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CONSERVATION SCIENCE

Papers arising from the ICCROM FORUM on Conservation Science
Rome, 16-18 October 2013

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Summary paper

Conservation science: Reflections and future perspectives

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The ICCROM Forum 2013 on Conservation Science resulted in a series of recommendations for improving the relevance and impact of science within cultural heritage conservation. These recommendations are outlined in this paper. Central to the Forum recommendations is the responsibility of conservation science to provide benefit through research and innovation. This relies on shared strategic vision and good governance, to identify priority needs and align efforts accordingly. To enhance the effectiveness of conservation science research, it is imperative to adopt an approach based on needs assessment, collaboration, and sharing. However, to establish whether desired goals are being met, systematic assessment of what is delivered and how it is used is required. Evaluation tools provide a structured way to identify needs and to measure results, offering a basis for learning and improvement. A new initiative is outlined, launched by ICCROM in follow-up to the Forum, to develop a common framework for needs and outcome assessment for heritage conservation science. To achieve this will require participation and support at multiple levels, and collaboration is called for to continue and sustain this effort.

Keywords: Conservation science, Heritage science, ICCROM, Evaluation methods, Needs assessment

Introduction

Solving problems through scientific inquiry is one of the bedrocks of cultural heritage conservation. Conservation science is a well-established field, nevertheless, new paradigms in science and culture and the expectations of society make it imperative to revisit established approaches, especially in the ways conservation science operates and connects within the heritage sector and beyond. Conservation science has multiple recipients and there are numerous ways, over and above the production of publications addressed to specialized audiences, by which these various communities can engage with, shape and share the outcome of its endeavours.

The ICCROM Forum on conservation science

ICCROM (The International Centre for the Study of the Preservation and Restoration of Cultural Property) is an intergovernmental organization with 134 member states, created in 1956 by UNESCO. Its mandate is to promote the conservation of cultural heritage, moveable and immovable worldwide. Part of ICCROM's role is to identify issues of common concern, and stimulate fundamental debate around

these issues. One of the ways in which it achieves this is through the organization of think-tank meetings known as the ICCROM Fora, which provide a space for discussion on topics of primary concern within the conservation field. For the 2013 Forum, ICCROM detected a critical need for reflection regarding the current role and future directions of science in the field of cultural heritage conservation. Through the collaboration of a consortium of 16 institutional partners from 14 countries who represented different types of heritage conservation, research and training organizations, the ICCROM Forum on Conservation Science took place in Rome in October 2013.

The Forum brought together participants from all regions of the world, who represented a wide variety of professional backgrounds and career stages, and included conservation scientists, educators, conservators, managers, and other conservation professionals. In total, 80 people were selected from the following 27 countries: Australia, Belgium, Brazil, Canada, Chile, China, France, Germany, India, Indonesia, Italy, Japan, Korea, Malaysia, Mexico, New Zealand, Poland, Portugal, Qatar, Senegal, South Africa, Spain, Sweden, Switzerland, The Netherlands, United Kingdom, and the United States.

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The Forum focussed on conservation science issues, rather than a discussion of heritage science and cultural heritage studies in general, and devoted itself to three key themes posed as driving questions:

- (1) How can conservation science be of greater benefit to conservation practice?
- (2) How can conservation science contribute to wider societal priorities?
- (3) How can we build an integrated and impactful future for science in conservation?

More information about the organization of the ICCROM Forum on Conservation Science can be found in Heritage *et al.* (2014).

Findings of the Forum

The Forum concluded that conservation science is an interdisciplinary applied science domain, the primary purpose of which is to support the preservation, understanding, and sustainable use of cultural heritage, with the goal of promoting wider societal engagement with heritage for current and future generations. The scope of the conservation science covers both the preservation of the material aspects of heritage and its intangible values, to which end the natural, social, and formal sciences all have a contribution to make.

The Forum recommendations focus on enhancing the integration, relevance, and impact of the conservation science within the cultural heritage conservation sector, and its capacity to deliver wider societal benefit. These recommendations are elaborated in the papers presented in this volume of *Studies in Conservation* by Brokerhof (2015) on contributing to heritage conservation, Lagnesjö (2015) on contributing to wider societal priorities, Bell (2015) on setting strategic priorities for the sector, and Michalski (2015) on tools for assessing needs and impact. In addition, key issues highlighted included promoting engagement and dialogue with stakeholders beyond the sector such as policy makers and the public as discussed in the papers by Lee (2015) and Lithgow (2015) in this volume, and the role of specific actors within the sector — in particular conservation organizations and higher education institutions — to carry this forward (see the papers by Corbeil (2015) and Golfomitsou (2015), this volume).¹

Looking at the recommendations as a whole, a number of distinct common themes arise, which are summarized in the following two sections. In essence, they relate to the central issue of responsibility — in terms of the ability of the sector to provide benefit through relevant research and innovation, and also being seen as doing so in order to leverage support. This relies in turn upon strategic vision and good governance, which are key to the health of the sector, to

identify priority needs and align efforts accordingly, and also through the monitoring and assessment of outcomes — a view which is also widely endorsed within the wider science sector (see for example European Commission, 2015a).

Strategically positioning the sector

Many of the Forum recommendations relate to strengthening and strategically positioning the conservation science sector. The five key points are summarized as follows.

Defining a shared vision and mission

The Forum recommendations spoke of the need to develop a shared vision and mission statement for the sector to clarify its purpose and role, and place it more clearly within policy and funding frameworks.

Strategy development

Collaboration between producers and users of conservation science knowledge is required to develop research strategies at multiple levels (organizational, national, regional), based on assessment and prioritization of needs, to enhance the relevance and effectiveness of conservation science, and gain leverage with policy makers and funding bodies.

Demonstrating benefit

Demonstrating benefit is a priority. To attract political and financial support, conservation science must provide evidence of the benefits that it delivers. At present, the field lacks basic tools and data to demonstrate its effectiveness.

Influencing policy

Conservation science should seek to play a more active role in policy making processes, and contribute towards long-term sustainable heritage policies. This requires strengthening of relationships with policy makers as well as a greater understanding of policy making processes, including the expected timeframes for the delivery of scientific evidence and advice. Such efforts could be facilitated through political science and governance studies.

Improving communication

There is a need to communicate better and more strategically at different levels within the sector and beyond. Here, in addition to improving communication between heritage professionals, heritage organizations can play a leadership role reaching out to multiple target audiences including policy makers and the public. Moreover, education programmes can contribute through communications skills training to develop the capacity of heritage professionals to share their work with different audiences through multiple dissemination platforms.

¹Further information regarding the Forum and its findings can be accessed via the ICCROM website www.iccrom.org

Delivering better, more relevant science

For conservation science to contribute more effectively to the heritage sector, the following four recommendations were made by the Forum.

Assessing needs and outcomes

In line with the need to demonstrate benefit (as outlined above), a key issue is the adequate assessment of needs and outcomes: to make sure that research focuses on what is relevant, and to assess how well this is being achieved, in terms of the benefits for immediate client communities and beyond. To this end, common evaluation tools are needed to provide a structured means of identifying needs, tracking activities and outputs, and measuring outcomes. Such tools would provide a support for learning and improvement to enhance outcomes and maximize impact.

Seeking sustainable solutions through collaboration and sharing

As in any applied science domain, maintaining the link between research and practice is vital. This is best served through solution-orientated applied research developed in partnership with end-users, which focuses on providing relevant information and tools to sustainably resolve priority challenges in heritage conservation. This requires a participatory approach to research that welcomes and encourages collaboration between different actors within cultural heritage conservation, and which also looks beyond the borders of the sector, to foster interdisciplinary working within research projects. In addition, creative partnerships, including citizen science and crowd-sourcing initiatives, can strengthen and expand the conservation community to become one that is more inclusive, capable and willing to reach out to engage with other communities.

On a practical level, mechanisms for sharing resources and expertise between institutions are much needed to increase efficiency, knowledge exchange, and reduce inequalities. This can be realized by creating international research infrastructures to foster scholarly exchanges, share equipment and experts, provide workshops, and facilitate internships.

Expanding and utilizing knowledge

It is important to recognize the multiplicity of knowledge systems that can contribute to the conservation of cultural heritage. In addition to diverse scientific disciplines, traditional knowledge and craft skills are a vital resource, with the potential to provide improved options for conservation practice that are better suited to context. Recognizing the value of these knowledge systems, and through the application of scientific methods to understand and assess traditional methods and materials, their potential application

within heritage conservation can be optimized and enhanced.

However, knowledge is of little use unless it is effectively disseminated, and so providing ready access to knowledge is vitally important. Information should be shared in locations and formats such that it can be most easily accessed by target audiences, ideally using free, open access platforms. Knowledge infrastructures and interactive teaching tools adapted to audiences and context can help disseminate research findings and promote best practice at multiple levels from local groups to global networks.

Enhancing quality

To ensure delivery of high-quality science that is up to date and relevant to needs, conservation science professionals need to maintain strong links with scientific fields outside the sector. Moreover, outward looking research can lead to the discovery of new paths and applications of science for cultural heritage. Improving methods, minimizing errors in experimental processes and making use of standardized methodologies will also enhance the quality of scientific data.

A broader vision

Professional fields, regardless of whether they are well established or relatively new, either evolve or die out. Past developments in conservation science have followed those in science, cultural heritage, conservation, and beyond. The Forum findings are in line with a key change generally taking place within both the scientific and cultural sectors, which is the recognition that professional fields cannot work in isolation but rather must ally themselves with the rest of society.

In the scientific sector, this is evidenced by increasing numbers of initiatives both national and international which aim to foster communication and engagement between science and the wider society, an example at European level being that of *Science with and for Society* (SWAFS) (European Commission, 2015b). These initiatives are part of a systematic effort to build broad-based relationships through which scientific research goals are aligned to societal priorities. In addition, new terms such as 'citizen science' which have emerged through projects set up to involve the active participation of citizens and local communities in scientific research also evidence this movement.

Within the cultural sector, the role of heritage organizations has also changed to focus more on addressing societal needs. Museums, for example, in addition to being the custodians of cultural heritage through collecting, studying and preserving heritage assets, are now increasing their engagement with local communities, using their collections to educate and strengthen understanding of cultural identities.

Similarly, conservation practice has also evolved from a material-based to a people-centred approach. The demand for increased access to heritage sites and collections, the recognition of new emerging types of heritage and material culture to be preserved, and the need to reduce carbon footprints in museums are but a few examples of issues which indicate how general socio-political changes are driving a revision of the *status quo* within the field, and emphasize the need for conservation science to connect with societal priorities, in order to stay relevant.

A broader vision for conservation science is therefore demanded in terms of the contribution it should seek to make, which requires the field to reach out to other scientific domains in order to achieve this. The Forum recommendations also highlighted the need for the sector to become more strategic and to make evident the benefits that it delivers. This in many ways is in accord with the movement in some parts of the cultural heritage sector towards the establishment of ‘heritage science’ as an applied science domain. The term ‘heritage science’ is becoming increasingly adopted (particularly in Europe and North America) as a means to unify a number of inter-related applied science fields which focus on the study of cultural heritage — such as archaeological science, curatorial science (e.g. technical art history), and conservation science — under one umbrella to create a stronger, more cohesive and readily recognizable field with greater critical mass. Allying these various fields seeks to create a larger sector with shared goals, which can enhance its impact through the development of common strategy to align efforts and resources, and promote collaboration. Moreover the intent is to strategically position heritage science within policy and funding frameworks, and thereby make stronger arguments for investment to build capacity (Bell, 2015).

At the ICCROM Forum on Conservation Science, the term ‘heritage science’ was sometimes used in preference to that of ‘conservation science’, and indeed appears in some of the Forum papers collected in this volume. However, heritage science and conservation science although intrinsically connected are not synonymous terms. Heritage science is not solely limited to preservation issues and represents a larger domain of which conservation science (as it is currently practiced and understood) is a part. That said, while the findings of the Forum specifically related to conservation science, it is worth noting that many are equally applicable to heritage science.

Looking forward

Building upon the experience of the Forum and its recommendations, ICCROM together with the Forum partners have identified two key areas to progress: strategy development and demonstrating benefit.

Strategy development particularly at national and regional level is much needed not only to align efforts and address needs more effectively, but also as a means of creating greater cohesion within the heritage conservation community. In turn, this serves as an important communication tool which allows the community to speak with a stronger more united voice with government and other decision making bodies. However, the development and implementation of strategy requires adequate assessment of needs and available resources. Moreover, to determine if the strategy is working, also requires the evaluation of outcomes — which is directly linked to the issue of demonstrating benefit.

Demonstrating benefit is a high priority in many fields — especially those which rely on effective fundraising and public support for survival — and in recent years there has been increasing activity in this area with regard to culture and cultural heritage (for examples within Europe, see Cultural Heritage Counts for Europe Consortium, 2015; European Commission, 2015c). Conservation science, like many other specialized areas of applied research with limited funding resources, is under increasing pressure to make evident its relevance and delivery of benefit. However, while there is growing recognition of the importance of evaluating outcomes and impact, at the same time there are widespread difficulties in establishing common frameworks, language and methods. In other words, although it is easy to see the merits of the exercise, it remains difficult to apply in practice.

Accordingly, to enhance the relevance, visibility and strategic impact of conservation science, a structured and systematic approach to needs and impact assessment is required. An important advance would be the creation of shared tools for planning and implementing evaluation studies (e.g. survey questionnaires, data sets, and protocols). Common tools would also enable a ‘big data’ approach to the analysis of surveys, opening the way towards the collection of comparative data, benchmarking and the development of indicators for the field, and in turn provide a quantifiable basis to support strategy development.

As a first step, ICCROM has started an interdisciplinary dialogue between professionals from cultural heritage, cultural statistics, and social sciences to gain a clearer picture of evaluation methods used in the cultural heritage sector and other areas to assess needs and outcomes, and explore the possibilities for applying these in a systematic and structured way to heritage conservation science.

To this end, ICCROM is currently undertaking a study to collect data regarding current evaluation practices used in heritage organizations in relation to conservation science, and to identify methods used in other fields (in particular social sciences) which could be of

use. The goal is to work towards building a common tool for needs and outcome assessment for heritage conservation science, which could in turn serve as a model for further initiatives in the wider heritage science field. However, this will require participation and support at multiple levels, from grassroots to governments. We very much hope that the collaborative spirit of the Forum consortium will continue to sustain this effort.

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²Forum consortium partners (in alphabetical order of participating member state):

- (1) Institut Royal du Patrimoine Artistique, Belgium
- (2) Universidade Federal de Minas Gerais-CECOR, Brazil
- (3) Canadian Conservation Institute, Canada
- (4) National Heritage Center of Tsinghua University, China
- (5) Centre de Recherche et de Restauration des Musées de France, France
- (6) National Research Council, Italy
- (7) National Research Institute of Cultural Heritage, Cultural Heritage Administration, Republic of Korea
- (8) Cultural Heritage Agency, the Netherlands
- (9) Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Portugal
- (10) University College London Qatar, UK/Qatar
- (11) AHRC/EPSRC Science and Heritage Programme, UK
- (12) Getty Conservation Institute, USA
- (13) Smithsonian Institution, USA
- (14) National Heritage Board, Sweden
- (15) Bern University of the Arts, Switzerland
- (16) ICCROM