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Restoration and Maintenance of Mosques in Uzbekistan

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Abstract: Ancient architecture, history and culture in Uzbekistan are impressively considerable. It consists of over 7200 monuments, a recognizable part of which is mosques. Part of them had been restored. Another part is being examined for possible restoration. The rest require further research.

In early times of Islam, the mosque in Uzbekistan was not just a place for prayers. It was a place of other functions where ceremonies took place. Birth and death ceremonies are good examples of that. As common in the Muslim world, mosques in Uzbekistan have different categories. Nemazgokh, Idgokh and Musalla for instance were intended for mass prayers of feasts. Juma' (Friday) mosques were constructed near crowded squares and intended for all people. The Bibi Khanum mosque, the Kok-Gumbaz mosque, the Juma mosque, the Kalyan mosque and the Kalyan mosque are examples and not all of that.

The daily prayers mosques were built in markets, public centers - makhallya. Varied by form, mosques / zia-ratkhana / were erected on the numerous ubran and suburban graveyards. The architectural types of mosques exist as follows:

1. Monochambers: a/dome-shapeds, portal-dome:
   - portal-dome with corner iavan;
   - dome-shapeds with unilateral iavan;
   - multichambers, threechambers, fivechambers.
2. Pillar-dome and columned mosques: a/monopillar foredoomed:
   - monocolumn with corner iaven;
   - multidomed, frontals;
   - multicolumn.

The latest volume research, planning and restoration works with using all methodology of the restoration architectural monuments was made in such important cathedral mosques as Bibi-khanum in Samarkand, Tillya-Rari, Kok-Gumbaz in Shakhrisyabz, the Kalyan mosque in Bukhara etc.

The Kalyan mosque presents the type of the urban, djuma-mosque in Central Asia. It is a rectangular yard complex of the longitudinal axis buildings with the multi-domed gallery. Along with the developed entrance peshtak, portal-domed main building on the end of the longitudinal axis and small yard iavans with corresponding to their buildings on the diametrical axis in the body of gallery. The Timur's Bibi-khanum mosque in Samarkand for instance follows this schema. The square pillars formed the united structural integer with the arch-domed roof, are used for support the multi-column gallery by four spans on a long side and by five on a short one /2J8 pillars and 288 domes/. There are no premises along a diametrical axis of the Kalyan mosque as in Bibi-khanum. It is marked by traditional portal niches-iavans leading into the gallery where there is no grandious entrance peshtak here.

Introduction

There are almost 7200 monuments of ancient buildings under the government protection in the republic of Uzbekistan. Most of them are mosques, including 31 of them, which are the biggest, and naturally, they form great historical and cultural values. Part of them had been restored. Another part is being examined for possible restoration. The rest require further research.

In Islam, the mosque is considered to be the most important building. The type of mosque construction in Uzbekistan depends on residential formation. Muslims in Uzbekistan construct mosques in the city most important space.

In early times of Islam, the mosque in Uzbekistan was not just a place for prayers. It was a place of other functions where ceremonies took place. Birth and death ceremonies are good examples of that. As common in the Muslim world, mosques in Uzbekistan have different categories. Nemazgokh, idgokh musalla for instance were intended for mass prayers of feasts (Eid Ramadan, Eid Al-Haj). Juma' (Friday) mosques were constructed near crowded squares and intended for all people. The Bibi Khanum mosque, the Kok-Gumbaz mosque, the Juma mosque, the Kalyan mosque and the Kalyan mosque are examples and not all of that. The daily (five prayers) mosques on the other hand, were built in bazars (markets), public centers - makhallya. There were different forms of mosques, which were constructed in various cities and countrysides.

Sharply continental climate, seismicity of Central Asia, construction traditions of many centuries and other natural conditions of the region have determined the particularities in setting up the deep foundation for the massive constructions of the walls and roofs of mosques. The present state of urbanization, however, makes technology, engineering and ecological term as ways of corrections.

Monuments of architecture in Uzbekistan were built with bricks of small size (foundations, baring walls, arcs, domes and others). Ganch solution, which is a type of gypsum, was used to bind (tie). These materials are very suitable for builders. Light brick is easy to be processed. It has good figured lying. It is well known for everybody that architectural monuments of Uzbekistan have considerable percent of curved surface. They include domes, arches, arch niches, timpans and others. Binding ganch can be snatched (seized) quickly. Since Uzbekistan falls in seismic zone, it is very important to use building material that is better in plasticity. Brick and ganch were used since ancient times in Uzbekistan. Forests reserves for brick making were great. These were considered the cheapest and best building materials. The disadvantage of ganch is that it loses its physical property. Its durability is not does not compare with that of cement. Therefore, cement is more commonly used.

Builders nowadays have decided to use cement solution only when cases are extreme. This judged to be the case where a certain part of the monument bears considerable physical loading (big arches, engineering binding of foundations and massive pilons and etc.). Previously, using cement was fully denied in the external facades. Metal constructions and ferro-concrete were also used in such cases in the absence of another building material. This may solve the question about the use of modern building materials.

The most crucial problem which threatens architectural monuments is the rising subterranean waters. Aggressive salts in water composition are able to demolish not only brick foundation of the monuments, but also the reinforced concrete foundations of modern buildings. This is considered to be problem number one for the monuments of Bukhara, Khiva, and Kokand cities.

City building, planning and architectural dignities of the mosque design and planning in Uzbekistan dignified acts, which are reflected in many publications. The construction methods were given less attention in the study especially decorations. [1]

It is possible to observe polichromium and monochromium decorations with gilding and kundal, flat graphic landscape painting, carving, modeling, wood and stone carving , carving ceramics, coinage and hammered metal, gilding, paper machine and others. Most of the given types of decoration are sensitive to the effects of environment (climatic, ecological,

and physical). This may offer an explanation of why decoration of mosques and other monuments of architecture are in such a bad state that it requires a special attention.

Scientific and Systematic Council, Scientific and Project Research Institute on Conservation and Restoration of the Monuments began its activity in 1979 and worked in the system of Principal Scientific and Production Department for Cultural Monuments of the Ministry of Cultural Affairs. Specialized Enterprise for Scientific Researches and Restoration Works since 1987 on artificial decoration of architectural monuments. Furthermore, different specialized scientific and production institutions carrying out general restorations works on the monuments continue their activity up to today.

The largest volume of research, project and restoration works taking into account all methodology of the monuments' restoration were fulfilled on the biggest mosques such as Bibi Khanum (15^{th} century), Tillya Kari (in the ensemble of madrasah, 17^{th} century) and Khazrati Hizr (end of 19^{th}-beg. 20^{th} century) in Samarkand, Kok Gumbaz (15^{th} century) in Shakhrisabz, Kalyan mosque (16^{th} century) and the mosque in the ensemble of Bakhauddin Nakshbandi (17^{th} century) in Bukhara, Juma in Khiva (10^{th} –17^{th} century) and others.

The most descriptive example of complex preservation and restoration in the republic of Uzbekistan during the last years is the Kalyan mosque in Bukhara. During the period from 1996 to 1997 restoration and preservation works which is necessary for the maintenance of this unique monument of ancient architecture were carried out.

Purposes and Methodology of Restoration Works.

The aim of these works is to provide maintenance authorities with methods of restoration of architectural monuments as an initial form of action so that monuments function properly for different ceremonies and touristic demonstration.

Methodology of scientific and restoration works requires the following steps:

- Scientific research of the subject before any restoration works begin includes a historical and a bibliographic investigation for the purpose of restoring, architectural and archeological measures, investigations on zondages, engineering research of the monument and others.
- Project works include working out rough sketches of the architectural part of the monument. The restoration of a project is totally basing on arguments to explain all decisions adopted, scientific and methodological directions and technological maps. Then the preparation of preliminary project sketches include the construction method of the monument, internal decorations, engineering and construction documents (Figs. 1-4).
- The restoration works include engineering works to strengthen constructions, and to restore architectural forms and details.[2,3]

Analysis

On the basis of scrutinizing subject, before and during restoration works, the following results were found out.

The biggest jami'a mosque in Central Asia is Kalyan mosque, which is located in the Poi Kalon ensemble, historical center of Bukhara. The Registan square with ancient Arch are situated in the north, trading street with its unique domes is to the south behind Said

Alimkhan madrasah (Taki Telpakfurushon, Tim Abdullakhan, Taki Zargaron and others), (Fig. 5).

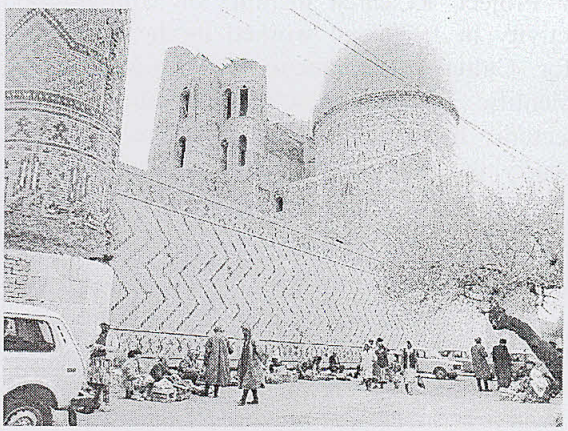


Fig. 1: Western and northern yard facades of the Kalyan Mosque in Bukhara.

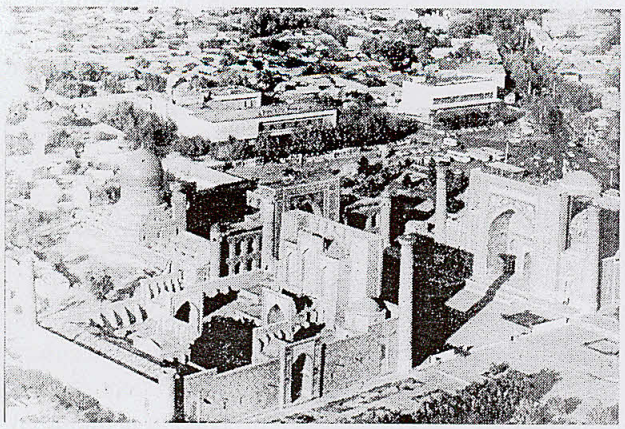


Fig. 2: Geometric analysis of architectural capacities construction in the Kalyan Mosque in Bukhara.

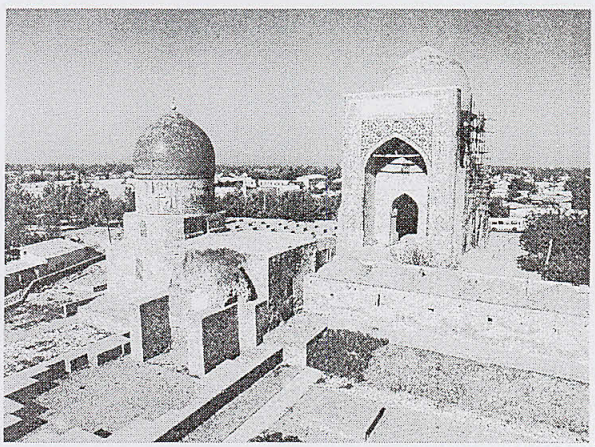


Fig. 3: Project of restoration of interior of the galleries in the Kalyan Mosque in Bukhara.

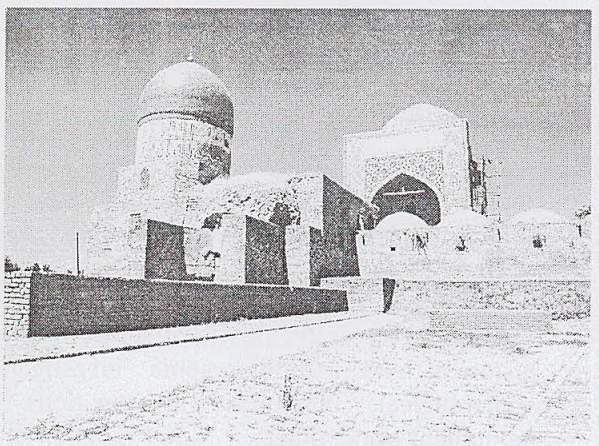


Fig. 4: Project of restoration of décor of Portal in Kalyan Mosque in Bukhara.



Fig. 5: General plan of the Poi-Kalyan ensemble in Bukhara.

Poi Kalyan ensemble excluding Kalyan mosque includes majestic Arslankhan minaret (12th century) and Miri Arab (16th century),[4,5,6] (Figs. 6,7). The Kalyan mosque, as one of the most grandiose constructions of Uzbekistan (127×78), includes a wide yard surrounded by galleries that covered with brick domes on square columns. The mosque is able to hold about 1200 people to pray. This is an achievable figure during religious holidays. Entry portal was located along the long axis of the yard, and the principal building of the mosque with high massive dome - on the opposite side of the yard. One can observe square foundation's transition to cylindrical drum through octa (eight) side volume, exterior of sphereconic scuphya is faced with blue bricks of small size. There is a spacious arch of harmonious portal toward the yard on the principal building of the mosque. The impressive Mozaikal Mihrab has a rather modest internal decoration in the background. Under the arch of the portal of the main building magnificent view to the yard of the mosque with its Kalyan minaret is possible to be observed.

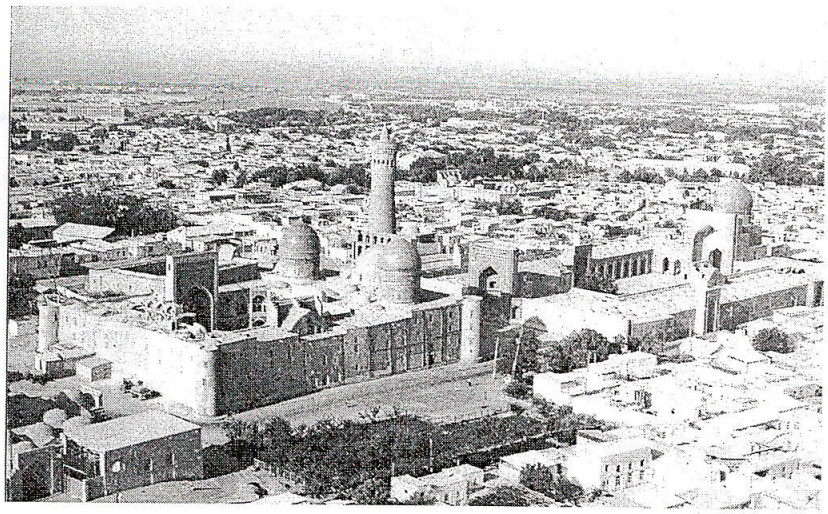


Fig. 6: Eastern principal facade, the end of 19th century.

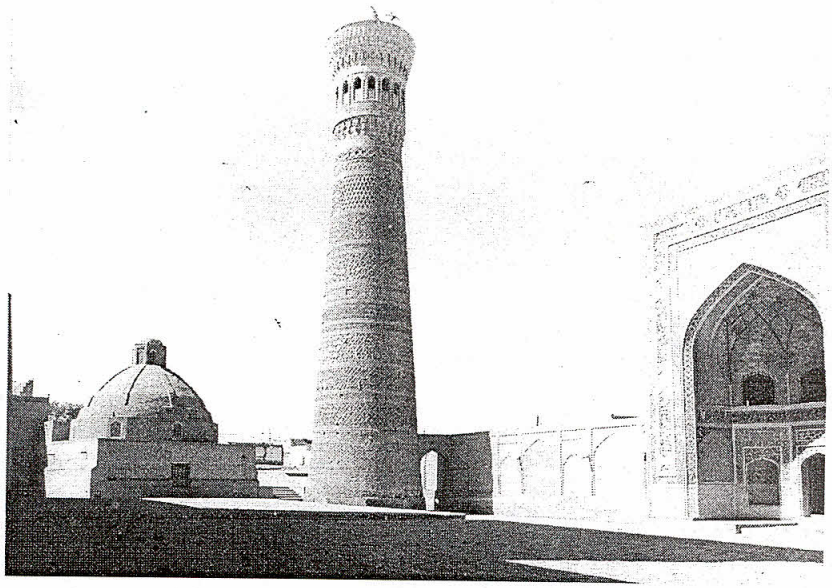


Fig. 7: Fragment of interior of Khnonako (hall, salle) before restoration.

Two lateral iwans toward to the yard with portals and four quits outside lie on the diametrical axes. Portals in the yard are faced with tiles decorated with big geometric pictures. Galleries are located on the long side by four rows behind the yard portal, and on the short side - by five rows. There are two hundred and eight columns bringing two hundred and eighty eight domes, also arches among the columns form a gallery of the mosque which embraces the yard. (Figs. 8,9).

On the main entry, a portal of the eastern facade turned to the Poi Kalyan square. The principal facade Miri Arab madrasah's false arches and its lateral cuts were finished using decorative semiarches of small size with star pictures from arches of small size that are filled mozaikal set and thin facing brick.

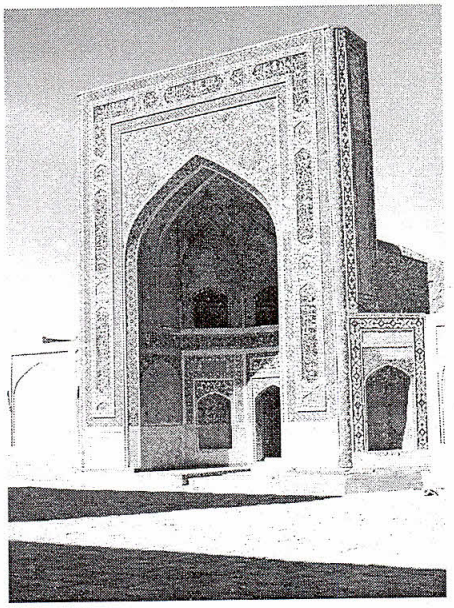


Fig. 8: Photocollage of state of the Kalyan Mosque in Bukhara before its restoration in 1996-1997.

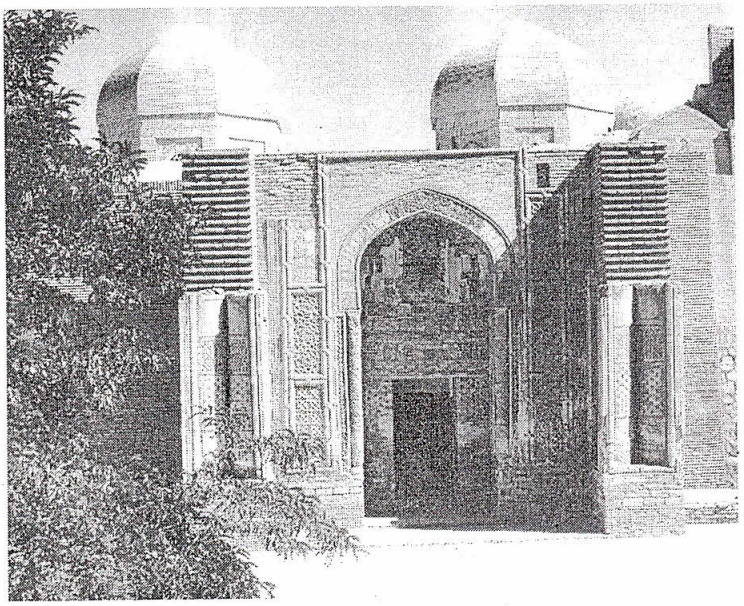


Fig. 9: Eastern (main) and northern facadeof the Kalyan Mosque in Bukhara.

Construction of the jami'a mosque of the city began in 1121 during the times of ruling by turk hakan Arslankhan (Karakhanids). With the purpose to strengthen the role of a mosque in the life of population, Arslankhan ordered to build high minaret also. It was a great event in the history of architecture of Maveranahre to construct such a big construction in the 12th century. This mosque was ruined during mongol's invasion. Restoration of it took place in 1318-1326. It is most probable that it was during the ruling of Kebekhan. By the first half of the 15th century, it became worthless. Remains of the «second mosque» came to us in the form of fragmentary face plaster under the panels of 15th century in interior of big hall and traces of mihrab niche.

In the first half of the 15th century, a new mosque was erected in place of the old decayed one. The mosque preserved its initial composition, which had been put into architecture of the mosque in the 12th century.

Sources testify that construction of the «third mosque» was carried out under the leadership of Timurids rulers. This is basically during the time of Ulugbek. After Ulugbek, other Timurids rulers did not care of Bukhara's welfare. Repair and restoration of mosques were fulfilled under the ruling of Sheybanids. Abdullakhan restored it in the 16th century.

This century witnessed a repeated scientific researches and repair works. During the 50th restoration of facing yard facades (architect T.Ikramov) and constructive works to strengthen it, were undertaken (architect K.Kryukov).

The 1974 project of restoration of the Kalyan mosque (architect A.Bogodukhov) was primarily a partial restoration of the main eastern facade, yard facade and works to strengthen it was performed. Other reasons may have contributed to the limitation of the project, and thus, not carried out in full. The comprehensive scientific restoration on the basis of complex scientific and project researches (architect A.Yakhyaev) was conducted in 1996-1997 in the composition of jubilee measures, which were devoted to 2500th anniversary of Bukhara City.

Bukhara's people's restoration artisans (usto - master I. Mahmudov, A.Baymuradov, A.Abdinov and others) carried out the most difficult works on straightening and restoration of 37 columns of the mosque without taking domes to pieces.[8]

On the basis of documentary data inscription on the drum and facing of the dome with glazing ceramic tiles were restored. Under repaired plaster stratum of yard timpans fragments of majolica and mozaic facing were discovered. During the process of scrupulous study and analysis of the pictures of decorations, a few variants of facing were worked out. Consequently, the most acceptable and suitable decorations were restored from identical materials through preservation of the rest fragments and fillings (Figs. 10-14). Due to the fulfilled preservation works of restoration chemists (doctor A.Abdurazzakov) process of rising subterranean aggressive salts is considerably stopped. [9]

Concluding Remarks

Taking into account that a monument function on its predestination engineering and technical measures on setting up all the necessary conditions were simultaneously conducted. Aims and methodology are determined individually on restoring each monument. In all Muslim worlds, common traditions are observed in works of Islamic art, but at the same time, the region has worked out its local particularities. The bearers of this art are scientific and research works and public craftsmen who save and pass over secrets of their skills from generation to generation. These traditions and peculiarities of Islamic art are currently alive. Traditions of ancient architecture are efficiently used for creating numerous mosques, which are actively built today.

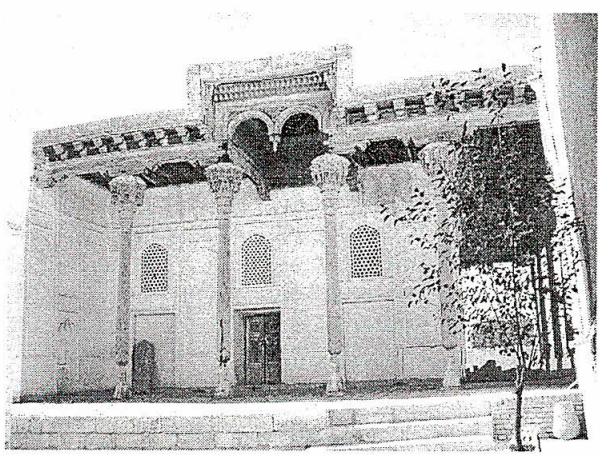


Fig. 10: Western yard facade during restoration.

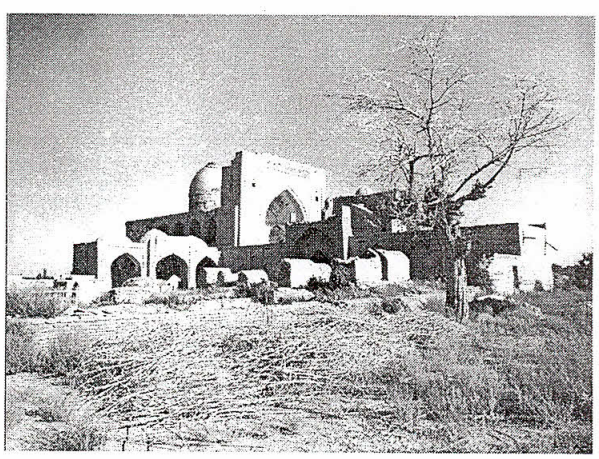


Fig. 11: Western yard facade. Portal of Khonako restoration.

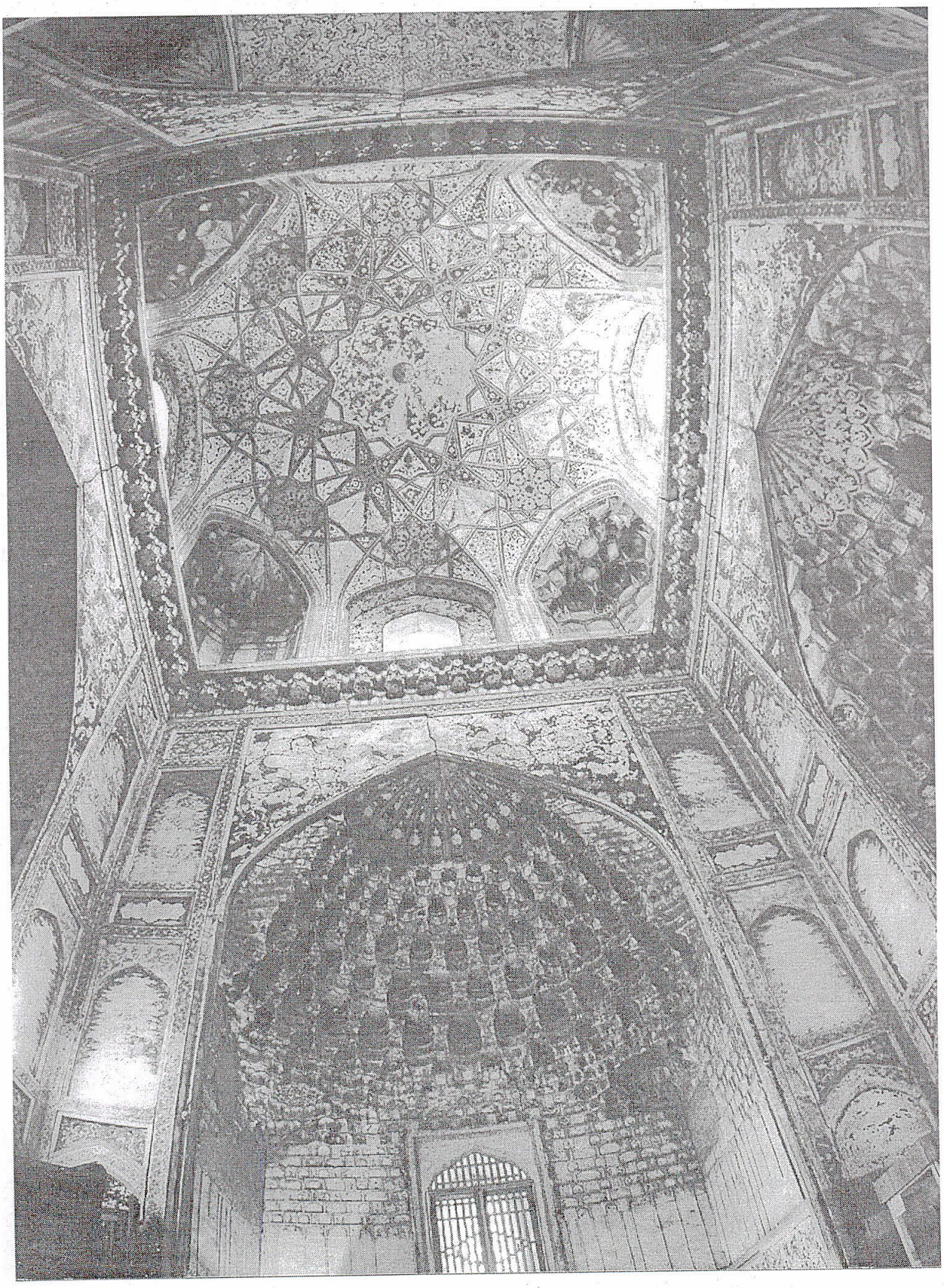


Fig. 12: Portal of southern yard facade after restoration.

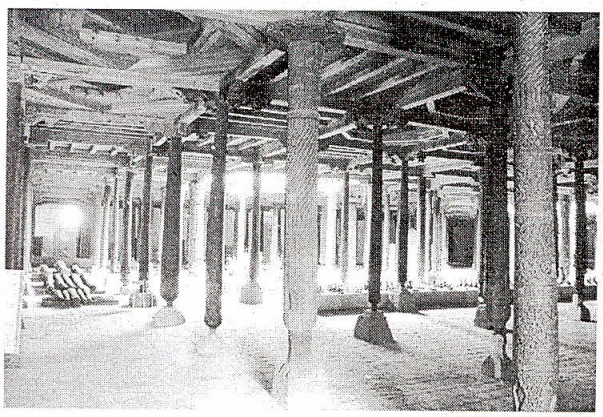


Fig. 13: Northern yard portal after restoration.

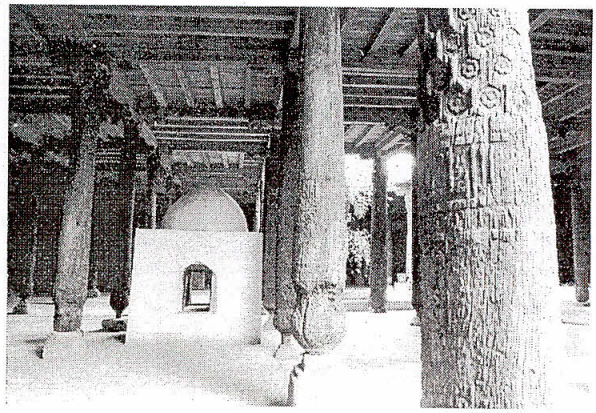


Fig. 14: Fragment of arch niche of northern yard facade after restoration.

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صيانة و ترميم المساجد في اوزبكستان

عثمانوف باطر منصوروفيتش

قسم علوم و إنتاج الآثار الثقافية, وزارة الشئون الثقافية

جمهورية أوزبكستان

ملخص البحث: تشمل برامج الحماية المتبعة في جمهورية أوزباكستان الحفاظ على تاريخ و عمارة اكثر من ٧٢٠٠ نصب، كثير منها مساجد، متواجدة على الأراضي الأوزبكية. لقد تم ترميم جزء من هذه النصوب، ويتم التحضير لترميم جزء آخر عندما تنتهي الدراسات اللازمة، بينما لا يزال قسم آخر ينتظر الدراسات الضرورية.

كان المسجد، في بدايات القرون الإسلامية، متعدد الأغراض يخدم وظائف الحياة كلها مثل الولادات و الوفيات و غيرها. و مع بدايات القرن التاسع الميلادي، بدأ تخصيص المساجد و حصر الوظائف التي تخدمها. أحد هذه الأنواع هو "النمازغوغ"، "مصلى الايغوغ"، كان مخصصا للصلاة في مناسبات مهمة كالأعياد.

هذا و قد بنيت مساجد أخرى لصلاة الجمعة. بنيت هذه قرب الساحات المكتظة، فنرى مسجد "بي بي خانم"، مسجد "كوك غمباز"، مسجد "الجمعة"، و مسجد "الكاليان" كأمثلة منها. و كما بنيت مساجد للاستعمال اليومي و أداء الصلوات الخمسة في الأسواق و المراكز المحلية العامة. و قد تم إنشاء مساجد عدة مختلفة الأشكال قرب المدافن. ويوضح التقسيم الآتي الأنواع المختلفة التي وجدت:

١-المسجد ذو الفراغ الواحد:

- مسقوف بقبة و مدخل مقبب
- مدخل مقبب مع إيوان على زاوية
- فراغ مقبب مع إيوان على جهة واحدة
- بناء متعدد الفراغات (ثلاث فراغات و خمس فراغات)

٢-المساجد ذات الأعمدة و القباب المحمولة على أعمدة

- قباب متعددة، مداخل مقببة
- مساجد بصفوف أعمدة

تناول البحث الأخير تخطيط و ترميم، تبعا لتقنيات ترميم العالم المعمارية، جوامع كبيرة مهمة مثل "بي يي خانم" في سمرقند، "تيليا-راري" في شخريزيابز، مسجد "الكاليان" في بخارى و غيرها.

يمثل مسجد "الكاليان" نوع مساجد الجمعة في المدن في آسيا الوسطى. فهو رصين، مستطيل الشكل، مع فراغ رئيسي و بناء مقبب على المحيط. يمتاز مدخل المسجد بالفخامة مغطى بقبة، وهو يقع على طرف المبنى على المحور الطولي مع ساحة صغيرة مع إيوانات على جوانب الفراغ الأساسي.

و يتبع مسجد "تيمور بيي-خانم" في سمرقند التخطيط عينه. استعملت أعمدة مربعة مع قباب محمولة على عقود لتوحيد النظام الإنشائي، و تحمل هذه فراغ يحوي عدة صفوف أعمدة: أربعة مسافات بين الأعمدة في الاتجاه الطولي و خمسة في الاتجاه القصير. وقد استعمل ٢١٨ عمودا و ٢٨٨ قبة. لا يوجد بناء على محيط المسجد كما هو حال مسجد "بيبي خانم". و يتميز بوجود إيوانات ذات مداخل تقليدية تفضي الى الفراغ، ولكن لا وجود لبوابات فخمة هنا.