A Conservation Project in Kairouan

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Abstract

A cultural-assistance project in Kairouan for the conservation of Islamic manuscripts from the ninth and tenth centuries is presented. The report includes the historical background, the contents and the condition of the collection of manuscripts. The situation at the beginning of the work, the setting-up of the workshop, the conservation training of the personnel, the work on location in Tunisia and the results of the work are described. Some insights are given into the problems posed by the intercultural aspect of the project.

Keywords

ISLAMIC MANUSCRIPTS
TUNISIA - KAIROUAN
CONSERVATION TRAINING
WORKSHOP SETTING-UP

Introduction

This report will deal with a cultural-assistance project in Tunisia that was funded by the Foreign Ministry of Germany and carried out by the Library of the State and University of Lower Saxony in Göttingen.

The project's objectives are the conservation of Arabic manuscripts; the training of three Tunisians as archive conservators and a Tunisian photographer as a micro-filmmaker; and the establishment of a conservation workshop and a microfilm studio.

This project was conceived in June 1983, when Prof. Brahim Chabbouh, who is now the Director General of the National Library in Tunis, visited a similar German conservation project in Yemen while traveling through that country. On 15 July 1985 an agreement was signed concerning the "Project for the Conservation of Arabic Manuscripts in Kairouan".

Appointed as the project's directors were Günther Brannahl, Head of Conservation in Göttingen, and, on the part of Tunisia, the Institut National d'Archeologie et d'Art, represented by the initiator of the project, Prof. Brahim Chabbouh.

After the tragic death of Mr. Brannahl in 1986, Dr. Schwartz, Librarian and Special Consultant for Oriental Studies at the Library of the State and University of Lower Saxony in Göttingen, was appointed Director of the conservation project.

Since March 1988, the author has been the conservator in charge of the project and has directed the conservation of the Arabic manuscripts, the training of the Tunisians, the setting-up of the conservation workshop, and the administration of the project's funding.

Historical Background

Kairouan is located in the heart of modern-day Tunisia, and is the only large Tunisian city that does not date back to antiquity, but was founded by the Arabs. In the year 671, the Arabian army commander Oqba Ibn Nafi built a military encampment here (Kairouan). In 672, the Sidi Oqba Mosque was built; this is the most important Islamic construction in Tunisia and one of the most famous buildings in the entire Islamic world. The oldest mosque in the Maghreb, it served as the model for Moorish sacral architecture. Kairouan's great period of growth did not begin until the early ninth century, when the Aghlabides extended Islamic rule over Ifriqiya and made Kairouan their capital. At that time Ifriqiya comprised modern-day Tunisia and Libya up to Tripoli, as well as a large section of modern-day Algeria. Kairouan received splendid buildings and a university, where instruction was given in all of the sciences of that time. The new Fatimid dynasty chose to establish a series of new metropolises, which was Mahdia from 921 on, later Sabra Mansouriyyah from 948 on, and finally Cairo from 973 on. This resulted in the irrevocable loss of Kairouan's supremacy.1

Many of the manuscripts to be conserved stem from this period of Kairouan's intellectual flowering. Some of them have still not been analysed in terms of their contents.

In the Islamic countries, it was the custom to donate manuscripts of the Koran to the mosques. As the mosque is so holy and Kairouan was so wealthy, the most splendid parchment manuscripts of the Koran could be created during this city's heyday and came into the possession of the Sidi Oqba Mosque. The most significant manuscripts are those of the "Blue Koran", which dates back to the tenth century. It is the only Koran written on blue parchment with gold leaf in Kufic calligraphy and decorated with vignettes in silver. Its pages have been scattered throughout the whole world in museums and private collections. Another significant manuscript is the "Hadinah", which dates back to the eleventh century. It is a largeformat Koran consisting of several books and thousands of parchment pages inscribed with unusually largescale and artistically unique Kufic calligraphy. Both the calligraphy

and the bookbinding were done by the same artist, Ahmad Ibn Ali al Warraq.

The manuscripts were stored in the Maqsura. This is a room that is separated from the prayer hall of the Sidi Oqba Mosque by a richly ornamented wooden screen. It was the custom of the regents of the city to perform their prayers in this room of the mosque, unseen by the other worshipers.

In 1948, during the French protectorate of Tunisia, two Frenchmen, G. Margais and L. Poinssot, published the first scholarly studies of the fragments of the bookbindings, thus directing public interest toward these manuscripts.

This collection of manuscripts was enlarged by two Kairouan families, the Adhoums and the Bouras, both of which bequeathed their significant private collections to the mosque after Tunisia received its independence in 1956. Until the present day, the collection has continued to receive donations of manuscripts from various smaller mosques.

Since 1960 the collection has been housed in one of the palaces of former President Bourguiba, in Raqqada, 7 km. distant from Kairouan, after being displayed for several years in the Bardo Museum in Tunis. Since 1986 the palace in Raqqada has served as an Islamic museum.

8 De Carthage à Kairouan. Musée du Petit Palais de la Ville de Paris. Paris 1902

Contents of the Collection

According to Mr. Mourad Rammah, head of the museum's organizational staff and curator of this manuscript collection, the museum's stock of objects to be conserved currently amounts to approximately:

- 70 to 100 separate Koran manuscripts on parchment
- 1,500 separate non-Koran manuscripts on parchment
- 2,500 separate Koran and non-Koran manuscripts on paper

The non-Koran manuscripts are distributed among the following areas: exegesis of the Koran, theology, traditional studies, linguistic studies, history, genealogy, and medicined, as well as manuscripts whose emphasis is on the literature of the Malikitic school of law.

Eighty per cent of the collection dates from the mid-ninth to the mid-twelfth centuries. The remaining twenty per cent dates back to the thirteenth, fourteenth, and fifteenth centuries.

The collection is completed by about 50 papyrus manuscripts from Egypt dating back to the late seventh or early eighth centuries.

Because the manuscripts are still not complete today, and in particular because they have not been uniformly catalogued, it cannot be said with certainty how large the number of separate works is.

Condition of the Collection

Parchments

The manuscripts, from some of which only book cover fragments remain, are kept in slipcases or wrapped in kraft paper as a collection of loose pages. Each layer is kept in a paper jacket, in which notes concerning the pages inside have been made with a ballpoint pen. These paper jackets are attached to the manuscripts by means of rusty paper clips. Many of the loose pages have been distributed among folders without regard to the works they are part of. The pages have losses due to water damage and holes eaten away by insects, rats or other vermin. In many cases, several parchment pages have been bonded together by moisture or have cracked because of changes in temperature. Some pages have been so deformed that they look like balls. The writing on the parchments has in many cases cracked off or melted, and the silver ornamentation has oxidized. Green dyes have created holes in the paper because

Dr. Werner Schwartz: unpublished paper 1991
Fig. No.2 Parchment Manuscript

Less than half of the paper manuscripts are bound, and only very few of these are in their original bindings. The unbound manuscripts are stored in loose layers in jackets of kraft paper. Many of them have been attacked by insects; in a small proportion of these the insect damage, due to woodworm, is continuing. At most, 250 books have been infested with mould. Many manuscripts have been attacked by insects at precisely those places that had previously been repaired, obviously on account of the glue of animal origin that was used, and have thus been almost completely destroyed. A small proportion of manuscripts has been damaged by degradation agents in the ink.

Fig. No.3 Non-Koran Manuscript on Paper

**Papyrus**

The papyri are stored between panes of glass and cardboard that contains acid. Some of the glass panes are broken. The papyri are in a fragile condition and are almost transparent.

Fig. No.4 Papyrus from Egypt
The workshop was equipped in accordance with the local personnel's level of training and with a view to health and safety in the workplaces. All of the manuscripts, without exception, have been spoiled by decades of dust, sand and dirt.

### The Situation in 1986 at the Beginning of My Work

A new extension had been added to the rear of the Islamic Museum in Raqqada, financed by ALESCO and specially constructed for this conservation project. Two rooms of this extension contained the completely equipped microfilm and photo laboratory. The conservation workshop was housed in a third room. These rooms were fitted out by Mr. Brannahl. At this time the conservation workshop was equipped with 4 tables, 3 presses, 1 board cutter, 1 distilling apparatus, 1 compressor and 2 atomisers, 1 Plexiglass box for moistening parchment, 1 ultrasound soldering device, 2 microscopes, 6 thermohygrographs, and various small tools.

The storageroom is located within the palace, close to the workshop. It consists of two connected rooms in which the manuscripts are stored.

The personnel of the workshop consisted of three employees without specialized training. One of them had started his course of training in Göttingen at the same time of the beginning of my work.

### Methods

#### Setting-up of the Workshop

The process of equipping the workshop was spread out over four years, since I had an average annual budget of DM 55,000. Of this amount, a maximum of DM 30,000 was allocated for instrumental expenditures, DM 8,000 for materials, i.e. paper, cardboard, glue etc., DM 4,000 for microfilming, i.e. film, developing materials etc., and DM 13,000 for transport costs. The Tunisians were willing to make other palace rooms available, as well as providing carpenters, bricklayers, electricians and plumbers using local materials.

The workshop was equipped in accordance with the local personnel's level of training and with a view to health and safety in the workplace.

During the first year, 1988, I bought the equipment for a laboratory table, which was intended for work with chemicals and for the wet treatment of paper. In addition, water filters were acquired for microfilming which would filter out suspensions from the water; acid-free paper and cardboard was also bought. The acid-free board was used to make jackets for the damaged books. This was a simple and useful work for the Tunisians without specialized training.

In 1988, 1989, and 1990 I bought a water-deminerlalisation apparatus for rinsing paper. It consists of a decalcifier, a reverse-osmosis system, a 200-liter water tank, a water-circulation system comprising a pump and a bacteria filter, and a purified-water system. The decalcifier operates on crude salt from Tunisia, which is mined on the chotts. The reverse-osmosis system comprises a 5-micron preliminary filter, which has to be replaced once a month, and a membrane, or the osmosis module, which has a life expectancy of 4 to 5 years. This reverse-osmosis system retains between 90 and 95% of all dissolved salts, 99% of all organic compounds and nearly all bacteria. Its production speed is 110 l/hr. There is a 200-liter water tank for storing the water that is produced. Connected to the water tank is a water-circulation system that includes a pump and a bacteria filter, which is changed once a week and run through an autoclave at the Kairouan Hospital. By means of a water-manic timer, the water in the 200-liter tank is circulated for 15 minutes of each hour through the water-circulation system. Finally, there is the purified-water system, which consists of four different filter cartridges. It removes colloids, bacteria, organic impurities, and chloride, it desalinates, and attains the highest possible purity of the ions. The production volume of the purified-water system is maximally 2 l/min.

The purchase of this apparatus was spread out over three years since its costs amount to a total of DM 27,000. It would have meant nearly the entire budget of one calendar year, which would not have been sensible. Since I am not a specialist for fitting these machines, the installation was difficult and therefore took a long time. For my support I only had a plumber and an electrician.

The entire water demineralization apparatus is fed by a 36,000-litre cistern that provides water pressure for the apparatus and guarantees that water is available.

In 1989 I fitted out the workshop with equipment for paper conservation. A complete paper-rinsing equipment for a minimum of 100 a4 size was bought; a pH meter with a surface electrode; buffers; sizes; raw materials for adhesives; paper-conservation tools; a cupboard with large drawers; a complete set of bookbinding equipment; laboratory materials; chemicals; and safety equipment for working with chemicals. Work surfaces

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6 ULTROpure Reverse-osmosis System, Barnstead, Sybron, Auf der Heide 21A, 2800 Bremen 33
7 NANOpure II Purified-water System, Barnstead
covered with a layer of melanin resin were sent to Tunisia for the construction of three permanent work tables having cupboards underneath and two tables on rollers.

During this year the first Tunisian completed his training in Germany. Since the conservation of paper was the subject on which he did best, the workshop was accordingly equipped.

In 1990 I bought material for the conservation of leather and parchment, as well as for paper making. During this year the most gifted trainee returned back to Tunisia. He was not only skilled in the conservation of paper, but also in the conservation of bookbindings and parchments. At the same time the water-de-mineralisation apparatus was ready to use for rinsing paper, right in the presence of one qualified employee.

Also in 1990, a safety workbench was acquired in order to ensure personal safety while brushing out the manuscripts. The safety workbench which was chosen, is a microbiological safety workbench of Safety Class I1, constructed in accordance with the most important standards (NF E 60 575 6, DIN 12950) and having 70% air circulation and 30% ventilation, filtered via high-powered filters. The high-powered filter has a life expectancy of ca. 7 years.

In 1991 I equipped the workshop with a set of apparatus for dyeing leather, materials for papyrus conservation, and a suction table. As in previous years, the workshop was supplied with acid-free cardboard and paper for the making of boxes and cases to store the manuscripts.

In 1991 the equipment of the workshop had to be completed, since the project is expected to be discontinued by the end of the year.

The separate components of the workshop equipment were bought after three comparable offers had been solicited, and it was originally planned to accept the most economical offer in each case. However, because in many cases it was impossible to find more than one offer for the sought-for component, or because the most economical offer was not necessarily the best one. The solicitation of comparable offers often became a time-consuming matter.

The equipment of the workshop in Kairouan was not limited to the conservation of materials from Germany. I also drew up construction plans in Germany which were then implemented by Tunisian craftspeople, with results whose excellence often exceeded expectations - for example, the construction of the laboratory table, the permanently mounted work tables, the drying shelves etc.

In 1988 the conservation workshop consisted of one room in the extension of the former palace. By 1991 the workshop had expanded into a total of four workrooms. Today the workshop includes a dry workshop room, a wetting room, a laboratory room, a "dirt room", and a separate dining and meeting room.

Conservation Training

Three Tunisians received a training course in conservation in Germany, and two assistants were trained in Tunisia. The course in Germany was divided into a language course at the Goethe Institute lasting 4 months, plus one year - or, in the case of the first trainee, a year and a half - in the conservation workshop. Each trainee followed the previous one in such a way that their stays in Germany always overlapped by a month. Thus the Tunisians were able to help one another during the first few weeks.

With the support of the project's Tunisian partners, the trainees were selected according to the following criteria:

- several years of professional activity as craftsmen;
- family in Kairouan; married candidates were preferred, in order to ensure that the person would remain in the area.
after completing the training course rather than staying in Germany or moving to the capital city of Tunis;
- the highest possible level of schooling;
- a minimum age of 25 years, in order to be able to deal with the culture shock of the stay in Germany;
- knowledge of French.

Only male candidates were available, since in Tunisia this work is obviously regarded as a male preserve.

The ages of the people who were actually chosen for training ranged from 21 to 41. Their level of schooling ranged from 3 to 5 years of school, except for one person who had a school-leaving certificate. They had been professionally trained as, respectively, a carpenter, photo-laboratory technician, electrician, lorry driver, and tour guide.

Because all three of the trainees completed a German course at the Goethe Institute, the Tunisians were relatively independent in their daily lives. But the language of the training course was French, because a four-month training course was not sufficient to attain the needed level of linguistic competence.

The training course included European and Arabic bookbinding techniques; the conservation of paper, bindings, parchment, and papyrus; and the storage of archival materials. In all of these areas, only the techniques immediately relevant to the project could be taught. The course emphasized the professional ethics of the conservator and the aspect of health and safety in the workplace, since the one-year training course permits little time for routine learning. It was our expectation that the Tunisians would write reports on their work in order to reinforce their own memories and as an aid to recognizing the problems posed by the various conservation techniques.

The Work on Location in Tunisia

I stayed in Kairouan twice a year for six weeks at a time, at intervals of maximally six months. In the course of four years, these stays amounted to a total of ten months' work in Tunisia.

At the beginning the work had to be organized in general, in addition to training the personnel and setting up the workshop. An inventory of the books had to be made, with the help of a preprinted form, so that the different types of construction of the existing book, as well as their current condition, could be noted in detail. In connection with the inventory-taking, the books could be brushed off, and those without a binding could be provided with boxes made of acid-free cardboard and sorted. The books that were infested with insects or mould were stored separately.

For the parchments that had been wrapped in kraft paper or stored in slipcases, we made folding crates lined with acid-free paper.

The closed metal cupboards in the storeroom were replaced with open shelves whose surface was regularly disinfected.

Documentation forms for the conservation were printed at the same time as the forms for the inventory.

Fig. No. 6 Conservation of Manuscripts

The work was assigned to the personnel in accordance with their respective qualifications. After the Tunisians who were trained in Germany had returned to Kairouan, they were able to conserve books and parchments on their own. The simpler work such as building crates, preparing boxes, brushing off the books and making the inventory could be left to the two assistants.

Candidates for training in Germany had to be sought out and examined.

The finished conservation work had to be checked and new working methods had to be introduced.

Setting up the workshop also took up a great deal of time. Rebuilding in order to expand the workshop, as well as the installation of new parts from Germany, necessitated extensive...

Fausta Gallo: Biological factors in deterioration of paper.
IICROM, Rome 1985
discussions with the craftspeople in each case and supervision of their work. After the successful completion, the workshop had to be altered for reasons of efficiency.

The transport of materials, which I had assembled and dispatched in Germany, had to be received in Kairouan. The German Embassy in Tunis kindly obtained the necessary papers in Tunisia. Until the transport had safely passed through customs in Carthage and arrived in Kairouan, each transport necessitated a struggle with the Tunisian bureaucracy. One time I fetched the materials myself from the customs office. This lasted three full days, during which I spoke with various officials, the wares were registered and de-registered in countless books, and our bundle of files grew in thickness and received a myriad of official stamps.

Once all of this had taken place, the contents of the containers had to be checked for completeness and current condition. Only then could the new parts be integrated into the workshop and the personnel taught to deal with them.

I regarded it as part of my work to make sure that the stockroom and the workshop were secured against burglary. This process is now 70% complete. Most of the windows have been provided with hand-wrought grilles.

Part of the training consisted of explaining vividly to the Tunisians how, e.g., paper or leather is manufactured. For this reason, trips were organized for the group. A factory producing paper and cellulose in Kasserine was toured, as well as a leather tannery in Tunis.

Air-controlling the storageroom was a challenging and urgent task. My approach to this problem was based on the literature on this subject by Gaël de Guichen10, Garry Thomson11, and O.P. Agrawal12. I established by means of regular checks with the thermohygrometer and evaluation of its indications, that initially the relative humidity values fluctuated between 35 and 90%, the temperature between 7 and 35°C. Outdoor temperatures in Kairouan sink to 0°C in the winter and may rise to 45°C in August. The relative humidity fluctuates between 20 and 90% both in the summer and the winter. By hanging curtains in front of the windows and installing ventilators and an automatically regulated heating system, as well as opening the windows when the humidity permitted it, the relative humidity could be stabilized between 55 and 60%, and the temperature between 18 and 25°C. The success of this work was the prerequisite for successful conservation of the manuscripts.

Because German support of the project is due to conclude at the end of 1991, it was important to make contact with Tunisian dealers and producers of raw materials in order to ensure the continuation of the project. This aspect of my work was difficult, time-consuming, and not always fruitful.

In addition to all of these activities, I gave lectures on passive conservation and made evaluations of collections on Djerba.

The Results

By the end of 1991 the workshop will be completely equipped to deal with the tasks required of it.

A workshop can never be provided ahead of time with decades' worth of materials that will be used up; thus, in this area there will always be needs to fill.

The training of the personnel can be regarded as successful, because one of the Tunisians, Mr. Belgacem Hajji, has turned out to be a brilliant craftsman. He has been appointed head of the workshop in Kairouan and now supervises the work of the other conservators.

The treatment of the material to be conserved has not yet progressed very far. The most important task was to protect the collection as a whole by storing it in acid-free surroundings - a task that required the combined efforts of all of the personnel. The conservation of individual pages of parchment and a few books was completed.

The air-controlling efforts quickly proved successful. The result has been that the dampness of the books and parchments is gradually being reduced, and that the long-term climate in the storagerooms has stabilized.

Discussion

The initial training of the first Tunisian was difficult, because I had to instruct them in French, and also because I had only just finished my own training. During this initial phase I first had to gain experience with special Arabic materials; however, I was able to profit from the knowledge I thus gained. In this connection I am especially grateful to Mr. Bartelt, Head of the Conservation Workshop of the State Library in Berlin, who taught me Arabic bookbinding techniques during a three-week course in his workshop.

Unfortunately, under my supervision during these four years the conservation of the oldest parchment fragments could only be begun; there was no question of this work being completed, as the manuscript collection is too extensive. My personal concern was to protect the collection as a whole. Additional
security will be attained by means of the microfilming, which I also supervised. I can only hope that in the long term the conservation techniques that I taught to the Tunisians will be adhered to.

If it is uniformly continued, the air controlling will make it possible to conserve the manuscripts over the long term. The responsibility, as well as the time-consuming work that goes with it, lies in the hands of Mr. Rammah, who is rightfully the only person having a key to the storageroom, since he is the one responsible for this precious collection.

The poor pay of the conservation personnel will always remain a problem. Even by Tunisian standards, it lies close to the lower limit. How can the people who are supposed to do responsible work carry out this work accordingly, if they are paid no better than the cleaning ladies working in the same building?

Another area that will always be a problem is replacement of the supplies that are used up, because the Tunisian civil service suffers from chronic budget shortfalls, and this problem has increased especially after the Gulf War. Even if those responsible for the project are willing to import supplies, the Tunisian customs regulations constitute a nearly unsolvable problem.

According to my estimate, the conservation of the entire collection will require another 95 years, if one assumes that the treatment of 1,400 books, a third of the whole collection, is necessary. The complete conservation of a book requires about ten weeks of full-time work by three qualified conservators. This means that the current personnel will have to train future generations of conservators.

The Inter-Cultural Aspect

There are problems connected with the training of Tunisians in Germany for a project that is to be carried out in their own country. During the first few days of their stay in Germany, all three of the trainees suffered from culture shock. Since Kairouan, the holy city of Tunisia, is especially traditional in its customs, it was a shock to them to experience the fast pace of life in Germany, the casual way of dressing, the manner in which men and women deal with one another, the dining customs, the impersonal shops, and the fact that only German was spoken.

The Tunisians spent the first four months in the Goethe Institute, where they were able to make contact with other non-Germans. These contacts developed through language, so that they looked primarily for other Arabs to make friends with. Their second meeting place in Gottingen was the mosque. Here too, they made contact exclusively with other Arabs. For these pious Moslems from Kairouan, the mosque was an important connection with their identity. Because many aspects of German life were unacceptable to them, the first Tunisian trainee was not a practicing Muslim. Since he did not try to make contacts through the mosque, which would have made a place for him in its stable community, after a certain period of time he had completely lost his bearings in German society. His situation did not stabilize until after he had returned to his family in Kairouan.

Besides these social problems, the scholarship in retrospect was not free of difficulties. In Germany the trainees earned DM 1,500 per month. In Tunisia their wages ranged between TND 120 and TND 160, which corresponds to ca. DM 2.40 to DM 3.60. Consumer desires previously unknown to them were not only aroused in Germany, they also seemed to be almost attainable by virtue of their German incomes. The level of prices and income was far from comparable with the standards they were used to, and the result was that all of the trainees were constantly in debt.

After they returned to Tunisia, the trainees experienced culture shock all over again. They realized how low their own standard of living was, and how limited their possibilities were in comparison to those of Europeans, and they were in despair over their low income and the inefficiency of the bureaucracy in their own country.

Fig. No. 7 The colleagues
and shoulders, as is the custom. If I made any social gaffes, the Tunesians were too polite to bring these to my attention.

Conclusion

This report deals with a cultural-assistance project in Kairouan, Tunisia, which the author was in charge of as the responsible conservator. The historical background, the contents, and the condition of the collection of manuscripts is presented. It includes a detailed account of the establishment of the workshop and the training of the personnel, gives some insights into the problems posed by the intercultural aspect of the project, and describes the author’s work on location in Tunisia.

The prerequisite for the project was quite well, since the project’s Tunisian partners also realized the urgency for the conservation of the manuscripts, and therefore the support from the Tunisians was assured. The project can be concluded within the given time according to its objectives. Further financial support would be desirable for material, which is not available on the Tunisian market, e.g. parchment and acid-free paper. Also supervising personnel for four months in 1992 would be recommendable, as the last trainee is not returning to Tunisia before the end of November 1991. As far as the intercultural problems are concerned, a training of the personnel in their own country should be considered for future conservation projects. This would require a conservator permanently on location.