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DX Marks the Spot: Linking and Interpreting Artefacts of the former Design Exchange Collection

Michael Windover and Jan Hadlaw

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Mots clés : Design Exchange, Histoire de la conception, données ouvertes liées, recherche orientée objet

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In March 2019, creative director of the Design Exchange (DX) Nina Boccia announced that "Canada's Design Museum" would deaccession its entire collection of artefacts and archival fonds and shift its focus to offering festival-based and educational programming on contemporary design practice.[1] The DX board's decision to shut down its museum operations relieved the institution of trying to fulfill its perhaps overly ambitious mandate to both promote the Canadian design industry and to create an awareness of Canada's contributions to design through "exhibitions, publications, and its study collection of post-1945 design."[2] Conceived in response to the withdrawal of federal funding for design—emphatically manifested by the closing of Design Canada in 1985—the Design Exchange opened its doors in 1994. Housed in the former Toronto Stock Exchange, a heritage building in Toronto's financial district, the DX began acquiring its research and study collection of Canadian design objects in 1996, under its inaugural curator Rachel Gotlieb.

One of the few survey books of Canadian design, co-authored by Gotlieb and Cora Golden, captured the scope of the collection, which ranged from "teakettles to task

chairs," and icons of furniture design to examples of scientific and safety equipment.[3] At the time of its deaccessioning, the DX Collection held over 600 artefacts as well as archival materials associated with companies, such as the Clairtone Sound Corporation, and designers, including Fred and Glenn Moffatt and Thomas Lamb. Several institutions across Ontario recognized the historical and cultural significance of the collection and became its new stewards: the Royal Ontario Museum (ROM) and the Canadian Museum of History (CMH) received pieces and archival materials to augment their collections of Canadian craft, textiles, and design; the Archives of Ontario acquired the papers, drawings, and corporate records of designer Thomas Lamb; York and Carleton Universities received the remaining archives and artefacts, designated as teaching collections to support the study of design history and practice.

The DX's move away from museum operations occurred in the face of an international trend towards establishing design museums. Donna Loveday points to the move of London's Design Museum into a larger facility in 2016, the extensive four-year renovation of the Cooper Hewitt, Smithsonian Design Museum in New York and its reopening in 2014, as well as the establishment of new design museums in Europe, Japan, Australia, and China (including M+ in Hong Kong), as evidence of the "global expansion of design-focused museums."[4] She goes on to cite examples of both permanent and temporary design exhibitions in other museums, galleries, and public spaces over the past forty years as indication of the popularity of design amongst general audiences.[5] Similarly, former Torontonian Brendan Cormier, currently Chief Curator at the Victoria and Albert Museum East in London, notes that "more and more countries […] are viewing design museums as necessary institutions for preserving and disseminating culture, while providing insight and fuel for future innovation." He points to recently founded museums in Shenzhen, Johannesburg, and Moscow as examples of "how a design institution can contribute both to a public and to a nation."[6] While lamenting the deaccessioning of the DX collection as the loss of an "important piece of cultural infrastructure," he saw an opportunity to envision "a new design museum; a museum that is meaningful and impactful, which collects Canadian design but also convenes critical discussions around it."[7]

While a new museum has not materialized, a partnership project led by the authors seeks to salvage some measure of the critical cultural infrastructure lost with the dispersal of the DX's collection. Comprised of the inheritors of the former DX collection as well as infrastructure partners, the Linked Infrastructure for Networked Cultural Scholarship (LINCS, University of Guelph) and the Canadian Heritage Information Network (CHIN), the "xDX Project: Documenting, Linking, and Interpreting Canada's Design Heritage" is building a linked open data resource, the xDX ResearchSpace, to preserve the integrity of the former DX collection and to enhance scholarship, knowledge, and public appreciation of modern Canadian design history.[8] In what follows, we describe some of the aspirations of the xDX Project, underline the importance of object-oriented research to Canadian design history, and propose that the material objects that form the xDX collection—despite being dispersed across several institutions—provide a catalyst to bring researchers, students, and publics together.

The DX Collection Matters

Cormier's comments about the value of a collection to spark critical conversations about design—its history in Canada and role in society—are instructive. They suggest that collections of artefacts, or design "things," can encourage the gathering of people into publics. In his call for an object-oriented democracy, Bruno Latour reminds us that the etymological origin of "thing" points to places of assembly where "things"—or "matters of concern"—are discussed.[9] The designed object (the material thing) can prompt a conversation (the thing discussed) between interested people, who, together with the object, form a public. So, like a radio receiver tuned by a listener, a design object can become both a conduit of discussion and a participant or actor in a public comprised of individuals, ideas, and material things.[10] Critical to this formulation is the notion that objects have agency. They exist in the world socially and in meaningful ways. As a result, they constitute evidence for historians across a wide range of disciplines and fields.[11]

When designed objects break down, their social roles become more obvious, as in the case of the broken door-closer (or striking "groom") invoked by Latour in his explanation of "the missing masses" in society.[12] In this example, users of the door are made aware of the task of closing it that had been delegated to a non-human actor (the groom). The designed object here becomes a thing that allows Latour to explore its sociality and the entanglement of human and non-humans. Objects that become artefacts for study when they enter collections are also more conspicuous and more likely to become "things." Both as discrete tangible objects and in the context of the constellation of "things" that make up a collection, they are manifestations of a larger "object culture."[13] They offer insights into the social, economic, and political relations between humans and objects that existed in the past while offering opportunities to prompt the formation of publics engaged in the kind of critical conversations Cormier proposed.[14]

The benefit of a dedicated design museum or collection is immediately obvious to any historian or scholar trying to track down a material or design artefact under study. While there is little debate whether the Clairtone Project G stereo or the Lollipop bench is a designed object, there are thousands of design artefacts existing incognito in institutional collections organized around other subjects. Insulin pumps and pacemakers appear as medical devices in the collections of science and technology museums, fabric designs produced by designers and artists reside in textile museums, whereas ceramics museums are the likely institutional homes for pottery and glass works.[15] Many thousand more design objects, such as kettles, cutlery, and waste-paper baskets live anonymously in Canadian homes and offices. The myriad guises under which designed objects appear (and disappear) in museum collections and everyday life make the need to create research spaces—physical and virtual—for the study of design, its practices, its producers, its products, and the users of designed things. In other words, things matter, and how things are described matters, too.

The xDX Project team assembled around the material and conceptual thing of the xDX collection and the research opportunities which it holds. To emphasize the dual im/material qualities of the collection, the xDX artefacts were central in our first in-person workshop held at the Archives of Ontario on the York University campus

23–24 July 2023. Members of the multi-disciplinary team, comprised of designers, curators, historians, archivists, data ontologists, and digital humanists, encountered artefacts of the York teaching collection alongside drawings from the Thomas Lamb fonds, which prompted questions about how to capture the conceptual idea of a design in a data model. As design historian John Heskett explains, "design," as a noun and verb, has a number of different meanings that can lead to confusion. (Are we talking about design as a field, design as process, design as a concept or proposal, or design as an actualized object?[16]) The meaning of design itself thus becomes a matter of concern, a way to bring us together to open up critical discussions about what design objects are, how they come into being, how they operate in the world, how they relate to users and/or other objects, and how we might disrupt design history's canonical and hegemonic narratives by paying closer attention to the artefacts themselves.

Traditionally, museum or gallery exhibitions have provided the occasion for assembling people and things in critical discussions about design. Indeed, exhibitions and related catalogues have been the primary sites of design research dissemination in Canada.[17] As part of our first workshop, we had the opportunity to tour the *Canadian Modern* exhibition at the ROM with curator Rachel Gotlieb to consider how museum artefacts can help narrate histories of Canadian design and see artefacts in public-making action.[18] The exhibition grouped artefacts around themes of "Modernism and Professionalization," "Pop and the Swinging Sixties and Seventies," "Of Land, Sea, and Sky," and "Post-Modernism and Beyond," eliciting considerations of broad aesthetic trends in Canadian design, the development of design professions, and the way designers have responded to geographical features of the country. In addition to highlighting xDX artefacts and others from the ROM's collection, the exhibition put these historical items into conversation with contemporary student work from OCAD University.[19] In this museum context, the artefacts provided a means of addressing different audiences and engaging in the formation of different publics comprised of students, researchers, or interested visitors of the ROM.

Although the example of *Canadian Modern* points to possibilities of curating xDX objects alongside others, the xDX Project focuses on a collection of artefacts and archival fonds that presented a limited and circumscribed sample—one now existing within multiple different institutional contexts. With its focus on Canadian postwar design, the DX collection captured a specific political, cultural, social moment in the history of Canada when industrial design came to be seen as a means of creating a distinct Canadian economy and identity.[20] Since the DX continued to collect objects designed in the late twentieth and early twenty-first centuries, the xDX collection also offers historians a unique resource to trace the effects of more recent transformations and events on the design in Canada. By digitally reconstituting the collection, the xDX Project allows us to highlight not only the historical value of individual artefacts with their own stories to tell but the relationships between them. The project also provides a lens through which the aspirations and ideologies which shaped modern Canadian design can be perceived and assessed. As historian Joy Parr and others remind us, Canadian design has its own histories and its own objects.[21]

The Material Importance of Design Collections

The project's goal of reconstructing the DX Collection in digital space is precisely not to provide a rationale or justification for doing away with the collection's material artefacts or to discount their centrality as objects of research. Instead, the xDX Project seeks to take advantage of the affordances of digital technologies and linked-open data to create connections between tangible artefacts with intangible cultural heritage, both to identify where objects designed in Canada can be found and to provide information about the "techniques, processes, sociocultural narratives and meanings [that remain] permanently implicit in artefacts and preserved within archives and collections."[22] Designed objects are all around us yet are notoriously tricky to identify or categorize.

American cultural historian Jeffrey Meikle, whose *Twentieth Century Limited: Industrial Design in America, 1925-1939* (1979) was among the early works to be self-consciously identified as design history, has written eloquently on the costs of ignoring 'real' objects. Writing almost two decades after its publication, he notes that "throughout the entire process of researching and writing *Twentieth Century Limited* I had almost never held, touched, used, taken apart, walked through or otherwise physically interacted with any 'real' examples of the material objects and environments that I had described, analysed and interpreted."[23] Instead, he relied on photographs and designers' autobiographical accounts. Meikle recounts having taken at face value Henry Dreyfuss's account of incorporating an iron weight into his design of the Big Ben alarm clock after watching shoppers test the heft of the clocks on display in a department store and purchase the heaviest, presumably the one that was least likely to be knocked off a bedside table. It was only sometime after the publication of the book that he discovered the "problem with the story of the added weight is that it is not true. The Big Ben clock has no iron plug. Thirty seconds with a screwdriver revealed this."[24]

In the most pragmatic terms, interaction with artefacts reveals information about materials, scale, weight, and other details that are difficult to discern from photographs. Engaging with artefacts firsthand allows for multi-sensorial understanding of designed objects and how they interact (or interacted) with their environments. In a volume about object-oriented pedagogies, both Judy Willcocks and Kirsten Hardie present cases for the pedagogical value of interacting with artefacts for design studies. Drawing from educational theorists, neuroscientists, and results from surveys taken of students from Central Saint Martins, Willcocks argues that "handling objects can provide deeper and richer learning experiences, particularly for art and design students".[25] Hardie's "A Matter of Taste" assignment, which engages students in small groups around artefacts from the collection of the Museum of Design in Plastics, likewise resulted in memorable experiences for students, and its impact was seen in subsequent student work.[26] Willcocks points out the connection between touch and memory, and, referring to the work of Gallace and Spence, suggests that "the experience of touching objects could be a particularly effective way of bringing to mind information that might otherwise be difficult to retrieve."[27]

Our material culture activities during our first workshop would seem to confirm this. For instance, Figure 1 shows an art historian, industrial designer, and audio-visual librarian examining an electric desktop fan, considering its aesthetic, materials

Figure 1. *Art historian, Prof. Leslie Korrick, industrial designer and instructor, Nathalie Tambay, and Supervisor of Carleton University's Audio-Visual Resource Centre, Nancy Duff, examine a Torcan electric fan at Workshop I at the Archives of Ontario, 24 July 2023. Photo: Jan Hadlaw.*

and finishes, and hypothesizing on its socio-cultural context, manufacture, and use. By plugging the fan in, feeling the wind produced and listening to it, they were able to appreciate other aspects of the fan's design. For instance, they noted the quietness of the fan compared to its machinic appearance and were surprised by its effectiveness, given its diminutive size. The exercise underlined the importance of engaging haptically with artefacts for research and classroom activities.

The idea of object-oriented activities having pedagogical value is well established in design history. Since the foundation of the Victoria and Albert Museum (V&A, originally the Museum of Manufactures) in 1852, designed artefacts have been seen as pedagogical instruments, whether for public appreciation (engendering a sense of "good taste") or study (learning technique and, later, history).[28] As Willocks notes, teaching collections in schools of art and design proliferated in the United Kingdom in the first half of the twentieth century, as they were seen as inspiring better product design and thus economic success.[29] Use of the collections slowed in the decades after the Second World War due to increased student enrolment resulting in less space; however, collections saw a resurgence in use beginning in the 1970s, with an emphasis on "student-centred learning in art and design pedagogy" in the U.K.[30] The 1970s saw the emergence of Design History as a discipline as well as the development of material culture methodologies, leading to object-oriented research on seemingly mundane

objects of everyday use. The so-called "material turn" of the past quarter century has only reinforced the importance of studying materiality and opened the door to different interpretations and approaches to things.[31]

Close analysis of objects leads to new questions that can illuminate actors—human and non-human—which have traditionally not been accounted for in design historiography. Locating the designed object at the centre of investigation provides insights into the design process and how its objects are shaped by negotiations between "engineers and designers, manufacturers and marketers, corporations and consumers," as well as "the realities of manufacturing capability, political and economic policies, and social reception."[32] Focusing design research on the object has the paradoxical effect of creating the space to include the accounts of the experiences of people who use, modify, collect and reject designed objects, thus making it possible to think critically about both what and who is included in the history of Canadian design and what and who is excluded.

The presence of designed objects, instruments, tools, and environments in almost all aspects of modern life means that even seemingly mundane, consumer goods can provoke conversations about design processes, the place of design in everyday life, and difficult issues, whether about gender, race, and social justice, or resource extraction, labour, environmental concerns. For this reason, xDX artefacts provide great pedagogical potential and have been used in a variety of different courses across disciplines of Art and Architecture History, Computational Arts, Curatorial Studies, Design Studies, History, Humanities, and Industrial Design at Carleton and York Universities. We might see the use of artefacts in these wide-ranging courses as demonstrating the transdisciplinarity of design studies, for indeed some influential scholarship on the history of design in Canada is found in diverse fields of gender history, museum studies, and media history, not to mention science and technology studies, as the 2013 consumer technology themed issue of this journal made clear.[33] Given the lack of academic design history programs in Canada, researchers working either in other disciplines or curators at museums and galleries have produced some of the most significant work in the field. On the one hand, the xDX Project supports ongoing work across institutions involved in the project and beyond; and, on the other, it draws more attention to the field of design studies. An aim of the xDX Project is to build capacity to carry out design research in Canada by training new researchers, providing opportunities for scholars to connect, and producing online resources.

Digitizing Collections, Creating Connections

The idea of creating an online resource to connect datasets about design and share them with researchers and publics is not new. For instance, in 1998 Frances Joseph and colleagues developed the New Zealand Design Archives (NZDA), which gathered data on materials "sourced from public and private collections, museums, galleries, studios, garages, attics, shops and flea markets…from across New Zealand."[34] NZDA comprised two projects, one charting the history of graphic design in New Zealand, the other examining textiles in Aotearoa (the Māori name for New Zealand). Joseph distinguished the NZDA project, which was concerned with "finding and mapping information" and is "more cumulative, collaborative and open-ended", from digitization projects in museums

and galleries, which understandably "are linked to collection management strategies".[35] Despite the rich potential of the project to offer alternative histories and perspectives, the NZDA ceased in 2004 "as a result of lack of institutional support and following a server failure."[36] Zoë Hendon explains that because the NZDA "did not have a physical presence but simply existed within a digital space, it was more ephemeral and intangible than other collections and was thus easier to lose."[37] The story of the NZDA reminds us of the fragility of digital endeavours. The Design Exchange itself had attempted to create a multimedia "Canadian Design Directory" in the mid-1990s, but, due to costs and obsolete database software, it failed in the end.[38]

By working across different institutions and building a linked open-data model, we are optimistic about xDX Project's prospects and see an opportunity to think not only about the artefacts as historical evidence but the relationships between them as a collection. The costs of housing and maintaining databases is shared and the data model that LINCS and CHIN are developing could be used in a variety of different contexts, whether through a website or as a browser plug-in. As an inter-institutional project premised on a delineated collection, the xDX Project provides the occasion to think critically about how objects that the staff of the DX assembled around the concept of design might fit into the data structures and programming of differing institutions with their unique interests and mandates. In his consideration of photography within National Science and Media Museum (NSMM), Geoffrey Belknap reminds us that collecting institutions frame the way artefacts are perceived, organized, and described, "reflecting the systems of organization within which they sit."[39] The LOD model opens up a larger universe of connections across institutions and beyond.

The teaching collections at York and Carleton offer particularly rich opportunities for learning about design histories through artefacts and the structure of data. Student research assistants have worked directly with artefacts and their associated data in cataloguing them at their new institutional homes. In the case of Carleton, this coincided with the implementation of a dynamic data-management system for audio and visual collections, with the xDX artefacts providing the first set of items to be catalogued. Involving students in the processing of the collection, not to mention the use of archival material and artefacts in classroom activities even before their cataloguing, "offers opportunities for more collaborative meaning-making and the inclusion of multiple perspectives," as Willcocks argues based on her experience incorporating uncatalogued archives from Central Saint Martins Museum & Study into the College's MA in Culture, Criticism and Curation.[40] Working with artefacts together allows us to think critically about what information is recorded, what is missing, what relationships exist between artefacts and entities, etc. And having multiple perspectives, including those of students in classes and research assistants, only enriches our understanding of the artefacts we have and what they might tell us.

As our team of student research assistants 'clean' data (i.e., standardize, correct, and determine sets of categories about artefacts), they draw attention to the diverse actors and elements involved in the creation of designed things. Most features—locations, materials, techniques, designers, manufacturers, and so on—are reconciled with Uniform Resource Identifiers (URI). This allows for connections to be made between

the different features or actors in the web of linked data about the xDX artefacts, and, eventually to other things on the internet. Since Canadian manufacturing and design history is not well documented, many URIs simply do not exist. An important outcome of the project, then, is the creation of permanent identifiers for Canadian designers, companies, sites, etc. Data will exist thus both inside institutional databases and outside, affording other researchers opportunities to find, use, and learn more about actors associated with the assemblage of xDX artefacts. The data—the representations of features of or information about xDX things—provide links that connect the artefacts to the collection and open the possibility of fostering design publics.

In addition to creating a linked open-data resource, the xDX Project is considering how the artefacts as pedagogical instruments can be made accessible, both in more traditional, tangible forms (e.g., exhibition or workshops) as well as in digitally representational ways. So far, our experiments have largely taken place in the classroom. For example, students in Prof. Hadlaw's Design Studies course undertook hands-on material research on the xDX artefacts and archival research at the Archives of Ontario to explore the histories of the artefacts along the timeline of their existence in order to inform the design of virtual-museum exhibits. Art and Architectural History (AAH) students, co-taught by Professors Ming Tiampo and Windover at Carleton, developed projects that annotated 3-D images of xDX artefacts with links to websites, maps, and videos, voice-overs and audio (e.g., music or sound clips associated with the artefacts), images, and texts they wrote for a general, interested audience. Another student in the AAH program, Sarah Mihychuk, worked with a translucent blue, Toastess kettle from the xDX teaching collection to create a Minecraft adventure map that sought to teach university-aged students about design history (Fig. 2).[41] As players completed games, they considered the kettle as manufactured product (in a factory), consumer good (in a 1990s-era mall), and artefact (in an art-gallery context). Important in Mihychuk's work is the understanding of Minecraft users as a distinct audience and engaging them in ways that build or reinforce community. All of these multi-media projects point to places, ideas, and people associated with the artefacts under investigation and encourage active engagement with histories of design. As Matthew Bird asserts, using digital media for research (and we might add dissemination) presents an opportunity to "work around the canon" of established design histories.[42] The projects also reinforce pedagogical potential of the collection and suggest rich possibilities of using digital representations of the artefacts help create publics.

The preliminary digital efforts associated with xDX Project align with projects elsewhere that are likewise aiming to foster publics through representations of design artefacts. A prime example is the "Pop-Up VR Museum."[43] This collaboration between the Design Museum Helsinki and the Aalto University School of Arts, Design, and Architecture used objects of Finnish design as "a platform for dialogue."[44] Through a series of workshops, senior citizens and people who may not otherwise be able to easily visit the museum met with university researchers and designers, as well as museum professionals to co-design the virtual museum, which featured oral history, stories and information about the artefacts, and opportunities to add to the data on the artefacts. This kind of community-engaged work may provide a model for subsequent work in

Figure 2. *Screenshots of Sarah Mihychuk's Minecraft adventure map, 2024. The top features the "design office" (kettle as manufactured product), the middle provides a view of a store in the mall portion of the game (kettle as consumer good), and the bottom represents the space of the Carleton University Art Gallery for an exhibition about kettles (kettle as artefact).*

the xDX Project, especially as new representations of artefacts are created alongside ongoing research and the fleshing out of records on each.

Conclusion

Our discussion of the xDX Project demonstrates how artefacts, analyses of them, and the way they are represented (as data, images, parts of larger narratives, etc.) can contribute to the development of critically informed and nuanced design histories of Canada. They prompt scholarly inquiry and can lead to networks of researchers and institutions that will form a foundation for further work in the field. The resulting work can, as *Canadian Modern* and post-secondary-classroom examples suggest, build design publics, train future designers and design historians, and, more generally, engender further interest in the field.

The challenges students and research assistants have faced in researching the xDX objects, manufacturers, and designers illuminate the underdeveloped state of Canadian design history as well as the value of a research tool such as the one the xDX Project is building. This open, integrated, and expandable resource will point the research back to an object of design. It will also allow researchers and students to contribute to building rich sets of data and, as the project develops, to readily access information about products and goods designed in Canada. DX marked the spot where histories of Canadian design premised on a collection of artefacts began. With the xDX Project—taking advantage of its disseminated form and interlinked collection data—we are now marking an exciting new phase in the development of design studies in Canada.

Michael Windover is Associate Professor and Head of Art and Architectural History in the School for Studies in Art and Culture at Carleton University. Cross-appointed to the School of Industrial Design and the Institute for Comparative Studies in Literature, Art and Culture at Carleton, and adjunct curator of design at Ingenium, Windover is a historian of modern architecture, design, and material culture. He is author of Art Deco: A Mode of Mobility (Presses de l'Université du Québec, 2012), co-author with Anne MacLennan of Seeing, Selling, and Situating Radio in Canada, 1922-1956 (Dalhousie Architectural Press, 2017), co-editor with Bridget Elliott of The Routledge Companion to Art Deco (Routledge, 2019), and co-editor with Matthew Reeve of Casa Loma: Millionaires, Medievalism, and Modernity in Toronto's Gilded Age (McGill-Queen's University Press, 2023). He is co-director of xDX Project: Documenting, Linking, and Interpreting Canada's Design Heritage.
michael.windover@carleton.ca

Jan Hadlaw is an Associate Professor in the School of Art, Media, Performance, & Design at York University, Toronto. She is the Principal Investigator and Co-Director of the xDX Project: Documenting, Linking, and Interpreting Canada's Design Heritage. A historian of design and media, her research focuses on histories of design, technology, and everyday life, especially the design of 20th-century technologies, their representation in popular culture, and their roles in advancing modern conceptions of time, space, and identity. Her work has been published in the Journal of Design History, Design Issues, Space & Culture, Technology & Culture, Material Culture Review, Objet et Communication, as well as several edited collections. She is a member of the International Committee on the History of Technology (ICHOTEC) executive committee, and the editorial board of the journal ICON. jhadlaw@yorku.ca

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13 Bill Brown, "Objects, Others, and Us (The Refabrication of Things)," *Critical Inquiry* 36, no. 2 (2010): 188.

14 Michael Windover, "Listening for Design: Agency and History in a Philips Aachen-Super D 52," in *Design and Agency: Critical Perspective on Identities, Histories and Practices*, John Potvin and Marie-Ève Marchand, eds. (London: Bloomsbury Visual Arts, 2020)., 97-110

15 Kjetil Fallan points out that the seemingly arbitrary designation of what constitutes a science and a design collection goes back to the turn of the last century: "after exhibiting locomotives and scientific instruments side by side with furniture and textiles for several decades, London's South Kensington Museum…was divided and became what are now two separate institutions: the Science Museum and the Victoria and Albert Museum." Fallan, *Design History*, 56.

16 John Heskett, *Design: A Very Short Introduction* (Oxford: Oxford University Press, 2002), 3-4. He uses the example of the sentence "Design is to design a design to produce a design" to illustrate the different, grammatically correct uses of the English word.

17 For example, see Peter Day and Linda Lewis, *Art in Everyday Life: Observations on Contemporary Canadian Design* (Toronto: Summerhill Press and Power Plant, 1988); Robert Fones, *A Spanner in the Works: The Furniture of Russell Spanner, 1950-1953* (Toronto: Power Plant, 1990); Robert McKaskell, *Achieving the Modern: Canadian Abstract Painting and Design in the 1950s* (Winnipeg: Winnipeg Art Gallery, 1993); Alan C. Elder and Ian M. Thom, eds., *A Modern Life: Art and Design in British Columbia 1945-1960* (Vancouver: Art Gallery of Vancouver, 2004); Alan C. Elder, ed., *Made in Canada: Craft and Design in the Sixties* (Montreal and Kingston: McGill-Queen's University Press, 2005); Rosalind M. Pepall and Diane Charbonneau, eds., *Decorative Arts & Design: The Montreal Museum of Fine Arts' Collection* (Montreal, Quebec: Montreal Museum of Fine Arts, 2012); Daina Augaitis, Allan Collier, and Stephanie Rebick, eds., *Modern in the Making: Post-War Craft and Design in British Columbia* (Vancouver: Figure 1 and Vancouver Art Gallery, 2020).

18 *Canadian Modern* offered the first substantial, public engagement with xDX artefacts after their deaccessioning. The exhibition ran from 3 December 2022 to 15 October 2023 (https://www.rom.on.ca/en/exhibitions-galleries/exhibitions/canadian-modern). See Rachel Gotlieb, with contributions by Alexandra Palmer and Arlene Gehmacher, *Canadian Modern* (Toronto: Royal Ontario Museum, 2022). Dr. Tina Cooper-Bolam and her curatorial studies class (CURA 5002) developed and installed an exhibition at the Lightroom Gallery in the Architecture Building at Carleton in the winter of 2020 but it did not open due to the public safety measures implemented with the announcement of the Covid-19 pandemic. This project is the subject of a forthcoming book, *Objects as Evidence/Agents: Curated Encounters with Domestic Objects* (Dalhousie Architectural Press).

19 This was facilitated through a partnership between the ROM and Dori Tunstall, Dean of Design at OCAD University. See Gotlieb, *Canadian Modern*, 9.

20 Jan Hadlaw, "Design Nationalism, Technological Pragmatism, and the Performance of Canadian-ness: The Case of the Contempra Telephone," *Journal of Design History* 32, no.3 (2019): 240.

21 Joy Parr, *Domestic Goods: The Material, the Moral, and the Economic in the Postwar Years* (Toronto: University of Toronto Press, 1999). See also Hadlaw, "Design Nationalism;" Elise Hodson, "Design in Motion: The Everyday Object and the Global Division of Design Labour," (PhD dissertation, York University, 2019); Martin Racine, *Julien Hébert (1917-1994): Fondateur du design moderne au Québec* (Montréal: Éditions du passage, 2016); Garth Wilson, "Designing Meaning: Streamlining, National Identity and the Case of Locomotive CN6400," *Journal of Design History* 21, no. 3 (2008): 237–257.

22 Angelica Vandi, "Dealing with Objects, Dealing with Data. The Role of the Archive in Curating and Disseminating Fashion Culture through Digital Technologies," *ZoneModa Journal* 13 (2023): 158.

23 Jeffrey L. Meikle, "Material Virtues: on the Ideal and the Real in Design History," *Journal of Design History* 11, no. 3 (1998): 193.

24 Meikle, "Material Virtues," 193.

25 Judy Willcocks, "The Power of Concrete Experience: Museum Collections, Touch and Meaning Making in Art and Design Pedagogy," in *Engaging the Senses: Object-Based Leaning in Higher Education*, Helen J. Chatterjee and Leonie Hannan, eds. (London and New York: Routledge, 2008), 54.

26 Kirsten Hardie, "Engaging Learners through Engaging Designs that Enrich and Energise Learning and Teaching," in *Engaging the Senses*, 37.

27 Hardie, "Engaging Learners," 51. She references Alberto Gallace and Charles Spence, "A Memory for Touch: The Cognitive Psychology of Tactile Memory," in *Touch in Museums: Policy and Practice in Object Handling*, Helen Chatterjee, ed. (New York: Berg, 2008), 163-186.

28 Loveday, *Curating Design*, 33.

29 Judy Willcocks, "The Power of Concrete Experience: Museum Collections, Touch and Meaning Making in Art and Design Pedagogy," in *Engaging the Senses*, 44.

30 Willcocks, "The Power of Concrete Experience" 44.

31 For example, Leslie Atzmon and Prasad Boradkar, eds., *Encountering Things: Design and Theories of Things* (London: Bloomsbury, 2017)..

32 Hadlaw, "Design Nationalism," 241.

33 For example, Parr, *Domestic Goods*; Wilson, "Designing Meaning"; Michael Windover and Anne MacLennan, *Seeing, Selling, and Situating Radio in Canada, 1922– 1956* (Halifax: Dalhousie Architectural Press, 2017); Jan Hadlaw, "'Mysteries of the New Phone Explained': Introducing Dial Telephones and Automatic Service to Bell Canada Subscribers in the 1920s," in *Made Modern: Science and Technology in Canadian History*, E. Imhotep-Jones and T. Adcock, eds. (Vancouver: University of British Columbia Press, 2018), 143–165; Dorotea Gucciardo, "Introduction: Canada's Usable Past: Consumer Technologies in Historical Perspective," *Scientia Canadensis* 36, no. 1 (2013): 1-3.

34 Frances Joseph, "Archives and Collections: The New Zealand Archives: Digital Resource Building and Design History," *Journal of Design History* 14, no. 3 (2001): 227.

35 Joseph, "Archives and Collections," 233.

36 Zoë Hendon, "Archives, Collections and Curatorship: Virtual Special Issue for the *Journal of Design History* 2019," *Journal of Design History* 33, no. 1 (2019): e46.

37 Hendon, "Archives, Collections and Curatorship," e47.

38 Cohen, *Designing the Exchange,* 13.

39 Geoffrey Belknap, "Conceptualizing 'Science' in the Photography Collections at the National Science and Media Museum," *Scientia Canadensis* 44, no. 1 (2022): 114.

40 Judy Willcocks, "Archives, Collections and Curatorship: Live Archive Projects in a Design History Learning Setting," *Journal of Design History* 34, no. 2 (2021): 166.

41 Results from her Major Research Project will be published in Katherine Davidson, Kavita Mistry, and Scott Coleman, eds., *Speculative Futures in Cultural Heritage Informatics* (Digital Press at the University of North Dakota, forthcoming).

42 Matthew Bird, "Using digital tools to work around the canon," in *Design History beyond the Canon*, Jennifer Kaufmann-Buhler and Chris Wilson, eds. (London: Bloomsbury Visual Arts, 2019), 111-126.

43 Lily Díaz-Kommonen, Leena Svinhufvud, Susanna Thiel, and Gautam Vishwanath, "Enriching Museum Collection with Virtual Design Objects and Community Narratives: Pop-up-VR Museum," *Collections: A Journal for Museum and Archives Professionals* 20, no. 1 (2024): 77-95.

44 Díaz-Kommonen et al., "Enriching Museum Collection," 80.