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International Committee for Documentation of Cultural Heritage (CIPA)

Editor's view

The CIPA family is saddened by the news that Monsieur Maurice Carbonnell has passed away.

Maurice Carbonnell, CIPA founder and its first President, was a talented and inspiring person. He truly touched the lives of many people, not only in France, but worldwide as he worked to record, document and conserve cultural heritage.

As a founding member and the first CIPA President in 1968, together with his Austrian friend and colleague, Hans Foramitti, he laid the foundation to organise for the first time the heritage documentation community at an international level. He remained our President for twenty more years continuing to guide and inspire our current generation. The CIPA family is poorer after the loss of Maurice Carbonnell. His vision and leading role will always be a beacon for us.

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Tribute to Maurice Carbonnell

Maurice Carbonnell
In memoriam

It is with great dismay I learned of the death of Maurice Carbonnell. I met the founder and true soul of CIPA in its earliest stages, at ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property) in Rome, where he taught photogrammetry at the Architectural Restoration

Courses for many years alongside Hans Foramitti, another founder of CIPA, whom we lost many years ago.

Maurice Carbonnell, for me, was the father and promoter of my profession and demonstrated dedication to the application of new techniques to document cultural heritage. It was through his invitation that I joined the executive committee of CIPA after attending several international meetings he organized and inspired. In those days he was, in a very direct way, the person who sought out other professionals and institutions to foster cooperation and finance the meetings and activities of the Committee. It was through his hard work and the establishment of many international contacts that permitted CIPA to become the prestigious organization it is today.

His participation, as Head of Mission of the Institut Géographique National de France, in the campaigns to save the monuments of Nubia, among other major projects, enabled him to apply photogrammetry to heritage documentation and give it visibility which hitherto did not exist. These campaigns gave him an international prestige and contacts that were the base from which CIPA was born as one of the earliest and most active scientific committees of the then newly created ICOMOS. His relationship with ISPRS led him to link CIPA to this other important international organization as a means of ensuring the continuous infusion of the latest technology.

His tireless enthusiasm for the documentation and protection of cultural heritage along with his always friendly, communicative and open spirit of collaboration made CIPA a vigorous organization of great cordiality.

After many years of fruitful professional activity he retired long ago for a discreet, humble private life. This, combined with his longevity, has obscured his memory during recent years. But those who knew him as a teacher, colleague and friend will always remember him and we all owe Maurice Carbonnell an unpayable debt of gratitude and recognition.

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Maurice Carbonnell, Ingénieur général géographe
(1923 – 2015)

Maurice Carbonnell was born on 20 September 1923 in Paris. With two baccalaureates (mathematics and philosophy), he passed the examination to become a student engineer for cartographic work in 1945 and entered the French *Institut géographique national* (IGN). Appointed to the IGN photogrammetry department in 1947, he took part in many field surveys between 1952 and 1955 (Morocco, Madagascar). In 1954, he was promoted to the highest engineer rank in IGN (*ingénieur géographe*). From 1955 to 1962, he was at the same time head of the overseas photogrammetric works department and photogrammetry professor at the IGN school, *Ecole nationale des sciences geographiques* (ENSG). During that time, he was on a temporary assignment to the French Ministry of Foreign Affairs as a photogrammetry expert for the Vietnamese government, for 14 months beginning in October 1957. From November 1959 to February 1960, he supervised training courses at the “training centre for experts in international technical cooperation”. In 1961, at IGN France, he was involved in various studies concerned with glaciology, photo-interpretation and non-topographic applications. Between 1962 and 1972, he kept on pushing for the use of modern photogrammetric techniques and he attended many congresses, conferences and international symposia (in Moscow, Venice, Brussels, Vienna, Prague, Athens, Rome, Brno, Ottawa, Zurich, Teheran, Helsinki…).

In 1964, during the Venice congress, which brought together architects involved in heritage restoration work, Maurice Carbonnell, already famous for his participation in campaigns to save the Nubian monuments in Egypt, together with his Austrian friend and colleague Hans Foramitti, presented interesting projects involving photogrammetry. The Venice

charter was signed immediately after that congress, and a new international organisation, the International Council on Monuments and Sites (ICOMOS) was founded. In 1968, immediately after the international colloquium on “the applications of photogrammetry to architecture” which was organised in Paris by Carbonnell, *the Comité international de photogrammétrie architecturale* (CIPA), a new scientific committee of ICOMOS established in collaboration with the International Society for Photogrammetry (ISP, was created in order to improve the links between photogrammetry experts and architects. Maurice Carbonnell was elected as first president of CIPA, and he remained president for 20 more years. Some days later, during the ISP Congress in Lausanne (July 1968), the Congress elected Maurice Carbonnell as President of ISP Technical Commission V dealing with non-topographic applications of photogrammetry.

Maurice Carbonnell also contributed to the creation of the French Society for Photogrammetry and Remote Sensing (SFPT) in 1959. He was the SFPT president from 1973 to 1977, and was Editor of its journal for 28 years.

Meanwhile, in IGN France, he was the head of the photogrammetry department in 1968, deputy head of the IGN production department in 1975, deputy head of the aerial activities department in 1976, and head of the aerial activities department in 1977. In 1979, he worked for the managing director as the main contact between IGN and various public or private national services or international scientific societies. Very much involved in teaching from the beginning of his career, Maurice Carbonnell became the head of the *Ecole nationale des sciences géographiques*(ENSG) in January 1981. He retired in 1984.

Maurice Carbonnell was an excellent engineer and communicator. He worked successfully in a number of positions. He was responsible for technical production in the field as well as in the office, in charge of studies and research related to photogrammetry, expert for a foreign government, head of a strategic IGN department, and president of national and international specialised scientific

societies. He also wrote many high quality papers.

Finally, it is worthy of note that Maurice Carbonnell was officer of the French order of academic palms (1973) and *chevalier* (knight) of the French national order of merit (since 1969). He was also awarded the medal of research and technique of the French Academy of Architecture (1976).

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Announcement

CIPA 2015 Report

CIPA2015 symposium was held successfully from August 31 to September 4, 2015, at China University of Technology (CUTe) in Taipei, Taiwan.

On September 5, 2015, CUTe applied for permission to be the organizers of CIPA2015 and received a formal agreement letter from CIPA on June 30, 2013. In addition, CUTe commenced with the preparatory work immediately after confirming the bid during CIPA2013, held in Strasbourg on September 2013.

CUTe was the main host of CIPA2015 symposium which was sponsored by various organizations including: Architectural Institute of Taiwan, Taiwan Geographic Information Society, Taiwan Heritage Society, Chinese Society of Photogrammetry and Remote Sensing, Chinese Association of Museums, Docomomo Taiwan, Bureau of Cultural Heritage, Ministry of Culture, Ministry of Science and Technology, Ministry of Education, Taipei City Government, Kinmen County Government, ArcTron 3D, AICON 3D Systems GmbH, ReTHID Co., Ltd., China, Arch Wood Protection, Interactive Digital Technologies, Strong Engineering Consulting Co., Control Signal Co., Linkfast Co., and others.

During CIPA2015's opening ceremony on August 31, 2015, Taiwan's Minister of Culture Dr. Meng-Qi Hong delivered a welcoming address. Mr. Gustavo Araoz

(Chairman of ICOMOS), Ms. Bonnie Burnham (Madam President of World Monuments Fund (WMF)), Dr. Rohit Jigyasu (President of the ICOMOS Disaster Prevention Committee), and Mr. Scott Lee (CyArk Foundation CEO) all graciously delivered timely and important speeches.

Below are key statistical results of CIPA2015:

1. Among 304 full participants: 203 from abroad in 30 countries and 101 local participants.
2. 24 Sessions and 104 oral presentation papers.
3. 52 Poster papers.
4. 7 Workshops.

Important issues and events:

1. A special award for contribution was bestowed upon Honorary President of CIPA, Mr. Peter Waldhäusl.
2. A CIPA Taipei Declaration was released.
3. A special CIPA workshop was held for 100 senior high school students and the Chinese language version of CIPA 3x3 rules were officially introduced.

The organizers of CIPA2015 sincerely thank all participants for their presence, generous support, and valuable contributions, all of which was absolutely critical to the tremendous success of CIPA2015. We are deeply grateful. Please refer to www.cipa2015.org for follow-up information and we greatly look forward to seeing all of you once again in CIPA2017, Ottawa to be held at Carleton University in Canada.

Thank you.

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CyArk and ICOMOS Announce Joint Initiative for Emergency Recording and Archiving

CIPA, as heritage documentation committee of ICOMOS is pleased to announce the signature of a MOU between ICOMOS and CyArk to launch a

program for the emergency documentation of high risk cultural heritage. The initiative, named Project Anqa for the Arabic word for the Phoenix, intends to deploy teams of international professionals, paired with local professionals to document the at-risk sites in 3D before they are destroyed or altered. CIPA has been appointed by ICOMOS to collaborate actively and review progress in this important endeavour.

Link: http://cyark.org/news/cyark-and-icomos-announce-joint-initiative-for-emergency-recording-and-archiving

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Happy birthday, Notre Dame!

1000 years ago, the first stone of the Werner's cathedral, which preceded the Strasbourg's Cathedral (France) has been erected. The remaining foundations of the destructed Werner's cathedral have been reused for the construction of the current Strasbourg's Cathedral, the France second's tallest cathedral. In the context of the 1000 years celebration of these foundations, a multitude of projects took place in Strasbourg for celebrating this event, like concerts, sound and light shows and other cultural events. Also a series of conferences have been organized. One of them was focused on the excavations realized in the basement, containing the visible part of the foundations and which have already been presented during CIPA 2015. A virtual visit of the basement has been produced in the context of that project and can be seen on the webpage of the INSA Strasbourg: http://www.insa-strasbourg.fr/fr/groupe-page/groupe-page-chapelle-saint-laurent.html

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CIPA Task Group on Ontology

The goals of CIPA target among other the documentation of cultural objects and monuments by the means of different kinds of surveying methodologies and integrating the results with research results of architects, historians, archaeologists or conservation professionals. This information integration can give answers to research questions that would not be attainable within one discipline alone. Ontologies and semantic technologies are the most advanced methodological approach for data integration and are used within big European initiatives like the ARIADNE Infrastructure (Advanced Research Infrastructure for Archaeological Dataset Networking in Europe) or ITN-DCH (Initial Training Network for Digital Cultural Heritage: Projecting our Past to the Future). The CIDOC CRM ontology used in these initiatives is the ISO Standard for Cultural Heritage Documentation and provides the ability to harmonize concepts coming from different disciplines and sources. Arches, an open-source geospatial software system for cultural heritage inventory and management (developed jointly by the Getty Conservation Institute and World Monuments Fund) is an impressive prove of concept to combine ontology with remote sensing information. It manages monument information modeled with the CIDOC CRM and visualizes the data in its geographic context.

The CIPA Task Group on Ontology aims at being an access point for people and institutions interested in the use of ontologies in the field of Cultural Heritage and a place where experiences with the application of ontologies can be shared both on a conceptual and a technical level. One of the goals of the task group is to show on an exemplary use case the integration of data coming from different sources and the benefits of this integration through specific queries. Another goal is to build a tutorial on the creation of ontological data based on the use case. Anybody interested in the topic or collaboration please visit the webpage: http://www.uibk.ac.at/vermessung/cipa_ontology_task_group.html

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Articles & Views

The Destruction of Cultural Memory in Palmyra

In the previous CIPA Newsletter of May 2015, I wrote that when Palmyra – the world heritage site in the oasis of the Syrian Desert – fell into the hands of ISIS/ISIL, the peril of its ruins was looming. This caravan city in an oasis on the Silk Road, famous of its textiles and cultural richness, was another ISIS's target of the caravan cities after Dura Europos and Hatra. Those sites had also flourished in the Roman era and had been earlier captured by ISIS. The three cities had the unique art of their own, fusing Greco-Roman and Parthian styles, expressing their own oriental identity.

Fears for Palmyra were, however, filled with some hope that destruction would not take place in the scale like previously in Hatra, Mosul, Nineveh and Nimrud in Mesopotamia. There were rumours that by saving the ruins the militants wanted to gain support of the locals. Despite the hopes the human atrocities began, taking also place in the ancient theatre of Palmyra as a scene, followed by the destruction of the monuments.

The news that the aged Director emeritus of the Palmyra Museum Khaled al-Asad, was brutally murdered in August became headlines all over in the world media. . I worked years with my archaeological team in the district of Palmyra under al-Asad and his son Waleed, who followed him as a director in 2003. For the world archaeology the death of al-Asad has been the sign of martyrdom for the ruins, and for me a personal loss of a colleague, whose death has touched so near.

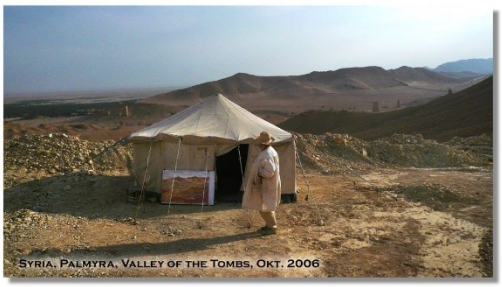
The murder started the large destruction of monuments in Palmyra. Satellite images have revealed the state of the ruins in Palmyra under ISIS. The destruction of the temple of Baal Shamin, the naos of the temple of Bel and the demolish of several tower tombs were observed. What was unique in Palmyra, was the excellent preservation of several structures still standing from antiquity. The temple of Bel that was built around AD 33 was a wondrous place with a huge temenos the wall of which included reused ancient column drums. In the centre was a rectangular naos that has now been blown up. It bore relief decorations and unique Mesopotamian architectural features.

Inside the temenos there was an old guest house in the style of "the Arabian nights". It belonged to the Syrian-Directorate of Antiquities and Museums, where the expeditions, like my own one, stayed and worked. We recorded and studied pottery

and flints, cooked meals and slept there. A speciality was to sit or sleep on the roof in the night and gaze over the beautiful ruins of the city surrounded by date palms. Emperor of Japan had sat there, too, wondering the ancient buildings and their columns. The importance of the previous detailed documentation of the ruins has actualized in the case of the destruction.

Many tower tombs that poked up from the desert along the southwestern entrance to the city had been documented already from by the travellers in the 16th century and from the air in the 1920s had been standing two thousand years but were blown up and exist no more. CIPA is participating to virtually revive the structures by its documentation of the ruins of Palmyra. Prof. Gabriele Fangi and my team have images and models that can be used for studies and eventual virtual reconstruction.

Beside the eventual destruction of portraiture on sarcophagi, one may also wonder what happened to the unique Palmyra mummies that were kept in the ground floor of the museum. The Islamic state does not approve human images, and therefore iconoclasm is exercised, and graven images are destroyed in their hands like in Hatra. Any portraiture that has been preserved from antiquity is worthless and even offensive to them, seen as an idol. For us the portraits, temples and tombs are irreplaceable evidence of the past worlds to understand the culture of Syria and our common heritage. They are part of our shared memory. The preservation of the layers of history should not depend on culture or religion, each one has their own place in history – being scientifically equal. Destroying memory causes dementia for the perception of our cultural past.



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Projects

CIPA Executives at Carleton Establish New NSERC CREATE Heritage Engineering Program

Carleton University researchers Mario Santana (Dept. of Civil Engineering) and Stephen Fai (Azrieli School of Architecture), also members of CIPA have been awarded a $1.65M, five-year, NSERC CREATE grant to establish a new research, training and internship program for undergraduate and graduate students and post-doctoral fellows. Called “Heritage Engineering” the program is funded by the Natural Sciences and Engineering Research Council’s Collaborative Research and Training Experience Program, together with $750,000 in additional funding from Carleton University.

Recent advances in laser imaging and building modeling and simulation tools, and the development of new materials and retrofitting techniques, have created an acute need for engineers and architects with an understanding of built heritage conservation principles, a familiarity with 19th and 20th century building materials and construction techniques, and an appreciation of cultural heritage value. Mario and Steve will lead a team of 11 researchers at Carleton University, Université de Montréal and Université de Québec a Montréal in addressing existing gaps in skills and knowledge and developing new methods and technologies to document, conserve and sustain built heritage. The program is supported by 18 collaborators drawn from federal government, public institutions and private industry who will provide training and internship positions to students.

Seven graduate students are enrolled in the NSERC CREATE Heritage Engineering program for 2015-16. In May 2016 those numbers will rise as the next cohort of students join the program and an undergraduate component is added.

One of the key components of the NSERC CREATE program is an annual one-day Heritage Forum at which members of industry, government and institutions discuss gaps and issues in heritage conservation in order to assist students in selecting

research topics. This years' Forum is being held on October 15, 2015 at Carleton University.

In 2017, CIPA Symposium will be hosted at Carleton and the results of the project will be presented.

For more information: http://cims.carleton.ca

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Events

2016 CHCD Symposium
4th International Symposium on Cultural Heritage Conservation and Digitization
Revive: Heritage Coming Back to Life

Dengfeng
Re-Discovery: Conservation and Development of World Cultural Heritage
2 day Symposium
August 27-28, 2015

The historic monuments of Dengfeng "The Center of Heaven and Earth", is located in Dengfeng City, not far from the capital of Central China's Henan Province. This monument has been classified as a World Cultural Heritage site since 2010. This site is located in Mount Songshan, the preeminent and central sacred mountain in China, also known as Zhongyue. There are eight clusters of historical buildings and sites under the foot of Mount Songshan, covering over 40 square kilometers. These building complexes were constructed over the course of nine dynasties, and through them people can see traces of history; these buildings not only embody the concept of "The Center of Heaven and Earth" in a diverse way, but also reflect the important position of Mount Songshan as a religious center. The historical monuments in Dengfeng accommodates one of the best examples of a venue for worship and scientific, technical and educational activities. This year the CHCD symposium aimed to

explore sustainable conservation and development of world cultural heritage and to rediscover the multicultural value of Dengfeng's historical monuments in "The Center of Heaven and Earth" in a new era full of technical breakthroughs.

Nanhai No. 1
Underwater Heritage
3 day Workshop
October 2015

The Nanhai No. 1 wreck was found at the mouth of the Pearl River, which is the starting point of the Maritime Silk Road. This route once connected China to Europe via the Middle East. The wreck is an important find as it contains between 60-80 thousand pieces of cargo, especially ceramics. The wreck itself is currently covered entirely in silt. The whole wreck was raised out of the water using a unique process. First a bottomless steel container was placed over the wreck site. The lower portion of the container was driven into the seabed. The surrounding area was then dug out and the container was enclosed from the bottom with steel sheets. After this the entire container with the wreck and silt inside was raised. The wreck is exhibited at the Guangdong Maritime Silk Road Museum. The wreck was placed in an aquarium inside the museum and the water temperature and environment is kept to the same level as where the wreck was found. In this way visitors can observe underwater archeology work as archeologist slowly excavate the site. This workshop will explore the challenges faced at underwater archeological dig sites and how to record the site as it changes. This workshop is also a starting point to understand China's underwater cultural heritage.

Jinxi Villages
Historical Architecture
5 day Workshop
November 2015

Jinxi Village in Jiangxi province contains more than ten thousand examples of traditional Chinese architecture situated within an intact historical urban environment. This workshop will focus on how one goes about recording ancient architecture and its

environment. This includes how to go about recording not only the tangible and real objects such as architecture and urban planning, but also the intangible, including the environment and surrounds as well as the culture. This work shop will also consider the challenges of rehabilitation.

Xi'an Museum
Collections
Design Competition and Exhibition
Ju ne 2016

Xi'an is one of the oldest cities in China and was formerly known as Chang'an before the Ming dynasty and was one of four ancient Chinese capitals. It is famous as the starting point for the Silk Route as well as Emperor Qin Shi Huang's Terracotta army. This design competition and exhibition will showcase innovations in virtual reconstruction and the outcome of this innovation in the design of products and objects that revitalize cultural heritage.

Liangzhu Site
Archeological Site
2 day Seminar
April 2016

The Liangzhu Archeological Site is a site that represents prehistoric Chinese civilization and rice agriculture between 3300 BC and 2300 BC. Located on the plains east of the foot of the Tianmu Mountain, it covers an area of 908.89 hectares in Yuhang District, Hangzhou, Zhejiang province. The buffer zone around the Liangzhu Site includes five heritage sites, namely Yaoshan, Tangshan, Xunshan, Huiguanshan and Yaojiadun. This site is one of the most important sites of the Neolithic Age in the lower reaches of the Yangtze River. This seminar will highlight innovations in virtual reconstruction and augmented reality. Seminars will highlight archeological site recordings, digital reconstruction and other topics based on digitization and virtual display.

Sanxingdui Site
Archeological Site
3 day Camp
Oct. 2015

Sanxingdui, located near Chengdu, Sichuan, is a mystery that has yet to be solved. Sanxingdui was a previously unknown Bronze Age culture re-discovered in 1987. The artifacts found at this site are displayed at the Sanxingdui Museum and its key feature is a series of bronze heads with gold foil masks. The three day camp geared towards youths, hopes to stress the concept of heritage from generation to generation. By involving and teaching youth about ancient cultures and civilizations, it is hoped that they will carry the torch for the next generation to ensure these sites continued protection and research.

Yungang Grottoes
Grotto
7 day CIPA-ICOMOS-ISPRS Summer School
2016.8.8-1.7

The Yungang Grottoes, in Datong, Shanxi, comprise of 252 caves and 51,000 statues representing Buddhist cave art of the 5th and 6th century. The cave art at the Yungang Grottoes are representative of the successful fusion of Buddhist religious art from south and central Asia with Chinese cultural traditions. Datong, known as Pingcheng, was an ancient capital of the Northern Wei dynasty. The caves were completed from 460-525. In the Liao dynasty a series of wooden structures were build in front of the caves, which were later destroyed in 1122. The major caves and wooden structures have been conserved since the founding of the People's Republic of China in 1949. This 7 day Summer School will divide participants into small groups to analyze different aspects of the Yungang Grottoes. Each group will have its own theme as well as cultural and technological mentors. In this way groups can spend more time analyzing and understanding the Yungan Grottoes.

Beijing
Revive: Heritage Coming Back to Life
5 day Symposium
August 8-11, 2016

The Symposium in Beijing will take the accumulated experiences of participants from the previous workshops, camps, site visits, workshops and so on, to construct a "Beijing Declaration" (working title),

which will be different from the London Charter, which only covers the basic principles of digitization, and the Seville guidelines, which only talk about virtual archeological sites. This declaration hopes to include a wide range of protection concerns, multi-disciplinary practices and approaches and a variety of styles of cultural heritage digitization.

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Honorary Doctor Degree to Em. Prof. Armin Gruen

The Faculty of Engineering and the School of Rural and Surveying Engineering of the Aristotle University, Greece, in an official inauguration ceremony, they awarded an Honorary Doctor Degree to Em. Prof. Armin Gruen, ETH, Switzerland.

At the ceremony organized on September 21st, 2015, in Thessaloniki, Greece, according to the University Protocol, the Laudatio Speech was delivered by Prof. Petros Patias, and the Honoree Prof. Gruen delivered the Responding Address and the lecture entitled “Everything Moves”.

Congratulating emails have been received by 29 colleagues from 12 countries, while 13 eminent personalities have participated, among them current or past Presidents of International Societies, like the International Society for Photogrammetry and Remote Sensing, International Cartographic Association, International Federation of Surveyors, International Committee for Heritage Documentation, and research Institutes, like FORTH and German Aerospace Center.

“Trends in Photogrammetry” A Colloquium on the occasion of Inaugurating Prof. A. Gruen with the Honorary Doctor Degree On September 22nd, 2015, at the Amphitheater of the School of Rural and Surveying Engineering, a Colloquium took place where Current and Future Trends in Photogrammetry were discussed. Chaired by Petros Patias (AUTH) and Armin Gruen (ETH-AUTH), many interesting

discussions followed the next presentations: “Challenges in monitoring the dynamic Earth System from Low Earth Orbiters” D. Tsoulis (AUTH); “Mapping the World” G. Konecny (University of Hannover); “Recent Scientific Developments in Disaster Risk Management” O. Altan (Istanbul Technical University); “Ensuring our Rapid Response to Change, Ensuring the Surveyor of Tomorrow” Ch. Potsiou (NTUA); “Cartographic and Geoinformatics Challenges in the Start of Big Data Era” M. Konecny (Masaryk University); “Archaeological and architectural applications of Photogrammetry” S. Stylianidis (AUTH); “Hyperspectral fusion and spectral unmixing” E. Baltsavias (ETH); “Airborne real-time monitoring system for urban applications and disaster management support” P. Reinartz (DLR); “Applied Photogrammetry and GIS in a large European Production Environment - Challenges and Advantages” R. Schroth (Blom); “Visual tracking in dynamic scenes” M. Pateraki (FORTH); “3D change detection of forest areas” D. Akca, S. Kocaman; “Underwater photogrammetry for 3D modeling in archaeological and biological applications” A. Capra (Università degli Studi di Modena e Reggio Emilia); “On the unexpected usefulness of theory in modern geodetic problems” Ch. Kotsakis (AUTH); “Spatial optimization: An indispensable tool for development” D. Fotakis, E. Sidiropoulos (AUTH).

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Taipei Declaration

CIPA 25th 2015 International Symposium, Taipei

Taipei Declaration
"Integrated Documentation and Management of Cultural Heritage"

Preamble

The United Nations recognizes on their Universal Sustainable Development Goals (Goal 11) that the world should "strengthen efforts to protect and safeguard the world's cultural and natural heritage", making cultural heritage a key component in the development of mankind. The former Declarations of the ICOMOS General Assembly (Xi-An in 2011, Quebec in 2012, Paris in 2013 and Florence in 2014) have all contributed to issues such as broadening the vision of cultural heritage conservation, re-recognizing the spirit of the place, and making cultural heritage a driver of development. Community participation and communication are two emphases among the "5Cs strategies" derived from the Budapest Declaration and the following document of UNESCO. To obtain understanding between experts and the general public, the above-mentioned concepts and strategies require clear and profound information as well as a prompt and convenient medium.

The overwhelming development of digital technology has become a significant achievement for mankind in the 21st century. It has provided significant assistance in improving the identification, documentation, maintenance, protection and conservation of cultural heritage. Nowadays, cultural conservation almost always relies on digitized media and information systems.

To promote integration, however, we need participation of experts in different fields, especially the communication and mutual understanding among experts, as well as stakeholders and the general public. Two issues need to be stressed:

1. First and foremost is the joint collaboration of professionals in cultural heritage conservation.

   "Filling the Gaps" was announced as major strategy in promoting cultural heritage conservation in the 2004 ICOMOS General Assembly. *Operation Guidelines for the Implementation of the World Heritage Convention* announced in 2005 clearly states the necessity of integration of cultural diversity, tangible and intangible cultural heritage. We have been witnessing quite an impact and achievements which resulted from these actions over the past 10 years but still regrettable incidents recurred. Man-made disasters such as wars or volunteering destructions as well as natural disasters such as earthquakes, tsunami or volcano eruptions cause irrevocable damages to cultural heritage. It shows that gaps of cultural heritage conservation between races, cultures and regions remain and great efforts should be made in filling those gaps.

2. Collaboration and cooperation between experts in cultural heritage and digital technologies are needed.

   An overwhelming amount of information is being collected nowadays, ranging from research, professional works and social media. Significant numbers of conservation projects are using digital technologies in their conservation of cultural heritage resources. Unfortunately, the lack of clear guidelines and knowledge between heritage and digital technologies experts has caused significant miscommunication which results to reluctance in producing relevant and appropriate results. Many UNESCO, ICOMOS, and ICCROM documents as well as important international research projects or international organizations such as ISPRS are intending to provide guidance and prevent or even bridge these gaps between experts.

   CIPA has dedicated much effort towards integrating digital technologies with cultural heritage documentation, conservation and preservation for many years. Following the RECORDIM initiative ("Bridging the gap between users and providers", R. Letellier 2002), the topic of CIPA 2015, was held in Taipei, Taiwan from August 31st to September 4th, 2015, is "filling the gap between professional expertise in cultural heritage and digital technologies". CIPA members have gathered in Taipei, discussed extensively and in depth the issue, before announcing **the Taipei Declaration on "Integrated Documentation and Management of Cultural Heritage".**

Taipei Declaration
"Integrated Documentation and Management of Cultural Heritage"

In order to further promote the integration of the digital technologies with cultural heritage preservation, the 25th CIPA Symposium (CIPA 2015) adopted the *Taipei Declaration on the Integrated Documentation and Management of Cultural Heritage*. The declaration concerns the following four main issues:

1. The importance of documentation and management for cultural heritage.
   - 1.1 Documentation and management is the foundation of all cultural heritage preservation (Venice Charter, 1964). Sufficient documentation will provide cultural heritage professionals with authentic information, including literature, pictorial, audio, video, and digital materials. The archives, in individual or multiple formats may become available for use during different processes of cultural heritage preservation, conservation, and adaptive reuse.
   - 1.2 The scope of documentation and management should meet the needs of not only those of the tangible cultural heritage, but also the intangible cultural heritage. The most appropriate method should be studied and developed by all experts involved in an interdisciplinary way.
   - 1.3 The consequences of the long term deterioration processes, the natural and man-made disasters as well as unavoidable wars are becoming increasingly serious day by day, causing unprecedented damages to cultural heritage. The entire world must face these threats. Adopting various effective strategies for the documentation and management is the best response.
   - 1.4 In addition, being a reservoir for information of cultural heritage records, complete documentation and management could be value-added for diverse use and an important resource for people's participation in cultural heritage and educational promotion.
2. The diversity, interdisciplinarity and pluralism of documentation and management.
   - 2.1 The diverse aspects of cultural heritage should be recognized and fully respected during the process of documentation and archives' management.
   - 2.2 The information related to all possible cultural heritage should be properly understood and responded with appropriate interdisciplinary strategies before any documentation and management process. This includes terrestrial, underground and underwater tangible cultural heritage as well as oral, behavioral, musical, dancing, craftsmanship, and other forms of intangible cultural heritage.
   - 2.3 Cultural and digital experts should practice interdisciplinary cooperation in the most effective way for the benefit of cultural heritage. Based on the needs of documentation and management, they should work with local communities and stakeholders with integrated ideas and methods to develop appropriate strategies and instruments for practices as a whole.
   - 2.4 The advancement of digital and internet technologies results in an avalanche of information in terms of its sources and complication. The research of appropriate management analysis tools and application technologies to handle the above-mentioned information should be encouraged.
3. The compatibility and accessibility of documentation and processing of cultural heritage information.
   - 3.1 Those who participate in the documentation should approach it with open-mindedness. Characteristics of different historical periods, regions, and cultural contexts should be unbiased, respected and recorded.
   - 3.2 Besides substantial objects of tangible cultural heritage, related environment and information of intangible cultural heritage should be valued. Indication of authenticity and integrity should become important reference for documentation.
   - 3.3 The processing and exchange of information recorded by different documentation tools and information formats, especially the digital information, should be more convenient and compatible.
4. The integration and availability of effective and prompt tools and open platforms.
   - 4.1 This issue responds to the ICOMOS "2014 Florence Declaration on Heritage and Landscape as Human Values", especially to article 5.3.
   - 4.2 Besides their specialties, the experts of cultural heritage and digital technologies should cooperate in the documentation and management of cultural heritage, including their record, processing and application.
   - 4.3 The gaps and obstacles of documentation and management caused by the existing differences in culture, knowledge and technology should be removed and common ideas and extensively applicable methods should be re-established.
   - 4.4 In addition to the preservation of the cultural heritage, the experts' research should be able to serve the general public on an open platform where the documentation of cultural heritage could be exchanged at a low-cost and prompt way. This is a goal for every expert in the future to achieve.

XXV CIPA International Symposium, Taipei
4th September, 2015

Taipei Declaration
"Integrated Documentation and Management of Cultural Heritage"

Preamble

The United Nations recognizes on their Universal Sustainable Development Goals (Goal 11) that the world should "strengthen efforts to protect and safeguard the world's cultural and natural heritage", making cultural heritage a key component in the development of mankind. The former Declarations of the ICOMOS General Assembly (Xi-An in 2011, Quebec in 2012, Paris in 2013 and Florence in 2014) have all contributed to issues such as broadening the vision of cultural heritage conservation, re-recognizing the spirit of the place, and making cultural heritage a driver of development. Community participation and communication are two emphases among the "5Cs strategies" derived from the Budapest Declaration and the following document of UNESCO. To obtain understanding between experts and the general public, the above-mentioned concepts and strategies require clear and profound information as well as a prompt and convenient medium.

The overwhelming development of digital technology has become a significant achievement for mankind in the 21st century. It has provided significant assistance in improving the identification, documentation, maintenance, protection and conservation of cultural heritage. Nowadays, cultural conservation almost always relies on digitized media and information systems.

To promote integration, however, we need participation of experts in different fields, especially the communication and mutual understanding among experts, as well as stakeholders and the general public. Two issues need to be stressed:

1. First and foremost is the joint collaboration of professionals in cultural heritage conservation.

   "Filling the Gaps" was announced as major strategy in promoting cultural heritage conservation in the 2004 ICOMOS General Assembly. *Operation Guidelines for the Implementation of the World Heritage Convention* announced in 2005 clearly states the necessity of integration of cultural diversity, tangible and intangible cultural heritage. We have been witnessing quite an impact and achievements which resulted from these actions over the past 10 years but still regrettable incidents recurred. Man-made disasters such as wars or volunteering destructions as well as natural disasters such as earthquakes, tsunami or volcano eruptions cause irrevocable damages to cultural heritage. It shows that gaps of cultural heritage conservation between races, cultures and regions remain and great efforts should be made in filling those gaps.

2. Collaboration and cooperation between experts in cultural heritage and digital technologies are needed.

   An overwhelming amount of information is being collected nowadays, ranging from research, professional works and social media. Significant numbers of conservation projects are using digital technologies in their conservation of cultural heritage resources. Unfortunately, the lack of clear guidelines and knowledge between heritage and digital technologies experts has caused significant miscommunication which results to reluctance in producing relevant and appropriate results. Many UNESCO, ICOMOS, and ICCROM documents as well as important international research projects or international organizations such as ISPRS are intending to provide guidance and prevent or even bridge these gaps between experts.

   CIPA has dedicated much effort towards integrating digital technologies with cultural heritage documentation, conservation and preservation for many years. Following the RECORDIM initiative ("Bridging the gap between users and providers", R. Letellier 2002), the topic of CIPA 2015, was held in Taipei, Taiwan from August 31st to September 4th, 2015, is "filling the gap between professional expertise in cultural heritage and digital technologies". CIPA members have gathered in Taipei, discussed extensively and in depth the issue, before announcing **the Taipei Declaration on "Integrated Documentation and Management of Cultural Heritage".**

Taipei Declaration
"Integrated Documentation and Management of Cultural Heritage"

In order to further promote the integration of the digital technologies with cultural heritage preservation, the 25th CIPA Symposium (CIPA 2015) adopted the *Taipei Declaration on the Integrated Documentation and Management of Cultural Heritage*. The declaration concerns the following four main issues:

1. The importance of documentation and management for cultural heritage.
   - 1.1 Documentation and management is the foundation of all cultural heritage preservation (Venice Charter, 1964). Sufficient documentation will provide cultural heritage professionals with authentic information, including literature, pictorial, audio, video, and digital materials. The archives, in individual or multiple formats may become available for use during different processes of cultural heritage preservation, conservation, and adaptive reuse.
   - 1.2 The scope of documentation and management should meet the needs of not only those of the tangible cultural heritage, but also the intangible cultural heritage. The most appropriate method should be studied and developed by all experts involved in an interdisciplinary way.
   - 1.3 The consequences of the long term deterioration processes, the natural and man-made disasters as well as unavoidable wars are becoming increasingly serious day by day, causing unprecedented damages to cultural heritage. The entire world must face these threats. Adopting various effective strategies for the documentation and management is the best response.
   - 1.4 In addition, being a reservoir for information of cultural heritage records, complete documentation and management could be value-added for diverse use and an important resource for people's participation in cultural heritage and educational promotion.
2. The diversity, interdisciplinarity and pluralism of documentation and management.
   - 2.1 The diverse aspects of cultural heritage should be recognized and fully respected during the process of documentation and archives' management.
   - 2.2 The information related to all possible cultural heritage should be properly understood and responded with appropriate interdisciplinary strategies before any documentation and management process. This includes terrestrial, underground and underwater tangible cultural heritage as well as oral, behavioral, musical, dancing, craftsmanship, and other forms of intangible cultural heritage.
   - 2.3 Cultural and digital experts should practice interdisciplinary cooperation in the most effective way for the benefit of cultural heritage. Based on the needs of documentation and management, they should work with local communities and stakeholders with integrated ideas and methods to develop appropriate strategies and instruments for practices as a whole.
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XXV CIPA International Symposium, Taipei
4th September, 2015

Sustaining Members

IGD

We, the Competence Center for Cultural Heritage Digitization at the Fraunhofer Institute for Computer Graphics Research IGD, would cordially like to invite you to our CultLab3D booth at the Digital Heritage 2015 Conference taking place from September 28 – October 2, 2015 in Granada, Spain.

The Competence Center for Cultural Heritage Digitization will again be present at the DigitalHeritageExpo. As in 2013, we will demonstrate the current development status of our scanning pipeline CultLab3D. *CultLab3D* is specifically designed to automate the entire 3D digitization process thus allowing to scan and archive objects fast and efficiently. Moreover, scanning and lighting technologies are combined to capture the exact geometry, texture, and optical material properties of artifacts to produce highly accurate photo-realistic representations. The unique setup allows to shorten the time needed for digitization to several minutes per artifact instead of hours, as required by conventional 3D scanning methods.

This year, our pipeline will display full automation of the process. We expect an average scanning time of 10 minutes per bust-sized object for the digital acquisition, and thus demonstrate that 3D digitisation of entire collections can be realised in a fast and economic way in a real museum environment.

The research project *CultLab3D* was recognized with the “International Congress and V-MUST.NET“ award at the 2013 Digital Heritage conference in Marseille, France.

For further information please refer to the CultLab3D and Digital Heritage 2015website.

We look forward to your visit and an interesting exchange in Granada.

Sincerely yours,

Pedro Santos and team, Competence Center for Cultural Heritage Digitization

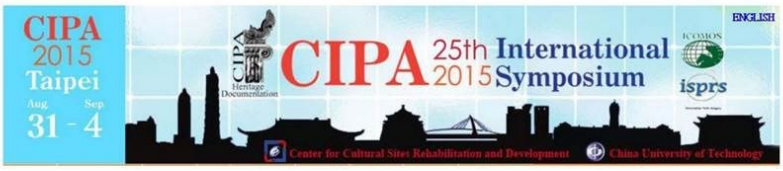
Figure caption:
Fraunhofer IGD's CultLab3D pipeline system at the Liebieghaus Skulpturensammlung. "Apollo Belvedere"(1497/98) by Renaissance sculptor Pier Jacobo Alari Bonacolsi (ca. 1460-1528), called Antico, on the mobile digitisation lab. Liebieghaus Skulpturensammlung's Medieval Hall. Photograph: Norbert Miguletz © Liebieghaus Skulpturensammlung

Breuckmann GmbH has been a sustaining member of CIPA for many years. Founded by Dr. Breuckmann in 1989 the company concentrated on development, design and supply of white light scanning systems. Especially for applications in cultural heritage Breuckmann scanners became synonymous for high-end white light scanners with special features directed towards applications in cultural heritage. Breuckmann cooperated with Aicon 3D Systems GmbH since the late 1990´s. In 2012 the Breuckmann company was acquired by Aicon 3D Systems GmbH one of the world's leading providers of optical 3D metrology. The company, founded in 1990, develops and supplies portable coordinate measuring machines for universal applications as well as specialized optical measuring technology for vehicle testing and tube manufacturing. Through the acquisition of the scanner manufacturer, AICON 3D Systems GmbH has broadened its product range and now oper-ates as full-range supplier of 3D metrology systems. AICON 3D Systems GmbH has completed the acquisition of Breuckmann GmbH through merger with effect from 1 May 2015. The site of the former Breuckmann GmbH in Meersburg on Lake Constance will be continued as "Scanner Innova-tion Center" of AICON 3D Systems GmbH.

震旦集團
AURORA GROUP

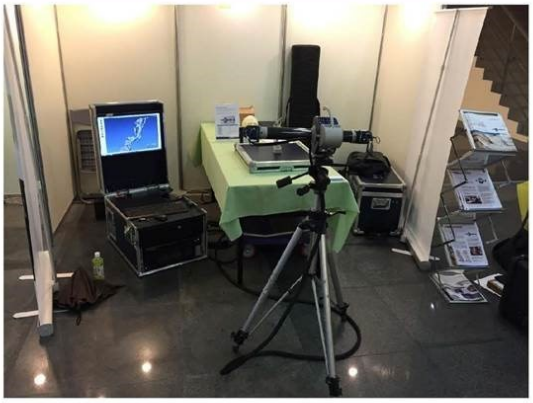
通業技研攜手AICON參加「CIPA 2015」
現場設置Breuckmann掃描設備 展示專業級古物修復技術

通業技研將於2015/8/31(一)-9/4(五)在中國科技大學參加兩年一度的「CIPA 2015」，針對古物保存和掃描技術作專業的示範應用，現場特別擺設Breuckmann掃描設備展示實際的掃描過程，讓與會來賓體驗快速精準的文物掃描復原技術，德國原廠AICON也指派文物修復專家Dr. Dirk Rieke-Zapp前往協助解說，為台灣文化遺產保存盡一份心力。

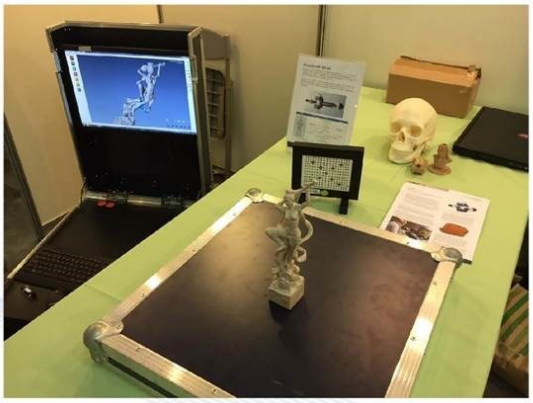


-現場花絮-

▲CIPA現場報到處和形象示意



▲通業技研與AICON原廠攤位



▲現場利用Breuckmann掃描設備進行古物雕像掃描

▲AICON原廠Dr. Dirk Rieke-Zapp現場操作Breuckmann掃描設備

A worldwide network of subsidiaries and sales partners guarantee local access and support for all products. At CIPA 2015 in Taipei, Taiwan, Aicon 3D Systems GmbH was supported by General Inte-gration Technology Co., LTD from Taiwan. (FIGURE right) .

Aicon 3D Systems GmbH is following Breuckmann GmbH as sustaining member of CIPA and is ded-icated to further develop and improve breuckmann scanners, now a company brand name, for in-dustrial applications as well as for bodymetrics and cultural heritage.

Recent developments with importance to cultural heritage users include a new smartSCAN sensor with GigE interface a high-resolution cameras. The smartSCAN is a very modular scanning system that can be adapted to almost any scanning task from small objects like coins or small bones to large objects like statues or cave paintings. It is available with color cameras to allow for simulta-neous acquisition of 3D data and color information. With the OPTOCAT texture mapping module images from the sensor or external images taken with almost any camera can be utilized for tex-turing of 3D models.

Breuckmann/Aicon also take part in the EU funded PRESIOUS project: Predictive digitization, resto-ration and degradation assessment of cultural heritage objects. In this project new alignment al-gorithms were developed in collaboration with an international group of high profile scientists. The new alignment is available in OPTOCAT 2015 release and allows automatic alignment of indi-vidual scans without the need of user interaction or placement of markers on the objects. The new software features makes scanning faster, easier and more robust. Scanning times can be signifi-cantly reduced in most applications.

Since 2013 Aicon offers the Bernd Breuckmann award in honor of Mr. Breuckmann´s engagement for scanning in cultrual heritage. We are convinced that outstanding ideas are not only worthy of first-class technology, but equally so deserve encouragement and support. This is why we have the pleasure to present the 'Bernd Breuckmann Award' to acknowledge and support the best '3D Scanning Research Idea' of a non-profit scanning project in the field of arts and cultural heritage. The 2014 price was awarded to Emma Payne from University College, London. She will investigate classical sculptures and their replica down to the smallest detail: Which differences between the original and the copy are caused naturally, for example, by weathering? Which details did the sculptors of the 19th century add arbitrarily?
(Image from right to left: Werner Bösemann (President of Aicon 3D Systems), Emma Payne (Award winner), Bernd Breuckmann, Kurt Sinnreich (Manager at Scanner Innvoation Center), Dirk Rieke-Zapp, (Business Field Manager for Arts and Culture).

More details about the Breuckmann award can be found here: http://aicon3d.com/breuckmann-scanner/arts-culture/the-bernd-breuckmann-award.html

Art Graphique & Patrimoine

Art Graphique & Patrimoine combines digital technologies and creativity for the development of cultural heritage,

With a rich expertise acquired over 20 years and a thousand references through historical monument survey using lasergrammetry and photogrammetry, AGP is one of the best companies in this field of activity.

AGP is also the french leader in 3D modeling market and augmented reality technology applied to cultural heritage with a first international award (WSA -ONU) for its application "Jumiθges 3D" and the Prize Culture & Innovation for «Avignon 3D»app.

Our team of historians, archaeologists, art historians, architects, surveying engineers, 2D/3D graphic designers, stonecutters, reinvents every day new tools to represent, understand and promote the cultural heritage : archaeological and historical surveys, drawings, orthoimages and orthophotos ,virtual images, augmented reality mobile applications, 360 ° views and webshare, immersive 3D contents, multimedia, BIM as built for cultural heritage.

We offer a unique and tailored solution, simple and effective to every request, whether emanating from institutions, businesses or individuals.

Survey in Mont Saint Michel

Mont Saint Michel pointcloud

Virtual image from antique downtown Poitiers built on archaeological excavations basis

©Art Graphique & Patrimoine

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fokus GmbH Leipzig

fokus GmbH Leipzig is a surveying company which has provided specialist services in architectural photogrammetry, deformation survey for buildings, digital image processing and softwaredevelopment since 1993. The service projects of the fokus GmbH Leipzig are an evidence for the power of this software. Digital rectified images represent an economical alternative to graphic plans. The result of the rectification is a true-to-scale photomap, which connects the photographic documentation of the present state with accurate geometrical object information. Curved surfaces (e.g. of towers, apses and vaults) can be processed to scale into the plane. Objects with more than one curvature direction or a strong deformation (e.g. cupola, apses) are projected on a middle cylinder. In both cases

the geodetic measurement of gage marks, profile lines and further object information takes place on location in addition to the photogrammetric take.

metigo MAP and metigo 3D are developed and used by fokus GmbH Leipzig for several years. metigo MAP offers digital mapping in rectified images/photomaps. These rectifiedimages/photomaps can be created by metigo MAP directly on site or in the office. metigo 3D offers true to scale parametric image rectification, unwrapping and orthophoto projections based on surface models in high accuracy and quality.

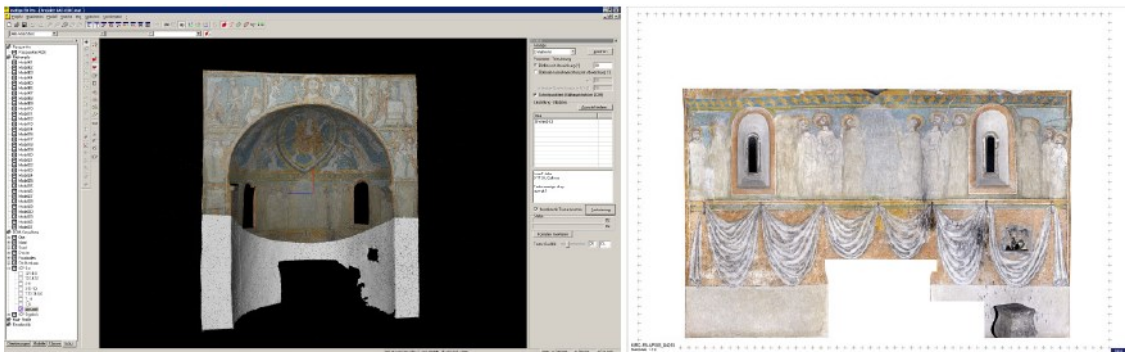

Fig.1: Digital surface model of apse (left) and unwrapping of that apse (right), Castle Katzenstein (Germany)

Fig.2: Image plan of floor processed in scale 1:1, Neues Palais Marble Hall "Mamorsaal", Potsdam (Germany)

The Getty Conservation Institute

The Getty Conservation Institute, and its partner World Monuments Fund, would like to provide CIPA members with a brief update about the Arches heritage inventory and management system, an open source software platform. The Arches project recently posted a short demonstration video about the platform on archesproject.org. The video provides an overview about Arches version 3.0 and its capabilities, and the international standards and new semantic technologies it incorporates. Watch the video here: http://archesproject.org/arches-demo-video/

The Arches team is now preparing an online demo instance of Arches to allow users to directly interact with its data creation and editing functionality. We are also excited to let CIPA members know about the Philippine Heritage Map, a recent online implementation of Arches version 3.0, at: http://www.philippineheritagemap.org. Stay tuned for news about additional Arches implementations that will be launched in the coming months. Learn more at the Arches website at http://archesproject.org.