

# Series Preface

*Science and technology have been defining* elements of the modern era. They have entered into our lives in large and small ways—through broad understandings of the universe and in the tools and objects that make up the texture of everyday life. They have been preeminent activities for organizing expertise and specialized knowledge, in defining power and progress, and in shaping the development of nations and our relations with others across the planet. In 1996, the Smithsonian Institution, the London Science Museum, and the Deutsches Museum formed Artefacts to emphasize the distinctive role that museums—through their collection, display, and, especially, study of objects—can play in understanding this rich and significant history.

Artefacts has two primary aims: to take seriously the material aspects of science and technology through understanding the creation and use of objects historically and to link this research agenda to the exhibition and educational activities of the world community of museums concerned with the intimate connections among material culture, the history of science and technology, and the transnational. The effort gradually has gained footing: Artefacts holds an annual conference and has expanded its formal organization to include fourteen cosponsors (listed on this volume's copyright page). This expanded community, composed primarily of European and North American museums, provides opportunity for more robust professional conversation and broadens the range of local and national historical experiences of science and technology represented in Artefacts. Not least, Artefacts has created a fruitful interplay between scholarly research and museum practice. Aided by its Advisory Editorial Board, it publishes this book series, which, in conjunction with annual meetings, has helped stimulate a broader turn toward material-based research in scholarship and its use in museum collecting and exhibitions.

The Artefacts community believes that historical objects of science and technology can and should play a major role in helping the public understand science and technology: the ingenuity associated with these activities, their conceptual underpinnings, their social roles, and their local and global connotations. We welcome other museums and academic partners to join our effort.

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# Introduction

“*Research not communicated is research not done,*” warned Anne Glover, then chief scientific adviser to the president of the European Commission, in 2014.<sup>1</sup> We might extend this to say that scientific research not preserved in some form may in future never have been done so far as the historical record is concerned. Likewise, museological research and practice not shared is not fully or usefully done: thus, the rationale behind the Artefacts consortium and its annual meetings is to provide a forum for communication for people from a range of disciplines concerned with the material culture of science and technology.

In 2011, Artefacts XVI at Museum Boerhaave in Leiden addressed the theme of “Conceptualizing, Collecting and Presenting Recent Science and Technology.” Building on the research presented at the meeting, this volume will focus on the question of collecting post–World War II scientific and technological heritage and the equally challenging question of how such artifacts can be displayed and interpreted for diverse publics.

However, this volume also has another aim, as indicated by the ambiguity of the title *Challenging Collections*. In addition to examples of practice and the inevitable detail associated with these, we have invited prominent historians and curators to reflect on the nature of recent scientific and technological heritage and to challenge the role of museum collections in the twenty-first century.

## Challenges of Contemporary Collecting

The interpretation of contemporary scientific and technological heritage is a challenging subject for curators and scholars for a number of reasons, for example:

1. *Mass and Scale.* During the twentieth century, notably from World War II onward, scientific and technological research saw a dramatic increase in the use of resources, in particular in the dimensions of human labor and financial effort. As a consequence, the number and size of equipment, prototypes, samples, and setups have significantly grown also, and a curator attempting to formulate well-thought-through rationales for the preservation of cultural memory may be overwhelmed by the extent of the task.
2. *Delocalization.* The places of research activity today can be difficult to identify and discern. The mobility of both thinkers and their equipment, moving rapidly between different spaces and working in international and interdisciplinary networks, leads to a multiplication of contexts that need to be studied, discerned, and museologically interpreted, often a change

from the locally or nationally specific contexts in which artifact-based collections were first conceived.

3. *Uniformity-Immateriality-Opacity.* By their very nature, many artifacts of science and technology from the past 60 years pose a challenge to preservation, study, and interpretation. Specialization, miniaturization, mass production, the use of new materials, and the omnipresence of electronics have led, among other factors, to highly complex and professionalized equipment for research that is both modular and opaque in appearance. The frequent exchange and reuse of components, sometimes called cannibalization of research equipment, adds to the difficulty of identifying particular artifacts worthy of preservation.

While bearing these factors in mind, we should be cautious to avoid thinking that today's artifacts mark a uniquely difficult juncture for the collector or scholar. As Jim Bennett reminds us, the material record is only ever a partial one: we must be conscious that any collection of artifacts represents what was collected, rather than what was actually there.<sup>2</sup> Meanwhile, Jeff Hughes has argued that the challenge of working on recent history is not methodological so much as political—there is *always* too much source material no matter what period you are working on, and it is the historian's job to manage the scope.<sup>3</sup>

As Hughes notes, the particular challenge of working on recent material is usually not artifacts, but people—the actors who own the artifacts, documents, or memories and who often have their own cherished histories to be negotiated by the scholar.<sup>4</sup> This can be particularly pressing when an artifact is not only collected but exhibited. Public exposure is a valuable commodity, and as Joseph Tatarewicz attests, the prestigious spaces of museums can be highly contested; the often-congealed histories of artifacts can lead to disagreements between contemporary actors over how they should be interpreted.<sup>5</sup> Actors in the museum world inhabit what has been termed an “ecosystem of collecting,” with the curator often acting as intermediary in a network of “tastemakers” (including artifact makers, collectors, educators, and media) and as the interpreter of artifacts for the public.<sup>6</sup>

## The Changing Role of Collections

In this volume we aim to reflect on not only the nature of scientific and technological artifacts post World War II but also the nature of today's “museum ecosystem” as it has emerged over this period. Museums are no longer primarily repositories that preserve and classify material culture. They must balance a number of functions, not always mutually compatible: exhibition, preservation, research, and education. Collections can be regarded as important material resources for historians of science and technology who in recent decades have moved on from telling narratives of progress to exploring science and technology in a wider cultural, social, and political context. Meanwhile, over this period the nature of museums' relationships with their public has shifted from one of unquestioned authority to a partner in dialogue: visitors' needs are now considered foremost in exhibition interpretation, and the public may even have a say in shaping collections.

Although many science and technology museums were originally envisaged with an educational remit and the artifacts they contained became historic with the passage of time, in recent decades curators and collectors have been increasingly informed by the emergence of academic disciplines of science and technology studies, and the history of science, technology, and medicine.<sup>7</sup> Thus, an artifact's current pedagogical value and future historical value must both be taken into account at the time of collecting; as Bruce Altshuler argues, "contemporary works valorized by entering museum collections—and, to a lesser extent, by being exhibited in museums—are in a sense projected into the future, identified as playing a role in an anticipated history."<sup>8</sup>

In this context, we have invited historian of science and technology Dominique Pestre to provide a reflection on the present state of the sciences. Tracing the changing nature and circulation of modern science and its products over the past 200 years, he notes how science has been situated between different politics, markets, and publics. He challenges us to move away from idealized narratives of science to consider its blind spots and the downsides of progress and to foreground ordinary human experience. Although science and technology will continue to be at the core of knowledge, we should be careful to appraise novelty critically, to reflect on our present experience within the broader narrative of modern science. He argues against developing overly generic or strict criteria for understanding twentieth- and twenty-first-century science and technology; instead, we must facilitate an ongoing dialogue, acknowledging that dissent and diverging opinions are a normal facet of how we make sense of the world.

In our experience, colleagues from different disciplines concerned with the material culture of science and technology have already made progress toward addressing Pestre's challenges; however, as is common for work in progress, much of the dissemination of this work has been of the nature of informal conferences and reports within particular professional disciplines, and there have been few broadly scoped accounts of the state of the field.<sup>9</sup> This volume seeks to gather a range of accounts from around the world, showing a variety of activities and approaches in conception and execution of collecting practice. Reflecting this variety, the volume contains a range of styles, from theoretically grounded arguments to practical reports to personal perspectives.

## Conceptualizing Contemporary Collecting

In building collections that help us make sense of the world, the framework of the historian must be combined with the material knowledge, experience, and sometimes sheer instinct of the curator. In the volume's first section, we have asked leading curator-historians to reflect on what historiographically informed collecting practices might look like when concerned with contemporary material culture.

John Durant argues that museums are uniquely positioned to tell rich and meaningful stories about the place of science and technology in late twentieth- and early twenty-first-century society as a contribution to a "thick description" approach: several of the artifacts he describes

have negligible economic or aesthetic value but pack a powerful emotional punch. Martin Collins suggests that collections of science and technology need to be shaped with consideration of the historiography of the period as an *ex post* approach, providing the example of the spaceflight collections of the National Air and Space Museum, Washington, D.C. Robert Bud argues that the inherently ahistorical category of “contemporary collecting” can be analyzed historically, exploring its various manifestations over the twentieth century in the Science Museum, London. Henry Lowood’s chapter charts the growth of new kinds of artifacts and collections responding to an increasingly digital world, which within most museums still remains an area for pioneers.

## Networks of Collecting

The rest of the volume is concerned with case studies illustrating aspects of contemporary collecting in practice. Our next section explores how today’s global science and technology are being reflected in collecting practices on the national and regional scales; on these scales various political and economic trends inevitably influence how artifacts are chosen for collection and display. As Jia-Ou Song and Dagmar Schäfer show, science and technology collections in China are currently growing in light of a policy-driven boom in contemporary science museums and their social value in building local and national identities. In contrast, France’s now well-established national program prioritizes preservation over museum collecting, leaving it to future generations to decide what is valuable: Catherine Cuenca and Serge Chambaud report on the creation of decentralized repositories safeguarding artifacts of science and technology.

## Dialogue and Diversity

We then zoom in on case studies from institutions around the world, showing how today’s collectors are negotiating with a range of people and practicalities and developing their own particular solutions. The very different collections of Jennifer Landry and Rosie Cook and of Anna Adamek, encompassing specialized chemistry instruments and everyday kitchen technologies, contain artifacts of strong emotional value to their original owners and users; both have been shaped in recent years by also taking into account the value judgements of various museum audiences and foregrounding personal stories. Sometimes the historical value of artifacts may be fairly readily agreed on by interested parties, but the logistics of preservation are more complex and often locally specific. Finn Harald Sandberg and Kristin Ø. Gjerde describe the creation of digital repositories documenting Norway’s oil platforms, whereas Teresa Anderson and Tim O’Brien outline the challenges of balancing the preservation of historically important radio telescopes against their value as working scientific instruments.

## Alternative Approaches

Our next two contributors, from within museums and without, offer some alternative perspectives on recent collecting practices. Olov Amelin questions whether explicitly stated rationales, including those present in contributions to this volume, are desirable at all, offering

insights from non-method-oriented practices at the Nobel Museum. Karen A. Rader describes the growth of an anticollection science center movement inspired by the Exploratorium, challenging the primacy of artifacts—and also asking us to rethink what we mean by *artifact* by considering whether interactive exhibits might constitute valuable material records in their own right.

## Insights and Experiments

Our final section offers a new addition to the usual Artefacts volume format. Bearing in mind the work-in-progress nature of our topic, we interviewed professionals from different disciplines about their present experiences in the field; their frank insights show the dynamic nature of working with recent artifacts. James Hyslop offers insights into a world largely neglected by contemporary museum studies: the commodification and circulation of recently made scientific artifacts in the private collectors' market. Osamu Kamei describes research-based efforts to document Japan's industrial and technological heritage, citing case studies of research in progress. Universities play a very special role in contemporary heritage efforts as they are particularly close to the spaces of the production of knowledge and artifacts. Roland Wittje reflects on his engagement with collection in university environments over more than a decade. Finally, Thomas Söderqvist offers a personal view as historian of contemporary science and technology turned curator advocating relinquishing the narrative-oriented approach common in many museums in favor of strategies driven by the artifacts themselves.

These interviews, and the contributions throughout the volume, demonstrate the variety and divergence of opinions and approaches in making sense of recent science and technology through material artifacts. We envisage *Challenging Collections* as part of an ever-evolving dialogue among communities of collectors and scholars seeking to keep pace with the changing landscapes of science and technology and of museology and historiography. We believe it is important to continually reflect on our active roles in creating values through the preservation and research of material culture and to share our experiences of developing intellectual frameworks for collecting. In the words of Howard N. Fox, "Among museums, or within encyclopaedic museums, contemporary collections might position themselves in the spirit of Wunderkammer, more as laboratories and sites of discovery than places of sacred trust intended to preserve the received culture. A healthy curiosity is in order. Contemporary curators, like scientists and contemporary artists, should not resist experimentation; it's part of the job."<sup>10</sup>

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# Notes

1. Anne Glover, "Science and Decision Making" (plenary paper presented at Science Centre World Summit, Mechelen, Belgium, 17 March 2014), <http://www.scws2014.org/wp-content/uploads/2014/08/Science-and-decision-making.pdf> (accessed 22 December 2015).
2. As cited in D. H. DeVorkin, "Space Artifacts: Are They Historical Evidence?," in *Critical Issues in the History of Spaceflight*, ed. Steven J. Dick and Roger D. Launius (Washington, D.C.: National Aeronautics and Space Administration, 2006), 573–600.
3. Jeff Hughes, "Whigs, Prigs and Politics: Problems in the Historiography of Contemporary Science," in *The Historiography of Contemporary Science and Technology*, ed. Thomas Söderqvist, *Studies in the History of Science, Technology, and Medicine 4* (Amsterdam: Harwood Academic, 1997), 19–37.
4. Hughes, "Whigs, Prigs and Politics," 19–37.
5. Joseph N. Tatarewicz, "Writing the History of Space Science and Technology: Multiple Audiences with Divergent Goals and Standards," in *The Historiography of Contemporary Science and Technology*, ed. Thomas Söderqvist, *Studies in the History of Science, Technology, and Medicine 4* (Amsterdam: Harwood Academic, 1997), 71–91.
6. For example, Anders Petterson, "Value, Risk and the Contemporary Art Ecosystem," in *Risk and Uncertainty in the Art World*, ed. Anna M. Dempster (London: Bloomsbury, 2014), 67–86.
7. Jim Bennett, "Museums and the History of Science: Practitioner's Postscript," *Isis* 96, no. 4 (2005): 602–608, doi:10.1086/isis.2005.96.issue-4.
8. Bruce Altshuler, "Collecting the New: A Historical Introduction," in *Collecting the New: Museums and Contemporary Art*, ed. Bruce Altshuler (Princeton, NJ: Princeton University Press, 2005), 2.
9. For a recent overview of existing initiatives and methods, see, e.g., Marta C. Lourenço and Lydia Wilson, "Scientific Heritage: Reflections on Its Nature and New Approaches to Preservation, Study and Access," *Studies in the History and Philosophy of Science* 44, no. 4 (2013): 744–753.
10. Howard N. Fox, "The Right to Be Wrong," in *Collecting the New: Museums and Contemporary Art*, ed. Bruce Altshuler (Princeton, NJ: Princeton University Press, 2005), 27.

# Bibliography

- Altshuler, Bruce. "Collecting the New: A Historical Introduction." In *Collecting the New: Museums and Contemporary Art*, ed. Bruce Altshuler, pp. 1–13. Princeton, NJ: Princeton University Press, 2005.
- Bennett, Jim. "Museums and the History of Science: Practitioner's Postscript." *Isis* 96, no. 4 (2005): 602–608. doi:10.1086/isis.2005.96.issue-4.
- DeVorkin, D. H. "Space Artifacts: Are They Historical Evidence?" In *Critical Issues in the History of Spaceflight*, ed. Steven J. Dick and Roger D. Launius, pp. 573–600. Washington, D.C.: National Aeronautics and Space Administration, 2006.
- Fox, Howard N. "The Right to Be Wrong." In *Collecting the New: Museums and Contemporary Art*, ed. Bruce Altshuler, pp. 15–28. Princeton, NJ: Princeton University Press, 2005.
- Glover, Anne. "Science and Decision Making." Plenary paper presented at Science Centre World Summit, Mechelen, Belgium, 17 March 2014. <http://www.scws2014.org/wp-content/uploads/2014/08/Science-and-decision-making.pdf> (accessed 12 December 2015).
- Hughes, Jeff. "Whigs, Prigs and Politics: Problems in the Historiography of Contemporary Science." In *The Historiography of Contemporary Science and Technology*, ed. Thomas Söderqvist, pp. 19–37. *Studies in the History of Science, Technology, and Medicine 4*. Amsterdam: Harwood Academic, 1997.
- Lourenço, Marta C., and Lydia Wilson. "Scientific Heritage: Reflections on Its Nature and New Approaches to Preservation, Study and Access." *Studies in the History and Philosophy of Science* 44, no. 4 (2013): 744–753.
- Petterson, Anders. "Value, Risk and the Contemporary Art Ecosystem." In *Risk and Uncertainty in the Art World*, ed. Anna M. Dempster, pp. 67–86. London: Bloomsbury, 2014.
- Tatarewicz, Joseph N. "Writing the History of Space Science and Technology: Multiple Audiences with Divergent Goals and Standards." In *The Historiography of Contemporary Science and Technology*, ed. Thomas Söderqvist, pp. 71–91. *Studies in the History of Science, Technology, and Medicine 4*. Amsterdam: Harwood Academic, 1997.