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Panel 6. Constructing, Maintaining, and Caring for Technoscientific Heritage: Exploring Sociomateriality in Museums, Collecting, and Beyond

Convenors:

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Keywords: technoscientific heritage; museum collections; care; maintenance and repair; historical artefacts

The (public) shaping of technoscience has primarily been studied in relation to media discourses, laboratory practices, science policymaking, and organised public engagement, as well as grassroots technoscientific activism. However, it also occurs through practices of maintenance, repair, curation, and preservation of material and immaterial traces from various science and technology domains, forming what is commonly labelled as "technoscientific heritage". While there is no univocally agreed-upon definition of technoscientific heritage, it can generally be understood as the product of sociomaterial practices sustained by institutions, communities, and individuals (such as museums, libraries, archives, collectors, and associations) that collect, protect, and valorise technical objects or intangible scientific achievements that are seen as foundational to the history and identity of a social group, community, people, or society.

Notably the making of technoscientific heritage has been at the centre of disciplines like Museum Studies, Anthropology of Material Culture, and Cultural Studies, but it has strangely been overlooked by STS scholars. This panel aims to bring together multidisciplinary STS research to explore how heritage-making occurs through various, often hidden practices—including maintenance, repair, and care for material and immaterial objects—by employing an analytical sensitivity toward "the work that goes into preserving technical and physical orders" (Russell and Vinsel, 2018, p. 7). Drawing from the maintenance and repair turn and from feminist STS perspectives on care (Law and Lin, 2022; Puig de la Bellacasa, 2017), we call for attention to acts of care and maintenance towards traces of technoscientific pasts and potential futures qua technoscientific heritage.

Hence, we ask: What challenges arise when preserving technoscientific objects compared to other kinds of heritage objects? How do technoscientific objects challenge or fit into traditional heritage categories, such as uniqueness, rarity, beauty, or economic value? What are the sociocultural implications of considering mass-produced, widely diffused, or aesthetically unpleasant objects as part of technoscientific heritage? How can the notion of "care" allow to explore the process of making technoscientific heritage, and what shapes does such care take in relation to objects and stories enacted by objects? How do museum communities and practitioners navigate caring for both technoscientific collections and the broader communities engaged with these artifacts?

Starting from these open questions, we encourage scholars and heritage practitioners to submit theoretically-, empirically-, and methodologically-oriented papers on:

- Museums, archives, and libraries as sociomaterial places where technoscience is configured and reconfigured;
- Collecting and curating technoscience in different circumstances, from institutional settings to grassroots contexts;
- Conservation and restoration of technoscientific heritage;
- Preservation and restoration of crafts, knowledges, and intangible technoscientific heritage;
- Difficult questions and actions while taking care of technoscientific collections;
- Monumentalising technoscience in private and public spaces

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ID 185 - Curating Scientific Heritage: The Sociomaterial Memory of the International Festival of Scientific-Didactic Films of Padua

Davide Ludovisi, Università degli Studi di Padova (University of Padua)

Keywords: technoscientific heritage, scientific documentaries, archival care, sociomateriality, festivals

For over a century, non-fiction film production has shaped public perceptions of science and facilitated the transmission of scientific knowledge, forming an integral part of technoscientific heritage. This paper examines the role of scientific documentaries as cultural heritage through the case study of the Padua Scientific-Didactic Film Festival (Rassegna del film scientifico-didattico, 1956–1975). This festival not only embodied the educational ethos of its era but also left a legacy preserved in the University of Padua archives, where extensive documentation illuminates the sociomaterial practices of memory-making.

By analyzing archival materials - including correspondence, organizational records - but also testimonies, this study - part of a PhD research - explores how the festival functioned as a "boundary object," bridging academia and the broader public during a period of significant socio-cultural transformation. The archives reveal that the scientific documentaries of the time emphasized academic rigor and utility, catering to specialized audiences. Over time, however, their legacy has been reinterpreted through contemporary festivals, which employ immersive narratives to engage broader, non-expert audiences.

Adopting an STS framework, this research interrogates curatorial practices that sustain and reinterpret technoscientific heritage. It emphasizes how the University of Padua's archival work represents acts of care and repair, preserving not only physical artifacts but also the symbolic and narrative dimensions of technoscientific memory. Such practices underscore the challenges of maintaining fragile heritage, where informational "gaps" complicate reconstruction and reinterpretation.

This work illustrates how archives act as sites of "memory reanimation," connecting historical practices with present and future narratives. It argues that curatorship is not merely a technical endeavor but a cultural and political process involving institutions, communities, and the negotiation of which stories are highlighted and which risk marginalization.

In this context, scientific documentaries and their associated festivals emerge as sociomaterial entities deeply intertwined with archival practices. Films are not simply "objects" to be preserved but "living stories" requiring ongoing negotiation between past and present. This analysis contributes to broader debates on the epistemological and political challenges of curating technoscientific heritage and the evolving narratives of audiovisual science communication.

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ID 531 - From Legacy to Future: The Socio-Technical Care of Dundee's Videogame Heritage

José David Gómez-Urrego, Abertay University
Stefano De Paoli, Abertay University

Keywords: Video games, Heritage, futures

This presentation explores the dynamic interplay of artifacts, stakeholders, and infrastructures within Dundee's video games cluster and the challenges arising from the maintenance/superseding of its heritage. By using an expanded notion of videogames (Sköld, 2018) encompassing the cultural and social aspects of videogames, we examine the socio-technical entanglements that have shaped the cluster over time and discuss how current actors imagine, research, negotiate, maintain, reframe and in some cases ultimately try to overgrow the city´s rich videogame heritage. Based on 43 interviews conducted with actors of the cluster and other relevant informants, the presentation discusses how a diversity of stakeholders in the cluster, including developers, educators, students, collectives, indie studios and policymakers, navigate a

landscape marked by uncertainty, shifting regional and global dynamics, and local institutional transformations by drawing on their own ingenuity and multiple practices and perceptions around heritage. The presentation digs into how these manifold actors have diverse ways of framing and preserving Dundee´s videogames heritage in the present (Eklund et al. 2019; Guay-Bélanger, 2022), with consequences for their own work, and multiple ways of imagining and projecting the community´s future in relation to this heritage. We focus on efforts of maintenance and care including research practices delving into the industry´s past in the city (Denis & Pontille, 2015). Some of the themes explored are the challenges in configuring videogames as cultural heritage in the Scottish context, and how do actors balance collaborative innovation, leveraging and actualizing Dundee's sociotechnical heritage, and sustaining a business during an industry-wide critical time.

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ID 536 - Maintaining the Heritage of the Luxembourgish Steel Industry

Stefan Krebs, Luxembourg Centre for Contemporary and Digital History
Denis Scuto, Luxembourg Centre for Contemporary and Digital History

Keywords: maintenance, care, industrial heritage, Luxembourg

The so-called Minett region located in the south of Luxembourg has been the industrial heart land of the country from c. 1870 to the economic crisis of the 1970s. Iron ore mining and steel making fostered urban development, population growth, mass migration and the economic prosperity of a rather poor agrarian state. However, since the steel crisis, most mines and steel works have closed their doors forever and much of the technoscientific heritage of the mining and steel industries has been left decaying or demolished.

Our paper will look at how different actors in the former "Metropolis of Iron", Esch-sur-Alzette, care for the local industrial heritage: from grass-roots initiatives of the 1960s that led to the creation of the mining museum of the Mine Cockerill to the top-down preservation of two blast furnaces in Esch-Belval, a former blast furnace works that has been transformed in the past 15 years into a new urban district hosting amongst others the University of Luxembourg.

Maintaining industrial heritage is not only about material and physical order (Russell/Vinsel 2018) but also the socio-cultural order of a society. What is remembered (or forgotten) of the industrial history, and what is preserved of the material witnesses of that past era? Who are the actors to decide: former steel workers, the historic monuments protection authority or the landowners who want to reuse former industrial sites (which often includes removing most or all industrial remains)?

We will investigate the "ethos of care" (Bellacasa 2011) of the different actor groups (grass-roots and bottom-up). To do so, we will distinguish two closely entangled dimensions of caring for technoscientific heritage: affective care and the techno-material side of preservation. The first looks at the emotional ties of actors towards the industrial remains; the second looks at the techno-material work of maintaining them. The aim is to identify different care practices: from caring care to careless care but also a caring carelessness. The latter is e.g. the case when retired steel workers, that are deeply attached to their former workplace, remove objects from their original use context.

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ID 582 - Symbol, political tool, failed innovation: the strange case of the Torlonia telescope at the Osservatorio del Campidoglio

Tiziana Macaluso, Inaf-Osservatorio astronomico di Roma
Marco Faccini, Inaf-Osservatorio astronomico di Roma
Giangiacomo Gandolfi, Inaf-Osservatorio astronomico di Roma

Keywords: Observatory Heritage Engagement Museum

How could a scientific instrument that never collected data become the main actor in the development of the Astronomy Cabinet at the Sapienza University in Rome? We will recount the story of how this telescope, donated by Prince Alessandro Torlonia to Accademia dei Lincei, played a key role in the creation of the Campidoglio Observatory.

The telescope was restored for display and handling at the exhibition La scienza di Roma. Passato, presente e futuro di una città. It was selected for this exhibition because it symbolized the goal of the event: to tell the story of scientific ideas and their societal impact through the scientists who worked in Rome and the discoveries made here, with an approach of integrating science into society (Charles B. Fenster, 2023).

The preservation of the telescope focused on restoring the structural continuity between its wooden and metal elements, aiming to stabilize its condition and slow deterioration. This was achieved through careful evaluation and the implementation of minimum invasive interventions. The phenomenology of the degradation caused by the materials and unsuitable environmental conditions was also studied. To ensure better conservation over time, a new display arrangement was proposed for the Observatory, considering controlled thermo-hygrometric and lighting conditions appropriate for this polymaterial object.

The telescope's history begins as a result of several unrelated facts and actually it is more an experimental and edutainment experience than an astronomical research activity.

In the early 19th century, engineers began exploring the creation of large and solid objective mirrors. A Piedmontese surveyor, Alberto Gatti, studied the possibility of making mirrors from polished stone and, in 1826, presented a memorandum to the Secretariat of State in Rome, concluding that mirrors could be made by grinding nero marble.

In 1801, the Accademia dei Nuovi Lincei was reconstituted and has always played a central role in connecting scientists, passionate scholars, and the Papal State. The Lincei were tasked with evaluating Gatti's memorandum. Feliciano Scarpellini, Lincei's Perpetual Secretary, had built the instruments for the Scientific Cabinet of Sapienza. He was entrusted with the upper floor of the Tower of Niccolò V in Campidoglio to build an observatory.

In 1824, with the encyclical Quod Divina Sapientia, Pope Leone XII started a reform for the Universities, Practical Astronomy becoming a mandatory course. Initially, the lessons were conducted using Scarpellini's instruments in private observatories. Practical astronomy has always attracted patrons to support the cause of science in Rome.

In 1827, Alessandro Torlonia sponsored the first experiments with Gatti's black marble mirrors at the Accademia dei Lincei and in the newly established Campidoglio Observatory. Angelo Luswergh was commissioned to build the telescope, which was equipped with Gatti's primary mirror. Initially, the telescope was placed in the Academy's rooms to test it with terrestrial observations. The early results appeared promising, so the Prince donated it to Scarpellini for installation on the Campidoglio Observatory to test it on the sky. Unfortunately, the results from sky observations were disappointing, but the telescope was kept on the terrace and used for educational purposes.

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ID 594 - Evidence in Scale: Models as Witnesses of Technoscientific and Cultural Heritage

Panagiotis Poulopoulos, Deutsches Museum München

Keywords: models, steam engine, Boulton & Watt, technology transfer, industrial espionage, piracy, provenance, authenticity

Although models have been largely overlooked in scholarly research and museum exhibitions, they have played a significant role in developing and communicating science and technology. For example, models have been traditionally used for testing new ideas and designs, for the training of apprentices, or for advertising and marketing purposes. As platforms for experimentation and innovation, models have thus helped to bridge the gap between the mind and the hand, between theory and practice.

It is this aspect of revealing a novel concept or process 'in the making' that makes historical models so fascinating, since their study can provide new evidence to the motivations, knowledge, and skills that their makers had, as well as to the challenges and problems that they faced. This applies especially to models that are connected to famous inventors and manufacturers, and which, like other artefacts, have been frequently used to shape public views on scientific and technological history and, occasionally, to support myths and legends.

One such case concerns models of steam engines attributed to the Boulton & Watt workshop and therefore carrying the aura of the prominent inventor James Watt. Even though there are several steam engine models in museums that have been catalogued and displayed for years as genuine 'Boulton & Watt' objects, none of them bears a visible signature. In addition, for most of these models there is little written evidence in business, financial or legal documents (such as inventories, bills, accounts, contracts, patents, etc.) that could prove any direct connection to or authorisation by Boulton & Watt. Moreover, the diverse characteristics of these models raise further questions concerning their provenance and authenticity, suggesting they might have been products of industrial espionage or piracy.

Focusing on representative models attributed to Boulton & Watt or their associates in the Deutsches Museum (Munich), the Technisches Museum (Vienna), and the Science Museum (London), this paper will examine the often complex issues regarding the attribution, dating and authentication of technoscientific artefacts. By presenting, analysing and comparing the technical and material features of these models, the paper will identify similarities and differences that can be helpful in reconstructing the objects' biography. The paper will also investigate these models in the context of technology transfer from Britain to continental Europe during the late eighteenth and early nineteenth centuries, when many engineers travelled to Birmingham and other industrial sites to document and copy the steam engines built by Boulton & Watt. Finally, the paper will discuss how and why such objects, despite – or perhaps because of – their ambiguous origins should be included in exhibitions as valuable witnesses of technoscientific and cultural heritage.

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ID 841 - A Fading Picture. The Struggles of Institutionalizing Photographic Technological Heritage in Italy

Costanza Paolillo, New York University - Università IULM

Keywords: Photographic Industry, Ferrania Film Museum, Corporate Museums, Public History

In Italy, photography as a practice with a multifaceted media nature has long struggled to gain proper institutional recognition. Unlike other visual and artistic disciplines, its status has remained ambiguous, oscillating between technical craft, industrial production, and artistic expression. It was only in the last four decades that museums fully dedicated to photography began to emerge, yet these institutions have large-

ly framed photography within the paradigm of art museums, prioritizing aesthetic and authorial aspects over technological and material histories. This limited perspective has contributed to the neglect of photographic technological heritage, further exacerbated by the near-total disappearance of Italy's once-thriving photo industry. While the decline of the photochemical industry is a global phenomenon, major companies such as Kodak and Agfa have actively worked to preserve their legacy and historical archives, ensuring that their technological contributions remain accessible. In contrast, Italy has largely failed to safeguard its photographic industrial memory, leading to a rapid dispersion of its material heritage and a lack of institutional awareness regarding its significance.

This paper examines the systemic exclusion of photographic technology from Italy's heritage initiatives by analyzing three key factors: the dependence of past preservation efforts on private sponsorship, the lack of interest in technological heritage within public institutions overseeing photography, and the scarcity of strategic collaborations with research institutions, such as universities, with projects specifically addressing photographic technological heritage.

Focusing on the Ferrania Film Museum in Cairo Montenotte (SV) as a key memory collector for the local community that revolved around the plant for a century, this paper explores its role in preserving the knowledge and lived experiences of its workers, producers, and consumers. Through a comparative analysis with the Museo di Fotografia Contemporanea in Cinisello Balsamo and the Museo Nazionale Alinari della Fotografia in Florence, it contrasts different institutional trajectories, highlighting how chronic underfunding, shifting priorities, and the absence of long-term heritage policies have led to stagnation or failure. In this landscape, the study also situates the Museo della Scienza e della Tecnologia in Milan, which holds a significant but largely unrecognized collection of photographic technological artifacts, illustrating how photographic material culture is often overshadowed within broader audiovisual collections.

This paper argues that only a structured collaboration between museums, archives, policymakers, and research institutions can ensure the preservation and recognition of Italy's photographic technological heritage. By analyzing past failures and structural gaps, it proposes strategies to integrate photographic technology into national heritage policies, not only as historical artifacts but as active sites of research, public engagement, and innovation, as in the case of the Ferrania Film Museum. Without this shift, a crucial chapter of Italy's industrial and media history risks fading into obscurity, lost to institutional inertia and neglect.