Workshop 4: Contemporary Observatory Networks
Armagh Observatory and Planetarium, 8-9 Sept 2022

Our fourth and final event in the Observatory Networks series will consider how we can create contemporary networks among historic observatories that will help us share ideas and expertise so we can maximise our use and understanding of these important sites of astronomical heritage.

Thursday 8 September

09:15-09:30 – Welcome, introductions

09:30-11:00 **Session 1: Innovative observatory interpretation**

Chair: Toner Stevenson **Format: 3 x 20 min presentations + discussion**

Janet Laidla (Estonia)
The observatory as a site for drama

Marc-Olivier Schatz (Switzerland) (online speaker)
Space and Time: stories from the Neuchâtel Observatory

Andrew Jacob (Australia) (online speaker)
Sydney Observatory – A New Exhibition

11:00-11:30 Coffee break

11:30-13:00 **Session 2: The heritage of observatory libraries and archives**

Chair: Daniel Belteki **Format: 3 x 10 min presentations + discussion**

Pedro Raposo (USA)
The Observatory Library and the Making of Knowledge: a transatlantic and cross-disciplinary perspective

Ileana Chinnici (Italy)
The Vatican Observatory Library: where past meets present

Mauro Gargano (Italy)
Stardust: the best place to share Italian astronomical heritage

13:00-14:00 Lunch

14:00-15:30 **Session 3: Digitisation opportunities for observatory heritage**

Chair: Emily Akkermans **Format: 3 x 20 min presentation + discussion**

Loïc Jeanson (France/Switzerland)
Digitally approaching the French meridian circles, a post-project discussion

David Pantalony (Canada) (online speaker)
Historic data from the Toronto Magnetic Observatory

Rebekah Higgitt (UK)
Tools of Knowledge for Observatory Heritage

15:30-16:00 Coffee break

16:00-17:30 **Session 4: Legendary Telescopes Tour (in-person event)**

An opportunity for delegates to view the historic telescopes onsite

19:00-22:30 Conference dinner at Uluru, 3-5 Market Street, Armagh, BT61 7BW
+ 44 (0)28 3751 8051

Friday 9 September

09:30-11:00 **Session 5: Focus on Armagh Observatory and Planetarium (AOP)**

Chair: Michael Burton **Format: 5 x 10 min presentations + questions**

Our venue hosts will share their current projects and inspiring ideas:

- Michael Burton – Armagh Observatory: a brief introduction
- Aaron Black – The landscape and architecture of Armagh Observatory, 1790-1916
- Heather Alexander - Exhibition interpretation of Armagh Observatory in the Planetarium display space
- Rok Nežič - Blending History and Science for the Public
- Matthew McMahon - Oral History at Armagh Observatory and Planetarium

11:00-11:30 Coffee break

11:30-13:00 **Session 6: Collections at Armagh Observatory (in-person event)**

An opportunity for delegates to view the instrument collections

13:00-14:00 Lunch

14:00-15:30 **Session 7: Sustaining historic instruments and observatory environments**

Chair: Louise Devoy **Format: 5 x 10 min presentations followed by discussion**

Michael Burton (UK)
UNESCO aspirations at Armagh Observatory

Rémi Cabanac (France)
Pic du Midi observatory: a successful story of patrimony and science

Sandra Voss (UK)
The Challenges and Rewards of Public Observing using Historic Telescopes

Sam Hale (USA – online speaker)
The Alliance of Historic Observatories

John Briggs (USA – online speaker)
Challenges in Historic Observatory Preservation

15:30-16:00 Coffee break

16:00-17:00 Session 8: Conclusion and next steps

Chair: Rebekah Higgitt **Format: Open discussion led by chair**

Comments by the Advisory Group and Project Team

Open invitation for comments and suggestions by all delegates

End of workshop*

Abstracts

Session 1: Innovative observatory interpretation

The observatory as a site for drama
Janet Laidla, University of Tartu, Estonia

The observatory has for a long time been a space where the non-professional visitor expects to see something spectacular. According to a local legend it was during a dinner party at Dorpat (Tartu) Observatory when the astronomer Ernst Hartwig first saw a supernova (SN 1885A) in the Andromeda galaxy. From dinner parties to open observation nights, observatories have invited people to both see the wonders of the universe and hear the stories from classical mythology to recent scientific discoveries.

It is then hardly surprising that an observatory could be chosen as a location for a play. In my presentation I am introducing Tartu Old Observatory as the location for the play "Julie and the stars" (2016-2017). I will explain why the location was chosen, the role the Observatory played in the preparation for the event and how this play was received by the public.

Space and Time: stories from the Neuchâtel Observatory
Marc-Olivier Schatz, Independent Graphic Designer & Member of the EspaceTemps association

Space and Time: stories from the Neuchâtel Observatory is an exhibition project conceived during my master design studies at the Bern University of the Arts (2018-2020), to help visitors discover a unique and forgotten Swiss scientific heritage. The Neuchâtel Observatory was a world reference for the determination and distribution of time for almost 150 years (1858-2007). Its history is deeply connected to that of the Jura watchmaking industry, which still today plays a fundamental role in the reputation of Swiss watches.

The exhibition project is designed for the Hirsch Pavilion, an Art Nouveau building, which is part of the Observatory site. It is led by the EspaceTemps association, which I am a member of. In contrast to exhibition designs and storytelling currently offered by watchmaking museums, especially in the Neuchâtel region, this immersive experience aims to inspire visitors by taking them on a journey from the infinitely large, the Universe, to the infinitely small, atoms. Sharing scientific questionings with the public, it allows visitors to discover the place where astronomical research was carried out and the scientific instruments of the Observatory in their original context.
https://spacetime.moschatz.com

Sydney Observatory – A New Exhibition
Andrew Jacob, Sydney Observatory, Powerhouse Museum

Sydney Observatory was built in 1858 to provide a time service, assist with a survey of NSW, demonstrate science in practice and enhance the reputation of NSW on the world stage. As a colonial government observatory its role was more for the good of the economy and the state than astronomical research. Its main contribution to science was completing about 10% of the Astrographic Catalogue project.

In 1982 Sydney Observatory opened as a Public Observatory & Museum. The most recent exhibition dates largely from 1997. The site is presently closed, partly due to Covid, partly for comprehensive maintenance. It is stripped back to floorboards and walls, it is a blank sheet

– what exhibition do we install in a post-covid, post-colonial world. How do we integrate and balance site history, contemporary astronomy, night viewing (364 days per year), and expectations of the public and the Museum?

Session 2: The heritage of observatory libraries and archives

The Observatory Library and the Making of Knowledge: a transatlantic and cross-disciplinary perspective

Pedro M. P. Raposo, The Academy of Natural Sciences of Drexel University, Philadelphia

This presentation will address two interrelated questions: what roles have libraries played in astronomical observatories, and how do those roles relate to the place, function, and status of libraries in other spaces of knowledge production?

In order to launch a broader discussion on these issues, I will briefly compare the early history of the libraries of two very distinct institutions (one that I am currently affiliated with, and another one on which history I have done extensive research): the Academy of Natural Sciences of Drexel University in Philadelphia, originally established in 1812 and widely regarded as the oldest active natural history museum in the Americas; and the Astronomical Observatory of Lisbon, built between 1861 and 1878 according to a project strongly inspired by the Pulkovo Observatory in Russia.

I will approach the two libraries focusing on the following points: 1) their formation and development; 2) the nature and scope of their holdings, and how they reflect the aspirations and undertakings embraced by each institution; 3) how they were managed and used, and by who; 4) their connection with other practices of data and information management, including the maintenance of an observing archive at the Observatory, and the development of specimen collections at the Academy; finally, 5) the role played by each of the two libraries in building the identity and credibility of their respective host institutions and communities of practitioners.

The Vatican Observatory Library: where past meets present

Ileana Chinnici, INAF Osservatorio Astronomico di Palermo & Vatican Observatory

After a short presentation on the history of the Vatican Observatory (VO), a video will be shown, highlighting interviews with Guy Consolmagno and Giuseppe Koch, respectively director and librarian of the Vatican Observatory.

They will provide some points of discussion on how the role and purpose of the observatory libraries has changed over time and on the challenges that the heritage of observatory libraries and archives pose today.

A short virtual tour of the VO library will be made during the interviews. The video will be prepared in collaboration with Robert Macke, from the Vatican Observatory.

Stardust: the best place to share Italian astronomical heritage

Mauro Gargano, INAF - Astronomical Observatory of Capodimonte, Naples
University of Naples Federico II

The astronomical observatories are the oldest Italian research institutions, which are today part of the National Institute for Astrophysics (INAF), continuing to study astronomy and astrophysics from earth and space. In addition to research activities, INAF carries out programs to preserve and valorise its historical heritage and disseminate astronomical knowledge in schools and society.

INAF's ancient heritage consists of about 7000 rare books published from 1470 to 1830, over three million archival documents, and a thousand scientific instruments ranging from the astrolabe dated 1096 to items of the 1900s first half. They are milestones in the history of astronomy, from pre-Galilean observations to the present day.

Since 2012, *Polvere di Stelle* (Stardust) has been the INAF web portal to enhance and raise awareness of one of the most valuable astronomical heritage in the world. In a single virtual space, Stardust offers users specific forms to search any collection and a combined module to jointly query books, archival documents, manuscripts, artworks, scientific instruments, photographs, and biographies of astronomers. Likewise, a digital showcase for over 500 valuable books plays a relevant role in Stardust, allowing users to get in touch with the most significant pages for the development of astronomy.

Session 3: Digitisation opportunities for observatory heritage

Digitally approaching the French meridian circles, a post-project discussion

Loïc Jeanson, Post-doc, Institut National d'Histoire de l'Art
Premier assistant, Faculté des Lettres, Université de Lausanne

Between 2016 and 2020, a project gathered researchers from various fields to work on cultural heritage modelling and study. Funded by the national research agency, it was designed to grasp 3 types of heritage object strongly related to history of science and technology, among which the series of meridian telescopes in the French observatories has been particularly fertile. This presentation, focussing on the series of meridian circles, aims towards a short reflexive scientific review of the project: between the diverse objectives and the time and financial resources, it has been a rare opportunity to explore and experiment with innovative ways of documenting, studying and sharing scientific heritage, through its specificities. The digitization of the instruments has created new opportunities, as much as it has raised practical questions. The multidimensional fragile equilibrium between academic research and the operational needs of institutions, and the lessons we learned working in this interdisciplinary corner, will also be discussed.

Historic data from the Toronto Magnetic Observatory

David Pantalony, Ingenium - Canada's Museums of Science and Innovation

The Ottawa Geomagnetic Laboratory houses the original data from the Toronto Magnetic and Meteorological Observatory dating back to 1839. Scientists at the Ottawa site have embarked on a massive digitization of this data -- they see scientific value in extending their data back into the 19th century (e.g. for Space Weather and Climate studies). The project entails a unique collaboration between scientists, mathematicians, digital humanities scholars, and historians. The latter will be essential for providing context around practice and use of the instruments. Ingenium houses some of the original instruments for these studies. We also hope to collaborate with other keepers of these kinds of data and instruments around the world.

Tools of Knowledge for Observatory Heritage

Rebekah Higgitt, National Museums Scotland, UK

In this paper I will introduce and share progress on the AHRC-funded digital humanities project, Tools of Knowledge: Modelling the Creative Communities of the Scientific Instrument Trade, 1550-1914. Based at the University of Cambridge, University of Sussex and National Museums Scotland, and in partnership with Royal Museums Greenwich and the Science Museum, this project is seeking to remodel and augment an existing database of British and Irish scientific instrument makers, and to add to, explore and visualise the data through a number of case studies. One of these considers observatories as nodes in networks of

instruments, instrument makers and users. I will discuss how the project's legacy database speaks to and can support research relating to observatory heritage; the work we are undertaking to develop this further; and the potential of digital approaches to support research and create connections between observatory sites and collections.

****Sessions 4: in person event at Armagh; no abstracts required****

Session 5: Focus on Armagh

Armagh Observatory: a brief introduction
Michael Burton, Director, Armagh Observatory and Planetarium, UK

Armagh Observatory was founded in 1790 and has been in continuous use for astronomical research ever since, the longest in the UK and Ireland. Built around the then innovative concept of a rotating dome containing a telescope mounted on a deep pier that was isolated from the observatory building, Armagh was at the forefront of astronomy through the 19th century. Six generations of telescopes are housed within, mostly still in situ, as they were when used for pioneering science in their day. Today Armagh Observatory remains an active research institution, and in addition has the Armagh Planetarium alongside delivering education and outreach.

The landscape and architecture of Armagh Observatory, 1790-1916
Aaron Black, PhD student, Queen's University Belfast/ Armagh Observatory and Planetarium

Armagh Observatory is located on one of the traditional seven hills of Armagh, a relative stone's throw from the historic centre of the city. The importance of place and landscape to the science conducted at the Observatory is evidenced by its position in the wider regional landscape, the innovative architecture of its building, the situation of several historic astronomical instruments, and its ecclesiastical and civic connections to the City of Armagh. This talk will discuss the site of the Observatory grounds, alongside the construction and evolution of its building, with the aim of addressing the question of how new scientific concepts about the Earth and the Universe were theorised, tested and negotiated within its spaces. Also, the hybrid nature of the Observatory building as a space that both constrained and enabled scientific practice, while also acting as a family residence, a social hub, and a site of religious worship will be considered.

Exhibition interpretation of Armagh Observatory in the Planetarium display space
Heather Alexander, Senior Education Officer, Armagh Observatory and Planetarium, UK

This talk will focus on the interpretation of the history of the Armagh Observatory in the Planetarium display space. The Armagh Planetarium is the first point of contact for visitors to AOP. It opened in 1968 and as decades passed, the building expanded to include exhibition space. This space was used to highlight the research of the Observatory and its history. Over the years this history became lost as priorities shifted to focus more on space exploration and industry. When the Armagh Observatory and Planetarium merged into one organisation in 2016, priorities changed again, and the history of the Observatory came back into focus. During a recent exhibition redesign, the priority was placed on bringing back this lost history to the public in a friendly, yet informative way. The constrained exhibition of the 1970s was brought into the 2020s, with more room to expand and to show how the Observatory shaped modern astronomy.

Blending History and Science for the Public
Rok Nežič, Tours & Outreach Officer, Armagh Observatory and Planetarium, UK

History and science of Armagh Observatory has been an underutilised resource for public science outreach at Armagh Observatory and Planetarium. To fill that gap, a guided tour of the Observatory was created in 2021. This talk will discuss some of the challenges which had to be overcome for the creation and delivery of the tour, and some new opportunities which were created. The logistical challenges included access to resources, scheduling and pricing, accessibility requirements, and more. The content of the tour also had to be thought-out carefully: a curated selection of notable people, events, and objects had to be woven into a clear story which fulfils the visitors' interest in astronomy and history. The tour allows us to showcase the rich history of the Observatory to a broad audience and is the starting point for more in-depth discussions about history and astronomy, and for new bespoke offerings.

Oral History at Armagh Observatory and Planetarium
Matthew McMahon, Museum Collections Officer, Armagh Observatory and Planetarium, UK

Armagh Observatory and Planetarium began to record interviews with former staff, students, and associates in 2020. The project is an open-ended endeavor to document the story of Armagh Observatory and Planetarium in the twentieth and twenty first centuries. It is to be consulted by researchers, students and shed light on the people that have come and gone over the decades.

The project has consisted of a mix of face to face and digital interviews and has been developed in accordance with best practice. This talk will explore the origins of the project and the inspiration behind it. We will then hear how the questions that were posed to the interviewee's matter and the value of the project. We will close by examining some of the lessons that Armagh Observatory and Planetarium has learned, and how other organizations may wish to pursue their own projects.

****Session 6: in person event at Armagh; no abstracts required****

Session 7: Sustaining historic instruments and observatory environments

Chair: Louise Devoy **Format: 5 x 10 mins presentations + discussion**

UNESCO aspirations at Armagh Observatory
Michael Burton, Director, Armagh Observatory and Planetarium, UK

Together with Dunsink Observatory in Dublin (1785) and Birr in Co. Offaly (home of the "Leviathan"), the three observatories of Armagh, Birr and Dunsink aspire to UNESCO World Heritage nomination. We will present a short video outlining our aspirations and the rationale behind it.

Pic du Midi observatory: a successful story of patrimony and science
Rémi CABANAC, Univ. de Toulouse Paul Sabatier, CNRS, OMP/IRAP

Pic du Midi Observatory has been a science site for the last 150 years, witness and participant to many endeavors of the XXth century science (meteorology, solar observations, planetary observations, cosmic rays, particle physics, atmospheric sciences, climate change studies, stellar astronomy). With Pic 2000 project, Pic du Midi is also inventing creative methods to mix patrimony protection, public outreach, and science funding to continue a peaceful use of the summit for present and future human adventure in science. This success story is made possible by the financial support of local, regional and national governments over the past 20 years. This talk will overview how Pic du Midi is managed in 2022 with its public and science managerial partnership working independently but tightly connected.

The Challenges and Rewards of Public Observing using Historic Telescopes
Sandra Voss, The Observatory Science Centre, Herstmonceux, UK

The Observatory Science Centre is the former home of the Royal Greenwich Observatory at Herstmonceux. It is situated among the domes of the equatorial group of telescopes. Following the observatory's closure in 1990 Science Projects Ltd began leasing the buildings from Herstmonceux Castle and opened the Science Centre in 1995. A major restoration programme of the domes and historic telescopes began after successfully obtaining a grant from the Heritage Lottery Fund in 2000. Work was completed by 2004. All six domes were restored and three of the telescopes are now in working order and used for visual observing.

While not involved in research any more the observatory plays an important role in bringing astronomy to the general public, school students and specialist groups. This talk will address how the Science Centre incorporates astronomy in its day to day activities and the challenges of maintaining an historic observatory for public programming.

The Alliance of Historic Observatories
Sam D. Hale, Mount Wilson Institute, USA

The Alliance of Historic Observatories was conceived at a meeting at Mount Wilson in June of 2019. The event brought together people and institutions concerned with "legacy observatories," and the proposal was that a new organization form to serve the needs of such institutions. The meeting resulted in considerable brainstorming, taking advantage of initial considerations written down by a small group of senior astronomers who had gathered informally at a prior meeting of the American Astronomical Society. Discussions followed in a later gathering at Palomar Observatory. While the pandemic slowed progress, our organizational effort continues, and the next meeting of the founders will be at Lowell Observatory in November 2022. All of us interested in preserving astronomical heritage and exploiting it for education and engagement can be pleased that development of the Alliance of Historic Observatories will continue.

Challenges in Historic Observatory Preservation
John W. Briggs, Alliance of Historic Observatories, USA

Many institutions and observatory facilities face similar challenges in preservation. Part of the problem is that the maintenance of historic observatories and their instruments is becoming something of a "lost art" as astronomy evolves. This presentation will briefly outline a number of common problems I've observed in my career as an observatory and instrumentation engineer living and working at variety of observatories. We can learn from regrettable prior situations. But we can also happily anticipate more fully informed decision making, thanks to new channels of communication allowed by conferences like this one and by a general increasing awareness that historical preservation in astronomy is an important consideration.

*****End of abstracts*****