

## Landscapes of Technology and the Environment: On the Integration of Art and Environmental History

### Abstract:

Artwork is an underutilized resource for environmental research despite its rich potential. Historians in particular use art to *illustrate* their arguments rather than as *evidence* of technological or environmental change. This study makes a case for the integration of art and environmental historical methods using seventeenth-century Dutch landscapes. It analyzes three principle issues: the disciplinary division between art history and history, the use of art as discursive or material evidence, and the possibilities and difficulties of gleaning evidence from art. Much of the rich literature on art as evidence focuses on discursive evidence (symbolic and ideological interpretations) to the exclusion of material evidence (discrete indications of changes in human relations with the environment). This paper argues that more emphasis should be directed at material evidence. Environmental history, by virtue of its interdisciplinarity and thematic interests, is ideally suited to this source material. It also argues that the primary challenges to interpreting environment in art relate to representation, especially problematic assumptions of realism, convention, and iconographic interpretations. These challenges are not insurmountable, however, and this work offers examples of existing scholarship and potential avenues of employing art as evidence. While this work focuses on the Dutch Golden Age, these challenges exist in all periods and artistic genres and apply to any humanistic attempt to use art as evidence of material change.

### Image I.



René Magritte, *la condition humaine*, 1933, National Gallery of Art, Washington D.C.

It is fitting that an essay evaluating the possibilities of integrating art and environmental history should begin with landscape paintings. Paintings are certainly not the only genre of material culture that can be employed by environmental historians, but this form of representation occupies a privileged position in art history.<sup>1</sup> It has long been maintained that an investigation into the meanings embedded within landscape art provides the historian with visual indications of shifts in environmental consciousness. Kenneth Clark, one of the foremost art historians of the twentieth century noted that “landscape painting marks the steps of our conception of nature.”<sup>2</sup> This symbolic functionality of art as a window into *mentalité* occupies a central place in the cultural and historical study of landscapes.<sup>3</sup>

Rene Magritte’s *The Human Condition I*, for instance, is a surreal landscape. While not a depiction of any actual location, embedded within its composition is a message inescapably linked to the fundamental problems of history and art history alike. Magritte’s work highlights the difficulty of images to convey meaning. On the one hand, the painting on the easel appears as an exact copy of the landscape behind it. On the other, we as the viewer understand that there is a difference between this imitation and reality. Images never perfectly reflect the depth of an event, its place in history, or encompass the detail of the visual world. Even objective photographic depictions of nature from their most scientific perspective are still only partial and selective representations of reality.<sup>4</sup> Images, just as with texts, are only a pale reflection of the past. For historians, this picture is a useful metaphor depicting the enticing duplicity of historical evidence. While we may be convinced that texts or works of art can recreate a vision as

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<sup>1</sup> Michael Yonan, "Toward a Fusion of Art History and Material Culture Studies," *West 86th - A Journal of Decorative Arts, Design History, and Material Culture* 18, no. 2 (2011): 232-48.

<sup>2</sup> Quoted in Jules David Prown, *Art as Evidence: Writings on Art and Material Culture*, ed. 2001 (New Haven: Yale University Press, 2001), 122. “Landscape” can have several different meanings, each of which derives from a particular historical context. For the purposes of this study, “landscape” is used in the broadest sense. It is a pictorial representation of man in the environment or man viewing the environment. An excellent analysis of the early origins of pictorialized nature is Gina Crandell, *Nature Pictorialized: "The View" in Landscape History* (Baltimore: Johns Hopkins University Press, 1993). In her book, she draws on her background as a historian of landscape architecture to trace the landscape tradition to the Greek theater; creating nature “scenes” and learning to view nature as an observer of thematic action. For the purposes of this study, Crandell makes the interesting observation that periods of rapid innovation in landscape art also typically coincide with periods of drastic environmental changes. (83).

<sup>3</sup> For more on the importance of landscape symbolism, see: Denis E. Cosgrove and Stephen Daniels, eds., *The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments* (Cambridge: Cambridge University Press, 1988).; Denis E. Cosgrove, *Social Formation and Symbolic Landscape*, ed. 1984 (Madison: University of Wisconsin Press, 1984).; Kenneth Clark, *Landscape into Art* (Lightning Source Incorporated, 2007).

<sup>4</sup> Nancy Leys Stepan, *Picturing Tropical Nature*, ed. 2001 (Ithaca: Cornell University Press, 2001), 15.

ostensibly “true” as Magritte’s landscape, in reality no sources will provide the entirety of a historical scene. No representation, whether pictorial, oral, or textual will ever give us the definitive truth of the past. It will always be fragmentary.

Still, this problem of representation is probably the most significant challenge in the historical profession, and doubly significant in environmental history. Past *places* - not simply *times* - are some of the primary subjects of interest to the discipline. Physical landscapes, especially human-altered landscapes (which have always been the most interesting to historians), can also be read. One approach is iconological (the interpretation of embedded *meanings* in the landscape), but landscapes can also be read more broadly as an archive (an analogy that accounts for iconological approaches, but also includes “natural archives” like pollen samples, ice cores, or tree rings). From this perspective, the interpretation of *artistic* landscapes is an “image of an image” or image of a text, conveying an added level of information to a location already loaded with meaning; a truly Magritte-esque problem.<sup>5</sup>

The complexity of distilling environmental information from landscapes may seem daunting. The benefits may outweigh these reservations, however. Historians already struggle to construct arguments in order to paint a picture of the past with only traces of evidence, but the discipline’s self-imposed restrictions on source material exacerbate the problem. Environmental history and the environmental humanities more broadly prides itself on employing an already broad methodological toolkit, but further emphasis should be placed on art and other material evidence.

Historians in particular rarely use art as evidence. If employed at all, art is usually employed for illustrative purposes.<sup>6</sup> While art cannot overcome the problem of representation, it possesses an explanatory capacity as powerful as any text. Art is loaded with historical context. This context frequently must be uncovered or unraveled from its symbolic or allegorical trappings. To a trained viewer, however, visual clues can be as stimulating as any text.<sup>7</sup> On a

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<sup>5</sup> Peter Burke, *Eyewitnessing: The Uses of Images as Historical Evidence* (Ithaca: Cornell University Press, 2008), 42.

<sup>6</sup> This is not to say that integration is non-existent. Peter Burke gives a brief list of historians who actively employ art in their writing in his book. *Ibid.*, introduction.

<sup>7</sup> In many ways, this is similar to analyses of literature. Both art and literature contain “hidden” didactic meanings which can be uncovered given some degree of connoisseurship, and yield promising contextual results. Integrating literature (perhaps because of its similarly textual nature) is something that historians seem much more comfortable with than art history.

fundamental level, art materializes beliefs and shows what cultures valued.<sup>8</sup> Art offers insight into issues of religious, economic, and political importance. Paul Shepard takes this notion further in his *Man in the Landscape* and argues that art functions as an extension of the nervous system itself.<sup>9</sup> Art, he argues, is a visual thought process; it is tangible imagination inescapably interwoven in historical context. Of particular importance to the environmental historian, art can be evidence of rural nostalgia, intellectual shifts of nature valuation, or physical environmental changes.

If this is the case, then why is art so often superficially integrated into works of history? Why does source material as culturally expressive as art fulfill only crude illustrative purposes in most historical studies? What are the possibilities available for art as environmental evidence and what are its drawbacks? This essay attempts to answer these questions by analyzing three principle issues: the disciplinary division between art history and history, the use of art as illustrative or material evidence, and the possibilities and accompanying difficulties of gleaning evidence from art. It focuses primarily on the least appreciated use of art as evidence: direct evidence of material environmental change.

I readily concede the valuable contributions that cultural and social historians have gleaned from landscape art. Focusing on the symbolic at the expense of the material, however, distances the viewer (historian or not) from the wealth of visual information embedded in the work. Landscapes not only reflect shifting ideas of humanity and the environment, but are tangible evidence for historical continuity and change. This evidence is not unproblematic. Indeed, art historians have successfully problematized naïve assumptions about “realism” in the landscape genre. Art in general and landscape art in particular, however are useful and unique sources that warrant further interest and implementation in the environmental humanities.

This study should not be considered an exhaustive account of historical examples or integrative methods. Historians and social scientists have written innumerable accounts of the different relationships held between humanity, nature, and art. It is, rather, an accounting of pre-existing work and methods deserving further exploration and an analysis of the problems inherent in this approach. Using art as material evidence, this study examines several ways historians have used, or could potentially employ landscape art in the investigation of the

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<sup>8</sup> Prown, *Art as Evidence: Writings on Art and Material Culture.*, 229.

<sup>9</sup> Paul Shepard, *Man in the Landscape: A Historic View of the Esthetics of Nature* (College Station: Texas A&M Press, 1991), 24.

intersection of technology and the environment. While the focus of this study rests on evidence from the Netherlands due to the author's training in early modern Dutch environmental history, its broader themes and arguments are equally applicable in other discipline, regions of interest, or period with a landscape tradition.

*On the Separation of Disciplines:*

Historians may avoid incorporating art dynamically into their work, but art historians frequently burden themselves with the opposite problem. Many focus on works of art as their sole subject, examining their iconography and the painterly methods employed by artists to the exclusion of historical context. It is only since the 1960s that art history has really opened itself to the question of "motivation" in art.<sup>10</sup> Art historians once asked, "who can this landscape be attributed to," and "what traditions of European painting does this work draw on?" Now many ask more fundamentally historical questions like "what social influences prompted the painter to choose a subject," and "what did it say about their culture?" This current attempt to circumvent or undermine the institutional barriers of contextualization still has a limited historiography.

History boasts a deep, albeit limited, tradition of employing material evidence as well, though primarily on a symbolic level. Some of the earliest cultural historians featured prominent use of art in their argumentation. Jacob Burckhardt was equal part cultural and art historian and was an avid proponent of the integration of art and cultural history. While his most famous contribution to the historical discipline, *The Civilization of the Renaissance in Italy*, rarely mentions artwork (even when it seems frustratingly appropriate) Burckhardt always felt that art could inform cultural history.<sup>11</sup> His lectures on Greek culture offer a clearer view of his inclination. "Everything we can gather from the Greek past can become a source, he stated, "every surviving fragment is of value, buildings and the visual arts most of all."<sup>12</sup> Art history's purpose, according to Burckhardt, seemed to fit well within his notions of the greater purpose of cultural history. In an 1877 letter he remarked, "My personal taste in art history, it seems to me,

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<sup>10</sup> A sea change in the art history of landscapes occurred sometime after the publication of Wolfgang Stechow, *Dutch Landscape Painting of the Seventeenth Century* (London: Phaidon Press, 1966). Stechow was the last of a long tradition of what is now considered passé Art History strictly interested in constructing iconographical analyses, author attribution, and painterly methods. Since the 1970s, much more emphasis has been placed on contextualization and the "motivation" of artists, whether from a religious, economic, or social perspective.

<sup>11</sup> Jacob Burckhardt, *The Civilization of the Renaissance in Italy* (London: Penguin, 1990).

<sup>12</sup> *The Greeks and Greek Civilization* (New York: St. Martin's Press, 1998)., 10.

has been to account for the imagination of past ages, to state the visions and intentions of certain major artists and schools.”<sup>13</sup> As a product of culture, art leads historical study in new directions.

While Burckhardt did not hold uncritical views on the intermingling of cultural and art historical methods, his contribution represented a stunning florescence of this form of interdisciplinarity. Sadly, this confluence was short-lived. To the increasingly scientific field of pre-World War Two history, this early twentieth century approach seemed overly subjective.<sup>14</sup> Style and formalism, both inventions of the art historical discipline, were also boundaries that defined it from other forms of history. Economic and cultural historian J.W. Smit argued that the division occurred as a result of disciplinary definition. While art history capitalizes on its narrowly defined object of interest (artwork), history concerns itself with a much vaguer object (the past).<sup>15</sup> The separation stemmed from art history defining itself earlier than other sub disciplines of history.

Architectural historian James Ackerman argued that what distinguished art history from other histories was its object of study.<sup>16</sup> Art historical methodology, by extension, is unique. Art historians draw on formalist critiques and are interested in attribution and style. Artworks are “objects of interpretation” rather than an “uncomplicated source of historical knowledge.”<sup>17</sup> Art historians increasingly employ cultural-historical methodologies, but always with the intention of explaining some aspect of artwork. By contrast, history’s problems with representation originated out of its poorly defined methodology and lack of overarching goal. Eric Hobsbawm, for instance, stated that history’s origins lay within institutional frameworks that supported certain histories over others, but were “philosophically and methodologically” uncertain about any greater goal than the collection of information.<sup>18</sup> Art history never suffered this problem for the simple reason that art history has always been clearly interested in the *artistic* past.

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<sup>13</sup> Francis Haskell, *History and Its Images: Art and the Interpretation of the Past* (New Haven: Yale University Press, 1993), 332.

<sup>14</sup> For an examination of the role of subjectivity and objectivity in history, see Peter Novick, *That Noble Dream: The 'Objectivity Question' and the American Historical Profession* (Cambridge: Cambridge University Press, 1988).

<sup>15</sup> J. W. Smit, "History in Art," in *Art in History, History in Art*, ed. David Freedberg and Jan de Vries (Santa Monica: Getty Center Publishers, 1987), 17.

<sup>16</sup> James Sloss Ackerman, "Western Art History," in *Art and Archaeology*, ed. James Sloss Ackerman and Rhys Carpenter (Englewood Cliffs: Prentice Hall, 1963), 127.

<sup>17</sup> Jan de Vries, "Introduction," in *Art in History, History in Art*, ed. David Freedberg and Jan de Vries (Santa Monica: Getty Center Publishers, 1987).

<sup>18</sup> Eric Hobsbawm, "Karl Marx's Contribution to Historiography," Robin Blackburn ed., *Ideology in Social Science: Readings in Critical Social Thinking*, Waukegan, IL: Fontana Press, 1972, 266.

Environmental history has a unique opportunity to circumvent the problems inherent in both larger disciplines. There can be no doubt about where the field's interests lay. Environmental histories always contain an "environmental," "natural," or "ecological" focus (no matter what your definition of each is). This is not to deny the uncertainty when dealing with the question "what is environmental history?" A significant and ongoing debate about its future belies any consensus.<sup>19</sup> The historic relationship between humanity and its surroundings may be conceived broadly by historians (and rightly so), but no less vacuous a characterization defines "economic," and "social" histories. Environmental history shares this lack of methodological and conceptual rigidity, but it should not be interpreted negatively.<sup>20</sup> It is precisely environmental histories methodological and theoretical pliability that may allow it to transcend the ossified disciplinary divisions between history and art history.

This diversity of methodologies will likely continue because environmental history is inherently interdisciplinary. Environmental historians must analyze texts from scientific sources as well as literature and archival resources. Environmental history draws freely on geography, biology, medicine, and the social sciences. Environmental history is, thus, ideally suited to the task of incorporating material culture. This will only be effective, however, if the historian approaches art and other material culture as a critical piece of evidence, not simply illustration.<sup>21</sup>

### *Art as Evidence, Art as Illustration*

Art and material culture can be either evidence or illustration, and sometimes both. Most environmental histories and history in general, use artwork for illustrative purposes. A Lewis Hine photograph of early twentieth century child laborers may be used to *illustrate* their

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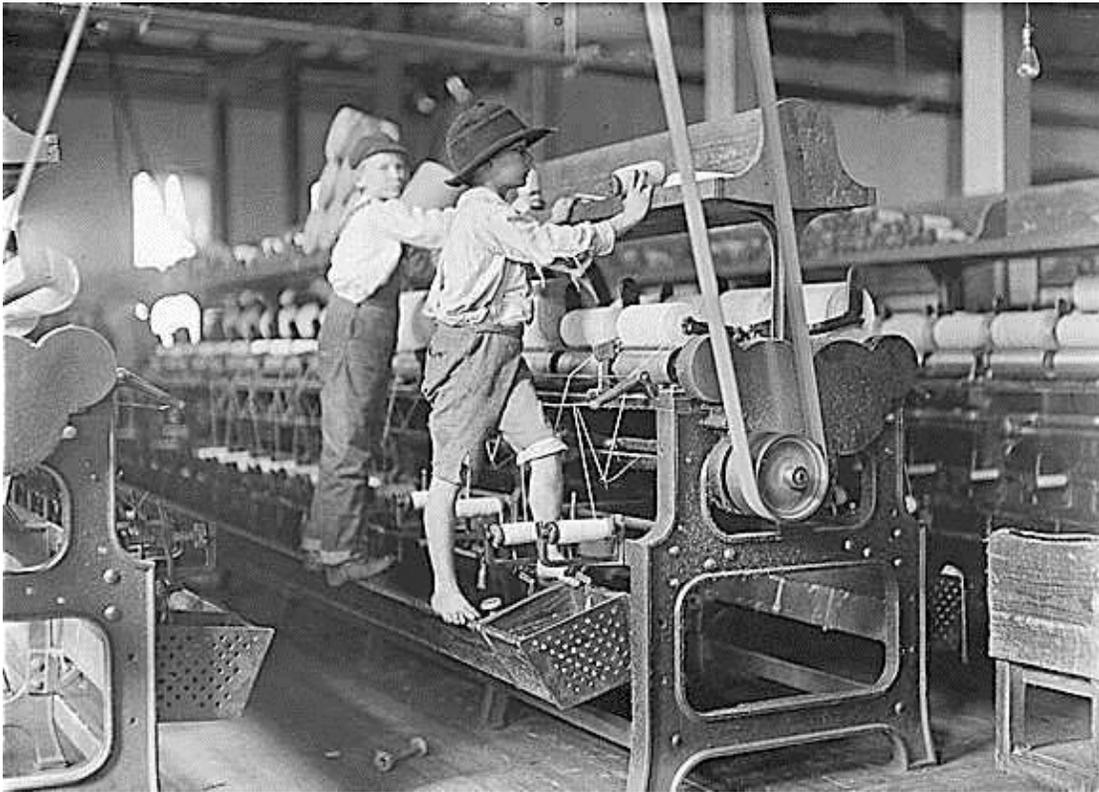
<sup>19</sup> There are a number of resources that outline the continuing debate regarding the definition and future of environmental history. Two roundtables in the *Journal of American History* are the best introductions: one focusing on an essay by Donald Worster, the other more recently by Paul Sutter: Donald Worster, "Transformations of the Earth: Toward an Agroecological Perspective in History," *Journal of American History* 76, no. 4 (1990): 1087., Paul S. Sutter, "The World with Us: The State of American Environmental History," *ibid.* 100, no. 1 (2013): 94-119. Other significant perspectives include: Melissa Leach and Cathy Green, "Gender and Environmental History: From Representations of Women and Nature to Gender Analysis of Ecology and Politics," *Environment and History* 3, no. 3 (1997): 343-70.; Kristin Asdal, "The Problematic Nature of Nature: The Post-Constructivist Challenge to Environmental History," *History and Theory* 42, no. 4 (2003): 60-74.; Ellen Stroud, "Does Nature Always Matter? Following Dirt through History," *ibid.*: 75-81.

<sup>20</sup> J. R. McNeill, "Observations on the Nature and Culture of Environmental History," *ibid.*: 5-43.

<sup>21</sup> There is already some evidence of this developing in North America. The "Gallery" of the journal *Environmental History* offers a short analysis of environmentally relevant art from every era. Additionally, the annual meeting of the American Association for Environmental history will offer their third installment "visual culture" panel at their meeting in San Francisco in 2014.

appearance and their work conditions, but it would not often be used as evidence. In this case, the photo could be used as *evidence* of a specific loom technology, of a particular operation in industrial textile production (doffing), of cultural attitudes about labor and industry, or the developing role of artists as social critics. Generally, the arguments in historical works that employ artistic illustration are not derivative of the photos or paintings within them. In these cases, the inclusion of art is merely designed to illustrate *further* an argument already fully fleshed out with textual evidence.

Image II.



Lewis Hine, "Doffers at the Bibb Mill No. 1, Macon, Georgia." Photograph. National Archives and Records Service.

Art as illustration is usually a passive actor in the historical narrative. If the pictures were removed, the narrative would still continue as directed (though with reduced visual appeal). Illustrative art is rarely used as primary source material. Historians do not attempt to "read" from art any historical argument or glean evidence from the subjects of the artwork, so it remains secondary. As a result, historians usually "picture" an event or object already fully explored with textual source material. Artwork is often a temporary visual snapshot of ongoing historical

change that alludes to nothing before or after the period of time depicted in the work. Illustrative histories exacerbate this issue with inconsistent pictorial representation. These histories often contain little to no pictorial narrative accompanying the textual narrative.

Art as evidence is often the opposite. Currently it is practiced largely by art historians, anthropologists, archaeologists, and the occasional cultural historian. Art as evidence plays an *active* role in the historical narrative. When used in this manner, art clearly contributes to an historical argument. Images are chosen for their dynamic appeal, but they also as primary sources that show historical action or change. Finally, art as evidence is presented consistently throughout the narrative in much the same way historians use textual sources.

Art can offer material evidence if it is as a concrete indicator of the presence (or absence) of an historical subject. This may be a kind of technology, a plant species present in a Dutch still-life or botanical print, or particular usages of landscape. Regardless, material evidence bears witness to what existed. Its textual equivalent might be a birth certificate or a receipt of purchase, something that proves an event occurred or an object existed.

By discursive, I refer to the historical *ideas* we can derive from the presence *or absence* of material evidence. Discursive evidence requires greater interpretation and can be much more subjective. A painting (or series of paintings) may be evidence of a shifting attitude toward nature. Likewise, the *absence* of a particular technology, plant, or landscape can mean as much or sometimes more than its presence. Discursive evidence requires contextualization and often draws on literature, myth, and symbols to support its arguments.<sup>22</sup>

While I have created dichotomies between evidence and illustration and material and discursive evidence, the shades of grey between these categories are important. Many historians use a blending of material and discursive approaches. This is perhaps the best way to achieve a well-rounded result. One example of a successful synthesis is Nancy Leys Stepan's *Picturing Tropical Nature*.<sup>23</sup> Stepan argues that tropical nature is a post-Enlightenment modern idea.

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<sup>22</sup> An excellent example of a purely "discursive" form of art integration is Simon Schama, *Landscape and Memory* (New York: A.A. Knopf, 1995). In this book, Schama weaves a web of interdependent artistic and cultural causation. In doing so, he challenges the usual dismal take on historical man in the environment. Drawing on a discourse heavily weighted with myth, legend, and art, Schama argues that man has reshaped nature, but has also learned from it. A cultural history of landscape metaphors, Schama argues that "the cultural habits of humanity have always made room for the sacredness of nature."<sup>(8)</sup> That said, Schama does not use art as evidence of any *material* change in nature and it is this form of artistic evidence that needs further work in history.

<sup>23</sup> Stepan, *Picturing Tropical Nature*. This book is part of an ongoing series of largely cultural history from the University of Chicago Press (Reaktion Books) called "Picturing History." The environmental historian may find several offerings in addition to Stepan's work valuable.

Europeans constructed tropical nature through ideas of medicine, the development of the natural sciences, and visual representations of tropical land and peoples. Most Europeans never actually saw the tropics, she states, so the pictures brought back from Brazil or Africa did not simply illustrate tropical reality; they became documentary evidence from which Europeans developed tropical nature.<sup>24</sup> Stepan uses primarily photographs in her work, but stresses their subjective nature. Photographs can distort or reshape reality as effectively as any painting. She uses photographs as material evidence of the development of tropical photography and discursively to contextualize their meaning. Stepan's use of photographs is an excellent example of art playing as critical a role as her textual sources.

Stepan is not the only example of an environmental historian who dynamically incorporates pictures into her work. More often than not, however, this work is done by art historians, historians of technology, or scientists. My intention in the second part of this essay is to present material and discursive evidence in landscape art in the Netherlands in order to show how art can be used as material evidence for environmental history.

### *The Netherlands: Landscape of Environment and Technology*

Most art historians trace the beginning of the landscape genre to Renaissance Italy.<sup>25</sup> Artists frequently used landscapes, however, as setting to foregrounded anthropocentric subjects. Italian landscapes were certainly symbolically rich, but scholarship is limited that examines the available material evidence precisely because their purpose was not to represent (even the illusion of) material reality. A more useful point of departure, therefore, is the seventeenth century Netherlands. The Dutch landscape (*landschap*) depicted (typically) rural life and diverged from the allegorical, religious, mountainous views of Flemish and Italian traditions. As opposed to early traditions primarily interested in pastorals or landscapes of antiquity, the Dutch largely specialized in contemporary scenes.<sup>26</sup> This preference dictated a uniquely strong and broadly-represented market for landscape paintings. Dutch landscapes achieved "realism" in

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<sup>24</sup> Ibid., 19.

<sup>25</sup> Cosgrove, *Social Formation and Symbolic Landscape*, 1.

<sup>26</sup> There are, of course, exceptions. There was a vibrant Italianate landscape tradition centered in Utrecht in the seventeenth century. See the works of Nicolaes Berchem, Jan Both, Adam Pynacker, and even Aelbert Cuyp. Laurie B. Harwood, Christopher Brown, and Anne Charlotte Steland, *Inspired by Italy: Dutch Landscape Painting, 1600-1700: Exhibition* (Dulwich Picture Gallery, 2002).

form and concept unique in Europe.<sup>27</sup> This realism, however, was not spontaneous. It arose out of a slow evolution traced back through the Southern Netherlands.

Art historians identify a nascent form of Dutch-style landscape art in the sixteenth century. One such work is Pieter Brueghel's "Return of the Hunters." Realism and accuracy are not of primary interest to the artist. Mountains that like this do not exist in Flanders, or anywhere. Art historian Gina Crandell characterized it as a collage of landscapes; Italianate mountains framing a native village.<sup>28</sup> Perspective is skewed and the figures are derivative of a northern Renaissance tradition. Already, however we can detect a sense of place in this painting. The landscape is accorded a primary role in this work. The land seems dynamic (no doubt partly due to the unrealistic topography). This is also because Breughel likely drew on contemporary developments in optics and the geographers' sense of perspective.<sup>29</sup>

More importantly to an environmental historian looking to art for material evidence of environmental change, this is one of the earliest depictions of the genre in Netherlandish art known as "winter landscapes."<sup>30</sup> This image is now iconic of the climatic period dated roughly between 1550 and 1850 known as the Little Ice Age. Many scholars suspect the Brueghel conceived of this painting as a result of a major snowstorm in the winter of 1565.<sup>31</sup> Snow storms such as these would become increasingly frequent during the sixteenth and seventeenth centuries.

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<sup>27</sup> For environmental historians, these paintings are uncommonly useful because they are what Jan de Vries terms *maatschappijuitdrukking* ("the projection of a vanished society through the convincing presentation of physical and social reality. See: de Vries, "Introduction."

<sup>28</sup> Crandell, *Nature Pictorialized: "The View" in Landscape History.*, 91.

<sup>29</sup> Martin Kemp, "Looking at the Face of the Earth," *Nature* 456(2008): 876.

<sup>30</sup> For more on the subgenre of "winter landscapes," see Stechow, *Dutch Landscape Painting of the Seventeenth Century*. Winter landscapes were thought to represent an allegory of seasonal change dating back to the medieval *Book of Hours*. Winter signals the end of a lifetime, the transience of our time on the planet. In many ways, it can be interpreted as a more subtle *momento mori*. Recent work from climatologist working in tandem with art historians has yielded interesting results leading to an approach more closely resembling *maatschappijuitdrukking*.

<sup>31</sup> The use of paintings to evaluate historical climate has a venerable tradition dating back to the 1930s. See L.C.W. Bonacina, "Landscape Meteorology and Its Reflection in Art and Literature," *Quarterly Journal of the Royal Meteorological Society* 65(1939): 485-97. The use of this painting as evidence for climatic change can be traced by to H.H. Lamb, *Climate, History and the Modern World* (New York: Routledge, 1995), 233-34. For other resources on climate and winter landscapes, see: C.S. Moffett, E. Rathbone, and K. Rothkopf, *Impressionists in Winter: Effets De Neige* (Washington D.C.: Philip Wilson Publishers, 1998); J.E. Thornes, "A Brief History of Weather in European Landscape Art," *Weather* 55(2000): 363-75.; Ariane van Suchtelen, ed. *Holland Frozen in Time: The Dutch Winter Landscape in the Golden Age* (Zwolle: Waanders, 2001). Pieter Roelofs, *Hendrick Avercamp: Master of the Ice Scene* (Amsterdam: Rijksmuseum, 2009).

Image III.



Pieter Bruegel the Elder, *Return of the Hunters* 1575  
*Kunsthistorisches Museum, Vienna*

This example underlines the distinction between art as an illustration of long term change and art as evidence. The significance of Bruegel's painting as evidence is not its ability to tell us about a singular harsh winter (which Bruegel likely did not attempt), but rather its place in longer term trend of increasing winter landscape production.<sup>32</sup> As the Flemish landscape tradition traveled north, especially in the seventeenth century, "winter landscapes" became a unified Netherlandish phenomenon across the Low Countries with contributions from many major landscape artists. *Return of the Hunters* is, therefore, part of a genre that offered a large sample of environmental representation. The 1970s were a heyday for historical meteorologists and climatologists interested in testing the possibilities of art as material sources of climate. Hubert Lamb and Hans Neuberger, for instance, compiled compelling evidence that changing

<sup>32</sup> There are many other images that document harsh winters much more clearly than Bruegel's painting such as the Thames river freezing over, a relatively rare occurrence (then and now) documented by contemporaries and evaluated in H. H. Lamb, *Climate: Present, Past, and Future, Vol. 2* (New York: Barnes and Noble, 1977).

artistic tendencies mirrored their atmospheric surroundings.<sup>33</sup> There is no reason why humanistic scholars cannot access this same trove of information.

Naturally, this approach is not unproblematic. The development of this new genre of landscape paintings could be ascribed to stylistic trends rather than climatic, for instance.<sup>34</sup> Assumptions of absolute representational fidelity should be tempered with the recognition that artists experiencing natural change were also living through cultural changes that influenced their art. Still, in aggregate, the genre of winter landscapes is a powerful reminder that artists were responsive to their environmental surroundings. Even in Brueghel's sixteenth century Flanders, when "realism" was not of paramount importance, material evidence of environment change is still available.

The ability of historical researchers to identify environmental change in landscape art changed with the development of Dutch realism in the seventeenth century. Still life, landscapes, and genre scenes during the Golden Age of Dutch art offer viewers a seductive, albeit less than trustworthy impression of the era. Indeed, the issue of whether Golden Age paintings accurately mirrored Dutch society and the environment (what art historians refer to as verisimilitude) has been one of the richest and most contentious debates in art history since the 1950s.<sup>35</sup>

Even in the seventeenth century, Dutch paintings were not "real" in the sense that they were interested in duplicating reality. "Accurate" might better characterize these works. Even so, when taking an entire oeuvre into account, painters were not nearly as accurate as their individual paintings.<sup>36</sup> Painters in this period often idealized their subjects. They moved

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<sup>33</sup> Ibid; Hans Neuberger, "Climate in Art," *Weather* 25(1970): 46-56.

<sup>34</sup> These possibilities were investigated in W.J. Burroughs, "Winter Landscapes and Climatic Change," *ibid.* 36(1981): 352-57. and Peter J. Robinson, "Ice and Snow in Paintings of Little Ice Age Winters," *ibid.* 60, no. 2 (2005): 37-41. Aspects of their conclusions helped justify a challenge to the existence of a Little Ice Age at all. See: Morgan Kelly and Cormac Ó Gráda, "The Waning of the Little Ice Age: Climate Change in Early Modern Europe," *Journal of Interdisciplinary History* 44, no. 3 (2014): 301-25.

<sup>35</sup> Wayne E. Franits, "Introduction," in *Looking at Seventeenth-Century Dutch Art: Realism Reconsidered*, ed. Wayne E. Franits (Cambridge: Cambridge University Press, 1997). Franits identifies the change with Erwin Panofsky's development of the iconographical method in: Erwin Panofsky, *Early Netherlandish Painting: Its Origin and Character*, 2 vols. (Cambridge: Harper & Row, 1953). The iconological method was refined under Eddy de Jongh and the Utrecht school, but consideration of realism (or more accurately the "descriptive") only truly became an active core of seventeenth-century Dutch art history with the publication of Svetlana Alpers, *The Art of Describing: Dutch Art in the Seventeenth Century* (Chicago: Chicago: University of Chicago Press, 1983). For contributions from these and other authors over the debate, see: Wayne E. Franits, *Looking at Seventeenth-Century Dutch Art: Realism Reconsidered* (Cambridge: Cambridge University Press, 1997).

<sup>36</sup> John Walsh, "Skies and Reality in Dutch Landscape," in *Art in History, History in Art: Studies in Seventeenth-Century Dutch Culture* (Chicago: University of Chicago Press, 1987), 103.

buildings around, inserted non-native trees, and combined cloud formations that defied thermodynamics.<sup>37</sup> As realistic as Dutch landscapes appear, therefore, they were equally illusory.

Artists still composed their painted works indoors. Landscapists often sketched outside and then painted an idealized version when they returned to their studio. Despite the characterization “*naer het leven*” (from/to life) that artists used to define their works, the type of on-location painting one sees by the nineteenth century, for example, was non-existent.<sup>38</sup> Dutch artists did not intend absolute accuracy of their landscapes, but rather an aesthetically-pleasing representation.

This does not mean that *naer het leven* works are devoid of useful information for environmental historians. Indeed, even if painters did not intend to mimetically represent their world, many scholars would agree that landscape paintings contain at least some material evidence of the Dutch relationship with the environment.<sup>39</sup> The problem for historians then becomes: what *were* they representing if not reality? Art historians address this issue along several tangents, of which two present the most difficulties for historians interested in using art as evidence: the iconology and the convention.

The iconological approach investigates symbols disguised within the formal elements of the paintings. Specific plants and animals, this school argues, imparted hidden, moral meanings to the Dutch viewer. This interpretation is heavily dependent on an interdisciplinary approach as many of the associations only become clear via cultural history, particularly the close reading of emblem-books. The 1980s in particular saw the expansion of art historical and geographic interest in the iconological.<sup>40</sup> The iconological approach is problematic for the historian because

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<sup>37</sup> In his study on the “realism” of clouds in Dutch landscapes, John Walsh, with the help of meteorologist George Siscoe, conclude that the majority of seventeenth century cloudscape are unrealistic. The “most common forms of cloud formations are rarely shown in paintings” they conclude. (96) While some painters were typically more accurate than others (especially Phillips de Koninck), even some of the most “accurate” painters of landscapes preferred drama to accuracy in the depiction of clouds. This is an example of the danger of labeling artists as “accurate” “realistic” or otherwise. Some paintings were more accurate than others and some painters as well, but there were accuracies and inaccuracies in all of them. “Scientific accuracy” in art was an anachronism in the seventeenth century. Meteorology in the seventeenth century was still based on Aristotelian observation put forth in his *Meteorologica*.

<sup>38</sup> For more on the meanings and implications of *naer het leven* (from life) and *uit den gheest* (from the imagination) see Mariët Westermann, *A Worldly Art: The Dutch Republic, 1585-1718* (New Haven: Yale University Press, 2005).

<sup>39</sup> See, for example: Linda Stone-Ferrier, "Views of Haarlem: A Reconsideration of Ruisdael and Rembrandt," *Art Bulletin* LXVII, no. 3 (1985): 417-36.

<sup>40</sup> In addition to Eddy de Jongh’s Utrecht school, see the cultural geographic work of Denis Cosgrove. This approach is not without its critics. See: Walter S. Gibson, *Pleasant Places: The Rustic Landscape from Bruegel to Ruisdael* (Berkeley: University of California Press, 2000).

it invites an added layer of uncertainty to an already problematic reading of the painting. The inclusion of environmental information, added for moral rather than mimetic purposes, could conceivably lead the scholar to incorrect conclusions.

Conventionality is a second problem when using art as evidence. It is a matter-of-fact that paintings (Dutch or otherwise) contain conventions denoting a range of meaning, including stylistic and formal elements that characterize a genre. These conventions select for specific elements that painters and viewers expected to see, essentially due to the weight of tradition and the market for artwork. Conventions become problematic for historians when pictorial elements are selected by the artist, not because of their significance in an environmental context, but because of convention.

While the iconological and conventionalistic approaches might not present perfectly depict material reality, they provide powerful means of gathering discursive evidence of environmental meaning. The symbols chosen, or the conventions ascribed to, by Dutch painters speak to possible associations between society and environment available on a popular level. For instance, several art historians have identified an interesting convention: Dutch painters rarely depicted the most dynamic and recently altered conditions of their surroundings. Polderlands, peat digging, and clusters of windmills are rare subjects in landscapes. If they were depicted at all, they were frequently modified. Artists instead depicted “timeless” landscapes absent from human alteration, or even removed evidence of human control from their surroundings. This is unfortunate from the perspective of gleaning material evidence of environmental change from paintings, but it furnishes a powerful statement of the culture’s response to rapid and expansive environmental change. The landscape genre was an urban phenomenon and this convention highlighted the unsettled impression the rapidly shifting countryside held for an increasingly urbanized society.<sup>41</sup>

Iconography and conventions, however, do not present insurmountable challenges for the use of art as material evidence. Indeed, even strong arguments for a conventionalistic or iconological readings of paintings do not negate their use as evidence. This is clear when reading one particular painting from all three perspectives.

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<sup>41</sup> Ann Jensen Adams, "Competing Communities in the 'Great Bog of Europe': Identity and Seventeenth-Century Dutch Landscape Painting," in *Landscape and Power*, ed. W. J. T. Mitchell (Chicago: University of Chicago Press, 1994); Irene J. Klaver, "Authentic Landscapes at Large: Dutch Globalization and Environmental Imagination," *SubStance* 41, no. 127 (2012): 92-108.

Image IV.



*Jacob van Ruisdael, Mill Wijk-bij-Duurstede, 1670*  
*Rijksmuseum, Amsterdam*

Jacob van Ruisdael's "Windmill at Wijk bij Duurstede" is one of his acknowledged masterpieces. A far cry from its Flemish ancestors in the sixteenth century, it exemplifies many of the developments that had taken place since the Dutch landscape traditions development in Haarlem in the 1620s. If not explicitly mimetic, this painting is certainly not fanciful in its selection of subject. In fact, van Ruisdael's "realism" was closer to photorealism than most of his contemporaries. Botanists can identify his trees and shrubs, geographers can identify the placement of the painting based on the landscape, and art historians can accurately date the work based on his architectural accuracy.<sup>42</sup> It is the reliability of these details the makes Ruisdael so potentially useful.

The reliability of elements in his compositions and the recognition that convention influenced much of the work are not mutually exclusive. The artful presentation of clouds, the smallness of human figures, and the muted colors are all elements that would have been seen by

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<sup>42</sup> For more on Jacob van Ruisdael, his realism and oeuvre see Seymour Slive, *Jacob Van Ruisdael: Master of Landscape* (New Haven: Yale University Press, 2005).

contemporaries as conventional, but they could also be presented more or less faithfully if the painter chose. This painting is also representative of the move toward depicting native Dutch locations in the seventeenth century. Dutch artists like Meindert Hobbema, Jan van Goyen, Jacob van Ruisdael, and even Rembrandt van Rijn selected indigenous settings, depicting dunescapes, rivers, canals, vast expanses of flat fields, and windmills.<sup>43</sup> This convention should not be confused with “documentation,” but neither do they preclude it. At the very least, it does show a burgeoning appreciation of the native environment on a discursive level. Importantly, it also increases the relevance of these paintings for historians interested in the Dutch material environment. Convention, therefore, can work in favor of the material approach.

The iconological approach also offers a challenge to those wishing to use *Mill at Wijk bij Duurstede* for material evidence, though as with conventionality, it is not insurmountable. Naturally, the purpose of this painting was not absolute fidelity of representation. The river, in actuality the conjunction of the *Lek* and *Kromme Rijn*, was not nearly as wide as Ruisdael portrayed it. Ruisdael also had a history of presenting his subjects (in this case the mill itself) as larger than life by accentuating and dramatizing topography and architecture. Using an iconological approach, it is even possible to read symbolic, emblematic, and moral meaning from this painting.<sup>44</sup>

As with conventionality, the debatable ultimate purpose of this painting does not obscure its significance as a rich source of material detail. The painting offers an accurate representation of wind direction highlighted by the orientation of the windmill as well as the reeds. The ripples

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<sup>43</sup> Rembrandt is generally considered to be portraitist and history painter. Only about two percent of his work can be classified as landscape. The paintings and sketches that exist, however, were significant and are considered by art historians to be some of the finest works within the genre. For more on Rembrandt’s landscapes, see Cynthia P. Schneider, *Rembrandt's Landscapes* (New Haven: Yale University Press, 1990). For more on the development and contextualization of Dutch Landscapes: Peter C. Sutton, *Masters of 17th-Century Dutch Landscape Painting* (Boston: Museum of Fine Arts, 1987); Christopher Brown, ed. *Dutch Landscape: The Early Years: Haarlem and Amsterdam 1590-1650* (London: National Gallery, 1986).

<sup>44</sup> The most thorough treatment of Ruisdael from an iconological perspective is Wilfried Wiegand, "Ein Versuch Zur Ikonologie Der Landschaftmalerei" (University of Hamburg, 1971). Art historian Hans Kauffmann also argued that the mill should be interpreted in the light of other mill paintings with similar compositions as well as emblem books that highlight the cultural significance of their incorporation. Mills, according to this view, represented “temperance” and “humility” in the face of fate and God. See: Hans Kauffmann, "Jacob Van Ruisdael: Die Mühle Von Wijk Bei Duurstede," in *Festschrift Für Otto Von Simson Zum 65. Geburtstag*, ed. L. Grisebach and K. Renger (Frankfurt am Main: 1977). For other iconological interpretations, see: Imdahl, *Die Muhle von Wijk*; Becker, *verschieden Möglichkeiten*, Rudolf Herman Fuchs, "Over Het Landschap. Een Verslag Naar Aanleiding Van Jacob Van Ruisdael, Het Korenveld," *Tijdschrift voor Geschiedenis* 86(1973): 281-92.; H.W. van Os and J.P.F. Kok, *Netherlandish Art in the Rijksmuseum: 1600-1700* (Waanders, 2001); Andrea Stockhammer, "Landschaftsmalerei Als Spiegel Gesellschaftlichen Naturverständnisses. Interdisziplinäre Studien Zur Bildproduktion Der Holländer Im 17. Jahrhundert" (Universität Wien, 2009).

on the water's surface indicate the location of the painting. The water shows multi-directional flows that indicate this location is at the juncture of two rivers.

Importantly, historians of technology identified this as the earliest pictorial representation of a new innovation in mill technology.<sup>45</sup> This is the first evidence known of a windmill spar at quarter-chord. This means that Ruisdael placed the spar of the vane (which always runs counterclockwise) in the correct position to achieve optimal power, while at the same time avoiding unnecessary vibration and damage. The Dutch developed this innovation through trial and error, and because of Ruisdael, we know it was in place in Wijk-bij-Duurstede.

Historian Richard Unger points out that, for historians of technology, using art as evidence requires an evaluation of artists based less on their skill, and more on their reliability.<sup>46</sup> To this should be added an artist's interest in offering rare perspectives on technology, its design and its role in mediating or controlling nature. Ruisdael again excels in this respect. Ruisdael specialized in depicting wind and water mill technology and showed a variety of designs from multiple angles, many of which are unique.<sup>47</sup>

Technology had other environmental implications as well. Ruisdael was one of the few Dutch artists to sketch seventeenth century mud mills (*moddermolen*). They dredged up mud and muck and transferred it to a conveyor belt pulled by horses. Dredging was as necessary in the seventeenth century as it is today. Without these machines, canals and harbors would silt up and become useless. They were thus economically important, but they also had significant environmental impacts. These *moddermolen* were probably common sights in the reclaimed areas and Ruisdael's sketch is one of the few depictions of it in operation.

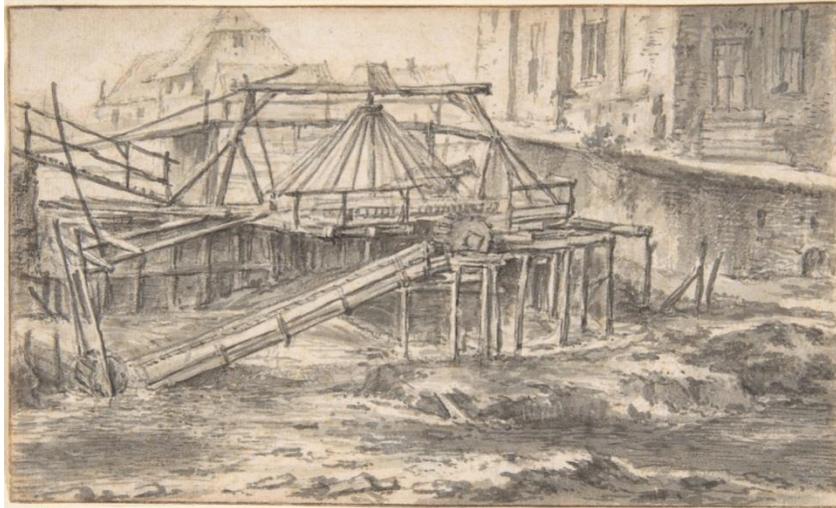
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<sup>45</sup> Slive, *Jacob Van Ruisdael: Master of Landscape.*, 11.

<sup>46</sup> Richard W. Unger, "Marine Paintings and History of Shipbuilding," in *Art in History, History in Art: Studies in Seventeenth-Century Dutch Culture* (Chicago: University of Chicago Press, 1987).

<sup>47</sup> Seymour Slive, *Jacob Van Ruisdael: Windmills and Water Mills* (Los Angeles: Getty Publications 2011).

Image V.

Jacob van Ruisdael, *Dredging a Canal*, 1650s. Metropolitan Museum of Art, New York

Ruisdael's sketch highlights one final observation. Many Dutch artists did not limit their creative and descriptive talents to one method of artistic production. Not only did they create paintings (which were always made in the studio), but they crafted etchings and drawings. Golden Age artists produced on-the-spot images as they walked through their surroundings. Karel van Mander, the late-sixteenth/ early seventeenth century Flemish painter, poet, and earliest art historian of the Low Countries, encouraged this activity, opining "go out early in the morning, as soon as the city gates open, and for a short time, enjoy the beauty of nature that can be seen outside."<sup>48</sup> By the mid-seventeenth century, a "documentary" tradition of producing recognizable landscape scenery had developed for the popular art market or for the artists' own personal use.<sup>49</sup>

Artists like Jacob van Ruisdael, Claes Jansz Visscher, and even Rembrandt van Rijn offer historians a mass of visual information of the Holland countryside.<sup>50</sup> Unlike the majority of paintings, these prosaic scenes sometimes documented polder landscapes, sea dikes, vegetation

<sup>48</sup> Hessel Miedema, *Karel Van Mander's Den Grondt Der Edel Vry Schilder-Const* (Utrecht: Haentjens Dekker & Gumbert, 1973).204-205.

<sup>49</sup> It is significant that this market opened up at roughly the same time that the Netherlands became a world center of cartography and printing; a simultaneity that is profoundly investigated in Alpers, *The Art of Describing : Dutch Art in the Seventeenth Century*. She argued that the seventeenth century Dutch were a "descriptive" rather than narrative culture who prized the visual over the textual. This was evidenced in artwork, but also cartography and microscopy.

<sup>50</sup> Gibson, *Pleasant Places: The Rustic Landscape from Bruegel to Ruisdael*; Jan Peeters and Erik Schmitz, "Belangrijke Aanwinst Voor Gemeentearchief: Een Blad Met Twee Onbekende Tekeningen Van Claes Janz Visscher," *Maandblad Amstelodamum* 84(1997): 33-44.

and farms. Naturally, the same challenges of conventionality and (to a lesser extent) iconography apply, but just as with paintings, they are not insurmountable. Rembrandt, in particular, offered an anachronistic vision of the Amsterdam countryside, a particularly troubling issue for those historians wishing to use his art as evidence of environmental change.<sup>51</sup> Historians must therefore avoid relying entirely upon source material from Rembrandt concerning a given location (or even exclusively from works of art).

The most complete “view” of past Dutch environments is gleaned from a variety of source material like contemporary maps, travel guides, poetry, and archival documents. There are numerous models for scholars interested in this approach. The nineteenth century art collector and scholar Frits Lugt reconstructed a variety of Rembrandt’s “walks” around Amsterdam. Lugt used a variety of sources to produce one of the most complete “views” of Amsterdam and its environs available. In 1998, art historians continued and expanded upon Lugt’s methodology in a retrospective.<sup>52</sup> The purpose of these works, however, is primarily art historical. Art historical reconstructions of past environments are largely subordinate and in service to their efforts to characterize the historical artist. This model, however, perfectly realizes the benefits of the expansive approach this essay advocates for the study of past environments and is useful for environmental historians whose interests are more pointedly directed at changes to the landscapes themselves.

### *Conclusion*

Environmental scholars, especially historians, can glean a wealth of information from art and art history. In this essay, I outlined several ways historians, art historians, and other scholars have incorporated material culture into an integrated study of history. It focused on their possibilities and problems with this approach. This last point should not be undervalued. In his review of Peter Burke’s handbook of art as historical evidence, *Eyewitnessing*, Theodore Rabb underlined what he believed was one of the critical messages of Burke’s work: “caution.” The

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<sup>51</sup> Linda Stone-Ferrier, "Rembrandt's Landscape Etchings: Defying Modernity's Encroachment," *Art History* 15, no. 4 (1992): 403-33.

<sup>52</sup> Frits Lugt, *Wandelingen Met Rembrandt in En Om Amsterdam* (Amsterdam: P. N. van Kampen, 1915). Boudewijn Bakker et al., *Landscapes of Rembrandt: His Favourite Walks* (Bussum: Thoth Publishers, 1998).

wealth of visual information increasingly available to historians, Rabb argued, is also potentially its greatest challenge. The ease of access would promote the relaxing of standards.<sup>53</sup>

This essay shares this sentiment to the extent that it ensures rigorous scholarship. For this reason, it presented several of the primary challenges for scholars interested in the material and environmental evidence available in art. Despite these challenges, the potential is powerful, intriguing and valuable. They are not unfamiliar problems. Texts and images offer equal challenges to the scholar wishing to employ them. Both warrant caution, particularly regarding representation.

This essay only scratches the surface of the evidence of environmental and technological change explicitly laid out in Dutch paintings (not to mention what is illustrated implicitly). Other studies have investigated the increasing diversity of fruits and vegetables using Dutch market scenes, or tracked the importance of the beaver trade using portraits and genre paintings.<sup>54</sup> The literature on Dutch landscapes, genre, market scenes, still life and cityscapes is dense and for the enterprising environmental humanist, art historical and cultural geographic scholarship provides a solid foundation for the investigation of past environments.

These are not just opportunities for historians, either. Art history also has significant areas for growth that can contribute to the goal of using art as environmental evidence. Much of the existing art historical literature documents native Dutch environments. Many artists took their skills abroad, however. Maria Sibylla Merian's insect and plants prints from Suriname have untapped potential, not to mention the plethora of natural historical imagery produced across environments spanning the globe. Dutch interaction (and exploitation) of foreign environments is an equally rich subject area.<sup>55</sup> Indeed, Dutch sugar mills in Brazil were a frequent subject of

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<sup>53</sup> Theodore K. Rabb, "The Historian and Art: A New Maturity," *The Journal of Interdisciplinary History* 33, no. 1 (2002): 87-93.

<sup>54</sup> For more on the role of paintings in the evolution of domesticated plants, see Anton C. Zeven and William A. Brandenburg, "Use of Paintings from the Sixteenth to Nineteenth Centuries to Study the History of Domesticated Plants," *Economic Botany* 40, no. 4 (1986): 397-408.; William A. Brandenburg, "Market Scenes as Viewed by a Plant Biologist," in *Art in History, History in Art: Studies in Seventeenth-Century Dutch Culture* (Chicago: University of Chicago Press, 1987).; Linda Stone-Ferrier, "Market Scenes as Viewed by an Art Historian," *ibid.* For more on the use of portraits and genre scenes to uncover the developing environmental role of the Dutch in world trade, see Timothy Brook, *Vermeer's Hat: The Seventeenth Century and the Dawn of the Global World* (New York: Bloomsbury Press, 2008).

<sup>55</sup> M. Boseman et al., *Seventeenth Century Drawings of Brazilian Animals in Leningrad* (Leiden: Nationaal Natuurhistorisch Museum, 1990).

prints and paintings. These subjects have their own challenges, but colonial environments are still a remarkably untrammelled field for scholars despite the rich source material.<sup>56</sup>

Furthermore, the problems and possibilities of extracting material evidence from art identified in this essay are certainly not exclusive to the seventeenth-century Netherlands. Literature on material evidence in a variety of locations and across all points of history are widely available, albeit generally less popular than the discursive approach. The problems associated with identifying and reading beyond conventions and symbolic interpretations are just as relevant today as they were in the seventeenth-century (and earlier). This manner of approaching historical sources, however, remains underutilized. Many avenues remain unexplored, waiting for enterprising scholars, innovative methods and insightful questions. Historians need only look to work in the fields of historical ecology and forensic astronomy to see the impact scientists are having in art history and environmental history.<sup>57</sup> There is nothing holding historians back except the reluctance to think visually. Rabb's "caution," in sum, is warranted, but it is a sentiment already understood by the humanistic scholar. Representation, whether via text or image, is complex, but potential makes this endeavor worthwhile.

While all landscapes exhibit discursive evidence about the way nature is understood, material evidence is somewhat more difficult to identify. Depending on one's historical interest, paintings, prints, maps, photographs, or other visual media may or may not present the evidence one is seeking. In this respect, it is no different from textual sources. Writers and artists both discriminate between the events and details they describe and those they change or omit. I have tried in this essay to present a wide array of forms of material evidence, some within the realm of technologies affecting the environment and some as direct evidence of environmental conditions or change. The historian searching for material sources must cast a wide net over the varied

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<sup>56</sup> The governor, Johan Maurits of Nassau-Siegen, invited a retinue of natural historians, cartographers, and artists to document the natural condition of northeastern Brazil. Frans Post is perhaps the most famous for his landscapes of the area. Just as with native Dutch artists, the paintings of Frans Post offer challenges of convention and accuracy for those scholars interested in gleaning material information. See: Liza Oliver, "Frans Post's Brazil: Fractures in Seventeenth-Century Dutch Colonial Landscape Paintings," *Dutch Crossing: A Journal of Low Countries Studies* 37, no. 3 (2013): 198-219.; J.P. Whitehead and M. Boseman, *A Portrait of Dutch 17th Century Brazil: Animals, Plants and People by the Artists of Johan Maurits of Nassau* (Amsterdam, Oxford, New York: North-Holland Publishing Company, 1989). Dante Martins Teixeira, "Nature in Frans Post's Paintings of the New World," in *Frans Post: Painter of a Paradise Lost*, ed. Leon Krempel (Munich: Haus der Kunst, 2006). Other prints, maps, and sketches offer a picture of the historic environment of Brazil. See, for instance, Boseman et al., *Seventeenth Century Drawings of Brazilian Animals in Leningrad*.

<sup>57</sup> Eric Simons, "Historical Ecologists Map a Changing Landscape," *San Francisco Chronicle* (Friday, March 27, 2009). For more on Forensic Astronomy, see Jennifer Drapkin and Sarah Zielinski, "Forensic Astronomer Solves Fine Arts Puzzle," *Smithsonian Magazine*, April 2009.

visual representations of their event, time, or place. This will certainly require a familiarization with art historical methods and literature. The evidence is out there, historians need only learn how to see it.

### Bibliography

- Ackerman, James Sloss. "Western Art History." In *Art and Archaeology*, edited by James Sloss Ackerman and Rhys Carpenter. Englewood Cliffs: Prentice Hall, 1963.
- Adams, Ann Jensen. "Competing Communities in the 'Great Bog of Europe': Identity and Seventeenth-Century Dutch Landscape Painting." In *Landscape and Power*, edited by W. J. T. Mitchell, 35-76. Chicago: University of Chicago Press, 1994.
- Alpers, Svetlana. *The Art of Describing : Dutch Art in the Seventeenth Century*. Chicago: Chicago : University of Chicago Press, 1983.
- Asdal, Kristin. "The Problematic Nature of Nature: The Post-Constructivist Challenge to Environmental History." *History and Theory* 42, no. 4 (2003): 60-74.
- Bakker, Boudewijn, Maria van Berge-Girbaud, Erik Schmitz, and Jan Peeters. *Landscapes of Rembrandt: His Favourite Walks*. Bussum: Thoth Publishers, 1998.
- Bonacina, L.C.W. "Landscape Meteorology and Its Reflection in Art and Literature." *Quarterly Journal of the Royal Meteorological Society* 65 (1939): 485-97.
- Boseman, M., L.B. Holthuis, M.S. Hoogmoed, and C. Smeenk. *Seventeenth Century Drawings of Brazilian Animals in Leningrad* [in English]. Leiden: Nationaal Natuurhistorisch Museum, 1990.
- Brandenburg, William A. "Market Scenes as Viewed by a Plant Biologist." In *Art in History, History in Art: Studies in Seventeenth-Century Dutch Culture*, 59-72. Chicago: University of Chicago Press, 1987.
- Brook, Timothy. *Vermeer's Hat: The Seventeenth Century and the Dawn of the Global World*. New York: Bloomsbury Press, 2008.
- Brown, Christopher, ed. *Dutch Landscape: The Early Years: Haarlem and Amsterdam 1590-1650*. London: National Gallery, 1986.
- Burckhardt, Jacob. *The Civilization of the Renaissance in Italy*. London: Penguin, 1990.
- . *The Greeks and Greek Civilization*. New York: St. Martin's Press, 1998.
- Burke, Peter. *Eyewitnessing: The Uses of Images as Historical Evidence*. Ithaca: Cornell University Press, 2008.
- Burroughs, W.J. "Winter Landscapes and Climatic Change." *Weather* 36 (1981): 352-57.
- Clark, Kenneth. *Landscape into Art*. Lightning Source Incorporated, 2007.
- Cosgrove, Denis E. *Social Formation and Symbolic Landscape*. edited by 1984 Madison: University of Wisconsin Press, 1984.
- Cosgrove, Denis E., and Stephen Daniels, eds. *The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments*. edited by 1988. Cambridge: Cambridge University Press, 1988.
- Crandell, Gina. *Nature Pictorialized: "The View" in Landscape History*. Baltimore: Johns Hopkins University Press, 1993.
- de Vries, Jan. "Introduction." In *Art in History, History in Art*, edited by David Freedberg and Jan de Vries. Santa Monica: Getty Center Publishers, 1987.

- Franits, Wayne E. "Introduction." In *Looking at Seventeenth-Century Dutch Art: Realism Reconsidered*, edited by Wayne E. Franits. Cambridge: Cambridge University Press, 1997.
- . *Looking at Seventeenth-Century Dutch Art: Realism Reconsidered*. Cambridge: Cambridge University Press, 1997.
- Fuchs, Rudolf Herman. "Over Het Landschap. Een Verslag Naar Aanleiding Van Jacob Van Ruisdael, Het Korenveld." *Tijdschrift voor Geschiedenis* 86 (1973): 281-92.
- Gibson, Walter S. *Pleasant Places: The Rustic Landscape from Bruegel to Ruisdael*. Berkeley: University of California Press, 2000.
- Harwood, Laurie B., Christopher Brown, and Anne Charlotte Steland. *Inspired by Italy: Dutch Landscape Painting, 1600-1700 : Exhibition*. Dulwich Picture Gallery, 2002.
- Haskell, Francis. *History and Its Images: Art and the Interpretation of the Past*. New Haven: Yale University Press, 1993.
- Kauffmann, Hans. "Jacob Van Ruisdael: Die Mühle Von Wijk Bei Duurstede." In *Festschrift Für Otto Von Simson Zum 65. Geburtstag*, edited by L. Grisebach and K. Renger, 379-97. Frankfurt am Main, 1977.
- Kelly, Morgan , and Cormac Ó Gráda. "The Waning of the Little Ice Age: Climate Change in Early Modern Europe." *Journal of Interdisciplinary History* 44, no. 3 (2014): 301-25.
- Kemp, Martin. "Looking at the Face of the Earth." *Nature* 456 (2008): 876.
- Klaver, Irene J. "Authentic Landscapes at Large: Dutch Globalization and Environmental Imagination." *SubStance* 41, no. 127 (2012): 92-108.
- Lamb, H. H. *Climate: Present, Past, and Future, Vol. 2*. New York: Barnes and Noble, 1977.
- Lamb, H.H. *Climate, History and the Modern World*. New York: Routledge, 1995.
- Leach, Melissa, and Cathy Green. "Gender and Environmental History: From Representations of Women and Nature to Gender Analysis of Ecology and Politics." *Environment and History* 3, no. 3 (1997): 343-70.
- Lugt, Frits. *Wandelingen Met Rembrandt in En Om Amsterdam*. Amsterdam: P. N. van Kampen, 1915.
- McNeill, J. R. "Observations on the Nature and Culture of Environmental History." *History and Theory* 42, no. 4 (2003): 5-43.
- Miedema, Hessel. *Karel Van Mander's Den Grondt Der Edel Vry Schilder-Const*. Utrecht: Haentjens Dekker & Gumbert, 1973.
- Moffett, C.S., E. Rathbone, and K. Rothkopf. *Impressionists in Winter: Effets De Neige*. Washington D.C.: Philip Wilson Publishers, 1998.
- Neuberger, Hans. "Climate in Art." *Weather* 25 (1970): 46-56.
- Novick, Peter. *That Noble Dream: The 'Objectivity Question' and the American Historical Profession*. Cambridge: Cambridge University Press, 1988.
- Oliver, Liza. "Frans Post's Brazil: Fractures in Seventeenth-Century Dutch Colonial Landscape Paintings." *Dutch Crossing: A Journal of Low Countries Studies* 37, no. 3 (2013): 198-219.
- Panofsky, Erwin. *Early Netherlandish Painting: Its Origin and Character*. 2 vols Cambridge: Harper & Row, 1953.
- Peeters, Jan, and Erik Schmitz. "Belangrijke Aanwinst Voor Gemeentearchief: Een Blad Met Twee Onbekende Tekeningen Van Claes Janz Visscher." *Maandblad Amstelodamum* 84 (1997): 33-44.

- Prown, Jules David. *Art as Evidence: Writings on Art and Material Culture*. edited by 2001 New Haven: Yale University Press, 2001.
- Rabb, Theodore K. "The Historian and Art: A New Maturity." *The Journal of Interdisciplinary History* 33, no. 1 (2002): 87-93.
- Robinson, Peter J. . "Ice and Snow in Paintings of Little Ice Age Winters." *Weather* 60, no. 2 (2005): 37-41.
- Roelofs, Pieter. *Hendrick Avercamp: Master of the Ice Scene*. Amsterdam: Rijksmuseum, 2009.
- Schama, Simon. *Landscape and Memory*. New York: A.A. Knopf, 1995.
- Schneider, Cynthia P. *Rembrandt's Landscapes*. New Haven: Yale University Press, 1990.
- Shepard, Paul. *Man in the Landscape: A Historic View of the Esthetics of Nature*. College Station: Texas A&M Press, 1991.
- Slive, Seymour. *Jacob Van Ruisdael: Master of Landscape*. New Haven: Yale University Press, 2005.
- . *Jacob Van Ruisdael: Windmills and Water Mills*. Los Angeles: Getty Publications 2011.
- Smit, J. W. "History in Art." In *Art in History, History in Art*, edited by David Freedberg and Jan de Vries. Santa Monica: Getty Center Publishers, 1987.
- Stechow, Wolfgang. *Dutch Landscape Painting of the Seventeenth Century*. London: Phaidon Press, 1966.
- Stepan, Nancy Leys. *Picturing Tropical Nature*. edited by 2001 Ithaca: Cornell University Press, 2001.
- Stockhammer, Andrea "Landschaftsmalerei Als Spiegel Gesellschaftlichen Naturverständnisses. Interdisziplinäre Studien Zur Bildproduktion Der Holländer Im 17. Jahrhundert." Universität Wien, 2009.
- Stone-Ferrier, Linda. "Rembrandt's Landscape Etchings: Defying Modernity's Encroachment." *Art History* 15, no. 4 (1992): 403-33.
- . "Views of Haarlem: A Reconsideration of Ruisdael and Rembrandt." *Art Bulletin* LXVII, no. 3 (1985): 417-36.
- Stone-Ferrier, Linda "Market Scenes as Viewed by an Art Historian." In *Art in History, History in Art: Studies in Seventeenth-Century Dutch Culture*, 29-57. Chicago: University of Chicago Press, 1987.
- Stroud, Ellen. "Does Nature Always Matter? Following Dirt through History." *History and Theory* 42, no. 4 (2003): 75-81.
- Sutter, Paul S. "The World with Us: The State of American Environmental History." *Journal of American History* 100, no. 1 (2013): 94-119.
- Sutton, Peter C. *Masters of 17th-Century Dutch Landscape Painting*. Boston: Museum of Fine Arts, 1987.
- Teixeira, Dante Martins. "Nature in Frans Post's Paintings of the New World." In *Frans Post: Painter of a Paradise Lost*, edited by Leon Krempel. Munich: Haus der Kunst, 2006.
- Thornes, J.E. . "A Brief History of Weather in European Landscape Art." *Weather* 55 (2000): 363–75.
- Unger, Richard W. . "Marine Paintings and History of Shipbuilding." In *Art in History, History in Art: Studies in Seventeenth-Century Dutch Culture*, 75-93. Chicago: University of Chicago Press, 1987.
- van Os, H.W., and J.P.F. Kok. *Netherlandish Art in the Rijksmuseum: 1600-1700*. Waanders, 2001.

- van Suchtelen, Ariane, ed. *Holland Frozen in Time: The Dutch Winter Landscape in the Golden Age*. Zwolle: Waanders, 2001.
- Walsh, John. "Skies and Reality in Dutch Landscape." In *Art in History, History in Art: Studies in Seventeenth-Century Dutch Culture*, 95-117. Chicago: University of Chicago Press, 1987.
- Westermann, Mariët. *A Worldly Art: The Dutch Republic, 1585-1718*. New Haven: Yale University Press, 2005.
- Whitehead, J.P., and M. Boseman. *A Portrait of Dutch 17th Century Brazil: Animals, Plants and People by the Artists of Johan Maurits of Nassau*. Amsterdam, Oxford, New York: North-Holland Publishing Company, 1989.
- Wiegand, Wilfried. "Ein Versuch Zur Ikonologie Der Landschaftmalerei." University of Hamburg, 1971.
- Worster, Donald. "Transformations of the Earth: Toward an Agroecological Perspective in History." *Journal of American History* 76, no. 4 (1990): 1087.
- Yonan, Michael. "Toward a Fusion of Art History and Material Culture Studies." *West 86th - A Journal of Decorative Arts, Design History, and Material Culture* 18, no. 2 (2011): 232-48.
- Zeven, Anton C., and William A. Brandenburg. "Use of Paintings from the Sixteenth to Nineteenth Centuries to Study the History of Domesticated Plants." *Economic Botany* 40, no. 4 (1986): 397-408.