THE USE OF CERAMICS IN PERSIAN AND TURKISH ARCHITECTURE

The National College of Art and Design

THE USE OF CERAMICS

IN

PERSIAN AND TURKISH ARCHITECTURE

A thesis submitted to the faculty of
Art History and Complementry Studies

by

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Department of Craft Design

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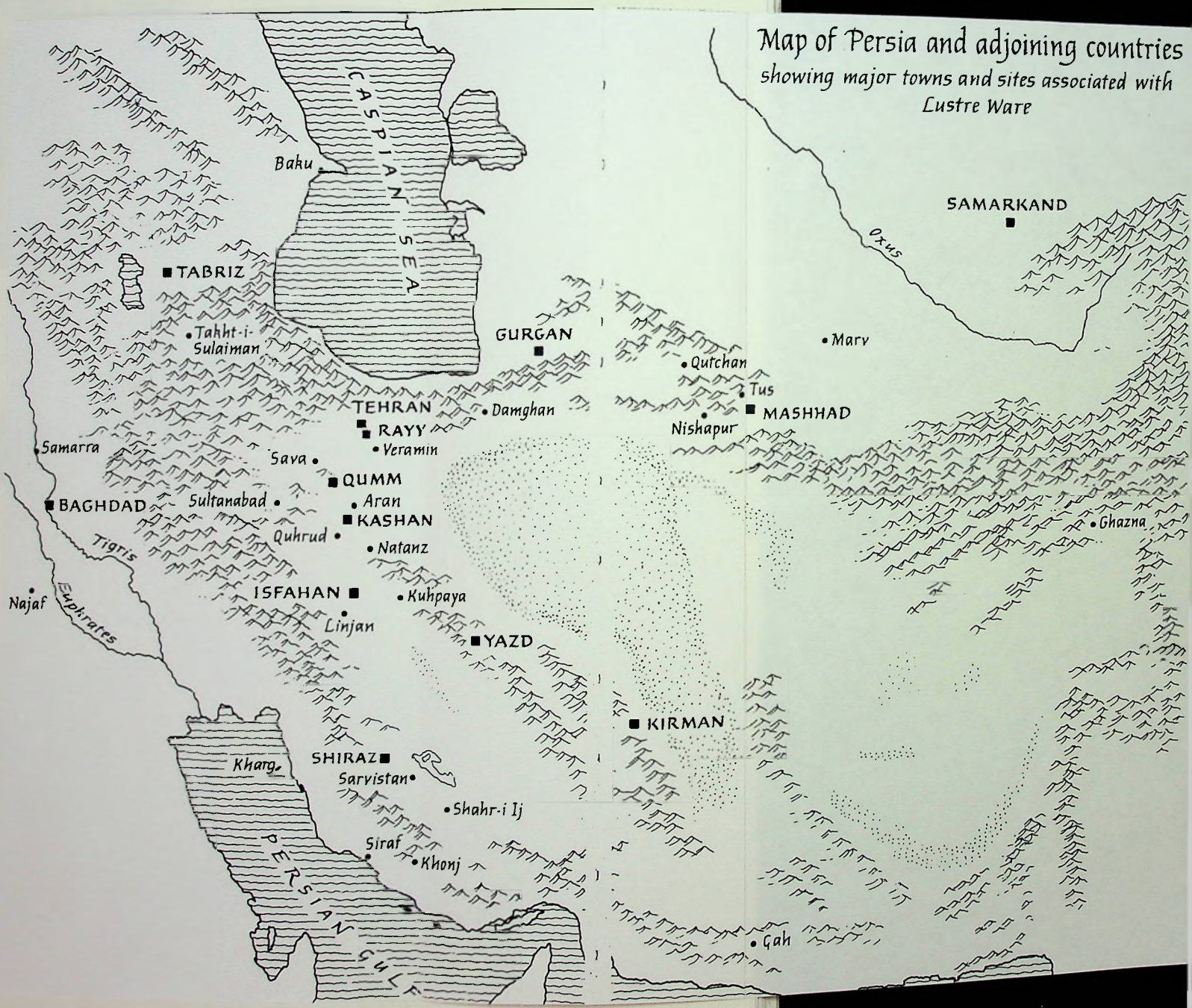
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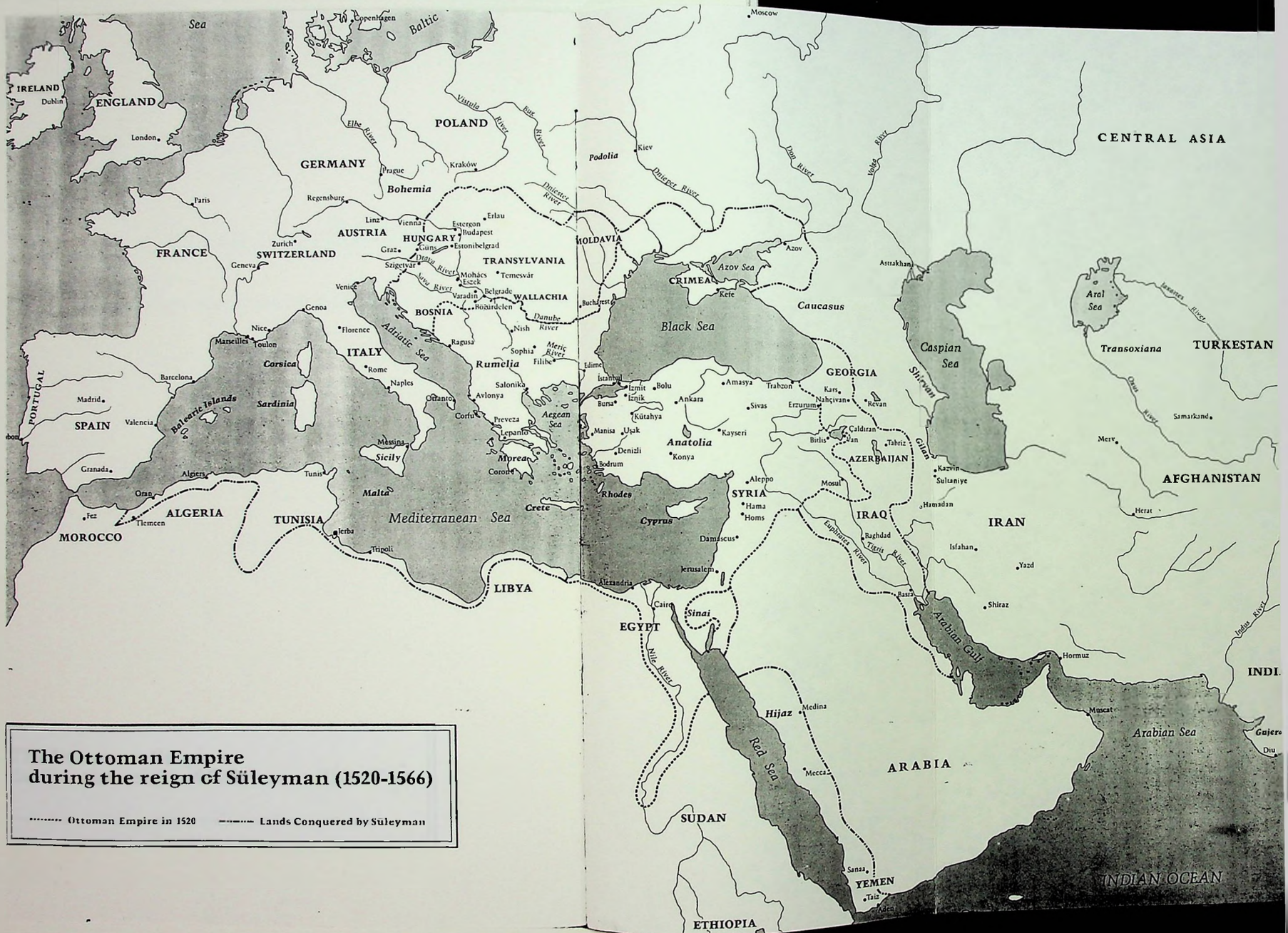

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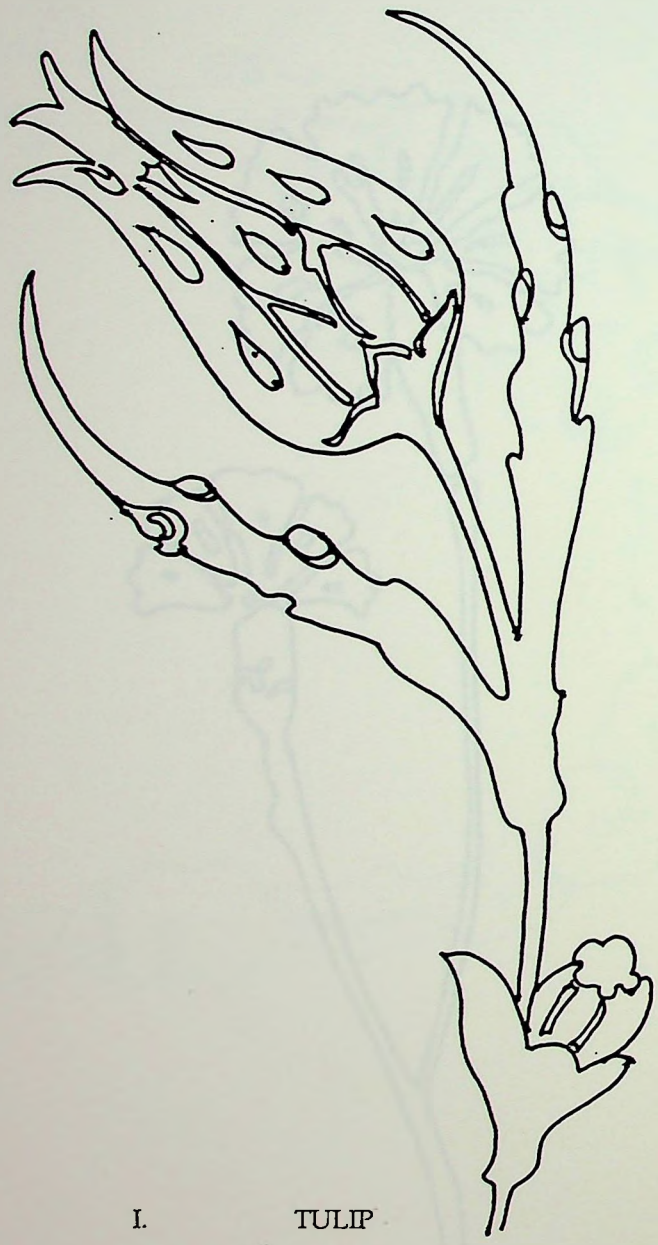

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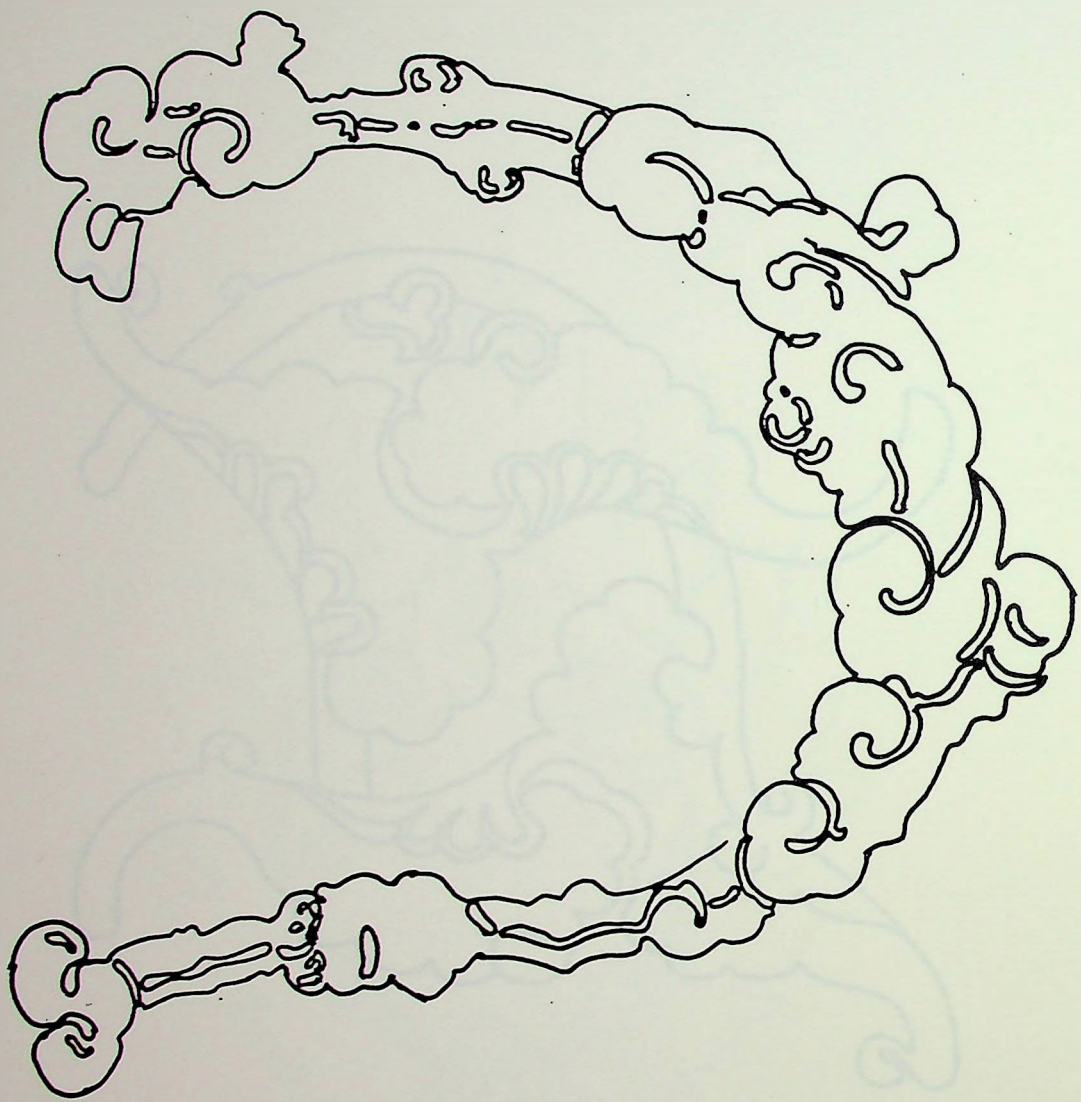

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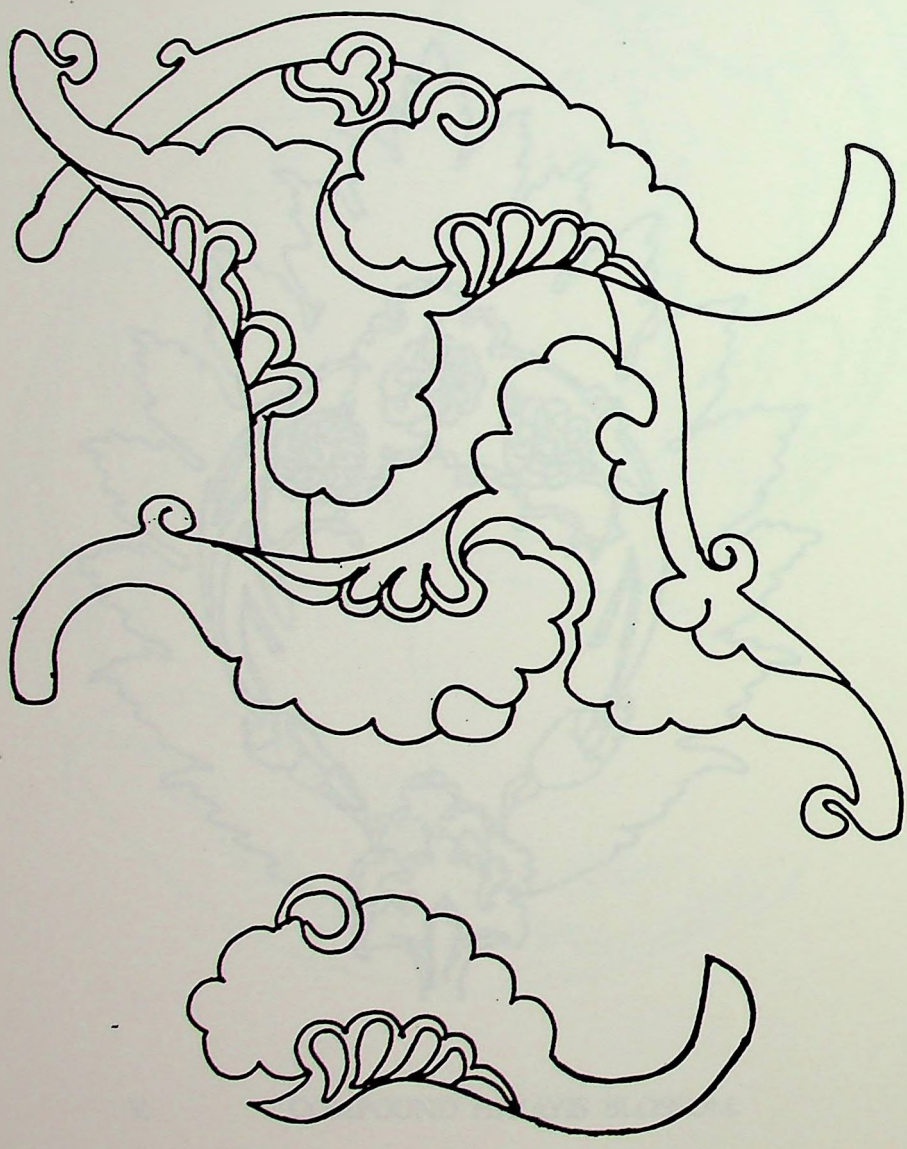

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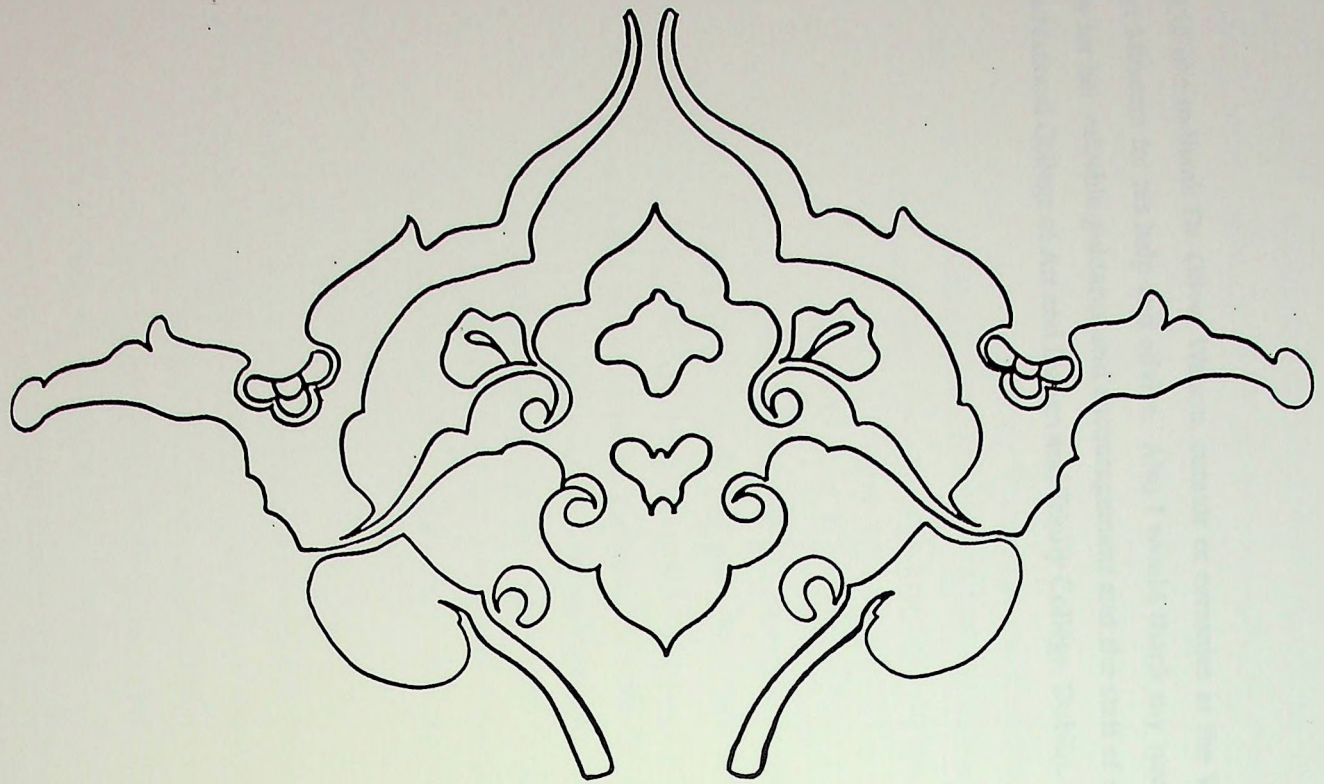

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Introduction

The history of the near East was and still is one of great complexity. Its population is made up of many tribes, all with one common dominator their religion Mohammedanism.

Traditionally these people are seen as waring nations; one always wanting what the other has. This may be so but there is another side. They are sensitive, creative, passionate but above all devout. Their devotion to 'Allah' is seen by westerners as extreme. I rejoice in their devotion, for I firmly believe that with it their creative powers would never have found a firm hold in the lives of the people of Islam.

Chapter One of my thesis introduces the two tribes, whose pottery represents the highest standard of production seen in the Islamic lands. The countries with which we are primarily involved with throughout this study are, Persia, now Iran and Turkey. The two tribes which inhabited these lands are the Seljuk Turks and the Ottoman Turks. The Seljuks ruled in persia from the eleventh to the thirteenth century; the Ottomans ruled in Turkey from the fourteenth to the twentieth century. The periods with which we will be dealing with however are, Persia from 1170 to 1220 and Turkey from 1500 to 1620. These relate specifically to the pottery produced between the given dates.

Moving on to chapter two and to the cities called Kashan in Persia and Isnik in Turkey (see map). The primary function carried out in these cities was the production of ceramic tiles. At Kashan the tiles were decorated with lustre. This is a mixture of metallic compounds in a liquid form, painted onto the already fired white tin glazed body. This body is technically not a clay, as it is manufactured with a number of different ingredients. The iridescent effect of the lustre was due largely of the whiteness of this body.

The success of the tiles produced at Isnik in Turkey was undoubtedly due to the Persian white body. It was introduced onto Turkey by migrating Persian potters in the fifteenth century. The Isnik tiles were painted with an expansive palette of coloured pigments, developed between the sixteenth and seventeenth century.

The last chapter deals with the stylistic characteristic of Kashan and Isnik. The differences and similarities between the work produced at the two workshops is discussed in detail.

Lustre pottery was unique to Persia in the twelfth and thirteenth century. While other types of pottery were being produced, throughout Persia; lustre ware was if you like, the 'Cartier' of Persian pottery. The lustre pigment in conjunction with the great technical skill of the craftsman, the use for calligraphy, geometry and traditional mofits, combined to create a glorious, sparking iridescent effect. This work is considered to be one for the most remarkable periods of ceramic innovation ever seen.

Equally outstanding and influential were the tiles produced at Isnik. Under the Imperial patronage, the guidance for sultan Suleyman, leader of the Ottoman expire form 1520 to 1566, and the influence of the 'nakkashane' (the society of painters), Isnik tiles could do nothing but flourish with exuberance. Illustrated on the lavish tile schemes which decorate the surviving mosques and palaces of modern day Turkey, we can see how wealth, power and passion guided the craftsmen to produce work reminiscent of wild, enchanted gardens containing an infusion of colour, extensive plant forms, calligraphic ornamentation and geometrically derived forms.

Now let our journey begin!

Chapter One

A brief Social History of the Seljuk Turks in Persia and the Ottoman Turks in Turkey.

Persia or Iran as it is known today is situated on a large expanse of land, sometimes referred to as a plateau, between the Caspian Sea and the Arabian or Persian gulf (see map). It is predominantly desert. Among this dry, sandy, barren land oases were dotted. Water being the life blood of every living thing, these fertile areas of land, depending on their size, saw the establishing of settled communities, villages, towns and cities.

Persia has an extremely long and complex history. The Persian people did not originally come from this region. They and the Medes settled on the plateau towards the end of the second and the beginning of the first millennium. They both came form the north, beyond the Caucausus region choosing routes around the Caspian sea. The Medes settled in the north and central areas of the plateau and the Persian further south in the Fars region (see map).

There was a continuing turnover of ruling tribes for centuries in these near eastern lands; Persia, Anatolia, Syria, Iraq and Afghanistan. In the eleventh century the Turkish tribes of the Ghaznavids ruled the Islamic lands. They had come from the northeast as mercenaires in the tenth century. They attached themselves to the ruling power, at that time, the tenth century, it was the Samaids, and then they overthrew them. They established themselves in Ghanza, Afghanistan. The lands which they governed were very unsettled places to live. The people were continuously fighting each other in what resembled inter-tribal feuding rather than major territorial struggles. They managed to retain their rule from 977 to 1040.

A man called Seljuk, whose name the afore - mentioned tribe adopted, was the leader of the Ghuzz tribesmen in the region of Bukhara in Transoxiana, central Asia (see map). He became a devout Muslim around the year 980. He had great

difficulty in restraining his warriors from invading the lands of his new faith. He ordered them to defend the frontier of the dwindling Ghaznivid empire, which consisted of what we would call today, Iran and Iraq. In 1040, the warriors overran their leaders commands and invaded the Ghaznavid empire. Seljuks grandson Tughrill Beg pushed the army further west; he was made Sultan of Baghdad in 1055 and he won new lands of western Persia, Mesopotamia and from the Byzantines in Asia Minor.

When the majority of fighting had ceased, the Seljuks set about creating an environment conducive to the development of great art and architecture. The Seljuks, 'warrior-aristocracy' rehabilitated the way of life of the conquered people. They became fabulously wealthy under the rule of the great Malik Shah who ruled from 1072 to 1092. Architecture, painting, pottery and metalwork all witnessed their extravagant taste and their aesthetic judgement. The round faced Seljuk warriors, huntsmen, musicians and courtiers appear again and again on the lustre pottery, decorated in the twelfth and early thirteenth century.

Persian lustre pottery began under the Seljuks around the middle of the twelfth century and reached its highest standard in the first twenty years of the thirteenth century. The city where the majority of this work was carried out is called Kashan, directly south of the Caspian Sea. It is chiefly known for its production of tiles. It was such as important tile producing centre that its name became synonymous with tiles. To this day the Persian word for tiles is 'kashi' or 'kashani'.

Due to the importance of these lustre tiles I have chosen to base half this study on their production at Kashan from 1170 to 1220. During the 1220's the Mongols invaded the Seljuk empire from Central Asia. On doing so, they were responsible for disrupting one of the most creative periods of ceramic history. Some say it was equaled only by the achievements of the industrial potters of eighteenth century England.

During the Seljuks rule, more was technically achieved in the area of production and decoration than any other previous period. Lustre was not the only type of ware produced. Techniques known as 'minai' and 'lajvardina' were also use there to decorate tiles. Although the lustre techniques was used before in Mesopotamia and Egypt, it was perfected by the Seljuks. 'Minai' and 'lajvardina' on the other hand were techniques found only on the ceramics produced at Kashan. The technique of using lustre on ceramics was taught to the Persian potters by craftsmen from Fustat, Egypt who had migrated there during the decline of the Fatimid dynasty about the middle of the twelfth century. Indeed early Seljuk lustre closely resembles that of the Fatimid painters. (fig. 1&2).

The importance of work which is signed and dated is paramount. Not only does it tell us who made it and when it was made, it puts all other unsigned and undated work into chronological sequence. For instance a motif found on a tile which is signed and dated may be found on another tile which is unsigned and undated, it is therefore reasonable to assume that they are by the same artist and from he same period. An example of this will be discussed in chapter three.

Tiles that have been signed and dated tell us about the people who made them. It informs us of the pride they had in their work, the desire for recognition of their achievements and the acknowledgement by people of their time and for centuries to come, of their work.

A remarkable family from Kashan were determined to have their name remembered. It was headed by a man called Abi Tahir ibn Abi al-Hussain circa eleventh century. His family can be traced for three generation. After Abi Tahir was his son, Muhammad ibn Abi Tahir ibn Abi al-Hussain. He and another potter Abu Zaid of a different family, were the two potters who founded the 'Kashan' style in the first two decades of the thirteenth century. Muhammad's son Ail ibn Muhammad ibu Abi Tahir al-Qashini was also a potter, during the Mongel rule under Il-Khanids as was his son Yusuf ibn Ali Muhammad ibu Abi Tahir

al-Qashani.

Another member of this family was Abu'I Qasim. He was the brother, probably younger, of Yusuf Abi Tahir. There is no evidence of any ceramic work produced by him. However, there is a remarkable treatise, written by him in 1301, on the techniques of making and the decoration of both the vessels nd tiles that were made by his family. It follows an account of precious stones, perfumes and other substances which he wrote while fulfilling his appointment as court historian at the Mongol capital of Tabriz in north western Persia. He called it, 'a kind of alchemy' because it describes the transformation of materials. For example the changing of tin alloy to tin oxide by calcination. It gives us an extremely rare insight into the production of medieval Islamic ceramics. Examples of his writings will be used throughout chapter two.

Persian pottery was made as a commercial product dependent on a 'middle class' (3) market. Persia was at the time experiencing a boom in its economy. This was due to its success as a trading nation. Its cities were at the nucleus of the trade routes between China and Baghdad, Iraq.

The influence Chinese porcelain had on Persian ceramics is paramount. In the ninth century Chinese T'ang ware began to reach the Near East by the sea route across the Indian Ocean and up the Persian Gulf to Basra (see map). It continued to be imported into the Islamic lands for many centuries. The Chinese ceramics that came into Persia were not of a domestic nature. This encouraged the Persian potters to develop their wares from functional to luxury products. Many other elements show the influence of the Far East on Near Eastern ceramics. These will all be discussed in the following chapters.

One of the most feared and destructive forces from the far east succeeded in disrupting a remarkable period of ceramic development. This force was that of the Mongols. They swept across the empire from Central Asia in 1220 to 1258

destroying towns and cities. Rayy north of Kashan was one of the largest cities in Persia with, '...its thousands of mosques and minarets [where the muezzen (or prayer caller) calls at hours of prayer], its wealth, skills, its far-flung trading contacts, its intricate web of human relationships was little more than mounds of rubble and charred timber' (4). This devastation signaled the end of the Seljuks great patronage of the arts.

Kashan appears to have survived the Mongols invasion and continued to produce tiles under the Il-Khanid rule but not to the same extent as before. One reason for his may be the fleeing of skilled craftsmen and their families from the tyrannical Mongols to other parts of the empire and even to different countries. A few Persian potters , it appears, found their way to Turkey. Turkish ceramics show many influences of a Persian nature from the thirteenth century onwards, however several centuries elapsed before a distinctive school of ceramics emerged from that country.

We now turn our attention to that period, as another dynasty of immense wealth and power emerged. It fired the imaginations of is people, enabling them to produce ceramics like nothing ever seen before. This period was that of the Ottoman Turks and Sultan Suleyman the Magnificent.

The Ottomans like the Seljuks were a Turkish family. Osman c 1300 was the leader of one of the emerites who founded the Osmanli or Ottoman empire. He was the first of a long line of sultans in which the rule was passed directly form father to son or to the eldest male in the family until this century. In 1922 the Ottoman sultanate was abolished and a year later replaced by the Republic of Turkey.

During the establishment of Ottoman rule, Bursa on the Aegean Strait (see map) became the first capital. Then they moved into Isnik and Izmit, crossing the Dardanelles into Thrace and entered Edrine which was chosen as their second

capital. The Ottomans soon increased the lands under their rule to central, north eastern and southwestern Anatolia as well as Macedonia, Bulgaria, Serbia and Romania.

During its formative years, from the thirteenth to the sixteenth century, there were a number of very fine sultans, each making the lands they conquered part of the ever increasing empire. One of the greatest of all Sultans was Suleyman I who was the tenth ruler and governed for forty six years form 1520-1566. During his rule he was responsible for more than doubling the extent of him realm. At the time of his death the Ottoman Empire included west Greece, Albania, Bulgaria, Yugoslavia, Romania, Hungary and part of Czechoslovakia (see map).

Suleyman was born to Selim I (father) and Hafsa (mother) on the 6th November 1494 in Trabzon, southern coast of the Black sea, where his father was governor. The prince lived there until 1509, at which date he was given the 'sancak' of Bolu in north western Anatolia to govern. A 'sanck' is a district in a province. The most prestigious sancaks were assigned to the princes at an early age, where they were trained in administrative and military affairs. A few years later he was sent to Kefe in the Crimea, (see map) where he spent three years.

His father ascended the Ottoman throne on 24th April 1512. While Selim I was fighting in Anatolia, Suleyman was asked to live and carry out the duties of a 'crown prince', in Istanbul, the third capital of the Ottoman Empire since 1453.

Selim I died on 22nd September 1520. Suleyman's coronation took place on the 31st September 1520, when he was twenty-six years of age. He inherited a vast empire which was excellently run by an efficient system of government established by his for fathers. Suleyman's military victories procured and acquired great wealth for his empire. It was however his patronage of art and architecture which we are concerned with. The reign of Suleyman has been described as the, '.....golden age of Ottoman culture.....' (2). It was the personal

involvement Suleyman had with the arts that is so outstanding. He himself was trained as a goldsmith following the tradition of the Ottoman house, that every ruler was required to learn a practical trade. He spoke Arabic, Persian and Cagatay, a Turkish dialect, and was a gifted poet, writing in Persian and Turkish.

His passion of poetry was equalled only by his appetite to commission monumental works of art and architecture. He set trends amongst his courtiers; many became accomplished writers of poetry, history and literature an several became celebrated painters and calligraphers. They also commissioned outstanding works of art and architecture, almost as if one was trying to out-do the other constantly. As a result the cities of the Ottoman empire were graced, by some of the most beautiful buildings ever created. All areas of the visual arts experienced this wonderful creative activity.

One of the most overwhelming influences was the 'nakkashane' or nakkas (singular). This was a term, "...applied to men who created decorative themes..." (2). The society which these men belonged was called Cemaat-i Nakkasan (Society of Painters); it was one of the groups which made up the Ehi-i Hiref. The Ehi-i Hiref was consisted of a number of societies that represented a variety of professions including calligraphers, painters , bookbinders, goldsmiths, jewellers, woodworkers, weavers, tailors, hatmakers and boot makers as well as such unlikely occupations as surgeons and wrestlers.

The Cemaat-i Nakkasan was made up of artists who where responsible for the illumination of thousands of books on religious, historical, literary and scientific subjects. These artists also provided designs used by other craftsmen such as potters, weavers, stone carvers and wall painters. The decorative themes used on rugs were fully established by the nakkashane in the mid-sixteenth century and were applied to all the imperial arts, including tiles (fig 3 & 4). Evidence of the impact the 'nakkashane' had on the ceramics produced during the fifteenth to the seventeenth century of Ottoman rule will be shown in chapter three.

The production of ceramics during the age of Suleyman was highly accomplished. This was due mainly to the patronage of the pottery workshop at Isnik. The Imperial kilns at Isnik appear to have been set up soon after the court moved to Istanbul in on the northern side of the Aegean Strait (see map). The city of Isnik had been producing ceramics since the fourteenth century. It had ample supplies of white clay, sand, wood, water and other minerals needed by the ceramist.

As the Sultan, his family and his governors commissioned the royal architect, Sinan being the most famous, to build religious, charitable and educational compounds there results an overwhelming demand for tiles. As more and more tiles were produced, new styles and techniques were developed. There are four types of Ottoman pottery all of which evolved during the reign of Suleyman. The first type is underglaze painted blue and white ware, the second is blue and turquoise. Thirdly, with a more expansive palette which incorporated green and purple with the above blue and turquoise. The fourth, which is seen at the classical style of Ottoman pottery, dropped the weaker greens and purples and replaced them by a rich emerald green and bright, scarlet red. These styles and definitions will be discussed in the third chapter.

The workshops at Isnik were prolific in their production of tiles. They were however not only for the home market. Pottery and tiles were also commissioned by synagogues as there are at least two lamps with Hebrew inscriptions and by Greek churches and monasteries, including those in Istanbul and Mount Athos. Objects were also commissioned by foreign diplomats for instance a series of plates decorated with the coat of arms of the Mocenigo family of Venice.

The acceptance of commissions from foreigners was not looked on very highly by the palace. The potteries were under royal commission to produce tiles for imperial buildings and the time spent producing ware for people other than the court was delaying the completion of buildings. 'Fermans' (Imperial orders) were sent to the potters with the tugra (fig 5) (sultans monogram) of the sultan in the

late seventeenth century, to try and control the production of ware for foreign buyers. But the state fixed the prices of the ware which forced the potters to seek other markets and take on outside commissions which were more profitable.

The high point of Isnik pottery was during the last quarter of the sixteenth century. It maintained that level for twenty to thirty years. The industry entered a decline around the 1620's. There are three clear reasons for this. The first being the already mentioned price-fixing. The second is that there was a definite decline in the construction of imperial compounds and hence the reduction of the demand for tiles. Finally when the court withdrew their patronage, the quality of work declined and Isnik potters started mass - producing wares of domestic use and for export. Evliya Celedi, a famous traveler who wrote extensively about life in the Ottoman, commented on this said state of affairs saying that in the mid-seventeenth century, Isnik had only nine workshops producing ceramics in comparison to around three hundred at the beginning of the century.

The popularity of Isnik products led to Italian copies in the second half of the sixteenth century. There was a revival in Europe in the nineteenth century. This was due to the 'orientalist' exposition that swept across Europe at that time. There were some excellent imitations and even forgeries of sixteenth century Ottoman ceramics made in France, England, Hungary, Austria and Italy, particularly in Florence by Antagalli. Turkey also took part in this reproduction trend but not till this century. Two workshops in particular are the Yildiz palace studios in Istanbul and at Hutahya in north western Turkey.

In conclusion you can see that Turkish ceramics was a fundamental influence tot the ware produced at other workshops during the Ottoman rule and for many centuries to follow. Equally important to Turkish ceramics was the influence of Persia and China. Had it no been for the migration of Persian potters to Turkey, bring with them their technical and decorative skills and the importation of chinese porcelain into the Islamic lands, the phenomenon of Turkish ceramics may never have happened.

Fig 1: Egyptian; 12th century diameter 29.6cm.
Keir Collection
Book 12.

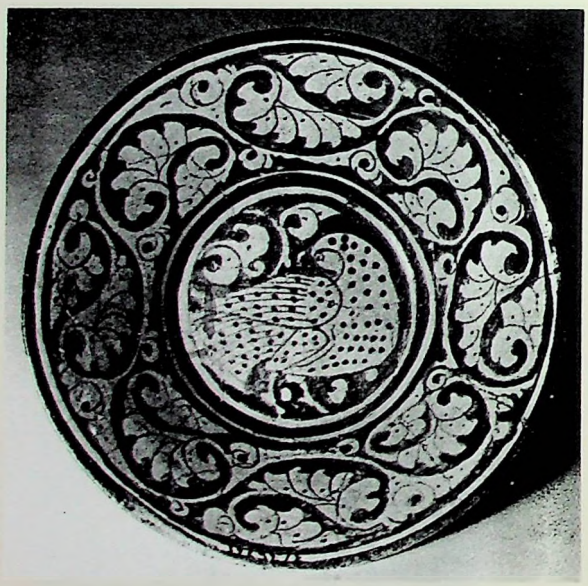

Fig 2: Monumental style; late twelfth century, diameter 15.5cm.
National Museum, Damascus
Book 12.

Fig 3: Prayer rugs; second half sixteenth century.
Nakkashane themes
Book 2.

Fig 4: Prayer rug; second half sixteenth century
Nakkashane themes
Book 2.

Fig 5: Illuminated tugra of Sultan Suleyman, c. 1555-1560
A Tugra is the monogram of the Sultan,
Book 2.

Chapter Two

Materials and Methods of Production of Kashan lustre tiles and Isnik underglaze painted tiles.

Discussions in this chapter will center around three principal factors. They are the kinds of raw material used in Persia from 1170 to 1220 and Turkey from 1500 to 1620; the way in which the lustre tiles of Kashan and the underglaze painted tiles of Isnik were shaped and the way in which these tiles were decorated.

To chart the steps taken by the master craftsmen of Islam, in the production of tiles, is a difficult task. Little evidence has survived or has been excavated and thus it is difficult to gain a complete picture of exactly what the processes were and how they were carried out. That said, there are two treatises which offer some insight into the techniques of making pottery in the Middle Ages. One of these we have already referred to in the previous chapter; Abu'I Qasims 1301 treatise on the manufacture of pottery at Kashan in Persia. The other by an Italian author named Piccolpasso is a treatise of 1556 primarily about the production of maolica in Renaissance Italy. Maolica is a tin glazed pottery, painted with pigments of bright blue, yellow and green. It is a technique which can trace its origins to Islamic ceramics. Piccolpasso's treatise talks at length about the techniques of making and is illustrated in great detail on all the procedures involved in the making of ceramics.

In order to help this study gain as complete a picture as possible, I intend to refer to Piccolpasso's treatise as well as Abu'I Qasims. Although some two hundred years elapsed between the appearance of each of these works, authors agree that the methods of manufacture in Near Eastern countries from the twelfth to the seventeenth centuries were similar to those used in Renaissance Italy.

Clay is the raw material used in ceramic production. There are two main groups to consider when talking about clay. The first is primary or residual clay, which is found where it is formed, China clay or Kaolin is the main clay in this group; it is

the purest form of clay. The term kaolin comes from the Chinese 'Kao-ling' which means high-ridge. Originally it was the name of the mountain where kaolin was first mined in China.

It was this mineral which the Persians needed desperately when they were trying to produce porcelain type ware, influenced by the Chinese porcelain being imported into Persia from the ninth century onwards. They were unsuccessful at making porcelain because there are no known deposits of China clay in Persia. They did however produce wares that contained many of the qualities present in porcelain. These qualities will be referred to when we discuss the frit-paste in more detail.

While Persia had no deposits of China clay it had a plentiful supply of secondary clays. These clays are found not where they were formed but wether they have been deposit by stream or river. These are made up of many minerals and also undesired elements like sand and organic matter, collected on its journey to its settling place. These clays can be found at river estuaries, river banks and sea shores.

Islamic pottery was made form a secondary clay known as earthenware between the ninth and twelfth century. The most common form of earthenware is terracotta. It is low-firing, 950^{o}c, rust red in colour and is made up of very fine particles. There are two other types, white and buff earthenware, the later being the type used most in the Near Eastern countries of Persia, Turkey, Syria and Iraq.

Some minerals present in secondary clays are quartz, feldsar, mica and lime. Certain Persian clays contain a lime content. Lime can be recognised in the clay body by looking at the unglazed side of a tile. It could be a reddish, ochre or even yellow colour. Colour variations are due to the amount of lime in proportion to the iron oxide present.

Frit paste was a revolutionary substance introduced to Persia in the twelfth century. It is not known exactly where frit-paste was first used but it was probably Kashan. The Islamic potters were distraught by the fact that they could not make porcelain . This would have enabled them to produce wares of similar fineness, strength and translucency as those imported from China.

They revived an ancient Egyptian technique of manufacturing an artificial body from various minerals. It was made up of ground quartz which was then sieved through coarse silk. The quartz used was found in river beds as pebbles. Added to the powdered quartz was one part white sticky clay, for plasticity and one part glaze mixture, usually a fusible alkaline frit or ground clear glass, which acted as a bonding agent for all the particles. The addition of the clear glass meant that translucency was often achieved. The fineness of the paste depended on the size of the particles. Therefore the size of the particles determined the size of the piece of work. A large slab of clay needed a paste of large particles to enable the slab to dry evenly and not warp. Small articles required a finer, denser paste. The potters at Kashan perfected the frit-paste around 1200. Theirs was the hardest and whites of any other being produced at that time. It appears only to have been used in the manufacture of the Persian luxury pottery; that is lustre, minai and lajvardina.

The mining and preparation of clay in Persia before the development of 'frit-paste' is unclear. Abu'I Qasim writes only about the origin and mining of raw materials, such as quartz, tin etc. Piccolpasso, however, describes two methods of mining clay. One is simply the digging of clay from where it is found, be that mountain-side or river bank. The other method required the digging of trenches in the river bed during the dry season. Then in the floods the river water flowed through the trenches. The speed of the river was slowed down because of the trenches and this aided the depositing of clay. When the next dry season came, the trenches were exposed and the clay dug from them.

When collected the clay had to be prepared. With regard to earthenware, as it is a secondary clay, it will have collected many imparities and organic elements while reaching its destination. These will have to be removed. To do this, the clay has a substantial amount of water added to it until it has becomes liquified or slip. The slip would have then been sieved through different grades of woven cloth. For example a loose woven cloth would have been used first, to capture twigs and stones, then a finer cloth for smaller particles, and so on until all the unwanted matter had been removed.

Although the clay is free from impurities it is now in liquid form. To make the clay solid and usable, the majority of the water must be removed. Long trough's are erected in the open. The slip is poured into them. The clay settles on the bottom of the trough. The water remains on top of the clay. The sun then evaporates off the water and you are left with clay once again. It is important not to allow all the water to evaporate as then the clay would be too dry and hard to manipulate.

As frit paste was an artificial body and made of minerals already refined it was not necessary to carry out the above. It did however have its own particular difficulties. It is referred to as a lean clay. What is meant by this is that it required little water for the purpose of shaping. This results in only a slight shrinkage when drying. A lean clay is extraordinarily difficult to shape and while drying it can have problems in retaining that given shape. (Although in the case of slabs of clay for tiles, this is not a major problem). An article written by A. Lucas, 1936 shows how it may have been possible to preserve its form when it was drying. From tests Lucas carried out he found that with the addition of common sea-salt to the frit-paste the success of firing the ware was remarkably improved. Salt being a form of sodium, combined with the quartz and glaze mixture, resulted in successfully fired ware.

When both the fritware and the earthenware had been satisfactorily mixed,

refined and reached a dry state suitable to handle, it was cut into large blocks and stored some where damp for it to 'sour' this increases it plasticity. An underground cellar was probably the only suitably damp place to store clay during the middle ages in Near Eastern countries. After a period of time, months even years, the clay was taken from its damp place; kneaded and wedged like dough and left to mature over night, as described by Abu'I Qasim.

Islamic tiles come in two different categories, best described as relief and non-relief. The potters at Kashan, Persia are famous for both while the potters at Isnik, Turkey generally worked on a non-relief or flat surfaces. Relief is a term given to surfaces which are raised. For example, the decorative moulding applied to ceilings is in relief, it is raised from the remaining flat or smooth area.

The forming of relief tiles is a complicated process. It seems that a single mould was used to form the main body of the tile, which incorporated decorative elements, like cornices for example. The advantage of using moulds was that each tile was identical to the next. The moulds were made from wooden blocks. These wooden blocks would have been carved in the negative. Clay was then pressed into the block and on removing it you find the tile has a relief or raised surface.

With regard to the relief lustre tiles from Kashan, the calligraphy designs would have been formed and applied separable. Presumably these designs were worked out on paper first, then modeled in clay and applied to the surface of the tile. Some Persian relief tiles had such a high relief, they were probably carved from the tile itself. This would have been done with knives or wire loops. Each tile thus became an individual piece of sculpture.

The shaping of non-relief tiles was carried out in wooden frames. The shapes that were achieved are extensive:- square, rectangular, star, cross, hexagonal, octagonal, diamond and triangular. To form these tiles a piece of clay was flattened by hand or rolled into a slab. The slab was then pressed into the wooden

frame. The advantage of using wood was that the clay didn't stick to it. This was so because the wood absorbs water from the clay shrinking it slightly allowing it to drop easily from the frame. Once removed it was left to dry. This is one of the most critical stages of the making process. It is essential that the drying is controlled. If not, warping and cracking can occur. I am sure in the extreme heat of the Near East this was difficult but they appear to have handled the problem well.

Once the greenware (term given to unfired clay) is completely dry it is ready for its first firing. Abu'I Qasims treatise tells us an interesting fact that no bisque (biscuit) firing was necessary. A bisque firing is done to transform clay from the extremely brittle stage of greenware to a much harder state. He refers to the Kashan lustre ware as 'twice-fired ware'. The first firing is for the base glaze and the second for the lustre. This is another piece of information which illustrates the importance of Abu'I Qasim's treatise. In the case of Kashan ware the glaze was applied directly onto the greenware. Information is not available as to whether the Isnik potteries bisque fired their ware or not.

Potteries in the Near East probably had a specific kiln for their first firing. Unfortunately very few kilns from these countries - Persia, Turkey, Syria and Iraq have been recorded in archaelogical digs. Many sites are probably under modern tower blocks and will never be recovered. Also many digs which have already taken place were sponsored by antique dealers, rather than arechaeological societies. There interest lay unfortunately in monetary terms - of what they could get from the digs - rather than the search for information which could lead us to a better understanding of the pottery workshops of the thirteenth and fourteenth century.

Abu'I Qasim unfortunately did not include in his treatise information on the structure of kilns. He only comments on the fuel used to fire the kilns which was wood. Piccolpasso on the other hand went to great lengths to describe and

illustrate kilns in his treatise (fig 6, 7 & 8).

The glaze that was applied to the green clay at Kashan was a clear alkaline glaze made opaque white with the addition of tin lead oxide. Tin lead oxide is obtained through the process of calcination. This involved the firing of the alloy tin and the alloy lead together in a furnace kept purely for this purpose. As tin is expensive, the proportions of tin and lead vary. Tin is what gives the glaze a 'whiter than white' appearance. It is important that the proportions are not reduced beyond four parts lead to one part tin because the glaze will not achieve the opacity required. Abu'I Qasim discussed the proportions 3:1, and then goes on to say '... and if a more full bodied and better glaze is desired, then take tin to as much as half', (1) that is two parts led to one part tin.

When the desired quantities have been decided, they are placed in the chamber of the calcination furnace and fired to extreme temperatures. The alloys melt and change from a solid to liquid state. When in the liquid state the top layer of the molten alloy oxidizes and becomes an ash. It rises from the molten alloy and adheres to the walls of the furnace. It is then scraped off when cool and ground into a powder. It is this powder which is added to the clear alkaline glaze to make it opaque white.

The alkaline glaze was poured over the green clay tile. It was left to dry again in the sun. The edges of the tile are wiped clean of any glaze mixture which may have over run the edge of the tile. When all this is done the tiles without the addition of painted designs are ready for the first firing. However, tiles which require further work are passed on to the master painters. Two outstanding Kashan painters Muhammad ibn Abu Tahir and Abu Zaid are known for their signed lustre ware.

The colours were painted directly onto the powdery glazed surface. Copper oxides for turquoise and cobalt oxides for blue were the only colours used. These

were painted with little water onto the raw glaze. This technique was to be used later in the European maolica and delftware of the sixteenth and seventeenth centuries. The turquoise is difficult to control and tends to blur. The cobalt can act as a flux and occasionally causes whole areas of glaze to flow, particularly on tiles, where it is used in large quantities. The turquoise is use mostly to colour small areas, such as garments or flower heads. The cobalt when not applied too heavily was used to outline panels and cartouches for areas of precise detail and on raised inscriptions.

According to Abu'I Quasi the temperature of the first firing was thought to be a little under 1000^{o}c and lasted about a week, including a cooling down period. This illustrates to us that these kilns were of quite a substantial size.

The tiles emerge from the firing with a hard white glaze, with colour in approprate places. They were then ready for the lustre pigment to be applied. Lustre painting is known as an overglaze painting techniques. It is painted directly on top of the already glazed tile.

Lustre is a mixture of silver and copper compounds which are ground together with ochre and water at vinegar. This mixture is then ready to be used by the painter for his chosen design. The base glaze being hard allows the coating of lustre pigment to be scratched through and a design formulated. The tiles are fired to a lower temperatures than the first firing; probably between 600^{o}c to 700^{o}c. There is a stage during the lustre firing that is crucial to the success of the metallic effect. During a certain part of a firing the supply of oxygen to the fire must be restricted to give a reduction atmosphere as opposed to an oxidation atmosphere (the presence of oxygen). This act then produces carbon monoxide. Dr. Oliver Watson describes this as an unstable gas that, '...will extract oxygen from any available source, and the silver and copper compounds, converted to oxides during the heating, give up their oxygen and are deposited as a thin metallic layer bonded into the glaze...' (12). Abu'I Qasim says, '... when they are

cold, take them out and rub them with damp earth so that the colour of gold comes out... that which has been evenly fired reflects like red gold and shines like the sun'. (1)

The success of a good lustre firing hinges on the skill of the potter and the design of the kiln, both of which the Kashan craftsmen were obviously masters. Piccolpasso tells us of the Italian potters view that the whole art of lustre pottery lay in the method of making the kiln, to the extent that the plans were kept in locked rooms. The success of the technique rested solely on the ability to control the temperature and atmosphere.

With such unstable conditions to work with, potential problems that occur are many. According to Alan Caiger-Smith, a studio potter who for twenty years had been producing lustre ware, the most common faults are underfiring, overfiring, uneven firing and red flashing. Underfiring results in only a pale non reflecting lustre stain on a glaze which has not sufficiently softened at temperature reached. Overfiring results in a dull and thin lustre, because the copper has burned out and became a gas. Uneven firing results when one part of a piece becomes hotter than another or an uneven flow of gas over the lustered area; either one of these effects the colour of the lustre. Red-flashing occurs when areas of copper become slightly volatile. This stains the glaze around the designs, resulting in a pinkish flush and in extreme cases a deep-red stain which almost wipes out the original painting.

Kashan lustre ware dominated the ceramic scene in Persia from about 1170 to 1340, however the height of production occurred around 1220 just before the Mongol invasion. It was the most remarkable and sophisticated technique ever employed to the medium of clay. Although lustre was discovered in Mesoptamia in the nineth century and by the Fatimids of Egypt in the eleventh century, it was the Persians who transformed this technique and made it their own.

Although lustre was the primary activity at Kashan, there are two other techniques worthy of mention, 'minai' and 'lajvardina'. 'Minai' or halt paiker, (seven colour ware) as Abu'I Qasim refers to it, was developed at Kashan in the later part of the twelfth century . This was an overglaze or enameling technique. They were pieces decorated with up to as many as seven colours of enamel; blue, turquoise, white (if a colour base glaze was used), black, red, yellow and green. these colours were achieved by using ground fusible glass rather than coloured glazes. The body of the piece was made form the same hard white frit paste used for the lustre. To achieve such an array of colour, three firings were necessary. The base glaze, which was usually white, only reached its first stage of softening when fired, just enough for it to receive that enamel colours. The first drawings were done in a dark umber enamel which was then fired. Next the drawing was filled in with strong coloured enamels which shone out against the dark contour enamels. The work was extremely fine and resemble that of manuscript illustrations. It was not produced for very long, 1179- 1242, and was rarely applied to tiles. In my research I could only find reference s to one twelve pointed star tile which must have been part of a complex geometrical design (fig 9 &10). Its composition shows us a mounted warrior in combat with a dragon.

Abu'I Qasim also speaks of a simplified form of 'minai' ware, which he calls 'lajvardina'. This technique involved the application of four colours, red, black, white and gold, fired in a short second firing to tiles with a dark blue or turquoise base glaze. (fig 11 & 12).

Leaving Kashan and the Seljuk Turks now, I would like to introduce you to the two other techniques developed outside Persia but adopted by it some years later, other of which were used these for many centuries.

We turn our attention to the Chaghakai, from Central Asia, headed by Timur who ruled a large empire concentrated in North Eastern Persian and West Afghanistan (see map) from 1370-1506. Architecture was patronised on a grand scale by these

Turks. The decorative medium they used with outstanding skill was 'tile-mosaic', which is known to have been produced since the early thirteenth century in Konya, Turkey. It became a technique which was used widely throughout all the Islamic lands. The traveling, crawling nature of the designs led the tile-mosaic to cover both the exterior and interior of mosques and palaces. The decorative mofits were of calligraphy, geometric designs, interlacing foliage and flowers of Chinese origin (fig 13, 143 & 15).

There were two ways by which tile mosiac could be made. One was the tracing of a design in leather hard clay-than cutting through these lines so that you are left with what resemble a jig-saw. All the pieces are fired and coloured in the way laid down by the design.

The other method used was the cutting of the desired shapes from finished tiles, that is to say tiles which have already been fired and glazed. In both cases the pieces of tile were laid face downwards on a cartoon of the whole design. A thick layer of plaster was then poured over the back, settling in the bevels between the pieces; canes set crossways in the plaster strengthen it to form a panel which could be lifted and fixed in position against the intended wall.

As you can image in this was extremely difficult to do. To avoid this labourious work, another technique was invented. The earliest recorded example is 1399 at Samark and in Southern Turkistan, (see map) from the Madraseh of Bibi Khanum. This technique is known today by a Spanish term 'cuerda seca' or dry cord; a descriptive term as it involved the outlining of an area in a sticky manganese solution, that doesn't melt, which was to be filled with coloured pigment. From a distance the technique resembled tile mosaic. Once this technique caught on tile mosaic slowly went into decline. (fig 16 & 17).

The technique came into its own during the rule of Shah Abbas, leader of the Safarid Turks from the end of the sixteenth century till the first half of the

seventeenth century. It is said that Shah Abbas's impatience to see the completion of this great buildings led to the use of cuerda seca rather than the much more time consuming tile mosaic.

OTTOMAN TILES: techniques of making and decoration.

Early Ottoman tiles, till the second quarter of the fifteenth century, were produced form a coarse red earthenware clay, covered with a white slip to make it suitable for painting on. This was then finished with a transparent lead glaze. It was the Persians who introduced a white firing body to Turkey when a group of potters from Tabriz, Persia, whose work seems to have been much sought after, worked on tiles for the Muradiy, Mosque, 1435, of Murd II 1421 - 1451 at Edrina. This white body meant that the overall impact was richer and more striking to the eye.

The green Mosque, Bursa 1419-24 is known for its extrodinarily rich decoration. It tiles however were made in the inferior red clay. If the tiles had been made with the new white firing body, the Green Mosque would have achieved the same degree of brilliant clarity achieved in the Huradiy Mosque. This comparison tells us of the importance of using the correct raw material.

By the sixteenth century when the Ottoman prince, Suleyman, had succeeded tot the throne, considerable technical developments had been made. A whole range of techniques were being carried out; cuerda seca, tile mosaic and underglaze painting. Mosques and palaces were being encrusted with some if not all of these techniques. It is, however, the underglaze painting technique which the Ottoman potters, particularly those working at Isnik, made their own. With the royal patronage of the potters at Isnik the work produced was of the highest quality and some of the most distinguished objects in the history of ceramics were made there.

The Persian white body was now produced as white and as compact as porcelain. It was covered in a white engobe (a thin coating of fine white slip) for a completely smooth surface. The designs were painted on with clear colours. By

the last quarter of the sixteenth century an expansive palette had been formulated. The colours included shades of blue and turquoise, many shades of green and purple, from sea green to emerald and lavender to violet. Finally, there was a red, one of the clearest, brightest reds ever seen on ceramics. It was actually a clay and not a glaze, which was applied in slip form. The designs were frequently shaded and outlined by darker lines; the glaze which was poured over this was of a crystal clear alkaline type which gave an even coverage and was close fitting, that is to say no cracking or running.

This concludes the technical chapter. Just to recapitulate, the making and decorating techniques discussed were as follows:-

A. The raw materials used:

Clay: Its origins
how it is formed
the different groups
the minerals which are found in clay.
the mining and preparations.

B. The way in which a tile is shaped:-

Tiles: relief and non relief
how they are formed
moulds: shapes of hand carved tiles.

C. The way in which it is decorated:-

Decoration: Glaze: what is in a glaze
How glaze components are acquired.
colour additions to lustre tiles.
Lustre: how it is formed.
Minai
Lajvardina
Tile mosaic
Cuerda Seca
Ottoman underglaze painting.

Come la fornace cleuata fi
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si fa il piancito, il quale
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e laltro cauano da tutte dua
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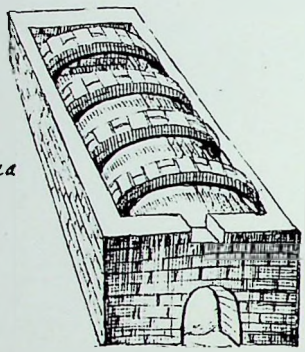

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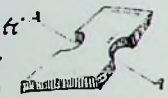

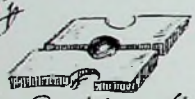

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gli coloretti

B

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A

C

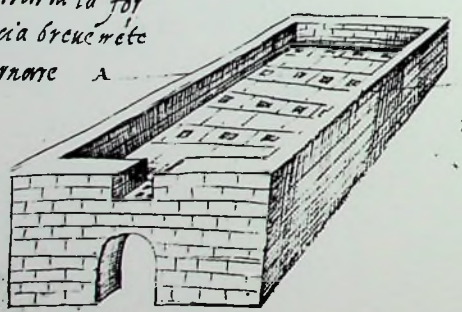

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Fig 6 Kiln at first stage of construction.
Book 11

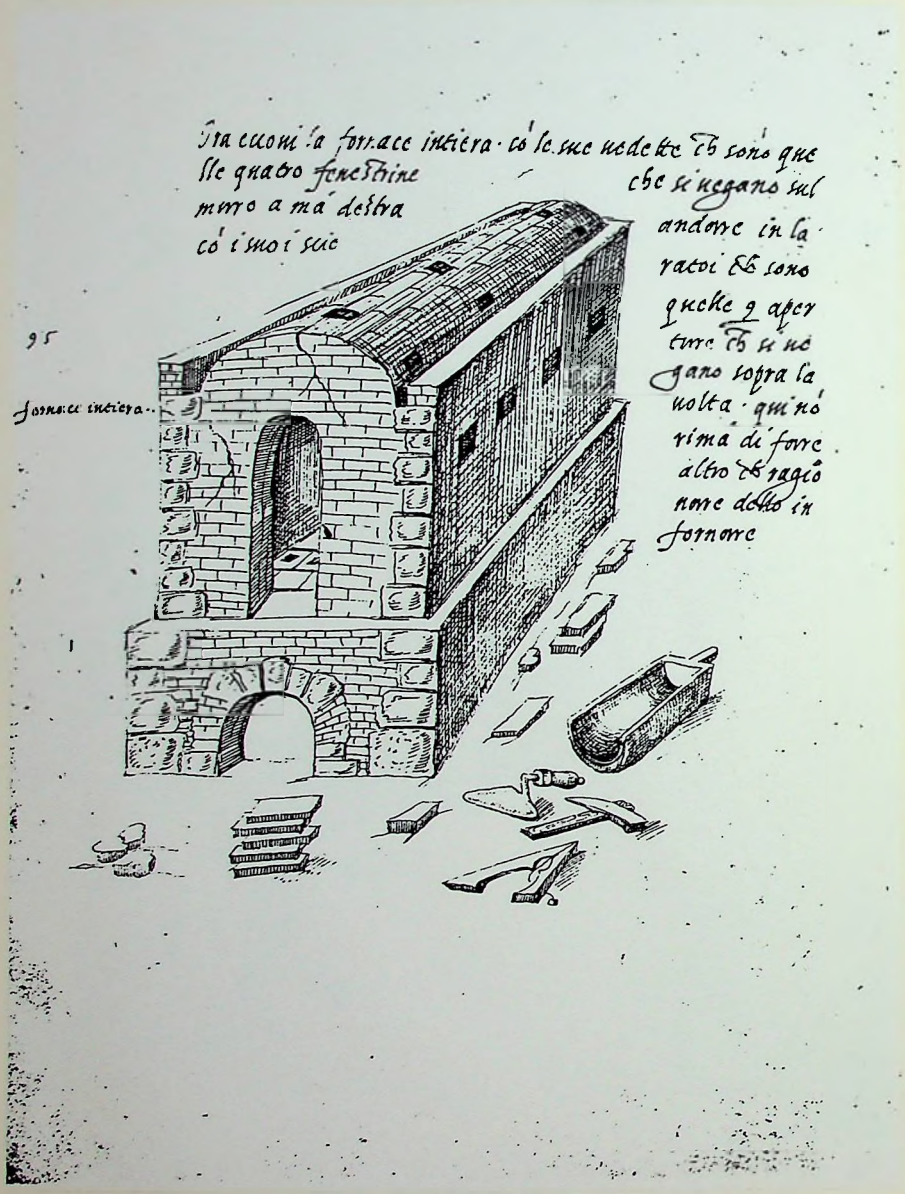

Fig 7 Kiln near completion.
Book 11

Fig 8 Kiln being fired.
Book 11

Fig 9: Minai tile; late twelfth century
Kashan.
Book 6.

Fig 10: Bowl: minai ware, late twelfth early thirteenth century
diameter 17.5cm.
Book 13.

Fig 11: Lajvardina tile from Takht- i Suleyman, 13th - 14th century.
Book 6.

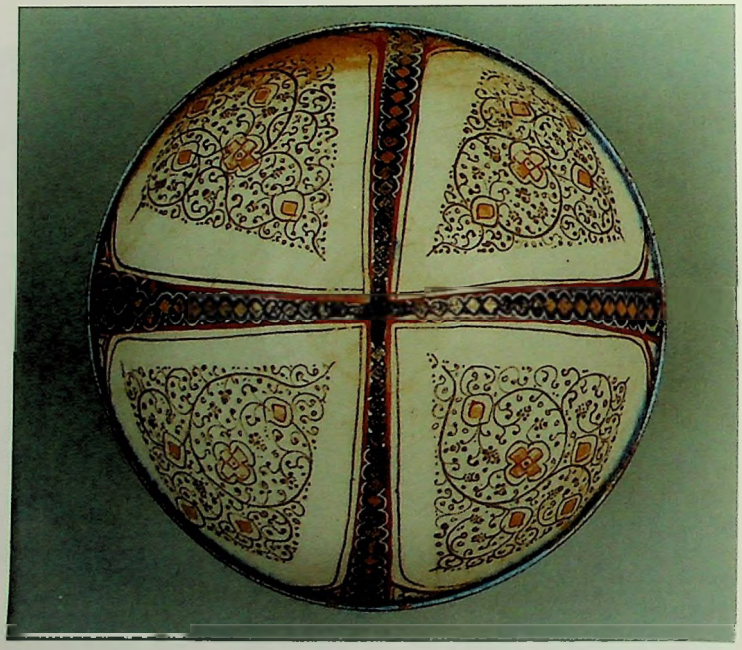

Fig 12: Bowl: lajvardina ware, late thirteenth century
diameter 17.5cm.
Book 13.

Fig 13: Detail of tile mosaic: c 1341
Isfahan.
Book 6.

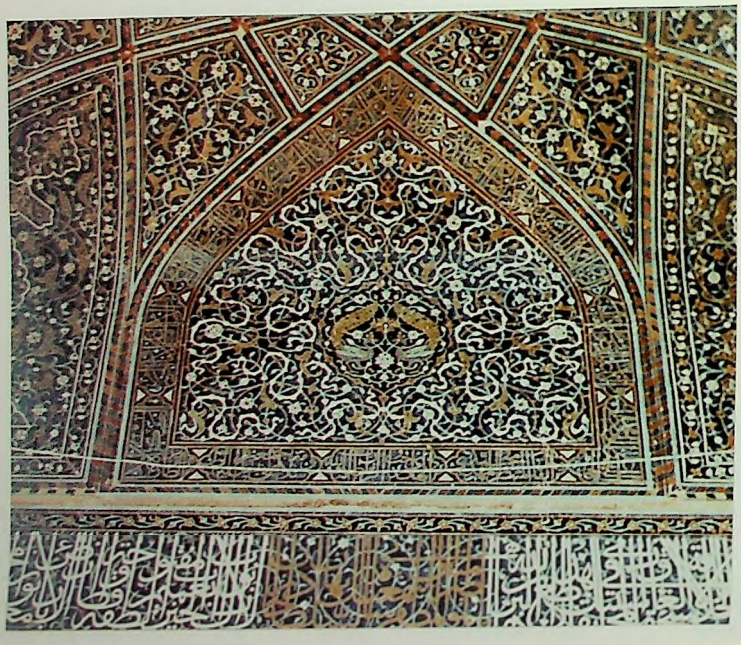

Fig 14: Tile mosaic in entrance of a mosque: 1512
Isfahan
Book 6.

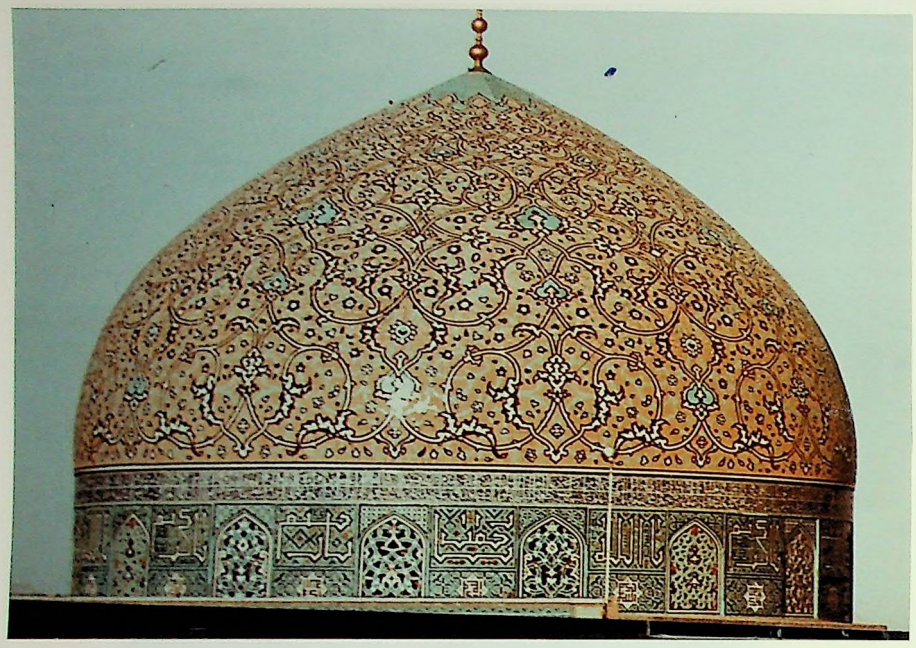

Fig 15: Tile mosaic design on dome : 1602-18
Isfahan.
Book 6.

Fig 16: Cuerda Seca tile work on the entrance to dome chamber of Masjid -i Shah,
Isfahan: 1611-66.
Book 6

Fig 17: Detail of cuerda seca tile panel in courtyard of Masjid-i shah, Isfahan: 1611-66.
Book 6.

Chapter Three

Stylistic Characteristics, differences and similarities:
Kashan 1170 - 1220 and Isnik 1500-1620

For this chapter on Style, I shall deal only with the lustre ware produced at Kashan, Persia between 1170 and 1220, and the underglaze painted ware produced at Isnik, Turkey between 1500 and 1620. These were undoubtedly the two most important ceramic producers of the Islamic lands in the context of style. The quality of their work was not equalled before or since. They made may technical and stylistic break troughs.

The two styles could not be more deferent, yet the similarities, which are few, are of very great significance. Kashan lustre was generally mono-chrome; Isnik, at its best, was polychrome. Kashan ware was refined and delicate; Isnik ware was bold and vibrant. Kashan tiles generally each had their own individual design; each Isnik tile made up part of a huge tile scheme - the design on these tiles continued on from one tile to the next. Kashan tiles were produced in many varieties of shape; while Isnik tiles were more uniformly square. Kashan tiles often depicted human and animal figures, outdoor scenes as well as scenes from Islamic mythology (fig 18); Isnik tiles rarely depicted anything but floral scenes. A rare exception is (fig 19).

With regard to similarities, the influence of Chinese ceramics on Persian and Turkish pottery is paramount. Chinese design had more impact on the pottery produced at Isnik during the Ottoman reign than on the lustre pottery produce at Kashan during the Seljuk reign. This is due to the Mongol influences brought during the first invasion of Persia c 1220. Many of the mofits seen on both the Kashan and Isnik wares are taken directly form Chinese pieces and others are derived from them. Chinese mofits include cloud b ands which resemble thin and curving clouds and many forms of flowering plants.

TRADITIONAL MOTIFS in the vocabulary of Islamic design can be seen in both the works from Kashan and Isnik. Some motifs are more prevalent in one or the other workshop. At Kashan the human figure was used extensively, as well as animal figures of many species. They used the half palmette and leaf scroll calligraphy, small birds, tiny scrolls, coiling stems and cloud bands. At Isnik, palmette, trefoils, coiling stems, large feathery leaves, cypress trees, arabesques, inscriptions, cloud band, pattern, scrolls and a huge variety of flowering plants were used. These will be discussed in more detail later in this chapter.

CALLIGRAPHY is a common element of design in the two workshops. Arabic script evolved very late compared to other systems of writing. The Koran was at first passed on by word of mouth. However, it was soon realised that it was necessary to set it down in writing. The Arabic script was rapidly developed in the sixth and seventh century. As it was the chosen script to write the message of God it assumed a sacred status. In the eighth century the Kufic form of the script emerged. This style of writing soon became the most venerable, formal and religiously significant calligraphic style. It was especially prominent on the tiles of Kashan. The text often appears against a background of scrolls as part of a decorative scheme. Text on domestic or secular objects were often simple blessings of the name of Allah but quotations from the Koran are also common. Occasionally they show the name of the maker, as will be discovered later on in this chapter.

GEOMETRICAL DESIGN became highly important in the Islamic world. Geometric principles are the basis of the harmony and discipline which characterise all Islamic art. In decoration, geometrically - based designs covered entire surfaces. Although they may not be self evident at first, (fig 20, 21 & 22) on closer analysis one can see the underlying geometrical framework in which spaces have been left, to be filled in with interlacing and stylised leaf and floral patterns.

Geometrical designs are based on a grid system. Issam El-Said and Ayse Parman

in their book 'Geometric concepts in Islamic Art', explain the procedures for formulating geometric designs. The system involved the use of grids which were broken down into identical units and repeated in a regular sequence. One of the advantages of this system is that the number of identical units in the area to be decorated could be decided by first dividing the area into, for instance, squares or hexagons of equal size. Then a geometrical pattern is chosen and is inscribed in each of these individual sections. This acts as a grid on which the basis of the design is formulated. Each unit links up on all sides with the next individual unit (fig 23). Another advantage of the system is that designs can be enlarged or reduced on the basis of the proportions of a unit in relation to the geometrical figures. An example of a basic construction and a repeating unit are illustrated.

This geometric order forms the basis of three distinct con figurations of tiles; Mihrab or tomb, frieze and star and cross. Firstly, a definition of a mihrabs is necessary. In common usage it is a niche, usually concave and generally heavily decorated, found on the wall of the mosque directed towards Mekkah (Mecca). They are probably the most complex structures attempted by potters. They can be divided into three sizes large, medium and small. In large mihrabs upwards of fourthy individual tiles could have been used. (fig 24 & 25). Medium mihrabs generally consist of two or four tiles standing one on top of the other (fig 26 & 27). Small mihrabs are of one, although sometimes they occur in pairs. (fig 28 & 29). The design of the medium and small mihrabs tend to resemble that of the inner section of large mihrabs. Indeed, in some cases the smaller sections may have once been part of a larger mihrab . The inscription in the buildings indicate that they are not mihrabs but tomb stones. This is the case with (fig 30).

Frieze tiles are square or rectangular in shape and usually have a cornic formed by a moulded design on the upper edge of the tile. The main area of the tile has applied moulded inscriptions (fig 31 & 32). This type of tile is particular to Kashan. Frieze tiles of Isnik are generally of floral borders. Both Kashan and Isnik frieze tiles were used to frame paneled areas of dado tiles which ran around

the inner walls of buildings (fig 21 & 33). Smaller frieze tiles without cornice decoration were used as part of larger mihrabs or to cover sides of tombs.

Star and cross tiles are most commonly found together on Kashan panels. They either had lustre or monochrome glaze decoration (fig 34, 35, 36 & 37). They were used on dado panels or to cover tombs. The standard star tile has eight points but six and twelve pointed tiles are known (minai tile Fig 7). Octagonal and hexagonal tiles were also use (fig 38 & 39) more often at Isnik than at Kashan.

Tile sizes vary from scheme to scheme. The largest Kashan mihrab is 3.28m high (fig 25), and the smallest is 1.9m high (fig 40). Frieze tiles with cornices at the smallest are 25x26cm, and without cornice even smaller. The largest known frieze tile with cornice is 55x40cms. Star tiles generally measure between 18 and 24 cms point to point, though the monumental style (refers to decoration, not size) are smaller 13.5cm (fig 41). A number of particularly fine pieces from the pre-mongol period (fig 34, 35 & 42) and the 'Veramin' group 1262 (fig 36) are larger, measuring between 28 and 31cms point to point. Isnik tiles are normally square with sides 24cms to 32.5cms long. The larger designs run continuously from one tile to the next (fig 43). Some designs are specially shaped to fit the pointed lunetes or spandrels.. (fig 44 & 22).

KASHAN LUSTRE TILES:

Given these general characteristics, certain more specific stylistical features can be determined. At Kashan, 'Monumental', 1179 to 1190, 'Miniature', 1190 to 1200, and a style named 'Kashan' from 1200 and 1220, are the names Dr. Watson has chosen to clarify the progression of the developing styles. Although very few examples exist of the Monumental and Miniature tile designs, I feel that it is necessary to list the essential differences in order to fully appreciate the final and most brilliant of the three, that is the Kashan style. Both Monumental and Miniature styles were concerned with the background of the composition. The principal characteristics of the Monumental style were typically the single large figure filling the major

part of the area to be decorated. This figure, usually human, was essentially white, with thin lines and dots of lustre emphasising drapped clothing. These large figures were often banded with a pure line of lustre. This was done so that a differentiation could be made between the figure and the decorated background. An area of white was left undecorated with lustre around the head. This 'holo' was a sign of distinction and not of sanctity as in Christian art. This made possible the individual attention given to hair, as seen on tiles composed of many figures (fig 45). The background area was filled in with lustre leaving areas of white scroll and palmette mofits (fig 45). The borders were treated with brushwork decorations of arabeques and half moons.

Miniature differs from Monumental in many respects, in painting, in mofit and in approach to decoration. The essence of the style lies in the painting. The motifs were painted directly onto the hard glaze surface rather than in the Monumental styles where large areas were left blank to be filled in later on. This affect gave less substance and more glitter. At its best it was light and delicate; at its weakest, it was sloppy and confused. There appears to have been two different approaches to decoration. On is the division of a piece into panels, each filled in with small repeating mofits; the other is where a single large motif dominates the design and the remaining areas are filled in again with small repeating mofits. As the name Miniature suggest, the overall effect was of tiny disjointed elements and the lustre was sparse and spindly. (fig 46) (no tile illustrations available).

The Kashan style, which was developed c 1200, brought together the best of the Monumental Style, with its strength and solidity and the best of the Miniature, with its delicacy and refinement, plus new elements of ornamentation. The half palmette leaf motif (that which resembles a palm leaf) of this style was so full that it was almost semi-circular in shape. This and the bird mofit were detailed within the shape with rows of dots and cross-hatching of lustre. These little birds and half palmette are the most common characteristic of the new style. Sometimes they were substituted for Kufic inscriptions. These play a much larger part in the

decoration of pieces than in previous times. The verses that appear on Kashan style pieces are generally Persian quotrains. Some are generalised blessings to the owner to be. This indicated that these works were not commissioned. Dedications to specific individuals are extremely rare.

Some artists were so concerned with detail that they left only facial areas plain (fig 42 & 45). Roundness of faces and fineness of features became more exaggerated then before. The human figure was not the only element represented on tiles. Animals of may species, some real - some fantasy, also purely floral scenes and calligraphy were depicted. Whole tiles were used as part of calligraphic sections of mihrabs. For example, the relief moulded tiles of the shrine at Mashhad (seem map) (fig 24a&b & 21). The colour of blue and turquoise were used more frequently, not only on the relief calligraphy areas of tiles but also they were used to illustrate the stems of scroll motifs, the patterns of garments and other such elements of design.

There are two men responsible for the development of this new style. They were both from Kashan. One was the first member of the Abi Tahir potting family, Muhammad ibn Abu Tahir, and the other is known as Abu Zaid. The former would have been Abu'I Qasim's grandfather. They were also the two potters who seem to have produced the most work. We know this by the number of pieces bearing their signature. Muhammad and Abu Zaid worked in conjunction with one another. We interpret this by the signed work on the two most important projects of the pre-mongol period; the decoration of the tomb chambers at the shrines of Qumm and Mashad. Qumm is situated just north of Kashan in central Persia and Mashad is due east of Kashan (see map).

At Qumm, a large section of star tiles, fifteen in all, clad the top of the sarcophagus or stone coffin. These are all signed by Muhammad (fig 47). They do not represent his best work and are thought to be experimental as the inscription bands are narrow, the detail is very fine and the moulding is very flat. Generally

they have a tenuous and timid feel about them.

Abu Zaid was responsible for the decoration on the sides of the sarcophagus. They are clad with star and octagonal tiles which are separated by double pentagonal tiles. The star and octagonal tiles were decorated with radiating arabesques (palmette and leaf scroll mofits combined) and floral mofits.(fig 48) illustrates the classic use of the arabesque. These tiles are very similar to the tiles at the Mashad Shrine. All the star and octagonal tiles are bordered with inscriptions. Cobalt blue as well as lustre was used on these tiles. Round the top and bottom of the star tiled area runs two inscriptions friezes. An unusual feature of these is that they have no cornics. In stead of a cornice, they have smaller inscription friezes, one at the top and one at the bottom of the larger inscription frieze. The main frieze has a relief moulded inscription which is painted in cobalt blue. The background is treated with intertwining palmette leaves in reserve (or white). It also bears a Quranic (from the Koran) quotation and the signature of Abu Zaid, with a date February 1206. One of the moulded plasters that frame the corners of the sarcophagus bears the signature of Muhammads son Ali. This suggests that this must have been part of later additions to the tomb. (fig 49).

In 1215, Muhammad and Abu Zaid worked on a much more ambitious commission, the shrine at Mashhad. It consisted of a tomb or chamber, an entrance wall and doorway and two large mihrabs, all decorated with lustre tiles. Muhammads signature occurs on the tiles framing the entrance of the chamber (ill. no available). He may also be responsible for one of the mihrabs which is unsigned and dado or wall frieze tiles on other areas of the chamber. Abu Zaids name occurs on one mihrab (fig 24) and on a number of star and octagonal tiles which clad the walls of the tomb-chamber (fig 21)

As you can see from a detail of Abu Zaids mihrab every centimeter is festooned with decorative motifs. There are examples of many types of tile in this composition. On the left and right hand sides of the picture are high relief

moulded inscription tiles. Directly parall to these there appears to be narrow bands of relief moulded tiles with a braided style of ornamentation. (There narrow bands may be part of the large tiles already mention. It is hard to tell from this photocopy). Again, directly paralled to these, are two pilasters which stand at two thirds of the length of the mihrab. They are positioned either side of the central panel and are also treated with moulded decoration. Directly above these, is a flat area of half palmette decoration. The leaves and stems left white in reserve while the lustre background has tiny scroll motives scratched through to pigment to reveal the brilliant white tin glaze. This flat area is stepped to enable the formulation of the indented niche. This is an extremely complex structure. It involves the construction of an accordion or fan-like structure. Each individual panel is painted with floral mofits. The panel at he back of this niche is painted in a simetrical manner with arabeques and intertwining palmette leaves. Below this is a small inscription. Underneath that again is another inscription panel which is larger that the previous one mentioned and is in relief. Framing the nucleus of this mihrab is another inscription panel. The remaining areas of this niche are almost a direct echoing of what has been described before only on a smaller scale.

Abu Zaids signature also occurs on a number of eight-pointed star tiles. The painting on these is said to be best he ever produced (fig 34, 35 & 42). Two of these star tiles are signed and dated by him, (fig 34 & 35), the third is unsigned but elate. This tile is of such an equally high standard of painting that it seems reasonable to attribute it to the same artist. These tiles differ from the ones at Qumm, in that they are larger in size 28 to 33cms as apposed to 22cms for the Qumm star tiles (fig 21) and no blue is used in the design. As these tiles appear on their own, rather than many tiles of the size making up a large scheme, it seems that they may have been used to occasionally highlight a panel of plain monochrome glazed tiles.

These star tiles, together with the large mihrabs at Qumm and Mashhad,

> '... represent the peak of artistic and technical achievement of the Kashan lustre potters. The balance between the calligraphy and background decoration in the inscription friezes, the elaborate yet lively and uncluttered arabesques of the moulded mihrabs and the crisp and sensitive painting of the figure on the star tiles - all these set standard which were not attained later' (12).

The last known dated work of Muhammad and Abu Zaid are 1215 and 1219 respectively. They may have been killed during the Mongol invasions c 1220, or alternativly they may have died of old age. As for as one can tell, their like was never seen again in Persia but creative talents of a similar standard were coming to the fore in neighbouring Turkey.

ISNIK WARE

There were four distinct styles of tile produced at Isnik. The chronological sequence of there development has had to be established by their appearance in dated or datable buildings. It was necessary to do this as very few tiles or tile schemes were dated by the maker. Equally there are no known signed pieces either. The types of tile are best identified by the colours of pigments used to decorate them.

The first style is underglaze painted in blue on a white engobe or slip ground, otherwise known as blue and white ware. It is not known when exactly the first 'blue ad white' decoration was used on tiles but it is thought it be probably during the mid-fifteenth century. The second style employed two tones of blue and is known as 'blue and turquoise'. The introduction of turquoise seems to have first been used on tiles in the fist quarter of the sixteenth century. Both the first and the second style continued to be used right to the end of the sixteenth century but not to the same extent. The third type used a more expansive palette adding green and purple to the blue and turquoise. The greens range form a sage to olive and

the purples varied form pale mauve to violet. This combination was first featured on tiles in the mid-sixteenth century. Finally, the fourth style which is known as the classical Isnik ware. It saw the replacing of the weaker greens and purples for a brilliant emerald green and a bright scarlet red. Its first ever use was on the tiles in the Suleymanieye Mosque, Istanbul, which was completed in 1557.

The earliest datable underglaze painted blue and white tiles made at Isnik appear to be those decorating two mausoleums in Bursa (see map). This was the traditional site for the tombs of Princes. (no ill. available). One was made for Selizada Mustafa who died in 1474/5 and the other for Selizada Muhammad who died in 1507/8. The tiles on both these structure are almost identical, so they were probably made around the same time. The decorative reportoire of the ware being produced at his time, 1510's, relied greatly on manuscript illuminations and mofits derived form Chinese porcelain, using scrolls with hatayis, rumis and cloud bands as well as inscriptions. The compositions were bright with clearly defined areas of either painted blue on white or the entire area painted in blue except for the design left white in reserve. As no illustrations of tiles from this period are available I have chosen some vessels to clarify the description given (fig 50 & 51).

The second style, 'blue and turquoise' was also used on tiles. One such group of tiles were formed in hexagons (fig 39) with each bearing identical radial patterns. This indicates that a stencil was used to form the pattern. The design on these tiles consists of a central blossom in dark blue which has been enclosed by a six-pointed star shape in turquoise. From alternating points on this star shape evolves a pair of branches in dark blue and turquoise. These form a shape reminiscent to the central star. Within this shape are three large rumis flowers and three hatayis blossoms in dark blue with turquoise centres. From these blooms, fine stems of flowers are growing, these appear to belong to the blooms on the next tile, hence creating an alternative pattern (fig 23).

The most splendid blue and turquoise tile panels are the five large rectangular tiles on the facade of the Sunnet Odasi; which were probably made in the mid-sixteenth century (fig 19). Their decoration shows perfect saz style with prolific growth of overlapping, intersection, twisting and turning hatayis and feathery leaves, recreating he enchanted forest affect. A clear example of how the enchanted forest affect of the Saz style was created is shown in (fig 52). Each tile is simply a mirror image of the next. In this panel of the Sunnet Odasi a rare example of animal and bird decoration is used. Their eyes are said to have been set with precious stones.

These tiles were produced at the height of the saz period in the 1550's. They show the finest application of the 'nakkashane' (society of painters discussed in chapter 1) themes on ceramics. The saz style was not only employed on tiles. It can be seen on all the imperial arts, including rugs (fig 3 & 4) and textiles (fig 53). Very often the patterns/designs from one of the Imperial arts resembles so closely that of another, that it is hard to tell on which it was first used.

Now to the first of the 'four colour' type ware. Again no illustrations, colour or black and white are available to me, so I have chosen a vessel to clarify the description. Fortunately a tile decorated in the 'blue and turquoise' type ware has the same form of scroll decoration as that seen on a highly treasured plate (fig 52). It has been treated in the 'four colour with purple' palette. Looking at this plate we can acquire an understanding for the type of colour combination used. On this plate a single branch springs from a pair of twisted leaves and turns, breaks and changes direction forming a spiral movement. In the centre is a large hatayi blossom surrounded by peonies and other smaller hatayis that sprout buds and feathery leaves which overlap, intersect and pierce one another. Another large leaf springs from the same source and twists over the scroling branch, sprouting sprays of tiny blossoms. The felling of movement bought on by the spiralling branch, the depth of composition crated by the overlaping and intertwining of foliage and the masterly application of pigments was rarely achieved. You can

also see on this piece the subtle use of a black pigment to emphaise the tips of the feathery leaves.

Finally, in the third quarter of the sixteenth century, the classic Isnik ware was created, the 'four colour' ware with red. This style is seen to represent the peak f pottery making at Isnik. Within a decade of its invention it was applied to a variety of objects and tiles by the potters. They created freely drawn, perfectly painted and flawlessly glazed examples both for the court and for domestic and foreign markets.

The 'red' first appeared on the tiles in the Suleymaniye Mosque, Istanbul; built by Suleyman and completed in 1557. It was used in selected areas noticeable around the Mihrab. Its red colour at this early stage was fairly subdued, showing a brown red rather than the bright red which was soon to be seen on the porticoes of the Mausoleums of Hurrem Sultan, Istanbul 1558 (fig 55) and the Mausoleum of Sultan Suleyman 1566 (fig 56) (no colour illustration available). The technique was fully exploited in the Mosque of Rustem Pasa built in 1561 (fig 57). This structure is, acording to Esin Atil, author of "The age of Sultan Suleyman the Magnificent, almost a pattern book of decorative themes which includes every single design developed in the nakkashane (society of painters). The interior of this otherwise insignificant building, is entirely covered with remarkable decorative tiles.

As the classical style developed, the designs became more restrained and symmetrical. A tile (fig 43) panel with saz scroll, decorated towards the end of the seventeenth century, shows a less vivacious manner of decoration, than the panel of (fig 57). It is not known from what building it comes but whatever the place, it must have been quite a large complex because this one rectangular panel is clearly part of a huge scheme. We can see from the way that the design has been cut off on all four sides, indicating that this is a central panel. The abrupt slicing of the massive hatayi blossom exactly in half is another indication that this panel

belongs amongst may others. There is an identical panel in the Harvard University Art museum in Cambridge, Massachusettes.

This panel consists of a very large hatayi blossom (stylised lotus blossom, frequently accompanied by buds and leaves and used in decorative scrolls) in blue which is placed in the centre of the whole design. It is remarkably detailed, with tiny buds in white, red and green, growing from the base and three peony flowers in white and blue. From this central blossom sprout several scrolling stems bearing buds of all colours, large feathery leaves in green and red which counter bear smaller hatayi. Some blossoms overlap, others pierce one another. This powerful scene is framed by bands of braid at either end and is completely enclosed by a blue trefoil border. The red used here is not true colour to be seen later on. Black is use to outline certain small areas of the composition.

The saz style was used on another panel thought to be from the Palace of Piyale Pasa which was completed in 1573. (fig 22). Piyale Pasa, served as a grand admiral of the Ottoman fleet between 1554 and 1568. He was married to Hace Gehti Muluk, the daughter of Selum II. The panels shape is known as a lunette. It was designed specifically to be used over doors and windows. This shows a close working relationship between architect (Sinan) and potter. There are a number of these panels all with identical saz scroll and cloud bands. They are composed of sixteen tiles, half are square and the other half are shaped to fit the lunette; this can be clearly seen in the illustration. (fig 22). Each panel is framed by a blue band with white, green and red blossoms joined to a pair of white cutting leaves which overlap other blossoms and are themselves overlaid by tiny red tulips. These mofits form a repeating s-shape.

Within this blue band is a perfectly symmetrical composition. Its mood is tamer and more controlled that the previous saz scroll panel, yet it has not quite reached that of the true classical style. The trefoil, which surrounds what is known as a composite hatayi, is composed of red cloud bands that knot at the base and

energetically swirl out to the sides. A pair of branches grow from the central hatayi, bearing blossoms, buds and leaves. Other branches evolve from the knotted cloud bands and develop similar forms. All the elements overlap, twist, turn and pierce one another, much as they did before but in a somewhat more sophisticated manner.

Another architecturally derived form is the spandrel (fig 44). These were found in pairs over doorways, windows or niches, as illustrated in the manuscript illumination (fig 58). They also resemble a decorative element used in bookbinding known as corner quadrants (fig 59).

Finally, among the most renowned sixteenth century tiles are three panels originally commissioned by Murad III (1547 - 1595) for the Harem of the Topkape Palace (fig 60). These panel represent the fully established classical style of Isnik ceramics. They are constructed of forty five square tiles and decorated with Persian verse placed above the arches, each of which has a different composition.

One of them (fig 33) is framed with a turquoise and red band decorated with white rumi; the same band runs between two inscription panels and the top of a pointed arch. It also follows the curve of the arch meeting at the central point. By doing this two triangular spandrel shapes remain, these have a red background and white cloud band decoration.

The inscription panels are in a shape known as oval cartouches. The background is blue; the text is white in talk; another form of cursive script. The verse states that the 'Sahnisin of the exacted bath was completed in the auspicious year 1574/1575'. This type of wording was generally applied to bay windows in enclosed balconies. In this case, the wording probably refers to the arches in this tile scheme, used to face the walls to he chamber. A few floral elements grow within this area. A tulip unusually pierces a horizontal stroke of one of the letter.

For the main area of decoration an overwhelming example of stylised flowering fruit tree is used. It grows from the centre of the panel. The turquoise branches fill the whole area. They contrast beautifully with the blue ground. The tiny flowers that festoon the branches are white with truly scarlet hearts. At the base of the tree are clumps of leaves, decorated with floral sprays and surrounded by bunches, with tulips, hayacinths and buds. Two other bunches with tulips, carnations and roses are either side of the tree. Then, just in case any area should be left undercoated, two tiny sprays of flowers were placed either side in between the trees and the bushes.

The impact of the nakkashane is clearly evident in the composition of this panel; blossoming fruit trees on various coloured grounds were favourite themes employed in the illuminations of the most celebrated manuscripts produced during the reign of Suleyman, including the 1546/1547 Koran of Ahmed Karahisari and the 1558 biography of Sultan Suleyman (fig 61, 62 & 63).

Suleyman was the instigator of this tremendously creative era. He was a demanding patron but his impeccable taste, and natural understanding of 'good design', guided his artists to produce work which continuously survives as inspiration for artists/designers from the seventeenth century until to-day, and I am sure will do so for many years to come.

Conclusion

The techniques of both lustre and tin underglaze painted pottery were sought in many countries. As the trade routes expanded throughout the Near East both techniques were introduced to North africa, then north to Spain by the Moors and are known today collectively by the term Hispano-Moresque.

From Spain the technique found its way east to Renaissance Italy. The term generally given to tin underglaze painted pottery from Italy is Maiolica but it also technically applies to lustre ware. After Italy, tin underglaze painted pottery was produced throughout Europe. In France it was known as faience and in the Netherlands, delftware.

In nineteenth century England, a potter called William de Morgan rediscovered the lustre techniques that the Persia potters used in the thirteenth century. It is amazing to think that both lustre and tin underglaze painted pottery techniques are still being carried out today in basically the same way as was laid down seven centuries previous.

To conclude, we are indebted to the craftsmen from Kashan, Persia 1170 to 1220 and Isnik, Turkey 1500 to 1620 for the techniques of lustre and tin underglaze painting which they applied to tiles. Had it not been for their great technical skill, their vast vocabulary of design mofits and the wealth and power of their patrons, we would never have been able to experience the two most remarkable periods of ceramic history the world has ever seen.

Fig 18: Monumental style with mythological theme Kashan c 1180, 30.4 x 30.2cm
Keir Collection.
Book 12.

Fig 19: Tile panel of underglaze painted blue and turquoise from the façade of the Sunnet Odasi, Topakapi Palace, Istanbul. Isnik c 1550.
Book 2.

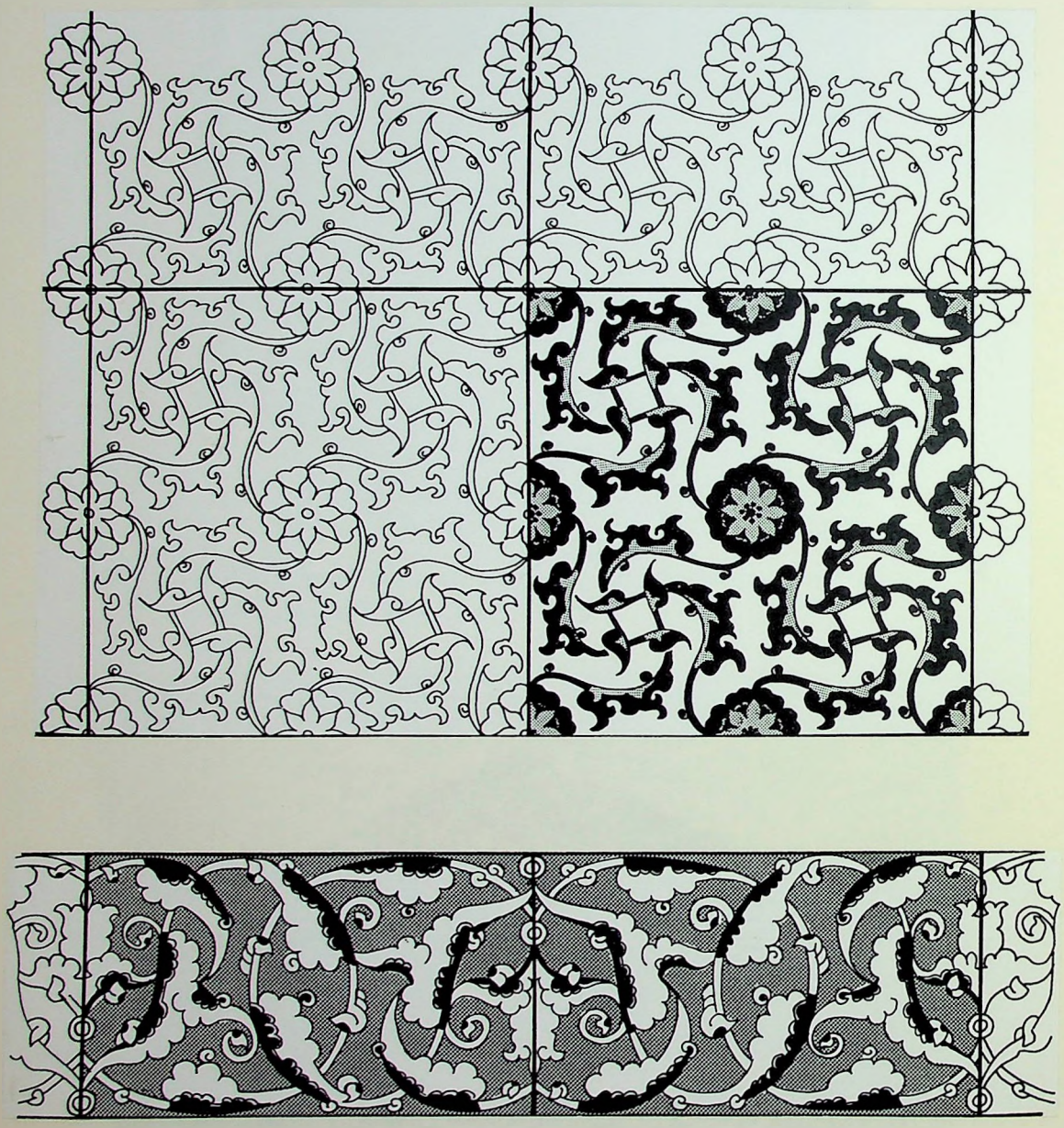

Fig 20: Tile showing repeating geometrically derived pattern. (Top) tiles showing mirror images of each other. (Below) Isnik, 16th century.
Book 14.

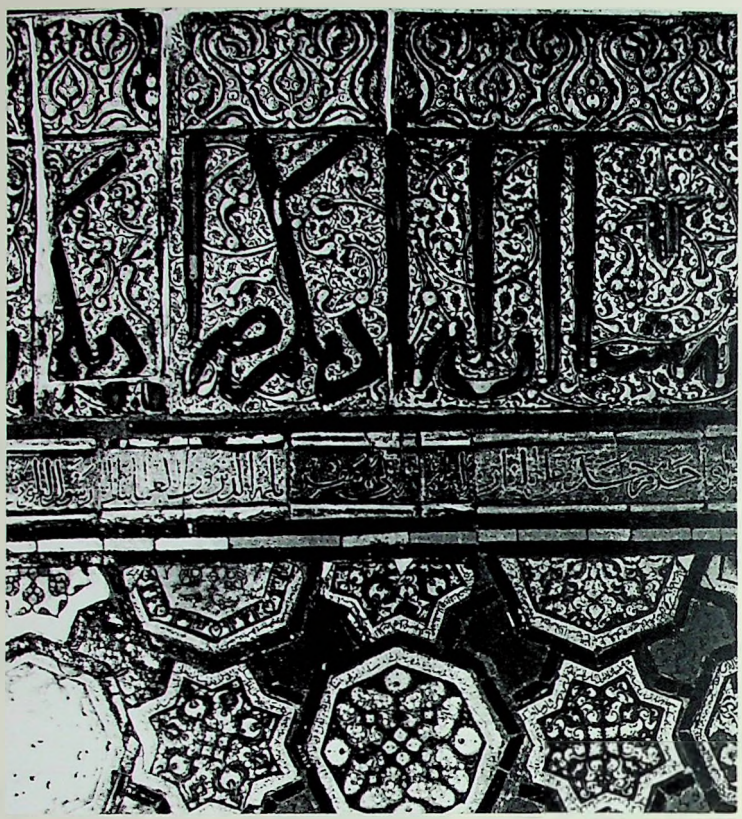

Fig 21: Dado tiles, from the shrine of Mashad. Stars signed by Abu Zaid 1215, large Frieze tiles c 45cm. Kashan style
Book 12.

Fig 22: Lunette with saz scroll from the Palace of Piyala Pasa c 1573.
Book 2.

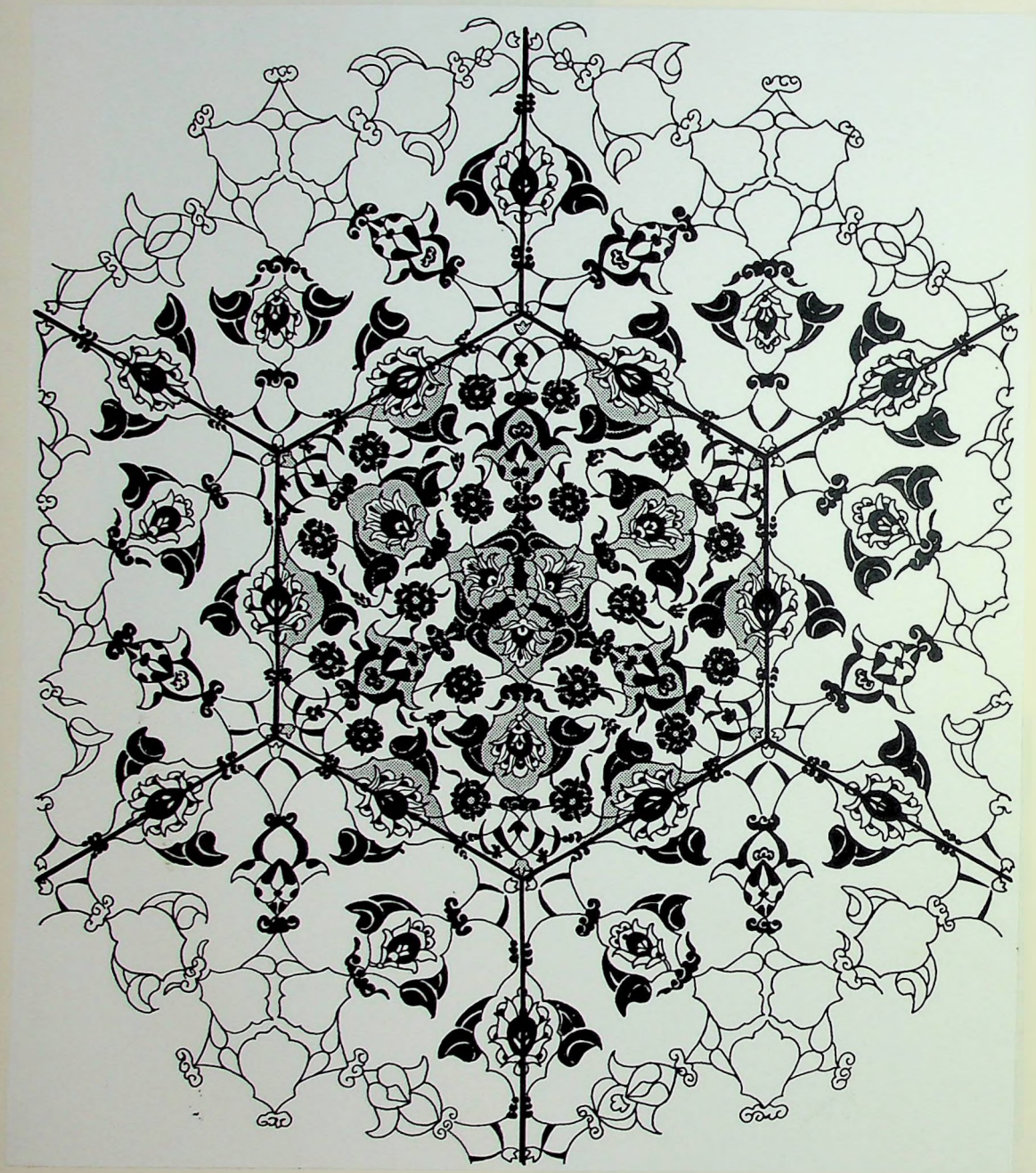

Fig 23: Hexagonal tiles repeating in all direction.
Book 14.

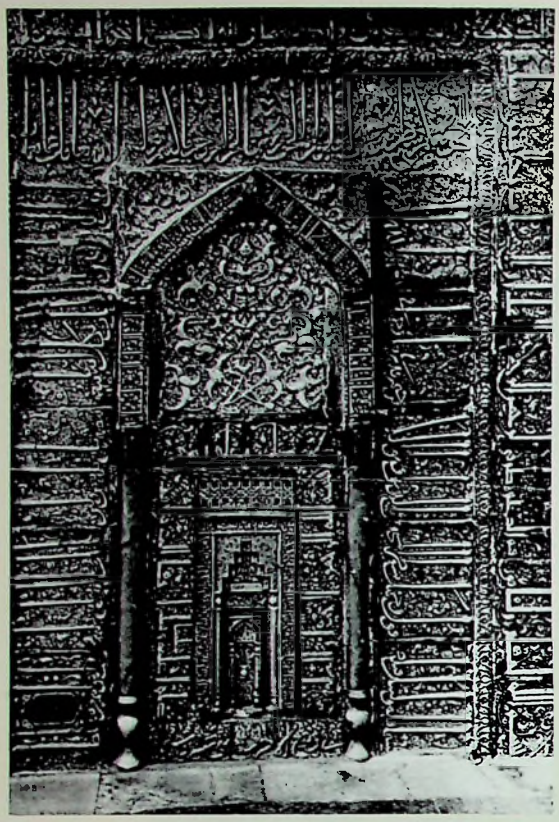

Fig 24: Mihrad, from the shrine at Mashad. Signed Abu Zaid July 1215, height 240cm, width 184cm; Kashan style
Book 12.

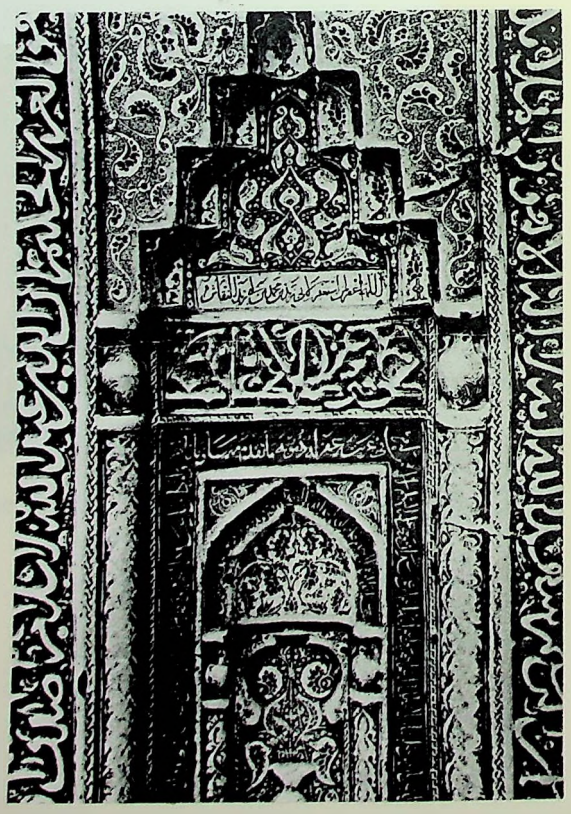

Fig 24a Detail of Mihrab fig 24.
Book 12.

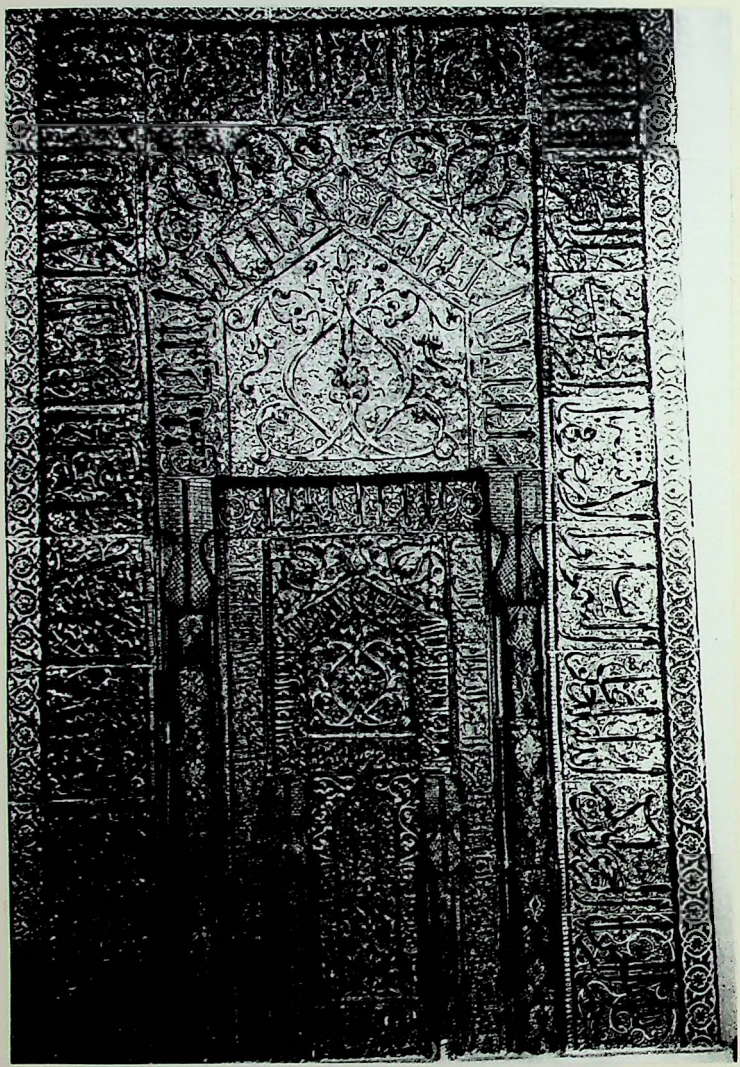

Fig 25: Mihrab, by Yusuf ibn Ali Muhammad ibn Abi Tahir, 1334, height 328cm width 212cm; Il-Khanid style
Book 12.

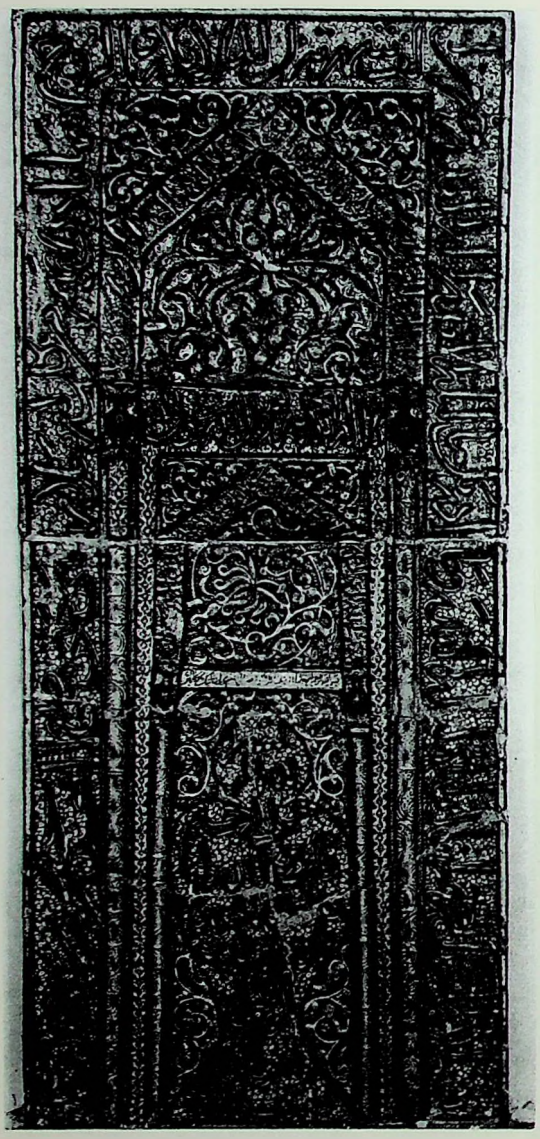

Fig 26: Mihrab, Kashan. 1268-71 height 133cm and width 57cm Il-Khanid style, relief moulded.
Book 12.

Fig 27: Miḥrab, height 123.2cm ; date unknown; relief moulded Book 12.

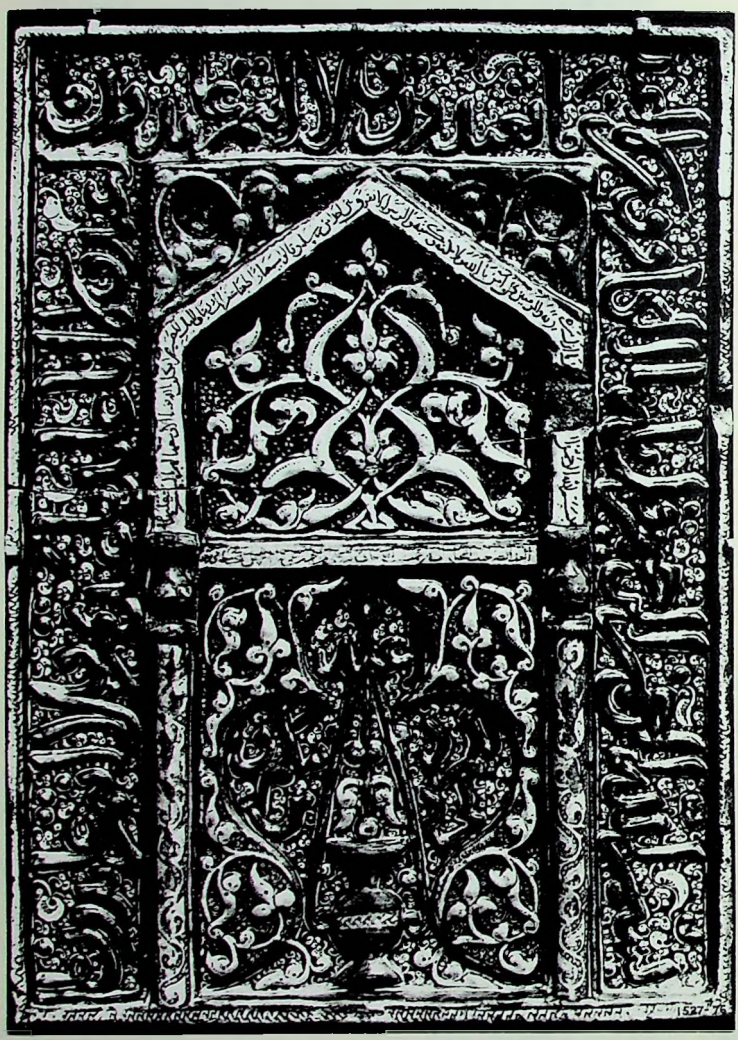

Fig 28: Mihrab, pair to Fig 29: height 62cm and width 46cm relief moulded. Book 12.

Fig 29: Mihrab, pair to fig 28. relief moulded with blue and turquoise areas, date unknown.
Book 12.

Fig 30: Tombstone shaped mihrab with floural spray, second half sixteenth century.
Book 2.

Fig 31: Frieze tile, moulded inscriptions, dated 1308, height 36cm
Book 12.

Fig 32: Frieze tile, relief moulded inscriptions, early fourteenth century, 17.5 x 38cm
Book 13.

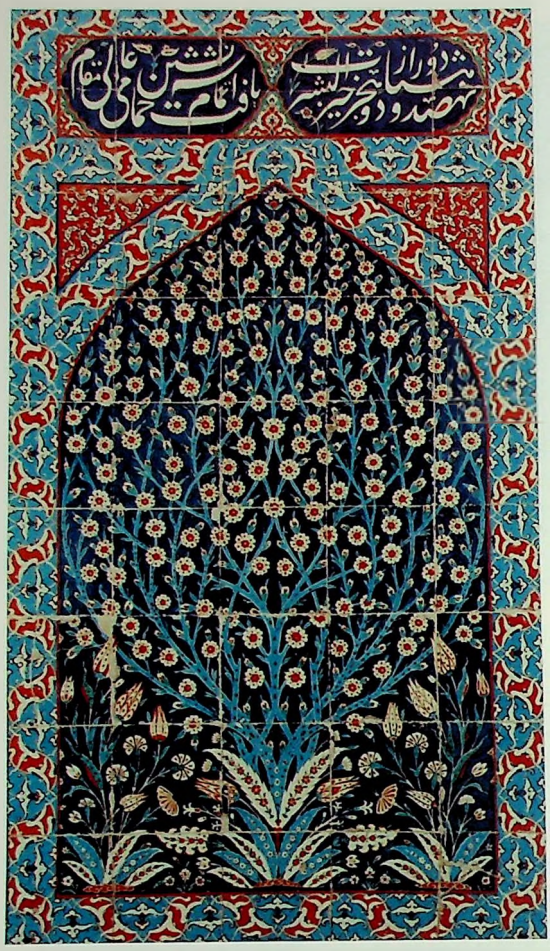

Fig 33. Tile panel from the Harem of Topkapi Palace, Istanbul
Book2.

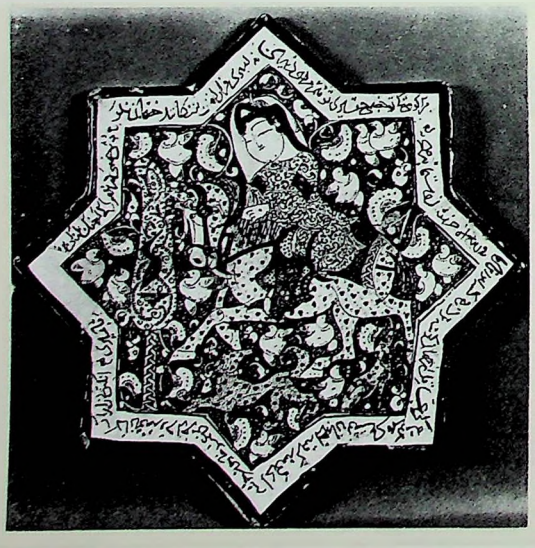

Fig 34: Star tile. By Abu Zaid, dated 1211, diameter 28.5cm
Kashan style.
Book 12.

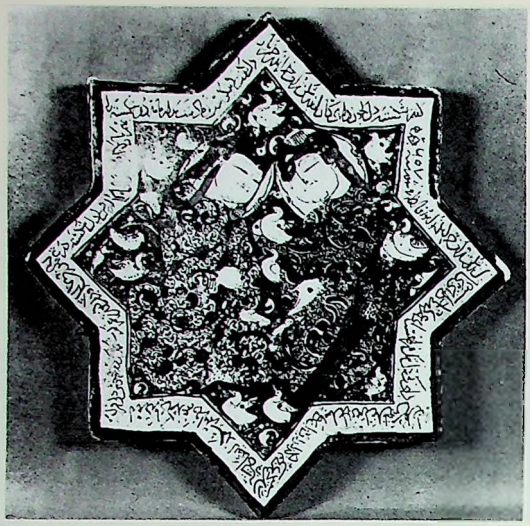

Fig 35: Star tile. By Abu Zaid, dated 1210, diameter 28.5cm,
Kashan Style
Book 12.

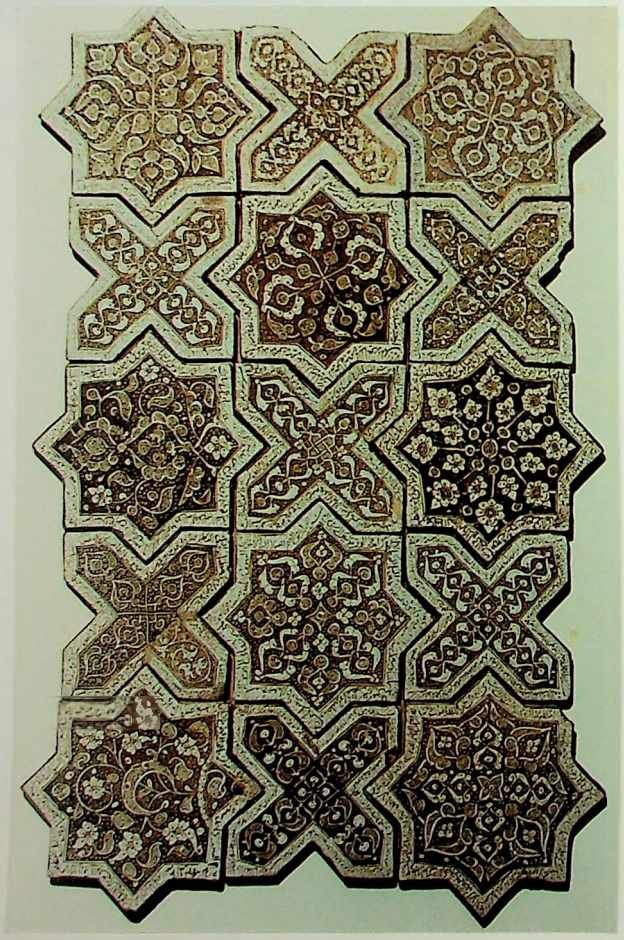

Fig 36: Panel of Stars. 'Veramin' group, dated 1262, diameter 31cm
Il-Khanid.
Book 12.

Fig 37: Star and cross Tiles, Lustre and monochromo, diameter of star tile 20.5, Il-Khanid style.
Book 12.

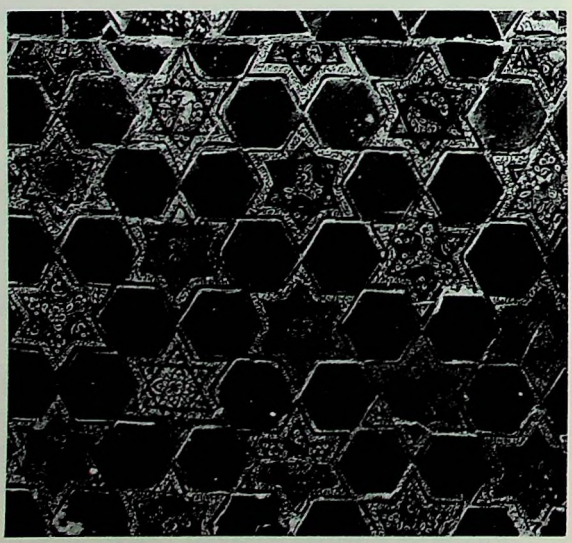

Fig 38: Star tiles with turquoise hexagons, dated 1300 and 1307 diameter star tile 19cm
Book 12.

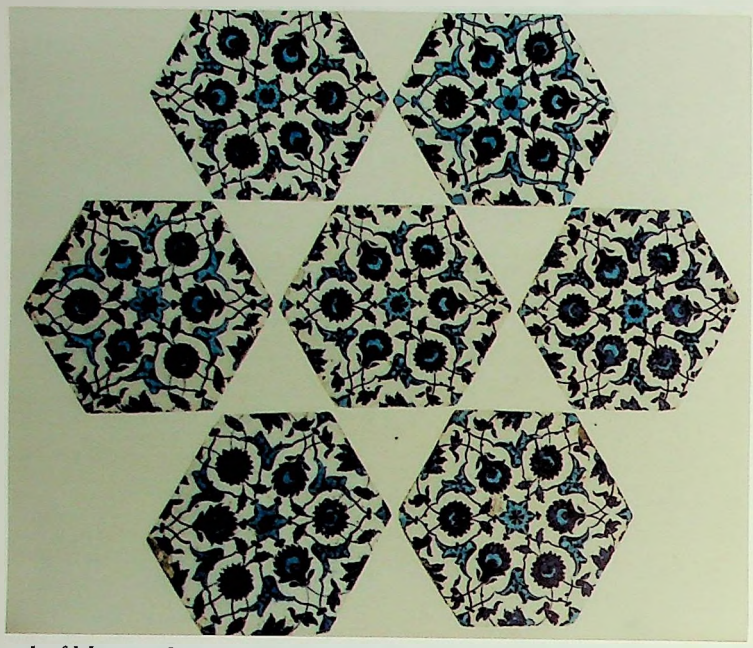

Fig 39: Panel of blue and turquoise hexagon tiles, second quarter sixteenth century. Isnik .
Book 2.

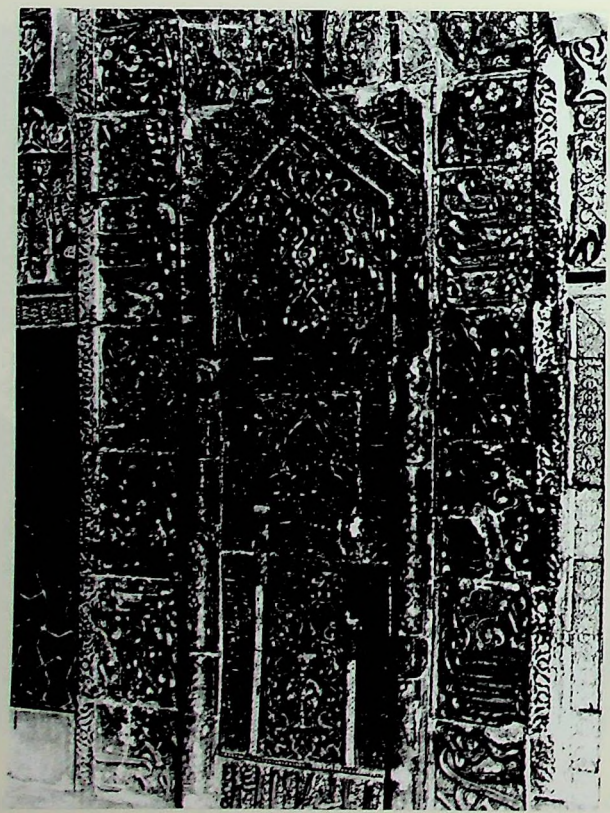

Fig 40: Mihrab, from the shrine at Mashad, dated 1242, 190 x 125cm
Book 12.

Fig 41: Star tile, Monumental style diameter 13.5 cm
Book 12.

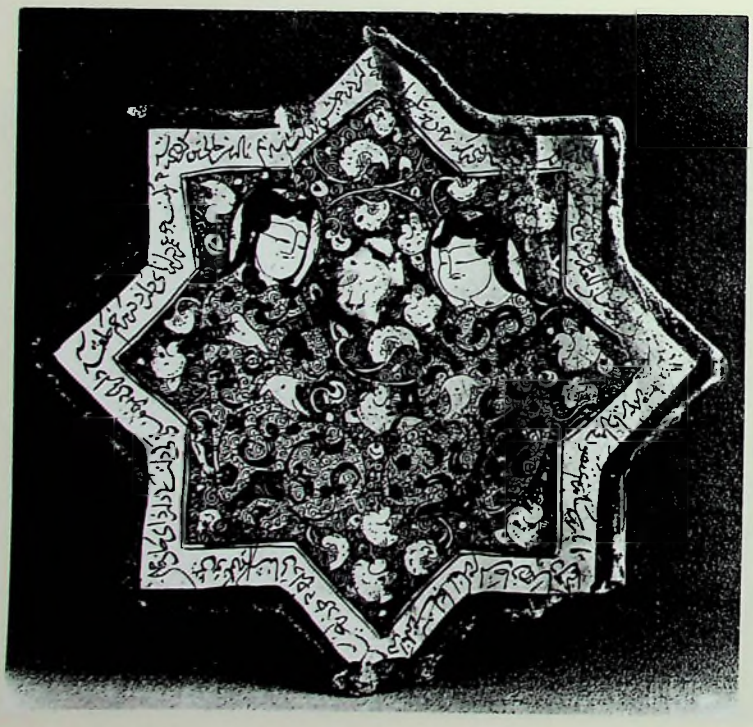

Fig 42: Star tile. Kashan style, probable by Abu Zaid, dated 1208 diameter 32cm .
Book 12.

Fig 43: Tile panel with saz scroll, second half sixteenth century
Book 2.

Fig 44: Pair of sprandrels with floral spray, second half sixteenth century
Book 2.

Fig 45: Tile; composition of many people, hair styles and only facial areas left plain. Kashan style, twelfth to thirteenth century. Diameter 43 x 34cm Book 12.

Fig 46: Bowl. Miniature style dated 1191, diameter 38cm (no ill. of tiles in miniature style available). Book 12.

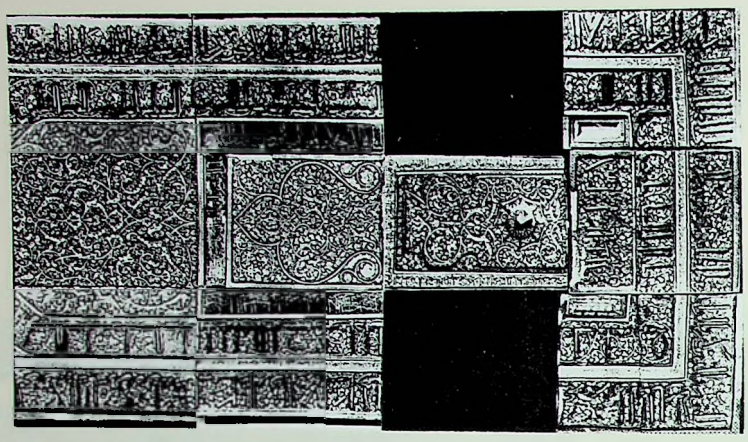

Fig 47: Tombstone Panel, from the shrine at Qumm. By Muhammad ibn Abi Tahir dated 1206, diameter 290 x 120cm
Book 12.

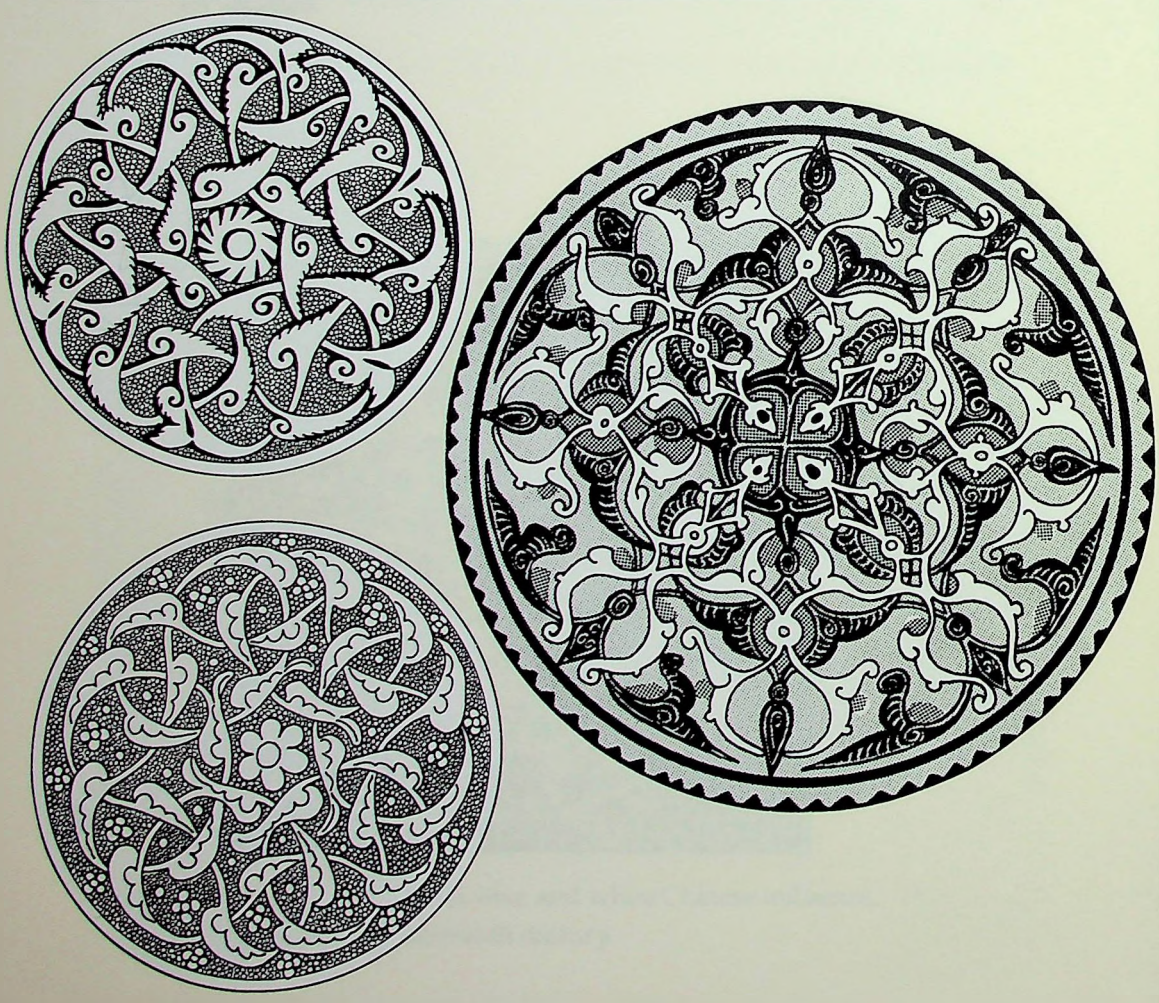

Fig 48: Three examples which illustrate what is generally known as the Arabesque style.
Book 14.

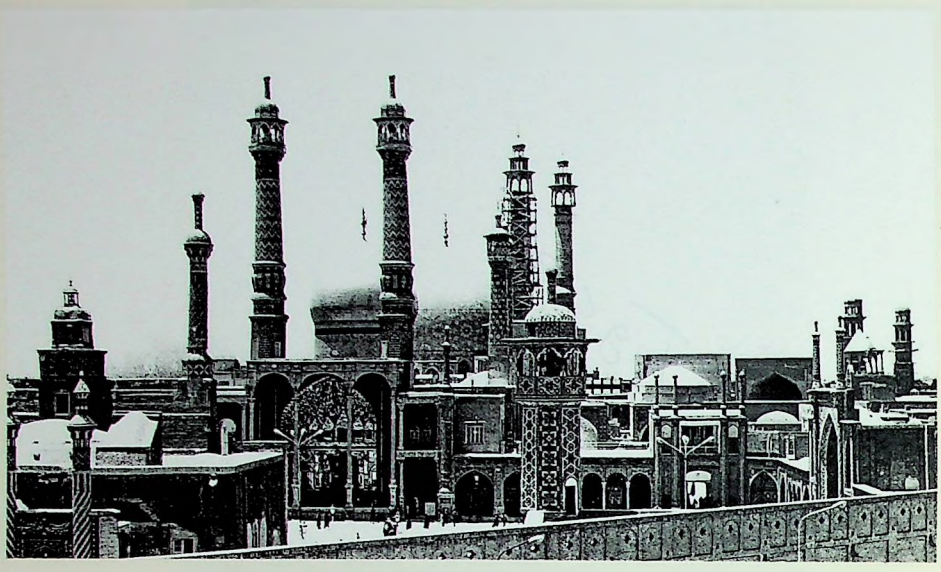

Fig 49: Shrine at Qumm where Muhammad's and Abu Zaid's tile schemes are situated.
Book 6.

Fig 50: Plate with peony scroll, blue and white Chinese influence, second quarter of sixteenth century.
Book 2.

Fig 51: Plate with foral scroll, blue and white Chinese influence, mid-sixteenth century.
Book 2.

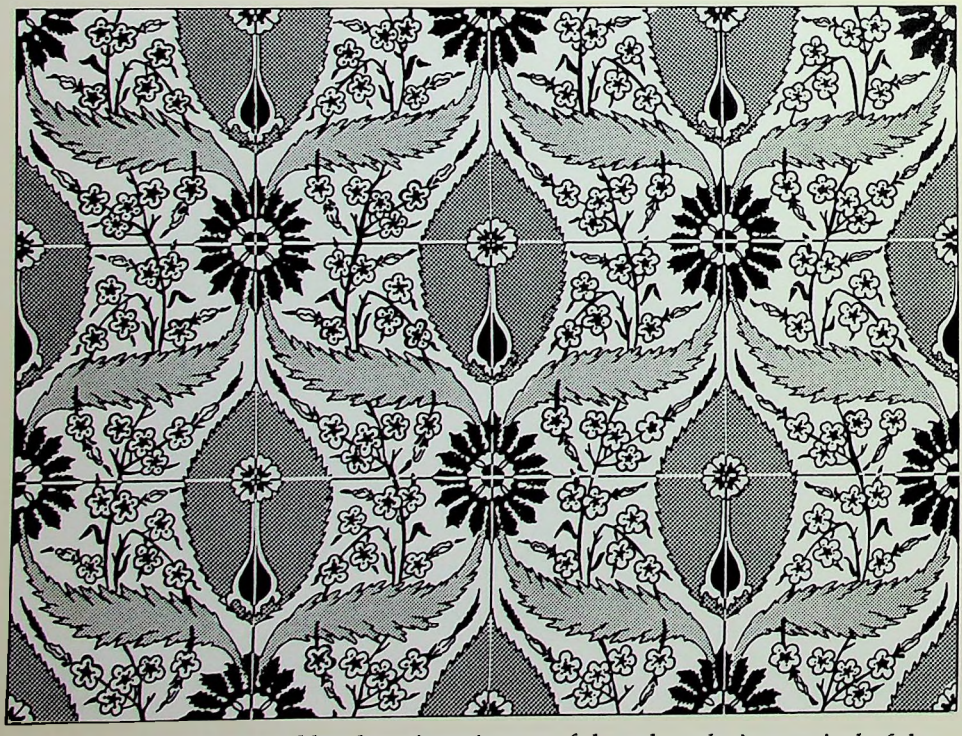

Fig 52: Pattern formed by the mirror image of the other design typical of the 'enchanted forest' effect of the saz style.
Isnik , 1560-1580.
Book 14.

Fig 53: Detail of saz style pattern of textiles, mid-sixteenth century.
Book 2.

Fig 54: Plate with saz spray, four colour ware with purple, mid-sixteenth century,
(no colour ill. available)
Book 2. ?

Fig 55: Tile panel, four colour ware with red, Mausoleum of Heirem Sultan, c 1558.
Book 2.

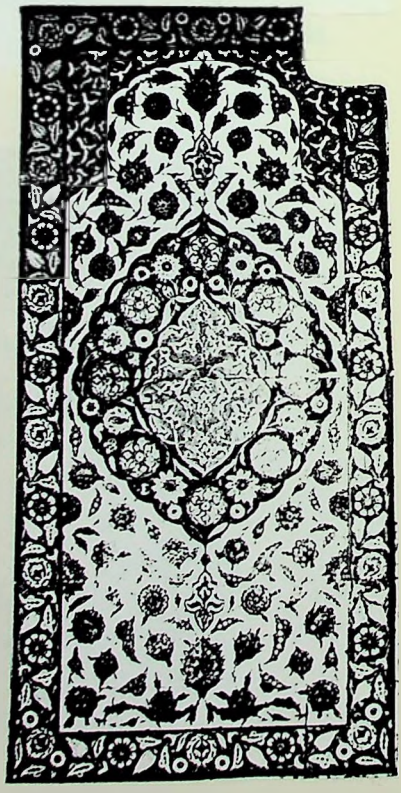

Fig 56: Tile panel, four colour ware with red, Mausoleum of Sultan Suleyman, c. 1566.
Book 2.

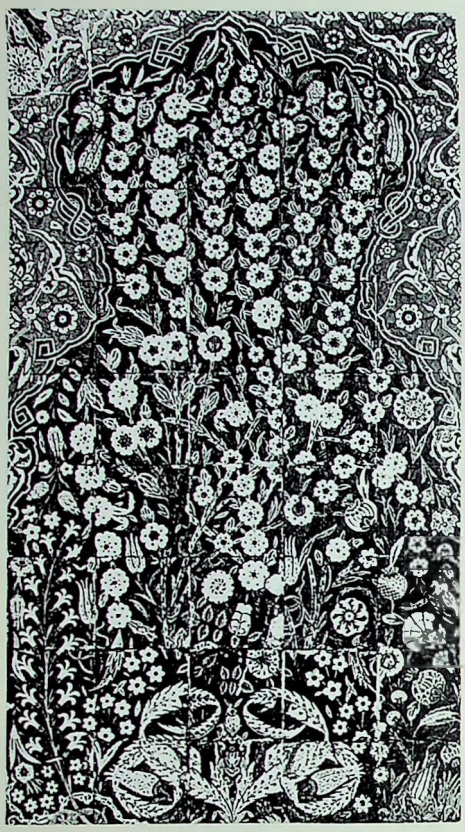

Fig 57: Tile panel, four colour ware with red, Mosque of Rustem Pasa, c. 1561. Book 2.

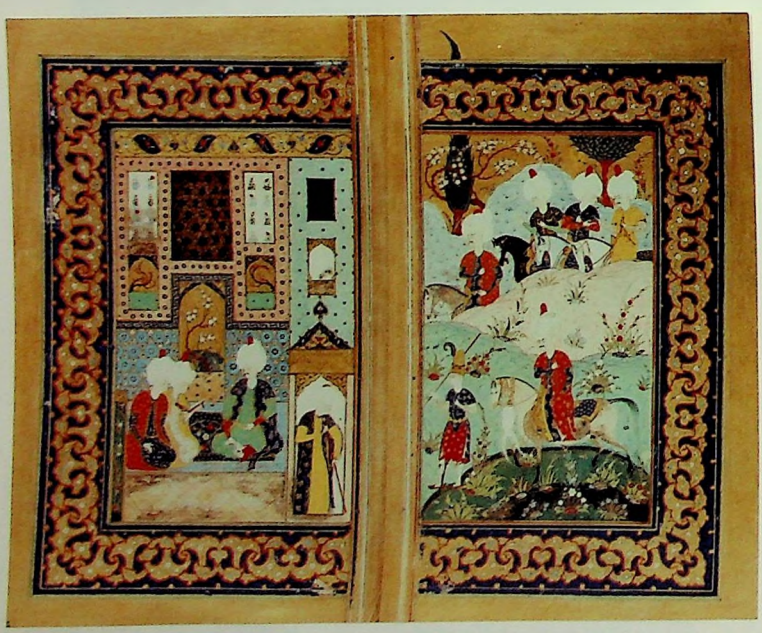

Fig 58: Manuscript showing spandrels over doorway. Book 2.

Fig 59: Triangular spandrel shape resemble in corner quadrants on binding of a Koran, mid-sixteenth century
Book 2.

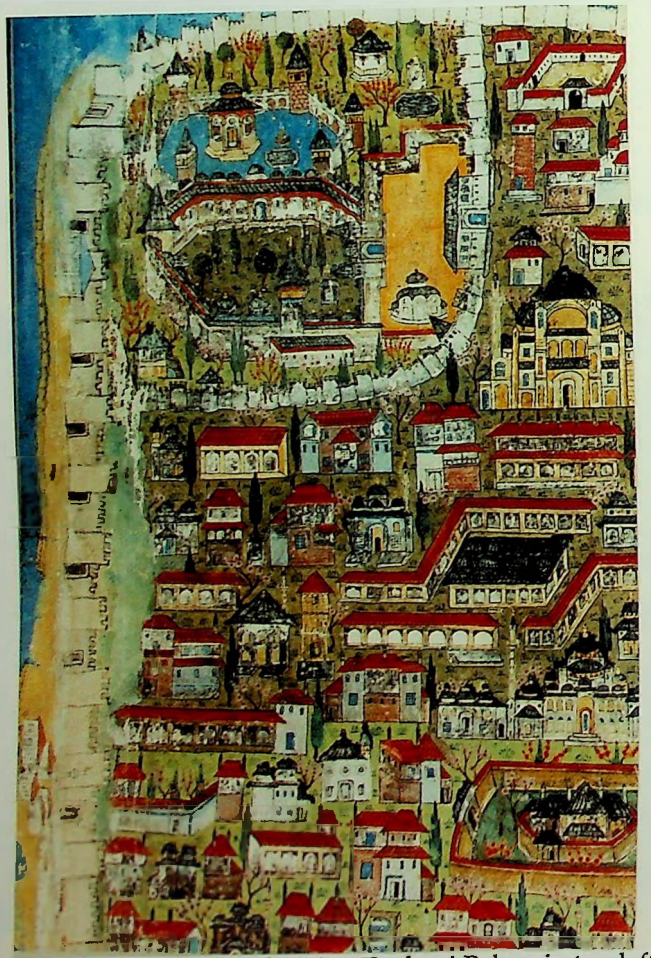

Fig 60: Detail from manuscript showing Topkapi Palace in top left corner.
Book 2.

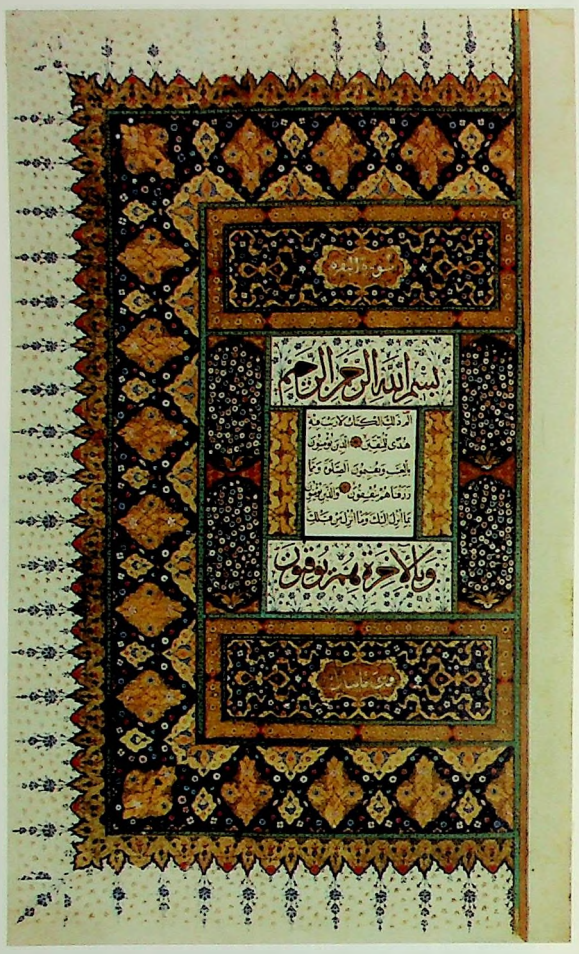

Fig 61: Flowering fruit trees on a page form an illuminated Koran, 1546-1547. Book 2.

Fig 62: Flowering Fruit trees on a page from Sultan Suleymans biography, 1558. Book 2.

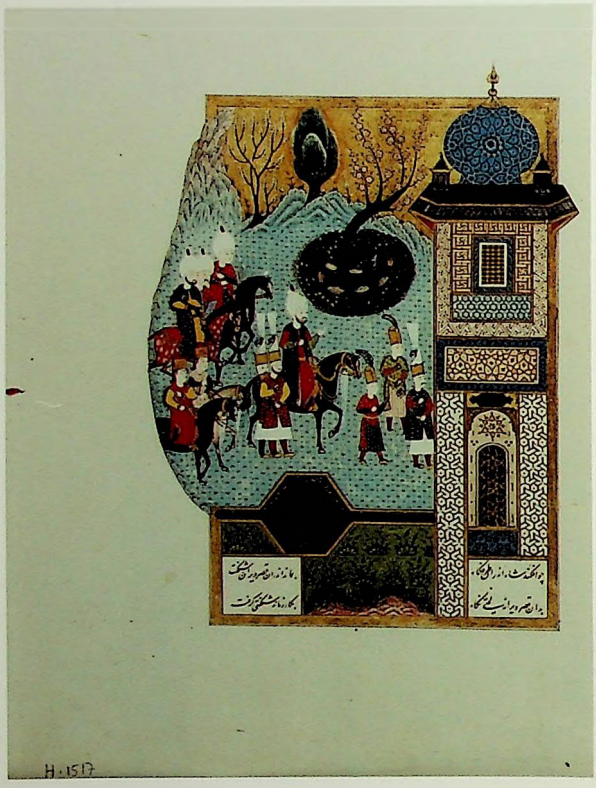

Fig 63: Flowering Fruit trees on a page from Sultan Suleymans biography, 1558. Book 2.

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