

# **ICOA1175: BETWEEN THE WORKSHOP AND THE MONUMENT: DIGITAL INTERFACES FOR CONSERVATION AT THE BUFFER ZONE OF THE JANTAR MANTAR, JAIPUR**

## **Subtheme 03: Protecting and Interpreting Cultural Heritage in the Age of Digital Empowerment**

**Session 1:** Relevance of Digital Tools & Technology in Documentation, Conservation and Safeguarding  
of Heritage & Community Engagement

**Location:** Silver Oak 2, India Habitat Centre

**Time:** December 13, 2017, 14:00 – 14:15

### **Author: Shikha Jain and Oriel Prizeman**

*Dr Oriel Prizeman is a Senior Lecturer at the Welsh School of architecture, Cardiff University and runs the MSc Sustainable Building Conservation which she started there in 2013. She is a conservation architect trained at the Architectural Association she holds a first degree and PhD from the University of Cambridge.*

**Abstract:** It has been acknowledged by many critical theorists, that the protection of cultural heritage can be the very cause of its gradual extraction from the society from which it emerged, however, in practice there remains urgency in making the most of resources that are available. In 2010, the Jantar Mantar at Jaipur, at last became the first of the five eighteenth century astrological constructions of Jai Singh II to receive world heritage recognition. The problem of balancing the expansion of intellectual and physical accessibility, of making knowledge as well as physical interaction more widely available is critical. In Jaipur, as a part of the “Smart Cities” initiative, the city will incorporate free WiFi zones. The Jantar Mantar has recently been scanned with LIDAR as part of a project by the Department of Telecommunications, Rajasthan together with other monuments in Rajasthan to help them develop content for Augmented Reality apps. This paper seeks to address, in discussion with critical partners in practice, key issues of how digital interfaces may be developed to enhance accessibility and to seize opportunities for development without creating yet another layer of separation. In particular, it focuses on the potential contribution to knowledge creation for trades and crafts skills networks in a city with an exemplary legacy for fabrication.

**Key words:** *city museum, digital accessibility, astronomy, interpretation*

## Background

The potential for digital tools to enhance cultural heritage documentation is progressing at a rapid pace in line with increasingly available technology. Using Stephen Lukes' dimensions of power, Taylor and Gibson have recently analysed the question of democratization through digitization<sup>1</sup>. "Questions regarding the nature and process of digital interaction, in terms of whose heritage is accessible, affect the very issues of democratisation digitisation appears to promote." In 1999 Buchanan explored the inherent bias and "information imperialism" of digital cataloguing and classification<sup>2</sup>. The role of digital documentation is unambiguous in terms of the recording of sites in the context of armed conflict. In its potential to increase valorisation and readings it is well used, CyArk, the Getty Arches and other projects all contribute to that. In terms of enhancing interpretive tools, Sarah Kenterdine, Google Arts and others are rapidly developing extraordinary tools to enhance museumification. In critical terms, the ranking that is inherent in any form of classification has brought digital tools under the spotlight of contested cultural heritage. The question of for whom and by whom such data is owned is raising significant concerns both intellectually and legally, for example, the ownership of CyArk's once applauded scan of Edinburgh Castle is now contested by the Scottish Parliament that at one time stood shoulder to shoulder presenting it. The use of drones both in armed conflict and in recording highlights the very risks of authorization. As armed conflict increasingly focuses on the destruction of cultural heritage as a tool for inciting war, the role of digital recording is expanding prolifically and has moved to centre stage of the research agenda.

Less dramatically and more pragmatically in professional circles, the use of digital scanning in HBIM is being developed. Whilst the sharing of traditional craft skills has long been acknowledged as a key pathway for conservation training, the role of digital media here is less developed. A distinctive aspect of traditional or vernacular building methods across the globe is that material workmanship remains rooted in certain key technologies; the use of timber, lime, earth building and stone etc. Although traditions grew independently in different climates using the same resources, they are often noted as sharing significant outcomes. In terms of repairs to historic buildings, the development of resourceful techniques could also benefit from deeper dialogue. One example of this is the method of repairing detailed carving on church spires using stiff lime putty in the UK that has been developed over the last 30 years into a now well-established practice but which has a much older legacy in Eastern Rajasthan. The opportunity for craftsmen in India to demonstrate their techniques and skills to Conservators working in the West Country of the UK is available through digital exchange.

This paper envisages the development of a prototypical interface for the exchange of craft techniques, it builds upon significant work that has already been done in the city of Jaipur and aims to suggest the feasibility of greater and more widespread exposure in the future. Jaipur was conceived not only as an urban planning model in the early eighteenth century, but also as a city designed to promote trade and commerce. It has flourished as a centre of arts and crafts since then. Historically, the city is said to have housed 'chattis karkhanas' ('36 industries'), the majority of which included crafts working with gemstones, lac jewellery, stone idols, miniature paintings and building crafts with a specified street and

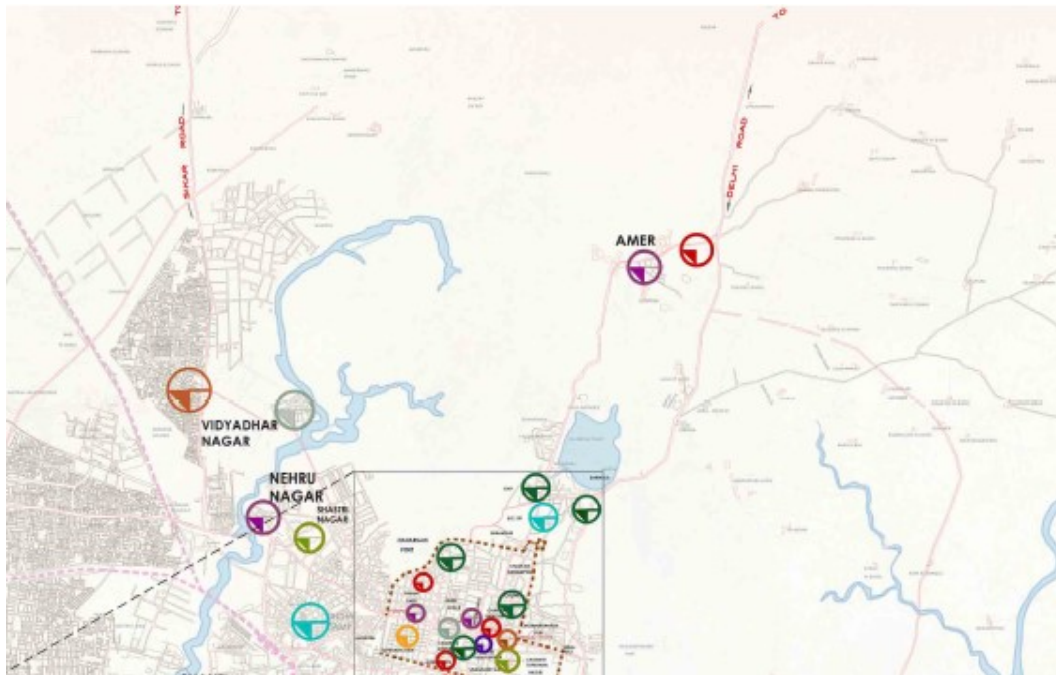
---

<sup>1</sup>(Taylor and Gibson, 2016)

<sup>2</sup>(Buchanan, 1999)

market designed for each craft that continues to date. During the nineteenth century, local crafts received further momentum with British period influences in special exhibitions held in the UK and the establishment of institutions such as the Rajasthan School of Arts and the Albert Hall Museum. While the local traditions of guilds continued, formal institutions for crafts, policies and programmes through Government and private sector activities further contributed to national and international recognition of Jaipur crafts and folk arts in the 20th and 21st centuries. With digital empowerment today and initiatives under the Smart City, the crafts of Jaipur can be observed in a more accessible dimension on a digital platform. Besides which, the inscription of the Jantar Mantar expounds the “coming together in the observation of the Universe”, here we propose a related if more modest coming together of technical readings, contributing to the on-going development of professional, artisan and traditional making skills through knowledge exchange and the provision of enhanced fora for interaction.

The instruments of the Jantar Mantar itself were, in Jai Singh’s words intended to exploit the very limits of master craftsmanship, to be built in “stone and lime of perfect stability.... with the aid of the unerring artificer”<sup>3</sup>– craft employed in support of intellectual endeavour. RG Kaye sought to valorise the Jantar Mantar in a book published by the Archaeological Survey of India in the last year of the First World War. The significance of the Jantar Mantar, as a secular creation was particularly noted in its UNESCO inscription as “an outstanding example of the coming together of observation of the universe, society and beliefs.”<sup>4</sup> Accessibility and diversity, intellectual endeavour and human interaction with the spatial relationship of the world to the stars are at the heart of its designation and its initial purpose.



*Fig.1- Location of Crafts Clusters in Jaipur Walled city and outer areas (Dronah)*

Nevertheless, the issue of accessibility presents numerous logistical issues. While initiatives under the UNESCO Creative city for Jaipur include the promotion of heritage walks linking craftspeople, streets and accessibility at the World Heritage Site of Jantar Mantar, these are simultaneously supported by new

<sup>3</sup>(A. S. D. M, 1919)

<sup>4</sup>(UNESCO, 2010)

apps for understanding the complex astronomical instruments at Jantar Mantar (both walk and the app were launched on World Tourism Day, Sep 2017).

The Jantar Mantar management plan (Fig.1) incorporates the further designation of a “Buffer Zone” surrounding the monument; this is highlighted by UNESCO as a critical device in the city plan of Jaipur<sup>5</sup>. Acknowledging that digital tools for documentation proliferate with seemingly innocuous potential to widen public access, the ethics of “site capture” must be regarded as increasingly important concerns.

At the height of colonial rule, in 1883 a lavishly illustrated exhibition catalogue for the Jeypore Exhibition was used to valorise the craft exports of Jaipur globally. Whilst intricately illustrated, it failed nevertheless, to contribute to the on-going production of knowledge through traditional methods. The documentation itself has been described as “frozen”, not contributing to the evolution of craft practice. It has also been criticised as it posited the retroverted stance of preservation: it suggested that skills were being lost<sup>6</sup>. This is self-evidently untrue as Jaipur has been recognised as UNESCO Creative City of Crafts and Folk Art<sup>7</sup>. This paper suggests the potential to develop a newer catalogue, an interface that makes craft techniques and skills accessible and enables their evolution to be recorded. This craft capital surrounds and emanates from the Jantar Mantar itself, the instruments of which were used to set out the cardinal points of the uniquely geometric city plan; these in turn were marked with temples, modelled upon those built earlier at Amber. A further aim is to investigate this relationship through close analysis in more detail. Material produced here will support a contribution to the wider body of knowledge whose digital interpretation is already underway.



*Fig.2– Kapali Yantra A - Jantar Mantar Jaipur (OP)*

The problem emerges as to how to both pragmatically increase and co-ordinate physical access but also to increase intellectual access to a site. At the same time, the global concern to enhance the capacity for traditional knowledge of methods of making to be retained presents a further challenge. The aim of this project is to develop digital interfaces that respond to these concerns. On the one hand, seeking to further intellectual accessibility whilst allowing provision for increased visitor numbers, and on the other, it aims to develop professional interfaces, contributing to the advancement of conservation practice. Deploying a

---

<sup>5</sup> *ibid.*

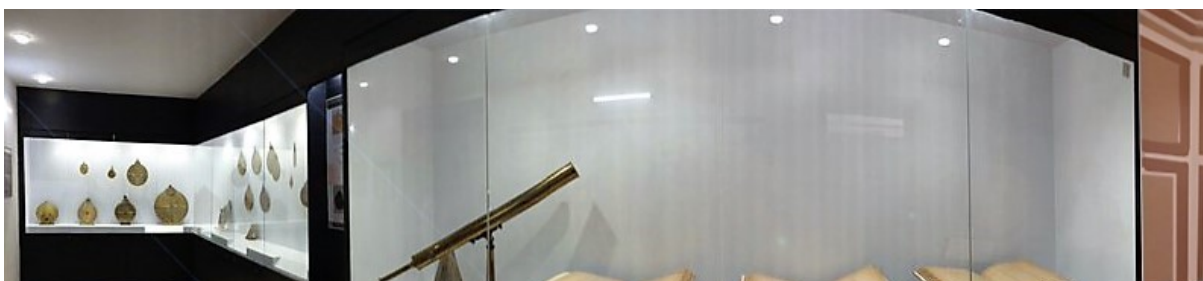
<sup>6</sup>(Tillotson, 2004)

<sup>7</sup>(UNESCO, 2015)

range of methods to build on digital documentation and survey as well as for modelling that has already been undertaken, the project aims to enable collaboration for professional and productive methods associated with traditional building techniques but also to examine the potential for digitisation methods to co-operate in producing new knowledge both in archaeological terms that specifically enhance public access. Building upon collaborative digital model making methods used in the AHRC ICHR funded Ajmer project, researchers from Cardiff University together with organisations in Jaipur, including the authors of the Jantar Mantar Management Plan, the UNESCO inscription and the Craft dossier for Jaipur, propose to build a range of interactive and speculative models which contribute to the development of conservation practice through both local and international knowledge exchange that is co-curated.

Museumification, classification, valorisation and canonisation are all processes in which cultural hierarchies are laid down; as such they are tangled with issues of control and power. Failing to assist in the translation actual practices risks serious consequences in a rapidly changing economic context. The potential for digital cultural heritage to challenge these traditional hierarchies of authority is immense. Not only can the access to privileged material be made universal or at least greatly enlarged but the dialogue can become two-way.

The 1883 catalogue of the Jeypore exhibition as a basis to read presents the ongoing activity of all crafts and building conservation practices was published in the same year in which the “list of Buildings Having Mural Decorations in England” was published. Tillotson has noted the impact of the Jeypore exhibition upon local and national audiences as opposed to European ones: “In short, Jaipur’s Exhibition and Museum, if viewed from the perspectives of the patrons, contributors and audience, tell a story not of British colonial curating, but of an Indian state’s self-fashioning and self-promotion as a commercial centre of the arts – of the deliberate building of a reputation that Jaipur continues to enjoy today”(Tillotson, 2004). With the current LiDAR scanning of historic walled city of Jaipur underway, the potential of digital communication of all layers of information and means of interpretation of cultural heritage of Jaipur will be multifold. These can be suitably exploited by the heritage managers for protection, by craftspeople for promotion, by academicians and researchers for education and by the locals and visitors for a complete experience.



*Fig.3- Interpretation Centre and Display of Jai Singh’s astronomical brass astrolabes, instruments and records including an exhibit of his dialogue on calculations with the Jesuit priest as interpreted from an old painting (Dronah)*



Fig.4- A craftsperson at work and a visually impaired intern conducting Jantar Mantar walk for the differently abled during the Heritage Walk on World Tourism Day, 2017 (Source: Dronah)

## Bibliography

- A. S. D. M n. (1919) The Astronomical Observatories of Jai Singh. By G. R. Kaye, F.R.A.S. Published by the Calcutta Superintendent Printing, India, 1918. Price Rs. 14-12 or 23s. *Journal of the Royal Asiatic Society (New Series)* 51: 427-429.
- Buchanan EA. (1999) An overview of information ethics issues in a world-wide context. *Ethics and Information Technology* 1: 193-201.
- Mercier R. (1997) Sawai Jai Singh and his astronomy. By Virendra Nath Sharma. pp. xvi, 347, front., illus. Delhi, Motilal Banarsidass, 1995. Rs 245. *Journal of the Royal Asiatic Society (Third Series)* 7: 468-470.
- Taylor J and Gibson LK. (2016) Digitisation, digital interaction and social media: embedded barriers to democratic heritage. *International Journal of Heritage Studies*: 1-13.
- Tillotson G. (2004) The Jaipur Exhibition of 1883. *Journal of the Royal Asiatic Society* 14: 111-126.
- UNESCO <http://whc.unesco.org/en/list/1338> (2010) [online] Accessed June 15 2017
- UNEXCO <http://en.unesco.org/creative-cities//node/346> (2015) [online] Accessed June 15 2017

## List of Figures

- Fig.1- Location of Crafts Clusters in Jaipur Walled city and outer areas (Dronah)
- Fig.2- Kapali Yantra A - Jantar Mantar Jaipur (Author)
- Fig.3- Interpretation Centre and Display of Jai Singh's astronomical brass astrolabes, instruments and records including an exhibit of his dialogue on calculations with the Jesuit priest as interpreted from an old painting (Dronah)
- Fig.4- A craftsperson at work and a visually impaired intern conducting Jantar Mantar walk for the differently abled during the Heritage Walk on World Tourism Day, 2017 (Dronah)

# ICOA1175: DE L'ATELIER AU MONUMENT: LES INTERFACES NUMÉRIQUES POUR LA CONSERVATION DE LA ZONE TAMPON DU BIEN JANTAR MANTAR, JAIPUR

## Sous-thème 03: Protéger et interpréter le patrimoine culturel à l'ère de l'autonomisation numérique

**Session 1:** Pertinence des outils numériques et de la technologie dans la documentation, la conservation et la sauvegarde du patrimoine et l'engagement communautaire

**Lieu:** Silver Oak 2, India Habitat Centre

**Date et heure:** 13 Décembre, 2017, 14:00 – 14:15

### Auteur: Shikha Jain et Oriel Prizeman

*Oriel Prizeman est conférencière senior à l'école d'architecture de la Cardiff University où elle dirige la maîtrise en conservation durable de l'architecture (MSc Sustainable Building Conservation) qu'elle a fondée en 2013. Elle est architecte en conservation et a reçu une formation à l'Architectural Association. Elle détient un doctorat de l'University of Cambridge.*

**Résumé:** Il a été reconnu par beaucoup de théoriciens critiques, que la protection du patrimoine culturel peut être la cause même de son extraction graduelle de la société dont il est issu. Dans la pratique professionnelle, toutefois, il est toujours urgent de profiter au maximum des ressources disponibles.

En 2010, Jantar Mantar à Jaipur, est enfin devenu le premier des cinq constructions astrologiques de Jai Singh II du dix-huitième siècle à recevoir le statut de bien du patrimoine mondial. Le problème d'équilibrer l'accroissement de l'accessibilité intellectuelle et physique et de rendre la connaissance aussi bien que l'interaction physique plus largement disponible est critique. À Jaipur, dans le cadre de l'initiative «Smart Cities», la ville créera des zones de wifi gratuit. Jantar Mantar a récemment été numérisé avec LIDAR dans le cadre d'un projet du Département des Télécommunications, Rajasthan de même que d'autres monuments dans Rajasthan afin de développer le contenu pour des applications de réalité augmentée.

Avec des partenaires critiques de la pratique professionnelle, cette présentation abordera les enjeux-clés des interfaces numériques et la manière de les développer dans le but d'en améliorer l'accessibilité sans néanmoins créer encore une autre couche de séparation.

Cette présentation abordera plus particulièrement la contribution potentielle à la création de connaissances au sujet des métiers traditionnels dans une ville possédant un legs exemplaire de la fabrication.

**Mots clés:** musée urbain, accès numérique, astronomie, interprétation