

# A VULNERABLE BEAUTY: the earthen architecture of Iran

RIAS Gallery, 15 Rutland Square, Edinburgh 9 – 5, Mon – Fri, 20 April – 28 May 2004

## EARTH BUILDING: THE INTERNATIONAL CONTEXT

This exhibition is a snapshot of the traditional architecture of southern central Iran, taken in late November 2003, on a short visit to attend the ninth International Conference on the Study and Conservation of Earthen Architecture in Yazd.

The photographs illustrate a rich cultural expression formed in simple earthen materials, through their technical and artistic development over millennia as the predominant bioregional building material.

Local soil, mixed with water and sometimes straw, made the bricks, mortar and plaster that forms these buildings. Mosques are distinguished by their decorative skin of glazed tiles, while important secular buildings have frescos or details picked out in white gypsum.

This approach to creating a physical environment, by the simple manipulation of locally available, natural resources, is the universal rational principle behind the development of all vernacular construction.

In Iran, where other materials were scarce and reserved for special architectural effect in important buildings, adobe was the predominant building technology. In countries such as Scotland, a more diverse range of natural resources led to a wider variety of traditional construction techniques, but, because there was more choice, none matched the individual level of refinement that was achieved with earth in Iran.

Earth remains one of the world's most important construction materials, with a third of the human population inhabiting earth structures. In the U.K. there are half a million earth buildings, though many are not commonly recognised as such.

The decline of earth construction techniques in Scotland during the 18<sup>th</sup> and 19<sup>th</sup> centuries, accompanied by the widespread destruction of traditional earth buildings, was a combined result of the development of industrialised construction, rural depopulation, land use changes, and new cultural attitudes. Earthen materials came to be seen as the products of poverty and were shunned for their social associations rather than any technical deficiencies.

Today very few Scottish earth buildings survive in good condition. In common with other biodegradable construction techniques, their vanishing physical presence led to a lack of academic recognition and cultural value, which has been happily reversed in recent years. The myth that Scotland's architectural history was hewn in stone has long been laid to rest.

Exactly the same processes of change that affected Scotland in the 18<sup>th</sup> and 19<sup>th</sup> centuries can be recognised in Iran today. Massive social changes, the development of industrialised construction, the abandonment of traditional rural land use patterns and, above all, the common cultural aspiration for products with the seductive allure of 'progress', have created an environment where vernacular forms of architecture do not suit modern lifestyles and traditional materials are rejected as inadequate for today's society.

Historic quarters of old cities are depopulated as vast, low quality suburbs sprawl around their outskirts. Within the sophisticated Iranian cultural identity, there is a recognition and respect for the architectural value of these buildings, but while high status buildings are protected and conserved, the vast extent of traditional domestic and agricultural construction is vulnerable to rapid and complete loss. Currently in Iran, more earth buildings are being lost through the action of man than from natural decay or other forces of nature.

The social context for this loss of architectural heritage can be seen in other areas where the cultural and architectural value of earthen architecture is of global significance, such as north and West Africa.

With the exception of the organised conservation of the most important monuments, the protection of the broader built culture in such contexts of social change can only be secured through the value and regular maintenance guaranteed to common vernacular buildings by their continued use as habited structures. Here, conservation practitioners somewhat reluctantly enter a socio-economic forum of debate.

The global dimension to these issues is reflected in the international cooperation between many organisations and individuals in the field. Our planet cannot provide for the large proportion of its people who currently live in vernacular buildings to move into the kinds of buildings that are erected in developed countries, due to the environmental impact of contemporary construction.

Cement, for example, is responsible for 10% of global CO<sub>2</sub> emissions, is the fastest growing industrial source of global warming and produces an enduring waste. In contrast, materials bound with unfired clays, have excellent sustainability characteristics, including low waste, low embodied energy, non-toxic, recyclability and biodegradability.

Moves to reduce the environmental impact of construction in developed countries have led to a resurgence of the use of earthen materials in contemporary building, with both traditional and innovative techniques. In these developments, the change of the image of earth buildings from that of the backward 'mud hut' to the aspirational eco-house has been an important element.

By valuing our earthen architectural heritage, developed countries such as Scotland can help to raise the cultural value of earth construction globally and encourage the survival of traditional construction in other societies. Similarly, the development of contemporary earth construction techniques will help to strengthen the viability of living traditions of earth construction in the face of a tide of cement in countries in central Asia, the Middle East and north and West Africa.

Thus, as a building material that is found in every country in the world, earth highlights the changing values of architecture across cultures and is a measure of our attitudes to our future as well as our past.

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## A GUIDE TO THE PHOTOGRAPHS

*'There are words we reach for out of habit, like desolate, bare, barren, colourless, but these are not true. There were colours, but subtle, just a breath of pale blues and snow-greys, a smudgy brown denoting a village....but for the wind, all was silent.'*

Kathleen Jamie, *Among Muslims*

We dozed as our bus traversed the arid landscape of central Iran towards the dusty antiquity of Yazd, waking only to catch distant glimpses of immense, abandoned, mud caravanserais and mountains whose distance and height were impossible to judge through the shimmering haze. It was a suitable cleansing of the mind after the opulent splendours of Esfahan.

The exquisite bejewelled palaces, mosques and bridges of this great Safavid capital still stand, their beautifully proportioned rooms and gardens offering a faded enchantment to their occasional visitors, with a rich display of tiles, mosaics, frescoes, ivory, cedar wood, mirrors and fabrics. The brilliant architectural core of the former capital, created when political power, regional aesthetic identity and religious organisation stabilised for three hundred years, allowing a fusion of the craft skills of India, China and Persia with the proportion and form making sensibilities established in Persia during the Timurid era.

The gradual political and geographical isolation of Esfahan, allied to a geology free from earthquakes, allowed the survival of a remarkable number of these monuments. Unfortunately, some were not as lucky in avoiding the acquisitive attentions of the British Museum.

A modern city of 5 million surrounds the historic centre of Esfahan (1-9) in an extensive low-rise sprawl typical of modern Iran. On the outskirts, the remains of walled farms, seven-cylindrical pigeon towers and one of the original four fire towers of the Zoroastrians punctuate the increasingly bleak landscape, all now in slow decay.

At ground level, the land of central Iran seems barren, yet from the air the landscape is crossed by seemingly endless lines of small craters, stretching out across the desert. These are the heads of the shafts dug for ventilation and disposal of debris during the construction of *qanats*. Narrow underground water tunnels, dug and maintained over two millennia, there are thought to be over 50,000 *qanats*, some more than 40km long, bringing water from the mountains to the low lying desert towns: towns such as Na'in (10), Meybad (11) and cities such as Yazd, with its annual rainfall of 150mm.

Still a centre of the Zoroastrian religion, Yazd (12-16) is an ancient city with standing buildings dating from the time when Alexander the Great passed through en route to Afghanistan and India. The old city sits behind the fragmented remains of massive defensive walls, with vaulted courtyard houses packed tight together on winding lanes, their underground rooms, bathhouses and reservoirs

fed by the water from the *qanats*. High above, the twin minarets of the Jameh mosque rise above the countless wind towers which, together with the *qanats*, have ensured comfort as well as survival in such a dry and seasonally hot location.

With the decline of the great silk route, Yazd became an obscure backwater, surviving with little change until modern times. The densely inhabited old city was evacuated during the Iran-Iraq war (1980-88) and has never been fully re-populated, popular taste preferring the kudos of modern homes built mostly of concrete.

The old buildings, now empty or inhabited by Afghani refugees, are gradually fading away, back into the ground from which they rose. For these are buildings of earth, predominantly adobe with earth plasters. The uniform brown colour of the old city, embellished in places with decorative white gypsum plaster and with colourful glazed tiles on the mosque, runs with a deep poetic resonance through the harmoniously repetitive forms of courtyard walls, vaulted roofs, high wind towers and the surrounding desert itself.

While visiting a variety of historic buildings, including mosques, bathhouses, courtyard houses and wind towers, it was noticeable that the conserved buildings were predominantly of high status while the mass of common housing was painfully vulnerable to being replaced by clumsy modern developments.

Kashan (17-19) is a quiet provincial town that retains many earth buildings from a time of greater prosperity. Among the mosques and merchants houses, two imposing icehouses survive, abandoned beside the fragments of the old city walls. Symbolic of many of the pleasant surprises of this visit to Iran, these huge adobe vaults, worn and apparently formless on the outside, on the inside revealed a wonderful spatial quality and spectacular decorative detail.

A few weeks after our return, we were shocked to see pictures of the recent earthquake in Bam, a city about two hundred miles south east of Yazd. This tragedy showed all too clearly the vulnerability of the people of Iran and their heritage to forces that are outside their control. Though the country, sandwiched between Iraq and Afghanistan, is beset with economic and political difficulty, its people retain an ancient and cultured humanity. I would encourage people to visit Iran and to experience its peoples' struggle to conserve their great architectural heritage.

A review of the Terra 2003 conference by the author is in the current Journal of the Scottish Society of Conservation and Restoration.

**Copies of the photographs are available at a cost of £30, with all profits going to the victims of the Bam earthquake.**

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architecture research conservation

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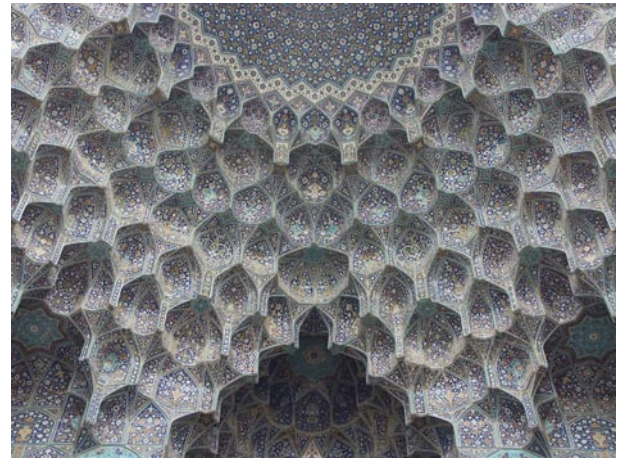
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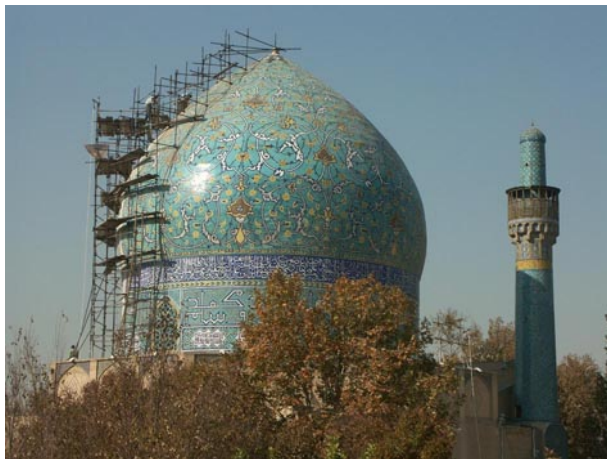
**1. Sheikh Lotfollah Mosque, Esfahan**  
1602-1619 C.E.

The unusual pale tiles of the dome contrast with the more typical colours of the portal, which sits between shaded double arcades on the main Imam Khomeini Square.



**2. Detail, Sheikh Lotfollah Mosque, Esfahan**

The entrance portal is crowned by an elaborate stalactite arrangement of glazed tiles.



**3. Madar-i Shah Madrassa, 1706 - 1714 C.E.**

Though many later buildings have charm and interest, this religious school is often regarded as the last great monument built in Iran. The scaffold gives access for repairs to the skin of glazed tiles, which cover the adobe dome.



**4. Ali Qapu palace, Esfahan**  
Early 17th century C.E.

Much of the interior of this exquisite building is covered with delicate tracery of flower and medallion paintings.

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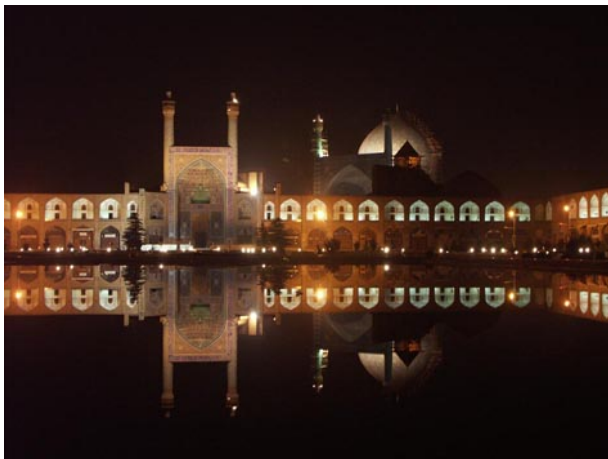
**5. Jameh Mosque, Esfahan**  
11th -18th centuries C.E.

The room of Sultan Uljaitu, dating from the 14th century C.E., contains a richly carved stucco mihrab flanked by three geometrically ornate wooden minbars, or pulpits.



**6. Khaju Bridge, Esfahan. c. 1650 C.E.**

The finest of the five ancient bridges across the Zayandeh river, the Kahju bridge is 132m long and contains two levels of terrace, locks controlling the water level and some original tiles and frescos. All the ancient bridges are very sociable places to sit, stroll or enjoy the very pleasant vaulted tea houses.



**7. The Royal Mosque, Esfahan. 1612 - 1637 C.E.**

Seen across the Maydan, the central square built in the early 17th century to accommodate polo games, the Royal mosque is flanked by arcaded souks.



**8. Pigeon Tower & Enclosure Wall, Esfahan.**

Hundreds of these doo'cots are scattered around the outskirts of Esfahan, often accompanied by substantial field enclosure walls. Almost all are now derelict.

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**9. Ateshkadeh-ye Esfahan**

These ruins of a Zoroastrian fire temple overlook Esfahan from a hill on its western outskirts. 1500 years of gentle erosion have melted the buildings into the landscape, creating an almost surreal fusion of architecture, archaeology and geology.



**10. Castle and Minaret, Na'in**

The ruined tower of a castle looks across this small town in central Iran towards the minaret of its 10th century C.E. mosque, whose adobe construction is unadorned by glazed tiles.



**11. Castle, Meybad**

This is an extensive fortification currently undergoing conservation and typical of many in Iran. The wall head reveals the double adobe construction.



**12. Badgir, Yazd**

Yazd is famous for its many traditional wind towers, which funnel air down deep inside the buildings and across pools of water, noticeably cooling their interior.

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**13. Adobe Brick Production, Yazd**

In this simple process, earth mixed with water is thrown into wooden moulds and levelled off before a two-stage air-drying process.



**14. Courtyard, Yazd**

This sensitive repaired traditional courtyard house shows gypsum decoration protecting vulnerable corners of the earth plaster. The rooms around the courtyard did not have specific functions, their use changing with the season.



**15. Courtyard, Yazd**

There has been extensive replacement of original fabric in the 'restoration' of this traditional courtyard complex, which extends to a range of subterranean rooms, including a bathhouse.



**16. Derelict dwellings, Yazd**

These abandoned traditional courtyard houses are bulldozed to make way for new low quality buildings made from steel and concrete blocks.

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**17. City Wall, Kashan**

The slightly higher rainfall of this more northern town has encouraged the decay of the remaining sections of these massive walls. Behind can be seen the glazed roof of a mosque and the wind towers of traditional dwellings.



**18. Moayedi, Kashan**

Seen from the decaying city walls, this remarkable icehouse shows the damage inflicted by seasonal rain and complete neglect. One of two such structures in Kashan, the building standing above ground matches the size of the internal space below ground.



**19. Interior of Dome, Moayedi, Kashan**

The inside of the dome of this icehouse is elaborately decorated by patterns in the adobe construction. Abandoned and unprotected, sections have begun to collapse.

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## 20. Arg-e-Bam, December 26th, 2003

At 4 a.m. an earthquake measuring 6.6 on the Richter scale struck the historic city of Bam. More than 40,000 people lost their lives, around seventy thousand were made homeless and many modern and historic buildings were destroyed.

There is a common supposition in such tragedies that the mud brick construction was a significant contributory factor. This is generally incorrect and properly designed and constructed adobe buildings will perform well in earthquake situations. In Bam, the major loss of life was in relatively poorly built modern buildings, where heavy steel framed floors collapsed on people in their sleep.

For further information on this subject see  
[http://www.dachverband-lehm.de/pdf/DVL\\_terra2003\\_bam\\_gb.pdf](http://www.dachverband-lehm.de/pdf/DVL_terra2003_bam_gb.pdf)

Donations raised at the exhibition and from sale of the photographs have been sent to the Red Cross for relief of victims of the Bam catastrophe.

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