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Reframing Art History

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Abstract: Taking into account the call of this journal to examine the epistemological and methodological assumptions in the field of art history on the verge of its digital turn, the aim of this essay is to contribute to the ongoing discussion by questioning the role of the framing device in the context of image appropriation and critical interpretation of visual documents. Focusing on the cognitive and structural potential of the frame, a common feature between analogue and digital art historical practice, we try to provide points of historical perspective through a selection of particular examples (Giorgio Vasari, Gustav Ludwig and Aby Warburg) and bring them closer to the notions of instrumentation and interface.

Keywords: art historical methodologies, interface, frame theory, image manipulation, critical visual thinking, visual perception

Introduction

Digital Art History is "taking off." Summer institutes, conferences as well as new resources such as this journal, are emerging at an ever increasing rate.[1] Critical epistemological consciousness begins to morph and the study of visual forms of knowledge production makes room for the act of interpretation, more common in the humanist realm than in the natural sciences.

In his classic essay "Art History as a Humanistic Discipline" Erwin Panofsky posed the question: "How, then, is it possible to build up art history as a respecta- ble scholarly discipline, if its very objects come into being by an irrational and subjective process?" His answer was, in part: "This question cannot be answered, of course, by referring to the scientific methods which have been, or may be, introduced into art history. Devices such as chemical analysis of materials, X-rays, ultraviolet rays, infrared rays and macrophotography are very helpful, but their use has nothing to do with the basic methodical problem. [...] These devices enable the art historian to see more than he could see without them, but *what he sees* has to be interpreted 'stylistically', like

Figure 1: Orazio Samacchini (1532-1577), leaf from the *Libro de' Disegni*. Paris, Musée du Louvre, D.A.G. INV 9024-recto.

that which he perceives with the naked eye."[2] What interests me here is not Panofsky's method *per se*, nor the many more that have followed; it is rather the juxtaposition of the instruments and of the act of interpretation. For Panofsky (as for many others), the art historian is a person with an equipped eye who interprets works of art.

In Panofsky's essay, which aimed primarily to define the humanistic underpinnings of a then very young discipline, this takes the form of a theoretical analysis. But there are also practical facets of that act of interpretation. Panofsky uses the terms "re-creation" and "archaeology of patterns", which he argues, constantly interpenetrate and nourish each other organically; today we could use the

more generic terms "appropriation" and "critical interpretation". In both of these activities/phases of research, the role of the framing device seems crucial. What happens to this device in the digital sphere when it comes to art historical interpretative practice? I will try to provide some answers below, but first let us take a step back and approach our question historically.

In her 2010 article "Graphesis," Johanna Drucker stated that: "When it comes to using visualization as interpretation, [...] our practice is just beginning to take shape."[3] Her recent book, bearing the same title, provides a comprehensive overview and extremely suggestive observations about the critical thinking of humanistic interfaces.[4] Instructively, the

framing device emerges once again as a basic but nonetheless powerful structure, one that takes on new dimensions in the digital arena. Art history, however, is only briefly discussed in the scope of her essay, and I hope to contribute to the discussion by shedding light specifically on art historical practices pertaining to the use of the framing device.[5] The reflections that follow are the result of two converging interests and strands of research, the common denominator of which is the *framing device*. One is early modern decorative systems (such as the Sistine chapel ceiling) and the other is the use of the image as document by art historians.

I approach this topic through particular examples of art historical practice – some familiar if not indeed canonical, others less well-known. In adopting this line of reasoning, I take into account the recent call to examine our epistemological and methodological assumptions.[6] At the same time, I seek to bridge analog and digital art history by highlighting examples taken from the history of the field where one can observe elements of syntax, interpretation and subjectivity. My aim is to provide an alternative reading of art historical practices pertaining to image appropriation and interpreta-

tion, a reading that will shed both light on the notions of instrumentation and interface and provide points of historical perspective that might inspire the creation of more meaningful resources that will resonate with art historians.

The Framing Device as Element of Syntax and Cognition in Art Historical Practice

The notion of the "framing device" is essential and should not be dismissed casually.[7] For the present discussion, the "frame" is considered as a cognitive and structural element from the angle of visual semiotics. The frame has a functional value since it shows/ presents/ indicates – it is a sign of the index family,[8] and provides the conditions of contemplation and critical reception of the object shown.[9] In other words, it is an instrument of cognitive perception that encourages the articulation of visual elements and their appropriation by the viewer. But at the same time, when integrated within a system – or a complex visual environment such as a digital resource user interface (UI) – the frame becomes a nodal element. In other words, without shedding its previous qualities the frame further enables a network of visual relations through visual perception.[10]

Figure 2: Probably Tomaso Filippi (photographer), *Reconstruction of Carpaccio's Sant'Orsola cycle with wooden model*, albumen print, c. 1904.
Photothek of the Kunsthistorisches Institut in Florenz, inv. 87154.
(Photo: © Photothek des Kunsthistorischen Instituts in Florenz – Max-Planck-Institut)

The use of the framing device in art history goes all the way back to Giorgio Vasari (1511-1574) and his *Libro de' disegni* (Fig. 1). Starting out at the age of seventeen, Vasari compiled his collection in a scrapbook where he pasted drawings by various artists spanning the periods laid out in his *Lives of the Artists* (1550, 1568). It is no coincidence that Vasari elected to employ frames to build a convincing visual rhetoric. His project, after all, was contemporary with High Renaissance fresco cycles where the semiotics of the frame orchestrated effective rhetorical visual machines in the form of decorative systems – systems which the elite of the period conceived and were also able to decode. Dispersed across a number of repositories, the surviving leaves of Vasari's *Libro* tell us the following story: their creator used original drawings, which he combined in such a way that each leaf constitutes a complex critical and aesthetical argument. His approach is one of hermeneutics.[11]

A second, not so famous example, is that of Gustav Ludwig (1854-1905), who was a Carpaccio specialist. In 1904, after having mastered the technique of photography, he constructed a wooden model of the *Sant' Orsola* Church in Venice that would help him reconstitute the cycle of Carpaccio's paintings (Fig. 2).[12] He experimented with various placements and combinations of the narrative following the concordance of external and internal lightning conditions. When he was finally satisfied, he asked the photographer Tomaso Filippi to take pictures of the finished model and then retouched the photographs in order to create the context and thus provide a satisfactory rendering of his hypothesis. Apart from the fact that Ludwig's approach shows the enormous potential of the surrogate image as an agent of cognitive emancipation, it also provides an example of a model-frame where one could test a hypothesis of visual reconstruction. In his case we are closer to a heuristic process.

At this point one can hardly fail to mention Aby Warburg (1866-1929) and his *Mnemosyne Atlas*, with its imposing panels holding various visual documents such as artwork reproductions, newspaper clippings etc. (Fig. 3). Without wishing to add to the vast literature already dedicated to his oeuvre, it is worth noting that Warburg used the framing device not only in the already established form of the surrogate image; he also recorded his plates/montages, documenting thereby the stages of his argument. Moreover, he used frames as marks in order to design his argument before integrating it into his imposing panels.

Theoretical Observations

What theoretical observations can we make based on these examples? First of all, both Vasari and Ludwig mastered the *technique* that allowed them to build their projects and each invented his own way of "playing" with images in order to formulate complex visual paradigms/arguments.

In the first case Vasari used *disegno* – a practice placing the tracing of an idea conceived by the intellect in the center of the interpretative effort.[13] In the second instance, Ludwig found the tools and learned how to use them in order to give form not only to a final product – and this is where it becomes interesting – but to his own interpretative process. He built a wooden model, a miniature architectural "frame," in order to have the whole picture and to be able to test his hypotheses; the mockup allowed for performative actions[14] and enabled the recording of an interpretative effort. If the finalized albumen prints provide "contextualization," the photographs recording the intermediate stages of this project clearly testify to an approach stressing the messy, non-conclusive, ambiguous outcome.

One more parallel emerging from these examples is the question of the interface. Vasari built his own interface by drawing frames and adding ornamental figures that functioned as linking agents and deictic cues, thus influencing the perception of the drawings. Not only did he exploit the cognitive aspects of the frame as a device, but he also used its unifying qualities in order to assemble what one could call "a montage/ assemblage" of visual sources. The use of frames denotes a desire for appropriation. What Vasari created was a kind of hermeneutics playground.

Warburg took this approach much further. Recent scholarship has contributed essential observations concerning the "linking" aspect in Warburg's method;[15] the HyperImage[16] and Meta-Image[17]

projects have been primarily based on these conclusions. I would like to bring into play a few more elements. Proceeding through a structural reading of his oeuvre, Maud Hagelstein has highlighted two instances. On the one hand we have the "framing operations" such as clippings and on the other the "montage effects," in other words a recombination of elements. One could say that the art historian destroyed the initial frame and imposed his own subjective frame[18] in order to work with his visual documents in the organic manner of finding and appreciating through a process which mutually fed the two poles.

In this dynamic process, the technical specificities of the medium, in this case the albumen prints, were exploited in combination with the dialectical properties of the framing device. Framing and assembling constitute the real epistemological richness of Warburg's Atlas,[19] where unexpected association of elements, flexibility of scale (the whole and the detail) were treated simultaneously and equally. But most importantly, Warburg built systems of representation, where the framing device operated as a structural element but also as node; its syntax alluded and enabled comparison, combination and recombination, close-looking, rearrangement and of course, linking. As part of a visual system though the images also brought into play their in-between space, the interval; a space where decisions are made, where pattern change begins to emerge. Stable frames and mobile frames, details and ensembles were thus combined in order to exploit the networking aspects of framing.

Figure 3: Aby Warburg, *Picture Atlas Mnemosyne*, 1928-29, Panel 47.
(Photo: © The Warburg Institute London)

Figure 4: Results of the *Ornamental Prints* online catalog. Screenshot of website "Ornamental Prints Online" http://www.ornamentalprints.eu.
(© MAK – Austrian Museum of Applied Arts / Contemporary Art - UPM - Uměleckoprůmyslové museum Prague - Kunstbibliothek, Staatliche Museen zu Berlin – Preußischer Kulturbesitz)
Retrieval date: April 10, 2015

Panofsky was among the first to observe that Vasari's use of the framing device constituted a major turning point and in fact gave birth to art history.[20] Vasari created a structure that not only allowed for their aesthetic reception but also for their cognitive reception, thus encouraging a critical appropriation of the images.[21] Often referred to as the "first art historian," Vasari used *original* drawings and transformed them into objects of study by inscribing them within a frame whose style corresponded to his stylistic and aesthetic appreciation of the whole. His process of framing decontextualized the drawings from their initial context of creation and integrated them into his conception of art historical eras – they had been *repurposed*. His arguments can be refuted or criticized today but this has only become possible because of his process. Of course, with photography this repurposing dimension takes on its full potential, but it cannot be denied that as an archetypal figure for our discipline, Vasari's method proves the systemic nature of image appropriation and that of framing as its primary method, a need inherent in our *modus operandi*, which transcends the technical aspects of the medium across time.

One final note on the non-innocence of these systems. The examples discussed above do in fact carry the mark of their makers, their view of historical time, their conceptions of pattern evolution or style, the importance of context etc. Warburg for instance seems to have been influenced by Simmel's image of history, his "opening" of the frame and that of a transhistorical view.[22]

Art historical research protocols in the digital realm

Bearing in mind these theoretical observations and turning to the present, I would like to examine the use of the framing device in an array of digital environments. Following this I shall focus my attention on the potential of creating digital heuristic spaces which fully exploit the image-as-document.

Frames and framing: a method-inducing mechanism

If the frame is capable of shaping the reception of a given image within an interface, these qualities are not always exploited at their full capacity. In order to illustrate this argument let us briefly compare the Ornamental Prints Online (OPO) meta-catalog[23] with the Virtuelles Kupferstichkabinett (VK) catalog of the Herzog-Anton Ulrich Museum.[24]

Both projects present a collection of prints. The first one is a bit more specialized, pertaining solely to ornamental prints. What I wish to stress here is how the VK catalog alone proposes an "instrumented interface" and links the data in a way that makes sense for people who work with prints.
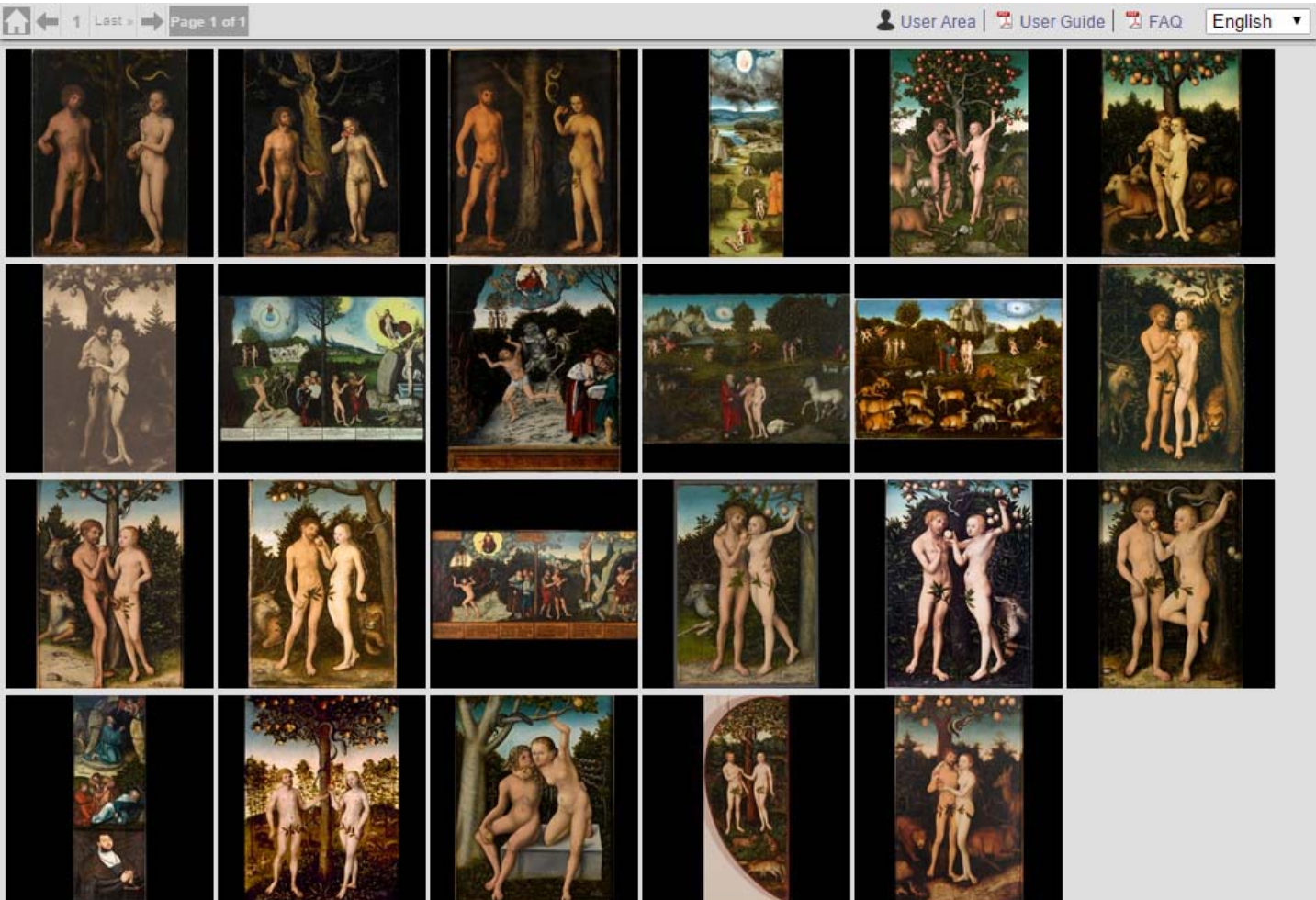
Figure 5: The *Virtuelles Kupfer-stichkabinett* results display. Multiple images have been selected; their frames are a lighter shade of grey.
(© Herzog-Anton Ulrich Museum, Braunschweig)

Figure 6: Results for "Adam and Eve" from the *Cranach Digital Archive*.
(© Cranach Digital Archive, 2015)

The fundamental difference of principle lies among other things in the theoretical foundations behind the use of frames. In the OPO catalog the frames simply present the image and they separate it from its surroundings (Fig. 4). By contrast, in the VK project the "slide frames" are not purely decorative (Fig. 5). By stressing the presence of the frames through visual means, these capture the user's attention and direct it towards the practice of a historically meaningful and deeply familiar process – that of spreading one's slides across a light-table in order to make a selection, by assembling and comparing multiple images. On the one hand we have an index destined for passive consultation comparable to a printed inventory – the *Illustrated Bartsch* for instance – while on the other the results page is only the beginning of the quest. By virtue of such features such as multiple selection, comparative zooming light tables and linking series of prints together the platform becomes not just a finding aid but a research resource adapted to its object of study, capable of becoming a *denkraum – a space for reflection.* Interestingly once the user enters the zooming light table workspace, the frame becomes invisible allowing one to concentrate solely on the object of study, in other words the print itself. It would seem that in this case the intensity of the framing device is calibrated according to the context of use.[25]

Towards systems of interpretation?

Ludwig's project, apart from alluding to projects of restitution of monuments

no longer extant, sheds additional light on the potential of the surrogate image as document which in its digital form enables the researcher to use and visualize it in much more meaningful ways.

Turning to the Cranach Digital Archive, which is by all means an amazing project, we marvel at the high quality of the images and the fact that each of the artworks is presented as a unit of documentation along with a substantial critical apparatus (Fig. 6). In this case the interface functions as a documentation frame – but it is still not possible to actively engage with the image, in the way Ludwig did. There are many different versions of *Adam and Eve* for example, but one can only compare two images at a time and in addition to that the zooming levels are predefined. In other words the interface gets in the way of image manipulation.

If interface is an enunciation space where a subject is invoked,[26] then in this case this subject can only passively consume the information provided. One could of course propose that the ancestor of such a project is the traditional scholarly catalog. And yet the project has "selectively" integrated a feature stemming from a different tradition – that of the atlas. I am referring to the previsualization thumbnails view which reminds us of paradigms such as the plates of Seroux d'Agincourt's *L'histoire de l'art par ses monumens* [*sic*] (Fig. 7).[27] So, if in fact we have the possibility to mix and match scholarly precedents – and why shouldn't we? – why not create more dynamic creator-centered projects? Historically conscious instrumentation and critical apparatus play a crucial role

Figure 7 : *Tableau historique et chronologique des frontispices des temples, avant et durant la décadence de l'art*. Plate 64. Extract of : "Histoire de l'art par les monumens depuis sa décadence au IVe siècle jusqu'à son renouvellement au XIVe" / by J. B. L. G. Seroux d'Agincourt. Vol. IV. Paris: Treuttel and Würtz, 1823. Anonymous. Paris, bibliothèque de l'Institut National d'Histoire de l'Art, collections Jacques Doucet. (Photo: © INHA, Dist. RMN-Grand Palais/ image INHA)

here. Ludwig's example demonstrates how by thinking *through* a given interface one can create an instrument that goes beyond the optical metaphor of the Latin word *speculum* and gives way to an interpretative space.

The multiplication of frames and their mobility seem to be in the heart of more recent environments such as Mirador (Fig. 8) and the Virtual Mappa project (Fig. 9).[28] These two characteristics inevitably bring forward their impact on articulation and their potential for meaningful combination in the process of building a visually compelling argument.[29] How could we exploit the notion of "interval" in the digital environment?

Apart from being a device which presents, the frame is also a space in its own right and one that does not have to be necessarily transparent or invisible. What kind of instrumentation could a frame carry in order to allow for a meaningful appropriation/interpretation within a digital environment? Could this instrumentation differ from one frame to another within the same resource depending on the specificities of its content? Would it be desirable that a frame adapt to its content but also its context? Artworks are "anachronic" objects especially when it comes to interpreting them.[30] Could the instrumentation of the frame and its interaction with the rest of the system help us grasp that by playing on the separating/unifying dimension? By allowing their insertion into a completely different conception of time? By combining its different contexts (historical, art historical, critical evaluation, material history, history of collections, visual citations etc.) and materiality aspects? All these factors come with their individual "frames," which the interface could help either accentuate or keep more discreet depending on the type of question asked by the user.

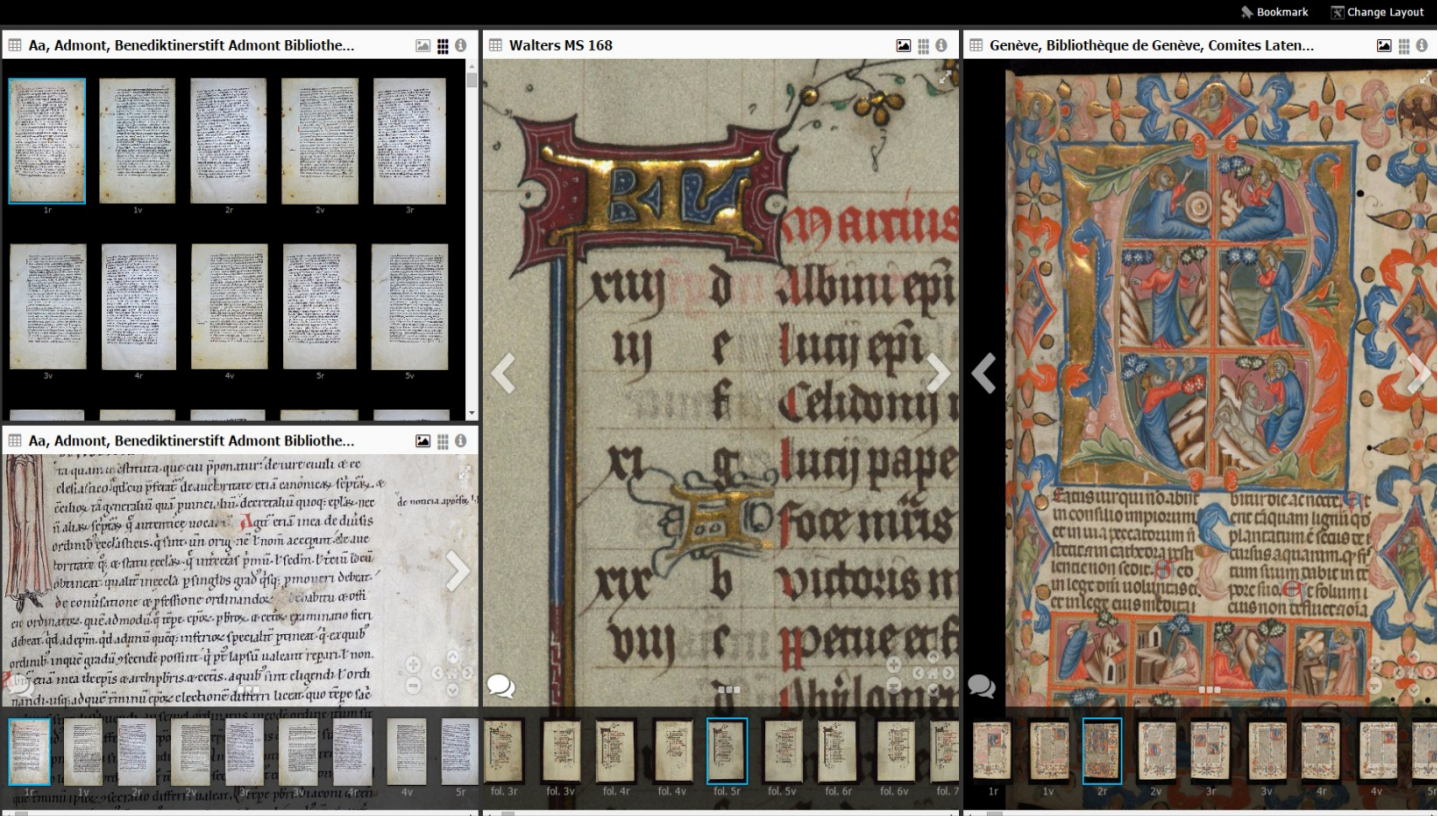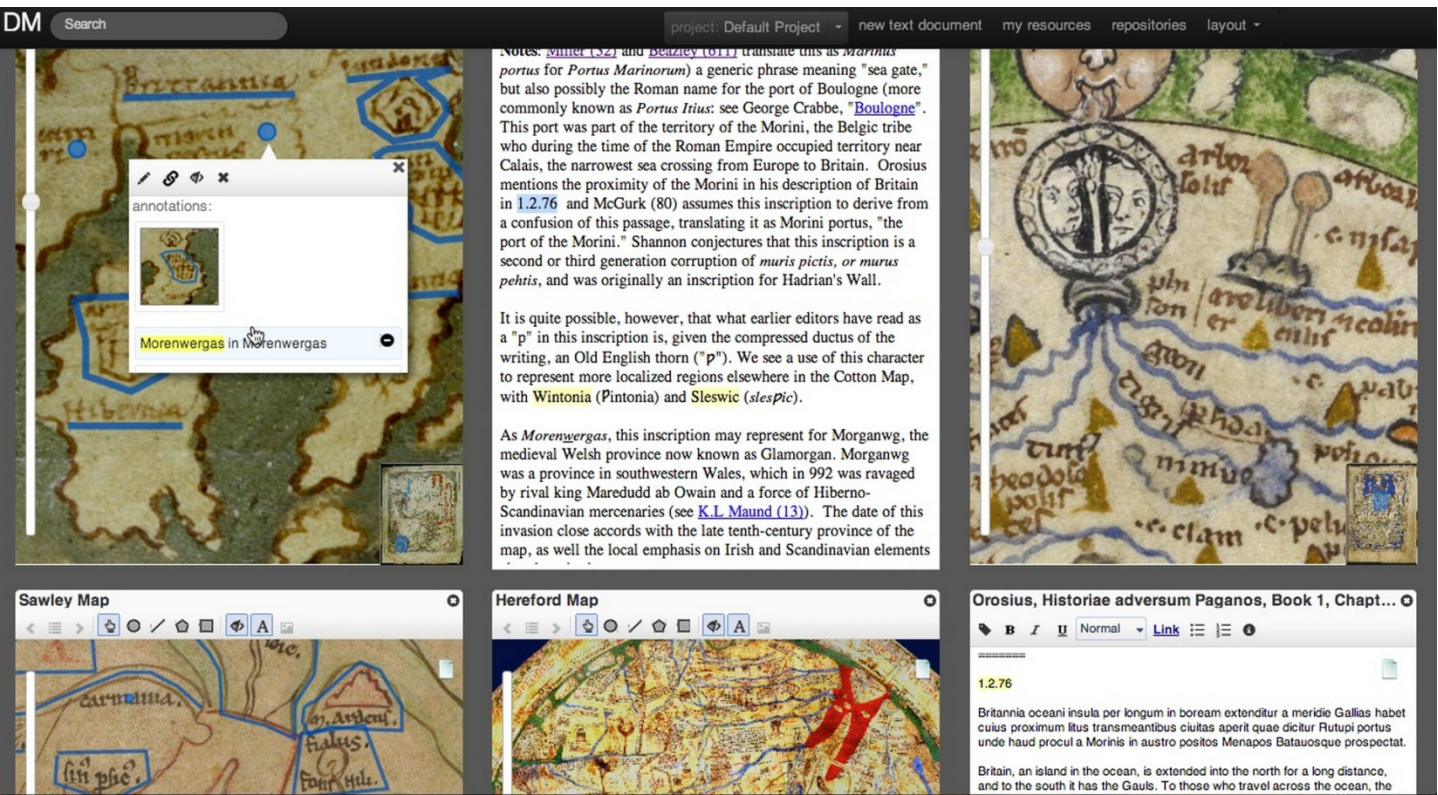Figure 8: The *Mirador* project, screenshot of website.
http://projectmirador.org/demo/?json=552702fee4b06666571d23a1. Retrieval date: April 10, 2015

Figure 9: Screenshot of the *Virtual Mappa* project. Reproduced by permission of Martin K. Foys.

Imagine for instance comparing a fresco detail from Renaissance Rome with an illuminated manuscript border of the fourteenth century and an ancient Roman sarcophagus relief. You might not need the parallax view for the miniature, but you certainly need a 360° view of the sarcophagus and you need to see the detail of the fresco in context, perhaps also some preparatory drawings and relevant archival material. Going back to the miniature, you might want a thumbnails view of the entire book. Cropping, annotating and linking can follow and for their combination an additional space is required where a button, for instance, could allow for capturing and archiving of the workspace in its current phase. The full documentary value of these practices can emerge when the capacity to record and integrate in previous workflow are enabled.[31]

Conclusions

The objective of this essay is to underline the fundamental and constitutive dimension of image appropriation in the field of art history. In the enunciative system that is interface, the frame has a strategic role to play. It is capable of "decontextualizing" an artifact as well as reintegrating it into a new pattern of thought. As we have seen, the frame separates but also brings together; it provides an intermediate space where action and decision-making can occur. Viewed from the perspective of art historical methodologies I would argue that present environments should at least enable or accommodate previous methodologies.

Throughout the discussion I have chosen not to distinguish between reference resources and virtual research environments since my primary aim has been to shed light to the cognitive aspects of a common visual device and to stress its art historical prerogatives in the context of visual thinking. At this pivotal moment for digital art history it seems necessary to bear in mind the variety of methodologies in the field, the multiple angles and traditions from which we select to approach our objects of study. Even if the act of constructing an interpretative space carries seeds of interpretation itself, promoting for example a certain view of historical time, we could use this to our advantage by using frames to differentiate the dimensions of the object in relation to its various contexts. In other words, being flexible and intuitive is not merely an interface design issue; it touches the core of our practices.

Finally, it seems to me – and at this point I completely agree with Nuria Rodríguez Ortega's conclusions[32] – that this kind of specifically art historical epistemological awareness is essential if we want to bridge the gap between traditional methodologies and innovative computational practices. Historically relevant epistemological perspectives are just as important as the vision of things that we could not do before. One way to bring this kind of discourse into play is by integrating it into our peer-reviewing protocols and by training students not only learning how to use new software and resources[33] but to critically process these resources and situate them within a methodological framework, thus building a continuity with the previous phases of

the field, a continuity that could only reinforce the meaningful use of resources in the future as well as the questions asked. Apart from finding the tool which best serves our needs, we should also be conscious of *how* we want to *see* our object of study, now and in the future.

Notes

[1] Anne Collins Goodyear and Paul B. Jaskot, "Digital Art History Takes Off," *CAA News | College Art Association*, October 7 2014, accessed January 22, 2015, http://www.collegeart.org/news/2014/10/07/digital-art-history-takes-off/. A substantial body of literature is already available. See for example, Corinne Welger-Barboza, "L'histoire de l'art et sa technologie - Concordance des Temps," *L'Observatoire Critique*, December 4, 2012, accessed January 30, 2015, http://observatoire-critique. hypotheses.org/1862; Murtha Baca, Susan Edwards, and Francesca Albrezzi, "Rethinking Art History," *The Getty Iris*, March 4, 2013, accessed January 30, 2015, http://blogs.getty.edu/ iris/getty-voices-rethinking-art-history/; Murtha Baca and Anne Helmreich, "Introduction," *Visual Resources* 29, no. 1–2 (2013): 1–4, accessed January 23, 2015, doi: 10.1080/01973762.2013.761105; Johanna Drucker, "Is There a 'Digital' Art History?" *Visual Resources* 29, no. 1–2 (2013): 5–13, accessed January 30, 2015, doi: 10.1080/01973762. 2013.761106; Nuria Rodríguez Ortega, "Digital Art History: An Examination of Conscience," *Visual Resources* 29, no. 1–2 (2013): 129–33, accessed January 30, 2015, doi: 10.1080/01973762.2013. 761124; Hubertus Kohle, *Digitale Bildwissenschaft* (Glückstadt: Hülsbusch, 2013), accessed January 30, 2015, http://archiv. ub.uni-heidelberg.de/artdok/2185/; Diane Zorich, *Transitioning to a Digital World: Art History, Its Research Centers, and Digital Scholarship.* Report to the Samuel H. Kress Foundation and the Roy Rosenzweig Center for History and New Media. George Mason University, May 2012, accessed January 03, 2015, http:// www.kressfoundation. org/research/transitioning_to_a_digital_world/

[2] Erwin Panofsky, "Art History as a Humanistic Discipline," in *The Meaning of the Humanities*, ed. Theodore M. Greene (Princeton, NJ: Princeton University Press, 1940), 106-107.

[3] Johanna Drucker, "Graphesis: Visual Knowledge Production and Representation," *paj:The Journal of the Initiative for Digital Humanities, Media, and Culture* 2, no 1 (2010): 3, accessed January 23, 2015, https://journals.tdl.org/paj/index.php/paj/article/view/4.

[4] Johanna Drucker, *Graphesis: Visual Forms of Knowledge Production*, metaLAB Projects (Cambridge, MA: Harvard University Press, 2014).

[5] An earlier version of this essay was presented during the 102nd annual conference of the College Art Association in February 2014. I would like to thank Victoria Scott, Martine Denoyelle, Anne Helmreich, Max Marmor and Emmanuel Chateau for reading drafts and for providing me with much useful feedback.

[6] Drucker, "Is There a 'Digital' Art History?"; Rodríguez Ortega, "Digital Art History"; Zorich, *Transitioning to a Digital World*.

[7] Surrogate images reproducing decorative cycles of the Renaissance testify to the neglect of the syntactic dimension by omitting the margins, where their syntax and logic resides. More recently art historical research has begun to take into account decorative systems and study their syntax and modes of enunciation. In this context the frame holds a dominant position as a mediator between the decorated space and the viewer. The theoretical underpinnings of these studies are primarily based on the work of Louis Marin.

[8] Groupe μ, *Traité du signe visuel. Pour une rhétorique de l'image* (Paris: Seuil, 1992), 378.

[9] Louis Marin, "Le cadre de la représentation et quelques-unes de ses figures," *Cahiers du Musée national d'art moderne*, no. 24 (1988): 63–81; Marin, "Figures de la réception dans la représentation moderne de peinture," in *De la représentation*, ed. Daniel Arasse et al. (Paris: Seuil/Gallimard, 1994), 313–28.

[10] For a thorough analysis on the role of the framing device in humanist practices, see Drucker, *Graphesis*, 2014, esp. 138–179.

[11] Stefania Caliandro, "Introduction au métavisuel: le *Libro de' disegni* de Giorgio Vasari," in *Images d'images. Le métavisuel dans l'art visuel* (Paris: L'Harmattan, 2008), 15–35.

[12] Costanza Caraffa, "From Photo Libraries to Photo Archives: On the Epistemolons," in *Photo Archives and the Photographic Memory of Art History*, ed. Costanza Caraffa, (Berlin/Munich: Deutscher Kunstverlag, 2011), 11–44. For the complete image set see the online exhibition *Gus-*

tav Ludwig. *The Photographic Bequest* of the KHI in Florence, at http://photothek.khi.fi.it/documents/oau/00000045.

[13] See Anne Burdick and Johanna Drucker, *Digital_humanities* (Cambridge, MA: MIT Press, 2012). Interestingly what is placed in the heart of this book project is design.

[14] For further discussion on the aspects of performative engagement, see Johanna Drucker, "Performative Materiality and Theoretical Approaches to Interface." 7, no. 1 (2013), accessed January 30, 2015, http://www.digitalhumanities.org/dhq/vol/7/1/000143/000143.html.

[15] For example, see Lisa Dieckmann, Anita Kliemann, and Martin Warnke, "Meta-Image – Forschungsumgebung Für Den Bilddiskurs in Der Kunstgeschichte," *CMS Journal*, no. 35 (2012), accessed January 23, 2015, http://edoc.hu-berlin.de/cmsj/35/dieckmann-lisa-11/XML/dieckmann-11.xml.; Warnke and Dieckmann, "Prometheus meets Meta-Image: implementations of Aby Warburg's methodical approach in the digital era," *Visual Studies* (forthcoming).

[16] *HyperImage*, at http://hyperimage.ws/en/.

[17] *Meta-Image*, at http://www2.leuphana.de/meta-image/index.php; for additional bibliography, see http://www2.leuphana.de/meta-image/Publikationen.php

[18] Maud Hagelstein, "L'histoire des images selon Warburg : Mnémosyne et ses opérations de cadrage," in *Cadre, Seuil, Limite. La question de la frontière dans la théorie de l'art* (Brussels: La lettre volée, 2010), 257.

[19] Ibid., 258.

[20] Erwin Panofsky, "Le feuillet initial du '*Libro*' de Vasari," in *L'oeuvre d'art et ses significations. Essais sur les arts "visuels,"* tr. Marthe et Bernard Teyssèdre (1969; repr., Paris: Gallimard, 2004), 138, 186.

[21] Caliandro, "De l'usage d'images par la critique", in *Images d'images*, 10. "Pourtant, il est fortement remarquable que l'idée de créer une structure de réception visuelle aie déjà été conçue à l'époque moderne et par le même auteur censé avoir posé les fondements de l'histoire de l'art occidental".

[22] Hagelstein, "L'histoire des images selon Warburg," 271.

[23] *Ornamental Prints Online*, at http://www.ornamentalprints.eu/. Some days before the publication of this article the author observed that the website is no longer available online. The prints can now be consulted through the separate collections of each partner institution.

[24] *Virtuelles* Kupferstichkabinett, at http://www.virtuelles-kupferstichkabinett.de/.

[25] For a detailed commentary of this resource, see Elli Doulkaridou, "Vers les cabinets d'estampes en ligne : Le cas du Virtuelles Kupferstichkabinett," *L'observatoire Critique*, January 9, 2011, accessed January 30, 2015, http://observatoire-critique.hypotheses.org/775.

[26] Drucker, "Performative Materiality," para. 33.

[27] J.B.L.G. Seroux d'Agincourt, *L'histoire de l'art par ses monumens depuis sa décadence au IVe siècle jusqu'à son renouvellement au XIVe*, 6 vols. (Paris: Treuttel et Wurtz, 1823). Now also available online, http://www.purl.org/yoolib/inha/8909 to 8914. See also Welger-Barboza, "L'histoire de l'art et sa technologie."

[28] *Mirador* is an open access platform which allows the user to display documents from various collections across the web, at http://projectmirador.org; *Virtual Mappa* is part of the DM project. For more information and other implementations, see http://schoenberginstitute.org/dm-tools-for-digital-annotation-and-linking/; other good examples are *Manuscriptorium*, at http://www.manuscriptorium.com/ and the *Chinese Painting and Calligraphy* catalog of the Seattle Museum of art, at http://chinesepainting.seattleartmuseum.org/. Belonging to the OSCI initiative the latter presents an interesting use of sliders combined with adapted static and mobile contents.

[29] Warburg's models still linger and the *Meta-Image* project definitely steers in that direction. The *Getty Scholars' Workspace* could equally provide some answers in the near future, see http://www.getty.edu/research/scholars/research_projects/

[30] Georges Didi-Huberman, *Devant le temps: histoire de l'art et anachronisme des images* (Paris: les Éditions de Minuit, 2000).

[31] Tiziana Serena, "The Words of the Photo Archive," in Caraffa, *Photo Archives*, 57.

[32] Rodríguez Ortega, "Digital Art History," esp. 132–133.

[33] Matthew P. Long and Roger C. Schonfeld, *Supporting the Changing Practices of Art Historians* (Ithaka S+R, April 30, 2014), 47, accessed April 30, 2014, http://www.sr.ithaka.org/sites/default/files/reports/SR_Support-Changing-Research-ArtHist_20140429.pdf.

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