurāsān and Central Iran," Iran IX  
(1971), pp. 160-2.
- Idem, "Saljūq Dome Chambers in North-West Iran," Iran XIV (1976),  
pp. 93-102.
- Idem, The Tomb Towers of Iran to 1500, D. Phil. thesis, University of  
Oxford, 1974.
- Hinz, W., "Ein orientalisches Handelsunternehmen im 15. Jahrhundert,"  
Die Welt des Orients I (1947-52), pp. 313-40.
- Hoag, J., Islamic Architecture (New York, 1977).
- Hodgson, M.G.S., The Venture of Islam. 2. The Expansion of Islam in  
the Middle Periods (Chicago and London, 1974).
- Holdich, T.H., The Indian Borderland (London, 1901).
- Idem, Manuscript Plan of Herat Fort, 1:4,800, RGS, Afghanistan S/S 20.
- Idem, "The Musalla and tomb of Sultan Shah Rukh," ILN August 15, 1885,  
p. 179 (sketch).
- Idem, "Report on Herat Defences," IOL, L/PS/44, pp. 1171-7.
- Holod, R., The Monuments of Yazd, 1300-1450: Architecture, Patronage  
and Setting, Ph.D. thesis, Harvard University, 1972.
- Hunarfar, Lutfallāh, Ganjīna-yi āsar-i tarīkhī-yi Isfahān (Isfahan,  
1350/1971).
- Idem, Isfahān dar दौरa-yi jānishīniyān-i Tīmūr (Isfahan, 2535/1976).
- Hussaini, A.S., The Influence of Spiritual Forces on Society and  
Politics in Timurid Iran, 1335-1502, Ph.D. thesis, Cambridge

- University, 1967.
- Hutt, A., and L. Harrow, Islamic Architecture: Iran 1 (London, 1977).
- Idem, Islamic Architecture: Iran 2 (London, 1978).
- Imām, Muhammad Kāzim, Mashhad-i Tūs, yak fasl az tārikh va jughrāfiyā-yi tārikhī-yi Khurāsān (Tehran, 1348/1969).
- İpşiroğlu, M.S., Das Bild im Islam: ein Verbot und seine Folgen (Vienna, 1971).
- Idem, Siyah Qalam (Graz, 1976).
- I<sup>c</sup>timādī, Gūyā, Ābadāt-i nafīsa-yi Harāt (n.p., 1343/1965).
- Idem, "Le dome vert," Afghanistan I (1946), pp. 15-9.
- Idem, "The General Mosque of Herat," Afghanistan VIII/2 (1953), pp. 40-50.
- I<sup>c</sup>tiẓād Pūr, <sup>c</sup>Alī, "Abniya-yi āstān-i quds: aivān-i tilā-yi sahn-i <sup>c</sup>atiq," Nāma-yi Āstān-i Quds VI/2-3 (1344/1965), pp. 222-30.
- Jairazbhoy, R.A., An Outline of Islamic Architecture (Bombay, 1972).
- Karapetian, K., Isfahan, New Julfa: Le Case degli Armeni, The Houses of the Armenians (Rome, 1974).
- Kennedy, E.S., "The Exact Sciences in Iran under the Saljuqs and Mongols," CHI, V, pp. 659-80.
- Idem, "A Letter of Jamshīd al-Kāshī to his Father: Scientific Research and Personalities at a Fifteenth Century Court," Orientalia XXIX (1960), pp. 191-213.
- de Khanikoff, N., Mémoire sur la partie méridionale de l'Asie centrale (Paris, 1861).
- Khurāsānī, Muhammad Hasan b. Muhammad Taqī, Hadīqat al-Rizviyya (Tārikh-i Mashhad) (Mashhad, 1367/1947-8).
- Kiani, M.Y., The Iranian Caravanserais during the Safavid Period, Ph.D. thesis, University of London, 1970

- Klausner, C.L., The Seljuk Vezirate: A Study of Civil Administration 1055-1194, Harvard Middle Eastern Monographs XXII (Cambridge, 1973).
- Kryukov, K.S., "Modul' v pamyatnikakh sredneaziatskogo zodchestva"; Arkhitekturnoe Nadslestvo XVII (1964), pp. 155-66.
- Lal, M., "A Brief Description of Herat," JASB III (1834), pp. 9-18.
- Idem, Travels in the Panjab, Afghanistan, and Turkistan, to Balk, Bokhara and Herat; and a Visit to Great Britain and Germany (London, 1846).
- Lambton, A.K.S., "Early Timurid Theorites of State: Hāfiz Abrū and Nizām al-Dīn Šāmī," BEO XXX (1978), pp. 1-9.
- Lane, A., Victoria and Albert Museum: A Guide to the Collection of Tiles (London, 1960).
- Lavrov, L.I., Epigraficheskie Pamyatniki Severnogo Kavkaza na Arabskom, Persidskom i Turetskom Yazykakh, Chast I, Nadpisi X-XVII vv. Akademiya Nauk SSR, Otdelenie Istorii, Institut Etnografii Pamyatniki Pis'mennosti Vostoka II, I (Moscow, 1966).
- Le Strange, G., The Lands of the Eastern Caliphate (Cambridge, 1905).
- Lézine, A., "Hérat: notes de voyage," BEO XVIII (1963-4), pp. 127-45.
- Lings, M., The Quranic Art of Calligraphy and Illumination (London, 1976).
- Lukens, M.G., "The Language of the Birds: the Fifteenth Century Miniatures," BMMA XXV/9 (1967), pp. 317-38.
- McChesney, R.D., Waqf at Balkh: A Study of the Endowments at the Shrine of <sup>c</sup>Alī ibn Abī Tālib, Ph.D. thesis, Princeton University, 1973.
- MacDougall, E. and R. Ettinghausen, eds., The Islamic Garden (Dumbarton Oaks, 1976).

- MacGregor, C.H., Narrative of a Journey through the Province of Khorassan in 1875 I-II (London, 1879).
- Maitland, P.J., Diary: Afghan Boundary Commission, Records of Intelligence Party I (Simla, 1888).
- Mankovskaya, L. Yu., "K izucheniyu priemov sredneaziatskogo zodchestva kontsa XIVv. (Mauzolei Khodzha Akhmeda Yasevi)," Iskusstvo Zodchikh Uzbekistana. Akademiya Nauk Uzbekskoi SSR, Institut Iskusstvoznaniya (Tashkent, 1962).
- Manz, B.F., "Administration and the Delegation of Authority in Temür's Dominions," Central Asiatic Journal XX (1976), pp. 191-207.
- Martin, F.R., The Miniature Paintings and Painters of Persia, India and Turkey (London, 1912).
- Masson, M.E., and G.A. Pugachenkova, "Shakhri Syabz pri Timure i Ulug Beke (Shahr-i Sabz from Tīmūr to Ūlūgh Beg)," tr. and ed. J.M. Rogers, I - Iran XVI (1978), pp. 103-26; II - Iran XVIII (1980), pp. 121-44.
- Maulavī, °Abd al-Hamīd, Āsar-i bāstānī-yi Khurāsān I (Tehran, 1354/1975).
- Idem, "Āsar-i qabr-i Nizām al-Mulk Bakravī (sic, for Kubrawī) dar Kadkan-i Naishābūr," Yādgar III/8 (1326 /1947 ), pp. 28-34.
- Idem, "Band-i Gulistān," Nāma-yi Āstān-i Quds XVII (1343/1964), pp. 38-42; XVIII (1343/1964), pp. 37-45.
- Idem, "Masjid-i shāh yā maqbara-yi Amīr Ghiyāth al-Dīn Malikshāh," Hunar va Mardum CXXIV-CXXV (1347/1968), pp. 75-93.
- Mayer, L.A., Islamic Woodcarvers and their works (Geneva, 1958).
- Mehrez, S.G., The Ghawriyya in the Urban Context: an Analysis of its Form and Function, M.A. thesis, American University in Cairo, 1972.

- Meinecke, M., Fayencedekorationem seldschukischer Sakralbauten in Kleinasien I-II, Deutsches Archäologisches Institut, Istanbuler Mitteilungen Beiheft 13 (Tübingen, 1976).
- Melikian Chirvani, A.S., "Un bassin iranien de l'an 1375," Gazette des Beaux-Arts CXXIII (1969), pp. 5-18.
- Idem, "Eastern Iranian Architecture: à propos of the Ghūrid parts of the Great Mosque of Harāt," BSOAS XXXIII (1970), pp. 322-7.
- Idem, "Le royaume de Salomon. Les inscriptions persanes de sites achéménides," LMII I (1971), pp. 1-41.
- Melville, C., Arabic and Persian Source Material on the Historical Seismicity of Iran from the 7th to the 17th Centuries A.D., Ph.D. thesis, Cambridge University, 1978.
- Idem, "Earthquakes in the History of Nishapur," Iran XVIII (1980), pp. 103-20.
- Michell, G., ed., Architecture of the Islamic World (London, 1978).
- Miles, G.C., "The Inscriptions of the Masjid-i Jāmi<sup>c</sup> at Ashtarjān," Iran XII (1974), pp. 89-98.
- Ministry of Development and Housing, Iran, Masterpieces of Iranian Architecture (n.p.(Tehran), n.d.(ca. 1971)).
- Minorsky, V., "The Aq-Qoyunlu and Land Reforms," BSOAS XVII (1955), pp. 449-62.
- Idem, Calligraphers and Painters, see Qādī Ahmad.
- Idem, "Musha<sup>c</sup> sha<sup>c</sup>," EI, Supplement, pp. 160-3.
- Idem, Persia in A.D. 1478-1490, see Khunjī.
- Idem, "A Soyūrghāl of Qāsim b. Jahāngīr Aq-qoyunlu," BSOAS IX (1938), pp. 927-60.
- Mishkūtī, Nusratallāh, Fihrist-i bināhā-yi tārikhī va amākin-i bāstānī-yi Īrān (Tehran, 1349/1970).

Mitford, E.L., A Land March from England to Ceylon Forty Years Ago

I-II (London, 1884).

Molé, M., "Les Kubrawiya entre sunnisme et shiisme aux huitième et neuvième siècles de l'hégire," REI XXVIII (1961), pp. 61-142.

Moranville, H., ed., "Mémoire sur Tamerlan et sa cour, par un dominicain, en 1403," Bibliothèque de l'École des Chartres LV (1894), pp. 433-64.

Morichi, R., "Typological and metrological Research at Isfahan," East and West, n.s. XXVIII (1978), p. 338.

Morton, A.H., "Review of Khorasan I. By William Hanaway, Jr.," JRAS 1980/2, pp. 91-2.

Muḥammad Hasan Khān, see Sanī<sup>c</sup> al-Daula.

Mukhlisī, Muḥammad <sup>c</sup>Alī, Āsar-i tārikhī-yi Simnān (n.p., 2536/1977).

Mustafavi, Muḥammad Taqī, Aqlīm-i Pārs (Tehran, 1343/1964), tr. R.N. Sharp as The Land of Pārs (Chippenham, 1978).

Idem, "Le Masjdīd-é Mawlānā de Tāiyābād," AeI III (1938), pp. 179-93; note by A. Godard, pp. 193-9.

Mustamandy, S., "A Building by the Name of Gowharshad in Kohsan of Herat," Afghanistan XX/4 (1968), pp. 65-6.

Mu'taman, <sup>c</sup>Alī, "Abniya-yi āstān-i quds, 7, sahn-i <sup>c</sup>atīq," Nāma-yi Āstān-i Quds VII (1340/1961), pp. 43-54.

Idem, Rāhnāmā yā Tārikh-i Āstān-i Quds-i Rizavī (Tehran, 1348/1969).

Nādirī, Buqrāt, "Madrassa-yi Bālā Sar," Āgāhī Nāma-yi Sazman-i Hifazat XXVIII (2537/1978), p. 10.

Idem, "Tārikhcha-yi Tabas va nigāhī-yi kūtāh bi bināhā-yi bāstānī-yi ān," Hunar va Mardum CLXXXVI (2535/1978), pp. 54-63.

Na<sup>c</sup>imī, <sup>c</sup>Alī Ahmad, "Mahd-i <sup>c</sup>ulyā Gauhār Shād, malaka-yi qarn-i nuhum-i Afghānistān," Āriyānā II (1323/1944), pp. 31-3.

- Napier, G.C., "Extracts from a Diary of a Tour in Khorassan, and Notes on the Eastern Alburz Tract," JRGS XLVI (1876), pp. 62-142, 145-71.
- Narāqī, Hasan, Āsar-i tārikhī-yi Shahristānhā-yi Kāshān va Natanz (Tehran, 1348/1969).
- Nasr, S.H., Islamic Science (London, 1976).
- Nicholson, R.A., Studies in Islamic Mysticism (Cambridge, 1921).
- von Niedermayer, O. (with contributions by E. Diez), Afghanistan (Leipzig, 1924).
- Nourmoukhammedov, N.-B., The Mausoleum of Hodja Ahmed Yasevi (Alma Ata, 1980).
- O'Donovan, E., The Merv Oasis I-II (London, 1882).
- O'Kane, B., "The Madrasa al-Ghiyāsīyya at Khargird," Iran XIV (1976), pp. 79-92. (Appendix III)
- Idem, "Tāybād, Turbat-i Jām and Timurid Vaulting," Iran XVII (1979), pp. 87-104. (Appendix IV)
- Idem, "Timurid Stucco Decoration," Iran (forthcoming).
- Özergin, M.K., "Temürlü sanatına âit eski bir belge: Tebrizli Ca'fer'in Bir Arzı," Sanat Tarihi Yıllığı VI (1974-5), pp. 471-518.
- Peacocke, W., Diary: Afghan Boundary Commission, Records of Intelligence Party III (Simla, 1887).
- Pelly, L., Journal of a Journey from Persia to India through Herat and Kandahar (Bombay, 1866).
- Petrushevsky, I.P., "The Socio-economic Condition of Iran under the Īl-Khāns," CHI V, pp. 483-537.
- Pinder-Wilson, R., "The Persian Garden: Bagh and Chahar Bagh," The Islamic Garden, ed. E. MacDougall and R. Ettinghausen (Dumbarton Oaks, 1976), pp. 69-86.
- Pope, A.U., Introducing Persian Architecture (London, 1969).

- Idem, Persian Architecture (London, 1965).
- Idem and P. Ackerman, eds., A Survey of Persian Art from Prehistoric Times to the Present (London and New York, 1939).
- Idem and eadem, "Timurid Architecture. b. Typical Monuments," Survey, pp. 1144-64.
- Pribytkova, A.M., Pamyatniki Arkhitektury XI veka v Turkmenii (Moscow, 1955).
- Pugachenkova, G.A., "À l'étude des monuments timourides d'Afghanistan," Afghanistan XXIII/3 (1970), pp. 24-49.
- Eadem, "Arkhitekturnie zametki," Iskusstvo Zodchikh Uzbekistana I (Tashkent, 1962), pp. 178-210.
- Eadem, "Ishrat-Khāneh and Ak-Saray, two Timurid Mausoleums in Samarkand," AO V (1963), pp. 177-89.
- Eadem, tr. J.M. Rogers, "Little known Monuments of the Balkh Area," aarp XIII (1978), pp. 31-40.
- Eadem, "Les monuments peu connus de l'architecture médiévale de l'Afghanistan," Afghanistan XXI/1 (1968), pp. 17-52.
- Eadem, Samarkand, Bukhara (Moscow, 1961).
- Eadem, "Stranitsa iz istorii timuridskoi kul'tury (mavzolei Gaukhar-Shad v Kukhsane)," Narody Azii i Afriki 1968/4, pp. 129-35.
- Eadem, Termez, Shakhrisyabz, Khiva (Moscow, 1976).
- Eadem, "Tri pozdnetimuridskikh pamyatnika v Ziaratgokhe bliz Gerata," Obshchestvennye Nauki v Uzbekistana 1969/8-9, pp. 30-42.
- Eadem, Zodchestvo Tsentral'noi Azii. XV vek (Tashkent, 1976).
- Eadem and L.I. Rempel', Vydayushchiesya Pamyatniki Arkhitektury Uzbekistana (Tashkent, 1958).
- Eadem and Z.A. Khakimov, "Khanaka Sheikha Sadreddina-maloizvestny Pamyatnik timuridskogo vremeni v Afganistane," Narody Azii i Afriki 1972/2, pp. 140-4.

- Quatremère, M., "Mémoires historiques sur la vie du sultan Schah-rokh,"  
JA III/2 (1836), pp. 193-233, 338-64.
- Rice, D.T., The Illustrations to the 'World History' of Rashīd al-Dīn,  
 ed. B. Gray (Edinburgh, 1976).
- Robinson, B.W., A Descriptive Catalogue of the Persian Paintings in  
 the Bodleian Library (Oxford, 1958).
- Idem, ed., The Keir Collection: Islamic Painting and the Arts of the  
 Book (London, 1976).
- Idem, "Prince Bāysonghor's Nizāmī: a speculation," AO II (1957), pp.  
 383-92.
- Roemer, H.R., "Tīmūr in Iran," CHI VI (forthcoming).
- Idem, "The Successors of Tīmūr," CHI VI (forthcoming).
- Rogers, J.M., "The Date of the Çifte Minare Medrese at Erzurum,"  
KdO VIII (1974), pp. 77-119.
- Idem, "The 11th century - A Turning Point in the Architecture of the  
 Mashriq?," Islamic Civilisation 950-1150, ed. D.S. Richards  
 (Oxford, 1973), pp. 211-50.
- Idem, "Evidence for Mamlūk-Mongol Relations, 1260-1360," Colloque  
 International sur l'Histoire du Caire (Cairo, 1973), pp. 385-403.
- Idem, Patronage in Seljuk Anatolia 1200-1300, D.Phil. thesis,  
 University of Oxford, 1972.
- Idem, review of L. Golombek, The Timurid Shrine at Gazur Gah and M.E.  
 Weaver, Preliminary Study on the Conservation Problems of five  
 Iranian Monuments, KdO VII/2 (1970-1), pp. 175-82.
- Idem, "Seljuk Influence on the Monuments of Cairo," KdO VII (1970-1),  
 pp. 40-68.
- Idem, The Spread of Islam (Oxford, 1976).
- Idem, "Waqf and Patronage in Seljuk Anatolia. The Epigraphic Evidence,"  
AS (1976), pp. 69-103.

- Idem, "Waqfiyyas and Waqf-registers: New Primary Sources for Islamic Architecture," KdO XI (1976-7), pp. 182-96.
- Idem, "V.V. Bartol'd's article O Pogrebenii Timura ("The Burial of Tīmūr")," Iran XII (1974), pp. 65-87.
- Rosinthal, J., Le Réseau (Paris, 1937).
- Saadat, B., The Holy Shrine of Imam Reza, Mashhad I-IV (Persian and English text, Plates, Designs) (Shiraz, 1976).
- Safadi, Y.H., Islamic Calligraphy (London, 1978).
- el-Said, I. and A. Parman, Geometric Concepts in Islamic Art (London, 1976).
- Saljūqī, Fikrī, "Ābadāt-i tārikhī-yi Harāt," Āriyānā XXII (1342/1963), pp. 15-8.
- Idem, Gāzur Gāh (Kabul, 1341/1962).
- Idem, "The Gravestone of Gauhar Shad," Afghanistan XXV (1973), pp. 29-31.
- Idem, Khiyābān (n.p., 1343/1964).
- Idem, Rasāla-yi mazarāt-i Harāt, havāshī-yi ākhar musammā bi ta<sup>c</sup>līqāt (Kabul, 1967) (=RMH 4).
- Idem, "Sang-i maqbara-yi Gauhar Shād dar Harāt," Āriyānā XXVIII (1349/1970), pp. 52-4.
- Samadī, S., Rāhnāmā-yi Mūza-yi Āstān-i Quds-i Rizavī (n.p., n.d.).
- Sanders, E. and C.F. North, "Map of Herat," B.L. 51995. (2.).
- Sanī<sup>c</sup> al-Daula (Muhammad Hasan Khān), Matla<sup>c</sup> al-Shams I-III (Tehran, 1301-3/1883-6).
- Sauvaget, J., "Glanes épigraphiques," REI 1941-6 (1947), (cahier unique), pp. 17-29.
- Idem, "Notes épigraphiques sur quelques monuments persans," AI V (1938), pp. 103-6.

- Savory, R., "The Struggle for Supremacy in Persia after the Death of Tīmūr," Der Islam XL (1955), pp. 35-65.
- Idem, "A 15th Century Safavid Propagandist at Harāt," American Oriental Society, Middle West Branch, Semi-Centennial Volume, ed. D. Sinor (London, 1969), pp. 189-97.
- Scerrato, U., Monuments of Civilization: Islam (London, 1976).
- Schimmel, A., Mystical Dimensions of Islam (Chapel Hill, 1975).
- Séguy, M., The Miraculous Journey of Mahomet: Mirāj Nāmeḥ (New York, 1977).
- Seherr-Thoss, S. and H., Design and Color in Islamic Architecture (Washington, 1968).
- Serajuddin, A., Architectural Representations in Persian Miniature Painting during the Timurid and Safavid Periods, Ph.D. thesis, University of London, 1968.
- Shams al-Muhaddasīn, Muḥammad, Yādgar-i Tūs (Mashhad, n.d.).
- Shānichī, Kāzīm Mudīr, "Gauhar Shād," Nāma-yi Āstān-i Quds VIII/3 (1345 / 1967), pp. 89-109.
- Idem, "Malaka-yi Harāt Gauhar Shād," Āriyānā XXVIII (1349/1970), pp. 8-24.
- Shishkin, V.A., "Nadpisi v ansamble Shakhi-Zinda," in Zodchestvo Uzbekistana. Materialy i isseledovaniya. II. Ansaml' Shakhi-Zinda, ed. P. Sh. Zakhidov (Tashkent, 1970).
- Shokoohy, M., Studies in the Early Mediaeval Architecture of Iran and Afghanistan, Ph.D. thesis, Heriott-Watt University and Edinburgh College of Art, 1978.
- Siroux, M., Anciennes Voies et Monuments routiers de la Région d'Ispahān, Institut Français d'Archéologie Oriental, Mémoires LXXXII (Cairo, 1971).

Idem, Caravanserais d'Iran et petites Constructions routières,

Institut Français d'Archéologie Orientale, Mémoires CXXXI (Cairo, 1949).

Idem, "Kouh-Payeh: La mosquée djum<sup>c</sup>a et quelques monuments du bourg et de ses environs," Annales Islamologiques VI (1966), pp. 137-70.

Smart, E.S., "Graphic Evidence for Mughal Architectural Plans," aarp VI (1974), pp. 22-3.

Smith, M.B., "Material for a Corpus of Early Iranian Islamic Architecture:

II. Manār and Masdjid, Barsiān (Isfahān)," AI IV (1937), pp. 7-41.

Idem, "The Wood Minbar in the Masdjid-i Djāmi<sup>c</sup>, Nāin," AI V (1938), pp. 21-8.

Soucek, P., "Farhād and Tāq-i Bustān: The Growth of a legend," Studies in Art and Literature of the Near East in Honor of Richard Ettinghausen, ed. P. Chelkowski (New York, 1971), pp. 27-58.

Sourdél-Thomine, J. and B. Spuler, eds., Die Kunst des Islam. Propyläen Kunstgeschichte IV (Berlin, 1973).

Stchoukine, I., Les Peintures des Manuscrits timūrides, Institut Français d'Archéologie de Beyrouth, Bibliothèque Archéologique et Historique LX (Paris, 1954).

Stuckert, R., "Der Baubestand der Masjid-al-Jami in Herat 1942/3," AJ VII/1 (1980), pp. 3-5.

Subtelny, M.A., The Poetic Circle at the Court of the Timurid, Sultan Husain Baiqara, and its political significance, Ph.D. thesis, Harvard University, 1981.

Sutūda, Manūchihr, Az Āstārā tā Āstārābād II. (Tehran, 1351/1972).

Sykes, P.M., "Historical Notes on Khurasan," JRAS (1910), pp. 1113-54.

Idem, "A Sixth Journey in Persia," GJ XXXVII (1911), pp. 1-18, 149-64.

- Tabātabā'ī, Sayyid Jamāl Turābī, Naqshhā va Nigāshtahā-yi Masjid-i Kabūd-i Tabrīz (Tabriz, 1348/1969).
- Tabātabā'ī, Mudarrisi, Qum dar qarn-i nuhum hijrī (Qum, 1350/1971).
- Idem, Turbat-i Pākān I-II (Qum, 2535/1976).
- de Tassy, G., tr., Mantic Uttair ou le Langage des Oiseaux (Paris, 1863).
- Togan, Z.V., "Herat," Islām Ansiklopedisi (Istanbul, 1950), pp. 429-42.
- Trimingham, J.S., The Sufi Orders in Islam (Oxford, 1971).
- UNESCO, The Citadel and the Minarets of Herat, Afghanistan (n.p., 1976).
- Useinov, M., L. Bretanitskii and A. Salamzade, Istoriya Arkhitektury Azerbaidzhana (Moscow, 1963).
- Vardak, Ra'ūf, "Qarya va masjid-i jāmi<sup>c</sup>-yi Ziyāratgāh," Harāt, Jādī 1350/1971, pp. 12-14, 32.
- Vittor, C.F., The Herat School: Persian Poetry in the Timurid Period, Ph.D. thesis, University of California, Berkeley, 1978.
- Volov, L. (Golombek), "Madrasa-yi Du Dar," Nashriya-yi Farhang-i Khurāsān VI/5 (1345/1966), pp. 15-8.
- Wiebe, D., "Die heutigen Kultstätten in Afghanistan und ihre Inwersetzung für den Fremdenverkehr," AJ VII/3 (1980), pp. 97-108.
- Wilber, D.N., The Architecture of Islamic Iran; The Il Khānid Period (Princeton, 1955).
- Idem, "Builders and Craftsmen of Islamic Iran," Archaeology VII (1954), pp. 37-41.
- Idem, "Builders and Cratsmen of Islamic Iran: the earlier Periods," aarp X (1976), pp. 31-9.
- Idem, "The Institute's Survey of Persian Architecture: Preliminary Report of the Eighth Season of the Survey," BALIAA V (1937), pp. 109-31.

- Idem, "The Two Structures at Sangar," BAIIAA V (1937), pp. 33-7.
- Wolfe, N.H., Herat (Kabul, 1966).
- Woods, J.E., The Aqquyunlu: Clan, Confederation, Empire (Minneapolis and Chicago, 1976).
- Wulff, H., The Traditional Crafts of Persia (Cambridge, 1966).
- Yate, A.C., Travels with the Afghan Boundary Commission: England and Russia face to face in Asia (Edinburgh and London, 1887).
- Yate, C.E., "Inscriptions formerly in the Musalla of Herat," JRAS (1926), pp. 290-4.
- Idem, Khurasan and Sistan (Edinburgh and London, 1900).
- Idem, Northern Afghanistan (Edinburgh and London, 1888).
- Idem, "Notes on the City of Hirāt," JASB LVI (1887), pp. 84-106.
- Zakhidov, Z.A. and Yu.Z. Shvab, "Sultan-Saadat," Iskysatvo Zodchikh Uzbekistana IV. Ministerstvo Kul'tury Uzbekskoi SSR. Institut Iskusstvoznaniya im. khamzy, pp. 25-63.
- Zamānī, <sup>c</sup>Abbās, "Maqbara-yi Jaghatain-i Gaisūr," Barrasihā-yi Tārīkhī VIII/3 (1351/1972), pp. 47-64.
- Zestovsky, P.I., "Esquisse d'architecture afghane," Afghanistan IV (1949), pp. 1-25.
- Zipoli, R., "Un'iscrizione Tombale ČIŠTĪ del 902 eg," Rivista degli Studi Orientali L (1976), pp. 329-335.

THE MADRASA AL-GHIYĀSĪYYA  
AT KHARGIRD

BY  
BERNARD O'KANE

*Reprinted from IRAN XIV, 1976*

Published by the British Institute of Persian Studies

# THE MADRASA AL-GHIYĀSĪYYA AT KHARGIRD<sup>1</sup>

By Bernard O'Kane

The madrasa at Khargird was finished in the last years of Shāh Rukh's life. His reign, as with that of his father Timūr and his son Ulugh Beg, had been marked by architectural patronage on a lavish scale. Shāh Rukh died in 850/1447 and Ulugh Beg three years later. Their successors in Transoxiana and Khurasan showed comparatively little interest in architecture. The only building on a comparable scale in the Turkoman-ruled western provinces was the Blue Mosque of Tabriz, completed in 870/1465. Thus to a certain extent the Khargird madrasa stands at the end of an era, as the last great surviving monument of the Timurid rulers.

*Location and Building History.* Khargird is situated 3 km. south-east of Khvāf. It can be reached by road from the town of Tayābād on the main Mashhad-Herat road.

Transcriptions and translations of the main inscriptions have been published by Sykes and Herzfeld.<sup>2</sup> The foundation inscription at the back of the entrance aivān gives the titles of Shāh Rukh, the name of the founder Pīr Aḥmad b. Ishāq b. Majd al-Dīn Muḥammad al-Khvāfī and the date 848/1444. Ghiyāṣ al-Dīn Pīr Aḥmad Khvāfī was one of Shāh Rukh's vazīrs from 820/1417 to the end of Shāh Rukh's reign. A short biography is contained in Khvānd Amīr's *Dastūr al-Vuzarā'*,<sup>3</sup> which says "the madrasa which is situated in the province of Khvāf is to be numbered among his works".<sup>4</sup>

In the blind niche to the right of the entrance aivān is written "By the care of the humble slave Khvāja Pīr Aḥmad Raiḥān".<sup>5</sup> At the back of the west aivān a panel relates how the madrasa was built by the deceased master Qavām al-Dīn Shīrāzī and finished by Ghiyāṣ al-Dīn Shīrāzī in 846/1442. Qavām al-Dīn was the chief architect of Shāh Rukh's court. He died in 842/1438.<sup>6</sup> The architect Ghiyāṣ al-Dīn is not known to have signed any other work.

Why did Pīr Aḥmed Khvāfī build the madrasa in the obscure village of Khargird rather than in the larger town of Khvāf? A possible explanation is the wish to perpetuate a tradition of learning which had been founded in the nearby Nizāmiyya.<sup>7</sup>

In recent years the brickwork of the madrasa has been repaired and partly restored under the supervision of the Ministry of Culture.

<sup>1</sup> For previous literature see the references under Ghiyāṣ al-Dīn Shīrāzī in L. A. Mayer, *Islamic Architects and Their Works* (Geneva 1956), especially E. Diez, *Churasanische Baudenkmäler* (Berlin 1918), pp. 72-6, pls. 31-4, and E. Herzfeld, "Damascus: Studies in Architecture—II", *Ars Islamica* X (1941), pp. 20-2, fig. 42. See also: C. E. Yate, *Khurasan and Sistan* (London 1900), p. 129; G. A. Pugachenkova, *Iskusstvo Afganistana* (Moscow 1963), pp. 158-62; D. Hill and O. Grabar, *Islamic Architecture and its Decoration* (2nd ed. London 1967), p. 68, col. pl. I, figs. 588-90; D. Hill, "Journey to Jam", *Apollo* LXXXIV (1966), p. 394; L. Golombek, *The Timurid Shrine at Gazur Gah* (Toronto 1969); *eadem*, "Palace in a Tepe", *Rotunda* Winter (1972), p. 40; *eadem*, in J. Sourdel-Thomine and B. Spuler, *Die Kunst des Islam* (Berlin 1972), pp. 342-3; *eadem*, "Khargird Revisited", *Memorial Volume for A. U. Pope* (forthcoming); N. Mishkatī, *Fihrist-i bināhā-yi tārikhī va amākin-i bāstānī-yi Irān* (Tehran 1345 A.S.H.), p. 65; S. and H. Seher-Thoss, *Design and Colour in Islamic Architecture* (Washington 1968), pls. 70-4; A. U. Pope, *Persian Architecture* (London 1965), pp. 198-9, pl. VIII, figs. 192-3, 259-60; *idem*, *Introducing Persian Architecture* (London 1971), pp. 79-80. I would like to thank Tony and David Gye, Oliver Barratt and Robert Hillenbrand for their help in recording the monument in September 1973. I would also like to thank Robert Hillen-

brand for making many valuable comments on a first draft of this article, Mr. L. P. Elwell-Sutton for identifying the inscriptions and Mr. G. Smith who contributed to the drawings of Figs. 3-5. Mr. Dāneshdūst of the Khurasan office of the National Society for the Conservation of Historic Monuments of Iran kindly gave permission to publish the plans which form the basis of Figs. 1 and 2.

<sup>2</sup> P. M. Sykes, "Historical Notes in Khurasan", *JRAS* (1910), pp. 1149-50; Herzfeld, *op. cit.*, pp. 21-2. Sykes is inaccurate. Herzfeld is correct apart from the omission of *b.s'y* after *q.rān* in his transcription of the foundation inscription.

<sup>3</sup> Ed. Sa'īd Nafīsī (Tehran 1317/1938), pp. 353-7.

<sup>4</sup> *Ibid.*, p. 354.

<sup>5</sup> According to Pope, *Survey*, p. 1127, the name reads Khvāja Raiḥān b. Aḥmad. The inscription is now in a poor condition, but in any case neither of the two names correspond with any person of the period yet identified.

<sup>6</sup> For a discussion of the buildings of Qavām al-Dīn, see Golombek, *Gazur Gah*, pp. 60-2; for literary references see *ibid.*, p. 76 n. 33.

<sup>7</sup> Diez, *op. cit.*, pp. 71-2; Herzfeld, *op. cit.*, pp. 16-19; A. Godard, "La Nizāmiyeh de Khargird", *Āthār-e Irān* IV (1949), pp. 68-83.

*Brief Description (Figs. 1-4).* The entrance façade faces north-east. For convenience the entrance façade will be referred to as facing east and other directions altered accordingly.

The madrasa consists of a courtyard with four aivāns with living chambers in two stories between them. At the four corners of the courtyard are domed rooms, also in two stories. Preceding this is an entrance complex consisting of two large domed rooms, the one to the north serving as a mosque, that to the south as a lecture-hall, with a vestibule in between and a domed room above it.

*Exterior (Pls. Ia and Vb).* The madrasa stands free on all sides, unrelated to the modest mud-brick domestic dwellings near it. It is one of the few large free-standing Iranian Islamic buildings whose exterior is totally covered with decorative revetment.<sup>8</sup> This is largely done by means of *banai*-technique<sup>9</sup> whereby large areas of wall surface were covered in the Timurid era.<sup>10</sup> Perhaps the best description of this method is given by M. B. Smith: "[A] core is encrusted with a thin revetment of smoothly

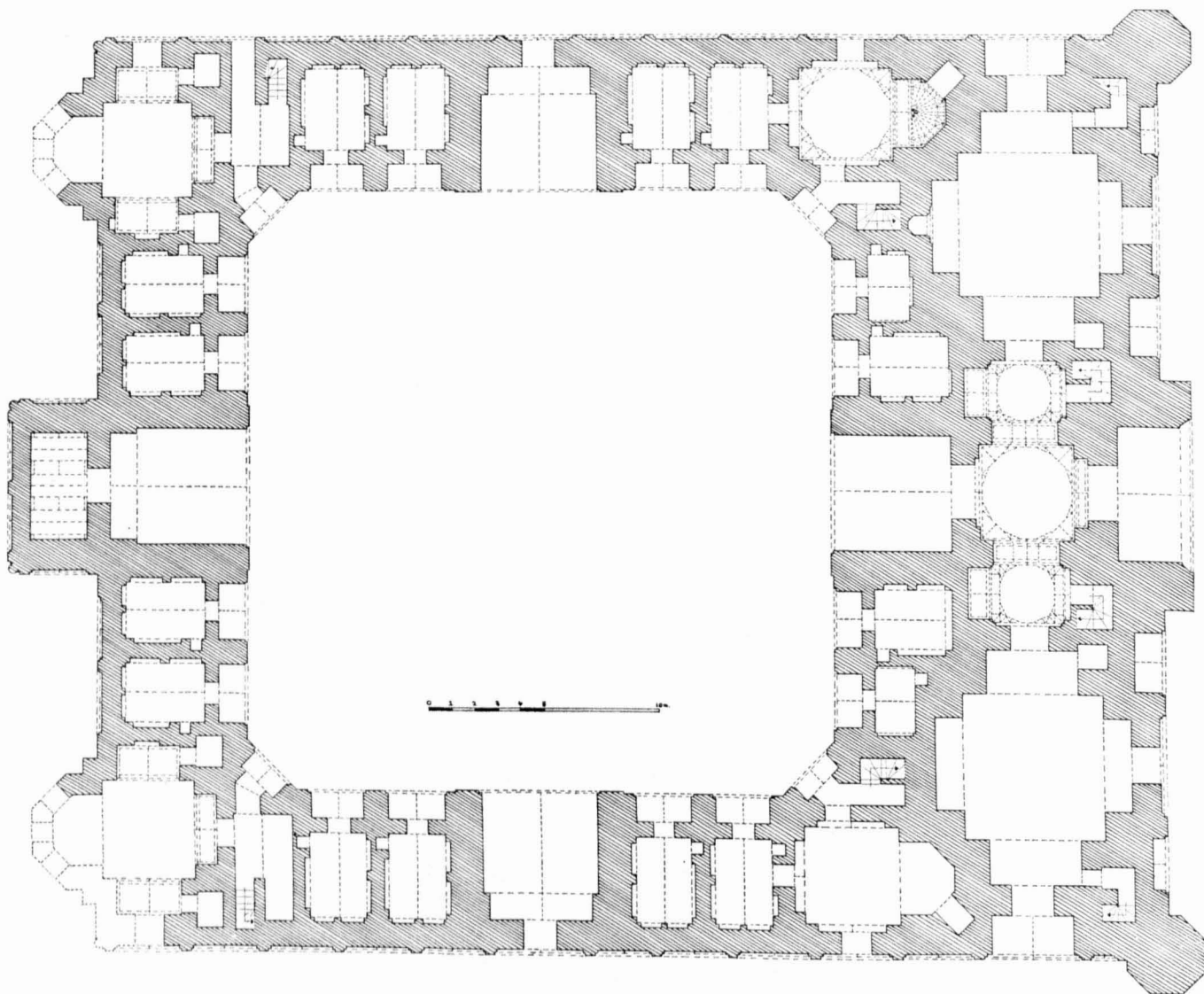


Fig. 1. Ground-plan (partly after Mashhad Conservation Office).

<sup>8</sup> Large free-standing buildings are rare in all periods, because most buildings were sited in urban areas where space was in short supply. Caravanserais, the obvious exceptions, had no such limitations. Other exceptions, e.g. Timūr's buildings in Samarqand, may have been brought about when rulers were strong enough to order clearance of any existing structures on a site. Cf. Clavijo's description of the destruction of houses in

Samarqand to make way for a road ordered by Timūr, and his subsequent peremptory dismissal of claims for compensation. (*Embassy to Tamerlane*, trans. G. Le Strange (London 1928), pp. 278-80).

<sup>9</sup> For the use of this term, see Golombek, *Gazur Gah*, pp. 58-9.  
<sup>10</sup> For an early example, see the Shrine of Aḥmad Yasavī, Turkestan (799/1397), Hill and Grabar, *op. cit.*, figs. 104-9.

rubbed, under-baked brick laid in gač mortar, in even courses with precise bonding, the horizontal joints carefully raked, and the rising joints minute".<sup>11</sup> The bricks of the core at Khargird measure c.  $25 \times 25 \times 6$  cm.

*The Entrance Façade* (Fig. 3). The façade is divided visually into three main sections: the central aivān, the group of three flanking niches and the corner towers. This combination of *pīsh tāq*, corner towers and intervening wall is familiar from such Saljūq buildings as the caravanserais of Dāya Khātūn and Ribāt-i Sharaf,<sup>12</sup> and was re-employed in the Timurid period with varying degrees of emphasis on the three constituents in the earlier buildings of the Shrine of Aḥmad Yasavī (1397 A.D.), the Mosque of Bībī Khānum in Samarqand (1399–1404 A.D.) and the shrine at Gāzur Gāh.<sup>13</sup> In the latter two examples the central aivān projects laterally as well as vertically from the façade, as at Khargird.

A decorative revetment, now missing, was applied to the lower portions of the façade at Khargird. On the aivān the mortar<sup>14</sup> to which the revetment was applied shows hexagonal imprints indicating

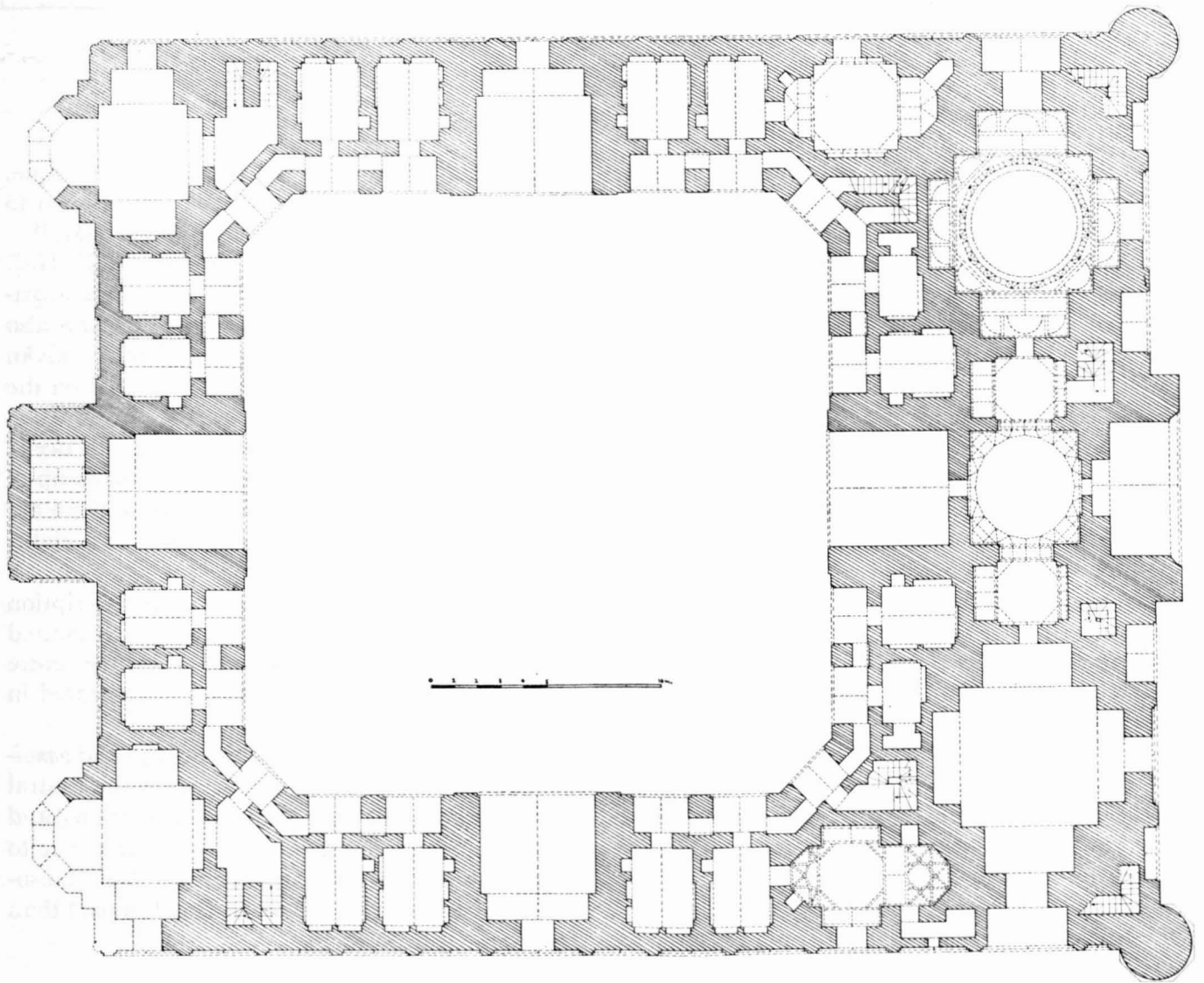


Fig. 2. Upper-storey plan (partly after Mashhad Conservation Office).

<sup>11</sup> "Material for a corpus of Early Iranian Islamic Architecture II: Manār and Masjid, Barsiān (Iṣfahān)", *Ars Islamica* IV (1937), p. 16.

<sup>12</sup> See respectively Pribytkova, *Pamyatniki Arkhitektury XI Veka v Turkmenii* (Moscow 1955), p. 50, and A. Godard, "Khorāsān",

*Āthār-e Irān* IV (1949), pp. 7–68, fig. 1.

<sup>13</sup> See respectively Hill and Grabar, op. cit., fig. 109; E. Ratiya, *Mechet' Bibi-Khanym* (Moscow 1950), p. 83; Golombek, *Gazur Gah*, fig. 6.

<sup>14</sup> This is c. 13 cm. thick.

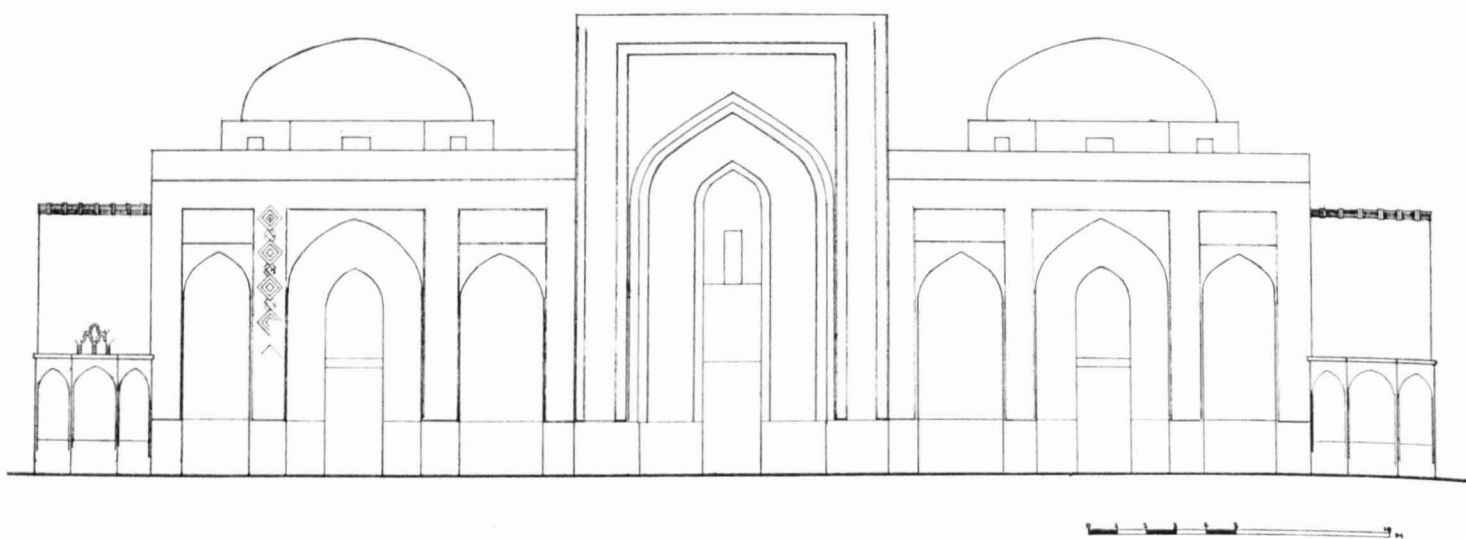


Fig. 3. Entrance façade: elevation.

that the original design was hexagonal in character, possibly like that of the dado of the mosque. The large rectangular imprints in the mortar on the façade of the entrance-complex would seem to indicate the former presence of a lower casing of marble (Pl. IIc) like the Shrine at Gāzur Gāh.<sup>15</sup>

At the back of the aivān the foundation inscription follows the contour of the aivān arch (Pl. IIa). This is an unusual shape and location for a foundation inscription, which normally follows the rectangular shape of the portal-screen. In the Masjid-i Gauhar Shād (1418 A.D.) in Mashhad which was also built by Qavām al-Dīn, an inscription in the sanctuary aivān also follows the contour of the aivān arch,<sup>16</sup> but there it is secondary in importance to the foundation inscription which is situated on the portal screen of the aivān. The importance of this will be discussed later.

The sides of the aivān are decorated in inset-technique, with an outer border of mosaic-faïence.<sup>17</sup> Inset-technique "refers to patterns composed of a series of plaques which are themselves made up of mosaic-faïence, majolica, or bisque tiles".<sup>18</sup> Lozenge-shaped plaques with *Allāh* executed on them are arranged so that an octagon, the basic unit, is formed when their corners are joined. Two eight-pointed stars are inscribed within this octagon (Fig. 5a-c).

A bevel of mosaic-faïence softens the transition from the aivān to the portal-screen. An inscription in mosaic-faïence once ran around the outer edge of the screen (Pl. IIc). The spandrels were decorated with mosaic-faïence; the imprints on the plaster indicate that a circular motif once occupied the centre of each spandrel.<sup>19</sup> The outer sides of the aivān, where it projects from the façade, are decorated in *banai*-technique.

On either side of the entrance aivān is a group of three niches decorated in mosaic-faïence and *banai*-technique of bold lozenge pattern. A mosaic-faïence inscription once ran above them. In the central niche on each side the *banai*-technique pattern follows the contour of the arch, framing the entrance and window into the domed room behind. This distinctive treatment is foreshadowed in the entrance to the mausoleum in the Shrine of Aḥmad Yasavī (799/1397), the Shrine at Gāzur Gāh and the Mausoleum of Gauhar Shād, Kūhsān (844/1440-1).<sup>20</sup> This feature at Khargird has more visual impact than the earlier examples cited, but it may be seen as a development from them.

<sup>15</sup> Golombek, *Gazur Gah*, fig. 6. Cf. the mosque at Tayābād in Hill and Grabar, op. cit., fig. 171.

<sup>16</sup> *Survey*, pl. 431.

<sup>17</sup> Colour illustration in Scherr-Thoss, op. cit., pl. 71.

<sup>18</sup> Golombek, *Gazur Gah*, p. 59.

<sup>19</sup> This was not always the case with Timurid aivāns. For examples of spandrel mosaic-faïence decoration with no

central emphasis, cf. Yazd, Masjid-i Mir Chaqmāq (840-1/1436-7), *Survey*, pl. 440, and the west aivān at Gāzur Gāh, O. von Niedermayer, *Afghanistan* (Leipzig 1924), pl. 170.

<sup>20</sup> See respectively Hill and Grabar, op. cit., fig. 110; Golombek, *Gazur Gah*, fig. 6; G. A. Pugachenkova, "Les Monuments Peu Connus de l'Architecture Médiévale de l'Afghanistan", *Afghanistan XXI* (1968), p. 33.

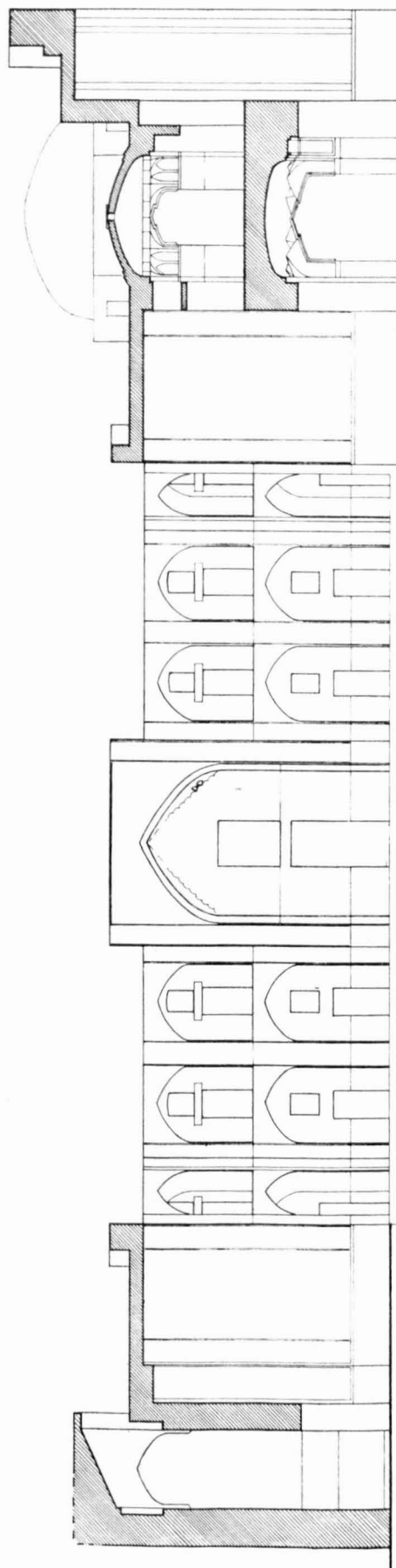


Fig. 4. Section.

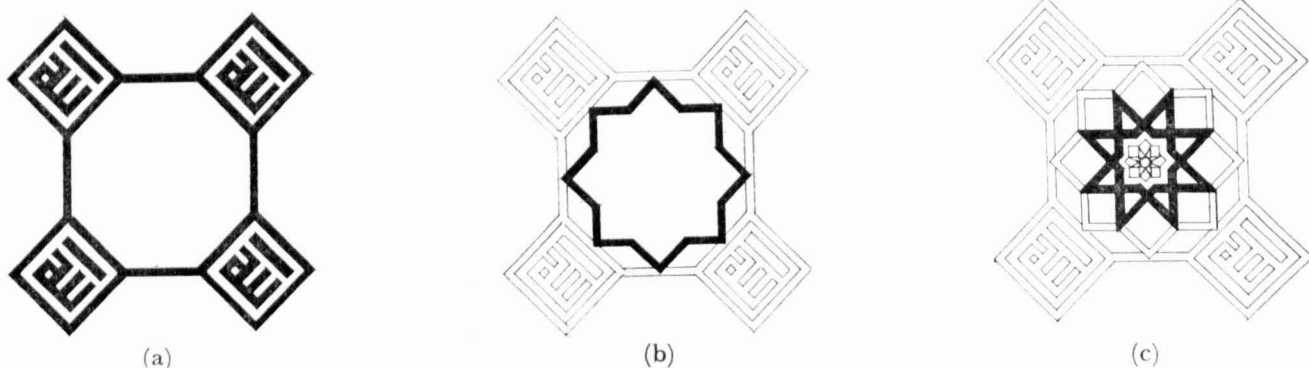


Fig. 5 a-c. Revetment on entrance aivān.

The lower section of each corner tower is octagonal.<sup>21</sup> Each face has an arcuated panel of *banai*-technique, with underglaze-painted tiles in the spandrels (Pl. II d). The panels are separated from each other by wedge-shaped bricks which stand clear from the surface; their horizontal joints are slightly larger than usual and unpointed, giving an effect of rustication. A course of thin marble slabs separates the lower octagonal from the upper cylindrical part of the towers. The upper part is divided into pointed cross-shaped fields by *banai*-technique in which the bricks, like the wedge-shaped ones below, are unpointed and have comparatively large horizontal joints. It is almost as if decorative brickwork were being rediscovered, the effect obtained recalling that of Saljūq brickwork.<sup>22</sup> The brickwork here, however, serves primarily as a framework for the enclosed tiles, of which only fragments remain. The corner towers of the Ulugh Beg Madrasa, Ghujdavān (836/1433), are solid and of the same height as the façade.<sup>23</sup> Those of Khargird are also solid and are unlikely to have been much taller. The towers served no functional purpose and their appearance only on the entrance façade<sup>24</sup> emphasizes their decorative role as a decisive visual accent at each end of the façade.

*The Lateral Façades.* At the eastern extremities of the lateral façades a tall and narrow blank niche separates the corner towers from the recessed side entrances to the mosque and lecture-hall (Pl. II d). The pattern of the *banai*-technique on the sides of the south entrance is one of interlocking lozenges, like that on the corner towers. The north entrance, however, has the words *Allāh* and *Muḥammad* adjoined in large rectangular Kufic. The reason for this dichotomy is of course that the sacred names proclaim the entrance to the room which is the mosque.

The doorway and window of these entrances are framed in *banai*-technique in which the pattern follows the contour of the arch. It will be remembered that of the three entrances in the entrance façade, two also were framed by similar designs and the third, the central aivān, had an inscription which followed the same contour. It can be seen then that this contour applied to two-dimensional revetment is here given iconographic meaning as an entrance. It also serves to emphasize the identification of the lateral entrances with the east façade and entrance-complex—as at Gāzur Gāh “aesthetically and functionally the entrance-complex is a self-contained building”.<sup>25</sup>

The rest of the lateral façades are given comparatively simple decorative treatment (Pl. V b). The wall is divided into a series of large, shallow blind niches. Three of these niches on either side are pierced by the doorways and windows of the north and south aivāns and the corner rooms of the courtyard (Fig. 1). Otherwise the niches do not reflect the architectural function of the rooms behind them; they serve merely to give interest to what would otherwise be a flat wall. They are decorated in *banai*-technique in which the main pattern is essentially one of interlocking hexagons.

<sup>21</sup> Polygonal bases for towers and minarets are the rule rather than the exception in Timurid architecture, e.g. those of the Shrine of Aḥmad Yasavī, Turkestan, the Mosque of Bibī Khānum, Samarqand, the Mosque and Madrasa of Gauhar Shād, Herat, and the Shrine at Gāzur Gāh. See Hill and Grabar, *op. cit.*, figs. 107, 39, 132-3.

<sup>22</sup> For a similar rusticated effect, cf. the minaret of the Yāqūtiyya Madrasa, Erzurum, c. 1310 A.D., Hill and Grabar, *op. cit.*,

fig. 341.

<sup>23</sup> Hill and Grabar, *op. cit.*, fig. 124. The decoration in *banai*-technique on the summit of these towers is complete, showing that they were originally no higher than they are now (personal observation).

<sup>24</sup> As at Gāzur Gāh; see Golombek, *Gazur Gah*, fig. 1.

<sup>25</sup> *Ibid.*, p. 22.

*The Rear Façade.* The rear of the madrasa was articulated through the rectangle of the *bād-gīr* in the centre and semi-octagonal projections from the corner rooms. The south-west corner room is partly destroyed (Pl. Vc); only wedge-shaped stumps remain of the projection of the north-west corner room. The exterior of the *bād-gīr* is given special decorative emphasis with bold *banai*-technique patterns and engaged columns. Engaged columns were also used at the corners of the rear façade (Pl. Vb). In Transoxiana engaged columns were widely used on the outer and inner edge of portal screens. Qavām al-Dīn seems to have abjured this use of them—they appear neither in the Mosque of Gauhar Shād in Mashhad (821/1418), the Mosque of Madrasa of Gauhar Shād in Herat (820–41/1417–37) nor the Shrine at Gāzur Gāh (828/1425).<sup>26</sup> They do appear on the corners of the Mausoleum of Gauhar Shād in Herat.<sup>27</sup> The columns on the Mausoleum were applied to a right-angled substructure—as are those of Khargird.<sup>28</sup>

*The Exterior—Conclusions.* The entrance façade has the most imposing decoration of the exterior, using mosaic-faience and inset-technique as well as *banai*-technique. However, its impressiveness derives more from the grouping of its individual architectural elements—*aivān*, niches, towers and domes. Superficially, the façade may resemble that of the Shrine at Gāzur Gāh. There the façade reads ABBBBBCBBBBBA.<sup>29</sup> At Khargird we have ABCBDBCBA.<sup>30</sup> A strong accent, the central unit of three niches, is interposed between the corner towers and central *aivān*, providing a carefully measured visual crescendo towards the centre of the façade. The two niches flanking the *aivān* are also subtly differentiated from their counterparts beside the corner towers. They are not only slightly wider but deeper—a distinction especially illuminated by the slanting shadows of the morning sunlight (Pl. Ia). The horizontality of the façade—in marked contrast to such a building as the Madrasa of Ulugh Beg in Samarqand—is emphasized by the low profile of the domes and the inscription band which ran above the three niches on either side.

*The Entrance Complex: Interior.* The main importance and interest of the entrance complex and of the domed corner rooms of the courtyard is in their vaulting techniques. It is hoped to make these the subject of a further article which will also deal with the Masjid-i Maulānā of Tayābād. For the moment therefore the vaulting of these areas will receive detailed presentation only in the figures and plates.

The vestibule (Pl. IIb and Fig. 1) is vaulted by a squinch-net supporting a sixteen-sided dome of low profile. One may note its lack of wall space, affirming its conception as a place through which one passed to arrive somewhere else—the mosque, lecture-hall or *aivān*. In the domed room above the vestibule tripartite squinches with mortar ribs covered with white plaster lead to an unusual twenty-sided dome (Pl. VI d; Fig. 2). On either side of this room are two small domed areas (Pl. Vd) where the transition from square to dome is effected by simple kite-shaped compartments (the elementary unit of the squinch-net).

In the mosque (Pl. IIIb; Fig. 2) and lecture-hall (Pls. IIIa, IVa, c, d; Fig. 6) the transition from square to dome is strikingly different. In the mosque four squinches transform the square into an octagon. A ring of stalactites then creates a hexadecagon, on which the drum rests. The drum is pierced by eight windows which alternate with blind niches. The plaster inner dome above this has been largely destroyed; the brick dome over it is a modern restoration. In the lecture-hall the main weight seems to be borne by four large intersecting ribs. Diagonal ribs and a ring of stalactites form the octagonal base of the double drum (Pl. IVc), again pierced by eight windows. This system of vaulting is closely related to the Masjid-i Maulānā of Tayābād (1444 A.D.) where the impression is given of an inner dome supported by a drum with sixteen blind niches (Pl. IVb).

Two areas characterize the decoration of the walls in the mosque and lecture-hall. That below window level is plain, mainly enlivened by surface pattern. Above this the surface of the wall itself is

<sup>26</sup> Respectively *Survey*, pls. 428–33; Hill and Grabar, op. cit., fig. 132; Golombek, *Gazur Gah*.

<sup>27</sup> Hill and Grabar, op. cit., figs. 126–7. The building was part of the Madrasa of Gauhar Shād.

<sup>28</sup> The Transoxianian practice seems to have been to apply them to round substructures. See Pugachenkova and Rempel', *Istoriya Iskusstvo Uzbekistana* (Moscow 1965), pl. 264, and

E. Cohn-Wiener, *Turan* (Berlin 1930), pl. LXXV.

<sup>29</sup> Where "A" are the corner towers, "C" the central *aivān* and "B" the intervening niches. See Golombek, *Gazur Gah*, fig. 6.

<sup>30</sup> Where "A" are the corner towers, "D" the central *aivān* and "BCB" the group of three niches in between.

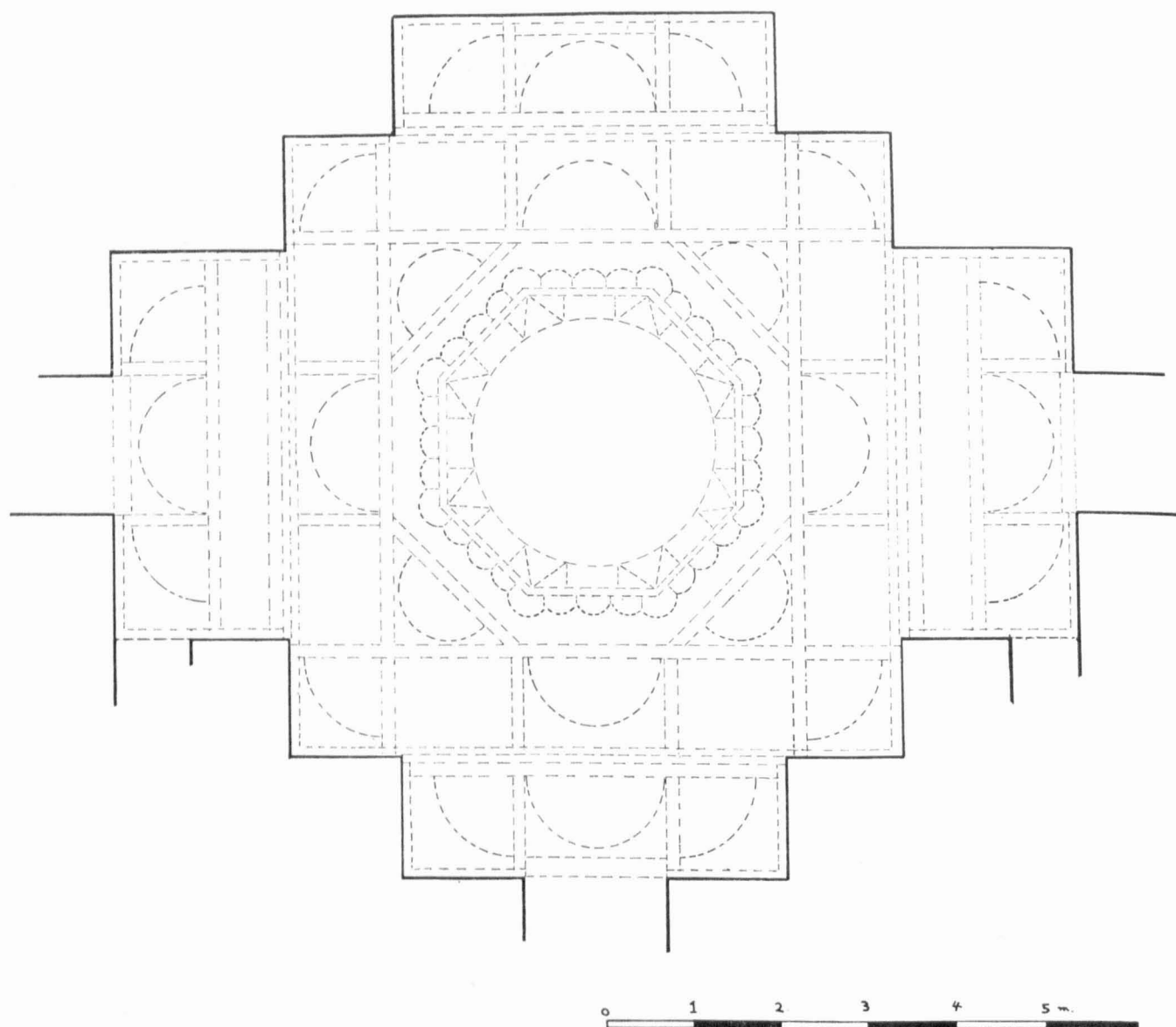


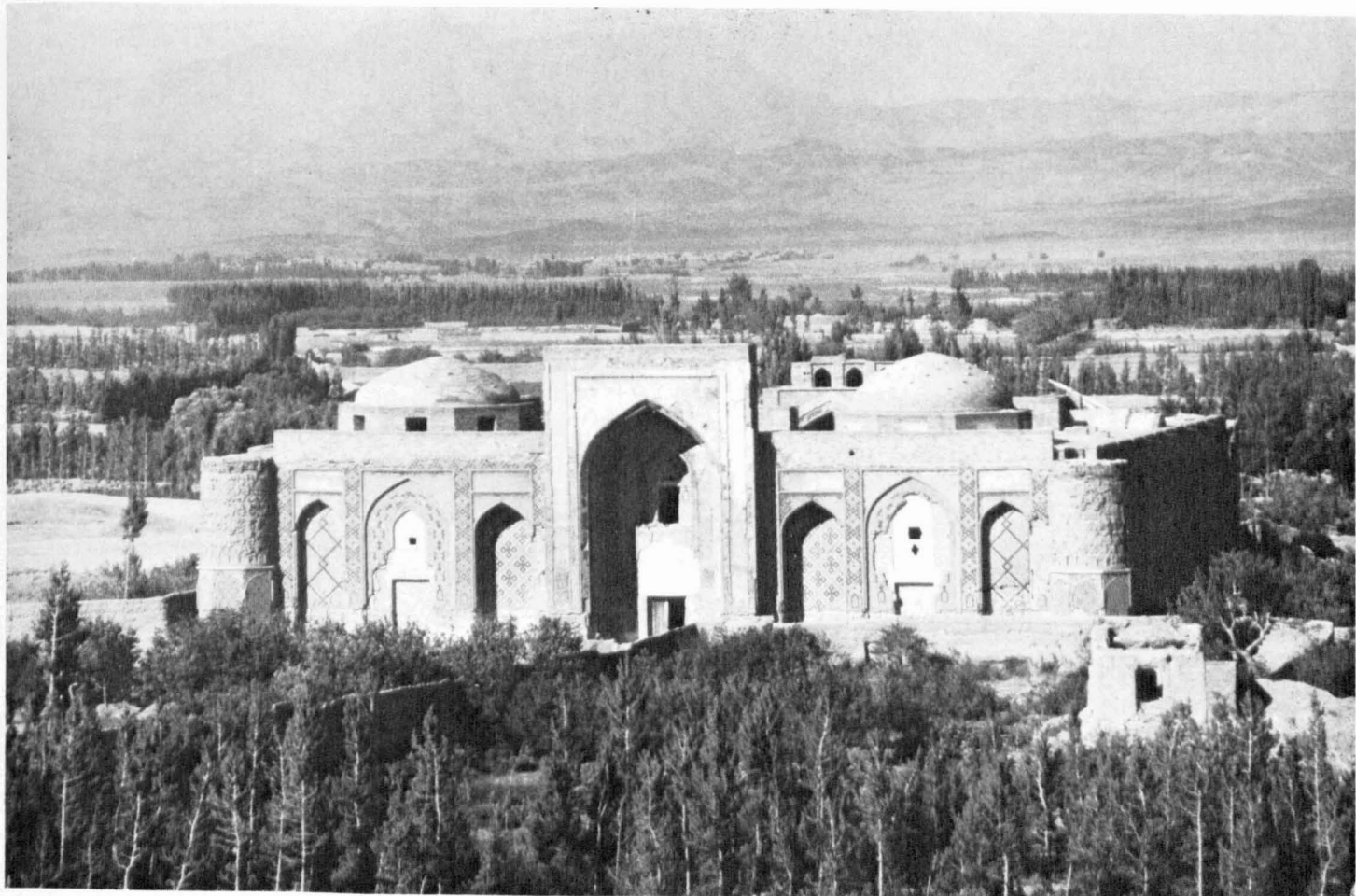
Fig. 6. Lecture-hall, plan of vaulting.

broken up by small blank arches which gradually merge into the honeycombed stalactites, and (in the lecture-hall) by the intersecting arches which support the dome. The effect of increasing lightness is emphasized by the ring of stalactites just below the collar of the drum, and by the light which comes flooding through the windows. In the process of conservation carried out by the Ministry of Culture and Art fragments of glass were found in the earth below the window of the southern recess of the lecture-hall.<sup>31</sup> These were 1 mm. thick, mostly colourless, the other fragments being dark brown, and dark, turquoise or light blue in colour. Small pieces of moulded stucco were also found which would have made a latticed framework for the glass. One can therefore visualize quite different lighting effects from those at present with the light filtering through the multicoloured windows and dappling on the stalactites inside. Glass was used in Timurid buildings as early as the Gūr-i Amīr (c. 1403-4 A.D.), and was also found in the 'Ishrat Khāna (1464 A.D.) in Samarqand.<sup>32</sup>

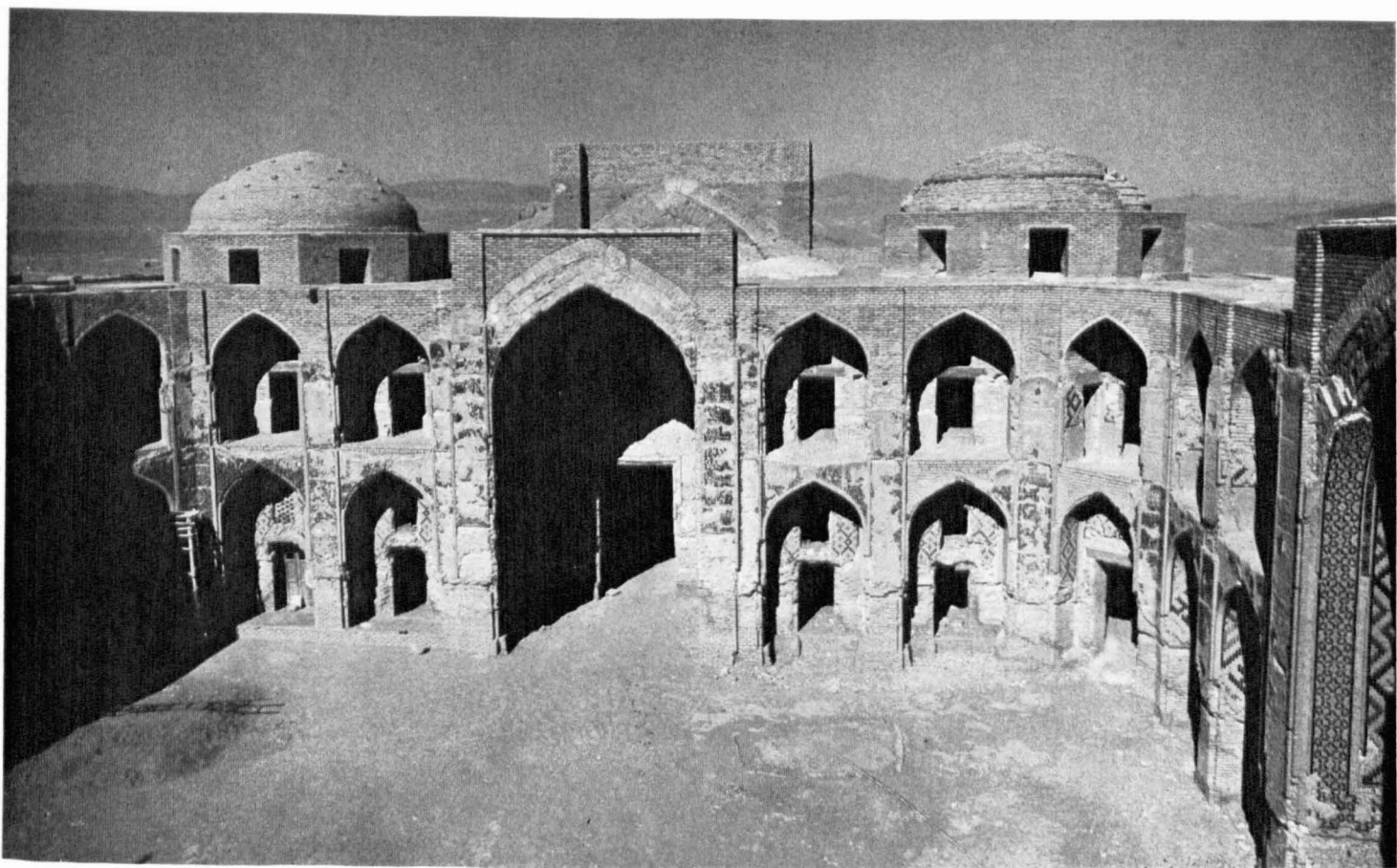
<sup>31</sup> I am grateful to Mr. Dāneshdūst for access to these.

<sup>32</sup> See G. A. Pugachenkova, " 'Ishrat-Khāneh and Ak Saray,

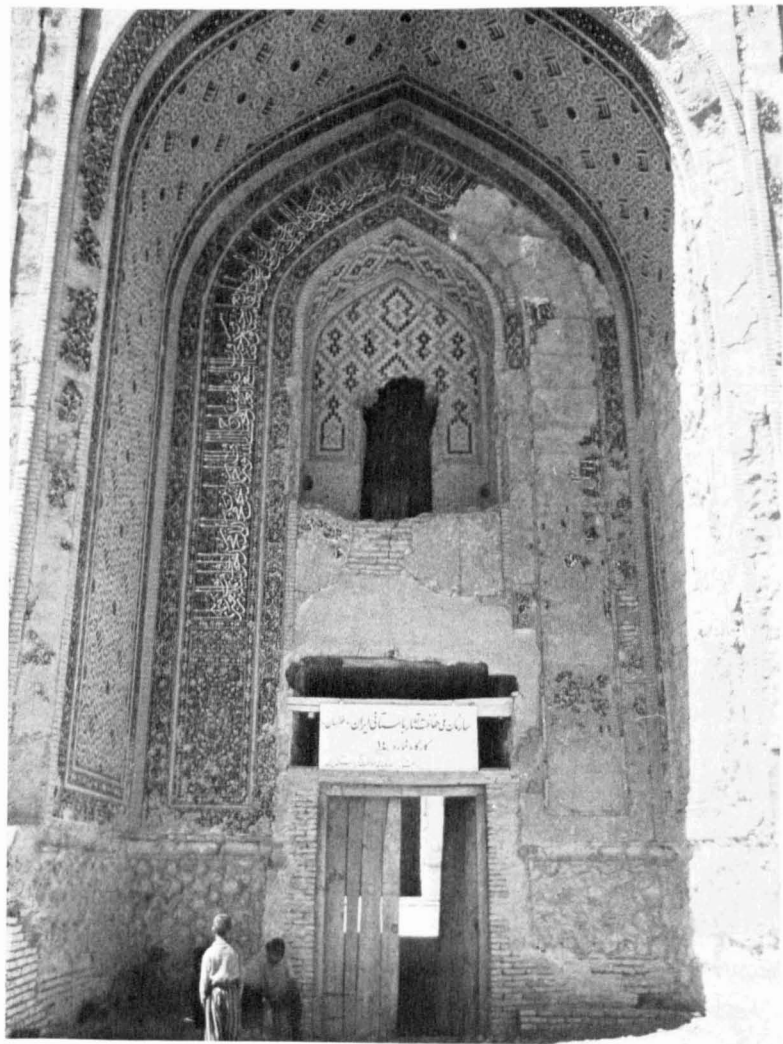
Two Timurid Mausoleums in Samarkand", *Ars Orientalis* V (1963), p. 186.



*Pl. Ia. Madrasa al-Ghiyāsiya, Khargird: view of east (entrance) façade.*



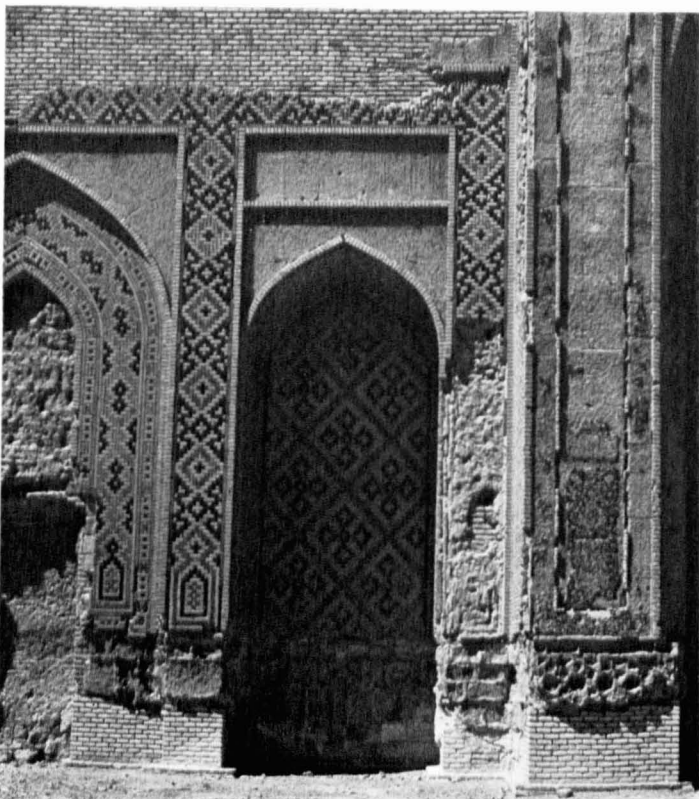
*Pl. Ib. Courtyard, east aivān.*



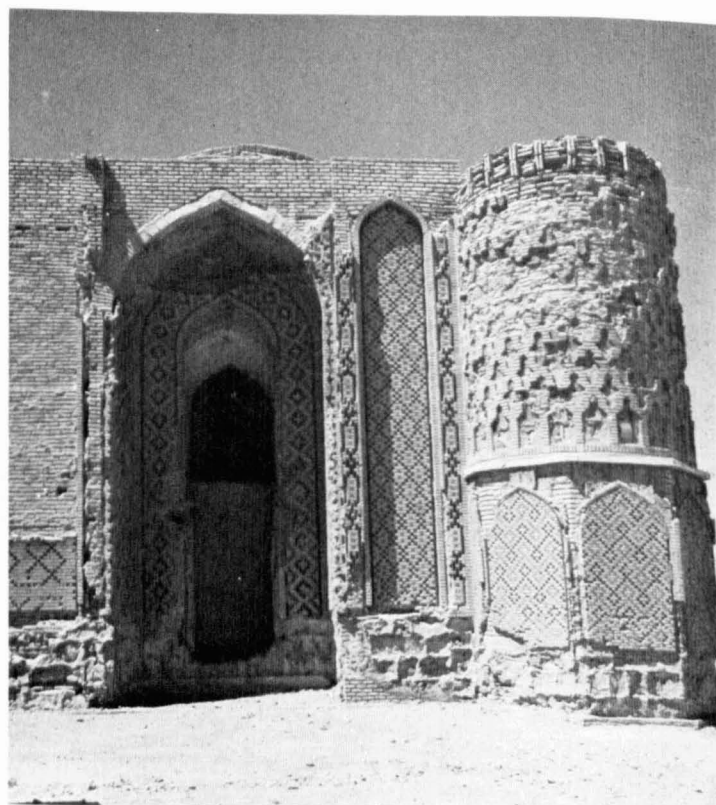
Pl. IIa. Entrance façade, central aivân.



Pl. IIb. Vestibule, north-east corner.



Pl. IIc. Entrance façade, niches south of central aivân.



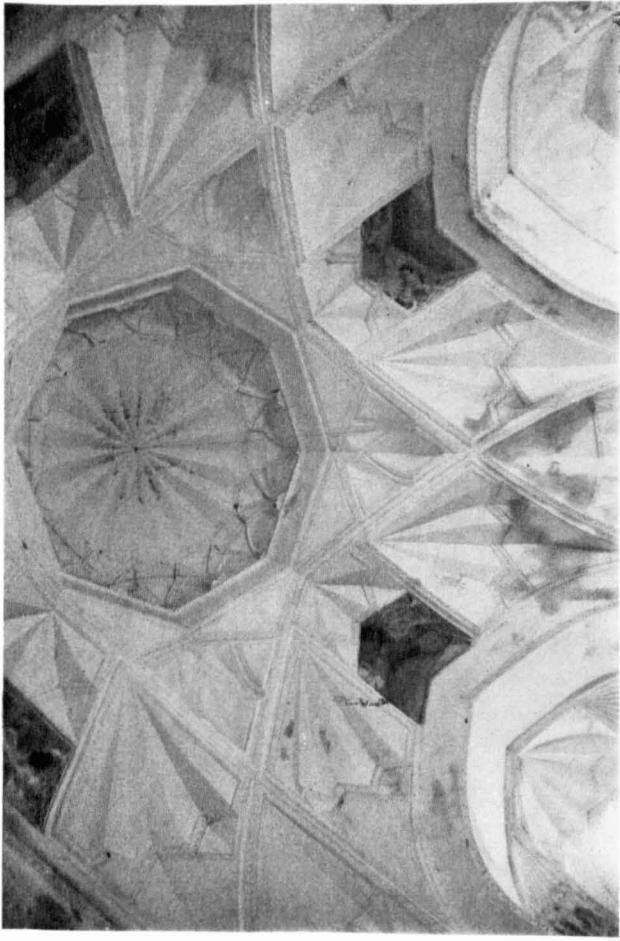
Pl. IId. South lateral façade, corner tower and entrance to lecture-hall.



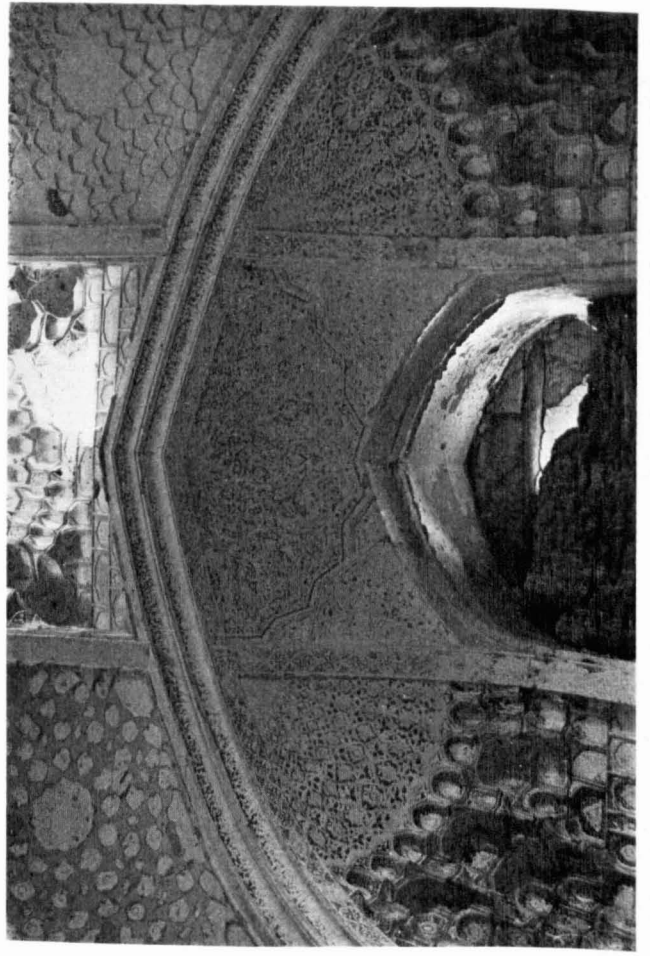
*Pl. IIIb. Mosque, north-west corner.*



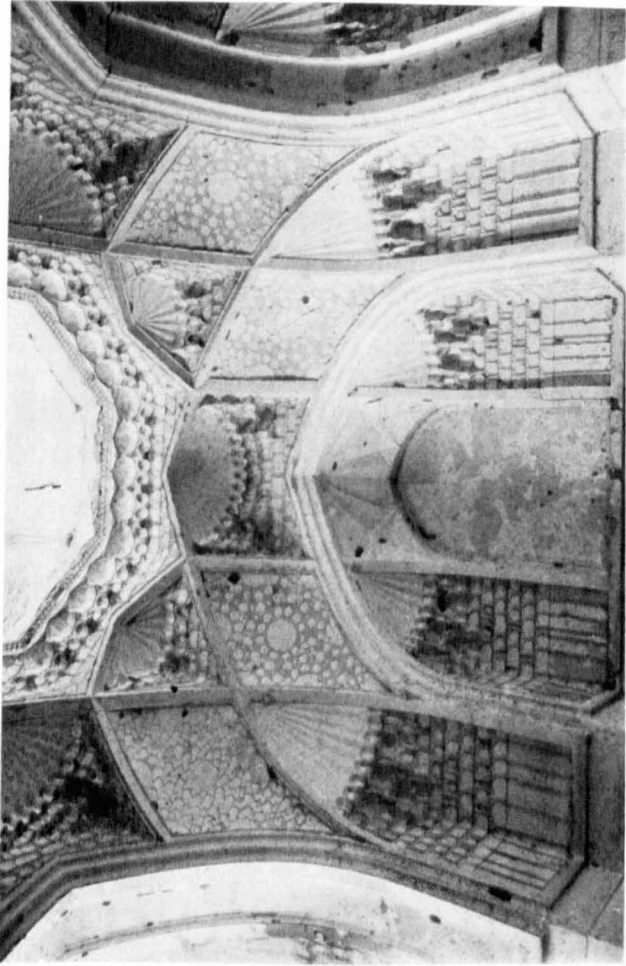
*Pl. IIIa. Lecture-hall, south-east corner.*



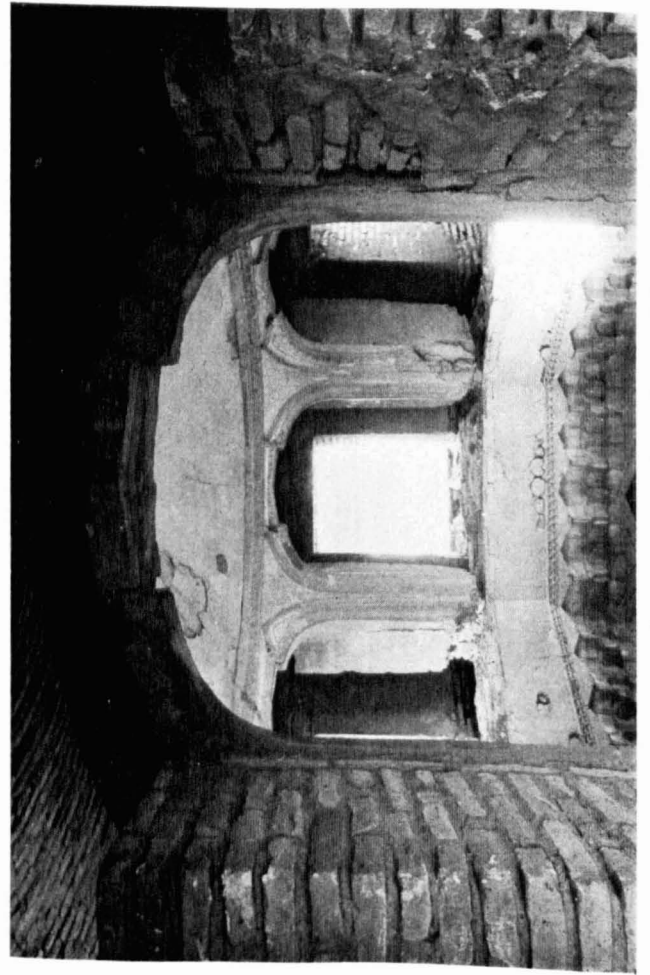
*Pl. IVb. Masjid-i Maulānā, Tavābād, interior.*



*Pl. IVd. Lecture-hall, east recess.*



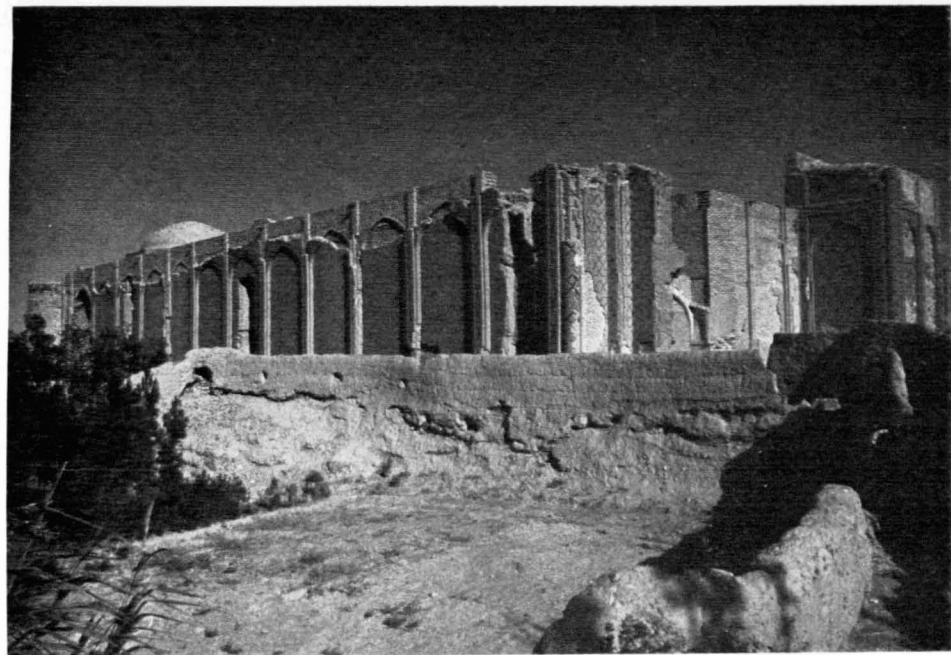
*Pl. IVa. Lecture-hall, west wall.*



*Pl. IVc. Lecture-hall, inner drum and dome.*



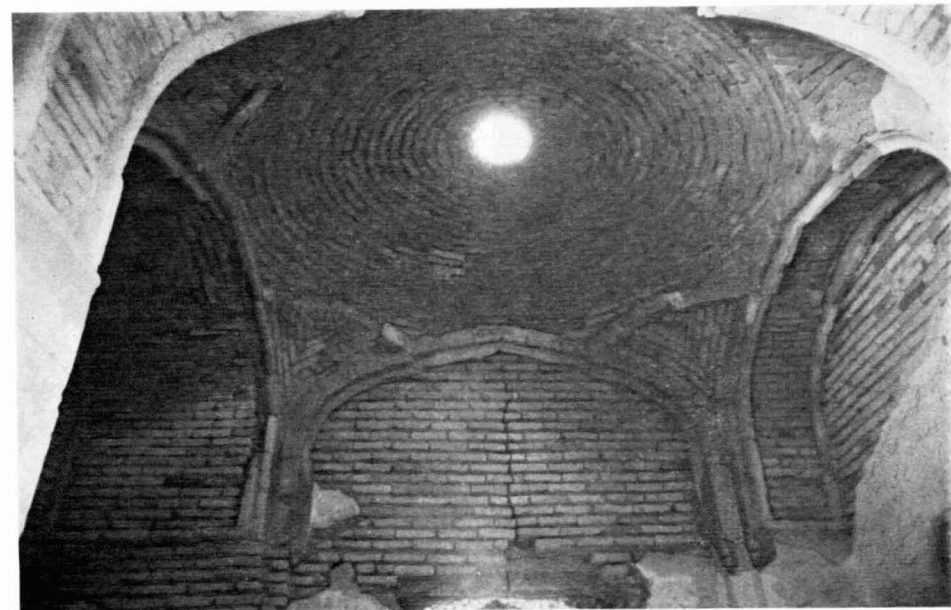
*Pl. Va. Lecture-hall, painted inscription.*



*Pl. Vb. Exterior: view from north-west.*



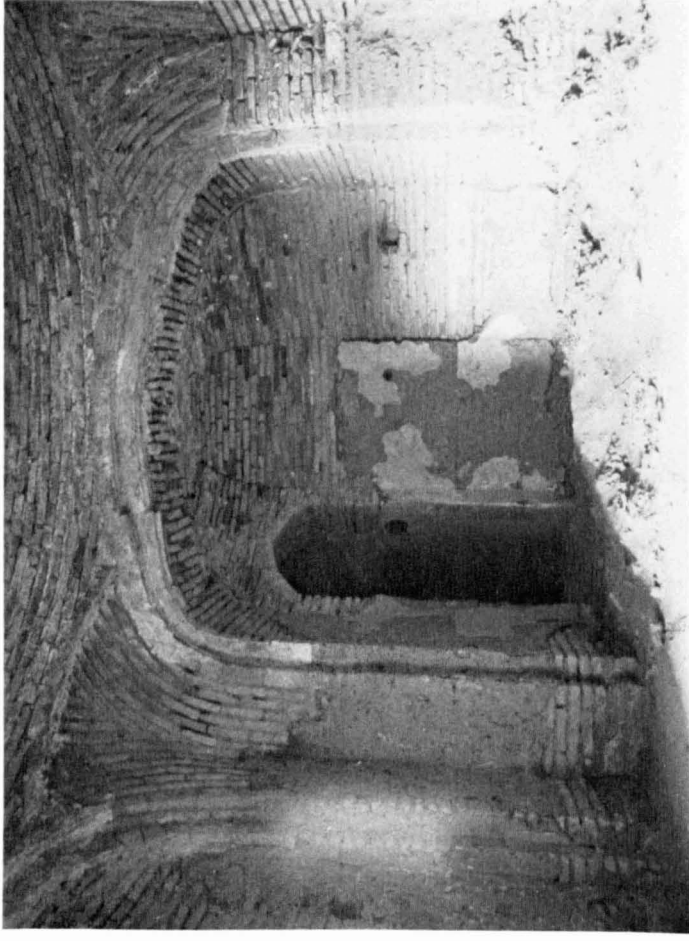
*Pl. Vc. South-west corner room.*



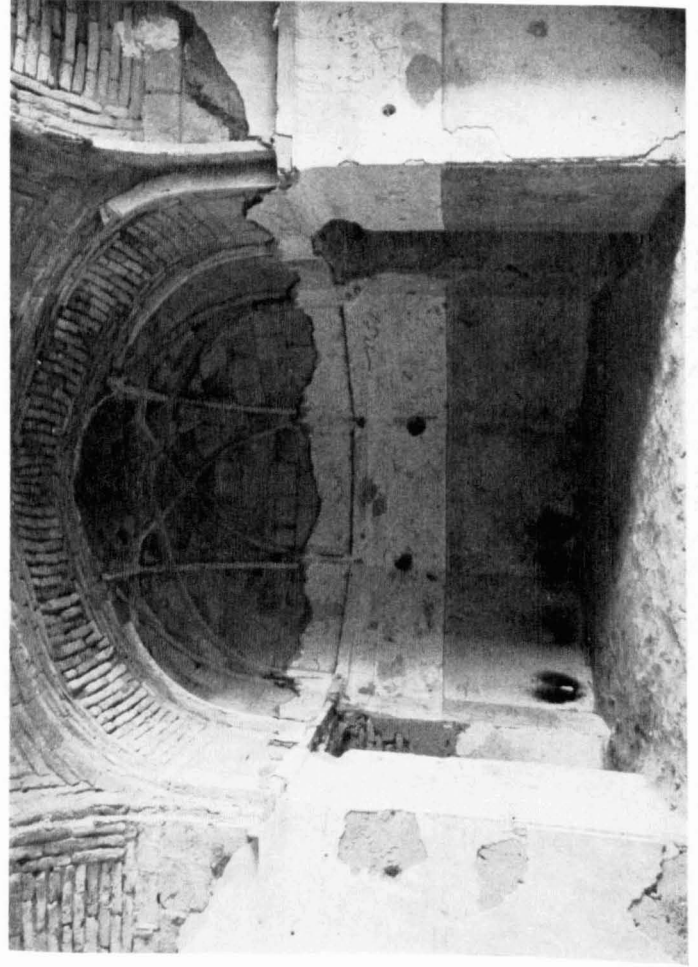
*Pl. Vd. Domed area north of domed room above vestibule.*



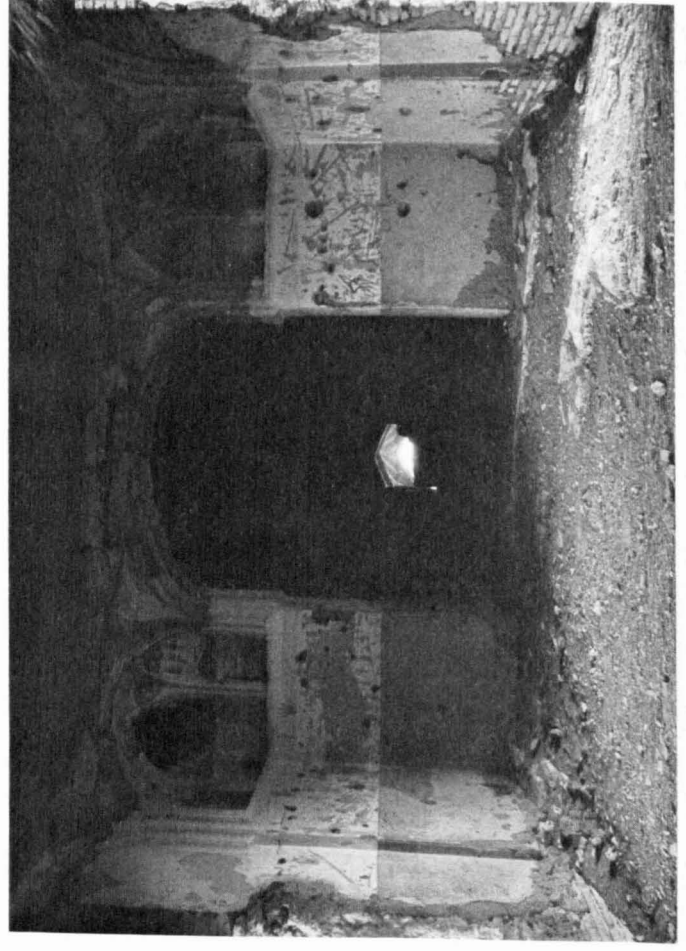
*Pl. VIa. North-east lower domed room, east recess.*



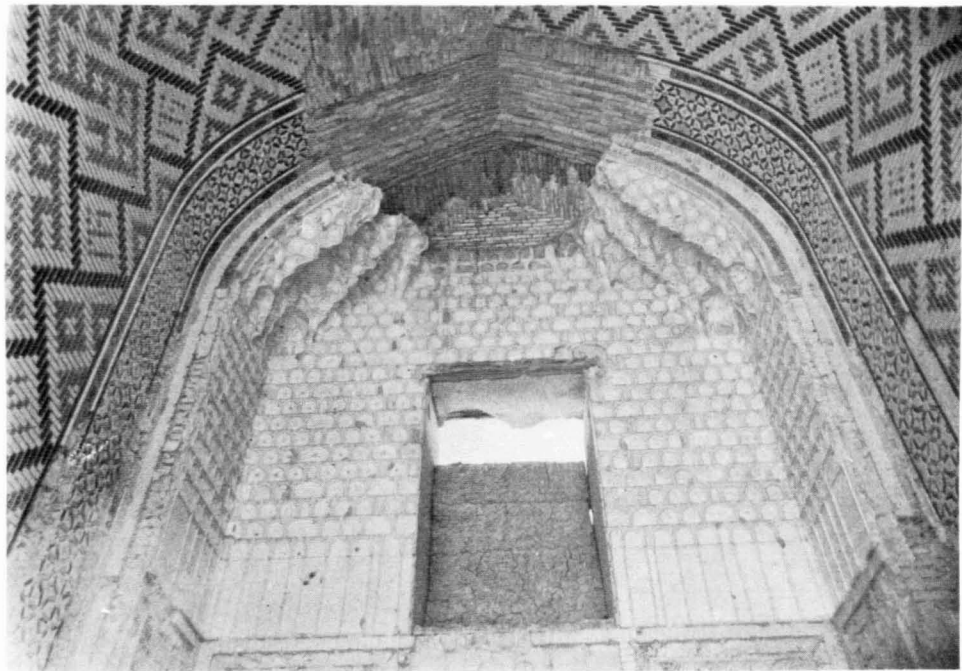
*Pl. VIb. North-east upper domed room, east recess.*



*Pl. VIc. South-east upper domed room, east recess.*



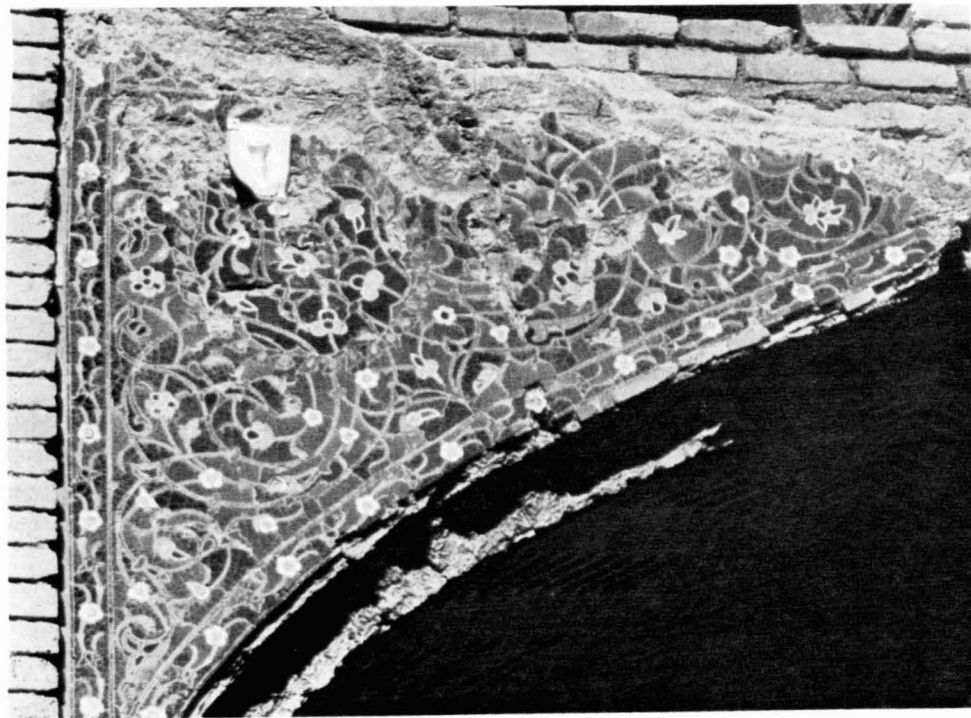
*Pl. VIId. Domed room above vestibule, south wall.*



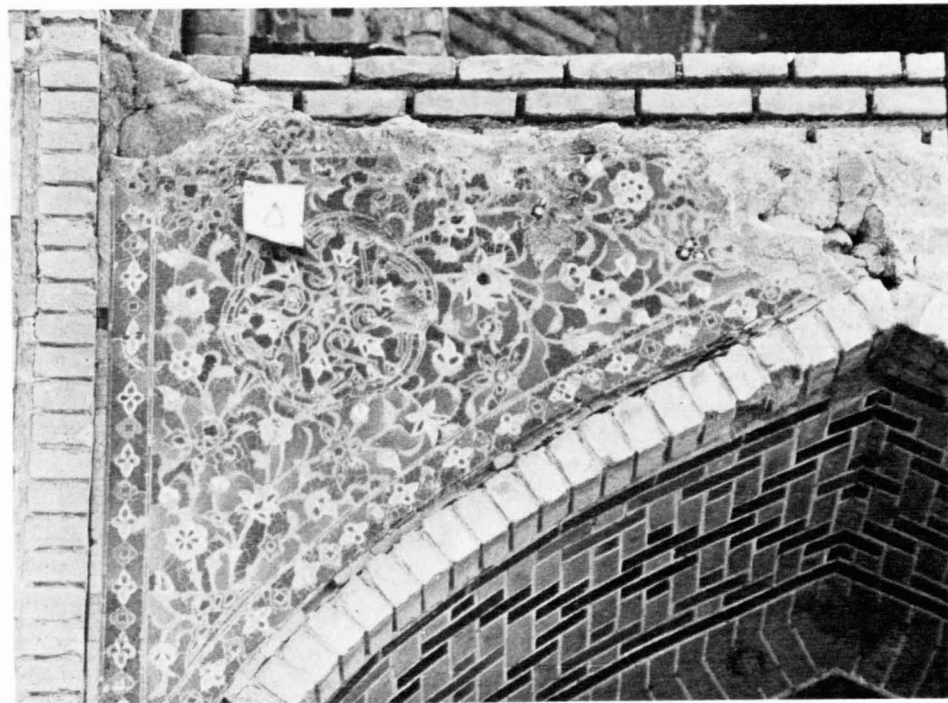
*Pl. VIIa. Courtyard, south aivān.*



*Pl. VIIb. Detail of revetment of west aivān.*



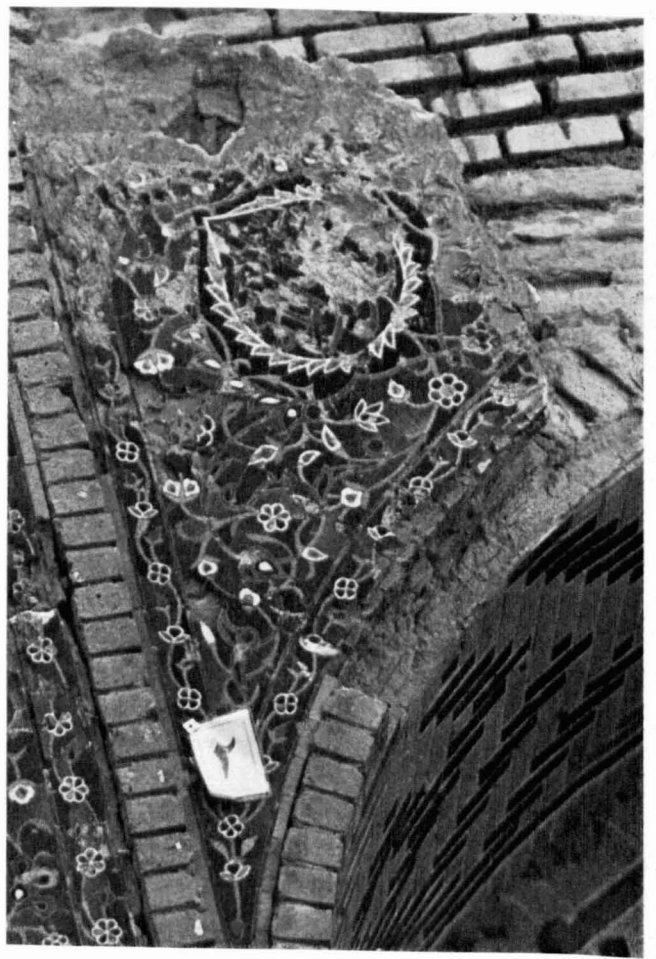
*Pl. VIIc. Mosaic-faience spandrel, type two.*



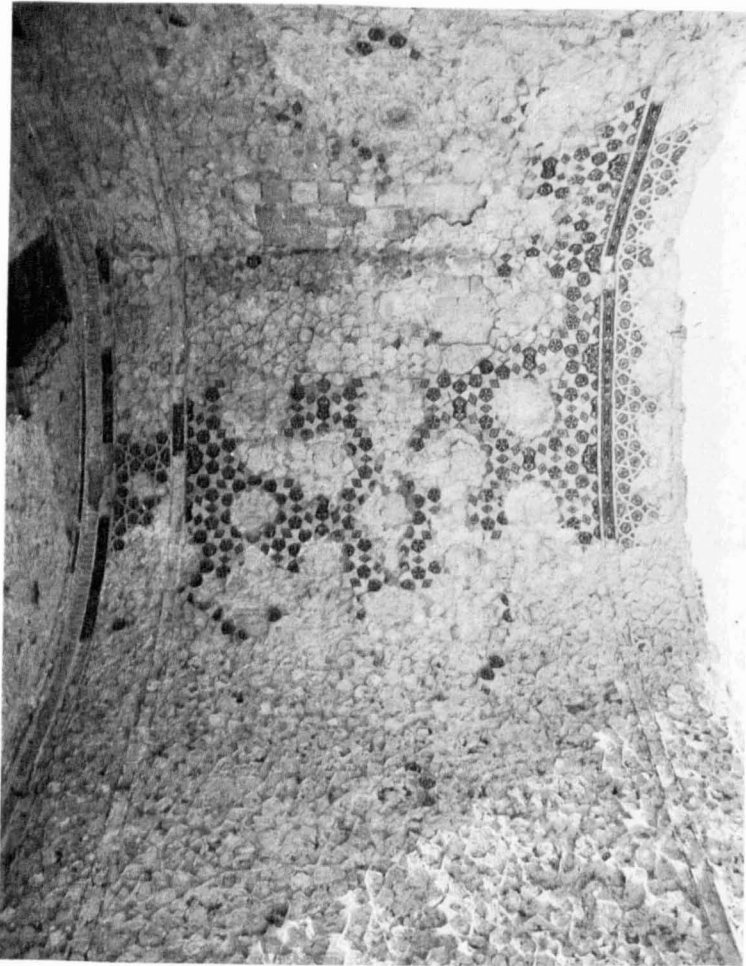
*Pl. VIId. Mosaic-faience spandrel, type three.*



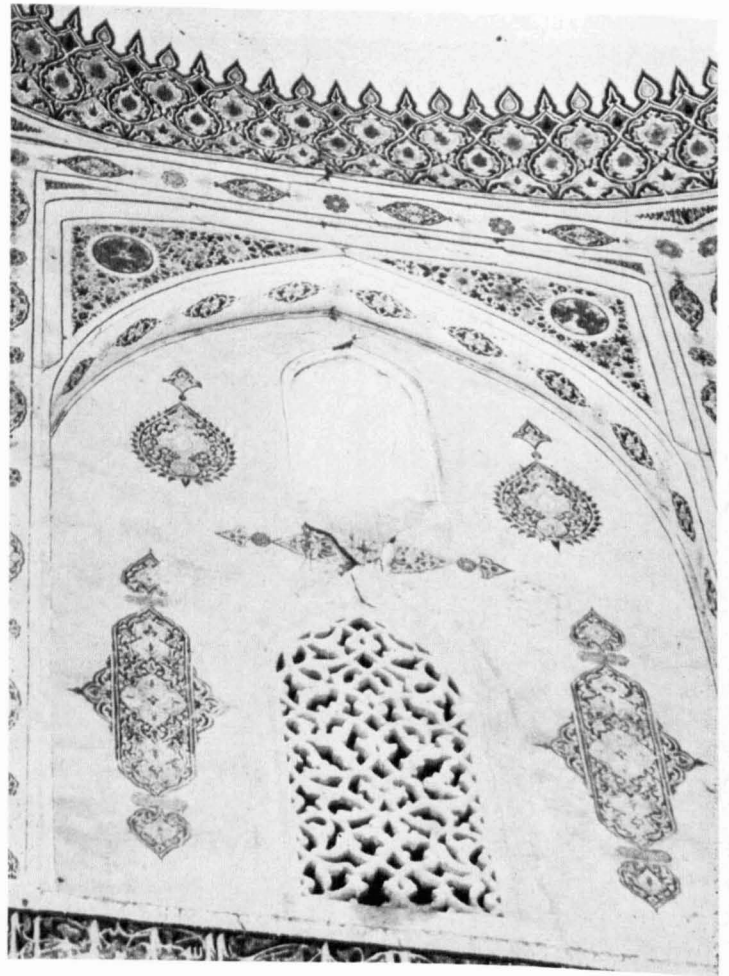
Pl. VIIIa. Panel of mosaic-faience on bevelled corner of courtyard.



Pl. VIIIb. Mosaic-faience spandrel, type one.



Pl. VIIIc. Courtyard, east aivān.



Pl. VIII d. Shrine of Ni'matallāh Valī at Māhān: painted decoration in dome chamber.

*Painted Decoration* (Pls. IVd, Va). The lower sections of the walls of the mosque and lecture-hall are painted with large geometric patterns. The colours used are pastel shades of green, blue, yellow and red. A border of medallions surrounds the panels. Above this runs a painted inscription of decorative Kufic (Pl. Va), enclosed within rectangular panels with cusped ends.

The division of the zone of transition into single blind niches and stalactites is emphasized by the painted decoration each receives. The lower blind niches are filled with tiered medallions surrounded by dark-blue vegetal arabesques. The upper niches and stalactites each have one of three motifs in the centre—tear-drop, five-pointed star or medallion—outlined in black with orange-yellow infilling,<sup>33</sup> surrounded by arabesques. The shell-shaped fan areas have flame-like medallions with floral elements inside and outside them (Pl. IVd). Very faint traces remain of the painting on the dome of the lecture-hall; some oval medallions are visible in the centre and on the edge.

It can be seen that each different area of wall surface has its own decorative vocabulary, underlining the division of the rooms into a lower area of plain surfaces and a richly moulded upper area. The individual decoration given to each niche and stalactite emphasizes not only their number and complexity but also their underlying formal unity.

The painting in Khargird is closely related to that in the Mausoleum of Gauhar Shād (836/1432–3)—the building which Qavām al-Dīn had been working on before his engagement at Khargird. The decorative vocabulary is very similar—geometric patterns on the lower walls and small medallions and floral arabesques above.<sup>34</sup> There is no analogy there, however, for the flame-like medallions found on the shell-shaped fans (Pl. IVd) in the lecture-hall. These can perhaps be related to the painting round the base of the dome at the Shrine of Ni‘matallāh Valī at Māhān<sup>35</sup> (Pl. VIIIId) where medallions form a similar interlocking pattern with cusped outlines. One need not assume that Khargird was a direct copy of Māhān. It is more likely that both are related to developments of similar motifs from Mongol painted decoration e.g. that of the tomb of Sayyid Rukn al-Dīn in Yazd.<sup>36</sup>

*The Courtyard* (Pl. Ib). Two impressions strike one on entering the courtyard. First, the blaze of intense colour created by the mosaic-faïence and *banai*-technique. Secondly, a feeling of quiet repose created by the symmetry of form. The architect presents us with a comparatively new device of striking simplicity—four aivāns of equal height and virtually equal depth.<sup>37</sup> By placing the mosque in the entrance-complex instead of at the end of the courtyard the need to emphasize the approach to the place of prayer through an aivān of greater splendour than the others has been eliminated. The aivāns are only slightly higher than the living chambers between them, allowing smooth integration with the two-storey façade.<sup>38</sup> Another contributory factor to this integration is the clean lines of the portal-screens of the aivāns. An inscription in mosaic-faïence ran from top to bottom on each side.<sup>39</sup> There are none of the superimposed blind niches, engaged columns or bevelled edges so frequently found in Timurid aivāns.<sup>40</sup>

The corners of the courtyard are bevelled. While this was done at Gāzur Gāh the courtyard there is rectangular and the symmetry obtained is not as great as when the bevelled corners are directly opposite each other on the same axis, thus creating two subsidiary axes. The Madrasa of Fīrūzshāh (844/1440–1) at Turbat-i Jām may also have been planned to have bevelled corners.<sup>41</sup> At Khargird

<sup>33</sup> Seherr-Thoss, *op. cit.*, pl. 74.

<sup>34</sup> Hill and Grabar, *op. cit.*, figs. 128–9.

<sup>35</sup> The central dome-chamber is dated 840/1437 by a mosaic-faïence inscription above the western entrance. The text of this inscription is given in A. Vazīrī, *Tārīkh-i Kermān* (Tehran 2nd ed. 1352/1973), p. 458, n. 1.

<sup>36</sup> D. N. Wilber, *The Architecture of Islamic Iran: the Il-Khanid Period* (Princeton 1955), pl. 143.

<sup>37</sup> The Madrasa of Ulugh Beg in Samarqand (1417–20 A.D.) also had aivāns of equal height and almost equal depth.

<sup>38</sup> The brickwork at the top of the aivāns is restored. It is possible that they were originally slightly higher.

<sup>39</sup> These are illegible, except for that of the east aivān which has been identified by Mr. Elwell-Sutton as the beginning of Sura 48, the Victory Sura. This Sura apparently occurred frequently in mosques e.g. in the Old Mosque at Turbat-i

Shaikh Jām (L. Golombek, “The Chronology of Turbat-i Shaikh Jām”, *Iran IX* (1971), p. 32). However, its use is also attested in earlier madrasas e.g. on the façade of the Madrasa of Shāh-i Mashhad (M. J. Casimir and B. Glatzer, “Shāh-i Mašhad, a Recently Discovered Madrasa of the Ghurid Period in Garğistān (Afghanistan)”, *East and West XXI* (1971), p. 57) and in the courtyard of the Madrasa Imāmī in Isfahan (A. Godard, “Iṣfahān”, *Āthār-é Irān II* (1937), p. 37.)

<sup>40</sup> For engaged columns see above, n. 26. Superimposed blind niches are found on nearly all the aivāns of the Timurid monuments of Samarqand. Bevelled inner edges are found on the courtyard aivāns of the Mosque of Gauhar Shād, Mashhad (*Survey*, pls. 428–33) and the Shrine at Gāzur Gāh (Golombek, *Gāzur Gāh*, figs. 33–8).

<sup>41</sup> Golombek, *Iran IX*, p. 28.

their employment is as much for spatial as for decorative purposes, in that they provide a more economical means of providing passage-ways to the staircase.

*The Corner Rooms* (Pls. Vc, VIa-c; Figs. 1-2). Four domed rooms occupy the corners behind the courtyard, and each has a counterpart on the storey above, making eight in all. The exact function of these rooms is uncertain. The lower ones may have served as lecture rooms, at least in the winter when the aivāns would have been unsuitable for this purpose. The upper domed rooms may have served as living quarters for the administrators and teachers of the madrasa.

The vaulting of the four lower rooms is identical. A squinch-net with three kite-shaped compartments produces a twelve-sided base from which a low-profile dome springs (Pl. Vc). The two western rooms had deep recesses on each axis, those on the west forming a semi-octagon which projected from the rear of the building. This part of each room is now destroyed, but some idea of their original appearance may be gained from the corresponding portion of the east rooms. The upper part of the recess forms a semi-dome (Pl. VIa). It is vaulted in a fashion related to that of the inner dome of the lecture-hall (Pl. IVc), the only difference being that the windows of the "drum" are blind, and a fan vault instead of a smooth one is formed.

All of the south-west upper room and most of the vaulting of the north-west one has been destroyed. The north-east and south-east upper rooms have been preserved intact. Both are square in plan, with semi-octagonal recesses on the east-west axis (Fig. 2). The plaster covering of these rooms has almost completely disappeared, enabling us to see the vaulting clearly. Between the four main segmental arches of the north-east room a pendentive-like effect is achieved by corbelling bricks in vertical lay to support a small arch one brick thick (Pl. VIb). In the south-east room the four arches of the recesses touch each other, consequently the pendentive-like compartment starts only at the springing of the arches and occupies a much smaller area (Pl. VIc).

The east and west recesses of the north-east room are vaulted by a simple form of corbelling. In the south-east room the east and west recesses seem to be vaulted through intersecting mortar ribs. Where the ribs have broken away, however, it becomes clear that they are non-structural. The vaults of the recesses are simply corbelled out as they are in the north-east room and the ribs are added to give an interesting surface pattern, which was then plastered over (Pl. VIc). A similar effect is found in the vaulting of one of the corner rooms at Gāzur Gāh.<sup>42</sup>

*The Courtyard Aivāns* (Pls. VIIa-b, VIIIc; Fig. 7). The vault and back of the east aivān were originally covered in inset-technique (Pl. VIIIc). This has mostly fallen away showing pockmarked plaster, and underneath it a brick core. However, enough remains for us to piece together the original patterns (Fig. 7). Underglaze-painted tiles of various shapes—ten-pointed stars, irregular hexagons, lozenges and pentagons are recessed below a bisque brick ground. Each shape has its own range of decorative motifs, floral, geometric or arabesque. The ten-pointed stars form the strongest visual attraction, the other plaques seeming to revolve around them.<sup>43</sup> The main pattern is surrounded by a narrow border, also of inset-technique, where the underglaze-painted tiles are set in a crossweave of thin brick strips.

Ten-pointed stars with similar white arabesques are found on the minaret of the sanctuary aivān of the Mosque of Bibī Khānum, Samarqand (1399-1404 A.D.). The pattern is a common one, variations appearing in the Madrasa of Ulugh Beg, Samarqand (1417-20 A.D.),<sup>44</sup> the interior of the Masjid-i Maulānā (848/1444) and the Mosque of Gauhar Shād, Mashhad (821/1418).<sup>45</sup> The extensive use of underglaze-painted tiles found at Khargird occurs in only a few of the most sumptuous Timurid

<sup>42</sup> Golombek, *Gazur Gah*, fig. 123. For an earlier example of intersecting ribs in a semi-octagon, see the chapel of the Mausoleum of Öljeitü (705-13/1307-13) illustrated in *Survey*, pl. 385c. On the use of ribs in the Mongol period, see Wilber, *op. cit.*, pp. 60-1.

<sup>43</sup> So strong is their attraction that many were removed deliberately. See Sykes, "A Fifth Journey to Peria", *Geographical Journal* XXVIII (1906), p. 581: "Fine mosaic tiles . . . originally covered the interior of the arches; but almost all

have been removed, and in a very few years none will be left . . . specimens of the tiles, which I was able to procure at Meshed . . ." This undoubtedly accounts for the poor state of preservation of the revetment of the east and west aivāns relative to the north and south aivāns, where the decoration is in *banai* and inset-technique.

<sup>44</sup> L. I. Rempel, *Arkhitekturnyi Ornament Uzbekistana* (Tashkent 1961), fig. 189.

<sup>45</sup> *Survey*, pl. 453a and c; Hill and Grabar, *op. cit.*, pl. M.

buildings in Khurasan. They were used on the collar of the drums of the Mausoleums of Gauhar Shād in Kūhsān (844/1440-1) and Herat (836/1432-3) and on the Gunbad-i Sabz, Turbat-i Jām (844/1440-1).<sup>46</sup>

The west aivān is decorated in a similar manner to the east one. The main decoration is in inset-technique. Twelve-pointed stars are surrounded by irregular pentagons and hexagons. In the border white tiles with blue thistle-like motifs are found (Pl. VIIb). At the back of the aivān is the inscription mentioned above.<sup>47</sup> The door below it leads to the *bād-gīr*.<sup>48</sup> The three vaulted openings which admit wind to the *bād-gīr* are situated behind the west aivān (Pl. 1a). The vault slopes down sharply on the interior to direct the force of the wind downwards. The countryside around Khargird is dotted with

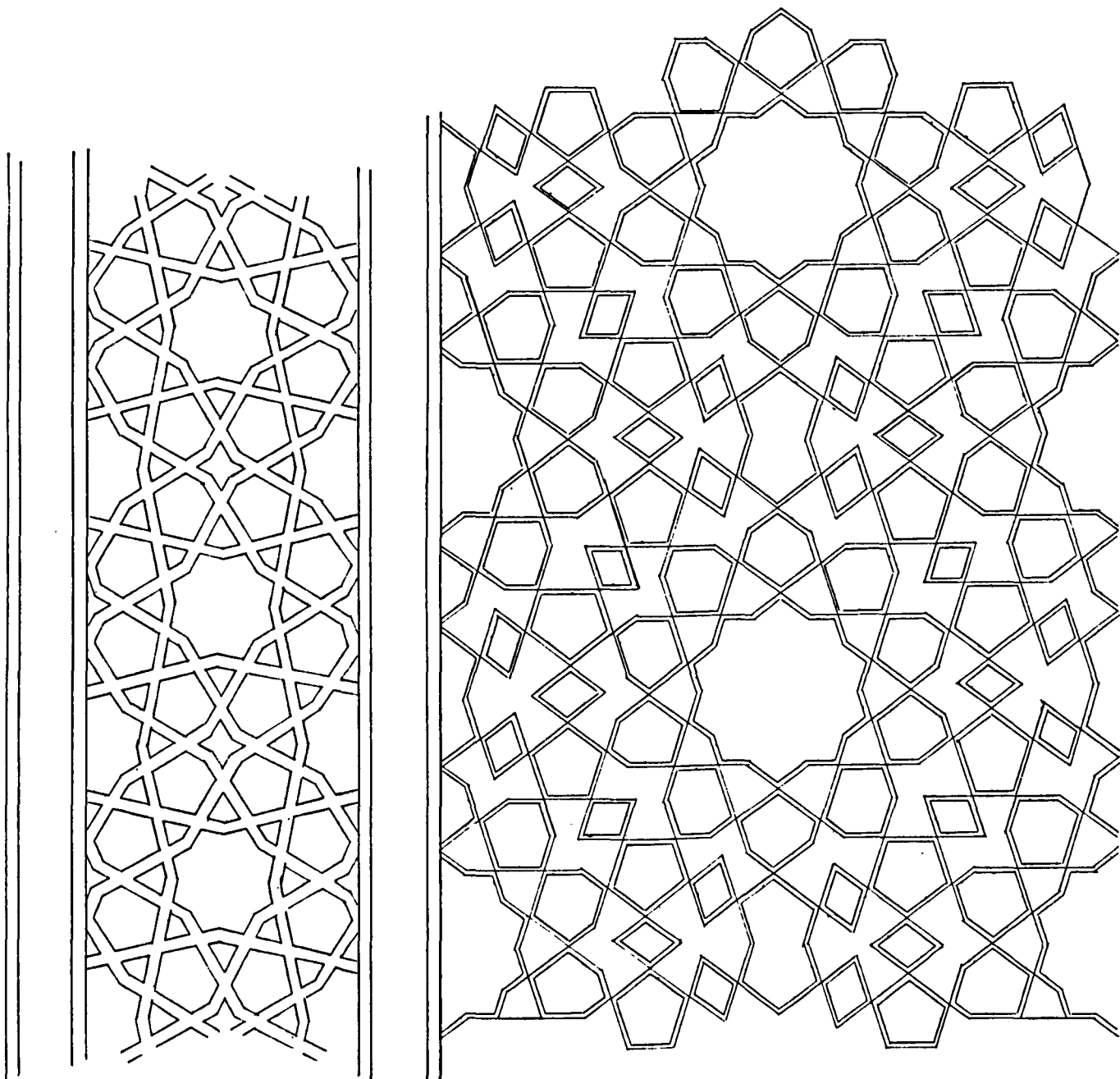


Fig. 7. Restoration of geometric outline of revetment on east aivān.

<sup>46</sup> Pugachenkova, "Les Monuments . . .", p. 23; Hill and Grabar, op. cit., fig. 127, Golombek, *Iran IX*, Pl. XVIII.

<sup>47</sup> See above, p. 1.

<sup>48</sup> Or "wind-trap", used for ventilation purposes. For a modern example cf. Pope, *Persian Architecture*, fig. 336.

windmills which profit from the strong, steady winds. The windmills in the nearby village face the same direction as that of the *bād-gīr*, which is that of the prevailing wind.

Five other Timurid buildings possess *bād-gīrs*. They are the Masjid-i Sar-i Rīk (828/1425) and the Masjid-i Mir Chaqmāq<sup>49</sup> (840/1437-7) both in the town of Yazd, and the Masjid-i Jāmi's of Kūchuk<sup>50</sup> (c. 865-70/1461-6), Firūzābād<sup>51</sup> (866/1462) and Bafṛū'iyya<sup>52</sup> (866/1462) in the Maibūd district, some 55 kms. north of Yazd. In all the above, except the Kūchuk Masjid-i Jāmi', the *bād-gīr* is situated directly in front of the *mihrāb*, and the wind-tunnel leading up from it emerges behind the dome of the sanctuary. In the Kūchuk Masjid-i Jāmi' there are two *bād-gīrs*, situated on either side of the sanctuary dome chamber. In view of the rarity of this feature it may be possible to assume a direct influence from the mosques of Yazd in this case. On the other hand Qavām al-Dīn may simply have been adapting a domestic constructional feature. In any case, considering the present-day preponderance of *bād-gīrs* in the towns of south and central Iran it is likely that Qavām al-Dīn Shirāzī drew his inspiration from his native provinces.

The south aivān (Pl. VIIa) once had a dado of underglaze-painted tiles in the form of a six-pointed star surrounded by hexagonal slabs. These have almost completely worn away. Above this, on the sides of the aivān, a border of inset-technique of the same design as that of the west aivān surrounds the major design in *banai*-technique which incorporates the names of *Muḥammad* and 'Alī. As Dr Golombek has noticed,<sup>53</sup> some of the *banai*-technique tiles have small squares with insets of a different colour. Besides occurring at Gāzur Gāh and the Masjid-i Maulānā,<sup>54</sup> the use of this feature seems to have spread to western Iran and Transoxiana; it occurs in the Blue Mosque at Tabriz (870/1465) and the Mausoleum of 'Ishrat Khāna, Samarqand (1464 A.D.).<sup>55</sup>

At the rear of the aivān is a door and window. Above this the decoration recalls that of the mosque and lecture-hall. A cascade of stalactites flowing down in deep furrows merges into blank niches echoing the cells of the stalactites above. The stalactites are a suspended plaster shell, and have been damaged in the centre. Faint outlines of painted medallions and floral elements can still be seen on some of them.

The north aivān is in all respects identical to the south aivān, except that the main decoration on the sides is of inset-technique, of the same pattern as the entrance aivān (Fig. 5). As an illustration of the attention to detail lavished on the building one may cite the mosaic-faience border round the window—black triangles set in an amber ground between two light-blue strips. The design is appropriately simple for its purpose.

*The Living Chambers* (Pl. 1b). There are eight living chambers on each side of the courtyard, arranged in two stories. Each is entered through a large niche decorated in *banai*-technique. The side walls of the lower niches have sacred names—*Allāh* and 'Alī—written in rectangular Kufic; otherwise the decoration is purely geometric. Inside, the chambers are rectangular with small recesses placed round the walls. They are of the same size except the northernmost and southernmost chambers of the east side of the courtyard, which are smaller to accommodate the recesses of the domed rooms of the entrance-complex (Fig. 1). Each chamber has a small rectangular passage leading to the roof. This may have served as a chimney in winter and for ventilation in summer.

*The Mosaic-faience* (Pls. VIIc-VIIIb). The courtyard façades of the living chambers were completely covered in mosaic-faience. Almost none of this remains on the upper storey; but enough has been preserved on the lower storey to reconstruct the scheme of decoration throughout the courtyard.

There are three principle types of spandrel decoration. The first (Pl. VIIIb) appears on those niches immediately to either side of the aivāns. It has as its central element a large medallion bearing the words *la ilāh illā 'llāh* ("there is no God but God") on the right spandrels and *Muḥammad rasūl Allāh*

<sup>49</sup> The *bād-gīr* of the latter has been extended upwards and now covers part of the original exterior drum decoration, but its location in front of the *mihrāb* shows that it was an integral part of the original design. See *Survey*, pl. 449.

<sup>50</sup> Unpublished. The mosque is anepigraphic, but stylistically it can be related to the Masjid-i Jāmi's of Maibūd (867/1463), Firūzābād (866/1462), and Bafṛū'iyya (866/1462).

<sup>51</sup> I. Afshār, *Yād-gārhā-yi Yazd* (Tehran 1348/1969), pp. 71-3,

illustration p. 482.

<sup>52</sup> *Ibid.*, p. 97.

<sup>53</sup> Golombek, *Gazur Gah*, p. 59 and p. 75, n. 23.

<sup>54</sup> Respectively Golombek, *Gazur Gah*, fig. 35, and Hill and Grabar, *op. cit.*, fig. 171.

<sup>55</sup> Tabriz: J. Ṭabāṭabā'i, *Naqshhā va Nigashṭahā-yi Masjid-i Kabūd-i Tabriz* (Tabriz 1347/1968), fig. 15; 'Ishrat Khāna: Hill and Grabar, *op. cit.*, fig. 59.

("Muhammad is the messenger of God") on the left spandrels. The characters are in amber *ṣulṣ* script on a green ground. This is surrounded, first, by a ring of spiky petals and then by a larger black medallion outlined in amber. The rest of the spandrel is filled with loosely arranged interweaving amber and light-blue arabesques from which leaves, buds and small flowers grow, all on a dark-blue ground. A row of fleurons ran across the top of each spandrel.

The second type (Pl. VIIc) appears on the niches immediately to either side of the corner bevels. Its central element is a small dark-blue fleuron, which is surrounded by a larger green medallion. This medallion has a ring of wavy wedge-shaped amber petals round it. The arabesques which occupy the rest of the spandrel and interpenetrate the central medallions are wound into concentric scrolls. A row of fleurons again framed the top of the spandrel. The spandrels of the niches of the entrance façade are closely related to this type, the shape of the central medallions being slightly different.

The third type occupies the bevelled corners (Pl. VIIId). It has a six-lobed central element incorporating the word *Muhammad* repeated six times in amber Kufic characters on a green ground. On the right spandrel it is read clockwise. The left spandrel is a mirror image of this, i.e. the letters appear backwards and must be read anti-clockwise.<sup>56</sup> A light-blue floral element is interspersed between the words. The rest of the spandrel is taken up, not with arabesques, but with a tangled weave of flowering shoots sprouting in all directions.

The combination of central medallion and concentric arabesques as in types one and two was the most common means of decorating spandrels in Timurid times. It occurs in Qavām al-Dīn's earlier buildings e.g. the Mosque of Gauhar Shād, Mashhad and the Shrine at Gāzur Gāh.<sup>57</sup> The contemporary Masjid-i Maulānā and Masjid-i Jāmi' of Varzaneh (848/1444) also have closely related designs.<sup>58</sup>

Less common, however, is our type three, with a linear and less regular floral arrangement around the central medallion. Parallels are found in a number of earlier buildings in Transoxiana—the Palace at Shahr-i Sabz (c. 1380–1404 A.D.), the Mosque of Bibī Khānum (1399–1404 A.D.) and the façade of the Gūr-i Amīr (1434 A.D.).<sup>59</sup> These in turn may have been derived from earlier Mongol mosaic-faience designs e.g. the spandrels at the back of the aivān leading into the prayer-hall of the madrasa adjoining the Isfahan Masjid-i Jum'a.<sup>60</sup> In comparison with even these, however, the design of our type three is more anarchic and less inclined to form any kind of symmetry, as if in pointed contrast to the mirror symmetry of the medallions within the spandrels. The panels flanking the doorway of the Hārūn Vilāyat, Isfahan (918/1513), are of the same spirit.<sup>61</sup>

The panels between the niches are filled with variations in the decorative vocabulary we have seen in the spandrels—concentric arabesques, freely arranged floral forms, fleurons and medallions surrounded by spiky petals, and religious aphorisms in both rectangular Kufic plaques and *ṣulṣ* characters. Of particular interest are the large medallions on the panels to either side of the bevelled niches of the courtyard (Pl. VIIIa). A large amorphous mass in amber faience is silhouetted against a green background. This is evidently a growth of the peony-like form on the panels of the flanks of the aivāns at Gāzur Gāh.<sup>62</sup> It reappears in slightly different form, again in amber faience, on the panels which flank the former entrance to Darb-i Imām, Isfahan<sup>63</sup> (857/1453), where the edges of the peony form have the same wavy wedge-shaped petals which surrounded the medallions of our type two spandrels.

*Conclusion.* The history of the evolution of the madrasa in Iran is clouded by the paucity of early examples. The recent discovery of the Madrasa of Shāh-i Mashhad (561/1165–6) in Afghanistan broadens the picture.<sup>64</sup> What remains is tantalisingly incomplete—enough to insinuate the presence of a courtyard with two or four aivāns, yet not enough to confirm this without excavation. The entrance

<sup>56</sup> I am indebted to Mr. Elwell-Sutton for suggesting this.

<sup>57</sup> Pope, *Persian Architecture*, fig. 269 (Mashhad); Golombek, *Gazur Gah*, fig. 37. The latter also displays a row of fleurons across the top of the spandrels.

<sup>58</sup> Hill and Grabar, *op. cit.*, fig. 174 (Tayābād); A. Hutt, "Recent Discoveries in Iran, 1969–70: A Major Islamic Monument", *Iran IX* (1971), pp. 159–60, Pl. IV (Varzaneh).

<sup>59</sup> B. P. Denike, *Arkhitekturnyi Ornament Srednei Azii* (Moscow 1939), fig. 141,1 (Shahr-i Sabz); Ratiya, *op. cit.*, fig. 54a (Bibī Khānum); Hill and Grabar, *op. cit.*, fig. 36 (Gūr-i

Amīr).

<sup>60</sup> L. Golombek, "A Thirteenth Century Funerary Mosque at Turbat-i Shaikh Jam", *Bulletin of the Asia Institute I* (1969), fig. 16.

<sup>61</sup> Pope, *Persian Architecture*, pl. XIV.

<sup>62</sup> Golombek, *Gazur Gah*, fig. 44.

<sup>63</sup> L. Honafar, *Ganjina, yi Āsār-i Tārikhi-yi Isfahān* (Isfahan 1965–6), p. 348.

<sup>64</sup> Casimir and Glatzer, *op. cit.*

façade at Khargird has been compared with those of the caravanserays of Dāya Khātūn and Ribāt-i Sharaf. The same elements of central projecting aivān, corner towers (albeit reduced in size) and intervening niche façade are all present at Shāh-i Mashhad. Further links with Khargird, if one assumes symmetry, are the two large domed rooms at the corners of the entrance façade, their size in part due to the bevelling of the corners of the courtyard. The Madrasa Imāmī in Isfahan<sup>65</sup> (mid-14th century A.D.) provides us with what is possibly the first authenticated Iranian madrasa with a courtyard with four aivāns and two-storeyed niches between them. The madrasas of Ulugh Beg in Bukhara (1417 A.D.) and Samarqand (1417–20 A.D.) bring us closer still to Khargird, with a domed room in each of the four corners and a four aivān courtyard.<sup>66</sup>

The Shrine at Gāzur Gāh, although variously described as a *ḥaḏīra* and not a madrasa, has many elements in common with the buildings just mentioned. Its close relationship with Khargird should be apparent from the comparisons made in the preceding pages. Particularly important was its use of an entrance complex as a self-contained unit.

What is unique in Khargird is the way in which these elements are fused together in a clear coherent fashion.<sup>67</sup> The revetment of the madrasa—the tile work and the painting—is of the highest possible quality of the time, as befitted the greater glory of the *vazīr* who founded it. However, what makes Khargird a masterpiece of Timurid architecture is not just the revetment, but the structure to which it is applied. The strong harmonious lines of the entrance façade and the courtyard provide a sufficiently strong visual basis for the decoration applied to it. As the last work of Qavām al-Dīn,<sup>68</sup> it can be seen as a fitting culmination to the fine succession of buildings produced by him.

<sup>65</sup> Plan in M. Cranc, "A Fourteenth-century mihrab from Isfahan", *Ars Islamica* VII (1940), fig. 2.

<sup>66</sup> Plans respectively in G. A. Pugachenkova, *Vydayushchieseya Pamyatniki Arkhitektury Uzbekistana* (Tashkent 1958), fig. 28; M. Masson, *Registan i ego medrese* (Tashkent 1926), p. 7.

<sup>67</sup> A fashion which seems to have been closely studied by the architect of the Mir-i 'Arab Madrasa, Bukhara (1535–6 A.D.). Even the archaizing trend of Uzbek architecture could hardly account for the coincidence of the ABCBDBCBA rhythm of the façade, with two domes appearing above, and the same number and location of two-storey niches between the

four aivāns of the courtyard. See Hill and Grabar, *op. cit.*, figs. 15–6, and Pugachenkova and Rempel', *op. cit.*, pl. 306.

<sup>68</sup> Qavām al-Dīn died in 842/1438 and the amount of the relative contribution of himself and Ghiyāṣ al-Dīn is open to conjecture. Even if one assumes that Ghiyāṣ al-Dīn was responsible for the Masjid-i Maulānā (see M. T. Muṣṭafāwī, "Le Masdjid-é Mawlānā de Tāiyābād", *Āthār-é Iran* III (1938), pp. 179–99), his style is seen to be closely linked with that of Qavām al-Dīn. Hence any attempt to distinguish their relative contributions to Khargird would be unprofitable.

**TĀYBĀD, TURBAT-I JĀM AND TIMURID VAULTING**

**BY**

**BERNARD O'KANE**

*Reprinted from*  
**IRAN XVII 1979**

*Published by*  
**THE BRITISH INSTITUTE OF PERSIAN STUDIES**

# TĀYBĀD, TURBAT-I JĀM AND TIMURID VAULTING

By Bernard O'Kane

The aivan and dome-chamber built in 848/1444 in Tāybād<sup>1</sup> has long been regarded as one of the finest buildings of its period. It is situated some 60 km. south of Turbat-i Jām on the main road to Herat, and its presence has been noted by several travellers.<sup>2</sup> Although the inscriptions have been published,<sup>3</sup> and brief attempts have been made to place the function and decoration of the building in its historical context,<sup>4</sup> it is intended here to provide a description and drawings<sup>5</sup> which will serve as a basis for more detailed analysis. The same will be provided for the Timurid buildings at Turbat-i Jām, where the discovery of an additional inscription provides corroboration for dating more of the complex to the Timurid period than has been previously supposed. The Madrasa al-Ghiyāṣiyya at Khargird is contemporary with the above buildings, and in a final section its vaulting will be discussed and compared with the monuments at Tāybād and Turbat-i Jām.

## I TĀYBĀD

The building consists of a large cruciform dome chamber preceded by a monumental aivan which is flanked by living chambers in two storeys (Pls. I-IV, Figs. 1-5).

*Exterior.* Only the entrance façade has marble and faience revetment; the other sides are of plainly bonded brick. *Banai*-technique is used to cover the façades of the living chambers and most of the exterior of the aivan. The "glazed tiles (with) dotted squares of a contrasting color inserted in the centers"<sup>6</sup> have already been noted, although here the contrasting colour is the brick ground showing through where the glaze has been scraped away. Light-blue tiles are used to spell out sacred names<sup>7</sup> and phrases. The main axes of the *banai*-technique decorations are tilted at an angle of forty-five degrees, giving the impression that their overall grand design extends beyond the point where they are cut off by their frames. Marble pilasters with finely carved stalactite capitals (Pl. IIIa) and vase shaped bases are used on the corners of the niches and aivan, and white stone with a geometric design in dark-blue glazed tiles is employed on the intervening dadoes (Fig. 5).

Mosaic faience is used sparingly: on the arch spandrels, on the foundation inscriptions inside the aivan, on the tree of life panels at the base of the portal-screen, and on the bevel which frames the aivan. Of the smaller spandrels, the finest is perhaps that of the window above the door, where glowing dark-green medallions are surrounded by delicate amber spirals enlivened with white flowers and set on a

<sup>1</sup> The form Tāybād, rather than Tāyābād, is the modern spelling, and that preferred by the majority of Timurid historians, e.g. HS III, p. 430, F. Tauer, *Cinq opuscules de Hāfiz-i Abrū concernant l'histoire de l'Iran du temps de Tamerlan = Archiv Orientalní, Supp. V* (1959), p. 61; *RJ I*, p. 219; *MF III*, p. 116. I would like to thank the British Institute of Persian Studies for their award of a Fellowship for the year 1974-5 in which the bulk of the fieldwork for this article was completed. Also, the Iranian Centre for Archaeological Research, the Office of Culture and Arts in Mashhad and the Khurasan office of the National Society for the Conservation of Historic Monuments of Iran greatly facilitated my research. For a list of abbreviations used in this article, see the end.

<sup>2</sup> C. E. Yate, *Khurasan and Sistan* (London 1900), p. 135; R. Byron, *The Road to Oxiana* (London 1937), pp. 248-9; D. Hill and O. Grabar, *Islamic Architecture and its Decoration* (2nd ed., London 1967), p. 58, figs. 171-4; R. Beny, *Persia, Bridge of*

*Turquoise* (Toronto 1975), Pl. 50; A. Hutt and L. Harrow, *Islamic Architecture: Iran 2* (London 1978), pp. 52-3.

<sup>3</sup> Muṣṭafāwī, Hunarfar.

<sup>4</sup> *Survey*, pp. 1142, 1162; *Gazur Gah*, pp. 59, 115; A. U. Pope, *Persian Architecture* (London 1965), figs. 158-9; I. El-Said and A. Parman, *Geometric Concepts in Islamic Art* (London 1976), pl. 35, fig. 66d; G. A. Pugachenkova, *Zodchestvo Tsentral'noi Azii XV. vek* (Tashkent 1976), pp. 28, 38, 59 and 60-1.

<sup>5</sup> The ground plan drawn by J. McCool in the *Survey* is inadequate for a study of the vaulting, while the section published by Pugachenkova (op. cit., p. 28), like several of the drawings of her publications of Timurid monuments in Afghanistan, is inaccurate.

<sup>6</sup> *Gazur Gah*, p. 59.

<sup>7</sup> As at Gāzur Gāh and Khargird, "Allah", "Muhammad" and "Ali" are employed most frequently. Cf. "Khargird", pl. VIIa; *Gazur Gah*, fig. 6.

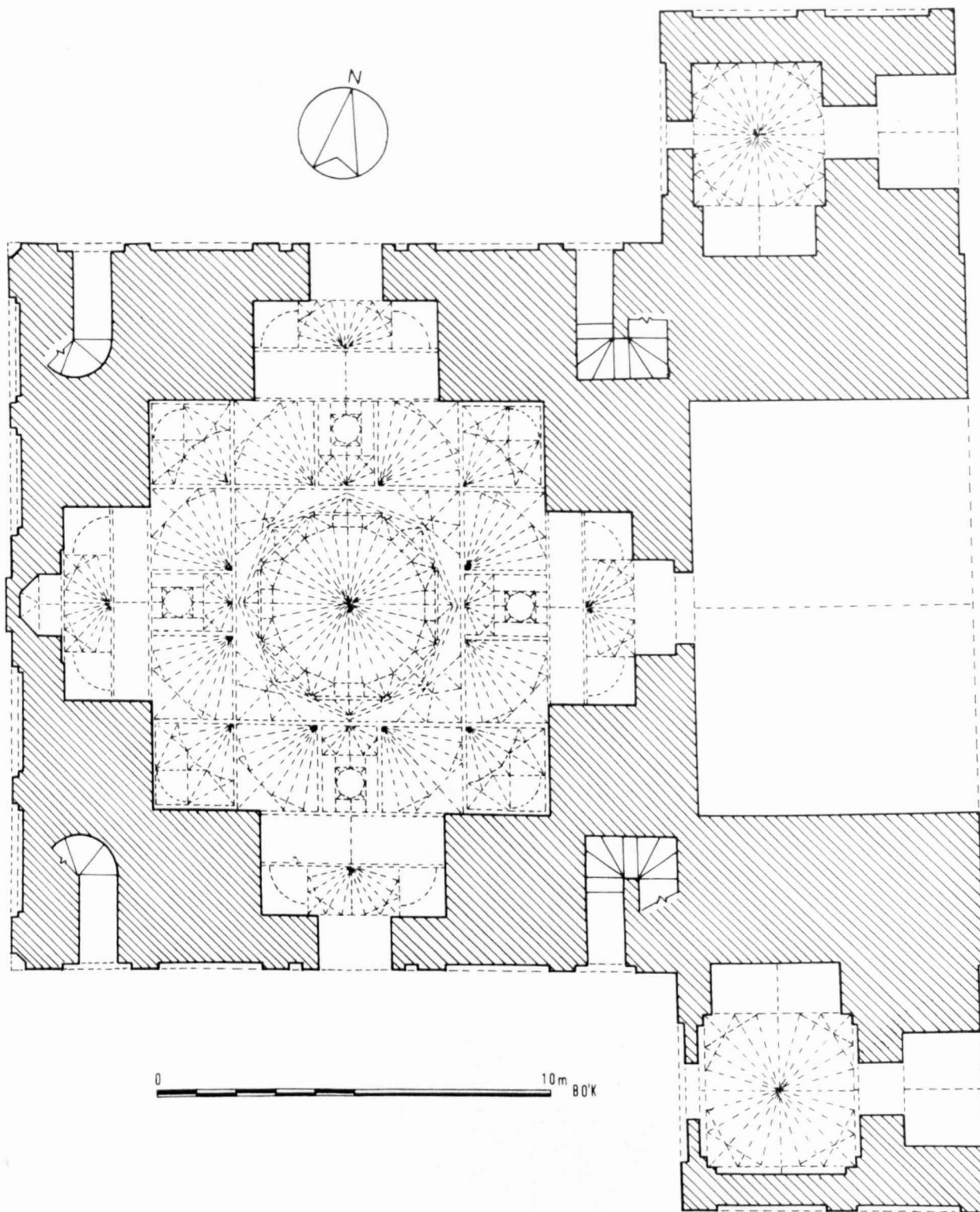


Fig. 1. Tāybād, buq'a: ground plan.

dark-blue ground (Pl. IIIb).<sup>8</sup> The large spandrels of the portal-screen have been restored recently to reveal a pattern based on ten-pointed stars very similar to that of the east aivan at Khargird.<sup>9</sup> The large tree of life panels at the base of the portal-screen have smaller ones flanking them. On the vase of one of these is written: *sana 1338 sh(amsi)/1959 A.D.*, the date of an earlier restoration which was mainly concerned with repairing the mosaic-faience. The tree of life panel (Pl. Ib) may be compared with that of the one remaining leaf of the original door (Pl. IVa), where the greater flexibility of the material has allowed a more naturalistic rendering, especially of the peony-like flowers which occupy the spandrels.

Undoubtedly the cynosure of the entrance façade is the Quranic inscription which framed the portal-screen. This is not of stucco, as was previously noted,<sup>10</sup> but of small pieces of carved terracotta, set in relief on a light-blue tile ground. Brick is an extremely unusual medium for fifteenth century epigraphy. It is used on the Blue Mosque at Tabriz (870/1465) for the inscription which went round the central dome chamber at the zone of transition level,<sup>11</sup> and for the foundation inscription and raised medallions on the portal-screen of the entrance aivan. It may be assumed that this is a direct borrowing,<sup>12</sup> not only because of the rarity of this technique, but also because the Blue Mosque shows other types of influence from Khurasan in its decoration: firstly in the use of “dotted squares of contrasting color” mentioned above and of small inset underglaze-painted tiles which are a development of them (Pl. IIIc), and secondly in the exact repetition of a square Kufic panel *al-ḥamdu li’llāh* from Khargird (cf. Pls. VIIId–e). The calligrapher of the Tāybād inscription was Jalāl al-Dīn b. Muḥammad b. Ja’far (Pl. IVc). This is almost certainly the same Jalāl Ja’far who signed the foundation inscription of the Madrasa of Gauhar Shād in Herat in 841/1437.<sup>13</sup> Although the mosaic-faience inscription of the *madrassa* at Khargird has completely vanished, it was possible to make out the impression of the word “Muḥammad” in the plaster at the end of this inscription on a recent visit. Subsequent perusal of a photograph (Pl. IIIId) of this badly damaged area confirms that it is the same signature as at Tāybād: *katabahu al-aḥqar Jalāl al-Dīn b. Muḥammad b. Ja’far*. Although the portal screen inscription at Khargird has disappeared, Jalāl Ja’far was almost certainly responsible for the whole programme of inscriptions on the *madrassa*, including the superb *ṣulṣ* foundation inscription. One may speculate whether he is the grandson of Ja’far Tabrīzī who was head of Bāysunghur’s library staff,<sup>14</sup> and who is known to have signed four manuscripts between 830/1426 and 835/1431.<sup>15</sup> After Bāysunghur died in 837/1433, book production in Herat seems to have been severely curtailed, so we would expect that designing architectural inscriptions would have occupied more of the calligraphers’ output. Although tilecutters would have been responsible for the erection of an inscription on to a building, they worked from drawings on paper designed by a calligrapher. In this respect it is interesting to note that Ja’far Tabrīzī’s master, the calligrapher Mu’in al-Dīn Ḥājji Muḥammad, was responsible for the inscriptions of the Chahār Minār in Tabriz.<sup>16</sup>

The small living chambers at ground level are entered directly from either side of the aivan; those on the upper level have access from the two easternmost staircases of the building. There are four staircases in all leading to the roof. Halfway up each is a small irregular space with unpointed and unplastered brickwork, showing that it was evidently never intended to be used as a living space (Fig. 2,

<sup>8</sup> They are closely related to the Khargird “type two” spandrel (“Khargird”, pl. VII c), as are the spandrels of the living chambers (Hutt and Harrow, op. cit., pl. 29).

<sup>9</sup> Unfortunately, the colours used in the restoration are darker than the original, giving a rather sombre effect.

<sup>10</sup> Muṣṭafāwī, p. 179; Byron, in *Survey*, p. 1142.

<sup>11</sup> *Survey*, pl. 456.

<sup>12</sup> The only other possible fifteenth-century source, the Buq’a-yi Ṭāhir va Muṭahhar 828–9/1424–6, is situated in the village of Hazār Khāl, in the remote valley of Kujūr S.E. of Chālūs. It is less likely to have been the source of inspiration, as its inscription is actually of brick tiles. See M. Sutūda, *Az Āstārā tā Astārābād III* (Tehran 2535/1978), pp. 186–99, pls. 58–60.

<sup>13</sup> F. Saljūqī, *Khiyābān* (Kabul 1343/1965), p. 19.

<sup>14</sup> Daulatshāh, *Tadhkirat al-Shu’arā’*, ed. M. ‘Abbās (Tehran

1337/1958), p. 390.

<sup>15</sup> 830/1426 Sa’dī, *Gulistān*, Chester Beatty Library P. 119, “Ja’far Bāysunghurī”; 833/1430 Firdausī, *Shāhnāma*, Gulistan Palace Library, “Ja’far Bāysunghurī”; 834/1430 *Kalīla wa-Dimna*, Topkapı Saray Museum H. 362, “Ja’far”; 835/1432 ‘Irāqī, *Lama’āt and Anthology*, Chester Beatty Library P. 122, “Ja’far al-Tabrīzī”.

<sup>16</sup> Qāḍī Aḥmad b. Mīr Munshī, *Calligraphers and Painters* tr. V. Minorsky (Washington 1959), p. 64. The building is no longer extant. Maulānā Mālik, one of the calligraphers of the Freer Gallery *Haft Awrang* (Ms. 46.12) (1556–65 A.D.) made for Sultān Ibrāhīm Mīrzā, was brought to Qazvin by Shāh Ṭahmāsp to design the inscriptions for the *daulatkāna* there, *ibid.*, pp. 142–4.

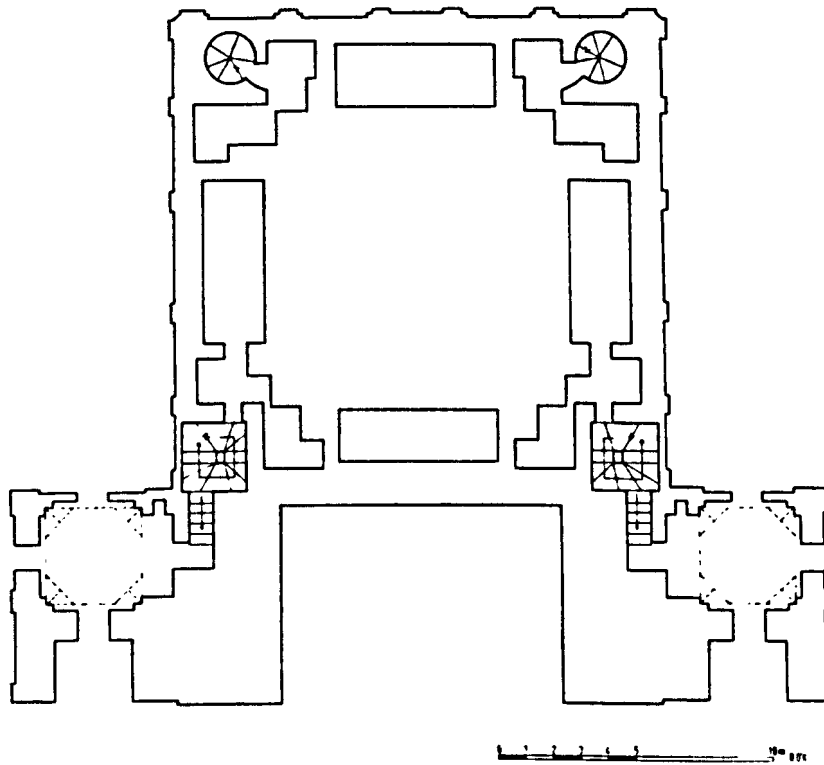


Fig. 2. Tāybād, buq'a: upper storey plan.

Pls. IVd-e). Given that the architect wanted to preserve externally the shape of a cube, it was necessary to reduce the load bearing of those arches and semi-domes which are exposed here. Otherwise the exterior would have been much more complex, reflecting the interior zone of transition.

There are subsidiary entrances to the dome chamber from the sides of the building. These, and the structurally unnecessary partitions which divide the walls of the central cube, show that the architect also considered the effect a rear viewpoint would have on the spectator (Pl. IIc). Above the cube the combination of dome, semi-domes and supporting vaults is clearly expressed in brick<sup>17</sup> by the use of flat, horizontal lays, especially over the swelling semi-domes (Pl. IVb). The row of arches at the back of the portal-screen provides a visual as well as a structural lightness. The whole makes a very satisfactory balance of masses.

*Interior* (Pl. II, Figs. 1, 4). Inside, the dome chamber is cruciform. A dado of mosaic faience and stone plaques is arranged in a design which is basically pentagonal (Pl. IIb). The plaques were perfect surfaces for inscribing graffiti; several hundred remain, sixty of which have been transcribed by Hunarfar.<sup>18</sup> Most are pious verses from the fifteenth to the seventeenth centuries, some being excellent samples of calligraphy. They show that the building was constantly open to pilgrims in the course of the centuries.

Opposite the main door, facing almost due west, is the misaligned *mihrāb*. Above the dado is an area with recent crudely stencilled inscriptions. The wall surfaces above this are painted white. If an original painting scheme was executed, it has long since vanished.

*Vaulting.* The four recesses are each vaulted with a central semi-dome flanked by two stalactite quarter-domes. The extrados of these arches is visible in the relieving areas half-way up the staircases mentioned above (Pl. IVe, Fig. 4). An amorphous mass of plaster conceals most of the brickwork below. Small rectangular pieces of wood<sup>19</sup> are inserted radially from the top of the semi-dome. The vault is about one metre thick at this point, so it is unfortunately impossible to determine whether the

<sup>17</sup> The dimensions of the bricks used at Tāybād are 25-6 × 25-6 × 5 cm.

<sup>18</sup> Hunarfar.

<sup>19</sup> The ends of these measure 15 × 6 cm.

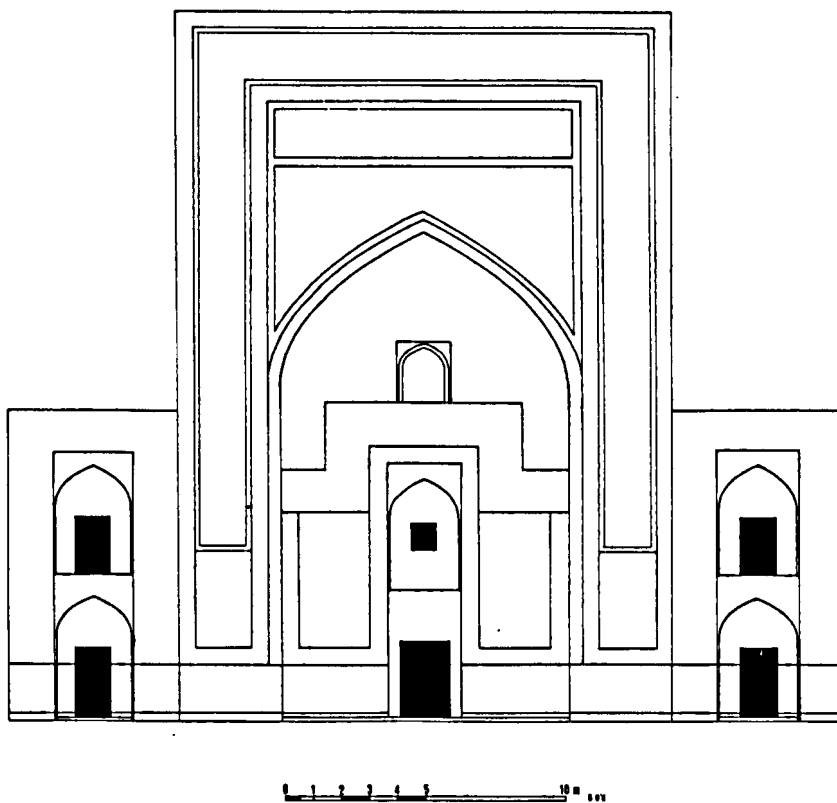


Fig. 3. *Tāybād, buq'a: elevation of entrance façade.*

plaster quarter and semi-domes below are merely shells, or whether they reflect the shape of the brickwork they cover.

The central square is vaulted by an area of virtuoso complexity. The main weight seems to be borne by four large intersecting ribs. Four small quarter domes are thus formed in the lower corners. The rear of these also are partially visible in the relieving areas approached from the staircases (Pl. IVd). As the springing of the quarter-domes increases, the corresponding brick support rises to a point. The top of this has broken away, but it again reveals only an irregular mass of mortar.<sup>20</sup> The Mausoleum of Gauhar Shād (836/1432) has an analogous system of vaulting to Tāybād, and a photograph taken before restoration of the corresponding quarter-domes reveals that the plaster stalactites are merely a shell.<sup>21</sup> It is probable that the elaborate faceting and stalactites of the Tāybād quarter-domes are similarly non-structural. The rectangular fields created by the intersecting ribs are divided into three areas: the centre one displays a subsidiary dome on stalactites similar to that in the recesses of the Mausoleum of Gauhar Shād; the other ones rhomboidal faceting. Above this diagonal ribs form an octagon, and then a series of sixteen blind niches gives the impression of an inner drum supporting the dome.

As we have seen above, it is not clear to what extent the elaborate faceting of the vaulting at Tāybād is expressed in the brickwork below. It is probable that the interior of the Mausoleum of Qāsim-i Anvār (876-92/1472-87) (Pl. VIId)<sup>21a</sup> at Langar reflects to a certain extent the brick substructure of Tāybād. As at Tāybād, a dome of diameter smaller than the width of the room below rests on four intersecting ribs. Where the plaster has fallen away it is clear that these ribs are ten bricks wide, but the plaster ribs which would have covered these, visible up to their springing point on either side of the squinch, are only two bricks wide. It is evident that ribs of the width of the intersecting plaster ribs at Tāybād, like those of the Mausoleum of Qāsim-i Anvār, could not have fulfilled any structural function. The vaulting will be discussed further in connection with that of Turbat-i Jām and Khargird.

<sup>20</sup> This mortar, like that on the upper side of the recesses and arches, is hard and white, whereas that used for brick bonding has a greater admixture of clay, being softer and browner.

<sup>21</sup> Hill and Grabar, *op. cit.*, fig. 128.

<sup>21a</sup> See *Gazar Gah*, p. 76, n. 39; 'Abd al-Ḥamid Maulavi, *Aṣār-i Bāstāni-yi Khurāsān* (Mashhad 1354/1975), pp. 10-25.

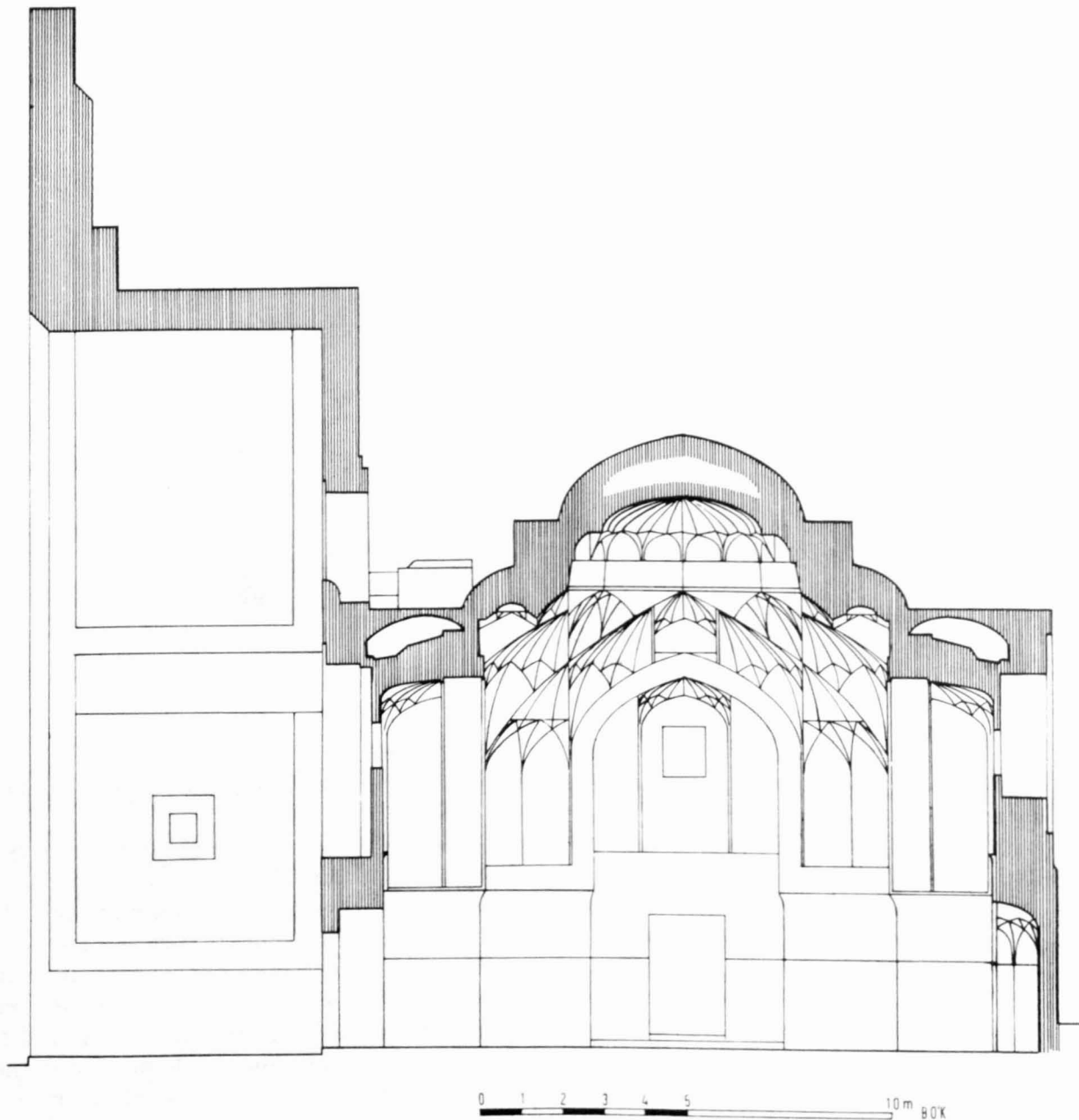


Fig. 4. Tāybād, buq'a: section.

What architectural precedents are there for the general plan at Tāybād? The combination of dome chamber with preceding *pīshṭāq* is familiar, especially in mausolea, from the time of the 'Arab-Atā mausoleum onwards (367/977),<sup>22</sup> e.g. in the tomb of Abu 'l-Faḍl at Sarakhs or the Hārūniyya at Tūs.<sup>23</sup> The zone of transition in these latter examples is concealed, as it is at Tāybād, so that the impression is also one of a dome surmounting a lower cube. It is the flanking living chambers in two storeys which set Tāybād apart, however. The elevation of the façade (Fig. 3) is similar to that of the *qibla* courtyard façade of many mosques, e.g. the Ardistān, Naṭanz or Yazd Masjid-i Jāmi's.<sup>24</sup> In a free-standing building the composition is more unusual. The mausoleum at Turuq<sup>25</sup> is closer to Tāybād,

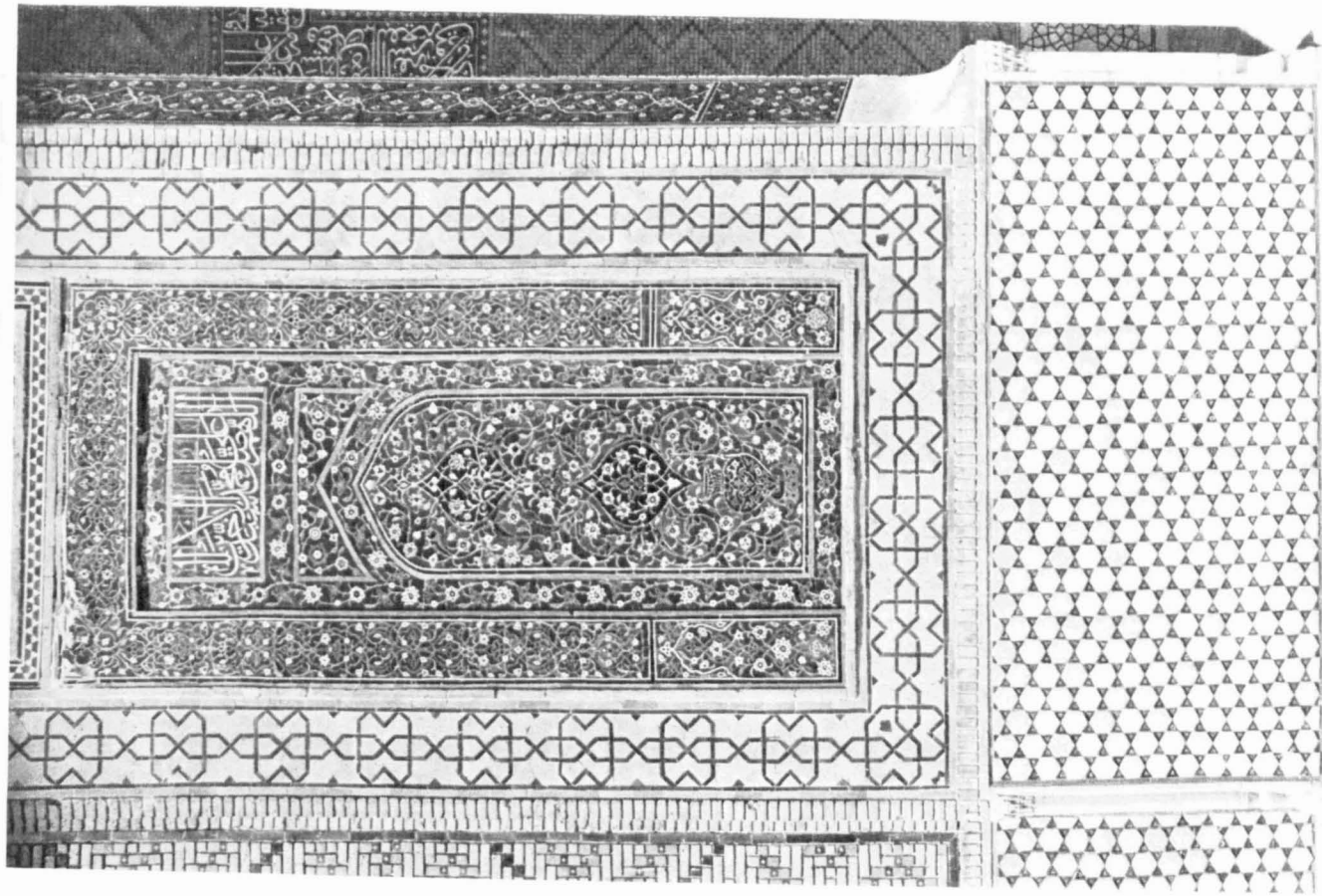
<sup>22</sup> Pugachenkova, *Istoriya Zōdchikh Uzbekistana II* (Tashkent 1936).

<sup>23</sup> Illustrated respectively in A. Pribitkova, *Pamyatniki Arkhitektury XI veka v Turkmenii* (Moscow 1955), fig. 4; *Survey*, pl. 380.

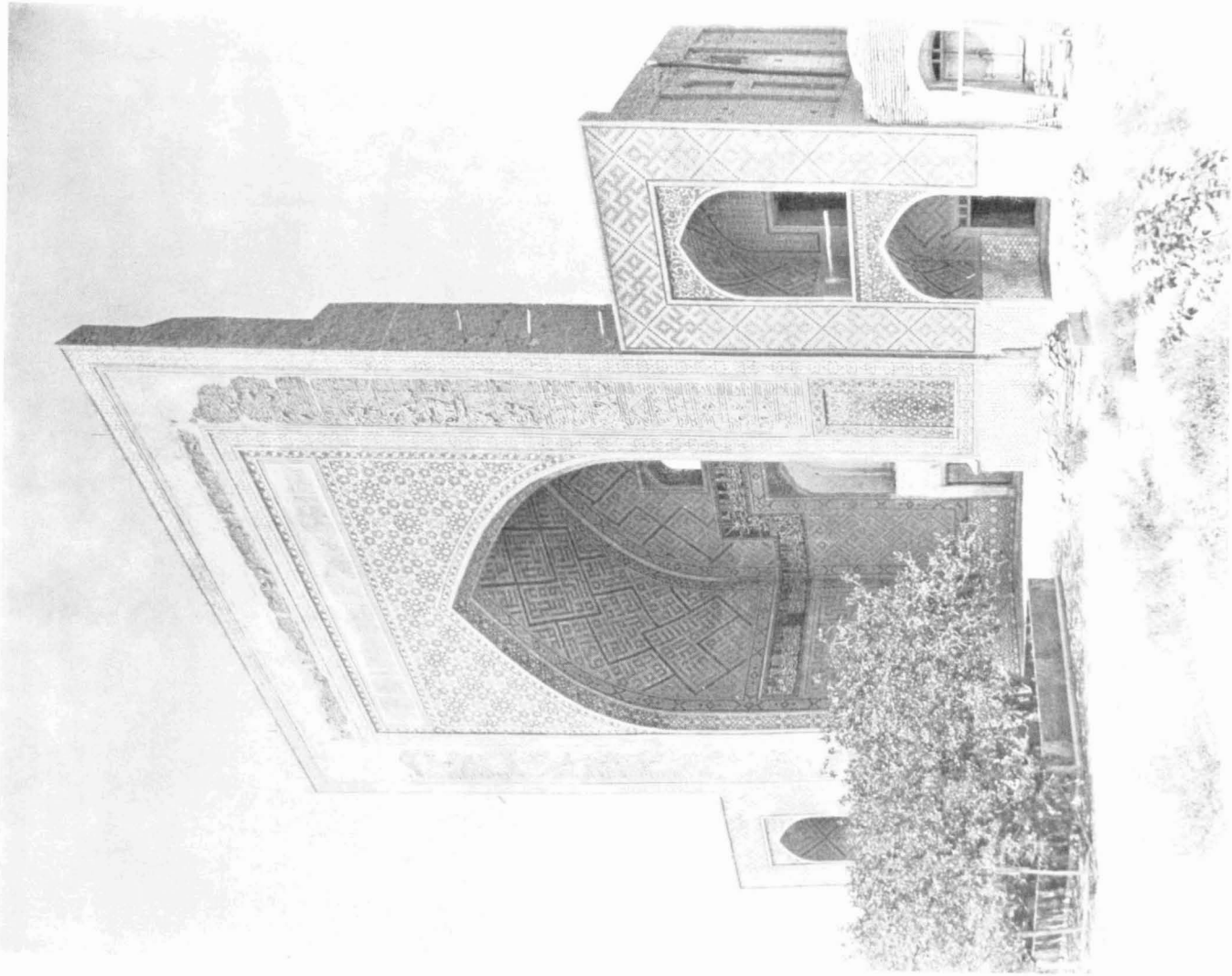
<sup>24</sup> Respectively A. Godard, "Les anciennes mosquées de l'Irān",

*Āthār-é Irān I* (1936), fig. 141; D. Wilbur, *The Architecture of Islamic Iran: The Il Khānid Period* (Princeton 1955), pl. 55; *Survey*, pl. 441.

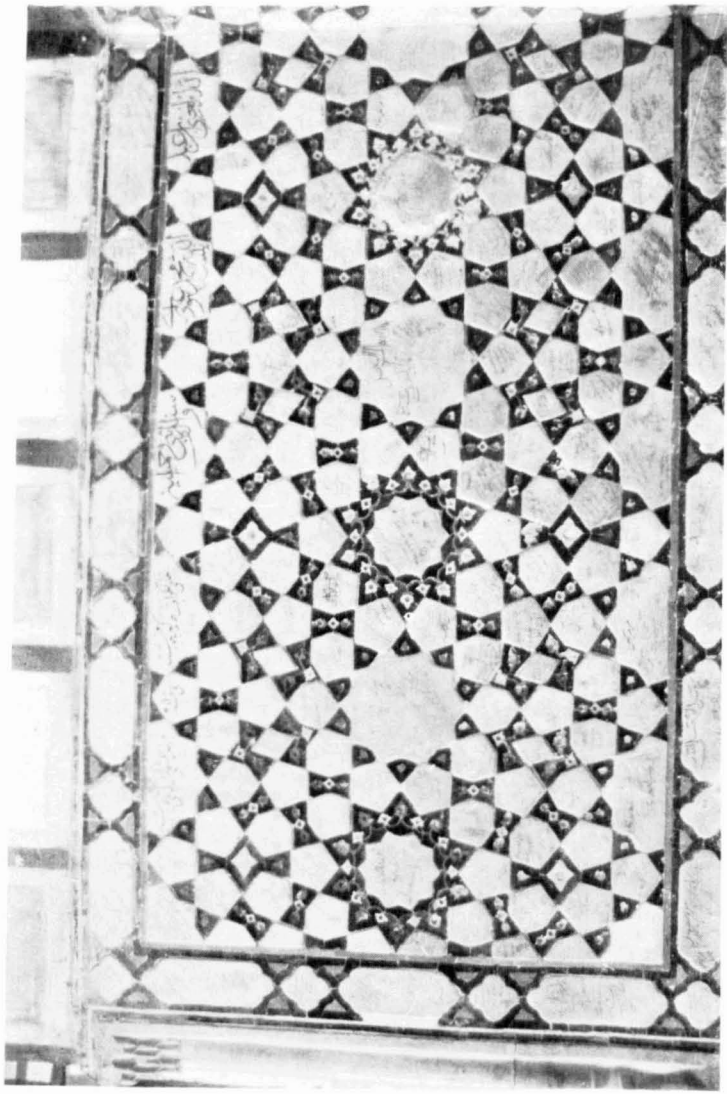
<sup>25</sup> Godard, "Khorāsān", *Āthār-é Irān IV* (1949), fig. 109.



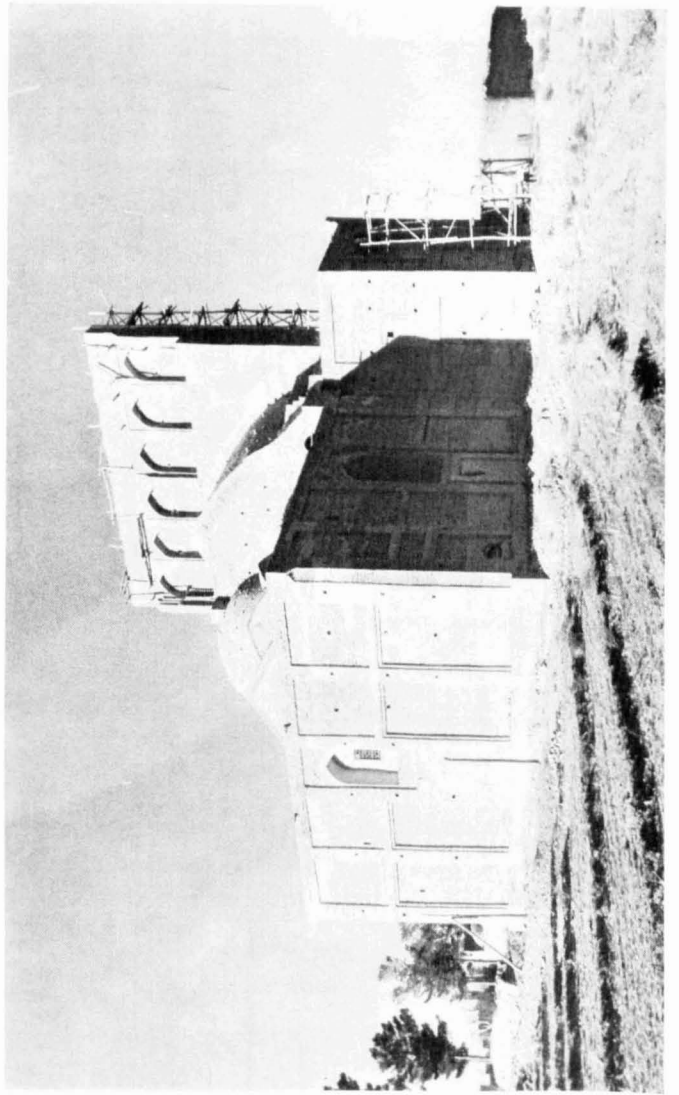
Pl. Ib. Tāybād, buq'a: east façade, dado and tree of life panel.



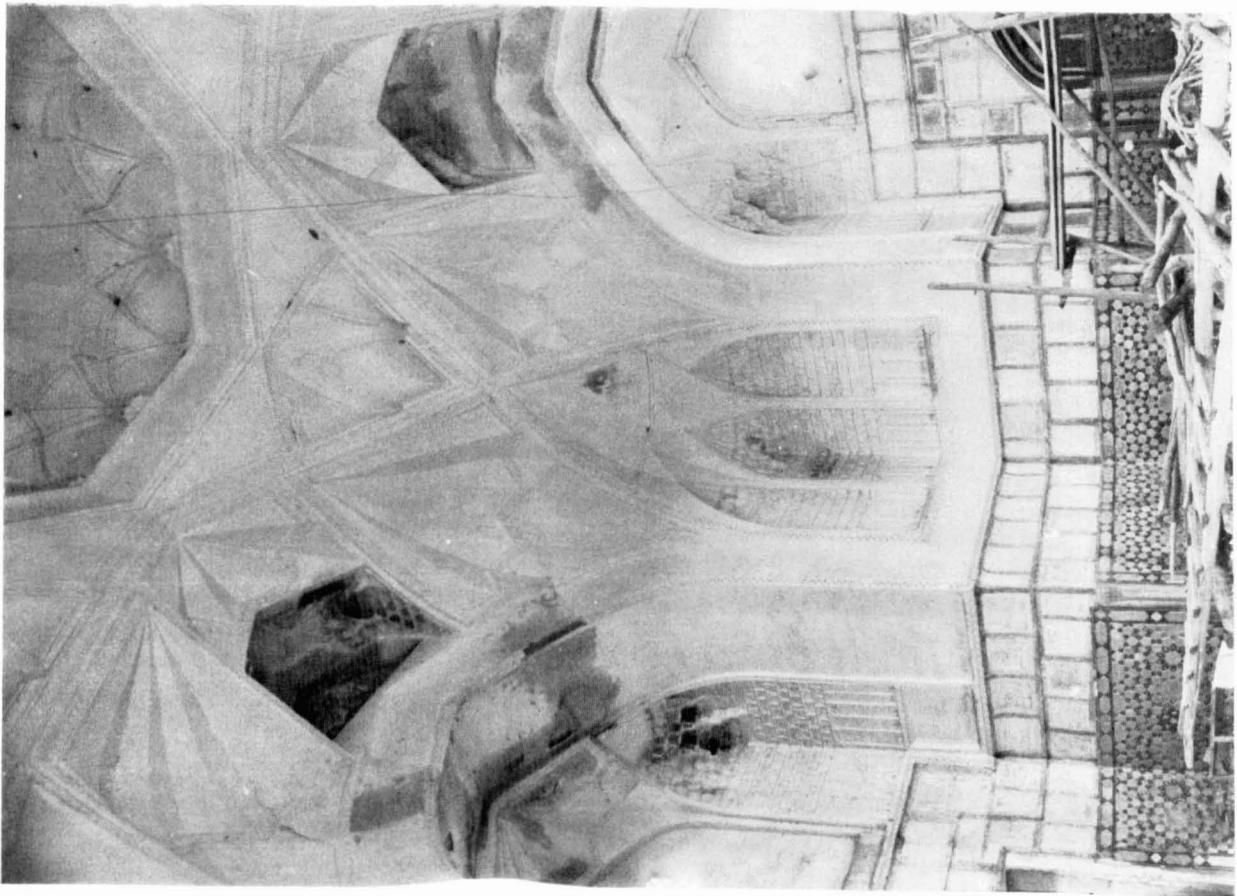
Pl. Ia. Tāybād, buq'a: east (entrance) façade.



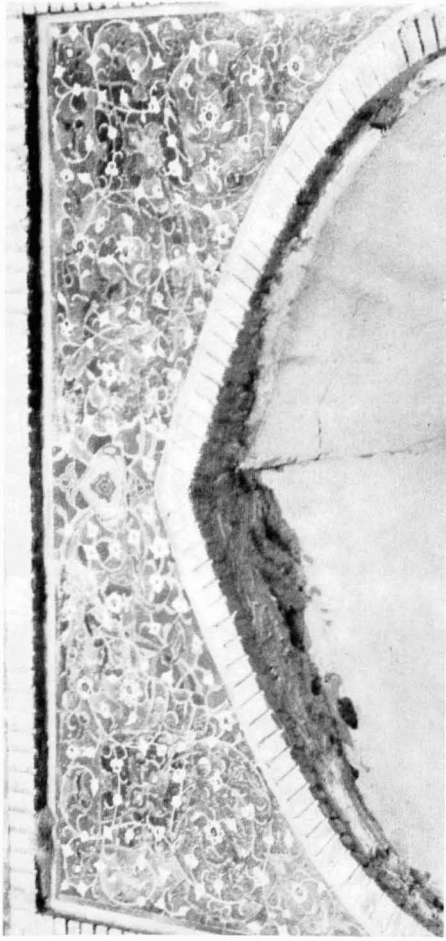
*Pl. IIb. Tāybād, buq'a: interior, dado with graffiti.*



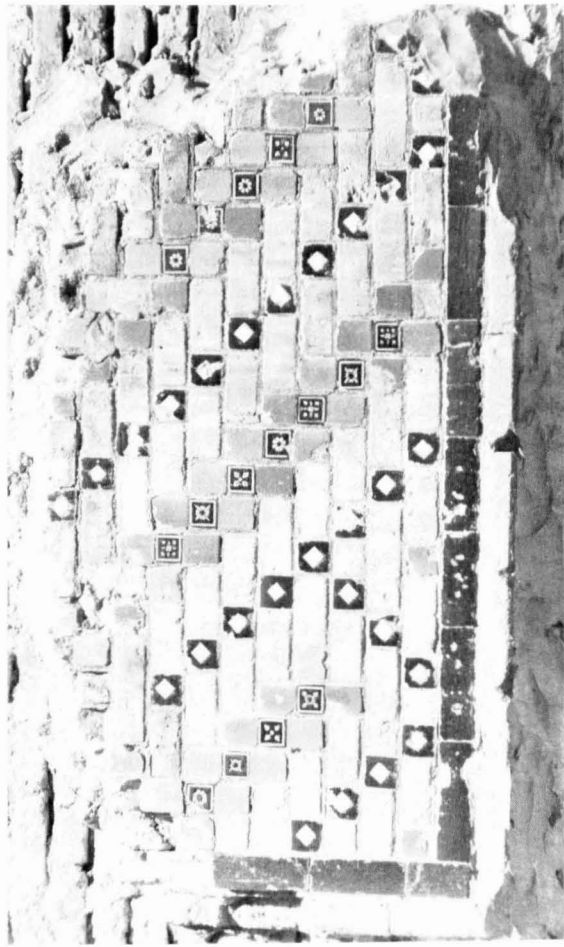
*Pl. IIc. Tāybād, buq'a: view from south-west.*



*Pl. IIa. Tāybād, buq'a: interior, looking southwest.*



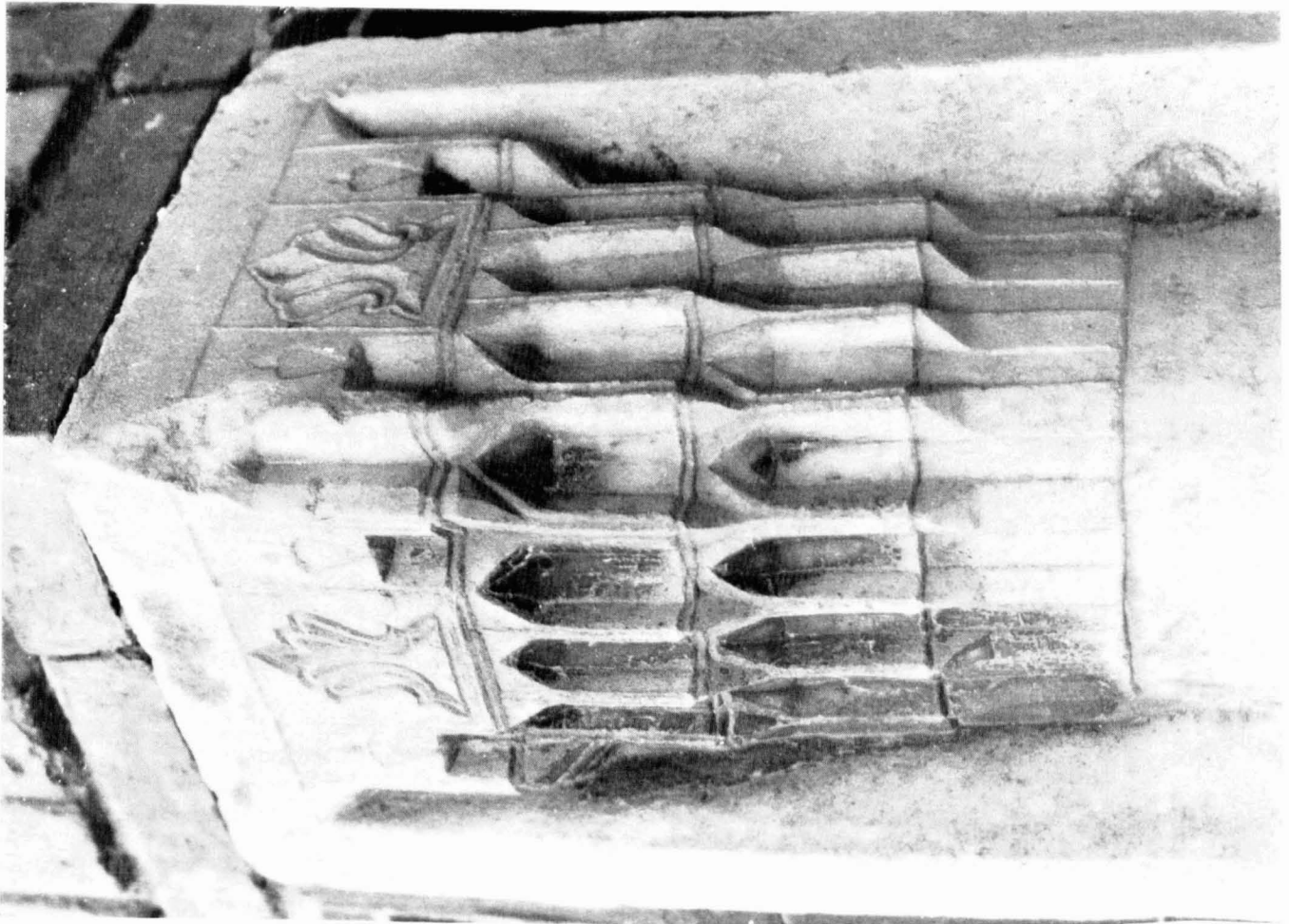
Pl. IIIb. Tāybād, buq'a: spandrel of mosaic-faience over main doorway.



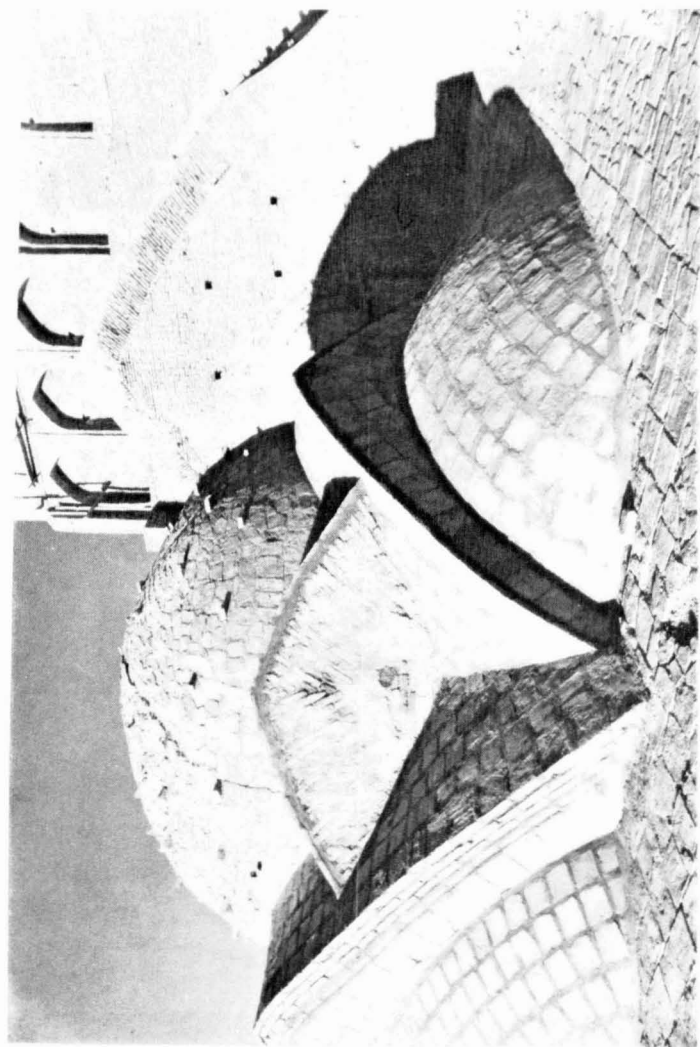
Pl. IIIc. Tabriz, Blue Mosque: tilework on exterior.



Pl. IIId. Khargird, Madrasa al-Ghiyāsiyya: signature of Jalāl Ja'far on the portal-screen of the entrance atton.



Pl. IIIa. Tāybād, buq'a: stalactite capital on exterior atādo.



Pl. IVb. Tāybād, buq'a: roof.

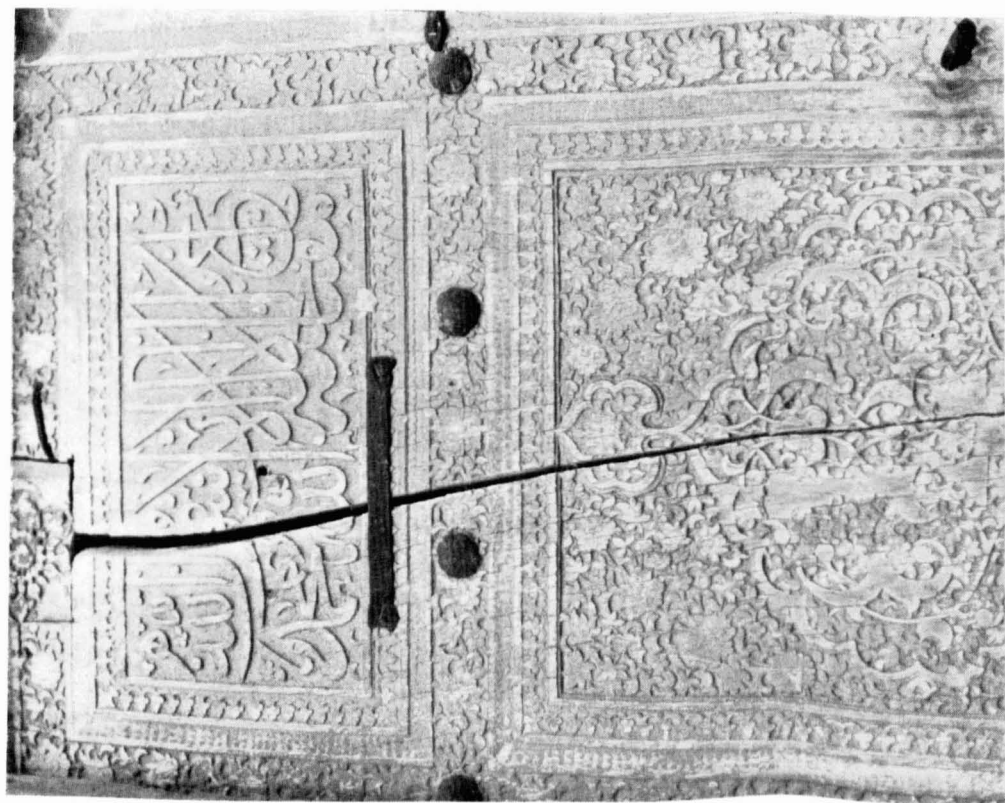


Pl. IVe. Tāybād, buq'a: extrados of semi-dome of

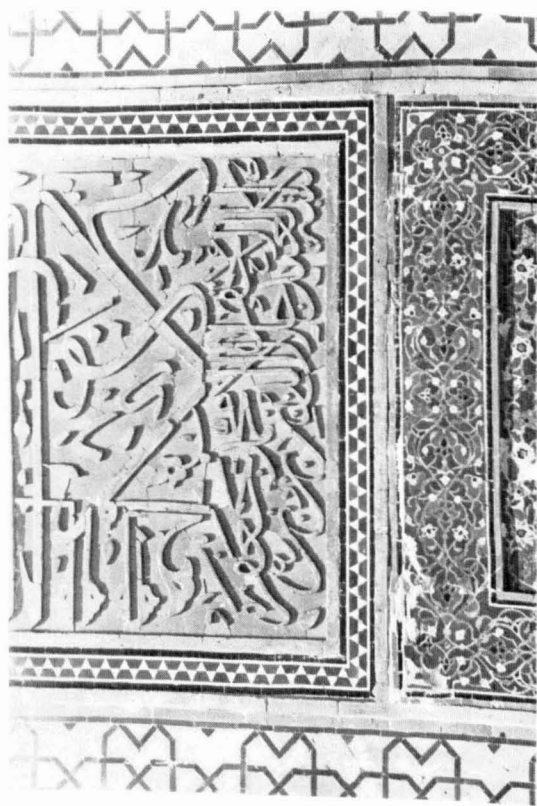


Pl. IVd. Tāybād, buq'a: rear view of

squanch.



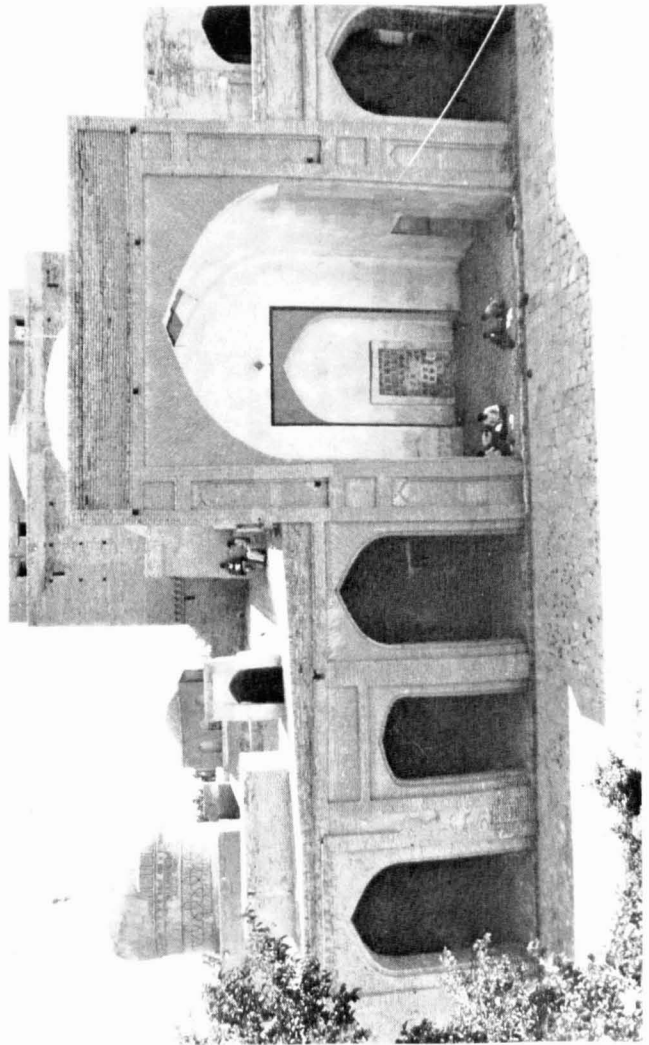
Pl. IVa. Tāybād, buq'a: door to dome chamber.



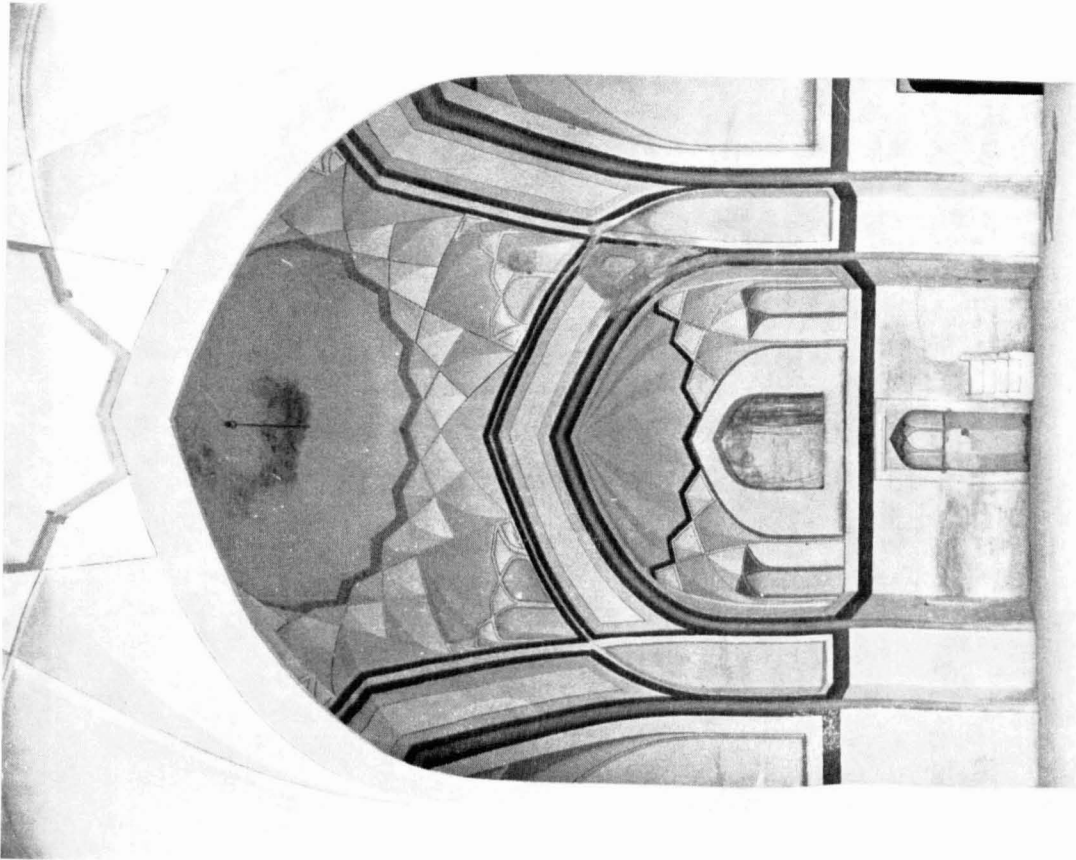
Pl. IVc. Tāybād, buq'a: signature of Jalāl Jā'far on the portal-screen of the entrance atwān.



Pl. Vb. Turbat-i Jām, New Mosque: courtyard west side.



Pl. Vc. Turbat-i Jām, New Mosque: courtyard, east side.



Pl. Va. Turbat-i Jām, New Mosque: sanctuary dome chamber.



*Pl. VIa. Turbat-i Jām, New Mosque: vaulting of sanctuary (photograph courtesy of The Asia Institute Archives, Shiraz).*



*Pl. VIb. Turbat-i Jām, New Mosque: bays north of east aiwan.*



*Pl. VIc. Turbat-i Jām, Madrasa of Firuzshah: excavation showing original extent of façade.*



*Pl. VIId. Langar, Mausoleum of Qasim-i Anvar: interior.*



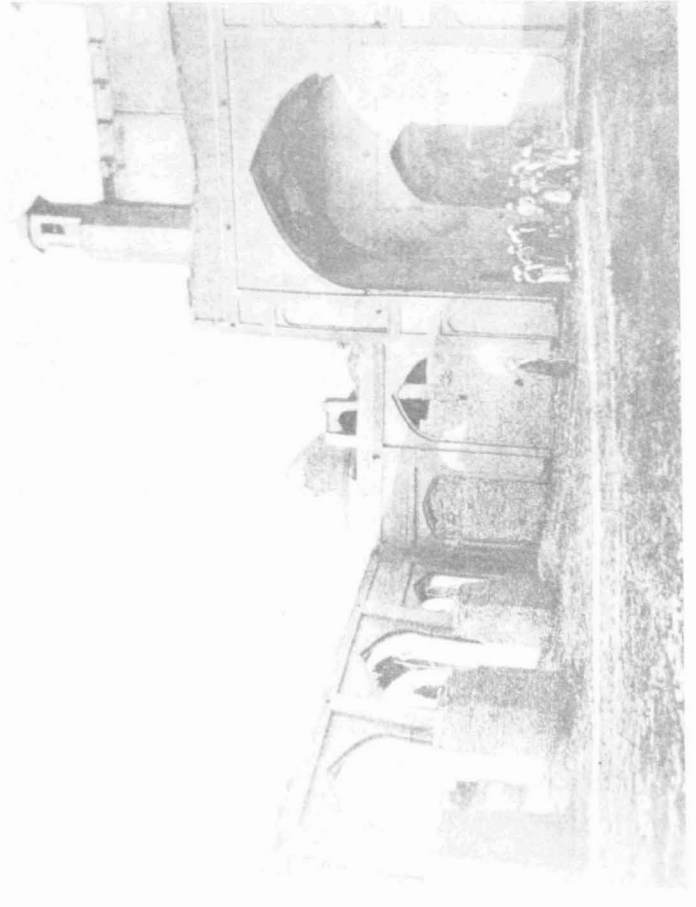
Pl. VIIa. Turbat-i Jām, Madrasa of Firūzshāh: cuerda seca tiles on drum.



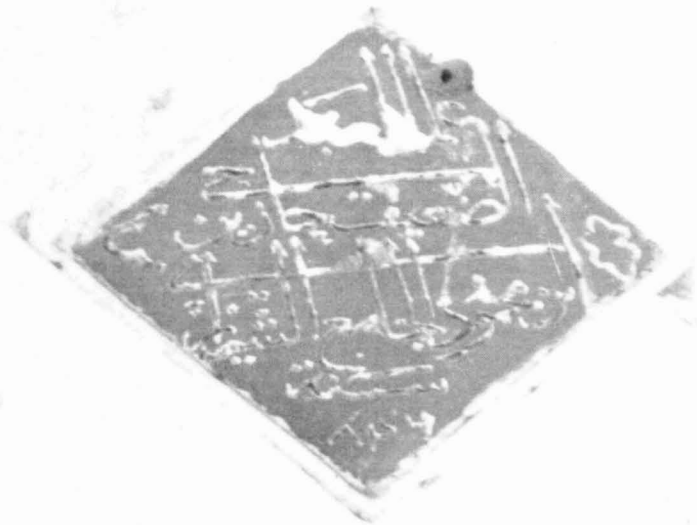
Pl. VIIc. Herat, Mausoleum of Gauhar Shād: cuerda seca tiles on drum.



Pl. VIIb. Kūhsān, Madrasa of Tīmūr Aghā: cuerda seca tiles on drum.



Pl. VIII. Turbat-i Jām, New Mosque: courtyard before bays on north side were dismantled (after Diez).



*Pl. VIIIa. Turbat-i Jām, New Mosque: epigraphic tile on east aivan.*



*Pl. VIIIb. Turbat-i Jām, Madrasa of Firūzshāh: interior of double dome.*



*Pl. VIIIc. Kūhsān, Madrasa of Tūmān Āghā: room adjoining main dome chamber.*



*Pl. VIIIId. Tabriz, Blue Mosque: epigraphic panel of mosaic-faience.*



*Pl. VIIIe. Khargirā, Madrasa al-Ghiyāsiyya: epigraphic panel of mosaic-faience.*

with two-storey niches (instead of living chambers) flanking the aivan. The earlier tomb of Shaikh Luqmān at Sarakhs<sup>26</sup> had two small living chambers which were entered from inside the entrance aivan. Whether these were part of the original fabric or were added at the time of the Mongol redecoration is not yet clear, but in any case it does provide a precedent for a small area for accommodation set in front of the main enclosed space.

The architect of Tāybād shows originality in the disposition of his various spaces. The side chambers, as well as providing private quarters for their inhabitants, serve to moderate what would otherwise be the extreme verticality of the entrance aivan. However, while a central cruciform chamber is easy to accommodate in a large building, e.g. when it is part of a madrasa like the lecture-hall at Khargird, at Tāybād its awkwardness is apparent from the waste of space in the corners—four staircases are more than any functional use of the roof would have required.<sup>27</sup> The plan seems to have influenced that of the 'Ishrat Khāna in Samarqand (868/1464). It has the same central cruciform dome chamber, preceded by an aivan with flanking living chambers in two storeys. Despite the addition of living chambers to make the exterior plan rectangular, the architect of the 'Ishrat Khāna has slavishly imitated the plan at Tāybād by retaining the four staircases in the corner massifs of the central dome chamber.<sup>27a</sup>

Muṣṭafāwī has suggested that Ghiyāṣ al-Dīn Shīrāzī may have been the architect responsible for Khargird.<sup>28</sup> The only other candidate would be Zain b. Maḥmud Shīrāzī who, as we shall see below,

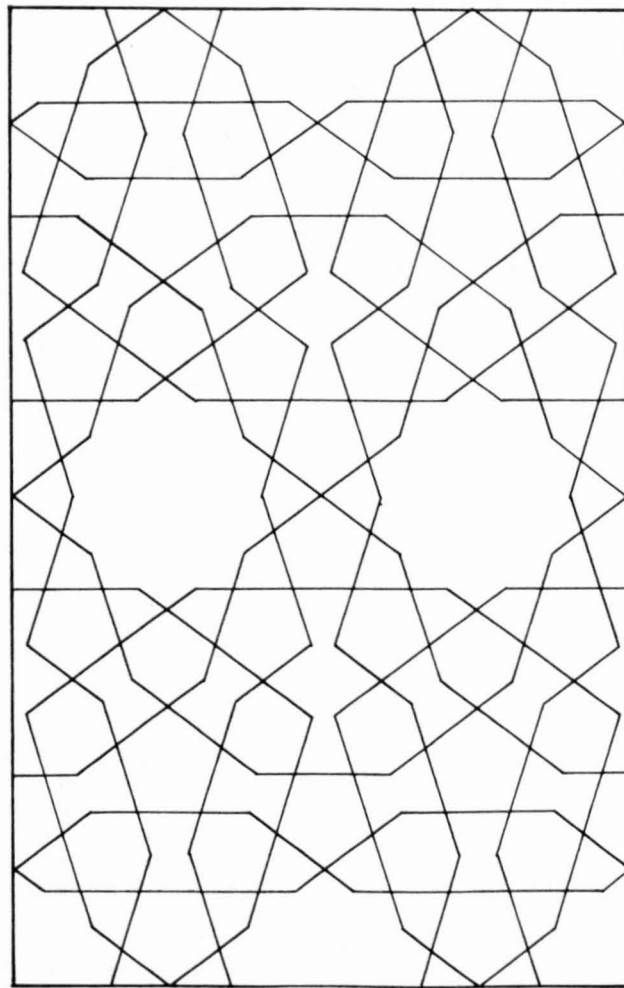


Fig. 5. Tāybād, buq'a: dado of aivan (after El-Said and Parman).

<sup>26</sup> E. Diez, *Churasanische Baudenkmaler* (Berlin (1918), fig. 25. The similarity of the tomb of Shaikh Luqmān to that of Abu 'l-Faḍl (see n. 23 above) confirms the local tradition of a Saljūq dating (see M. Bāmdād, *Āṣār-i tārikhī-yi Kalāt va Sarakhs* (Tehran 1333/1954), p. 33).

<sup>27</sup> The architect of the Hārūniyya at Ṭūs had the same problem. Plan in Diez, op. cit., fig. 25.

<sup>27a</sup> Pugachenkova, " 'Ishrat-khāneh and Ak-Saray, two Timūrid Mausoleums in Samarkand", *Ars Orientalis* V (1963), pl. 3a.

<sup>28</sup> Muṣṭafāwī, p. 193.

was working in a similar style at Turbat-i Jām. However, as both Tāybād and Khargird share the same patron and calligrapher, it is likely that the same architect was also used. This is made almost a certainty by the very close relationship of the vaulting in Tāybād to that in Khargird.

*Historical Background.* The monument is situated in the midst of a graveyard on the outskirts of the modern town. An arcade, of later date than the main building, forms a large rectangular courtyard in front of it. At the entrance to the aivan, shaded by a pistachio tree, lies the grave of Shaikh Zain al-Dīn Abū Bakr Tāybādī,<sup>29</sup> a famous Sufi who resided at Tāybād and died on 30 January 1389.<sup>30</sup> Inscriptions on the aivan inform us of the date of the building, its type and its founder. It is termed a *buq'a*. It was finished in 848/1444 and the founder was Pīr Aḥmad b. Ishāq b. Majd al-Dīn Muḥammad al-Khvāfi. This is the same Ghiyāṣ al-Dīn Pīr Aḥmad Khvāfi who built the Madrasa al-Ghiyāsiyya at Khargird, and who "founded lofty buildings and fine *buq'as* throughout Khurasan".<sup>31</sup> Surprisingly, Shaikh Zain al-Dīn Tāybādī is not mentioned by name in the foundation inscription, although at the beginning it does make reference to a man of great learning and piety. Evidently the memory of Shaikh Zain al-Dīn's holiness was still fresh in the minds of those living fifty-seven years after his death. The *buq'a* was so intimately associated with his grave that it was an unmistakable assumption at the time that he was the person honoured by its erection. Unfortunately, the original gravestone has vanished. In 1030/1621 a certain Khvāja Darvish erected a balustrade around his tomb "so that his (Shaikh Zain al-Dīn's) good name should endure for ever",<sup>32</sup> hence the tombstone may have been missing even by then.

The building is called a *buq'a* in its inscription. What sort of activities or purpose should be attributed to it? It may be useful here to review buildings up to the end of the fifteenth century, which, on epigraphic evidence, were also termed *buq'as*. In chronological order:

- (1) Bastām 706/1306. An inscription on the arcade adjoining the Masjid-i Jāmi' mentions an adjoining *buq'a*.<sup>33</sup> This may refer to the contemporary tomb tower, contiguous to the Masjid-i Jāmi'.
- (2) Naṭanz 716/1316. Portal of "khānaqāh".<sup>34</sup>
- (3) Sarakhs 757/1356. Tomb of Shaikh Luqmān.<sup>35</sup>
- (4) Qum 761/1359. Tomb of Khvāja Aṣil al-Dīn.<sup>36</sup>
- (5) Yazd 792/1389. Madrasa-yi Kamāliyya.<sup>37</sup>
- (6) Samarqand, Shāh-i Zinda 808/1405. Mausoleum of Tūmān Āghā.<sup>38</sup>
- (7) Tāybād 848/1444. "Masjid-i Maulānā".
- (8) Isfahan 850/1446. *Buq'a*-yi Shahshahān.<sup>39</sup>
- ~~(9) Isfahan 857/1453. Darb-i Imām.<sup>40</sup> This is a modern restoration.~~
- (10) Isfahan 895/1489. *Buq'a*-yi Shaikh Abū Mas'ūd.<sup>41</sup>
- (11) Shiraz, Qaṣr al-Dasht 895/1489. Tomb of Ra'is Aḥmad.<sup>42</sup>

Of this number, two seem to be single chamber mausolea (1, 4), six of them mausolea combined with rooms for other functions (3, 6, 8, 9, 10, 11) and the remaining three (2, 5, 7) buildings erected in close proximity to graves. All have therefore some funerary connotation, and at least seven of them (1-3, 7-10) are connected with graves of renowned Sufis.

<sup>29</sup> Identified in Muṣṭafāwī.

<sup>30</sup> The last day of Muḥarram, 791 A.H. *HS* III, p. 543; *RJ* I, p. 219; *MF* III, p. 131.

<sup>31</sup> *Dar aṭrāf-i vilāyat-i Khurāsān abniya-yi rafī' va biqā'-i khair bunyād nihāda* (*DV*, p. 354).

<sup>32</sup> *Tā bimānad nām-i nik-ish bar davām* (Muṣṭafāwī, p. 189).

<sup>33</sup> *RCEA*, No. 5210.

<sup>34</sup> *Ibid.*, No. 5224; Godard, "Naṭanz", *Āthār-e Irān* I (1936), p. 96. Only the portal of this building now remains.

<sup>35</sup> *RCEA*, No. 6274; Diez. *op. cit.* pp. 64-5. As mentioned above (n. 26), the structure of the building is Saljūq. However, the Mongol inscription is evidence that the term *buq'a* was the most apposite, or at least a convenient term for the building in the fourteenth century.

<sup>36</sup> M. Ṭabāṭabā'i, *Turbat-i Pākān* (Qum 2535/1976) II, p. 54. This is the southernmost of the three tombs of the Bāgh-i Sabz. See Wilbur, *op. cit.*, p. 185.

<sup>37</sup> I. Afshār, *Yādghārah-yi Yazd* (Tehran 1354/1975) II/1, p. 613. Most of the building complex, which included a *madrasa*, *khānaqāh*, a pharmacy (*bait al-adwiya*), a *ḥammām* and houses, was built in 720/1320 (*ibid.*, quoting *TY*, p. 610). The founder was buried beneath the dome of the *madrasa* (*ibid.*, quoting *JM*, p. 611), hence the funerary connotations of the adjoining *buq'a*.

<sup>38</sup> V. A. Shishkin, "Napdisi ansamble Shakhi-Zinda", *Zodchestvo Uzbekistana. Materialy i Issledovaniya. II. Ansambli Shakhi-Zinda*, ed. P. Zakhidov (Tashkent 1970), p. 65.

<sup>39</sup> L. Hunarfar, *Ganjina-yi āyār-i tārikhi-yi Isfahān* (Isfahan 1350/1971), p. 339.

<sup>40</sup> *Ibid.*, p. 343.

<sup>41</sup> *Ibid.*, p. 357.

<sup>42</sup> M. T. Moṣṭafāfi, *The Land of Pārs* (Chippenham 1978), tr. R. N. Sharp, p. 54.

Anatolia was the only area apart from Iran where the term *buq'a* gained any widespread acceptance. It was used in six inscriptions between 552/1157 and 759/1358:

- (1) Niksar 552/1157. Yaghi Basan Madrasa.<sup>43</sup>
- (2) Ahlat 619/1222. Tomb of Shaikh Najm al-Dīn.<sup>44</sup>
- (3) Tokat 691/1292. *Zāwiya* of Halifat Gazi.<sup>45</sup>
- (4) Ahlat 707/1307. Detached foundation inscription.<sup>46</sup>
- (5) Erzurum 710/1310. Yāqūtiyya Madrasa.<sup>47</sup>
- (6) Eğridir 759/1358. Tomb of Dede Sultān.<sup>48</sup>

While one of these is simply a tomb tower (2), three others (1, 4, 5) combined tombs with other functions. This is brought out<sup>49</sup> not only from their plans, but also from the functions attributed to them at present i.e. *madrasa* (1, 5), and *zāwiya* or *tekke* (3). This reluctance of the local populace to call the building by its epigraphic name is also found with *buq'as* in Iran; the *buq'a* at Naṭanz is known as a *khānaqāh*, that of Tāybād as the Masjid-i Maulānā. Several explanations can be given for this: *buq'a* is a relatively rare term for a building, and a more familiar term indicating similar functions may have been substituted. Or the building may have been described by a different term in its *waqfiyya*. This confusion is not restricted to modern times. It is worth recalling the general confusion among mediaeval writers with building terminology, especially with those buildings which were designed to accommodate Sufis. The Shrine at Gāzur Gāh, for instance, is variously termed a *mazār*,<sup>50</sup> a *ḥaḥīra*,<sup>51</sup> a *buq'a*,<sup>52</sup> a *khānaqāh*,<sup>53</sup> a *madrasa*,<sup>54</sup> an *āstāna*,<sup>55</sup> and even in one case 'imāra va masjid-i jāmi'.<sup>56</sup> As can be seen from this list, it is given different designations even by individual authors. This may only become a problem if we assume the functions of each of these terms are exclusive—but as Golombek has shown, the Shrine at Gāzur Gāh contains elements which are as appropriate to a *madrasa* or a *khānaqāh* as they are to a *mazār*.<sup>57</sup>

On the epigraphic evidence which we have considered, the term *buq'a* would seem to be more a description of the functional aspect of a building rather than of its form. It is closely associated with two factors: burial and communal institutions for Sufi life. This is borne out by the textual sources. A particularly revealing example is that of the Murshidiyya *buq'a* built by the Amīr Jalāl al-Dīn Khidrshāh in Yazd (849/1445–6). The building complex also comprised a mosque and a *ḥaḥīra* which was intended for Jalāl al-Dīn's own burial. The activities of the *buq'a* are described thus: "The 'ulamā and the men of God and the dervishes reside in that *buq'a* most of the time. They give provisions to everybody in their turn. On the evening of Friday they make a good broth for the common people and give it to those at hand and they engage in music, and both high and low are present, and in the morning and evening they sound the drum of the Murshidiyya".<sup>58</sup> As has been pointed out by Golombek, "The function of this building is suggested by the name of the institution (—from *murshid*, meaning "spiritual guide", i.e. the Sufi teacher) . . . This *buq'ah* could therefore be compared to a *khānaqāh*, which is also a place for the gathering of the learned, the devout, and the poor".<sup>59</sup> Its activities demanded a large space for common assembly (cf. the central dome chamber and aivan at Tāybād), smaller private spaces for individuals (cf. the living chambers in two storeys at Tāybād), and

<sup>43</sup> RCEA, No. 3221.

<sup>44</sup> Ibid., No. 3882.

<sup>45</sup> Ibid., No. 4960.

<sup>46</sup> Ibid., No. 5221.

<sup>47</sup> Ibid., No. 5277; R. H. Ünal, *Les monuments islamiques anciens de la ville d'Erzurum et de sa région* (Paris 1968), p. 49.

<sup>48</sup> RCEA, No. 6294.

<sup>49</sup> Plans in A. Gabriel, *Monuments turcs d'Anatolie* (Paris 1934) II, p. 122 (Niksar); fig. 65 (Tokat); Ünal, op. cit., fig. 12 (Erzurum).

<sup>50</sup> RJ II, p. 100; KA, p. 22; RS VII, pp. 96, 174, 272; MF III, pp. 260, 262; HS IV, pp. 174, 272, 667; MS, pp. 382–3, 1085; Jāmi, *Divān-i Kāmil-i Jāmi*, ed. H. Raḡī (Tehran 1341/1962) p. 85. DV, t. 440.

<sup>51</sup> MI, pp. 77, 79, 81–83; DV, p. 385; HS IV, pp. 13, 176–7; also one epigraphic occurrence on a marble slab on the façade of

the Shrine dated 905/1500 (Saljūqi, *Gāzur Gāh* (Kabul 1341/1962), p. 27).

<sup>52</sup> MS, pp. 304–5; HS IV, p. 242; DV, p. 396; KA, p. 22, Jāmi, op. cit., p. 85.

<sup>53</sup> Jāmi, op. cit., p. 85; NU, pp. 964–5; KA, p. 22.

<sup>54</sup> DV, p. 440.

<sup>55</sup> RS, VII, p. 93.

<sup>56</sup> MI, p. 30.

<sup>57</sup> *Gāzur Gāh*, p. 101.

<sup>58</sup> TJY, p. 122: 'ulamā va ahl allāh va darvīshān ghālib-i auqāt dar ān buq'a sākin mibāshand va har kas-rā bi martāba-yi khud sufra mīrasānand va dar shab-i jum'a shūrbā-yi khūb jihat-i 'avāmm mīszāzand va bi-ḥāḡīrān mīrasānand va bi-samā' qiyām minamāyand, va vaḡī' va sharīf ḥāḡīr mīshavand va dar ṣubḥ va ṣhām naqāra-yi murshidiyya mīzanand.

<sup>59</sup> *Gāzur Gāh*, p. 111.

temporary lodgings for travellers (the areas half way up each staircase at Tāybād could conceivably have been for this purpose, if no other space was available). The only contemporary historical reference to the Tāybād *buq'a* described it as a *jamā'atkhāna*.<sup>60</sup> This is generally used by mediaeval authors to refer to a large space for assembly, again often in buildings connected with Sufi life.<sup>61</sup>

The *buq'a* of Tāybād has been described elsewhere as a "ḥazīra-compound" (a combination of *ḥazīra*, or uncovered grave with surrounding balustrade, and activity centre, i.e. an institutional building such as a mosque, *buq'a* or *khānaqāh*).<sup>62</sup> This description is unhelpful for a number of reasons. Firstly, no epigraphic or historical information exists which describes the grave as a *ḥazīra*. Secondly, there is no evidence whether the grave of Shaikh Zain al-Dīn had any kind of gridded enclosure before that erected by Shaikh Darvīsh in 1030/1621. Thirdly, the term *ḥazīra* is also used at the same time for domed or vaulted structures over graves.<sup>63</sup> In fact, it seems impossible in fifteenth century Khurasan to regard a preference for burial in a *ḥazīra* as stemming from orthodox opposition to tombs. Two examples from the *Maqṣad al-Iqbāl* confirm this: (1) Khvāja Luṭfallāh b. 'Azīz Vā'iz died in 823/1420; "his burial place is in the khiyābān of Herat beside the grave of Imām Fakhr al-Dīn Rāzī. It has a *ḥazīra* and a fine dome".<sup>63a</sup> (2) The burial place of Maulānā Yūsuf Ḥallāj is "in the *ḥazīra* of Fakhr al-Dīn Rāzī, and it has a high dome".<sup>64</sup> The term *buq'a* by which the building at Tāybād is known in its foundation inscription carries with it, as we have seen, funerary associations and the idea of an institution for Sufis such as a *khānaqāh*, rendering description of it as a *ḥazīra*-compound superfluous, if not actually misleading.

The *buq'a* of Tāybād is contemporary with the Madrasa of Khargird, also founded by Ghiyāṣ al-Dīn Khvāfī. The combination of orthodox foundation and institution for Sufis might appear unusual, but it was quite a frequent one with Timurid rulers: Shāh Rukh built a *madrasa* and *khānaqāh* to the north of the citadel of Herat,<sup>65</sup> and both Muḥammad Sulṭān and Ulugh Beg each built a *madrasa* and *khānaqāh* in Samarqand.<sup>66</sup> The practice of *ziyārat*, or pilgrimage to burial places of holy men, was popular both with Tīmūr and Shāh Rukh. As the meeting of Tīmūr with Shaikh Zain al-Dīn was well-known,<sup>67</sup> for Pīr Aḥmad Khvāfī to erect a monument in the Shaikh's honour would have been a way of acquiring both piety and favour with Tīmūr's son, Shāh Rukh.

There may have been another motive. Golombek has pointed out Pīr Aḥmad Khvāfī's reason for erecting the Madrasa al-Ghiyāsiyya in his native Khargird rather than in the metropolitan centre of Herat may have been to secure his property for his descendants—if his lands were made *waqf* for the *madrasa*, his family, as trustees, could have benefited from its revenue with less fear of arbitrary confiscation.<sup>68</sup> This may also have been the case with the *buq'a* at Tāybād. One may draw a parallel with fourteenth century Cairo here, where "foundations were also a symbolic assertion of their (the descendants of Sulṭān Qalā'ūn and their amirs) importance and investments, since their descendants were beneficiaries from the surplus revenue of their lavish endowments".<sup>69</sup>

## II TURBAT-I JĀM

The complex building history of the Shrine at Turbat-i Jām has already been the subject of an illuminating article by Golombek.<sup>70</sup> However, the decoration and vaulting of the Timurid parts deserve fuller attention, and her conclusion that the sanctuary is the only original structure of the New

<sup>60</sup> *RJ* I, p. 219.

<sup>61</sup> e.g. at the Shrine of Khvāja Aḥmad Yasāvi, *ZN* II, p. 16; at Gāzur Gāh describing the two large halls of the entrance complex, *MS*, pp. 304-5; at the complex of Amīr Jalāl al-Dīn Khidrshāh noted above, *TJY*, p. 122.

<sup>62</sup> *Gazur Gah*, p. 115. The "ḥazīra-compound" is discussed on pp. 109-21.

<sup>63</sup> See the note by A. H. Morton, in R. Hillenbrand, "The Development of Saljuq Mausolea in Iran", *The Art of Iran and Anatolia from the 11th to the 13th Century A.D.* (London 1974), ed. W. Watson, p. 58, n. 42.

<sup>63a</sup> *MI*, p. 75: *madfan-ish dar khiyābān-i Harāt dar jivār-i maqbara-yi Imām Fakhr al-Dīn Rāzī. Ḥazīra va gunbad-i mumtāz dārad.*

<sup>64</sup> *Ibid.*: *va madfan-ish dar ḥazīra-yi Imām Fakhr al-Dīn Rāzī ast va*

*gunbad-i 'ālī dārad.*

<sup>65</sup> Ḥāfiz-i Abrū, *Geography*, British Museum Ms. Or. 1577, f. 175a. The architects were Qavām al-Dīn and Khvāja 'Alī al-Ḥāfiz al-Tabrizī. No trace remains of either of these buildings.

<sup>66</sup> V. Bartol'd, "O Pogrebenii Timura", tr. J. M. Rogers, *Iran* XII (1974), p. 71, n. 126 (Muḥammad Sulṭān); *ibid.*, p. 71, n. 47 (Ulugh Beg).

<sup>67</sup> *HS* III, p. 430.

<sup>68</sup> L. Golombek, "Khargird Revisited", *Memorial Volume for A. U. Pope* (forthcoming). I am indebted to Dr. Golombek for the opportunity to read a copy of this.

<sup>69</sup> Rogers, "The Stones of Barqūq", *Apollo* CIII, No. 170 (April 1978), p. 307.

<sup>70</sup> "Chronology".

Mosque needs revision. Further information on the New Mosque is provided by an epigraphic turquoise glazed tile set high up at the back of the eastern aivan (Pl. VIIIa).<sup>71</sup> Its small size (*ca.* 25 × 25 cm.) and the distance from the ground (6.6 m.) render it inconspicuous and account for previous inattention to it. The inscription has been formed by scraping away the glaze. It reads:

The work of the <sup>master</sup> slave Ḥājji Zain b. Maḥmūd of the Jāmi' of Shīrāz, in the year 846/1442-3 (in numerals).

This is the same architect whose name is found on a panel in mosaic faience dated 844/1440-1 on the south side of the main courtyard of the shrine.<sup>71</sup> This latter date refers to the completion of the Madrasa of Fīrūzshāh. The "Appendix"<sup>72</sup> gives the date of completion of the New Mosque and the *madrasa* as 846/1422-3, so it is probable that work started on the New Mosque on completion of the *madrasa* and was finished two years later.

The sanctuary, the sanctuary aivan (Pl. Va-b: Figs. 6-7) and the aivan (Pl. Vc) opposite it all clearly belong to the same period. There is no break in bond between the sanctuary and the aivan fronting it; and the squinch net vaulting of the east aivan opposite, together with the segmental arches of its doorways at ground level, identical to those of the sanctuary, show that it is contemporary with the sanctuary. One should also note the similarity of the brickwork of the front of each aivan and of the smaller arches on each side. The bricks<sup>73</sup> of the spandrels are laid perpendicular to the curves of the arches—a distinctive treatment which we shall encounter later. The bays immediately to the sides of the sanctuary and the aivan are vaulted by simple kite-shaped squinches (Fig. 6; Pl. VIb). The vaults of the other

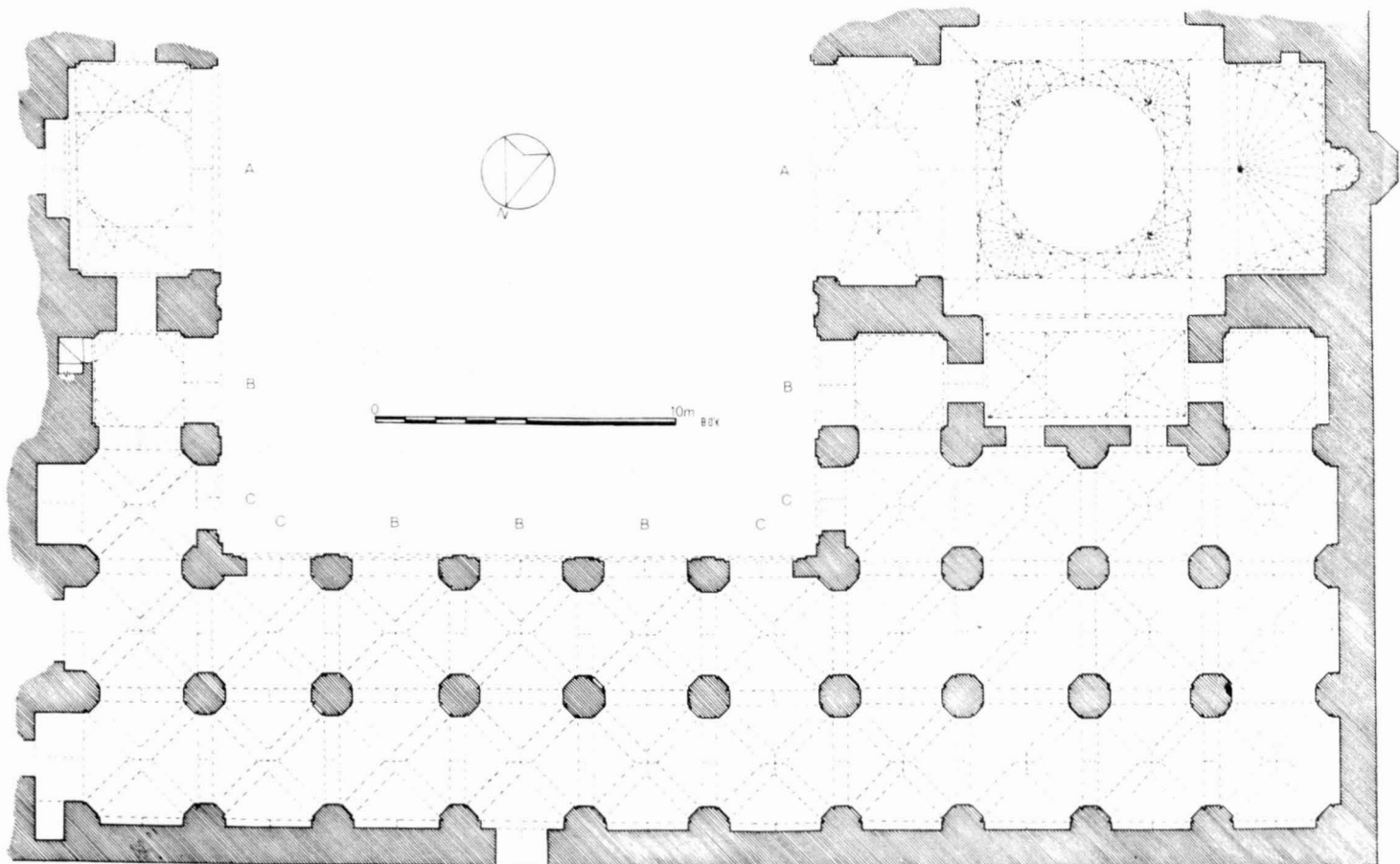


Fig. 6. Turbat-i Jām, New Mosque: restored plan of sanctuary and northern half of courtyard.

<sup>71</sup> Ibid., "Inscription No. 5", p. 40.

<sup>72</sup> Ibid., p. 28.

<sup>73</sup> Brick sizes of the New Mosque: 23 × 23 × 5 cm., vertical joints 0.5 cm.; horizontal joints 1.6 cm.

bays are more unusual: the eight sides of the octagonal pillars are extrapolated to form arches, with pendentive-like filling of their interstices (Pl. VIb). It is an equivalent in brick to the classic quadripartite Gothic ribbed groin vault, as exemplified in the Ile-de-France from the thirteenth century onwards.<sup>74</sup> The impression is starkly functional—not one that is usually associated with Timurid architecture. A photograph taken by Diez (Pl. VIIId) shows these bays in bad state of disrepair; the obvious repairs which have since taken place<sup>74a</sup> may have led to the assumption that these vaults were quite modern. However, the second bay north of the east aivan has evidently never been repaired (Pl. VIb). There is no break in bond between this bay, the bay immediately north of the east aivan and the east aivan itself, so we must assume they are contemporary. That these vaults should be Timurid should cause less surprise when one realizes that the nearest parallels are not with modern, Qājār or even Šafavid architecture, but with the *Mašjid-i Jāmi'* of Ziyāratgāh<sup>75</sup> near Herat, built in 889/1485. Not only the multi-faceted pillars but also the lay-out of the sanctuary, with lateral aivans penetrating into the space of the adjoining bays, show a distinct influence from the New Mosque.

The original appearance of the New Mosque is evident from Diez's photograph (Pl. VIIId). On each side were two rows of five bays. The middle three were larger, corresponding in size to those on either side of the east and west aivans. The two bays at each end were smaller, of the same size as the bays to which they would have been contiguous (Fig. 6). The spandrels of these lateral bays also had the same distinctive brickwork we noted above, the lay being perpendicular to the curve of the arches. The courtyard would therefore have had a distinct, if subtle rhythm, with units of CBABC facing each other on the east and west sides, and CBBBC on the north and south sides (cf. Fig. 6). Given the size of the courtyard which Ḥājji Zain b. Maḥmūd had to work with, the two-aivan form was a logical choice.<sup>76</sup>

The links of the vaulting of the sanctuary of the New Mosque with Tāybād have already been noted.<sup>77</sup> Points of similarity are the use of four intersecting arches and the exterior treatment of the dome, whose supporting arches and semi-domes over the squinches are also of plain brick. The similarity ends there, however, for the zone of transition from the large intersecting arches to the bottom of the dome is something quite original (Pl. Va; Figs. 5–6). The plan of the vaulting inside the square created by the large intersecting arches is basically one of two smaller squares intersecting at an angle of forty-five degrees. Four squinches with faceted panels occupy the corners created by the intersection of these smaller squares, and extra ribs from their sides create a sixteen-sided dome, with the typical

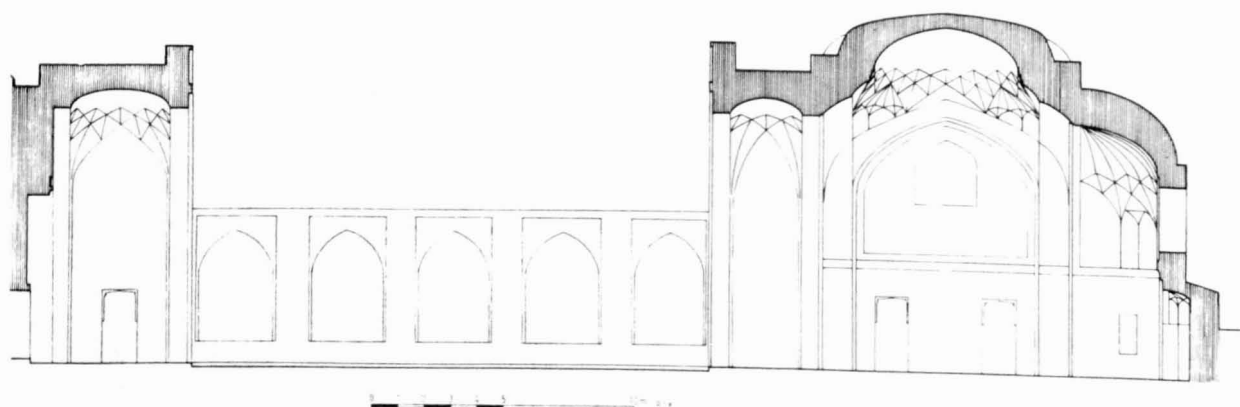


Fig. 7. *Turbat-i Jām, New Mosque: section (present state).*

<sup>74</sup> e.g. Bourges Cathedral, ca. 1225 A.D., J. Harvey, *The Master Builders* (London 1971), pl. 40. An even clearer analogue is the Wiesenkirche of Soest in Westphalia (1331–76 A.D.), *ibid.*, pl. 88, where the columns also do not have capitals.

<sup>74a</sup> These included dismantling the bays on the north and south sides of the courtyard (pl. Vb).

See Pugachenkova, "Les monuments peu connus de l'architecture médiévale de l'Afghanistan", *Afghanistan XXI/1* (1968),

pp. 42–8.

<sup>76</sup> Contemporary two-aivan mosques in the Yazd area are numerous. In Khurasan, a slightly earlier example is found in the *Mašjid-i Jāmi'* of Bajistān (828/1424), west of Gunābād (unpublished), although the mosques of Farūmad and Zūzan provide still earlier examples (Godard, "*Khōrāsān*", figs. 65, 96).

<sup>77</sup> "Chronology", p. 41.

Timurid zigzag (Fig. 9) at the top. This motif was also present on the large intersecting ribs, as an earlier photograph by Pope shows (Pl. VIa). The photograph is also valuable in showing that the ribs and faceting are accurately reflected in brick beneath their plaster covering. This does not necessarily mean that these ribs carry all or most of the weight of the vault above. The mass of brickwork above (from 1.4 m. at the shoulder to 0.5 m. at the crown) could hardly be supported by ribs scarcely wider than one brick (*ca.* 6 cms.) thick. As Smith has pointed out "When [squinch-net vaulting is] executed in brick the structure can be integral but the forms are decorative".<sup>78</sup>

The vaulting plan of a square with two smaller squares at forty-five degrees to each other inside each other is an unusual one. Where the structure is integral, its inherent stability is apparent from its use in the Gul Gunbadh, the tomb of Sulṭān Muḥammad 'Ādil Shāh at Bijapur (1625–57 A.D.), "the largest domical roof in existence".<sup>79</sup> There the eight principal arches rise straight from the ground, and since no extra arches are used as in the New Mosque, an eight-sided rather than a sixteen-sided figure is formed. The dome of the Gul Gunbadh is, unusually for India, of brick. It is likely that it was inspired by Iranian architecture, although intermediate stages after the New Mosque at Turbat-i Jām may be found. Although much earlier examples of this vaulting plan are to be found in the additions to the Great Mosque of Cordoba by al-Ḥakam II (962 A.D.) and in the Mosque of Bāb Mardūm in Toledo (1099 A.D.),<sup>80</sup> it is not necessary to postulate that Zain b. Maḥmūd had knowledge of these. The exigencies of squinch-net vaulting (as exemplified in the Buq'a of Tāybād or the Madrasa of Fīrūzshāh) demanded the ability to construct complicated geometric vaulting plans such as that of the New Mosque.

*The Madrasa of Fīrūzshāh*<sup>81</sup> (Pls. VIc, VIIa, VIIIb; Fig. 8).

In May 1975 excavations undertaken by the National Society for the Conservation of Historic Monuments of Iran, Khurasan Office, revealed that the foundation of the façade of the *madrasa* extended as far as had been previously conjectured (Pl. VIc).<sup>82</sup> The lower portion of this still retained some traces of a dado in simple *banai*-technique consisting of rectangular bisque tiles with smaller square light-blue glazed tiles. There may have been a doorway east of the vestibule, symmetrical with that leading to the Gunbad-i Sabz. The whole façade of the *madrasa*, including the adjacent façade to the west, was decorated in *banai*-technique. Unusually, none of it is epigraphic. At the top was an inscription in *cuerta seca* tiles. The same technique was used on the drum of the Gunbad-i Sabz, where the tiles have been better preserved (Pl. VIIa). At the top and bottom are borders of rectangular tiles, with a continuous scroll of flowers and buds on a light-blue vine. The inscription between these is made up of two rows of square tiles, each 33 × 33 cms. The colours are applied by overglaze painting on a white ground.<sup>83</sup> The white ground is left uncovered for the outlines of the main inscription. The background is dark-blue, the floral scroll light-blue. The upper Kufic inscription (*al-mulk li'llāh* repeated) is more colourful; it was outlined in tomato red and lime green was used for infilling the *mīm* of " *mulk* " and the *hā* in " *Allāh* ", while the white ground of the letters themselves was covered in gilding, most of which has worn away. The same colours and techniques are used on the square and triangular tiles

<sup>78</sup> M. B. Smith, *The Vault in Persian Architecture* (D. Phil. thesis, John Hopkins University 1947), p. 139.

<sup>79</sup> P. Brown, *Indian Architecture: Islamic Period* (Bombay 1956), p. 77. Plan of vaulting on pl. LII.

<sup>80</sup> J. Hoag, *Islamic Architecture* (New York 1977), pl. 97 (Cordoba); pl. 104 (Toledo).

<sup>81</sup> "Chronology", figs. 5–6; pls. XVIIb–XXI; pp. 39–40, colour illustration in S. and H. Scherr-Thoss, *Design and Color in Islamic Architecture* (Washington 1968), pl. 150.

<sup>82</sup> "Chronology", fig. 5.

<sup>83</sup> For a description of *cuerta seca* technique, see A. Lane, *Victoria and Albert Museum; a Guide to the Collection of Tiles* (London 1960), p. 11. I was mistaken in my previous description of these tiles as underglaze-painted ("Khargird", p. 89). All of the tiles described (in "Khargird") as being underglaze-

painted are in *cuerta seca* technique with the exception of the "white tiles with blue thistle-like motifs" ("Khargird", p. 89, pl. VIIb), which are underglaze blue on a white slip. Earlier examples of moulded underglaze blue are also found on the one remaining minaret of the Maṣjid-i Jāmi' of Gauhar Shād (839/1435) in the Muṣallā in Herat, and on the Mausoleum of Ūljaitū, Sulṭāniyya (705–13/1307–13). Item no. 393 from the exhibition *The Arts of Islam* (Hayward Gallery 1976), "Tile covered with opaque white glaze over which are laid blue and turquoise glazes decorated with red enamel and leaf gilding", Godman Collection, was taken from the west aivan of Khargird (cf. "Khargird", pl. VIIb), as were two identical tiles in the Victoria and Albert Museum, London (c. 747–1909) and the Metropolitan Museum of Art, New York (17.143.1).

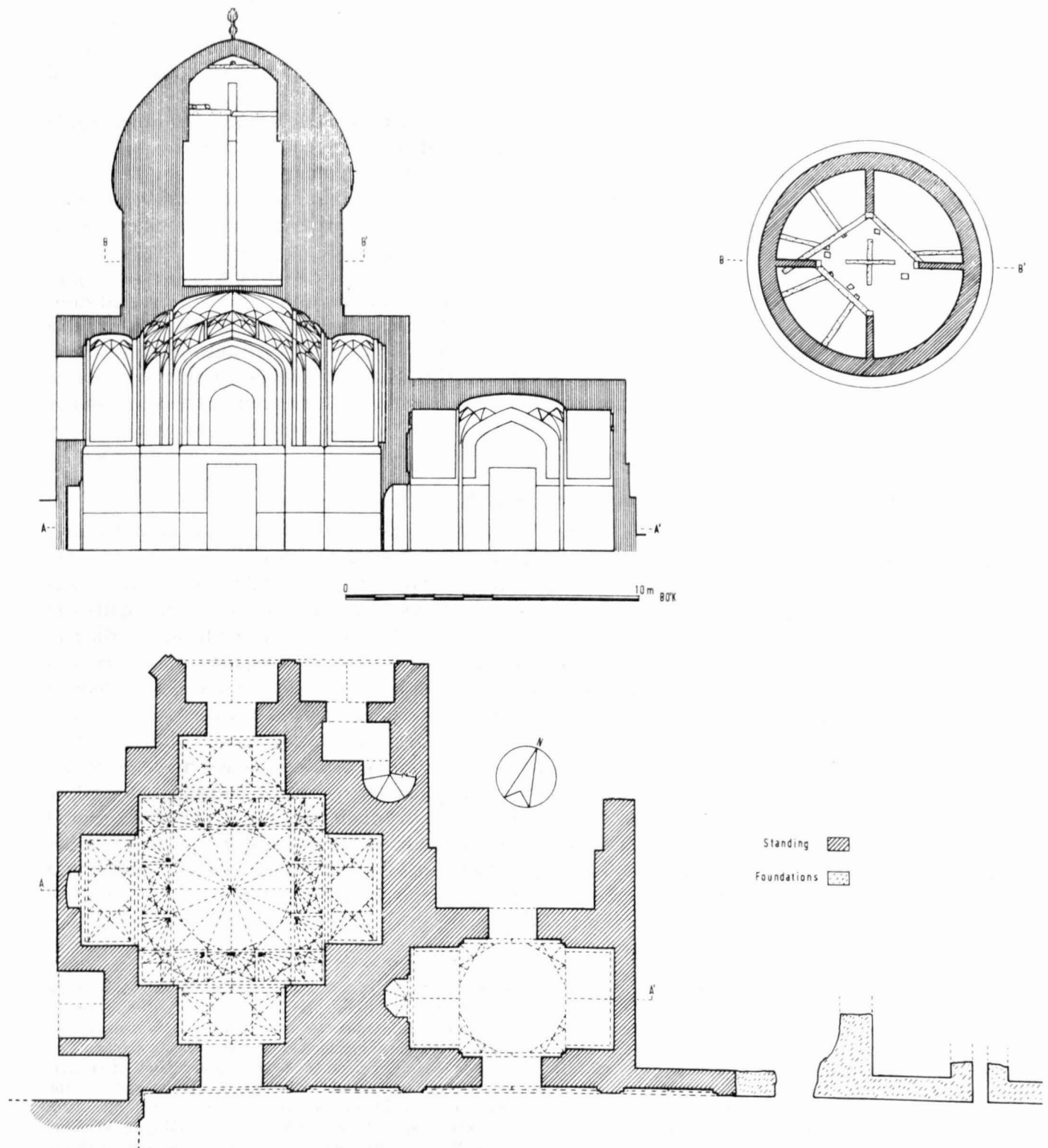


Fig. 8. Turbat-i Jām, Madrasa of Firūzshāh: plan and section.

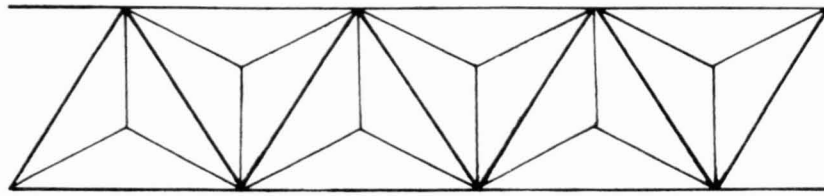


Fig. 9. Zigzag motif.

which form the zone of transition between the neck and the swelling upper part of the dome. Inscriptions in the same colour and *cuerda seca* technique are also found on the drums of the Mausoleum of Gauhar Shād, Herat (836/1432) (Pl. VIIc), and of the Madrasa of Tūmān Āghā at Kūhsān (844/1440) (Pl. VIIb).<sup>84</sup> Just enough remains of the tilework on the dome of the Madrasa of Fīrūzshāh to show that it would have formed a pattern of interlocking eight-pointed stars, similar to the central dome chamber of the Shrine of Shāh Ni‘matallāh Valī at Māhān.<sup>85</sup>

The interior of the double dome is reinforced by four brick buttresses (Pl. VIIIb; Fig. 8). More were used when the diameter of the dome was greater, e.g. eight in the Madrasa of Tūmān Āghā at Kūhsān, twelve in the Mausoleum of Gauhar Shād at Herat, and and fourteen in the Gūr-i Mīr in Samarqand. Somewhat haphazardly arranged beams help tie these buttresses together, while three separate tiers of wooden logs in the buttresses provide an attempt at increasing resilience to earthquake shocks. The top tier is corbelled out *ca.* 23 cm. The room beneath this probably served as a lecture-hall, although it may well possess a crypt designed for the burial of its founder.<sup>86</sup> Its vaulting (Fig. 8), like that of the Buq‘a of Tāybād, is very similar to the Mausoleum of Gauhar Shād in Herat. Intersecting ribs are used to create similar fields; the main difference lies in the way these are decorated. In the Mausoleum of Gauhar Shād small rows of stalactites are used, whereas in the Madrasa of Fīrūzshāh these panels are broken up into different facets by means of squinch-nets. This multi-faceting reaches its apotheosis in the zigzag pattern at the base of the dome where the play of light and shadow is at its height.

The vestibule (“Chronology” Pl. XXa) is vaulted by a squinch-net producing a twelve sided figure (Fig. 8). The existence of a *mihrāb* in this room, apparently contemporary, is evidence that the plan to build a full scale *madrasa* was drastically curtailed in the early stages of the building—the function of a prayer room would be incompatible with the movement of people in an entrance passageway.

### Vaulting

The dome chambers at Khargird, Tāybād and Turbat-i Jām can be seen as the culmination of experiments in vaulting and the spatial arrangement of interiors which had been in progress in Iran and Central Asia since the fourteenth century. The use of transverse vaults as an adjunct in providing domes over rectangular spaces and their gradual transformation into the intersecting arches of the

<sup>84</sup> This building has previously been published as the Mausoleum of Gauhar Shād in Pugachenkova, “Les monuments” pp. 27–41. That it was built by Tūmān Āghā, however, is clear from historical sources. She married Tīmūr in 779/1377, and her taste for architectural patronage may be judged from the report that at her wish (*barā-yi tatayib-i khātir-i ān*), Tīmūr made a garden called the Bāgh-i Bihisht by encompassing twelve gardens in one (ZNI, p. 215). The “*khānaqāh*” in the Shāh-i Zinda in Samarqand also bears her name (Shishkin, *op. cit.*, p. 63). After Tīmūr’s death, Khalīl Sulṭān married off Tīmūr’s wives and concubines to local noblemen (ZNI II, p. 517); Tūmān Āghā was given to Shaikh Nūr al-Dīn, since she was with him at the time of his assassination by Shāh Malik (814/1411) (MS, pp. 122–4; Sanders, p. 277). After this episode she was brought to Herat, and was given the town of Kūsaviyya (now Kūhsān) as *suyurghāl*, *va hālā dar ān qaṣaba va navāhī āṣār-i khāir-i ū madrasa va khānaqāh va ribāṭ bi-ghāyat-i ma‘mūr ast*“ and at this time in the town and its environs are

[examples] of her good works: a *madrasa*, a *khānaqāh* and a *ribāṭ*, [all] finely constructed” (MS, p. 124). It might be thought that if she married Tīmūr in 779/1377, she must have been long dead when the *madrasa* was built in 844/1440. However, we learn from Ibn ‘Arabshāh that she was well enough in 840/1436 to contemplate undertaking the *hajj*, by which time work on the *madrasa* may have begun (Sanders, p. 311). The correct attribution of the *madrasa* to Tūmān Āghā was first made by N. de Khanikoff, *Mémoire sur la partie méridionale de l’Asie centrale* (Paris 1861), p. 122.

<sup>85</sup> Pope, *Persian Architecture*, colour pl. XVI. The faience on the dome at Māhān has probably been repaired or renewed several times, but it may well reflect the design of the original (840/1436).

<sup>86</sup> Two crypts underneath the dome chambers of the Madrasa Dū Dar in Mashhad (843/1439) have recently been unearthed by the Khurasan Office of the National Society for the Preservation of Historic Monuments of Iran.

Mausoleum of Gauhar Shād and later buildings has been briefly studied by Pugachenkova and Golombek.<sup>87</sup> A dome can be constructed between transverse vaults, as it can between intersecting arches, of a diameter much less than the dimensions of the room below it. The need for buttressing in such a dome is less than in one which is of similar diameter to the room below—as is the case when an intermediate squinch zone is employed. This would explain why, for instance, under similar conditions the dome of the squinch-vaulted mosque at Khargird collapsed,<sup>88</sup> whereas the apparently flimsy dome of the lecture-hall survived intact. It also enabled the architect to open up the walls of these dome chambers, thus changing the plan from a square to a cruciform shape. This change may seem illogical at first sight, as the cruciform shape is one which is more difficult to accommodate within the confines of a rectangular building. However, it provided the basis for a more fluid concept of interior space, with the four niches of the cruciform plan being only the first level in the gradual increase in height of the interior. The use of the intersecting arches and squinch-nets further blurs the former clear-cut distinction between cubic lower part, zone of transition, and dome. When the four quarter niches are not barrel-vaulted<sup>89</sup> but are essentially vaulted with flattened semi-domes—as in the Tāybād *buq'a* and the Khargird *madrassa*—the impression of a flowing transition from one level to another is heightened. Although, as we have seen earlier, these fluid forms may have little to do with the actual load bearing structures, the effect which they would have on the onlooker was obviously the most important consideration for the architect.

At Khargird the vaulting is given an even greater complexity in the lecture-hall by the introduction of window pierced drums ("Khargird", pl. IIIa), adding a further vertical element before the final transition to a dome. One may compare the Mausoleum of Gauhar Shād, where the inner dome is of a steeper profile than the vaulting which leads to it, giving the impression of a small blind inner drum.<sup>90</sup> In the Tāybād *buq'a* this impression is even greater: the inner dome is seemingly supported on eight piers identical to those which support the inner drum of the lecture-hall at Khargird, the difference being that at Tāybād smaller subsidiary arches create a drum with sixteen blind niches (Pl. IIa). This "drum" may also be compared with the zone of transition of one of the rooms in the Madrasa of Tūmān Āghā (Pl. VIIIc).

While the lecture-hall at Khargird can be seen as an opening up of these forms, it can also be related to earlier domes over transverse vaults.<sup>91</sup> These domes can be of smaller diameter than the room below, which enables a drum supporting the dome to be pierced with windows. This was realized as early as 1366-76 A.D. in the *madrassa* adjoining the Masjid-i Jum'a of Isfahan. The prayer hall is roofed with transverse vaults; small pendentives transform the resultant square into an octagon. On this, a drum with four latticed windows supports the dome.<sup>92</sup> In the southwest prayer-hall of the Yazd Masjid-i Jāmi' (819/1416) we find a similar arrangement.<sup>93</sup> In the middle of the hall two arches run perpendicular to the transverse vaults; small pendentives transform the resultant square into an octagon. On this a drum with four grilled windows supports the dome. The dome construction of the lecture-hall at Khargird can thus be seen as much the heir of prior experiments in western Iran as the culmination of vaulting techniques evolved by Qavām al-Dīn in his earlier buildings.

In most of the dome chambers we have been discussing, a major role has been played by intersecting arches. One notable exception to this is the mosque of the Khargird *madrassa*, where four squinches are used to transform the square into an octagon ("Khargird", pl. IIIb). Why was it vaulted differently from the lecture-hall? Diez's suggestion<sup>94</sup> that the smaller dome of the lecture-hall kept it cooler in summer is unconvincing. Both rooms performed similar functions, accommodating large number of people in assembly. The mosque, when not in use for communal prayer, probably also served as a lecture-hall. One explanation that has been suggested is that the technical virtuosity of the lecture-hall represents the work of Qavām al-Dīn, and the comparatively simple mosque was erected by his pupil, Ghiyās

<sup>87</sup> Pugachenkova, "Ishrat-Khāneh", pp. 182-3; *Gazur Gah*, pp. 54-6.

<sup>88</sup> Pope, op. cit., fig. 192.

<sup>89</sup> As they basically are in the Mausoleum of Gauhar Shād and the Madrasa of Firūzshāh.

<sup>90</sup> Pope, op. cit., pl. XX.

<sup>91</sup> *Gazur Gah*, pp. 54-6, 71-4.

<sup>92</sup> Illustrated in *Āthār-ē Irān* IV (1949), figs. 239, 292.

<sup>93</sup> *Survey*, pl. 446.

<sup>94</sup> Diez, op. cit., p. 74.

al-Dīn.<sup>95</sup> This is unlikely, for two reasons. Firstly, it assumes that the lecture-hall was built or planned before the mosque. However, the evidence we have of Timurid building techniques suggests that all parts of a building were thoroughly planned in its early stages. For instance, the *Tārīkh-i Khairāt*<sup>96</sup> describes the building of a garden pavilion by Timūr in Samarqand thus: “before the height of the garden [palace] was one *gaz*, the faience dadoes and revetments for outside and inside were started. The stone-cutters were cutting stones and the painters were designing paintings.”<sup>97</sup> This impression of well-ordered activity is confirmed in the account of the building of the same garden (the Bagh-i Shumāl) in Yazdi’s *Ẓafar Nāma*: after skilful architects from several countries had been assembled in Samarqand, “with a discerning pen they adroitly drew its plan on a tablet”.<sup>98</sup> Secondly, it suggests that Ghiyāṣ al-Dīn was not competent to build a vault of similar complexity to that of the lecture-hall. However, as we have noted above, Ghiyāṣ al-Dīn may well have been the architect of the Tāybād *buq’a*, where the vaulting is at least as complex as that of the lecture-hall at Khargird. Another possible explanation for the difference in vaulting can be related to the tradition of giving the place of prayer a greater decorative emphasis—Golombek has already noted how the mosque at Khargird has a tiled dado, while the lecture-hall does not.<sup>99</sup> However, one would be inclined to say that if anything the lecture-hall receives greater decorative emphasis through its vaulting. Perhaps Qavām al-Dīn in his last work wanted to show his mastery both of the newer system of intersecting ribs (as in the lecture-hall) and of more traditional squinch vaulting (as in the mosque).

*Historical Summary.* It will be evident by now that in Khurasan, the fourth decade of the fifteenth century was one extremely rich in building activity. Going up almost simultaneously with the major buildings of Khargird, Tāybād and Turbat-i Jām were the Madrasa of Tūmān Āghā in Kūhsān (844/1440), the Dū Dar Madrasa in Mashhad built by Yūsuf Khvāja (843/1439), and even local mosques with fine mosaic faience decoration such as the Masjid-i Ḥauḍ-i Karbās (845/1441–2) near Herat.<sup>100</sup> Shāh Rukh had been on the throne for over thirty years, and the province of Khurasan, the seat of his kingdom, had been free from invasion during that time. Such conditions were favourable to maximization of agricultural revenue, and undoubtedly contributed to the building funds of Pīr Aḥmad Khvāfī, who presumably owned lands in his native province, and Tūmān Āghā, who was given the town and lands of Kūhsān as *suyurghāl*. The other *amīrs*, Yūsuf Khvāja and Jalāl al-Dīn Fīrūzshāh, had been in government service long enough to amass personal fortunes.<sup>101</sup> Shāh Rukh and his principal wife, Gauhar Shād, had earlier completed major building projects in Herat and Mashhad, leaving the leading architects free to work for the highest court officials, or anyone else who could afford to employ them.

Apart from the obvious reasons for building religious edifices—the spiritual bonus gained by the founder—competition may well have been a factor in the upsurge of building activity. Although we do not know whether Jalāl al-Dīn started building at Turbat-i Jām (begun *ca.* 1440 A.D.) in response to Pīr Aḥmad Khvāfī’s *madrasa* at Khargird (which must have been started before Qavām al-Dīn’s death in 842/1438),<sup>102</sup> or whether Pīr Aḥmad decided to give Jalāl al-Dīn’s efforts the *coup-de-grâce* with the Tāybād *buq’a*, it is likely that each saw their building activity partly as a measure of their own prestige and influence. Whatever the reasons, the monuments themselves are superb examples of Timurid court architecture towards the middle of the fifteenth century, displaying innovations in spatial concepts that were to have a lasting influence over subsequent Iranian architecture.

<sup>95</sup> Byron, in *Survey*, p. 1135: “The right-hand dome chamber at Khargird is simpler, as if Ghiyāth ad-dīn, who finished the building, had had more sense than to try and emulate the genius of his master”.

<sup>96</sup> Musāvī, MS British Museum Or. 4898, f. 295v. ll. 10–11.

<sup>97</sup> Quoted by Pope and Ackerman, in *Survey*, p. 1149. See also the comment on the passage by Masson and Pugachenkova, “Shakhri Syabz pri Timuri i Ulug Beke. I” tr. Rogers, *Iran* XVI (1978), p. 122, n. 118.

<sup>98</sup> *ẒNI*, p. 572: *farḥ-i ānrā bi-kilk-i baṣārat bi-lauḥ mahārat kishīdand*.

<sup>99</sup> *Gazur Gah*, p. 53, n. 33.

<sup>100</sup> Pugachenkova, “A l’étude des monuments timourides d’Afghanistan”, *Afghanistan* XXIII/3 (1970), pp. 28–31;

M. Haravi, “Az shāḥkārḥā-yī hunar-i taimūriyān-i Harāt: mihrāb-i zibā-yī masjid-i daura-yi Shāh Rukh Mīrzā”, *Hunar va Mardum* 93 (1349/1970), pp. 50–2.

<sup>101</sup> Jalāl al-Dīn was made commander of the army from 1407 to 1442 A.D. (Barthold, p. 84); Yūsuf Khvāja was one of Shāh Rukh’s generals in the siege of Farāh in 811/1408 (*MS*, p. 73), and in 817/1414 he was made commander of the fortress of Qum (E. Quatremère, *Maila-Assadein*, in *Notices et extraits des manuscrits de la bibliothèque du Roi*. XIV (1843), p. 252 (tr. of *MS*). Jalāl al-Dīn may also have built previously the no longer extant Madrasa and Khānaqāh of Amir Fīrūzshāh in Herat (*KA*, p. 16).

<sup>102</sup> *Gazur Gah*, p. 76, n. 33.

## LIST OF ABBREVIATIONS

- Barthold V. V. Barthold, *Four Studies on the History of Central Asia, II Ulugh-Beg* (tr. V. and T. Minorsky) (Leiden, 1963).
- "Chronology" L. Golombek, "The Chronology of Turbat-i Shaikh Jām", *Iran* IX (1971), pp. 27-44.
- DV Khvānd Amīr, *Dastūr al-Vuzarā'*, ed. S. Nafīsī (Tehran 1317/1938).
- Gazur Gah L. Golombek, *The Timurid Shrine at Gazur Gah* (Toronto 1969).
- HS Khvānd Amīr, *Ḥabīb al-Siyar* (Tehran 1333/1954).
- Hunarfar L. Hunarfar, "Yādgārḥā-yi Tāybād", *Hunar va Mardum* 172 (2535), pp. 8-22; 173 (2535), pp. 6-17.
- JM Muhammad Mufid Mustaufī Bāfqī, *Jāmi'-i Mufidī*, ed. I. Afshār (Tehran 1340-2/1961-3).
- KA Khvānd Amīr, *Khulāṣat al-Akḥbār*, ed. G. I'timādī (Kabul 1345/1966).
- "Khargird" B. O'Kane, "The Madrasa al-Ghiyāṣiyya at Khargird", *Iran* XIV (1976), pp. 79-92.
- MF Faṣīḥ Aḥmad b. Jalāl al-Dīn Muḥammad Khvāfī, *Mujmal-i Faṣīḥī*, ed. M. Farrukh (Mashhad 1339/1960).
- MI Sayyid Aṣīl al-Dīn 'Abd Allah Vā'iz, *Maqṣad al-Iqbāl*, ed. M. Haravī (Tehran 1351/1972).
- MS 'Abd al-Razzāq Samarqandī, *Maṭla'-i Sa'dain*, ed. M. Shafī' (Lahore 1943-9).
- Muṣṭafāwī M. T. Muṣṭafāwī, "Le Masjid-e Maulānā de Tāiyābād", *Āthār-é Irān* III (1938), pp. 179-93; note by A. Godard, pp. 193-9.
- NU 'Abd al-Raḥmān b. Aḥmad Jāmī, *Nafāḥat al-Uns*, ed. M. Tauḥīdī Pūr (Tehran 1337/1918).
- RCEA *Repertoire Chronologique d'Épigraphie Arabe*, Cairo.
- RJ Isfizārī, *Rauḍāt al-Jannāt*, ed. M. Imām (Tehran 1339/1960).
- RS Mīrkhvānd, *Rauḍat al-Ṣafā* (Tehran 1339/1960).
- Sanders J. H. Sanders, tr., *Tamerlane or Timur the Great Amir, from the Arabic Life by Ahmed ibn Arabshah* (London 1936).
- TJY Aḥmad b. Ḥusain b. 'Alī Kātīb, *Tārīkh-i Jadīd-i Yazd*, ed. I. Afshār (Tehran 1345/1966).
- TJ' Ja'far b. Muḥammad b. Ḥasan Ja'farī, *Tārīkh-i Yazd.*, ed. Afshār (Tehran 1338/1959).
- ZN Sharaf al-Dīn 'Alī Yazdī, *Zafar Nāma*, ed. M. 'Abbās (Tehran 1336/1957).