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LIVES OF CULTURAL  
OBJECTS*Jeffrey Schnapp*

Big data is big. Big inasmuch as it has become a dominant feature of the public conversation regarding the knowledge economy. Big also to the degree that it is the focal point of major investments in organizations of every kind, from government to business and media to universities. In this context, the adjective “big” has tended to become commensurate with adequacy and completeness.

Small data is small. Small inasmuch as there is much less public discourse about small data sets, even though the great majority of data sets fall into that category. In the big data conversation, the adjective “small” has become associated with inadequacy and incompleteness, even insignificance.

There is, of course, no consensus on what counts as big or small, because data scales are a moving target and data densities do not always correlate with data volumes or with the size of a given source. The big data of yesteryear are all too readily the small data of today. And the sensor systems embedded in the traffic lights at a city crossroads may produce torrents of information that, from a computational standpoint, are “small” because their simple structure makes them easy to process.

Such inherent ambiguities aside, there are, of course, some agreed-upon conventional understandings regarding what counts as big. They run something like the following:

Big data implies not just *size* but also *complexity*, attributable to the confluence of a variety of independent data sources that cannot readily be analyzed or managed with standard tools and techniques: this due to the unpredictability or shifting nature of their permutations and combinations. When brought together, large size and complexity create the distinctive challenges and opportunities that define the field of big data.

Much of the public conversation around big data has, in reality, been about the present and future of big business or, sometimes, big cities—about the accelerated processing of real-time data streams, particularly the data produced by social media, for purposes of monitoring, management, or forecasting the behavior of complex systems.

A good deal of this conversation seems to me of only oblique interest to the humanities, that is, unless real-time historiography and trendcasting were to suddenly bubble up and

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reinforce the hold—some would say the *stranglehold*—of presentism over the contemporary humanities. This said, the question of designing and building “animated archives” that document contemporary culture and history—particularly *emergent* cultural forms and *emergent* historical events—is surely apropos, implying as it does size, complexity, and the unpredictability engendered by large volumes of highly diverse media as well as heterogeneous user populations. One case in point is the Digital Archive of Japan’s 2011 Disasters, which metaLAB played a key role in prototyping what my colleagues and I like to call “live crisis archiving.” Known as the JDA, the project expands the compass of how memories are built in, attend to, and serve the *present* while, at the same time, ensuring the transmission of the past to future generations much as archives have always done. Participatory in character, federative in its design (involving partners from Yahoo! Japan to the National Diet Library), encompassing media types from tweets and photographs to testimonials generated on-site to websites and video, the JDA is made up not only of documents but also and most especially of the beehive-like curatorial and interpretive activities of the community that animates it: a community that includes everyone from victims and activists to policymakers and journalists to students, scholars, and environmental scientists. And what is perhaps transformative is that the diverse time horizons of this varied user population are matched by the ability of the archive itself to permit users to analyze the events associated with the March 2011 earthquake and tsunami on time scales that extend from hundredths of seconds to months and years and eventually decades. (As a cultural historian, I am usually excited when I can track an event down to the scale of years or months. The notion of being able to excavate events on the scale of tens of seconds seems as daunting as it is exhilarating.)

Other portions of the public conversation regarding big data seem to me more directly pertinent to future work in cultural-historical fields: fields where open and linked data infrastructures analogous to the Global Biodiversity Information Facility may one day allow for the aggregation and analysis of data sets in the form of bibliographies, collections inventories, demographic databases, text repositories, and social and economic surveys, across institutions. The promise tendered by such infrastructures to future generations of scholars is multiple: the promise of being able to reconstruct forgotten, ignored, and invisible histories—histories including not just texts and images but also sound and the tangible world; the promise of enhanced reach, rigor, and precision in humanities research findings; the promise of being able to tell stories about culture on unexpected scales by, for example, providing moment-by-moment “picture-perfect” time slices of the evolution of communities and cultural institutions, or exploring local or global entanglements between economic, social, and cultural trends over time scales, from hours and days to centuries and millennia. Perhaps there is even space here for a quantitative humanities that would build bridges with or critique the quantitative social sciences.

Whatever the case may be, fulfillment of these promises depends upon the quality, consistency, and design of individual records. Big data, however defined, are built out of small data, and even the smallest of data are hardly *given* or *captured* (as the Latin *datus* and *captus* misleadingly suggest). Rather, data are *constructed* and, when captured, it is these *constructs* that are seized. Data are, of course, constructed according to institutionally inflected schemes that presuppose assumptions regarding value, significance, and use; as well as shaped as a function of information architectures, tools, and techniques. All of which is a round-about way of saying that, when it comes to data (as in the case of complex systems like those of the natural world), the big is fatally entangled with the small and the small with the big in ways that enable the kinds of stories, big or small, we can tell with them. So the deeper question, in my mind, is not *big or small*, but rather *big and small*: or rather, how we

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*design* the webs of interconnection, the zooming spaces, between different scales and points of entry.

I would now like to drill down to the level of core records to then wrap up with consideration of some work related to my interest in museums as sites where academic research has the potential to speak to expert and nonexpert audiences alike. In so doing, I would like to examine the relation of these core records to the cultural objects from which they emanate like a kind of virtual projection or aureole to ask *how expanded modes of registration, record-making, and linking might thicken and enrich those virtual projections, whether from an informational or social standpoint or the standpoint of the sensory data they convey*. Every such data halo is, of course, at once a description and an abstraction, a set of representations and reductions. Irrespective of whether the object at hand is a Japanese woodblock print, a native Hawaiian feather headdress, a two-ton Assyrian monolith, or a mid-twentieth-century stovetop coffee maker, to extend its objecthood into the realm of data and digital media is to enact a metaphoric displacement and create a new set of objects that have their own materiality, affordances, expressivities, and even poetry: so-called “digital surrogates.” The elements that compose the world of objects and render them meaningful sources of experience and vectors of human sense-making encompass senses (touch, taste, and hearing) that are not readily reducible to snapshots, verbal descriptions, or data schemes. No record, no matter how exact or exhaustive, constitutes a perfect replica; discoverability, portability, and exchangeability are all achieved by stripping *some data* away in the name of *other data*. And the stories that objects, however small, tell often turn out to be not small at all, whether from the standpoint of data or their importance. The verse “To see a World in a Grain of Sand” from the opening of William Blake’s *Auguries of Innocence* comes to mind, as does the Zen parable of the monk who sees a landscape filled with mountains, rivers, and prairies on the apparently “blank” surface of a bean.

The humanities disciplines bring a unique set of skills to the table when it comes to the arts of observation, description, classification, and interpretation. Close attention to texts and artifacts (in particular, to their polyvalences and ambiguities), critically informed reflection on taxonomical practices, and nuanced thinking about power, shifts in media, and socio-historical context are all hallmarks of humanistic thought. So my question here is how we might bring this skill set to bear on the design of cultural records, not to mention the platforms that they support and depend upon in turn. Poets, in particular, have mused deeply and sometimes movingly about the question of what it means to coax objects to yield themselves up in the form of words and how the necessary “failure” of all such metaphoric transfers is generative, yielding new forms of experience, thought, and even beauty. Among them, I am fond of Mark Doty, who has recently written of perception that it is:

[S]imultaneous and layered, and to single out any aspect of it for naming is to turn your attention away from myriad other things, those braiding elements of the *sensorium*—that continuous, complex response to things perpetually delivered by the senses, the encompassing sphere that is such a large part of our subjectivity.

(Doty 2010: 3)

As Doty goes on to note, this shifting, ever provisional field of experience forms “a seamless web of information—but *information* is the driest and least revealing of essential twenty-first century words, and the data the senses offer every waking moment is anything but that” (4).

The data of the senses may be elusive, wet, and subjective, with one sense spilling over into the next; and information may be cut and dry, unrevealing, and institutional, much as

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Doty would have it. But there is an in-between space worthy of exploration that places the powers of the first in productive tension and dialogue with the second, and I would like to explore that in-between space with three convergent aims. First, to think about some modes of “sensory translation” that are more portable and less local or momentary than Doty’s normative body-to-body encounter between a given person and a given thing: what are the traces of otherwise difficult-to-represent sensory data—texture, smell, temperature, timber, grain—that could conceivably be (indirectly) captured, described, or transplanted to the database or screen? How might we get “closer” to objects, so to speak, even as we translate them into the realm of information? Second, I would like to think about how platforms built to leverage the power of expanded modes of description might enable users to interpret, analyze, curate, narrate, and/or experience cultural objects in some novel ways. Third, I would also like to think about the expressive potential of the metadata and media associated with objects and collections as *cultural materials in and of themselves*, particularly as these grow in scope and complexity: what are the braiding, medium-specific elements that make up the *sensorium* of information? Or to put it otherwise, where might the stuff of “poetry” lie in the metadata and media? And how might these be sculpted into meaningful, freestanding experiences?

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A world of purely autotelic analog objects has never existed. Objects have always been *social* in the minimal sense of being interconnected in the natural environment (even before the arrival of human agents to manipulate them) and, more often, in the maximal sense of becoming units of accumulation, exchange, and modification. As, many centuries ago, collections—be they collections of legal records; tablets, scrolls, or books; or art objects—scaled up to proportions that exceeded the cognitive ability of individuals to manage them without inventorial systems, the question of exactly *what* such records should record and *how* they should be tethered to the objects collected has remained an abiding question *internal* to culture.

Symptomatic of this fact is one of the founding moments in the western poetics of metadata: the publication of the 120 tablets of the *Pinakes*, authored by the third-century BC epigrammatist, Callimachus, in quantitative verse, in which the poet inventoried the 400,000 scrolls of the Alexandrian library, parsed by discipline, author, and genre. In the tens of centuries that followed the era of Callimachus, a proliferation of schemes for texts, art works, objects, and other socially or culturally significant items have evolved and eventually gelled into the standardized schemes that structure our bibliographical and collections databases.

So how to describe the things and, in turn, the aggregates of things known as collections, with whose care today’s librarians, registrars, curators, and scholars are entrusted? And how do we do so in ways that make them not just accessible to computational analysis but also engaging, if not sensorially, then in other ways? The conventional response, a response codified in the course of many centuries of inventorial, curatorial, and bibliographic practice, remains the most powerful option: to follow the conventions that reduce a given object to a series of fields: title, creator, date, place of creation, medium, provenance, plus associated inventorial data—object and accessions number, condition report, location code, etc. Add a still photograph or two, and a record is born: the standard record we now routinely experience (at least partially) exposed on museum websites. But how adequate are such descriptions given the

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range of descriptive techniques and media available to us? By whom and for whom ought they be produced? And how to confront the endemic problem faced by every taxonomical scheme: namely, that objects are blithely indifferent to human categories? Even a book can be a multitude of things: a sequence of letters and words organized into pages; a jewel-encrusted object whose significance is associated with its binding; a secret notebook in which readers transmit messages to future readers; or the sole surviving object documenting a shipwreck. Likewise, 190 fifth-century BC pottery shards or *ostraka*, like those found in a pit on the northern slope of the Athenian Acropolis, may correctly be described as the remains of broken urns and pots. But they may also form a corpus of deliberately falsified voting ballots authored, not by hundreds of citizens, but by the four conspirators who sought to have the Athenian leader, Themistokles, ostracized and sent into exile as part of a political plot (American School of Classical Studies n.d.).

For most of the history of modern cultural institutions—let us continue to limit ourselves to art museums—the conventional acts of reduction to title, creator, date, etc. were viable because the data were visible only on the inside. Collections data served the needs of inventory management and were the near-exclusive province of museum staff—registrars, conservators, curators, and educators—exposed to outsiders only in the form of wall labels and captions. But as catalogues and inventories have migrated out into public view on the world wide web, the situation has changed. The visit that once began and ended at the museum's door has dilated into a before, during, and after, with telepresence governing the before and after and sometimes infusing even the *during*. Yet the modes of description and representation in online catalogs remain much as they were in the predigital era: top down, tethered to standardized schemes, based upon atomized approaches to objects. Collections are made visible only as assemblages of individual objects and, even at the level of individual records, the majority of fields are routinely stripped away.

As a case in point, let us compare how the New York MoMA and Amazon.com describe the same item online: the Bialetti Moka Express—a design artifact born in the 1930s, industrialized in the 1950s, now a ubiquitous household object (Schnapp 2001).

The MoMA description strips the object of any trace of commerce to elevate it into the ether of blue chip design. It assigns the title of “creator” to Alfonso Bialetti; in point of fact, he was an inventor who, knowing nothing about design, stole the Moka's look from contemporary Parisian silver coffee sets. It provides a date of creation, but the object photographed does not correspond to that date: it is not the original mid-1930s Moka, but rather one from a late twentieth-century production run. It reduces the object to a single photographic image in which the coffeemaker has been rotated to conceal the pressure valve, the mechanical stamp along the object's waist, and the Bialetti logo, with its moustachioed cartoon of Alfonso Bialetti, created in the 1950s. The record provides no data regarding manufacturer, materials, size, and source. Nowhere does it hint that this is one in a vast series, that it is composed of three main components, or even that it is a stovetop coffee maker. (The existence of related products at MoMAstore.org is tastefully relegated to a link.)

The Amazon description is richer, more accurate, and opens up a space for engagement and collaborative description. It includes text, photographs, and video. It situates the object within a multilayered series of fields that show the size range of the device (from one to 40 cups); the families of variations and imitations it has engendered; the uses to which it can be put; the other objects, products, and processes with which it is associated; its constituent parts and weight. There is no embarrassment regarding the logo, the steam release fitting, or the mechanical stamp: they move front and center in the midst of a plurality of story lines that

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crisscross the object. There is a cacophony of voices: the Bialetti company's; various distributors, sellers, and advertisers; Amazon itself; the buzz of critical citizen-consumers. In short, Amazon treats the Moka as much a *network* as a *product*.

Amazon's descriptions are hardly perfect. As one might expect, they show little interest in data that are not associated with use-value or consumption. They tell us little about the materials that make up the device, how or where it was fabricated, or the mutations that its design has undergone in the course of its 70-year history. But they hint at the potential for multifaceted, striated regimes of description that both expand the nature of the descriptors themselves and build them from the ground up, tapping into a plurality of communities of interest and expertise. Most of all, they approach the act of description as interpretive: curation and interpretation begin at the moment of accession, not in some distant afterlife.

In thinking beyond the Amazonian model, might not the design question for digital humanities be how to layer a diversity of representations on top of the standard descriptors so as to better approach the full sensorium—the weight, the texture, the feeling—of a cultural object? And how about unjamming the data resources through open APIs and linked data environments to create virtual realms of curation where researchers can work with open collections data and stories can be told through individual objects (excavated down to the nano scale) as well as with collection-sized aggregates, even *very* large aggregates? There are close to 14 million analog photographs currently housed at the United States Library of Congress: far too many to examine in the course of a lifetime. Yet they document twentieth-century American experience more thickly and richly than any competing repository. To render them accessible in digital form, while invaluable, does little in and of itself; it is only by making them usable with analytical and interpretive tools, which render them viewable and navigable as both aggregates and individual items, that we can begin to unlock their potential as engines of cultural argument on the micro, meso, and macro scale.

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What might a world look like where every object is understood as a collection and every collection understood as a social network of things? There is of course no single answer. But one provocative, platform-level answer that I admire comes in the form of James Bridle's *Hyper-Stacks* project, recently on exhibit at the Victoria and Albert Museum (V&A) (Bridle 2015b). The hyper-stacks in question are networks of objects belonging to the V&A collection whose records, accessed via the V&A's API, have been analyzed using Open Calais to extract the swarm of tags from which collection maps are in turn generated. These are displayed in the V&A gallery as physical stacks and online as force-based network graphs, lists of tags, and inventorial listings, which can be reshuffled and modified by means of user input (Bridle 2015a)

Bridle is, of course, working with the V&A's records as they stand. So to return once again to the question of what exactly an *expanded core record* might look like, it is perhaps worth mentioning a few high-end techniques currently being employed for research purposes that could also be used to capture traces of Doty's "braided sensorium" and enable experiences of an object's morphology or viscera. Two techniques fascinate me in particular: one external—the use computational photography tools such as RTI (Reflectance Transformation Imaging) and Algorithmic Rendering; the other internal—micro-CT (Computed Tomography), a nondestructive technique for the full-volume scanning of an object's physical structure (Cultural Heritage Imaging n.d.). RTI has been used to expose processes of over-

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writing in stone inscriptions and medieval manuscripts, as well as to analyze decorative features of seventeenth-century bindings. Thanks to RTI, highly attenuated threshold attributes, invisible to a conventional camera lens or the naked eye but available to the sense of touch, such as the grain of an item, can be represented. Micro-CT instead plumbs depths that can, at best, be intuited: it has been fruitfully employed for the study of mummies, the restoration of statues, and the study of antique furnishings (Re et al. 2014). Tomography tells us about the way that things are made, the secrets they harbor; it allows us to experience features of an object that may have been inaccessible even to its creator. For the moment, both are expensive technologies. But there exists a growing array of low cost, “rough and dirty” techniques from open source, automated image analytics and photogrammetry to the recording of object sound files (what does a vase sound like when its tapped?), animated GIFs (what does it look like in the round?), high magnification photography (what is its texture?), and video (how does one manipulate it?), all of which produce data objects that can be increasingly analyzed and rendered searchable thanks to tools such as image and acoustical search engines and speech recognition software. And let us not leave out the registration of simple aspects of physicality, like an object’s texture or weight, that are still frequently omitted from data schemes.

An approach of this kind was sketched out in *Teaching with Things*, a project developed a couple of years back with my colleagues, Matthew Battles and Yanni Loukissas (now at Georgia Tech). In *Teaching with Things*, the point of departure was to enrich inventory records by adding multimedia elements to the standard core: an “anchor” representation in the form of a quick-and-dirty 3-D model produced via photogrammetry and a library of video clips

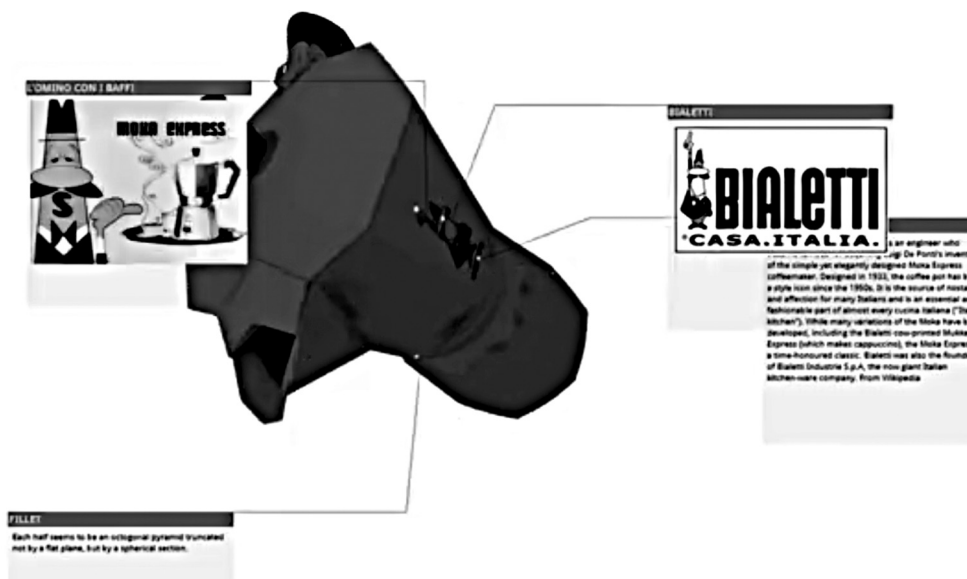


Figure 43.1 Screenshot from metaLAB (at Harvard’s *Teaching with Things* (2013) showing an “artifactual interface” in which annotations are directly pinpointed onto the surface of a three-dimensional model. In this particular case, the object in question is a Bialetti Moka Express.

Source: Matthew Battles, Yanni Loukissas, and Jeffrey Schnapp

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developed in the act of processing the object. The latter might typically include documentation of the object's scale and weight, its acoustical properties, its component parts, and any details that are significant from the standpoint of its use or meaning. These base elements were supplemented with forms of capture that expose otherwise imperceptible features: things you could not see even if the object was sitting right there in front of you—high magnification views of surfaces or hidden contours, slices of the object's geometry based on 3-D scans. In other words, here description and the building of an object record were understood as an interpretive process that results in a multimedia composite. In addition to the core record, there is an anchor model, but it is little more than a working model. No one representation, whether text record or video clip or photograph or sound file, puts itself forward as the definitive portrait: rather each and every object is treated as a collection, a mosaic, an aggregate of characteristics.

Step two in *Teaching with Things* was to transform this standard record plus multimedia composite into a node that supports an array of interpretive activities, from annotations and commentary to links across the collection and beyond. Such annotations, whatever their medium, can be “pinned” to any location on the three-dimensional anchor model or to the model as a whole. They can be displayed in one of two forms. The first is as a set of windows radiating outward from the model that serves as an “artifactual interface.” Much as you explore an object in the physical world with your hands, you are able to explore clusters of annotations without ever entering a keyword: by simply rotating and zooming in and out of the anchor model. The second form involves a split-screen representation in which the core record of an anchor model plus a multimedia description appear on the far left, while on the right appears the accumulated stratigraphy of forms of analysis, cross-reference, argument, and commentary that, considered together, tell the full but still unfolding story of a given object, its family relations, its meanings as construed by various communities of interpreters. Much like Bridle's *Hyper-Stacks*, the aim is to model a world where, instead of being treated as singularities, cultural objects appear enmeshed in the networks that confer meaning upon them.

If the overall aim of *Teaching with Things* was to explore the webs of relations that animate a given cultural object in the digital environment, then the final destination is to place those webs in direct dialogue with physical originals. By way of a conclusion, I would like to demo an installation project that does just this by building an experience of a collections database into the very site where the physical originals are housed.

On the top floor of the recently inaugurated Harvard Art Museum, there is a leftover space between the conservation labs and the glass-enclosed central courtyard where the nineteenth-century Fogg Museum merges with Renzo Piano's new glass and steel structure. This otherwise useless space is too bright for paper objects, too small for exhibits, and too much of a corridor for the silent contemplation of artworks. The result was its recasting as the so-called Lightbox Gallery, with a wall of monitors on one side and a set of networked projectors on the other that cast their images onto semiopaque shades (Harvard Art Museums n.d.). Deployed as a space for multimedia events, media artworks, and media-augmented micro-exhibitions, its default identity was developed by a student team led by my colleagues, Jessica Yurkovsky, Krystelle Denis, and James Yamada, as part of the Berkman Center's 2014 Digital Problem-Solving Initiative. Their work assumes the following form. Upon entering the gallery, you are greeted by an object map made of thumbnails for every single item installed on the floors below: some 1,800 items from ancient coins to works of contemporary art. Displayed on the wall of monitors, these thumbnails are called by a JavaScript program via the museum API. When a visitor points an air mouse at any of the thumbnails and clicks on



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it, the item is pulled to the center of the object map and surrounded by an overlay, which exposes the entire database record as well as the stack of surrogates that accompany it: x-ray images, an analysis of color saturation and balance, other copies of the work, related objects in storage . . . you name it. If the visitor moves the cursor over any of the data fields, then they light up as if to say, “click on me.” When one accepts the invitation, the entire object map is reshuffled in accordance with the filter being applied. Perhaps the visitor wants to see the entire collection organized by material, the frequency of online visitors, or date of accession. All of these actions have a secondary effect: they activate the projection system, which produces a variety of data visualizations that allow visitors to see where the object they have selected ranks in that given category (date of accession, medium, provenance, etc.). By toggling between these two modes of viewing in a minute, you will get a general sense, I think, of how the Lightbox works.

The Lightbox Gallery is designed to productively entangle the small with the big and the big with the small in two complementary but divergent ways. On the one hand, it seeks to add value to the visitor’s experience of the physical originals: visitors arrive at the Lightbox *after* they have completed their visit to the exhibition floors below, and many return downstairs to view the originals experienced in digital form in the Lightbox. On the other hand, the gallery is designed as an immersive database theater where—emancipated from referential obligations—metadata and digital media are free to dance at the visitors’ command, making a show of a mutability, scalability, and zoomability that is theirs alone (i.e., not shared with their physical counterparts). There is even a geeky wink here to the developer community: Lightbox is the JavaScript library that dims out a web page as an image or video fills the center of the screen.

The project’s point is easy enough to sum up: the addition of a “virtual” gallery like the Lightbox is not an either/or proposition with respect to understanding a museum as an institution dedicated to the stewardship of collections of things. Here it is not surrogates *or* originals, but surrogates *and* originals working side by side, sometimes as individual entities, sometimes as members of a larger whole.

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