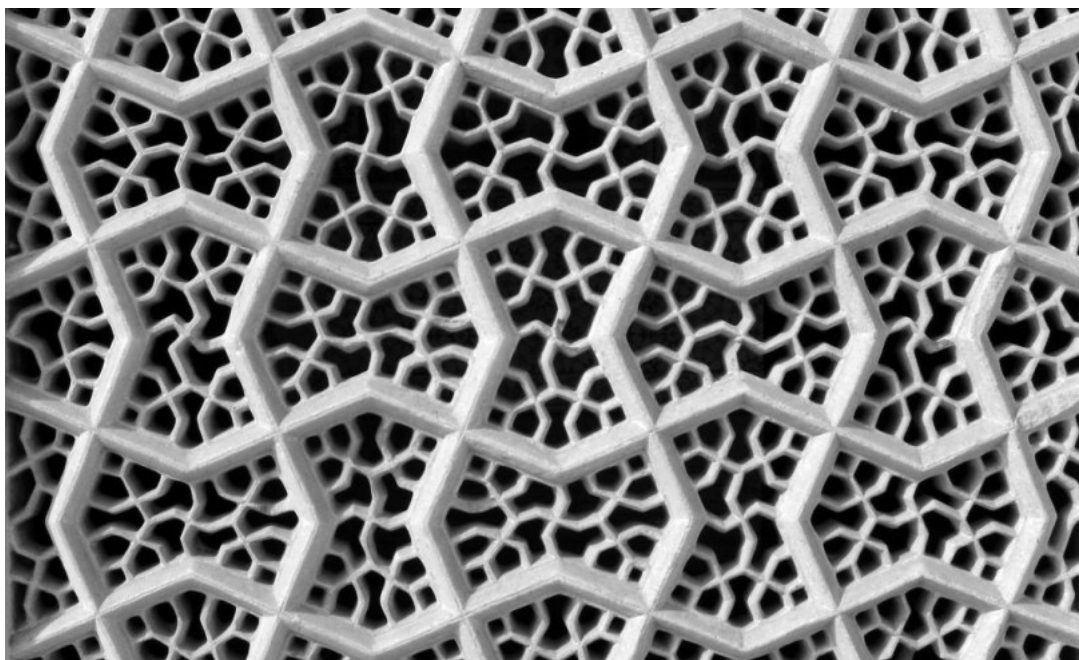


**Islam and Marble
from the Origins to Saddam Hussein**



**Agra: marble lattice window,
Mausoleum of Itimad ud Daulah, 1622-8**

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Preface

This monograph stems from a long-standing interest in the re-use of Roman antiquities during the Middle Ages and later in the West. While such antiquities—*spolia*—were sometimes to be found close at hand, it is often evident that the artifacts came from afar, usually in Roman times, but sometimes transported on (for example) Venetian or Pisan galleys. Comparing maps of the Mediterranean during the Roman and mediaeval centuries, and studying (scarce) mediaeval accounts of how they collected *spolia* makes it clear that any study must range much further than the Italian peninsula, not least to Byzantium. But maps show that a large proportion of once-Roman sites in North Africa, Spain and Syria, and then increasingly in Anatolia and the homelands of Byzantium, were under Islamic control. Indeed, a quick survey of early Islamic monuments demonstrates a devotion to marble *spolia* at least as profound as that in the Christian West or Byzantine East. Clearly, then, any consideration of mediaeval re-use of the antique architectural heritage (of which much more survived then than now) has to look at Islam as well as at Byzantium. Taking such a broad perspective of this once-Roman “lake”, it is nonsense to write of the ramifications of the “classical tradition” without considering how Islam dealt with the gifts of Hellenism and of *Romanitas*—the more so because there is evidence that Muslims and Christians competed for the best pieces, which became ever scarcer as the centuries passed. In what follows, while heartened by a broad range of translations into European languages, I am hampered by my lack of Arabic or Turkish; archives and books in both languages surely have much to offer in this area. As Franz Rosenthal wrote (1968, VII), this work *represents the very imperfect execution of what I feel was a very good intention*.



This monograph is provided on both paper and CDROM (see inside the back cover). The dual format has been adopted because of the several advantages of electronic delivery: movement around the fully-searchable text of an electronic document is made easy, and the thumbnail images are backed by often large-format images, and sometimes yet larger panoramas. Nothing is a substitute for visiting the actual monuments, but large-scale digital images come as close as the current state of hardware and software allow. On the CDROM, clicking on the thumbnail image or its caption will always bring up the fullsize image. However, many of the images are in fact poster-size, but restricted in initial viewing backed by often large-format images, and sometimes yet larger panoramas. Nor is the size of the images really restricted by the small size of the web browser “window”: those with the notation >>zoom<< can be

manipulated to enlarge them to full size, which in some cases is poster-size. Click on the blue >>zoom<< hotspot then (holding down the shift key) move the mouse *up* to move *into* the image, *down* to move *out* and left and right to pan. To return from any image to the text, press the *back* button on your browser.

1. Introduction: Roman Marble in East and West

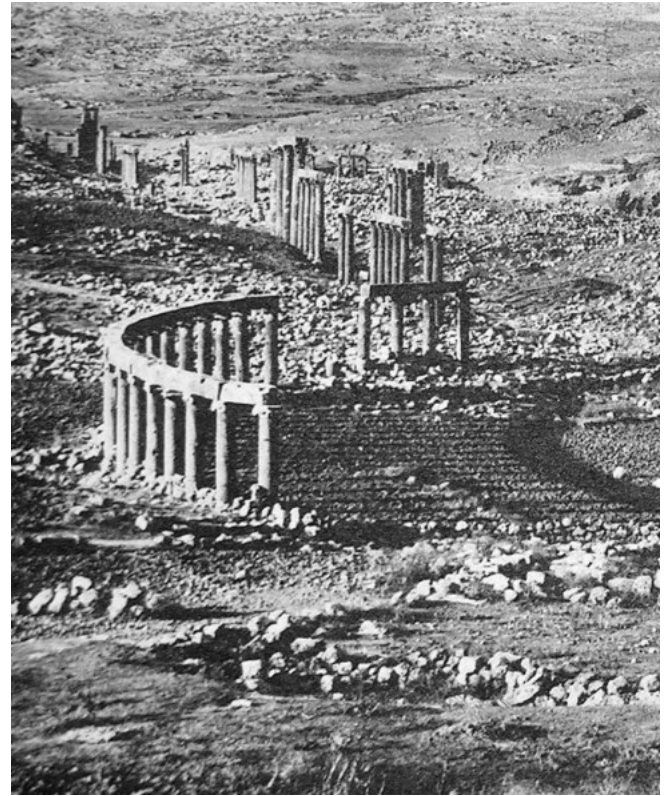
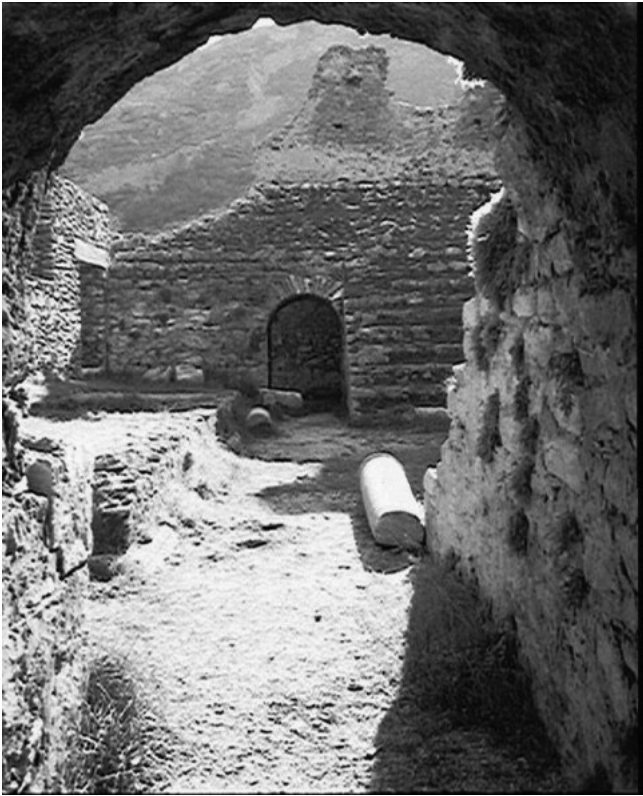
*There I stood interrogating stones but how should we question the
deaf everlasting stones whose speech is obscure?* (Labid ibn
Rabiah, *The Golden Ode*, in Ormsby 2003)

Marble, as a potent symbol of Roman imperial supremacy, public magnificence and sophisticated private luxury, was used in enormous quantities all over the Roman Empire from quarries in, for example, Greece, Italy, Asia Minor and North Africa (Maniatis 1995). After the fall of the Empire, there was a demonstrable drop of population levels, an abandonment or shrinking of many cities and a reversion to country living and agriculture. As a result, so much marble was available from abandoned buildings during the fourth to thirteenth centuries in the West (and perhaps from Justinian to the 16th century in the East) that supposedly no quarrying took place (although Heyd suggests, 1885, p.276, that Paros was operating, and sending marble to Venice). This crucial question - spolia or fresh-quarried? - is dealt with in Appendix 1. briefly, I believe that some marble quarries were operating as well as a large number of stone quarries. But it can be inferred that especially rare marbles were indeed spolia and, along with sheet veneers, were prized for their rarity as well as possibly for their imperial connections.



Ephesus: the Arkadiane down to the silted harbour: an enormous number of columns must
have been removed before the harbour became inaccessible

Since much of ancient production was modular to aid efficiency, the basic architectural elements - columns, capitals and veneers - could be re-used Lego-like whenever they could be found in coherent suites. We also have the evidence of depleted classical sites: ruins are extensive in the erstwhile Eastern Roman Empire, but those near the sea - such as Anamurium, Turkey - have been thoroughly robbed of their marble. Some classical seaside cities survived because their harbours silted, making marble extraction difficult: thus the great colonnaded Arkadiane from the theatre at Ephesus used to lead to the harbour, but now leads to nowhere except swamp. Similar silting protected Ravenna (cf. Giovannini & Ricci 1985, pp. 49-79).



Anamurium: spolia removed; and Gerash: too far from the sea to be robbed

This monograph deals with the enthusiastic Islamic use of marble from the origins to the Mamluks and Mughals, with a modern excursus dealing with Saddam Hussein, who had traditional interests in marble, and some traditional methods of acquiring supplies. It underlines by constant comparison with the treatment of marble in Christendom that Islam, while developing new forms of architecture and decoration, has also drawn on the iconographic prestige of the classical past, absorbed from the Papacy but more concretely and immediately from the classical and later buildings in the Byzantine Empire and North Africa. These are the lands which Islam conquered in stages, and where marble was viewed as a prestigious material for asserting Islamic triumph, stability and civilization. We only have actions and buildings to help us understand attitudes: any documents concerning building in East or West are usually simple accounts of dates, commissioners and, sometimes, materials. Mediaeval documents rarely allude to matters aesthetic - to *why* marble was used, or mosques enlarged and decorated; so we must try and adduce attitudes from the extent of marble re-use down the centuries. Again, while much is known of the intricacies of the Roman marble industry (quarrying, cutting, storing, transporting: cf. Pensabene 1984), by the very nature of spolia little explicit evidence has survived in East or West.

Some re-use was mere convenience, but much stemmed from a desire to develop new architectures which would exploit ancient prestige by using their finest materials (or, as frequently happened, to imitate them in fresco). The Muslim practice of founding settlements in or near ruined antique cities (examples from the Maghreb in Wheatley 2001, pp.3001-1) was perhaps part convenience, part emulation.

A useful measure of intention might be *effort* - namely the extent to which other available materials were neglected in favour of marble spolia, and the distance from which these were sought or brought. Moving marble columns or veneer is no easy task: their original spread over the Mediterranean is already an index of the Romans' military and economic reach, as well as of their technology. And their technology was greater than that of Christians or Muslims until the 19th century - witness the fact that in our period collections of columns near the sea or a navigable river were re-used, but those well inland - such as Apamea or



Both Cairo; Above: doorway to the madrasa (1295-1303) of Sultan Al-Nasir, robbed from the church of S. John at Acre; **Below:** doorway of the adjacent madrasa-khanqah of Sultan Barquq (1384-6) - the marbles are spolia in both monuments;





The Caliphate under Walid I

Palmyra - have survived *in situ* to this day. Perhaps because they needed them to transport spolia, Muslims seemed to remark on Roman roads earlier than Christians: Ibnu Ghalib's description (Al-Makkari 1840, pp.77-8) of Roman roads and milestones in Al-Andalus (which he had obviously seen) helps set a rational framework for Muslim admiration for things Roman, especially columns. In many cases, as we shall see, effort can be compounded by other measures, especially quantity, size and rarity.

Conceivably nearly as much marble travelled around the Mediterranean in the Middle Ages as during Roman times, and the Muslims carried most of it - to the new cities of Al-Kufah (AD638) Baghdad (762) Kairouan (670), Tunis (after 697) and Cairo (969) (context in Wheatley 2001, pp.39ff.). They used it to beautify Mecca and Medina (perhaps as a result of Meccan trading contact with Byzantine Syria: cf. Crone 1987, p.162); and to elevate Córdoba from a provincial town to a very deliberate Western echo of Damascus. Cairo was a city where sandstone and limestone were invaded by marbles surely stripped from the buildings of Alexandria (as Cairo was in its turn to be stripped for the mosques of Istanbul: Meinecke 1992, I.p.202-4). There is a number of sources which verify the large supplies. El-Edrisi, writing in the earlier 12th century, notes (Edrisi 1866, p.166) that *the houses there are covered with marble, and the vaults held up by sturdy columns* - and this at a date when *most of the buildings of Misr are made of unbaked bricks* (ibid., p.171). Al-Makkari (1840, I, 86) notes that as at Tunis, at Alexandria *all the houses are built of stone owing to the great quantity of ancient stones*. Indeed the supplies must have been great, for Carlier de Pinon observes in 1579 (1911, p.378) that *Inside and outside the city are to be seen a great number of small columns, some richer and more elaborate than others, and very beautiful house entrance gates, which for the most part are half-ruined...* - the implication perhaps being that the columns were built into house walls, end projecting (*en boutisse*). Nor was it only the mosques that were marble-rich: Nazir Mohammed b. Qalaoun built the Qasr el Ablaq palace in the Cairo Citadel, *composed of royal rooms paved in marbles of various colours and great beauty, and with wainscoting right up to the ceiling of marbles inlaid with mother-of-pearl and shell, and gilded* (Gaudefroy-Demombynes 1923, p.36). But the Nile meant materials could also come from further afield: Enlart (I.1925, p. 37) states that S. John at Acre was stripped and the materials sent to Cairo, surely first by sea and then by the Nile; and there are other occasional crusader spolia in the mosques there. And in Mughal India, the local red sandstone of Delhi and Agra was upstaged by marble from the Makrana quarries near Jaipur (but over 200 miles from Agra).

The use of marble spolia in the Latin West goes back at least to Constantine, and was part of a broad political agenda as well, perhaps, as an indication of declining prosperity. In Hobbes' splendid phrase (*Leviathan*, 1651, chap.47), the Papacy was *not other than the ghost of the*

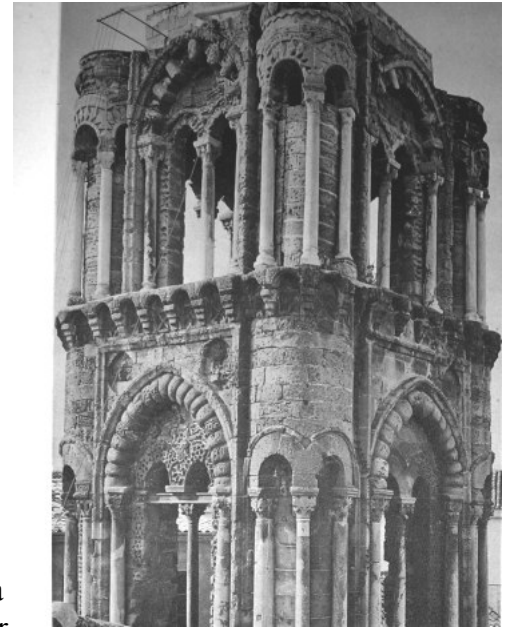


Top: Rome: Hadrianic roundels and porphyry—all spolia—on the Arch of Constantine **Bottom:** Istanbul: the north wall of the church of the Chora. On Western scavenging, cf. Cassiodorus writing perhaps to Ostuni for materials for Ravenna (Maas 2000, p.310): *we want to build modern buildings without causing any injury to their predecessors ... Now, as we have learned that there are columns and building blocks pulled down by the envy of time that are lying useless in your city. Since there is no point to keeping this mess on the ground, the blocks and columns ought to rise and be beautiful again and not be a regretful memento of an earlier age...*

deceased Roman Empire, sitting crowned upon the grave thereof: for so did the papacy start up on a sudden out of the ruins of that heathen power - and several Christian monarchs were also attracted to Imperial artefacts and buildings for propaganda purposes (Meier 2001). Marble was desired not only by the Visigothic monarchs of Spain but also by Charlemagne and the Ottonians in Germany, who took their material from Italy, especially Ravenna and Rome (Peter 2001). Fleury-sur-Loire got marble from “Romania” (Byzantium?) in the early 11th century (Fleury 1969, p.81), and elements of it are still there (but were there wall veneers as well?). Thirst for marble reached further north than Germany: we have accounts of 12th-century pilgrims being asked to return to England with pieces of marble (it is not known whether this was an act of devotion, or because pilgrims often did not pay transit taxes), and the Abbot of Westminster went to Rome to get porphyry, jasper and marble for his church's floor - a fact which was noted on his tomb: *Abbas Richardus de Wara qui requiescit hic portat lapides quos huc portavit ab Urbe* (Greenhalgh 1989, chap.7 for an overview). And esteem for marble certainly continued in the West, where Suetonius' famous phrase about Augustus finding Rome of brick and leaving it of marble affected aspirations in - for example - 17th century London and Paris (Moore 1998, note 69).

In the East, as part of a political program (cf. Mango 1994), the Byzantine Emperors recycled classical elements in their buildings not only in Constantinople (where Haghia Sophia is a conspicuous example), but in North Africa as well, as we are informed by both Procopius and some surviving inscriptions (Sodini 2002 for a richly referenced *tour d'horizon* of marble and stoneworking in Byzantium; and Paribeni 1989). By the 10th century the ascendancy of Islam over Byzantium was clear to observers such as Ibn Hauqal (1964, p.195), who remarked that *the Empire is in a precarious state: its power is insignificant, revenues mediocre, and population poor; riches are rare, its financial situation is bad, and its resources are thin ... the Byzantine Empire approaches the Maghreb in neither importance nor power*. Islam could clothe herself in spolia and reflect the fact of imperial power in her architecture.

Since many of the workmen employed to construct early Islamic buildings were certainly Byzantine in the East, and arguably Visigothic in Iberia, the fact of Islam's use of spolia is commonplace rather than striking. But the *scale* of their building activity and their extravagant decoration (both features adopted from observation of classical models) were not to be matched by Christianity until after the Millennium - and then conceivably as a direct response to Islam. And of course, Islam imitated ancient Rome because it formed a *civilization* - a culture predicated on *cities*. This is a great contrast not only with the West, where church-building was sparse, and buildings small and often impoverished; but also with Byzantium, where there was little important new building on a grand scale between the 7th and 14th centuries. But the Roman Empire and Byzantine empires still provided targets to emulate in their enormous building stock, for competition (local, national, or international) is often the spur to extravagant buildings. The continuing hunt for fine marbles (which were always scarce) suggests that Muslim and Christian might have had similar inherited attitudes to marble, ranging from triumphalism (marble as the very symbol of empire), technological efficiency (transport from distant lands), and sophisticated taste for rare marbles. Nor should we cling to the notion that Byzantine decline was pervasive in late antiquity: Kennedy (2000, pp.602, 607) notes that in Syria planned cities and colonnades remained the norm (e.g. rebuild of Antioch after 540), and that the mosaic floors of churches point to *an astonishing upsurge of building activity lasting until after the Islamic conquests* (and cf. Jaeggi & Meier 1997). Mango (2000, p.918) confirms the continuation of marbled civic life. So Islam found a thriving Christian civilization to compete with, rather than a series of marble-rich ruins.



Top left: the (Christian) walls of Iznik, faced with spolia and strengthened with columns; Top right: the belltower of the early 12th –century SM del Amiraglio (Palermo) featuring a minaret-like use of marble. Below: the Byzantine palace of Tekfur Saray, with marble windows and marble-like white stone—a source for the Islamic *ablaq* manner; All the above illustrate some of the themes to be developed throughout this monograph. According to a description of an early 9th-century account, the Ghumdan palace in San'a (Yemen), was seven stories tall, the highest room being of polychrome marble, and its roof a single slab of marble. and *Statues of lions at each of Ghumdan's four corners roared as the wind blew through them* (Khoury 1993, p.60): does this account derive from admiration for yet more splendid palaces in Constantinople, now lost?



The following investigation, like that in many areas of Islamic art, is hampered by the relative dearth of much basic information. As Blair and Bloom point out (2003, pp.162-3), *many of the great masterpieces of Islamic art, whether major buildings such as the Dome of the Rock, the Alhambra or the Taj Mahal ... have not been the subject of full monographs. Despite all the glossy publications and interpretative articles, we still do not have a single serious work containing plans, sections, inscriptions and interpretations of the Dome of the Rock...* While the study of Islamic art is still a subject in development - the question of whether there is such an entity as "Islamic art" is a moot point, because it *covers not just one period and one country, but fourteen centuries in nearly forty countries* (Blair & Bloom 2003, p.171). The use of marble is a theme which allows us to appreciate aspects of the Islamic architectural achievement by setting the following account in the context of Western and Byzantine rivalry for the same material.

2. The Attractions of Marble

Marble was sought for a range of reasons, including its ability to evoke power through associations with the past, its beauty, and the difficulties overcome in its transport.

Glamour through antiquity and survival: That which is old is venerated. Ibn Ghalib (died 1044) even wrote a book entitled *Contentment of the Soul in the Contemplation of the Ancient Remains Found in Andalus* (Al-Makkari I, 1840, 77). Some mediaeval saints, for example, reputedly chose fine buildings as their shrines; and Roman squared blocks and vaults were viewed as suitably honourable, because *ancient materials also brought prestige, even a sort of aura* (Hahn 1997, p.1082). Al-Edrisi remarks (II, 1840, p.86) at Agrigento that *the importance of her monuments is testimony to her antique splendour*. There is also a strong *Where are the snows of yesteryear?* strain in Arabic poetry, even pre-Islam (as in the citation from Labid Ibn Rabiah at the head of this paper) exemplified in the lament of Ibn Zaydun (1003-1071) over the gardens of Medinet Al-Zahra - from which the marble and most of the columns had long been looted. Elegies also hymn the glories of Córdoba, making comparisons with Solomon and Chosroes, while bemoaning the decline of Islam in the peninsula (e.g. Schack 1881, II, pp.240ff.; and III, p.57ff.). Al-Tabari (1990, pp.4-5) relates that when Al-Mansur was building Baghdad (AD763/4), he started to demolish the "white palace" of Chosroes in order to re-use the materials, but found it difficult and expensive; he therefore ordained a new structure, with instructions to *make it impossible to demolish so that its remains and traces may last*. Al-Makkari's story of the founding of Córdoba (1840, I, 209) relies on the excavation of an ancient building—*a large and magnificent building ... a most amazing structure, all built with large blocks of stone joined together with molten lead*. The desire for permanence was stronger than the thirst for using brick spolia, and Al-Mansur in fact took gates for his city not only from Syria (*of pharaonic workmanship*), but from Al-Kufah as well. His successor developed a greater respect for Chosroes' structure if only so it might still be used: Al-Tabari says (1990, p.86) that Al-Mahdi repaired the White Palace, and *fined all those in whose houses Sassanian brickwork, taken from the buildings of Chosroes, was found* - a taxation dodge as ingenious as the English Window Tax.

So in both East and West, marble is part of a "package" involving huge size, impressiveness, antiquity and sheer survivability. Thus Ibn Hauqal (1964, p.148) admires in 977AD what he sees at Alexandria: *a host of antiquities and the authentic monuments of her erstwhile inhabitants, eloquent testimony of royalty and power, which proclaim her domination over other countries, her grandeur, and her glorious superiority ... immense columns and all sorts of marble slabs, any one of which could be moved only by thousands of workmen, and which are hoisted between earth and sky at a height of 100 coudées, each block resting on column capitals. The circumference of one of these columns is between 15 and 20 coudées, while the supported block is a cube of 10 coudées per side. The whole is decorated with astonishing effects and prodigious colours. Such remains represent the past ...*

Glamour through transport: Distance famously lends enchantment to the view, and rarities from far lands have been attractive from Stonehenge and the Egyptian obelisks in Rome to the building of the Palatine Chapel at Aachen. Note that there are few difficulties in transporting moderately-sized columns by sea, because a column is shaped like a mast or spar, and would usually be considerably lighter. What is more, galleys naturally carried spare masts together with the tackle to hoist them on board. Transport overland was usually limited to camel-back rather than wheeled transport (but see Al-Makkari's account, 1840, I, 226-7); and we must assume that the shifting of *two immense blocks of stone* for fountains from the quarry to Córdoba was effected with rollers and human muscle. And if so, was Islam limited in what columns it could enjoy by the strength of a camel's back? If today's camels can carry four slabs of salt each weighing 100 pounds, carrying moderate-sized columns was surely possible. According to a 12th-century account, Aldhelm, the seventh-century incumbent of a church in Somerset, brought from Rome *an altar of shining white marble, six feet in*

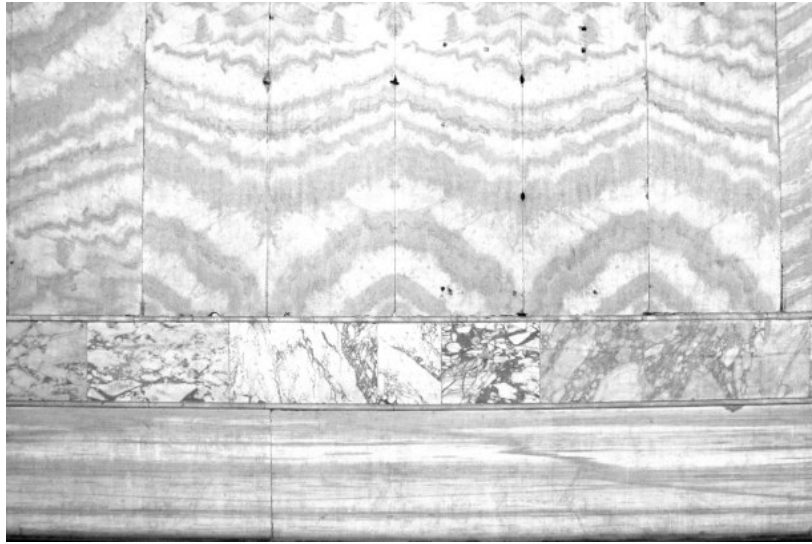
thickness, four feet in length and three palms in breadth, with a lip projecting from the stone, and beautifully carved round the edge - which sounds like an antique entablature, and a likely 12th-century prize if a very *unlikely* 7th-century one. A camel had carried it as far as the Alps, and broken its own back and the altar in the process - both being miraculously restored by saintly intervention (Salzman 1952, 357). Such epic travels must have been common, and raise a number of questions. Were the columns forming an external gallery in one of Timur's palaces at Samarkand (Bosworth & Asimov 2002, 538) Roman? If so, where were they obtained? Is it transport difficulties which explain the relative dearth of columns over three metres high in Islamic buildings?



A four-metre column in the Troad, near Gulpinar, broken in the attempt (date unknown) to move it from the antique quarry 4km away on the coast.

Splendid architecture as the expression of power: Ibn Khaldun (born 1332), explains in his *Al-Muqaddima* the rise and fall of cities, and keeps returning to the contrast between the Bedouin (indifferent to the arts) and the sedentary civilizations who built monuments using stone, marble, tiles and mosaics (1968, II.10, pp.744-5; extended extracts from this monumental work are given in Appendix 2). Skill and geometry, together with machines, were necessary: *Thus were built those monuments of Antiquity which are still to be seen* (II.24, pp. 832). What is more, he states that *monuments are a proportional indicator of power, and dynasties are remembered for their monuments. The monuments exist by the power which founded the dynasty, and the vestiges left by that dynasty are proportional to its power. The monuments of any dynasty are its building projects and principal edifices...* (II.16, pp.345-6). Or as As-Sahawi wrote in the 15th century, *The kings and the rich spent money on buildings, fortresses and castles only for the perpetuation of their memory* (Rosenthal 1968, 289). This was also the case with the marble which adorned buildings: marble was a statement of dynastic power. So was stone, for *marble* can be a vague term: thus Edrisi (1866, p.175), says that the Gizeh Pyramids were built with enormous blocks of marble (although he only counts two pyramids!). But this statement extended beyond civil power, for marble and columns also formed an important part of a saint's shrine - *clear examples of the purposeful use of a sacred rhetoric of the shrine*, as Cynthia Hahn (1997, p.1092) calls it. Specifically, this required *architecture and space, ornaments of all kinds, ... fine stone sarcophagi and finely built stone vaults* (Hahn 1997, p.1081).

Great size, quantity and variety: The sheer size of very large marble blocks aroused wonder and commanded respect, and columns could be marvelled at because of their *symmetry and smoothness as if they had been turned by turning-machines* (Al-Makkari 1840, p.239). Al-Edrisi (I, 1836, p. 264) remarks on the ruins of Carthage, whence enormous blocks were extracted, *and nobody leaves Carthage without loading considerable quantities onto their ships ... sometimes columns of thirty feet circumference are to be found there*. He also relates (II, 1840, p.59) that the Great Mosque at Córdoba had 1,000 marble columns (much higher figures are relayed by Al-Makkari 1840, p.217ff.) - but that Santiago da Compostella had *about two hundred columns covered with ornaments in gold and silver* (II, 1840, p. 229). Likewise Ibn Sasra (1963, p.160) says Al-Walid gathered 12,000 craftsmen and 1,000 architects *from other lands* to build the Great Mosque at Damascus; Baghdad imported Byzantine marble workers (Cutler 2001, 255), so presumably also marble for them to work. Did Mecca indeed once have the 471 spolia columns suggested by Ibn Jubayr (1952, p.86)?

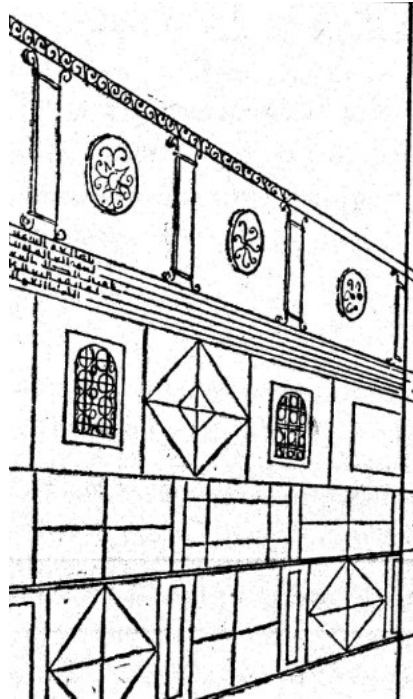


Istanbul, Hagia Sophia, matroneum: wall veneers of matched marble panelling

Beauty and colour: manifestations of God's creation: Marble is God-made, not man-made, a work of creativity which human beings can only imitate through clever and intricate craftsmanship (see below). Ibn Jubayr (1952, p.89) praises the coloured marble panels inside the Ka'ba (perhaps those from the Dome of the Rock): *I have never seen a more beautiful sight - and then remarks on the white marble panels on which Great and Glorious God has fashioned, at its first creation, remarkable designs, inclining to blue, of trees and branches, and another beside it with the same designs exactly, as if they were parts (of the same stone) ... each slab is the half of the other, and when the cut was made they divided to make these designs and each was placed beside its sister.* God as the provider of all things including marble is also a Christian idea: Procopius' account of Justinian's building work in Jerusalem (*Buildings* 5.vi.19) notes a dearth of columns, overcome when *God revealed a natural supply of stone perfectly suited to this purpose in the nearby hills, one which had either lain there in concealment previously, or was created at that moment.* Discoveries of spolia in the West were also sometimes attributed to the benevolence of God.

The relationship between symmetry, geometry and God helps explain the special attraction of marble patterning. Ibn Battuta (travelling between 1325 and 1354) must have been referring to such panels when he wrote of *marble inlaid with arabesques* (1958, I, p.195); Such cut-and-matched panels are to be seen in the Dome of the Rock (Arabic sources listed in Golvin 1970, pp.19ff.), and in Hagia Sophia (for example the south aisle). Ibn 'Asakir (Elisséeff 1959, p.24; also p.58; he died 1176) records the Great Mosque at Damascus as the fourth of five marvels - but the fifth is the veined marble and mosaics to be found there. Nor was he the only author to remark on the effect. The original marble panels have long gone: *The most wonderful thing in the whole of the mosque is the composition of matched marble slabs, where each piece takes its place next to its fellow: an alert observer visiting for a whole year would discover a fresh figuration or a new pattern every day,* writes Al-Muqaddasi in the late 10th century (Golvin 1970, p.139). Ibn 'Asakir relates (Elisséeff 1959, p.63) that 'Umar b. 'Abd Al-'Aziz (circa 1010) even suggested putting both marble veneers and mosaics up for sale, but was dissuaded by a public outcry. Ibn Sasra (1963, p.161) says the Abbasids destroyed the Umayyad's edifices: prayers were abandoned in the Great Mosque for a time, and *they took all the marble and other things that were in it, planning its destruction and the removal of its traces; but God the Exalted saved it from them. This was merely out of envy for its having been named after [the Umayyads].* Because of the greater size and number of their projects, the Abbasids much depleted the supply of good marble spolia. Leo Africanus' description of Sela, in Morocco (II, p.407) suggests he took pride in the beauty and perhaps intricacy of its antique capitals: *The buildings of this town carrie a shew of antiquitie on them, being artificially carued and stately supported with marble pillars.* Similarly Fez was

awarded nearly 700 mosques (II, pp.420-1), *fiftie of which are most stately and sumptuously built, having their conducts made of marble and other excellent stones unknown to the Italians; and the chapters of their pillers be artificially adorned with painting and caruing.* Of all the buildings Ibn Jubayr saw, he rated Palermo's Martorana the highest (1952, p.349), *for it is beyond dispute the most wonderful edifice in the world. The inner walls are all embellished with gold. There are slabs of coloured marble, the like of which we have never seen, inlaid throughout with gold mosaic...* - and no doubt the admiration stemmed in part through the church meeting Islamic aspirations in so many aspects of its decoration.

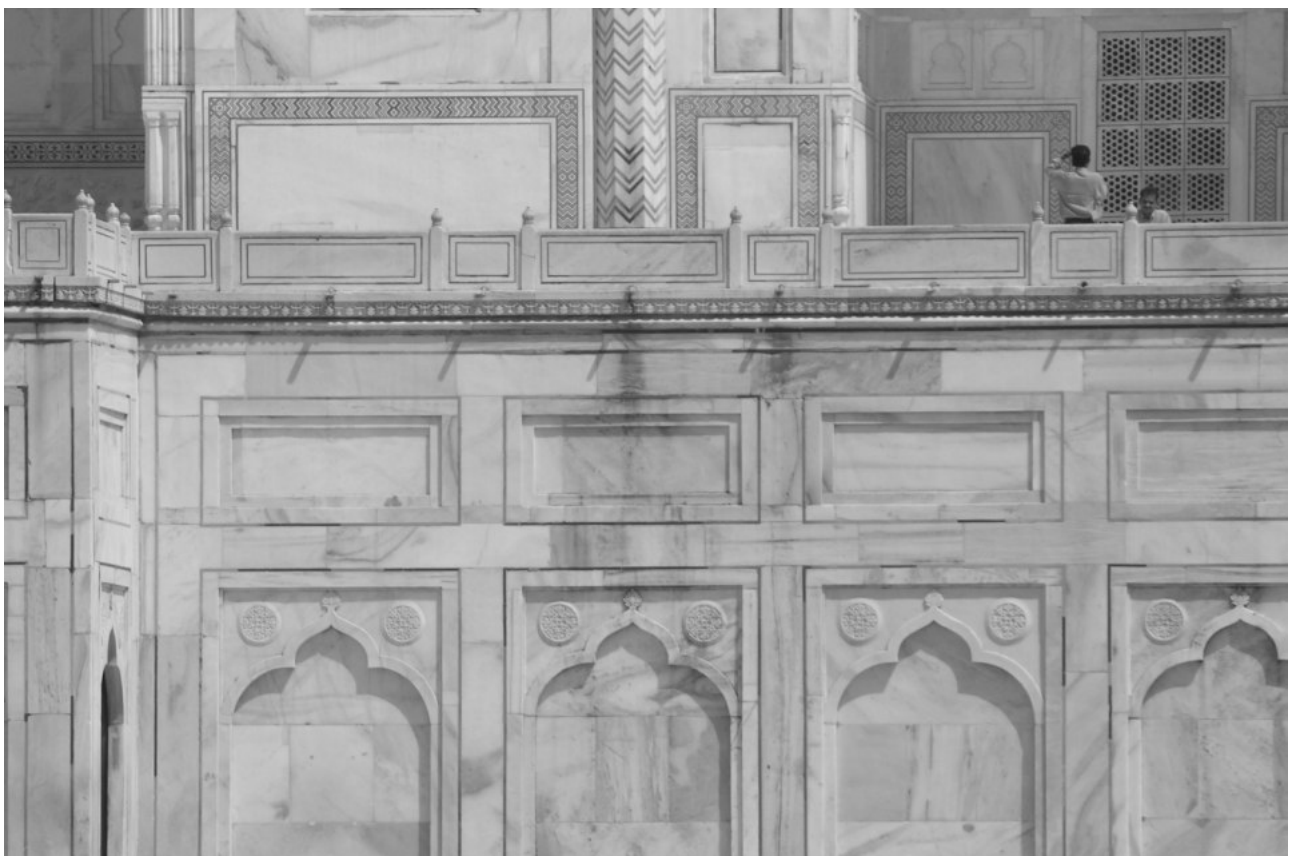


Left: Medina: suggested wall decoration in marble panelling; **Right:** Serjilla: late Roman house



Polish and light: Sources Islamic and Christian proclaim the beauty of marble, which gleams like snow, or the sun (a not inconsiderable help in lighting building interiors). Cameron (1985, pp.110-11) is surely correct to guess that such formal praise - the *ekphraseis* - concentrates on the coloured marbles because the structure of Byzantine buildings was often so shoddy. Ibn Jubayr (1952, p.82) praises the veneers at Medina, where the circumference of the Rawdah is *covered with finely cut marble of splendid quality. The wainscot rises to a third...* (1952, p.199) and near the Ka'ba at Mecca: *When the sun strikes them, such light and brightness shine from them that the beholder conceives them to be gold, dazzling the eyes with their rays.* In Damascus, the visitor to the Chateau Bigarre (El Qasr el Abluq) "in the southern hippodrome" is confronted with buildings *which have borrowed from sunbeams a fire with which to imbue their marbles of all colours ... the marble wall decoration extends right up to the ceiling* (Gaudefroy-Demombynes 1923, pp. 45f.). Kalim's description of the Taj Mahal (Begley & Desai 1989, p.83) offers a similar comparison: *Its color resembles dawn's bright face, / For both inside and out, it is entirely marble. / Nay not marble, for in respect of delicacy and beauty, / The eye can mistake it for a cloud.* The effect comes largely from polish, and this was the more difficult the harder the stone. It has been demonstrated by careful measurement that some large Byzantine porphyry sarcophagi were sliced up to provide an updated version of Byzantine *rotae* for the decoration of imperial mosques. This was simply a continuation of Byzantine practice: Michael III used the sarcophagus of Constantine V from the mausoleum of Justinian to make chancel panels for the church of the Virgin of Pharos, and Basil I plundered the same mausoleum for marble for the Nea Ekklesia and for the church of the Virgin in the Forum (Sodini 2002, p.138).

Enlart (I.1925, p. 37) states that marble for Mecca came from the Dome of the Rock: the latter's spectacular matched panels (and cf. Blair 1992, fig. 9) are in a configuration which



Top: Palermo, interior of the Martorana

Bottom: Agra: the marble podium of the Taj Mahal

any well-travelled visitor could immediately connect with Hagia Sophia. Another early tradition (Crone 1987, p.5 n9) is that marble and wood for the Ka'ba (Ibn Khaldun writes only of wood: Monteil II.725) came from a Greek ship wrecked at Shu'abya, with building materials on the way to rebuild an Ethiopian church wrecked by the Persians. Sauvaget's reconstruction (Sauvaget 1947, p. 80) of the south wall at Medina (a model for several later mosque formats: cf. Golvin 1970, p.62) shows marble veneers in a familiar *opus sectile* pattern (the term for the jigsaw-like cutting of different types and colours of marble into patterns or picture-like scenes). Here also the Prophet's tomb had marble veneers, according to Ibn Jubayr, and the 290 stone columns of the mosque were plastered and so highly polished that they have *the appearance of white marble* (Donaldson 1930, p. 36). Again, the beauty of the veneers at Damascus, along with the marble paving, are noted by Ibn Hauqal (1964, p.172), who writes that Walid Al-Malik *embellished the walls with multi-coloured marbles: the columns were of spotted marble; the vault keys and the column capitals were of gold; and the mihrab was gilded and incrustated with mosaics*. Many other mosques surely had rich veneers, now gone (such as the large mosque at Ramallah). A 15th-century Meccan historian mentions as his sources *marble and stone monuments and wooden material which have inscriptions* (Rosenthal 1968, 126).

Without hazarding generalities on early Islamic aesthetics, it should be noted that antiquity *without* glamour clearly did not suffice for Islamic builders. All the mosques in Syria might have been constructed from columns conveniently taken from the mainly Christian (5th- 8th centuries?) *dead cities* near Aleppo, with their profusion of basilican buildings, churches and monasteries. Yet many of these still stand today, with columns a-plenty - but columns of the local and very dour limestone, the grain of which produced clumsy-looking capitals and, of course, unpolished column-shafts that could only be hidden under stucco (as in this view of a building at [Serjilla](#): see previous page). This reveals a clear preference for marble. How lucky were the inhabitants of Miletus, who could construct the exquisite Ilyas Bey mosque completely from marble spolia (Wulzinger 1935) - although it would have been much easier to re-use spolia bricks from the site (which was thriving in the 6th and 7th centuries).

Precision, craftsmanship, intricacy: An important characteristic of marble is its fine grain (it is not bedded like limestone), which allows it to take detail well, and therefore to be carved or sawn with great accuracy. The surroundings to the Ka'ba have a mosaic pavement: *tessellated marble, cut in discs the size of the hand, of a dinar or more minute than that, and joined with remarkable precision, It is composed with wonderful art, is of singular perfection, beautifully inlaid and checkered ... The beholder will see bendings, inlays, mosaics of tiles, chess-board forms and the like ... such as will fix his gaze for their beauty. Or let his looks roam ... to the mihrabs which bend arches of marble, and in which are these forms we have described and the arts we have mentioned* (Ibn Jubayr 1952, pp.82-3). The mosaic floor, like the wall panels, was surely spolia (Barral I Altet 1986, p.256 for the West).

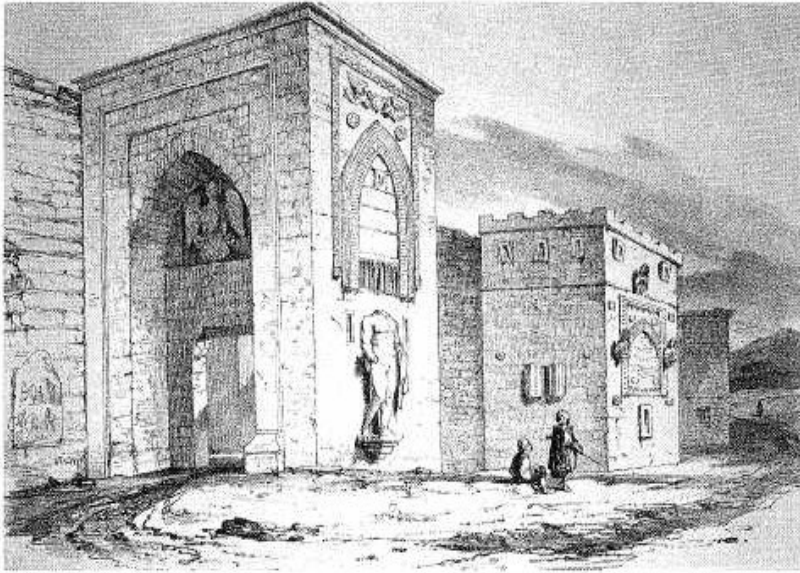
Great cities to emulate: The touchstones for the Muslims were Constantinople and Rome, both of which were written of with wonder and exaggeration. For example Ibn Al-Faqih Al-Hamadani (Al-Hamadani 1973, p.143) says Rome contains 24,000 churches, *the ceilings, walls, corner-stones, columns and windows are monoliths of white marble;* There is evidence from travellers' accounts of Muslim interest in the architectural splendours of Rome and Constantinople, and the occasional author apparently examined classical temples. Thus Ibn Al-Nadim (died beginning of 11th century) says an ambassador from Saif Al-Daula pestered the Emperor to let him visit a temple (location unknown) *of ancient construction, with an enormous doorway and two iron gates, and closed since the times when Rhum was converted to Christianity ... The building was constructed of enormous blocks of marble and stone of all colours, and on its walls an unheard-of quantity of inscriptions and sculptures of incomparable beauty. This temple held a quantity of old books...* (Vasiliev 1950, pp.295-6). Supposedly three days from Constantinople, this "temple" impressed the ambassador for its materials - there is no description of its architecture as such. Such



Left: Ankara: walls of the citadel ; **Right:** Kubadabad Palace: wall tile

precious materials were therefore incorporated into mosques. According to Al-Edrisi (I, 1836, p.553), Al-Walid gilded the marble capitals and the mihrab of the Great Mosque at Damascus, and *incrusted the walls with stones imitating precious stones* - viz. mosaics. It is important to note that, by the time Muslims saw them, both Constantinople and Rome were employing spolia, usually for aesthetic or historical reasons, but sometimes because of earthquakes. Thus at Antioch, noted for its splendour, *each reconstruction used the remains of previous monuments* (Lassus 1977). And prestigious antique cities (Aphrodisias, Pergamum, etc) converted their temples into churches.

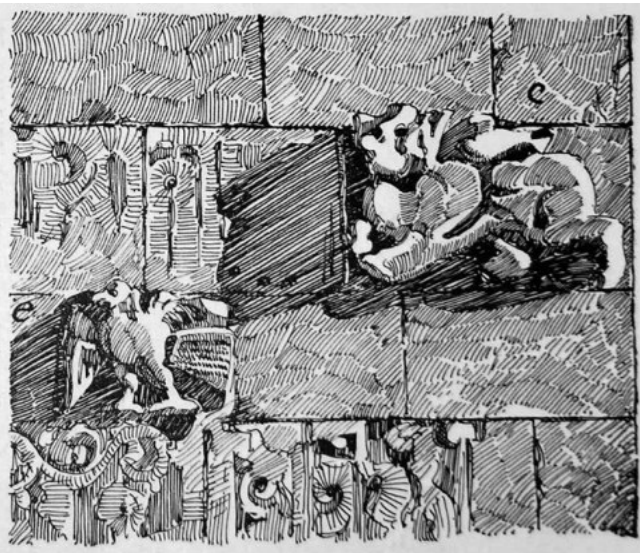
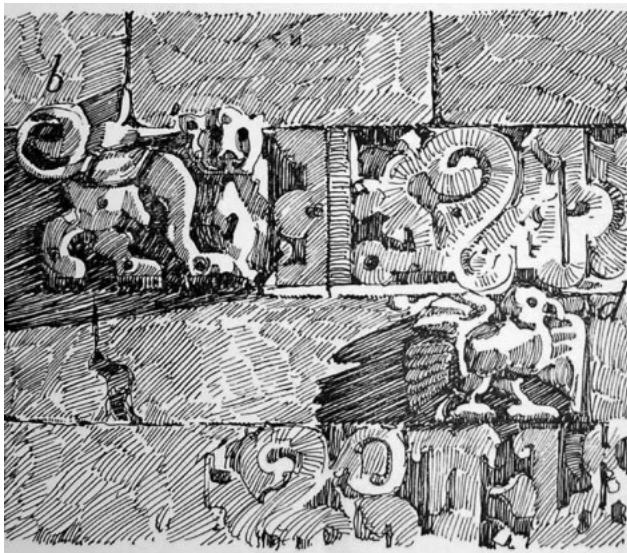
Displays of antiquities: One way of proclaiming cultural ties was to display them prominently *via* objects and fine materials. The very format, materials and decoration of mosques surely signalled connections between centres such as Córdoba and Damascus, or Jerusalem and Mecca. There were plenty of precedents in the West and in Byzantium for the display of sculptural and architectural spolia from earlier buildings - as in the Great Palace in Constantinople (Mango 1995), which Muslim commentators knew well. But these were much less common than in the Christian West (partly perhaps because of a lack of interest in figurative sculpture). A signal exception, however, is Alaeddin Keykubad's walls at Konya (1220-1), which displayed classical reliefs and statues, as well as specially-carved angels and a double-headed eagle. The arrangement is known only from 19th-century drawings, but the intention was surely to use marble as a prestigious material (the spolia coming from Roman Konya) and link the past explicitly with the present by the commissioning of new works. The angels are an interpretation of victories on classical arches, and the eagle an old symbol of rule to be found also on tiles in Alaeddin's palace at Kubadabad. His most prestigious model, the Golden Gate at Constantinople, also displayed grand spolia, perhaps to set off trophies taken from Islam (Mango 2000, 181, 186). Again, Alaeddin incorporated Hadrian's arch into the mediaeval walls of Antalya, and refurbished the Roman theatre at Aspendos for re-use (Redford 2000, pp.49-50).. Western parallels would include Benevento and Rimini; in c1448 Sigismondo Malatesta stripped S. Apollinare in Classe of its veneers for his refurbishment of S. Francesco in Rimini - and had the result hymned by his own scholars (Canali 1995). Sigismondo got his inspiration from mediaeval example (such as Frederick II at Capua), but how about the Seljuk Turks? They had occupied Ankara, whose citadel, probably a Byzantine construction, is rich in displayed spolia of altars etc. At this point we should note that Muslim architecture rarely imitated the *appearance* of classical architecture: the only surviving exception is the mosque at Diyarbakir (its façade was almost completely made from classical spolia columns, blocks and friezes, some of which even contain figures) which, for Terry Allen (1986, p.37ff.), proves the rule. More restricted examples of re-use were common, such as classical entablatures set within mosques, or the Nour ad-Dine Hospital in Damascus (1154), where the doorframe has a classical pediment over the 12th-century bronze door, and a stalactitic arch (reworked) above. Nur ad-Din also had a pagan altar taken from Apamea to Aleppo, where it was displayed in the Madrasa Halawiyah (Rosenthal 1968, 125) - but perhaps because the inscription was believed to include the name Diocletian.



Top: Two views of the walls of Konya before they were destroyed; although some of the Seljuk reliefs have survived, the colossal marble nude has disappeared. Some of the menagerie of Roman lions in the Archaeological Museum (a selection **Left**) might come from the walls. Spolia must also have provided the white and coloured marble paneling in Konya's palaces, mentioned by Ibn Sa'id in the 1250 (Redford 2000, p.56);

Bottom: Seljuk basalt reliefs from the walls of Diyarbakir, Tower XXX.; from Albert Gabriel, *Voyages archéologiques dans la Turquie orientale*, Paris 1940:

Elements from the walls on Konya appear to have survived to the end of the 19th century. Cl. Huart (*Konia, la ville des derviches tourneurs*, Paris 1897, 154), writes of their being gathered at the seat of the provincial government, and being broken up: *all those antique sculptures built into their walls by the Seljuks, all the Greek, Latin and Arabic inscriptions, which had survived without difficulty so many centuries to end, in the nineteenth, under the stupid hammer of a stonecutter!*



Marble for artillery: A decided attraction of marble was its reliability and hitting power when cut into projectiles: enormous quantities of marble and granite columns (presumably from damaged shafts where possible) were cut up for this purpose. Columns came in stock sizes - allowing projectiles to be already half-formed. This was essential, because the weapon in question, the trebuchet, was accurate in range and target *only* when the weight of the projectile was the same from shot to shot. Muslims were possibly the first to use such projectiles:

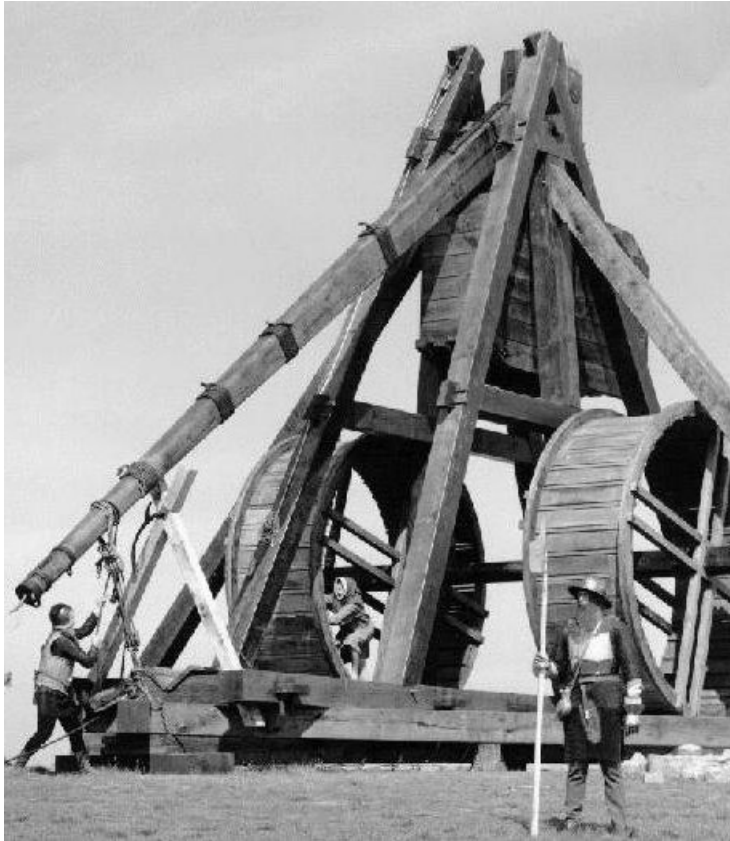


Above: Antalya: Arch of Hadrian incorporated into the Seljuk walls. The Seljuk occupation of the marble-faced (rebuilt) cenotaph at Selinus (Gazipaşa) has been glossed by Redford (2000, p.86, pp.156ff.): *such connections with the past and past rulers of Anatolia constituted a major reason for inhabiting and reusing their buildings*; **Below:** Istanbul, Military Museum: marble and granite projectiles



Alaeddin Keykubad when besieging Alanya in 1221 specified (according to Ibn Bibi: Redford 1993, 149-50) marble projectiles for his artillery. There is no marble in Pamphylia, so without doubt spolia were used.

The Crusades may well have introduced westerners to this weapon but, in any case, they were impressed by its power - a weapon *the like of which was never seen*, its projectile *sunk into the ground / A full foot deep* (Ambroise 1941, lines 3537ff). In their attack on Acre, the defenders *with their catapults they flung / Whole mighty columns down among / Us, shafts of marble and hard stone* (ibid lines 3859ff) - perhaps ammunition the Muslims did not have time to prepare and carve into spheres. Ambroise also relates (ibid., 114687ff) how Eichard had stones brought from Messina to the siege of Acre to feed his machines; though we do not know if these were marble, the distance covered demonstrates both the fussiness of the machines, and the lack of materials around Acre by this date.

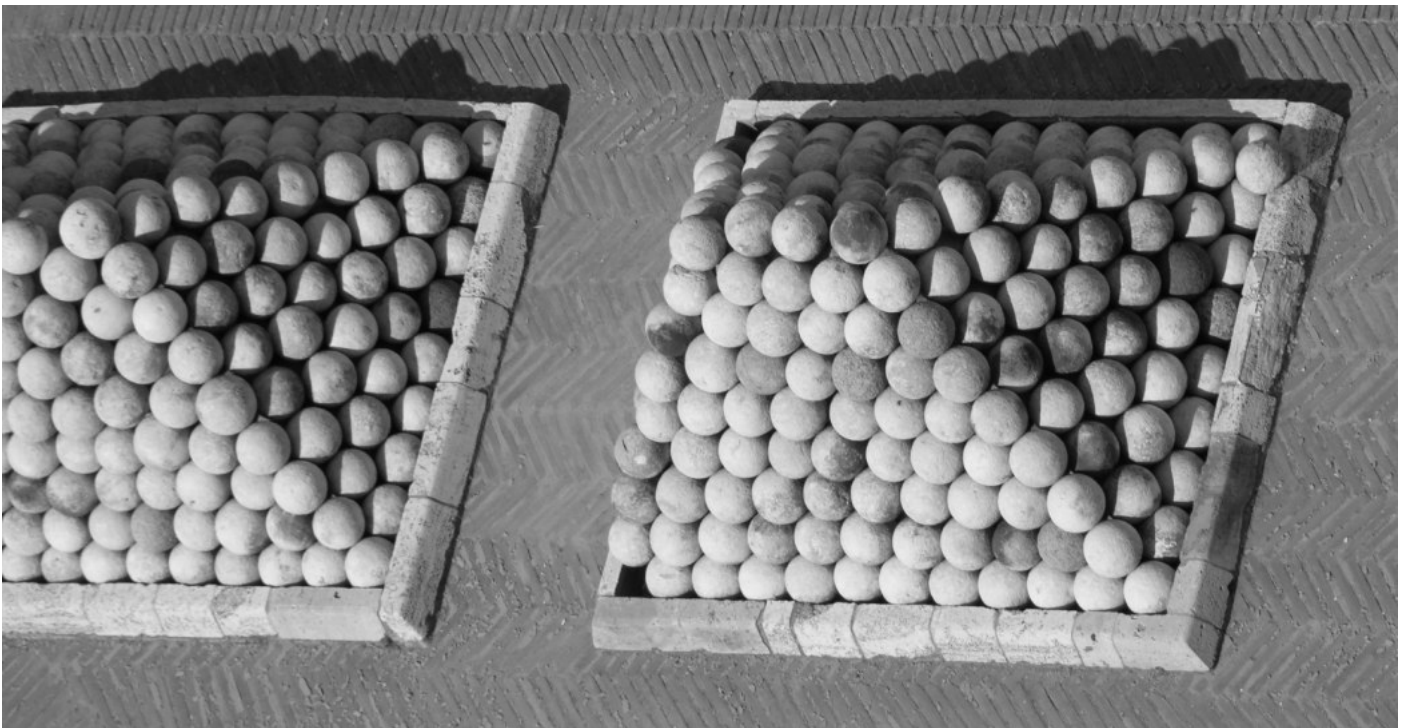


Trebuchet: reconstruction



Damascus: Nour ad-Dine Hospital (1154)

So accurate was the trebuchet that it was used to good effect before the walls of Constantinople in 1453, when experimental gunpowder weapons also firing large stone shot were active. Marble and granite shot was to have a long life in gunpowder weapons. The Venetians used large quantities of *pierriers* on their ships well into the 17th century. The Ottoman Turks were still using 400kg marble and granite projectiles cut from columns in the mid 19th century, in the forts at the Bosphorus and Dardanelles: accounts by Westerners of the fearsome damage such balls could inflict demonstrate their continuing efficacy. To investigate the extent of the destruction of marble columns the practice caused, it might be instructive to plot the sites of major naval battles from Salamis to Lepanto against the location of sea-side classical cities - very few of which boast any colonnades today. Nor should we underestimate the enormous quantities of shot needed to keep navies provisioned—quantities which increased dramatically with the systematized warships introduced in the 17th century. The continuing Muslim use of stone and marble shot was sensible: not only did stone require less gunpowder than an iron ball, but it also put less strain on the gun—and there is plentiful evidence the Turks were plagued by a constant shortage of gunpowder, and also by low-quality cannon which were the more likely to burst when fed a full charge. Re-provisioning was also easier: any antique sea-side site would serve.



Top: Istanbul: a bronze cannon outside Roumeli Hisar, up the Bosphorus; **Bottom:** Rome, Castel Sant-Angelo: two pyramids from a large supply of marble cannonballs, some or all carved from spolia. Marble projectiles once littered the Mediterranean: cf. Arvieux *Mémoires*, I, I.p.270 who visited Acre in 1653: *In and around the town are to be seen large stone and marble balls, some of them of up to four feet diameter...*

Sometimes it was unnecessary to go to the expense of making spheres. A 10th-century Byzantine manual on siegecraft advises (Sullivan 2000. p. 37) that one must guard against heavy objects being rolled down the hill: *round stones, columns, wheels, column drums...*



The Dardanelles: protected by cannon firing marble and granite balls

3. Marble as Booty, Marble Hoarded?

With marble quarries supposedly unused, and a growing scarcity of high-quality materials, projects had to be fed by scavenging and, since this could take time, materials were hoarded. Marble also seems to have been acceptable as booty, despite its weight. But sometimes the pieces might have been mere marble tesserae for making floors: Roger, Prior of Durham c.1140, *as he had heard that churches visited by pilgrims in lands beyond the seas were glorious with pavements of marble, decided to beautify his own church, and asked pilgrims 'to bring back with them bits of marble stones for the work* - let us hope to the detriment of the ruins, and not of the Holy Places themselves.

Ibn-Alatyr's account (1872, III, pp.705-6) of October 1187 in Jerusalem, notes that after Friday prayers, Saladin *ordered the Al-Aqsa mosque to be repaired ... and to take all possible care in ornamenting, paving and decorating it with sculptures. Consequently, he had marble brought the like of which it was impossible to find, and gilded cubes in the Byzantine manner* [perhaps "from Constantinople"? cf Golvin 1970, p.94], *and other necessary object, all collected over many years.* (Indeed, the Dikka in the Al-Aqsa mosque is almost completely made out of Crusader spolia.) He also *commanded that the mihrabs of 'Umar should be covered with marble* (Al-Maqrizi 1980, p.85). The Anonymous Edessan gives a different account of Saladin's occupation of Jerusalem and what happened to all the marble (in Moosa 2003, p. 279): *The Muslims ... denuded the churches not only of their ornaments, but also of wood and iron objects, and ripped off the doors and marble tiles that covered the walls and floors. They removed all these to faraway countries.* William of Tyre, (1903. I.10, col 226) writing of an undated recapture of Jerusalem by *the Turk*, says that they *subvertebant calices et vasa divinis obsequiis mancipata pedibus conculcantes, confringebant marmora* - which could mean either that they defaced the marbles (= "affect") or carried them away (= "exhaust"). All stories point to a dearth of marble in Jerusalem, even in the mosques: Michael Burgoyne (1987, p.97) notes that few mosques had more than two or three spolia columns, and that such survivals were also *sliced up to provide slabs for opus sectile paving or wall panelling: the mihrab in the Ashrafiya was, according to the waqfiyya, lined with black and white marble, porphyry and mottled granite ... Even chips and off-cuts of marble were collected and used to take tessellated inlays in window sills.* Such offcuts proved the building-blocks for very popular mihrab and dado styles, in Syria but especially in Cairo, as we shall see.

Perhaps troops were used to the idea of scavenging for antiquities for what could be a pious purpose, just as they must have been used to scavenging for food and forage. Thus 'Umar b. 'Abd Al-'Aziz was apparently dissuaded from selling off both marble veneers and mosaics from the Umayyad Mosque in Damascus (see above) by a suggestion similar to that for English pilgrims: when people from Syria and Iraq go on military campaign, each one of us is required to bring back from the land of Rhum a measure [qafiza: size unknown] of little mosaic cubes and a sheet of a square coudée of veined marble... And so 'Umar kept quiet... (Ibn Sasra 1963, p.64). Does this represent a common practice? That is, looting while on campaign, and bringing marble back in the baggage train?

Presumably to fulfil Saladin's building ambitions, some of the Franks living in Jerusalem were bought out by the Muslims, and the Franks (under the terms of the surrender) left behind numerous objects which it was impossible to sell, such as beds, chests, barrels etc. They also left behind a large quantity of marble beyond compare, consisting of columns, plaques, and little cubes to make mosaics. Apparently Saladin wrote that the unbelievers had turned the city into a garden of Paradise, filling the churches and the houses of the Templars and Hospitallers with marble (Lyons & Jackson 1982, p.276). According to Ibn Khallican's *Life of Saladin* (1884, pp.421-2), there would have been plenty of marble to seize, for he describes the luxurious lifestyle of the Christians in Jerusalem at the capture of the city in 1187: they had rebuilt with columns and sheets of marble their churches and the palaces of the Templars and Hospitalers, with beautiful marble fountains from which water always flowed ... All the houses were as agreeable as their gardens, gleaming with the whiteness of marble, and with columns the leaves of which [the capitals?] gave them the appearance of bushy trees... - a clear indication that the narrator or his source saw and appreciated Corinthian capitals, and probably saw capitals and columns as an affirmation of God's creation. Perhaps the Franks were following Constantinople in their taste for marble: when Odo of Deuil passed through Constantinople in 1147 he noted that All the wealthy people have their own chapels, so adorned with paintings, marble, and lamps that each magnate might justly say, 'O Lord, I have cherished the beauty of Thy house' (Mathews & Mathews 1997, p.300). In any case, following the surrender there was an influx of merchants who traded with the Muslim soldiers (Lyons & Jackson 1982, pp.274-5) - so perhaps this was another example of paying soldiers with what the Franks left behind.

It seems very possible that the Franks had so much marble not just because of luxury living, hoarding and perhaps small-time trading, but because they received it as booty just like the Muslims. For example, Ibn-Alatyr tells us that in July 1188 the Franks ceded Latakia after a siege: The buildings of this town were most magnificent, as loaded as possible with gilding, and they were filled with marbles of various kinds. The Muslims destroyed the majority, and carried off the marbles... - which certainly came from churches - but the city also had everywhere building of cut stone blocks, and entrance porticos of marble with solid arcading (Ibn-Alatyr 1872, III, 720). Another Islamic narrative on the same sack (1872, I, p.361) notes that the Muslim army took possession of these beautiful marbles, and had them carried to their houses in Syria: they changed the beauty of the buildings [in Latakia] and tarnished their splendour ... Outside Laodicea there was a large church, old and beautiful, clothed with porphyry slabs and encrusted with marbles of various colours... . It is not stated explicitly, but it seems likely that marble was part of the soldiers' booty - and that they had developed a conception of home life that included marble. Compare the same Ibn-Alatyr in his chronicle for 1101, who records (1872, III, 705-6) that the Kadi of Djibla, Mohammed Obeyd-Allah (son of Al-Mansour), ceded money and valuables to help the Sultan pay the army: considerable sums and a lot of precious objects. These included 1,100 pieces of bronze of remarkable workmanship, as well as incomparable clothing and turbans. The scraps of bronze statues were surely to be sold eventually by the soldiery for their metal value, and melted down either because the works were considered idolatrous, or because the Sultan was short of liquid funds. So trading might have taken place with marble as well. Venetian tradition (the *Cronaca Bemba*: cf. Brown 1997, p.18) has the 9th-century Doge Giustinian

Participazio triumphant against the Saracens, and returning *with many spoils of victory, beautiful columns and other very fine stones of marble ... and into the construction of [San Marco] he put all the stones and all the marble columns that he had already brought from Sicily* — an anachronism more fitted to the 11th than the 9th century, but redolent of what *ought* to have happened, perhaps.

Similar hoarding may have happened in Damascus. Ibn Sasra (1963, p.160) says that when Al-Walid built the Great Mosque *He collected marble, pillars and stone but took nothing from anyone without payment*. It is even suggested in the *Livre des Deux Jardins* that the Venetians in the Sack of Constantinople 1204 *took from the churches marble sculptures, and transported them to Egypt and Syria, where they were sold. A large number of these marbles arrived at Damascus* (Nour el-Din 1906, p.154) - surely sent there because they knew the spolia would find a ready market. This is far from impossible, given the large amount of figurative material Nicetas says featured in the Sack, of which *none* except for the bronze quadriga and a few marble plaques survives in Venice. If this account is correct, it certainly indicates that a market existed in Syria for marble; but it also underlines the Western lack of interest in (or comprehension of) the myriad statues displayed in Constantinople. We call the Horses of Saint Mark a “quadriga” because that was their original designation. But the Venetians made no attempt to situate them all’antico, and we may suspect that they were looted because they echoed knightly interests, rather than reflecting any scholarly Venetian interest in the classical past.

4. Marble Blind Spots

All the above could be echoed in Christian sources. But Islam and Western Christianity (not just the Venetians) both missed some Roman practices rich with marble implications:



Left: Palermo: La Zisa; **Right:** Turkey: Elaiussa Sebaste: a “funeral terrace” of sarcophagi

Baths and fountains: In the Middle Ages classical aqueducts broke, and monumental fountains (at for example Perge) decayed. Byzantium continued the socialising and architectural rich tradition of public bathing; but although some areas of the West did arrange running water (e.g. in monasteries), and were happy to use hamans in their trading-stations in the Levant, and although some splendid Roman bath-tubs in marble and porphyry were reused as tombs for saints and martyrs, there was no revival of the marbled setting of ancient Roman and Byzantine bath-buildings. Rather, it was Muslims, and the Islamicised rulers of Sicily, who adopted the classical concept of fountains and a public water supply, with important spin-offs for their treatment both of private palaces and public constructions,

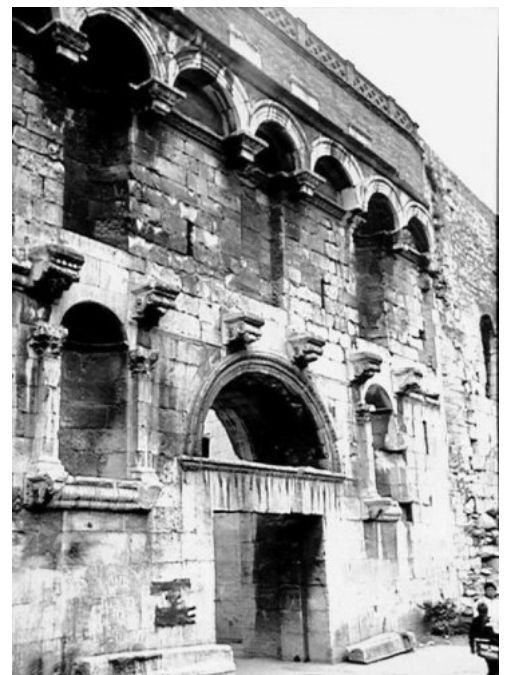
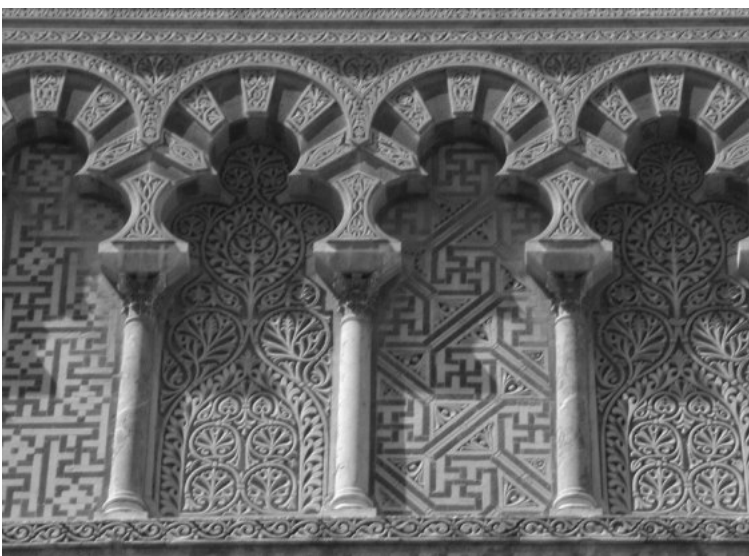
including irrigation for agriculture, as in Andalucia (Grotzfeld 1970 pp.42-3 for the use of marble and mosaic in their decoration; and pp.145-7 for 13th-century descriptions of baths in Cairo and Baghdad, featuring marble).

Re-use of sarcophagi: Classical sarcophagi survived all over the Empire in large quantities (as at Elaiussa Sebaste), and marble vessels were much sought after among the Great and the Good in the West for prestigious burial, providing much interest for students of the Western Middle Ages and Renaissance. It seems curious that Islam never adapted itself to re-use these even as cenotaphs. This is well illustrated at Alabanda (western Turkey), where the wall surrounding the Muslim cemetery is largely of antique blocks hacked from antique sarcophagi in the cemetery higher up the hill. In some cases all five resultant pieces have been used; in others, the heavy base has been left where it stood. Had the sarcophagus-destroyers any interest at all in the aesthetics of the antique, they had only to walk 200m to the east, where there are still fields full of the ruins of the antique city - columns and well-cut blocks in abundance, and of marble - rather than the quartz sandstone of which the sarcophagus-wall is made. There was of course a religious taboo on the representation of the human figure in a religious environment, and a requirement that burial be underground. But taboos can be surmounted: Christians overcame the classical taboo of burial *intra muros*. And there are plenty of sarcophagi with floral/vegetal motifs only, and many more where the sparse figures (putti, bulls' heads) could have been chiselled out. There are plenty of examples of Islamic cenotaphs of marble, such as at Bursa and Agra. But are there any examples *at all* of the graves of Muslims being marked by spolia sarcophagi?

Statues and reliefs: The Islamic embargo on human/animal forms in a religious environment (reminding us that Justinian's Hagia Sophia was also aniconic: Cormack 2000, p.903) left leeway to choose any of an immense population of antique statues or reliefs with which to decorate palaces and public areas *à la romaine* but, with the exception of Konya, this does not appear to have happened. Indeed, the story (Heyd 1885, p.39) of Caliph Omar's destruction of a splendid Persian carpet - booty on which Paradise was depicted is a sombre illustration of how the religious overflowed into the secular. Nor were Muslims in competition with the Christian West, where interest in reliefs was largely restricted to sarcophagi (e.g. for the tombs of Venetian doges: Pincus 2000, chap. 2), and where three-dimensional antique statues do not appear to have been prized until the 15th century.

Below Left: Córdoba: Great Mosque

Right: Spalato: Porta Aurea



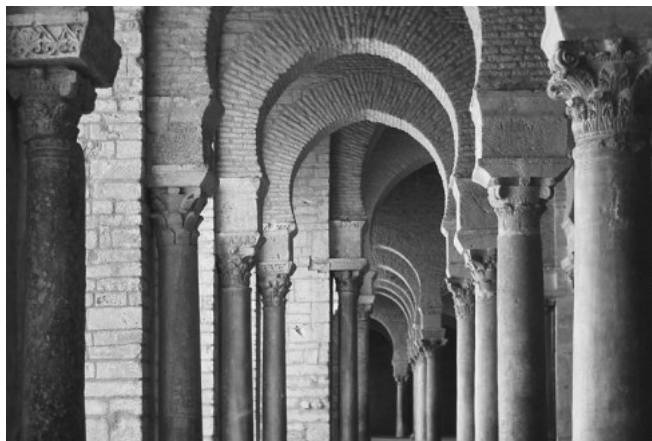
For example, if we compare the description by Nicetas Choniates of the antiquities of Constantinople, then the Venetian looting was decidedly half-hearted, being restricted to columns and veneers - and to the quadriga, such a great prize that might have languished in store for a generation. Thus the Christians "re-learned" an interest in statues and storiated reliefs; Islam seems never to have bothered.

5. Innovation and Tradition in Islamic Architecture

Islam developed very quickly a series of forms to suit social, religious and military purposes. Many of these were of course dependent on classical models, but others were often startlingly new - in all, an amalgam of changed models and new typologies, often clothed in the raiment of classical marble. These included columns and capitals, wall veneers and mosaic floors, as the building-blocks of larger structures. Islam built on Roman and Byzantine forms, conspicuously in the following types.

Gates for towns and mosques: It was almost an article of faith by travellers that the walls of Rome and Constantinople were marble. This was only partly true - the Golden Gate at Constantinople, and gates such as Porta San Sebastiano at Rome - but the notion set a standard by which other gates could be judged. There are no completely marble gates in the Islamic world, but plenty which are decorated with marble. An example is the gate on E side of the Great Mosque at Córdoba (of 987AD), which is similar to the Porta Aurea at Spalato (c. 300AD), and to the east gate at Resafa.

Before the 9th century no mosques had monumental entrances, although Kairouan may have had arcades by then: did these then become popular in some kind of revival of Roman forms? This would be specifically the decoration of doors with several columns, after the fashion of triumphal arches. Lyman (1973) draws attention to the use of twin columns at Kairouan and Córdoba (and later Christian adoption at Saint Sernan, Toulouse and Ste Foy, Conques). We may perhaps assume that the use of prestigious marble was part of the equation. Jenkins (1993, p.75) relays that the emir at Kairouan (r.856-63) had teak beams brought from Baghdad for the *mimber*, and *the mihrab from Iraq in the form of panels of marble* - and a man from Baghdad made faience tiles for the mosque. Mahdiya was still a prosperous port, serving Kairouan, when El-Bekri visited it in about 1060 (Heyd 1885, p.49). Mahdiya overtook Kairouan in prosperity (this was one reason why Pisa sacked it; see below), before it was in its turn overtaken by Tunis (Abulafia 1987, pp.425-6, 464). Kairouan uses twinned columns both at the entrance to the prayer hall, and inside the mosque, supporting each archspringing for the main nave. S. Costanza, Rome (c.350) supports its great rotunda on twin columns. Nor is the motif rare in Islam: cf. the exterior and interior of the Sayyida Ruqayya Mausoleum, Cairo, of 1133, with contemporary columns.



Kairouan: arcades outside the prayer hall of the Great Mosque



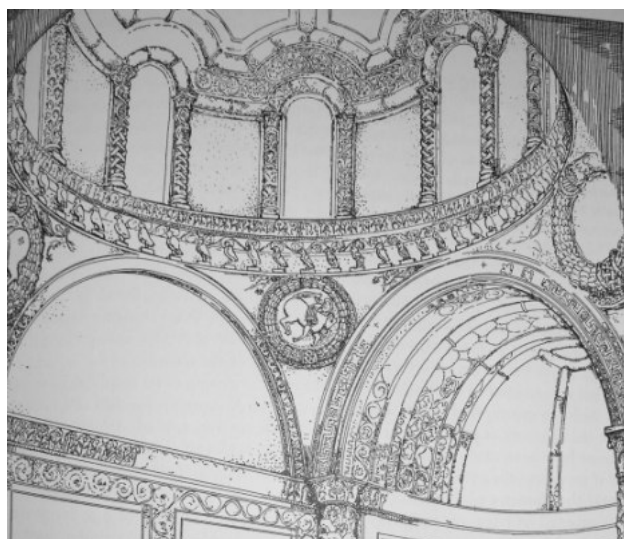
Damascus Museum: Qasr Al-Hayr West: entrance gate

Highly decorated gates and minarets, through which people pass, are admirable locations for conspicuous display. This is also the case with minarets, which act as markers for significant buildings, often against stiff competition, as with the Cairo skyline. The very origins of the minaret are obscure, and whether it was necessary for calling the faithful to prayer is moot; but with decorative stone inlay and marble columns aloft, as a support for exhibitionism in a crowded urban environment it is unrivalled: At Tlemcen (Algeria, near the frontier of Morocco, 68 miles S.W. of Oran), the great mosque (Jamaa-el-Kebir, built 1136) has a brick minaret 112 ft. high, and decorated with marble columns, as is the prayer hall. Likewise, the mosque of Sidi Ahmed bel Hassan, built A.D. 1298 and now the museum of antiquities, has two series of arches, which rest on alabaster pillars. As late as the late 17th century, the Ghawanimin minaret in Jerusalem (where columns were *very* scarce) used 31 columns, and the Awhadiyya mosque found six matching columns to re-use (Burgoyne 1987, p. 97).

Palaces and cityscape: In the West, no antique or mediaeval palaces beyond the shells on the Palatine at Rome and a few scraps of Great Palace at Constantinople have survived to our day with structure yet alone decoration intact. But the Palatine's ruins were no doubt accessible in the Middle Ages, and the extravagant decoration could surely have been observed. And Muslim visitors like Christian ones have left descriptions of the marble-rich marvels of the Great Palace at Constantinople. So as with would-be marble walls and gates, the standard to work to was clear. What is more, McCormick (2000, p.136) identifies the place as the quintessential *physical context of power*, providing another reason for the Muslim interest in the genre.

Because so little is known of Roman palaces, we must guess that Islamic palaces were probably imitations of structures like Diocletian's "palace" at Spalato, with many more in the Jordanian/Syrian deserts (some refurbished with mosaics, such as Qasr Al-Hallabat), or small buildings such as the Governor's Palace at Bosra. In other words, fortified military shells with luxury inside - re-using Roman fortified forms when no longer necessary, perhaps just *because* they were Roman and, of course, well-situated. A good example is Al'Ashiq at Samarra, built 887-82, within an enclosure 230x178 metres (Northedge 2001 for the context). There may be Sassanian sources as well for such structures.

Much earlier is Qasr West, built AD728ff by the Umayyad Caliph Al-Walid. Its great entrance gate has been re-erected at the entrance to Damascus Museum, and this decoration is in stucco - colonnaded, panels and equestrian groups in high relief as well. Inside, however, a reconstruction of the courtyard shows articulation with marble columns. Its doorway had a lintel with vine ornament, which was presumably spolia from nearby Palmyra; and its courtyard had spolia columns with Corinthian capitals, and Doric capitals as bases. At Qasr Al-Hayr East, probably of the same period, the courtyard in the Small Enclosure was supported on an arcade of columns, some spolia, some of limestone perhaps quarried for this purpose. The spolia capitals had been stuccoed, suggesting they were already weathered when retrieved (Grabar 1978, p.26). The Large Enclosure courtyard once had 72 columns which might have been spolia marble, unless they were made from bricks (ibid., p.72). Qasr el Hayr Al-Sharqi was visited by Eyre Coote in 1771, when many of the fitments seem to have been in place: *a number of arches supported by pillars of white marble finely polished ... the capitols had double flowers, exceedingly well finished* (Carruthers 1918, p. 173). The loss or ruination (by robbing the marble spolia) of so many of these desert palaces (excellent overview in Musil 1928, pp. 277-97) is a great loss, judging by the sumptuous nature of the few that survive (Hillenbrand 1982). Thus Oleg and André Grabar note the adventurous variety of work at Khirbat Al-Mafjar, which displays mural painting, three-dimensional sculpture, relief sculpture and mosaics; recognising Nabatean as well as antique sources. They assert that *the crucial idea of creating vast sculptural schemes on building façades or inside a ceremonial hall is an antique idea willingly adopted by Umayyad princes* (Grabar O. & A., 1965, p.859ff.).



Khirbat al Mafjar: domed and stuccoed chamber

If the arcades at Qasr West and East were supported on marble, at Khirbat Al-Mafjar as well the *decoration* was stucco—a technique very popular in the mediaeval West. And the Alhambra (another building rich in stucco) was, the poet tells us, envied by the Pleiades for the splendour of its marble (Schack 1881, III, p.288ff.). In Al-Andalus, the Muslims often sought to imitate structures to the East, where lay their ancestral homes. In or near towns, fortified structures were not needed, so Medinet Al-Zahra, near Córdoba, now being enthusiastically restored, resembles Khirbat al Mafjar rather than the palaces in the Syrian desert. It was *a visual projection of the power of the Spanish Umayyads at the same time as it affirmed their cultural preeminence*. (Wheatley 2001, p.286), and it had some especially fine columns. The Royal Palace in the city itself was supposedly *full of primeval constructions, and wonderful remains of the Greeks, Romans and Copts, and other nations now extinct*, and in the gardens fountains of Grecian marble beautifully carved (Al-Makkari 1840, pp.207-8), including one with human figures brought from Constantinople (Wheatley 2001, p.56); and another palace, the Dimashk, had its roofs *supported by beautiful marble columns, and the*

floors paved with mosaic of a thousand hues (Al-Makkari 1840, p.211). Medinet had a reputation to keep up (cf. Schack 1881, III, pp.66ff.): when Abd er-Rahman III was building it, Constantine Porphrogenitus sent him 140 columns (Vasiliev 1948, p.319), so clearly there were either insufficient columns available locally and in North Africa, or materials from Byzantium were seen as prestigious. Ibnu Hayyan (born 1006) states, in a description relayed by Al-Makkari (1840, pp.234ff.) that some columns (out of a total of 4000, he claims) came from Rome, from the land of the Franks (Narbonne is likely), others from Carthage, Sfax, Tunis and elsewhere in Africa. He also says marble was extracted from quarries in Andalusia, at Tarragona, Almeria and Raya - and cost nearly as much per item as the spolia items. But is there any evidence that quarries were indeed open at this date?



Spain, Córdoba: Medinet Al-Zahra

We cannot know whether all these columns went into Medinet (which seems unlikely), or whether many were stockpiled for use in the next expansion of the Great Mosque. Ewert (1981, 112-13) notes that the earlier phases at Córdoba were short of matching spolia (- an aesthetic to be seen at Kairouan, although the twinned columns in the main aisle to the mihrab are exceptionally fine, so mismatches must have been dearth not choice). By the 10th century Córdoba, its marble luxuries hymned by the poets (Schack 1881, II, p.85, 158ff.), had only Constantinople and Baghdad as cultural competitors, so the furnishing of this beacon-mosque of Islam in the West with marble was part of a wider plan; and we may surmise that the extreme richness of Medinet Al-Zahra was part of it. Given the number of Syrians in Córdoba, it is not surprising that both mosque and palace would parallel similar structures in Syria in their thirst for marble.

We might usefully compare Charlemagne's palace at Aachen with such luxurious constructions (to be followed by the Christian-Muslim retreats of La Cuba and La Ziza at Palermo, Charlemagne sometimes had more than one hundred persons bathe with him, says Einhard - but the palace was tiny (elevation here; nevertheless, the church impressed the Muslims, one noting its *beautiful dressed stone* (Miquel 1975, p.360). Stanley Ferber has suggested (1975, p.68) that the "window of appearance" at Aachen may have had a precedent in Qasr Al-Hayr al Gharbi. Both bathing and marble re-use could derive as easily from Islamic as from Byzantine example. Islam imitated not only Roman palaces but occasionally Roman cityscape and civic adornments such as triumphal structures and streets lined with columns. One example is Anjar (which was either a new Islamic foundation, or a refurbished older town, in either case built with spolia: Chehab 1993 for a review of the evidence), where the classical colonnade becomes an arcade, and the tetrapylon remains stark because it is deprived of the usual Roman variety of decoration. For Taabaa (1986), Nur Al-Din stands out specifically because he eschewed the Roman/Christian forms in favour of inscriptional messages which proclaimed Islamic unity for holy war against the Crusaders. But not all the influence was in one direction: Theophilus built the Bryas Palace in Constantinople in 837AD, a contemporary account asserts, *in imitation of Arab [palaces] and in no way differing from the latter either in form or decoration* (Keshani 2004).



Anjar: tetrapylon and colonnaded streets

Mausolea derivations: Although no Muslim mausolea are known to have been built before the mid-9th century, the first important Islamic building, the Dome of the Rock, takes the typology of a late Roman mausoleum or memorial church, with mosaics and marble, and spolia capitals (survey in Wilkinson 1987). Caesarea Maritima had just such a 6th-century church built upon a Roman temple platform, and was captured by the Muslims in 641/2, thus providing one possible model for the Dome of the Rock (Holum 1997; and cf. parallel typologies in Čurčić 1996). This monument's exterior shows it to be an early exhibitor of monumental inscriptions; while its section when compared with the mausoleum/church of S Costanza in Rome demonstrates the derivation not only of its shape, but also its use of marble and mosaics. Were the walls of S. Costanza perhaps once covered San-Vitale-like with marble veneers? Today we inevitably make comparisons with Western buildings—but of course Constantine's buildings in the East were also spectacular (Castelfranchi 2005). For early Muslims, a likely comparison was with its predecessor, Solomon's Temple, *sheathed inside and out with white, yellow, and green marble* (Khoury 1993, 59)



The Dome is a typological mystery, neither mosque nor mausoleum; but that it parallels Sta Costanza is small wonder given the use of Byzantine craftsmen in its decoration and perhaps its design. Much closer to hand was the martyrrium of Qalat-Siman, visible for miles about on its high spine of land. So if the reasons for the form of the Dome are obscure, its meaning through structure and location is very clear: this was a statement of the triumph of Islam, surely erected in emulation of the Holy Sepulchre (each is visible from the other) and echoing its structure (for example in dome dimensions: cf Wheatley 2001, p.296) - but built on a conspicuous eminence, and soon to be joined by the Al-Aqsa Mosque. An aerial view of Jerusalem (Raby & Johns 1992 frontispiece) demonstrates the enormous area dedicated to the Haram el-Sharif; while the inscriptions on the inner face of the octagonal arcade (Blair 1992, pp.86-7) make clear the superiority of the new religion and the falsity of the old: *There is no God but God alone, without partner ... The Messiah, Jesus son of Mary, was only God's messenger ... It is not for God to take a son. Glory be to Him*. Strzykowski's suggestion (1936) that marble from the tombs of the Latin kings was used there prominently to adorn mihrabs supports this theme of triumphalism. Indeed, for Kenaan-Kedar (1986), the erection in the 12th century of a dome on the Holy Sepulchre (a rebuild and heightening of an earlier one) was precisely a response to the Islamic monuments on the Temple Mount (and using some of its capitals from the Al-Aqsa: Wilkinson 1987, pp.27ff.), itself perhaps a response to *Christian buildings set within open courts*, which were very popular in the Holy Land (Čurčić 1996, 57). Marble was useful as a demonstration of triumph; but those symbols that Islam could not accommodate were vilified. Thus the gilded cross atop the Dome of the Rock was ordered by Saladin to be placed under a gate of Baghdad, *and was thus trodden upon* (Al-Maqrizi 1980, pp.89-90).



Left: Jerusalem: Dome of the Rock; **Right:** Rome: Sta Costanza

In the ancient and mediaeval worlds, triumphalism often involved the imitation or even re-use of the prized monuments of the vanquished (cf. the much later Qutb Minar in Delhi); and the Dome of the Rock exhibits a richness in exterior decoration (marble veneer sheets: inscriptions—the tiles are much later) to outshine the Christian monuments below. Although such exuberant exteriors were eventually to be found further East, it was not to be the fashion in Islam westwards from Damascus to Córdoba to exhibit such richness except *inside* their public and religious buildings - so perhaps the Dome was indeed *making a point* - one that was not needed for the shed-like Al-Aqsa, constructed in the early 8th century, and much more subtly than, say, the Arch of Constantine.



Rome: Arch of Constantine

6. Structure and Decoration

A characteristic of early Islamic architecture is an interest in decoration inside and outside that sometimes approaches the *horror vacui* - a desire to enrich the *interior* of buildings as they saw the Byzantines to have done, and to use the *exterior* as a "display case" for motifs as they surely observed the Romans to have done in structures such as the Arch of Constantine, whose high level of decoration explains its triumphal purpose.

The richest form of decoration for the Roman/Byzantine world was mosaic - the construction of designs abstract or figurative from small pieces - *tesserae* - of stone, terracotta or marble. Popular for walls and vaults in the classical period (Sear 1977), the technique was extended in Byzantine times to include colourful marbles and gold and silver in glass sandwich mosaics. Presumably mosaics were usually made from offcuts and scraps, and we might therefore see much mosaic as in some cases a substitute for much larger (and more expensive) sheets of marble veneer - which Michaelides, for example (1985) demonstrates was indeed imitated in mosaic, *first introduced, in place of real marble, for reasons of economy* (p.163) - but then used for its own sake in rich settings such as Piazza Armerina, which was rich in spolia (Wilson 1990, pp.241-2). A good example of imitation veneer is to be seen at Thuburbo Majus, Tunisia, where the "marble panel" has been "cut" four times, producing sixteen matching panels (Alexander & Ennaifer 1994, cat 416A).



Both Damascus: **Left:** "treasury" of the Umayyad Mosque; **Right:** Mausoleum of Baibars

Byzantine models informed the mosaic decoration not only of the Dome of the Rock, but also of the Great Mosque at Damascus, the treasury of which, like the mosaics around the walls of the courtyard, exude a distinct Byzantine and PaleoChristian aura (Fortsch 1993). Mosaic decoration continued in Byzantium in the Chora (1316/21), and also in Islam but without much iconographic change: the typologies seen at the Great Mosque in Damascus were still being imitated 100 metres away and at least four hundred years later in the Mausoleum of Baibars (Damascus, 1277ff.).

According to Islamic accounts, Al-Walid supposedly had Byzantine craftsmen and materials sent by the Byzantine Emperor to adorn the Umayyad Mosque at Damascus. Creswell (1969, pp.153ff.) believes these are just stories. But the *genre* was a robust and widespread one. Giovanni Villani (died 1348), says in his *Chronicle* (1823, I, pp.60-1) that when in the time of Augustus the "Temple of Mars" (now the Cathedral, he tells us) was being built in Florence, *The citizens requested the Roman Senate to send them the best and most skilled masters available in Rome, and this was done. And they had brought white and black*

marbles, and columns from various places faraway by sea and then up the Arno... This describes what *should* have happened when important buildings were constructed, but could well be correct: Pisa got some of the spolia for her cathedral by raiding Muslim cities, so Florence (poor in antiquities) might have obtained marble for her Baptistry from Rome.



Istanbul: church of the Chora

Such inter-city and inter-regal requests were probably not rare and were, after all, part of developing commercial activities. Thus King Offa of Mercia requested *black stones* - perhaps porphyry from Rome - from Charlemagne around 796 (Peacock 1997). So presumably Charlemagne was known not just as a connoisseur (and of course the *de facto* lord of Rome), but also for the splendid spolia with which he had decorated his Chapel Palatine at Aachen, where matched marble veneers at ground level are complemented by classical columns adorning the royal/imperial sphere above.

The same perhaps happened in Islam. Al-Hakim is reported to have commanded the Byzantine Emperor to send an artisan to imitate at Córdoba the Damascus mosaics - *a conscious effort*, suggests Marilyn Jenkins (1993, p.74), *to emulate both his illustrious ancestor and his ancestor's magnificent mosque*; and his envoys did indeed return with a mosaicist, and a present of mosaic tesserae - upon which Al-Hakim had slaves trained up by the Byzantine, to ensure a succession in such work (Vasiliev 1948, p.318-19). There are several similar accounts of Byzantine help with mosaic work (skeptical survey in Cutler 2001, 253-4). But the work for Córdoba might well be a fact for, as Stern (1976, p.38) remarks, the absence of similar mosaic works in the region or indeed the peninsula at this date excludes any sensible hypothesis of local production. From Ibn Idhari's account, Miguez suggests (2003, p.152) that the mosque surely contained many more Byzantine influence than just mosaics.

It is a common development in architecture for structural elements themselves to become decorative. Thus metopes and triglyphs on Greek temples are vestiges of construction in wood fossilised into stone; and the Romans frequently used columns decoratively, as in many triumphal arches. So it is with Islamic structures. They were conceivably the first to employ marble and granite columns as tie-bars to strengthen walls against sapping (and/or earthquakes). The Crusaders quickly adopted the technique, as in the Sea Fort at Sidon of 1228, and Caesarea (here in a photograph of 1912), where the columns presumably came from the splendid colonnaded streets. Exchanges between the Crusaders and the Muslims also operated vigorously in matters of culture (Elisséeff 1986).



Left: Caesarea; **Right:** Korykos: two sea forts with spolia column shafts: *Louis had had granite pillars carried there which he had arranged with skill ... It could not be mined because of the granite columns used crosswise in its construction* (Ibn Al-Furat 1971, p. 70)

Structure quickly migrated to decoration. The structural need for such tie-bars *above ground* is dubious but they are plentiful in Christian and Islamic fortresses, as at Korykos (Turkey), or the sea castle at Sidon. This may always have been for prestige display rather than for practicality - perhaps, just like the shields hung on the outside of the Parthenon or on the Bab Al-Nasr at Cairo, expressing strength rather than securing it. At Sidon, for example, the shafts in the foundations were surely for strength, but there are at least 50 column-shafts visible to landwards and above water - regularly disposed and principally decorative. The transition from structure to decoration is still visible in the citadel at Aleppo, where above-ground column shafts were used to decorate the entrance to the citadel, reinforcing the impression of power. But on the south glacis, column-shafts were used to underpin the backing earth and stop the stonework sliding down the hill.

Cities were often fortresses, so it was but a step from Aleppo's inscribed marble roundels to the Bab Al-Nasr at Cairo, of 1087-92, which sports roundels in the form of shields, both circular and kite-shaped, while the Bab Zuweila (1091) has simple flush column ends. Perhaps the Golden Gate at Jerusalem, which might well be the work of Abd el-Malik (Burgoyne 1992, figs. 8 & 10) is the model. Hence perhaps a similar configuration in Jerusalem's Damascus Gate. Ibn Jubair surely observed such column use regularly on his travels; he describes the Gate of Abraham at Mecca as decorated *with stucco interlacings which resemble column-shafts laced circle upon circle*. By the 13th century, marble and stone roundels with inscriptions were common, such as those on the east gateway to the mosque of Sultan Al-Zahir Bibars in Cairo (1266-9), or the citadel at Aleppo (see above). Even in such relatively late gates, then, the historical or even "heroic" dimension was surely present: the decoration playfully alludes to *earlier* gates and walls, where columns were indeed used in earnest to deter mining or trebuchets. Sometimes the column-derived marble roundel seems to have been the trigger for exotic decoration, as in the examples on the façade of the Sabuniye Madrasa (1459-64, Damascus), where the roundels are the centrepiece of a breathtaking display of marble-cutting wizardry which ripples out from them.

In the Islamic world, decoration with marble changed over time from simplicity to intricacy. This can easily be seen in the design of windows cut from a single sheet of (usually) marble, such as the 9th-century examples in the Great Mosque at Damascus. They form an *ensemble* with the mosaics, being placed next to matched marble veneer panels, and therefore above



Aleppo: column shafts underpinning the glacis of the Citadel



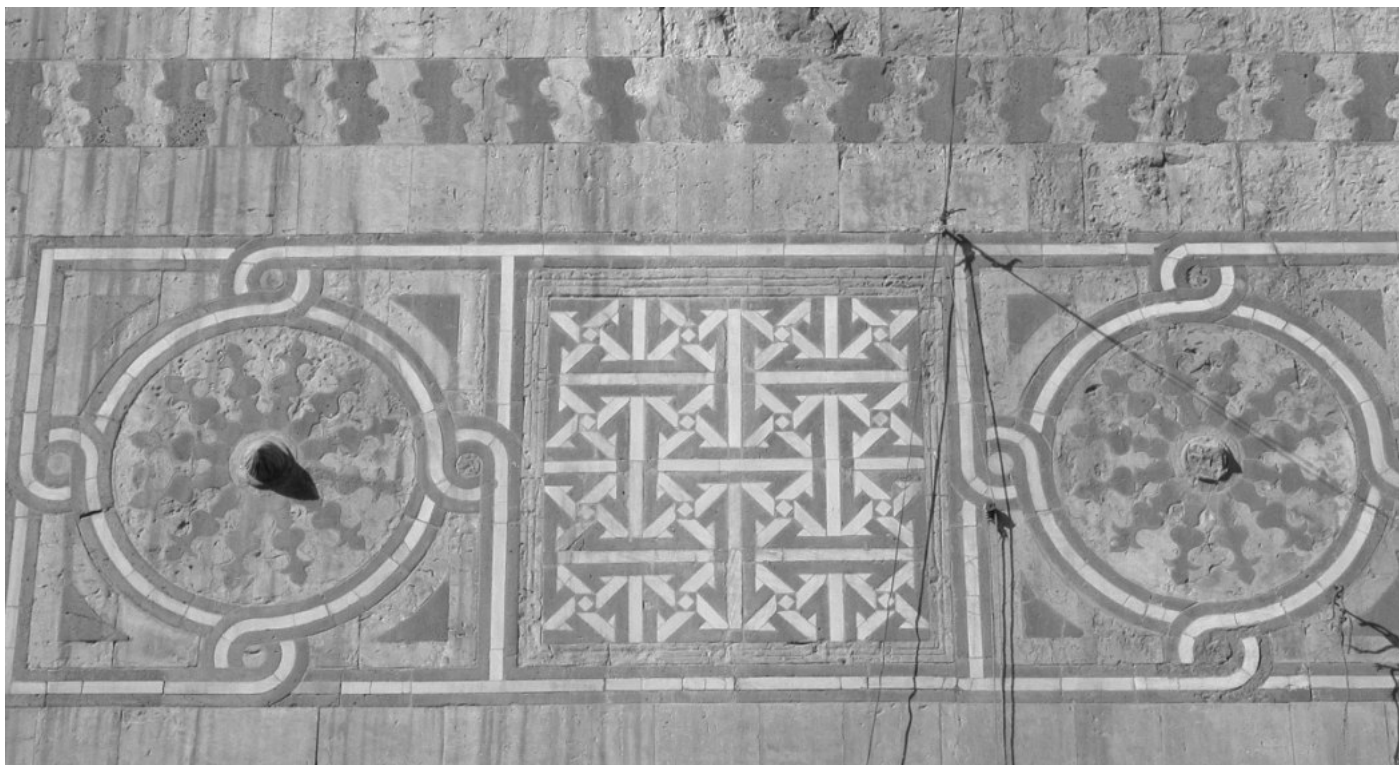
Cairo: Bab el-Nasr: column shafts transmuted into decorative shields



Aleppo: faux-column shafts on the Citadel



Cairo: Mosque of Bibars, east gateway



Damascus: Sabuniye madrasa

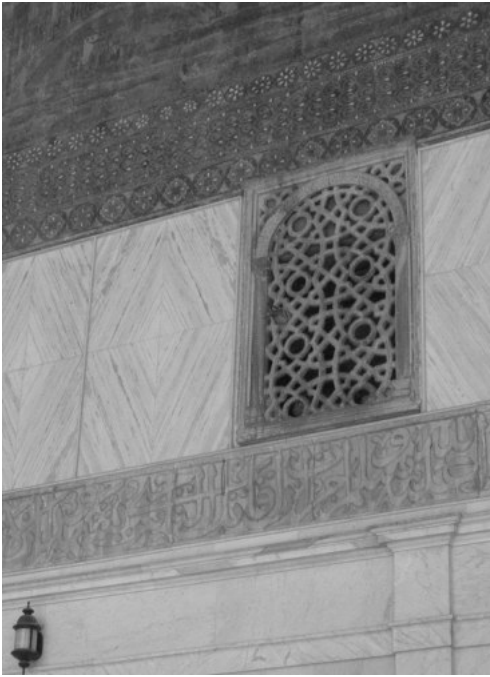
the marble-frieze inscription. Later examples, such as the single remaining window at the Hanbila Mosque (Damascus, Salihiye, founded 1202) could be very elaborate. So that from the Madrasa of Amir Sarghatmish (1356) we move effortlessly to the sandstone windows in the Mausoleum of Humayun (Delhi, 1565) and on to the extravagancies of the walls of marble screens at the Tomb of Shaikh Salim Chishti at Fatehpur Sikri (1569ff.) and the intricacies of the Mausoleum of Itimad ud Daulah (1622-8), perhaps the first completely marble structure in Islamic India, where coloured marble inlay sets off the pierced marble screens (Mehta 1980 pp.12ff. for the materials and techniques).

Another related Islamic development was the elaborate cut-marble work seen in windows and mimbars, as well as mihrabs and wall-dadoes, where the designs were so intricate that they were echoed in wood, a much easier material to work - and surely in some cases derived from designs first worked in wood. If some of the wooden mimbar panels at Kairouan seem based on Roman architectural sculpture, then some of the designs of the marble mihrab could equally be paralleled in stucco: it appears to have been the design which was important, and the material then yielded to the skill of the craftsman.

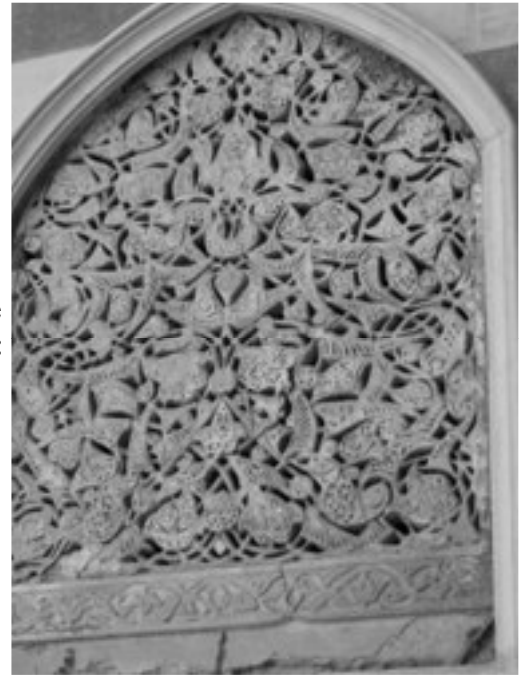
Intricate marble decoration to monuments inside and out:

As time passed, marble decoration changed from sheet-veneer to small-scale pieces fitted like jigsaw pieces. (This also happened in Rome, especially in Cosmatesque marble floors, rather than on walls.) Certainly, a tendency throughout Islamic art to make geometric patterns (even of inscriptions) led to a treatment of cut marble much more intricate than in the West. An important aspect of this trend was the relishing of *coloured* marbles, which were rarely used (probably because they were rarely available) in the mediaeval West.

If Christianity *carved* marble into running reliefs figured and vegetal, Islam tended (with the exception of column-capitals) to *fretwork* it into patterns, just as they did with ivory and wood. Similar patterns are also to be seen in stone, especially in domes throughout Cairo's Northern Cemetery. Such all-purpose patterns could be enhanced with coloured marbles, as in the splendid minaret "of Jesus" of the Umayyad Mosque in Damascus, or the mihrabs of the mosque of Ibn Tulun (Cairo, 876AD ff.) or the madrasa El-Faradis in Aleppo (1235-6).

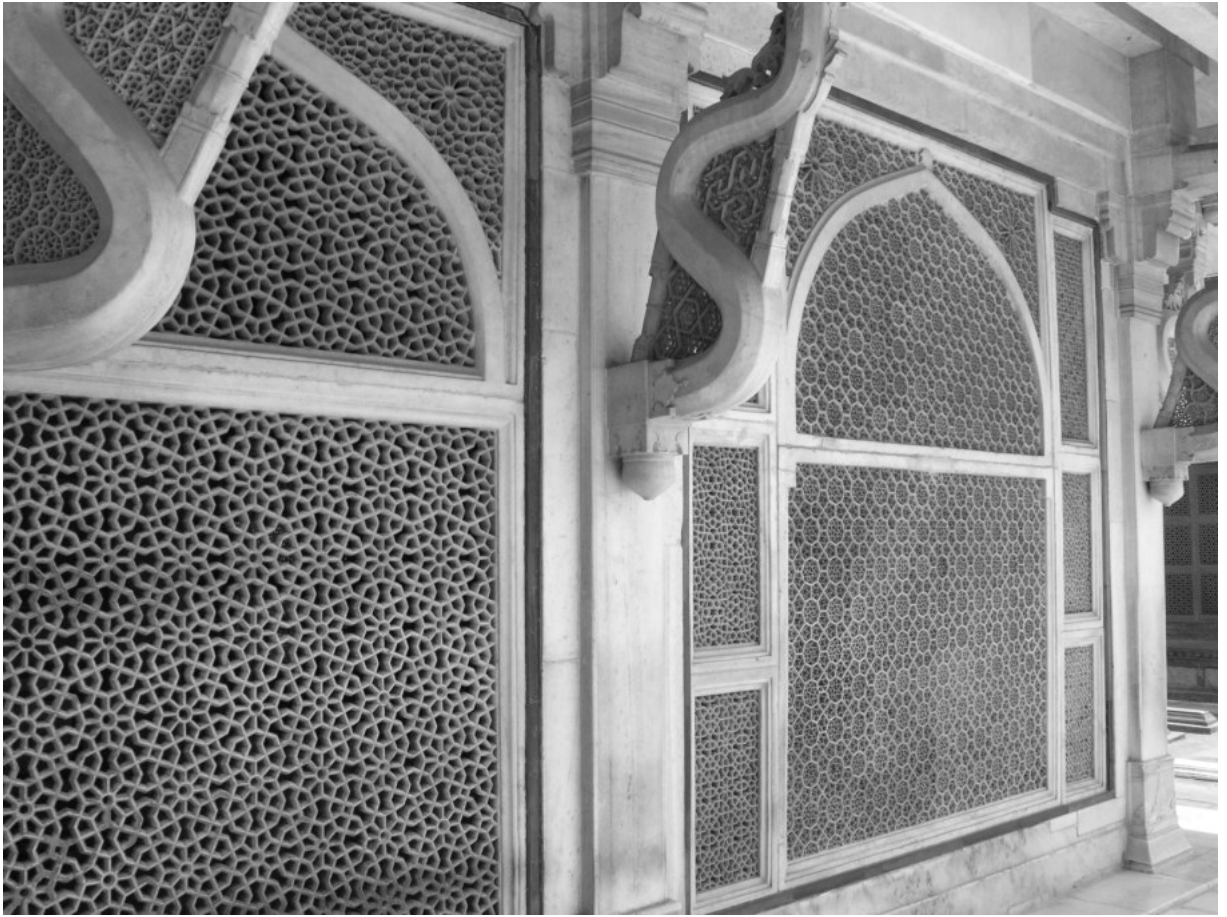


Both Damascus: **Left:** Umayyad Mosque marble window veneer **Right:** Hanbila mosque

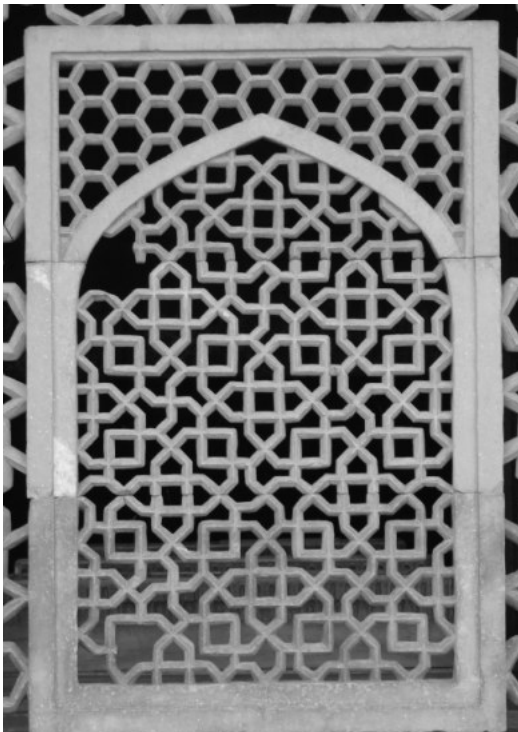


The fashion spread to the Mamluks, as in the mihrab of the Mosque of Al-Hakim, Cairo (possibly with some old materials?), and the mihrab of Al-Ghuri's madrasa-khakhah in Cairo (1503-5), which combines colour with intricacy. The mode developed into extreme intricacy with the Mughals, as in the entrance gate to Akbar's mausoleum, died 1605, at Sikandra, near Agra.

A “mechanistic” explanation for a move from large sheets of marble to ever smaller pieces is provided by Ibn Khaldun. He makes it clear in *Al-Muqaddima* (1968, II, p.745), when he charts the building cycle from village to city and palace, and then back to village (extended extracts are given in Appendix 2). As civilization recedes, *cities revert to villages and hamlets*. Arabs used spolia from ruined towns because of a lack of workmen or a sustaining population: *Spolia stone is used, taken from empty buildings - chateaux and palaces no longer used because of the depopulation of the town The same materials are used again and again, from palace to palace, and from house to house, until they are completely used up. This suggests not only that it is the very same pieces (surely of marble) that are being re-used, but also that they eventually dwindle away to nothing (jusqu'à l'épuisement complet).* Observing the Cairene and Damascene fondness for tall, narrow bands of marble (cf. web links for Cairo and Damascus at the end of this paper), it is tempting to latch them to Ibn Khaldun's words. Certainly, we have documentary proof of the high cost of marble columns in Cairo from the 11th century, as well as a 12th-century reference to legatees forgoing cash in the sale of a house against *a share of the marble* (Goitein 1983, 103). We might conclude that it was column shafts and veneer sheets that were sliced to make such decorations - a resource that, as Ibn Khaldun notes, eventually ran out completely. If we accept his observation, then we can explain a growing miniaturisation and intricacy in marble usage perhaps as a stylistic development, but also as the result of several recyclings of the selfsame material, over centuries. Ibn Khaldun takes the long view of the rise and fall of civilized living. Born 1332 in Tunis, and living there, in Fez, Tlemcen and Cairo, as well as visiting Damascus and making the Haj, his theories derive from personal observation. But Ibn Khaldun might have been only partly correct. If we are to believe Nasir-i Khusrau (born 1003), in Ramlah *there is marble in plenty, and most of the buildings and private houses are of this material; and, further, the surface thereof they do most beautifully sculpture and ornament. They cut the marble here with a toothless saw, which is worked with "Mekkah sand". They saw the marble in the length, as is the case with wood, to form the columns; not in the cross; also they cut it into slabs. The marbles that I saw here were of all colours, some*



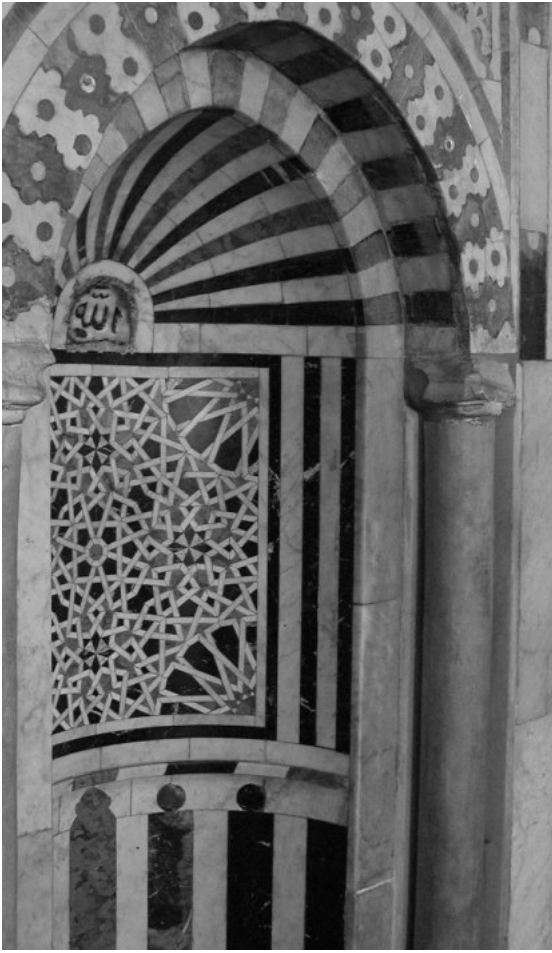
Fatehpur Sikri: Tomb of Shaikh Salim Chishti



Left: Delhi: Tomb of Humayun



Right: Agra: Tomb of Itimad ud Daulah

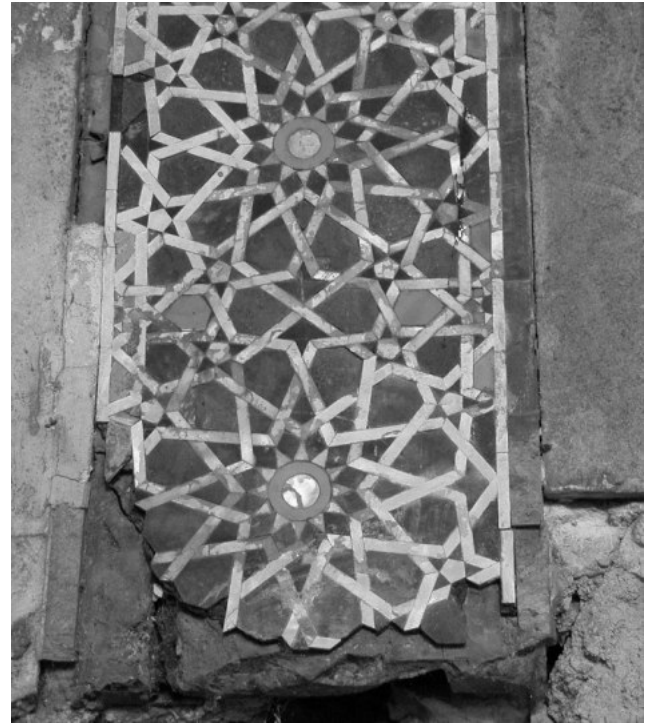
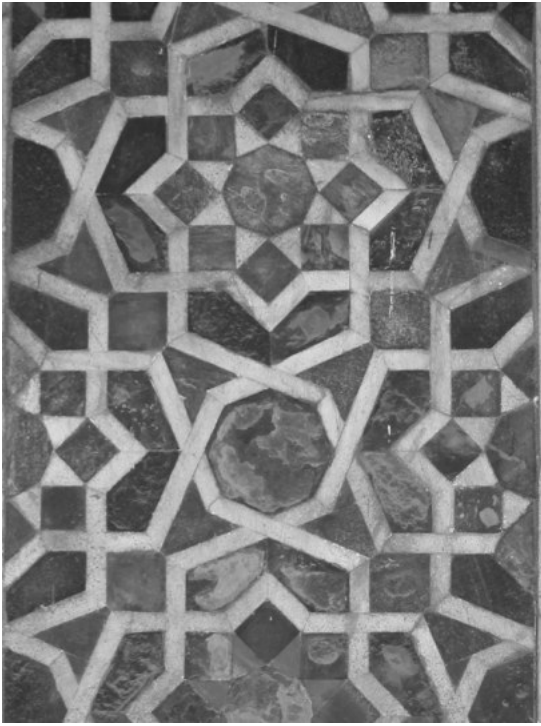


Both Cairo **Left:** Mausoleum of Imam Al-Shafi: mihrab; **Right:** Mosque of Sultan Al-Nasir Muhammad, with bedding remaining, but marble gone

variegated, some green, red, black, and white. But was the change from large sheets of matched veneer to small and intricate strips a sign of marble scarcity, or did it derive from a fashion? Is it possible that Islam turned to the example of similarly intricate strips in the ancient world, namely *opus sectile*? Because the arrangements that interest us were on walls, similar patterns of panelling have rarely survived (and floors are not comparable); but the carefully reconstructed hall outside Porta Marina at Ostia (Dunbabin 1999, fig. 281) could be compared with many Cairene examples, naturally with the animal panels omitted.

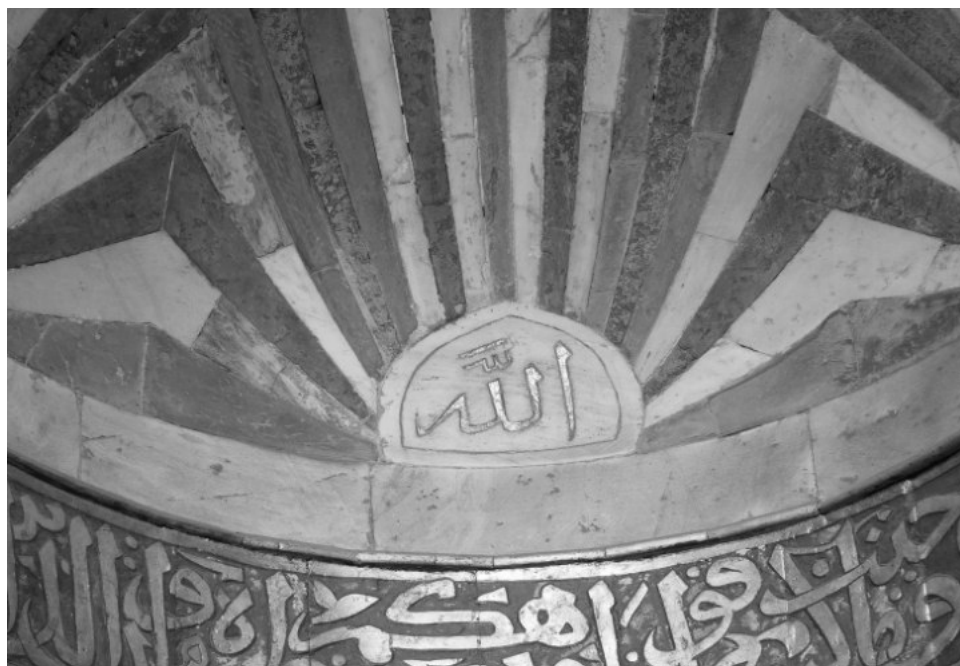
Examples to illustrate Ibn Khaldun's progression from large sheets of marble to miniature strips can be found throughout Cairo, where the Mamluks arrived late in the life of the marble craze. Amongst important structures, the Mausoleum of Imam Al-Shafi (1211) still has substantial marble wall veneers, and splendid marbles in its mihrabs. The same is true of the Mosque and mausoleum of Sultan Hasan, Cairo (1356-61), where the iwan walls have broad and narrow marble panels (cf. Harrell 2003, item 133 for a description). There is also a splendid mihrab, and marble panelling inside the mausoleum itself. When constructed, the main iwan was proclaimed to be larger than the great arch at Ctesiphon - *justly as it turned out, since someone took care to measure it* (Rogers 1978, p. 105); and surely such rivalry was deliberately built into the design. Similar splendour would also have been seen in the Mosque of Sultan Al-Nasir Muhammad, in the Citadel (1335), but its marble decoration was stripped by the Ottomans in 1517.

Far different is the majority of Mamluk monuments in Cairo, where finger-width strips predominate, and the decoration of mihrabs now uses pieces sometimes as small as mosaic

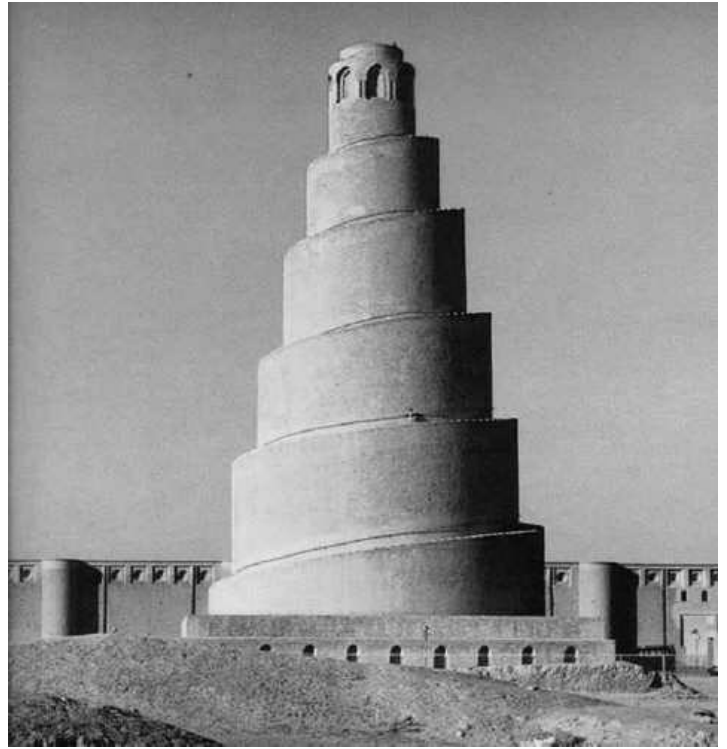
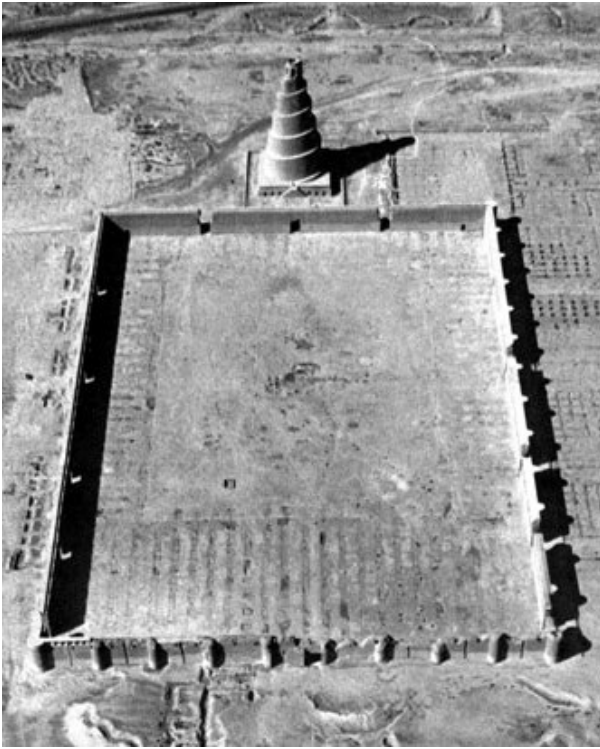


Both Cairo: **Left:** Mausoleum of Baybars al Jashankir **Right:** Mosque of Altunbugha al Maridani

tesserae seem in large-scale decorative designs, as in the mausoleum of Sultan Baybars al Jashankir, of 1307-10, or the mosque of the Amir Altunbugha Al-Maridani (1340), where the marble seems to be eked out with other materials. Ibn Taghribirdi (1976, SP17, p.41) relates that in 1416 the Sultan *compelled the administration of the government to provide excellent marble for his mosque; the marble was sought in every region, being taken even from dwellings, courts, and the places which were [known] as "houses of joy". From that day marble became scarce in Egyptian houses because of the extent to which it was required by the size and width of this mosque.*



Cairo, Mosque of Sultan Hassan: detail of mihrab



Samarra: Mosque of Mutawakkil and its minaret

7. Monumentality and Megalomania

Some of the great early basilicas of Rome - St Peter's, San Paolo fuori le Mura - were big; but most Christian buildings in the West between the 6th and 11th century had very restricted dimensions. Given even the large structures further East, such as Qalat-Siman (c.470ff), the twin complex of the cathedral and S. Theodore at Jerash (c.400, and 494-6), or S. Leonidas at Corinth-Lechaion (c.450ff), all of which might be viewed as structures-to-beat, the enormous size of many early mosques still comes as a surprise.

A passion for large structures seems to have been a tradition that started early. The foundation by 'Umar of Al-Kufah in AD 636/7 included a mosque which Al-Tabari (1989, p.69) states had a roof 200 cubits wide, *supported by columns of marble. Its ceiling, resembling the ceilings in Byzantine churches, was [taken from a palace formerly belonging/ to the Persian kings].* The columns were also spolia, since the Persians had a taste for marble, as when they sacked Amida in 502: *they also took down all the statues of the city, and the sundials, and the marble; and they collected the bronze and everything that pleased them; and they placed them upon wooden rafts that they made and sent them by the river Tigris...* (as described by Zachariah of Mitylene, in Maas 2000, p.291) Did the Al-Kufah mosque really look as Al-Tabari describes it, or was he reading it as things looked in his own lifetime (839-923AD)? Later in his text, he jumps a generation to the governorship of Ziyad, stating that the marble for the mosque came from Christian churches: Ziyad stipulated to his architect that *I want something higher than anything I have ever heard described*; at which the architect stipulated stone blocks quarried at Ahwaz, *pierced and hollowed out, then filled with lead and (held together by) iron bars, so as to enable you to raise the pillars made of these blocks thirty cubits into the air.* And when Ruzbih built an adjacent citadel, baked bricks were taken from a Persian fortress three miles away were used (ibid., p.72).

At Samarra, again, the Mosque of Mutawakkil (848-52; with its famous minaret) is 239x156 metres in an outer enclosure of 374x443 . Hodges & Whitehouse (1983, p. 151f.), giving a list of the palaces and mosques built there, point out the *reckless extravagance of the*

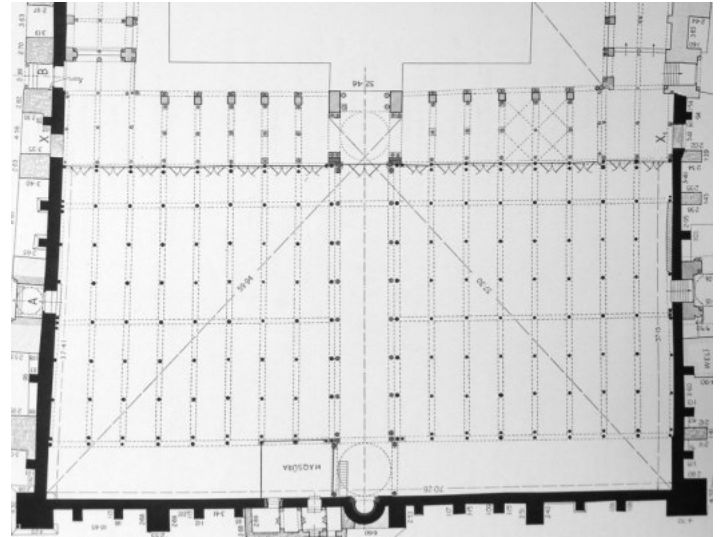
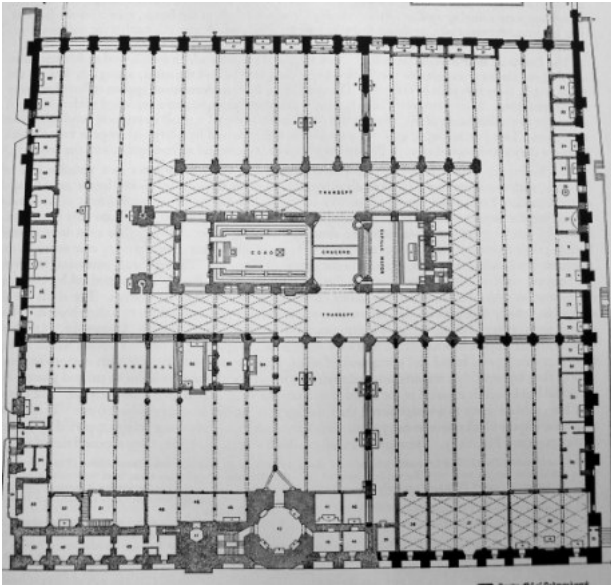
Abbasids who, in 46 years, built a city stretching for 35 kilometres (further details in Wheatley 2001, pp.278ff.). *The temple is finished - the country is ruined*, goes the SE Asian saying. As with the great Christian cathedrals of any period, there seems to have been no discernible relationship between size and congregation. Such buildings surely expressed the triumph of Islam - cf. the nearby Abu Dulaf mosque, built in 859 for the new city of Al-Mutawakkiliyya, the mosque being 214x135m, with an outer enclosure of 358x347m. It might be interesting to explore whether there was some element of emulation of large Byzantine structures in such mosques, even if misunderstood. Thus Ibn Rusteh, writing in the 10th century, describes (Miquel 1975, pp.422-5) the complex at Constantinople with a church at the centre (the Nea?), rich in marble and with the chancel supported on monolithic columns, and set in four courtyards each of two hundred by one hundred paces, one containing a marble fountain decorated with animal and angel sculptures. Close by is the palace, with (for example) a 400x200-pace courtyard, paved in green marble, and with the walls set with mosaics. Were such grand visions the yardstick by which marble-rich early mosques and palaces were conceived?



Cairo: Mosque of 'Amr

In various accounts, the perceived size of a building seems to have induced an exaggerated assessment of its features. as in the affirmation of Al-Waqidi (died 823) that the Haram Al-Sharif contained 1000 marble pillars and "in the roofs" 60,000 pieces of carved teak (Elad 1992, p. 36). Rome was a frequent focus for similar tall stories, said by the 10th-century Ibn Al-Faqih Al-Hamadani (1973, p.143) to contain 24,000 churches: *the vaults, walls, angle stones, columns and windows are monoliths of white marble*.

Extensible structure of mosques an invitation to megalomania: There is one feature of mosques that bears on our theme, and that is the fluidity of their internal arrangements, which leads to flexibility and extensibility in structure. A church once built is liturgically "fixed", and can be enlarged only by extensive work, such as lengthening the nave; alterations around the main altar, or subsidiary altars, are much more difficult. But a mosque is usually an enclosed courtyard with a prayer hall; the mihrab might be centrally located, together with a mimber, or there might be many mihrabs. But there is no fixed relationship between the courtyard and the prayer hall, and these changes make for the *elastic mosque* which can easily be extended - as for example the mosque of Amr Ibn Al-As in Cairo (641AD ff.). This underwent several extensions, eventually, by Creswell's computation, boasting no fewer than 378 columns. For Golvin (1970, p.29), Byzantine hypostyle halls such as the Constantinople cisterns could be a source for such forests of columns (and multiple churches such as the Pantokrator). To which we should perhaps add Roman double-aisled basilicas and similar churches, often visible in their ruined state as serried lines of adjacent columns, and easy to imagine in the mind's eye as a multi-aisled prayer hall.



Above: Prayer Halls of **Left:** Córdoba, the Mezquita, and **Right:** Kairouan: the Great Mosque;
Below: Córdoba, Mezquita: newly-carved Muslim capital (now Archaeological Museum)



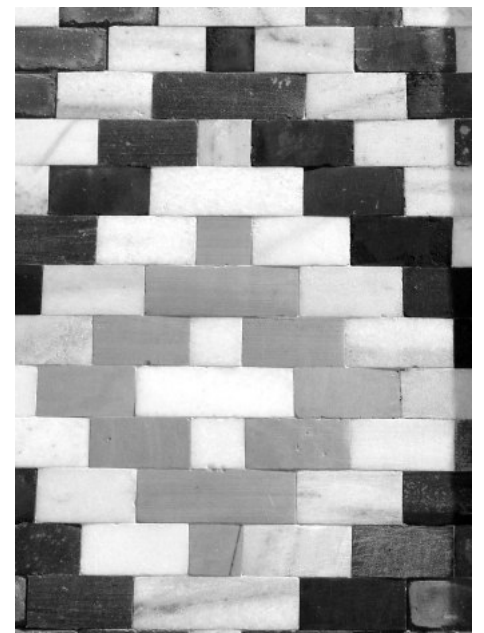
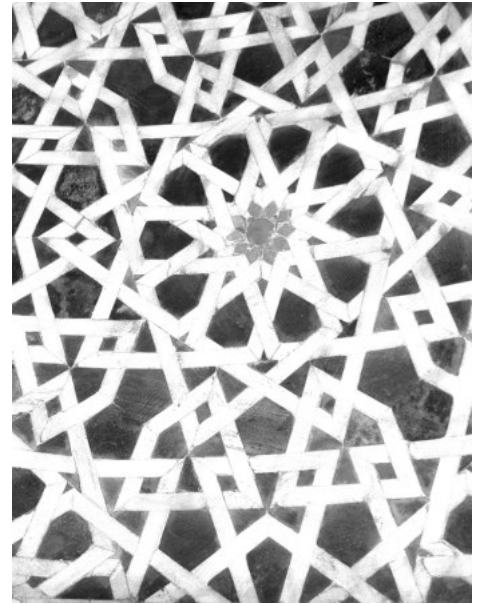
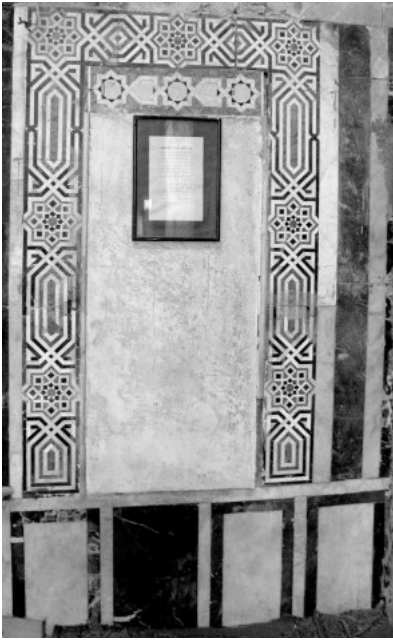
Growing populations might just have been part of the need for elasticity in some mosque expansions, but it seems much more likely that in the exceptionally large mosques a mix of triumphalism coupled with the dearth of hard-to-find architectural elements was responsible for a building program stretching over centuries, with extensions built as high-quality materials came to hand. After all, marble columns are no more structurally necessary for mosques than they are for churches - pillars perform the same task - so the use of marble is by choice. It may be that the Muslims were making sure that their mosque complexes were larger than any Roman or Byzantine models - whether churches, fora or markets—and with many more monoliths than appear in any of the great complexes at Rome, being rivalled only by the colonnaded streets in the Eastern Mediterranean - many of which they probably plundered for their columns. At least one Muslim was puzzled by the quantity of marble columns remaining in Rome, apparently because he did not understand the appearance of the buildings of which they had once been a part: thus Ibn Hurdadbeh, in the 11th century, notes that monks lived on top of 1,220 columns, in the Eastern fashion (Miquel 1975, pp.372-3).



Left: Córdoba: Mezquita arcading **Right:** Baalbek: mosque

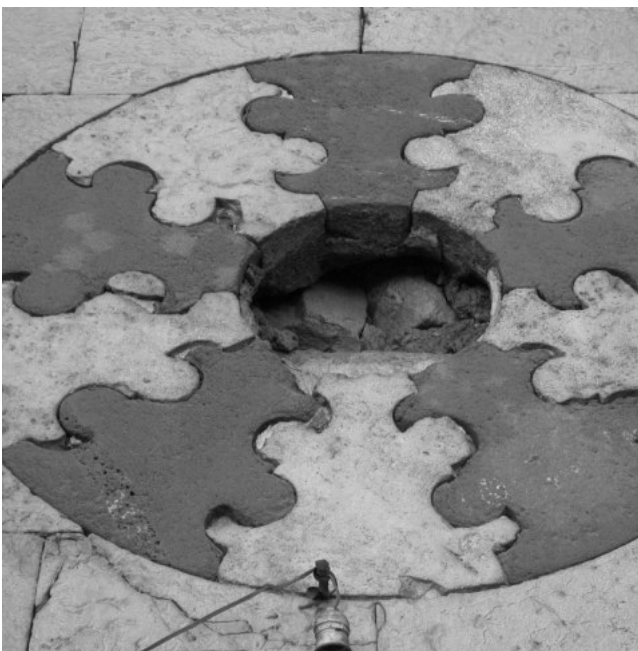
The Mezquita at Córdoba: Samarra boasts the two largest mosques of all (38,000sq.m. and 28,750sq.m.), both quickly built and abandoned; but it took 200 years to make of Córdoba the third-largest of all mosques at 22,250sq.m. - and very large numbers of spolia columns, carefully matched where possible (Ewert & Wisshak 1981, p.126), perhaps setting a fashion for the use of spolia in Mozarabic Spain (Noack-Haley 1991, pp.172ff. for catalogue). We may imagine that there was also Mediterranean-wide competition for columns of high quality, and that this also led to delays. For the Great Mosque at Córdoba seen here in Creswell's plan, for example, the first source after the Roman buildings of Spain might be thought to have been North Africa - but across the straits competition was also keen for columns, as shown by the Great Mosque at Tunis, the columns for which probably came from nearby Carthage. Or had some already gone perhaps to Córdoba by the 9th century, when this mosque was first extended? Further East, Kairouan also used large quantities of spolia, including columns, of which el-Bekri, writing in the later 11th century, counted 414 (el-Bekri 1993, p.55). The source-site for the Kairouan columns was probably *Sabra*, whence, according to tradition, the columns (of onyx, marble and porphyry) for the Kairouan mosque were extracted - 205 columns for galleries in the courtyard, and 244 in the prayer hall (in all, 525 spolia capitals in the mosque are catalogued). Has Sabra ever been dug? Certainly, the Ibrahim Ibn El-Aghlab Museum near Kairouan displays objects from the site, and also from Raqqada.

Competition for scarce high-quality spolia might explain the stages in which the Great Mosque at Córdoba was built. In 785-6 Abd ar-Rahman I built 11 arcades of 110 columns at Córdoba; Abd ar-Rahman II added eight more arcades in 833, and Al-Mansur doubled the mosque's original size in 987-8. It is known that there was a crisis in Islamic shipping in the Western Mediterranean (Citarella 1977, p.201f.) from about 750AD for a century or so - which could help explain the delays in further extension - just as the decline in Islamic trade after 1100 (Issawi 1970) could help explain both an increasing marble shortage and a decline in the number of large projects everywhere except Istanbul and Edirne. Martosa (1985), for example, catalogues 84 Corinthian capitals at Córdoba, and 72 still at Merida, with excellent examples from Itàlica: so was Merida too far, and Itàlica not uncovered?



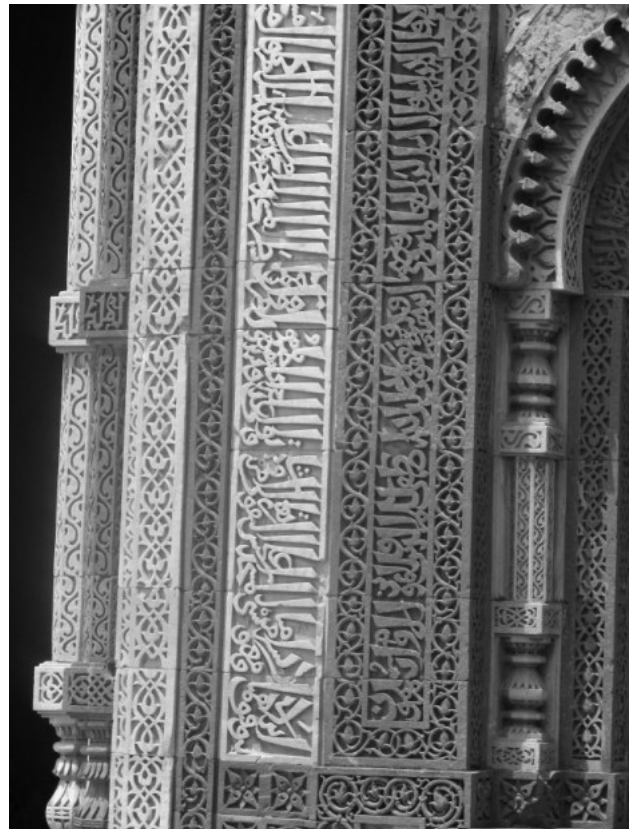
Top Left: Cairo: inner entrance to Mausoleum of Imam as-Shafi; **Top Centre:** Damascus, Minaret “of Jesus”; **Top Right:** Cairo: Madrasa-khanqak of Al-Ghuri; **Right:** Sikandra: Mausoleum of Akbar;

Bottom Left & Right: Damascus, Mausoleum of Hassan, where the structural “jogged voussoir” motif at the entrance (**left**) turns into a pattern (**right**) as façade decoration—but, as with the Minaret of Jesus, executed in depth (as can be seen at the centre of the roundel). The other patterns on this page are just that—on the surface.



Christians as well as Muslims were in search of high-quality columns while the Mezquita was being extended. The crypt of Saint Germain at Auxerre (c.870 AD) was designed in wax by the architect, and then columns and capitals were sought from Arles and Marseilles (Hahn 1997, p.1102 & note 181). Similar care was exercised at Córdoba for matching columns, which might therefore also be explained as a deliberate (and perforce lengthy) quest for the very best. Surely all great buildings are thus painstakingly specified, as are the great Imperial mosques of Istanbul. We might also wonder whether the Renaissance vogue for drawings of antique architectural members, with the measurements noted, was not often part of a continual search for useful pieces of the correct size (if whole), or for sawing up (if fragmentary), rather than any disinterested pursuit of abstract knowledge.

The techniques used to unify spolia columns of different heights are analysed by David Kuhrt (1997), and can be observed in any spoliated church or mosque. Heightening columns with arches was not unique to Córdoba: cf. the mosque at Baalbek (using the only columns *small*



Delhi, **Left:** Qutb Minar (supposedly the highest early Islamic structure after a minaret of the Sultan Hassan, in Cairo); and **Right:** 'Ala'i Darwaza of the Quwwat Al-Islam Mosque

enough), and those *fragmentary*: see Vogt-Goeknil (1982 *passim*) for antique and Christian sources for the technique, and later Islamic variations. And if such columns were shipped in the later 10th century it was probably without Western help: Lopez & Raymond (1967, p.334) print a document of 971 from Venice forbidding ship-building wood to be sold to the "Saracens" (and cf. Heyd 1885, p.113 for the context). But Christians were still selling wood for ships, and arms with which to fight Crusaders, in the time of Saladin (Heyd 1885, p.386) - so probably columns as well.

At Córdoba, probably because tall columns were so scarce, the Muslims raised their building on stacked arcades. This device seems to have had little to do with Roman aqueducts, as is sometimes claimed, and was in any case decidedly un-Roman: to erect a column as second storey to a pillar is much more "logical" than the converse, as can be seen in plenty of



All Delhi: **Top:** Jami Masjid, 1644-58: veneered entrance to prayerhall; **Bottom Left:** the same: marble “prayer rugs” in the hall; **Bottom Right:** Red Fort, Diwan-i-Khas 1639-48

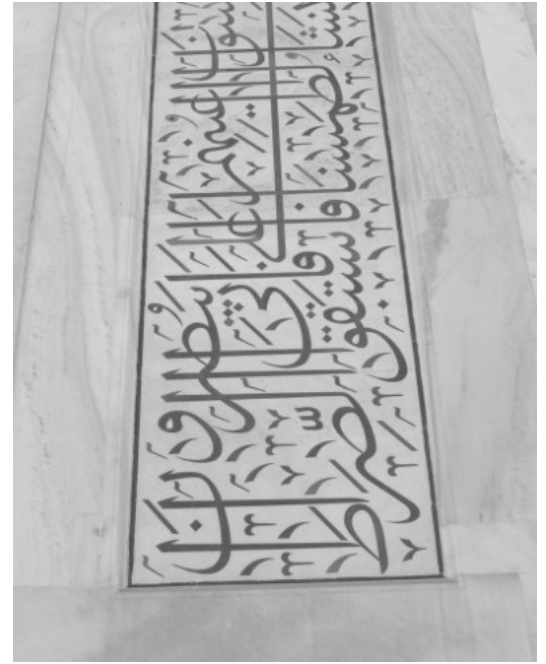
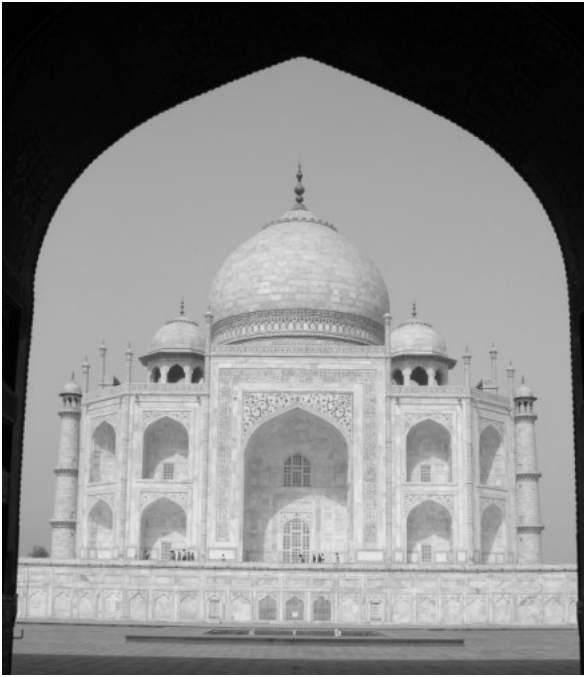
mediaeval churches. But the columns were surely at eye-level to be admired, rather than hidden above the range of the lamps in this large and gloomy space - the more so if these were bronze vessels made from melted-down Christian bells (Al-Makkari 1840, p.41). Could the forest of columns perhaps have been a response to large four-aisled basilicas such as Old St Peter's, with its 100 free-standing columns to nave, aisles and transepts?



Delhi: Ghiyath ud din Tughluq's mausoleum

8. Monumental Inscriptions

Goitein (1977, p.180) has noted that Islam developed as *an exceedingly bookish civilization*. Woven inscriptions in luxurious textiles were the probable source of the European craze for pseudo-Kufic letter-forms. But if further proof were needed of Muslim adoption of classical forms, then the use of monumental inscriptions (in both senses of that term) in red-brick, glazed tile, stone, mosaic, stucco or marble on the exterior of their buildings (plus wood inside) by that other *people of the book*, the Muslims, is excellent evidence of a continuing tradition with variations in material. These were used to enhance the meaning of great buildings from mosques and minarets to schools and hospices, with a strong but not exclusive focus on Koranic inscriptions, the extent and locations of which have been carefully charted by Dodd & Khairallah (1981). The Romans almost invariably used marble as the support (in what has survived), but Islam was both much more varied and - a direct follow-on from the megalomania section above - frequently executed inscriptions far larger than anything the Romans ever contemplated. They were also bigger than anything in the mediaeval West, where the largest known seems to be about 30cm high, albeit in gilded copper alloy, and imitating Roman practice (Mitchell 1994, p.918). Indeed, Goitein also concedes a bookishness to late paganism and early Christianity - so it remains a mystery why the "inscriptional uptake", as it were, was strong in Islam but not in the Christian West. We might reasonably suppose that inscriptions bulked so large on Islamic architecture because it wilfully eschewed the "messaging" that figurative art in all media could supply; and it might



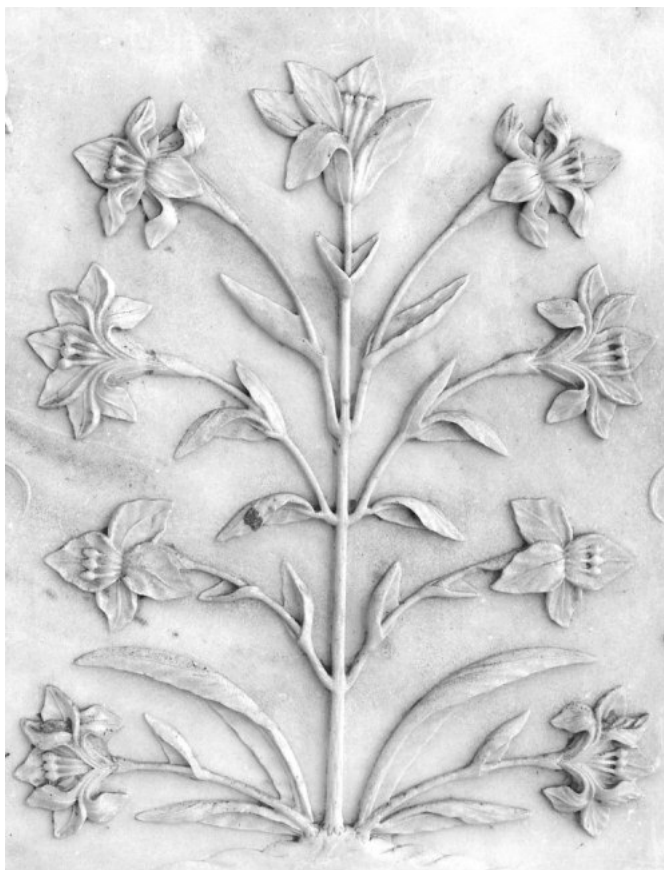
Both Agra: **Left:** Taj Mahal from the mosque; and **Right:** inscription flanking the entrance

Also be the case that Islam was more literate than Christianity in its early centuries - although evidence of pseudo-inscriptions (Aavani 1968) can give pause for thought. In other words, and in contradistinction to the God made Flesh of Christianity, *since a link with God was vouchsafed to man through His Word the way to acknowledge His omni-presence was through the eternal image of His Word* (Dodd & Khairallah 1981, I, p. 3).

Later Muslim travellers around the Mediterranean, knowledgeable about things Roman, often noted inscriptions on monuments as proof-positive of their antiquity. And they must have noted large inscriptions on the interior of early Byzantine buildings such as S. Polyeuktos in Constantinople (but ever on the *exterior*?). So did Islam learn from Byzantium and Hellenism as well as from Rome?

Some utilitarian structures such as walls and gates highlight their inscriptions by their very plainness. Cairo's Bab Al-Futuh has a 59-metre inscription carved in relief in marble, and held in place by gilded bronze nails (Blair 1998, p. 75). Inscriptions in fortification walls have a very long history, and the Muslims may well have known Greek as well as Roman examples (cf. Maier 1959 & 1961).

But some Muslim buildings are so highly ornate inside and out that it is difficult to avoid the delicate term *decoration*, although in using it we must acknowledge both the use of elaboration as perhaps some substitute for figural sculpture (also the case in the West until ca.1000AD), and at the same time banish the implication of triviality or inferiority that so often attended the notion of *decorative arts* in the West. Thus a mosque is not *decorated* with phrases from the Koran: rather, the monument and its monumental inscriptions enhance the meaning of the building - a task beyond that to which decoration is usually relegated. Khaled Asfour (1995) explains the decorative programme of mosque façades, prayer halls, mihrabs and minarets as follows: *when the viewers were attracted by the contrasting colours of marble, the floral motifs or geometric patterns, they were in the process persuaded to read and appreciate the inscriptions attached to them. They would have been further persuaded by the aesthetic of the stylized calligraphy on a background of floral design. Advertising, in this case, depends on the beauty of executing art.* This is a modern rationalisation, but could it be supported by early texts?



Agra: **Left:** bas-relief on the Taj Mahal; and **Right:** inlay in the Muthamman Burj in the Fort

The first surviving Islamic "display" building, the Dome of the Rock, has a 240-metre-long triumphalist inscription inside and out, and it might be difficult to find *any* mediaeval mosque devoid of inscriptions of various sizes (the prayer hall at Damascus had one right around it, now lost: Golvin 1970, p.135). Some of the largest (over two metres in height) are on the 72-metre-high Qutb Minar in Delhi (1202-early 14th century), with a complete marble storey (and another inscription; plus, according to Ibn Battuta, a ball on top of *glistening white marble*) - though earlier minarets further West (e.g. at Jam: 1153/1203; or Damghan: mid-11th century) also have large inscription-bands. Like its mosque, the Quwwat-ul-Islam, which is nearly all spolia, but sandstone, not marble, is a tower proclaiming Islamic victory over Hinduism. Its marble storey is consonant with the entrance gate to the mosque, where the sandstone structure is attractively fitted with myriad inscriptions in white marble, which must add up to well over 100 metres running length for the whole of the building - a much greater *literature* than the Romans ever attempted - and which we can double if we include the adjacent decorative friezes. And just like the large inscriptions on buildings in Syria (such as the mausoleum of Kheir Bey in Aleppo, and the enormous ones high up on the Qutub Minar), far from being "mere decoration", these were intended to be *read*.

The 13th-century Delhi sultans were far too restrained to make buildings entirely of marble (although Ghiyath ud din Tughluq did venture a marble dome on his mausoleum (c.1325) to match the string course and decorated panels on its walls—a typology perhaps with Seljuk sources. Not until the 17th century, with the Taj Mahal, do we find what is surely the only twenty-storey-equivalent building made completely of marble. By its side, a Roman marble triumphal arch would look miniscule if not humble. But because of such unwonted lavishness, a new problem presents itself inscription-wise at the Taj Mahal. For an inscription to be visible, it must cast a shadow either by being incuse (like Roman inscriptions), or by standing proud and being deeply cut, as at the Qutb Minar gateway, "focussed" by its sandstone setting. But this could not work with the (at times dazzling) whiteness of the Taj -



Left: Canosa di Puglia: Tomb of Bohemund



Right: Pisa: captured Fatimid bronze griffon

so the inscriptions share the *opus sectile* modality of the decorative inlays, and are incise inscriptions picked out in black marble. In the fort at Agra, decorative marble inlays also run riot, as in the Muthamman Burj.

Islamic confidence contrasts starkly with Western reticence. There were indeed small-scale inscriptions used in the mediaeval West (on reliquaries and in manuscripts). Without indulging in arguments *ex vacuo*, it is surprising Charlemagne did not use more grand inscriptions, given the loving delineation of lapidary capitals in his manuscripts, not to mention Einhard's triumphal arch-like cross-base. Romanesque architecture in Provence (nominally a resurrection of elements of Roman buildings in a region that included inscribed triumphal arches) also avoided them - and any modern PR consultant or mediaeval mosque-architect might have coaxed the Pisans away from the miniscule and incidental inscriptions on the façade of their Duomo, in favour of the mosque-as-billboard model suggested by Asfour (1995, with a subheading *Advertising for social health in mediaeval Arab cities*) for the propagation of the faith (or of jihad: Taabaa 1986) or of Pisan triumph. Indeed, it was left to Leon Battista Alberti, who seemed to have reinvented the Roman inscription for his refacing of the Tempio Malatestiano (1449ff.), in Rimini, and to have done it in part by studying manuscripts.

9. Marble Madness in Islam and the West

The overwhelming thirst for marble was a near-disease inherited from Rome and Byzantium and shared by Muslims and Christians alike; and the desire must have been assuaged by searching for suitable materials all around the Mediterranean. In the West, church building lessened in extent and scale from the 5th century until the 11th, conveniently leaving large-scale spolia collection to the Muslims. But we are badly informed about building (and hence about the use of spolia) in the West within this bracket, because it seems likely that much



Left: Monreale: fountain in the cloister; **Right:** Pisa: the Leaning Tower

Romanesque building activity dismantled earlier (and certainly smaller) churches and re-used their spolia, sometimes no doubt with extensive additions (surveys in Garzella 1990; and Redi 1991, pp.347-93). The mediaeval West knew about Islam from travellers' accounts, trade, imported artefacts (principally ceramics, textiles, luxury goods) and of course through war (overview in Cardini 2001); but much is to be discovered about Islamic influences on Romanesque architecture (survey in Grabar 1975). The Islamic takeover of much of the Iberian peninsula (and their thrust into present-day France, only to be halted at Poitiers) ensured for centuries an Islamic flavour in Iberian art and architecture and further north.

The Crusades were a great religious and commercial enterprise, with plentiful artistic and architectural spinoffs. It is surely no coincidence that two states involved in *both* commerce *and* crusading, namely Pisa and Venice, developed marble-rich styles in the 12th and 13th centuries respectively which were new typologies larded with a few Byzantine but many Islamic motifs (although the source of motifs seen in Islam and the West is contentious: cf. summary in Gioseffi 1973). It is surely no coincidence that Pisa was a city with many foreigners, as the poet Doniso, writing in 1114, complained (Lavoix 1877, p.28; and cf. Heyd 1885, pp.50-1): *The banks of this city are littered with pagans—Turks, Libyans even...* If we cannot judge *why* such splendid ensembles were put together, travellers sometimes made usefully invidious comparisons between Islamic and Christian buildings. Rabbi Moses Bassola of Ancona ((died 1560; Lewis 1939, p.182) wrote that the Umayyad Mosque *is a marvellous building. The inner court is twice as wide as San Marco. The paving blocks are all of shining marble, and around it are colonnades with huge pillars, some of them gilded.*

Closer to home, traders and diplomats would surely have been amazed by the richness of palaces such as La Zisa, Palermo (1165ff.); and the splendid Tomb of Bohemund (died 1111) at Canosa di Puglia places a Near-Eastern (not Byzantine) tomb-type in southern Italy (albeit with pseudo-Kufic rather than meaningful Kufic lettering). This is the only example I know in the mediaeval West of a completely marble sepulchre - so it was perhaps derived from the style of the mausolea of Muslim saints, and not necessarily designed by a Western architect.

The Leaning Tower of Pisa, its marble-covered cathedral, and the façade of St Mark's, Venice, are so familiar that few people stop to think how unusual these buildings really are. If layout and internal decoration of the Duomo at Pisa and St Mark's at Venice can be



Both Pisa Duomo: **Top:** Exterior east end, with spolia columns; **Bottom:** Interior, nave from north aisle, with spolia granite monoliths

adequately explained as developments from Roman or Byzantine styles, this is decidedly not the case with their exterior. For in Pisa, her rival Lucca, and Venice, one common characteristic of church exteriors is the superfluity of small columns (often supporting arcades) which decorate the façades, and also invade the strangest building of all - the leaning Tower.

The following sections explore the likely impact of Islamic decorative motifs on these structures in order to demonstrate the symbiotic relationship between the various competitors in the re-use and display of marble.

Pisa

Megalomania was infectious—an extension of civic pride, provable in cathedrals the length and breadth of Europe. Is it conceivable that the large Christian churches built after the Millennium were inspired in their often grand sizes by Islamic example, as well as by the Christian basilicas of Rome? Whether or not this was the case, the West went for *taller* internal spaces supported on granite (generally) or marble (sometimes) columns of a larger size than we find used in mosques. We might reasonably see the Pisan upsurge as triumphalism not just vis-à-vis Islam, but also because of the growing importance of northern cities in trading with the Levant, due to the decline of cities such as Salerno - with a member of the latter's Pantaleone family de-camping to Pisa (Cahen 1977, p.281). Thus the Pisans sought large columns for their baptistery, and presumably designed it around them: in 1159, six of the granite columns (apparently in two shipments of three each) were brought from Elba, to be followed in 1162 by three more from Sardinia. (cf. Marangone (*Annales Pisani* for 1159, in *RIS* 6.2, 18). And from Sardinia in 1162 came another two: (*which Fortune brought by wind and sea to Portus Veneris, and thus ... were conveyed in great triumph up to Pisa*). In 1164, all eight were set in place. The reference in all three accounts above to *big columns* might suggest that small ones were plentifully available closer to hand - although the phrase *fortuna venti et maris* in the second asks us to see the transporting itself as heroic. Note that it took the Pisans nine years to fetch nine columns, all of which were erected in 1164. The nave of the cathedral itself is also endowed with similar (but far from identical) granite columns, with classical bases and some antique capitals - an *ensemble* suggesting one-upmanship over the much smaller columns in any of the churches of Lucca or Venice - or any surviving mosque. We can ignore the few large granite monoliths in Cairo mosques and madrasas (e.g. Sultan Barquq), which surely did not travel far to their final destination

Of course, small columns were easier to transport and manipulate, and the Luccans and Pisans might well have imitated Córdoba by (unclassically) superimposing pillars on columns inside their churches. Instead the West in the Romanesque used colonnades or arcades at ground and upper level(s) - so that the effect inside Pisa Cathedral is of a vertical gigantism unmatched in Lucca or Venice, let alone in any mosque.

Pisan triumphalism is defined by three structures on the Campo de'Miracoli, namely the Duomo, and its free-standing baptistery and campanile. The Duomo was begun in 1064, consecrated in 1118, and lengthened sometime between 1150/1200. Rainaldo built the lower part of the façade, Guglielmo (who made the first pulpit 1159-62 for the Cathedral, now in Cagliari), the upper section. Bonanno made bronze doors for the façade in 1186 (destroyed in the fire of 1595). The Pisans were very conscious that their Duomo was exceptional, and its interior is replete with large antique monoliths, capitals and bases. Through Buschetto's inscription on the façade, they boasted of the Duomo's columns and marble: if Daedalus' Labyrinth was black, he has provided a temple of snow-white marble - *exemplum niveo de marmore templum*. But where did the marble (and granite) come from? The *Liber Maiolichinus* tells of the 1114 Balearic Expedition to expel the Saracens, that gave plentiful



Both Pisa Duomo: **Above:** Duomo façade **Below:** inlay from the façade (now Opera del Duomo)



booty, apparently including some porphyry columns given to Florence (Heywood 1921, p. 68) - a city which remained alert to Byzantine opulence and porphyry in the time of the Medici (Butters 1996I, p.44ff.). Villani says that in 1117 the Pisans in fact offered the Florentines a choice of bronze doors or two porphyry columns, the allies choosing the latter (Villani, *Istorie*, 4.30). The *Gesta Triumphalia*, (*RIS* 6.2, 94) lists *spolia too many to number*



Pisa Duomo: mosaic inlay at the east end

*divided between them ... vestments and silver vases as well as ivories and crystal and indeed regal and splendid ornaments; but no marble. So did the Balearics yield any marble as well as porphyry spolia? Or did the Pisans start perhaps stripping Alexandria etc at the same time as the Mamluks? In the *Annales Pisani*, in 1169 Aymer the King of Jerusalem hearing the Saracens had set out with a large army to capture Babylon and Alexandria arrived with a huge army. The Pisans helped with their galleys and archers, captured Byblos and Tyre [et Balbesem et Tenesem civitates], and took from these an infinite amount of spolia. The façade is a riotous superimposition of arcades of very small columns which, like those of Lucca, are called by Demus *protorenaissance* (1960, p.101), but surely the argument is flawed by the use of such an elastic term. There are simply no "renaissance" buildings with so many superimposed arcades, let alone with trilobe arches. A better direction to explore would be a growing dearth of large columns by the 12th century, necessitating the development of a new decorative convention seen also on the Leaning Tower. From this angle, façades and Campanile are "display-cases" of triumphalist spolia - of columns of no structural use, but often considerable beauty. Extravagance often requires uselessness, a function of superfluity.*

The Pisa Duomo was very influential, imitated in the churches of Lucca: San Michele in Foro was begun c.1143, but there is no clear date for the façade. It is similar in style to the façade of the Duomo: this, at least in its upper parts, appears to be by Guidetto da Como, who signed one of the loggie in 1204. So might it have taken two generations to collect sufficient spolia columns to complete these façades?

The Leaning Tower is the most famous structure in the city. Begun in 1174, halted at the third storey for a century, re-begun in 1275, the bells were finally installed in 1301. Subsidence problems certainly were one cause for the building halt, but did the Pisans also experience a shortage of columns with which to continue the work? So familiar is the Tower that few realise what a strange building it is - unparalleled (except for its shape) by surviving belltowers in the West. Tantalisingly, Al-Bakri reports a minaret two miles south of Kairouan built early in the 9th century, cylindrical and of brick, and decorated with columns disposed in seven stories (cf. Golvin 1974, p.129). So is this where Pisa got the idea from? Umayyad Spain is one cogent suggestion (Priester 1997), given the rarity of monumental belltowers in Italy before the Romanesque. But is it co-incidental that the Tower also has seven stories of



Left: Pisa Duomo: south flank



Right: Istanbul: Tekfur Saray

arcades (the lowest being blank arcades) with a smaller "hat" on top? Since Pisa probably got the columns for cathedral and campanile from raids into North Africa, especially the Mahdiya raid of 1087 - and Kairouan is about 100km inland from Mahdiya as the crow flies - then we may assume that they knew not only about the (long-gone?) minaret, but also about the mosque at Kairouan itself. Tedeschi Grisanti (1999) has established that at least some of the spolia for Pisa came from Rome; but the majority were presumably scavenged by the Pisan navy throughout the Mediterranean, brought back as ballast just like the sarcophagi which once ornamented the exterior of the Duomo.

Sources of Pisan war booty: The source of the Baptistery monoliths is on record, but where did all the other columns and capitals come from? Pisan raids to North Africa are celebrated in the *Liber Maiolichinus* and the *Carmen in Victoria Pisanorum*, and the Pisan church of San Sisto is traditionally believed to have been erected in 1087 to exult the victory over Mahdiya - an *extremely beautiful church* because erected with money obtained through booty from North Africa (cf. <http://www2.alfea.it/DOC/adu-023/paragrafo3.html>). It would be tidy to believe that the Great Mosque of Mahdiya (today much re-handled) was stripped of columns and veneers by the Pisans. There is no hint in the sources that *marble* was brought back from this nest of trading pirates - only that the booty generated provided funds for the building. However, given the location of San Sisto in the supposed Roman Forum, and at main crossroads, the church's use for important city assemblies helps confirm it as a monument to a war triumph: (cf. <http://www2.alfea.it/DOC/adu-023/paragrafo1.html>); a further connection with Islam is the mihrab-design tombstone in the church, of the Saracen Abu Muhammad abd Allah ben Ayan, dated 28 January 1385 (cf. <http://www2.alfea.it/DOC/adu-023/paragrafo6.html>).

So that visitors could be in no doubt about Pisan triumph over Islam, the trophy which caps it all (literally and figuratively) is the bronze griffon, prominently placed on the east end of the cathedral (the original is in the Museo dell'Opera del Duomo) and, on its high column well proud of the main structure, evident to anyone approaching the Campo deMiracoli along the main approach from the city, the Via S. Maria. Opinion today seems to put it as Arabo-Hispanic, and it might have come to Pisa in the early 12thC, with the Balearic War (1113-15) being a possible vector (Baracchini 1993, pp.143-4). This is also the probable date for the plutei in the Opera del Duomo (*Rainaldo e bottega*), which look so Islamic.

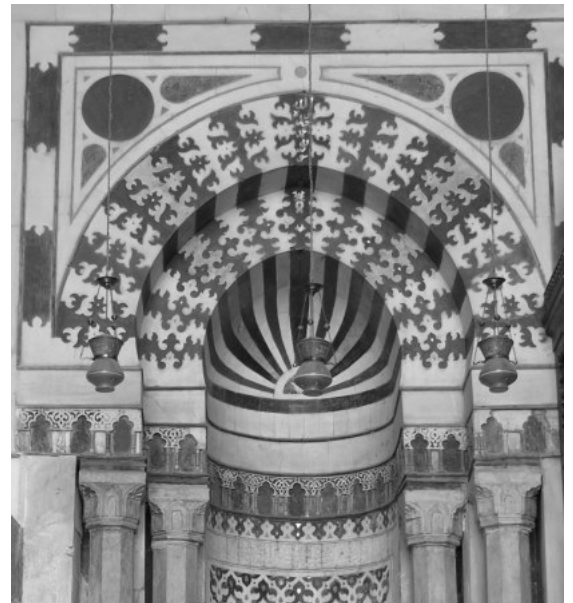
Another question is the origin of the Pisan and Luccan use of alternate courses of marble and limestone (or different colours of the same stone), giving a banded effect. This is a device unknown in Greek or Roman civic buildings, but seen in Hellenistic city walls, such as those



Lucca: façade of San Michele

of Ildir/Erythrae, part-excavated by Akurgal. This lies on the shore opposite Chios, on the seaward side of a neck of land looking onto the Gulf of Smyrna - so easily accessible by Western traders or warriors. The walls, some 1.5km from the village of Ildir, stand in parts to about five metres. They are mostly constructed of an attractive purplish-grey blocks, striped with white limestone; but inventiveness offers one stretch with horizontal strips, and another where the stretchers are white, and the headers purple-grey. Again, the 12th-century (?) Byzantine palace of Tekfur Saray achieves a similar effect by banding in stone and brick, as well as using decorative tile and stone diapering between the arches. Comparable work may be seen on the south flank of Pisa Cathedral; and more elaborate marble inlays animate (Lucca S Michele: façade) and inanimate (Pisa duomo: south transept) are a hallmark of Romanesque Pisa and Lucca. Islamic writers sometimes remark on similar arrangements but the comments suggest the style must have been rare: the El Qasr el Abluq at Damascus has *walls covered with black and yellow stone, a course of one, then a course of the other, a layout realized with extraordinary skill and following a marvelous design* (Gaudefroy-Demombynes 1923, p. 45). Chihab ed Din notes that the citadel at Hama is also built of stones of different colours (Gaudefroy-Demombynes 1923, pp. 106). Conceivably the style was borrowed from Armenia (Novello 1986, plates 66 & 70). Something similar existed in the Citadel at Cairo, where the Qasr Al-Ablaq (1315) was famous precisely for its black-and-yellow *ablaq* [i.e. banded] courses of stone—a popular style in Syria and Cairo.

A plausible reflection of interest in the Islamic world is the explosion of *opus sectile* work in Pisa and Lucca - although we must not ignore the profusion of geometric patterns on mosaic floors of Antiquity, such as the 2nd-century AD sixty-square-metre floor at Saint-Romain-en-Gal (Dunbabin 1999, fig 77). Extravagantly columned façades have as their complement patterns and figures as running friezes set into the marble in different colours (with various marbles and other stones) which had not been seen before in the West - even in Roman times. This is clearly a display of skill, and the technique is arguably Islamic, developed to extravagant lengths by the 13th century by Muslims and Christians because large sheets of marbles (let alone whole large columns) were increasingly scarce.



Top: Cairo, Northern Cemetery: the mausoleum of Sultana Qa'it Bey; **Bottom Left:** Rome, Palazzo Massimo: opus sectile fragment, 2ndC AD, possibly from the villa of Lucius Verus; **Bottom Right:** Cairo, Madrasa-kanqah of Sultan Barquq: detail of the mihrab in the prayer hall;



Aleppo, Citadel: jogged voussoirs

***Opus Sectile* in Pisa and the East**

Opus sectile is very different from mosaics which use much more economical, and uniform, pieces of small marble and other material - *tesserae* (overview in Dunbabin 1999, pp.254-68).

Not much *opus sectile* works survives today from ancient Rome or Ostia, but there is still a lot in North Africa, where the greatest profusion of mosaics are also to be found. Splendid examples are to be seen at Utica, in the Maison de la Cascade, Triclinium XIV and Room XXXIV, and in courtyard IV of the peristyle of the Maison de la Chasse (Alexander & Ennaifer 1973, cats 27, 59 & 84). The floor from House H, Triclinium XXVI has been separated from its foundation layers, restored, and placed in the museum (ibid., cat. 138). Two of these floors (cats 59 & 84) are in re-use, so we might ask whether there is evidence of such antique floors being re-used by Islam? To prosecute such a study would require Islamic floors which have not been replaced or, for preference, Islamic marbled walls which echo the range of designs to be seen in antique *opus sectile*.

Although the transition to Islam from the luxurious use of this technique on Roman floors and walls is obscure, another starting point is the skill displayed by Islamic craftsmen in developing ever-more-elaborate jogged voussoirs in marble. These seem to derive ultimately from later Roman fashion (e.g. Mausoleum of Theodoric), and something similar is to be found in Armenia (cf. Novello 1986, 43) but the technique became almost *de rigueur* throughout Islamic architecture, as can be seen all over the Islamic world in many elegant versions, such as in the citadel at Aleppo, the mausoleum of Sheikh Hassan or the Madrasa az-Zahiriya built by Baybars (1277) at Damascus; and in Cairo, for example the entrance to the mosque of Al-Salih Tala'i (1160), or on the west doorway of the large mosque of Sultan Al-Zahir Bibars (1266-9). Thus from a late-Roman source, Islam developed a use of marble which was truly original, and was not to be seen even in Christian Romanesque architecture, when influences from Islam were at their height. Luccan usage of fretworked marble (for example on the façade of San Michele) was similar, and conceivably derived from Islamic ivory caskets, which were very popular in the mediaeval West, and sometimes made for the Western market. Such "islamicization" parallels the use of *bacini* from the Islamic world on Pisan churches, for both introduced a vocabulary of fabled beasts and geometrical patterns and knots from the fabled East. Mateo (1998), examining islamicising church towers in Aragón, makes the case that the inspiration for ceramic decoration there came from the Seljuks and from Iran, *not* North Africa—so perhaps we should also look further East for the sources of similar Pisan and Luccan decorative styles.



Above: Damascus: Madrasa az-Zahiriya; **Below:** Cairo: The mausoleum of Sultan Baybars al Jashankir (1307-10)





Top left: Cairo, Mosque of Ibn Tulun, mihrab, 876-9 AD (and later?); **Top right:** Aleppo, Madrasa Al-Firdaus, mihrab, 1236-7; **Bottom:** Syria, Bosra, Mabrak Mosque: the plain parble mihrab in what is traditionally the earliest mosque in Syria. Extending this monograph to Iraq would pull in some interesting blue-marble Seljuk mihrabs. Al-Janab (1982, pp.169ff., 211 ff., 249, 253-4) lists these, notes the “porosity” between work in stucco and marble, and remarks on the likelihood of Christians and Muslims working together in Mosul, with its large Christian population.



All Venice, S. Mark's: **Above Left:** the tetrarchs; **Above Right:** one of the "pilastri acritani"; **Bottom of page:** marble window grills on the west façade.

Why so many examples of jogged voussoirs in marble? Probably because of the skill demonstrated: a fretsaw could be used so that negative/positive interlocks could be formed without waste (assuming, of course, pairs of identical matching joints dispersed about a structure). But why did such jogged voussoirs come into use just when marble was getting very scarce? Or was this just a development from simplicity to complication? As an example, see the startlingly intricate lintel to the mausoleum of Baybars (Cairo, 1307-10).

Noting the argument that the pietra dura work of the Mughals was in fact Florentine-inspired, we could turn the question around, and ask whence the Florentines got their taste for the technique? *Opus sectile* is one probable source, since the Opificio delle Pietre Dure and its patrons often needed spolia stones in order to operate. The examples given above provide a distant Islam-derived heritage for the Opificio, but this workshop usually dealt in semi-precious stones and rare marbles for interior rather than exterior display, as in the later 16th-century Cappella dei Principi in Florence. Given the extensive 16th-century Western contacts with the developing luxuries of Ottoman Istanbul, and the continuing Islamic threat to Western territory, possessions and trade (the Battle of Lepanto in 1571 being far from the last of their predations), it would be reasonable to explore the development of pietra dura in Italy (Florence and then Rome) as another artistic match for Islamic triumphalism. Such triumphalism was long-lived: the continuing Pisan concern with Islamic incursions is today displayed in the church of San Stefano dei Cavalieri, with ceiling-paintings dedicated to Lepanto, and several Islamic battle-flags as well as the decorated poops of two Pisan galleys.





Top: Venice: central doorway of S. Mark's, with spolia columns, veneers and Byzantine plaques;

Bottom: Venice: outside the Arsenale trophies brought back to Venice by her fleet.

For both, cf. f. 1309 letter to the galley captain Gabriele Dandolo: *Since our Church of San Marco has need of marbles in fine condition, and since we have heard reports that on the island of Mykonos and also other Roman islands [of the eastern Mediterranean], that there ... are to be found the most beautiful marbles of every color and type, we ask ... that when you are in those parts ... you make inquiries everywhere about those marbles which are whole shafts or pieces thereof, and about medium-sized columns -- white, veined, green, porphyry, and every [other] type. And if they are beautiful, you should procure them and load them into our galleys as ballast ...* (Brown 1997, chap. 1);



Venice, S. Mark's: veneers and panels looted from Constantinople.
There are plentiful plutei in Hagia Sophia (catalogued by Guiglia
Guidobaldi & Barsanti 2004), hence surely the large number here,
both inside and out

Venice

St Mark's was built in several stages, and is *prima facie* an unlikely candidate for columns, because it is a Greek-cross plan with a dome supported on square pillars. But in the 13th-century rebuilding an *indiscriminate use of columns* could be displayed in profusion on the façade, which *all but smother the architectural body in massed bundles*, (Demus 1960, pp.100-101; Favaretto 2000 for a survey). The date of the façade rebuild is uncertain, but presumably most if not all of the spolia were booty from Constantinople taken during the Fourth Crusade. This was certainly a Venetian tradition, 1205 being noted in the 15th-century Morosini Codex as the year when *the greater part of the church of Misier Saint Mark was built with marble masonry and columns and precious stones brought from Constantinople to Venice in galleys and ships* (Ghezzi 1999, p.13).

Venice provided the transport for the Fourth Crusade, and we may hypothesise that therefore only Venice had the capacity to transport spolia back home - with the spolia filling holds which had contained foodstuffs, equipment and (now deceased) personnel on the way out. How much more spolia marble would have flooded Europe if other parties to the Crusade had run their own transport ships? Venice's architects may well have realised just how difficult to find were matched-veneer slabs such as we see decorating the façade; and we may assume that the citizens both knew and prized the antique and Byzantine spolia they displayed on their church (and, much later, at the Arsenale: Vickers 1990).

The capitals on the façade of S. Mark's are as splendid and varied as the (non-matching) columns they crown: Deichmann (1980: table, pp.148-53) lists no fewer than 640, of which some 300 are late antique spolia (several being freshened-up before being put in place: *ibid.*, pp. 8-10), and perhaps 10 of earlier date. Although there are some excellent Byzantine materials, of the 761 capitals, only 11 of which are Roman 1st-3rd century AD (Favaretto 2000, pp.186-92) - an indication of how scarce good spolia were by the 13th century. Perhaps the taste for spolia came in part from their use at Torcello, an "ancestor" of Venice. And

Haghia Sophia displayed spolia (Flaminio 2004), and its exterior was marble-veneered, so why not St Mark's?

The effect of so many columns on the West Façade is very curious, and was not repeated elsewhere in Venice, being surely reserved for the ceremonial centre of both government and religion. Nor is it to be compared with *any* churches in Constantinople, the exteriors of which were much more austere, and reserved lavish columns for the interior. But if the use of matched marble veneers on the exterior, atrium and interior is as Byzantine in inspiration (cf. atrium and inside of H. Sophia) as the source of the materials, this is not the case for the forest of columns: there is no such clustering of columns in either city (although we might compare the Fondaco dei Turchi's colonnade with those cities and thence, perhaps, with late Roman models). Demus (ibid., p.104) sees ogee arches as the only intimation on St Mark's of what he calls *Saracenic taste*; but can the clustering of columns be viewed as a response to what the Venetians saw in the East, such as the Dome of the Rock (for some time, of course, a Christian church)? For Venice had relations with Islamic art long before the Fourth Crusade (Grube 1989 *passim*). We might apply the "forest of columns" epithet to Pisa's campanile, and pose the same question of its late and pale imitation in Venice, the Scala del Bovolo at the Palazzo Contarini (c.1499), and the much more extensive and boring repetitive arcades of the Procuratie Vecchie (1513ff.). Given the strong Islamic influence in Venice (Muraro 1973), did the plethora of columns on St Mark's represent a response to Islamic over-use of classical and Byzantine columns? Perhaps, but dogal use of spolia for their tombs (Pincus 2000, chap. 2) was Western.

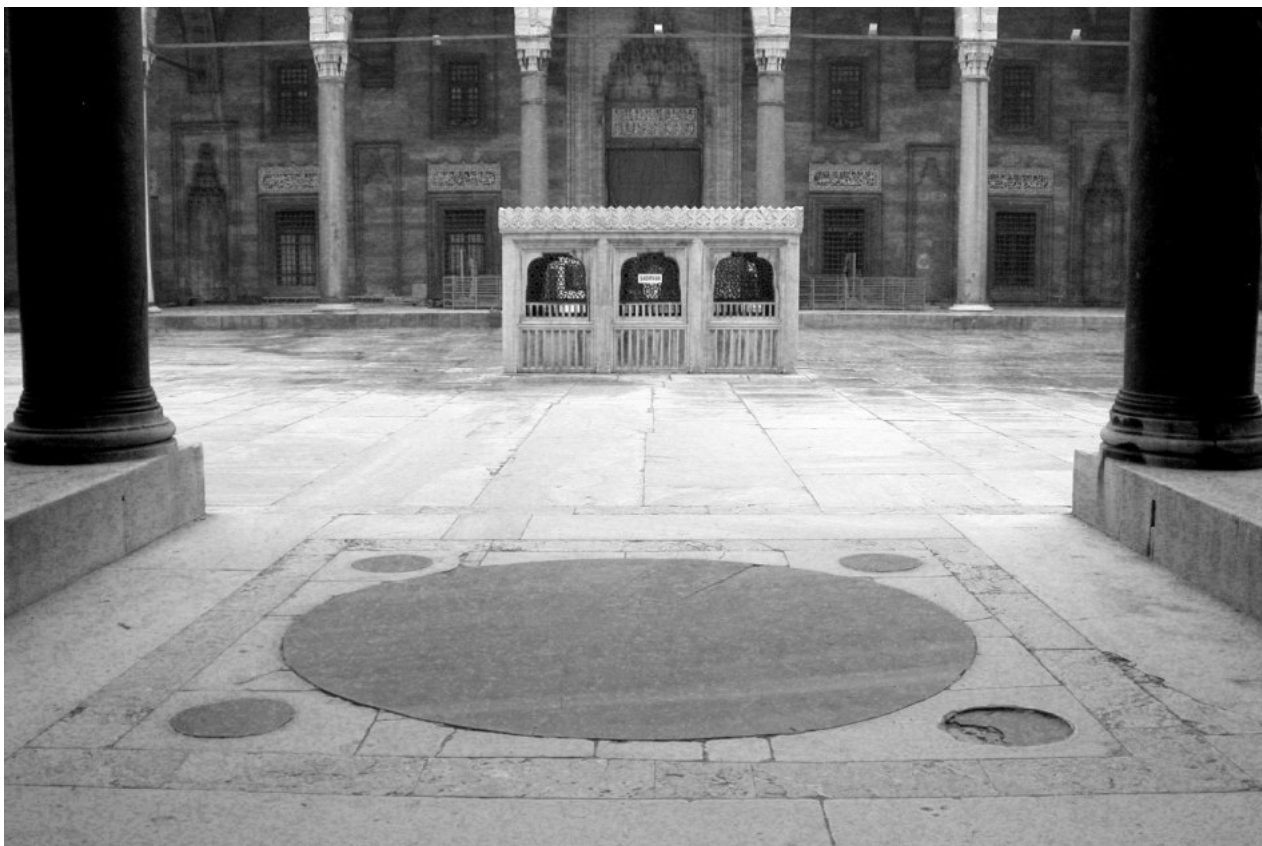
The cultural rivalry between East and West continued long after the Middle Ages, and Westerners continued to compare their marble buildings with those in the East. Thus a 16th-century merchant (identity unknown) visited Diyarbakir and, comparing church sizes to those in Venice, and noting the many relics, remarked that *In this city are many wonderful churches, palaces, and marble monuments, inscribed with Greek letters* (Stanley 1883, p.146). He was especially impressed by S. Mary (ibid., pp.146-7), where *the vaults are supported by more than three hundred columns. There are also vaults above vaults, equally supported by columns ... [the font] ... is of fine alabaster ... carved inside with various designs and most splendidly worked. It is covered by a magnificent block of the finest marble, supported by six columns of marble as clear as crystal, and these columns are also worked with fine and gorgeous carvings, while the whole church is inlaid with marble ... This church is so nobly built that it appears like a paradise, so rich is it in fine and splendid marbles, having columns upon columns, like the palace of St. Mark at Venice. There is also a campanile with bells, and in many other churches there are steeples without bells.*

10. Marble Shortage: The Imperial Mosques of Istanbul

Perhaps taking hints from the Seljuks, the Ottomans prized marble, and re-used it in very large quantities in their great mosques, especially under the example of the marble-rich churches of Constantinople. But long before they reached Bursa, let alone Istanbul, marble was running short even in Anatolia, let alone further west. Partial ruins there were in profusion: Cyriacus visited Cyzicus in 1444/5, and remarked on the remains of the great temple (close enough to the Sea of Marmara to make shipping the remains easy - as later happened) *ubi where are to be seen parts of columns and fragments of statues* (Bodnar & Mitchell 1976, p.27) - but these were *fragments* and not useful columns or veneers. Indeed, there are *no* mosques in Istanbul which (after the tradition of the finest early Christian churches in Rome) boast complete sets of base-shaft-capitals in marble. And there are *no* churches of Romanesque Italy or elsewhere with complete identical suites. Supply for the Ottomans was bound to become a growing problem as the mosques got bigger, in the finest traditions of megalomania, since few useable marble spolia remained in Istanbul, and the ca.3-metre spolia columns could be used only in courtyards or galleries. Rogers (1982, p.73) believes that the Venetians and Florentines had already taken polychrome marbles from the



Both Istanbul: **Left:** veneers (from the Great Palace?) reused in the Sultan Ahmet Mosque; **Below:** the courtyard of the Sulaymaniye, with spolia columns and porphyry disk at the main entrance to the courtyard



eastern Mediterranean - hence the Ottoman stripping of the citadel and various mosques at Cairo, from 1517. He notes a decree of 1551 directed to Adana, Sis and Tarsus (all ex-Roman settlements) asking for the countryside to be scoured for coloured marble columns (in ruins *and* in still-standing buildings), their dimensions to be sent to the Süleymaniye - surely to see whether they could be made to fit before they were transported such a large distance. The immense effort to find three suitable red granite columns (perhaps to match the one found on the site of the new mosque?) paid off: one found in Istanbul, one in Egypt and one at Baalbek. But four Proconnesian columns were eventually used, and the other disparate spolia perhaps *ended up sawn into panelling, all over the later sixteenth-century monuments of Istanbul* (Rogers 1982, pp.285-6).

For their mosque designs, Sinan and other architects were fixated by both the scale and marble luxury of Hagia Sophia, which provided an exemplar of how to integrate very tall monolithic marble and porphyry columns in a large domed space. A visit to the imperial



Delhi, adjacent to the Qutb Minar: Tomb of Iltutmish

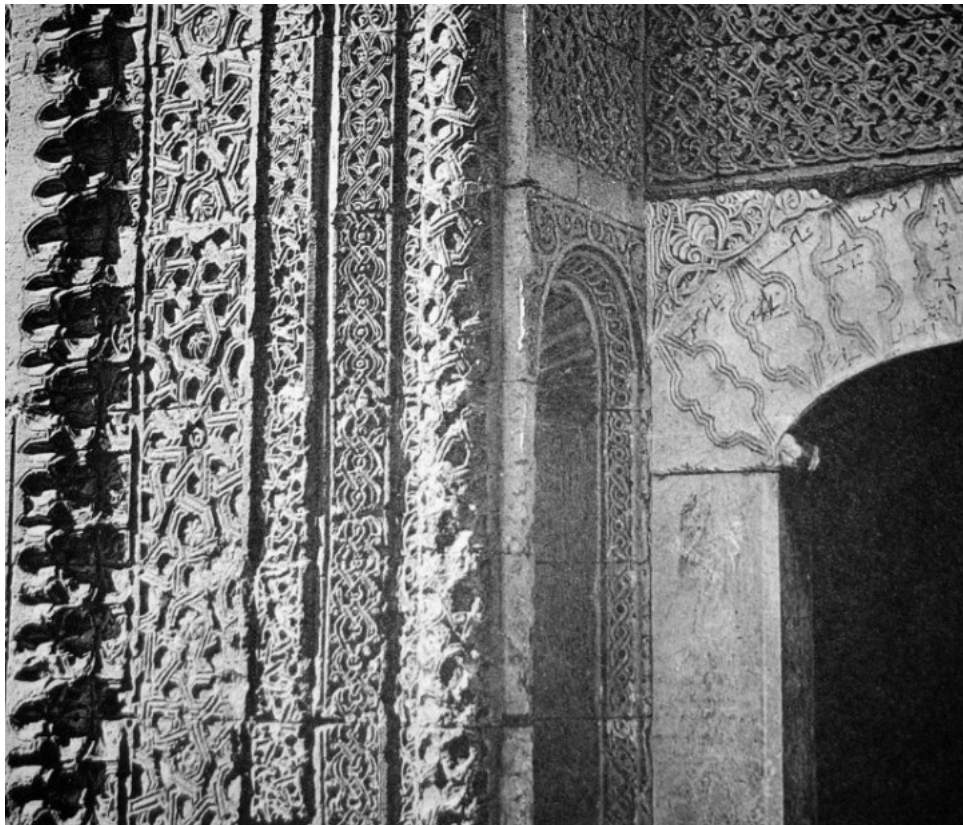
mosques of Istanbul demonstrates how large columns are incorporated where possible, but that the largest pillars are simply cores plated in small panels of marble veneer. Large monoliths were obviously difficult to transport, as we can see by visiting the harbour at Alexandria Troas, near to the antique city (which has never been extensively dug). Here are to be seen shafts presumably abandoned when they were damaged; nearby, at Gulpinar a large granite shaft has been abandoned because it broke *en route*. Even though some marble quarries were in use by the time the enormous 17th-century Ottoman mosques were built, the continuing, energetic and painstaking search for spolia even in distant Ottoman territories suggests a desire to connect with and display the past - to produce buildings not "new", but venerable - after the manner of the greatest mosque of the city, the erstwhile Hagia Sophia, itself spolia-rich (Guiglia Guidobaldi & Barsanti 2004).

11. Empire: the Delhi Sultanate and the Mughals

The marble graph in Muslim India (where the marble was newly quarried (and *not* antique spolia) is a gentle and then a steep curve from restraint to rich profusion. But there *were* spolia, and big ones, namely the Asokan pillars, re-used for similar motives to those for marble re-use further west: for they *were conscious links to the pre-Muslim past of India and to some of its most glorious Rulers* (Welch 1993, pp.320). With the spectacular models provided by the Jain temples of Mount Abu, where the marble was carved with surpassing intricacy into decorative and floral designs, and human and animal figures (cf. <http://www.templenet.com/abu.html>, and Mehta 1980, figs.48-56), we can perhaps assume that the Delhi sultans employed Jain craftsmen just as they certainly employed Hindu ones. The growing use of marble thus links in with Jain monuments, and probably grew because the lavish use of marble further West was well known. So at the Qutb Minar complex in Delhi, we can chart the developing taste for marble, which was to exceed Jain levels of usage but never of intricacy, except in the cutting of inscriptions: Qutb ud Din's great Victory Monument (238 feet high (80 feet higher than Nelson's Column) was built of tiles in 1193ff; a marble storey was added only in 1368 by Firuz Shah Tughluq. This emphasises the Quwwat



Above: Delhi, Qutb Minar: complex marble and sandstone in the monumental gate; **Below:** A likely inspiration for the gateway above: the Khudavent turbe at Nigde



ul Islam mosque - the *Might of Islam*, made from the spolia of Hindu temples. And in the same complex, the Mausoleum of Iltutmish (1236) is of sandstone set with marble, which is reserved for the mihrab and the cenotaph itself. Later, circa 1300, Ala-ud-Din built the mosque's great west gate, the Alai Darwaza, which makes use of marble only for the window embrasures and grilles, a few decorative details, and for some of the many inscriptions.



Both Agra, fort: two views of the Khas Mahal complex

A similar aesthetic obtains a little further south where, at Tughluqabad, Ghias-ud-Din Tughluq in 1325 built himself a mausoleum, marble being reserved for embellishments, and for the dome, conceivably to heighten visibility for the otherwise dour wall-girt complex 200 metres outside the city walls. Such restraint did not interest the later Mughals, whose devotion to the material developed from its use for selected details to buildings completely clothed in marble. Thus the Tomb of Humayun (1556ff.) set a new trend by being much bigger than most earlier tombs. And though the inside was sumptuous with marble floors and window screens, on the exterior the only great expanse of marble was reserved for the dome and its surround, as at Tughluqabad.



Delhi, Tughluqabad: Mausoleum of Ghias-ud-Din Tughluq



Both Agra, Taj Mahal: **Above:** pietra dura inlay on the mausoleum;

Below: podium of the mausoleum





Agra: inlay on the mausoleum of Itimad ud-Daulah



Fatehpur Sikri: Mausoleum of Shaikh Salim Chisht

At Fatehpur Sikri, marble is little in evidence in the sandstone palace, ditto the mosque except for light decoration. Marble was reserved for the most sacred building therein - the tomb of Shaikh Salim Chishti, which is *all* marble, with exquisite brackets and superb and

varied window screens. But when the Emperor was buried at Sikandra, the tomb of Akbar provided a good example of marble creep - and there would presumably have been a marble dome had the mausoleum been finished.

In Agra Fort, marble creep can be seen in the space of 200 metres: the Jehangiri Mahal (Emperor 1605-27) uses very little; but the nearby Khas Mahal (1637ff.) is wall-to-wall marble, and with a superb terrace of pierced marble screens; pietra dura runs riot inside some of the Agra Fort buildings, but the exteriors generally remain white marble. Across the river, the Mausoleum of Itimad ud Daulah (1622-8) has its outside drenched with pietra dura: *The Moghuls began as titans and finished as jewellers*, said Bishop Heber (1828, p.104). Seated in the Fort, the imprisoned Emperor probably would not have agreed as he observed a much larger jewelled box - the most extravagant marble structure ever built, namely the Taj Mahal, of 1631ff.

The Taj mausoleum itself is *all* marble - the side buildings (mosque and assembly hall) as well as the entrance gate cunningly not so, in order to set off the dazzling splendour of the mausoleum itself. This is not just marble, but exalted on a marble podium, inlaid on a grand scale with pietra dura, and decorated with extravagantly carved marble panels. Shah Jehan was not the only ruler interested in marble: firmans survive (Begley & Desai 1989, pp.163, 173) demonstrating that he instructed Raja Jai Singh to provide as many stone-cutters and carts as were needed for the Taj (10 September 1632) and then again five years later. Since the second firman notes that *employees of the pride of peers* [viz. Raja Jai Singh] *are mustering the stone-cutters of that area in Amber and Rajnagar, with the result that hardly any stone-cutters reach Makrana and consequently less work is being done there*.

Sophistication and baroque theatricality, sumptuous materials and exquisite craftsmanship—all reach a climax in the Taj complex—a rich use of marble paralleled in, but far outshining, some of the great churches of the Roman Baroque such as the Gesù, none of which flaunt marble on their exterior.

Conclusion: East and West

Much work remains to be done on the use of marble spolia East and West and how they were employed as building blocks in the development of new-old architectural traditions. Such study would be much helped by the excavation of more Islamic sites, of which there are plenty. Among the questions that need further evidence to be adequately answered are transport, spolia marble shortage, and the directions and extent of East/West influence.

Transport: we do not know the distances over which many of the marble columns used in mosques and palaces had to travel, although it might be possible by an examination of spolia capitals to trace the distances columns were moved to build mosques such as Córdoba, Kairouan and Cairo - none of which are on the site of large antique settlements. But remembering Pisan pride in the transport of large columns for their Baptistery, and the short columns used at Córdoba - did Muslims *before* the 17th-century Ottomans move any big (10-metre-plus) columns? Or were they happy to use shorter ones? Equally, was there any use of column *drums* in Islamic architecture? Modular columns could have assuaged any megalomania, and have been easier to transport, but these do not seem to have been acquired.

Marble shortage and its effects: By examining the earlier Mamluke architecture of Cairo, it seems that spolia sheet-veneer ran out by about 1200 (and much of what was left in Cairo was subsequently stripped for the mosques of Istanbul). The miniaturisation of marble decoration may have been a *style* before it became a necessity. This seems possible because in India, even when the marble quarries were open, a similar small-scale style was used enthusiastically by the Moghuls - naturally together with large quarried blocks from which to

cut sheets of veneer. In the Romanesque West, the lack of large sheets of veneer is one explanation for the Cosmati style, and there are instances of mosaic floors being lifted, transported and relaid (in, for example, the nave of Novara Cathedral, which relays mosaic from the paleochristian basilica: Minguzzi 1993). Cosmati work was certainly part-emulation of the antique past. Indeed, it may have been a common late antique practice to relay earlier floors in new locations, as with the *opus sectile* floors in the fifth-century Domus Pinciana at the Villa Medici in Rome (Broise 2000). But again, was Cosmatesque intricacy because of *force majeure* or *style*? If more were known about the Islamic handling of such materials the matter might be elucidated: Islam certainly re-cycled Byzantine mosaic tesserae (and it is not impossible that whole walls-full were translated from Byzantine to Islamic monuments, the designs remaining intact). But are there any examples of the transport of mosaic floors? Or any evidence that the miniaturised tesserae on Cairo walls or floors came perhaps from Roman or Paleochristian floors, rather than being freshly cut?

East/West influence (possibly reciprocal): This is the third problem: What was the importance of Islamic architecture for developments in Europe, and did Islam re-vivify in the West that taste for gigantism that they had learned from the antique past? As Goss (1986, p. 372) writes, *Our knowledge of imported forms is still fragmentary, and it will remain so until the tedious but necessary work of mapping out the expansion of the Eastern motifs - Muslim, Byzantine and Eastern Christian - has been fully and pedantically completed ... it is certain that the conditions for exchange existed, that the exchange took place, and that it enriched the art of the West at the point when it hungered for new experiences and new enriched means of expression.* The marble-columned and veneered churches of Romanesque Italy might sometimes have been re-builds of earlier, smaller churches re-using the same materials; but Romanesque *exterior* decoration in Pisa and Lucca - striated marble/stone construction, inlaid multi-marble decorative motifs, and multi-column façades - seems to have been inspired by the architecture of Cairo and Damascus or even by Siculo-Arabic luxury caskets. And in ceramics, what is the message of the usually Islamic *bacini* set on church façades and belltowers especially in Pisa? Marble substitute? Aesthetic admiration? Trade symbols? It is *not* straight imitation, since Islam does not employ ceramics in this way—and certainly not domestic ceramics of whatever quality. We cannot view such *bacini* as aping marble roundels, because the Pisans produced plenty of these, and there is only one *bacino* displayed on the Cathedral. (unlikely) So just how many architectural elements in Romanesque Italy derived from emulation of Islam - for example the comparisons made by D'Onofrio (1996-7) between Kairouan and the Romanesque Cathedrals of Gaeta and Amalfi? Why did the mediaeval West never take to monumental inscriptions on the exterior of their churches? And was marble inlay at e.g. Lucca S Michele scaled up from imported Islamic chests in wood or ivory? Or from ceramics, which we *know* were imported in large quantities? In which case, should we also look to Islam for sources for the extravagant geometric designs at Pisa and Lucca? Inlaid circular/diamond/etc designs of patterned marble were found from the 12th century in e.g. Cairo and Pisa. Who started the manner? How could we demonstrate intercontinental emulation?

More knowledge about these matters would help build a deeper picture of the ways in which ideas and styles interacted in the Middle Ages, and help us to assess the extent to which the amazing fertility in the re-ordering of forms often predicated on antique marble materials resulted from artistic rivalry. As one scholar remarks (Priester 1997, p. 275), *Those who study the history of medieval Islamic architecture on the one hand, and Christian architecture on the other, often seem more insular in their outlook than medieval Muslims or Christians themselves ever were.* The mediaeval spolia race was, I have suggested, Mediterranean-wide, flowing amongst Christians and Muslims through trade, war and the intellect, and through their common desire to utilise the glories of the Roman past to political as well as artistic advantage. Scholars of Islam, Byzantium and the West, of art history, commerce and religion—all could help in elucidating the matters discussed above.

Appendix 1: Notes on marble sources in the East: spolia and quarries

1. The argument that no marble was quarried in the East after Justinian and before the 15th century is in part perverse, ignoring both the huge quantities of stone required for fortresses and civic buildings, and the technological skill manifested in building and transport, as well the cutting of marble for the adornment of, especially, mosques and pious foundations. Two accounts, from the Byzantine and Muslim worlds, suggest that marble *was* quarried:

a. Sodini (2000, p. 138ff.) for a discussion of the quarries/spolia question. He notes that when Psellos wrote of Romanos III Argyros (1028-34) attempting in his architecture to rival Justinian, so that *every mountain was excavated, and the art of the quarrier prized more highly than that of philosophy itself*, this was mere hyperbole. He concludes (p.145) that *stone was no longer quarried directly (except perhaps in Phrygia in the tenth and eleventh centuries and in certain quarries with a local market)*. Cormack (2000, p.911) is ambivalent about whether the proconnesian sheets at S. Catherine on Sinai were fresh-quarried, or perhaps taken from a stockpile, perhaps at Jerusalem;

b. It is related via Al-Makkari (1840, I, 234-5) that Al-Hakim was quarrying marble in Spain for Madinat Al-Zahra from the 930s, and Al-Makkari's source even notes that the costs of quarrying nearly equally those of spolia—no wonder, given transport: the author records (1840, I, 226-7) the shifting of *two immense blocks of stone* for fountains from the quarry to Córdoba. This account is given at length in Appendix 3, where it will be noted that Madinat was lavished with spolia from Rome and France as well as from North Africa - so that we might deduce that there were insufficient spolia for a complete job.

2. If Córdoba used a mix of spolia and fresh-quarried blocks, then perhaps Western structures did likewise. Lorenzo Lazzarini, reviewing *Marmi Antichi* (Bollettino di Archeologia 5/6, 1990, pp.256-68 especially 261), suggests that there is so much Proconnesian marble at Venice that it must have been quarried fresh (ref. from Pincus 1996, 139 note 13). This did not prevent the Venetians using very large quantities of spolia, especially on the west and Piazzetta façades of S. Mark's. Already Heyd (1885, p.276), suggested that Paros was operating in the Middle Ages, and sending marble to Venice.

3. Al-Tabari (1989, p.69) states that while the marble for Al-Kufah came from Christian churches, governors Ziyad stipulated stone blocks quarried at Ahwaz; even if he is writing of his own time, this indicates that quarry did take place in Islam.

4. We should not overestimate the difficulties of cutting marble. William George Browne (Travels in Africa... London 1799 p.10) describes the dexterity of the inhabitants of Alexandria: *suppose they wish to divide an antique column of three or four feet diameter, into two parts, for the purpose of securing the foundations of the houses near the shore from the encroachments of the sea, they make a line not more than half an inch deep, for the space of one twelfth of the circumference, then inserting two pieces of tempered steel, not larger than a dollar, at the extremities of the line, they drive a wedge in the midst. At the same time, small pieces of steel, like the former, are fixed at equal distances round the column, to the number of five or six, by means of small hammers, which strike quick, but with no violence. Thus the piece is cut off regular, and in a very short space of time.*

5. At Mschatta, rooms near the basilical hall *were intended to have a marble panelling, for great block of a fine green stone (looking like marble, but really a calc-schist) some already sawn into slabs 3 cm. thick, were once to be seen lying in the east side tract* (*Encyclopaedia of Islam*, s.v. *architecture*). Again, the palace at Samarra usually had stucco dadoes, *except in the Throne-Room group where they are of marble slabs* (loc.cit.).

6. Even porphyry (not a marble) was skillfully cut in the Middle Ages. Butters (1996, I, p.121) relates that *To judge from the evolution of Cosmati pavements, these craftsmen gradually gained in confidence.* And if in the Islamic world there are plentiful signs of a growing marble famine, this is of *rare* marbles (i.e. the quarries for which were a mystery), rather than of common ones. This was the most prized of all stones: Butters (I. p.126ff.) gives details of the Renaissance thirst for porphyry, and of machines for cutting it.

Appendix 2: Extracts from Ibn Khaldun's *Al-Muqaddima*

The following translation is my own, from Vincent Monteil's edition of the text, *Discours sur l'Histoire Universelle*, 3 vols, Beirut 1967-8.

II.712ff.: **FOR A GREAT KING, A GREAT CITY:**

To construct a great city, unity, numbers and cooperation are needed. A government with widespread territorial possessions will assemble workmen from all its provinces and will makethem work together. Often, machines will be called upon which multiply the power needed to transport loads...

When one looks at the monuments erected by the Ancients - the portico of Khosroes [Ctesiphon], pyramids of Egypt, arches of the Malga [at Carthage], or of Cherchel in the Maghreb - one often believes that these men built them from their own resources, individual and collective. One imagines that their physique was proportionate to their work, that they were bigger and stronger than we are, and that their body was in proportion to their buildings. But this is to forget the importance of machines ... Travellers confirm for us, by their direct observation, the use of mechanical means, for both construction and transport, by non-Arab dynasties.

ONE DYNASTY ALONE CANNOT ERECT COLOSSAL BUILDINGS:

...Certain buildings are so great that they exceed human strength, even when multiplied by machines. Effort must therefore be applied during several successive periods...

Another proof of my thesis is the impossibility that such dynasties experience in trying to lay low and destroy so many grand monuments. And yet it is easier to destroy than to construct; because to destroy is to come back to the status quo ante, that is to say to nothing, while to construct is exactly the reverse. In consequence, when one finds an edifice that human strength cannot destroy, which after all is relatively easy, one should conclude that, in order to build it in the first place, immense efforts beyond the means of a single dynasty were required to build it.

II.744ff.: **HOW CITIES FALL INTO RUIN:**

When a city has just been founded, it has few houses and few construction materials - stone and lime -, few wall coverings, such as ceramic squares, marble, mosaic tessera, jade, mother-of-pearl or glass. The Bedouin are quite happy to build in their own manner, with perishable materials.

Then the city "grows", its population and its civilization develops. Construction materials increase, at the same time as works to be undertaken and craftsmen, up to the point where a ceiling is reached. And then the decline begins, prosperity diminishes and the population falls. In consequence, people lose the habit of building elegant and solid structures. Available labour diminishes at the same time as the number of inhabitants. Scarcely any stone, marble or other materials are to be found. Secondhand stones are re-used, taken from empty buildings - fortresses and palaces disused because of the depopulation of the city. The same materials are perpetually re-used, from palace to palace, from house to house, until they are completely used up ... When cities fail, civilization then recedes, and the decrease in people entails a decrease in crafts, so that solid building are no longer constructed and ornamented. Materials such as stone, marble, and other things are now being imported scarcely at all, and (building materials) become unavailable. Adobe is used instead of stone, and ornamentation ceases. After which people return to the Bedouin fashion, with rammed earth instead of stone, and without any decoration. Towns return to villages, to hamlets. They take on a Bedouin look. Then they collapse little by little into ruin, if this is their destiny. For it is thus that God acts toward His creatures.

II.772ff.: **EVERY COLLAPSING DYNASTY DRAGS ITS CAPITAL DOWN WITH IT:**

When a dynasty is defeated and crumbles, the civilization of its capital does likewise and often falls in ruins.

Every nation should have its fatherland, which is the birthplace of the realm. When that nation acquires another country ... inevitably the seat of government is chosen in the middle of the provinces and in a central position. This move distances it from the old capital ... The population moves to the new capital and the old one slowly empties. Now sedentary culture relies on a large population. But culture declines and disappears from the old capital. This is what happened when the Seljuks moved their capital from Baghdad to Isfahan, when the Arabs before them abandoned Al-Mada'in for Kufa and Basra, when the Abbasids abandoned Damascus for Baghdad, and when the Merinids in Morocco deserted Marrakesh for Fez. Generally speaking, every change of capital triggers the decline of the old seat of power.



Turkey, Beyşehir: a Roman sarcophagus re-used as a water basin at the
Esrefoglu Mosque—another Seljuk use of spolia

Comments:

1. Ibn Khaldun on the mechanisms of decline: note the strong tendency to demolish the work of one's predecessors to muzzle their glory, when antiquity and pious associations sometimes meant nothing to a patron wishing to place his own stamp on a building. At Kairouan, according to El Bekri (1993, p.54), first Yezid ibn Hatem (772 AD) and then Ziada-t-Allah had the mosque pulled down, the latter even ordering the destruction of Ocba ibn Nafe's mihrab, *not wishing the new building to show the smallest trace of any construction not owed to him.*

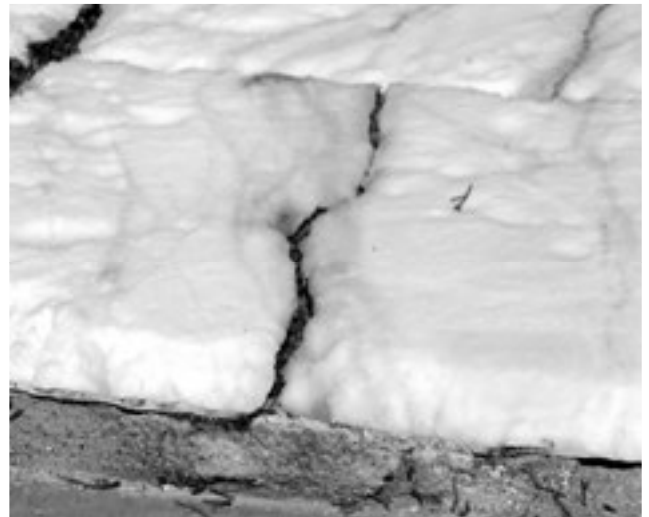
2. Ibn Hawqal (1964, I.134: fl. 943-977) relates how an Abbasid Caliph read the following inscription on one of the Pyramids: *It is I who has built these structures. Let whoever claims to have a strong realm try and pull them down! For destruction is indeed so much easier than building!*

Appendix 3: The building of Medinet Al-Zahra

The following account of the Versailles of Córdoba (Bargebuhr 1956, p. 213) is taken from Al-Makkari (1840, I, 232-6), who relates that it was named after An-Nassir's mistress:

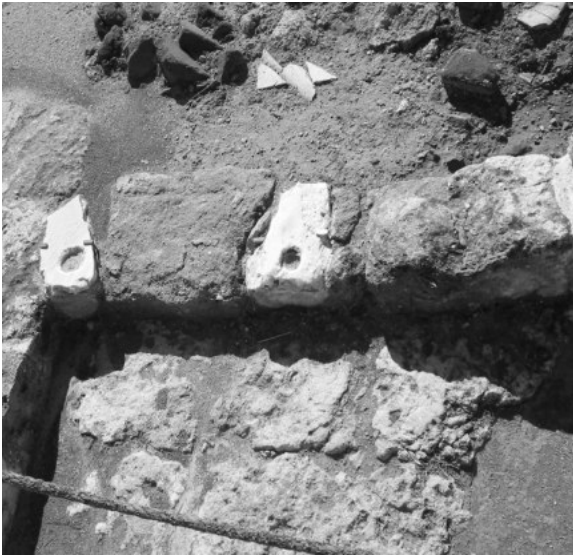
... he built the palace of solid materials and beautiful design, and ornamented the interior with costly magnificence, and he ordered also that a statue of his mistress should be carved in relief over the gate...

But as we are indebted to the historian Ibnu Mayyan for a minute description of this magnificent construction [az-Zahra], as also for an account of the materials used in the building and the expenditure incurred by it, we shall extract its contents. It is but proper to observe that this excellent historian held his information from the mouth of Ibn Dahin, who had it from Muslimah Ibn 'Abdillah the architect and geometrician, who lived in the reign of An-Nassir. "An-Nassir began the construction in [AD 936-7], and the building was continued for forty consecutive years ... considerable additions were made to it by his son, and the buildings for the reception of the court, the barracks for the troops, the pleasure-gardens, baths, fountains and so forth, were never completed until the days of Al-Hakem. During the reign of 'Abdur-Rahman six thousand blocks of stone, great and small, cut into various shapes, and either polished or smoothed, were used every day, exclusive of the uncut stones used for paving and the like. The number of beasts of burden used to convey the materials of construction was fourteen hundred, some say more, besides four hundred camels belonging to the Sultan, and one thousand mules hired for the occasion ...



Left: a bath at Medinet; **Right:** marble paving slabs on an upper terrace

The number of columns, great and small, supporters or supported, employed in the building amounted to four thousand; others exceed that number by three hundred and sixteen. Of these some came from Rome, nineteen from the country of the Franks, one hundred and forty were presented by the emperor of Constantinople, one thousand and thirteen, mostly of green and rose coloured marble, were brought from Carthage, Tunis, Isfakis [Sfax], and other places in Africa; the remainder were extracted from quarries in his Andalusian dominions, as for instance the white marble from Tarragona and Almeria, the streaked marble from Raya, and so forth. I was told by Ibn Dahin, who had it from the son of one of the architects employed by An-Nasir, that the persons commissioned to transport the marbles from Africa were three ... and that An-Nassir paid them for every block or pillar of marble, whether great or small, which they transported to Cordova, ten gold dinars. I have likewise from good authority that the cost of each block of marble, whether great or small, found in the mountains of Andalus was also nearly the above-mentioned sum ... " So far Ibnu Hayyan.



Medinet: **Above Left:** marble sockets for door hinges; and **Above Right and Below Left:** a column and capital in situ; **Below Right:** a reconstructed hall



Another well informed writer says that the cost of every block of marble brought to Cordova, either from the Khalif's dominions in Andalus as well as in Africa, or from

various distant countries in the hands of the infidels, was ten gold dinars each, exclusive of the expenses of detachment from the quarry and carving, and exclusive also of the cost of the men and beasts employed in the transport.

Among the wonders of Az-Zahra, says Ibnu Hayyan, were two fountains, with their basins, so extraordinary in their shape, and so valuable for their



exquisite workmanship, that, in the opinion of that writer, they constituted the principal ornament of the palace. The larger of the two, which was of gilt bronze, and most beautifully carved with basso-rilievo representing human figures, was brought to the Khalif from Constantinople ... As to the smaller one, which was of green marble, it was brought from Syria ... although others assert that it came likewise from Constantinople ... The smaller one ... [had] fixed on it twelve figures made of red gold, and set with pearls and other precious stones. The figures, which were made in the arsenal of Cordova, represented various animals ... and water poured from their mouths.

Medinet is of particular interest because of its early date—several centuries before the Alhambra. Over the past years the site has been excavated, and has revealed enough hints of its past glories to support the gist of Al-Makkari's narrations. For Islamic palaces, Al-Makkari's collection of source-materials is the most detailed to be found, writing in the earlier 17th century, His frequent attempts to weigh what he had read and what he was relaying provide as much veracity as we are likely to derive from any such collection of accounts.



Above Left: an ablu-tion basin in stone from Spain (AD988; Madrid, Archaeological Museum); **Above Right:** a marble fountain basin from Hama (1278, London, V&A Museum) - cf. the basins mentioned at Medinet; **Below:** view of the site



The site is replete with statements of interest to our theme:

The source of the marbles: These were brought over great distances, and even from Infidel lands—so the Christians were not averse to trading, and apparently did not prize marble at this date (a century later things might have been different).

Quarrying and polishing: Clearly such a huge project could not be completed with spolia alone, so it was only special pieces that came from a distance. In Andalucia they both quarried and polished marble, and in the 10th century at that—a further indication of the respect (for Antiquity?) with which spolia were regarded.

Costs and transport: If, as Al-Makkari, relates, *the cost of each block of marble, whether great or small, found in the mountains of Andalus* cost nearly as much as imported blocks, then we are justified in believing that there was indeed a shortage of high-quality marbles even at that date. The second cost estimate he relays (namely that every block cost the same, with quarrying, carving and transport costs on top) underlines the difficulties of land transport.

Gifts of marble a standard practice? This is far from the only instance of gifts of marble or mosaic tessera coming from Constantinople. Are they too many to constitute a *topos*, or too uniform to reflect actual events?

Interest in figurative art: The value-added fountain, not to mention the bas-relief of the mistress, might not have been unusual. Frescoes and some figurative bas-reliefs have survived in Syria; but it was standard practice to strip disused buildings of their fittings, as Ibn Khaldun has noted.

Where are the snows of yesteryear? Medinet represented a high level of luxury and expenditure, so where did the four thousand (or more) columns go? Presumably they were robbed out for later constructions, and did not survive until the Christian reconquest.

A model for the Alhambra? Andrea Navagero, the Venetian Ambassador, visited the Alhambra in 1526 and, alert as any Venetian would be to marble, noted that *the Alhambra is very beautiful and extremely sumptuous in its fine marbles ... The marble, however, is not on the walls but on the floor ... The court is tiled with extremely fine white marble, some pieces of which are very large* (Brothers 1994, 80). In the surroundings, he remarked that *from so many ruins of delightful places, one can judge that those Moorish kings did not neglect anything that contributed to a pleasant and contented life* (ibid., p.81). Did Medinet have marble veneer panels on the walls like parts of the Alhambra? The Alhambra sheets were surely spolia.



Both Córdoba, Archaeological Museum: Above: marble fountain basin from a country estate near Córdoba, demonstrating love of both marble and running water;
Right: capital volute from Al-Amiriyya, 3km from Medinet, and perhaps the same as Al-Rumaniyya, gifted by Al-Hakam II to Al-Sagir

All images in this Appendix (except the two above) are reproduced courtesy of André M. Winter; yet more can be found at:

http://www.carto.net/andre.mw/photos/2003/10/05_Al-zahra_cordoba/#zahr

Appendix 4: Extracts from Burckhardt's description of the Kaaba at Mecca

From John L. Burckhardt, *Travels in Arabia*, London 1829, pp.134ff—an important account, given the alterations that have been accomplished since his day:

The Kaaba ... open square is enclosed on the eastern side by a colonnade: the pillars stand in a quadruple row: they are three deep on the other sides, and united by pointed arches ... The pillars are above twenty feet in height, and generally from one foot and a half to one foot and three quarters in diameter; but little regularity has been observed in regard to them. Some are of white marble, granite, or porphyry, but the greater number are of common stone of the Mekka mountains ... Between every three or four columns stands an octagonal one, about four feet in thickness. On the east side are two shafts of reddish gray granite, in one piece, and one fine gray porphyry column with slabs of white feldspath. On the north side is one red granite column, and one of fine-grained red porphyry: these are probably the columns which Kotobeddyn states to have been brought from Egypt, and principally from Akhmim (Panopolis), when the chief El Mohdy enlarged the mosque, in A.H. 163. Among the four hundred and fifty or five hundred columns, which form the enclosure, I found not any two capitals or bases exactly alike: the capitals are of coarse Saracen workmanship; some of them, which had served for former buildings, by the ignorance of the workmen have been placed upside down upon the shafts. I observed about half a dozen marble bases of good Grecian workmanship. A few of the marble columns bear Arabic or Cufic inscriptions, in which I read the dates 863 and 762. (A.H.). A column on the east side exhibits a very ancient Cufic inscription, somewhat defaced, which I could neither read nor copy. Those shafts, formed of the Mekka stone, cut principally from the side of the mountain near the Shebeyka quarter, are mostly in three pieces, but the marble shafts are in one piece. Some of the columns are strengthened with broad iron rings or bands, as in many other Saracen buildings of the East ...

Appendix 5: Extracts from Mas'udi's Fields of Gold

Mas'udi died in 956 AD, and his book (*Les prairies d'or*, trans B. de Meynard & P. de Courteille, ed. Charles Pellat, 3 vols, Paris 1962, 1965 & 1971) is a compendium of what he read, useful in the context of this monograph for mind-sets relating to marble, antiquities, and digging for treasure. All extracts below are from vol II, and are my translation:

1. Ahmad b. Tulun, in Egypt in 873AD, received lots of information from an old Copt, supposedly 130 years of age:

§ 794. *He was asked if he knew of marble quarries in Egypt. 'Yes', he said, "in the eastern part of Upper Egypt there is a great mountain of marble from which the ancients extracted their columns and other materials. After working them, they polished them with sand. The columns, bases and capitals ... were carved by the ancients hundreds of years after [sic] the birth of Christianity. Such are also the columns of Alexandria, and above all the enormous and immense column unequalled in the world. Nevertheless, I have seen a similar one in the mountains of Assouan, marked out and worked on: it has not been detached from the mountain, and the visible part has certainly not been polished. Indeed, before they polished a column, they detached it from the mountain, and then transported it to its destination.*

2. § 823. *Here is an interesting anecdote told by Yahyà b. Bukayr. While 'Abd Al-'Azîz b. Marwân was governor of Egypt in the name of his brother, 'Abd Al-Malik, he was visited by a man who said he had advice to give him. 'Abd Al-'Azîz asked him the point of this advice, and the man told him that there was a rich treasure buried under a certain dome. When the prince invited him to prove what he was stating, the man added: "Not far beneath the surface we shall find paving-slabs of different marbles; continuing to dig, we should then take out a bronze door with a golden column atop it and, on top of the column, a golden cockerel also of gold ..." 'Abd Al-'Azîz immediately made available to him several million dinars of credit to pay the salaries of the workers commanded to make the excavations, and for the necessary*

works. Thus they attacked a high hill, and a vast trench they dug brought to light the slabs of marble the existence of which the man had announced in order to prove he was speaking the truth. This discovery increased the covetousness of 'Abd Al-'Azîz, who made new sums of money available, and increased the number of workmen. Continuing to dig, the head of the cockerell came to light ... then was uncovered underneath the column a colonnade of stone and marble, and colonnades; and, above arched doors, niches in which were statues and portrait-busts ["figures de personnages"] in bronze and gold; then stone sarcophagi...

§ 824. 'Abd Al-'Azîz came on horseback to the dig, and contemplated these discoveries. [but when a workman descended a bronze staircase to get near to them, ancient swords cut him in pieces]. The workmen engaged in digging and carting off the earth, those who were supervising existing trenches or having new ones dug, about two thousand men, all perished to the last man. 'Abd Al-'Azîz was terrified, and exclaimed "These are marvellous ruins and access is forbidden! May God protect us against their dangers!" Then he had all the earth from the excavations thrown onto the corpses of the dead, and this place became their tomb.

3. § 825. For an excavation near to one of the Pyramids (surely a tomb), when several people who specialised in searching for treasure found, in a book written in ancient characters, the description [of that place]. They told Al-Ikhshîd Muhammad b. Tughdj, who allowed them to dig ... They opened a deep trench and eventually found a vaulted passage ... blocks of stone ... standing statues ... vases ...

4. On the building of Alexandria: § 828. Alexander ... then assembled workmen from all countries and traced the outline of the foundations ... He brought together blocks of stone and marble. Ships brought him different varieties of stone and marble from Sicily, Ifrîqiya, Crete, and from the very ends of the Mediterranean, where this sea runs out into Ocean. § 833: At night, the town was lit without the help of torches, rather by the brightness of her marbles ... Frequently hangings of green silk were hung above the town to protect the eyes against the dazzling brightness of the marble.

5. §143. On the rights and wrongs of expensive buildings: One day I said to my uncle, "Al-Walid was wrong to spend Muslim wealth for the mosque at Damascus. If he had used the money to keep up the roads and the cisterns, and to rebuild the fortresses, he would have acted with greater reason and more merit." "Don't you believe it, my child", because Al-Walid was surely inspired to discover this important fact - namely that the land of Sam, the land of the Christians, contained beautiful churches, entrancingly embellished and of immense fame, such as those at Al-Qumâma, Lydda and Edessa. So Al-Walid wished to give Muslims a mosque that would attract their attention—a mosque that was one of the wonders of the world. He acted like 'Abd Al-Malik who, given the appearance of the imposing and magnificent dome of [the church of] 'Al-Qumâma, and fearing that it would occupy a similar place in the hearts of Muslims, had erected the Dome of the Rock that one sees today.

6. §159. At Ramla: The great mosque ... was built by Hisâm b. 'Abd Al-Malik: my paternal uncle related to me that, at the very moment when the construction of this mosque was begun, Hisâm was informed that the Christians had some marble columns buried in the sand, which they had acquired for the church at Bâli'a. Hisâm then said to them: "Either you show us where they are, or we shall demolish the church of Ludd and take its columns to build our mosque." The Christians uncovered the columns, which were enormous, long and beautiful. The ground [of the mosque] is covered with marble slabs... - from which it is not unreasonable to conclude that the Christians buried the columns because they were getting together a stock sufficient to build their new church. Or was it because they knew the Muslims were looking for columns - which clearly had great value?

7. §164 Jerusalem, the Al-Aqsa mosque: This building surpassed in beauty the mosque of Damascus but, under the Abassids, an earthquake brought down the prayer hall, all except for the area around the mihrab. The caliph, learning the news and being advised that the treasury of Islam would not suffice to put things right, wrote to the governors of the different parts of the empire, and to the army chiefs, to rebuild, each on his own account, a gallery of the mosque... - i.e. the implication is that each governor would supply the materials (and perhaps the workmen); and we may imagine that the army was sent out scavenging for useful columns etc.

Note: the quantities of marble this author has Alexander importing might well be some memory of the materials ready for *export* by the Romans. Eusebe de Salle (*Pérégrinations en Orient... Pendant les années 1837-38-39*, I, Paris 1840, p.6) believes that *when the Muslims took the city they found at the old port an immense supply of antique column-shafts which the Romans had piled there ready for export*. Many were used, he continues, for the walls by Ibn Tulun: *The Byzantine workmen continued the tradition of their ancestors who had laid columns horizontally so they might solidify stretches of wall attacked below by the ram*.

Appendix 6: Saddam Hussein and Marble

Assuming sufficient evidence remains after the disastrous invasion of Iraq, there is a fascinating paper to be written on *Saddam and Marble*, detailing the connections he made explicitly and implicitly with the Iraqi and Islamic past by a use of this material as lavish as that of earlier centuries. This would demonstrate a continuing interest in marble as the very epitome of luxury, and the profusion of contemporary palaces and mosques to have parallels marble-wise with those of the early years of Islam in the Syrian desert (or the extravagant building frenzies in Samarra executed without oil money or US assistance, and to echo some of the triumphalist notes noticed already in these pages. Hard and reliable information is difficult to come by in the present situation, but everything below indicates that Saddam's actions (from jerry-built palaces to excavating abandoned sites and stripping older structures) were no different from traditional practice. By all accounts Saddam Hussein is not a religious man; but like earlier Muslim leaders he apparently viewed the building of mosques and palaces as *the most tangible witnesses of the character of a civilization* (Mango 2000, p.918, echoing Ibn Khaldun). All the web-links cited below, and several others, are listed as clickable hotspots on the Home Page of the accompanying CDROM.

In a speech in 1978 to the Bureau of Information, Saddam Hussein said that *The history of the Arab nation does not start with Islam. Rather, it reaches back into ages of remote antiquity. ... All basic civilizations that emerged in the Arab homeland were expressions of the personality of the sons of the [Arab] nation, who emerged from one single source*. (Cited in Amarzia Baram, *Culture, history and ideology in the formation of Ba'thist Iraq, 1968-89*, New York 1991, p.101. cf. also Bernard Lewis, *History remembered, recovered, invented*, Princeton 1975).

The best descriptions of some of Saddam's palaces and their water-fed grounds are to be found at http://www.globalsecurity.org/military/world/iraq/abu_ghurayb-cc.htm, which also includes useful photographs. But most accounts are hearsay, and there is little solid evidence available thus far which would allow reliable and clear descriptions of these palaces, let alone of the source(s) of the marble used. But here are some notes, culled from the web:

1. The **Grand Saddam Mosque** (plans launched in 1994) was to be of marble (looted from Kuwait?), and supposedly third in size only after those of Medina and Mecca.
2. **Saddam Hussein in Kuwait**: supposedly Saddam had all the rare marble in Kuwait listed, and then sent workmen to bring home marbles lacking in Iraq. He bought many of his weapons from the USA, so did—for example—any Vermont alabaster (cf. the Beinecke Library at Yale) find its way to Iraq?
3. **Palace building at Maqar-el-Tharthar**: Adel Darwish, *Saddam Hussein's palaces* (at <http://www.mideastnews.com/PALACES.htm>): *...in January 1995, I met Hussein Wael ... Mr Wael's last job was in the palace of Maqar-el-Tharthar, which is built on the surface of a lake north west of Baghdad. "It is at least four or five times bigger than the White House," said Mr Wael... To obtain marble and alabaster ... the Iraqis have taken to plundering ruins and tombs dating from the Babylonian era ... "We heard that the President [Saddam] was very angry because the US and Britain were banning the import of marble," he said. It would be useful to trace the accuracy of such accounts: plundering ruins of "Babylonian"*

date would surely yield no or very little marble or alabaster (although there could be some supplies in the palaces at Samarra) - so perhaps the account is a modern version of a mediaeval *topos* - i.e. what *should* have happened irrespective of any facts involved. Much more likely is one report (http://www.usnews.com/usnews/news/articles/030428/28saddam_2.htm) about the Tikrit palace building in 1994: *Everything--the mosaics, the marble--was imported from Italy*.

Again, in the same report, and by the accounts of eye witnesses, *the palaces in stories of Sinbad and the Arabian nights* pale in comparison with the Basra residence. A French engineer assisting construction told a Paris magazine that the palace is *larger than that at Versailles* (or, as one commentator has it, at <http://www.liberation.fr/page.php?Article=102933>, *En beau marbre veiné irakien, on dirait l'imitation stalinienne d'un palais versaillais*). The inspiration is surely closer at hand, perhaps the Jausaq Al-Khaqani Palace at Samarra (built 836/42), which Hodges & Whitehouse (1983, p.156) calculate was indeed larger than Versailles. Mutawwakil had this extensively decorated: the walls of the palace were covered inside and out with mosaic and gilded marble, according to an account after it had been destroyed (Kennedy 2004, p.147). So did the palace walls inside and out look something like the Dome of the Rock in its original state?

4. **Palace building at Basra:** *The Turkish Daily News* for 31 May 2002: *Oil and Power* (at http://www.turkishdailynews.com/old_editions/05_31_02/feature.htm—no longer available at the TDN website): *Saddam Hussein's palace at Basra is of an especially expansive and intricate design. In the process of its construction, Iraq asked the U.N. in 1995 for a special dispensation to import marble, alabaster and other materials to adorn the palace and build water fountains in its four artificial lakes. The U.N. refused on commonly understood grounds, but Iraq managed to acquire the materials anyway - by looting ancient ruins and tombs of the Babylon epoch relics.*

A good description of Saddam's palace on the right bank of the Tigris is by Patrick Perotto in the *Est Republicain* at <http://www.estrepublicain.fr/extra/2003/guerre-en-irak/2003041700051119.html>: models of the palace, marble floors, and *a ceramic wall showing Saddam the builder, passing a brick to a mason, in order the better to symbolize the building of this palace.*

On Saddam's palace near Babylon, one website (<http://architecture.about.com/cs/countriescultures/a/saddamspalace.htm>) reports: *On the ceilings and walls of Saddam's palace, 360-degree murals depicted scenes from ancient Babylon, Ur, and the Tower of Babel. In the cathedral-like entryway, an enormous chandelier hung from a wooden canopy carved to resemble a palm tree. In the bathrooms, the plumbing fixtures appeared to be gold-plated. Throughout Saddam Hussein's palace, pediments were engraved with the ruler's initials, "SdH" ... Now Saddam Hussein's Babylonian palace serves as a military encampment for Western troops. Mosquitoes buzz in through the broken windows. U.S. marines take refuge in two-man tents pitched inside the vast, empty rooms - a modern equivalent, perhaps, of the Muslim laments about the ruination of Medinet al Zahra?*

Saddam's linkage with the past is strengthened by his reported (<http://www.thepropheticyears.com/news/saddam%20does%20battle.htm>) stamping of bricks for the reconstruction of Babylon with the legend *At the era of President Saddam Hussein of Iraq, the protector of Great Iraq and reproducer of its reawakening and the builder of its civilisation.*—not to mention having army divisions named *Hammurabi* and *Nebuchadnezzar*.

But a man with no taste, proclaim the Americans: Just in case Saddam might appear as a modern version of Al-Walid, the Americans lambast him for imitating *their* culture. cf. Fox Features April 16, 2003 (at <http://www.foxnews.com/story/0,2933,83854,00.html>): *Saddam's Palaces Are Tasteless and Tacky ... experts in Islamic and Middle Eastern*

architecture say the structures are not much more than displays of tawdry ostentation and bear little resemblance to the classic, majestic palaces of the past ... They all seem like Marriott gone crazy, with gold fixtures, imitation Louis XIV furniture and lots of marble everywhere, said Andras Riedlmayer, a bibliographer in Islamic art at Harvard's Fine Arts Library. *It's the same general standard of taste as Las Vegas casinos.* Since the conception of palaces Sinbad-Arabian-Nights-style more likely came from Hollywood than from Islamic illustrations, it is only to be expected that some Americans would find it struck a chord. But again, Saddam's echoing of Arabian Nights fantasy architecture is firmly grounded in the past: Keshani (2004, p. 86) suggests that the Emperor Theophilus built an Abbasid-style palace in Constantinople in 837AD because this *was the pre-eminent symbol of the defeated enemy and its spectacular wealth*—that is, another symbol of power, this time perhaps over the oil-for-food program.

It is perversely heartening to see that the political dimension to cultural aggression thrives, fed by international rivalry and, in this case, by the commercial values and cultural disdain of the occupying powers. Indeed, the invasion of Iraq is uncomfortably traditional in its attack on Iraq's culture as well as on her population. The entirely preventable looting of museums and many cultural sites (some of it chronicled on Francis Deblauwe's site at <http://iwa.univie.ac.at/index.html>) remains an international disgrace, but also marks a distinct decline from the mediaeval way of doing things. For the building of a camp on the ruins of Babylon ("Cultural vandalism": <http://www.guardian.co.uk/Iraq/Story/0,,1391000,00.html>) was surely done through ignorance; while the loot from Baghdad and elsewhere was for the art market, rather than for constructive use as cultural trophies and for that perpetuation and extension of classical models which informs the mediaeval Islamic thirst for marble spolia. Would not the tacky image of President Bush in front of his *Mission Accomplished* banner have at least yielded some historical resonance had he been flanked by precious marbles (perhaps some mihrabs: cf. Al-Janab 1982, pp.169ff.) borne in triumph from the Iraq Museum?

14. Bibliography

Abulafia, David, "Asia, Africa and the trade of medieval Europe", in M.M. Postan & Edward Miller, editors, *The Cambridge Economic History of Europe, II: Trade and Industry in the Middle Ages*, CUP Cambridge etc 1987; pp.402-73

Aanavi, D., "Devotional Writing: 'Pseudoinscriptions' in Islamic Art", in *The Metropolitan Museum of Art Bulletin*, XXVI (1968), 353-8

Ibn-Alatyr, *Chronicle of Kamel-Altevarykh*, in Académie des Inscriptions et Belles-Lettres, Recueil des historiens des croisades, Historiens orientaux I, Paris 1872, III

Alexander, Margaret A. & Ennaifer, Mongi, *Corpus des mosaïques de Tunisie, I: Utique Insulae I-II-III*, Tunis 1973

Alexander, Margaret A. & Ennaifer, Mongi, *Corpus des mosaïques de Tunisie, II: Thuburbo Majus*, Tunis 1994

Allen, Terry, *A classical revival of Islamic architecture*, Dr. Ludwig Reichert verlag Wiesbaden 1986

Ambrose, *The Crusade of Richard the Lionheart*, notes and documentation by John L. La Monte, New York, Columbia UP, 1941

Asfour, Khaled, "Social health in the Arab city", *Eastern Mediterranean Health Journal* Volume 1, Issue 1, 1995, Page 96-102; available on the web at <http://www.emro.who.int/>

Baracchini, Clara , *I marmi di Lasinio. La collezione di sculpture medievali e moderne nel Camposanto di Pisa*, Florence 1993

Barral I Altet, Xavier, "Commanditaires, mosaïcistes et exécution spécialisée de la mosaïque de pavement au Moyen Age", in Barral I Altet, editor, *Artistes, artisans et production artistique au Moyen Age*, Colloque International, Rennes 1983, Paris 1986, I, pp.255-75

Barsanti, Claudia,, [Haghia Sophia;] " I plutei degli intercolumni delle gallerie", in Guiglia Guidobaldi & Barsanti 2004, pp. 315-474

Ibn Battuta, *Travels*, translated from the Arabic edition of C. Defremery and B. R. Sanguinetti by H. A. R. Gibb, 2 vols, Cambridge 1958 and 1962, for the Hakluyt Society (Series II, vols CX and CXVII)

Begley, Wayne .E., & Desai, Z. A., *Taj Mahal: the illumined tomb*, University of Washington Press, Seattle and London, 1989

El Bekri, *Description de l'Afrique Septentrionale*, M. Guckin de Slane, trans, reprinted in *Islamic Geography* 135, ed F. Sezgin, Frankfurt-am-Main 1993

(Académie des Inscriptions), *Recueil des historiens des croisades, historiens occidentaux*, vols III (Paris 1866), IV (1879) and V (1895): Benedicti de Accoltis, *Historia Gotefridi*

Blair, Sheila S. "Decoration of city walls in the medieval Islamic world: the epigraphic message", in James D. Tracy, editor, *City Walls: the urban enceinte in global perspective*, Cambridge UP, Cambridge 2000, pp.488-529

Blair, Sheila S., & Bloom, Jonathan M., "The mirage of Islamic art: reflections on the study of an unwieldy field", in *The Art Bulletin* vol 85 No.1 for March 2003, pp.152-84

Blair, Sheila S., *Islamic inscriptions*, Edinburgh, University Press, 1998

Blair, Sheila, "What is the date of the Dome of the Rock?", in Raby & Johns 1992, pp.59-87

Bodnar, Edward W. & Mitchell, Charles, "Cyriacus of Ancona's journeys in the Propontis and the Northern Aegean 1444-5", in *Memoirs of the American Philosophical Society* vol 112, Philadelphia 1976

Bosworth, C.E. & Asimov, M.S., editors, *History of civilizations of central Asia, IV: the age of achievement, AD 750 to the end of the fifteenth century, Part Two: the achievements*, Le Kremlin-Bicêtre 2002

Broise, Henri et al, "Jardins de Lucullus (Villa Médicis, Trinité-des-Monts)", on the web at <http://www.ecole-francaise.it/chroniques/pincio992000.htm>, and in *Mélanges de l'École française de Rome Antiquité* 112-1, 2000

Brothers, Cammy, "The Renaissance reception of the Alhambra: the letters of Andrea Navagero and the Palace of Charles V", *Muqarnas* XI, 1994, pp.79-102

Brown, Patricia Fortini, *Venice and Antiquity: the Venetian Sense of the Past*, New Haven: Yale University Press, 1997

Burgoyne, Michael H., "The gates of the Haram Al-Sharif", in Raby & Johns 1992, pp.105-124

Burgoyne, Michael H., *Mamluk Jerusalem: an architectural study*, London 1987

- Butters, Suzanne B., *The Triumph of Vulcan: sculptors' tools, porphyry, and the prince in Ducal Florence*, 2 vols, Florence 1996
- Cahen, Claude, "Amalfi en orient à la veille, au moment et au lendemain de la première Croisade", in *Amalfi nel Medioevo*, conference Salerno 1973, Centro Raffaele Guariglia di Studi Salernitani, Salerno 1977, pp. 271-283
- Cameron, Averil, *Procopius and the 6th century*, London 1985
- Canali, Ferruccio, "Prede et marmore de più fine" per il Tempio Malatestiano di Rimini: "nuove" testimonianze e nuove ipotesi critiche", *Studi Romagnoli* 1995, v. 46, p. 287-355
- Cardini, Franco, *Europe and Islam*, Blackwell, Oxford UK & Malden CT, 2001
- Carlier de Pinon, "Relation du Voyage en Orient" (1579), in *Revue de l'Orient Latin* XII, 1911, pp. 112-203, 327-421
- Carruthers, Douglas, "The great desert caravan route, Aleppo to Basra", *The Geographical Journal* 52.3, Sept 1918, pp. 157-184
- Castelfranchi, Maria Falla "Costantino e l'edilizia cristiana in oriente", in Angela Donati & Giovanni Gentili eds, *Costantino il Grande: la civiltà antica al bivio tra Occidente e Oriente*, Milan 2005, pp. 106-23
- Chehab, Hafez K., "On the identification of Anjar ('Ayn Al-Jarr) as an Umayyad foundation", in *Muqarnas* X, 1993, pp. 42-8
- Citarella, Armand O., "La crisi navale araba del secolo VIII e l'origine della fortuna commerciale di Amalfi", in *Amalfi nel Medioevo*, conference Salerno 1973, Centro Raffaele Guariglia di Studi Salernitani, Salerno 1977, pp. 195-213
- Cormack, Robin, "The Visual Arts", in Averil Cameron et al, editors, *The Cambridge Ancient History, XIV: Late Antiquity: Empire and Successors A.D. 425-600*, Cambridge 2000; pp. 884-917
- Creswell, K.A.C., *Early Muslim Architecture*, 2 vols, Oxford 1969
- Creswell, K.A.C., *The Muslim Architecture of Egypt*, 2 vols, Oxford 1952 & 1959
- Crone, Patricia, *Meccan trade and the rise of Islam*, Princeton UP, Princeton NJ 1987
- Čurčič, Slobodan, "From the Temple of the Sun to the Temple of the Lord: monotheistic contribution to architectural iconography in Late Antiquity", in Cecil L. Striker, ed., *Architectural Studies in Memory of Richard Krsauheimer*, Mainz 1996, pp. 55-9 & plates 24-8
- Cutler, Anthony, "Gifts and gift exchange as aspects of the Byzantine, Arab and related economies", *Dumbarton Oaks Papers* 55, 2001, pp. 247-78
- Deichmann, Friedrich W., *Corpus der Kapitelle der Kirche von San Marco zu Venedig*, Wiesbaden, F. Steiner Verlag, 1981
- Demus, Otto, *The church of San Marco in Venice*, Washington DC 1960
- Nour el-Din & Salah el'Din, *Livre des deux Jardins*: continuation, in Académie des Inscriptions et Belles Lettres, *Recueil des Historiens des Croisades: Historiens Orientaux*, I, Paris 1906
- Dodd, Erica Cruikshank, & Khairallah, Shereen, *The image of the word: a study of Quranic*

- verses in *Islamic architecture*, 2 vols, American University of Beirut, Beirut 1981
- Donaldson, Dwight M., "Ibn Jubayr's visit to Al-Medina", *Journal of the American Oriental Society*, 50, 1930, pp.26-42
- D'Onofrio, Mario, "La cattedrale di Gaeta nel Medioevo", *Rivista dell'Istituto nazionale d'archeologia e storia dell'arte*, 1996-1997, vols 19-20, p. 227-249
- Dunbabin, Katherine M.D., *Mosaics of the Greek and Roman world*, Cambridge 1999;
- Ecochard, Michel, *Filiation de monuments grecs, byzantins et islamiques: une question de géométrie*, Paris, Geuthner, 1977
- El Edrisi, *Description de l'Afrique et de l'Espagne*, ed. R. P. A. Dozy & M. J. de Goeje, Leiden 1866 (reprint 1968)
- Al-Edrisi, *La géographie d'Edrisi*, ed. Pierre-Amadee Jaubert, 2 vols, Paris 1836 & 1840
- Elad, Amikam, "Why did 'Abd Al-Malik build the Dome of the Rock? A re-examination of the Muslim sources", in Raby & Johns 1992, pp. 33-52
- Elisséeff, Nikita, *La description de Damas d'Ibn 'Asakir*, Damascus, Institut Français, 1959
- Elisséeff, Nikita, "Les échanges culturels entre le monde musulmane et les croisés à l'époque de Nur-ad-Din (m.1174)", in Goss & Bornstein 1986, pp.39-52
- Enlart, C., *Les monuments des Croisés dans le Royaume de Jérusalem: architecture religieuse et civile*, 2 vols, Paris 1925 & 1928
- Ettinghausen, Richard & Grabar, Oleg, *The art and architecture of Islam, 650-1250*, Harmondsworth, Penguin, 1987
- Ewert, Christian, and Wisshak, Jens-Peter, *Forschungen zur almohadischen Moschee, I: Vorstufen*, Verlag Philipp von Zabern, Mainz 1981
- Favaretto, Irena, et al., *Marmi della basilica di San Marco: capitelli, plutei, rivestimenti, arredi*, Milan 2000
- Ferber, Stanley, "Islamic art and the medieval West: the state of the question" in *Islam and the Medieval West*, exhibition, ed. Stanley Ferber, SUNY at Binghamton, Binghamton NY 1975, pp. 67-74
- Fischer, Moshe L., "Figured capitals in Roman Palestine: marble imports and local stone. Some aspects of imperial and provincial art", in *Palestine Exploration Quarterly* vol 121 July/December 1989, pp.112-32
- Flaminio, Roberta, [Hagia Sophia:] "Gli elementi marmorei di reimpiego", in Guiglia Guidobaldi & Barsanti, 2004, pp.533-650
- Fleury, André de, *Vie de Gauzlin, Abbé de Fleury*, Bautier, Robert-Henri, and Labory, Gillette, editors, Paris 1969
- Fortsch, Reinhard, "Die Architekturdarstellung der Umayyadenmoschee von Damaskus und die Rolle ihrer antiken Vorbilder", *Damaszener Mitteilungen* 1993, v. 7, pp. 177-212;
- Franz, Heinrich Gerhard, *Palast, Moschee und Wüstenschloss: das Werden der islamischen Kunst, 7.-9. Jahrhundert*, Graz, Austria: Akademische Druck-u. Verlagsanstalt, 1984
- Ibn Al-Furat, *Ayubids, Mamlukes and Crusaders: selections from the Tarikh*, trans U. & M.C. Lyons, Cambridge 1971

- Galland, Antoine, *Journal d'Antoine Galland pendant son séjour à Constantinople (1672-1673)*, Charles Schefer, ed., 2 vols, Paris 1881
- Garzella, Gabriella, *Pisa com'era: topografia e insediamento dall'impianto tardoantico all'città murata del secolo XII*, Naples 1990
- Gaudefroy-Demombynes, M., *La Syrie à l'époque des Mamelouks d'après les auteurs arabes*, Librairie Orientaliste Paul Geuthner, Paris 1923
- Gesta Tancredi, in (Académie des Inscriptions), *Recueil des historiens des croisades, historiens occidentaux*, vol III (Paris 1866)
- Ghezzi, Michele Pietro et al., editors, *The Morosini Codex*, I, Padua, Unipress (Archivio del Littorale Adriatico III), 1999
- Gioseff, Decio, "Le componenti islamiche dell'arte altomedievale in Occidente", in *Aquileia e l'Africa* (Antichità Altoadriatiche V), Udine 1974, pp.337-51
- Golvin, Lucien, *Essai sur l'architecture religieuse musulmane*, 2 vols, Paris, Klincksieck, 1970 & 1971
- Golvin, Lucien, *Essai sur l'architecture religieuse musulmane*, III, Paris 1974
- Goss, Vladimir P., "Western architecture and the world of Islam in the twelfth century", in Goss, Vladimir P., & Bornstein, Christine V., eds., *The meeting of two worlds: Cultural exchange between East and West during the period of the Crusades*, Kalamazoo, MI, Western Michigan Univ., 1986, pp. 361-75
- Goitein, S.D., *A Mediterranean society: the Jewish communities of the Arab world as portrayed in the documents of the Cairo Geniza*, IV, *Daily Life*, Berkeley, Los Angeles & London 1983
- Goitein, S.D., "The Mediterranean mind in the High Middle Ages (950- 1250) as reflected in the Cairo Geniza documents", in *Amalfi nel Medioevo*, conference Salerno 1973, Centro Raffaele Guariglia di Studi Salernitani, Salerno 1977, pp. 179-92
- Grabar, Oleg, et al., *City in the desert: Qasr Al-Hayr East*, 2 vols, Harvard University Press, Cambridge MA 1978
- Grabar, Oleg, "Islamic architecture and the West: influences and parallels" in *Islam and the Medieval West*, exhibition, ed. Stanley Ferber, SUNY, Binghamton NY 1975, pp. 60-66
- Grabar, Oleg & André, "L'essor des arts inspirés par les cours princières à la fin du premier millénaire: princes musulmanes et princes chrétiens", in *L'Occidente e l'Islam nell'Alto Medioevo* (XII Settimano di Studio (Spoleto 1964), Spoleto 1965, pp.845-92
- Greenhalgh, Michael, *The survival of Roman antiquities in the Middle Ages*, London, Duckworth, 1989
- Greenhalgh, Michael, "Spolia in fortifications: Turkey, Syria and North Africa", in A Esch, editor, *Ideologiche e Pratiche del Reimpiego nell'Alto Medioevo*, (Proceedings of the XLVI Settimane di Studio del Centro Italiano di Studi sull'Alto Medioevo, Spoleto 1998, Spoleto 1999, pp. 785-935 Spoleto
- Grube, Ernst J., et al, editors, *Arte veneziana e arte islamica: atti del primo simposio internazionale sull'arte veneziana e l'arte islamica*, Venice 1989
- Guiglia Guidobaldi, Alessandra G., and Barsanti, Claudia, editors, *Santa Sofia di Costantinopoli: l'arredo marmoreo della grande chiesa giustiniana*, Studi di Antichia

Christiana LX, Vatican City 2004

Guiglia Guidobaldi, Alessandra G., [Haghia Sophia:] "I plutei delle finestre", in Guiglia Guidobaldi & Barsanti 2004, pp.89-228

Grotzfeld, Heinz, *Das Bad im arabisch-islamisch Mittelalter: eine kulturgeschichtliche Studie*, Wiesbaden 1970

Hahn, Cynthia, "Seeing and believing: the construction of sanctity in early-medieval saints' shrines", *Speculum* 72.4, Oct. 1997, pp.1079-1106

Ibn Al-Faqih Al-Hamadani, *Abrégé du Livre des Pays*, H. Massé, editor, Damascus 1973

Harrell, James, Survey of ornamental stones in mosques and other Islamic buildings of the pre-Ottoman period in Cairo, Egypt, rev.ed. 2003, at http://rubens.anu.edu.au/harrell/Survey_Intro.htm

Ibn Hauqal, *Configuration de la Terre (Kitab Surat Al-Ard)*, ed J.H. Kramers & G. Wiet, I, Paris & Beirut 1964

Heber, Bishop Reginald, *Narrative of a journey through the upper provinces of India, from Calcutta to Bombay, 1824-1825*, London 2nd edn 1828

Hillenbrand, Robert, *Islamic architecture: form, function and meaning*, Edinburgh, Edinburgh University Press, 1994

Hillenbrand, Robert, "La dolce vita in early Islamic Syria: the evidence of later Umayyad palaces", *Art History* 5.1 (1982) 1-35

Holum, Kenneth G., "Caesarea", in Eric M. Meyers ed., *The Oxford Encyclopaedia of Archaeology in the Near East*, New York & Oxford 1997, I, pp.399-404

Howard, Deborah, *Venice & the East: the impact of the Islamic world on Venetian architecture 1100-1500*, New Haven & London: Yale University Press, 2000

Humphrey, John H., "Vandal and Byzantine Carthage: some new archaeological evidence", in John G. Pedley, editor, *New light on ancient Carthage Symposium*, University of Michigan, Ann Arbor, Michigan 1980, pp. 85-120

Al-Janab, Tariq Jawad, *Studies in mediaeval Iraqi architecture*, Baghdad 1982

Ibn Jubayr, *Travels*, ed. R.J.C. Broadhurst, London, Jonathan Cape, 1952

Issawi, Charles, "The decline of Middle eastern trade, 1100-1850", in D.S. Edwards, editor, *Islam and the trade of Asia: a colloquium*, Bruno Cassirer, Oxford 1970, pp.245-66

Jaeggi, Carole, & Meier, Hans-Rudolf, 'this great appetite for church building still needs adequate explanation': die Kirchenbauboom am Ende der Späetantike", *Pratum Romanum. Richard Krautheimer zum 100. Geburtstag* (Wiesbaden, 1997, pp.181-98

Kenaan-Kedar, Nurith, "Symbolic meaning in Crusader architecture: the twelfth-century dome of the Holy Sepulchre Church in Jerusalem", *Cahiers archéologiques* XXXIV (1986) 109-117

Kennedy, Hugh, "Syria, Palestine and Mesopotamia", in Averil Cameron et al., editors, *The Cambridge Ancient History, XIV: Late Antiquity: Empire and Successors A.D.425-600*, Cambridge 2000, pp.588-611

Kennedy, Hugh, *The court of the Caliphs: the rise and fall of Islam's greatest dynasty*,

London 2004

Khoury, Nuha N.N., "The Dome of the Rock, the Ka'ba, and Ghumdan: Arab myths and Umayyad monuments", in *Muqarnas* X, 1993, pp.57-65

Kühnel, Ernst, *Die Moschee: Bedeutung, einrichtung und kunsthistorische Entwicklung der islamischen Kultstätte*, Graz: Verlag für Sammler, 1974

Kuhrt, David, "Contemplating Al-Andalus", in *Arts and the Islamic World* no.31 summer 1997, pp.17-24

Lassus, Jean, "La ville d'Antioche à l'époque romaine d'après l'archéologie", in Hildegard Temporini & Wolfgang Haase, editors, *Aufstieg und Niedergang der Römischen Welt, II.8: Principat*, Berlin & New York 1977, pp. 54-102

Lavoix, H., "De L'Ornementation Arabe dans les Oeuvres des Maîtres Italiens", in *La Gazette des Beaux-Arts*, vol. 16 (1877), 15-29

Brown, Robert, editor, *Leo Africanus*, 3 vols, Hakluyt Society, First series, XCCII-IV, London 1896

Ibn Al-Faqih Al-Hamadani. *Abrégé du Livre des Pays*, ed. H. Masse, Damascus 1973;

Heywood, William, *A history of Pisa*, Cambridge 1921;

Hodges, Richard & Whitehouse, David, *Mohammed, Charlemagne and the origins of Europe*, London, Duckworth 1983

R.A. Jairazbhoy, *Oriental influences in western art*, Bombay etc. 1965

Jenkins, Marilyn, "Al-Andalus, crucible of the Mediterranean", in *The art of medieval Spain, AD 500-1220*, exhibition catalogue, ed. Bernard F. Reilly, New York 1993, pp. 73-84

Keshani, Hussein, "The 'Abbasid' palace of Theophilus: Byzantine taste for the arts of Islam", *Al Masaq: Islam and the Medieval Mediterranean*, Volume 16, Number 1, March 2004, pp. 75-91

Ibn Khaldun, *Discours sur l'Histoire Universelle*, V. Monteil ed., 3 vols, Beirut 1967-8

Ibn Khaldun, *Histoire des Berbères et des dynasties musulmanes de l'Afrique septentrionale*, ed. P. Casanova, II, 1969

Ibn Khallican, *Life of Saladin*, in Académie des Inscriptions et Belles Lettres, *Recueil des Historiens des Croisades: Historiens Orientaux*, III, Paris 1884

Lewis, Bernard, "A Jewish Source on Damascus Just After the Ottoman Conquest", *Bulletin of the School of Oriental Studies*, University of London, vol. 10, no. 1. (1939), pp. 179-184

Lopez, Robert S., & Raymond, Irving W., *Medieval trade in the Mediterranean world: illustrative documents...*, Norton, New York 1967

Lyman, Thomas W., "The function of an ancient architectural ornament and its survival in Medieval Spain and France", *Actas del XXIII Congreso Internacional de Historia del Arte; España entre el Mediterráneo y el Atlántico*, Granada, 1973. Tomo 1 393-406, Granada, Universidad de Granada, Departamento de Historia del Arte, 1976

Lyons, Malcolm C., & Jackson, D.E.P., *Saladin: the politics of the holy war*, Cambridge UP, 1982

- Maas, Michael, *Readings in late Antiquity: a sourcebook*, London & New York 2000
- Maier, F. G., *Griechische Mauerbauinschriften*, 2 vols, Heidelberg 1959 & 1961
- al Makkari, Ahmed ibn Mohammed, *The history of the Mohammedan dynasties in Spain*, 2 vols, ed. Pascual de Gayangos, London, Royal Asiatic Society, 1840 & 1843
- Mango, Cyril, "Ancient spolia in the Great Palace of Constantinople", *Byzantine East, Latin West: art-historical studies in honor of Kurt Weitzmann*, Princeton, Department of Art and Archaeology, Princeton University, 1995, pp. 645-657
- Mango, Cyril, "L'attitude byzantine à l'égard des antiquités grégoromaines," in A. Guillou et J. Durand, editors, *Byzance et les images*, Paris, 1994, 95-120
- Mango, Cyril, "The Triumphal Way of Constantinople and the Golden Gate", in *Dumbarton Oaks Papers* 54 2000, pp. 173-88
- Mango, Marlia Mundell, "Building and Architecture", in Averil Cameron et al., editors, *The Cambridge Ancient History, XIV: Late Antiquity: Empire and Successors A.D.425-600*, Cambridge 2000, pp. 918-71
- Maniatis, Y., N. Herz, and Y. Basiakos. *The Study of Marble and Other Stones Used in Antiquity*, London, 1995
- Al-Maqrizi, *A history of the Ayyubid Sultans of Egypt*, translated from the Arabic with introduction and notes by R.J.C. Broadhurst, Boston: Twayne, 1980
- Martosa, Arturo Diaz, *Capiteles corintios romanos de Hispania*, Madrid 1985
- Mateo, Agustín Sanmiguel, *Torres de ascendencia Islámica en las Comarcas de Calatayud y Daroca (Aragón, España): estructura, decoración, y relaciones con otras torres islámicas de Oriente y Occidente*, Catalayud 1998
- Mathews, Thomas F. & Mathews, Annie-Christine Daskalis, "Islamic-Style Mansions in Byzantine Cappadocia and the Development of the Inverted T-Plan", *Journal of the Society of Architectural Historians* 56 1997, pp.294-315
- McCormick, Michael, "Emperor and court", in Averil Cameron et al., editors, *The Cambridge Ancient History, XIV: Late Antiquity: Empire and Successors A.D.425-600*, Cambridge 2000
- Mehta, Rustam J., *Masterpieces of Indian craftsmanship in marble and stone*, Taraporevala, Bombay 1980
- Meier, Hans-Rudolf, "Christian emperors and the legacy of imperial art", *Acta ad archaeologiam et artium historiam pertinentia* 2001, vol. 15, pp. 63-75
- Meinecke, Michael, *Die mamlukische Architektur in Aegypten und Syrien*, 2 vols, Glueckstadt 1992
- Michaelides, Dimitri, "Some aspects of marble imitation in mosaic", in P. Pensabene, ed., *Marmi Antichi: problemi d'impiego, di restauro e d'identificazione*, Studi Miscellanei 26, Rome 1985, pp. 155-170
- Miguez, Antonio E. Momplet, "Quién construyó la Mezquita de Córdoba? De las evidencias a las hipótesis", *Goya* no. 294, May/June 2003, pp. 145-58
- Minguzzi, S., Pavimenti musivi della catt. di Novara, 1 Colloquio dell'AISCOM (Ass. Italiana per lo studio e la conserv. del mosaico), *Corsi Int. di Cultura sull'Arte Ravennate e*

Bizantina XL, 1993, pp. 245-82

Miquel, André, *La géographie humaine du monde musulman jusqu'au milieu du 11e siècle*, 2 vols, Monton, Paris/Hague 1975 & 1980

Mitchell, J., "The display of script and the uses of painting in Longobard Italy", in *Settimane di Studio del Centro Italiano di Studi sull'Alto Medioevo XLI: testo e Immagine nell'Alto Medioevo*, Spoleto 1993, published Spoleto 1994, pp. 887-951

Monteil, Vincent ed., Ibn Khaldun, *Discours sur l'histoire universelle*, 3 vols, Beirut 1967-8

Moore, John E., "The Monument, or, Christopher Wren's Roman Accent", *The Art Bulletin* 80 no3, 1998 pp. 498-533

Moosa, Matti "The Crusades: An Eastern Perspective, With Emphasis on Syriac Sources", *Muslim World* (Hartford, Conn.) 93 no2 pp.249-89 for April 2003

Muraro, Michelangelo, "Questioni "islamiche" nell'arte veneziana", *Actas del XXIII Congreso Internacional de Historia del Arte; España entre el Mediterráneo y el Atlántico*, Granada, 1973. Tomo 2 156-167 Granada, Universidad de Granada, Departamento de Historia del Arte, 1977

Musil, Alois, *Palmyrena: a topographical itinerary*, in *American Geographical Society Oriental Explorations and Studies* No. 4, ed. J.K. Wright, New York 1928: cf. Appendix IX, pp.277-297: "The country residences of the Omayyads"

Noack-Haley, Sabine, *Mozarabische Baudekor I; die Kapitelle*, Mainz 1991 (Madrider Mitteilungen 19)

Northedge, Alastair, "The palaces of the Abbasids at Samarra", in Chase F. Robinson, ed., *A medieval Islamic city reconsidered: an interdisciplinary approach to Samarra*, Oxford 2001, pp.29-67

Novello, Adriano A., *Die Armenier: Bruecke zwischen Abendland und Orient*, Stuttgart & Zurich 1986

Ormsby, Eric, " Questions for Stones: On Classical Arabic Poetry", *Parnassus: Poetry in Review*, at <http://www.parnassuspoetry.com/Ormsby.htm>

Papadopoulo, Alexandre, ed., *Le mihrab dans l'architecture et la religion musulmane*, Actes du Colloque Internationale tenu à Paris en mai 1980, Brill, Leiden etc 1988

Paribeni, Andrea, "L'uso e il gusto del marmo in età bizantina attraverso le descrizioni e le rappresentazioni antiche", in *Il marmo nella civiltà romana. la produzione e il commercio*, Seminar, Carrara, May-June 1989, ed. Enrico Dolci, Lucca 1990, pp. 164-183

Peacock, D. P. S., "Charlemagne's black stones: the re-use of Roman columns in early medieval Europe", *Antiquity* vol 71 (September 1997) pp. 709-15

Pensabene, Patrizio, *Le vie del marmo: i blocchi di cava di Roma e di Ostia: il fenomeno del marmo nella Roma antica, Itinerari Ostiensi VII*, Rome 1984

Peter, Michael, "Otto der Grösse, Magdeburg und die Antike: zur Verwendung antiker Spolien aus dem Mittelmeerraum in ottonischer Zeit", *Antike Welt*, vol 32 no. 3 (2001) pp. 295-8

Pincus, Debra , *The tombs of the Doges of Venice*, Cambridge 2000

Pincus, Debra, "The stones of Venice in the Baptistery of San Marco: eastern marbles in

- Western mosaics", in Cecil L. Striker, ed., *Architectural Studies in Memory of Richard Krautheimer*, Mainz 1996, pp.137-41 and plates 73-5
- Priester, Ann, The Italian campanile: where did it come from?", in *Pratum Romanum. Richard Krautheimer zum 100. Geburtstag*, Wiesbaden 1997, pp.259-75
- Procopius, *Buildings*, ed. H.B. Dewing & G. Downey, Cambridge Mass & Harvard, 1971
- Raby, Julian, & Johns, Jeremy, *Bayt Al-Maqdis: Abd Al-Malik's Jerusalem, I*, Oxford, Oxford UP, 1992
- Redford, Scott, "The Seljuqs of Rum and the antique", *Muqarnas* X 1993, pp.148-156
- Redford, Scott, *Landscape and the State in medieval Anatolia: Seljuk gardens and pavilions of Alanya, Turkey*, BAR International series 893, Oxford 2000
- Redi, Fabio, *Pisa com'era: archeologia, urbanistica e strutture materiali (secoli V-XIV)*, Naples 1991
- Rogers, J. Michael, *The making of Islam*, Elsevier-Phaidon, Oxford 1976
- Rogers, J. Michael, "The state and the arts in Ottoman Turkey, Part 1: The stones of Suleymaniye", *International Journal of Middle East Studies*, 14, 1982, pp. 71-86
- Rogers, J. Michael, "The state and the arts in Ottoman Turkey, Part 2: The furniture and decorations of Suleymaniye", *International Journal of Middle East Studies*, 14, 1982, pp. 283-313
- Rosenthal, Franz, *A history of Muslim historiography*, rev. ed., Leiden 1968
- Salzman, L.F., 1952 *Building in England down to 1540: A documentary history*, Oxford 1952
- Ibn Sasra, Muhammad, *A Chronicle of Damascus (1389-1397)*, ed. William M. Brinner, Berkeley & Los Angeles, University of California Press, 1963
- Satzinger, Georg, "Nikolaus V., Nikolaus Muffel und Bramante: monumentale Triumphbogensäulen in Alt-St.-Peter", *Römisches Jahrbuch der Bibliotheca Hertziana* 1996, vol 31, pp. 91-106
- Sauvaget, Jean, *La Mosquée Omeyyade de Médine*, Vanoest, Paris 1947
- Schack, Adolfo Federico de, *Poesia y arte de los Arabes en España y Sicilia* 3rd edition, 3 vols, Francisco Alvarez, Seville 1881
- Sear, Frank, *Roman wall and vault mosaics*, Heidelberg F.H. Kerle, 1977
- Sodini, Jean-Pierre, "Marble and stoneworking in Byzantium, 7th to 15th centuries", in Angeliki E. Laiou, editor, *The economic history of Byzantium: from the seventh through the fifteenth century*, Dumbarton Oaks, Washington DC 2002, pp.129-146; look it up at <http://www.doaks.org/etexts.html>
- Soucek, Priscilla, "Byzantium and the Islamic East", *Glory of Byzantium: art and culture of the Middle Byzantine era, A.D. 843-1261*, New York, Metropolitan Museum of Art, Dist. by H.N. Abrams, 1997, pp. 402-411
- Lord Stanley of Alderley, ed., "The travels of a merchant in Persia", (early 16thC), in *Travels to Tana and Persia*, Hakluyt Society, London 1883, pp.141-207
- Stern, Henri, *Les mosaïques de la Grande Mosquée de Cordoue*, Berlin, W. de Gruyter,

1976

Strzygowski, Josef, "Ruins of Tombs of the Latin Kings on the Haram in Jerusalem", *Speculum*, vol 11, no. 4. (Oct., 1936), pp. 499-508

Sullivan, Denis F., *Siegecraft: two tenth-century instructional manuals by "Heron of Byzantium"*, Dumbarton Oaks 2000

Taabaa, Yasser, "Monuments with a message: propagation of jihad under Nur-A-Din (1146-74)", in Goss & Bornstein 1986, pp. 223-40

Al-Tabari, *History*, XIII: *The Conquest of Iraq, SW Persia, and Egypt*, ed. Gautier H.A. Juynboll, Albany New York, SUNY Press, 1989

Al-Tabari, *History*, XXIX: *Al-Mansur and Al-Mahdi*, ed. Hugh Kennedy, Albany New York, SUNY Press, 1990

Ibn Taghribirdi, *History of Egypt, 1382-1469 A.D.*, translated by William Popper, New York: Ams Press, 1976, 7 vols

Tedeschi Grisanti, Giovanna, "Disiecta membra del Portico di Ottavia in San Paolo fuori le Mura e nel duomo di Pisa", *Bollettino - Monumenti musei e gallerie pontificie* 1999, vol 19, pp. 87-98

Vasiliev, A. A., "Byzantium & Islam", in Norman H. Bates & H St. L.B. Moss, *Byzantium: an introduction to East Roman Civilization*, Oxford 1948, pp. 308-325

Vasiliev, A. A., ed. Grégoire, H., & Canard, M., *Byzance et les Arabes, II: La Dynastie Macédonienne*, Brussels 1950

Vickers, Michael, "Wandering stones: Venice, Constantinople, and Athens", *Verbal and the visual: essays in honor of William Sebastian Heckscher*, New York, Italica, 1990, pp. 225-247

Villani, Giovanni, *Cronaca*, Florence 1823, vol 1

Vogt-Goeknil, Ulya, *Frühislamische Bogenwände*, Akademisches Druck- u. Verlagsanstalt, Graz 1982

de Vogüé, Melchior, *Le Temple de Jérusalem. Monographie du Harem-Ech-Cherif...*, Paris 1864

Welch, Anthony, "Architectural patronage and the past: the Tughluq sultans of India' in *Muqarnas* X 1993, pp. 311-322

Wheatley, Paul, *The places where men pray together: cities in Islamic lands*, University of Chicago Press, Chicago & London 2001

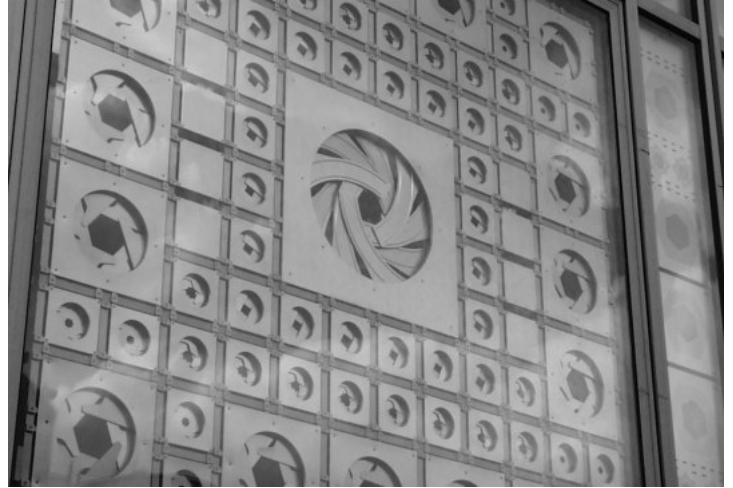
Wilkinson, John, *Column capitals in al Haram al Sharif (from 138 AD to 1118 AD)*, Jerusalem 1987

William of Tyre, "Hist. Rerum Transmarin.", J-P Migne, *Patrologia Latina* CCI, Paris 1903

Wilson, R.J.A. , *Sicily under the Roman Empire: the archaeology of a Roman province, 36BC-AD535*, Warminster 1990

Wulzinger, Karl, et al., *Das islamische Milet*, Berlin & Leipzig 1935

Colophon:
Islamic Inspiration for High-Tech:
Jean Nouvel's 1987 Institut du Monde Arabe, Paris



Nouvel's steel and glass wall building by the Seine is in the best traditions of Modernism, and offers an extremely elegant version of High-Tech while also acknowledging Islamic traditions of marble screens, several of which are illustrated throughout this monograph. In marble, the screens-come-windows are of almost infinite variety, so how to arrange a High-Tech equivalent? The response is shown above: stainless steel and brass diaphragms, controlled by light sensors and servo motors which open and close the diaphragms like camera lenses to let more or less light into the building depending on conditions outside. The Caliphs, building on antique and Byzantine traditions, were especially fond of mechanical devices useful or decorative. This is a Caliphal "toy" we can all enjoy, on our way up to the roof, which offers one of the best views of Notre Dame, and the rooftops and skyline of Paris.