

ERC Newsletter

1/2015

July 2015

Introduction

Dear reader, dear colleagues,
this is the first newsletter of the European Research Centre for Book and Paper Conservation-Restoration after we moved from Horn to Krems University of Continuing Education in May 2014. Please note that our contact data and webpage also changed (please see at the end of the newsletter in the Impressum)

The concept of the newsletter is however stable, and will provide you with

- Information about the past work,
- Provide you with a genuine scientific article and
- Inform about upcoming events/work.

PAST WORK

The two first research projects of the Centre are successfully finished.

EU Projekt Men and Books

522331-CU-1-2012-1-AT-Culture-Vol121

Culture 1.2.1

MEN & BOOKS - for a risk free use of the European written cultural heritage

The project dealt with a problem book and paper conservators and archivists all over Europe have in common: mould. Mould destroys our cultural heritage. Especially books and charters in archives, being unique by nature and thus extremely valuable for our understanding of Europe's past are very much at risk to be lost due to microorganisms.

Partners: University for Life Sciences (BOKU) Vienna, TU Graz, Archive of the Parish of the holy trinity Swidnica, Poland, University Prague, ICARUS.

The results were published in an international conference held in April 2014 in St. Pölten, Austria.

The prints of the contributions is in work. Results, relevant and focused for/at conservation were also published: "Ethylene Oxide Fumigation for Mouldy Archival Material", P. Engel, K. Sterflinger, R. Eckhart, Österreichische Restauratorenblätter - Papers in Conservation 32, 2014 pp. 241-252

DEACIMIC – Coin 5 ffg Projekt

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The project DEACIMIC targets the preservation of archive materials combating its acidity, deterioration of mechanical properties and microbial degradation using the latest developments in cellulose chemistry and nanotechnology. It will develop a new paper deacidification process combining the best currently available concepts with knowledge in supercritical fluid / volatile organics solvent reactions and nanotechnology.

Partners: University Graz, Natex, entfeuchter, Omni (NL) and Berger und Söhne.

A patent was handed in. Publications will be announced in the upcoming ERC newsletters.

Traditional Preventive Conservation of Paper in India

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Abstract

Preventive conservation is generally considered to imply measures to minimize the deterioration, thus avoiding major restoration interventions. This paper looks at the traditional method for Preventive Conservation in India. The preservation of books and paper follows traditional as well as modern methods, which are scientific and preserve documents for further use. From ancient times several traditional methods have been used for preservation of book and paper manuscripts. The people were also quite aware of the basic factors of deterioration of the manuscripts namely light, dust, heat and humidity and Insects etc. In traditional system of preservation herbals are used such as *Neem leaves, Aswagandha leaves, dried Ginger, kumkum fruit powder, Sandal wood, Turmeric powder, Garlic*, etc. Some plants and their products, which have been recognized since ancient times for their germicidal properties and insect repellency potentialities are still being used in the form of *Traditional Preventive Conservation Practices*.

1. Introduction

India possesses one of the ancient and richest culture wealth of the world has the largest collection of paper manuscripts, containing ancient traditional culture and knowledge representing thousands of years of history (www.namami.org/history.htm [20th August 2013]) The Indian manuscripts, which were written in different languages and scripts, are preserved on treated Palm leaves, Birch barks, Silk cloth, Wood, Tamrapatra, Handmade paper and inscriptions on stone etc. According to estimates made by NMM (National Mission for Manuscripts – Ministry of Tourism and Culture, Government of INDIA) the number of manuscripts throughout India will be somewhere around 8–10 million Manuscripts represent an important part of our written heritage, but are prone to a variety of derivative reactions and so are inherently vulnerable. The preservation of manuscripts follows traditional as well as modern methods, which are scientific (Many of them have been scientifically proven and a lot more have yet to be explored and proved) and preserve documents for further use. The knowledge of preservation is not new to Indians. From ancient times several traditional methods have been used for preservation of book and paper manuscripts. The people were also quite aware of the basic factors of deterioration of the manuscripts namely light, dust, heat and humidity and Insects etc. In traditional system of preservation herbals are used such as *Neem leaves, Aswagandha leaves, dried Ginger, kumkum fruit powder, Sandal wood, Turmeric powder, Garlic*, etc. Some plants and their products, which have been recognized since ancient times for their germicidal properties and insect repellency potentialities are still being used at south india in the form of Traditional Preventive Conservation Practices (Saraswati Mahal Library in Thanjavur, Tamilnadu India) are mentioned below:

2 Leaves

2.1 Dried leaves from a *Neem tree* (*Azadirachta indica*) are placed between the front and back covers of the book deter book lice (which feed on the fungi attracted to the hygroscopic paste (Dust is hygroscopic in nature and when it is mixed with high humidity, it is transformed into dirt and if this dirt sticks to the surface of the books, it becomes difficult to remove. Dust and dirt are sources of both physical and chemical degradation of the library collection. Dust acts as a nucleus around which

moisture collects and this moisture provides the necessary humidity for the growth of fungus and for chemical reaction, which lead to the formation of acids.) The *Neem leaves* are picked in springtime, when the tree is in full flower and the leaves are a red colour. The natural insecticide contained in the leaves is at its most potent at this point.

2.2 Dried and powdered leaves of *Ashwagandha* (*withania somnifera*) is an ayurvedic medicine of India are also kept in small packets with the paper manuscripts covered in clothes to repel insect attack.

2.3 The mixture of *Neem seeds* (*Azadirachta indica*), *karanja seeds* (*Pongamia glabra*), *Custard apple* (*Annona squamosa*) (Fig. 1), *Nirgundi* (*Vitex negundo*) and *Citronella* (*Cymbopogon nardus*) are known to have repellent, anti-feedant and insecticidal properties for which it could be used in the manuscript libraries. Neem oil contains limonoids, a class of compounds that acts as anti-feedants or growth regulators in insects; they don't kill instantly but wipe out a whole generation of insects by preventing the young ones from maturing and adults from reproducing. Dried Neem leaves and seeds are also useful in keeping away insects. So its use has been widely recognized since ancient times.



Fig. 1 Dried Seeds (*Azadirachta indica*, *Pongamia glabra*, *Annona Squamosal*)
Source – NRLC (National Research Laboratory for Conservation of Cultural Property, Lucknow).

2.4 Dried *Tamakhu* (Tobacco) leaves (scientific name: *Nicotiana tabacum*) also protect the manuscripts against attack of insects. The leaves are generally packed in small cloth bags or spread on the shelves (Fig. 2) where manuscripts are kept. The nicotinic acid of the leaves keeps the insects at bay.



Fig. 2 Dried Tobacco leaves on shelves and in bags.

2.5 *Mint leaves* (Pudina in Hindi) (scientific name: *Mentha*) also repel ants and cockroaches. Dry crushed mint leaves work as ant deterrents. (Chemical constituents: Azulenes; Bitter principle; Carotenes; Choline; Essential oil containing: ■ Alpha- and beta-pinene, Cineole, Jasmone, Isomenthol,

Isomenthone, Ledol, Limonene, Menthofuran, Menthol, Menthone, Menthyl acetate, Neomenthol, Piperitone, Pulegone, Viridiflorol; Flavonoids: Menthoside, Rutin; Rosmarinic acid; Tannins.)

3 Wood

Jackfruit tree (*Artocarpus heterophylla*), *Saal* (*Shorea rubusta*), *Ejar*, *Titasopa* (*Michelia champaca*), *Bonsurn* (*Phoebe goalparensis*) believed to be having insecticidal property.

3.1 Manuscripts made of handmade paper can be found either as bundles and sheaf of folios kept between wooden boards to reduce the rigorous changing of climate and believed to be having insecticidal property.

3.2 *Sandal wood dust* is commonly used by many libraries to ward off insects.

3.3 As the wooden planks attached to the bundles of manuscripts are prone to insect attack, in some libraries the planks are made of *Neem wood* which can ward off termite.

3.4 Traditionally people used book stand in a “V” shaped is known as “Rehal” for holding sacred books such as Bhagwad Geeta, Ramayan (greatest religious epics of the Hindu religion), Kuran (The Kuran is the central religious text of Islam, which Muslims believe to be revelation from God), which is used to support the spine of a book at a particular movement for long time and also as an for insect repellent.



Fig. 3 Traditional book stand “Rehal” V Shaped book Stand.

4 Cloth – Red and Yellow

Wrapping the manuscripts in cloth, protect them from dust, worms and also to a great extent from variation in atmospheric humidity. The research has found that a *white cloth* immersed in turmeric water (made by mixing turmeric with water) (Fig. 4) and dried can act as an effective anti-fungal and insect repellent cloth to wrap the manuscripts.

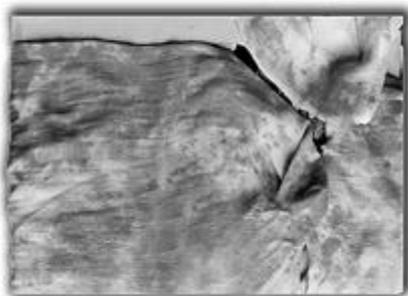


Fig. 4 Turmeric white cloth

Manuscripts are usually wrapped in *Red* (Fig. 5A) or *Yellow* (Fig. 5B) colour clothes. It is believed that red (Vermillion red pigment is inorganic in nature in which Mercuric sulphide is present) is a repelling colour for the insects and yellow colour if, produced by turmeric possess some germicidal power that

repel the insects from getting in contact with the manuscripts. This tradition has a practical basis, as it has been found that insects are repelled by red dyes and pigments)



Fig. 5 A) Red Colour cloth and B) Yellow Colour cloth, Source – NRLC (National Research Laboratory for Conservation of Cultural Property, Lucknow).

5 Light

Exposure of the manuscripts to the tender rays (Intensity of light is low that time) of the rising or setting Sun destroys the traces of growth of insects and micro-organisms 2. Manuscripts are generally exposed to the Sun in the Lunar month of *Bhadra* i. e. in August as the rays of the Sun in that particular month are very favorable (Traditional knowledge). By this the worms are killed under the Sun.

6 Fumigation

Gandhiya Baruah a person who used to fumigate the paper manuscript by burning Gandhak (*Sulphur*) (Fumes from burning sulfur were used as fumigants) for requisite period and regular intervals in closed tight room. The confirmation to this fact can be assured by the presence of a class of people still present in Assam bearing the family name *Gandhiya Baruah*. (Subhra et al. (2009))

7 Folk Art – Ancient traditional Preventive Measure

Traditional practices in rural homes in India are also interesting. Each day the area outside a family home is swept clean and a mixture of mud and cow dung is spread in the areas surrounding the buildings (Fig. 6A). A geometric design is then drawn on the earth with powdered rice flour In *South India*; this is usually left uncoloured (Fig. 6B), whereas in parts of *Northern India* the powder is pigmented. Apart from having great aesthetic merit, these designs have the added advantage of attracting crawling insects (bug, ant spider, leach, Cockroaches , Fleas etc.) towards them and away from the entrance to the home (Fig. 6C). The effectiveness of this technique is enhanced if rice flour is mixed with red ochre (Fig. 6D) and then sprinkled around the doorways and along steps leading to the house. Both the red colour of the powder and the chemical composition (Inorganic; Mercuric sulphide) of the pigment are sufficiently unpalatable to crawling insects that it will prevent them crossing the threshold.



Fig. 6 A) Traditional Knowledge; B, C, D) Folk Art (Cultural of India)

8 Other Herbs and Natural Products

8.1 Along with bundles of manuscripts pieces of *Vasambu*/dried ginger (*Zingiber officinale*) are kept to save these from insect attack.

8.2 People use *Vermillion* or *Kumkum* fruit powder (*Kumkuma* is a powder used for social and religious markings in India. It is either made from turmeric or saffron. The turmeric is dried and powdered with a bit of slaked lime, which turns the rich yellow powder into a red colour) that act as a very good insect repellent. Powdered roots of dried *Sweet Flag* known as *Bacha* (*Acorus calamus*), (Traditional herbal remedies in the preservation of Museum objects in India: SK Bhatia/BV Kharbade, National Research Laboratory for Conservation of cultural property.) filled in small bags are kept in cup-boards of manuscripts which has got very good medicinal value and insecticidal power.

8.3 Powdered *Ajwain* (*Trachyspermum copticum*) also acts as an insect killer and fungicide. *Custard-apple seeds* powder is used to kill the insects that thrive on manuscripts.

8.4 *Black-Cumin* (*Kala Jeera*) which gives a strong aromatic smell also used as an insect repellent. Scattering of the seeds at the manuscript storage keeps away insects.

8.5 *Camphor* (*Karpura*) is commonly used in India to protect valuable documents. Filled in small cloth bags it is kept inside the storage of manuscripts.

9. Conclusion

Traditional Preventive Conservation practices by using herbs, and natural products is not new concept although this transfer from one generation to other but we have to understand the importance of effectiveness of all the traditional practices and have to study in a systematic manner for preservation of Cultural Property. The traditional Preventive methods and indigenous knowledge system of the people have been lost gradually due to lack of interest and the changing social scenario of the environment and region. Therefore, documentation of the same is of great importance not only for the sake of future research but also for saving the indigenous knowledge from disappearing completely.

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He has been recipient of many National awards and has exhibited his work in various solo and group exhibitions in India. He is currently pursuing his PhD on “Study on Painting Style and Materials Applied by Contemporary Artist of Uttar Pradesh and Establishment of a new Methodology for Preventive Conservation”.

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UPCOMING EVENTS

We believe that our work recently is at a turning point. After more than 5 years of existence fresh ideas and forces will be taken in. Furthermore the position of being incorporated into a university of further education gives us exactly the best possible background to perform the second of our big aims, i.e. "dissemination of research results".

So it was a great move to bring the research centre from an association which focused on regional development into a well-established university with very modern and international flair.

The next event will be on 19th July, the "Krems Conention".

Krems Convention on the Need for Continuing Education in Preservation of Written Heritage

Krems Convention aims to define what sort of further education is needed for the best possible safeguarding of our written heritage, in terms of both teaching material and the methods of its delivery. The Convention will place special focus on some of the topics, such as interdisciplinary education, economic aspects and future challenges (to be covered by oral contributions) with subsequent public discussion of these subjects and preparing a written paper. It will provide reference to other conventions and codes already formulating the need for further education in conservation/restoration of written heritage and other related fields without, however, limiting its scope to any specific proposed activities.

Programme of the Convention, 19th July 2015

10:00 – 13:00

Welcome addresses

Speakers and contributions

J. Schiro (Malta): The culture change - experience in economic and practical aspects of further education for conservators

R. Ion (Romania): Further education of conservators and archivists/librarians in science

C. Römer (Austria): What philologists and historians can learn from paper conservators and restorers – an example from Ottoman studies.

R. Padoan (Italy, Netherlands, UK, Germany): The need for exchange and networking in further education in preservation/conservation/restoration of written heritage and how the young generation sees education.

Th. Aigner (Austria): The need for learning and the methods of raising funds.

C. Senfett (Italy): Further education programmes already existing in Europe

E. Moussakova (Bulgaria) UNESCO - the national Memory of the World committees in connection to the planned university course

Proceedings are chaired by P. Engel

13:00 – 14:00 Lunch break

14:00 – 16:00

Discussion on preparing the Convention's final paper

KREMS CONVENTION is sponsored by Druckerei Berger, WD Austria and KRAuP GmbH



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