

The Artwork, source of risks

## Archives

09h00-09h30

**Sandrine ROUSSEL**, UMR Chrono-Environment, CHU Besançon, Department of Mycology and Parasitology et **Marie-Dominique PARCHAS**, Inter-ministerial Service of "Archives de France" – FRANCE  
"Assessment of fungal contamination in 10 archive centers and research into the symptoms experienced by the staff, is there a link?"

The built heritage

09h30-10h00

**Carla BARTOLOMUCCI**, Architect, National Research Council/Institute for construction technology (CNR-ITC) – ITALY (SPEECH CANCELED)  
"Architectural restoration after an earthquake : the example of a 15<sup>th</sup> Century building in l'Aquila (Italy)."

10h00-10h30

**Mahamat Abba OUSMAN**, Assistant in the department of Fine Arts and Heritage –Superior Institute of Sahel/ University of Maroua – CAMEROON (SPEECH CANCELED)  
"Conservation and valorization of two historic monuments located at Goulfey (North Cameroon): challenges and issues."

10h30 – 11h00 Coffee Break

## Paintings

11h00-11h30

**MARTIN-REY Susana**, **JUAN-BALDO José**, **ROBLES-DE LA CRUZ Cristina**, **CASTELL-AGUSTI María**, **CARPIO Irene**, **IACCARINO Antonio**, University Institute of Heritage Restoration (Polytechnic University of Valencia, SPAIN), University of Urbino "Carlo-Bo" (ITALY) – SPAIN/ITALY  
"Restoration of paintings in the 21<sup>st</sup> Century : working in safety, living without risk."

11h30-12h00

**Anaïs AUBRY**, Conservator, **Cathy VIEILLESZAZES**, Teacher-Researcher, Team leader "Engineering of the restoration of natural and cultural heritage" (UMR CNRS IMBE) University of Avignon and Pays de Vaucluse – FRANCE  
"Work at risk? A study of the work "Dual brown/black canvas" by André VALENSI, soaked with Carbonyl® with a view of its conservation-restoration."

12h-14h00 Lunch

The Environment : a special risk

14h00-14h30

**Garba MAKI**, Manager of Cultural Heritage, National Museum of NIGER – NIGER (SPEECH CANCELED)  
"Dust in the Sahel : what are the prospects for the health of museum staff ?"

14h30-15h00

**Maja ZIVKOVIC** and **Natasa KRSTIC**, Conservators, Central Institute for conservation in Belgrade – SERBIA  
"Health and safety at work for conservators in Serbia"

Risk teaching

15h00-15h30

**Eva COHEN GOMEZ**, **Antonia HERNANDEZ CASTANEDA**, **Silvia TORRES RUIZ**, **Pilar CACERES ARMENDARIZ**, Prevention Technician of CNMP (National Institute of health and safety at work) Sevilla – SPAIN  
"Chemical hazards in the conservation profession : are conservators using the appropriate Personal Protective Equipment ?"

15h30-16h00 Coffee Break

16h00-16h30

**Ellen MAGANINI, Conservation and Restoration of Paper, Escola Senai Theobaldo De Nigris – BRAZIL**

"Laboratory-School : standards and recommendations developed and applied in activities involving sustainability and safety within an educational institution where students, employees and visitors circulate."

16h30-17h00

**Nathalie LE DANTEC, Conservator of painting. Head of Lifelong Learning in the restoration department at the National Heritage Institute (INP) and André PICOT, Chemical Engineer, Chemical Toxicology – FRANCE**

"The current chemical risk for conservation-restoration professionals."

17h00-17h30

**Elyas SAFFARAN, Professor (PNU) – IRAN**

"Conservation-Restoration and health : an example of the training of students from the Art studio, arts faculty, PNU (Payame Noor University)."

17h30-18h00

**Mayorie PEGUERO, Independent technician in conservation of graphic and photographic documents – DOMINICAN REPUBLIC**

"Conservation-Restoration of graphic documents. The challenges of learning on the go."

**19h00 Barbecue provided by LC2R Draguignan in the presence of Mr. COLLOMBAT, Senator of the VAR**

“Assessment of fungal contamination in 10 archive centers, and research into the connection with the symptoms experienced by staff”

**Sandrine ROUSSEL<sup>1</sup> et Marie-Dominique PARCHAS<sup>2</sup>**

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#### SUMMARY

Mould that deteriorates documents in archives may have an impact on the health of staff, depending on exposure levels, species and individual factors. The objective of this study was to identify and quantify mould in the archives and if possible, establish a link with the symptoms experienced by staff. In 10 archives centers samples of air, surfaces and materials were taken. The allergic-type symptoms were collected by a self-health questionnaire. *Penicillium chrysogenum*, *Cladosporium* and *Aspergillus versicolor sphaerospermum* were three main isolated samples of fungi. The median concentrations in the air were 30-465 CFU/m<sup>3</sup>. Thus, the archives are not more contaminated than the "standard" housing environments, except for about 3% of stores that must then be managed individually (> 1000 CFU/m<sup>3</sup>). People working in direct contact with mouldy materials have shown an increased risk of eye irritation. This study made it possible to assess the fungal contamination of a little-studied environment and comparison of different sampling methods in the archives.

"Architectural restoration after an earthquake: the example of a 15th Century building in L'Aquila"

**Carla BARTOLOMUCCI**

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#### SUMMARY

The safety aspects of the restoration of buildings damaged by earthquakes are particularly critical. A large number of people are involved in the conservation process: those who visit the site to check accessibility and damage immediately after the earthquake 1, those who plan and carry out immediate "safety measures" work on the main roads in town centers and in buildings, and those who, sometimes a few years later, plan and carry out conservation and reconstruction work. The earthquake in the Abruzzi (Italy) in 2009 offers a number of areas for discussion on the subject; here for example, there is a 15th Century building in the historic centre of L'Aquila, which suffered considerable structural damage during the earthquake, especially in the courtyard and on the staircases, which partially collapsed. Following the collapse of part of the upper

gallery in the monumental courtyard, which consists of a portico with arches and vaults on columns, the collapsed wall needs to be rebuilt and the fragmented columns restored by 'anastylis'. This cannot be done until the sections that could cause collapse have been firmly supported, which is not easy to do due to the instability of the other sections and the poor overall state of conservation.

"The conservation and enhancement of two historic monuments in Goulfey (North Cameroon): challenges and issues"

**Mahamat Abba OUSMAN,**

Assistant in the Department of Fine Arts and Heritage Science – Sahel Higher Institute / Maroua University – CAMEROON

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#### SUMMARY

The town of Goulfey has two outstanding monuments in the vicinity of Lake Chad. These cultural assets inherited from the Sao people have deteriorated significantly over the years. Local communities have taken action to enhance this heritage and introduce a local development policy based on cultural tourism. However, these buildings are built of adobe and, during the wet season, there is a serious conservation problem following large-scale maintenance works. Our aim in this work is to present an inventory of these monuments and the risks linked to the conditions in which local architects intervene. To achieve this, we propose to use the first part to present the symbolic value of the historic sites in the town. Part two will be given over to the inventory and the risks incurred by the workers on these sites. The final part will focus on the financial returns expected from these sites.

"Painting restoration in the 21st Century : working in safety, living without risk"

**Susana MARTIN-REY, José JUAN-BALDO, Cristina ROBLES-DE LA CRUZ, Maria CASTELL-AGUSTI, Irène CARPIO, Antonio IACCARINO**

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#### SUMMARY

Every day, throughout our lives and in our work, our bodies take in chemicals, some of which are very harmful to our short-term and long-term health. In the field of heritage conservation and restoration, (and in particular the treatment of paintings on canvas) there has been a steady increase in recent decades in the use of synthetic acrylic-based polymer substances obtained through the polymerization of different monomers. These types of adhesive mixes are mainly obtained by using carcinogenic solvents, with no consideration of the risk to the restorer's health. To date, there is hardly any research to

develop alternative types of treatments to enable us to work in complete safety in our profession.

"A work at risk ? A study of the work "Dual brown/black canvas" by André VALENSI, soaked with Carbonyl® with a view to its conservation-restoration"

**Anais AUBRY<sup>1</sup> et Cathy VIEILLESZAZES<sup>2</sup>**

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#### SUMMARY

This proposed article stems from the thinking developed in the conservation-restoration dissertation (2012 year-group): we tackle the issue of occupational health and safety, the standards in force and the conservation of a work, then a group of works, that currently present risks due to a substance that is inseparable from the work but legally considered to be toxic : Carbonyl®.

"Dust in the Sahel : what are the prospects for the health of museum staff ?"

**Garba MAKI**

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#### SUMMARY

The question of dust in the countries of the Sahel is a constant issue and also a threat on two levels :

- to collections,
- to museum technicians and staff.

What can we do to establish an occupational safety approach at the Niger National Museum in the face of such a risky working environment ? What initiatives have been developed/can we develop to create a safe health and working environment for the people who work in different ways in this institution ?

"Health and safety at work for conservators in Serbia"

**Maja ZIVKOVIC et Natasa KRSTIC**

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#### SUMMARY

In the Republic of Serbia, occupational Health and safety is the responsibility of Ministry of Labor and Social Policy. The Ministry cooperates with other authorities (ministries responsible for health, environment, mining, etc.), and institutions responsible for health, pension and disability insurance, as well as with social partners, universities, and others. As a focal point of the European Agency for Safety and Health at Work, the Occupational Safety and Health Directorate established national occupational health and safety network in Serbia including representatives of the line ministries, social partners, universities and others. Cultural institutions are subject to the same laws and regulations regarding health and safety. The law demands a risk assessment in cultural institutions done by authorized agencies, and professional staff responsible for all activities related to the field of health and safety at work. Even so, these people are not trained for specific requirements for employees in institutions for protection of cultural heritage, in conservation labs and on-site conservation. The conservator's position involves a number of risks, such as: the risk of injury handling machines and tools, chemical hazard, the risk of falling from heights, etc. Employees in conservation-restoration are often unaware of all the risks they are exposed to at work. The law provides all protective measures for specific hazards, but even though they are regulated by law they are not implemented or controlled by the relevant inspections, and it all comes down to the personal initiative of conservator as an individual. Measures for safe and healthy work are carried out inconsistently and are often improvised. The access to risk assessment in the workplace and work environment is formalized and there is no system of health insurance that covers against injuries at work and occupational diseases, and there is no register for injuries at work and occupational diseases. For example, a good practice in case of Legacy of Peter Lubarda in Belgrade will be explained. This legacy of the important Serbian painter was in a devastated condition (biological contamination, building and interior were mechanically damaged etc.). Conservators from Central Institute in Belgrade, who were responsible for condition assessment and inventory of the legacy of Petar Lubarda, carried out this task with all the necessary measures for safety protection on work.

"Chemical hazards in the conservation profession : are conservators using the appropriate Personal Protective Equipment ?"

**Eva COHEN GOMEZ, Antonia HERNANDEZ CASTANEDA, Silvia TORRES RUIZ, Pilar CACERES ARMENDARIZ**

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#### SUMMARY

Conservation-restoration professionals of cultural heritage may be exposed to several chemicals, most of the time in small quantities, which they mix and select based on their

efficiency. The efficiency of the chemicals for the specific task they are dealing with could lead to a reduction in the time spent on the work and therefore an increase in competitiveness. But this increase in efficiency of the products could be quite the opposite of their toxicity. In some occasions, the mayor risk comes from the materials used in the past, present in the piece of art, which the conservator has to deal with without any possibility in this case of chemical substitution. Many of the restorers are independent workers, doing their work in their own studios or sharing workplace with other independent workers and employees in public or private institutions. Consequently, appropriate general and specific training on occupational risks prevention is needed so they can guarantee their protection as well as that of other people by understanding the risks they may be exposed to. Several seminars have been organized on this topic in Andalucía (Spain) and a poor knowledge on PPE in the collective have been seen despite the fact that PPE is the most-used preventive measure due to economic reasons and difficulties installing other technical measures when work is done 'in situ'. Regarding eye protection, conservators find it especially difficult to distinguish when glasses are appropriate to protect against dust particles or gases. In respirators, the selection of filters and the end point of their ability to retain the chemical agent is a very common query. Regarding protective gloves, the search of a specific protection against chemicals and a high level of dexterity is needed at the same time. In this speech, we will try to deal with the characteristics of PPE, such as gloves, respirators and glasses, needed to provide the appropriate and adequate protection to this sector as well as the correct use. Furthermore, the conservation-restoration professionals must be able to understand the Safety Data Sheet content (SDS) of the chemical and demand complete and clear information concerning REACH Regulations. SDSs prepared according to the regulations (article 32 and Annex II) are a very valuable tool for the adequate selection of a PPE.

"Laboratory-School : Standards and recommendations developed and applied in activities involving sustainability and safety within an educational institution where students, employees and visitors circulate"

**Ellen MAGANINI**

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#### SUMMARY

NUCLEM – Nucleo de Conservação e Restauro Edson Motta – Laboratorio SENAI is a result of ABER – Brazilian Association for Binding and Restoration and SENAI – A formal agreement of the National Service for Industrial Apprenticeships. SENAI is a Graphic Arts Cellulose and Paper School and has an academic graphic art course, scientific laboratories and graphic arts factories. These institutions collaborated to elaborate and offer a regular course in Preservation, Conservation and Restoration of Paper Support, with theoretical and practical classes. Since 1990, we have already developed 25 regular courses, the latest one occurring now with a total of 607 hours. The

team has members in NUCLEM EQA – Team Environmental Quality SENAI, which implements and enforces the standards of environmental preservation and human health and safety, according to the government norms and ISO 9001 and 14001. The activities developed by EQA are :

- The constant training of officers, employees, students and others,
- The guidance of visitors regarding the activities of environmental and personal safety,
- The elaboration and implementation of « Frames of orientation » (physical, chemical, biological and ergonomic map; a kit to use chemical emergencies, waste disposal),
- The implementation folder with MSDS – Information Sheets for Chemical Safety in all sectors that use and/or store chemicals; MSDS – Material Safety Data Sheet,
- The controlled input and output of chemicals,
- The proper storage of chemicals,
- Programs to reduce use of natural resources and studies for replacing environmentally harmful products,
- Proper waste disposal, and the school share responsibility for this.

Therefore, in this study, we aimed to show the actions of NUCLEM for the implementation of the items listed above in the daily activities of conservation, restoration and education, thereby contributing the preservation of the environment through preventing pollution and using resources responsibly.

"Chemical hazards : what do they mean for the conservation-restoration professionals ?"

**Nathalie LE DANTEC<sup>1</sup> and André PICOT<sup>2</sup>**

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<sup>2</sup>Chemical Engineer, Chemical Toxicology. Honorary Research Director of CNRS. French honorary expert to the European Union for setting standards of chemicals in the workplace, SCOEL Committee from 1992 to 2004. President of Toxicology and Chemistry Association (ATC), Paris - FRANCE

#### SUMMARY

Why are conservator now particularly exposed to chemical hazards ?

Since the second half of the twentieth century, the development of the profession has been the result of debates and controversies between the different professionals involved in the conservation of cultural property but also between traditional and modern techniques (?).

The arrival of sciences, the development of the industry, the level of professionalism have greatly promoted the increased use of chemicals while products of working habits (gestures and local) have not followed this trend and for France, the professional's status does not permit the analysis and implementation of prevention in the workplace. The example of polychrome treatment, illustrate this trend, including the extensive use of

organic solvents. The work done with André PICOT on product knowledge and replacing toxic solvents with less toxic solvents will be presented and updated.

"Conservation-Restoration and health : an example of the training of students in the Art studio, arts faculty, PNU (Payame Noor University)"

**Elyas SAFFARAN**

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#### SUMMARY

A new art and architecture faculty was founded a few years ago at Payame Noor University in Iran. The practical and oral training received by the students in the art studio is remarkable, particularly in the field of creation and the preparation of restoration works in different branches of art in several provinces in Iran and includes the health and safety of the students, other individuals and the environment. In this article we present the different stages of the students' training:

- 1/ the circumstances surrounding the history and foundation of the art and architecture faculty,
- 2/ an examination of the development of health and safety training for the students in the art department,
- 3/ putting training into practice, health and safety courses developed in the various art faculty departments.

"Conservation-Restoration of graphic documents. The challenges of learning on the go"

**Mayorie PEGUERO**, Independent technician in conservation of graphic and photographic documents – DOMINICAN REPUBLIC

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#### SUMMARY

The continuous process of education and training on the Restoration and Conservation of graphic documents, (which, in the beginning was seen as ridiculous), emphasizes the realization of day-to-day activities, handling chemicals, reagents, equipment and specialized machinery; without the corresponding knowledge of international regulations or national policies related to the occupational risks or health that conservators face due to possible inappropriate manipulations of toxic substances, improper handling of teams or work in spaces designed for such purposes that have not yet been properly enabled.

The passion that is emphasized through time in the execution of the work to achieve a certain similarity of the documentation showing the original physical state, evidencing numerous times that the implementation of certain products, in certain concentrations and continuous use, is not favourable to those who apply them, and sometimes with the

ignorance that some of these may or may not be discontinued in the market as they are harmful to the environment.

**Speakers have their names underlined in the articles**