by Ayşıl Yavuz

Al-Abbas Mosque

Asnaf, Yemen

Conservator
French Centre for Yemeni Studies
Marylène Barret
Abullah Hadrami

Client
Yemeni Ministry of Culture

Design
1987

Completed
1996

Al-Abbas Mosque
Asnaf, Yemen

I. Introduction

Al-Abbas Mosque is situated near Asnaf village, 38 kilometres south-east of Sana'a, capital of Yemen. It is dated to AD 1125–26. It is a small mosque with stone masonry walls, stone columns and a timber-coffered ceiling. The coffered ceiling is covered with painted and gilded floral and geometric patterns, as well as bands of writing, and therefore belongs to a small group of Yemeni mosques with decorated coffered ceilings. This example, however, is the earliest and the most intact. Scholars from the French Institute of Yemeni Studies began studying the building in the early 1980s. Part of the coffered ceiling was transported to the museum in Sana'a, leaving an empty space that was covered with sheet metal. It remained in the Sana'a museum for years, where it was restored over a period of time. The conservation of the ceiling was completed in 1992 and the pieces were replaced when the mosque itself was being restored. The exceptional ceiling was returned to the whole to which it belonged.

II. Contextual Information

a. Historical background

The *kufic* inscription bands underneath the ceiling give the date of construction as 1125–26 AD, and the name of the donor as Sultan Musa bin Mohammad al-Fitti

[Extensive research on the Al-Abbas Mosque is attached at the end of this report as Appendix A.]

b. Local architectural character

Of the surrounding villages, Asnaf is the nearest settlement and has historical connections with the mosque. The town is woven around a small hill, with the exterior walls of the houses almost forming a town wall. The basic building materials are stone and mud brick, with timber used for the horizontal elements. The walls are of roughly cut or rubble stone at the base, extending to varying heights, then continuing with mud brick. The houses are between two and four storeys high, with flat roofs terminating in low parapet walls. The exterior walls are covered with a thick coat of mud plaster mixed with straw for plasticity. The edges of the roofs, as well as the window and door openings, are treated with *qudad*, a mortar and plaster made from lime and crushed volcanic stone cured for a long time, also used for repairing walls. Water is drained through shallow vertical channels, treated with *qudad*, in the walls. The remains of buildings at the site of Al-Abbas Mosque also display these characteristics.

c. Climate

The region is part of the highlands of Yemen. It has a temperate climate which is very dry. There is a marked contrast between daytime and night-time temperatures, which can vary by as much as 20°C. Temperatures between October and February range between a minimum of -2 to -5°C to a maximum of 24 to 26°C. Between March and September, the minimum is -1 to 10°C, and the maximum 28 to 35°C.

Annual rainfall varies between 200 and 500 millimetres. There are two seasons of rainfall: in the spring, between March and April, and in the summer, between July and September. Relative humidity averages between 30 and 50 per cent during the day, reaching 60 per cent at night.

d. Site and topography

Both Asnaf, 1.5 kilometres to the south, and the mosque itself, along with the remains of the few nearby buildings, lie within the territory of the tribe al-Yamani-al-Sufla, which is a faction of the Hawlan-al-Tiyal. The Hawlan tribe is part of the tribal confederation of Bakil. Hawlan is a *mudiryah* (regional directorate) in the Sana'a district, with a population of 160,000. Asnaf has approximately 4,000 inhabitants.

From Sana'a, Asnaf can be reached by a main road, one of the oldest in the highlands, which connects Sana'a to Ma'rib via Gilhana. At present it is paved with asphalt as far as Asnaf, beyond which it becomes a narrow earth road. From Asnaf, the mosque is accessible by two earth tracks. The upper one leads along the slope of the mountain and is used more frequently during the rainy season; the lower track goes through Wadi Al-Abbas and is shared by the seven villages in the vicinity of the mosque. The group of buildings commands a panoramic view of Al-Abbas valley with the villages in the distance.

The mosque is part of a cluster of buildings located on the west side of a volcanic hill named Hadida, which rises 2,350 metres above sea level. The hill is of solid andesite. To the north, west and south, the terrain slopes away; to the east is the mountain. The buildings are situated half way up Hadida, the highest building being the mosque, located on a narrow platform, extending north–south. There are two sets of ruins to its south which merge into each other. The most easterly is a small building, roughly square in plan, at almost the same orientation as the mosque, but about 2 metres lower. It is constructed with rubble stone, covered with mud plaster and *qudad*. Inside there are three small, square, monolithic stone pillars pointing to the existence at one time of two horizontal rows of three columns (if the existing pillars are accepted as being *in-situ*). The building has been identified as an earlier mosque, as excavations in 1993 discovered a *mihrab* (niche) on the north wall, as well as timber remains thought to have come from a timber ceiling or roof.

Adjoining this mosque on its west side are remains of a dwelling built on three levels, where the guard of Al-Abbas Mosque used to live. Because of the slope of the ground, there are basement spaces underneath some of the rooms and remnants of a first floor. The walls of this building are of roughly coursed stone masonry ending very irregularly at different heights. They were completed with mud brick at a later date, but the mud plaster which should have covered the exterior surfaces is absent. The relationship of the north wall with the *birka* (cistern in the form of an open basin) and the steps leading up to the west entrance of Al-Abbas Mosque shows that there is a contemporary and integral connection between the mosque and the two ruined buildings.

There are two *birkas*, one for each mosque. The *birka* of the second mosque is to the south of it. At present, the upper parts of the walls have crumbled away and part of the staircase inside is missing. The *birka* belonging to Al-Abbas Mosque is to the west of the platform. It is at a

lower level, to the north of a flight of steps located between the wall of the platform and the north exterior wall of the dwelling to the south. There are two small basins on the north side of the *birka*, connected to each other north to south, where the dirt and mud would settle before the water entered the cistern. From the location of the basins, the direction of the water flow can be deduced.

To the south of the southern *birka* and at a lower level there is a simple, one-storey building that is used as a stable by the mosque guard, who now lives in a new house built about 50 metres north-east of the mosque.

The platform on which the mosque is situated is not level, but descends towards the west at the corners of the building. The east edge is carved from the slope of the mountain and separated from it by a retaining wall. There are only about three metres between the east wall of the mosque and the retaining wall. In front of both these walls there is a bench-like low wall, encircling the mosque on the east, north and west sides. On the west side, the platform is supported by a retaining wall which rises a little above the level of the stone pavement. On the south side it is delineated by the wall of the second mosque, and on the north it extends into the terrain without any defined boundaries.

III. Programme

a. What conditions gave rise to the formulation of the programme?

Research carried out on the building before 1994 damaged the cultural property and left it in a perilous state. At this time, the Hawlan tribal people started to voice their concern, and objected to the removal of the ceiling, which was taken to Sana'a to be displayed in the museum. They wanted 'their' ceiling back. Because of this protest, the subsequent transportation of the rest of the coffers to the museum laboratory in Sana'a as part of the restoration became a very difficult issue.

A budget was allotted for the completion of the conservation of the coffered ceiling and the restoration of the building itself so that the ceiling could be reinstalled in its original location. The project did not involve any excavation of or intervention with the other buildings at the site.

The state of Al-Abbas Mosque in 1994 was very bad. The removal of the coffers had damaged the roof beams, and the sheet-metal roof cover was harming the remaining coffers because of its effect on the thermal conditions. Worst of all, its static balance, created over hundreds of years, was disturbed. The voids created induced sagging and collapse at various points, which were haphazardly supported by timber posts. At the last phase of the construction of the guard's former house, its walls were built leaning onto the west and south walls of the mosque. The entrances in the south wall and to the space between the ceiling and the roof on the upper part of the east wall were blocked, as were many of the windows.

b. General objectives

Tribal insistence that the ceiling should be returned was a major factor shaping the programme objectives. The building was to regain its function as a mosque and a sanctuary

serving the tribes that have used it for centuries. (It should be noted that the mosque was cared for predominantly by women, who cleaned it and filled it with bouquets of basil. Every stone joint and crevice in the masonry was filled with small pieces of paper as tokens of their prayers. It is said that the cenotaph was burned in order to stop the women from coming to the building.) The main objective, shaped under these basic conditions, was to provide a safe haven for the precious ceiling by consolidating the building.

c. Functional requirements

Given that the project aim was to restore not only the ceiling but also the functionality of the building as a mosque, the programme had to ensure that it provided everything required for people to congregate – the purpose for which the site was intended even in Saebean times, as the inscription testifies. This naturally included the presence of water for ablution, which meant making the *birka* usable again.

IV. Description

a. Building data

Al-Abbas Mosque is a small rectangle in plan, with its longer side running in the direction of the *qibla* (direction of prayer) to the north. Measuring 9.35–9.40 metres by 10.34–10.6 metres, it is constructed of cut stone, to a height that varies between 1.3 metres and 2.6 metres, owing to the slope of the terrain. Above this level the walls are built of brick and finished in a cornice composed of diagonal and seesaw coursing with crenellations on top. The stone parts of the walls taper as they rise, as can be seen in early photographs. Remains of *qudad* can be seen on the north side of the entrance on the west wall. This shows that the building was given a regular coat of mud plaster, in accordance with usual Yemeni practice as observed on the north wall of the other mosque, with *qudad* on top. *Qudad* was used when the plaster started to peel off to fill the joints between the stones and bricks in order to avoid water penetration. This practice is still today regularly used for maintenance and repair. Some of the crenellations atop of the cornice were constructed after the diagonal and the seesaw frieze had disappeared. Moreover, at the corners of the south wall there were 'dwarf columns', not crenellations.

Al-Abbas Mosque has two entrances, one at the centre of the south elevation, on the *mihrab* axis, and the other on the west elevation. The latter entrance is off-centre to the south, corresponding to the third columnar bay from the north. The interior is lit by a band of high, small, vertically rectangular windows, all at the same level. The longer east and west elevations have four equally spaced windows. The shorter, south side accommodates three similar windows. On the west and south elevations one of these windows is located within the lunette of the arch of the entrance. The window openings are filled with sheet alabaster. Barbara Finster, who made a survey of these two mosques, notes that the original alabaster windows of the mosque were decorated with designs and writing, and she assumes that they have been taken from the second mosque, which she believes to be earlier. On the south wall, there is a water-drain to the east of the entrance, extending down to a small basin at ground level. The north elevation is a solid wall because the *mihrab* niche does not project on the exterior façade.

The interior of the mosque is divided into four horizontal bays by three rows of columns, two in each row. The *mihrab* bay is wider than the others. The beams, running east to west, support a coffered ceiling of timber divided into mainly square but some rectangular coffers, most of which recede in several steps, some in diminishing square geometry. The one in front of the *mihrab* is the most accentuated, almost resembling a cupola. The coffered ceiling is carved and decorated with floral and geometric patterns as well as bands of writing. The decoration is richly coloured and gilded. The two *kufic* bands on top of the walls just below the ceiling give the date of construction and the name of the donor. Beneath the coffer at the south-east corner are the remains of walls outlining the area used to house the timber cenotaph was burnt in the 1950s.

The *mihrab* niche is rectangular in elevation and semi-circular in plan with columns attached at the corners. It is covered with a half-dome that has a pointed profile. There is a smaller niche inside the outer one, which is an exact replica. An inscription band surrounds the frame of the niche, as well as the arch of the half dome. There are two discs with writing at the spandrels of the outer arch. The inscriptions on these discs identify the master of the mosque as 'amal Muhammad ibn Ali ibn Arhab'. This means that the master was a local man, as Arhab is a town to the north of Sana'a.

The area underneath the coffer at the southeast corner has remains of walls defining this area, which would have housed the timber cenotaph which was burnt around 1950's. The cenotaph is said to belong to al-Abbas after whom the mosque is named.

All the interior walls are covered with *juss* (gypsum plaster), and the floor with *qudad*. The roof beams do not support the ceiling: the building has two sets of beams, the lower one bearing the coffers, and the one above the roof, with a space of about 1.2 metres in between them. The difference in height was achieved by building short, square brick pillars on top of the columns after the ceiling beams were put in position, locking the ends of the beams as well. On top of these beams a second set of thinner branches was laid, which were in turn covered with twigs and small stones, all fixed with a layer of *qudad*. The roof sloped in the direction of the water-drain, which ran down the surface of the south wall.

Barbara Finster includes Al-Abbas Mosque in a small group of mosques with ornate timber ceilings. This group of mosques has retained characteristics that predate the advent of Islam and Christianity in the mountains and the uplands of Yemen. They are all built to an approximately square plan and have humble exteriors that contrast with their very ornate ceilings. Because of its size and the splendour of its ceiling, she believes that Al-Abbas could be a memorial mosque. Of the twelve mosques that belong to this group, Al-Abbas is one of the earliest, as well as being the most intact and elaborate.

Solange Ory's book, which covers every aspect of the mosque, mostly dwells on the decoration and the writings. She has traced influences from Iran and Ghazna in the writing of the inscriptions, as well as in the *mihrab*, which she concludes to be a result of the close relationship between the Zaydis of Yemen and those of Iran. As for the decoration, she thinks that only few elements can be attributed to a pre-Arabic heritage. These are the rose forms and the medallions, which are related to the cult of sun worship and are symbols of divinity; the merlons and rings, which can signify the power of a god as well as a ruler, are associated with the great dynasties of Mesopotamia – the Sumerians, Babylonians and Assyrians. These

were taken over by the rulers of the Persians, the Parths, the Achemenians, and the Sassanians. Many of the mosque's decorations are related to symbols that are Mesopotamian in origin. The sculptured decoration and the floral interlacing are more similar to their Fatimid counterparts. Ory believes that both the inscriptions and the decoration of Al-Abbas Mosque faithfully reflect the history of Yemen at that period, when close political and commercial relationship between the Sulayhis and the Fatimids led to social and cultural interaction. During this time, artisans travelled from one country to another practising their crafts. The Indo-Iranian influence in the style of the writing reflects the ideas brought to Yemen by the Zaydis, Ismaili missionaries and Indian merchants. From all these different cultural influences, the master of Al-Abbas Mosque created something unique.

Leaving aside for a moment the mosque's spectacular decoration, the site itself has been a sacred place for the congregation of worshippers for twenty centuries. This makes the Al-Abbas buildings, symbolized by the mosque with its stupendous ceiling, even more unique and important.

b. Evolution of design concepts

In its approach to the restoration of Al-Abbas Mosque, the team always adhered to the principle of minimum intervention. In the conservation of the timber, the cracked and warped pieces were retained as often as possible, and only the completely crumbled or missing pieces were replaced. The original decoration was simply cleaned, and some of the missing areas restored, using watercolour so that they can be removed if necessary. No attempt was made to replicate the carved decoration on the new timber, but the effect of carving was created through *trompe-l'oeil* painting. Some parts of the decoration were left untouched, so that the difference between 'before' and 'after' can be seen. Elsewhere, only those elements that were still in existence or were known from traces and photographs were restored, such as the crenellations. The doors and the windows were renewed in the style of other mosques, but without any decoration.

During the work, the status of the mosque as an archaeological site was always respected. The platform on which it sits was paved without touching anything underneath, and the stones were laid so that they could be removed for excavation purposes at a later date. There is one exception to this approach, however. To guarantee that water on the roof was drained as quickly as possible in order to avoid any possible damage to the ceiling, the drain to the south was not considered adequate. Three new stone gutters were therefore added to the east elevation and the roof surface was divided into three compartments.

The *qudad* pointing which did not cover all the joints of the stones, was applied to cover all of the stones. The whitewash applied to the *qudad* produced a striking contrast, but this will mellow with time when the pointing acquires a patina.

The area around the buildings was devoid of trees, as can be observed from earlier photographs. During the restoration the seed of a *talh* tree embedded itself at the north-west corner of the platform. The plant was protected and earth retained around it to ensure its growth. Today, it is a young tree providing shade to the platform, and people like to gather around it, making it a focal point.

c. *Structure, materials, technology*

Photographs of the mosque before the interventions reveal no structural problems. A small hole on the roof is all that can be observed before 1986. The removal of some of the coffers altered the static balance of the building. If this had not taken place, the conservation of the ceiling could have been carried out *in-situ* and the most important decorated ceiling of the eleventh century could have been preserved intact. But the worst aspect of the previous intervention was that no plan or chart was made to show from where each timber had been taken, and the timbers ended up lying on the corridor floors of the museum like pieces of a huge jigsaw puzzle. Marylène Barret and the conservation team had to solve this puzzle when the rest of the ceiling was brought to the museum.

The superstructure of the mosque – the dismembered roof and the ceiling – was the only major structural problem of the project. When the whole of the superstructure was taken down, the walls and especially the columns needed horizontal support, which was provided by shoring (described below). The brick pillars above the columns were taken down and rebuilt, and plastered as well. Plaster was also applied to the roof beams as a protection from insects. The complete process of dismantling and re-erection required very careful workmanship. This very delicate phase of the restoration was completed without any damage being incurred, owing to the skill of the craftsmen, and the careful direction of the architect and project manager.

All the materials used in the restoration, from the construction to the finishes, were, as far as possible, the materials used in the original building, except those used in chemical treatment. The independent zinc shelter erected to protect the building during restoration, was the only item for which new material was needed.

The most important utility for this building is water. The west *birka* is now restored and functioning. The pavement of the platform around the building has been given a slight slope so that all the water draining from the roof as well as from the mountainside is collected at the *birka*. There is some water in the *birka* and it is used by the congregation for ablutions. Because the project involved only restoration of the mosque, no WC could be accommodated; at present, the WC in the guard's house can be used.

d. *Origin of technology, materials, labour and professionals*

The technologies used were chosen according to conditions in Yemen as well as the location of the monument. For the conservation of the ceiling some of the materials, such as oak and fir for the beams, were imported, but priority was given to materials available locally. It is because of these conditions, however, that unfortunately no analysis of paints could be carried out because this would have necessitated sending samples to the conservation centres abroad. For the restoration of the building, traditional technologies and materials that are still used were implemented.

Two different approaches to technology were combined and used with the appropriate materials. From the beginning the main concern was the protection of the decorated timber ceiling. Years before the restoration of the building became an issue, interventions to the ceiling and the decoration had begun. Fortunately, the use of unsuitable materials, such as the

cleaning of the painted decoration with alcohol and perchloride, as well as the heraldite used by the Egyptian technician, was stopped by Marylène Barret. The timber coffers and decorations were conserved using modern methods, whereas work on the rest of the building was carried out with the original materials and technology, almost as if the building was undergoing major maintenance. This approach retained the microclimate that had ensured the preservation of the timber ceiling for so many centuries.

Different woods were originally used in various parts of the building. Talh, a type of acacia, was used for the decorated pieces, and *elb* (jujube), for the back of the decorated pieces and the beams. The encased beams of the ceiling were replaced with French oak and the verticals with Swedish spruce. Acajou was used for the roof beams, *elb* for the secondary beams and acacia branches to support the roof cover. All the old and the new timber was impregnated with insecticides - xylophane and xylamon - together with reinforcing resin. Where the softwood members had been attacked or eaten by insects, the damaged parts were reinforced using wood from the good parts of the roof or new oak. Tenons and mortises were also consolidated or remade in oak. The new wood was embedded into the good parts of the old wood. Cracked pieces of wood were either reinforced with another layer at the back or with very thin, short strips of wood at the back of the crack, placed at right-angles to it, so that it would become stronger but not too rigid. The perpendicular pieces of wood were fixed with stainless-steel screws instead of the original iron nails because nailing would have broken the fragile original wood.

Two different techniques were used for the decoration. The horizontal timbers were carved and gilded whereas the vertical ones were only painted. Preliminary fixing was carried out with 3–5 per cent metacrylate resin Paraloid B72 diluted in perchloroethane or acetone. In case of powdering and scaling, the wood was first treated with solvent. Cleaning techniques depended upon the cause of damage (dust, smoke, insects), as well as the state of preservation. A fixing-drying-cleaning procedure was repeated until the original layer of decoration was reached. The painted decoration was very carefully and slowly cleaned with a cotton-stick soaked in a mixture of solvent, ethyl alcohol and a little dimethyl formamide, in various proportions as necessary. At this stage the cleaning technique was more important than the choice of chemicals used. The lacunae in the decoration were filled only when necessary, using watercolour. Yellow was used for the gold. A *trompe-l'oeil* technique was used on the horizontal elements to give the effect of carved decoration. The final fixing was done with resin, Paraloid B72, in various concentrations, depending on the condition of absorption in each case.

For the building structure, all the materials used were traditional. New bricks exactly the same size as the existing ones were specially ordered. The traditional materials – *qudad* and *juss* – have been produced and used for centuries, which meant that the proportions of the materials used, as well as the methods of production and application, could be determined by the masons and the teams of craftsmen, under the direction of Abdullah Hadrami. This resulted in some innovations in the use of *qudad*. Before restoration, *qudad* had not been applied to all the joints of the building, only to those that needed waterproofing. The team created bossed *qudad* joints over the entire stone wall, as is done in contemporary building, again demonstrating that the attitude of the craftsmen to the restoration was one of maintenance, as though there was no interruption in the life of the mosque.

Except for the three French experts, and the project manager, Marylène Barret, all the masters, workers and the architect of the project, working as a consultant, are Yemeni and from the region.

V. Construction Schedule and Costs

a. Project history

As described above, restoration could not follow a regular procedure because of the damage inflicted by earlier work.

The first documentation of the building, published in 1986, was made by Barbara Finster from the German Institute. The study of Al-Abbas Mosque was entrusted by the Yemeni government to the French Centre for Yemeni Studies, a team composed of Solange Ory (art historian), Marie-Christian Danchotte (Arabist) and Bernard Maury (architect). In 1986, Qadi Ismail al-Akwa, who was then the General Director of Antiquities and Manuscripts in Sana'a, asked the French team to restore the ceiling, through a bilateral agreement between the two groups. The decorated timber at the central parts of the coffers was removed and transported to the museum in Sana'a. The timber was removed through the roof, not only damaging it but also leaving it open. The roof was temporarily covered with a metal sheet that rested on the walls of the building.

In 1987 the team asked Marylène Barret (archaeologist and conservationist) to come and see the pieces of decorated timber, which they had started to clean using unsuitable methods. Marylène Barret stopped this work. In 1988 Qadi Ismail al-Akwa obtained permission for her to conserve the timber and the decoration, which she did for several years, without being part of the mosque project team. Some restoration decisions appear to have been taken that included the replacement of the brick pillars with iron beams, to which Marylène Barret objected because it would alter the microclimate of the building and damage the decorated timber. In 1991 an Egyptian technician was brought in and started to restore the timber with heraldite. Again Marylène Barret objected and contacted the French Centre for Conservation in France for expert consultation. The method of conservation was consequently changed, but the project came to a halt with the Gulf War.

In 1992 Marylène Barret was asked to take over the project. She invited François Bazelaire to work as a consultant, especially on the problems of the timber, and started to implement the techniques he recommended. In 1993 Gilbert Delcroix, the former scientific director of IFROA (Institut Français de Restauration des Oeuvres d'Art) was invited to approve the techniques and the implementation. In 1994, the budget was augmented to include the restoration of the building itself, in addition to the ceiling.

Because the restoration was a foreign (French) undertaking, Marylène Barret was very discreet about the history of the project and it was difficult even to learn the basic facts about the building; it is obvious that there were many other and serious problems and conflicts with the former team, who never returned, and left no documents, nor passed any information onto the team that took over. Therefore, until a monograph on Al-Abbas was published in 1999, after the restoration was completed, no part of the previous documentation and research could be used for the restoration of the building. The major part of the information presented

above is mostly taken from the published sources, and not from the team that was responsible for the restoration. However, this splendid book, with more than six hundred pages, does not give very accurate information on the architecture of the mosque. The dimensions are incorrect by 10-20 centimetres, and the drawing of the wall section (Fig. 7) shows mud brick in the interior of the wall, although Marylène Barret has confirmed that all the bricks are baked. The sizes of the bricks are wrong, and in time more inaccuracies will surely come to light.

This project did not have sufficient funds to finance a measured survey, but a restoration project based on inaccurate information would not have been sound. Marylène Barret's drawings give very detailed information, with accurate measurements. She kept a logbook for the whole process, which began in November 1994 and was completed in June 1996. [Detailed excerpts from the logbook are appended at the end of this report as Appendix B.]

b. Costs and financing

The total sum that the French contributed for the last phase of the project (1992–96) was USD 400,000. This includes the materials ordered for the conservation of the ceiling, such as professional machines for cutting wood, various electrical tools and large quantities of materials and chemicals. The missions to Yemen, plane tickets, insurance, building materials and salaries are all included in this sum. The Yemenis contributed 5 per cent, through the payment of its employees. UNESCO paid for the zinc shelter that protected the building during the restoration; the cost is not specified.

c. Comparative costs and qualitative analysis

The unique nature of the project does not allow a comparison of the cost of the conservation of the timber and the decoration, nor of the total restoration.

d. Maintenance and ongoing costs

Due to problems in the region, the project team was not permitted to visit Al-Abbas Mosque for several years. They were given permission only once, in 1998, so that they could treat the back of the ceiling with insecticide.

The guard takes care of the building and cleans it, but a small budget is necessary for its maintenance. The quantity of water collected in the *birka* has not proved sufficient for the number of people who now come to pray at the mosque.

There was no electricity when the building was restored, although an electrical system was installed. In April 2001 electric poles were erected near the building which will soon bring electricity to the mosque. There was never any provision for heating. No mechanical or electrical ventilation is planned, but over the door at the east opening to the space between the ceiling and the roof, an invisible vent remains in the form of a wooden grate above the door, to ensure that there is some ventilation for this critical area.

Four years after the restoration, no visible part of the building displays any need for maintenance.

VI. Technical Assessment

The techniques used in the restoration of the mosque were sustainable and could all be implemented with the material and human resources available. They are all reversible if necessary.

a. Functional assessment

The restored mosque has regained its function, serving both ritual and spiritual needs for the villages around it. Women have started to return at *qat* time to clean the mosque and bring bunches of basil. The platform and the mosque interior are also used as a meeting place to resolve disputes among the tribal community.

b. Climatic performance

The amount of light that penetrates the small alabaster windows is no less than that of the traditional architecture of Yemen. It is a gentle light and, together with the daylight entering both doors, there is sufficient illumination to allow enjoyment of the space inside, as well as the decorated features, the *mihrab* and the ceiling. The few hanging fixtures, which were probably used for oil lamps, now hold electric light bulbs.

The thick masonry walls and small openings are all that protects the building from cold and heat. Heating has never been a feature of mosques, nor are the houses of the region heated.

Water is very precious, and is collected in cisterns, similar to the two *birkas* in this group of buildings. The water is directed to the west *birka* through the slight slope of the pavement. The rainwater from the gutters drains down to the pavement and follows the same course. As mentioned above, the rainwater from the drain on the south wall probably originally fed the south *birka*, not the west one. The west one was fed by the water from the slope coming from the north-west. The drains running down the surface of the walls ably accommodate the sudden and abundant downfalls of water during infrequent but violent storms. The three newly added gutters do not seem to be very suitable because the water falls on a stone bench, rather than on bare earth, and the *qudad* joints will suffer from the splashing water.

c. Choice of materials and level of technology

The materials and technology selected for the restoration were ideally suited to the project.

The mosque can be approached by car only from the north-west, where there is relatively flat terrain, which is an extension of the platform. Cars can park lower along the road, but four-wheel-drive vehicles can reach the level of the platform. (Most vehicles used here are four-wheel-drives.)

In case of flooding, the platform around the mosque will direct the water to the west *birka*, but the remains of the second mosque and dwelling are likely to suffer due to water penetration of the ground and the basement spaces.

d. Ageing and maintenance problems

The materials and construction techniques have been used in Yemen for thousands of years. This particular mosque would have been in very good condition if the roof had not been vandalized. With the exception of the ceiling, the job of restoration strongly resembles major but regular maintenance work. One problem peculiar to Yemen is that people enjoy shooting, especially on joyful occasions such as marriages, when guns are fired into the air. Apparently Al-Abbas Mosque has been the site of such incidents lately because several scars are visible on exterior stones where bullet shots have hit the walls.

e. Design features

Nothing was altered during the restoration work, and the group of buildings is very harmoniously integrated into the site.

The mosque does not have a regular congregation because it is not in a settlement, and it was not built as a congregational mosque. The people in the valley stop by for prayer, and there are certainly more people on Fridays. It remains a place for regular prayer, visit and meeting.

The Mosque is now in a sound state of repair which should last for a long time. This cannot be said, however, for the buildings around it, which need proper excavation and restoration so that the unity between the various elements of the integrated group of buildings can be restored.

The only furnishing in the mosque is a wall-to-wall machine-made carpet of a subtle brown colour, which was added by the guard on his own initiative. The lamp holders which were already hanging from the ceiling now hold electric light bulbs.

VII. Users

The direct beneficiaries of the project are the Hawlan tribes. The seat associated with the legendary Al-Abbas can be visited again, as in the past, although the cenotaph is missing. Tribal tradition and *hijra* have been restored to them. The restoration of the mosque also re-establishes the tradition that started with the erection of the two congregational halls in the second century.

During a recent visit, about fifteen to twenty people came by, prayed, had a few words with those present and moved on. A simple meal brought to the platform by the guard was shared by all present – visitors, soldiers, male members of the guard's family and foreign visitors. Everybody seemed to be very happy with the restoration. As is the case with many shrines in the country, on the special days or weeks of *hijra,* the mosque will be full of people coming from near and far. However, the special conditions that prevail in the region do not allow anybody to come without first obtaining permission. Therefore the building is not currently accessible for tourism.

The professionals, the employees of the Ministry of Culture and members of the foreign missions are very enthusiastic about the project. The completed restoration is regarded as the achievement of a near-impossibility, given what had happened to the ceiling.

VIII. Project Personnel

The project started with a bilateral agreement between the French and Yemeni governments, which entrusted the study of Al-Abbas Mosque, and in the last stage, its restoration, to the French Centre for Yemeni Studies. The French Centre was in direct communication with the General Organization for Antiquity, Museums and Manuscripts. Marylène Barret, from the French Centre, was the project manager and also the specialist responsible for the conservation of the timber. The Government Organisation for Antiquities and Manuscripts assigned a team of seven of its employees (Abeer Radwan, Khalida Hassan, Samia Noman, Camilla An'am, Adel Said, Rashad al Kubati and Mohamed al Noman) for on-the-job training, and to work on the conservation of the timber as well as the decoration of the *mihrab*. Abdullah Hadrami, a local architect with experience in architectural restoration, was employed as a consultant for the restoration as well as being in charge of the coordination between the French Centre and the Government Organisation for Antiquities and Manuscripts.

Marylène Barret and Abdullah Hadrami are the two people who saw the project through. Mr Hadrami was also instrumental in the provision and direction of the various teams of local craftsmen who worked on the project. It seems that the job was done without being entrusted to a contractor, through groups of craftsmen who were accustomed to work for Mr Hadrami on his projects.

Along with the conservation team, there were seven other teams of craftsmen with different areas of expertise, who worked on specific parts of the building:

- The construction team, which worked on stone and brick masonry as well as the delicate dismantling and construction of the timberwork of the ceiling and the roof: Mohamed Satar, the master builder; Ali al Zabidi, labourer; Ali al Shadhabi, assistant; and Huseyin al Shadhabi, assistant.
- The *qudad* team: Ahmed al Arasi, master; and Ali Mojamil, Ahmed al Hemi, Ali Miqdam, Taieb al Arasi, labourers.
- The *juss* team that worked on the window frieze, *mihrab* and capitals: Ahmet el Tairi, master; Ali al Tairi, assistant.
- The *juss* team that worked on the walls, ceiling, piers and corners: Mohamed al Namrani, master; Ali al Namrani, assistant.
- The team that paved the stones of the platform and laid the gutters: Ali al Imad, master.
- The team of carpenters that made the doors and the windows: Mohammed al Siry, master.
- The team of electricians that installed the power supply: Badr al Dubai, master and an assistant.

Besides these teams, there were three French experts. François de Bazelaire and his assistant Benoit Cruypennick, who are cabinet-makers and restorers, came to identify the correct method of wood conservation, and backed the old wood with new wood. Gilbert Delcroix, former director of the Institut Français des Restauration des Oeuvres d'Art, came to assess the work.

There were several officials from both parties who helped at various stages of the project and facilitated the whole process. Notable on the Yemeni side are the former and present directors of the Government Organisation for Antiquities and Manuscripts, Qadi Ismail al-Akwa and Abdullah Yusuf; the former and present regional administrators of the Government Organisation for Antiquities and Manuscripts, Ali al Hababi and Mohammed al Sayani; and the general director of the National Museum, Abdel Aziz al Gindari, who provided laboratory space for conservation work. On the French side, two former directors of the French Centre for Yemeni Studies, Rémy Audoin and Franck Mermier; and Jean-Claude Jacq, Directeur de la Division des Sciences Sociales et de l'Archéologie, Ministère des Affaires Etrangères, have contributed to the project.

Last but not least is the guard of Al-Abbas Mosque, Ahmed al Shadhabi, who worked on virtually every stage of the project, especially the rebuilding of the ceiling.

Ayşıl Yavuz
May 2001

Appendix A: Historical Background

Archaeological surveys and excavations carried out in Yemen reveal that Palaeolithic industries date back some 200,000 to 400,000 years. Evidence of settlements from all the main Stone-Age periods has been found. Furthermore, rock drawings point to the existence of hunter-gatherers and herders between the fifth and the second millennia. The Saebeans were immigrants from the north, as were the Minaeans, Qatabanians and Hadramites, although they spoke a different language. Probably from the north-eastern Arabian region on the Arabian-Persian Gulf, the Saebeans brought with them the rudiments of what was to become the highly developed civilization of Southern Arabia.

The earliest known kingdom in southern Arabia is that of Saba (Sheba), with its capital in Ma'rib. Kingdoms contemporary with Saba were Ma'in, Qataban, and Hadramawt. The Roman invasion, via Egypt, in 25–24 BC destroyed the Minaean towns, leaving the Himyars as the emerging power in the first century AD. By AD 250 southern Arabia was ruled by only two empires: the Saebean-Himyaric Empire based in Himyar in the west, and the Kingdom of Hadramawt, extending from the former Qatabanian territory to Dhofar. At the end of the sixth century AD, southern Arabia became a province of the Sasanid Empire under a Persian *satrap.* In 628 the Persian governor, Badhan, converted to Islam and Yemen followed suit.

There are three important religious groups in Yemen: the Sunni Shafi'is in lower Yemen, Tihama and the Red Sea coastal plain; the Zaydis, who represent the moderate wing of the Shi'ah in the north of the area; and the Ismailis, followers of Isma'il, who is recognized as the seventh *imam* by the Shi'ahs.

The early Islamic governors of Yemen were the Ziyadis, followed by the Yu'furis, the Najahis, the Sulayhis, the Zuray'is, the Hamdani sultans, the Mahdis, the Ayyubis, the Rasulis, and finally the Tahiris, who ruled until the first Ottoman invasion in 1538. The Zaydis, with Yahya bin al-Husayn, who became the first Zaydi *imam* in 897, were a major force in south-western Arabia until 1962. As the various districts were so interlinked, a separate political entity was not formalised before the Ayyubi conquest of 1173.

The Portuguese interest in the ports surrounding India, Yemen, and the Red Sea, as well as Mecca and Medina, was hindered first by the Mamluks and later by the Ottomans. The partial Ottoman occupation of Yemen, prompted by Portuguese naval expansion, took place in 1538 and lasted until the nineteenth century. It ended with their total withdrawal in 1918, leaving the country in the hands the Zaydi Imam Yahya. The British occupation of Aden in 1839 reinforced the division between the north and the south. The revolution in 1962 led to the proclamation of the Yemen Arab Republic in the north, and the Peoples' Republic of Yemen was founded in 1967 in the south. The two Yemens were united in 1990 under the name of the Yemen Arab Republic.

The many unknowns surrounding the history of Al-Abbas Mosque must be considered within the framework of this historical background. The *kufic* inscription bands underneath the ceiling give the date of construction as 1125–26 AD, and the name of the donor as Sultan Musa bin Mohammad al-Fitti. The only document that mentions the mosque is a *waqf* document dated 1737–38. It gives the name of the mosque as 'Hadida', the name of the neighbouring mountain. In the legend of Abbas, 'Hadida' is also the name of his Indian wife.

The sultan Musa, mentioned in only one source contemporary with the construction of the mosque, seems to be a local ruler. This manuscript, written by Musallam al-Lahgi, who died in 1150, contains the collected biographies of the Zaydi scholars and their seats, which are called *hijra*. For example, Musallam mentions the creation of one of the principal *hijra*s of the Muttarifites in Waqas, 25 kilometres south-west of Sana'a. (The Muttarifiyya is a religious movement that developed within Yemeni Zeydism, and Musallam al-Lahgi himself was an eminent Muttarifite.) In the section devoted to the biography of 'The Two Sons of Abd al-Hamid', he mentions the name of a Sultan Musa al-Wasil in relation to Asnaf. Researchers investigating the history of the mosque think that the date of the book and the part relating the death of al-Husayn, one of the sons of Abd al-Hamid, provide sufficient evidence to support the notion that the local sultan of Asnaf, Musa al-Waqas, is the same person as the founder of the mosque. This manuscript also identifies Asnaf as a prominent figure in the Muttarifiyya movement.

At the time of the construction of the mosque, Yemen was in a state of political confusion owing to the weakening of the Abbasid caliphate. From the ninth century on, the country had been split and governed by different powers. Tihama was ruled by the Ziyadis, the highlands and the area around Sana'a by the Yu'firis, and the north by Alid Zaydis (until 1962).

The Ismaili movement was introduced to Yemen in 881 by Abu al-Azim al-Hasan, who settled in the west of Sana'a, and Abu al-Huseyn Ali ibn al-Fadl al-Hanfari al-Gaysani, who settled in the south-west. The movement was revitalized in the eleventh century by the Sulayhis, when the capital was transferred from Sana'a to Jibla. At this time the control of Sana'a seems to have passed to the Ismaili movement. In the ninth century, parallel to the rise of the Ismailis, the main group of the Alid Zaydis established themselves in Sa'da. At the time when Sultan Musa constructed his mosque, the Zaydi community had lost its power and had split into two groups: the Husayniyya and the Muttarifiyya. The Muttarifiyya gained many followers and many *hijra*, to which pilgrimage was made.

From 519 to 1125, the region surrounding Asnaf was apparently subject to a certain amount of anarchy: Sana'a was controlled by a Hamdani sultan, while the Suleyhis, who previously ruled the region, still had a certain influence, and the Zaydis remained a huge presence. They had *hijra*s in Waqas, Sina, Sawhat and al- Gabgab, as well as in Asnaf. In this historical context, Al-Abbas Mosque could have been an Ismaili seat (a theory supported by legend, because Al-Abbas was married to an Indian woman who could have been an Ismaili) or it could have been constructed by al- Musa for the Mutarrifites, with the little hamlet of Al-Abbas as a *hijra*. In any case, its location, some distance from Asnaf and the other surrounding villages, indicates that it is not a normal mosque for a congregation – it is too small in size to be a Friday mosque for all the settlements around it, and it is too ornate for a small mosque. This seems to suggest that it was intended for a tutor or holy man (*wali)*; the unusually decorated ceiling indicates the importance of this person.

The architectural remains as well as the reused inscriptions on the north wall of the mosque indicate Saebean presence. The three pieces of inscription are not in the right order on the wall and there are some missing sections in between. The words refer to a reception hall for the god Attar, and mention two buildings near each other. Judging from the writing, it dates to AD 150–60. The four monolithic columns and their capitals inside the mosque as well as

the two free capitals on the floor are all reused Saebean materials. The lower parts of the walls are constructed in regular cut-stone masonry of unequal sizes and course heights, and the stones on the horizontal courses have an outward inclination instead of being vertical, which is very unusual. Most significantly, the size and form of the mosque plan is said to be very similar to Saebean temples. Together with the so-called 'earlier' mosque to the south-east, these may be the remains of the two buildings that are mentioned in the inscription. This would mean that the reused columns and capitals were not brought from another site but had belonged to the buildings that had previously stood there, and the unusual masonry of the lower walls is formed of *in-situ* remains, not reused stones. The sacred nature of the site was maintained with the construction of Al-Abbas Mosque.

The last issue that needs to be raised concerns the name of the mosque. As already mentioned, the only known reference to the mosque calls it 'Hadida'. This name did not endure, and the name of the donor is not reflected in its present name. There was a timber cenotaph in the mosque, located at the south-east unit, which was burnt on the orders of Imam Ahmed around 1950. The local legend of Al-Abbas is very well known and the cenotaph is acknowledged as his, along with the mosque. It is obvious that Al-Abbas was a *wali* whose remains were placed inside the mosque some time between the twelfth and the nineteenth centuries. It is accepted that the cenotaph was not part of the original building because the inscription names the building a *masjid* (mosque); if it were a funerary mosque it would have been called a *mashhad* (or a *qubba* if it had had a dome).

Appendix B: Marylène Barret's logbook of the restoration process.

November–December 1994

The remaining free upper parts of the ceiling were removed, mapped and numbered *in-situ* (the numbers are still visible on the inner faces of the timber).

December 1994

Abdullah Hadrami joined the project, replacing another architect sent by the Government Organisation for Antiquities and Manuscripts.

January 1995

First week:

The ceiling was shored and the columns braced in all directions. The flat roof was removed.

Second week:

The brick pillars over the columns were documented and removed, the upper part of the wall on the north-west side was removed, the ceiling was removed up to the epigraphic frieze underneath, and the nine very fragile main beams were removed. All of these were sent to Sana'a for treatment. At the same time timber was prepared for the new ceiling structure.

Third week:

Juss covering the *qudad* decoration on the west wall was removed, the fills that blocked the windows and the door on the east were removed, and the dead *qudad* on the stones was removed.

Fourth week:

The building was documented, and the new wood structure of the ceiling was arranged.

February 1995

First two weeks:

The epigraphic frieze underneath the ceiling was protected, and the new timber structure of the ceiling was constructed.

Second two weeks:

A model of the brick pillar was built to test measurements, and six brick pillars were built on the new wood structure as before. The upper parts of all the walls, as well as the north-west, south-west and north-east corners, were restored.

March 1995

The roof was rebuilt, the roof beams and the joists were laid, and the crenellations were completed.

April 1995

The roof surface was divided into four drainage areas by walls supported by the main beams running in the east–west direction. Branches were laid and covered with mud mortar. The roof was left to stabilize for five months. The area around the mosque was cleaned.

May 1995

The benches in front of the walls were repaired, the retaining wall on the west side was repaired, the steps were restored, and the platform was paved with stone. At this stage, a few of the original paving stones were located, but because no excavation was permitted around the mosque, it was decided to keep them under the new stone pavement of the platform. The pavement was given a slope to drain the rainwater into the west *birka*.

June 1995

The mud plaster on the inner wall surfaces was restored and the *juss* on these walls was restored.

July–September 1995

Work at the mosque stopped. Conservation of the timber and the decoration continued.

September 1995

Laboratory treatment of the timbers continued, the roof was covered with a layer of mud mortar and crushed stones were placed on top of it to hold the *qudad*. A work space for the preparation of the *qudad* was opened in the ruins, near the south *birka*.

October 1995

The *qudad* around the windows was applied, the *juss* frieze in the interior was restored, and the application of *qudad* to the roof was started.

November 1995

Application of *qudad* to the roof continued, joints were pointed with *qudad*, and the west *birka* was restored and equipped with a pump.

December 1995

Application of *qudad* to the roof was completed, *qudad* was applied to the interior floor, the brick pillars were covered with *juss* plaster, the original *juss* on the interior walls was cleaned, and the *juss*-covered parts of the *mihrab* were restored.

January 1996

Juss plaster was applied inside the roof and on the borders at the corners of the exterior walls. All the *qudad* surfaces were treated with *zebu* (cow fat) as a final finish.

February 1996

Doors and windows were made at the job site, alabaster was fitted in the windows, electricity was installed, *juss* on the capitals was restored, and a final mustard oil patina was applied on the *juss* of the interior walls. By this stage the major part of the restoration on the building was finished. In the laboratory, the reassembly and adjustment of the timber pieces were being practised.

March 1996

The six hundred pieces of timber were returned to the mosque to be reinstalled. The *in-situ* decoration was cleaned and fixed, and any unfinished decoration was completed.

April 1996

The ceiling was re-installed step by step.

May 1996

The cursive inscription on the *juss* frieze was retouched and some parts were filled in. The official opening of the mosque took place on 25 May.

June 1996

The final finishes were carried out at the mosque. At this time the traces of the decoration in the inner part of the *mihrab* were discovered and conserved.