

**ANNUAL ACTIVITY REPORT OF COMMISSION C4**  
**“WORLD HERITAGE AND ASTRONOMY”**  
**YEAR 2022**

**ORGANISING COMMITTEE**

**President:** Juan Antonio Belmonte Avilés (Spain)

**Vice President and President-Elect:** Michael Burton (UK)

**Immediate Past President:** Gudrun Wolfschmidt (Germany)

**Secretary:** Lydia Sonia Cidale (Argentina)

**Vocals:**

- Premana W. Premadi (Indonesia)
- Areg M. Mickaelian (Armenia)
- César González-García (Spain)
- Ian Glass (South Africa)

In the last year, a series of relevant facts happened related to the potential activities of C.C4, in which members of IAU C.C4 developed a series of activities. In the following paragraphs, a comprehensive but certainly incomplete series of these items are reflected.

One of the most important events affecting the dynamics of Commission C4 was the black swan caused by the Russian invasion of Ukraine in February. In June 2022, the meeting of the UNESCO World Heritage Scientific Council was to be held in the city of Kazan, in the Autonomous Republic of Tatarstan, under the Presidency of the Russian Federation. However, this meeting was postponed sine die as a result of this unfortunate circumstance.

The immediate consequence of this is that powerful candidatures with an important component from the point of view of cultural astronomy saw the decision on their possible nomination postponed. The candidature: "Talayotic Menorca: a cyclopean island odyssey" is among those affected. This is a proposal where the role of astronomy in the orientation of the monuments of the island, based on the original work of the late Michael Hoskin, is one of the fundamental attributes to justify the Outstanding Universal Value of the property. The same can be argued for other proposals that should have been evaluated for eventual submission in 2023 that were also affected by the delays suffered in all the processes. A special case is the beautiful Eise Eisinga Planetarium in the Dutch town of Franeker.

It seems that the situation has been unblocked after the resignation of the Russian Presidency and the next meeting of the Heritage Council will be held in Riyadh (Saudi Arabia) in the coming months, inshallah. We hope that some of the proposals supported by C.C4 will be successful and we may announce good news in our next report.

As reported by Michael Burton, C.C4 VP, ICAHM – the International Committee of Archaeological Heritage Management (who report to UNESCO's International Council on Monuments and Sites (ICOMOS)) – met in Dublin at the Royal Irish Academy in December 2022 to review the World Heritage programme, which is now 50 years old. They were also considering how the programme should be conducted in the future, building on the successes and drawing lessons from the failures of the past half century. Undoubtedly there will be implications for future nominations from the astronomy community when seeking World Heritage listing. While Outstanding Universal Value, authenticity and integrity will remain central to any application, much greater scrutiny will be applied to other aspects of a nomination. This includes the management plan for how the sites will be looked after following inscription on the UNESCO

register, including addressing impacts that may arise from climate change, sustainable development and tourism, as well the depth of the involvement from local councils, governance and how this all will be funded.

In Ireland, the three historic observatories of Armagh, Birr and Dunsink have come together and resolved to seek UNESCO listing as a transnational nomination involving the Republic of Ireland (RoI) and the UK. An application is now being prepared for the RoI UNESCO tentative list, with the aim of being placed on the register of properties that the RoI will bring to UNESCO for consideration in the coming decade. The application draws upon the synergies and complementarities of the three observatories, particularly their interactions during the 18<sup>th</sup> and 19<sup>th</sup> centuries when they pioneered the development of the observatory dome and the clock-driven equatorial telescope. These features, including the original telescopes that remain largely in-situ in their domes, remain prominent in the observatories today, while front-line astronomical research still continues within the same buildings. Armagh & Dunsink are the first representatives of the modern observatory building. They display fundamental stages in the development of the equatorial telescope. Birr contains the Leviathan, the largest telescope in the world for over 70 years, with which the enigma of the spiral nebulae was revealed, leading to the birth of extragalactic astronomy.

In this line of argument, during 2022, Gudrun Wolfschmidt, Past President of CC4, added a considerable number of observatories for the IAU list "Outstanding Astronomical Heritage" (OAH). Many more extensive details on this and other related topics activities can be found in the corresponding Working Group report that will be enclosed to this document, in collaboration with Lydia Cidale, C.C4 Secretary. As a first step, Hamburg Observatory, under monument protection since 1996, was acknowledged as national heritage in 2008. An application has been writing for the national UNESCO list as a precondition for applying for the WH. The result was presented to the German UNESCO Commission in October 31, 2021. Now in 2023 the candidature is in the process of evaluation.



*Hamburg Observatory*

In this same sense, it is worth noting the movements ahead performed for the Observatory of La Plata as a UNESCO Candidate within the World Heritage list. The Observatory of La Plata (IAU code 839, Argentina) was founded in 1883. It was early included in the design of the city of La Plata (1882) and built as an ensemble of buildings distributed in a 7-Hectares' park, many of which still remain just like they were at the time of its foundation. This splendid infrastructure is now in the process of being declared a National Monument. This additional protection is needed before going ahead in the process of WH nomination which is also under evaluation.



*Panoramic view of the Observatory's park at La Plata. The Meridian circle is at close-up while several domes can be appreciated in perspective. The main building has a rectangular shape oriented in the N-S and E-W directions. Picture obtained c. 1940.*

In the same line of argument, Areg Mickaelian from Armenia reports on the Byurakan Astrophysical Observatory in the list of IAU OAH. The newly created IAU Outstanding Astronomical Heritage (OAH) list includes observatories and other astronomical items that have historical value and will serve as UNESCO candidate list. We have applied to include the Byurakan Astrophysical Observatory (BAO) in this list and prepared all necessary texts for the webpage. It is now active at <https://www3.astronomicalheritage.net/index.php/show-identity?identity=162&idsubentity=1> (listed under the Category of Astronomical Heritage tangible immovable; Case Study ID: 162, Serial ID: 1).

A few tasks have also been developed within the frame of the IAU SWCA Regional Office of Astronomy for Development (ROAD). Armenia hosts one of the IAU ROADS, namely the South West and Central Asian one and among other activities, the topics of Astronomical Heritage, Archaeoastronomy and Astronomy in Culture are among the most important ones. We have created a webpage with all astronomy related organizations, museums, planetariums, and ancient sites of the region (involving Armenia, Georgia, Iran, Kazakhstan, Tajikistan, Turkey and Uzbekistan), particularly for the Scientific (Astro) Tourism purposes. The webpage is active at <http://astrotourism.aras.am>.

A very important project is also being developed related to Astronomical Plate Archives as Astronomical Heritage. Prof. Mickaelian's team run at the Byurakan Astrophysical Observatory (BAO) BAO Plate Archive project (<https://www.aras.am/BAO/PlateArchive/eng>), which includes the digitization of all 37,500 plates and other carriers of astronomical observations obtained in BAO, astrometric solution, extraction and other software, creation of the database, etc. Similarly, in the frame of our collaboration, such a project is active at the Abastumani Astrophysical Observatory in Georgia. Recently the Kazakhstan Virtual Observatory (KazVO) project was created and entered the International Virtual Observatory Alliance (IVOA, <https://ivoa.net/>). It is the 5th VO project in the IVOA from Asia (Armenia, China, India, Japan,

Kazakhstan). Finally, students from the Armenian Linguistic University have been invited to study astronomy related items, terms and folk stories in the Armenian literature. During 2022, twenty students several times visited BAO and during several months carried out research on the abovementioned subject.

As reported by Ian Glass, from South African Astronomical Observatory (SAAO) most activity in South Africa during 2022 has been concentrated on the Cape Observatory (SAAO/Royal Observatory, Cape of Good Hope) and Boyden Observatory, Bloemfontein.

At the Cape Observatory, which dates from 1820, a major effort to ensure the preservation of antique items has continued. This has involved searching the entire establishment for significant material that has been abandoned or neglected. It is worth noting that preservation of astronomical heritage has continued to be driven with the help of the amateur community, which is playing a most important role. At Cape Town, most of the work done during 2022 consisted of the scanning and cataloguing of photographic and other visual materials. Artefacts, either antique and/or of interest to the history of the establishment, have been photographed, labelled, catalogued and placed within the SAAO Astronomical Museum. As many as possible have been placed on display as it is felt that there is little point in preserving items if they cannot be seen.

The remaining fixed telescopes and domes at the Cape have suffered from neglect for several decades, and efforts are continuing to create an awareness of their historic value and devote resources to preserving them. The library of the SAAO, which contains inter alia many early journals, has largely been re-shelved into “Compactus” mobile units, reflecting the general trend towards abandoning printed journals in favour of on-line access.

At Boyden Observatory, the non-profit Centre for Astronomical Heritage worked on the document and image collection held in the Boyden Observatory Museum. The collection has been indexed, and a large portion of the material was rehoused in archivally-stable conditions, catalogued, and digitized, resulting in 25,000 scanned items. The work was generously funded by the British Library’s “Endangered Archives Programme” (<https://eap.bl.uk/collection/EAP1190-1/search>) and the Arcadia Fund. Work continues on the Boyden collection, digitizing more material and developing collection management software.

A series of articles on the history of the Astronomical Society of Southern Africa, including its regional divisions and sections, was published in MNASSA for June 2022. Included in the same issue is “The Johannesburg Observatory Glass Plate Story” by Alec Jamieson, which concerns the preservation of the glass plates taken at the Franklin Adams Telescope. MNASSA can be downloaded from the website [www.mnassa.org.za](http://www.mnassa.org.za).

Finally, it is also worth mentioning that, starting January 1 2023, Bosscha Observatory will be celebrating its Centenary. Bosscha Observatory of Institut Teknologi Bandung in West Java is still the largest functioning optical observatory in Indonesia housing 20 cm to 60 cm class telescopes with the oldest being a Bamberg refractor (established circa 1927). In addition, the glass plates collection of binary stars observed since the early 1920s remain one of the finest in South East Asia. Next year report we shall duly inform of all related activities.

In an effort to have a better understanding of the history of the observatory, a significant amount of time in 2022 was spent going through old documents, classical books, periodicals, stellar maps, and plates that we decided worth digitizing, thus signifying the observatory being not only a National Cultural Heritage (established in 2004 and re-established in 2018) but also a scientific heritage. Amongst the precious documents are original blueprints of the main telescope dome and machineries within it. Those have helped the technicians understanding certain details that allowed them to do thorough technical maintenance of the rotating dome, lowering-raising floor, and transformation of analogue to digital timekeeping. This new-to-us knowledge secures

the future care of our old observatory to function as long as possible, and for the future generation to appreciate the engineering marvel as well as the science.

Working as usual, a number of talks and lectures on Archaeoastronomy and Cultural Astronomy, and Astronomical Heritage have been offered by members of C.C4 in different meetings and colloquia. Finally, it is worth noting that in C.C4, we offer help to proceed with nomination projects, we continue planning to progress with inscriptions on the World Heritage List in the years to come, sociopolitical situation permitted.

**La Laguna, April 2023**

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