

# Gazing at the Golden Age: The Role of Perspective in Counter-Memorial Display

By

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Gazing at the Golden Age: The Role of Perspective in Counter-  
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## Abstract

How does the traveling museum exhibition *1001 Inventions* design memories of the Golden Age of Islam to counter Islamophobia in the modern world? The Golden Age of Islam occurred centuries ago but is still a potent rhetorical force; I seek to understand how counter-memories of this era have been used to re-shape current image of Islam, particularly in the West. I also examine the role perspective plays in the rhetorical construction and circulation of counter-memory. With American politicians pushing a ban on Muslim immigration, European nations closing their borders to Muslim refugees, and struggles within the Muslim community over the true nature of Islam, it is crucial that rhetoricians examine how different memories have been used to legitimate various ideologies about Islam. To answer this question, I analyze the *1001 Inventions* exhibit and its companion book using the concept of perspective as used by Kenneth Burke and Donna Haraway, as well as Michel Foucault's idea of counter-memory. I explain how *1001 Inventions* designs memories of the Golden Age to depict Islam as scientific and tolerant. My analysis shows how the exhibit uses Burkean metaphor, metonymy, and synecdoche to display a situated, embodied perspective on the Golden Age. It also shows how the exhibit counters anti-Islam discourse and what Bruno Latour would call a "modern" viewpoint by merging past and present, Islam and the West, and religion and science. However, because it emphasizes merger over division, this exhibit reifies a Western narrative of progress and essentializes Islam. These mergers create rhetorical footholds for critics to maintain a sharp divide between past and present, Islam and the West, and religion and science. I conclude that had the exhibit been designed using Burkean irony, offering a perspective of perspectives on the Golden Age, it would have inoculated itself against Islamophobic pushback, blunted criticism, and presented a more robust counter-memorial account of an historical era worth remembering.

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## Chapter I: Introduction

In the short film “1001 Inventions and the Library of Secrets,” actor Ben Kingsley portrays ancient Muslim scholar al-Jazari.<sup>1</sup> This video greets visitors to *1001 Inventions*, a traveling museum exhibit dedicated to the Golden Age of Islam. In the film, Kingsley lectures three initially skeptical but increasingly rapt schoolchildren about the scientific wonders of this era. Various ghosts appear from his enchanted history book, including Ibn al-Hathiyam, whose idea of a *camera obscura* prefigured the modern-day camera; Abbas ibn Firnas, an aeronautical engineer who “dared to dream about flying a thousand years before the Wright brothers”; Abul Qasim al-Zahrawi, the “father of surgery,” who pioneered medical tools and techniques still used in hospitals today; and Mariam al-Astrolabiya, whose sophisticated astrolabes are described as the technological ancestors of the calculator, clocks, and satellite navigation. The film declares that al-Jazari himself discovered how to convert rotary motion into linear motion, an advance without which, Kingsley says, he has “no idea how the industrial revolution could have happened hundreds of years later.”<sup>2</sup> The central theme of this film is the debt that modern civilization owes to the Islamic world; before the Renaissance, while Europe was going through its “Dark Ages” of ignorance and barbarism, the Muslim empire was alight with “golden rays of discovery and invention,” which spread outward across the world over the centuries.<sup>3</sup> At the end, the librarian asks the children (and by proxy, the audience) to “spread the word” about the Golden Age of Islam, since a key contention of this film is that many people, especially Westerners, are unfamiliar with this important era.<sup>4</sup>

People all over the world have learned about the Golden Age of Islam from the traveling museum exhibit *1001 Inventions*. This exhibition originated in the United Kingdom and includes images, text, videos, historical objects, realistic models, live actors and interactive games. This

exhibition is designed to memorialize an historical era, approximately 650-1650 AD, when intellectualism, creativity, and intercultural tolerance were the central qualities of Muslim civilization. The official website describes *1001 Inventions* as “an award-winning international science and cultural heritage organisation that raises awareness of the creative Golden Age of Muslim civilisation that stretched from Spain to China.”<sup>5</sup> This idea of a Golden Age appears repeatedly in discussions of historical Islam. Muslims and non-Muslims alike have invoked this ancient era in their rhetoric: religious figures,<sup>6</sup> pop historians,<sup>7</sup> the news media,<sup>8</sup> bloggers,<sup>9</sup> politicians,<sup>10</sup> scientists.<sup>11</sup> In its depiction of the Golden Age, *1001 Inventions* paints a vivid picture of flourishing scientific research and extraordinary intercultural tolerance. These two major themes, science and tolerance, are brought to bear in nearly every contemporary mention of the Golden Age of Islam. People who refer to this age as “golden” almost always refer to the scientific achievement of the time, along with the willingness of the social elite to support scholars and fund research. These same sources usually emphasize that the Golden Age was a time of widespread goodwill and amicability among people of different ethnicities, religions, and social statures, with a great deal of collaboration between researchers of different backgrounds.<sup>12</sup>

*1001 Inventions* constitutes perhaps the most widely-known and best-funded set of memories of the Golden Age of Islam in current circulation. The exhibition has been visited by over seven million people; it was developed and first put on display in the United Kingdom, but it has been taken to science museums and science festivals all over the globe: 19 different nations (and at least 31 different cities), some more than once.<sup>13</sup> In the United States, *1001 Inventions* has been hosted by the New York Hall of Science in New York City, the National Geographic Museum in Washington D.C., the California Science Center in Los Angeles, and the Michigan Science Center in Detroit. It has appeared in Brazil, Mexico, France, China, the Netherlands,

Sweden, and Slovenia. The exhibition has also traveled to many different predominantly Muslim nations, including the United Arab Emirates, Turkey, Saudi Arabia, Qatar, Oman, Kuwait, Malaysia, Egypt, and Jordan. It has won 27 international awards, including “Best Touring Exhibition” at the annual Museums and Heritage Excellence Awards in London.<sup>14</sup> It has also been endorsed by such prominent figures as then-Secretary of State Hillary Clinton; Charles, Prince of Wales; and Irina Bokova, Director General of UNESCO.<sup>15</sup> Books associated with the exhibit have sold more than 200,000 copies, films have been seen by more than 33 million viewers, and educational materials have been distributed in schools worldwide.<sup>16</sup> The brand is financially supported by such major partners as the British government, UNESCO, National Geographic, the BBC, the Jameel Foundation, and numerous universities, museums and science festivals across the United States and the United Kingdom.<sup>17</sup> Their funding helps ensure that memories of the Golden Age are being spread across the globe.

The Golden Age of Islam is not always remembered as an important period of history, particularly by those in the West, but also by Muslims. Exhibit designer Salim Al-Hassani describes the intended audiences of this exhibition: “Originally, it was aimed at the Western public . . . But we found that when people from the Muslim world, when they see it, they get fired up, especially the young people who are in search of identity.”<sup>18</sup> Al-Hassani claims that one of the main goals of *1001 Inventions* is to dismantle the superiority complex of Western civilization in regards to scientific innovation, while at the same time extinguishing the inferiority complex that has unjustly plagued Muslim nations for far too long.<sup>19</sup> Essentially, this exhibit uses memories of the Golden Age to cure the “cultural amnesia” that pervades both Western and Muslim civilizations.<sup>20</sup> It rejects the Eurocentric idea of a “Dark Ages” during which nothing of scholarly import occurred and asserts that while Europe was mired in a period

of intellectual stagnation and cultural backwardness, Muslim civilization was flourishing through both scholarship and progressive social attitudes.

A central goal of *1001 Inventions* is to provide a new perspective on history by using memories of a Golden Age to highlight science and tolerance as foundational and enduring virtues of Muslim civilization. Further, this exhibition works to demonstrate that ancient Islamic scholarship has continuing relevance for today's society by establishing connections between then and now. It re-vivifies items and individuals from the past in order to display positive conceptions of Islam in the modern world and to construct a new relationship between Western and Islamic cultures. Ultimately, the positive image of Islam put forth by *1001 Inventions* is meant to dispel negative stereotypes about Islam and, in turn, to increase dialogue and understanding between Westerners and Muslims by building identification between the two groups as they recognize their common scientific and cultural heritage.

In many ways, *1001 Inventions* is premised upon a contested and complex dichotomy: Islam and the West. The conceptual divide between Islam and the West has been interrogated, complicated, and upended by a multitude of scholars.<sup>21</sup> Dividing the world into "Islamic" and "Western" nations is problematic at best; this simplistic categorization creates a false dichotomy that ignores cultural overlap, circulation due to travel and migration, and the heterogeneity of resident populations. In the United States, politicians, the media, and other individuals will often simplify Islam due to ignorance, apathy, or suspicion, although this religion consists of "a series of hermeneutics that are so divergent" that it makes no sense to speak about "one monolithic whole called 'Islam.'"<sup>22</sup> However, in an attempt to understand *1001 Inventions* on its own terms, I want to temporarily preserve these concepts, used throughout the exhibition and its supporting

materials, long enough to understand the rhetorical role they perform in remembering the Golden Age.

Certainly, this dichotomy has taken on a great deal of cultural weight in the past two decades; September 11, 2001, marked the beginning of a great rhetorical battle between “Western” and “Muslim” cultures. One scholar argues that Islam and Muslim nations have rhetorically replaced Communism and the Soviet Union as “the new ‘uncivilized’ enemy of the ‘civilized’ western world.”<sup>23</sup> Polls show a recent rise in the percentage of Americans who fear and distrust Muslims, and believe Islam encourages violence and extremism.<sup>24</sup> Negative stereotypes can engender negative behavior: the Pew Research Center reports that in the United States, hate crimes against Muslims, including intimidation, assault, vandalism, and the burning of mosques, now surpass the surge following 9/11.<sup>25</sup> With American politicians trying to institute a ban on Muslim immigration, European nations closing their borders to Muslim refugees, and infighting within the Muslim community over the true nature of Islam, it is crucial that rhetoricians examine the mobilization of memory as it has been used to legitimate ideologies about Islam.

Xenophobia is the zeitgeist of the post-9/11 West, and radical Islam often serves as a repository for Western anxieties and a scapegoat for evil. The contentious relationship between Islam and the West has had a recent resurgence, but it goes back centuries. Jonathan Lyons traces anti-Islam discourses in the West all the way back to before the Crusades, when growing Islamophobic sentiment in Europe precipitated a “holy war” and the invasion of Islamic lands by Christian soldiers.<sup>26</sup> Lyons recounts two central tenets of anti-Islam discourse: first, “Islam is inherently violent and spread by the sword” and second, “Muslims are irrational, antiscience, and thus antimodern.”<sup>27</sup> Western media play an important role in the development and propagation of

this discourse: Muslims are depicted on the news, on talk shows, in books, and on television, using “racialized orientalist stereotypes,” portraying them as “irrational, uncivilized, backward, threatening, corrupt, oppressive, deviant, exterior to the dominant culture, and uniquely fundamentalist others.”<sup>28</sup> “Orientalism” is a term popularized by Edward Said, who wrote about the way Muslim nations are often denigrated and patronized in the West.<sup>29</sup> *1001 Inventions* represents a bold reclamation of Islam from these Orientalist, anti-Islam attitudes. The dual goal of representing Islam as an anti-violent and pro-science religion is made clear again and again throughout the exhibition and is captured in memories of a Golden Age full of scientific innovation and tolerance.

How does the traveling museum exhibition *1001 Inventions* design memories of the Golden Age of Islam to counter Islamophobia in the modern world? Memories of the Islamic Golden Age, exemplified by *1001 Inventions* and surrounding discourses, provide an opportunity to examine the intersections of tolerance, science, and religious fundamentalism as they are currently conceptualized. In this chapter, I will establish memory studies as an ideal field of literature to ground this project; provide context and background information about the Golden Age of Islam; explain the approach I have taken to analyzing *1001 Inventions*; and offer details about the exhibit’s cultural relevance and circulation. This progression should provide a solid base for an extended critique of *1001 Inventions* and an explication of the relationship between perspective and counter-memorializing.

#### Perspectives on the Past: Memories and Counter-Memories in the Museum

The motto of *1001 Inventions* is “A journey to the past... To build and design a better future!”<sup>30</sup> This stated objective encapsulates a central tenet of memory studies: thoughts of the past can be harnessed to serve the needs of the present and future.<sup>31</sup> Collective memory involves

“linking the lived with the folkloric, the children of tomorrow with the ancestors of yesteryear, the personal lives of individuals with the shared experience of the collective.”<sup>32</sup> Memories of the Golden Age pervade discourse about the relationship between Islam, science, and tolerance. *1001 Inventions* pulls elements of the past into the present in a vivid and complex way, suggesting that memory literature constitutes an appropriate set of lenses through which to examine this exhibition and its surrounding discourses. In this section, I will explore and explain scholarship at the intersection of memory and rhetoric.<sup>33</sup> First, I will reflect on the differences between the study of history and the study of memory; next, I will examine the way that collective memory is constructed and contested, often giving rise to counter-memorial pushback; and finally, I will review scholarship on the rhetoric of museums as collective memory. In this way, I will lay out my theoretical and methodological assumptions.

### *Memory Differs from History*

The study of collective memory (also referred to as “public” or “social” memory) is in many ways distinct from the study of history. Barbie Zelizer says that whereas history is the scholarly pursuit to uncover and record the events of the past, the study of collective memory “represents graphing of the past as it is used for present aims, a vision in bold relief of the past as it is woven into the present and future.”<sup>34</sup> Collective memory scholars are less concerned with documenting what happened than they are in how the events of the past are being leveraged as rhetorical resources in contemporary discourse.<sup>35</sup> In addition, memory differs from history based on its vantage point. Collective memory is personal, particular, and bound up with the present: “Whereas knowledge [of the past] has a universalist perspective, a tendency towards generalization and standardization, memory, even cultural memory, is local, egocentric, and specific to a group and its values.”<sup>36</sup> Because memory is personal, it is inescapably subjective.



Memory studies recognizes that knowledge comes from particular bodies and groups; it is never an unmediated view of the past.

Some historians view memory studies as an encroachment on their territory.<sup>37</sup> Unlike history (authoritative and relatively fixed versions of the past), memories are unpredictable, haphazard, changeable, and often at odds with one another.<sup>38</sup> The debate over who has the right to speak for history is a key point of contention in the humanities.<sup>39</sup> Given the contested, unstable nature of collective memories, Marouf Hasian and Robert Frank recount one of the key anxieties of historians: “whether or not we lose or alter Enlightenment concerns for absolute truth, beauty, and goodness when academic or public audiences focus attention on collective memories rather than on ‘official’ histories of the past.”<sup>40</sup> Ultimately, these scholars conclude that history, memory, and rhetoric are overlapping and contested realms that complement and inform one another and should be examined in tandem for a fuller understanding of a given event.<sup>41</sup> H. Bruce Gronbeck argues that the “past is not the possession of historians”; instead, the past is “a resource for human beings of many different stripes and many different purposes.”<sup>42</sup> Further, Carole Blair reminds us that the past is not just “there,” it must be communicated. Thus, the heart of collective memory is representation. The past is depicted and made relevant to the present through words, pictures, monuments, and artifacts, both symbolic and material.<sup>43</sup>

Memory is history put into action. Collective memory is, at its heart, a “tool to defend different aims and agendas.”<sup>44</sup> Memory is an “overtly political and emotionally invested phenomenon.”<sup>45</sup> In a word, memory is rhetorical. Memory and rhetoric have a long history; after all, *memoria* is one of the five central canons of rhetoric.<sup>46</sup> Ancient students of rhetoric would learn complex memory systems so that they could declaim lengthy public orations without notes.<sup>47</sup> Historical periods such as the Golden Age of Islam are a key resource for rhetorical

invention, another central canon.<sup>48</sup> The events of the past are lush fodder for the needs of the present; as Zelizer states, “Collective memory thrives on remaking the residue of past decades into material with contemporary resonance.”<sup>49</sup> Producing public memory is an “inherently rhetorical activity,” because it involves the selection, interpretation, and presentation of the past as it applies to the present.<sup>50</sup> Collective memory often appears as epideictic discourse, wherein the past is shaped to fit contemporary commemorative necessities.<sup>51</sup> No one person owns collective memory; memory is a co-constructed, shared, and frequently moral basis for a group’s existence.<sup>52</sup>

### *Memory is Contested*

Of course, not all group memories are peacefully and universally shared; collective memory inevitably involves negotiation and contestation.<sup>53</sup> Like rhetoricians, memory scholars often home in on points of conflict. Memory work is most evident in the struggle over meaning: debates about what happened, who was involved, and how events should be interpreted reveal a great deal about group dynamics and identity.<sup>54</sup> Gronbeck emphasizes the rhetorical nature of collective memory: “The past can be endlessly argued over and argued with. It can itself be a battleground or it can be raided, rebuilt, and perverted for any number of human purposes.”<sup>55</sup> In accordance with this position, Blair describes the way rhetoric and memory are both concerned with the acquisition and continuation of power. Both memory and identity are intensely political; groups fight internally and with other groups over the proper way to remember and represent historical events and figures.<sup>56</sup> Different groups compete for their version of the past to become the official narrative, sometimes silencing other versions in the process.<sup>57</sup> Foucault also points to the role that power plays in cultivating and suppressing popular memory: “One controls people's

memory, one controls their dynamism. And one also controls their experience, their knowledge of previous struggles.”<sup>58</sup>

Those in power will often try to suppress the memories of less powerful groups and impose an official version of how the public should remember.<sup>59</sup> But, with every “rupture in a discursive hegemony,” with every exposed flaw in the official historical narrative, counter-memory can always slip in as an alternative, filling in gaps and undermining inadequate official narratives. Foucault uses the term “counter-memory” to describe the battleground where ordinary people struggle against the official version of history:<sup>60</sup> “those who are barred from writing, from producing their books themselves, from drawing up their own historical accounts . . . these people nevertheless do have a way of recording history, or remembering it, of keeping it fresh and of using it.”<sup>61</sup> Counter-memorializing is an inevitable result of manifold human perspectives on the past and how it should be interpreted in the context of contemporary society.<sup>62</sup> Foucault uses the term “subjugated knowledges” to refer to those versions of history that have been buried by the people in power.<sup>63</sup> Counter-memories recover a version of the past that has been “forgotten or lost” while simultaneously producing a “discourse on the present,” giving a voice to marginalized groups and making them relevant to now.<sup>64</sup> While collective memory is a well-explored topic of rhetorical scholarship, the concept of counter-memory is relatively undertheorized within this field.

Memories and counter-memories mingle and clash as various groups struggle to have their version of the past become the accepted account of the way things happened.<sup>65</sup> I have assembled notable publications that consider counter-memory and its relationship to the rhetorical discipline; I will use them to develop a theoretical framework to analyze the way the creators of *1001 Inventions* have used the Golden Age of Islam as the rhetorical centerpiece of

their counter-memorial efforts. Browne writes about the way African Americans have resurrected and re-constituted memories of the rebellion of Crispus Attucks in order to “sustain a robust culture of memorializing and, unmistakably, criticizing official versions of the past.”<sup>66</sup> Having control over the way an event is remembered (and that which is forgotten) is a means of influencing the society that remembers the event. In addition, scholars have explored the importance of counter-memory to the formation and maintenance of group identity. Thompson and Tian write about the way “New South mythmakers” framed the Confederacy as a “league of gallant Christian Knights,” an idyllic moral collective that could be contrasted with the “greed, avarice, and lowly mercantile interests” of Northern industrialists.<sup>67</sup> This counter-memorial re-framed image of the South has persisted, allowing contemporary Southerners to gloss over slavery as a key factor in the Civil War and instead maintain an identity of honorable rebels, tragic figures, more interested in their own sovereignty than in economic exploitation or race relations. In another example of this kind of scholarship, in a discussion of the 1995 movie *Panther*, Hoerl quotes director Mario Van Peebles: “Kids today knew the negative stuff [about the Black Panthers] . . . Few people know how they empowered their neighborhood.”<sup>68</sup> Van Peebles wanted the film to “inspire, empower, and instruct the current generation of young blacks living in urban ghetto.”<sup>69</sup> This movie represented a counter-memorial attempt to alter contemporary black identity by remembering the Black Panther party as filmic images of black people who struggled against prevailing power structures. The retelling was designed to empower audiences to see themselves as benevolent agents of social change.

Counter-memory represents a “fragmentary, flexible narrative, developing in continuous dialogue with the dominant institutional collective memory.”<sup>70</sup> Counter-memory challenges authority, undermines the official historical narrative, and provides a fresh and fractured

perspective on the past and its relationship to the present.<sup>71</sup> The above rhetoricians and others have worked to understand the contentious relationship between memory and counter-memory.<sup>72</sup> Most often, the above scholars selected texts and artifacts related to American race relations and civil rights.<sup>73</sup> These pieces of scholarship differ in scope and approach but all attempt to understand the tension between official memories and the counter-memories that rhetorically undermine, supplement, or supplant the narrative(s) being promoted by those with institutional power. However, their disproportionate focus on American race relations has left a need to see counter-memory in a broader context. Further, none of these articles thoroughly considers the rhetorical force of counter-memory as a counterweight to pervasive racist and nationalist ideologies of the current time period. That is, most of the cited articles examine counter-memorial artifacts that re-tell historical racism so that people of today may better understand race relations, but the central rhetorical goal of these artifacts is not to combat contemporary racial stereotypes. *1001 Inventions*, on the other hand, reads as a direct, deliberate attempt to counter the way that Muslims are often viewed in today's Western societies: as intolerant, anti-scientific religious radicals.

### *Museums as Collective Memory*

*1001 Inventions* began as a counter-memorial museum exhibition, and is still traveling the globe, along with a collection of books and educational materials. Museums are a prime example of collected memories, put on display for visitors to experience and absorb. Museums “anchor official memory” and are widely accepted as the most trustworthy source of information about the past; people often “see these institutions as unbiased repositories of knowledge.”<sup>74</sup> Traditionally, some museum curators have behaved as though their work is “objective and apolitical.”<sup>75</sup> However, over the last several decades, a movement known as “New Museology”

has interrogated and challenged the authority of museums as politically neutral spaces.<sup>76</sup> Increasingly, the museum is recognized as an “apparatus of power,” an institution that can shape public opinion and spur political debate.<sup>77</sup> Scholars have examined and re-conceptualized curatorial control, exhibition practices, visitor agency, and other aspects of museum design.<sup>78</sup> These inquiries have led to new practices within the museum world; over time, there has occurred a “shift from maintaining museums as elite temples built upon the authority of select experts to establishing more inclusive and inviting forums for learning, dialog, and exchange.”<sup>79</sup> In an effort to reach larger and more diverse audiences, many museums have eschewed practices of elitism and cultural gatekeeping, aiming to be more egalitarian and immersive.<sup>80</sup>

One cannot study rhetoric and not see the rhetorical mechanisms at play in museum exhibitions. While historians have the scholarly tools to assess the factual accuracy of museums, and art critics are qualified to evaluate an exhibit’s aesthetic value, rhetoricians are uniquely equipped to analyze the way “museums make claims on audiences.”<sup>81</sup> Greg Dickinson, Brian Ott, and Eric Aoki write that museums engage in three primary rhetorical practices: collecting, exhibiting, and (re)presenting.<sup>82</sup> First, curators must determine what will be put on display; they “seek, locate, archive, preserve and ultimately legitimate certain artifacts (both material and discursive) and not others.”<sup>83</sup> Through this selection process, the curators are telling us “who/what is central and who/what is peripheral; who/what we must remember and who/what it is okay to forget.”<sup>84</sup> Next, the people designing the exhibit must decide how the selected items will be displayed, “situating, locating, and (re)contextualizing artifacts in actual spaces.”<sup>85</sup> By virtue of their inclusion in a display, ordinary objects are elevated in status, removed from their original context and transmuted into noteworthy historical artifacts.<sup>86</sup> Finally, these keepers of memory must “interpret artifacts and render them meaningful,” using a variety of communicative

tools: brochures, catalogues, placards, curator's notes, televisual displays.<sup>87</sup> They have to decide: Will the exhibit be roped off and static, or immersive and interactive? Will the objects on display be pre-analyzed and annotated, or will interpretation be left up to visitors? All of the above decisions can affect the rhetorical impact of an exhibition and drastically change the way people remember a given event or group of people.

New Museology practices have given rise to “counter-museums,” exhibits that push back against official institutionalized memory by involving visitors in the interrogation of the past.<sup>88</sup> Monica Patterson writes about the Jim Crow Museum, in which racist memorabilia is on display for people to view and critique.<sup>89</sup> The museum has received criticism for its open exhibition of extremely racist artifacts; the goal of the display, however, is to provide an unflinching memory of the racism that pervades our national heritage and not allow our history of discrimination and prejudice to be hidden and ignored. For this reason, the JCM can be considered a counter-museum, a backlash against attempts to whitewash history and the “dominant discourses and sites of public memory that employ either symbolic annihilation or trivialization/deflection as their main rhetorical strategies in depicting the legacy of America’s racial past.”<sup>90</sup> Patricia Davison also writes about a counter-museum located at the Castle of Good Hope, the oldest remaining colonial building in South Africa. This exhibit was created to be a “venue and symbolic space for challenging the ideologies that supported apartheid, and for reclaiming histories that had been marginalized.”<sup>91</sup> Davison refers to this as a process of “re-shaping” memory, a contestation and revision of how events have been remembered in the hopes that this counter-memory will take hold of the public consciousness.<sup>92</sup> Both of these exhibitions imagine a better future in which their nation’s problematic past is taken into account as informed citizens shape policy going forward.<sup>93</sup> The transformative remembering that has taken place in these

artifacts is akin to the work done by *1001 Inventions*, which represents a counter-memorial attempt to recall the Golden Age from cultural oblivion and thus reconstruct the identity of Muslims and the image of Islam in the contemporary world.

#### Collected Memories of an Historic Golden Age

To help contextualize the counter-memories found within *1001 Inventions*, I would like to sketch out a broad picture of the Golden Age of Islam and the scholarly debate surrounding this era. Although the broader public may have forgotten the Golden Age, historians have memorialized and debated this age for years. In the following account, I will delve into the contested definition of the Golden Age, the events that reportedly occurred during this period, key historical figures involved in these events, and the policies, conquests, and other factors that may have contributed to the rise and decline of the Muslim empire between the 7<sup>th</sup> and 13<sup>th</sup> centuries. I will attempt to sketch an historical definition of the Golden Age of Islam; this account will lay the groundwork for my rhetorical account of the way counter-memories push back against official memory.

Of course, histories are just as susceptible to the subjectivities and vagaries of rhetoric as memory. Renowned historian J. H. Hexter emphasizes the role that rhetoric plays in the composition of history: “Rhetoric is ordinarily deemed icing on the cake of history; but our recent investigation indicates that it is mixed right into the batter.”<sup>94</sup> The following account is one perspective which, like any perspective, is an imperfect version of events. It is meant to provide a starting point for better understanding and appreciating the stakes of remembering the Golden Age in a particular way, as well as the significance of the rhetorical choices made by the designers of *1001 Inventions* in their depiction of this historical era.



*The Golden Age: Debate and Consensus*

The phrase “Golden Age of Islam” is often used to refer to an era during which the Muslim world was a place of abundant scientific scholarship, unfettered artistic expression, unimaginable wealth, and unmatched military might. Multiple antithetical terms cluster around the trope of the Golden Age of Islam, including religious tolerance<sup>95</sup> or relentless persecution,<sup>96</sup> scientific prowess<sup>97</sup> or crude plagiarism,<sup>98</sup> erudite cultural tradition<sup>99</sup> or barbaric behavior.<sup>100</sup> These points of contestation, as well as stock questions of where, when, who, and why factor into contemporary rhetorical discourses about the age. As one scholar puts it, “The Islamic Golden Age, as an historical idea, has remarkably wide purchase across a similarly wide group of people. . . . What exactly the Islamic Golden Age was, seems to depend almost entirely on who you ask.”<sup>101</sup> For this project, I am not interested in producing an account of what “actually happened” within the Muslim empire during this time period; rather, I plan to focus on how the Golden Age has been remembered, discussed, interpreted, and circulated by *1001 Inventions* and those that comment on the exhibition. To better identify and explain the choices of the exhibition designers, I will sketch a broad view of the Golden Age, both points that are widely agreed upon as well as points of contestation. This account should help readers to see what is commonly remembered about the Golden Age, along with controversial aspects about the era that pave the way for counter-memorial depiction.

Different authorities plot the beginning and end of the Golden Age using different years, but scholars mostly place this time period as occurring between the 8<sup>th</sup> and 13<sup>th</sup> centuries, when the Abbasid family presided over most of Muslim civilization.<sup>102</sup> The Abbasid family were active financial patrons of science and the arts; their reign was a time of relative peace, prosperity, and religious tolerance in the Muslim world and has thus been labeled a “golden” time for

scholarship and inter-faith cooperation.<sup>103</sup> There is a second time period that some recognize as the Golden Age of Islam: the time of the Prophet Muhammad and the subsequent rule of his four successors. However, this project will focus on what is widely recognized and referenced as the cultural and scientific Golden Age of Islam because this is the time period that *1001 Inventions* features. Specifically, many scholars plot the Golden Age between the Abbasid revolution in 750 until the end of the Abbasid caliphate in 1258, when the Mongols invaded and conquered Baghdad and the final Abbasid ruler was deposed.<sup>104</sup> Others contend that this period should be recognized as longer or shorter. *1001 Inventions* actually extends the Golden Age to cover an entire millennium, featuring scholars who lived and worked between the mid-7<sup>th</sup> and mid-17<sup>th</sup> centuries. Where the Golden Age occurred is also a point of dispute, but most historians describe the territory as covering parts of modern-day Saudi Arabia, Iraq, Iran, Egypt, Turkey, several countries in North Africa, and Spain.<sup>105</sup> Furthermore, different scholars locate the geographical center of the Golden Age in different areas. Some write about the splendor of Baghdad at the height of Abbasid power.<sup>106</sup> Others emphasize the gloriousness of Andalusia, specifically the City of Cordoba.<sup>107</sup> *1001 Inventions* uses the phrase “from Spain to China” multiple times to designate the area in which the Golden Age occurred; the exhibit mentions scholars from all across this broad region in its representation of this historical era.

### *The Golden Age: Contributing Factors*

Islam is said to have begun with the first revelation of the Prophet Muhammad on a mountain near the city of Mecca. In 622, Muhammed established the Islamic state, uniting the Arabic tribes under the Muslim religion.<sup>108</sup> The Prophet installed a school in his mosque, inaugurating the grand tradition of Muslim scholarship and the “scientific glory of the Arabic nation.”<sup>109</sup> He continued to build a religious following until his death in 632.<sup>110</sup> The companion

book of *1001 Inventions* references the Prophet's affinity for and promotion of education, quoting the *hadith* (saying of the Prophet), "Seek knowledge, even as far as China."<sup>111</sup> Power was eventually transferred from the family of the Prophet to the Umayyad family, who ruled from 661-750 and expanded the empire from Arabia across Central Asia and into North Africa, India, and Spain.<sup>112</sup> Under the Umayyads, there existed a clear hierarchy between Arab and non-Arab citizens, and between Muslims and non-Muslims.<sup>113</sup> The Umayyads are not mentioned in the *1001 Inventions* book or exhibition, but through the rapid expansion of the Islamic empire, this family laid the groundwork for what is often called the Golden Age of Islam: the Abbasid Caliphate.<sup>114</sup> In contrast to the Umayyads, the Abbasids offered a more egalitarian civic structure in which all (male) Muslims, no matter their country of origin, could participate in society on equal terms.<sup>115</sup> This family ruled the Muslim empire for roughly five centuries (at least parts of it, and sometimes in name only). During this time, the Abbasids were not all powerful; their influence waxed and waned as other Islamic factions claimed pieces of the empire (for instance, the Umayyads in Spain and the Fatimids in Egypt).<sup>116</sup> The Abbasid dynasty, and several influential caliphs from that family, are referenced several times throughout the exhibit and companion book, although *1001 Inventions* does not delimit the Golden Age to the time of this family's rule.<sup>117</sup>

Many different factors contributed to the prosperity and scientific innovation of the Abbasid caliphate; three major influences were commerce, language, and the spread of Islam.<sup>118</sup> Once the Umayyads had expanded the Muslim world far beyond its early borders, the stage was set for a massive cultural shift. The Abbasids did not conquer much new territory; instead, they focused on enriching the culture of the existing empire: a hodgepodge of different religions, traditions, and habits resulting from the Umayyad's extensive conquest of diverse peoples.

Commerce flourished as this newly minted commonwealth traded internally and with other established nations for all kinds of commodities: textiles, precious metals, livestock, medicine.<sup>119</sup> The *1001 Inventions* book contains chapters and the exhibit features an entire kiosk dedicated to commerce.<sup>120</sup> The slave trade, too, flourished during this time. This aspect of the Golden Age is not mentioned by *1001 Inventions*, but as slaves were brought in from countries all over the known world, the diversity of the region increased even more dramatically. To facilitate the intermingling of so many different peoples, the caliphs quickly established Arabic as the common language of Muslim Civilization.<sup>121</sup>

The spread of Arabic has been linked with what is now called the Translation Movement: a great scholarly effort during which works from ancient Egyptians, Persians, Hebrews, and Greeks were translated into the unchanging dialect of the Qur'ān.<sup>122</sup> Compelled by the Qur'ān to seek knowledge, and inspired by the annexed “treasure trove of ancient Greek learning”—works by Plato, Aristotle, Democritus, Pythagoras, and Hippocrates, among others—the unified Islamic people established what has been called the “scientific center of the world.”<sup>123</sup> The importance of this translation project is referenced multiple times throughout *1001 Inventions*.<sup>124</sup> Scholars of this period, Muslim and non-Muslim, used the knowledge gleaned from these texts for their own research into biology, chemistry, medicine, optics, mathematics, astronomy, philosophy, rhetoric.<sup>125</sup> The near-universal use of this language throughout the broad region of Islamic influence allowed scholars to travel and share ideas like they never had before.<sup>126</sup> Finally able to communicate in a common language, “the finest minds of the Mediterranean, Middle Eastern, and Central Asian world” came together to work through the knotty mysteries of the universe.<sup>127</sup> Greeks, Persians, and Indians transplanted concepts from their corners of the globe; Christians, Jews, Muslims of different sects worked together in harmony. This period is widely considered

to be a time of “pluralism and tolerance” which encouraged “cross-fertilization of cultures and ideas” and “great discoveries.”<sup>128</sup>

The diversity of this place and time is key to the messaging of *1001 Inventions*; this exhibition often references the way scholars of different religious and cultural backgrounds worked together to achieve great scientific feats.<sup>129</sup> In eleventh-century Baghdad, the Caliph Abu al-Abbas al-Mamun established an institute for higher learning, the House of Wisdom, in which manuscripts from all over the world were translated and absorbed into the body of Muslim scholarship.<sup>130</sup> This institution is held up by *1001 Inventions* as a paragon of intercultural academic collaboration.<sup>131</sup> It is said that for any new book a scholar brought to the collection, the Caliph would repay the scholar that book’s weight in gold.<sup>132</sup> Baghdad alone boasted 36 public libraries filled with manuscripts on “religion, law, mathematics, science, astronomy, medicine, the Greek classics, Indian literature, poetry, fables, travel.”<sup>133</sup> These books could be produced because the Arabic people had learned the art of paper-making from the Chinese, allowing them to establish a vast publishing industry.<sup>134</sup> The text within these books could not have bolstered the scholarship of the Islamic empire without the heavy emphasis which was placed on translation.

The common people also learned and spoke Arabic with one another. Storytellers and poets told the tale of Muhammad in marketplaces and mosques, bringing common people together using the myths and memories of Islam.<sup>135</sup> The Umayyads had conquered a great deal of territory, but at that time the native peoples of those territories were not often encouraged to convert to Islam. This was partly because of the Umayyads’ xenophobic attitudes toward non-Arabs, and partly because non-Muslims (*dhimmi*s) had to pay *jizya*, a tax that filled the coffers of the Umayyad rulers.<sup>136</sup> When the less exclusionary Abbasids took control, the number of

Muslims increased dramatically across the empire. Islamic practices—daily prayers, ablutions, dietary habits, and the annual pilgrimage to Mecca (*hajj*)—became commonplace among people who had once professed other faiths.<sup>137</sup> These practices are periodically referenced throughout the *1001 Inventions* book and exhibit in relationship to the daily lives of Golden Age citizens.<sup>138</sup> The Muslim community (*umma*) developed and deepened as shared language and ritual cultivated a sense of common identity across all Muslims, both Arab and non-Arab. Those citizens of the empire who chose not to convert to Islam still had to pay *jizya* but were, many scholars argue, treated with relative tolerance. Jews and Christians in particular (like Muslims, “People of the Book”) were respected and frequently allowed to participate in scholarship and affairs of state.<sup>139</sup>

### *Nothing Gold Can Stay*

Just as many different factors allowed the Islamic empire to rise, so too was its decline due to a complex and disputed series of historical influences. The end of the Golden Age is not dealt with in any meaningful way in either the *1001 Inventions* book or exhibition; however, it is arguably important to discuss for a fuller understanding of this era. Some scholars attribute the downfall of Arabic science to a fundamental flaw couched within the religious tradition of Islam itself.<sup>140</sup> Others point to political, social, and economic factors to explain the eventual devastation.<sup>141</sup> In the 13<sup>th</sup> century, trouble came to Islamic paradise. From the West, the empire was “whittled away” by European Crusaders; from the East, Mongolian hordes struck at the borders, making their way towards the heart of the realm.<sup>142</sup> Christian knights worked to reclaim Andalusian Spain, and in 1236, Cordoba fell to European conquerors.<sup>143</sup> In 1258, Baghdad was sacked by the Mongol army; the House of Wisdom was destroyed and its priceless manuscripts

were thrown into the Tigris River.<sup>144</sup> These invasions alone did not spell the end of the Islamic Golden Age, but a new central hub of scholarship was never established to take their place.<sup>145</sup>

The Abbasid caliphate was crumbling, and where previously there was one empire, three nation-states emerged, comprised of the Ottomans, the Safavids, and the Indian Timuris.<sup>146</sup> For the first time in centuries, the relative unity of the region was compromised. These new political entities were prone to economic, territorial, and religious disputes, fighting one another rather than cooperating in the name of science. Even when the nations were at peace, their newly established borders meant that “the free flow of people, goods, and ideas” could not continue as before.<sup>147</sup> Islam was no longer the unifying religion of the region, and Arabic was no longer the unifying language; Persian, Turkish, and other languages rose up alongside.<sup>148</sup> Furthermore, the rulers of these new empires emphasized art and philosophy, pouring money into these pursuits rather than into the natural sciences.<sup>149</sup> Islamic science, which had always depended on “patronage and curiosity of sultans and caliphs,” could no longer survive.<sup>150</sup> The “two main pillars of science, communication and financial support,” were eroded, and the entwining of Islam and science began to unravel.<sup>151</sup> The above historical account of the Golden Age of Islam is meant to frame my discussion of *1001 Inventions*, the aspects of this era that it highlights and those that it leaves out. Memories and counter-memories are necessarily incomplete, cultivated for a particular perspective on the past. I am interested in the perspective presented by *1001 Inventions*, the way this exhibition pushes back against a Western narrative of history that has largely forgotten the Golden Age.

### *1001 Inventions* as a Rhetorical Text

Museum exhibits represent a unique form of memory, collected and curated for public consumption. In this section, I will discuss my approach to reading *1001 Inventions* as a text,

describing some of the baseline features of the exhibition and invoking relevant theory to explain my method. Museums have become an increasingly popular focus of rhetorical studies; these material aggregates of public memory necessitate a unique analytical approach when considered as rhetorical texts. My method of analysis is modeled on two main sources from the rhetorical discipline: first, I emulate the approach taken by David Scott in his study of the museum in Mormon Temple Square in Salt Lake City, Utah, as well as the Creation Museum in Petersburg, Kentucky.<sup>152</sup> Second, I draw on the work of Greg Dickinson, Brian Ott, and Eric Aoki in their scrutiny of the Buffalo Bill Museum and the Plains Indian Museum, both located in Cody, Wyoming.<sup>153</sup> As with any rhetorical text, these scholars begin with rigorous research of the context, circulation, and significance of the exhibition in question. In addition, their work demonstrates just how crucial it is that rhetoricians personally visit the exhibition they are studying in order to glean a situated and embodied understanding of its rhetorical force. These scholars provide rich descriptions of their chosen exhibits so that readers may get a secondary sense of experiences of walking through this space. Scott includes pages of details about his visit to each exhibition, weaving this narration together with rhetorical theory to produce a vibrant account of their rhetorical effects.<sup>154</sup> These concrete details ground his claims.

#### *My Visit to 1001 Inventions*

To study the rhetoric of *1001 Inventions*, I visited the exhibition while it was on display at the Michigan Science Center in Detroit, Michigan. Before entering the exhibit proper, visitors enter a small dark movie theater with wooden benches and watch “1001 Inventions and the Library of Secrets,” the introductory film described at the beginning of this chapter.<sup>155</sup> After the movie ends, the 15-foot screen is rolled away to reveal the rest of the *1001 Inventions* exhibit. A bearded young man garbed in robes and a turban loudly proclaims welcome as the crowd is



ushered into the large, open display space. The exhibit consists of seven zones, divided by subject. These zones are summarized on a plaque outside the exhibit:

Home: The thousand-year-old inventions that still shape everyday life

Market: How influential ideas spread through travel and trade

School: Learning, libraries, and their links with the past

Hospital: How ancient approaches to health have influenced today's medicine

Town: Why East and West share so much architectural heritage

World: The explorers of a thousand years ago

Universe: How ancient astronomers expanded our view of the universe<sup>156</sup>

Each zone contains multiple hexagonal kiosks dedicated to teaching visitors about inventions and innovations of the Muslim civilization. The kiosks are built to imitate Middle Eastern architectural styles, with elegant arches, tiled roofs, cloth awnings and elaborate mosaics of traditionally Islamic geometric patterns. These kiosks feature physical items and educational plaques concerning their particular subject area. For instance, the "home" zone contains domestic devices that make life better or easier, such as toothbrushes and eyeglasses, while the "hospital" zone describes and displays breakthroughs in medical technology, such as immunization and surgical instruments. In addition, each zone in the exhibit features at least one video of an historic Muslim figure (played by an actor or actress) who beckons visitors to come over and hear about his or her accomplishments. Many of these figures are introduced in the "Library of Secrets" video and are featured throughout the exhibit text and in supplementary materials. Finally, there are live actors portraying figures from the Golden Age as well as interactive games throughout the exhibit, allowing visitors to actively engage with the information on display. As I walked through the exhibit, I watched the videos, read the displayed text, played games, spoke

with the live actors, and took notes and photographs to document my visit and supplement my personal memories of the experience. Throughout this project, I will discuss my own engagement with *1001 Inventions* as an attempt to situate my viewpoint within the overall analysis.

### *Museum Exhibits as Text*

Dickinson, Ott, and Aoki are interested in the way that people “experience (i.e., ‘read’) the symbolic and material dimensions of spaces such as museums.”<sup>157</sup> Their decision to equate the terms “experience” and “read” point to their treatment of the museum as text. They argue that museums are better conceptualized as “diffuse” rather than “discrete” texts; this is a distinction put forth by Barry Brummett, who argues that some rhetorical texts have blurred perimeters and require more expansive data-gathering and analysis than has been done in traditional rhetorical criticism.<sup>158</sup> Scott, too, looks beyond the artifacts of the exhibit to its broader social context as well as guest responses.<sup>159</sup> His evaluation of museum exhibits is shaped by the techniques of cultural studies scholar Stuart Hall, who emphasized the role that human-made artifacts play in communicating cultural meaning.<sup>160</sup> In my own analysis, I work to read the *1001 Inventions* exhibition from the inside out, starting with a close reading of the items and individuals on display and slowly expanding my survey of the text outward to context and other cultural factors displayed by the exhibit. *1001 Inventions* is not a disembodied collection of ideas floating around the world. It is a material phenomenon, a physical set of kiosks and video-screens and models and artifacts and printed text and live actors. Like most historical museum exhibits, this is a physical representation of the past, made available and relevant to audiences of the present. The circulation of *1001 Inventions* rhetorically draws East and West closer together as people around the world witness its message of intercultural harmony. This hybrid historical exhibition,

concerned with both the history of religion and the history of science, has appeared in science centers all over the world, in secular countries and countries with an official state religion. It is not just the ideas of this exhibition, but its physical presence around the world, that holds rhetorical weight.

The message of *1001 Inventions* is not contained solely in the museum display. In keeping with the “diffuse text” approach, I will look at multiple videos and books produced about the exhibition. Media coverage of it is extensive. The website for *1001 Inventions* is a trove of rhetorical texts; it contains news articles, promotional videos, and images from the exhibit. I use these supplementary materials to augment understanding of this counter-memorial artifact. The ideas of the exhibition are also circulated via its official book companion: *1001 Inventions: The Enduring Legacy of Muslim Civilization*. This 350-page compendium, currently on its third edition, was edited by Salim al-Hassani and published by National Geographic in conjunction with the Foundation for Science, Technology, and Civilization.<sup>161</sup> Together, the three editions of this book, published in English, Turkish, and Arabic, have sold more than 350,000 copies to readers around the globe.<sup>162</sup> This book was designed to “introduce the enduring legacy of Muslim civilization to new audiences in North America and the rest of the world.”<sup>163</sup> It is broken into seven chapters, to correspond with the seven zones of the exhibit, and features photographs, drawings, maps, charts, timelines, and an extensive glossary of subjects and people from the Golden Age.<sup>164</sup> Where the exhibit presents historical objects and individuals accompanied by brief instances of text, the book gives a fuller account of the people of the Golden Age, their lifestyles and their scientific discoveries. This book and other educational materials are available for teachers around the globe to bring into their classrooms and share with their young students, many of whom might never otherwise have heard of the Golden Age of

Islam.<sup>165</sup> These materials include posters, books, worksheets, videos from the exhibition, and physical models of the inventions featured within. Finally, *1001 Inventions* has its own website, with articles about the Golden Age of Islam, news and reviews about the exhibition, and a store in which people can purchase *1001 Inventions* merchandise. All of these pieces of *1001 Inventions* work together to provide a counter-memorial perspective on the Golden Age.

### *The Importance of Perspective*

Perspective will be a key aspect of my analysis. Burke's four master tropes—metaphor, metonymy, synecdoche, irony—can all be understood as different facets of perspective and will guide my analysis.<sup>166</sup> In addition, Donna Haraway's essay about "situated knowledges," also linked to the notion of perspective, will be a governing force within my inquiry. In this essay, Haraway uses the metaphor of "vision" to situate herself partway between the poles of unyielding objectivity and total relativism.<sup>167</sup> She traces the history of the humanistic study of knowledge, and argues that in an effort to move away from the totalizing assertions of science and technology, constructivist scholars have moved too far in the other direction, reducing all facts to rhetorically fabricated nodes of power.<sup>168</sup> Haraway is troubled by this polar shift: "So much for those of us who would still like to talk about *reality*."<sup>169</sup> She attempts to mediate this divide, to question how feminist scholars can maintain "*simultaneously* an account of radical historical contingency for all knowledge claims and knowing subjects . . . *and* a no-nonsense commitment to faithful accounts of a 'real' world."<sup>170</sup> The answer, she asserts, is to embrace the metaphor of vision as a means of understanding knowledge, its formulation and preservation as a basis for human existence.<sup>171</sup> Today, the human eye can be enhanced in infinite ways by countless technologies: cameras, telescopes, computer systems, microscopes, surveillance systems. She calls this glut of optical data the "god trick of seeing everything from nowhere," an

illusion that deludes people into believing we have unmediated access to an unfiltered reality.<sup>172</sup> Haraway, however, asserts that we must insist on the “particularity and embodiment of all vision.”<sup>173</sup> All of the knowledge gleaned via these technologies must be understood as originating with the human eye on the other end, the body and brain that absorb and process the information before them. Under standard notions of scientific objectivity, knowledge is discovered, and not created, and originates from the disembodied void (i.e. the white male body, allowed to remain unmarked and unseen as an architect of information). Feminist objectivity, she claims, is nothing more than “situated knowledges,” a recognition that all information comes from somewhere, that all facts are produced by specific bodies within a particular historical context.<sup>174</sup> As this project advances, Haraway’s work on situated knowledges and the concept of vision will direct my investigation of how *1001 Inventions* is designed to direct the views of the audience in particular ways.

Museum studies has long been interested in the question of perspective. In their discussion of the Plains Indian Museum, Dickinson, Ott, and Aoki recommend that museum exhibitions be interpreted as “experiential landscapes,” spaces that direct the body and the gaze of visitors on both a symbolic and a material level.<sup>175</sup> These authors are interested in locating what they call the “interpretive eye/I,” a phrase that is meant to convey “the relationship between seeing and subjectivity, location and identity.”<sup>176</sup> Essentially, these authors argue that experiential landscapes such as museum displays invite visitors to inhabit particular subject positions, and that these subject positions “literally shape perceptions; that is, they entail certain ways of looking and exclude others.”<sup>177</sup> The Plains Indian Museum, for instance, is designed to position Anglo-American visitors in a way that induces reverence for native cultures of the past while simultaneously absolving them of any guilt as they move through the space and gaze at the

displays. Although surveying the attitudes of visitors as they encounter the messages of *1001 Inventions* is outside the scope of my methodology, it is possible to read the exhibit for how it displays the Golden Age.<sup>178</sup> Dickinson, Ott, and Aoki assert that “subjectivities are constituted in part by perspective.”<sup>179</sup> The concept of “perspective” will prove to be of utmost importance to my analysis; the metaphor of “vision” is a powerful means of conceptualizing our relationship with the past. Together, these scholars provide a framework through which we can better understand the perspective encouraged by *1001 Inventions*.

The name of this exhibition, “1001 Inventions,” actually provides two clues as to its rhetorical goals and the perspective it promotes. This exhibit does not actually showcase over a thousand items first conceived and produced during the Golden Age of Islam. First, this title was chosen as a deliberate reference to “One Thousand and One Arabian Nights,” a compilation of Middle Eastern and Indian stories of uncertain date and authorship.<sup>180</sup> These stories were first collected in the tenth century, during the Golden Age of Islam, and revised and supplemented over the next several centuries.<sup>181</sup> These tales are not, nor have they ever been, all that popular or respected within Muslim civilization.<sup>182</sup> However, fantastic elements from the tales such as genies and flying carpets, and characters like Scheherazade, Ali Baba, and Aladdin have become icons within Western folklore. These stories have served as the basis for Orientalist stereotypes, creating memories of the Muslim world that continue to marginalize Muslims and Middle Easterners in the West.<sup>183</sup> Junaid Bhatti, director of marketing for the exhibit, says that the name *1001 Inventions* was “chosen specifically because when most people think about the Middle East, they think of *One Thousand and One Arabian Nights* . . . [We wanted to] play on that and show you that actually this was a world of much more than you could possibly imagine.”<sup>184</sup> Thus, the title *1001 Inventions* represents a rhetorical effort to re-write the way Muslim Civilization is

recalled, invoking a set of Orientalist stereotypes only to dismiss them with the content of the exhibit.

The second significant meaning of the title “1001 Inventions” is the exhibition’s insistence that scholarship from the Golden Age of Islam has directly influenced and inspired both Islamic and Western academics and inventors across the ages.<sup>185</sup> The exhibit itself does not display 1001 inventions, nor does it claim that 1001 items that were invented during the Golden Age are still in use today. Instead, the exhibit encourages the audience to see the way ideas from the Golden Age have persisted, shaping thinking and technology across time and across the globe. It suggests that a thousand inventions and more have their origins in the Golden Age of Islam, and the West owes a “debt” to the scholars of that era.<sup>186</sup> The official book companion to the exhibition is entitled *1001 Inventions: The Enduring Legacy of Muslim Civilization*.<sup>187</sup> The phrase “enduring legacy” reinforces the exhibition’s position that the scholarship of the Golden Age continues to be significant into the modern era, and the word “Muslim” invokes religion as an important dimension of the exhibition’s design. In these ways, the title “1001 Inventions” works to both dispel stereotypes about Muslims and connect the past with the present, demonstrating the importance that the Golden Age still has today.

#### Precis of Chapters

The Golden Age of Islam occurred centuries ago, but has echoed forward into the present as a potent rhetorical force. I seek to understand the way that counter-memories of this time period have been used to re-shape current ideologies about Islam that exist in what is often referred to as “the West,” particularly Europe and the United States. I also hope to uncover the role that perspective plays in the rhetorical construction and circulation of counter-memory. *1001 Inventions* represents an attempt to remember the Golden Age and make it relevant to the

contemporary cultural landscape. It works to correct misconceptions about the Muslim world and re-write the way East and West have co-existed and commingled over the past 1300 years.

In chapter two, I explore the interplay between perspective and counter-memory as they pertain to the *1001 Inventions* exhibit. I begin to explore the way *1001 Inventions* pushes back against Islamophobic stereotypes by addressing the question, in what ways does *1001 Inventions* construct a new and different perspective on the Golden Age of Islam? I visited *1001 Inventions* at the Michigan Science Center in Detroit in October of 2018; my memories of the exhibition, supplemented by photographs and the notes I took when visiting, form the bulk of my rhetorical text for the first chapter. Using three of Burke's master tropes—metaphor, synecdoche, metonymy—as a theoretical guide, I look at the way counter-memorializing demands a shift in perspective, away from hegemonic accounts of the past and toward a multifaceted understanding of how things that may have happened matter today. I also engage Haraway's thoughts about the role vision and embodiment plays in our understanding of reality.<sup>188</sup> This chapter continues the scholarship of James Farrell, who posited a connection between public memory and Burke's tropes.<sup>189</sup> Ultimately, this chapter demonstrates that *1001 Inventions* uses metaphor, metonymy, and synecdoche to counter-memorialize the Golden Age and shift the perspective of audiences away from any negative aspects of Islam and towards themes of science and tolerance. In addition, the exhibit emphasizes the importance of contextualizing knowledge claims, resisting Western conceptions of knowledge as disembodied and objective.

In chapter three, I examine the way *1001 Inventions* invokes and merges certain well-established cultural pairs: past and present, Islam and the West, science and religion. Using these pairs as a starting point, I pose the question, to what extent does this exhibition counter-memorialize the Golden Age of Islam with an ironic perspective? To answer this question, I



analyze both my experience with the exhibit itself along with the exhibit's book companion; both together provide an in-depth picture of how these pairs manifest in the message of *1001 Inventions*. I continue to engage Burke and Haraway, particularly Burke's notion of irony, to examine the way East and West, past and present, and science and religion are taken up and re-interpreted within *1001 Inventions*, and the implications this has for how Islam is viewed in the modern world. I argue that because these pairs are presented as almost exclusively merged, with little attention to division, this exhibit does not present an ironic perspective and thus renders itself vulnerable to critical re-division of the above pairs.

Chapter four represents a slightly different analytical approach. Instead of looking at *1001 Inventions* itself, I examine criticism of the exhibition from those who do not believe the exhibition accurately represents the Golden Age of Islam. This exhibit was very well received on the global stage; it has been visited by millions of individuals and has won multiple prestigious awards for its portrayal of history. However, criticism of *1001 Inventions* does exist, and I have selected several texts that share a skeptical attitude toward the claims that the exhibit and accompanying educational materials make about the Golden Age of Islam. This chapter asks, what rhetorical vulnerabilities in the perspective offered by *1001 Inventions* are addressed and exploited by critics? The critiques of *1001 Inventions* that I analyze represent a rhetorical effort to refute and re-write the exhibition's counter-memorial depiction of the Golden Age. The positions they put forth have important implications for how Islam is viewed in today's society. Analysis of this criticism will further illuminate the role that perspective plays in counter-memorializing by looking at various one-sided views of how the Golden Age should be remembered. I conclude that an ironic perspective would make for a stronger counter-memorial

depiction of this era, warding off a great deal of criticism by acknowledging both positive and negative aspects of the past.

Finally, chapter five is a closing essay, a summation and synthesis of things learned throughout the project. I consider the notion of counter-memory as a rhetorical force and the way this concept is inextricably tied to the notion of perspective. I work toward answering the questions posed in this first chapter, about how an era from so long ago can be made relevant to the Islamophobia of today. This chapter includes a reflection on the limitations I encountered during this project, including my positioning as a non-Muslim white woman living in the United States. I conclude my analysis with thoughts about further research, suggestions for how scholars of rhetoric and memory can move forward with the work I have done here.

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<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> “Discover 1001 Inventions,” last modified 2015, <http://www.1001inventions.com/discover>.

<sup>6</sup> E.g., Anne Birgitta Nilsen, “Shaykh Osama Bin Laden: An Evolving Global Myth,” in *Islamic Myths and Memories: Mediators of Globalization*, ed. Itzhak Weissman, Mark Sedgwick, and Ulrika Mårtensson (Burlington, VT: Ashgate Publishing, 2014), 143.

<sup>7</sup> E.g., Jim al-Khalili, *The House of Wisdom: How Arabic Science Saved Ancient Knowledge and Gave Us the Renaissance* (New York: The Penguin Press, 2011); Bernard Lewis, *What Went Wrong? Western Impact and Middle Eastern Response* (New York: Oxford University Press, 2002); Robert Spencer, *The Politically Incorrect Guide to Islam (And the Crusades)* (Washington, DC: Regnery Publishing, 2005).

<sup>8</sup> E.g., Sarah Brookner, “The Golden Age of Islam,” *Huffington Post*, October 12, 2012, [http://www.huffingtonpost.com/sasha-brookner/the-golden-age-of-islam\\_b\\_1941608.html](http://www.huffingtonpost.com/sasha-brookner/the-golden-age-of-islam_b_1941608.html); Eman el-Husseini, “Opinion: We’re Far From the Golden Age of Islam,” *Montreal Gazette*, January 9, 2015, <http://montrealgazette.com/news/world/opinion-were-far-from-the-golden-age-of-islam>; Peter Lynch, “Arabic Enlightenment and the Emergence of Algebra; Developments Made During the Golden Age of Islam Laid the Foundations of Scientific Theories,” *The Irish Times*, October 2, 2014.

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<sup>10</sup> E.g., 1001inventions, "Hillary Clinton Launches 1001 Inventions in Los Angeles," May 25, 2011, <https://www.youtube.com/watch?v=l58Cb-QKITk>; eelemif, "A part of Barack Obama's Speech in Cairo, Egypt: Muslim Heritage in our World," June 5, 2009, <https://www.youtube.com/watch?v=MyhZkxz5JM>.

<sup>11</sup> E.g., Richard Dawkins, Twitter post, August 8, 2013, 7:04 a.m., <https://twitter.com/RichardDawkins>; Eqbal Ahmad Centre for Public Education, "Pervez HoodBhoy Kay Saath, Golden Age of Muslims in Science — Past & Present, Radio Hot FM 105," June 29, 2016, <https://www.youtube.com/watch?v=u2J9131VDrU>; Nidhal Guessoum, *Islam's Quantum Question: Reconciling Muslim Tradition and Modern Science* (New York: I. B. Taurus, 2011), 22; uzomad, "Neil DeGrasse Tyson - The Islamic Golden Age: Naming Rights," *Youtube video*, March 18, 2012, <https://www.youtube.com/watch?v=fDAT98eEN5Q>.

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<sup>16</sup> 1001 Inventions, "Brand Profile."

<sup>17</sup> 1001 Inventions, "Brand Profile"; 1001 Inventions, "Productions"; Turkish-American TV, "1001 Inventions Exhibition at the National Geographic Museum," Vimeo video, 15:46, November 19, 2012, <https://vimeo.com/53886789#>.

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<sup>19</sup> National Geographic, "Salim Al-Hassani: 1001 Inventions," Youtube video, November 5, 2012, <https://www.youtube.com/watch?v=879kqbx9rqc>.

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<sup>22</sup> Mustapha Marrouchi, "Islam and the West: Unequal Distance/Unequal Difference," *Philosophia Africana* 10 (2007), 2, 10.

<sup>23</sup> Ibrahim Seaga Shaw, "Stereotypical Representations of Muslims and Islam Following the 7/7 London Terror Attacks: Implications for Intercultural Communication and Terrorism Prevention," *The International Communication Gazette* 74, No. 6 (2012), 510.

<sup>24</sup> Brian Levin, "Islamophobia in America: Rise in Hate Crimes Against Muslims Shows What Politicians Say Matters," *Newsweek*, July 21, 2017, <http://www.newsweek.com/islamophobia-america-rise-hate-crimes-against-muslims-proves-what-politicians-640184>.

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<sup>26</sup> Jonathan Lyons, *Islam Through Western Eyes: From the Crusades to the War on Terrorism*. (New York: Columbia University Press, 2012), 50-72.

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<sup>35</sup> Blair, "Communication as Collective Memory," 54.

<sup>36</sup> Jan Assmann, "Communicative and Cultural Memory," *Cultural Memory Studies: An International and Interdisciplinary Handbook*, ed. Astrid Erll and Ansgar Nünning (Berlin, Germany: Walter de Gruyter, 2008), 113.

<sup>37</sup> Zelizer, "Reading the Past," 216.

<sup>38</sup> Ibid.

<sup>39</sup> Bruce E. Gronbeck, "The Rhetorics of the Past: History, Argument, and Collective Memory," in *Doing Rhetorical History: Concepts and Cases*, ed. Kathleen J. Turner (Tuscaloosa, AL: The University of Alabama Press, 1998), 49.

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- <sup>42</sup> Gronbeck, "The Rhetorics of the Past," 2.
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- <sup>55</sup> Gronbeck, "The Rhetorics of the Past," 49.
- <sup>56</sup> Gillis, *Commemorations*, 3-8.
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- <sup>58</sup> Michel Foucault, "Film and Popular Memory: An Interview with Michel Foucault," *Cahiers du Cinema* (1974), 25.
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<sup>77</sup> Patin, *Discipline and Varnish*, 114.

<sup>78</sup> Patterson, "Teaching Tolerance," 55; Patin, *Discipline and Varnish*, 114.

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<sup>79</sup> Patterson, "Teaching Tolerance," 55.

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<sup>90</sup> Ibid., 2.

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<sup>158</sup> Ibid., 29.

<sup>159</sup> Scott, "Constructing Sacred History," 231.

<sup>160</sup> Scott, "Dinosaurs on Noah's Ark?" 231.

<sup>161</sup> Al-Hassani, *1001 Inventions*.

<sup>162</sup> "'Must Read' Books from 1001 Inventions," last modified 2015, <http://www.1001inventions.com/worldbookdayuk>.

<sup>163</sup> 1001 Inventions, "National Geographic Releases New 1001 Inventions Book," January 25, 2012, [http://www.1001inventions.com/National\\_Geographic](http://www.1001inventions.com/National_Geographic).

<sup>164</sup> 1001 Inventions, "National Geographic Releases."

<sup>165</sup> 1001 Inventions, "Educational Materials," accessed December 2, 2018, <http://www.1001inventions.com/education>.

<sup>166</sup> Kenneth Burke, "Four Master Tropes," *The Kenyon Review* 3 (1941).

<sup>167</sup> Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies* 14, No. 3 (1988), 575-599.

<sup>168</sup> Haraway, "Situated Knowledges," 576-577.

<sup>169</sup> Ibid., 577.

<sup>170</sup> Ibid., 579.

<sup>171</sup> Ibid., 581.

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<sup>172</sup> Ibid.

<sup>173</sup> Ibid., 582.

<sup>174</sup> Ibid., 582-583.

<sup>175</sup> Dickinson, Ott, and Aoki, "Spaces of Remembering," 29.

<sup>176</sup> Ibid., 45.

<sup>177</sup> Ibid., 30.

<sup>178</sup> Ibid., 31.

<sup>179</sup> Ibid., 45.

<sup>180</sup> The Editors of Encyclopaedia Britannica, "The Thousand and One Nights," accessed May 5, 2019, <https://www.britannica.com/topic/The-Thousand-and-One-Nights>; 1001Inventions, "NBC News Conference with Conan Nolan - Los Angeles," video, June 2, 2011, [https://www.youtube.com/watch?v=MGOG\\_1q0ZcM](https://www.youtube.com/watch?v=MGOG_1q0ZcM); Turkish-American TV, "1001 Inventions Exhibition."

<sup>181</sup> The Editors of Encyclopaedia Britannica, "The Thousand and One Nights."

<sup>182</sup> Dwight Reynolds, "The Thousand and One Nights: A History of the Text and its Reception," *The Cambridge History of Arabic Literature: Arabic Literature in the Post-Classical Period* (Cambridge: Cambridge University Press, 2006), 272, 278.

<sup>183</sup> Lyons, *Islam Through Western Eyes*, 160-161; Tarek Shamma, "The Exotic Dimension of Foreignizing Strategies Burton's Translation of the Arabian Nights," *The Translator* 11, No. 1 (2005), 51-67.

<sup>184</sup> 1001Inventions, "NBC News Conference."

<sup>185</sup> 1001Inventions, "1001 Inventions Exhibition - BBC London News," Youtube video, January 26, 2010, <https://www.youtube.com/watch?v=Bk7Qhy50FNE>.

<sup>186</sup> *1001 Inventions*, Hospital Zone; "London Exhibition Shows West's 'Debt' to Muslim Scholars," *Daily News Egypt*, January 24, 2010.

<sup>187</sup> Al-Hassani, ed., *1001 Inventions*.

<sup>188</sup> Haraway, "Situated Knowledges."

<sup>189</sup> Browne, "Remembering Crispus Attucks"; Burke, "Four Master Tropes"; James Farrell, "The Speech Within: Trope and Performance in Daniel Webster's Eulogy to Adams and Jefferson," *Rhetoric and Political Culture in Nineteenth-Century America*, ed. Thomas Benson (East Lansing: Michigan State University Press, 1997), 15-37.

## Chapter II: Counter-Memory, Perspectival Truth, and the Golden Age of Islam

Salim Al-Hassani, creator and director of *1001 Inventions*, was not always interested in Muslims' historical contributions to science.<sup>1</sup> Al-Hassani says that he was led to his current work after Donald Cardwell, renowned science historian and founder of the Manchester Museum for Science and Industry, pointed out that there is a “gap” of a thousand years in books about engineering and science. As evidence of this assertion, al-Hassani presents a book of prominent inventors that skips from Archimedes (287-212 BCE) straight to Gutenberg (1400-1468 CE) and da Vinci (1452-1519 CE). Al-Hassani contends that the time between Archimedes and Gutenberg was filled with scientists and inventors, but that these historical figures are not often remembered or discussed in contemporary Western society because they resided within Muslim civilization. Al-Hassani has, since Cardwell's remark, dedicated his life to shedding light on this lost era of science, and to resurrecting and reshaping memories of Islam's past in order to build a stronger present and future. *1001 Inventions* is his flagship project. This exhibit is a corrective measure, a counter-memorial attempt to fill in this “gap” and cure the “cultural amnesia” created by Western modes of remembrance.<sup>2</sup>

A major aspect of *1001 Inventions* is its focus on scientific and cultural innovation. This exhibit does not display any negatives associated with Islam in today's world (e.g., extreme religiosity, anti-scientific attitudes, gender-based oppression, violence) but instead depicts the technological and cultural advances that occurred in the historic Muslim world. Closely tied to the exhibit's focus on scholarship is its attempt to demonstrate how high levels of tolerance and diversity during the Islamic Golden Age contributed to an atmosphere of academic collaboration and innovation. When Cardwell prompted al-Hassani to research the history of Islam, the latter protested that he was a scientist and uninterested in the details of such a violent subject: “I was

taught history was people killing each other. History of wars, dynasties, occupations, and conflicts.”<sup>3</sup> Cardwell responded that he had been studying the “wrong history”: “You should look at history of scientists, history of inventors, and then you will see a different story.”<sup>4</sup> This statement suggests that there is another perspective to consider, another story to be heard. *1001 Inventions* is designed to tell that story. Susan Mossman, Project Director at the London Science Museum, says of the exhibit, “We're telling stories, hidden stories . . . that are little known, certainly in this country, so I think it's a real opportunity to open people's eyes to perhaps new perspectives on the development of technology, science, and medicine.”<sup>5</sup> Once perspective is shifted from violence and religion to tolerance and science, a different image of Islam can be seen and taken up by modern Western audiences: the idea that Muslims have been and continue to be capable of both technological achievement and progressive thought.

This chapter seeks to answer the question, in what ways does *1001 Inventions* construct a new and different perspective on the Golden Age of Islam? *1001 Inventions* draws upon and reshapes memories of the historic Golden Age of Islam so that instead of being memorialized as the Dark Age, this time will be seen as an era of enlightenment. This exhibit remembers the Golden Age in a way that counters contemporary negative stereotypes about Islam and puts this religion and its adherents in the best possible light. In this chapter, I argue that the exhibition accomplishes these counter-memorial goals in two ways: First, it advocates a metaphorical shift from memories of a European “Dark Age” to counter-memories of an Islamic “Golden Age.” It presents a different perspective of the audience so that they will look at this era from a new angle, giving them the ability to “spread the word” about Islam in a new and more positive light.<sup>6</sup> Second, it makes use of items and individuals from the Golden Age to metonymically and synecdochally capture a message of science and tolerance. With a multitude of diverse characters

and their inventions on display, this exhibition allows its visitors to see the production of knowledge as an embodied, human process. This approach contrasts with the view that science consists of objective discoveries made by neutral observers, a perspective that occludes its own positionality. Ultimately, the exhibition conveys commitment to telling the truth and to tolerance for all people, no matter their culture, gender, or creed. In this way, *1001 Inventions* asks its audience to live up to the same commitments: to tell the truth about the Golden Age as depicted by this exhibition, and to live in harmony with all people.

The way that *1001 Inventions* has taken up, reconfigured, and circulated memories of this era has significant implications for the way modern Western audiences view and talk about contemporary Islam. In many ways, this exhibition replies directly to anti-Islam discourses as described by Jonathan Lyons: Western notions that Islam is inimical to science, inherently violent, and anti-woman.<sup>7</sup> In a time when tensions between Islamic and Western nations are running high, counter-memorial assemblages such as *1001 Inventions* have the potential to shift people's perspective in a way that manages conflict rather than exacerbating it. To explain how the exhibit is designed to shift perspective, I employ three of Kenneth Burke's master tropes—metaphor, metonymy, synecdoche—as my key theoretical vocabulary.<sup>8</sup> These tropes are specifically designed to explain perspectival knowledge as it relates to the way people understand and accept truth. In addition, I will draw on the work of Donna Haraway as I make sense of the perspective offered by *1001 Inventions*.<sup>9</sup> My analysis provides a comprehensive picture of the relationship between perspective and counter-memory, and the way that the creators have leveraged the metaphor of a “Golden Age” in order to re-configure the way Islam is seen in the modern world.

In this chapter, I will examine how the *1001 Inventions* exhibition rhetorically draws upon, shapes, and deploys counter-memories of an Islamic Golden Age, particularly in relation to themes of societal tolerance and scientific innovation. I will interrogate the relationship between perspective and memory, developing an understanding of how Burke's notion of truth and Haraway's concept of situated knowledges relates to memory scholarship. This chapter will look at the exhibition itself: the introductory video, the items on display, the characters from the Golden Age. Although the *1001 Inventions* brand extends beyond the museum exhibit (for example, its website, souvenirs, and companion book), I focus here on the Detroit installation that I was able to visit and experience the contextualized embodiment of the display. First, I will lay the theoretical groundwork by explaining the interconnectedness of Burke's four master tropes, perspectival truth, and memory theory. Second, I will explain the metaphoric shift required for *1001 Inventions* to position the Golden Age of Islam as a counter-memorial foil for the supposed "Dark Age" of European history. Finally, I will analyze the way *1001 Inventions* reconfigures notions of modern Islam by using items and individuals to embody counter-memories of the Islamic Golden Age.

#### Memory, Perspective, and the Master Tropes

In his discussion of the four master tropes—metaphor, metonymy, synecdoche, and irony—Kenneth Burke provides an excellent jumping off point for understanding the way counter-memory is related to the concept of perspective.<sup>10</sup> This section will consider Burke's ideas about truth and reality and their relationship to perspective. It will also look at the work done by James Farrell to integrate these tropes with the concept of memory.<sup>11</sup> The first three tropes are relevant to this chapter, and each will be discussed below. This literature should provide a solid basis for analyzing the perspective put forth by *1001 Inventions*.

Throughout his writings, Burke rejects simplistic notions of capital-t Truth in favor of a more complex understanding of the way reality and rhetoric interact and co-create one another. In his essay on terministic screens, Burke says that if all terminology is a “reflection” of reality, it is also necessarily a “selection” and “deflection” of reality.<sup>12</sup> This means that while our use of language does to some extent mirror reality, we also participate in the construction of that reality by embracing and naming some elements of existence and rejecting others. Terministic screens direct human attention in varied and particular ways, affecting our point of view and ultimately, the way we believe and act. Key to this definition of truth is the concept of perspective. The relationship between rhetoric and our view of reality is reciprocal: our observations affect the terms we choose to employ, but at the same time, the terms we use affect our observations by directing our attention in one way or another.

Burke poses the question: “What is our "reality" for today (beyond the paper-thin line of our own particular lives) but all this clutter of symbols about the past, combined with whatever things we know mainly through maps, magazines, newspapers, and the like about the present?”<sup>13</sup> This statement has clear implications for the intersection of memory, communication, and truth. We can only know what we experience (directly or indirectly), and that information originates somewhere, even if that origin is not immediately apparent. In this way, Burke’s notion of truth is consonant with Haraway’s ideas about “situated knowledge;” both scholars promote “politics and epistemologies of location, positioning, and situating where partiality and not universality is the condition of being heard to make rational knowledge claims.”<sup>14</sup> Both are concerned with the role perspective plays in the rhetorical construction of truth; Burke makes his approach clear with his description of what he refers to as the “four master tropes.”



The term “trope” has been used many different ways in rhetorical traditions.<sup>15</sup> Burke defines tropes as epistemological categories that aid in the search for truth.<sup>16</sup> He posits that there are four main tropes: metaphor (perspective), metonymy (reduction), synecdoche (representation), and irony (dialectic).<sup>17</sup> Each represents a different aspect of perspective; each illustrates a different element of humanity’s relationship to truth. Given Burke’s observations about the dualistic relationship of rhetoric and reality, it is clear that these tropes are not only epistemological in nature, helping humans to locate and understand truth; they are also ontological, an integral part of the construction of truth itself. These tropes “shade into one another”; if a person goes looking for one, they “will come upon the other three.”<sup>18</sup> Despite overlap, each trope offers something unique for our understanding of the nexus between perspective and memory. The first three tropes are relevant to the analysis of this chapter; the trope of irony merits its own discussion, and chapters three and four will address the trope of irony in relationship to *1001 Inventions*.

In an essay on Daniel Webster’s eulogy to Thomas Jefferson and John Adams, James Farrell explores the overlap and interplay between Burke’s four tropes and memory. As I plan to do, Farrell looks at the way memories of the past can be reduced and re-worked in trope form to serve the goals of the present, observing, “Webster fashioned a history of 1776 for use in 1826.”<sup>19</sup> However, there are notable differences between Farrell’s approach and my own: Farrell examines, in relationship to Burke’s tropes, one oration that remembers two deceased statesmen; I will analyze a museum exhibit that covers centuries of history and a great diversity of people, places, and objects. Beyond these obvious differences in text and scope, Farrell focuses on the representational aspect of Burke’s tropes, whereas I am more interested in Burke’s use of the term “perspective” and its relationship to memory, counter-memory, and public understanding of

truth. Furthermore, Farrell asks questions about a specific genre, eulogy; I ask a broader question about the role these tropes play in the constitution of memory and counter-memory. Ultimately, Farrell's essay is about the role imagined history can play when remembering the dead more than a full exploration of the relationship between Burke's tropes and memory studies. However, it provides a useful starting point for analyzing the messages, goals, and functions of *1001 Inventions* as a unique collection of cultural memories.

### *Metaphor*

Metaphor, which he equates with perspective, is for Burke the dominant trope; the rest are variations on a theme: metonymy, synecdoche, and irony all operate through the introduction of one or more novel perspectives.<sup>20</sup> Burke defines metaphor as "a device for seeing something in terms of something else": a method of introducing new perspective on a given object, person, idea, or situation.<sup>21</sup> By shifting one's point of view, metaphor brings out "the thisness of a that, or the thatness of a this."<sup>22</sup> For example, Shakespeare's famous metaphor, "All the world's a stage," shows that being human is a never-ending performance.<sup>23</sup> Burke argues that only by approaching reality with a multiplicity of perspectives can we approximate truth. Dave Tell recounts a scholarly dispute between Burke and his colleague, John Crowe Ransom, about the role metaphor plays in communication. Ransom contends that poetic and scientific knowledge are separate entities; he characterizes scientific knowledge as empirical and absolute, poetic knowledge as metaphysical and metaphorical.<sup>24</sup> Burke, however, "lumps scientists and poets together as users of metaphor."<sup>25</sup> Both groups operate rhetorically, and since language is inherently metaphorical, both rely on perspectival knowledge. All knowledge is situated: in context, in time, in the bodies that produced it.<sup>26</sup> Metaphor is a way of approaching knowledge without assuming its absolute objectivity.

By calling for a multiplicity of perspectives rather than a singular, objective view of truth, Burke shares assumptions with memory scholars. Believing the past to be ultimately “unknowable,” memory scholars seek not what happened but how history is and has been remembered.<sup>27</sup> Farrell does not spend much time on metaphor; he subordinates perspective to representation in his analysis of Webster’s address. However, he does connect Burke’s ideas about metaphorical perspective with the rhetorical construction of memory. Farrell argues that when Daniel Webster delivered his own version of John Adams’ famous speech to Congress, the speech sustained a metaphoric transformation to serve the purposes of the present: “In Webster’s mouth, Adams’ speech—once considered seditious and revolutionary—underwent a shift in perspective and became conservative, calcified, part of nationalist myth.”<sup>28</sup> This passage suggests that historical memory, when re-presented from an alternate perspective, can become a powerful rhetorical mechanism for shaping the present and future. As discussed in chapter one, both memory and counter-memory are fundamentally functional, tools that can be used to “defend different aims and agendas.”<sup>29</sup> Counter-memory involves re-framing how history is understood, often for the purpose of reclaiming power from those who have instituted hegemonic versions of the past.<sup>30</sup> An understanding of perspective is key to the prehension of counter-memory, since the proliferation of differing perspectives allows for counter-memory to take hold of the popular imagination in the first place.

### *Metonymy*

Burke equates metonymy with reduction, stating that it is the basic strategy used “to convey some incorporeal or intangible state in terms of the corporeal or tangible.”<sup>31</sup> Metonymy is the reduction of the abstract to the concrete, a new perspective insofar as what was once only conceptual can now be experienced in a physical sense. Tell explains the connection between the

first two tropes: “If metaphor established a Burkean epistemology (perspectival knowledge), metonymy establishes language as the foundation of that epistemology.”<sup>32</sup> Metonymy is most apparent in words like “heart”: a metonymic reduction of human emotions to a muscle in the chest. For Burke, all symbolic communication is metonymic; words are the ultimate physical condensation of immaterial concepts.<sup>33</sup> Communication goes beyond language, however, and items, actions, and even persons can serve as metonymic condensations of larger ideas.

Memory and metonymy have a strong relationship; every memory is to some extent a selective encapsulation of the past. Farrell argues that Webster’s eulogy functions as a metonymic reduction of the late John Adams, a memory meant to represent an eloquent historical figure and his political principles.<sup>34</sup> This imagined oration “captures the excellence of Adams and reduces it to memorable discourse,” and by delivering a speech in Adams’ voice, Webster invites a vicarious “encounter with Adams in the past tense.”<sup>35</sup> In Farrell’s estimation, metonymy brings language beyond description to concrete representation; that is, Webster was not content to describe Adam’s eloquence; his speech served as a metonymic portrayal of the orator’s brilliance and in a sense, Webster embodied Adams by bringing his (imagined) words to life.<sup>36</sup> Of course, no one speech could capture every aspect of Adams and his political career. Memory is always incomplete; no single memory or set of memories can capture the past in its entirety and may even, like Webster’s eulogy, be partially fabricated.<sup>37</sup> There is always potential for an additional perspective; the door is always cracked open for creators of counter-memory to make an entrance. Such is the nature of metonymy/memory: All rhetorical representation must in some way reduce that which it is meant to represent. Burke’s third trope, synecdoche, can help to address this dilemma.<sup>38</sup>

### *Synecdoche*

For Burke, metonymy (reduction) is a specific type of synecdoche (representation). Whereas metonymy entails a specific conversion from abstract to concrete, synecdoche is a more general description of any semantic relationship in which one thing represents, or stands in for, another: “Part for the whole, whole for the part, container for the contained, sign for thing signified, material for thing made, cause for effect, effect for cause, genus for species, species for genus, etc.”<sup>39</sup> Metonymy only operates in one direction; synecdoche stresses the “connectedness” of its two components and allows for conceptual exchange in either direction. In essence, synecdoche is “a corrective to metonymical excess.”<sup>40</sup> Metonymy cannot help but reduce its object of representation; synecdoche, on the other hand, allows the audience to see the bigger picture. Synecdoche provides a broader perspective, a way to connect present and past with the recognition that a single memory can say and mean much more than itself.

In his discussion of synecdoche, Farrell focuses on structure and Burke’s claim that a microcosm is “the noblest synecdoche.”<sup>41</sup> He argues that Webster’s “fictional version of Adam’s oration” was a microcosm of his (Webster’s) entire speech. Webster designed his speech such that the audience might remember and believe certain things about America, both past and present. The effectiveness of synecdoche depends on the representational capacity of the original communication. The problem is, “no anecdote can be completely representative, no terminology adequate.”<sup>42</sup> Understanding will always be incomplete; memory can never derive from a perfect and holistic knowledge of historical events as they happened.<sup>43</sup> One must always approach the past from a particular perspective; memory and counter-memory will always operate in tension with one another.

### “From Darkness into Light”: A Metaphoric Shift in Perspective

In a time when tensions between Islam and the Western world are running high, counter-memorial assemblages such as *1001 Inventions* have the potential to display new perspectives designed to manage rather than exacerbate conflict. Dr. Margaret Honey, CEO of the New York Hall of Science, spells out the central goal of *1001 Inventions*: “At a time when most of our images of Muslim culture are negative, this exhibit represents a very important *shifting of perspective* and represents the extremely significant contributions that Muslim culture has made to science and technology.”<sup>44</sup> This section will explore the perspective constructed by *1001 Inventions* in relationship to its opening film, “1001 Inventions and the Library of Secrets.”<sup>45</sup> This section will explore the way the film uses a metaphor of light and illumination in an attempt to shift the perspective of the audience, countering memories of a European “Dark Age” with images of an Islamic “Golden Age.”

Before visitors to *1001 Inventions* enter the exhibition hall, they must first pass through a small theater and watch an introductory film entitled “1001 Inventions and the Library of Secrets.”<sup>46</sup> The rhetorical significance of this film is apparent: “Library of Secrets” has been seen by more than 100 million people around the world and has won more than 20 awards, including the Gold Award for Best Education Film at the Cannes Film Festival.<sup>47</sup> This 13-minute movie stars Oscar-winning actor Ben Kingsley as a “mysterious and cantankerous librarian” that educates ignorant British schoolchildren about the scientific wonders of the Islamic Golden Age.<sup>48</sup> This scene establishes at least one implied audience: uninformed Westerners who may want to be considered open-minded and tolerant of other cultures, but who have little to no knowledge about the Golden Age of Islam. After watching this film, it becomes far more difficult for a Western audience to deny or claim ignorance about the historical greatness of

Muslim civilization. Instead, they are afforded the ability to speak about the Golden Age as a time of abundant scientific achievement, an era that is still relevant today thanks to the ideas and inventions of its great thinkers.

Whether or not the audience actually holds this implied position, “Library of Secrets” rhetorically establishes the European “Dark Ages” as the hegemonic view of history that must be corrected with the counter-memory of a “Golden Age” of Islam.<sup>49</sup> A new perspective on history requires a metaphorical shift, and this video, along with the rest of *1001 Inventions*, initiates this very shift. The film works to augment, alter, and possibly even supplant historical memories of the European “Dark Age” with counter-memories of a Muslim-centered “Golden Age,” with a clear use of “light” as its central metaphor. To facilitate this shift in perspective, “Library of Secrets” must illustrate an existing viewpoint: one that is incorrect (or at least incomplete) and requires emendation. The film opens on a young schoolteacher leading a group of multi-ethnic British schoolchildren into the foyer of a library. The pretty blonde teacher assigns a “different era of history” for each small group to research, asking “What impact did your era have on the modern world?”<sup>50</sup> She assigns one group the ancient Greeks, another the Romans, and then pauses before the next assignment: “And Danny’s group gets, ah yes, a bit of a challenge for you, you get the Middle Ages. Some even call it the Dark Ages.”<sup>51</sup> Danny’s group consists of two white boys and a black girl. In response to their assigned era, the girl rolls her eyes and groans “boring”; the trio sullenly heads upstairs. As they enter into another room upstairs, one boy asks, “How are the Dark Ages gonna have *anything* to do with us?”<sup>52</sup> Right away, viewers are presented with a contemptuous perspective that some people may hold about the Middle Ages. The young white schoolteacher stands in for the whole of Western education, a system that has supposedly promoted the idea of a thousand-year gap in science and innovation: the “Dark

Ages.” She is designed to represent an ignorant but ostensibly widespread perspective that nothing of note happened during this time period.

Once upstairs, the schoolchildren encounter the librarian (Kingsley), dressed in a sharp gray business suit and brown tie, dusting a mysterious object: an elaborate two-foot contraption featuring spindly dragons and a stately elephant. The librarian ignores the students at first, finally asking, “What do you want?” in response to their repeated overtures.<sup>53</sup> They ask him about the Dark Ages, and he immediately responds, “Never was a period of history so poorly named.”<sup>54</sup> Thus, less than two minutes into the film, viewers are faced with the realization that a common, Western view of the Middle Ages may be misguided. Kingsley elaborates:

I suppose someone’s been filling your head with the usual nonsense, say, a thousand wasted years, a black hole in history . . . You assume it was all mud, disease, death and destruction, with marauding mobs of barbarians ripping down the good of former civilizations. Burning and plundering as they went. Nothing of any worth invented either, eh? Oh, no, no. Go on, be off with you!<sup>55</sup>

The librarian sounds weary as he tries to send them away, sure that these students will neither listen nor care that there is another story to be told, another perspective to consider, another set of memories to acknowledge. Right away, this character reinforces the film’s claim that most Westerners believe in a thousand years of intellectual darkness, but simultaneously undermines this widely held view by referring to it as “the usual nonsense.” The librarian’s response suggests that there is more to the story than most people realize.

At first, the librarian appears indifferent to educating the students, but when they try to leave (mumbling that the “Greeks and Romans invented everything anyway”), the audacity of their indifference proves too much.<sup>56</sup> Kingsley jolts into action. The music picks up in tempo and



volume as he mutters wildly to himself and the students, leading them up a spiral staircase into the heights of the building. When asked where they are headed, the librarian succinctly sums up the film's main metaphorical shift: "From darkness into light, my young friend. From ocean unto land, there are things you should know. . ."57 The group reaches a grand study, filled with bookshelves and stained-glass windows. The librarian fetches a giant gilded tome from the shelves, challenging the students, "Take a look . . . if you dare!"58 The gauntlet has been thrown; the children (and of course, anyone visiting the exhibit and not in-the-know about the Golden Age of Islam) have been dared to take the first step in changing their perspective. One cannot achieve a shift in perspective without new memories; one's viewpoint remains stagnant without an infusion of fresh knowledge. Furthermore, an audience cannot be held responsible for its ignorance until confronted with a new perspective, a goal this film works to accomplish.

It is at this point that the magic begins: the book slides itself across the table toward the students and flings itself open. A cascade of brilliant light erupts from the pages; ghostly golden objects and Arabic phrases swirl around the children's heads. The students look back at the librarian to ask what is happening, but Kingsley is no longer dressed in modern garb. Instead, he wears rich brocade robes and a turban, clothing worn by the Muslim elite during the twelfth century. Triumphant music plays as Kingsley spreads his arms wide and declares, "Welcome to the Dark Ages. Or as it should be known . . . the Golden Ages!"59 The phrase "as it should be known" indicates that this video is designed to re-direct the focus of viewers from a Western point of view to one that recognizes the achievements of Muslim Civilization. Kingsley, formerly dressed as a librarian, now introduces himself as al-Jazari, "engineer and ingenious inventor."60 This abrupt switch from cinematic realism to "Potter-esque" enchantment visually

marks the perspective shift that the film displays.<sup>61</sup> The key metaphor of this short film is light; the children are led “from darkness into light” as they learn the “truth” about the Middle Ages.<sup>62</sup>

After the book reveals its magic and the librarian divulges his true identity, the blonde boy states, “I thought you said this was the Dark Ages. It doesn’t look very . . . dark.”<sup>63</sup> Al-Jazari’s response is very telling: “That’s because it’s all a matter of perspective, my soon-to-be-illuminated friend.” He explains that although parts of the world may have been “dark,” in the Muslim Civilization “the golden rays of discovery and invention shone over everything.”<sup>64</sup> The film’s assertion that knowing the truth of this Age is “all a matter of perspective” reinforces Burke’s contention that perspectival knowledge is the key to understanding reality.<sup>65</sup> To literally illuminate a room is to provide a new perspective on the contents of that room; to metaphorically illuminate a person is to provide them with new information so that they may develop new understanding. Gold shines brightly; it is also valuable, just like the perspective that may be gained through the acquisition of a counter-memory. These metaphors create conditions in which the audience cannot plausibly deny seeing a different perspective on the Golden Age without risking criticism for willful ignorance. This film gives its viewers the ability to speak about Islam in, literally, a new light.

Al-Jazari states, “Through scholars and scientists of various faiths some of the most important discoveries known to man were made at this time.”<sup>66</sup> The book has not finished with its magic; one by one, ghosts of long-ago inventors emerge from its pages to speak about their work and provide their particular perspective as a key figure of the Golden Age. Al-Jazari introduces them one by one: Ibn al-Hathyam, whose idea of a *camera obscura* prefigured the modern-day camera; Abbas ibn Firnas, an aeronautical engineer who “dared to dream about flying a thousand years before the Wright brothers”; Abul Qasim al-Zahrawi, the “father of

surgery,” who pioneered medical tools and techniques still used in hospitals today; and Mariam al-Astrulabi, whose sophisticated astrolabes are described as the technological ancestors of the calculator, clocks, and satellite navigation.<sup>67</sup> As each character speaks (or is spoken about), golden outlines of their inventions materialize above the book and morph into the modern inventions that were derived from these ancient technological precursors. For instance, a camera obscura becomes an old-fashioned box camera, becomes a more updated point-and-shoot style camera, becomes a video camera, becomes a smart phone.

In this manner, “Library of Secrets” visually and vibrantly introduces two themes that pervade *1001 Inventions*: the smooth continuity of technological advancement across the centuries, and the debt the West owes to Islam for facilitating technological advancement during its own dark period.<sup>68</sup> The film also claims that for those in the West, viewing Islam as their scientific ancestor requires a dramatic shift in perspective. “Library of Secrets” displays this era from the perspective of a Muslim scholar. This exhibition’s reliance on altered cultural perspective speaks to Alison Landsberg’s notion of “prosthetic memories”: memories that are “are not natural, not the product of lived experience . . . but are derived from engagement with a mediated representation” (such as a museum).<sup>69</sup> Prosthetic memories are created when an audience is inundated with memories belonging to others (generally those from whom they are far removed in space and/or time). This situation involves prosthetic *counter*-memories; this film attempts to give to the audience a new metaphorical way of looking at the world, to supplement (if not supplant) their knowledge of reality and change their perspective on the situation. Notice the film begins with the assumption that Westerners buy into the idea of the “Dark Ages”; if they did not hold this perspective in the first place, the film’s corrective metaphor would not be necessary.

At the end of the video, al-Jazari implores the students to “spread the word” about the Islamic Golden Age, to share the prosthetic counter-memories that they have been given and convince others of their truth. His appeal calls to mind religious evangelism; Muslims (like Christians, and members of other religions) are called to share their faith around the world, an act called Da’wah, so that others may know truth.<sup>70</sup> In this way, the film indirectly asks the audience to speak up about the Golden Age, to tell the truth about what they learned from this video and help others to see this truth as well. This is where the exhibition begins to afford visitors the possibility of living up to its commitments to truth and tolerance. “Library of Secrets” purports to tell a new truth about Islamic history, one that has been hidden from Western audiences in the past. This video promotes an honest, rigorous approach to learning about history, and in exchange sets up an expectation that its audience will develop an informed view of the Golden Age and remain open-minded about the accomplishments of different cultures.

As the students turn to leave, one reaches back to pick up the enchanted book, and the tome has morphed into a copy of the official exhibit companion: *1001 Inventions: Muslim Heritage in Our World*.<sup>71</sup> This move functions to tie the film directly to the exhibit and its book as vehicles for learning more information about the Golden Age, cementing the metaphorical shift initiated by “Library of Secrets.” The students return to the library entrance and are greeted by their still-ignorant teacher. After listing the other assignments (“The Romans, the Greeks, the Renaissance, and the Industrial Revolution”), the teacher queries, “Ah, our intrepid Dark Ages group, you probably had a much harder time finding any connections with the modern world?”<sup>72</sup> The three children exchange knowing glances and one responds (a bit smug), “Actually Miss, that’s not strictly true.”<sup>73</sup> The film ends on this confident affirmation that despite common misconceptions, the Middle Ages were a time of great innovation in Muslim civilization. The

children have gained new perspective on the situation; they have been “illuminated” as to the brightness of the Golden Age.

“Library of Secrets” illustrates just how important Burke’s notion of metaphor is to both memory and counter-memory; the way people are able to remember a given event depends on their perspective. Pearloff says that *1001 Inventions* “tells the story of the rich, multicultural heritage of modern science . . . science wasn't developed just by European cultures.”<sup>74</sup> By promoting a counter-memory to the supposed “Dark Ages” from the viewpoint of Muslim Civilization, “Library of Secrets” helps to crystalize the metaphorical dimension of the Golden Age trope. This introductory film is designed to shift viewers’ metaphorical understanding of this age from “Dark” to “Golden,” and it rhetorically frames the rest of the exhibit as a corrective measure, a set of counter-memories designed to amend what people in the West have supposedly been taught about this era—and by extension, about Islam. The rest of the exhibit reinforces this message, carefully presenting the Golden Age as a memorial corrective to the way Islam has typically been presented to the people of the West.

#### “Heroes of the Golden Age”:<sup>75</sup> Metonymy and Synecdoche in the Museum

As established by the video, the focus of this historical exhibition is the Golden Age of Islam. In and of itself, the phrase “Golden Age of Islam” is an extreme reduction of multiple centuries, thousands of miles, and millions of people and their actions into a single four-word phrase. *1001 Inventions* represents an attempt to flesh out this phrase, to make it real and accessible for curious visitors. Both Burke and Farrell emphasize the metonymic nature of language, but objects and individuals can also serve as vessels of meaning. This exhibit goes beyond language in its presentation of the past, with both objects invented during this era and people who embody representations of the knowledge produced during the Golden Age. This

section will first look at the general relationship that museums have with the tropes of metonymy and synecdoche, and then look specifically at the way *1001 Inventions* uses synecdoche and metonymy to communicate its message that Islam is a scientific and tolerant religion.

This exhibition attempts to create an interactive experience for its visitors that goes beyond what they can read in a book. Other rhetorical analyses have explored this idea of experiential knowledge in relation to museum exhibitions. As discussed in chapter one, Dickinson, Ott, and Aoki write about museums as “experiential landscapes”: memory spaces that assign visitors a particular subject position while occupying a broad rhetorical range, both symbolically and materially.<sup>76</sup> Scott, too, is concerned with how museum exhibitions shape the visual experience of their audience and claims that walking through a museum is a ritualistic act, a particular way of experiencing knowledge that invites reflection on and even reverence for the information they find within.<sup>77</sup> These authors explore the way that the immersive nature of the museum experience directs the view of visitors, shaping their perception of the subject matter contained in the display.

Both objects and individuals are important aspects of the overall message of *1001 Inventions*. The metonymic function of historic objects has long been recognized in museum studies; as any museum curator would attest, physical items can be powerful purveyors of historical remembrance, a compelling material connection between now and then. Museum exhibits are carefully curated to convey specific messages about their subject matter; according to Robert Bud, museums are storehouses “not just of objects but also of meanings.”<sup>78</sup> For instance, when displayed in a museum, “a fork is no longer an eating utensil, but instead a signifier of other cultural practices (e.g., power, history, wealth).”<sup>79</sup> Physical items are especially useful in the creation of counter-memory, since they possess historical weight and meaning that

words and texts alone cannot convey. Persons, too, can serve as metonymic agents of memory, as Al-Jazari does in the introductory video. Historic characters from the Golden Age of Islam are on display all around the exhibition, both live and video-recorded, sharing their perspective on what it was like to live and work during this era. Furthermore, these historic individuals represent the kind of embodied vision that Haraway calls for in her discussion of situated knowledges.<sup>80</sup> Throughout *1001 Inventions*, the items and individuals on display serve a counter-memorial function in relation to the “Dark Ages” of Europe; they provide a different angle from which to view this era and understand different histories, including the history of Islam and the history of science.

Not only is this exhibition designed to shift visitors’ perspective from the “Dark Age” to the “Golden Age,” but the objects and historical figures featured in *1001 Inventions* function metonymically to embody a message that, contrary to common conceptions in the West, Islam is a religion that promotes scientific thought and encourages tolerance of all people. This last observation points to the synecdochal nature of *1001 Inventions*; these same messages are captured again and again by various historical items and figures throughout the exhibition, suggesting that each is meant to represent the Golden Age as a whole. The kiosks, built as small buildings and dedicated to central aspects of human society (education, medicine, trade, and so on), allow visitors to see this exhibit as a counter-memorial microcosm of Muslim Civilization as it existed during the Golden Age. The people, men and women of many different ethnicities, represent a portion of this ancient society, quite literally embodying the exhibit’s stated ideals of scholarship and tolerance. The overall meaning that audiences are meant to take away from this exhibition is that the Golden Age of Islam was a time of scientific innovation and intercultural tolerance, and by extension, the idea that Islam of today’s world should be associated with the

same virtues. In the following sections, I will discuss the clock that serves as the rhetorical centerpiece of the exhibit, the various historical figures who embody the message of science and tolerance, and how the theme of diversity in particular is highlighted through the inclusion of women as well as non-Arabic, non-Muslim figures.

### *The Elephant in the Room*

One manufactured object that is especially imbued with the overall message of the exhibition is the replica of the “elephant clock” designed by al-Jazari; this gigantic “elephant in the room . . . roars, chimes and rattles every half hour.”<sup>81</sup> The clock is first introduced as a small model in “Library of Secrets.”<sup>82</sup> The *1001 Inventions* exhibit contains a much larger version of this magnificent timekeeping device: a 20-foot replica that greets Detroit museumgoers as they exit the theater and enter the main room. The choice to feature this enormous clock as the first thing people see when they walk into the exhibit proper denotes its rhetorical centrality within the overall context of the exhibit. The clock is often pictured on *1001 Inventions* promotional materials and in Detroit, it is featured prominently on a 40-foot banner outside of the building, further indicating its role as the symbolic focal point of *1001 Inventions*. The clock is composed of many parts: On the bottom is an elephant, bedecked with a golden headpiece and a tasseled blanket.<sup>83</sup> On the back of the elephant sits a tall, roofed edifice decorated with geometric designs. Three automatons, men wearing turbans, are integrated into the device: one sits astride the elephant’s neck, one sits at the base of the edifice, and one kneels on a platform protruding from the roof of the structure. Curled around a rod in the center of the columns are two serpentine red dragons; their necks protrude upwards and each culminates in a lizard-like head with yellow eyes and an open, toothy jaw. At the very peak of the device is a golden dome with a spinneret; perched on top is a golden bird with a plumed tail, the legendary phoenix. At the back of the roof



is a small golden crescent, traditionally recognized as a symbol of Islam since it appeared at religious festivals and on Muslim war flags during the Middle Ages.<sup>84</sup> The only obvious chronographic aspect of the device is a golden wheel protruding from the front of the roof, which turns to mark the passing hours. The original clock designed by al-Jazari operated by means of an internal mechanism in which a bowl would slowly fill with water and sink at the top of the hour, changing the time on the clock, before resetting and beginning the process again. The replica operates electronically and does not contain the hydraulic apparatus designed by al-Jazari.<sup>85</sup>

This timepiece is a clever piece of engineering, a material representation of Al-Jazari's technological expertise. In addition, Al-Hassani refers to it as the "civilization clock," because its component parts symbolize different cultures and civilizations that contributed knowledge to the Muslim empire:<sup>86</sup> the clock uses "Greek water raising technology, an Indian elephant, an Egyptian phoenix, Arabian figures, Persian carpet, and Chinese dragons, to celebrate the diversity of the world."<sup>87</sup> Al-Hassani reasons that al-Jazari could have chosen to use cows or camels in his design, common in his birthplace (the south of Turkey) but instead included symbols of other cultures to pay tribute to their foundational research in science, engineering, mathematics, and other fields of study.<sup>88</sup> He says that the clock "gives physical form to the concept of multiculturalism" and that it "embodies cultural and scientific convergence of civilizations and is an appropriate centerpiece for an exhibition about the roots of science and technology."<sup>89</sup> Statements like this one point to metonymy as a key mode of creating perspective by this exhibition; the elephant clock materially captures messages of multicultural cooperation and scientific creativity. If we accept that the current Western perspective on Islam is largely negative, then this clock is a synecdochal counter-memory, encapsulating a much different image

of the Golden Age and by virtue of its inclusion in this modern exhibit, contemporary Islam. It emphasizes in parallel the two main themes of the exhibition: science and tolerance. It is a physical attestation of engineering ingenuity and affords visitors the possibility of speaking about ancient Muslim Civilization as a time and place where many cultures came together to produce wonders like this clock. Overall, this clock allows visitors to see and say that Islam is not incompatible with science, nor does it inherently reject others for being religiously or ethnically different. When recounting their experience to others, visitors to *1001 Inventions* might well mention this clock as the most straightforward and centralized representation of what this exhibition is all about.

#### *An Embodied Depiction of the Golden Age*

Since the name of the exhibit is *1001 Inventions*, one might expect objects to take center stage in the story being told. The central themes of the exhibition are metonymically contained in objects other than the elephant clock: a set of surgical tools, an astrolabe, a water pump, a model of a sailing ship. All of these items represent dedication to progress, both cultural and scientific, but taken on their own these inventions do not necessarily capture the exhibit's other main idea, multicultural tolerance. For this, we can look to another central metonymical strategy employed by *1001 Inventions*: the use of historical figures. This section will discuss the use of historical figures as counter-memorial metonyms as well as the significance of embodiment in relation to traditional notions of objectivity. These ideas will be explored first with Ibn Al-Haytham, a scholar of optics whose story serves as a metonym for the main themes of the exhibit. Next, I will examine the embodiment of knowledge with several live and video-recorded actors portraying Golden Age scholars, as well as individuals who seem to have been included in the exhibit specifically because they are not male, Arabic, and/or Muslim.

Mossman, the London Project director, states of *1001 Inventions*: “We wanted to show a whole range of hidden stories. In this exhibition you can learn very much about the Arabic view of the world.” Within this exhibit, the “Arabic view of the world” is personified by figures from all across the ancient Muslim empire who share their accounts of what it meant to be a scholar who lived during the Golden Age. Like the elephant clock, these figures are metonyms for the ideals of scientific prowess and the advancement of knowledge; they also represent the Golden Age of Islam as a time of diversity, tolerance, and intercultural cooperation. Where objects alone might not fully capture the spirit of the Golden Age, inventions displayed in conjunction with their inventors bring life to the exhibition’s attestation that this was an era of advanced science and robust multiculturalism. Historical figures have long been used as metonymic figureheads: Hoerl and Browne both explore the important counter-memorial role played by leaders like Martin Luther King Jr. and Crispus Attucks in the civil-rights movement, even posthumously.<sup>90</sup> These deceased individuals took on new life when they were invoked by their predecessors as metonymic representations of ideals like equality and justice. The persona of MLK Jr. has arguably become a synecdochal encapsulation of the Civil Rights era as a whole; his rhetoric has been treated as a microcosm of the movement’s idealistic core. Within this exhibition, we can look to the figure of Ibn Al-Haytham as a representative anecdote for this idea. Like the elephant clock, Al-Haytham can be seen as a synecdoche for the message of *1001 Inventions*: his story encompasses the themes of both scientific creativity and intercultural cooperation.

### *The Tale of Ibn Al-Haytham*

Ibn al-Haytham was an eleventh-century scientist who studied the way light interacts with the human eye. In his video recording in the exhibition, Al-Haytham is depicted by a middle-aged Arab man, with a dark beard. He tells his story: When he was younger, he

attempted to build a dam across the Nile at the bequest of the Egyptian ruler. When al-Haytham failed, he was placed under house arrest. It was during that time he made a major breakthrough in the field of optics: “I was the first person to scientifically demonstrate that it is actually light from objects that enter our eyes . . . The rest is history and of course it will now revolutionize the experimental science and optics in your world.”<sup>91</sup> He says modern cameras operate using the principle he first discovered and even prompts the audience to take pictures of him using their mobile phones, inviting them to participate in the experience as they learn.

This choice to invoke modern technology as a direct descendent of Al-Haytham’s work again brings up this idea of “debt,” suggesting that modern cameras would not exist in the same way without his scholarship. The video of al-Haytham is situated next to a graphic that shows how the eye takes in light, as well as a functioning pinhole camera (or *camera obscura*); visitors can peer into the tiny hole in the small black box and see an inverted image on the other side. Although the exhibit does not claim al-Haytham invented the pinhole camera, this invention is supposed to have inspired al-Haytham’s revelations about how the human eye functions. The *camera obscura* has a starring role in a 14-minute film entitled “1001 Inventions and the World of Ibn al-Haytham,” shown at many of the *1001 Inventions* exhibition sites.<sup>92</sup> In this movie, al-Haytham’s story is dramatized and we see him attempt to dam the Nile, go to jail for his failure, and discover the secrets of optics due to a tiny light shining through his boarded-up cell window (a pre-cursor to his use of the pinhole camera).

This video extols the scientific brilliance of al-Haytham and also highlights the theme of multiculturalism in multiple ways. The story of al-Haytham is framed by a grandfather (played by Omar Sharif) teaching his granddaughter about history so that she can present a school project about optics.<sup>93</sup> The grandfather is portrayed as a source of wisdom; the film is committing to the

same truth-telling responsibility as does the rest of the *1001 Inventions* exhibition. In addition, the choice to cast a girl as the child in this film makes a statement about who deserves to learn about historical and scientific milestones like the Golden Age. With stories in the news about extremist (self-styled) Muslim groups like ISIS and the Taliban suppressing girls' education, this video serves as a counterpoint to their actions, demonstrating that not all Muslims seek to stop women from learning. All these rhetorical choices constrain Western individuals (including those in the audience) from automatically claiming cultural superiority in relation to Islamic culture in regard to the education of women.<sup>94</sup> Instead, they are afforded the ability to see Islam as a religion that encourages learning among all people.

The film emphasizes the way that knowledge collected from different cultures was key to the academic flourishing of the era. At the beginning of his story, the grandfather sums up the Golden Age, emphasizing ideas of egalitarianism and intercultural cooperation:

One thousand years before your birth, a great civilization spread across the earth . . .

Ruled by Caliph Mamun the wise, in his desire for peace, the caliph believed that through acquiring knowledge, prosperity could be achieved. Thus forth, he began his epic quest to collect the world's knowledge from East to West. Ancient books from Greece, Egypt, and Persia were collected, wisdom from China, Africa, and India into Arabic translated. From around the globe came many women and men of different faiths and cultures in harmony then, across the lands they built houses of wisdom and excellence, inspiring one thousand and one inventions and brilliance. For hundreds of years, working together, they learned and spread what would help change the world forever.<sup>95</sup>

This preamble deftly links together the major ideas found throughout the *1001 Inventions* exhibition: knowledge is connected to intercultural harmony is connected to important and

enduring scholarship. The film contains a diverse cast of animated scholars, including an Arab woman and a Chinese man who question Al-Haytham about his theories on optics and caution him to consider carefully his plan to dam the Nile.<sup>96</sup> Al-Haytham states that his ideas about optics are based on a manuscript written by Aristotle, a Greek scholar. This depiction of cross-cultural inspiration and collaboration allows the audience to see and say that Muslim scholars worked with and respected scholars of different cultural backgrounds. The figure of al-Haytham metonymically encapsulates themes of scientific brilliance as well as peace and intercultural cooperation, and his story, as told by this video, is a synecdochal representation of the exhibition's message about Islam's Golden Age.

In this film, the metaphor of light is maintained as an aurous glow is shown spreading across a map of the Middle East, extending into Northern Africa, Europe, China and Northern Asia. The voiceover states, "Along with al-Haytham's pages came the Muslim world's Golden Ages. Where he led, others followed. New ideas were built on his wisdom . . . Many discoveries we know today had their beginnings in his brain."<sup>97</sup> The notion of illumination carries through as the film promotes the idea that al-Haytham illuminated those scholars that followed in his footsteps. It is also interesting to note the metaphor of vision; we learn al-Haytham's perspective on the Golden Age and according to this film, it is only because of this scholar that we understand perspective at all! At the end of the film, Omar Sharif quotes Sir Isaac Newton, "If I have seen further, it is because I stand on the shoulders of giants."<sup>98</sup> He follows this quotation with a rhetorical question, "I wonder who those giants were?", referring to the many scholars of the Golden Age.<sup>99</sup> This metaphor implies that the work of ancient Muslim scholars has allowed scholars of today to do greater and more advanced scholarship, to "see" beyond what they would otherwise have known. This film displays al-Haytham as an important figure in the history of

optics, affords visitors material for seeing the knowledge and tolerance of the Golden Age of Islam, and at the same time, affords them the possibility of displaying their own knowledge and tolerance of Islam.

### *The Human Side of Knowledge*

Along with their role as thematic metonyms, the scholars featured within *1001 Inventions* also represent a more complex conception of knowledge as an embodied, situated practice. These figures embody knowledge on two levels. First, these are representations of the great thinkers of the Golden Age; they remind us that the knowledge produced during this era emerged from a particular time and place, thanks to the work of human scholars. Second, the use of actors, both live and video-recorded, makes a statement that the information being put forth by *1001 Inventions* is accurate and worth listening to. In other words, these figures bring to life both knowledge *from* the Golden Age and knowledge *about* the Golden Age. None of these individuals is depicted as ignorant, unintelligent, or bigoted; the face they put on the Golden Age is one of open-mindedness, creativity, and intellectualism. In turn, this creates a responsibility for museum attendees to be open-minded and inquisitive in the face of cultural diversity.

Margaret Honey, CEO of the New York Hall of Science, emphasizes the importance of embodiment within *1001 Inventions*: “Because the exhibit exposes us to science and scholarship through the personal lens of the innovators, it helps us to understand science as a human endeavor.”<sup>100</sup> This understanding is also counter-memorial, encouraging visitors to remember the history of technology in a new and different light. Defying what Haraway refers to as the “God trick” of science, which suggests that knowledge emerges from nowhere and originates with no one, these individuals embody the creative and human process through which knowledge is constructed/obtained.<sup>101</sup> For example, within the story of al-Haytham, the circumstances of his

imprisonment are key to the development of his theories; knowledge is revealed to be a contingent, situated phenomenon that does not appear in a vacuum. Traditionally, assuming a Western perspective on knowledge calls for disinterested, objective observation and assumes that this type of observation is possible. Haraway speaks about this type of disembodied objectivity, the way that privileged positions such as “white” and “male” go unmarked and unrecognized in the production of knowledge, while other bodies (female, queer, non-white) are rendered visible.<sup>102</sup> *1001 Inventions* works to render all these bodies visible, to remember them as an intrinsic aspect of the Golden Age and the knowledge that emerged from this era.

Haraway suggests a new metaphor for understanding reality: vision, or gaze. Objectivity, she asserts, arises only from “partial perspective.”<sup>103</sup> Recognizing the limited nature of the human gaze gives us situated knowledge, knowledge in context, knowledge that does not claim to be all-encompassing, capital-t Truth. Within the exhibition, the choice to use historical figures from the Golden Age further demonstrates the importance of perspective in the conveyance of counter-memory. When the actors, both live and video-recorded, take on the personae of these long-dead historical figures, they also display a new viewpoint to visitors. Watching these figures on video and interacting with them live creates experiential knowledge of the exhibition’s counter-memorial themes, a mode of seeing the Golden Age that is qualitatively different from just reading about it. Visitors are given the opportunity to see the Golden Age from the viewpoint of the scholars on display, to witness the inventions they worked on and experience a different way of seeing the past. Haraway’s use of the vision metaphor dovetails nicely with Burke’s notion of perspective; the latter asserts that that when we want to gain better understanding of a “mysterious object,” we will examine this item in different ways: “lifting, smelling, tasting, tapping, holding in different lights, subjecting to different pressures, dividing,



matching, contrasting” and so forth. It is only by considering an object or situation from a multitude of perspectives that we can approximate the truth of the matter.<sup>104</sup> Haraway’s notion of vision supplements Burke by suggesting that we must recognize who holds what perspective and trace gaze backward to its source to gain a stronger understanding of the knowledge we understand as reality. Science, once conceptualized as an objective collection of disembodied facts, becomes a more complicated field full of contingent, contextual knowledge and the people who developed this knowledge.

One of the first people to greet visitors within the Detroit exhibition is a young man dressed in a beige robe and turban, meant to portray Muhammad ibn Zacharia al-Razi, a Muslim scholar from tenth-century Persia. When I visited the exhibition, al-Razi was being portrayed by a young man of Arab descent studying at Wayne State University. At first, he seemed to speak from a script, but then he answered the audience’s questions and engaged in a dialogue with us about al-Razi as if he himself were the tenth-century chemist. The live actor explains that during al-Razi’s time, scholars practiced alchemy: an unscientific and “magical” approach to understanding how physical substances change and interact. He asserts that al-Razi brought scholarly rigor and therefore prestige to this practice with his use of the scientific method and his breakthrough work in processes such as distillation. The actor illustrated this discussion with a small still: a copper contraption that uses heat and evaporation to produce substances such as perfume and petroleum. The actor emphasized that things like plastic, paper, and modern clothing “wouldn’t be possible without this tenth-century science,” building continuity between then and now. Essentially, the actor claims, al-Razi helped transmute alchemy into what eventually became modern chemistry.

Being faced with an actual person and a three-dimensional mechanical apparatus means that visitors are able to see how at least one Muslim individual advanced the cause of modern science. There is an added dimension of experiential knowledge that the audience is meant to gain through interacting with live actors. Their “engagement with a mediated representation” of this historical figure encourages them to develop a prosthetic memory of al-Razi as he is characterized by *1001 Inventions*.<sup>105</sup> The actor’s willingness to answer the audience’s questions enacts willingness to engage with people from other cultures and affords visitors resources for countering views of Islam as ignorant and intolerant. He creates for his audience a responsibility to be similarly open-minded and willing to engage with diverse persons about their history and ideology. Of course, the actor is playing a specific role, able to answer a limited set of questions about the scholar he is representing. He acts as a terministic screen, directing the gaze of the audience toward particular aspects of al-Razi’s life, encouraging them to remember this scholar in ways that enforce the overall message of *1001 Inventions*: a message that Muslim scholars helped to build our modern understanding of scientific processes and the natural world.<sup>106</sup> Beyond his metonymic value as a representation of scientific achievement, al-Razi serves as an embodiment of knowledge creation. The “scientific method” has not always existed, nor did it spontaneously appear as the “right” way of doing science. Instead, this complex, ever-evolving epistemological process was developed over time thanks to scholars like this tenth-century chemist. The audience is invited to look backward across time and view the development of the scientific method as an historical process, a human endeavor that occurred within the context of particular places and times.

During my visit to the Detroit exhibit of *1001 Inventions*, another actor portrayed Maryam al-Ijiliya, also called al-Astrulabi. This woman was a renowned crafter of beautiful

astrolabes, or “intricate devices for land navigation and time-telling.”<sup>107</sup> The actor stood next to a table holding metal astrolabes of different sizes that visitors to the exhibit could pick up and play with, holding the weight in their hands and examining first-hand the intricacy of these ancient instruments. She spoke of her time crafting these complex mechanisms, demonstrating for the audience that astrolabes had to be designed and built. Without the labor and expertise of these dedicated artisans, the knowledge gleaned from astrolabes would not have been available. Again, the audience is presented with the embodiment of knowledge; al-Astrulabi and her astrolabes are metonyms, physical representations of the way scientific insight emerges at the intersection of time, space, people, and material things. Within *1001 Inventions*, al-Astrulabi and her astrolabes serve the same purpose as al-Razi and his still; the audience is given a chance to interact with the ancient scholar and witness their knowledge-generating apparatus, to glean experiential knowledge and prosthetic counter-memories of science as an historical, embodied process. After visiting this exhibit and interacting with the people on display, audiences are afforded the possibility of claiming that Muslim individuals made important contributions to the history of science and the advancement of human knowledge. Not only this, but al-Astrulabi is a woman; the choice to include her in the exhibition demonstrates a commitment to honor people of both genders in the celebration of the Golden Age. This design choice and its implications for the message of *1001 Inventions* will be discussed in more detail below.

Along with the live actors of *1001 Inventions*, its video-recorded figures are also designed to generate counter-memories for visitors to engage. All of the recorded figures have their own video screen set into the side of the kiosk on which they are featured. In front of each screen is a black telephone; a visitor can pick up the receiver and listen to the scholar speak about their historical work. For example, the video associated with the “Hospital” zone of the

exhibition features al-Zahrawi, a medical doctor and innovator sometimes called “the father of surgery.”<sup>108</sup> He speaks about his work and other medical advancements of the Golden Age, in part based on the teachings of Greek and Roman scholars. One theme of the hospital kiosk is the widespread availability of medical treatment during the Golden Age. In his video, al-Zahrawi states, “Medical knowledge was highly prized in the Muslim world, and it was not long before hospitals became a major feature of our towns and cities . . . And best of all, we provided free treatment for all.”<sup>109</sup> Today, with our debate over health insurance and healthcare costs in the United States as high as they are, American visitors to the exhibition might have a difficult time claiming cultural superiority to a society that provided “hospitals for all.” Multiple medical practitioners are highlighted within the “Hospital” zone, including Ibn al-Nafis, a physician who researched the cardiovascular system; Ibn al-Wafid, a pharmacologist and physician from Toledo, Spain who wrote *The Book of Simple Drugs*; Ibn Sina, a famous tenth-century polymath who wrote *The Canon of Medicine*, a book that was “still consulted by some doctors until the early 1800s”; Hunayn ibn Isaq, a Nestorian Christian “highly respected by his Muslim peers” who drew detailed diagrams of the eye; and Laila bin Abdullah Al Qurashi Al Adawiya, or al-Sheefa, a female seventh-century healer who became the Health and Safety executive in the city of Medina.<sup>110</sup> The exhibit features surgical tools used long ago that are still used in some form today, including scalpels, needles, and several instruments used in childbirth. These diverse figures and the items they developed metonymically capture the exhibit’s counter-memorial claims that early Muslim societies had a “flourishing healthcare system” and that “the modern world of health and medical treatment still has hidden links with the past.”<sup>111</sup> The knowledge about the human body that these scholars produced is on display. From their stories, we learn about how and why these scholars were able to do their revolutionary work, changing the course

of medical scholarship. Because these claims are embodied by multiple figures, the audience is unlikely to see ancient Muslim society as backwards or uncivilized, at least in relation to medicine and healthcare. Instead, they are afforded the possibility of talking about this time as a relatively advanced period of medical scholarship, a stepping stone toward the marvels of modern medicine. At the end of his video, al-Zahrawi concludes, “Despite all your modern day, high tech advances, even the doctors of your day owe a great debt to the past.”<sup>112</sup> This idea of a “debt” owed to the scholars of history is carried throughout the exhibit, telling the audience that they should express gratitude to the scholars of the Islamic Golden Age for advancing the cause of science.

#### *Diversity of the Golden Age*

The figures discussed above serve as evidence that *1001 Inventions* has delivered a person-centric history of science and knowledge production. Honey, CEO of the New York Hall of Science, says that in schools around the world, science is portrayed as a “collection of largely immutable facts,” and when students are (infrequently) taught about the scientists themselves, these scholars are almost always depicted as “larger-than-life men.”<sup>113</sup> Because the scientists most often taught are white males, she says, “It’s hard for most of us to see ourselves in such images.”<sup>114</sup> Many of the above figures are Muslim Arab men, providing a broad counter-memorial perspective for a Western audience so they can see modern knowledge did not just spring up during the European Enlightenment, a product of white Christian scholars. However, in keeping with the exhibition’s claims of multiculturalism, not all the people on display are Muslim Arab men. The promotional materials for *1001 Inventions* repeatedly emphasize that unusually robust levels of tolerance during the Golden Age of Islam allowed for unprecedented collaboration between peoples of various religions, ethnicities, nationalities, and so forth. In fact,

the official stance of *1001 Inventions* is that the exhibit is not about Muslims; it is about the knowledge that emerged during the Golden Age of the Muslim civilization, no matter the scholar who produced said knowledge.<sup>115</sup> Director of marketing Bhatti says that this exhibit “features heroes of science from many different faiths, men and women, of different ethnicities, who made a contribution to our better understanding of the world.”<sup>116</sup> Of course, many of the featured figures are Muslim men of Arabic descent, but there are several exceptions, embodying the exhibition’s claim that the Golden Age was a time of great inclusivity. This inclusivity extends to people of different faiths, ethnicities, and gender.

First, not all of the figures on display are identified as Muslim. To the left of the entrance in the Detroit exhibit is a large wall covered in names, entitled “Scholars of Different Faiths in Muslim Civilization.” The explanatory text reads, “From the 7th century onwards, scholars of different faiths and cultures in Muslim civilization built on knowledge from ancient civilizations making breakthroughs that have left their mark on the world.”<sup>117</sup> Almost 400 names are listed and coded with different colors: 322 are identified as Muslim, 27 Christian, 15 Jewish, nine Sabian, one Hindu and one person of “no faith.” This wall of scholars metonymically captures the idea that the Golden Age was a tolerant time, an era of peace among people of all kinds, including those who followed different religions. This list of numbers broadens the perspective from which the ancient Muslim empire can be viewed. This wall affords visitors the possibility of saying that *1001 Inventions* included scholars of different faiths in their depiction of the Golden Age.

Next to this display is a video of a man called Musa ibn Maymun. He identifies himself as “a Jewish sage and philosopher” from twelfth-century Cordoba.<sup>118</sup> The actor playing ibn Maymun states outright the commitment to diversity claimed by the exhibit: “Wherever I lived in

the Muslim world . . . I lived and worked in a tolerant environment where mutual respect prevailed between people of all religions.”<sup>119</sup> Messages like this one reinforce the idea that the Golden Age was a period of theological liberty, as well as the claim Islam itself is a religion open to interfaith dialogue and cooperation. Because of fighting between Israel and Palestine in the Middle East, and stereotypes that Islam is intolerant of other religions, there is a perception that Muslim and Jewish individuals do not get along and cannot work in harmony. The counter-memorial presence of a prominent Jewish scholar within the exhibition makes it more difficult for the audience to embrace this stereotype without question. Ibn Maymun, known in the West as Maimonides, was a prominent and well-respected figure in his time and has continued to influence scholars and philosophers long after his death: “Today his statue stands in his hometown of Cordoba, and his name is memorialized by a New York hospital: the Maimonides Medical Center in Brooklyn and a sculpture in the United States House of Representatives.” Ibn Maymun embodies evidence that, at least during the Golden Age, scholars of different religions were able to work together within the Muslim empire. People who watch his video see that Jewish scholars like Ibn Maymun were esteemed within the historic Muslim empire.

Not all the people on display are Arab, either. In a video within the “World” section of the exhibition, a black actor portrays Abu Othman Amr ibn Bahr, a ninth-century scholar nicknamed “al-Jahiz” because of his “bulging eyes.” Text on a nearby plaque says al-Jahiz was “of African descent, spoke excellent Arabic and wrote in a witty and vivid style.”<sup>120</sup> He describes his own story as a “rags to riches tale.” He was born to a poor family that had immigrated to Iraq from Africa. He learned all he could about “philosophy, literature, science, zoology and politics,” and eventually became an advisor to the Caliph of Baghdad. The exhibit calls special attention to *The Book of Animals*, a seven-volume work in which al-Jahiz wrote “observations about the

animal kingdom, along with poetry, proverbs, and stories.” This description expands the definition of knowledge; traditionally, Western scholarship does not involve coupling scientific information with creative writing. The video states that al-Jahiz “developed new scientific ideas, even some that predated your modern theories about evolution,” drawing an explicit connection between the zoological work of al-Jahiz and the work of scholars like Charles Darwin.<sup>121</sup> These claims clearly display that the Golden Age involved advances in biology that may have influenced later scholarship. Al-Jahiz is the only black scholar within the exhibition; other than a Chinese explorer also mentioned in the “World” section, he is the only non-Arab person on display. However, just having al-Jahiz in the room metonymically captures the idea that the Golden Age was also a period of tolerance for people of ethnicities other than Arabic. As of 2017, the population of Detroit, Michigan included almost 80% black/African-American individuals.<sup>122</sup> For this audience, especially, it is meaningful that *1001 Inventions* chose to highlight a black scholar as one of the key scholarly figures of the Golden Age. Seeing this person on display, and having him linked with major zoological advances, shows visitors that the Golden Age of Islam is relevant to their history.

Several women are also put on display as prominent figures of the Golden Age. As discussed above, an actress plays al-Astrulabi, designer of astrolabes.<sup>123</sup> Another actress plays Fatima Al Fihriya, an heiress from Fez who, according to the “School Zone” of the exhibit, founded the first modern university. This university is described as a mosque, implicating Islam as a driving force in the education of the populace during this time period. Al-Astrulabi and Al-Fihriya both stand near their displays and chat with visitors. Visitors are able to converse with these women and ask them about what it was like to be a scholarly woman living in Muslim Civilization during the Golden Age. The choice to include live individuals demonstrates a



commitment to openness and dialogue in the exhibit's presentation of counter-memory; audience members are afforded the opportunity to ask questions and test their own thoughts and prejudices about Islam. The decision to include two live actors encourages audience members to face any prejudices they might have about the way Muslim women are treated by their male peers. When visitors speak about their experience at the exhibit, they can discuss the experience of their interaction with al-Astrulabi and her delicate astrolabes, and al-Fihriya with her grand university, as evidence that the Golden Age was a progressive time during which people of both genders were encouraged to learn.

Some attention is called to the gender of these figures; for instance, one passage in the "Universe" section states that Al-Astrulabi's "story is a rare documented case of a woman working in science in early Muslim civilization" and in her video, she demurs, "Don't ask how old I am, a lady never tells, you know that."<sup>124</sup> Al-Fihriya, dressed in rich plum and gold robes with golden jewelry, states in her video, "I established what is now one of the oldest universities in the world, the University of Al-Aarawiyin in Fez, Morocco. A surprise for many of you, I'm sure!"<sup>125</sup> The word "surprise" has a possible double meaning: Westerners might be surprised that one of the oldest universities was built in Morocco, and not a Western country, but they also might be surprised that this university was founded by a woman rather than a man. Al-Fihriya also proclaims the progressive attitudes that marked the Golden Age: "Education was usually free and widespread. And both boys and girls were encouraged to learn."<sup>126</sup> With comments like this one, these figures further the exhibition's commitment to female education, and provide a counter-memorial message that disputes the stereotype that the religion of Islam encourages mistreatment and control of women. Instead, we are given a broader perspective, enabled to see how many women were able to thrive within the Muslim empire. These women, as well as the

non-Arab, non-Muslim figures on display, depict ancient Muslim civilization as a diverse and tolerant place to live and work. Yet again, the Golden Age is a tool for shifting perspective, for allowing people to look at Islam in a different light.

### Conclusion

*1001 Inventions* puts forth counter-memories of a Golden Age of Islam in order to shift the perspective of audiences around the world, to change the way both Muslim and non-Muslim individuals view Islam and its relation to modernity and the West. This analysis makes clear the relationship between memory and perspective, the way that something is remembered is entirely dependent on the viewpoint from which it is recalled. This exhibit is designed to serve as a synecdochic encapsulation of two ideas: First, this exhibit displays the Golden Age of Islam as an era of great scientific achievement and cultural innovation; and second, it exhibits the Golden Age of Islam as a time of forward-thinking tolerance and cooperation between people of different races, religions, and genders. *1001 Inventions* accomplishes this perspectival shift in two main ways. First, the exhibit employs the metaphor of light to alter the way people look at this period of history, encouraging them to remember a Golden Age of great academic achievement and widespread harmony instead of a Dark Age of violence and intellectual and cultural stagnation. The introductory video “Library of Secrets” makes this metaphorical shift especially clear, but the new perspective it puts forth carries on throughout the exhibit. Second, the exhibit uses a strategy of embodiment to shift the perspective of the audience and create counter-memories of the Golden Age.

Together, the items on display and the historical individuals (both live actors and recorded on video) metonymically encapsulate the message that the Golden Age of Islam was a time of scientific innovation and remarkable tolerance for “the other,” for women as well as

religious and ethnic minorities. In addition, these historical figures serve as the embodiment of knowledge, serving as a physical representation of the idea that knowledge is developed, not discovered. Further, this exhibition does not just leave the Golden Age in the past. It pulls these themes forward into the present, arguing that ancient Muslim civilization was the foundation for many aspects of our modern culture. From this analysis, we can see that the exhibit is designed to display a new perspective to attendees, to afford them a new way to see Islam in the modern world and question negative stereotypes that they may hold. With this newfound perspective, and brand-new counter-memories regarding the truth about the Golden Age, the audience is equipped to go out and speak differently about Islam—to “Spread the word!” as al-Jazari implores in the opening film.<sup>127</sup>

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<sup>1</sup> Al-Hassani is an Emeritus Professor of Mechanical Engineering and an Honorary Professorial Fellow at the School of Languages, Linguistics, and Culture, Faculty of Humanities at the University of Manchester. He established and is the honorary President of the Foundation for Science, Technology and Civilization, an organization dedicated to seeking out and promoting knowledge about Muslim cultural heritage. National Geographic, “Salim Al-Hassani: 1001 Inventions,” Youtube video, November 5, 2012, <https://www.youtube.com/watch?v=879kqbx9rqc>.

<sup>2</sup> David Scott, “What the Modern World owes to Muslim Civilization,” *LA Islam Examiner*, June 8, 2011.

<sup>3</sup> National Geographic, “Salim Al-Hassani.”

<sup>4</sup> Ibid.

<sup>5</sup> 1001Inventions, “1001 Inventions Exhibition London - BBC One News,” Youtube video, January 26, 2010, <https://www.youtube.com/watch?v=QdIyeDUNCdQ>.

<sup>6</sup> 1001inventions, “1001 Inventions and the Library of Secrets,” online video, March 3, 2010, <https://www.youtube.com/watch?v=JZDe9DCx7Wk>.

<sup>7</sup> Jonathan Lyons, *Islam Through Western Eyes: From the Crusades to the War on Terrorism* (New York: Columbia University Press, 2012).

<sup>8</sup> Kenneth Burke, “Four Master Tropes,” *The Kenyon Review* 3 (1941); James Farrell, “The Speech Within: Trope and Performance in Daniel Webster’s Eulogy to Adams and Jefferson,” *Rhetoric and Political Culture in Nineteenth-Century America*, ed. Thomas Benson (East Lansing: Michigan State University Press, 1997), 15-37.

<sup>9</sup> Donna Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective,” *Feminist Studies* 14, No. 3 (1988).

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<sup>10</sup> Kenneth Burke, "Four Master Tropes."

<sup>11</sup> Farrell, "The Speech Within."

<sup>12</sup> Kenneth Burke, *Language as Symbolic Action* (Berkeley, CA: University of California Press, 1966), 45.

<sup>13</sup> Burke, *Language as Symbolic Action*, 48.

<sup>14</sup> Haraway, "Situated Knowledges," 589.

<sup>15</sup> James Jasinski, *Sourcebook on Rhetoric: Key Concepts in Contemporary Rhetorical Studies* (Thousand Oaks, CA: Sage Publications, 2001), 542-557; Joseph Childers and Gary Hentzi, *The Columbia Dictionary of Modern Literary and Cultural Criticism* (New York: Columbia University Press, 1995), 309; Christian Lundberg, "Enjoying God's Death: The Passion of the Christ and the Practices of an Evangelical Public," *Quarterly Journal of Speech* 95 (2009), 389.

<sup>16</sup> Burke, "Four Master Tropes," 421.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

<sup>19</sup> Farrell, "The Speech Within," 31.

<sup>20</sup> Dave Tell, "Burke's Encounter with Ransom: Rhetoric and Epistemology in "Four Master Tropes" *Rhetoric Society Quarterly* 34 (2004), 37.

<sup>21</sup> Burke, "Four Master Tropes," 421.

<sup>22</sup> Ibid., 503.

<sup>23</sup> William Shakespeare, *As You Like It*, Act II, Scene VII.

<sup>24</sup> Tell, "Burke's Encounter with Ransom," 37.

<sup>25</sup> Ibid.

<sup>26</sup> Haraway, "Situated Knowledges."

<sup>27</sup> Bruce E. Gronbeck, "The Rhetorics of the Past: History, Argument, and Collective Memory," in *Doing Rhetorical History: Concepts and Cases*, ed. Kathleen J. Turner (Tuscaloosa, AL: The University of Alabama Press, 1998), 48.

<sup>28</sup> Farrell, "The Speech Within," 26.

<sup>29</sup> Barbie Zelizer, "Reading the Past Against the Grain: The Shape of Memory Studies," *Review and Criticism* 12 (1995), 226.

<sup>30</sup> Michel Foucault, "Film and Popular Memory: An Interview with Michel Foucault," *Cahiers du Cinema* (1974), 25; Tsafrir Goldberg, Dan Porat, and Baruch B. Schwarz, "Here Started the Rift We See Today: Student and Textbook Narratives Between Official and Counter Memory," *Narrative Inquiry* 16, No. 2 (2006), 322.

<sup>31</sup> Burke, "Four Master Tropes," 424.

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<sup>32</sup> Tell, "Burke's Encounter with Ransom," 41.

<sup>33</sup> Burke, "Four Master Tropes," 424-425; Tell, "Burke's Encounter with Ransom," 41.

<sup>34</sup> Farrell, "The Speech Within," 25.

<sup>35</sup> *Ibid.*, 22-23, 25.

<sup>36</sup> *Ibid.*, 24.

<sup>37</sup> Zelizer, "Reading the Past," 224.

<sup>38</sup> Tell, "Burke's Encounter with Ransom," 44.

<sup>39</sup> Burke, "Four Master Tropes," 507-508.

<sup>40</sup> Tell, "Burke's Encounter with Ransom," 43.

<sup>41</sup> Burke, "Four Master Tropes," 427.

<sup>42</sup> Tell, "Burke's Encounter with Ransom," 46.

<sup>43</sup> Zelizer, "Reading the Past," 224.

<sup>44</sup> Perry Santanachote, "NY Hall of Science Spotlights 1001 Inventions From the Muslim World," *WNYC*, December 3, 2010; emphasis mine.

<sup>45</sup> "1001 Inventions and The Library of Secrets."

<sup>46</sup> Amy Alipio, "1001 Inventions: Discover the Golden Age of Muslim Civilization," *Our Kids*, November 1, 2012.

<sup>47</sup> "1001 Inventions and The Library of Secrets."

<sup>48</sup> "1001 Inventions and The Library of Secrets"; Christopher Torchia, "'1001 Inventions' Spotlights Muslim Innovation," *SF Gate*, 2017, <http://www.sfgate.com/entertainment/article/1001-Inventions-spotlights-Muslim-innovation-3254775.php>

<sup>49</sup> Foucault, "Film and Popular Memory," 25.

<sup>50</sup> "1001 Inventions and The Library of Secrets."

<sup>51</sup> *Ibid.*

<sup>52</sup> *Ibid.*

<sup>53</sup> *Ibid.*

<sup>54</sup> *Ibid.*

<sup>55</sup> *Ibid.*

<sup>56</sup> *Ibid.*

<sup>57</sup> *Ibid.*

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<sup>58</sup> Ibid.

<sup>59</sup> Ibid.

<sup>60</sup> Ibid.

<sup>61</sup> One reviewer compares the three children to that intrepid literary trio, Harry, Ron, and Hermione. Indeed, the film's name, "1001 Inventions and the Library of Secrets," is strongly reminiscent of the book titles: *Harry Potter and the Chamber of Secrets*, *Prisoner of Azkaban*, *Goblet of Fire*, etc., and perhaps an homage, or an attempt to borrow the blockbuster success of Rowling's books and films. Alipio, "1001 Inventions."

<sup>62</sup> "1001 Inventions and the Library of Secrets."

<sup>63</sup> Ibid.

<sup>64</sup> Ibid.

<sup>65</sup> Ibid.

<sup>66</sup> Ibid.

<sup>67</sup> Ibid.

<sup>68</sup> Clyde Haberman, "In This Show, an Islamic World Brimming with Innovation," *The New York Times*, December 7, 2010.

<sup>69</sup> Alison Landsberg, *Prosthetic Memory: The Transformation of American Remembrance in the Age of Mass Culture* (New York: Columbia University Press, 2004), 20.

<sup>70</sup> Yahiya J. Emerick, *How to Tell Others About Islam* (CreateSpace Independent Publishing Platform, 2011), Kindle edition, 19.

<sup>71</sup> Salim T. S. Al-Hassani, ed., *1001 Inventions: The Enduring Legacy of Muslim Civilization* (Washington, D.C.: National Geographic Society, 2012). This is the most current edition of the exhibit companion; earlier editions have different titles.

<sup>72</sup> "1001 Inventions and the Library of Secrets."

<sup>73</sup> Ibid.

<sup>74</sup> 1001Inventions, "NBC News Conference with Conan Nolan - Los Angeles," Youtube video, June 2, 2011, [https://www.youtube.com/watch?v=MGOG\\_1q0ZcM](https://www.youtube.com/watch?v=MGOG_1q0ZcM).

<sup>75</sup> 1001 Inventions, "Educational Materials," accessed December 2, 2018, <http://www.1001inventions.com/education>.

<sup>76</sup> Greg Dickinson, Brian L. Ott and Eric Aoki, "Spaces of Remembering and Forgetting: The Reverent Eye/I at the Plains Indian Museum" *Communication and Critical/Cultural Studies* 3, No. 1 (2006), 29.

<sup>77</sup> David W. Scott, "Dinosaurs on Noah's Ark? Multi-Media Narratives and Natural Science Museum Discourse at the Creation Museum in Kentucky," *Journal of Media and Religion* 13 (2014), 232.

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- <sup>78</sup> Robert Bud, "Science, Meaning and Myth in the Museum," *Public Understanding of Science* 4 (1995), 9.
- <sup>79</sup> Scott, "Dinosaurs on Noah's Ark?" 228.
- <sup>80</sup> Haraway, "Situated Knowledges," 590.
- <sup>81</sup> Santanachote, "NY Hall of Science."
- <sup>82</sup> "1001 Inventions and the Library of Secrets."
- <sup>83</sup> KJ Vids, "Al-Jazari's 800-Year-Old Automatic Elephant Clock," Youtube video, June 27, 2017, <http://www.1001inventions.com/media/video/clock>.
- <sup>84</sup> Pamela Berger, *The Crescent on the Temple: The Dome of the Rock as Image of the Ancient Jewish Sanctuary* (Boston, MA: Brill, 2012), 164.
- <sup>85</sup> Edward Rothstein, "A Golden Age in Science, Full of Light and Shadow," *The New York Times*, December 10, 2010.
- <sup>86</sup> Turkish-American TV, "1001 Inventions Exhibition at the National Geographic Museum," Vimeo video, 2012, <https://vimeo.com/53886789>
- <sup>87</sup> KJ Vids, "Al-Jazari's 800 Year Old Automatic Elephant Clock."
- <sup>88</sup> National Geographic, "Salim Al-Hassani."
- <sup>89</sup> "1001 Inventions: Discover the Golden Age of Muslim Civilization," *The Street*, 2011.
- <sup>90</sup> Stephen H. Browne, "Remembering Crispus Attucks: Race, Rhetoric, and the Politics of Commemoration," *Quarterly Journal of Speech* 85, No. 2 (1999), 181; Kristen Hoerl, "Mario Van Peebles's Panther and Popular Memories of the Black Panther Party," *Critical Studies in Media Communication* 24, No. 3 (2007), 187.
- <sup>91</sup> *1001 Inventions*, Home Zone.
- <sup>92</sup> *1001 Inventions and the World of Ibn Al-Haytham*, directed by Ahmed Salim, (2015; Distribber), Amazon video.
- <sup>93</sup> *1001 Inventions and the World of Ibn Al-Haytham*.
- <sup>94</sup> Shenila Khoja-Moolji, "Girls' Education: An Ideal Target for Both Extremists and Humanitarian Interventions, Scholar Says," *The Washington Post*, February 4, 2016, [https://www.washingtonpost.com/news/grade-point/wp/2016/02/04/more-women-go-to-college-in-pakistan-than-men-after-attacks-a-scholar-asks-why-girls-education-is-a-target/?utm\\_term=.241bfdbb7e93](https://www.washingtonpost.com/news/grade-point/wp/2016/02/04/more-women-go-to-college-in-pakistan-than-men-after-attacks-a-scholar-asks-why-girls-education-is-a-target/?utm_term=.241bfdbb7e93).
- <sup>95</sup> *1001 Inventions and the World of Ibn Al-Haytham*.
- <sup>96</sup> Ibid.
- <sup>97</sup> Ibid.
- <sup>98</sup> Ibid.
- <sup>99</sup> Ibid.

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<sup>100</sup> Joy Stocke, “The New York Hall of Science Hosts 1001 Inventions, Muslim Heritage in Our World: A Conversation with Dr. Margaret Honey,” *The Wild River Review*, 2011.

<sup>101</sup> Haraway, “Situated Knowledges,” 582-583.

<sup>102</sup> *Ibid.*, 586.

<sup>103</sup> *Ibid.*, 582-583.

<sup>104</sup> Burke, “Four Master Tropes,” 504.

<sup>105</sup> Landsberg, *Prosthetic Memory*, 20.

<sup>106</sup> Burke, *Language as Symbolic Action*, 45.

<sup>107</sup> *1001 Inventions*, Universe Zone.

<sup>108</sup> *1001 Inventions*, Hospital Zone.

<sup>109</sup> *Ibid.*

<sup>110</sup> *Ibid.*

<sup>111</sup> *Ibid.*

<sup>112</sup> *Ibid.*

<sup>113</sup> Stocke, “The New York Hall of Science.”

<sup>114</sup> *Ibid.*

<sup>115</sup> 1001Inventions, “1001 Inventions Exhibition - BBC London News,” Youtube video, January 26, 2010, <https://www.youtube.com/watch?v=Bk7Qhy50FNE>.

<sup>116</sup> 1001Inventions, “NBC News Conference.”

<sup>117</sup> *1001 Inventions*.

<sup>118</sup> *1001 Inventions*. This video is actually spoken in Arabic and subtitled in English, unlike most of the others in the exhibit, which are spoken in English. Perhaps this was meant to draw attention to the diversity of audience; the video even starts with the phrase, “Why do they look so confused?”

<sup>119</sup> *1001 Inventions*.

<sup>120</sup> *1001 Inventions*, World Zone.

<sup>121</sup> *Ibid.*

<sup>122</sup> United States Census Bureau, “Quick Facts,” accessed December 2, 2018, <https://www.census.gov/quickfacts/fact/table/detroitcitymichigan,mi/PST045217>

<sup>123</sup> *1001 Inventions*, Universe Zone.

<sup>124</sup> *Ibid.*



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<sup>125</sup> *1001 Inventions*, School Zone.

<sup>126</sup> *Ibid.*

<sup>127</sup> “1001 Inventions and the Library of Secrets.”

### Chapter III: The Memorial Mergers of *1001 Inventions*

*1001 Inventions* displays a new perspective on the past, presenting the Golden Age of Islam as an era when Muslim Civilization was filled with a multitude of diverse voices, each offering their own unique point of view to further the robust scientific endeavors of the day. Thus far, this project has examined the ways the creators of *1001 Inventions* used Burke's first three master tropes — metaphor, metonymy, and synecdoche — to shift the perspective of audiences and create counter-memories of the Golden Age. The exhibit affords Western audiences, in particular, the opportunity to see the Golden Age from a different angle and recognize knowledge as embodied and situated. This perspective is valuable, but I would ultimately like to understand its rhetorical strength as a counter-memorial force against anti-Islam discourses.

Accordingly, I now look to Burke's fourth master trope, irony. Burke describes irony as the “perspective of perspectives”; this trope represents a dialectical approach to presenting truth where competing terms and perspectives are held in tension, neither wholly distinct nor wholly consubstantial.<sup>1</sup> The trope of irony is particularly useful when trying to balance seemingly incompatible perspectives, such as those found in memory/counter-memory disputes. Foucault describes counter-memory as a disruptive force that pushes back against “official” memories, which create and maintain a unified interpretation of a shared past while subjugating knowledges that promote alternate interpretations.<sup>2</sup> Foucault also emphasizes the way counter-memories reflect and produce disunity and discontinuity within the historical record, “discontinuous moments in a people's past, gaps that are passed over in silence, interstices in the socio-historical fabric of a community that have received no attention.”<sup>3</sup> Irony implies the simultaneous recognition of continuity and discontinuity; similarity and dissimilarity. To privilege only one

aspect of these dualities in counter-memorial rhetoric is to present a limited, one-sided perspective on the past. Does *1001 Inventions* remember the Golden Age in an ironic way? Does it balance a new perspective on this era against existing perspectives, simultaneously recognizing strengths and weaknesses of each? Answering these questions should provide insight into the rhetorical strength of this exhibition's counter-memorial response to anti-Islam discourses.

It is my contention that *1001 Inventions* does not deploy irony in its counter-memorial depiction of the Golden Age of Islam. The alternative perspective the exhibit displays is like the memory it is designed to counter: singular, reifying an either-or worldview that exacerbates conflict rather than a both-and worldview where recognizing the truth of multiple perspectives can manage conflict. Thus, not using irony diminishes the exhibit's counter-memorial force. In this chapter, I will dig deeper into the counter-memorial rhetoric of *1001 Inventions* and examine the way that this exhibition and its companion book display three conceptual pairs: past and present, Islam and the West, and religion and science. As we saw in chapter two, *1001 Inventions* remembers and represents the Golden Age as a time of scientific brilliance and widespread cultural tolerance. Thus, *1001 Inventions* qualifies as a counter-memorial exhibition insofar as it counters hegemonic memories: anti-Islamic discourses that ignore the Golden Age and frame Islam as historically intolerant and anti-science. However, looking internally at the way this exhibition structures its memories of the Golden Age, the above pairs are displayed as more alike than different; more interrelated than separable. This may mean that *1001 Inventions* is less persuasive as a counter-memorial force as it does not contain the internal discord that ought to characterize counter-memory.

I will first discuss the concepts of merger and division as they relate to the Burkean notions of irony and dialectic, and then justify my rhetorical texts and selection of paired terms

with reference to the work of Bruno Latour.<sup>4</sup> Next, I will analyze each of the pairs—past/present, Islam/West, and religion/science—describing whether or to what extent the exhibit merges them or displays them in dialectical tension. *1001 Inventions* challenges hegemonic memories but ultimately produces more historical and cultural unity, merging these pairs while largely disregarding any division between them. Ultimately, I argue that although the way merger eclipses division within *1001 Inventions* constitutes an emphatic refutation of anti-Islam attitudes, it also re-inscribes problematic aspects of modernity and so provides rhetorical footholds for critics to dismiss this exhibition as ideological, overly simplistic, and even deceptive. This last possibility will be further explored in chapter four, with reference to critical reviews of *1001 Inventions*. Past and present, Islam and the West, religion and science: these culturally significant pairs exist in perpetual tension, made all the more complicated by counter-memorial displays like *1001 Inventions*. This exhibition is a complex depiction of the Golden Age of Islam, a set of memories that plays differing ideas against one another to provide new ways of seeing. People who visit *1001 Inventions* and read its companion book are provided with a viewpoint that the past and present are not as far distant as one might think, that the West owes a great debt to Muslim Civilization, and that the science of the Golden Age depended on religion to thrive.

#### Merger, Division and the Moderns

Burke's first three master tropes, metaphor, metonymy, and synecdoche, all operate via the introduction of a novel perspective, allowing one more angle from which to view a situation. The importance of perspective in Burke's first three tropes carries through to his notion of irony, which he equates with dialectic. This section will first explain the trope of irony and its status as the "perspective of perspectives."<sup>5</sup> I will also explain the term "humble irony" and the way this

trope encourages consubstantiality with one's enemies.<sup>6</sup> Finally, I will discuss Bruno Latour's concept of the moderns and the way they would conceptualize three important conceptual pairs found within *1001 Inventions*: past and present, Islam and the West, and religion and science.<sup>7</sup> This section should provide a strong foundation for understanding the way that these pairs are merged throughout the exhibit with little respect to division.

### *Burkean Irony*

Two key terms in Burke's discussion of dialectic are "merger" and "division." All rhetors must choose "where to draw the line" between terms; when dealing with different concepts, rhetors "may stress either the element that two terms have in common or those respects wherein they are distinct."<sup>8</sup> That is, a rhetor may choose to highlight either similarity or difference between concepts, to frame their rhetoric in a way that shifts the perspective of the audience toward either the terms' resemblance or dissemblance of one another. To employ irony is simultaneously to emphasize both merger and division, both similarity and difference. According to Burke, irony "arises when one tries, by the interaction of terms upon one another, to produce a development which uses all the terms."<sup>9</sup> When a rhetor uses irony, they are creating a situation where the audience has a responsibility to see multiple aspects of a single pair of terms. But, if only one of these relationship types is foregrounded—only merger or only division—irony does not exist. Merging a pair of terms or a pair of viewpoints can create a semblance of harmony between them but can also elide important differences between the two.

Irony is an antidote to one-sided positioning. Irony is a bird's-eye view, the "perspective of perspectives" which allows a person to hold multiple viewpoints at once.<sup>10</sup> The use of irony demands a level of objectivity from its witnesses; it displays a situation from all sides without necessarily privileging one over another. For Burke, irony is primarily conversational; it is about

building a relationship through mutual exchange of disparate perspectives. Irony is about the multifaceted understanding that can arise through thorough inquiry and the reciprocal transfer of ideas.<sup>11</sup> Zappen refers to this type of ironic relationship between ideas as “dialectical-rhetorical transcendence.”<sup>12</sup> He explains that transcendence goes beyond mere persuasion (“You should believe me. . .”) or even Burke’s notion of identification (“because you and I are really very much alike”).<sup>13</sup> Instead, transcendence offers a way to surpass individual and group differences and hold conflicting voices in tension: “You might agree with each other if you could see that each of your views is partial and incomplete without the others—and perhaps even at odds with itself.”<sup>14</sup> Without oppositional voices, there is no ironic relationship. Burke argues that true irony, “humble irony” is premised on “a sense of fundamental kinship with the enemy, as one *needs* him, is *indebted* to him, is not merely outside him as an observer but contains him *within*, being consubstantial with him.”<sup>15</sup> The inherent humility of irony derives from the recognition that “one’s own perspective cannot claim privileged authority” in the search for truth.<sup>16</sup> To take an ironic approach is to recognize that an understanding of truth can only arise from considering many different viewpoints, particularly those that stand in direct opposition to one another. When memory and counter-memory are at odds, sometimes the only reasonable thing to do is hold these perspectives in tension, privileging neither.

Chapter two explores the way metaphor, metonymy, and synecdoche create a new perspective for visitors and contextualizes the knowledge produced during the Golden Age. The recognition that *1001 Inventions* contains embodied and situated knowledge reminds visitors that the Golden Age of Islam occurred during a particular period of time, in a particular location, and was populated by real individuals with cultural backgrounds and epistemological assumptions. Regarding these themes—time, place, culture, knowledge—three key conceptual pairs dominate

*1001 Inventions*: past and present, Islam and the West, and religion and science. Each of these pairings, and the way they relate to themselves and one another, represents an important dimension of how a person or culture views and situates themselves within the world. The exhibition deploys these paired concepts (however imperfect and imprecise they might be regarding any actual cultural groups and epistemological frameworks) to make a multifaceted point about Islam's relationship with the modern world: the idea that Islam is a progressive, enlightened religion upon which much of Western modernity is predicated. To the extent that the exhibition uses these six terms as discrete conceptual entities, some division between them is apparent; that is, *1001 Inventions* does not try to claim there is no distinguishable difference between past and present, Islam and the West, or religion and science. However, the exhibition does merge these terms in increasingly indivisible ways—from maintaining some division between past/present and Islam/West to completely folding together science/religion—as it remembers the Golden Age and its historical significance.

#### *Latour's Moderns*

These pairs represent significant markers of a culture's relationship with modernity. Latour writes about very similar conceptual pairings: past/present, East/West, and ideology/science. He addresses each of these pairs in *We Have Never Been Modern*, establishing them as key terms that must be explored for an understanding of the intersection of perspective, power, and truth.<sup>17</sup> Latour writes about “the moderns,” a theoretical contingent of society with a black and white view of the world and a Whiggish approach to historical truth.<sup>18</sup> For Latour, the term “modern” points to “a new regime, an acceleration, a rupture, a revolution in time,” a disjunction between the “true” science of the present and the “outdated” science of antiquity.<sup>19</sup> In addition, Latour is interested in the way that the moderns carefully delineate the objectivity of

science from more subjective types of knowledge, including political and religious knowledge, “sorting out the kernels of science from the chaff of ideology.”<sup>20</sup> In response to this “modern” view of the world, Latour puts forth the term “hybrid,” arguing that these pairs are better seen as overlapping forces, in constant flux and always interknit. Latour’s constant references to “the moderns” may constitute a straw-person; perhaps no one really holds the hardline perspective as described by Latour. However, this straw-person exists in order to illustrate an important idea: seemingly antithetical categories such as past and present and religion and science cannot be tidily dissected as dichotomous, independent entities; instead, they must be understood as related and dependent on one another even as they stand opposed.

Along with dividing past from present, and religion from science, Latour’s version of modernity also entails a division between the peoples of the world, which he refers to as “Occidental” (West) versus “Oriental” (East).<sup>21</sup> Because this pairing is so culturally and ideologically fraught, I would like to spend some time contextualizing Latour’s account of the division between the two. As discussed in chapter one, Islam and the West cannot be reasonably seen as stable and discrete entities in their own right. Still, these are categories rhetorically employed by *1001 Inventions*, and it is important to engage them for a full understanding of how this exhibition draws connections between them. “Islam” and “the West” are terms that have been taken up in everyday discourse as different and even oppositional forces. These terms represent cultural groups with a long history of hostility and mutual misconception. Lyons claims that anti-Islam ideas in the West often go uninterrogated, shaping our imagination without confronting the reality of Islam: “The West’s ‘conversation’ with Islam has always been a one-sided affair, essentially a dialogue with itself.”<sup>22</sup> This is what Burke warns us of: A one-sided perspective, unable to see beyond itself or engage the other in discourse. Within this Orientalist



discourse, Islam is seen as the “opposite mirror image of the Judeo-Christian West”: violent where the West is peaceful and merciful, motivated by religion where the West is secular and rational, unable and unwilling to produce innovative scientific thought and technology where the West is relentlessly scientific.<sup>23</sup> Burke says that humble irony is connected to “a sense of fundamental kinship with the enemy.”<sup>24</sup> Whether or not Islam and the West are best defined as “enemies” is a subjective question. Latour refers to the historical animosity between West (white Europeans, and perhaps Americans) and East (everyone else) as the “Great Divide between Us and Them.”<sup>25</sup> Certainly, there has been strife and subjugation between the Western and Islamic countries for centuries. As discussed in chapters one and two, Western stereotypes about Muslims are pervasive and largely negative. Islamophobia runs rampant in America as Muslims have become one of the main scapegoats of our political landscape, just as fear of and disdain for the West has played a significant role in the discourse of Muslim nations. And yet, there is much mutual exchange and interplay between these colossal and heterogeneous entities. *1001 Inventions* itself arose at the juncture of these overlapping cultural groups, developed in the United Kingdom and exhibited all around Europe and the United States, but developed and largely funded by Islamic individuals and organizations.<sup>26</sup>

In this chapter, to better understand the way in which *1001 Inventions* displays the above pairs, I will further interrogate the messages of the exhibition, communicated through texts, objects, and historical figures, and also look at the official book companion of the exhibit, *1001 Inventions: The Enduring Legacy of Muslim Civilization (ELMC)*.<sup>27</sup> This encyclopedic tome further describes and contextualizes many of the inventions and innovations highlighted within the exhibition. Whereas the physical exhibition alone provided a sufficient rhetorical text for understanding the perspectival shift encouraged by *1001 Inventions* as a whole, this book seems

specifically designed to showcase the similarity and continuity of the pairs in question, drawing a broader and more nuanced portrait of the Golden Age and its many brilliant scholars. The book foregrounds these crucial terms, providing a complex discursive and narrative account of the connections between them in a way that the exhibition alone only begins to display. Examining book and exhibit in tandem will provide a better understanding of the way the *1001 Inventions* brand has constructed its message of scientific excellence and intercultural tolerance, particularly with respect to the key terms of this analysis.

Although *1001 Inventions* has entered into a dialectical relationship with anti-Islamic discourse, the counter-memories it puts forth are largely one-sided in perspective. A major part of the exhibition's strategy for dismantling racist, Islamophobic conceptions is to merge the conceptual pairs at the heart of this analysis: past/present, Islam/West, and religion/science. *1001 Inventions* connects these pairs in varied ways; these connections are variously based on similarity (where the two terms are shown to resemble one another), contiguity (where the two terms are related via physical proximity), and/or cause-and-effect (where one term is shown to implicate or directly lead to the other). The past/present and Islam/West pairs are shown to relate in complex and various ways, with some room for division between the concepts in question. The religion/science pair, on the other hand, is depicted only with a cause-and-effect relationship, in which religion (Islam, specifically) is represented as the impetus, inspiration, and benefactor of scientific enterprise during the Golden Age. None of these pairs are presented in an ironic fashion, and the disproportionate emphasis that this exhibition places on merging these concepts largely eclipses the view of division, particularly within the religion/science pairing, and ultimately reifies some problematic notions of modernity while creating an opening for critics to attack its counter-memorial stance.

## Past and Present

*1001 Inventions* tells the story of the Golden Age of Islam, an era which, according to the exhibition's website, began during the seventh century and lasted for one thousand years.<sup>28</sup> Scholars from this time period, as well as their ideas and inventions, are put on display so that museum visitors will get a sense of Muslim civilization's contribution to the history of science. Rather than leaving this era in the past, though, as happens with so many depictions of the Golden Age of Islam, this exhibition works to put the past and present into a dialogue with one another and build continuity between the two.<sup>29</sup> The motto of *1001 Inventions* is "A journey to the past... To build and design a better future!"<sup>30</sup> This phrase evokes a sense of chronological continuity, connecting then with now and projecting forward with expectations of an improved tomorrow. Although the word "future" is a part of the exhibition's motto, that concept is rarely invoked within the display; its real emphasis is the relationship between the past and how we live in the contemporary world.

Bruno Latour writes extensively about the relationship between past and present; according to his description, the moderns believe the science of yesterday is irrelevant to the knowledge and practices of today:

The moderns . . . do not feel that they are removed from the Middle Ages by a certain number of centuries, but that they are separated by Copernican revolutions, epistemological breaks, epistemic ruptures so radical that nothing of that past survives in them—nothing of that past ought to survive in them.<sup>31</sup>

Latour's version of modernity calls for the tidy dissection of past, present, and future, so that each one stands as a private temporal nation. This framework creates two categories: "Moderns" and "Ancients," also known as "winners" and "losers" in the fight for progress.<sup>32</sup> This

description represents a point of view on the passage of time that Western audiences might bring with them as they attend *1001 Inventions*. This exhibit displays past and present as continuous with one another, emphasizing the way the events of a long-ago era echo forward into the present. These concepts are not collapsed into one another by the exhibition, and neither occludes the other. However, this exhibit does merge past and present in multiple ways, with little respect to division between them, and so precludes an ironic perspective on the way in which they are related. This exhibition connects past and present in two main ways. First, it asserts that life during the Golden Age was surprisingly similar to the way we live today, pointing to the many ways that the present resembles the past. Second it depicts a causal relationship between past and present, emphasizing the continuity of knowledge production and pointing out aspects of contemporary life that we would not have without the creativity and innovation of Golden Age intellectuals.

### *Two Similar Societies*

One of the simplest strategies that *1001 Inventions* uses to merge past and present is to remember the many ways that life during the Golden Age resembles our contemporary way of living. One display holds vials of chemical substances used during the Golden Age and still used today: perfume, hair dye, soap, alcohol. The book also recounts the numerous cosmetics and hygiene products described by the famous Muslim physician Al-Zahrawi in his book, *The Medicines of Beauty*: “teeth whitening . . . nasal sprays, mouthwashes, and hand creams . . . as well as hair dyes that turned blond hair to black and lotions for straightening kinky or curly hair.”<sup>33</sup> Modern readers who encounter this passage will see beauty products they use every day and connections between the everyday life of modern-day individuals and the long-ago citizens of the Golden Age. Similarly, the “Home” zone contains a small video game that allows visitors

to navigate through a contemporary household and pick out items that also existed in homes of the Golden Age: soap, toothbrushes, pens, high heels, coffee. This game generates experiential knowledge of the past-present connection by making visitors a part of the discovery process as they search for recognizable items that have been a part of everyday life across the centuries.

In another move to display similarity between the Golden Age and the present, the exhibition remembers Muslim civilization as extremely advanced for its time, similar in many ways to our own way of life. The “Town” section brags about the relative cleanliness and convenience of Golden Age living: “Compared to most European cities of their day, the towns across Muslim civilization were advanced, with paved roads, litter collection, and even covered sewers.”<sup>34</sup> One kiosk describes the oil streetlamps of Cordoba and the rooftop gardens of Cairo, painting a picture of stylish and bustling city centers not unlike those of today: “Towns planned during Muslim rule centered around the mosque, with its crucial role in religious and civil life. Nearby would be the market . . . Business districts would also incorporate public baths, bookshops, libraries and health centers.”<sup>35</sup> Other than the public baths, this could be a description of a contemporary metropolis. The centrality of the mosque points to a predominantly Muslim city-state, but contemporary Western cities also include places of worship, markets, business districts, places to buy and borrow books, and medical establishments. These buildings are in some ways associated with modernity, but they have existed across the centuries in slightly different forms. Hospitals, especially, are emphasized in both the exhibit and the book as state-of-the-art institutions; *ELMC* says that the hospitals of the Golden Age were “hospitals in the modern sense of the word,” utilizing the “best available medical knowledge” of the day.<sup>36</sup> The exhibition describes a civilization ahead of its time, similar in many ways to the way people live today. With this rhetorical emphasis on similarities, the exhibit merges past and present.

*An Unbroken Chain of Knowledge*

A second mode of connection between past and present can be found in the way that *1001 Inventions* depicts cause-and-effect relationships between the scientists of antiquity and the science of today. Not only does *1001 Inventions* show certain items and types of knowledge as passing unbroken and unchanged across time and space, it also emphasizes the steady growth of knowledge and smooth evolution of technology across the ages.<sup>37</sup> As one review of *1001 Inventions* states, “The message of the exhibition is that each lesson they learned has been built upon over time. That makes them important today, many years later.”<sup>38</sup> Statements like this one point to the exhibit’s deliberate attempt to portray the Golden Age of Islam as a direct prelude to modern life. Another review says that this exhibition sets out to show “a golden age in which advances in engineering, medicine and architecture laid groundwork for Western progress from the Renaissance until modern times.”<sup>39</sup> The key word here is “progress,” the idea that knowledge is created, and knowledge evolves, continually improved upon by each successive scholar. Within this exhibit, scholars of the Golden Age are links in the chain of progress, each a node in the network of inter-generational scholarship. The items and ideas they produced are prototypes for later innovation. In this way, the audience of *1001 Inventions* displays the Golden Age as a causal precursor to today.

As discussed in chapter one, neither the museum exhibit nor the companion book actually contains 1001 inventions that were created during the Golden Age. The name of the exhibition points to the ripple effect of innovation: one invention or idea from 1000 years ago may have generated or inspired hundreds of inventions across the ages.<sup>40</sup> Perhaps the clearest depiction of the idea of technological evolution and scientific continuity occurs in the “Library of Secrets” video played at the beginning of the exhibit, when ghostly images of long-ago inventions are

shown morphing into more recent gadgets. For example, one progression moves from pinhole camera to modern camera to cinema to cellphone. Another shows an astrolabe turning into other navigational and timekeeping devices: a watch, a compass, satellite navigation. In many ways, *1001 Inventions* is a showcase of technological advances that may never have occurred without the Golden Age of Islam. This narrative is not unusual for a science exhibit; Steven Conn argues that “Nowhere has the connection between science and progress been illustrated more emphatically than in displays of technology.” He goes on to argue that this kind of progress is almost inevitably displayed in a positive light; that museums will often avoid “darker narratives” and elide any negative effects that technologies have had within society.<sup>41</sup> This exhibition avoids discussing any adverse outcomes from the technological innovation of the Golden Age; it paints a picture of only good ideas being taken up and expanded upon in later years. This is an example of the way this exhibit selectively merges the concepts of past and present, leaving out any negative or problematic memories about the way knowledge progressed. This decision leaves room for critics to bring up things that were left out as a way of refuting the anti-Islamophobic stance of *1001 Inventions*.

In its depiction of the way ancient science has morphed into modern science, *1001 Inventions* is designed to challenge the perspective of Latour’s moderns, tracing the philosophies and scientific reasoning of today backwards into the past and rejecting the idea that modernity has completely broken from its history.<sup>42</sup> Both *ELMC* and the exhibit feature “chemistry revolutionaries,” scholars without whom modern chemistry would not exist in the same way. According to the book, “all scholars agree” that Jabir ibn Hayyan is the “founder of chemistry.”<sup>43</sup> His writings became the “main chemistry textbook throughout medieval Europe” until the “beginning of modern chemistry” in the eighteenth century.<sup>44</sup> The chemist al-Razi is depicted as

having helped to shift the study of alchemy to the study of chemistry, using the scientific method to “bring chemistry out of the dark ages.”<sup>45</sup> These two men are put forth as intermediaries between ancient and modern science, connecting the two as continuous steps along the path of progress. The book also promotes two Muslim scholars as indispensable figures in the history of optical science. The first is al-Kindi, a ninth-century polymath that “first laid down the foundations of modern optics” with his re-consideration of Greek optical scholarship and his theories about how the eye processes light rays.<sup>46</sup> The book cites both Roger Bacon and the German physicist Witelo as scholars who consulted al-Kindi’s treatises on geometrical and physiological optics. Al-Haytham is said to have built on al-Kindi’s work as well, eventually discovering the way vision can occur due to the refraction of light rays. His scholarship, the book says, “scientifically explained much of what we know today about optics.”<sup>47</sup> This phrasing suggests that al-Haytham laid the groundwork for contemporary optical scholarship; both he and al-Kindi are depicted as conduits of knowledge about how vision works. In addition, al-Haytham is also described as one of the first scholars to collect experimental evidence to verify his theories, something that was “unusual for his time” since physics was mostly ideation, like philosophy.<sup>48</sup> The exhibit claims that his use of “scientific evidence to explain natural phenomena set the scene for the development of experimental science and rational approach,” and says that his work influenced famous later scientists and mathematicians including Leonardo da Vinci, Johannes Kepler, Roger Bacon, and (“possibly, indirectly”) Isaac Newton.<sup>49</sup> *1001 Inventions* places these and other Western scholars in conversation with scholars of the Golden Age, highlighting the ways that the former built on the knowledge production of the latter.

With evidence of similarity and causal connections, *1001 Inventions* merges past and present so that the audience will understand them as largely inter-dependent, with only minor



differences between the two. For example, each scholar is annotated with the century in which he or she lived and worked. In accentuating dates, the designers of *1001 Inventions* show that the historical nature of this era matters. In many cases, the exhibit asserts, Golden Age innovation should be considered brilliant and important precisely because it occurred so long ago. For example, an article about the development of plumbing states, “In a time before dependence on machinery, when we were not surrounded by cars, bicycles, or electric pumps, these discoveries really changed society.”<sup>50</sup> In addition, the term “progress” represents a complicated aspect of *1001 Inventions*. On the one hand, we are presented with a depiction of past and present that implies little has changed since the Golden Age; on the other hand, the exhibition acknowledges that knowledge has progressed since that era and could never have done so without the work of Golden Age scholars. Thus, the past is in some ways rendered both remote and immanent in relationship to the present.

The phrase “better future” from the exhibition’s motto calls to mind transcendence, the idea that an understanding of the relationship between past and present will lead us forward into a time of improved intercultural tolerance and a corresponding escalation of scientific cooperation and progress.<sup>51</sup> At the same time, most of the emphasis of this historical exhibit is a “journey to the past,” a counter-memory of the way people lived and worked during the Golden Age. Within *1001 Inventions*, the merger of past and present is definitely emphasized. It does not completely occlude division between the two, but neither can it be characterized as an ironic perspective on the interplay between past and present, since the relationship is largely characterized in one dimension: the way the past influenced and is continuous with the present. No breaks or interruptions in the historical record are noted; the timeline of *1001 Inventions* is a smooth progression of knowledge from one century to the next, with ideas being passed along

through the years so that the present looks, in many ways, similar to the Golden Age. This image of unbroken continuity runs counter to the way Foucault characterizes counter-memory: as an account of the past that “breaks the continuity of glory,” instead of just transferring the glory to another era, and another civilization.<sup>52</sup> The way the exhibit and book privilege similarity over difference, and paint a straightforward picture of chronological continuity, provides space for critics to dismiss the merger of past and present as a misrepresentation of their relationship.

### Islam and the West

Closely associated with *1001 Inventions*' non-ironic merger of past and present are the ways in which it connects Islam with the West. Latour says that in the West, we “Occidentals” carefully divide “us” from “them,” cordoning ourselves off from the influence of “Oriental” cultures (like the nations of Islam), for fear that the challenge they pose to the objectivism of science and the efficiency of technology might drag us backward into some “primitive, barbaric dark age.”<sup>53</sup> This is the modern attitude that visitors may hold when visiting *1001 Inventions*, and which this exhibition works to combat. As discussed in chapter two, this exhibition is largely designed to function as a corrective to Western Islamophobia. The introduction to *ELMC* quotes a speech by Prince Charles in which he describes the relationship between the West and Islam: “We have tended to see Islam as the enemy of the West, as an alien culture, society and system of belief, we have tended to ignore or erase its great relevance to our own history.”<sup>54</sup> It is reasonable to assume that Al-Hassani cited this passage to provide evidence for the fundamental claim of *1001 Inventions*: the idea that the philosophic, cultural, and scientific legacy of Islam has not been acknowledged or adequately respected by the people of the West. Clearly, by using these terms in the first place, the exhibit is willing to acknowledge some level of division between these two cultural groups. However, *1001 Inventions* elides most talk of enemies in

favor of discussing the ways in which these two entities complement and overlap with one another.

In order to better understand the relationship between anti-Islam discourse and the question of modernity, we can examine the way this exhibition constructs “Islam” and “the West” as a merged pair. This exhibition builds connections between Islam and the West in several ways. First, this exhibit emphasizes similarities between nominally Western and predominantly Muslim nations, displaying to all visitors, both Muslim and non-Muslim, a resemblance between their own culture and that of the other. Next, the exhibit insists that these two cultures are historically interrelated and dependent on one another by remembering architectural styles, scientific breakthroughs, and cultural phenomena from the Muslim empire that have shaped Western society across the years. It emphasizes the contiguity of these two cultures as ideas and goods were shared through travel and trade. Finally, it builds a cause-and-effect relationship between Islam and the West by invoking the notion of “debt,” tacitly arguing that the West is indebted to Muslim civilization for the enlightened and lasting scholarship of the Golden Age. This exhibit is, in essence, an antithetical response to the divisive anti-Islam discourses of the West; it depicts a merged relationship between Islam and the West such that any clear division between the two is rendered unstable. At the same time, *1001 Inventions* upends the traditional hierarchy of the West as superior to Islam, remembering Islam as the intellectual ancestor of many Western scholars.

#### *Islamic Inspiration in the West*

In much the same way that this exhibit depicts the similarity of past and present, *1001 Inventions* merges Islam and the West by giving many examples of the way Muslim Civilization resembles Western civilization. The “Home” zone, discussed above, discusses items that were

used in the past and are still used today (toothbrushes, pens, high heels, and so on), but these can of course also be recognized as material points of connection between Islamic and Western nations. In addition, the “Town” zone of the exhibit depicts the many architectural similarities that can be seen between Islamic and Western cultures. This zone features Sinan, an architect and civil engineer from sixteenth-century Turkey. In his video, Sinan states that he and other men and women built great buildings across the Muslim empire. He says their work was so impressive that “many European Crusaders returned to their homes and copied the techniques we developed,” and specifically mentions Sir Christopher Wren, designer of St. Paul’s Cathedral.<sup>55</sup> A slideshow of buildings from around the globe demonstrates the way Muslim civilization “continues to inspire and influence world architecture,” both religious and secular: museums, hotels, mosques.<sup>56</sup> Many buildings still standing in the West resemble the architecture of the Golden Age thanks to the inspiration of Golden Age architects. Getting into specifics, *ELMC* traces the influence of Islamic design on Romanesque, Gothic, and modern architecture; features like arches, vaults, spires and domes were all used and improved upon by Golden Age engineers.<sup>57</sup> These structures serve as evidence for visitors that East and West have unexpected connections in the very framework of our cities and homes. These architectural components can no longer be plausibly seen as purely Western or purely Islamic in heritage. These are hybrids, developed amidst the influence of two separate but interrelated cultures. The choice to show these points of connection merges the two cultures in question and displays Western design as a complex manifestation of multiple cultural forces.

Language, too, is provided as evidence of inter-group similarity due to extensive cultural cross-pollination between Islamic and Western cultures. In the “School” section there is a game called “A World of Words” in which one can see the etymological connections between Arabic,

Persian, and Urdu words on the one side and English words on the other. For example, when a visitor pushes the button next to the word “*zarafa*” a dotted line to the word “giraffe” lights up. Same with “*qutn*” / “cotton”; “*sakk*” / “cheque”; and “*quand*” / “candy.” This simple mechanism establishes a vivid connection between Western and Arab cultures: it allows visitors to see and hear the resemblance between languages. Not only that, but the fact that East and West have these concepts in common further demonstrates similarity between the cultures; as words traveled across the globe, so too did goods, information, ideas, people. *ELMC* has an entire article dedicated to words of this nature, an alphabetical list of terms like “orange,” from the Persian *naranj*, an item that would have been brought to northern cities from the warmer climate of the Muslim empire, and “sofa,” from the Arabic *suffah*, originally meaning a ruler’s throne.<sup>58</sup> *ELMC* also compares the Solfège musical scale (do, re, mi, fa, so, la, ti) to the Arabic sounds for these notes (dal, ra, mim fa, sad, lam, sin), noting, “the phonetic similarity between today’s scale and the Arabic alphabet used in the ninth century is striking.”<sup>59</sup> Here, language is shown to be a point of commonality between cultures; although we speak different languages, many of the root words are the same. These simple instances of similarity shown throughout the exhibition begin to display that there are many points of connection between Western and Islamic cultures.

### *How Ideas Travel*

The ideas of the Golden Age are shown to be important, but just as important is the way those ideas were transmitted from the Muslim empire outwards. The knowledge produced within Muslim Civilization during the Golden Age is contiguous in many ways with the knowledge of Western societies thanks to the circulation of ideas and goods across borders and the interaction of people of many different cultural backgrounds during this time period. Director of Marketing for the exhibition, Junaid Bhatti, states in an interview that *1001 Inventions* “demonstrates how

knowledge travels, how ideas travel . . . how the torch of science is taken up by different civilizations throughout history.”<sup>60</sup> He traces the transfer of knowledge from Greece to Egypt, China and India, to the Muslim World where it was absorbed, developed, and passed on to Europe to usher in the Renaissance. Then the question becomes, how did all this intellectual exchange occur? Commonalities between these cultures developed after “centuries of interchange between scholars and traders.”<sup>61</sup>

Language, as discussed above, is a key factor in the circulation of both goods and information, in more ways than one. The Translation Movement, mentioned in chapter one, is referenced as an important period during which ancient (often Greek) texts were transliterated into languages like Arabic, Persian, and Syriac so that all the scholars within the Islamic empire could access the knowledge of old. In eleventh-century Baghdad, the Caliph Abu al-Abbas al-Mamun established an institute for higher learning, the House of Wisdom, in which manuscripts from all over the world were translated and absorbed into the body of Muslim scholarship.<sup>62</sup> The exhibit says that for any new book a scholar brought to the collection, the Caliph would repay the scholar that book’s weight in gold.<sup>63</sup> Later, *ELMC* claims, a “massive translation exercise” occurred in which Arabic works were translated into Latin so that the knowledge produced during the Golden Age could be accessible to European scholars as well.<sup>64</sup> These seminal works belong to no one culture in particular; their frequent translation and broad circulation makes them products of the world, icons of intercultural exchange. The way *1001 Inventions* emphasizes the Translation Movement merges Islam and the West by demonstrating the contiguity of knowledge that arose from many scholars working side by side to linguistically convert knowledge across cultures.

In addition to the way language helped merge Islam and the West, the cultural contiguity of Islam and the West largely arose from commercial exchange. Decorated with sprawling trade maps of Europe, Asia, and Northern Africa, the “Market” zone of the exhibit is designed to communicate “how influential ideas spread through travel and trade.”<sup>65</sup> Everything from food to fashion to décor to practices in agriculture and manufacturing were swapped and sold across Europe and Asia.<sup>66</sup> The exhibit mentions that “fashionable Europeans dressed in Indian chintzes and silks” and the book goes into much more detail about the styles inspired by Golden Age trendsetters such as Ziryab, a sophisticated musician and etiquette teacher that lived in ninth-century Córdoba, Spain.<sup>67</sup> From Baghdad, Ziryab brought new tableware, games, furniture, hairstyles, and sartorial fashions to the elite of Europe.<sup>68</sup> As an icon of the Golden Age, Ziryab straddles two cultures, inspiring both with his avant-garde fashion statements. Other common commodities first emerged from Muslim civilization: cork-soled shoes, elaborate carpets, various subtropical fruits.<sup>69</sup> A computer game in the exhibition allows visitors to explore the Silk Road and trade goods across Asia. The player, cast as Muslim merchant Ibn Battuta, begins in Spain and travels to Egypt, Iraq, and China. Along the way, there are opportunities to trade for fruit, spices, grain, salt, rice, flour, and silk. Players are quizzed about facts learned during the course of the game and awarded with digital bags of gold for correct answers. All this exchange demonstrates that cultures are not static and mutually exclusive; the exhibit complicates that perspective by displaying the traffic between these worlds. So many items bought and sold among a broad variety of people; commerce is a driving force of cross-cultural fraternization. As evidence of all this economic and social exchange, the exhibit notes that excavations in Europe have unearthed “thousands of silver Muslim coins.”<sup>70</sup> The exhibit displays a picture of two

cultures slowly merging, sharing goods and ideas and increasing their cultural contiguity along the way.

As a specific example of the way that being in contact lead to the exchange of knowledge across cultures, we can look to the “Hospital” zone, which features a video of Mary Wortley Montagu, the wife of an eighteenth-century British ambassador to Istanbul. She tells the story of how she learned about immunization from spending time among the Muslim women of Turkey:

The women deliberately brought smallpox into their houses, that deadly disease that killed my brother and left my smooth skin so scarred. They would actually give each of their children a dose of smallpox! But what they were doing was life-saving, not life-threatening. The mild dose protected them from the scourge of the full-blown disease!<sup>71</sup>

Most English doctors ignored Montagu’s account. However, the personal physician of the Montagu family, along with the ambassador to Tripoli, convinced the Royal Society of the legitimacy of the vaccination process, which was subsequently adopted across England and France.<sup>72</sup> Here, we can see a concept drawn from Muslim civilization and developed in the West; the history of vaccines becomes more complicated as the exhibit displays this life-saving medicine as an amalgam of Western and Islamic influences. The exhibition makes it clear that this innovation and other types of cross-cultural interaction would not have occurred without the extensive work of Golden Age scholars, the expansive travel of Golden Age merchants and the adventurous spirit of Golden Age explorers. Within *1001 Inventions*, visitors are faced with a far more complicated picture of Islam and the West, a viewpoint on the way that these two seemingly disparate groups have shared items and ideas across the centuries. All this cultural transfer calls into question the very notion of culture; culture is defined by objects, attitudes, language, and tradition, but boundaries are clearly permeable and largely artificial. This is where



the Islam/West merger is clearly shown: there exists a cultural continuum between the two, sustained by ideological and material transactions.

### *A Debt Owed*

As we have seen, *1001 Inventions* aims to shift the depiction of the West-Islam relationship from one of enemies to one of mutual dependence and exchange. One key message of the exhibition is that many valuable innovations would not exist without the scholarship of Muslim academics during the Golden Age. It recounts dozens of Golden Age academics that developed new theories, inventions, and scholarly methods, many of which influenced European scholarship and are still affecting people in the West today. A logical extension of this reasoning, also embraced by the exhibition, is that the West owes a debt to the Islamic world for all of the cultural contributions and advancements of Golden Age scholars. Multiple museum critics bring up the theme of debt in their review: one titled their article “London exhibition shows West's 'debt' to Muslim scholars,”<sup>73</sup> and another states, “No need to ask what Arab scholars did for us. They transformed the world.”<sup>74</sup> All of the inventions and ideas previously mentioned in this chapter that influenced the modern-day West provide evidence that the West owes a debt to the scholars of the Golden Age. This is one guise of a cause-and-effect relationship; because the Islamic world came up with so many brilliant ideas during the Golden Age, ideas that were taken up and used throughout the Western world, people in the West today are ethically obligated to acknowledge and appreciate this scholarship.

The “Hospital” zone of the exhibition contains many examples of knowledge that was developed during the Golden Age and later taken up and developed by scholars in the Western world. One example can be found in the figure of al-Zahrawi, a tenth-century surgeon who pioneered many different medical procedures and techniques still used today: “Scalpels and

knives, saws and scrapers, drills and forceps . . . some tools of surgery have changed surprisingly little over the last thousand years.”<sup>75</sup> At the end of his video, al-Zahrawi states outright, “So you see, despite all your modern day, high tech advances, even the doctors of your day owe a great debt to the past.”<sup>76</sup> This debt is a point of connection; it draws on the continuity of past and present to connect Western culture of today to Muslim civilization from centuries ago. This kind of intercultural medical synergy is reiterated throughout the exhibit and book. *1001 Inventions* claims that many textbooks and encyclopedias authored by Muslim physicians and pharmacists were influential in the development of the medical field; seminal medical works in the West such as *Gray’s Anatomy* follow “the tradition begun by Muslims” in the way they list and detail various medical terms.<sup>77</sup> Furthermore, *ELMC* claims that the hospitals of the Muslim world were “all admired by Europeans, who later developed similar systems.”<sup>78</sup> Because these Golden Age hospitals used the best available knowledge and were available for free to all members of the populace, the book claims, “it could even be said that they were a forerunner to the United Kingdom’s National Health Service.”<sup>79</sup> Claims like this one directly connect the medical practices of the modern West to the practices of the Golden Age, and display that contemporary medicine in the United States and Europe, thought of as the most advanced in the world, would not exist in the same way without the Islamic medical practices of a thousand years ago.

Other European scholars are said to have drawn inspiration from scholars of the Muslim empire; *ELMC* contains an entire list of “Europe’s leading minds” and the ways that their groundbreaking achievements may have been inspired by the academics of the Golden Age. Some of the connections are direct: Roger Bacon, for example, trained with the Spanish Moors and spoke Arabic; this is also an example of knowledge gleaned through contiguity. He cites Ibn al-Haytham extensively in his work on optics, and often refers to the *Canon* by Ibn Sina in his

medical writings. Leonardo Da Vinci found the arabesque paintings of the Muslim artists and mathematicians fascinating and used them as inspiration for his own artistic work. Other intercultural connections are more tenuous; the book explains how figures such as Robert Boyle and Nicholas Copernicus had access to the works of prominent Muslim scholars and may have drawn on them in their own scholarship. These are well-known names, individuals who undeniably changed the course of history with their scholarship. Western audiences are used to thinking of these European men as great figures in their own right, ingenious intellectuals that stand out as singular thinkers. This exhibition is displaying that they may have been influenced and instructed by Islamic scholars who many in the West have never before heard of.

The exhibit merges these two seemingly disparate cultural groups by showing the ideas and objects that bind them together across the ages. Burke's discussion of irony says that when enemies are locked in dialectic, there is often a realization "as one *needs* him, is *indebted* to him."<sup>80</sup> However, this exhibition points the debt in one direction: it depicts the West as owing the Islamic world for scientific innovations, and not vice versa. This design choice suggests that although these two cultures are merged, the relationship may not be equal. These cultures are demonstrated to be similar in many ways, but the notion of debt elevates Islam as the more important half of the pair. *1001 Inventions* thus exchanges one one-sided viewpoint (the idea that the West is the exclusive progenitor of science and tolerance) for another one-sided viewpoint (the idea that Islam should be regarded as the actual source for these concepts). This non-ironic way of connecting the Islam/West pair allows critics to attack the counter-memorial merger of these terms as over-simplified and misleading, re-opening the door for Islamophobic backlash to what is supposed to be a rebuttal of anti-Islam stereotypes in the West.

## Religion and Science

The final gap that *1001 Inventions* works to bridge is perhaps the most contentious of all in the modern era: the religion/science divide. From the evolution debate, to issues like cloning, climate change, and stem cell research, religion and science are often treated by people in the West as opposing cultural forces, locked in a bloody struggle for the hearts and minds of the populace. The moderns discard religion as unconnected to the efforts of scientific progress. As Latour explains, it is not that the moderns reject religion altogether; rather, they view any potential deity as irrelevant to an understanding of the scientific world.<sup>81</sup> Secularization has traditionally been viewed in the West as a crucial step in any developing society; the more religious a nation is, this line of thought goes, the less likely it is to achieve scientific progress and acceptable human rights.<sup>82</sup> Lyons recounts what he describes as one of the “core tenets” of anti-Islam discourse in the West: “Islam’s hostility to rational thought and exclusive reliance on a religious orthodoxy that is inimical to scientific endeavor.”<sup>83</sup> This exhibition pushes back against this stereotype with the opposite position, remembering Islam as historically indispensable to the scientific process.

Much like with the past/present and Islam/West pairings, *1001 Inventions* merges religion and science. However, while the first two pairs are presented with multiple points of connection, and allowed some points of conceptual division, this pair is presented in only one way. This exhibit and *ELMC* construct a cause-effect relationship between religion and science by asserting that the tenets of Islam both guided and inspired the scientific practices of the Golden Age rather than inhibiting them in any way. Nowhere within *1001 Inventions* is there any suggestion that religion and science may have tension between them, and Islam is always presented as the antecedent of science: inspiring, enabling, and guiding scientists in their work during this era.

*Islam as the Patron of Science*

One of the major claims made by *1001 Inventions* is that during the Golden Age, the practice of religion and the study of the natural world occurred together, with Islam providing the space and funding for scientific inquiry. *ELMC* argues that during this era, “religion and science sat side by side comfortably” and “there was little distinction between religion and knowledge, as the mosque was both the place of prayer and the place of learning.”<sup>84</sup> According to *ELMC*, this tradition began with the Prophet Muhammad, who declared that the mosque would be the “main place of learning” and spent his time teaching students and supervising schools.<sup>85</sup> The book goes on to state that schools were well funded during the Golden Age of Islam largely thanks to the charitable donations (*waqf*) of pious Muslims.<sup>86</sup> Patrons are described as generous: “Because education was held in such high esteem, money was given generously and learning flourished.”<sup>87</sup> No expenses were spared in the construction of these schools; each had a courtyard, many classrooms, living quarters, and a prayer hall. Tuition was free, and schooling was available for both boys and girls: an observation that unites Islam with both science and tolerance.<sup>88</sup> The words of the Prophet Muhammad, “Seek knowledge, even unto China,” are quoted in *ELMC* as evidence that Islam encourages its followers to learn all that they can about the world.<sup>89</sup> This quote, as well as a section on the importance that the Prophet placed on schools, show that the religion of Islam not only values education, but serves as the driving force behind it.<sup>90</sup> Again, *1001 Inventions* is not content to leave the past in the past; the Qu’ran and the words of the Prophet are brought forward into the present as reasons why Islam must not be seen as inherently opposed to scientific progress and education. Readers are also told that the word for “university” in Arabic is *Jami’ah*, the feminine version of the word *Jami*, which means mosque. This is given

as etymological evidence that “the place of religion and the place of advanced learning are conjoined,” a linguistic curiosity that the book says is unique to Islamic culture.

Education was also valued and funded by the Islamic government during the Golden Age. Certain Caliphs, the religious leaders of the Muslim empire, placed a great deal of emphasis on scholarship. The House of Wisdom, described as “one of the greatest intellectual academies in history,” was established by Harun al-Rashid but grew to a large academy under Al-Ma'mun.<sup>91</sup> This institution had a dedicated wing for each branch of science, and was filled with mathematicians, artists, writers, translators, and scientists of different faiths.<sup>92</sup> The book describes this academy as a “cosmopolitan melting pot,”<sup>93</sup> with people of different nationalities and different religions, all speaking different languages. Another way in which Islam could have been at odds with science is if it stifled the work of non-Muslim scholars. However, *ELMC* asserts that Muslims, Jews, and Christians lived and worked together in twelfth-century Spain in what it calls *convivencia*. According to the book, “all shared the same, breathtaking desire for knowledge” and worked together in places like the House of Wisdom.<sup>94</sup> Again, the religion of Islam is linked not just with science, but with tolerance as well. The House of Wisdom was only one of the places of learning found in Muslim Civilization during the Golden Age; *ELMC* claims that Muslims “loved book collecting and establishing libraries.”<sup>95</sup> It describes a society in which most mosques had an attached library, with hundreds of books, where writers and scholars could share their ideas with and learn from one another.

This causal relationship between religion and science can also be seen in relation to health and medicine. The “Hospital” zone of the exhibit mentions that health care was available for free to all people during the Golden Age, and the book notes that Muslim individuals are “honor-bound” to care for the sick, no matter who they may be.<sup>96</sup> Like schools, Golden Age

hospitals were funded through *waqf*, charitable religious endowments, as well as state funds.<sup>97</sup> The book argues that in part, it was because of this generous funding that these hospitals “became strongholds of scientific medicine and an integral part of city life.”<sup>98</sup> These arguments directly tie religion to the advanced medical research of the Golden Age; they display that without the ethical teachings and resultant generosity of Islam, many scientific breakthroughs would not have happened. By tracing the historical relationship between Islam and scholarship, particularly the places where this scholarship occurred and how it was funded, *1001 Inventions* tells a story in which religion engulfs science; without Islam, this exhibit suggests, scientific inquiry would not have been socially encouraged or economically feasible in the same way.

#### *Islam as Scientific Inspiration*

These terms are further merged as religion is demonstrated to be a major motivating factor for scientific innovation and the study of the natural world. This exhibition argues that during the Golden Age, Islam prompted scholars to pursue knowledge and strengthen their understanding of the world around them. To people in the contemporary West, it might seem odd that religion motivates science within Muslim Civilization, since Westerners are used to thinking of them as separate realms. However, within this exhibition, religion and science are not considered to be at odds. *ELMC* asserts that Muslim scholars of the Golden Age had a deep curiosity about the natural world because “Allah’s creation motivated them” in their studies.<sup>99</sup> The Qur’an, the Hadiths, and other holy texts of Islam are often cited within Islam apologetics in support of the idea that Islam and science are not incompatible with one another; to the contrary, this exhibit furthers the idea that these forces complement and feed one another and can hardly be separated at all. This prompts readers to acknowledge the debt they have to not just the

scholars of the Golden Age, but to their religion, which made it possible for these Muslim scholars to do great work.

One section of *ELMC* is devoted to the study of nature by forward-thinking Golden Age scientists who were inspired by their faith to better understand the surrounding world. The book suggests that because Golden Age scholars had the courage to question the conventional wisdom of the day, they made advances in scientific thinking that changed the course of scholarship. Ibn Hazm declared that despite pervasive beliefs to the contrary, the stars and planets have no mind or soul; Al-Kindi wrote a treatise on why the sky appears blue even though it is not; Ibn al-Haytham solved tricky optics issues, explaining phenomena like rainbows and why the sun and moon seem to grow when they reach the horizon.<sup>100</sup> An entire page in *ELMC* lists excerpts from the Qur'an having to do with astronomical phenomena. It opens with a ponderous statement on the relationship between scientific inquiry and religious ideals: "The Quran often refers to various natural phenomena in a very inspiring manner, and challenges mankind to ponder these phenomena using reason."<sup>101</sup> Another passage continues, "The coherent systems behind astronomical phenomena are explored in verses in the Quran."<sup>102</sup> The reader is presented with verses such as "21:33: [God is] the One Who created the night, the day, the sun and the moon. Each one is traveling in an orbit with its own motion," which is described as an "intellectual challenge to people to build the required knowledge to explore a universe abundant with God's wonders."<sup>103</sup> Rather than discouraging scientific reason in favor of blind faith, *1001 Inventions* argues, Islam encourages its followers to learn all they can about the natural world and bring that knowledge to bear on their everyday lives. The *1001 Inventions* exhibition and its companion book explore the religion/science pair and ultimately conclude that science needs religion as a source of ideas and inspiration.



Not only does Islam inspire scientific study in ethical and metaphysical ways; according to this exhibition, the practice of this religion has also required innovation for some very practical reasons. The book links the study of geography, navigation, and map-making to a couple of practices central to Islam. First, all able-bodied Muslims are called upon to make a holy pilgrimage to Mecca at least once in their lifetime.<sup>104</sup> During the Golden Age, the Muslim empire stretched from Spain to China and inhabitants might need to travel thousands of miles, on foot or astride animals, to reach Mecca. But the Earth offers many obstacles to people who would travel great distances, and this extreme distance required excellent maps and sophisticated navigational techniques, many of which developed during the Golden Age by religiously motivated scholars. Second, mosques around the world are supposed to be oriented toward Mecca and all Muslims need to know the direction of Mecca's central mosque, the Ka'bah, so they can face that way during daily prayers, which occur five times a day and vary based on the position of the sun and the location of the person praying.<sup>105</sup> A complex mechanical device known as the astrolabe was widely used and improved upon during the Golden Age so that Muslims could easily calculate when they should pray each day. The book quotes astrophysicist Harold Williams, who called the astrolabe "the most important astronomical calculating device before the invention of digital computers and the most important astronomical observational device before the invention of the telescope."<sup>106</sup> The book argues that it was directly because of the above commandments and the "divine inspiration" of Islam that scholars took "giant steps" in mathematics, geography, and navigation.<sup>107</sup>

Astronomy is another scientific area in which the precepts of Islam have necessitated rigorous scholarship. The Muslim calendar is based on the lunar cycle; the "Universe" zone of the exhibit says that in an effort to calculate religious holidays such as Ramadan, Muslim

astronomers made revolutionary breakthroughs in mathematical astronomy and spherical geometry.<sup>108</sup> One panel contains a lengthy description of the moon-based *hijiri* calendar, and its history in relation to the Prophet Muhammad.<sup>109</sup> *ELMC* contains the prayer of fourteenth-century astronomer Ibn al-Shatir, who asked Allah for guidance in his work developing a universal model of the planetary movements.<sup>110</sup> Relatedly, the field of geometry had “special significance” for Muslim artists and architects during the Golden Age; *ELMC* argues that certain numerals and ratios were especially important to Muslim mystics, as these numbers were considered “key to finding harmony . . . and closeness to God.”<sup>111</sup> In this way, Islam inspired Golden Age scholars to seek a deeper understanding of mathematics, to build on the work of the Greeks and produce novel methods of producing art. Because Islam traditionally forbids the depiction of living figures (humans or animals) in its artwork, artists of the Golden Age produced intricate arabesque patterns based on complex formulas. A “Did you know?” section on the “School” kiosk says that “complete mathematical systems” are hidden in many Islamic paintings and are only now being discovered by contemporary scholars.<sup>112</sup> *1001 Inventions* uses all these instances of an advanced society, motivated by Islam, to demonstrate that religion both enabled science and promoted social progress.

An additional dimension of scientific advance inspired by Islam is sanitation. The book argues that although Medieval times are thought to have been “smelly, dark, rough, and unclean,” Muslim civilization avoided those problems for religious reasons: “Cleanliness is vital in Islam, with ablutions known as *wudhu* carried out before prayers.”<sup>113</sup> This element of purity, central to the practice of Islam, serves as evidence for readers that this religion inspired healthy practices among its followers, even before most of the civilized world knew of their health benefits. The book contains a long discussion of public baths, or *hammams*, and their role in

Muslim society.<sup>114</sup> A major city in Muslim civilization during the Golden Age could have thousands of *hammams*, where people would gather and socialize and clean themselves each day. Islamic advances in hygiene even extended to cosmetics: Henna was used by the Prophet Muhammad and his companions as a dye and cosmetic, and thanks to the spread of Islam it became commonly used around the world. Scientists of today have found henna to be “antibacterial, antifungal, and anti-hemorrhagic.”<sup>115</sup> Anecdotes like this one rhetorically link science and religion, making the former dependent in some ways on the latter in a stark departure from contemporary Western ways of thinking.

Of the three pairings, this final pair, religion and science, is merged in the most straightforward manner, with a simple cause-and-effect relationship. While past/present and Islam/West are allowed some conceptual differences, science is shown in this exhibition to derive from and depend on religion for inspiration and financial support. In some minor ways, too, science is shown to benefit religion, providing information about when to pray and where to travel for *hajj*. However, nowhere within *1001 Inventions* is science depicted as a wholly secular practice, done for non-religious reasons. Nowhere in this exhibition or the companion book does science conflict with religion; the former is always shown to support and inspire the latter. Essentially, this exhibition seems to say, religion can exist without science, but science cannot exist without religion. An ironic pairing of these two terms, with a recognition that science and religion are sometimes compatible, and sometimes at odds, might read as a more reasonable stance. As it is, the way that *1001 Inventions* merges the science/religion pair as fully compatible, with religion as the dominant term, leaves room for critics to censure this exhibition as ideological and political, rather than objective, and therefore not worth attending.

## Conclusion

*1001 Inventions* addresses three crucial pairs of terms related to notions of modernity: past and present, Islam and the West, religion and science. This exhibition, along with its companion book, pushes back against anti-Islam discourses by merging these terms, showing few differences between them with depictions of similarity, contiguity, and cause-and-effect as its main strategies. Lyons says that anti-Islam discourse is bound up with modernity and the European Enlightenment; this exhibition, argues that “modern” values like respect for science and tolerance for diversity were around long before Europe decided they were important.<sup>116</sup> Although this exhibition provides a novel perspective on the Golden Age, it does not provide an ironic perspective, falling short of Burke’s suggestion that only an ironic perspective will provide an objective view of a given situation. And maybe it is not the responsibility of this exhibition to display an ironic perspective on the Golden Age. After all, they are consciously entering into a dialogue with anti-Muslim discourses that carve up past and present, Islam and the West, and religion and science in the style of the Moderns, as described by Latour.<sup>117</sup> It is a reasonable choice to combat these discourses with an antithetical stance, depicting only points of connection between these concepts. However, the exhibition does not cultivate a conversation with a broader set of perspectives; ultimately, *1001 Inventions* wants the Golden Age to be remembered in a specific way, as a time of scientific enlightenment and tolerance for a diversity of people. This position opens up the exhibition to criticisms of one-sidedness even as it is working to meld several dichotomies central to human culture. The way that *1001 Inventions* privileges merger over division in regard to the past/present, Islam/West, and religion/science pairings may, in some ways, cause more problems than it fixes. What is not explored in this exhibition is any potential friction within the dichotomies it explores. The idea of friction will be further discussed

in the next chapter, with a look at criticism of *1001 Inventions* and the way this exhibit mixes ideology, identity, science, and religion. Chapter four will discuss of how critics of this exhibition were able to find rhetorical purchase to dismiss many of its claims, and therefore the exhibition's underlying purpose to dismantle the stereotypes that plague Islam in the modern world.

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<sup>1</sup> Kenneth Burke, "Four Master Tropes," *The Kenyon Review* 3 (1941), 421.

<sup>2</sup> José Medina, "Toward a Foucaultian Epistemology of Resistance: Counter-Memory, Epistemic Friction, and *Guerrilla Pluralism*," *Foucault Studies* 12 (2011), 14.

<sup>3</sup> Michel Foucault, *Society Must Be Defended: Lectures at the Collège de France 1975-1976*, ed. Mauro Bertani and Alessandro Fontana (New York: Picador, 1997), 66-70; Medina, "Toward a Foucaultian Epistemology," 14-15.

<sup>4</sup> Bruno Latour, *We Have Never Been Modern* (Cambridge, MA: Harvard University Press, 1993).

<sup>5</sup> Burke, "Four Master Tropes," 421.

<sup>6</sup> Burke, "Four Master Tropes," 514.

<sup>7</sup> Latour, *We Have Never Been Modern*.

<sup>8</sup> Kenneth Burke, *Grammar of Motives* (Berkeley: University of California Press, 1969), 414-415.

<sup>9</sup> Burke, "Four Master Tropes," 432.

<sup>10</sup> *Ibid.*, 421.

<sup>11</sup> *Ibid.*, 432.

<sup>12</sup> James P. Zappen, "Digital Rhetoric: Toward an Integrated Theory," *Technical Communication Quarterly* 14 (2009), 281.

<sup>13</sup> Zappen, "Digital Rhetoric," 281.

<sup>14</sup> *Ibid.*, 281.

<sup>15</sup> Burke, "Four Master Tropes," 514.

<sup>16</sup> Dave Tell, "Burke's Encounter with Ransom: Rhetoric and Epistemology in "Four Master Tropes" *Rhetoric Society Quarterly* 34 (2004), 48.

<sup>17</sup> Latour, *We Have Never Been Modern*.

<sup>18</sup> *Ibid.*, 10-12, 93.

<sup>19</sup> *Ibid.*, 10.

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<sup>20</sup> Ibid., 35.

<sup>21</sup> Ibid., 97.

<sup>22</sup> Jonathan Lyons, *Islam Through Western Eyes: From the Crusades to the War on Terrorism*. (New York: Columbia University Press, 2012), 4.

<sup>23</sup> Lyons, *Islam Through Western Eyes*, 111.

<sup>24</sup> Burke, "Four Master Tropes," 514.

<sup>25</sup> Latour, *We Have Never Been Modern*, 97.

<sup>26</sup> "Our People and Partners," last modified 2018, <http://www.1001inventions.com/credits>.

<sup>27</sup> Salam T. S. Al-Hassani, *1001 Inventions: The Enduring Legacy of Muslim Civilization* (Washington, DC: National Geographic Society, 2012).

<sup>28</sup> "1001 Inventions," <http://1001inventions.com/1001inventions>.

<sup>29</sup> Lyons, *Islam Through Western Eyes*, 108.

<sup>30</sup> "Productions," last modified 2015, <http://1001inventions.com/Productions>.

<sup>31</sup> Latour, *We Have Never Been Modern*, 68.

<sup>32</sup> Ibid., 10.

<sup>33</sup> Al-Hassani, *1001 Inventions*, 50.

<sup>34</sup> *1001 Inventions*, Town Zone.

<sup>35</sup> Ibid.

<sup>36</sup> Al-Hassani, *1001 Inventions*, 153.

<sup>37</sup> "NBC News Conference with Conan Nolan."

<sup>38</sup> Moira E. McLaughlin, "'1001 Inventions' at the National Geographic Museum Explores the Golden Age of Muslim Civilization," *Washington Post*, November 23, 2012.

<sup>39</sup> Christopher Torchia, "'1001 Inventions' Spotlights Muslim Innovation," *SFGate*, August 27, 2010.

<sup>40</sup> "NBC News Conference with Conan Nolan."

<sup>41</sup> Steven Conn, "Science Museums and the Culture Wars," in *A Companion to Museum Studies*, ed. Sharon Macdonald (Malden, MA: Blackwell Publishing, 2006), 502.

<sup>42</sup> Latour, *We Have Never Been Modern*, 68.

<sup>43</sup> Al-Hassani, *1001 Inventions*, 90.

<sup>44</sup> Ibid., 90, 92.

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<sup>45</sup> *1001 Inventions*, Market Zone.

<sup>46</sup> Al-Hassani, *1001 Inventions*, 54.

<sup>47</sup> *Ibid.*

<sup>48</sup> Al-Hassani, *1001 Inventions*, 55, 80.

<sup>49</sup> *1001 Inventions*, Home Zone.

<sup>50</sup> Al-Hassani, *1001 Inventions*, 123.

<sup>51</sup> “Productions,” last modified 2015, <http://1001inventions.com/Productions>.

<sup>52</sup> Foucault, *Society Must Be Defended*, 70.

<sup>53</sup> Latour, *We Have Never Been Modern*, 199.

<sup>54</sup> Al-Hassani, *1001 Inventions*, 10.

<sup>55</sup> *1001 Inventions*, Town Zone.

<sup>56</sup> *Ibid.*

<sup>57</sup> Al-Hassani, *1001 Inventions*, 194-207.

<sup>58</sup> *Ibid.*, 106-107, 111.

<sup>59</sup> *Ibid.*, 48.

<sup>60</sup> 1001Inventions, “NBC News Conference with Conan Nolan - Los Angeles,” Youtube video, June 2, 2011, [https://www.youtube.com/watch?v=MGOG\\_1q0ZcM](https://www.youtube.com/watch?v=MGOG_1q0ZcM).

<sup>61</sup> *1001 Inventions*, School Zone.

<sup>62</sup> Matthew E. Falagas, Effie A. Zarkadoulia, and George Samonis, “Arab science in the golden age (750–1258 C.E.) and today,” *The FASEB Journal*, 1582; Dennis Overbye, “How Islam Won, and Lost, the Lead in Science,” *The New York Times*, October 30, 2001.

<sup>63</sup> *1001 Inventions*, School Zone.

<sup>64</sup> Al-Hassani, *1001 Inventions*, 71.

<sup>65</sup> *1001 Inventions*, Market Zone.

<sup>66</sup> *Ibid.*

<sup>67</sup> Al-Hassani, *1001 Inventions*, 58.

<sup>68</sup> *Ibid.*

<sup>69</sup> *1001 Inventions*, Market Zone.

<sup>70</sup> *Ibid.*

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- <sup>71</sup> *1001 Inventions*, Hospital Zone.
- <sup>72</sup> Al-Hassani, *1001 Inventions*, 177.
- <sup>73</sup> “London Exhibition Shows West's 'Debt' to Muslim Scholars,” *Daily News Egypt*, January 24, 2010.
- <sup>74</sup> Robin McKie, “Science: Arabian Sights Thrill and Delight,” *The Observer*, January 24, 2010.
- <sup>75</sup> *1001 Inventions*, Hospital Zone.
- <sup>76</sup> *Ibid.*
- <sup>77</sup> Al-Hassani, *1001 Inventions*, 185.
- <sup>78</sup> *Ibid.*, 156.
- <sup>79</sup> *Ibid.*, 153.
- <sup>80</sup> Burke, “Four Master Tropes,” 514.
- <sup>81</sup> Latour, *We Have Never Been Modern*, 38.
- <sup>82</sup> Lyons, *Islam Through Western Eyes*, 22-23.
- <sup>83</sup> Lyons, *Islam Through Western Eyes*, 108.
- <sup>84</sup> Al-Hassani, *1001 Inventions*, 64.
- <sup>85</sup> *Ibid.*
- <sup>86</sup> *Ibid.*, 66.
- <sup>87</sup> *Ibid.*
- <sup>88</sup> *Ibid.*, 65.
- <sup>89</sup> *Ibid.*, 251.
- <sup>90</sup> *Ibid.*, 64-66.
- <sup>91</sup> *Ibid.*, 72.
- <sup>92</sup> *Ibid.*, 72-75.
- <sup>93</sup> *Ibid.*, 72.
- <sup>94</sup> *Ibid.*, 82.
- <sup>95</sup> *Ibid.*, 76.
- <sup>96</sup> *1001 Inventions*, Hospital Zone.
- <sup>97</sup> Al-Hassani, *1001 Inventions*, 154.



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<sup>98</sup> Ibid.

<sup>99</sup> Ibid., 232.

<sup>100</sup> Ibid., 232-233.

<sup>101</sup> Ibid., 288.

<sup>102</sup> Ibid.

<sup>103</sup> Ibid.

<sup>104</sup> Ibid., 246.

<sup>105</sup> Ibid., 234, 291.

<sup>106</sup> Ibid., 280.

<sup>107</sup> Ibid., 234-235.

<sup>108</sup> *1001 Inventions*, Universe Zone; Al-Hassani, *1001 Inventions*, 266.

<sup>109</sup> *1001 Inventions*, Universe Zone.

<sup>110</sup> Al-Hassani, *1001 Inventions*, 268.

<sup>111</sup> Ibid., 99.

<sup>112</sup> *1001 Inventions*, School Zone.

<sup>113</sup> Al-Hassani, *1001 Inventions*, 50.

<sup>114</sup> Ibid., 213.

<sup>115</sup> Ibid., 51.

<sup>116</sup> Lyons, *Islam Through Western Eyes*, 104.

<sup>117</sup> Latour, *We Have Never Been Modern*, 10-12, 93.

#### Chapter IV: “1001 Inventions or 1001 Lies?”<sup>1</sup>

As we have seen in the previous two chapters, *1001 Inventions* presents audiences with a new perspective on the Golden Age of Islam: a view of this long-neglected historical era as a time of great scientific inquiry and exceptional intercultural tolerance. *1001 Inventions* re-memorializes the relationship between Islam and the West, merging them based on similarity, contiguity, and causation. It positions this pair, along with past/present and religion/science, as counter-memorial correctives to the hegemonic notion that rationality and tolerance for diversity only truly began with the European Enlightenment. Although somewhat one-sided in the way it merges various aspects of modernity, as argued in chapter three, the perspective it displays has mostly been accepted. *1001 Inventions* is not a broadly controversial piece of rhetoric; this exhibition has traveled all over the world and received a great deal of international acclaim. Positive reviews of the exhibit have called it “a wonderful little exhibition, filled with surprises”<sup>2</sup>; “a fascinating look at the flowering of science and scholarship,”<sup>3</sup>; and a “powerful tool” for combating religious extremism and prejudice, on the part of both Muslims and Westerners.<sup>4</sup>

However, despite an overwhelmingly celebratory global response, reactions to this exhibit have not been exclusively positive. Some critics dispute the claims made within *1001 Inventions* and provide their own account of what the exhibit refers to as the Golden Age of Islam. Negative reviews of the exhibit are in line with a small but vocal strain of scholarship dedicated to “debunking” the Golden Age more broadly: news articles, journal articles, blog posts and books make the case that the time period in question was not as “golden” as is often claimed.<sup>5</sup> Many of these reviews re-affirm the anti-Islam discourse as traced by Jonathan Lyons and discussed in chapter one: they depict Islam as anti-rational, anti-science, anti-peace, anti-

other.<sup>6</sup> In general, these critics articulate two main themes. First, they argue that Muslims were not all that scientifically prolific during this time period, and that any innovations that did occur only came about as a result of subjugating other cultures and appropriating their knowledge. Second, related to the theme of subjugation, they argue that Muslims were not as peaceful and tolerant of other cultures during this time period as is often claimed in “mainstream” Golden Age discourse. They emphasize the violence, conquest, and religious oppression that occurred during the formation of the Muslim caliphate. These general claims about the Golden Age of Islam are central to pushback against *1001 Inventions* specifically. In short, critics charge *1001 Inventions* with doing precisely what this exhibition is designed to show Islam does not do: discourage discovery of facts and discourage tolerance.

This chapter asks, what rhetorical vulnerabilities in the perspective offered by *1001 Inventions* are addressed and exploited by critics? I contend that critiques of *1001 Inventions* reveal the rhetorical footholds created by the exhibit’s largely one-sided perspective on the Golden Age of Islam and its over-emphasis on mergers of past and present, Islam and the West, and science and religion. Although they might describe themselves as objective, the critiques of this exhibition represent an absolutist and therefore one-sided position as described by Burke and Haraway in their work on perspective and reality; but those critiques gain traction because *1001 Inventions* itself also presents, in many ways, a one-sided perspective.<sup>7</sup> I will support this argument by first recounting my method of seeking and analyzing critical reviews of *1001 Inventions* and contextualizing each review. Next, I will explain how effective counter-memories can avoid both so-called objectivity (a single, “true” perspective) and relativism by assuming an ironic perspective on the past. I will then bring this theory to bear when analyzing the various accusations of misrepresentation and oversimplification that have been levied against *1001*

*Inventions*, with the goal of explaining how the reviewers' arguments demonstrate shortcomings in the way this exhibition presents a counter-memorial perspective on the Golden Age of Islam. Finally, I will discuss the *why* at the heart of their criticism: the reviewers' assertions that *1001 Inventions* is ideological propaganda rather than a factual and objective account of the way things are. This position is made possible, in part, by the exhibit's emphasis on merger over division and therefore its failure to display a perspective on perspectives. Had the exhibition been designed with humble irony as its base, dedicated to providing a perspective of perspectives on the Golden Age, it would have inoculated itself against Islamophobic pushback, blunted the criticism aimed in its direction, and presented a much more robust counter-memorial account of an historical era worth remembering.

#### Counter-Memory and Relativism

Accusations of relativism may arise when dealing with the question of perspective; when all perspectives are considered to be equally true, this line of argument goes, there is no way of determining singular truth. This section discusses the way Kenneth Burke's final master trope, irony, can combat both total relativism and absolute objectivity.<sup>8</sup> I will then examine Donna Haraway's notion of situated knowledges, which supplements this position with further thoughts on the way contextualized vision can ground perspective.<sup>9</sup> Finally, I begin the work of connecting this literature to Foucault's concept of counter-memory and his work on a genealogical approach to history.<sup>10</sup>

#### *The Perspective of Perspectives*

That position assumes relativism is best countered by discovering and displaying a singular truth. Latour's somewhat hyperbolic moderns represent this position as they pit Truth (realism) against Falsehood (relativism) and hold that only science can provide us with

“objective and eternal” knowledge, while society can only ever produce subjective, ideological rhetoric.<sup>11</sup> Within this ideology transcendent ideas supposedly subsume all other types of knowledge, providing absolute truth with their perfect, unique perspective on reality.<sup>12</sup> Burke turns the tables on this viewpoint, arguing that what is often thought of as objectivity is better conceived of as relativism: “the greater the absolutism of the statements, the greater the subjectivity and relativity in the position of the agent making the statements.”<sup>13</sup> Relativism, Burke says, actually occurs “if you isolate any one agent in a drama, or any one advocate in a dialogue, and see the whole in terms of his position alone. And in relativism there is no irony.”<sup>14</sup> This statement recasts what is generally thought of as “objectivity” in an entirely new light.

Irony—the perspective of perspectives—is Burke’s proposal for addressing both objectivity (absolutism) and relativism (perspectival chaos). Clearly, holding multiple perspectives at once is a way of avoiding a dogmatic position. But irony is also a means of combatting absolute relativism. In his discussion of the four master tropes, Burke equates irony with dialectic and proffers a multitude of definitions for the latter:<sup>15</sup> Burke variously describes dialectic as “the progressive or successive development and reconciliation of opposites”; as “the discovery of truth by the give and take of converse and redefinition”; and as “voices in a dialogue” where each voice contributes to a holistic development.<sup>16</sup> Burke argues that people often “confuse” dialectic with the relativistic:<sup>17</sup> “It is customary to think that objective reality is dissolved by such relativity of terms as we get through the shifting of perspectives . . . But on the contrary, it is by the approach through a variety of perspectives that we establish a character's reality.”<sup>18</sup> Irony/dialectic is not relativism, nor is it an attack on objective reality. Rather, it is a mode of experiencing the world as a multifaceted, contradictory set of discourses, memories, people, and things. Burke associates irony with humility, the recognition that one’s own

perspective is neither sufficient by itself, nor superior to the discordant perspective of the “enemy.”<sup>19</sup> Instead, it is through perceptual exchange with the supposed enemy that truth can be determined. Donna Haraway also emphasizes the way conceptual exchange shapes truth; she says that the “real world” is not discovered, but instead, wholly dependent on a “power-charged social relation of conversation.”<sup>20</sup> Again, conversation is presented as an important mode of establishing truth.

### *Haraway's Perspective*

Haraway does not directly invoke the term “irony,” but her work on perspective and truth complements Burke’s.<sup>21</sup> Haraway argues that a holistic understanding of reality can only be derived by broadening one’s viewpoint beyond itself. As she puts it, “only partial perspective promises objective vision.”<sup>22</sup> That is, only those who look at a situation with blinders on can claim to possess the singular objective interpretation of what truly happened. This is why, for Haraway, an understanding of perspective is so crucial to sussing out truth: “Vision can be good for avoiding binary oppositions.”<sup>23</sup> Haraway says that when it comes to the question of truth, we are falsely caught between total social relativism and complete scientific objectivism.<sup>24</sup> Haraway refers to relativism as the “perfect mirror twin” of the all-devouring notion of objectivity: “Both deny the stakes in location, embodiment, and partial perspective; both make it impossible to *see well*.”<sup>25</sup> For Haraway, truth is about clarity of vision, and also about where, when, and with whom that vision originates. Both relativism *and* objectivity are “god tricks”; they are both modes of “being nowhere while claiming to be everywhere equally.”<sup>26</sup> Instead of accepting either of these paradigms as a way of locating truth, Haraway calls for a doctrine of “situated knowledges.”<sup>27</sup> She argues, “the alternative to relativism is not totalization and single vision . . . the alternative to relativism is partial, locatable, critical knowledges sustaining the possibility of

webs of connections.”<sup>28</sup> The antidote to the ideological dogmatism of relativism and objectivism, for Haraway, is positionality: an acknowledgment of the situated, contingent, bodily aspects of truth. Burke and Haraway reject the notion of a “world out there,” just waiting to be discovered, in favor of a world made up of contradictory notions and viewpoints, in constant flux and largely dependent on people and the rhetorical choices they make.

### *Perspective and Memory*

In sum, these scholars redefine the very notion of objectivity. Within their discussions of irony and vision, respectively, these scholars sketch a version of objectivity comprising multiple voices and viewpoints. Memories and counter-memories mingle with one another, each providing a way of seeing the past. Of course, studying memory and counter-memory does not mean accepting all versions of the past as equally true. Studying memory is a balancing act, a mode of seeking these interwoven “webs of connection,” approaching all perspectives with equal curiosity and equal skepticism. Often, it is possible to accept multiple seemingly incompatible versions of reality at once, recognizing the merits of each and holding them in ongoing tension as one navigates the world.

It is my contention that counter-memorializing is also a balancing act best performed ironically, with a perspective on perspectives, in order to avoid substituting one dogma for another. Important to this discussion will be Michel Foucault’s genealogical approach to history.<sup>29</sup> This is a counter-memorial approach to history, a mode of tracing concepts while attending to power, and brokenness, and ugliness in the historical record.<sup>30</sup> In the previous chapter, I showed that *1001 Inventions* displays merger to the occlusion and even exclusion of division, presenting, in many ways, a one-sided perspective on the past. In this chapter, I analyze reviews of the exhibit that point to the rhetorical footholds created by not taking an ironic

approach to counter-memorializing the Golden Age. This exhibition's over-emphasis on merger affords critics the possibility of dividing up past/present, Islam/West, and religion/science again, pitting one dogmatic version of reality against another.

### Method and Criticism in Context

Negative reviews of *1001 Inventions* bring their own perspective to bear in their criticism, a perspective that is important to examine for a full understanding of the way this exhibition rhetorically works or fails to work to dismantle negative stereotypes about Islam in the contemporary world. In this section, I will first discuss the methodological approach I take to analyzing negative reviews of *1001 Inventions*. Then, I will explain the way I found reviews and divided them into two sets: those written by academic critics, and those written by polemic critics. Whereas academic critics are mainly interested in addressing the content of the exhibition, polemic critics seem more interested in attacking Islam in general. Finally, I will preview the major arguments of this chapter.

### *Methodology*

This analysis is modeled, in part, on Kristen Hoerl's rhetorical review of responses, both positive and negative, to Mario Van Peebles' counter-memorial film *Panther*, about the rise of the Black Panther Party in America. She analyzes 20 newspaper reviews of this movie and finds that the negative reviews accuse *Panther* of being biased, unreal, and a piece of "agitprop."<sup>31</sup> As justification for her analysis of film reviews, Hoerl notes that these critiques establish an epistemological framework for "judging Panther's credibility."<sup>32</sup> By looking at responses to a counter-memorial artifact, we may be able to see the hegemonic perspective on history that it is working to combat, as well as the strength of its rhetorical construction. One major difference exists between my and Hoerl's original artifact: *Panther* is openly a piece of historical fiction, a



fabricated plotline coupled with documented historical events. As such, this film leaves itself open to types of anti-memorial criticism different than *1001 Inventions*, which is meant to be viewed as an entirely factual depiction of the past. Further, although most reviews of *1001 Inventions* are positive, the negative outliers are worth our critical attention for what they can teach us about status-quo memorializing and about how social actors rhetorically try to make and unmake historical facts.

Most of the negative reviews of *1001 Inventions* were published between 2010 and 2013, when the exhibition first toured the United States. As such, they were not written in response to the Detroit exhibition, the one that I was able to visit. However, much of the content of the exhibition and book appear to have remained the same, with adjustments for increased historical accuracy (perhaps even in response to these reviews). I used Lexis Nexis and Google News to seek out negative reviews of *1001 Inventions*. I found roughly 25 critical sources, including news articles, editorials, blog posts, videos, book reviews, and books. From these, I decided to analyze only sources associated with well-known publishers, media institutions, and organizations, rather than unaffiliated blogs (such as “Big Infidel”) and random, autonomous YouTube videos. I also eliminated reviews that focused on the Golden Age, with only minimal reference to the exhibition, and those that were simply brief re-caps of opinions penned by other critics. This process yielded a total of ten separate publications with a variety of different authors. The reviews can be divided into two main types: academic critiques and polemic critiques.

#### *Academic Criticism*

Some of the criticism of *1001 Inventions* is academic in nature, aimed at an educated audience and mainly interested in the content of the exhibition and book rather than Islam as a concept. Two negative critiques were penned by *New York Times* culture-critic Edward

Rothstein.<sup>33</sup> In these articles, Rothstein allows that Muslim civilization produced noteworthy scholarship prior to the thirteenth century. However, he is skeptical of the expansive “Golden Age” claims put forth by *1001 Inventions* and disputes the notion that this is an ideologically neutral display, calling it “a little bit religious and considerably political.”<sup>34</sup> In the article “To Each His Own Museum, as Identity Goes on Display,” Rothstein (blithely ignoring the concept of privilege) laments the trend of identity-focused exhibitions such as *1001 Inventions* that, in his view, arise from a self-centered impulse to correct history: “We must tell our own story!”<sup>35</sup>

Rothstein does not seem to have a particular bone to pick with Islam; he is more concerned with the general rhetoric of museum displays like this one. The bulk of scholarly criticism aimed at *1001 Inventions* comes, directly or indirectly, from Sonja Brentjes, a researcher from the Max Planck Institute for the History of Science.<sup>36</sup> Brentjes, working with a variety of co-authors, has written several journal articles and reviews of *1001 Inventions*, two of which I examine in this chapter.<sup>37</sup> She even, along with two co-editors and many contributing scholars, put together an academic anthology entitled *1001 Distortions: How (Not) to Narrate History of Science, Medicine, and Technology in Non-Western Cultures*.<sup>38</sup> In addition to general articles contextualizing this type of scientific/historical research, part of this book comprises a systematic dismantling of many of the claims made in the third edition of *1001 Inventions: The Enduring Legacy of Muslim Civilization*. Other than Brentjes, I will reference the work of academic scholars Edis, Joráti, Brömer, Diboll, and Enebakk, all published in *1001 Distortions*. Like Rothstein, none of these authors denies that Muslim Civilization underwent a significant period of scientific achievement.<sup>39</sup> However, they do take *1001 Inventions* to task for what they characterize as a collection of historical errors and mischaracterizations, and treat it as a misguided attempt to improve the image of Islam in the Western world. Ultimately, Brentjes and

company conclude that this exhibition represents a “missed opportunity to raise awareness about the history of science.”<sup>40</sup>

### *Polemic Criticism*

Whereas the above texts take an academic and fairly sophisticated approach to critiquing *1001 Inventions*, some negative reviews are polemic in tone, simplistic in argumentation, and openly Islamophobic. These reviews are aimed at an audience that already hates and fears Islam; they focus on the content of the exhibition only insofar as they can demonstrate that it is part of a plot to wrongly elevate the image of Islam in the West. Within these articles, “factual mistakes in the exhibition are instantly interpreted as proof of intentional distortion and concealed conspiracies.”<sup>41</sup> In 2013, British neo-conservative writer and commentator Douglas Murray released an e-book called *Islamophilia*. One section, entitled “The Wright Brothers Were Wrong” is a mocking assessment of *1001 Inventions* and its supposed claim that “the Western world owes everything—absolutely everything” to “the glories of Islam.”<sup>42</sup> In this book, Murray’s main target is not Islam itself, per se, but the politicians, celebrities, and academics who, in his view, “express wildly over-the-top praise or love of Islam” while ignoring or dismissing any negative aspects of this religion.<sup>43</sup> In 2012, conservative writer and former attorney at the United States Department of Justice J. Christian Adams wrote an article for *Frontpage Magazine* entitled “Fact or Fiction? 1001 Muslim Inventions Comes to Washington D.C.” In this article, Adams describes visiting the exhibition with his 8-year-old daughter, who was taken in by the “slipperiness” of language that suggests Islamic experimentation was responsible for much innovation in the Western world. Citing Adams directly, Pamela Geller penned two additional reviews of the exhibition, one in 2012 for *PJ Media* (also published on *Jihad Watch*) entitled “1001 Pieces of Islamist Propaganda: Fabricated Exhibit Comes to D.C.”

and one in 2015, for *Breitbart News*, called “1001 Muslim Myths and Historical Revisions.”<sup>44</sup> Where Adams’ article is somewhat reserved in its judgment of the exhibition, Geller’s are scathing. She lobs accusations of “brainwashing” and “whitewashing,” lists the exhibit’s “lies” about the origins of modern technology, and ultimately concludes, “The 1001 Muslim Inventions exhibit is not history, it is propaganda.”<sup>45</sup> Adams’ and Geller’s articles, in turn, spawned many online videos and blog posts that further excoriate the exhibit. To round out my analysis, I will analyze a set of 2017 blog posts by Simon Harris, notable for their seemingly thorough research and association with a known anti-Muslim faction in Europe: The European Defense League.<sup>46</sup> This organization believes that Islam poses a “major threat to Western culture and values as it poses a direct ideological challenge to the Judeo-Christian, Greco-Roman and Enlightenment ideas upon which Western society is based”; the EDL seeks to defend Europe from this existential threat.<sup>47</sup> This last text is representative of how this type of criticism spreads across the internet, trickling down from academic posts, to inflammatory news articles, to openly Islamophobic blogs.

The last chapter of *1001 Distortions*, authored by Vidar Enebakk, directly addresses the critiques written by Murray, Adams, and Geller. Enebakk is currently Director of the Norwegian National Committee for Research Ethics in the Social Sciences and the Humanities; at the time he wrote this essay, he was the curator of the Norwegian Museum of Science and Technology. In his chapter, Enebakk traces the anti-Islam discourse of these articles back to its source: a post-9/11 surge in funding in the United States aimed at creating a negative image of Islam in the public eye. Between 2001 and 2009, he asserts, groups such as the Donors Capital Fund, the Richard Mellon Scaife Foundation, and the Lynde and Harry Bradley foundation gave \$42.6 million to “a cluster of scholars and right-wing think tanks to promote misinformation and fear

of Muslims and Islam through books, reports, and websites.”<sup>48</sup> *Breitbart*, *PJ Media*, *FrontPage Magazine*, and *Jihad Watch* are all a part of this media network. In 2010 Geller co-founded, with Richard Spencer, the organizations Stop Islamization of America (SION) and the American Freedom Defense Initiative (AFDI), both deemed hate groups by the Southern Poverty Law Center.<sup>49</sup> According to the national media watch group Fairness and Accuracy in Reporting (FAIR), Spencer is one of the leading Islamophobes in America, along with David Horowitz, founder of the David Horowitz Freedom Center, which in turn funds *FrontPage Magazine* and *Jihad Watch*. Enebakk provides this contextual account to differentiate his work and the work of his colleagues from that of blatantly Islamophobic critiques of *1001 Inventions*. I want to preserve, or at least acknowledge, this distinction in my analysis. Despite some overlap in content, these various publications, academic and polemic, clearly entail distinct motivations and methodologies. Ultimately, Enebakk poses the question, “What kind of responsibility do scholars have when their academic analysis actually feeds into anti-Islamic agitation?”<sup>50</sup> He does not provide any clear answers to this question, but the implications of it are important to keep in mind when looking at critiques of historically and culturally fraught counter-memorial displays such as *1001 Inventions*.

*1001 Inventions* is a counter-memorial display that has attracted the attention of those who would maintain the memorial status quo. Across its negative reviews, the rejection of this exhibition occurs in three main ways: The first major criticism of *1001 Inventions* is that it misrepresents, misremembers, or otherwise falsifies history, either by mistake or on purpose. I examine this criticism in relationship to the past/present pairing, particularly with regard to the concept of science. The second main criticism of *1001 Inventions* is that it over-simplifies the Golden Age, distorting key concepts and leaving out important details that are important for a

full understanding of the era. I look at this criticism in relationship to the Islam/West pairing, with regard to the concept of tolerance as it is portrayed by the exhibition. The final critique of *1001 Inventions* derives from the previous two; critics argue, with varying degrees of intensity, that its alleged falsification and oversimplification are ideologically motivated, rhetorical choices aimed at promoting a positive image of Islamic heritage in the eyes of the West. Only two reviews go so far as to call the exhibition “propaganda,” but all insinuate that this exhibition is more about identity than about inventions.<sup>51</sup> I discuss this final point of criticism using the religion/science pairing as a guiding example. To be clear, any of these conceptual pairings could potentially be used to illustrate any of these points of criticism; I have attempted to divide them up in a way that will best illuminate the criticisms of this exhibition along with its rhetorical strengths and shortcomings. These reviews constitute counter-counter-memories, attempts to rectify the misconceptions of subversive counter-memorializers and re-instate the memorial status quo. Together, they advocate a return to the idea that past and present should not be viewed as overlapping, that Islam and the West are too different to be considered kin, and that religion and science must be understood as oppositional rather than compatible forces.

“A Mass of Distortions”:<sup>52</sup> Accusations of Deception

The first strain of criticism levied at *1001 Inventions* is that it shares a tenuous relationship with what “really” happened in the past. Academic critiques mainly attribute this kind of misrepresentation to “error”; for example, Edis and Brentjes argue that “egregious mistakes and disregard for professional standards are very common” throughout the exhibition and provide a laundry list of errors they have discovered within the companion book.<sup>53</sup> Joráti complains about the “poor referencing” that accompanies the book’s “unsupported claims and factual mistakes.”<sup>54</sup> In addition to carelessness, polemic authors accuse the exhibition of lying to

its audience. For example, Geller calls the exhibit “almost unfailingly dishonest,” stating, “And now we see historical revisionism take on a new life, as history is scrubbed and manufactured and Muslim myths are presented as fact.”<sup>55</sup> Whatever the cause of its transgressions, academic and polemic authors accuse *1001 Inventions* of distorting information about the past, misremembering what happened during the Golden Age to better fit the needs of the present.

This type of misrepresentation, they assert, occurs in three main ways: First, critics contest the exhibition’s supposed focus on origins, and provide multiple examples of inventions “claimed” by Muslim civilization that were actually conceived much earlier, by someone else. This objection occurs across all the reviews but is particularly prevalent in polemic critiques, which attribute these claims of intellectual primacy to active dishonesty. Second, some critics work to refute the way in which *1001 Inventions* depicts a simple cause-and-effect relationship between past and present, constructing a narrative which says ideas and inventions from the Golden Age directly influenced our lives today. Finally, academic critiques are concerned with the way the exhibition merges past and present conceptions of “science,” arguing that this choice conflates the two in a way that misrepresents them both by eliding differences and ignoring historical context. Essentially, critics of *1001 Inventions* attack the way the exhibition merges past and present with claims of similarity, smooth continuity, and cause-and-effect. Though their analytical motives may differ, these critics all disrupt the relationships between past and present as displayed within *1001 Inventions*. The rhetorical choices made by the creators of *1001 Inventions* may bring past and present closer together, but they do so in a way that gives critics purchase to divide them up again, replacing one dogmatic view with another.

*Debating Origins*

One technique of critics is to engage *1001 Inventions* as an exhibition of origins. A common complaint among polemic critics is that this exhibit falsely claims many much-older concepts and objects as the invention of Muslim scholars. For example, Harris says he is “extremely irritated” that “many inventions have been attributed to Islamic inventors, which in fact either existed in pre-Islamic eras or were invented by other cultures.”<sup>56</sup> These reviewers display anger at what they see as a misrepresentation of history; their frustration manifests in snide comments and harsh analogies. Murray says this exhibition claims that “anything which could once have been foreseen by a Muslim is an Islamic invention.”<sup>57</sup> Adams goes so far as to compare the creators of the exhibit to the propagandists of the USSR: “The Soviets were notorious for claiming communists were the first in everything. At least with human rocket travel, they were right. But the exhibit steals the Soviets’ thunder.”<sup>58</sup> Geller lists a large number of items and innovations claimed by *1001 Inventions* that actually have unmentioned precursors, including algebra, which she says originated in ancient Babylon, Egypt, and Athens “2,500 years before Abu Ja’far was born,” and coffee, which was “discovered in Christian Ethiopia.”<sup>59</sup> Academic scholars, too, dispute origins: for example, Rothstein mentions catgut, a surgical suture that is here attributed to tenth-century medic Al-Zahrawi but he argues was actually used much earlier, in the second century. In an encapsulation of this position, Harris observes with hyperbolic and openly racist contempt, “I’m surprised they haven’t claimed that flying carpets are the origin of all commercial air travel.”<sup>60</sup>

Many inventions claimed by *1001 Inventions* are contested by critics, both polemic and academic, citing antecedents originally produced or developed in other parts of the world. Brentjes contends that the show creators are suffering from “a severe case of ‘Muslim precursortitis,’” a tendency to claim that cultural and scientific innovations have their roots in the



Muslim world.<sup>61</sup> She says that this exhibit constructs a fictional world in which “Muslims . . . invented almost every important technological device or gadget in use today.”<sup>62</sup> This criticism suggests that the creators of the exhibit repeat the same pattern: Find an invention or cultural innovation that still exists in some form in the modern world, trace that invention backward until a Muslim scholar was involved with its development, and then promote that scholar as the sole originator of the invention in question, even if some form of that invention existed long beforehand. Murray refers to this process as “reverse causation”: “You have decided that Islam is responsible for everything? So you trawl through the past to find ways in which to find even the tiniest nugget that will explain how you got here.”<sup>63</sup> These critiques are obviously unfair; *1001 Inventions* does not invariably present its featured items as originating solely with Golden Age inventors. These are rhetorical overstatements, meant to insult the approach this exhibition takes to historicizing science. However, the focus that this exhibition has on innovation by Muslim individuals and the way their work is directly tied to the present, makes it fairly easy for critics to simply dispute the question, “Who did it first?”

As we saw in chapter two, *1001 Inventions* traces contemporary ideas and inventions backwards to scholars of the Golden Age, contextualizing their creation and combatting the notion that all knowledge was produced by unmarked (white, male, secular/Christian) bodies. However, while this approach presents knowledge as embodied, it also plays into a narrative which promotes individual historical persons as the progenitors of completely novel ideas. Brömer, another critic of this exhibit, argues that historians of science are skeptical of the question “Who invented it?” because only very rarely can an invention be traced to the “lonesome hero inventor/discoverer” who first conceived of it.<sup>64</sup> As Thomas Kuhn said, “perhaps science does not develop by the accumulation of individual discoveries and inventions.”<sup>65</sup>

Science and progress are better seen as an accretion of countless observations, experiments, individuals, measures, objects, and mistakes. Further pushing back against the narrative of the lone inventor, and the way it flattens and impoverishes the historical record, Foucault explains the way genealogy “opposes itself to the search for ‘origins.’”<sup>66</sup> Instead, this approach recognizes that “historical beginnings are lowly . . . derisive and ironic.”<sup>67</sup> Rather than searching for origins, Foucault argues, scholars should trace knowledge backward to where an artifact or idea “emerged” and beyond, tending to all the contextual factors and historical breaks that brought it forward into the present.<sup>68</sup> Contrary to this wisdom, a great deal of cultural weight is often placed on the “first” person to “invent” a technological or cultural development. We frequently employ this reductive historical approach in the West, celebrating creators like Thomas Edison (lightbulb), the Wright brothers (airplanes), and Johannes Gutenberg (printing press). In the way it merges past inventions with present usage, *1001 Inventions* largely re-writes this same Western-style story with non-white and non-male inventors as the new protagonists.

Polemical critics ultimately benefit from this narrative; when *1001 Inventions*' discussion of intellectual contribution is reduced to a mere debate over origins, all that is left to do is argue over who was truly the first person to come up with an idea. Then, when critics produce the “right” answer, pointing out ideas and inventions that preceded Golden Age scholars, they have set the stage to criticize the creators of *1001 Inventions* and therefore Muslims in general—because that is how stereotyping works—as disingenuous and actively deceptive in the way they remember the Golden Age of Islam. An ironic perspective, on the other hand, would take a humble approach to remembering the innovation of the past, balancing the work of individual inventors against contextual and cumulative other forces.

*Contesting Cause-and-Effect*

Not only do critics attack the way *1001 Inventions* attributes inventions to the Muslim world; they also dispute the simplistic cause-and-effect connections that this exhibition makes between past and present. Brentjes says this exhibition wrongly assumes that “the existence of one piece of knowledge or one technical device at two different places and two different moments of time proves the two are connected and that one is the direct heir of the other.”<sup>69</sup> This statement is a critique of the way *1001 Inventions* merges items and ideas that emerged during the Golden Age with similar items and ideas in common use today, making causal claims that connect the two across time. Polemic critics accuse the show’s creators of using “weasel words” to merge past and present, circumvent truth, and trick people into believing that Muslim civilization was more scientifically productive and historically important than it actually was.<sup>70</sup> Adams shows concern about the “slipperiness” of *1001 Inventions*’ rhetoric: “The language of the exhibit equivocates, prevaricates, and in the worst moments, tricks the unwary.”<sup>71</sup> He brings up the pinhole camera as an example of how the exhibit’s introductory video dupes the public: “The slithery language of the screenplay generates an inference that Al-Jazari is somehow legitimately involved in the chain of inventions culminating in my Nikon 35mm.”<sup>72</sup> This is a critique of the cause-and-effect claims apparent in the ghostly evolving technology of *Library of Secrets*.<sup>73</sup> As each new item appears (in this case, from pinhole camera to daguerreotype camera to video camera to cell phone camera) viewers are meant to infer a series of connections, filling in the gaps between cameras and merging the photography of today with the innovation of the Golden Age. This technological progression reads like a slippery slope in reverse, an upward slide from one invention to the next with few specifics about how each step in the process relates to the others.

These arguments critique *1001 Inventions*' depiction of scientific history as a smooth, continuous process, where the past has carried through to the present in an unbroken chain of events. Brentjes argues that the creators of *1001 Inventions* have fabricated a "story of glory and success from the time of Muhammad until the end of the post-classical period."<sup>74</sup> Of course, there is also a Western narrative which says society has been steadily improving and knowledge continually growing since antiquity. The European Enlightenment, Foucault claims, is often viewed in the West as the "struggle of knowledge against ignorance . . . of reason against error."<sup>75</sup> The prevailing metaphor of this era is one of "light gradually dispelling darkness," suggesting an ongoing narrative of cultural and scientific development that is steady, continual, and always positive. Recall chapter two: *1001 Inventions* employs this same metaphor as it describes the golden rays of light spreading across Muslim Civilization; a "Golden Age" of scientific progress and intercultural harmony.<sup>76</sup> Within this exhibition, past is merged with present and Golden Age replaces Enlightenment as the true beginning of modernity. Foucauldian genealogy is, again, a response to our sense of continual historic progress: "Genealogy does not pretend to go back in time to restore an unbroken continuity."<sup>77</sup> Genealogy is a way of remembering history in all its vicissitudes and brokenness.<sup>78</sup> It recognizes power as a silencing force that obscures alternate narratives and creates subjugated knowledges in its wake.<sup>79</sup> The Golden Age of Islam represents a period of time that has been forgotten within the objective, hegemonic view of history. An ironic perspective aimed at counter-memorializing Islamic contributions to science would consider both the successes and the failures of Golden Age scholars who worked to produce knowledge with varying results.

Brentjes does not deny the existence of an Islamic Golden Age; she agrees that scholars of this era can claim significant intellectual discoveries and achievements. However, she also

asserts that “very little” of their work continues to matter today, arguing that almost everything invented or theorized during the Golden Age has been “replaced, invalidated, or made irrelevant to today’s concerns.”<sup>80</sup> She goes on to state, “I am hard pressed to find a single item, be it theoretical or practical, in today’s mathematics and sciences that could rightfully be claimed as a pre-modern contribution from an Islamicate society.”<sup>81</sup> This attitude reflects a distinctly modern point of view, insofar as it ruptures past and present, “understanding time that passes as if it were really abolishing the past behind it.”<sup>82</sup> Kuhn describes a process of scientific revolution wherein new scientific paradigms (perspectives on reality) replace old ones, leaving behind past versions of scientific practices that are “readily labeled ‘error’ and ‘superstition’” by those living under the new paradigm.<sup>83</sup> This is a singular perspective, one that is laser-focused on only the “successes” of science, those practices and technological achievements that have continued unchanged from past to present. A genealogical approach dispenses with this Whiggish impulse altogether. Foucault says of genealogy, “its duty is not to demonstrate that the past actively exists in the present.”<sup>84</sup> Whether or not the ideas and inventions of this era still matter today, from a genealogical perspective, is secondary to the way they rupture the prevailing account of history in the first place. To dismiss the efforts of “unsuccessful” scientists is to undermine driving forces of science itself, the impulse to study and understand the surrounding world, even if not all experiments are academically fruitful and not all hypotheses pan out. Providing an ironic perspective would be to understand that some aspects of the past carry forward to the present; some do not. But all versions of the past, contradictory and contentious, are worth tracing and considering for a holistic perspective on the passage of time.

### *Conflating Sciences*

The final misrepresentation critique, advanced mostly by academic critics, is about the way *1001 Inventions* merges the science of the past with the science of the present, asserting similarity between these concepts with little consideration of division. Essentially, this argument says that beyond just building connections with the past, this exhibit takes the past out of context in order to conflate it with present reality. Brentjes says that the primary flaw of *1001 Inventions* is that it “misrepresents goals, content, methods, techniques, and institutions of our common ancestors in a manner that they resemble us today more than the scholars of the long gone past.”<sup>85</sup> Brentjes and Edis argue that this exhibition is guilty of “overlooking the major differences between medieval and modern science . . . suggesting closeness, similarity, or even identity between medieval scientific results and technological products and today’s sciences and technologies.”<sup>86</sup> Their attitude is that this type of ahistorical fusion presents a false image of Golden Age science and inscribes the present onto the past in misleading ways. Concepts like “scientific rigor” and “experimentation,” Brentjes says, either did not exist at all during the Golden Age, or existed in a totally alien way to how we understand them in the present.<sup>87</sup> During this era, branches of scholarship such as astrology, alchemy, magic, and physiognomy flourished, but this exhibition, according to Brentjes, either fully excludes them from the exhibition’s narrative or replaces them with their modern scientific counterparts, such as chemistry replacing alchemy.<sup>88</sup> Ultimately, she argues, the creators of this exhibition “misrepresent a medieval intellectual environment where astrology or various medical superstitions were as respectable as innovations in planetary models or medical theory.”<sup>89</sup> Again, we witness Brentjes’ impulse to dismiss any past version of science that does not fit a contemporary Western perspective on what science ought to be. Beyond this tendency to banish

the past, she makes a strong point that *1001 Inventions* works to homogenize past and present, merging them so that they cannot be distinguished.

Brentjes says that this exhibit equates distinct scientific traditions, indicating that the creators of *1001 Inventions* “believe in a cumulative, universal science and technology.”<sup>90</sup> The rhetorical choice to represent Golden Age science as the immediate and identical precursor to contemporary science represents, according to academic critics, an unfair merging of past and present where the past is remembered incorrectly in order to benefit the present. Although *1001 Inventions* does present an embodied account of science by offering the voices of Golden Age scholars, these critics argue that the exhibition does not do enough to contextualize these scholars and their work. This lack of context, according to Diboll, falsely depicts “an essentialist and ahistorical Muslimness as the origin of Western modernity.”<sup>91</sup> These claims contest the connection of similarity between past and present by arguing that the past and present are only depicted as similar within the exhibition because it fulfills a particular narrative agenda: to demonstrate that Islam is a scientific and civilized religion. Edis and Brentjes refer to *1001 Inventions* as a “missed opportunity”; Brentjes says this exhibition “misrepresents the past, deriving false pride and pleasure, rather than learning and teaching how to respect, appreciate, and admire past scholars in their own contexts.”<sup>92</sup> These arguments disrupt the way this exhibition presents the science of the past and the science of the present as continuous entities. An ironic approach to representing the relationship between past science and present science would be to hold differences and similarities in tension, allowing both to be a part of the narrative.

“This Sharia Scrubbing of History”:<sup>93</sup> Accusations of Oversimplification

Counter-memories are judged not only by the things that they include, but the things that they leave out in their emendation of the past. The second type of criticism aimed at *1001 Inventions* claims that this exhibition presents over-simplified memories of the past and ignores important pieces of historical context. This criticism occurs in three main ways. Academic critics largely contest the ways in which *1001 Inventions* imprecisely defines the terms “Islam,” “the West,” and the “Golden Age” arguing that these nebulous definitions allow the exhibition to exaggerate its claims of a merged relationship between cultures. Next, many critics address the concept of tolerance for diversity, arguing that the exhibition invokes this idea without adequately considering and promoting the marginalized groups it purports to represent. Finally, polemic critics point to all the ways in which the exhibit’s oversimplification glosses over the unpleasant historical facts that do not support its message of tolerance. These criticisms are particularly relevant to the Islam/West pairing, which *1001 Inventions* merges using associations of similarity, contiguity, and causality. Under the banner of objectivism, critics take *1001 Inventions* to task for a limited perspective, while in turn clinging to their own one-sided perspective that Islam is an intolerant and even violent religion.

#### *Imprecise Definitions*

Academic critics such as Brentjes and Joráti worry about the imprecise way in which this exhibition defines the central concepts of Islam and the West. First of all, they contend, there is no scholarly consensus about how to label “the societies under Muslim rule or defined by the hegemony of an Islamic culture.”<sup>94</sup> *1001 Inventions* uses the phrase “Muslim Civilization,” but this does not get at the nuances of the “manifold religious, cultural, social, and economic differences” between the inhabitants of this place and time.<sup>95</sup> Joráti further argues that many of the nations under Islamic rule were predominantly non-Muslim, with all manner of religious



affiliations, and to call them Islamic nations is to engage in “arbitrary designations and pernicious oversimplifications.”<sup>96</sup> (Both scholars put forth the “artificial” academic term “Islamicate” as an imperfect solution to describe these nations without essentializing their people.<sup>97</sup>) Conflating non-Western nations as a single monolith is a quintessentially Western move, an Orientalist impulse to essentialize the other and therefore divide “them” from “us.”<sup>98</sup> But instead of dividing, *1001 Inventions* merges, highlighting similarities and connections between these two neatly delineated cultures. Brentjes opposes the exhibition’s simplistic depiction of “Islam” and the “West,” stating that this “essentialist rhetoric . . . demonstrates a failure to understand the particularities of any of the societies within the two big cultural blocks that they posit so uncritically.”<sup>99</sup> It is, arguably, this type of over-simplification that allows *1001 Inventions* to so easily merge Islam and the West. The devil is in the details, and leaving out details neglects any potential devil.

Once Islam and the West have been merged in this simplistic manner, all it remains for polemic critics to do is to point out differences between these societies as a way to divide them up again and “disprove” the culturally essentializing message of *1001 Inventions*. One example of improper Islam/West merger, cited by academic critics, is the way the exhibit and book portray Golden Age schools as compared to Western schools. Brentjes says it is “only by ignoring the legal, structural, organizational, and social differences between the madrasa and the university” that the authors of *ELMC* can say some of the oldest universities are mosques.<sup>100</sup> Joráti says that the word “madrasa” does not truly equate to the word “school,” and that to call the House of Wisdom an academy is to form “an arbitrary association between institutions of the Islamic East in the late antique period and those of completely different societies.”<sup>101</sup> These comments represent a negative appraisal of the way *1001 Inventions* has merged the concepts of

Islam and the West, oversimplifying the ways in which the societies differ. An ironic approach to counter-memorializing would recognize ideas and technologies as having emerged over time out of ongoing cultural conversation; it would also hold in tension the intellectual and cultural similarities and differences within and between Islamic and Western societies. Acknowledging differences between these cultures as it highlights parallels and associations would inoculate the exhibition against accusations of presenting a reductive image of the Islam/West pairing.

Academic scholars also criticize this exhibition's imprecise definition of the "Golden Age of Islam" and assert that this historical vagueness unfairly exaggerates the length of the era. *1001 Inventions* lays claim to almost one thousand years of history, from the seventh century to the seventeenth century. Traditionally, historians have delimited the Golden Age of Islam to the years of the Abbasid Caliphate, roughly 750-1258 A.D.<sup>102</sup> Rothstein invokes the Abbasids and argues that *1001 Inventions* "expands the Golden Age of Islam to a millennium" even though "the actual period of invention is less than half of that suggested."<sup>103</sup> This claim that *1001 Inventions* has falsely inflated the length of the Golden Age begins chipping away at the foundation of their claim to greatness. Furthermore, it calls into question the completeness of the narrative put forth by the exhibition. No one set of memories will present a complete picture of historical events. However, there is one noticeable omission in the perspective presented by *1001 Inventions* that must be noted: What caused the Golden Age to go into decline?

Several critics point to this oversight. Rothstein says, "left unexplored too is how this tradition ended, leading to a long eclipse of science in Muslim lands."<sup>104</sup> Geller flatly states, "1001 Muslim Inventions raises more questions about the decline of Muslim civilization than it answers."<sup>105</sup> As discussed in chapter one, a great many factors may have contributed to the decline of the Golden Age, including shifting political and cultural boundaries, economic factors,

and military incursion from east and west.<sup>106</sup> This question of decline is extremely important for a developed understanding the historical relationship between Islamic(ate) and Western nations; did the Crusades and Western colonialism of Islamic lands contribute to the end of the Golden Age? By ignoring the subject of decline, the exhibition avoids having to discuss historical tensions between these two cultures, facilitating their merger of Islam and the West but discounting any animosity between them.

Because *1001 Inventions* does not address the subject of decline, critics are left to draw their own conclusions. Islamophobic critics are quick to claim that science failed in Islamic nations because of a fundamental flaw within Islam itself, an anti-intellectual opposition to science. The notion of decline is, in and of itself, a contentious one: The phrase “Golden Age” necessarily implicates subsequent decline. In some ways, to refer to this era as the “Golden Age of Islam” is a rhetorical choice to imply that at some point, Islam stopped being compatible with science. In an article entitled “Islam’s Invented Golden Age,” Asad Q. Ahmed, Associate Professor of Arabic and Islamic Studies at the University of California, Berkeley, makes the argument that the narrative of a Golden Age of Islam actually “began as colonial Orientalist lore” during the nineteenth century.<sup>107</sup> Essentially, the phrase “Golden Age of Islam” first emerged as a condensed way of saying, “You’ve had your time; the Islamic world is no longer capable of rational and scientific thought.” In calling this period a “Golden Age,” *1001 Inventions* may be unintentionally reinforcing an Orientalist perspective on the past and furthering the divide between Islam and the West.

### *Insufficient Inclusion*

One consequence of the way *1001 Inventions* homogenizes the Islamic world, according to critics, is that although *1001 Inventions* insists on the tolerant and diverse nature of the Golden

Age, there is very little in the exhibit that truly pays homage to the scholarly accomplishments of women or ethnic and religious minorities. Rothstein argues that this exhibit's acclaim of the accomplishments of non-Muslims is little more than lip service. He says that the exhibition "dutifully praises the multicultural aspect of this Golden Age while actually undercutting it."<sup>108</sup> Rothstein is concerned at the lack of attention given to non-Muslim scholars throughout the exhibition, despite what he refers to as "the cosmopolitan impact of interacting cultures."<sup>109</sup> For example, he contends that scientific contributions from denizens of Persia, China, India, and ancient Rome, as well as Byzantine Christianity and the region's Jewish population are "scarcely noticed, minimized or ignored," or else "mentioned only to affirm the weightier significance of Muslim contributions."<sup>110</sup> The majority of historical figures remembered in the *1001 Inventions* book and exhibition are Arabic Muslim men, although this exhibition and its companion book do provide accounts of at least a few non-Muslim, non-Arab, and female figures. Chapter two talked about the metonymic nature of choosing certain Golden Age individuals to represent different breakthroughs in the history of science as well as the ideal of tolerance. Unfortunately, the nature of metonymy is such that when specific people are designated to represent abstract ideals, the result can feel like tokenism. Norma Riccucci describes tokenism as the practice of including "an extremely small number of members of racial (e.g., African American), ethnic (e.g., Latino) or gender (i.e., women) groups . . . to give the impression of being inclusive," even though the individuals in question are not truly and appropriately contextualized, celebrated or accepted for who they are.<sup>111</sup>

The women mentioned in the exhibition accomplished great things, but their stories say little about how women as a whole lived their lives during the Golden Age, or how they were treated by men. The same issue applies to the non-Arabs and non-Muslims of the exhibit,

represented chiefly by al-Jahiz and al-Maymun. When the exhibition first came to the United States, the curators wanted to make the exhibit “relevant to the American taste,” and so included the Jewish scholar, Musa Ibn Maymun. To “appreciate the afro-American community,” they decided to feature al-Jahiz.<sup>112</sup> These figures are important to acknowledge, but at the same time are an inevitably imperfect representation of diversity. In some ways, rhetorical tokenism parallels the practices of Orientalism. Orientalism does not always mean negative stereotypes; this paradigm often exoticizes its subjects, inscribing onto them mysticism, romanticism, ancient wisdom.<sup>113</sup> Orientalism rips cultural customs and curios out of context—food, fashion, dances, art—and reduces them to their barest form, with a severely limited perspective as to their significance. In this same manner, some “Oriental” individuals become tokens, “accepted” in the West but reduced to caricatures and always marked as “other.”

*1001 Inventions* makes an attempt at multicultural inclusion but by merging all of Islamic culture as a homogenous entity, comparable and even consubstantial with the West, the exhibit in many ways replicates the Western tendency to represent but at the same time reduce. This of course makes it easy for critics to dismiss the exhibition’s claims of tolerance as disingenuous. Harris mentions a post on the *1001 Inventions* website entitled “Extraordinary Women from the Golden Age of Muslim Civilisation,” which he says is a clear representation of “*1001 Inventions*’ politically correct position and why it appeals to the multicultural Islamophiles of the Left.”<sup>114</sup> Calling something “political correctness” indicates that its attempts at inclusion do not ring true. Edis and Brentjes further argue that tolerance for diversity, as represented by al-Jazari’s giant elephant clock, is actually a modern ideal, “completely anachronistic” to the Golden Age.<sup>115</sup> This observation simultaneously represents a division of the past/present and Islam/West pairings, which *1001 Inventions* works to merge. An ironic perspective on

representation would allow for the featured non-Arab, non-Muslim, non-Male voices within the exhibition to be heard in full, providing context for their inclusion as well as good and bad aspects of their lives during the Golden Age.

### *Incomplete Account*

Critics' accusations that this exhibition presents an incomplete account of the Golden Age go beyond complaints of inadequate representation and tokenism. Polemic critics in particular accuse *1001 Inventions* of leaving out key historical details about the Muslim empire that directly contradict its claims about tolerance and science. First is the objection to the idea that different religious groups lived in harmony during this time. Critics claim that this exhibition over-simplifies the relationship that non-Muslims had with Muslims during the Golden Age. Harris brings up the term "*dhimmis*," which was used during this era to refer to people of other religions. Jews, Christians, Zoroastrians, Hindus who resided within the Muslim empire and were treated as "second or even third class citizens . . . forced to pay the *jizyah* [a tax on non-Muslims] and often publicly humiliated."<sup>116</sup> The concept of the *dhimmi* is popular among scholars seeking to dispel claims of widespread religious tolerance during this time period.<sup>117</sup> Merriam-Webster actually defines this term as "a person living in a region overrun by Muslim conquest who was accorded a protected status and allowed to retain his or her original faith."<sup>118</sup> This definition includes multiple aspects, both positive (protected) and negative (conquest). In the hands of Islamophobic critics, however, any positive attributes of the term are ignored; the term is ignored altogether by *1001 Inventions*, probably because of its negative associations. An ironic perspective would recognize both the good and the bad, presenting a complex picture of what life was like for a non-Muslim during the Golden Age from a variety of perspectives.

Some critics point to the multicultural dimension of *1001 Inventions* and argue that the exhibit is trying to erase a violent and xenophobic past (and present) by demonstrating that Islam is a peaceful and tolerant religion. Geller, for instance, refers to what she sees as highly subjective and selective presentation of information as the “sharia scrubbing of history,” which leaves out “jihadi wars, cultural annihilations, and enslavements” of non-Muslim peoples.<sup>119</sup> Rothstein also brings up the slave trade that flourished within Muslim Civilization during the Golden Age.<sup>120</sup> These statements begin to break down the idealized picture of a peaceful Golden Age put forth in *1001 Inventions*. The argument here is that the creators of the exhibit have chosen to remember and represent a sanitized version of Muslim history, free from the violence and intolerance that polemics argue was endemic to the time and place in question. The natural offshoot of these claims of violence is the notion that any scientific or cultural innovation that did occur during the “Golden Age” was little more than “intellectual theft,” a byproduct of absorbing foreign scholars into the empire and building on the work they already accomplished.<sup>121</sup> Geller states, “The bottom line: the inventions and discoveries attributed to the Muslim world were actually stolen from conquered peoples.”<sup>122</sup> These critical portrayals of Islamic history—meant to be read as objective—are clearly driven by an agenda, a desire to paint Islam as inherently violent and intellectually dishonest. Furthermore, *1001 Inventions* is partly aimed at children; it makes sense that the exhibition would leave out some of the uglier aspects of the past to avoid upsetting this audience. However, *1001 Inventions* could have inoculated itself against the Islamophobic dogma of polemic critics by presenting a more nuanced perspective on the Golden Age, an ironic perspective on perspectives to acknowledge positive and negative aspects of this era.

“1001 Pieces of Islamist Propaganda”:<sup>123</sup> Accusations of Bias

The promotional literature associated with this exhibit states that *1001 Inventions* is a “nonreligious and non-political project.” However, Rothstein argues, this show is actually “a little bit religious and considerably political.”<sup>124</sup> Edis and Brentjes agree, stating that this exhibition’s focus on identifying scientific precursors in the Muslim world is the “work of ideology, not scholarship.”<sup>125</sup> As we have seen above with the past/present and Islam/West pairs, *1001 Inventions* emphasizes merger to the occlusion and even exclusion of division. This section will focus on the way it merges science/religion, further limiting possible perspectives on the Golden Age and affording critics rhetorical leverage to point out the ideology behind the exhibition’s message. The accusations of deception and over-simplification put forth by critics all support an underlying argument: that *1001 Inventions* has constructed a misleading counter-memorial narrative to promote a falsely positive image of Islam. Different critics offer different reasons why *1001 Inventions* presents this particular perspective on the Golden Age. Academic critics treat this as an instance of apologetics, one that covertly focuses on Islamic identity and self-esteem. Polemic critics ascribe more sinister motives to the creators of the exhibition, saying that it is “propaganda” aimed at fooling the West and “indoctrinating children.”<sup>126</sup> These positions are, of course, in and of themselves ideological; they are presenting a one-sided perspective on the goals of *1001 Inventions* which, in the case of polemic critics, has the purpose of discrediting the exhibition’s message and therefore denigrating Islam as intolerant and anti-science. But examining critics’ dogmatic, divisive perspectives in opposition to the arguably dogmatic manner in which this exhibit merges religion and science provides further insight into the potential usefulness of implementing an ironic perspective in counter-memorial display.



### *Islamic Apologetics*

Academic critics of *1001 Inventions* largely argue that this exhibit is an exercise in Islamic apologetics, with an ultimate goal of demonstrating that science and religion, specifically Islam, are interdependent rather than inimical forces. Brentjes says that this exhibit is designed to demonstrate that unlike in the Christian West, “historical tensions between science and religion . . . do not apply to Islam.”<sup>127</sup> Thus, she argues, *1001 Inventions* is trying to tell “a single and simple story of harmony between religious and scientific learning.”<sup>128</sup> As we saw in chapter three, the perspective that this exhibition presents on religion and science is almost solely one of merger; it suggests that during the Golden Age science depended on Islam for inspiration and support and could not have existed in the same way without this religion. However, academics contest this merger as far too simplistic. A lot of the exhibition’s focus on science and religion is said to be speculative or based on insufficient historical information. For example, Edis and Brentjes say that we do not actually have historically recorded information about the religion of al-Jazari, who is described by the exhibit as a talented engineer and a “pious Muslim.”<sup>129</sup> Brentjes also notes that the saying of the Prophet Muhammad that is cited by the exhibition to prove the compatibility of Islam and education, “Seek knowledge, even unto China,” was rejected as “weak” and “insufficiently authenticated” by Islamic *hadith* scholars between the tenth and fifteenth centuries.<sup>130</sup> These assertions suggest that the merger of religion and science displayed by the exhibition is questionable. In response to the claim that religion and other types of knowledge sat comfortably side by side in schools, Brentjes claims that we do not really have any information about how science and other subjects were taught to children during the Golden Age: “We simply do not have documentary evidence about schools and the role of Muhammad in anything that resembled systematic education beyond spreading God’s message.”<sup>131</sup> With

insufficient support for its straightforward merger of religion and science, *1001 Inventions* opens up space for critics to attack its position and point out ways in which these two forces have historically clashed.

Beyond criticizing the exhibition's lack of evidence for a religion/science merger, academic critics display division between religion and science during the Golden Age. Edis and Brentjes say that although *1001 Inventions* depicts a "frictionless harmony" between science and Islam, the relationship between the two has actually been fairly contentious: "When traditional beliefs such as a divine design in nature confront naturalistic scientific theories such as Darwinian evolution, the notion of harmony shields traditional beliefs from criticism."<sup>132</sup> Looking back to the Golden Age, Brentjes argues it is more likely that the first madrasas were all about "creed and dogma," until the twelfth century when sciences, medicine, and philosophy began to be taught in educational spaces.<sup>133</sup> She cites the thirteenth-century jurist Burhan al-Din al-Zarnuji, who wrote, "The mathematical and other sciences are frowned upon except when they can contribute to improving the reliability of religious activities" and forbade the study of astronomy except in locating Mecca and determining the hours of prayer.<sup>134</sup> These claims imply a certain level of incompatibility between science and religion, specifically Islam. Polemic critics go even further in their claims. Harris says that he wants to directly challenge "the idea that Islam is an ideology that actively encourages learning and discovery."<sup>135</sup> Brentjes claims that "Aristotle's philosophies would be prohibited under Islam"; she says that he believes in a "universe of science," free from a divine presence, and that these ideas are "anathema to Islam; they are blasphemy."<sup>136</sup> It is worth noting that these claims are not supported, either; but they do work to divide religion from science. Had the exhibition acknowledged some of the ways in which religion and science have historically existed in tension, presenting an ironic perspective

on the pair, it would have at least partially inoculated itself against the way critics attempt to divide this merged pair.

### *Identity and Self-Esteem*

Many critics believe that this exhibit is, at its heart, about promoting an Islamic identity. Rothstein is very concerned with what he sees as a societal trend of ideologically self-interested “‘identity’ exhibitions.”<sup>137</sup> He captures this spirit in a mocking imitation of their position: “Me! Me! Me! That is the cry, now often heard, as history is retold. Tell my story, in my way! Give me the attention I deserve! Haven't you neglected me, blinded by your own perspectives? Now let history be told not by the victors but by people over whom it has trampled.”<sup>138</sup> This summary of “‘identity exhibitions’” may as well directly cite Foucault’s concept of subjugated knowledges, those bodies of localized memory that have been “buried or masked” through the hegemonic control of historical information.<sup>139</sup> Foucault discusses the ways in which counter-memory can bring these buried perspectives to the fore, acting as “the discourse of those who have no glory, or of those who have lost it and who now find themselves . . . in darkness and silence.”<sup>140</sup> Except, instead of recognizing the value of considering counter-memorial perspectives of marginalized groups, Rothstein dismisses them as unimportant to an overall understanding of history. He complains that identity politics have increasingly made their way into museums over the past few decades. His critique includes museums of Jewish history, American Indian history, African-American history: any minority faction that has engaged in a counter-memorial effort to “affirm a particular group's claims, outline its accomplishments” or “boost its pride.”<sup>141</sup> Polemic critics are also concerned at the identity dimension of *1001 Inventions*; Adams argues that the integrity of the exhibit is diminished by blatant “me-too-ism, a desperate search for cultural pride despite the technological dominance of the West after the Renaissance and the Industrial Revolution.”<sup>142</sup>

These critics, speaking from an “objective” position on how history should be remembered, are complicit in the way that privilege can silence the voices of anyone who does not remember history in the “acceptable” manner. An ironic perspective would, of course, welcome all of these voices to be in dialogue and reveal previously unknown dimensions of the past.

*1001 Inventions* tells two separate stories when it comes to the question of religion and science. When asked in an interview whether the exhibit represents an “effort at changing the profile of the Muslim world,” Bhatti replies, “Well first, this isn't an exhibition about Muslims, it's an exhibition about science.”<sup>143</sup> His response divorces the exhibition from the rhetorically sticky realm of politics and religion and places it firmly in the realm of science history. Perhaps he assumes that if no one particular ideology is being promoted, the exhibit will appear more credible in the eyes of non-Muslim Westerners. However, although a major theme of the exhibition is multi-culturalism, most of the figures on display are identified as Muslim and the exhibition does not shy away from sharing information about Islam. And while the exhibition does mention the role that religion played in the Golden Age, the companion book delves even more deeply into the relationship between Islam and science, merging the two with a straightforward cause-and-effect relationship. Critics are quick to argue that this exhibition is explicitly ideological in its goals. As proof, Rothstein points to one of the main funding sources of *1001 Inventions*, the Foundation for Science, Technology and Civilization in London (FSTC). Their stated aim is to “to popularize, spread and promote an accurate account of Muslim Heritage and its contribution”; hardly an ideologically neutral position in the sense that they clearly hope to build up the reputation of Muslims around the globe.<sup>144</sup> Murray, too, invokes the notion of funding, bringing up FSTC, the Wellcome trust, and “other bodies generally meant to be interested in science rather than religious proselytising of any kind.”<sup>145</sup> Murray insists that this

exhibition is a form of “*dawah* or proselytizing” rather than a scientific account of the past, dividing religion from science in a way that suggests these two forces cannot exist together.<sup>146</sup> According to this view, no scientific view of the past could be simultaneously religious. Enebakk says that *1001 Inventions* has “explicit normative agendas aimed at improving the image of Islamic culture or facilitating a better dialogue between Islam and the West”;<sup>147</sup> Edis and Brentjes agree that the rhetorical goals of the exhibition are clear: “To boost respect for a Muslim civilizational heritage, and to prevent Muslims, especially young Muslims, from feeling as if they are outsiders to modern scientific and technological enterprises.”<sup>148</sup> Both Enebakk and Brentjes say that these goals are “understandable,” but they argue “such a perspective on the past does not produce good history.”<sup>149</sup> Again, this perspective assumes that a singular memory of the past will be free from all ideology.

An extreme version of this position is espoused by polemic critics; their arguments clearly demonstrate the way that this debate is a clash of dogmas. Geller flatly states, “The 1001 Muslim Inventions exhibit is not history, it is propaganda, and the foolish infidels keep lining up enthusiastically for more.”<sup>150</sup> Several authors insinuate that *1001 Inventions*’ main goal is to change the minds of the many children who have visited; Geller argues that this exhibit has “indoctrinated hundreds of thousands of children into a rosy and romanticized view of Islam that makes them less appreciative of their own culture’s achievements and more complacent about Islamization in the West.”<sup>151</sup> Harris makes the blatantly biased observation that the “minds of our children and their gullible teachers are being poisoned” by messages of the exhibition. These bold statements demonstrate the perspective of the polemic critics more accurately than anything else; they are convinced that because it does not remember history in the way they believe it should be remembered, *1001 Inventions* must be manipulating audiences and advancing a secret

rhetorical agenda aimed at subverting Western values with the promotion of Islam. Critics of this exhibit have cast themselves as intellectual heroes; they are self-styled defenders of a singular historical truth against those who would distort what really happened for political goals. Harris says that his work in debunking the Golden Age of Islam as represented by this exhibit has a clear goal: “To arm you with information and arguments so that when you come across an Islamic apologist exaggerating Islam’s intellectual contribution to modernity, you’ll be better equipped to call them out.”<sup>152</sup> These critics, in re-dividing the mergers displayed by *1001 Inventions*, are replicating the one-sidedness of the exhibition.

What is needed is a transcendence of narrative. Of course the counter-memories put forth by *1001 Inventions* are ideological; all accounts of the past are in some way related to identity and recounted for a specific reason. By pretending ideological neutrality, this exhibition invites easy critiques that point out its relationship to identity and Islam. Instead, an ironic perspective on the Golden Age that acknowledges a viewpoint would have displayed a complex relationship between religion and science, two concepts that are simultaneously complementary and at odds with one another. A recognition of this, a perspective on perspectives, would have made for a stronger set of counter-memories and a more robust narrative of Islam in the contemporary world, and would have constrained critics from plausibly dismissing the exhibit as ideological.

### Conclusion

In examining negative reactions to *1001 Inventions*, we see both academic and polemic critics pushing back against the way this exhibition merges key terms in the question of modernity: past and present, Islam and the West, and religion and science. In making these arguments, these reviews contest the exhibit’s depiction of the Golden Age of Islam as a time of scientific excellence and intercultural tolerance, arguing that these are modern ethics falsely

transcribed backward onto the past in order to sell a positive narrative about Islam in the present. First, negative critics make the claim that this exhibition fabricates a story of origins, displays cause-and-effect relationships that do not truly exist between past inventions and ideas, and presents an image of medieval science that falsely collapses past and present in a dishonest way. Next, critics argue that the exhibition oversimplifies the cultures and era in question, pays lip service to tolerance, and leaves out important information about the past in a way that makes Islam and the West seem more similar and interrelated than they truly are. Finally, critics assert that this exhibition conflates religion and science in a way that is academically dishonest with the explicit goal of improving the image of Islam in the West, making their motivations suspect.

It seems that in attempting to counter stereotypes, this exhibition has left room for critics to attack the way it over-emphasizes merger with little discussion of difference and context for the pairings in question. To be fair, there is little the exhibition could have done to stop Islamophobic responses entirely. Polemic critics would always have attacked this exhibition, no matter the design, trying to devalue Islam in the eyes of the public. However, by merging these key conceptual pairs with little regard for division, *1001 Inventions* in some ways reifies a modern, Western view of the world. This exhibition emphasizes origins and values only those past scientific ideas that may have progressed unbroken to the present. It oversimplifies the notions of Islam and the West, essentializing the people living within these cultures and engaging in tokenism rather than genuine depiction and dialogue. It sublimates the question of identity and pretends ideological neutrality in its presentation of religion and science, without acknowledging any potential tension between these forces. In these ways, *1001 Inventions* makes it easy for these critics to simply flip the narrative and oppose the simplistic mergers put forth by the exhibit. Academic critics point out the exhibition's flaws and polemic critics exploit them,

using them as fodder for Islamophobic anti-memorializing. Whether or not critics are correct in their condemnation of this exhibition, they have pointed out important consequences of privileging merger as a counter-memorial corrective to negative discourse. It may be necessary to inoculate against this type of criticism with a more balanced perspective, one that anticipates pushback with more historical context and more consideration of conceptual division. In the end this is not really about the critics at all. Counter-memorializing the Golden Age of Islam with an ironic perspective would have presented a more durable, meaningful account of a memorable historical era.

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<sup>1</sup> Stop Spamming, “1001 Inventions - 1001 Lies,” retrieved May 5, 2019, <https://www.youtube.com/watch?v=IS1PUeNLadk>.

<sup>2</sup> Robin McKie, “Science: Arabian Sights Thrill and Delight,” *The Observer*, January 24, 2010.

<sup>3</sup> Joy Stocke, “The New York Hall of Science Hosts 1001 Inventions, Muslim Heritage in Our World: A Conversation with Dr. Margaret Honey,” *The Wild River Review*, 2011.

<sup>4</sup> Sultan Sooud Al-Qassemi, “‘1001 Inventions’: How Islamic Scientific History can Combat Today’s Extremists,” *Huffington Post*, June 7, 2010.

<sup>5</sup> E.g., Andrew Bostom, “Dross in Yet Another Islamic ‘Golden Age,’” *The American Thinker*, September 5, 2010; David Bukay, “How Muslim Propagators Swindle the Western Civilization: Islam and Science Expropriation,” *Modern Diplomacy*, May 12, 2018, <https://moderndiplomacy.eu/2018/05/12/how-muslim-propagators-swindle-the-western-civilization-islam-and-science-expropriation-a/>; Dario Fernández-Morera, *The Myth of the Andalusian Paradise: Muslims, Christians, and Jews under Islamic Rule in Medieval Spain* (Wilmington, DE: ISI Books, 2016); Serge Trifkovic, “The Golden Age of Islam is a Myth,” *Front Page Magazine*, November 15, 2002, <http://archive.frontpagemag.com/readArticle.aspx?ARTID=21117>.

<sup>6</sup> Jonathan Lyons, *Islam Through Western Eyes: From the Crusades to the War on Terrorism*. (New York: Columbia University Press, 2012).

<sup>7</sup> Kenneth Burke, “Four Master Tropes,” *The Kenyon Review* 3 (1941); Donna Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective,” *Feminist Studies* 14, No. 3 (1988).

<sup>8</sup> Burke, “Four Master Tropes,” 432.

<sup>9</sup> Haraway, “Situated Knowledges.”

<sup>10</sup> Michel Foucault, “Nietzsche, Genealogy, History,” in *Language, Counter-Memory, Practice: Selected Essays and Interviews*, edited by D.F. Bouchard (Ithaca, NY: Cornell University Press, 1977), 77.



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<sup>11</sup> Bruno Latour, *We Have Never Been Modern* (Cambridge, MA: Harvard University Press, 1993), 91-100.

<sup>12</sup> See Thomas Rickert for rhetorical roots of this position in Plato: Addressing the contemporary narrative of a “post-truth” society, Rickert displays its deep rhetorical roots when he recounts a Platonic dialogue in which “a philosophical proponent of truth, Socrates, and a sophist, Protagoras” debate the relationship between perspective and knowledge. Socrates—often considered the winner of this debate (a conclusion challenged and complicated by Rickert)—rejects the seeming relativism of Protagoras with the “inescapability of transcendent ideas” such as mathematics and logic. Thomas Rickert, “It Is All There: From Reason to Reasoning-in-the-World,” *Philosophy & Rhetoric* 52 (1), 2019, 93-101.

<sup>13</sup> Burke, “Four Master Tropes,” 432.

<sup>14</sup> Ibid.

<sup>15</sup> Ibid.

<sup>16</sup> Kenneth Burke, *Grammar of Motives* (Berkeley: University of California Press, 1969), 402-403.

<sup>17</sup> Burke, “Four Master Tropes,” 432.

<sup>18</sup> Ibid., 422.

<sup>19</sup> Ibid., 434.

<sup>20</sup> Haraway, “Situated Knowledges,” 593.

<sup>21</sup> Ibid.

<sup>22</sup> Ibid., 582-583.

<sup>23</sup> Ibid., 581.

<sup>24</sup> Ibid., 576.

<sup>25</sup> Ibid., 584; emphasis mine.

<sup>26</sup> Ibid., 584.

<sup>27</sup> Ibid., 581; Haraway specifically discusses feminism but the point holds more broadly.

<sup>28</sup> Ibid., 584.

<sup>29</sup> Foucault, “Nietzsche, Genealogy, History,” 77.

<sup>30</sup> Ibid., 93, 95-96.

<sup>31</sup> Kristen Hoerl, “Mario Van Peebles’s Panther and Popular Memories of the Black Panther Party,” *Critical Studies in Media Communication* 24, no. 3 (2007), 215.

<sup>32</sup> Ibid., 215.

<sup>33</sup> Edward Rothstein, “A Golden Age in Science, Full of Light and Shadow,” *The New York Times*, December 10, 2010; Edward Rothstein, “To Each His Own Museum, as Identity Goes on Display,” *The New York Times*, December 29, 2010.

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<sup>34</sup> Rothstein, "A Golden Age in Science."

<sup>35</sup> Rothstein, "To Each His Own Museum."

<sup>36</sup> Sonja Brentjes, "Sonia Brentjes: Research Scholar (Since 2012)," *Max Planck Institute for the History of Science*, accessed May 15, 2019, <https://www.mpiwg-berlin.mpg.de/users/brentjes>.

<sup>37</sup> Sonja Brentjes, review of *1001 Inventions: The Enduring Legacy of Muslim Civilization*, edited by Salim T. S. Al-Hassani, *Aestimatio* 10, 2013, 119-153; Taner Edis and Sonja Brentjes, "A Golden Age of Harmony? Misrepresenting Science and History in 1001 Inventions Exhibit," *Skeptical Inquirer*, 2012, 1-6.

<sup>38</sup> Sonja Brentjes, Taner Edis, and Lutz Richter Bernburg (editors), *1001 Distortions: How (Not) to Narrate History of Science, Medicine, and Technology in Non-Western Cultures* (Würzburg, Germany: Ergon-Verlag, 2016).

<sup>39</sup> Edis and Brentjes, "A Golden Age of Harmony?" 1.

<sup>40</sup> Ibid.

<sup>41</sup> Vidar Enebakk, "1001 Pieces of Islamist Propaganda?" in *1001 Distortions: How (Not) to Narrate History of Science, Medicine, and Technology in Non-Western Cultures*, ed. Sonja Brentjes, Taner Edis, and Lutz Richter Bernburg (Würzburg, Germany: Ergon-Verlag, 2016), 265-266.

<sup>42</sup> Douglas Murray, *Islamophilia* (emBooks, 2013), PDF e-book, 17.

<sup>43</sup> Ibid., 4-5.

<sup>44</sup> Pamela Geller, "1001 Pieces of Islamist Propaganda: Fabricated Exhibit Comes to D.C.," *PJ Media*, August 25, 2012; Pamela Geller, "1001 Muslim Myths and Historical Revisions," *Breitbart News*, July 26, 2015.

<sup>45</sup> Geller, "1001 Pieces of Islamist Propaganda"; Geller, "1001 Muslim Myths."

<sup>46</sup> Simon Harris, "Debunking the Golden Age of Islam: Why 1001 Inventions Exhibition is an Exercise in Cultural Propaganda!" *European Defense League*, July 24, 2017, <https://www.europeandefenceleague.com/2017/07/24/debunking-the-golden-age-of-islam-why-1001-inventions-exhibition-is-an-exercise-in-cultural-propaganda/>.

<sup>47</sup> "Islam: Understanding Muslim Ideology and Organisation," *European Defense League*, accessed May 5, 2019, <https://www.europeandefenceleague.com/islam/>; "About The European Defence League," *European Defense League*, accessed May 5, 2019, <https://www.europeandefenceleague.com/about-the-european-defence-league/>.

<sup>48</sup> Enebakk, "1001 Pieces of Islamist Propaganda?" 270.

<sup>49</sup> Ibid.

<sup>50</sup> Ibid., 276.

<sup>51</sup> Geller, "1001 Pieces of Islamist Propaganda"; Harris, "Debunking the Golden Age of Islam."

<sup>52</sup> Edis and Brentjes, "A Golden Age of Harmony?" 3.

<sup>53</sup> Edis and Brentjes, "A Golden Age of Harmony?" 2.

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<sup>54</sup> Hadi Joráti, “Misuse and Abuse of Language, and the Perils of Amateur Historiography (of Science),” in *1001 Distortions: How (Not) to Narrate History of Science, Medicine, and Technology in Non-Western Cultures*, ed. Sonja Brentjes, Taner Edis, and Lutz Richter Bernburg (Würzburg, Germany: Ergon-Verlag, 2016), 110-111.

<sup>55</sup> Geller, “1001 Muslim Myths.”

<sup>56</sup> Harris, “Debunking the Golden Age of Islam.”

<sup>57</sup> Murray, *Islamophilia*, 18.

<sup>58</sup> J. Christian Adams, “Fact or Fiction?: 1001 Muslim Inventions Comes to Washington D.C.,” *Frontpage Magazine*, August 23, 2012.

<sup>59</sup> Geller, “1001 Muslim Myths.”

<sup>60</sup> Harris, “Debunking the Golden Age of Islam.”

<sup>61</sup> Brentjes, review of *1001 Inventions*, 120.

<sup>62</sup> *Ibid.*

<sup>63</sup> Murray, *Islamophilia*, 19.

<sup>64</sup> Rainer Brömer, “Only What Goes Around Comes Around: A Case Study on Revisionist Priority Disputes—Circulation of the Blood,” in *1001 Distortions: How (Not) to Narrate History of Science, Medicine, and Technology in Non-Western Cultures*, ed. Sonja Brentjes, Taner Edis, and Lutz Richter Bernburg (Würzburg, Germany: Ergon-Verlag, 2016), 208.

<sup>65</sup> Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago, IL: The University of Chicago Press, 1962/2012), 2.

<sup>66</sup> Foucault, “Nietzsche, Genealogy, History,” 77.

<sup>67</sup> *Ibid.*, 79.

<sup>68</sup> *Ibid.*, 83-84.

<sup>69</sup> Brentjes, review of *1001 Inventions*, 126.

<sup>70</sup> Geller, “1001 Pieces of Islamist Propaganda.”

<sup>71</sup> Adams, “Fact or Fiction?”

<sup>72</sup> *Ibid.*

<sup>73</sup> 1001inventions, “1001 Inventions and the Library of Secrets,” online video, March 3, 2010, <https://www.youtube.com/watch?v=JZDe9DCx7Wk>.

<sup>74</sup> Sonja Brentjes, “Science, Religion, and Education,” in *1001 Distortions: How (Not) to Narrate History of Science, Medicine, and Technology in Non-Western Cultures*, ed. Sonja Brentjes, Taner Edis, and Lutz Richter Bernburg (Würzburg, Germany: Ergon-Verlag, 2016), 141; Brentjes, review of *1001 Inventions*, 126.

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<sup>75</sup> Michel Foucault, *Society Must Be Defended: Lectures at the Collège De France, 1975-76*, ed. Mauro Bertani and Alessandro Fontana, trans. David Macey (New York: Picador, 1997/2003), 178.

<sup>76</sup> “1001 Inventions and the Library of Secrets.”

<sup>77</sup> Foucault, “Nietzsche, Genealogy, History,” 81.

<sup>78</sup> *Ibid.*, 80.

<sup>79</sup> Foucault, *Society Must Be Defended*, 7.

<sup>80</sup> Brentjes, review of *1001 Inventions*, 123.

<sup>81</sup> *Ibid.*

<sup>82</sup> Bruno Latour, *We Have Never Been Modern* (Cambridge, MA: Harvard University Press, 1993), 68.

<sup>83</sup> Kuhn, *The Structure of Scientific Revolutions*, 2.

<sup>84</sup> Foucault, “Nietzsche, Genealogy, History,” 81.

<sup>85</sup> Brentjes, “Science, Religion, and Education,” 148.

<sup>86</sup> Edis and Brentjes, “A Golden Age of Harmony?” 5.

<sup>87</sup> Brentjes, “Science, Religion, and Education,” 137.

<sup>88</sup> *Ibid.*, 141.

<sup>89</sup> Edis and Brentjes, “A Golden Age of Harmony?” 5.

<sup>90</sup> Brentjes, review of *1001 Inventions*, 126.

<sup>91</sup> Mike Diboll, “1001 Inventions and Failed Education Reform in Bahrain,” in *1001 Distortions: How (Not) to Narrate History of Science, Medicine, and Technology in Non-Western Cultures*, ed. Sonja Brentjes, Taner Edis, and Lutz Richter Bernburg (Würzburg, Germany: Ergon-Verlag, 2016), 260.

<sup>92</sup> Brentjes, review of *1001 Inventions*, 120.

<sup>93</sup> Geller, “1001 Muslim Myths.”

<sup>94</sup> Joráti, “Misuse and Abuse of Language,” 112; Brentjes, “Science, Religion, and Education,” 135.

<sup>95</sup> Brentjes, “Science, Religion, and Education,” 135.

<sup>96</sup> Joráti, “Misuse and Abuse of Language,” 112-113.

<sup>97</sup> Joráti, “Misuse and Abuse of Language,” 112; Brentjes, “Science, Religion, and Education,” 135.

<sup>98</sup> Latour, *We Have Never Been Modern*, 97.

<sup>99</sup> Brentjes, review of *1001 Inventions*, 126.

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<sup>100</sup> Brentjes, “Science, Religion, and Education,” 144.

<sup>101</sup> Joráti, “Misuse and Abuse of Language,” 113-114.

<sup>102</sup> Amira K. Bennison, *The Great Caliphs: The Golden Age of the 'Abbasid Empire* (New Haven, CT: Yale University Press, 2009), 1; Benson Bobrick, *The Caliph's Splendor: Islam and the West in the Golden Age of Baghdad* (New York: Simon and Schuster, 2012), ix-x; S. E. Al-Djazairi, *The Golden Age and Decline of Islamic Civilization* (Manchester, UK: Bayt al-Hikma Press, 2006), 1.

<sup>103</sup> Edward Rothstein, “A Golden Age in Science”; Rothstein, “To Each His Own Museum.”

<sup>104</sup> Rothstein, “A Golden Age in Science.”

<sup>105</sup> Pamela Geller, “1001 Pieces of Islamist Propaganda: Fabricated Exhibit Comes to D.C.,” *PJ Media*, August 25, 2012.

<sup>106</sup> Ahmad Dallal, *Islam, Science, and the Challenge of History* (Newhaven, CT: Yale University Press, 2010), 154; Dennis Overbye, “How Islam Won, and Lost, the Lead in Science,” *The New York Times*, October 30, 2001; Matthew E. Falagas, Effie A. Zarkadoulia, and George Samonis, “Arab science in the golden age (750–1258 C.E.), 1584.

<sup>107</sup> Asad Q. Ahmed, “Islam’s Invented Golden Age,” October 28, 2013, <https://www.opendemocracy.net/openindia/asad-q-ahmed/islam%E2%80%99s-invented-golden-age>.

<sup>108</sup> Rothstein, “A Golden Age in Science.”

<sup>109</sup> Rothstein, “To Each His Own Museum.”

<sup>110</sup> Rothstein, “A Golden Age in Science”; Rothstein, “To Each His Own Museum.”

<sup>111</sup> N. M. Riccucci, “Tokenism,” in *Encyclopedia of Race and Racism*, ed. J. H. Moore (Detroit, MI: MacMillan Reference, 2008), 132–134.

<sup>112</sup> Turkish-American TV, “1001 Inventions Exhibition at the National Geographic Museum,” Vimeo video, 15:46, November 19, 2012, <https://vimeo.com/53886789#>.

<sup>113</sup> Edward W. Said, *Orientalism* (New York: Vintage Books, 1994), 118-119.

<sup>114</sup> Harris, “Debunking the Golden Age of Islam.”

<sup>115</sup> Edis and Brentjes, “A Golden Age of Harmony?” 3.

<sup>116</sup> Harris, “Debunking the Golden Age of Islam.”

<sup>117</sup> E.g., Fernández-Morera, *The Myth of the Andalusian Paradise*.

<sup>118</sup> Merriam-Webster, “Dhimmi,” Accessed May 1, 2019, <https://www.merriam-webster.com/dictionary/dhimmi>.

<sup>119</sup> Geller, “1001 Muslim Myths.”

<sup>120</sup> Rothstein, “A Golden Age in Science.”

<sup>121</sup> Geller, “1001 Muslim Myths.”

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<sup>122</sup> Ibid.

<sup>123</sup> Geller, “1001 Pieces of Islamist Propaganda.”

<sup>124</sup> Rothstein, “A Golden Age in Science.”

<sup>125</sup> Edis and Brentjes, “A Golden Age of Harmony?” 3.

<sup>126</sup> Harris, “Debunking the Golden Age of Islam”; Geller, “1001 Pieces of Islamist Propaganda.”

<sup>127</sup> Brentjes, “Science, Religion, and Education,” 141.

<sup>128</sup> Edis and Brentjes, “A Golden Age of Harmony?” 4.

<sup>129</sup> Ibid., 3.

<sup>130</sup> Brentjes, “Science, Religion, and Education,” 134.

<sup>131</sup> Ibid., 141-142.

<sup>132</sup> Edis and Brentjes, “A Golden Age of Harmony?” 4.

<sup>133</sup> Brentjes, “Science, Religion, and Education,” 140.

<sup>134</sup> Ibid., 137-138.

<sup>135</sup> Harris, “Debunking the Golden Age of Islam.”

<sup>136</sup> Geller, “1001 Pieces of Islamist Propaganda.”

<sup>137</sup> Rothstein, “A Golden Age in Science.”

<sup>138</sup> Ibid.

<sup>139</sup> Foucault, “Nietzsche, Genealogy, History,” 7.

<sup>140</sup> Ibid., 70.

<sup>141</sup> Rothstein, “To Each His Own Museum.”

<sup>142</sup> Adams, “Fact or Fiction?”

<sup>143</sup> 1001Inventions, “NBC News Conference with Conan Nolan - Los Angeles,” video, June 2, 2011, [https://www.youtube.com/watch?v=MGOG\\_1q0ZcM](https://www.youtube.com/watch?v=MGOG_1q0ZcM); Turkish-American TV, “1001 Inventions Exhibition.”

<sup>144</sup> Rothstein, “A Golden Age in Science.”

<sup>145</sup> Murray, *Islamophilia*, 17.

<sup>146</sup> Ibid.

<sup>147</sup> Enebakk, “1001 Pieces of Islamist Propaganda?” 265.

<sup>148</sup> Edis and Brentjes, “A Golden Age of Harmony?” 4.

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<sup>149</sup> Brentjes, “Science, Religion, and Education,” 135; Enebakk, “1001 Pieces of Islamist Propaganda?” 265.

<sup>150</sup> Geller, “1001 Pieces of Islamist Propaganda.”

<sup>151</sup> Ibid.

<sup>152</sup> Harris, “Debunking the Golden Age of Islam.”

## Chapter V: Conclusion

The rhetorical goal of *1001 Invention* can be found within the exhibition's motto: "A journey to the past . . . To build and design a better future!"<sup>1</sup> This exhibit remembers the Golden Age of Islam not just because it is an interesting era, full of notable scholars; its stated intent is to counter-memorialize the past in order to change the way we live today and create a better world. This better world, as revealed throughout my analysis, entails two major characteristics: widespread intercultural tolerance, and robust scientific scholarship. *1001 Inventions* displays and enacts these themes as defining aspects of the Golden Age, and in so doing, encourages audiences to live up to them as standards for how to live and act. To return to the question at the heart of this project: How does *1001 Inventions* design memories of the Golden Age of Islam to counter Islamophobia in the modern world?

*1001 Inventions* presents the Golden Age of Islam as an important era of great scientific innovation and enlightened intercultural tolerance, placing it alongside and directly linking it to the European Enlightenment as another crucial period of human history. This represents a re-writing of a Western tradition that largely ignores the Golden Age of Islam. This exhibit and its companion book use memories of the Golden Age to shift the perspective of audiences and depict Islam as a scientific and tolerant religion. *1001 Inventions* merges past and present, Islam and the West, and religion and science, pushing back against anti-Islam discourses and what Latour would call a "modern" viewpoint.<sup>2</sup> However, because it emphasizes merger, often to the exclusion of division, this exhibit partially reifies the Western narrative of progress and in some ways, essentializes Islam. In this final chapter, I offer summaries of the previous content chapters, a discussion of limitations and possible directions for future research, and some final thoughts on what it means to counter-memorialize from an ironic perspective.



## Summary of Chapters

### *Chapter II*

Salim al-Hassani, creator of *1001 Inventions*, argues that the Golden Age of Islam is a forgotten era, an important historical period that has been effectively erased from Western memories.<sup>3</sup> Chapter two explores the way that *1001 Inventions* counters typical Western views of history, presenting the Golden Age of Islam as an era of intercultural tolerance and great scientific achievement. In this chapter, I begin to answer my overarching question about the way this exhibition counters contemporary Islamophobia. Specifically, this chapter addresses the question, in what ways does *1001 Inventions* construct a new and different perspective on the Golden Age of Islam? This analysis builds on the work of James Farrell, who connects memory theory to Kenneth Burke's four master tropes.<sup>4</sup> Farrell is focused on the concept of representation, whereas I concentrate on Burke's ideas about perspective.

The exhibition's opening film, "1001 Inventions and the Library of Secrets," uses the metaphor of light to "illuminate" the audience and shift their perspective on the past, introducing the Golden Age of Islam as a time period worth remembering.<sup>5</sup> The three children in this film act as proxies for an ignorant but inquisitive Western audience, surprised by the amount of historical information they never learned in the classroom. Before visitors even enter the exhibit proper, this on-screen narrative establishes several important dimensions of *1001 Inventions*: the idea that people in the West do not currently know about the Golden Age of Islam; the idea that elements of the past carry forward into the present and that technological development is a continuous, unbroken process; and the idea that the people of the West owe a debt to the Islamic world for all the scientific achievements of the Golden Age. At the end of their adventure, the children are asked to "Spread the word" about the past accomplishments of Muslim Civilization;<sup>6</sup>

this request establishes an expectation that visitors to this exhibition will share its anti-Islamophobic message with others.

After looking at the metaphor of light as presented in “Library of Secrets,” chapter two shifts to two more Burkean tropes: metonymy and synecdoche. In this chapter, I examine the way that together, the objects and individuals on display metonymically encapsulate the exhibit’s two major themes: science and tolerance. Donna Haraway’s essay about vision and situated knowledges helps guide this portion of the analysis.<sup>7</sup> *1001 Inventions* delivers a person-centric history of science, tracing objects and ideas of the present backwards to the individuals who invented or developed them. The actors of the exhibition, live and video-recorded, contribute new and varied perspectives on this forgotten era. Knowledge is shown to be contextual, contingent phenomena, rather than disembodied Truth that comes from nowhere. Furthermore, the exhibition features a diverse range of historic figures, including several women and non-Arab, non-Muslim figures. These figures embody the notion of tolerance that *1001 Inventions* is working to promote.

*1001 Inventions* tells a new story about the Golden Age of Islam, one that is not generally told in the West. With zones dedicated to markets, hospitals, schools, homes, and other important aspects of human community, this exhibition reads as a synecdochic microcosm of the Golden Age of Islam, a full if condensed representation of an era that is best defined by intercultural tolerance and scientific excellence. Objects like the elephant clock reinforce this message, conveying both of the central themes in a concise and vibrant way. In these ways, *1001 Inventions* presents a novel counter-memorial perspective on the Golden Age of Islam, inviting the audience to live up to its established norms of tolerating those who are culturally different, appreciating scientific scholarship, and telling the truth about the past.

### Chapter III

*1001 Inventions* styles itself as an authoritative version of the Golden Age of Islam. The perspective that the exhibition displays, characterized by themes of science and tolerance, is clearly meant to counter attitudes that Islam is a violent, intolerant, and anti-intellectual religion. However, chapter three digs deeper into this perspective, bringing Burke's final trope, irony, into the theoretical mix. I look at three main conceptual pairs—past and present, Islam and the West, religion and science—and ask, to what extent does this exhibition counter-memorialize the Golden Age of Islam from a humbly ironic perspective? In other words, does it balance its new perspective on the Golden Age against existing ones, simultaneously recognizing truth in each? Because *1001 Inventions* merges these pairs, with little respect to division, this exhibit and its companion book do not deploy irony in their depiction of the Golden Age. In this chapter, I employ Bruno Latour's notion of the moderns to justify my selection of key terms.<sup>8</sup> I also link Michel Foucault's notion of counter-memory to the concept of irony.<sup>9</sup> The three pairs featured in this chapter are variously defined with relationships of similarity, contiguity, and causality. Ultimately, I conclude that the way *1001 Inventions* merges these pairs detracts from its counter-memorial force, leaving room for critics to attack *1001 Inventions* and its message.

The first pair I address is past and present. Although this exhibition does allow for some differences between the Golden Age and now, it largely merges these time periods by demonstrating their essential similarity and showing the ways that the scholarship of the past has directly influenced the way we live now. Two areas of the exhibit, in particular, merge past and present: the Home Zone (“The thousand-year-old inventions that still shape everyday life”) and the Hospital Zone (“How ancient approaches to health have influenced today's medicine”).<sup>10</sup> The merger of past and present counters the modern notion that the present has completely broken

from the past; however, by presenting a continuous image of historical progress, it also conflicts with Foucault's characterization of counter-memory as a disruptive, disrupted version of history.

The second conceptual pair I examine in this chapter is Islam and the West. Within the exhibition, these two conceptual entities are merged in multiple ways. For example, the Town Zone ("Why East and West share so much architectural heritage") depicts the ways in which these cultures share visual markers, the Home Zone shows how people from these two cultures live similar lives, and the School Zone shows some language overlap.<sup>11</sup> The exhibit also merges Islam and the West by showing contiguity between them; this relationship is particularly prevalent in the Market Zone ("How influential ideas spread through travel and trade").<sup>12</sup> Finally, Islam and the West are also depicted with a cause-and-effect relationship, invoking the notion of "debt" and showing the ways in which Western scholars (particularly scholars of the Enlightenment) were influenced and inspired by the scholars of the Golden Age. In order to merge these concepts, *1001 Inventions* essentializes Islam and the West, portraying them as cultural monoliths. This rhetorical move provides space for critics to re-divide where the exhibit merges, pointing out differences between and within these internally diverse cultural groupings.

Finally, I look at the way this exhibition deals with the historically fraught relationship of religion and science. Under the modern constitution, science represents an objective and infallible perspective on reality, while religion is lumped in with philosophy, rhetoric, and other suspect forms of knowledge.<sup>13</sup> Within *1001 Inventions*, however, these two terms are merged, defined by a cause-and-effect relationship. This relationship operates in only one direction; religion is shown to be the patron and inspiration of scientific scholarship. Without Islam, this exhibit argues, science could not have existed during the Golden Age in the same way, and perhaps not at all. The Qur'an, the *hadiths*, and the story of the prophet Muhammad are all

invoked as evidentiary support for the strong relationship between religion and science. The mentions of Islam and the various customs and rituals of this religion represent a perspective not often seen by non-Muslims in the West. However, as with the other mergers, this simplistic, non-ironic depiction of a complex pair renders this exhibition vulnerable to criticism from the very Islamophobic voices it seeks to oppose.

#### *Chapter IV*

Because *1001 Inventions* does not counter-memorialize the Golden Age of Islam from a humbly ironic perspective, it creates an opportunity for critics to re-divide the merged terms at the heart of its message. In chapter four I look at negative reviews of the exhibition, written both by academic critics, who engage *1001 Inventions* from a scholarly position, and by polemic critics, whose main goal in criticizing this exhibition is to undermine and attack Islam. This chapter asks, what rhetorical vulnerabilities in the perspective offered by *1001 Inventions* are addressed and exploited by critics? Guided by the Kristin Hoerl's analysis of negative film reviews, I examine 10 publications that critique *1001 Inventions*.<sup>14</sup> I argue that counter-memorializing can benefit from the use of an ironic perspective. Further, I link Foucault's notion of genealogy to the idea of irony in counter-memorializing. Had this exhibition been designed with a humbly ironic perspective and taken a more genealogical approach to tracing the past, it would have been at least partially inoculated against these "objective" one-sided critiques.

The first type of criticism aimed at *1001 Inventions* says that this exhibit misrepresents the past, falsely merging it with the present and distorting the concept of science. First, critics contest the claims of origin made by the exhibit, arguing that many of the items and ideas on display were invented before the Golden Age. Polemic critics, in particular, accuse *1001 Inventions* of lying to make Islamic history look better. An ironic approach to display, I argue,

would recognize historical contributions without perpetuating the lone hero-inventor mythos.<sup>15</sup> Second, critics push back against the simple cause-and-effect relationship that this exhibit portrays between past and present. An ironic perspective would allow audiences to see all the historical continuities and discontinuities, failures and successes, from the Golden Age to today. Third, academic critics are concerned about the way this exhibit conflates past and present versions of science; an ironic narrative would hold both differences and similarities in tension and recognize the value of all scholarship, rather than dismissing past scientific practices as unimportant or irrelevant to the science of today.

The second strain of criticism argues that this exhibit oversimplifies concepts and cultures, presenting a false picture of the relationship between Islam and the West and distorting the concept of tolerance as it existed during the Golden Age. First, academic critics point to the exhibit's imprecise definitions of "Islam" and "the West" and argue that *1001 Inventions* falsely depicts them as monoliths. The simplistic merger of these two cultures reveals an Orientalizing impulse to essentialize; an ironic perspective would see both differences and similarities between and within these concepts. Second, many critics argue that a consequence of homogenizing the Islamic world is that women, non-Arabs, and non-Muslims from the Golden Age are not truly recognized as important scholars. Their inclusion in the exhibition often seems more like tokenism than true intercultural tolerance. An ironic approach would contextualize the lives of these individuals and allow their voices to come through clearly. Finally, polemic critics bring up unpleasant aspects of the Golden Age—discrimination, conquest, slavery—and argue that the exhibit presents a sanitized version of this period to erase a violent past. Although this criticism is clearly coming from a place of Islamophobia, this exhibit could inoculate itself against these critiques with an ironic approach that sees both the good and bad nuances of history.

Critics argue that the misrepresentation and oversimplification of *1001 Inventions* is all done in support of an ideological goal: to promote Islam as a legitimate and important identity within the modern world. Academic critics argue that this exhibit is an exercise in Islamic apologetics, entirely concerned with identity and self-esteem. Polemic critics assert that *1001 Inventions* is propaganda, aimed at indoctrinating children and fooling Western visitors. These reviews divorce religion from science, asserting that the two cannot exist in tandem. They also divide rhetoric from science, tacitly arguing that having a viewpoint and rhetorical goals is incompatible with presenting an objective view of that past. Instead, an ironic perspective would recognize all the compatibilities and tensions between rhetoric, religion, and science, providing a more robust picture of the Golden Age.

#### Limitations and Directions for Future Research

There are several limitations to the perspective taken by this project. First of all, this dissertation only examines one case study, one collected set of memories about the Golden Age of Islam. This depiction of the Golden Age is, of course, limited in what it chooses to memorialize about the era. Other than negative historical happenings such as conquest, violence, and slavery, discussed by the critics of the exhibit, this exhibition focuses on science, medicine, and mathematics and does not spend much time discussing art, politics, philosophy, and other aspects of knowledge and society often associated with the Golden Age of Islam. Of course, when dealing with a period as lengthy (between 500 and 1000 years) and as long ago (at least 400 years) as the Islamic Golden Age, historical traces abound but the ability to form a complete picture of the period is nonexistent. This inevitable incompleteness is due, in part, to the processual nature of memory: memory is never finished, it constantly evolves and changes in accord with new information and attitudes about the past and present.<sup>16</sup> Collective memory

builds on, edits, and selectively reconfigures the past in order to serve the ever-shifting needs of the present.<sup>17</sup> There are various other memories of the Golden Age available in the public sphere, including several notable books and documentaries.<sup>18</sup> *1001 Inventions* is merely one of the most widely known and circulated. Additional research projects could analyze other depictions of the Golden Age to develop a more comprehensive account of how this era is remembered today.

This project is further limited by its sole focus on the Golden Age of Islam. Counter-memory is an often-used tool of marginalized groups, those that are defined by what Foucault calls “subjugated knowledges” and that want to share their previously suppressed perspective with the world.<sup>19</sup> Many of these groups may be presenting their own one-sided perspective of the past to counter hegemonic memories, but this project demonstrates that an ironic perspective may provide a stronger means of using counter-memory to oppose negative stereotypes and ward off negative criticism. Future research could look for other counter-memorial efforts by groups that have been demonized by mainstream society and analyze the perspective it puts forth. For example, rhetoricians could study the counter-memories of women in relationship to male-dominated narratives about women’s health; those of Japanese-American families regarding the internment camps of the 1940s; or perhaps Palestinian accounts of the formation of Israel. Studying the perspective taken within these counter-memories could provide a better sense of whether Burkean irony provides a valuable means of communicating the past; they could also provide further discussion of what constitutes an ironic perspective on the past and what exactly that perspective looks like.

The concept of perspective is central to this analysis; I would like to acknowledge my own perspective as a white, non-Muslim inhabitant of a traditionally Western nation. I do not want to reify the modern idea that knowledge is disembodied and emerges from nowhere; the



perspective upon which this dissertation is built is very much my own. Although the intended audience of this exhibition is twofold—aimed at inhabitants of both traditionally Western and predominantly Islamic nations—this project focuses on the way *1001 Inventions* works to shift the perspective of Western audiences that have long been exposed to anti-Islam discourses.<sup>20</sup> Future projects could more thoroughly consider the way *1001 Inventions* is designed to shift the point of view of Muslim audiences, to bolster their self-image and counter any feelings of inferiority that may have arisen from the ubiquity of Western narratives of success.

Furthermore, my project did not collect or consider the perspective of visitors to the *1001 Inventions* exhibition other than that of myself and various reviewers. Other visitors to the exhibition and readers of the companion book—young and old, Muslim and non-Muslim, Western and otherwise—could offer valuable insight as to the strength and effectiveness of the anti-Islamophobic messages of *1001 Inventions*. Future projects related to this exhibition could include qualitative research that asks audiences for their perspective on and attitudes about the Islam, their existing knowledge of the Islamic Golden Age, their reactions to *1001 Inventions*, and their experience of engaging with the exhibit or reading the companion book. The data collected by these researchers could help us to better understand the value of the counter-memorial perspective put forth by *1001 Inventions*.

Audience interaction is key to the world created by *1001 Inventions*. Al-Hassani says that the exhibit is “built on the principles of edutainment”: education and entertainment all wrapped up in a single package.<sup>21</sup> This exhibition cannot be equated with a stuffy museum display of priceless objects sequestered behind glass; instead, visitor participation is highly encouraged. Throughout this dissertation, I work to include my own voice as a visitor to the exhibition, but the experiential aspect of museum rhetoric is not a major focus of this dissertation. Museums

represent a unique mode of memorial display; experiential knowledge is key to their rhetoric.<sup>22</sup> Future research could examine the way that this exhibition and others like it invite audiences to become involved with the counter-memories on display. Furthermore, additional scholarship could be done to explore what exactly an ironic museum experience would be like; what is the best way to display miscellaneous and contradictory perspectives on the past?

### Final Thoughts

This project shows the way in counter-memorializing can benefit from adopting an ironic perspective on the past, a perspective that includes many voices and contextualizes both positive and negative aspects of historical progression. However, *1001 Inventions* does not advocate for a multiplicity of perspectives on the Golden Age of Islam; it provides one set of memories about this period as a time of scientific erudition and expertise and seeks to supplant existing memories of the middle ages as “dark” and ancient Muslim civilization as uncivilized. For Burke, irony is the “perspective of perspectives”; it operates by holding “conflicting perspectives in productive tension.”<sup>23</sup> This exhibit does not display irony in its counter-memorial depiction of the Golden Age. Whereas true irony understands a situation in multiple sets of terms, the goal of this exhibit is to present a single perspective, one set of counter-memories designed to supplant anti-Islam discourses that Islam is a backwards, violent religion that has contributed little to the world’s scientific progress. This is a worthwhile goal, of course, but one that is undermined by the limited perspective this exhibit offers. This project reveals the value of an ironic perspective in counter-memorial display. True illumination of the past can arise from memorializing a multitude of conflicting, contradictory voices, all contributing to a golden understanding of that which has come before.

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<sup>1</sup> “Productions,” last modified 2015, <http://1001inventions.com/Productions>.

<sup>2</sup> Bruno Latour, *We Have Never Been Modern* (Cambridge, MA: Harvard University Press, 1993).

<sup>3</sup> National Geographic, “Salim Al-Hassani: 1001 Inventions,” Youtube video, November 5, 2012, <https://www.youtube.com/watch?v=879kqbx9rqc>.

<sup>4</sup> Kenneth Burke, “Four Master Tropes,” *The Kenyon Review* 3 (1941); James Farrell, “The Speech Within: Trope and Performance in Daniel Webster’s Eulogy to Adams and Jefferson,” *Rhetoric and Political Culture in Nineteenth-Century America*, ed. Thomas Benson (East Lansing: Michigan State University Press, 1997), 15-37.

<sup>5</sup> 1001inventions, “1001 Inventions and the Library of Secrets,” online video, March 3, 2010, <https://www.youtube.com/watch?v=JZDe9DCx7Wk>.

<sup>6</sup> “1001 Inventions and the Library of Secrets.”

<sup>7</sup> Donna Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective,” *Feminist Studies* 14, No. 3 (1988), 575-599.

<sup>8</sup> Bruno Latour, *We Have Never Been Modern* (Cambridge, MA: Harvard University Press, 1993).

<sup>9</sup> Michel Foucault, *Society Must Be Defended: Lectures at the Collège de France 1975-1976*, ed. Mauro Bertani and Alessandro Fontana (New York: Picador, 1997), 66-70; José Medina, “Toward a Foucaultian Epistemology of Resistance: Counter-Memory, Epistemic Friction, and *Guerrilla* Pluralism,” *Foucault Studies* 12 (2011), 14-15.

<sup>10</sup> *1001 Inventions*.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Latour, *We Have Never Been Modern*, 35.

<sup>14</sup> Kristen Hoerl, “Mario Van Peebles’s Panther and Popular Memories of the Black Panther Party,” *Critical Studies in Media Communication* 24, No. 3 (2007).

<sup>15</sup> Rainer Brömer, “Only What Goes Around Comes Around: A Case Study on Revisionist Priority Disputes—Circulation of the Blood,” in *1001 Distortions: How (Not) to Narrate History of Science, Medicine, and Technology in Non-Western Cultures*, ed. Sonja Brentjes, Taner Edis, and Lutz Richter Bernburg (Würzburg, Germany: Ergon-Verlag, 2016), 208.

<sup>16</sup> Barbie Zelizer, “Reading the Past Against the Grain: The Shape of Memory Studies,” *Review and Criticism* 12 (1995), 218.

<sup>17</sup> Carole Blair, “Communication as Collective Memory,” in *Communication as... Perspectives on Theory*, ed. Gregory J. Shepherd, Jeffrey St. John, Ted Striphas (Thousand Oaks, CA: Sage Publications, 2006), 54.

<sup>18</sup> E.g. Jim al-Khalili, *The House of Wisdom: How Arabic Science Saved Ancient Knowledge and Gave Us the Renaissance* (New York: The Penguin Press, 2011); John Freely, *Light From the East, How the Science of Medieval Islam Helped to Shape the Western World* (London: I.B. Tauris, 2011); Maria Rose Menocal, *The Ornament of the World: How Muslims, Jews, and Christians Created a Culture of Tolerance in Medieval Spain* (United States of America: Little, Brown and Company, 2002); “Documentaries,” accessed May 11, 2019, <http://www.1001inventions.com/media/documentaries>.

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<sup>19</sup> Foucault, *Society Must Be Defended*, 7-9.

<sup>20</sup> Christopher Torchia, “‘1001 Inventions’ Spotlights Muslim Innovation,” *SF Gate*, 2017, <http://www.sfgate.com/entertainment/article/1001-Inventions-spotlights-Muslim-innovation-3254775.php>.

<sup>21</sup> Turkish-American TV, “1001 Inventions Exhibition at the National Geographic Museum,” Vimeo video, 15:46, November 19, 2012, <https://vimeo.com/53886789#>.

<sup>22</sup> David W. Scott, “Dinosaurs on Noah’s Ark? Multi-Media Narratives and Natural Science Museum Discourse at the Creation Museum in Kentucky,” *Journal of Media and Religion* 13 (2014), 236; Greg Dickinson, Brian L. Ott and Eric Aoki, “Spaces of Remembering and Forgetting: The Reverent Eye/I at the Plains Indian Museum” *Communication and Critical/Cultural Studies* 3, No. 1 (2006), 27-47.

<sup>23</sup> Burke, “Four Master Tropes,” 512-13.