Aby Warburg’s *Mnemosyne Atlas*: On Photography, Archives, and the Afterlife of Images

by Molly Kalkstein

In 1923, following his release from the Bellevue Sanatorium in Kreuzlingen, Switzerland, where he had spent three years in treatment for depression and schizophrenia, the German art historian Aby Warburg began work on the great culminating project of his career. Warburg intended the *Bilderatlas Mnemosyne* [Mnemosyne Atlas], as it has come to be called, to synthesize his previous scholarship and crystallize his theories about the migration and repetition of “images of great symbolic, intellectual, and emotional power” from the art and culture of Western antiquity through the Renaissance, and up through his own day.³ Although Warburg is often credited with founding the study of iconology, later promulgated in the United States by his disciple Erwin Panofsky, the movement and impact of images he hoped to demonstrate through the *Mnemosyne Atlas* had a much deeper psychological inflection. As Warburg explained, his program was an attempt “to point to the function of collective memory as a formative force for the emergence of styles by using the civilization of pagan antiquity as a constant.”⁴

Notoriously ambitious and elusive, and left unfinished at the time of Warburg’s death, the *Mnemosyne Atlas* comprised a numbered series of black cloth-covered screens on which Warburg would arrange and rearrange groupings of black and white gelatin silver photographs, comprising nearly one thousand images in all. The photographs reproduced works of high art, maps, cosmographical images, manuscript pages, and were in some instances interspersed with contemporary newspaper clippings and advertisements (Fig. 1). Warburg selected these images from his own library, and specifically from his photographic collection, which, Katia Mazzucco proposes, he specifically assembled to support this project.³ Warburg intended each panel to demonstrate a particular theme or argument, many details of which are still being parsed. Warburg summarized Panel 77, shown in Figure 1, for example, rather obliquely as “the catharsis of the ‘headhunter’ having taken the form of a golfer.”⁴ Its contents comprise, as Christopher Wood describes it, an irregular constellation embracing *Medea about to Kill Her Children* and *The Massacre at Chios* by Delacroix, modern photographs of golfers, two Greek coins, the cover of a fish cookbook, postage stamps from France and Barbados, an advertisement for a beauty cream, and a seal presenting Charles II of England as Neptune.⁵
Fig. 1. Aby Warburg, *Bilderatlas Mnemosyne* [Mnemosyne Atlas], Panel 77, 1929, digital positive from glass plate negative, 9 1/2 x 7 in. (23.7 x 17.7 cm). Warburg Institute Archive, London. © The Warburg Institute.
Wood, like many other scholars, is quick to admit that many of the meanings that Warburg ascribed to his aggregations of images remain enigmatic to this day.

Warburg intended to publish the completed Atlas as separate volumes of plates and text, but the extant version consists only of photographs of the individual panels in different iterations (there were supposed to have been at least 79 in all), the draft of an introduction, and an archive of notes and working materials. Despite, or more likely because of, both its idiosyncratic methodology and eternal state of incompletion, the ultimate form and meaning of the Atlas have been extensively debated. Ernst Gombrich’s 1970 publication Aby Warburg: An Intellectual Biography fostered significant interest in Warburg, and Atlas scholarship in particular has picked up considerable steam from the 1990s onward. Although Warburg was for many decades a relatively obscure figure within the discipline of art history—despite the fame of his library, now housed at the Warburg Institute in London, to which it was moved in 1933—recent scholars have come to find the Mnemosyne Atlas a compelling and versatile touchstone, one whose approach seems only to have grown in relevance. Indeed, this article will not be primarily concerned with the many detailed analyses of Warburg’s art historical arguments, but will instead take its cue from scholarship that emphasizes the Mnemosyne Atlas’s material qualities, structure, and legibility as a visual, intellectual, and imaginative object. I am especially interested in what Emily Verla Bovino has referred to as the Nachleben [afterlife] of the Atlas and its emergence as an Idealstil [idea style], as evinced by the many exhibitions, digital projects, and other experiments that take the Atlas as their starting point. As Bovino notes (but does not necessarily endorse), there is a sense among some scholars that the explosion of interest in the Atlas has resulted in both a loss of aura and its dilution as a scholarly object, in tandem with its ascendance as an aestheticized metonym for disparate practices of assemblage, montage, and “idiosyncratic free play with the juxtaposition of images.” I would argue, however, that this so-called afterlife of the Mnemosyne Atlas is very much in keeping with both Warburg’s original project and with its ultimate impossibility as a finished undertaking. Further, as the growing body of scholarship continues to suggest that the Atlas has in some sense come home, historiographically speaking, its resonance with contemporary discussions about the migration of digital images (especially digital photographs) and both the limitations and possibilities of digital archives remains to be developed. The movement and transformation of images, the special technological significance of photographs, and the fecundity of the archive are all key to Warburg’s project, as well as to our increasingly networked, image-laden digital culture. In this article, then, I begin by outlining a necessarily selective historiography of both early conceptions of the structural qualities of the Mnemosyne Atlas and subsequent scholarship that contextu-
alizes it vis-à-vis the atlas format more broadly. I then consider the Atlas’s peculiar relationship to photography, and, finally, examine it in dialogue with recent scholarship about digital images and archives. What ultimately becomes clear is that, having left the Atlas in an incomplete, contradictory, and specifically pictorial form, Warburg gave his project the space to carry out its own thesis, and to anticipate technological developments and cultural discourses that are only now coming into focus.

**Early Historiography**

The question of how, exactly, to interpret the Mnemosyne Atlas is one that has both beleaguered and fascinated researchers since Warburg’s death, starting with the two most intensely vested members of his circle, Fritz Saxl and Gertrud Bing, as well as Austrian art historian Ernst Gombrich. In these early years following the evacuation of Warburg’s library and archive from Hamburg, Saxl and Bing were firmly intent on producing a finalized, published version—in English, no less—of the Atlas. This project never approached completion, but illustrates recurring attempts by Warburg’s disciples to wrestle the Atlas into submission by pruning many of its more idiosyncratic qualities.

One product of this attempt was known as the Geburtstagsatlas [Birthday Atlas], a personal edition of the Mnemosyne Atlas presented to Warburg’s younger brother Max for his birthday in 1937. As Mazzucco explains, this revised version of the Atlas, although not itself intended for publication, reveals Bing and Saxl’s vision for a finalized iteration. She points out that the Birthday Atlas, which was based on (indeed directly clipped from copies of) photographs of the last iteration of Warburg’s panels, is primarily a revision of the Atlas’s layout and graphic presentation. The overall effect is noticeably
streamlined, with the resulting panels containing fewer individual images, each now neatly captioned, more uniformly spaced, and more consistent in size. Saxl and Bing omitted Warburg’s characteristic repetition of enlarged image details, and transmuted the vertical arrangement of the original screens into a horizontal orientation (Figs. 2 and 3). They also replaced the black cloth of Warburg’s screens with white backgrounds, and excised of most of the Atlas’s “eccentric materials,” that is, the various newspaper clippings and photographs, advertisements, and stamps that only appeared in the versions Warburg created just before his death.

The ultimate intent of these revisions, Mazzucco suggests, was to exclude unfinished, unintelligible, or otherwise undesirable aspects of Warburg’s work in progress. These alterations attempt to produce a more legible edition of the Atlas, with a thematic, linear sequence, rather than the “polyphony and anachronisms” of Warburg’s own versions. It is especially significant, then, that later scholars have explicitly pointed to Warburg’s use of contemporary, vernacular materials as fundamental to his project. Charlotte Schoell-Glass, for example, suggests that not only was the inclusion of such images art historically unprecedented, but also that “if a unified theory of the ‘human memory of images’ was to be devised, it could hardly be restricted to the art and culture of the Renaissance.” The use of these materials thus acted as an important test of the viability of Warburg’s entire thesis.

Despite the single-mindedness with which Warburg’s disciples pursued their goal of publishing the Mnemosyne Atlas, by the time Ernst Gombrich produced his Intellectual Biography in 1970 (both Saxl and Bing having died years before), he was fully convinced of the “enormous technical and intrinsic difficulties” that made the project ultimately unachievable. Further, it was only by “leaving aside some of the digressions and episodes to be found on the screens” that he was able to put forward even a top-level overview of the Atlas’s structure. Indeed, it would seem that Gombrich’s
entire approach to Warburg’s oeuvre was marked by a conviction as to its intrinsic state of fragmentation, perhaps formed in part by his apparent shock upon first confronting, as a young scholar, the unruly mass of Warburg’s archive. In his introduction to the Intellectual Biography, Gombrich writes that, as early as 1946, he was persuaded that “Warburg’s notes should not be published so much as used in a presentation of his ideas.” Mazzuco presses the issue further, suggesting that Gombrich also attributed the disjointedness of Warburg’s work directly to his struggle with the positivist scientific culture that characterized his historical milieu. Warburg’s “ceaseless efforts,” Gombrich wrote, “to grasp irrational experiences of mankind in rational terms without killing…their essence makes up…for part of the sense of tension and drama in his writings—more than that, it is mainly responsible for the inherent fragmentary character of his very work.” Throughout the Intellectual Biography, Gombrich emphasizes Warburg’s unpublished notes at the expense of his finished articles (of which, admittedly, there are relatively few). His perception of Warburg’s scholarship as incomplete is also evident in the ongoing project to streamline the Atlas, as outlined above. Although Gombrich’s approach reflects a particular bias on the part of Warburg’s successors, much criticized by later scholars, Mazzuco also suggests that it created a “rather original overturning of hierarchy between the scientific production that had been completed, and that which had been left incomplete.” This overturning of the standard scholarly order, prioritization of the fragmentary over the completed work, and tension between scientific positivism and the “irrational experiences” of memory and art, are threads that also run through more recent examinations of the Mnemosyne Atlas. They are particularly relevant to contemporary ideas about the atlas format more generally.

The Atlas and Atlases

One of the most noteworthy contributions of later scholarship on the Atlas is a growing tendency to examine it in conjunction with disciplines other than art history per se. Benjamin Buchloh, for example, situates Warburg’s project alongside examples of contemporary artworks—most notably Gerhard Richter’s Atlas—linked by a common strategy of amassing large collections of photographs and presenting them in grid-like formations. For Buchloh, these works represent a clearly related group, but also a class of outliers within the recognized language of avant-garde art history and of photography more specifically. “Neither the term collage nor photomontage,” he writes, “adequately describe the apparent formal and iconographic monotony of these panels or the vast archival accumulations of their materials.” Unable to fully account for these works in strictly art historical terms,
Buchloh lights upon the visual strategies of the sciences—charts, diagrams, technical illustrations, and the atlas—that have been used by artists starting with the historical avant-garde, but whose often didactic qualities reside in tension with these artists’ more common emphasis on shock and perceptual rupture. Although the term atlas, along with its format, originated within a largely (though not exclusively) positivist scientific framework, Buchloh highlights its increasingly metaphorical usage by the early twentieth century. His conception of the *Mnemosyne Atlas* as “the most important example of this anti-positivist tendency” thus calls to mind the tension, described by Gombrich, between the positivist underpinnings of Warburg’s scholarship and his confrontation with the most fraught and irrational aspects of human emotion and experience (not least within himself). Buchloh calls attention to the displacement of a sequential model of history “by a focus on the simultaneity of separate but contingent social frameworks and an infinity of participating agents.” This displacement, he suggests, emerged from a range of loosely affiliated artistic, literary, and historical practices that coincided in the 1920s, including the *Mnemosyne Atlas*. Further, he sees this new model—at least for the artistic avant-garde and for Warburg—as enmeshed in an ongoing debate about the potential of photography and photographic reproduction to reliably represent visual evidence, to construct (or demolish) social memory, and to fundamentally liberate the circulation of and access to visual information.

Other scholars have also taken up this notion that Warburg’s use of the atlas format both drew on and radically diverged from positivist examples. Schoell-Glass points out that Warburg’s screens, and the lectures he gave to explicate them, served not simply to illustrate but to test the ideas that informed his project. Noting, like Buchloh, the atlas’s venerable history as a scientific tool, she adds that Warburg himself likened the *Mnemosyne Atlas* to a laboratory as well as, intriguingly, a seismograph to detect otherwise imperceptible movement. Schoell-Glass also proposes that, generally speaking, the function of an atlas is to “reduce the world and information about it to the size of a book” whose contents can then be reorganized at will. At the same time, she writes that an atlas works to fix or even “depôison” its contents, such as the traumatic or pathos-laden gestures and symbols on which Warburg focused. There seems to be a curious tension, then, within the nature of the atlas, which at once reduces, unifies, and fixes, and yet allows for perpetual recombination and reinterpretation—a migration from motion to stillness and back again.

Ulrich Keller, meanwhile, examines the *Mnemosyne Atlas* in the context of a more specific type of atlas: the art historical picture atlas. Again echoing Buchloh, Keller writes that Warburg’s decision to create his culminating work in the form of a picture atlas signaled a break with the increasingly hegemonic conception of art history as a linear progression, bol-
stered by the proliferation of paired photographic images in textbooks and classrooms.²⁶ Looking at the role of visual reproductions in the study of art history, Keller characterizes the Mnemosyne Atlas as “grandly anachronistic,” harkening back to an earlier visual model in which plates of images were assembled and printed separately (often temporally as well as spatially) from their explanatory texts.²⁷ The picture atlas, Keller writes, produces a uniquely active reading and viewing experience when compared with that of the streamlined illustrated textbook. For Keller, the prime example of the picture atlas format, Séroux d’Agincourt’s early nineteenth-century L’Histoire de l’Art par les monuments [History of Art by its Monuments], marks the first time that images of geographically dispersed artworks were accumulated in sufficient quantity that “it became possible to ‘play’ with them, to separate them from their local moorings and reconfigure them under an historical paradigm.”²⁸ He proposes that the picture atlas in general, and the constantly shifting montage of the Mnemosyne Atlas specifically, “banked on the generative force of gaps or Denkräume.” In other words, the interstices between individual images, and between images and text, required of readers a set of interpretive skills “honored in old-fashioned archival milieus.”²⁹

This tension between positivism and ambiguity, science and art, has also made the Atlas an irresistible model (or “idea style”) for scholars such as Georges Didi-Huberman. In addition to writing about the origin of the Mnemosyne Atlas in the trauma of the First World War and Warburg’s subsequent psychiatric institutionalization, Didi-Huberman curated a series of exhibitions that take the Atlas as their point of departure.³⁰ These exhibitions engaged both historical and contemporary artworks that resonate conceptually or methodologically with Warburg’s project. Didi-Huberman explicitly characterizes the atlas form as abundant, provisional, and ultimately even dangerous to the kind of positivist methodology from which it originally sprang. The “tables” that make up an atlas, he writes playfully, function as “a prop for a work that must always be taken up again, modified, or even started again,” and the practice of montage, of bringing (literally mounting) images together, is “a heuristics of thought itself.”³¹ The Mnemosyne Atlas, having never been fixed by publication, would thus constitute the very epitome of the form in Didi-Huberman’s conception. But while the tables of Warburg’s Atlas could always be augmented and reconfigured, this very inexhaustibility also suggests “the intrinsic madness of such a project.”³² And yet, Didi-Huberman continues, while we may admit the madness of the project in one sense, we also recognize Warburg’s conviction that it is not the images or forms themselves that should most concern us, but their movement and transformation, as well as the spaces between them.

In the above examples, what becomes increasingly evident is the flexible, even liminal position that scholars have ascribed to the atlas format. Although rooted in positivist conceptions of history and science, and
ostensibly charged with demonstrating a unified, coherent argument, the atlas also offers itself as a potential space for interpretation, experimentation, and even subversion. Warburg’s use of the format was already a reaction against the ascendant art historical order, something it seems his immediate successors had difficulty in accepting. The very anachronism of the Atlas’s method echoes that of its content, in which images of widely dispersed provenance—geographically, temporally, and conceptually—are pulled into conversation within the unifying (but ultimately porous) frame of the atlas panel. It is also worth considering the extent to which Warburg’s Atlas represents an extreme example of this apparent flexibility, rather than a characteristic one. I will return to this point later on.

Photography, Gaps, (Im)possibility

As discussed above, Keller has convincingly argued that the emergence of viable technologies for reproducing works of art enabled the development of art history into the temporally oriented discipline with which we are now so familiar. The picture atlas, Keller writes, dealt in abundance and generated what he sees as productive gaps between image and text, between image and referent (the original work of art), and between images themselves. The proliferation of photography, halftone printing, and slide projection by the turn of the twentieth century subsequently encouraged the sense that all of these components had seamlessly fused, producing a linear, apparently self-explanatory timeline of art history. What receded, meanwhile, was not only the physical separation of image and text, and the interpretive disjuncture between image and object, but the distance between viewer and author, and the potential for viewers to engage in more activated forms of looking and reading. The Mnemosyne Atlas, then, takes up a fraught but uniquely productive position between the earlier picture atlas and the later art historical reliance on photomechanical reproduction. It seems clear that photography was essential to Warburg’s project and that he used it in a way that reinstituted the “generative force of gaps” to which Keller alludes. I would argue as well that photography has been critical to the Atlas’s afterlife, and to its imaginative force in more recent scholarship.

Between Image and Object

Keller asserts that art historical photographs quickly came to act as transparent surrogates, giving viewers a sense of interacting directly with original works of art. For Warburg, however, the relationship between image and object appears rather more nuanced. Kurt Forster, for example, points
out that Warburg was summarily derisive of art historical connoisseurship, regarding it as a kind of gourmandise “peculiar to the propertied classes, the collector and his circle.”[^35] In fact, Warburg—who, as the scion of an enormously wealthy banking family, used his financial resources to build a library of books and images, but did not collect art—saw the ownership of original objects as an actual deterrent to art historical analysis, because the superficial appeal of physical possession often replaced true understanding.[^36] Meanwhile, Matthew Rampley, Gombrich, and others discuss Warburg’s pervasive anxiety that modern technologies such as the telegraph were responsible for “the destruction of distance,” that is, the space and time needed for detached reflection.[^37] This distance, Rampley further points out, was for Warburg the very foundation of cultural progress.[^38] Keller, meanwhile, remarks on the material and qualitative diversity of the photographs that Warburg used for his panels, differing not only in size and tonality, but also in legibility. What these points suggest is that for Warburg, photographic reproductions were preferable to original artworks as objects of study, but did not act as direct surrogates. Their portability and manipulability were crucial to Warburg’s methodology, but they also produced an essential distance between the scholar and the work, and it was in this gap that Warburg could carry out his analytical project. It was not important, apparently, for Warburg’s photographs to capture the material subtleties of the original object, since Warburg’s goal was to map the migration and social impact of forms and symbols, not to parse the nuances of style or technique. Although Warburg certainly intended his photographs to function as neutral representations, they were ultimately imperfect ones, revealing, even reveling in, their own failure to fully capture the materiality of the original objects. Given the time period and Warburg’s working methods, black and white photographs were his only viable option, but one wonders whether Warburg might not have preferred them anyway, even if color versions had been practical. In fact, we can see in the process of translation between the original object and the gelatin silver photograph an echo of the way that he perceived the transformation of images across space and time. Philippe-Alain Michaud likewise suggests that photographic reproduction acts as a process through which disparate objects are reduced and unified within the space of Warburg’s screens, adding that the *Atlas* “does not limit itself to describing the migrations of images through the history of representations; it reproduces them.”[^39]

**Between Images**

Meanwhile, ideas about the space around and between the images on each of the *Atlas*’s panels have proven central to interpretations of the atlas for-
mat by not only Keller but also Didi-Huberman and Michaud. If the perceptual distance between the photograph and its object was essential for Warburg to begin his analysis, then the distance between photographs and their capacity for movement were equally important for the ongoing evolution of his project. Didi-Huberman, as we have seen, argues that an atlas table is a platform on which things happen, on which connections are made between images, only to be unmade and considered anew. Michaud goes so far as to describe the black cloth of the Atlas’s panels as a “conductive medium,” a space across which resonances between the images are transmitted. If the migration and reconfiguration of images, which were central to Warburg’s methods and arguments, depended on photography as a technology. Significantly, Warburg’s late inclusion of contemporary images also extended the scope of the Atlas outside the prescribed boundaries of art history, and into the future of photographic mass media.

**Between Image and Text, Between Viewer and Author**

While the photographs of the Mnemosyne Atlas panels were an important way for Warburg to document and compare different stages of his thinking, these photographs are also the primary form in which we have inherited the Atlas, and therefore the foundation on which all which all subsequent scholarship rests. Warburg never intended for these photographs to carry the weight of the entire project, but the texts that were to have explained them exist in a state even more fragmentary and provisional than the images themselves. While we know that Warburg intended to publish the Atlas in volumes of both plates and text, even Gombrich suggests that Warburg hoped his argument could be conveyed solely through pictures. And while Warburg may have appreciated the levelling effect and reproductive flexibility of black and white photography, it nonetheless functioned in his project primarily as a transparent image vehicle. In part a belief in the medium’s
evidentiary power, Warburg’s hope also underscores his faith in the intrinsic affective charge of the symbols he was presenting. Yet the Atlas panels as they exist, as photographs of photographs (or more often digital or halftone surrogates of the same) and as a set of contradictory iterations of a work in progress, belie such optimism, and perhaps extend the project in directions that Warburg may not have anticipated.

If we return to Didi-Huberman’s conception of the atlas as a heuristic of thought, then what are the Atlas panel photographs of, exactly? One well-remarked aspect of photography is its capacity to arrest time and motion, and indeed these photographs would seem to capture the middle of a thought, an unfinished argument held forever suspended. They function as sketches in an ongoing visual project, or may be likened to screenshots of a digital workspace. Thus, as Didi-Huberman also suggests, in some ways we must recognize the unresolved, even futile nature of the project (both Warburg’s project and our own), an endless effort to explain something that the author himself never fully grasped or came close to finishing. The fact that the Mnemosyne Atlas exists in an eternal state of incompletion means that what Warburg left was indeed a gap, perhaps unbridgeable, between image and text, between viewer and author. It is no surprise, then, that while many scholars, including Gombrich, believe the Atlas doomed to failure, it has also proven to be extraordinarily productive, generating an ever-growing intellectual and creative afterlife.45 Impossibility, in this case, seems to merge with Didi-Huberman’s idea of inexhaustibility, the potential for endless interpretation, recombination, and play. The Mnemosyne Atlas’s existence as photographs has also allowed for its own migration, its translation into other spheres, in much the same way that Warburg himself charted the movement of affective gestures. With its panels reduced to the unity and fixity of photographic reproduction, the Atlas reenters the larger archive of visual knowledge.

The Digital Image

Having arrived in our own digital age, the Mnemosyne Atlas as Warburg left it takes on new resonances and suggests new fields of exploration. Keller, having mapped the rise, fall, and rebirth of the art historical picture atlas, concludes by suggesting that “our computer screens, at any rate, begin to look a lot more like Warburg’s panels, and a lot less like the binary slide projections and double-page halftone pairings which have dominated art historical books and lectures for a hundred years.”46 One interview with Didi-Huberman begins with the casual observation that “long before computers, Aby Warburg invented a system with multiple, simultaneously open windows and hypertexts. Or at least, that is what his fabulous Bilderatlas Mnemosyne
looks like.” This comparison has not been lost on scholars who are directly involved in the development of digital image databases and digital humanities projects. Hans Brandhorst, for one, wonders what Warburg would have made of a research portal called *Arkyves* that aggregates a number of disparate databases using *Iconoclass*, an iconographically controlled vocabulary. Martin Warnke, meanwhile, introduces *Hyperimage*, a “digital filing box for image details,” with a discussion of Warburg’s conviction as to the significance not only of symbolic images but of the relationships between them. Even more recently, Stefka Hristova has used Panel 45 of the *Atlas* as a case study in cultural analytics, exploring the idea of color as data in Warburg’s visual argument. In both its conception of images as migratory, contingent, and changeable, and in its non-linear, open-ended structure, the *Atlas* has much in common with what we have come to understand of and expect from digital images and platforms.

Given the premise of Warburg’s scholarship, it is no great leap to propose that the thesis of the *Atlas*, almost by necessity, could or should continue to apply in our present age. It remains beyond the scope of this paper to assess Warburg’s theories on an iconological level, but his notions about the circulation of images appear more relevant in the digital age than ever before. As artists and scholars Daniel Rubinstein and Katrina Sluis point out, the proliferation and cultural ubiquity of digital technologies and information networks mean that we see images of all kinds—art, news, games, personal snapshots—within the bounds of the same physical/visual space, usually a computer or smartphone screen. This transformation of diverse objects into a common visual language, collected within a unifying framework, recalls our earlier discussions of atlas tables and the *Mnemosyne Atlas*’s use of photography. We can see in this transformation and subsequent montage of different images and information types a reverberation of Warburg’s anxiety about technology’s capacity to collapse discursive distances, but also an extension of his interest in the generative combination of images, in the ways that they circulate, change, and interact.

A number of recent scholars in the digital humanities also express a particular interest in the materiality and historical specificity of “the digital.” Matthew Kirschenbaum, Johanna Drucker, and many others grapple with these themes on several interlocking registers. For example, there is the question of digital surrogates, of what happens—what decisions are made, what is lost and gained—when a digital image is made from a physical object, and how the meaning of that object potentially shifts as its digital likeness begins to circulate. (This ambivalence also calls to mind a much longer conversation about the nature of mechanical reproduction, which stretches at least as far back as Walter Benjamin, and has since been enthusiastically taken up by several generations of photography historians.) Further, Kirschenbaum convincingly asserts that it is impossible to think about digi-
tual information without paying close attention to the physical platforms that store and grant access to it. Although we so often consider digital images to be ephemeral as well as infinitely reproducible, Kirschenbaum insists to the contrary that, as per the adage of forensic science, “every contact leaves a trace.” That is, all digital files in fact bear physical evidence of their history and use, and, thus, no two digital copies are ever exactly alike.\textsuperscript{53} Drucker, meanwhile, extends these ideas to introduce the concept of performative materiality, which proposes that “what something is has to be understood in terms of what it does, how it works within machinic, systemic, and cultural domains.”\textsuperscript{54} Elsewhere, she emphasizes the importance of design and interactivity to our understanding of information in both traditional analogue and digital forms.\textsuperscript{55}

Collectively, these conceptualizations have something important to offer our consideration of Warburg’s legacy in our contemporary age. Having already begun with mechanical (that is, photographic) translations of key images—or rather, the objects which bear those images—Warburg set the stage for any number of future transformations. The digitization of the Atlas’s photographic surrogates means that they have irrevocably entered the tide of images that circulate online in both scholarly and vernacular contexts, with or without texts, on different platforms, for different uses and users. Each digital instance bears the trace of its own journey, and in each instance, as Drucker insists, we must consider anew what these images are doing in order to parse what they might now mean. When perusing the Atlas online, we are looking at (perhaps even physically holding) a screen bearing a reversed digital image made from an original glass plate negative taken of a cloth screen covered in multiple gelatin silver photographs taken of physical works of art. Or, in some cases, of book pages bearing photomechanical reproductions, or of newspaper pages, in which case the trail goes on even further. The digital image itself may have also been copied, uploaded, and downloaded any number of times. These permutations each represent a series of choices, an ongoing and by no means linear material and cultural history, and, I would argue, a critical extension of Warburg’s project.

Indeed, one effect of the perpetual circulation and reproduction of digital images is their eventual degradation. Daniel Palmer likens the internet to “a giant copying machine,” noting that “when an image is viewed, it is copied from one database to the user’s local hard drive,” with the inevitable result that the files lose information and become, in Hito Steyerl’s terminology, “poor images.”\textsuperscript{56} For Steyerl, the poor image is “a copy in motion” and is characteristic of information that has circulated outside of officially sanctioned channels.\textsuperscript{57} Although Warburg seems to have accepted, even welcomed, the visual disparity between his source material and its photographic surrogates, it is difficult to ignore the reality that after years of circulation, having been copied and recopied, the resulting images are not as legible as
They once were. Websites such as Engramma’s *Mnemosyne Atlas* resource or Cornell University’s *Mnemosyne: Meanderings through Aby Warburg’s Atlas* attempt to remedy this reduced legibility by allowing users to zoom in on image details and including higher-quality reproductions from other sources, with varying degrees of success (Figs. 4 and 5). But we might see the gradual degradation of Warburg’s original sources as precisely a visible manifestation of his project’s materiality: its trajectory not only across time and space, but also across media. As these images break down—at least for those of us without access to the gelatin silver “originals” in the Warburg archive—they may function less effectively as a means to study the individual details of classical friezes and Renaissance paintings, but they remain compelling as surrogates for Warburg’s project more broadly. This transformation is not necessarily what Warburg intended, and it elides much of the original depth and erudition of his project, but it is part of the reality of the *Mnemosyne Atlas*’s digital afterlife. Museum exhibitions offer another way for people to engage with the *Atlas* today. Some take Warburg’s project as their conceptual starting point, while others seek to reconstruct his panels as physical objects. Such exhibitions are more limited in their capacity to travel, but translate the *Atlas* into a more immediate and legible—albeit highly mediated—form. Further, these exhibitions, along with the *Atlas*’s various digital manifestations, have the advantage of making Warburg’s project more accessible and appealing to a broader, less academic audience. Such an audience would likely be far less receptive to Warburg’s art historical arguments in all their labyrinthine complexity.
Finally, I would like to return to Didi-Huberman’s conception of the atlas as a productive, indeterminate form, and to emphasize his distinction between the atlas—a “synoptic presentation” whose function is to visually represent the “secret link” between disparate objects—and the archive, which he sees as fundamentally non-visual and temporally protracted. I do not intend to argue that we should conflate atlases and archives. Nonetheless, it would seem that Didi-Huberman’s interpretation, discussed earlier, of the atlas as existing in a perpetual state of flux glosses over the differences between the atlas as a published book (therefore finalized, albeit open to interpretation) and an unfinished and thus inherently unstable project like the Mnemosyne Atlas. The Atlas was intrinsically bound up with the content and structure of Warburg’s library, from which he drew his images. In light of this dependence, we might qualify Didi-Huberman’s argument by proposing that the Mnemosyne Atlas, at the stage in which Warburg left it, rests (or perhaps vibrates) somewhere between the atlas and the archive. From the former, it derives its insistence on visual argument and its engagement with an admittedly circumscribed, if still unsettled, pool of records. From the latter, it acquires its contingency, its fragmentation, and its perpetual state of expec-
tancy and motion.

These last qualities may be ascribed to archives in general, but they also suggest more recent conceptions of the archive and archival possibility in the digital age. Mitchell Whitelaw, for example, argues for what he calls generous interfaces for digital collections; that is, infrastructure for online databases that goes beyond the traditional and highly restrictive keyword search and static results pages, and instead encourages multiple, flexible ways of accessing records. Recalling Warburg, he proposes that “in revealing the complexity of digital collections, a generous interface would also enrich interpretation by revealing relationships and structures within a collection.”

Not simply a question of convenience or aesthetics, Whitelaw further contends that as cultural heritage increasingly exists and circulates across digital networks, “the life and use of that heritage will increasingly be conditioned by the forms in which it reaches us, how it is made concrete and available both for scholars and the wider public.”

Indeed, scholars are also recognizing the critical re-evaluation of the structure, content, and accessibility of public, and especially digital, archives as a social and political imperative. They consider this reexamination a matter of responsibility toward populations that have traditionally been denied access to such collections in one way or another. In these conversations, what (and who) has been excluded from the archive is just as important as what has been saved. Anne Gilliland and Michelle Caswell write about what they call “impossible archival imaginaries,” for example. They argue that “the roles of individual and collective imaginings about the absent or unattainable archive and its contents should be explicitly acknowledged, in both archival theory and practice,” as a counterweight to hegemonic conceptions of evidence that “so often fall short in explaining the capacity of records and archives to motivate, inspire, anger and traumatize.”

Warburg, we will remember, spent the years of the First World War documenting the chaos and trauma that he and those around him were experiencing. In Gilliland and Caswell’s speculation, the very absence of evidence constitutes its own kind of record, and has the potential to exert a powerful shaping force against or within the archive. Here again, we might identify Warburg’s sense of productive distance, the space for interpretation not between image and text, but between archive and (missing) evidence, between archive and (missing) subject. Blurring the line between the visual argument of the atlas and the invisibility of the archive, we find in the latter the capacity to tell necessary stories, even in the absence of concrete images.

The Mnemosyne Atlas has proven to be immensely provocative and seductive over many decades, not only due to the complexity of its art historical thesis and the originality of its method, but also because of the tantalizingly incomplete state in which it was so abruptly left. Early attempts by Warburg’s disciples, who were in many ways the best equipped to un-
understand and give a satisfactory shape to the fragments of Warburg’s Atlas, seem—admittedly, from the distant and biased vantage point of the present day—to have been incapable of appreciating its particular idiosyncrasies. Clearly, to fix Warburg’s great project within the confines of a printed book is to stifle its most compelling aspects. Warburg himself may have recognized this potential shortcoming. With the extension of his project to include images from the mass media, the advertisements and news items of his own era, Warburg effectively precluded the possibility of settling the Atlas into a final state of rest. And while he may not have anticipated that his project would enact its own thesis, having left the Atlas in contradictory iterations and fragments, having turned it into a set of images of itself, Warburg left open this possibility. Thus the Atlas, while still studied by many scholars for the nuances of its art historical argument, has taken on entirely new valences and anticipated technological developments and cultural discourses at which Warburg could only have guessed. As a series of photographs, it has circulated and been reimagined and reinvented in ways that suggest both its inability to ever function as a finalized argument, and its inexhaustibility as a symbol, as images of and in motion.
Notes


8. Ibid.

9. It is important to acknowledge here that I have looked only at English-language (and translated) scholarship for the present essay, out of practical necessity. Certainly there is copious additional literature on Warburg in German, as well as in other languages.

10. Gombrich arrived in London in 1936 on a two-year fellowship explicitly aimed at organizing and revising Warburg’s notes.

11. For a complete overview of the contents of the *Birthday Atlas*, see Katia Mazzucco, “The Work of Ernst H. Gombrich on the Aby M. Warburg Frag-

12. Interestingly, although Mazzucco seems confident in her understanding of the spatial orientation in which Warburg’s original plates were arranged and meant to be read, other scholars appear less certain. Lyndell Brown and Charles Green, for example, insist on the significance of a horizontal reading of the panels, noting that their “lateral trajectory is crucial.” See Lyndell Brown and Charles Green, “Robert Smithson’s Ghost in 1920s Hamburg: Reading Aby Warburg’s Mnemosyne Atlas as a Non-Site,” *Visual Resources* 18, no. 2 (January 1, 2002): 171, [https://doi.org/10.1080/01973760290011824](https://doi.org/10.1080/01973760290011824). Charlotte Schoell-Glass, meanwhile, in her reading of plate 79, points out that “it is not made clear by numbers or other indications in which sequence we are to ‘read’ the images.” She proposes that one “read the plate like a page of a medieval glossed text,” in other words, “look at this plate as a composite that does not necessarily have to be read from top left to bottom right.” See Charlotte Schoell-Glass, “Warburg’s Late Comments on Symbol and Ritual,” *Science in Context* 12 (1999): 631, [https://doi.org/10.1017/S026988970000363X](https://doi.org/10.1017/S026988970000363X).


14. Ibid.


17. Ibid.


24. Ibid. This is Warburg’s term. Emphasis in original.

25. It is worth underscoring that Bilderatlas, which was the term Warburg used for his project, means “picture atlas.”

26. Both Keller and Kurt W. Forster note the particular significance of the paired photograph to the highly influential art historical scholarship of Heinrich Wölfflin. As Forster puts it, “the binary order [at the basis of Wölfflin’s method] leads to ideas that seem to issue from the images rather than from the historian’s interpretative intent. Or, put another way, the historian is merely the arrangeur creating a disposition that helps instantiate the latent power of images.” Kurt W. Forster, “Images as Memory Banks: Warburg, Wölfflin, Schwitters, and Sebald,” La Rivista de Engramma, no. 100 (September-October 2012), http://www.engramma.it/eOS2/index.php?id_articolo-lo=924. Interestingly, Johanna Drucker makes a similar point about graphical representations of knowledge as a whole. “Most information visualizations,” she writes, “are acts of interpretation masquerading as presentation.” Johanna Drucker, Graphesis: Visual Forms of Knowledge Production (Cambridge: Harvard University Press, 2014), 8.


28. Ibid., 186.

29. Ibid., 195.

30. See, for example, Georges Didi-Huberman, “Warburg’s Haunted House,” Common Knowledge 18, no. 1 (Winter 2012): 50-78, https://doi.org/10.1215/0961754X-1456881. Warburg’s response to the chaos of the First World War, during which he feverishly attempted to collect any and all documentation of the conflict as it unfolded, is well documented. Warburg’s institutionalization followed the end of the war.


34. Ibid., 192.


36. Ibid. Indeed, Warburg famously traded his birthright at age thirteen for the promise that his brother would buy him all of the books he wanted—a rather expensive commitment, as it turned out.


40. Ibid., 281.

41. Ibid., 283.

42. Buchloh, “Anomic Archive,” 118.


45. Lyndell Brown and Charles Green in particular highlight the *Atlas*’s status as a “failed art historical curiosity,” on the basis of which their aim is “to remove Warburg’s last project...from the domain of his iconologist guardians, in order to place it in the context of contemporary art practice, proposing a new reading of a proto-conceptual work.” Brown and Green, “Robert Smithson’s Ghost,” 168.

47. Millet, “Georges Didi-Huberman,” 49.


53. Matthew G. Kirschenbaum, Mechanisms: New Media and the Forensic Imagination (Cambridge: MIT Press, 2008). This phrase, which titles Kirschenbaum’s first chapter, was adapted from the forensic pioneer Edmond Locard.


58. See https://warburg.library.cornell.edu/ and https://tinyurl.com/y29b-wdqk.

59. Steyerl argues that the insistence on “rich” (that is: pristine, authentic) images can lead to their invisibility, as original prints are “preserved,” unseen, in archives or fade into material obsolescence. It is sometimes only as degraded, compromised copies that images are able to circulate and be viewed. Steyerl, “In Defense of the Poor Image,” 3-4.


62. Didi-Huberman points out that the thousand or so images comprising the Atlas at any given time is relatively small “in relation to the life of an art historian.” Didi-Huberman, Atlas, 20.

63. Mitchell Whitelaw, “Generous Interfaces for Digital Cultural Collections,” Digital Humanities Quarterly 9, no. 1 (2015): 1-16, http://www.digitalhumanities.org/dhq/vol/9/1/000205/000205.html. Whitelaw examines a number of promising examples of such interfaces, such as the website for the Prints and Printmaking Collection of the National Gallery of Australia, but suggests that they are exceptions to the rule.

64. Whitelaw, “Generous Interfaces,” 1.

65. Ibid., 2.