

## FINAL SCIENTIFIC REPORT COMST TEAM 5: WORKSHOP 3

**TITLE OF THE WORKSHOP: Preservation of Middle Eastern Manuscripts - Restoration and digitalization process: what should be done first?**

**DATE:** 4th April 2011

**VENUE:** University Library, University of Leiden, Leiden, Netherlands

**NAME OF THE ORGANISER:** Stéphane Ipert, Centre de Conservation du Livre  
Karin Scheper - *Library of Leiden University*

### SCIENTIFIC SUMMARY

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#### GLOBAL OBJECTIVE

The objective of the workshop 3 of COMSt Team 5 was to address and analyze the central issues (of preservation, conservation and digitization) from the perspective of Middle Eastern Collections kept in Western circumstances, for research and education purposes. The central issues of team 5 was examined from the different perspectives and approaches, in order to determine the differences in perception of the problems and consequently finding solutions for the preservation (conservation and digitization) of Middle Eastern manuscripts in those diverse situations (that is: manuscript collections kept in the East or the West, in private libraries or institutions, preserved for museum or accessibility reasons and purposes).

#### SPECIFIC OBJECTIVE

The aim of this workshop was to answer this questions: Restoration and digitalization: what should be done first?

Digitizing is a set of operations resulting in the production of a document in digital form. It involves a number of steps to both logistical and technical aspects, more complex according to the quantity, the diversity and the heritage values of the documents to be scanned.

Participants were therefore presented different cases and different experiences on this issue, ensuring also to define the steps of a digitalization process.

The established plan of digitalization has to determine documents requiring a restoration before their digitalization. Indeed, the aspect of manuscripts has to allow a faithful reproduction of the image, which is not the case when the document presents deteriorations.

On the other hand, the manipulations due to the operation of digitalization contain mechanical risks for manuscripts. The noticed deteriorations can be there stressed and must be thus handled previously.

Another perspective is to focus on the digitization of manuscripts in their original state and make a second digitalization following the intervention of the conservator to preserve the maximum of information about the document and the restoration.

## **DESCRIPTION OF SCIENTIFIC CONTENT AND OF DISCUSSION**

### **OPENING SPEECH: CHANTAL KIJSER**

#### ***“Introduction to the Library Special Collection and digitalization activities”***

On Monday 4<sup>th</sup> of April 2011, the 3<sup>rd</sup> workshop of COMST Team 5 Preservation & Conservation group, held at Leiden University Library, in Leiden, the Netherlands, was opened with a welcoming speech by Mrs Chantal Keijsper, head of the Special Collection in the University Library of Leiden.

In her speech, entitled “Introduction to the Library Special Collection and digitalization activities”, Mrs Keijsper briefly explained the history of Leiden University Library (a Classic Humanities Library), with particular regards to the Special Collections (used for teaching and research purposes and exhibitions), which include: Western manuscripts, archives and letters, printed books and special editions, maps and atlases, prints and drawings, photographs and the Oriental Collection, while they own the first printed library catalogue in the Netherlands.

At present the focus is in the improvement of physical facilities (recently renovated reading room & last year new exhibition room), improving digital access to the collection. Thanks to several National Conservation & Digitalization Programs in the Netherlands, more and more copies are available on the web.

Leiden participates in a National Consortium of University Libraries & the National Library presented a proposal for e-Humanities:

Aim: digitize entire Dutch book production, from Middle Ages until the XIX century

Leiden University signed with BRILL publishers to digitize part of their Oriental Collection (see presentation)

### **DR. MARIE-ODETTE SCALLIET**

#### ***“The collection of Leiden University and the project of its digitalisation”***

Dr. Marie-Odetta Scalliet, Curator of the South-East Asian Collections of the Leiden University Library, discussed about the collection of Leiden University and the project of its digitization, with particular reference to the Christiaan SNOUCK Collection, which has been digitized and can be viewed on the Special Collections’ site.

The Snouck Collection was a private one, which was eventually donated to the University Library.

Several problems occurred during digitalization, with particular reference to odd-sized objects, problems that Dr Scalliet explained by demonstrating some very interesting objects from the Special Collections:

- A manuscript in the form of a long, fine cylinder, inscribed along its surface (how can you digitize such manuscript?)
- A woven basket, filled with Batak manuscripts (from the North-South part of Sumatra, Bali), which came to the library’s possession in 1896 and pose some interesting questions, such as whether for instance those manuscripts should be stored into individual boxes or not.
- An Indonesian manuscript (that came to the Collection before 1600), which is in the form of a piece of bamboo.
- A palm leaf from India (dated from 1597), where some of its sewing threads have lost their strength.

- A manuscript made of Javanese paper (deriving from the inner part of a Mulberry tree), which looks more like a book.
- A Japanese (?) History of Java, where fortunately the binding has been conserved.
- A Koran from the island of Maniba (Indonesia)
- A Blue Sultan Letter with lapis lazuli and silver pigment
- Some rubbings of Hispanic inscriptions (coming from North East Sumatra), made from several layers which were humidified one at a time and pressed on one after the other.

#### **JOSEPH MOUKARZEL**

##### ***“Digitalization as conservation or as diffusion process?”***

Joseph Moukarzel, from the Library of the private University *Saint-Esprit de Kaslik (USEK)* in Lebanon (situated in Jounieh, 25km north of Bayreuth), initially presented the University's varied collection, which includes a total of 1750 manuscripts (deriving both from donations and acquisitions), a collection that is still growing along with their digital collection (with approximately 10.000 digital copies), which however works as a substitute/reference to the originals (meaning that there are no original documents in their possession, just their copies and their digital images, deriving from a variety of sources, like private collections, regional and western libraries, etc). This collection aims to gather digital copies of important manuscripts from the Syrian tradition as well as the Christian Arab ones, kept in western libraries.

He subsequently showed the stocking condition of their manuscript collections (that are equipped according to the international standards for security and environmental conditions).

Responsible for the mss are the Conservation and the Reproduction departments, which work in close cooperation.

Each object that arrives at the Conservation dept. is recorded and catalogued. Basic preservation treatments follow, including dry cleaning and where necessary a disinfection from mould or insects. Subsequently the folios of the object are numbered, due to the lack (in most cases) of original numbering or the case of multiple numberings. In cases of missing, tore or detached pages, this new numbering is done with the assistance of a codicologist, who is responsible for the order of the text and of the folios (and in this order the ms will be digitized).

If the need for ulterior treatments arises, then the digitalization will be done prior to the conservation and at the end of the treatments, suitable housing will be sought.

The conservation treatments are always done following the international preservation and conservation principles and ethics and a condition assessment form is filled, as well as a detailed documentation (complete with photographs) of all the treatments that the object has undergone.

The Digitalization is done in four studios, that all use a digital camera Canon EOS-5D MII, that can produce JPEG (7.5 Mpixels) and RAW (30 Mpixels) formats, while the old microfilms are converted into digital images with the use of the Mekel Mach III machine, that gives TIFF(50 Mpixels) and JPEG formats in black and white. Two types of copies are kept in the *Storage Area Network (SAN)* of the studio: the first is in Raw format, while the second is in Jpeg format, which comes into two different resolutions, a reduced version of around 400-500Kb or a Pdf version (that researchers can use) and a second even more reduced form, that can be found on the library's webpage. As a preventive measurement another Raw copy of each digitized ms is kept in an exterior site.

In any case each digitized ms is always reproduced in both Jpeg and Raw format, while according to the preservation condition of each object, there are two types of procedures to be followed: in the first case, where the object is in need only of basic preservation treatments (like surface cleaning, page numbering and cataloguing), the document is digitized at the end of those treatments and after the choice of a proper housing. However, in the cases of damaged objects, after the first basic treatments, the ms undergoes a first digitalization, then it is restored (conservation treatments and proper housing solutions are chosen) and afterwards the final digital copy is taken.

Some specific examples were shown for a better understanding of the cases where, due to the severe damage of the objects (heavily folded, stained, torn and fragile supports, insect and/or ink corrosion, mould and rodent attacks, previous linings and adhesive tapes, detached or misplaced folios, etc), it has been imperative to proceed to an initial digitalization prior to the actual conservation treatments (in order to both document the initial condition of the object and also to record all possible details that might be lost because of certain conservation treatments – for example the loss of the text that might be inevitably removed with an old scotch-tape), followed by the final digitalization and housing of the object.

The digitalization of the mss serves two purposes, that of the diffusion of knowledge and of preserving the object: in cases of complete loss (caused by wars, natural or human disasters) at the very least, a digital copy of the ms is preserved, while in cases of missing mss or theft, this copy can be an identification tool for the original.

#### **ZEINA GRENADY & STEPHANE IPERT**

##### ***“Legal Aspects of Digitalization of Documents”***

Zeina Genadry and Stephane Ipert gave a joint presentation concerning the *“Legal Aspects of Digitalization of Documents”*, which begun by explaining the legal problems connected to copyrights.

The aim of digitalization (in libraries & archives) is to make the Cultural Heritage available (according to the EU – massive campaign for digitalization for diffusion purposes: cultural heritage accessible online)

OBSTACLE: intellectual property rights (otherwise known as COPYRIGHTS - 70years of protection after the death of the author)-They must not be confused with ownership rights (ex: the institution that has the physical ownership of the object does not have the copyright)

Many approaches from Institutions, dealing with DIGITALIZATION as:

- Means of protection of the original and online access

or

- The institutions consider themselves as publishers thus having new copyrights on the digital editions

All local laws are inspired by the Western Laws (ex, EU)

Banish mark set by the Bern Convention for the Protection of Literal & Artistic Works (International Treaty – latest version in 2010 (we have several reports, commissions, recommendations, resolutions, etc)

2003 Charter of Parma

Dynamic action plan for the EU coordination of digitalization of cultural and scientific content

Those are only general guidelines, they do not have a legal authority and each country must try to implement them into its local laws

EU considers digitalization as an incentive for further development of the creative industry

The solutions for handling and managing crisis need to be understood and applied by the cultural sector: the adoption of all available legal and technical instruments to improve accessibility and overcome legislative and normative barriers. Therefore improve accessibility with respect to cultural rights, without however living under its dictatorship

2008 Green Paper Copyright in the Knowledge Economy: improve free movement of information and expand the exceptions set by the Bern Convention aiming to enhance the knowledge

In the public sector libraries & archives are not totally free: reproductions are only allowed in specific cases, for instance for preservation purposes. But libraries are interested in making the digital copies accessible online for consultation purposes. In the cases of commercial purposes there must be a contractual agreement with the interested parties.

2002 IFLA: Guidelines for digitalization projects for collections and holdings in public libraries and archives. The first issue to be addressed is the legal conditions for making digital copies

LIBER: Association of European Research Library has formulated in 2009 its view on copyright: access and sharing the information and not copyright is the basis for scholarly activity

Everybody is advocating for a stronger and more unified EU copyright regime that balances the rights of right holders and those of the users.

In Mrs Genadry's personal opinion in the cases of public funding for restoration, conservation and digitalization of collections, the diffusion of the digital copies for research purposes should be allowed in a much more free and open way (digital content should remain in the public domain).

In some countries there isn't a local law for copyrights: for instance in Lebanon the copyright law was established in the late 90's-early 2000.

STEPHAN IPERT:

There is a slight difference between copyright and author-rights

WIPO (Geneva based): World Intellectual Properties Organization

Some difficulties in approaching non-EU countries (ex in the Middle East), but the Berne Convention and WIPO can be an aid.

Intellectual Property (IP) is non-material property.

Concerning the digitalization management we are dealing with two aspects: on the one hand intellectual property and on the other ownership.

IP concerns copyright, authorship, but also database, trade names, patents and so on. Particularly databases could be protected as IP.

Additionally it is important to see what is the legal system that applies for each country as well as correct professional practice.

On the other hand the ownership (or physical property) of the object defines the material property.

IP applies only for original items, but what does it mean original? It does not concern the ms itself, but it is important to define it in the cases of metadata (in the sense of short information) and descriptions. In the case of ms description, the text is not protected by IP because it does not have any originality. Metadata is also not protected by IP, because you are following a professional rule, therefore you are not making a creation (metadata is not original). The same applies for a conservator's work, since he is following some international standards set for his profession.

Laws concerning IP:

They give you exclusive control ("monopoly protection") for 70 years depending on the country, on many aspects including reproduction and public representation.

Another aspect is the "moral protection", which is not a case of copyright protection, but more about writer's protection. We cannot find it very clearly in countries with copyright laws, but it always concerns original objects. It does not concern mss, since their writer is dead for more than 70 years, hence there is no authorship case. However, if the ms description for a catalogue is considered as an original, you can protect it as an IP, but not the metadata and not the digitalization either.

From all the above we can conclude that there is no IP for the owner of the object, while also the digitalization process (the photographs of a ms) are not considered an act of creativity, but just a reproduction process (they are following specific rules), therefore they are not original and do not fall under IP protection laws.

Officially the owner of a ms has no IP rights. However not all European countries have decided to integrate the IP laws to their local laws, for instance in France, there is an exception in the cases of unpublished and non-publicly exposed documents, that gives the owner an IP for the duration of 20 years over the object (authorship), beginning from the first day of public exposition.

Regarding mss the European legal system of IP protection is very poor, whereas in the US it is much stronger, but it mainly deals with profit-making industries, like films, modern literature and music.

In the cases of Libraries there is usually a professional agreement with a possible researcher that wants to use a ms for publication and it is highly unlikely to follow a law suit based on IP.

According to the Berne Treaty, after the elapse of the 70 years, each object is in the public domain, meaning that everybody can have open access to it (even in cases of publishers who want to create a profit-making edition) and that there is no difference between commercial and private use.

In terms of professional rules, they should be in accordance with international rules, but it is very dangerous when certain public libraries create and follow their own, internal laws, that do not apply to the general ones (for instance, you cannot apply different rules for two different readers of the same library).

Another aspect that should be taken into consideration is that the law applies accordingly to whether the domain is private (Civil Law) or public (Public Law). The Civil Law is based on Napoleon's ideas and allows a private collection to forbid at will any external access. Sometimes it is also rather unclear whether a ms kept in a public library falls under the public domain category (in the cases of loans, respect of the donor's wishes). It is also very important to keep in mind that in the cases of donations a strict respect of the conditions of the donor's will must be followed, otherwise there is always the risk of removal of the object. The only instance in which a will cannot be respected is when it demands for discriminations which are illegal. Generally speaking, in the cases of ms not protected by IP, it will be considered that an object kept in public service or in a private institution/library that acts as a public service, should follow the general rules that apply to all other objects of the same service.

In terms of material property an important aspect to take into consideration is to define who is the owner of the ms and more particularly who owns the rights of the ms image that has been taken. If it concerns a ms that is

accessible and visible from the public domain or it is kept in a public space as public property (which automatically allows free access for everybody) then the photographer is the owner of the image, but what happens if the ms belongs to a private space (for example a monastery with limited access)?

From a more practical approach, the owner for the image rights should be defined based on the local laws (according to each country) and also by consulting the WIPO expertise reports that can be found on their site.

In conclusion, in order to reduce any problems that may arise from the commercial use of a ms image, it is always better to abide to the Berne Convention (and all other international regulations), explain to the owner the “fair use” and the advantages of such a case (respecting at all times professional practices) and also to be able to negotiate in a diplomatic way at all times, instead of entering into disadvantageous arguments, that may lead to the opposite results from the ones we are trying to achieve.

#### ARIETTA REVITHI

##### *“Digitization project of the Hellenic Parliament Library”*

The main task of the Photographic Dept. of the Hellenic Parliament Library is to photograph and reproduce the texts of its very large collection, focusing mainly on the Newspaper Collection (which contains approximately 6.000 volumes and is in great demand by the general public), but also aiming at recording other important parts, such as the rare books and manuscripts that belong to the Hellenic Parliament Special Collections.

By the end of the 90’s, approximately in ‘97-’98, the microfilming was gradually replaced by digital scanning, shifting from microfilms to CD’s, without however completely interrupting the microfilming process.

There are certain advantages and disadvantages when comparing microfilming with digital scanning and those are listed in the table below:

MICROFILMING ZEUTSCHEL RF 121-35	DIGITAL SCANNER ZEUTSCHEL OS 12.000 (for A2 formats) and OS 10.000 (for A1 formats)
Only one take per page (one click of the camera)	High speed scan (1sec/scan)
The film must be processed and then printed in order to see the result  In cases of lost/forgotten/blurred frames, those pages must be re-photographed and then the images will be attached to the rest of the microfilm	There is an immediate image on the screen = immediate result  In cases of missing frames, a new image can be taken and placed in its correct order within the scanned text
Needs a fairly large storage place for the microfilms	Can be stored in the hard disk of a computer
Very strong lighting (= high temperatures)	Low exposure to light (activated only during scan), no heat load nor UV radiation
The glass plate cannot be removed	We can scan without using the glass plate
The microfilm can only be viewed with the help of a special monitor	It is widely and easily accessible through a CD copy and can also be uploaded online



Life-span of microfilm up to at least 100years	Life-span of CD's unknown
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Fortunately the Photography Dept. has a special apparatus that allows transforming microfilms into digital copies, therefore a large number of object will not be in need of being digitized (since it has already been microfilmed), thus avoiding any unnecessary handling.

Discussing with some of the photographers of the Photographic & Digitization dept. the main problems that arise in terms of books digital photography and particularly manuscripts can be summarized into two main types: the problems regarding the photographic process and the problems that arise from the digital photograph itself, in terms of picture quality, therefore the photographic result.

Regarding the first category the usual difficulties that occur during the digital scanning are:

#### IN THE CASES OF BOUND OBJECTS (BOOKS)

- The **type of the binding**: how tight the binding is, the tighter the more difficult it is to open the book properly, without damaging the spine in order to scan it.
- The **size** of the book: very small sizes can be as difficult to scan as much as very large objects. Disproportioned sizes can also be difficult to handle (very small, but thick books)
- Torn pages that run the risk of further damages
- The first and the last leaves of each book are those that are mostly damaged during the scanning, because they cannot rely on a solid opening of the spine, therefore are unevenly pressed and handled.

#### IN THE CASE OF UNBOUND OBJECTS / FLAT OBJECTS

- Loose folios are sometimes the biggest problem, because with the movement of lifting the glass plate of the scanner the folio switches places and the measurements of the frame need re-calibrating each time.

The first photograph/scanning taken is the actual image of the object (plain colour photograph), that could easily suit the conservators needs, because the image is in a 1:1 scale with an excellent resolution, that can easily allow for detailed close-ups. Subsequently the photographer, with the help the computer program logged on to the digital scanner, can vary the photograph according to his needs in order to make the image clearer, with particular regard as to the text. This second step is achieved by altering the colours with the use of filters. In order to improve the text quality the image is turned into a grayscale, without the use of filters. The last action taken is the retouching of the grayscale with the use of filters.

Obviously the purpose for the digital scanning is mostly concerned about the reproduction of the text, therefore the significance of actual colours and depiction of damages is irrelevant to this stage, on the contrary, it is often the case that by the use of appropriate filters, which will allow for a clearer text caption, the different paper and/or parchment damages (for instance, insects damages) are blurred and rendered almost invisible. Therefore this type of photography is not appropriate for conservation purposes, since the very details that a conservator needs to register (like initial preservation condition, damages, etc) are most likely to be omitted for the sake of the text.

Therefore, the first "conflict" is related to the type of photography the photographer is seeking, contrary to the conservator. They are both working for the same aim, meaning the preservation of the object and its diffusion, but the perspectives are different, where the photographer is interested in preserving and diffusing mainly the text, whereas the conservator's main concern is the preservation of the object as a whole, with all the elements related to its 3D form.



It would appear, from a conservation point of view, that it would be easier for a conservator to receive the object after the digital scanning has taken place, in order to restore the damages that (accidentally) may have been caused by the photography, so that once the conservation treatments are completed the object won't be submitted to any further, unnecessary manipulations. Sometimes, it is however the case that it is impossible to present an object for scanning, due to its bad condition and therefore, the conservation treatments must necessarily take place prior to the photography.

If this is the case, especially if the codex is meant to be rebound, from a conservator perspective is preferable to proceed with the photography before rebinding the object, due to the limitations that a bound book will impose (therefore increasing the possibility for further damages). Oddly enough though, from a photographer's point of view, it is much more difficult to photograph a flat object (and in the case of a book that is loose leaves), rather than a bound book, because due to the movement of the glass plate of the digital or of the microfilm scanner, each time the glass is lifted, the object moves and the focus is lost, therefore the photographer is obliged to reset the values for each page. Particularly in the case of microfilming, the process is rendered much more difficult due to the fact that the use of the pressing glass plate is mandatory, therefore the resetting of the values must be changed each time, making the scanning a time consuming process.

Obviously, in the cases of manuscripts and other important documents, a conservator will always be present during the scanning, in order to guarantee that a correct handling of the object is followed, but is it always this the case? Or is it possible, that due to time pressure, such considerations are not always taken into account?

It must be noted, as photographers have very accurately pointed out, that the conservation treatments can never be achieved at the same pace of a photographer, that is considering the fact that a bound volume of approximately 500pages can be digitally scanned in about 2hours, while the same volume could take up to 6months in order to be restored, depending on its condition.

Obviously the importance and the scope of digitizing a manuscript is not the same as that of a printed volume, nor is the difficulty of achieving such a task (especially in the cases of parchment, which due to its natural undulations can pose extra photographic problems).

Therefore it is important for the conservator to be present during the scanning in the most difficult of cases, in order to assist and control the photographer during his task and in those cases when his presence is not possible, to have given the proper instructions in terms of handling, opening (with special concern to the spine), pressing with or without the glass plate accordingly.

In conclusion it should be noted that the conservation treatments should preferably take place after the digitalization process, in order to "correct" any eventual damages caused during the scanning, but it should also be taken into consideration the fact that in some cases of partly or entirely damages objects, they should be treated first, possibly if only temporarily for the sake of the digitalization needs (support of pages, putting in place fragmented pieces, repair of tears, etc) and then the actual conservation treatments can be done once the scanning of the object is completed.

#### **KARIN SCHEPER**

##### ***"Conservation for digitisation: Selection and the decision-making process. Examples of some conservation choices"***

Mrs Scheper discussed regarding the digitization project of Leiden University Library, with regards to the Oriental Manuscript Collection, which was developed in close cooperation with the Library Curator of the Collection. Taking the opportunity of the digitization it was possible to observe and evaluate the mss and their needs and assess the relation digitization-conservation from a Western point of view.

Within Leiden Library's Special Collections each object may present a different preservation condition, depending whether the ms is an earlier acquisition (which may date from 350 years ago) or a later addition of recent years, for which however very little or nothing is known regarding circumstances of handling and storage. Each case presents different problems and demands different approaches. The digitization project however sponsors also all conservation work needed for the mss.

Out of the 260 mss that were to be digitized in a time-frame of a few months, only the most urgent cases could undergo conservation treatments, which meant a one-by-one condition assessment of each ms, resulting into the grouping of similar types of damages into selected categories.

The main criteria of Leiden University Library for digitizing a ms is to be able to allow future researchers to have direct access to the original object if necessary and not to simply store it away after the digital copy has been made, a policy that demands specific decision making and conservation criteria (treat the ms in such a way that will permit future use). Quite often the demand for consulting a certain ms increases after the distribution of its digital form (more readers become aware of this new information).

Loose materials (elements of the binding, loose leaves) are at high risk in terms of losing them completely, however, since the digitization is done in situ and there is a good organization and understanding by the digitization team in terms of proper handling of the objects (while a condition assessment form is filled in before), then the risk of further damages or losses is reduced to a minimum.

Mrs Scheper proceeded in describing the types of damages that can be encountered and which can be summoned in loose materials (ex, loose boards), while often the structure of Islamic mss is fragile, with the board detachment being a weak point (the joints being completely or partly torn). In order to secure such damage certain decisions can be made, either by treating the board in those cases where the problem can further damage the document, or by choosing to put aside the binding in the cases of complete detachment. Therefore, only the partly broken joint may have high priority, because it may endanger the rest of the structure during handling.

In the cases where the entire text-block structure is broken, action should be taken, depending whether there are loose folios (sewing structure broken-thread deteriorated), or if some elements of the binding should be secured in place (for ex: traces of endbands). Generally speaking, a ms is treated before the digitisation process, however in such a way as to make it accessible to the photographer: for example, sometimes mss that have been re-sewn (and still maintain traces of both the original as the new thread) are difficult to open in the spine area (the leaves have a tendency of closing). Other typical damages include problems of loose/detached flap (which is a characteristic element of oriental bindings and must be retrieved at all costs), detached endbands as well as older repairs, that sometimes may be obstructing the ms text (and must be removed prior to digitisation) otherwise will not allow for a proper opening of the ms.

An example of correcting previous wrong conservation treatments, was given for a ms, re-sewn in a Western binding, which was obstructing the book opening and which was eventually re-bound according to its original historical Islamic binding.

Manuscripts with loose boards and those with partly loose material are the second category to be treated prior to digitisation, for example in the case of a ms where the covers and the leathers' flap are original (with internal blind tooling decorations) with only an additional repair leather on the spine. This repair was eventually removed, in order to add a new spine lining that was attached through the boards and could be flexible and strong. All treatments and initial conditions are at all times very well documented for future researcher's use.

Another interesting example was a ms with a very remarkable construction, where a paper binding was used inside the leather spine lining, while the (still attached to the structure) endband was also very thick, obstructing the proper opening of the book. Copper-containing pigments had also damaged the pages of the text-block. It

was decided to detach the endband (which would create problems during the digitisation) and replace it at the end of the digitisation process.

In another case, by gently lifting the previous paper hinges of the spine, the original leather lining appeared, allowing an assessment of the spine condition. The leather was lifted in order to support the spine with Tyvek (a supple, but strong, synthetic material, already tested for conservation purposes), which allowed the re-attachment of the text-block to the boards and for a better opening and handling of the book.

In the cases of partly broken joints, the binding was again supported with Tyvek. It is interesting to note, that all mss belonging to a specific period had a leather lining (and not the textile seen in later structures), directly applied to the paper spine of the text-block, to which the primary endband was sewn through, while the leather flanges of the lining were pasted on the internal side of the boards (making it a very important part of the book structure). The external leather, pasted on the leather lining, was sometimes made of the exactly same material, making the distinction between them very difficult.

Another problem arises when the cover is intact, but the sewing thread is damaged, creating loose leaves. However, it is sometimes preferable to support (at least for digitisation purposes) the structure not through a new sewing, but with the help of the endbands, that will support the entire text-block, keeping it in place. Sometimes, the primary endband is missing, but the secondary is left, so it is also possible to support it through a new primary sewing, or in the cases of total loss, a new endband is sewn, according to the original structure.

The last problem encountered were the torn joints at the envelope flap that usually are dealt by inserting a strong new support material between splitting boards.

In conclusion, the question that arises is whether there are different approaches between Western and Middle Eastern Institutions or even among Institutions of the same area (ex, a University Library and a Museum)? Obviously the preservation and conservation conditions are much more standardised and easy within the western environments, comparing to the working conditions of certain secluded sites.

#### **DR. MAURITS VAN DEN BOOGERT**

##### ***“The Brill Digitization Program of Leiden University Library”***

Dr. Maurits Van Den Boogert discussed about the Digitization Program of Leiden University Library, that is carried out by Brill Publisher (a well-known publisher that has a long reputation in Arabic text editions).

In 2006 Brill took over IDC Publishers (a primary source publisher of microfiche and microfilms), acquiring 3million pages of primary source materials (mostly microfiche and microfilm), including more than 30.000 Arabic mss on microfiche (from the British Library, the Mingana collection-Birmingham, the Jewish National and University Library and the SOAS).

Brill Editions aim is to digitize the Manuscript Collections of Raphelengius, Scaliger, and Golius from the Leiden University Library, that include approximately 3000 volumes and 60.000 images from the Arabic (283mss), Persian (8mss), Persian and Turkish (4mss), Turkish (2mss), Samaritan (1ms), Greek (1ms), Syrian (1ms) and Armenian (1ms) languages.

The choice of digitizing this particular collection was based mainly on the importance of the collection itself and its international reputation, the well-established cooperation between Brill and Leiden University and because of constant demands from the public for high quality digital copies (instead of microfiche and microfilm formats).

Since Brill is a private, profit making publishing company, before any decision was taken, a thorough calculation and planning of the actual financial gain from this project was taken into account, while subsequently the negotiations with the library lasted more than one year and a half. Additionally, prior to digitization all mss had to be assessed in order to evaluate which were in absolute need for conservation treatments, while the total cost for these repairs will be covered by Brill.

The Leiden University provided the use of the existing, published hand-list of mss, in order to extract metadata. Another important aspect, both for Brill and the library were publication and publicity along with the sales. Filming is provided through an external server (Harald Fisher Verlag, Erlangen), which was chosen not only for the high quality of their work and their well-recognized professionalism, but also for their convenient relation between time-frame and overall cost.

Regarding the metadata, the idea is to type it in such a way, in order to allow extracting not only MARC 21, but also different forms (in other words the aim is to create a flexible database). A link to other relevant Brill publications will be established (link the work which is already online to the ms).

There are no standards for presenting Arabic mss online (each institution does it in its own way)

The entire project is mainly on Brill's part a commercial business decision with a central profit aim.

#### QUESTIONS:

If according to IP laws, the ms author is dead for more than 70 years and Leiden Library is a public service collection, how can they forbid other researchers to photograph the entire mss?

They have a contract with Brill Publishers to which they must submit and they could always claim that the object is in need of conservation treatments and cannot be taken away from the conservation studio.

The Brill project has a non-ending right to sell the product.

The project will not obstruct any (partial) copies demands, however in the case of a reader asking for a copy of an entire ms, permission must be sought from Brill publisher. It is also possible to buy individual ms volumes and their price will be lower than the current price charged by the University.

If the ms is required for editing a digital copy can be bought according to Brill's general terms of use

Since MARC21 is generally used for cataloguing printed books rather than mss, they intend to create a database that will be as flexible as possible, in order to provide the information that is useful for the readers of a ms, since there is no standard way of cataloguing the mss.

#### ATHANASIOS VELIOS

##### ***"Condition surveys for digitisation: St. Catherine's Library, Wellcome Trust Library"***

Dr. Athanasios Velios presented the condition survey forms that were used by Ligatus for the digitisation project of the mss belonging to the St. Catherine's Monastery in Sinai, Egypt and the Wellcome Trust in London.

How do we collect information from the ms? How can we collect information that will help us with digitization?

The St. Catherine project begun in 1999, with a ten pages documentation form (each page corresponding to a specific part of the bookbinding), including in the first page of the survey the description of the opening characteristics of the ms (anything with an opening wider than 90° was easy to photograph). A drawing to indicate the shape of the book included three different measurements in order to depict how the ms opens (left

of centre or 25% of the volume, centre or half of the volume and right of the centre – the other 75% of the volume). Three more drawings indicate how the boards open, while another sketch in the middle indicates with the use of arrows the areas where the textblock breaks. All these indications will be of use to the person who will be photographing the object in order to know whether any special assistance, cradle or support will be needed.

In the case of the St. Catherine's project photographs have been taken only of the exterior of each ms (binding and spine), but not of the actual text.

In some cases, even if the book would open, there could be many breaks on the spine, or in other cases, the spine would break, but the book would be still structurally steady. This kind of information facilitated the digitisation process (choice of which books could be photographed first) while small but significant details of the form have been altered and improved over the years in order to facilitate the survey.

The second page of the survey would depict the condition of the textblock, with a part devoted to describing the type of damages, not only within the text area, but also for the page margins. For each possible damage there are two columns, the first for the severity of the damage and the second for its extent (for example only a 10% of the text area is covered by stains, but the severity of that area is about 50%, which means that half of that text is completely illegible, therefore impossible to digitize without losing information).

The third page of the form deals with inks and pigments (damages like flaking, cracking, etc).

In the fifth page information about the sewing structure and the spine are provided, while the general condition of the boards, together with how well they are attached to the textblock is described in page six of the form.

Details regarding the endbands (and how important they can be in respect to the structure of the book-how strong the structure is) can be found in page seven of the form, assessing head and tail, primary threads, the core cord and so on.

An emergency box is available within the form, in order to pinpoint the cases where the severity of the damage is such that the object cannot be handled before any conservation treatment is done and that those will be the mss with top priority in the conservation treatments. In such cases the only pieces of information collected are the external dimensions of the book and the number of pages.

The last page is left blank in order to fill in if necessary all additional information that does not apply anywhere else in the form. The entire process takes about one hour per book and as far as digitalization is concerned the most important information is gathered from the first page of the survey along with the photographs of the book exterior.

All the information gathered from the St. Catherine's mss collection can be viewed either individually (for each ms) or in a table format, while comparative views of the characteristics can be obtained. These forms can immediately determine whether a book can be digitized or if it should undergo conservation treatments first.

On a slightly different approach, Ligatus has recently been involved with the digitisation project of the Wellcome Trust Library, where the digitisation program was interrelated to the conservation work to be done. However the review time for each book was limited to 5'-10', therefore the survey form had to be reduced dramatically. Additionally for the Wellcome Trust Collection, the Ligatus team was also asked to give an estimate time for the digitisation and the (eventual) conservation work for each object.

The survey forms were already in a digital form and were filled in directly on a computer (and not handwritten and then scanned as happened for St. Catherine's).

Together with the Wellcome Trust team, the criteria for prioritising the digitalisation process were established (ex sound book structure, difficulties in handling, does the textblock need conservation, etc).

In conclusion, previous condition survey forms can set the criteria for digitisation and conservation.

**MANFRED MAYER**

***“Norms & Recommendations for Digitization”***

What is a norm? Is it a written paper?

Is there a norm for digitisation of a ms?

It is possible to find professional rules (standards) for digitisation given by ISO/TR 13028:2010-12 (E)

ISO: INTERNATIONAL ORGANIZATION OF STANDARTISATION-gives you guidelines for creating and maintaining records in digital formats (including information about benefits and risks of digitisation, best practice guidelines, file-naming metadata recommendations, quality control recommendations as well as recommended staff skill sets).

After 12 years of digitization of mss at the University Library of Gratz, it is Mr. Mayer's experience that the digitization process can be split into at least two main parts. In the first part the book comes out from the shelf, it is digitized with a camera and then goes back to the shelf. What is important from a conservator's point of view is that the book remains in the exact same condition as it was before the digitization.

In the University Library they digitized 500 medieval mss, with an average 110 number of folios (220 images) per ms, which was the same number they encountered while digitizing other collections as well, taking an approximate time of 3hrs of digitizing per book. All these standard numbers, became their norm, although they all depended each time on the condition of the binding and that of the parchment/paper/ink/ painting, the size and extent of the ms and of course on the selected equipment for each digitization.

The 2<sup>nd</sup> time span usually took about 2-3 times more than the first, which means that they control whether there is something missing.

They have also edited certain recommendations for the handling of the object during the first time span, making sure that the stress applied to the object does not exceed that during “normal” use in a reading room by an experienced reader, that during digitizing the ms is lying on a book-rest made of soft material, with an opening angle of 120° and that no glass plate is used.

The light impact (light intensity x exposure time) should also be kept small, but how is it possible to achieve that? (by using Tungsten or LED's, with or without Flash?). For instance in St. Paul's Monastery in Switzerland they have realized that the best image results were given with the use of flash, but this was the result of a 3-4 years discussions between the librarian, the conservator and the photographer, who all have different approaches on the subject: the conservator wants to preserve the object in the best possible condition, the photographer is aiming at the perfect photograph and the librarian is between both. The conservator needs to give the photographer certain guidelines in order to find a compromise between capturing the “best” image, without however damaging the object. Ideally the recommended climate should be of a relative humidity rate of RH: 50% and a temperature of 20°C, however, since the digitization process lasts only 3hrs the duration is not long enough to damage terribly the ms. What is however crucial in the digitization process is to have experience staff (possibly with a background in conservation, codicology, imaging, IT), which (without being necessarily an experienced photographer) must have some basic understanding of the processes involved.

A very good reference book, recommended for conservators that undergo digitization of mss is “The AIC Guide to Digital Photography and Conservation Documentation”, edited by Jeffrey Warda, which with simple chapters, describes all necessary steps, from the photography set up, to the image capture, processing and finally



management and output. Before digitizing, an experienced photographer should be able to recognize which equipment is the most suitable one.

In the University Library, conservators take their own photographs (using normal, IR, UV, raking light, microscopic imaging) according to the elements they want to capture before or during conservation treatments (taking at times 2-3 images of the same page) and at the end of those treatments they move on to the actual digitization of the entire ms. They also found out that most damages occur during improper handling, particularly when not the appropriate equipment is used.

Their conservation copy stands have become a standard practice for mss digitisation and at present the tendency is of microfilming (automatically, through a special equipment machine) the digital image, with an estimated life span of 400-500 years. However the minor problem could be that nowadays they do not produce any microfilm copiers and readers (because the readers do not use them any longer).

## **NIKOLAS SARRIS**

### ***“Uses for the Digitization of Manuscripts in Conservation Practice: Colour Measurements for Observing Colour Changes in Paper Conservation”***

This short presentation is based on a research project on which Mr. Sarris worked on a few years ago. Perhaps if this research was carried out today there would be more things to say and add, since digital imaging technology and digital cameras have advanced a lot since then. But the concept and the benefits most likely are the same.

Digital cameras are an established tool for conservation (they are used for condition reports, record keeping and recommendations), while the examination of colour changes in the science of paper conservation and the preservation of paper artefacts is very often an essential practise.

Several treatments in paper conservation either presuppose or face the problem of colour changes, on the substrate or the media of an artefact.

Washing treatments or degradation processes such as ink burning and fading, discolouration, mould damage and the toning of repair papers, all involve colour changes, the recording, examination and analysis of which can provide the conservator with valuable information.

Why Digital Cameras? Spectrophotometers and colorimeters are known to be more accurate in measuring colour. Yet they are not always an option, as they require the object to be pretty flat, with direct contact and they have a very restricted spot measuring area which is difficult to accurately locate.

Cameras on the other hand do not have these limitations and on top of that they are relatively cost effective. An important consideration is whether the cameras that are used in condition reports, or more importantly in the process of manuscript digitization are capable of measuring accurately colour.

The drawback of digital photography on measuring colour is that it depends on numerous variables such as illumination parameters, reflectance of object and digital camera CCD which might make digital cameras inappropriate for achieving true colours. However, what we are trying to achieve is not to be accurate with the one colour we are measuring, but to examine colour differences, in other words how a colour changes from A to B over the same area and how accurate can the camera be in describing this colour.

The project was achieved by comparing three different digital cameras:

5.0 Mpixels Canon G5. 1CCD (normal digital camera that most studios have)

MuSIS Multispectral imaging system 3CCD



Digital scan back PowerPhase FX 3CCD 75 Mpixel (a camera used for the digitization of manuscripts – this specific camera being used for the digitization of the Codex Sinaiticus)

In addition to that the following were used: a personal computer, Adobe Photoshop and simple tools, the point being how to make this process practical and easily applicable to a normal conservation studio.

Tests were carried out and measurements were taken on colour changes on samples which involved conservation treatments or which were subjected to damages that resulted in colour changes. These included: Ink fading, toning of paper, washing of discolouration, adhesive removal.

The first to do is to see how to standardize lighting conditions, because any colour changes produced by even the slightest alterations in the lighting conditions or the position of the camera would give different results. There was a lot of testing done, taking pictures before and after repeatedly (without altering the conditions). Of course by using a single light source those variables were very limited, compared to the use of two light sources.

Following lighting standardization, it was very important to also have proper camera calibration, which was however much easier to achieve, since computer programs are very much adapted to measuring colour on screen, on adobe Photoshop, comparing colour charts, using colour greyscales, etc.

The results were always compared to those from the spectrophotometer charts, while of course there was also the image calibration happening within the software (ex, you take a picture of a red and then you calibrate it to be a perfect red according to the chart). By determining those standard calibrations it was possible to begin the experiment.

Pictures were taken before and after treatment, focusing on specific, very small areas of damage, in an attempt to limit the variables of the object. These images were taken into Photoshop, which can give you readings in CIE Lab (a formulated mathematical way of measuring both colour and differences in colour). The point is that what you consider as one area is actually one pixel, so when you zoom the colour can be very different to the ones around it, giving very different readings. In that case, what you actually try to accomplish is getting an average of what is in that area, calculating either the pixels around it or by manually picking 50 or 70 different pixels within one area.

There is a mathematical formula by which changes in colour values can be calculated and this is expressed by what is called CIE Lab  $\Delta E$ . This a vectorial measurement which compares the difference between two colours. The aim is to measure and compare the  $\Delta E$  (of the same area before and after treatment) given by the digital camera as to that of the spectrophotometer (which is a very accurate tool, but with certain limitations discussed before). The digital camera gives almost the same readings as the spectrophotometer, which is very promising, while certain samples worked better than others (MuSIS camera worked very poorly in this kind of photography, while Canon camera and especially PowerPhase in most cases were closest to the ideal).

In conclusion, processing with the help of a digital camera is possible, while the image taken today is also a very important record of the object's present condition: if we standardize the photographic conditions and then they are reproduced at a future time, it is possible to check the development of the object's condition.

## **IRA RABIN**

### ***"Material analysis prior to digitalization"***

If information was digitized and put online, then the researchers' tools would be much more improved, since the access to the material information would be far easier. The idea would be to add a little bit more knowledge in the catalogues about the materials and even the information that a conservator can gather from examining an object, can be useful to another conservator who does not have the possibility of such access.

Over the years, since our examination tools have developed and improved, obtaining very sophisticated machinery, we almost forgot the importance of a plain microscope, which allows for different types of characterizations and analysis. The Dino-Lite Handheld Digital Microscope can use IR, UV and plain white lighting, is very easily carried everywhere (due to its small size) and can also have a support stand, which allows for movement of the lens up and down until the desired distance is reached the microscope is able to focus, with a magnification from 10 up to 200 times. It also has different lenses, close-ups

Such tool can give a lot of new information about the ms from the very first assessment and can also be easily used by people without much experience (for instance with pigments or inks identification).

An example was given with an image of a Middle-East Temple Scroll m, for which certain questions that were posed, hopefully would be answered with the use of the microscope. For instance, the first question was regarding previous conservation-restoration treatments, ink composition (with the help of IR it was easily determined to be carbon ink). If more detailed analysis is required (ex, structure), then more complicated and specific examinations are required (for instance, in order to determine all the technology of production of the parchment took a year of studies). The researchers also studied the various types of corrosion agents, like, a burnt corrosion that was eventually attributed to fungi presence (this was achieved using only one instrument). If someone wants to do material analysis, the basic types of questions that must be answered are the following: typology of inks (very simple to answer with either one of xrf, IR image, Raman or MSI/HSI<sup>1</sup> methods), the state of parchment (either with a) simply microscopy, b) with NIR<sup>2</sup>, which is a cheap and easy analysis assessment method, c) with Polarized microscopy which is still an experimental laboratory method and possibly the only non-destructive method known today that allows to look inside the fibres structure and d) HSI).

Xrf (X-rays fluorescence) is a simple method, very well developed worldwide, that can act as a quick scanner (for instance if we are studying ink corrosion and how it is expanding on the support, we need to examine different areas of the text, we can use the *Tornado* machine, which is a high resolution scanner, using Xrf). So in this case you are not simply getting an elemental composition of your object, but an elemental distribution as well. Mrs Rabin, when working with a ms, usually makes a first, low-resolution quick scan of the entire document, gets two microscopic features and in addition with a X100 and X10 magnifications, she can determine the areas of interest and proceed in a high resolution scanning of those the areas. In the cases where it is permitted, she leaves the object to be scanned in high resolution overnight.

The next step they are trying to achieve with the *Tornado* machine, is to add a microscope in order to get not only black & white microscopic images, but also to add IR & UV images, which provide more information

question				
typology ink	xrf	IR image	Raman	MSI/HSI
state of parchment	microscopy	NIR	polarized Raman	HSI
ink corrosion	xrf line scan/ mapping			
restoration activities	xrf mapping	FTIR	Raman	

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<sup>1</sup> MSI: Multi spectral imaging

HSI: Hyperspectral imaging

<sup>2</sup> NIR: Near InfraRed

SARA FANI

***“The BNCF experience & project for Arabic manuscripts digitalization”***

As a project for the final year of a Master's course in 2009, Miss Fani decided to create a conservative census of the Arabic mss of the National Library of Florence (BNCF<sup>3</sup>): the results of that census were meant to be used as a useful reconnaissance instrument for the library's conservation department, as well as a preliminary study of those mss that were not often being consulted by scholars. Eventually the census has become a good starting point for the Manumed project, for the mss data already collected and for the preliminary knowledge of their conservation status.

The Collection of Arabic mss of the BNCF has not a unified historical and geographical origin (belonging originally to separate collections), influencing as well their different conservation standards before and after their storage in the library of Florence.

It is not easy to derive a summary diagram of the collection damages according to the mss origins, but at least it is possible as a first step of the work to gather into groups those mss that more or less reflect a common standard of conservation status.

It is possible to gather the books into three groups, reflecting the mss original funds of provenance (without taking into account the national fund that was formed at the beginning of the 19<sup>th</sup> century with part of the Magliabechiana funds mss and with the Library's New Accessions until 1905, there a no Arabic mss included).

The main funds of the BNCF are:

The Magliabechiana, which is the former fund of the National Library and consists of c.30.000 volumes (also printed books), was given as a public legacy to the city of Florence to fund a Public Library in 1714 by Antonio Magliabecchi (belonging to the Medici family), among which belong approximately 40 Arabic mss (dated mostly from the 16<sup>th</sup>-17<sup>th</sup> centuries, but also from the 14<sup>th</sup>-15<sup>th</sup> centuries while one specimen dates from the 13<sup>th</sup> century). Some of those mss present handling difficulties during digitalizing caused by problems such as insect damages, while an interesting case of an Koran octagonal codex in chiselled metal box, XVII c. (?), BNCF, B.R. 343 n. 5 (box with codex inside and detached front cover; ff. 1v-2r) presents problems not only due to the oxidation of the metal box, but also to the paper deterioration of the ms, caused by insect damages. Its small size (8cm) complicates even more the scanning process.

The Magliabechiana Library kept growing, with new acquisitions, for example (in 1771) of the valuable collection of the Medici Palace: among these a particular mention should be given to a group of mss, published by the Stamperia Medicea delle Lingue Orientali (the Medicean Printing House of Oriental Languages, that was founded in the 2<sup>nd</sup> half of the 16<sup>th</sup> century in Rome). In addition to the new original oriental mss brought in Rome by the collaborators of the printing house from all over the Eastern lands and now kept mainly in the Biblioteca Medicea Laurenziana, most Arabic mss that are now kept in the National Library were produced in Rome (Arabic mss of Western origin).

There are rough copies, signs and translations (most of the times unfinished), written by the leader of the Stamperia Medicea. In most cases there is Arabic vocabulary and grammar books, but there are as many in Syrian, Turkish, Persian, etc. only a few of them deal with geometry, geology, physics, astronomy works, they were part of Giovan Battista Raimondi's legacy and became part of the Magliabechiana Library at the end of the 18<sup>th</sup> century, together with the entire collection of the Medici Palace).

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<sup>3</sup> Biblioteca Nazionale Centrale di Firenze

Most of the damages of this group of mss, were the typical problems found in 16<sup>th</sup> century western documents. As a matter of fact, they were western ms, written with western inks, western papers, presenting often severe problems caused by ink corrosion, humidity and mud traces (that have rendered the paper support extremely fragile and weak).

There are also mss of the Palatine fund, which belonged (after 1771) to the Library of the Medici Palace and were gathered together with the Magliabechiana, subsequently to the Unification of Italy in 1861 and are mainly of Arabic provenance.

Jakob Grâberg von Hemsö was a Swedish geographer who was travelling as a diplomat in Morocco and Mauritania and brought several N. Africa codices, mostly belonging to the 18<sup>th</sup> – 19<sup>th</sup> centuries, where the most widespread damages are due to insects. This group of mss is characterized by modern western bindings and marbled papers, or half bindings in parchment and marbled paper, so the collection has an homogeneous western library appearance. Only the most valuable codices maintain their original bindings.

All the New accessions were part of the donation made by Mosé Castelli in 1869, as a gift to the King Vittorio Emanuele II, about 200 publications from his printing house, together with the original mss connected to them (dated from the 18<sup>th</sup>-19<sup>th</sup> centuries, only five of them dating from the 17<sup>th</sup> century and just one dated from the 15<sup>th</sup> century). The following year, this collection was given to the National Library of Florence. The provenance of these mss is unclear, due to the colour changes of their bindings, they seem of modern Arabic production, despite the fact that not all of them have the typical flap structure. They are usually covered with Gallic oil leather on the spine, while the most common damages to be found are insect activities and are mostly concentrating in the area of the spine.

For the past weeks Miss Fani tried, with the cooperation of the BNCF Librarians to organize the digitalization program, starting obviously from the scanning of the original mss. However, for preservation reasons, where possible it was preferred to digitize from the available microfilms, even if they were not of high quality. The next step was the filling of short index cards, the ones in use in the Library, about the mss damages, using five sub-groups in order to determine the conservation condition. There is a need of identifying the criteria of judgment and also to adapt them to the National Library resources.

The main question posed is what will happen to those mss which are in no position to be handled during a digitalization and for which no microfilm copies are available? Preliminary conservation treatments cannot be carried out by the Library's conservation dept. due to their extremely heavy work load while a collaboration with external institutes is very difficult. Fortunately there appears to be no further deterioration of the condition of the objects, however the main risk for the mss are readers making the digitization process a good way for "avoiding" them.

Another big problem that arises is that in the cases of damaged documents, digitalization cannot work properly, because the information is hidden or obstructed by the damage itself, while the handling of the object itself includes possible mechanical risks.

In Miss Fani opinion a protocol of work should be found in order to minimize risks and cost in terms of preliminary conservation intervention, so in conclusion a possible strategy for digitalization should include:

- The identification of specimens which could be really deteriorated by the digitization and define which are their most critical damages
- The identification of specimens not faithfully reproducible and their damages
- Finding quick and low-cost methods of intervention for each case (hoping in the collaboration of the Restoration Lab) or finding a way to handle them with minimum mechanical stress and risks.

- Making sure of a minimum competence in book handling of the persons in charge of digitizing the manuscripts or attending them during the scanning

**ADAM LARSSON**

***"Past and Future, digitization and conservation at Uppsala University Library, Sweden"***

Mr Larsson presented the condition, Past and Future, of digitization and conservation at Uppsala University Library, Sweden.

The University Oriental mss Collection consists of 520 Arabic mss, 305 Persian mss, 460 Turkish mss, ca 50 Hebrew and Armenian mss, ca 75 Ethiopian mss and of a small amount in other oriental languages. In the 1950's there was an acquisition of microfilms of Arabic, Persian and Turkish mss from main Turkish libraries.

As a characteristic example Mr Larsson presented a 16th century Hüsrev ü Sirin ms, which is romantic epos by Nizami Ganjavi, persian epic, 1140 – 1202, describing the story translated to Turkish, of Khosrow and Shirin, a king in love with an Armenian princess,. The problem with this particular ms is that it poses the question of what should be done before and what after digitisation. The damages include heavy losses of miniatures, tears, faded miniatures, a broken binding (which is however still functional), with particular concern to the miniatures, which should be absolutely consolidated before undergoing any digitisation process, while the stabilisation of the binding could be done afterwards.

The earliest digitisation took place 14years ago, when the head of the ms dept. asked for the assistance of the conservation staff for digitising a heavily illuminated parchment ms (15<sup>th</sup> century Book of Hours), in a tight parchment binding, with the use of a flat type scanner. At the time they were only concentrating in digitising the ms highlights (in order to show them to the general public), which was often done by external servers, due to the lack of equipment and knowledge. The situation is still not yet completely solved.

A typical example of this early digitisation was done in 2003, capturing the highlights of a 16<sup>th</sup> century ms, a process which took place inside the library, but with a software developed by Touch & Turn (an external actor), without any consultation from the conservation dept. (example of a decision taken on micro level), using a non-searchable format (therefore of no use to the library), with no documentation before but with visible damages after, which was put on exhibit in New York and Milan.

At present what they are trying to achieve during digitisation is to have a standard workflow for digitisation and publishing, that includes initially the selection of the object by consulting all the units concerned and also aiming at long term solutions (the digitization of the images, the metadata, all necessary documentation), being also concerned with storage, publishing, easy access of the public to search/access, as well as long-term storage solution. What is also crucial is that the conservation dept. takes part actively in the process from the beginning.

The Photographic Section a decade ago, was simply restricted for Xerox copying, but fortunately over the years, the equipment changed, adopting digital cameras, multiple scanners, one for large format A0, robot for digitization (however not for mss). The staff has been well educated, with the latest technology developments, while the conservation dept. is regularly consulted and aids the digitisation by creating specific cradles if needed, phase-boxes for handling and transportation of the objects.

The images are taken and stored in Tiff formats and shown in Jpeg or Jpeg2000, while together with the University Library, are planning to create a common platform for publishing images, called Alvin – Archives & libraries virtual image network, where they are trying to combine all database into one.

**WIDO VAN DER PEURSEN**

***"The Peshitta project Leiden"***

Mr Van Der Peursen (who is a member of team 2 of COMST project) works at the Leiden Institute for Oriental Studies, which is part of the Humanities Faculty of Leiden University, mainly involved with the Peshitta Institute (which was founded in 1959), where the principle objective of the project was to repair the critical condition of the Peshitta, starting with the digitisation of all known mss of Peshitta, which was published in 1961, obtaining a list of 360mss (that were used in the edition) and another 230mss which were not included, due to their critical condition. The oldest Peshitta ms dates back from the 5<sup>th</sup> century and go on to the 19<sup>th</sup> century, while the oldest complete ms dates from the 7<sup>th</sup> century. Initially the edition of the distlist was compound, including older mss listed as well as microfilms. Subsequently the edition started along with the preparation of the list and an important question that arose was the goal of this project, while the people who initiated this project were all Testament scholars, with a main interest in Textual criticism (establishing earlier as well as newer translations of the text).

However certain decisions were taken, that limited the activities of the research network, so in earlier editions morphological failures were not indicated; however from a linguistically point of view this omission reduces the work of a researcher (those changes cannot be studied). Additionally the information given is very elementary; indicating what text can be found in each ms, but it is restricted to Old Testament texts, some information about the dates, the size of the ms, the number of columns, the average number of columns, the average number of lines in each column. It is interesting to notice that about 50years ago, the text was considered like a simple sequence of letters, without any notice to punctuation, however now there is interest in, for instance, the limitation marks, while sometimes there are optional spelling variation series (which depended on how much room was left within the line). At the moment they are at the end of the edition project and at the beginning of the project of revising all of these Old Testament mss (starting with the eleven mss kept in the Leiden University Library, dating from the 7<sup>th</sup> to the 19<sup>th</sup> century, including also one palimpsest).

**EWA BALICKA-WITAKOWSKA**

***"Digitization and preservation of the Ethiopian "geniza" in the church of the Four Celestial Creatures at Agwaza,Tigre"***

The aim is to give a short report of Mrs Balicka's last project, which regards a site discovered accidentally four years ago in the mountain of Agwaza, with a collection of small pieces of old mss. This particular case was differentiated from all others, because it was carried in two separate stages: a lot of study of the materials was done before some actions were taken, since the group was allowed to return a second time to the site (so the material collected during the first campaign could be better evaluated). During the first campaign the great importance of the material was evaluated, but it was also realized that the presence of an experienced conservator was crucial; therefore during the 2<sup>nd</sup> campaign he was included in the group.

Agwaza is located in the province of Tigre, North of Ethiopia, a place where Ethiopian Christianity developed. The churches of the area are mostly built on rocks, in a mountainous area discovered about fifty years ago, so the discovery of this totally unknown church came as a big surprise. It was a church inside the rock that looked like an old church, but was in fact excavated in 1993, in just a period of six months: this tradition of building churches, that dates back from the beginning of Christianity in Ethiopia (in the 4<sup>th</sup> century) is revived once more, along with ms production, which is still in practice, even today.

When asked to be shown some mss, they were given 19<sup>th</sup>-20<sup>th</sup> century documents (approximately 50pieces), which despite their younger date, were digitized, because even in new mss the text can be of interest. However the researchers were also shown some very beautiful painting, 14<sup>th</sup>, 15<sup>th</sup> and 16<sup>th</sup> centuries, of such good quality



that are usually never found in new churches. After some investigations it was found out that there was an old church on the top of the mountain (to which the old paintings and mss belonged to originally); this old church belonged to a monastery, which disappeared progressively because the monks and the eremites slowly diminished, with the last monk dying some twenty years ago, abandoning the old church, while everything belonging to it was taken down to the new one.

Since this was the first campaign, it was decided to photograph as much as possible, including a very old Gospel Book, inside of which two documents were recovered, that were actually describing the history of the place. The name of the place and they soon realized that it is the same place mentioned in documents retrieved from other places: "Mountain of the sharpened edge", because of the locality and because it was founded in the 14<sup>th</sup> century, flourishing at the end of that same century – the beginning of the 15<sup>th</sup> century, when an Ethiopian Patriarch retired to this place and eventually died there, where his grave can still be visited. The Cross of *abunä* Bartelomewos (this very well known Patriarch) is considered to be miraculous and is still kept in this place.

Once the importance of this old church was established, access was sought, despite the natural difficulties of the environment. The church was still in a rather good condition and it was used also as a cemetery for wealthy people, while fragments of very old mss were scattered all around. The priest explained that the old books were replaced by new ones in the new church (those that were initially found); however they kept the fragments of the old ones, within the initial church.

During this first campaign it was not possible to digitize but just a few characteristic samples, so it was decided to go back on a second expedition (which took place after four years, bringing along a conservator and some good equipment). Some of the problems that occurred during that second campaign included the very large quantity of added mss that the locals had gathered in the meantime, the practical difficulties of photography (external shots were impossible, because of the intense sunlight-they were eventually forced to take pictures inside a cave).

It was also difficult and time consuming the process of gathering and sorting out all the loose folios. Since a conservator was present, they prepared the mss for digitalisation, starting with this very old Gospel Book, in a good preservation condition, because it was kept inside a traditional Ethiopian double box. They placed a special Palatina paper in between the illuminations, because this type of book is not stored inside the church, but it is protected by one person (who changes each year) and is used on special occasions only.

The next task for the conservator was to do something with the loose leather covers, which he cleaned and subsequently consolidated with fish glue in situ (local mending). The priest, inspired by the conservation treatments, brought a person who proceeded into demonstrating his bookbinding skills, sewing with (unfortunately) a plastic thread an old ms (fortunately not of great value). However, the whole process was recorded on video, as a proof of the local sewing practices.

In the cases where conservation treatments were not possible, the objects were put into card boxes and labelled. The problem was that traditionally mss are placed in leather boxes hanging from the wall, while recently they started placing the documents into metal cupboards.

So the questions for the future are whether new special card boxes should be brought from Europe, or should they order the traditional Ethiopian leather boxes from the locals in order to store the mss? The problem with those last boxes is that the leather is usually not well prepared, resulting into the appearance of insects. Envelopes made of acid-free paper were prepared in order to store the loose fragments. Additionally, what more should be done in order to protect the manuscripts under the circumstances as presented or similar and how to make the damaged pieces more suitable for digitization are some more questions that were raised through this expedition.



## ASSESSMENT OF THE RESULTS AND IMPACT ON THE FUTURE DIRECTION (MAX 2 PAGES)

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Answer to the question *Restoration and digitalization: what should be done first?* depends mainly on the degree of deterioration of the manuscript. It is not possible to answer it in a unique way.

During the workshop, participant tried to define better the usual difficulties that occur during the digital scanning and formulate common standards to avoid mechanical damage on the manuscripts.

The digitalization process must not become another causes of deterioration.

It would appear, from a conservation point of view, that it would be easier for a conservator to receive the object after the digital scanning has taken place, in order to restore the damages that (accidentally) may have been caused by the scanning process, so that once the conservation treatments are completed the object won't be submitted to any further, unnecessary manipulations.

But, in some cases, both measures are taken following this steps:

- Where the object need only basic preservation treatments (like surface cleaning, page numbering and cataloguing), the document is digitized at the end of those treatments and after the choice of a proper housing
- In the cases of damaged objects, after the first basic treatments, the manuscript undergoes a first digitalization, then it is restored (conservation treatments and proper housing solutions are chosen) and afterwards the final digital copy is taken.

During these steps, manuscripts must first be handled with care, and, if applicable, the bindings treated with appropriate products that prevent the leather and parchment from breaking or becoming powdery. Proper storage is crucial for the effective conservation of books. It is a prerequisite for more sophisticated conservation methods. It is also important to remember that poor handling is often the first cause of a book's deterioration.

It is therefore important to train the people in charge of scanning on these aspects given the proper instructions in terms of handling, opening (with special concern to the spine), pressing with or without the glass plate accordingly.

It appear that a detailed survey of a manuscripts collection and the fact to collect information before the digitalization may facilitated the process (choice of which books could be photographed first; In some cases, even if the book would open, there could be many breaks on the spine, or in other cases, the spine would break, but the book would be still structurally steady).

What is important is that the book remains in the exact same condition as it was before the digitization.

If we had to define a best practice, we should impose a scan before and after an eventual restoration of the manuscript. However, this solution is often linked to the financial and logistical capacity of the libraries concerned and has as disadvantage to multiply the document manipulation.

The solution to this question must be taken case-by-case according to common standards well define before.

## FINAL PROGRAMME OF THE WORKSHOP

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**9.00**

**Chantal Keijsper, Head of the Special Collection in the University Library,**

*«Introduction to the Library Special Collection and digitalization activities ».*

**9.15—9.45**

**Dr. Marie-Odet Scalliet, curator of the South-East Asian collections.**

*« The collection of Leiden University and the project of its digitalization »*

**9.45-10.15**

**Joseph Moukarzel**

*« Digitalization as conservation or as diffusion process? ».*

**10.45—11.30**

**Zeina Grenady & Stéphane Ipert**

*« Legal aspects of digitalization of documents ».*

**11.30—12.00**

**Arietta Revithi**

*« Digitization project of the Hellenic Parliament Library ».*

**13.30-14.15**

**Karin Scheper:**

*« Examples of repairs and conservation treatments prior to digitalization ».*

**14.15-14.45**

**Dr. Maurits van den Boogert:**

*« The Brill digitization project of the Library of Leiden University ».*

**14.45—15.15**

**Athanasios Velios:**

*«The experience of Ste-Catherine of Sinai and the digitalization project».*

**15.15—15.45**

**Manfred Mayer**

*« Norms and recommendations for digitalization ».*

**15.45—16.15**

**Ewa Balicka-Witakowska**

*« Digitization and preservation of the Ethiopian «geniza» in the church of the Four Celestial Creatures at Agwaza, Tigre ».*

**16.30-17.15**

**Nikolas Sarris**

*« Uses for the Digitization of Manuscripts in the Conservation Practice: Colour Measurements for Observing Colour Changes in Paper Conservation ».*

**17.15—18.00**

**Round panel of various short presentations from some of COMSt's group 5 participants**

- **Sara Fani**, *The BNCF experience and project for Arabic manuscripts digitalization*
- **Adam Larsson**, *Past and Future, digitization and conservation at Uppsala Universitylibrary*
- **Wido van Peursen**, *Pershita project Leiden*
- **Ira Rabin**, *Material analysis accompanying digitalisation*

## **LIST OF PARTICIPANTS AND SPEAKERS**

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