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THE UNDERWOOD STEREOGRAPH TRAVEL SYSTEM: A HISTORICAL AND  
CULTURAL ANALYSIS

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A Thesis

In

The Department

of

Communication Studies

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## ABSTRACT

This study considers the implications of the “stereoscopic tours” and Travel System produced by the American photographic concern Underwood & Underwood, c. 1897-1912 from the perspective of social and cultural history. After providing an account of the history of the European and American stereo industries, a cultural-contextual reading of stereoscopic tourism is offered. This reading focuses on two main aspects of late 19<sup>th</sup> century American society: middle-class tourism, and burgeoning U.S. expansionism. A conclusion points the way to further study by considering the stereograph’s role in the shift towards the visual bias of knowledge.

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## TABLE OF CONTENTS

LIST OF ILLUSTRATIONS.....	vi
INTRODUCTION.....	1
A Brief Account of the Non-History of the Stereograph	
CHAPTER 1.....	19
Historical Overview, Part 1: The Stereograph in Europe, c.1839-1862	
CHAPTER 2.....	40
Historical Overview, Part 2: The Stereograph in the United States, c.1850-1939	
CHAPTER 3.....	73
Evolution of the Underwood Travel System: c.1897-1912	
CHAPTER 4.....	96
Cultural Context and Analysis, Part 1: The Travel System and the Rise Of Modern Tourism	
CHAPTER 5.....	113
Cultural Context and Analysis, Part 2: The Travel System and United States Expansionism	
CONCLUSION.....	133
NOTES.....	126
WORKS CITED.....	161
APPENDIX A.....	173
Underwood & Underwood Price Guide, 1908	
APPENDIX B.....	181
List of Underwood & Underwood Publications	

## LIST OF ILLUSTRATIONS

Figure	Page
1. "Traveling by the Underwood Travel System," 1908.....	2
2. Wheatstone's Reflecting Stereoscope.....	22
3. Drawings Used by Wheatstone.....	22
4. Brewster's Refracting Stereoscope.....	25
5. Manufacturing Stereographs, 1865.....	36
6. Manufacturing Stereographs, 1860.....	36
7. "Séance de stéréoscopie avec Alexis Gaudin," 1875.....	37
8. Viewing Bank of Stereoscopes, 1868.....	37
9. "The Great Interior Basin," 1873.....	48
10. "Below the Tower, Winter Niagara N.Y.," c.1869.....	48
11. Elmer and Bert Underwood.....	52
12. Canvassing Case.....	56
13. "The fresh view agent soliciting" .....	56
14. Examples of Underwood Letterhead.....	79
15. "Environs of Athens," 1908.....	83
16. "Plan of the Acropolis of Athens," 1908.....	83
17. "To be within arm's reach of distant countries..." .....	109
18. Two Underwood Views of the War in the Philippines.....	118
19. "St. Peter's and the Vatican" .....	124
20. Comparison of Views.....	126



## INTRODUCTION

### A BRIEF ACCOUNT OF THE NON-HISTORY OF THE STEREOGRAPH

With the mass publication of stereo views of every imaginable subject on earth and in the heavens, the stereoscope became the first universal system of visual communication before cinema and television.

– Alan Trachtenberg, *Reading American Photographs*

Figure 1 is a promotional image published by the American stereograph company Underwood & Underwood in 1908. The viewing device in the man's hand is called a stereoscope, and the object of his gaze is called a stereograph.<sup>1</sup> The picture depicts the cornerstone of Underwood & Underwood's publishing concern: the Underwood Travel System.

For almost ninety years, from the early 1850s to the late 1930s, stereographs were a popular and widely circulated format of photography in North America and Europe.<sup>2</sup> In 1883, the famous photochemist Hermann Vogel wrote, "I think there is no parlor in America where there is not a Stereoscope."<sup>3</sup> Although exaggerated, Vogel's observation indicates the tremendous popularity enjoyed by the apparatus throughout the late 19<sup>th</sup> century and into the first decades of the 20<sup>th</sup>.

The most significant publisher of stereographs at the start of the 20<sup>th</sup> century was Underwood & Underwood. In 1901, the company was the largest producer of stereographic images in the world, manufacturing 25,000 stereographs *per day* and nearly 300,000 stereoscopes annually.<sup>4</sup> In addition to its

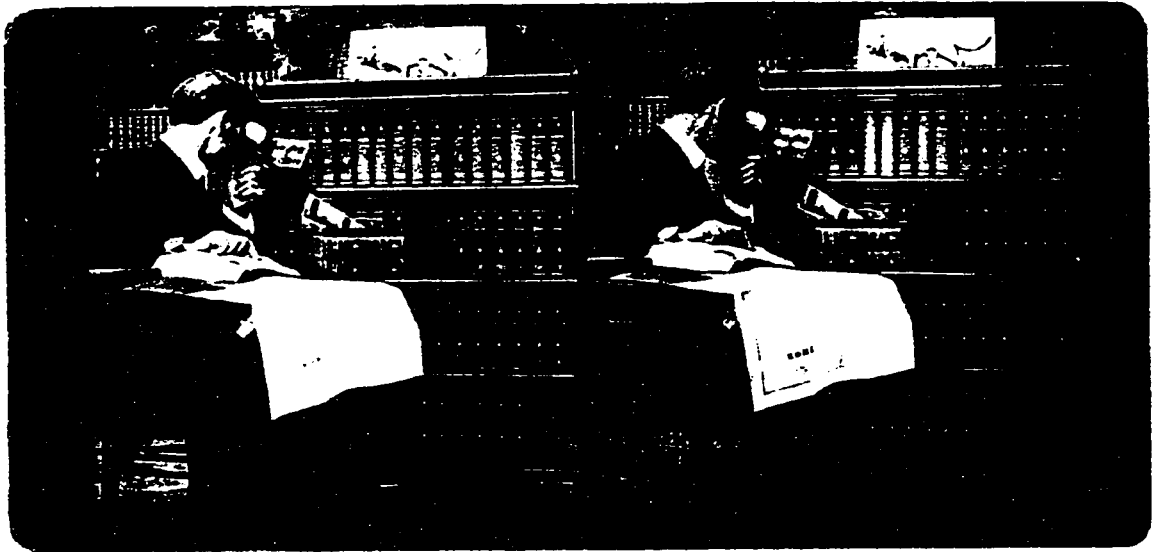
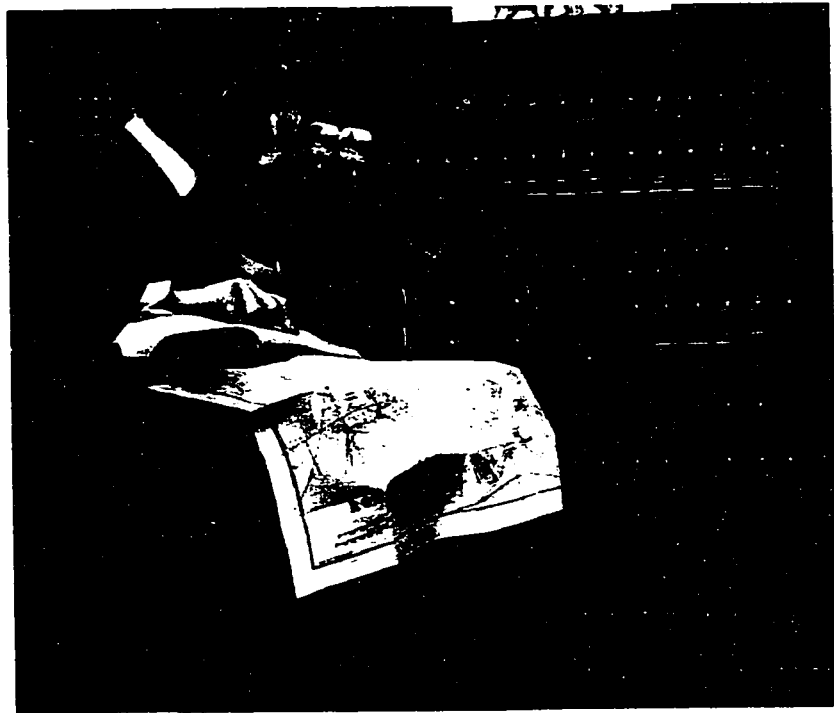


Fig. 1. "Traveling by the Underwood Travel System – Stereographs, Guidebooks, Patent Map System." *Top*, detail. *Bottom*, in addition to being used on the cover of Underwood's 1908 *Price List*, this image was also issued in stereo. From Brey, "Ten Million Stereo Views," 12.

main offices in Ottawa (Kansas), New York, London and Toronto, Underwood<sup>5</sup> opened branch offices in St. Petersburg, Paris, Bombay, Singapore, Shanghai, Manila, El Paso and San Francisco. Supply agencies were established in Moscow, Helsingfors, Stockholm, Berlin, Hambourg, Nuremberg, and Melbourne.<sup>6</sup> Underwood photographers travelled the globe, producing a massive archive of images of virtually every country and region on earth, from the North Pole to remote regions of the Congo.

Underwood's most notable contributions to the stereo trade were the "stereoscopic tours" of different countries that it began selling in 1897. While the idea of arranging stereographs thematically by country or region was not in itself new, the Underwood Travel System was considerably more elaborate than previous collections of views, both in its scope and its claims, vis-à-vis what kind of experience it represented for the viewer.

Underwood's boxed travel-sets were not intended to be simply illustrated travelogues of China, Italy, or Yellowstone Park. According to the company, these collections of views were capable of accurately conveying the *experience* of being in foreign lands. This was possible because, in Underwood's rhetoric, the true "pleasure and profit" of travel lay not in bodily movement but in a tourist's intellectual and emotional responses to what they saw.<sup>7</sup> Since these "*facts of consciousness*" could supposedly be generated by a looking through a stereoscope, the difference between looking at a stereograph of St. Peter's in Rome and actually going there was held to be different only "in the quantity, but not in the kind of feeling."<sup>8</sup>

"It is a scientific fact," Underwood announced in a 1915 manual directed at educators, "that while looking through the instrument, it is not only possible

but it is easy and natural for one to lose all consciousness of immediate bodily surroundings and to gain *real experience of seeing*, of being *present in* the places themselves.”<sup>9</sup> In support of this remarkable claim, Underwood published an endorsement signed by twenty-five leading psychologists.<sup>10</sup>

### Thesis Questions

Even a cursory glance at the history of stereography reveals numerous interesting avenues of research – avenues which, as I will discuss below, have largely not been explored. My plan of study focuses primarily on one period, one company, and one category of photographic publishing undertaken by that concern. This thesis takes the collected sum of stereographic tours, published by Underwood between approximately 1897 and 1912, as its central archive.

Addressing this archive, I will pose the first of two questions:

- 1) How can one account historically for the emergence of the Underwood Travel System?

To answer this question, I will consider the following factors:

- a) The general history of the stereographic industry in Europe and the United States from c. 1850-1939;
- b) the specific conditions that existed in the American stereo trade during the period in which Underwood was actively publishing stereographs, i.e., c. 1881 to 1923.
- c) the institutional history of the Underwood concern; and

- d) the social and cultural context into which the Travel System emerged and which the Travel System in turn influenced.

Following this, I will consider a second question: one that pertains to the significance of stereography for the understanding of visual media history:

- 2) With particular reference to its application in the Underwood Travel System, how and to what extent did the stereograph represent a departure from other forms of contemporary visual media (e.g. photographs, postcards, half-tone reproductions and early motion pictures)?

This question will be addressed as a kind of “minor theme” throughout the entirety of the thesis, as I compare stereographs and the Travel System with other forms of contemporary, competing media. However, as I shall explain in the conclusion, my research has led me to believe that stereographs are best considered not so much as a departure from other forms of visual media, but as an extremely important component in the range of photo-mechanical representational practices that emerged during the 19<sup>th</sup> century.

### **Review of the Literature**

Although stereography was a widely produced and consumed form of photography, there has been surprisingly little academic writing on the subject. Given the stereograph’s significance to the development of modern visual communication, how can we account for its virtual neglect by historians of photography, mass communication and popular visual culture? The answer is

worth addressing because it is deeply entrenched in what have been the *de facto* parameters of photography historiography.

Historical writing which takes the medium of photography as its central subject might still be described as an emerging field. As Jean-Claude Lemagny and André Rouillé note, the most important accounts of the history of photography were only produced after the Second World War.<sup>11</sup> Those written earlier (in the 19<sup>th</sup> and early-20<sup>th</sup> century) tended to be written by amateur historians and scientists and typically focused on the “golden age” of photography’s invention. They rarely, if ever, considered the social and cultural aspects of the medium.<sup>12</sup>

There are exceptions, of course. Most notable is Robert Taft’s *Photography and the American Scene* (1938). Unfortunately, as Richard Rudsill observes, while Taft referred to his work as social history, he in fact stayed well within the bounds of traditional photographic historiography and “did not go far towards defining the overall impact of the medium on American society.”<sup>13</sup> Taft’s chapter on the stereograph is a case-in-point. While containing valuable information for the historian of stereography, the bulk of the chapter is devoted to a technical explanation of binocular vision, and to outlining in chronological order the contributions of important early inventors and entrepreneurs. What social analysis there is appears almost as an afterthought.<sup>14</sup>

Turning to the important post-Second World War references, the lack of detailed historical or socio-cultural accounts of stereography is immediately apparent. The entirety of Beaumont Newhall’s seminal *The History of Photography* (1978), for example, contains only six indexed page references to “stereography.” While Alison and Helmut Gernsheim’s *The History of Photography* (1969) has a

short, informed chapter addressing early Victorian stereography, the index to their popular *A Concise History of Photography* (1965) contains not a single reference to the format.<sup>15</sup> Naomi Rosenblum notes in *A World History of Photography* (1981) that the stereograph helped to assure photography's early appeal. However, after remarking that "its effect on attitudes and outlook in the 19<sup>th</sup> century only recently has become the subject of serious study," she abandons the topic.<sup>16</sup> Like Newhall and the Gernsheims, Rosenblum typically mentions stereography only when discussing the work of a particular photographer, or when commenting on photographic genres (i. e., landscapes) or technological developments (i. e., binocular cameras and "instantaneous photography").<sup>17</sup>

The issue of technological progress is important here. In these texts, invention and discovery are typically presented within a narrative of progress that assumes modern, high-speed colour photography as the teleological endpoint. Stereo photography, which exists today only as a marginalized practice, fits poorly into this story line. In Newhall and Rosenblum's accounts, for example, stereography is subsumed beneath a consideration of the development of "instantaneous" or "snapshot" photography. The implication is that this aspect of stereography represents the medium's key contribution to photographic history.<sup>18</sup>

More so than even technological progress, the dominant theme in post-Second World War photographic historiography has probably been the association of the medium with the fine arts. According to Jonathon Green, the major critical texts on American photography until the 1970s were "ostensibly apologies for photography as art and histories of connoisseurship...Art took precedent over social, economic, and cultural meaning."<sup>19</sup> This approach is

exemplified in the work of the influential critic John Szarkowski, and by the curatorial philosophy of the Museum of Modern Art during the 1960s and 1970s.<sup>20</sup>

As with the theme of technological progress, stereography fit uncomfortably into the project of aesthetic recuperation. As we shall see, stereographs were very much a product of the so-called “industrialization” and commercial exploitation of photography. As mass-produced commodities, stereographs invariably depicted subjects in a manner circumscribed by the ideology of popular taste. Also, the names of stereo photographers are frequently unknown. These qualities of anonymous, standardized presentation and mass appeal were not easily incorporated within the “photography as art” thematic, which scrutinized photographer’s biographies as well as the surfaces of their pictures for signs of creative genius and authorship.

Interestingly, stereography also did not fare well in the ideological counter-movement that began in the 1970s. Susan Sontag, and later Alan Sekula, spearheaded an approach that sought to apply linguistics, sociology, anthropology and Marxist thought to the interpretation of photography.<sup>21</sup> “The critics of the seventies,” observes Green, “were out to raise fundamental questions of epistemology and ontology. They wanted nothing less than to pin down the moral and ideational content and structure of the medium.”<sup>22</sup>

Neither Sontag nor Sekula, however, had much to say about stereography. Both of these writers were preoccupied with undermining notions about photography that existed within established art and documentary discourses – discourses from which stereography had been excluded for much of the 20<sup>th</sup> century. The 70s was essentially a period of reassessing previously held



aesthetic-political conceits, and not of recovering extinct practices or challenging the general contours of photographic history.

In terms of the contributions of professional academics, however, the 70s produced a few notable exceptions. William Welling's *Photography in America: The Formative Years 1839-1900* represents one of the most comprehensive attempts so far to integrate stereography within a more general account of American photographic history.<sup>23</sup> However, while the book presents a considerable amount of information in a "timeline" format, cultural interpretation is kept to a minimum. The weakness of this book highlights what has been a recurrent problem in stereographic historiography: so much work remains to be done in terms of primary research that deeper levels of socio-cultural analysis inevitably take a backseat to what amounts to simply sorting out the facts. Stereo-historiography remains, in large part, an interpretive and theoretical "void."

One publication did break ground in this respect. *Points of View: The Stereograph in America—A Cultural History* (1979) contains a valuable collection of writing on the subject, including works by Howard Becker, Edward Earle, Harvey Green and Thomas Southall.<sup>24</sup> The various essays approach the subject from the perspectives of "Gilded Age" popular culture, 19<sup>th</sup> century art practice, and semiotics. It is an invaluable contribution to the field.

Unfortunately, the publication spawned no imitators. During the 1980s, stereography was rarely, if ever addressed in academic work on the history and theory of photography. This is attributable, at least in part, to that decade's preoccupation with extrapolating the theoretical projects begun in the 70s (for example, consider the influential work of Victor Burgin, John Tagg, and Abigail Solomon-Godeau).<sup>25</sup> It is not an exaggeration to claim that only a handful of

essays contributed to the historical or cultural understanding of stereography during that decade.<sup>26</sup>

The story does not end there, however. In the early 1990s, stereography made a surprising, though not entirely unproblematic, reappearance in the literature.

In the early 90s, the antique stereoscope came to be seen as a precedent for modern, computer-mediated technologies of immersive simulation. Howard Rheingold, writing during the brief-lived virtual reality “craze” of the early 90s, presented the stereoscope as a direct precursor to the computer-generated technological utopia that seemed to him to be waiting just around the corner. According to Rheingold, the invention of the stereoscope led “to a chain of inventions directly connected to today’s head-mounted displays.”<sup>27</sup> In a somewhat more prosaic example, the box for “The Famous Holmes-Bates American Stereoscope Kit,” a model kit produced by Van Cort Instruments, Inc., declared stereography to be “The Virtual Reality of the 19<sup>th</sup> Century!”

Of greater interest, perhaps, is the work of “New Art” historian Jonathan Crary. Also seduced by the possible relationship between the instrument and computer-mediated representational practices, Crary’s influential *Techniques of the Observer* (1992) used Foucauldian-informed theory to re-imagine the instrument as an emblem for shifts in the 19<sup>th</sup> century’s scientific approach to vision and physiology, and touted the instrument as paradigmatic of the institutional production of modern subjectivity. As evidenced by the numerous citations Crary’s book received in later works, *Techniques of the Observer* was a notable contribution – something of a cornerstone, in fact – to the burgeoning field of “visual cultural studies.”<sup>28</sup>

Judged as a contribution to our understanding of the history of the stereograph, however, the work is disappointing. To be fair to Crary, *Techniques of the Observer* was never intended to be a history of stereography. However, owing to the book's popularity and to the fact that it has assumed something of the status of a "key" work on the subject, its shortcomings need to be addressed.<sup>29</sup>

At issue is Crary's cursory handling of stereographic history. Principally, he erroneously overemphasizes stereography's association with erotic imagery, which leads him to make a significant factual error when writing about the format's decline. "It is no coincidence," writes Crary, "that the stereoscope became increasingly synonymous with erotic and pornographic imagery in the course of the 19<sup>th</sup> century."<sup>30</sup> Furthermore, he implies this association contributed to the device's demise: "Some have speculated that the very close association of the stereoscope with pornography was in part responsible for its social demise as a mode of visual consumption. Around the turn of the century sales of the device supposedly dwindled because it became linked with 'indecent' subject matter."<sup>31</sup>

Crary does not offer a citation for either of these claims, and one can only wonder what his sources are. As we will see, the stereo industry did not decline at the turn of the century – in fact, it was in the midst of a renaissance.

Furthermore, while pornographic views existed, other genres (such as landscapes) were unquestionably much more widely disseminated and undoubtedly played a far more important role in defining the popular understanding of the medium (see chapter one). This is not to say that pornographic imagery did not exist. Although Darrah notes that no pornographic stereographs were commercially produced in the United States

prior to 1900, he points out that they were common enough in London and Paris in the 1850s to attract attention by the press and police.<sup>32</sup> The point is, however, that pornography almost certainly did not define the social reception and understanding of stereography in Great Britain and North America any more than it did that of photography. While it remains an interesting avenue of inquiry, the contribution of illicit erotic imagery to the popular understanding of the stereograph cannot honestly or adequately be addressed at the present time, owing to a near-complete lack of research. Given the importance of other factors (such as competing media, the inevitable ebb and flow of fashion, and socio-economic factors such as changes in relative levels of disposable income), I would hesitate to overprescribe the role played by pornography in the stereoscope's first (and temporary) demise in the late 1860s, or its seemingly fatal decline after 1925.

The fact that Crary's work has received little if any criticism for its poor handling of stereographic history is indicative of larger problem, which is the nearly complete absence of the topic from the standard references of photographic history. Although the 1990s saw the publication of a few excellent articles that tackled the social and cultural implications of the stereograph, the problem has not improved significantly in the last decade.<sup>33</sup>

Given this dearth of secondary sources, how does one begin to assemble a history of stereography, let alone present a social/ cultural analysis of a specific application of the stereograph (i.e., the Underwood Travel System)? More germane in this case, how and where does one begin for the purposes of a Masters thesis?

To compensate for the lack of information, I have undertaken two avenues of research. The first has been an attempt at a comprehensive reading and comparison of the key secondary texts, including the work of *amateur* historians. The lacuna in the standard references has been illuminated, somewhat, by the work of collectors and hobbyists. Most prominent among them is William Culp Darrah, whose *Stereo Views* (1964) and *The World of Stereographs* (1977) are the most complete sources of information on American stereography currently in existence.<sup>34</sup> Although these two books present a wealth of information available no where else, it should be noted that Darrah was an amateur historian and collector, and the usefulness of his work is limited by the lack of adequately documented sources. In addition, Darrah was addressing an audience primarily comprised of collectors, who were concerned with ordering and assigning value to their holdings. Consequently, Darrah did not attempt to provide anything beyond a rudimentary interpretive framework for his historical narrative. Nevertheless, Darrah's work draws considerable value from its author's deep and intimate familiarity with the subject – a familiarity honed through several decades of collecting and researching stereographic images. Given that virtually every article written on the subject in the past twenty-five years makes reference to Darrah, his contributions to the field can justly be considered a starting point to any discussion on the topic of American stereography.<sup>35</sup>

My second avenue of approach has involved archival research directly relating to the Underwood concern, including primary-source documents such as scientific, "trade," and corporate publications. My focus here has been on the period during which the Underwood Travel System emerged, flourished and declined, i.e., c. 1897-1912. Although Underwood sales-records appear to have

vanished, the company left a legacy of images, guidebooks and sales paraphernalia (such as canvasser's manuals and catalogs) that are relatively accessible. The Gutman Library and Rare Book Collection at Harvard University (Cambridge, Massachusetts), for example, contains several Underwood guidebooks along with publications associated with the company's Travel System. The University of Toronto's Rare Book Collection (Toronto, Ontario) possesses a nearly complete copy of *Egypt Through the Stereoscope*. At the California Museum of Photography (Riverside, California), I had access to editions of several Underwood sales catalogs, spanning the period from 1905 to about 1913, as well as Underwood's *India* tour. The photographic archives at the George Eastman House (Rochester, New York) also have a sizable holding of Underwood stereographs and related documents. There, I was able to review two complete tours in detail (*A Trip Around the World Through the Perfecscope* and *Italy Through the Stereoscope*) as well as consult two rare copies of the *Stereographic Photograph*. Interlibrary loans gave me further access to various texts relating to the Underwood operations. I was also able to consult documents pertaining to the Underwood family and stereograph concern courtesy of the Ottawa Kansas Public Library, the Canadian Stereoscopic Library and the Oliver Wendell Holmes Stereoscopic Research Library.<sup>36</sup>

Admittedly, this research is far from complete. More detailed information about the organization and evolution of the Underwood concern, however, is difficult to find – if, indeed it exists. In spite of this, I believe the research conducted for this thesis provides an adequate base from which to investigate the questions posed above.

## Methodology

This thesis is situated within two “developing” or nascent fields of study: the history of stereography and communication history.

Michael Schudson distinguishes between three general approaches to communication historiography. *Macro-history* considers the relationship of media to human evolution and poses the question “how does the history of communication illuminate human nature?” According to Schudson, this approach is exemplified in the work of Harold Innis, Marshall McLuhan, Walter Ong and Eric Havelock. The second approach, which Schudson labels *history proper*, considers the relation of media to cultural, political, economic or social history. It asks “how do changes in communication influence and how are they influenced by other aspects of social change?” Examples of this approach include the work of Elizabeth Eisenstein (the printing press), Jürgen Habermas (the public sphere) and James Carey (the telegraph). The third type of communication history is *institutional history*, which takes the question “how has this (or that) particular institution of mass communication developed?” Social forces outside the institution are considered only as they have affected that institution, and the impact of the institution on society is generally not considered in depth. Asa Briggs (the BBC), Erik Barnouw (American broadcasting) and many others have contributed works to this kind of history-writing.<sup>37</sup>

The investigation in this thesis will take place beneath the rubric of what Schudson considers to be the least developed of the three approaches: “history proper.”<sup>38</sup> The emphasis will be on Underwood stereographic tours as a social and cultural practice. That is, I will examine the inter-relation between the

emergence of commercial stereography in general and the Underwood Travel System in particular, and various pertinent social and cultural factors (such as the advent of mass travel in Europe and North American during the 19<sup>th</sup> century, and U.S. expansionism in the 1890s).

“Proper historians” might well shudder at Schudson’s use of the term “history proper.” Indeed, much effort has been expended in the discipline of history during the last two decades to destabilize the notion of “history proper,” as evidenced by the field’s rejection of a unified approach to historical analysis and by the problematization of the very idea of “history.”<sup>39</sup> In light of this, Schudson’s schematic might appear to point to the poor and backward state of historiography in the field of communication studies.

In fact, a kind of cross-pollination has been taking place between the two fields. This is evident in both the increased interest in historical investigation and analysis in communication departments, and in the so-called “cultural turn” in the discipline of history. Increasingly over the past twenty-five years, according to Lynn Hunt, the discipline of historical analysis has drawn from the methodological approaches of other fields, including literary theory, cultural studies and even, one might add, communication studies.<sup>40</sup> One result of this has been the emphasis on the representational aspect of culture, and the concurrent position that social categories come into being through their expressions or representations.<sup>41</sup> While, as Hunt notes, this position in its extreme form can lead to relativistic nihilism, it also opens broad avenues for consideration, and can facilitate a nuanced analysis of historical events, particularly when balanced with social-historical analysis.<sup>42</sup> The chapters that follow endeavour to proceed in this spirit of balance.



## **Chapter Breakdown**

This thesis is organized around five chapters and a conclusion.

The first two chapters address the general history of stereography. This is necessary, I think, because of the lack of commonly available source material on the subject. Chapter one presents a historical overview of the scientific invention and commercial exploitation of the stereograph in Europe during the period c.1839-1862. Chapter two continues the story in its American context, from the 1850s to the decline of the stereo trade in the 1930s, with particular emphasis on the emergence of the Underwood concern.

Chapter three undertakes a more detailed consideration of the Travel System itself, and recounts what is known about its "invention" and evolution, as well as the methods used in its production.

Chapter four will attempt to account for the emergence of the Travel System by situating it within a much wider social and cultural context: the emergence of middle-class mass travel.

I will continue the social / cultural contextual reading of the Travel System in chapter five. Here, I will examine the emergence of Underwood stereo tours from the perspective of the changing geo-political realities of late 19<sup>th</sup> century / early 20<sup>th</sup> century America. The choice of non-traditional locations for stereo tours (i.e., Panama, the Philippines, and China), I will argue, reflected the changing nature of the United States' political, military and entrepreneurial activities, and facilitated what Elizabeth Strain calls "a discourse of self rendered through the image of the Other."<sup>43</sup> Additionally, I will examine how, in conjunction with a range of other representational practices, the Travel System

worked to perpetuate and sustain the notion that all relevant knowledge about the world – about foreign people, places and events – could be rendered visibly.

The conclusion will attempt to draw together the arguments developed in these chapters and summarize my answers to the thesis questions stated above.

A final discussion will point the way towards further investigation by suggesting potentially fruitful future avenues of research.

## CHAPTER 1

### HISTORICAL OVERVIEW, PART 1: THE STEREOGRAPH IN EUROPE, c.1839-1862

#### **Invention of the Stereoscope**

The history of the stereoscope predates the invention of photography. It begins with the discovery that human depth perception is due, in part, to binocular vision. Writing in the third century BC, Euclid was one of the earliest to record the fact that the right and left eyes see slightly differently from one another, owing to the distance between them. Nearly five hundred years later, Galen made the same observation. He attempted to explain the fact that, in spite of the disparate report of each eye, objects appear coherent and unified, by suggesting that humans saw with only one eye at a time.<sup>1</sup> During the 15<sup>th</sup>, 16<sup>th</sup> and 17<sup>th</sup> centuries, Leonardo da Vinci, Giambattista della Porta, François d'Aguillon, and the Capuchin monk Chérubin d'Orléans all noted the discrepancy between the eyes, but did little to advance the scientific study of stereoscopic vision beyond that.<sup>2</sup> The study of vision was not of chief importance in the 18<sup>th</sup> century, although the work of Dr. Robert Smith (1738) and Joseph Harris (1775) implies a rudimentary understanding of binocular vision.<sup>3</sup>

The subject gained currency in the following century. According to Jonathan Crary, research conducted into the field of vision in the early-1800s was rooted in a fundamental transformation of science's understanding of the human subject.<sup>4</sup> As Martin Jay has succinctly summarized, Crary's work demonstrates that early 19<sup>th</sup> century scientific inquiry "shifted its attention away from the

geometricalized laws of optics and the mechanical transmission of light to the physical dimensions of human sight.”<sup>5</sup> Interest in the physiology and subjective experience of the human observer is evident in the work of a wide range of 19<sup>th</sup> century natural philosophers and scientists, including Goethe, Purkinje and Helmholtz, as well as Wheatstone and Brewster.<sup>6</sup> All of these investigators took the human body as an object of study, and gave new validation to phenomena of subjective vision (which includes deviations from “normal vision,” such as retinal afterimages).

The early 19<sup>th</sup> century’s inquiry into subjective vision produced numerous experimental apparatuses, several of which had an appeal that extended beyond the confines of the laboratory. The vogue for such “philosophical toys” was initiated by the enormous popularity of Brewster’s kaleidoscope (as many as one million kaleidoscopes were sold within a year of their commercial introduction in 1815.)<sup>7</sup> Later inventions such as the thaumatrope, the phenakistoscope, the stroboscopic disk and the zoetrope similarly illustrated scientific principles even as they provided parlour entertainment.<sup>8</sup>

Among these instruments, the stereoscope undoubtedly had the most profound and lasting impact. Its design illustrated two key principles of early 19<sup>th</sup> century scientific investigation into the area of vision: 1) that perception was not instantaneous, and 2) that a disjunction existed between eye and object.<sup>9</sup>

In spite of some controversy at the time, Charles Wheatstone is today recalled as the inventor of the stereoscope. He was apparently the first to suggest that the mind perceives three-dimensional space through the mental combination of a pair of dissimilar two-dimensional images.<sup>10</sup> He was also the first to actually produce and employ pairs of line drawings, made from slightly different vantage

points, to reproduce the discrepancy normally encountered in vision.<sup>11</sup> The apparatus he used for viewing these pairs of drawings he called a stereoscope, the name indicating “its property of representing solid figures.”<sup>12</sup>

The principle behind Wheatstone’s reflecting stereoscope was simple enough. Two images were made from slightly different angles, reproducing the lateral displacement of the human eyes (about two and one-half inches). These images were fixed vertically, facing each other, at opposite ends of a horizontal bar. Between the images was a pair of plane mirrors, attached at right angles (fig. 2). When the viewer put his or her eyes close to the mirrors, they saw the reflected pictures simultaneously, each eye receiving a single image. The combination of the two pictures occurs in the brain, creating an effect which approximates, though as I will discuss below, does not exactly equal bifocal or depth perception.

Stereoscopic vision (or stereopsis) is one of the cues involved in depth perception.<sup>13</sup> It functions only for objects of relatively close proximity to the eyes. As Wheatstone recognized, when an object beyond a certain distance is viewed, the difference between the two images is negligible, owing to the fact that in such cases the optic axes of both eyes are parallel.<sup>14</sup> According to R.L. Gregory, this means that we are effectively one-eyed when viewing objects beyond approximately 100 metres.<sup>15</sup>

The stereoscope, however, does not offer an entirely “naturalistic” three-dimensional representation of objects at any distance. As Crary notes, a stereoscope provides an observer with “an assemblage of local zones of three-dimensionality, zones imbued with a hallucinatory clarity, but which when taken together never coalesce into a homogeneous field.” Crary accurately describes

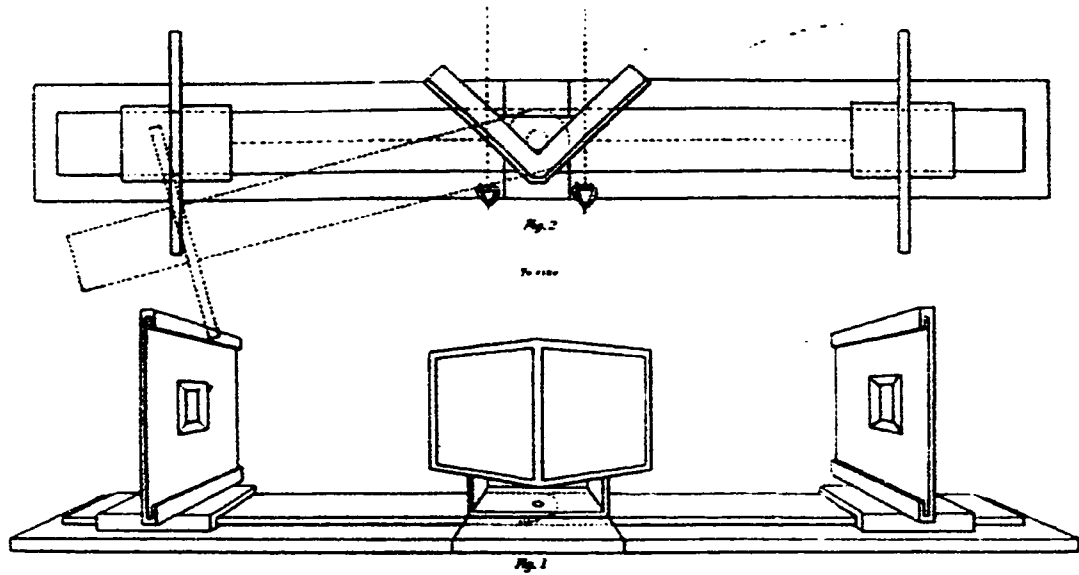


Fig.2. Wheatstone's Reflecting Stereoscope. From Crary, *Techniques of the Observer*, 128.

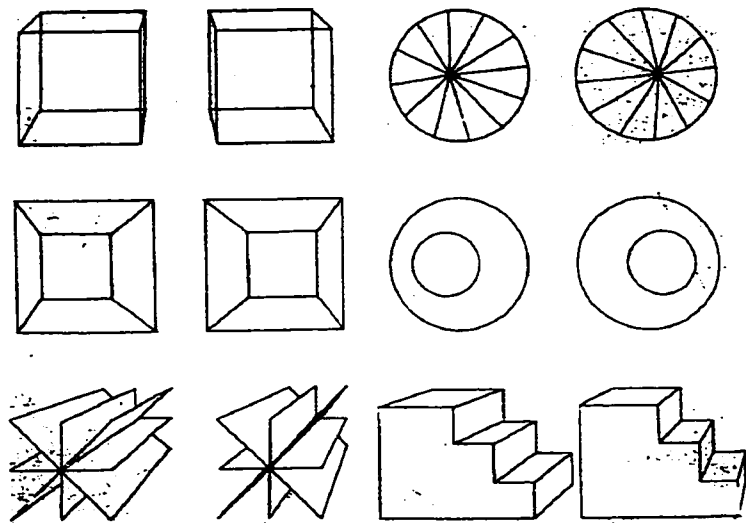


Fig. 3. Some of the drawings used by Wheatstone in his original stereoscope. The use of photographic images made stereoscopy much more practical. From William Brey, "'Some Remarkable Phenomena,' Professor Wheatstone and his Inventions" *Stereo World* (May/June 1988), 8.

the effect as one of viewing a series of flat, cutout forms arranged through a series of sharply delineated planes.<sup>16</sup>

Although an account of Wheatstone's apparatus was printed in Herbert Mayo's *Outlines of Human Physiology* in 1833, Wheatstone did not publish his work in the area of binocular vision for almost six years.<sup>17</sup> A natural philosopher interested in a variety of scientific phenomena, he turned his attention to other experiments (such as measuring the velocity of electricity, and the inventing the first practical electric telegraph.)<sup>18</sup> It was not until 1838, one year before Talbot and Daguerre separately announced their heliographic processes in England and France, that Wheatstone's work in the area of stereoscopic vision became more generally known. In that year he delivered a paper on the subject and demonstrated a model stereoscope to the Royal Society. The paper was subsequently published, and accounts of the apparatus appeared in scientific journals as far away as the United States.<sup>19</sup> At the time, the astronomer and soon-to-be photographer Sir John Herschel referred to the invention as "one of the most curious and beautiful for its simplicity in the entire range of experimental optics."<sup>20</sup>

### **The Application of Photography to the Stereoscope**

Wheatstone's original design utilized stereo pairs of perspectival drawings.<sup>21</sup> Except for simple geometric figures such as cubes, pyramids and steps, producing matched drawings of such exactitude proved to be virtually impossible (fig. 3). Daguerre's public announcement of his heliographic process in Paris in 1839 promised to make stereoscopy much more practical.

The daguerreotype, however, proved to be poorly suited to Wheatstone's viewer. Binocular cameras had not yet been invented, meaning that Daguerreotypists had to move their camera between shots to produce the second image. Owing to the long exposure times of early daguerreotypes, this limited subject matter to landscapes, architecture, sculpture and still-life's. Daguerreotypes were also poorly suited to Wheatstone's viewer, which admitted light from all directions and caused distracting reflections on the dim, polished surface of the picture.<sup>22</sup>

Calotypes were more successful viewed in the reflecting stereoscope. The process, however, required even longer exposure times than daguerreotypy. Under Wheatstone's direction, Richard Beard and the calotypist Henry Collen produced a stereoscopic portrait of the scientist Charles Babbage in 1841.<sup>23</sup> Owing to the fact that the sitter had to remain perfectly still for not one but two lengthy exposures, Collen did not pursue work in this area for some time. Calotype stereo views of inanimate objects, however, were produced through the mid-1840s by photographers such as Fox Talbot, Dr. Percy, B. B. Turner, Alfred Rosling and Roger Fenton.<sup>24</sup>

David Brewster's modifications to Wheatstone's design in 1849, along with improvements in paper and glass negative photographic processes in the early 1850s, made stereography much more practical and attracted the interest of commercial-minded photographers.

Brewster was already known as the inventor of the kaleidoscope and had contributed improvements to optical instruments ranging from microscopes to lighthouse lenses. Like Wheatstone, Brewster was part of a small group of early 19<sup>th</sup> century British scientists who were concerned with visual phenomena.<sup>25</sup>



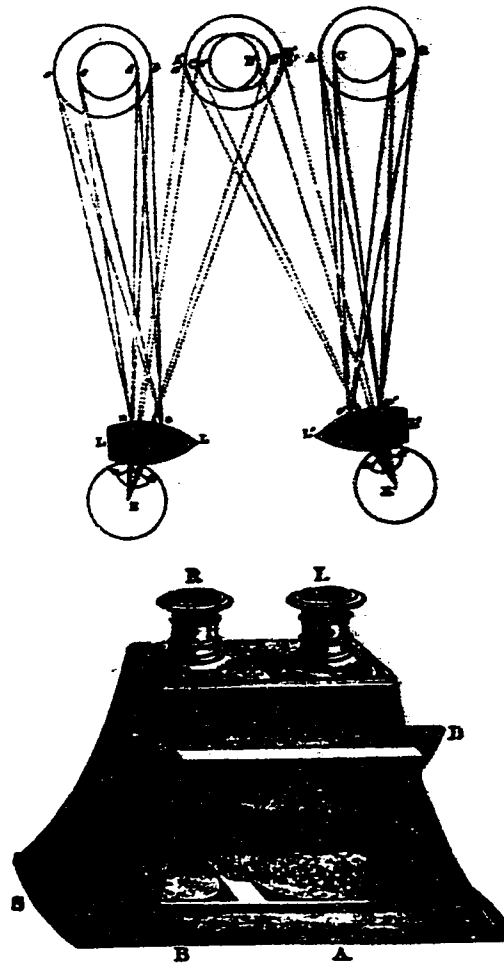


Fig. 4. Brewster's refracting or lenticular stereoscope. From Crary, *Techniques of the Observer*, 121.

Brewster announced his invention of the lenticular (or refracting) stereoscope at the Birmingham meeting of the British Association in 1849.<sup>26</sup> He exhibited a model, constructed by Andrew Ross, at the British Association Meeting the same year. The apparatus utilized a closed-box design, with the stereoscopic pictures resting on the base of the box in front of a pair of semi-lenses, 2.5 in. apart, which acted as both prisms and magnifiers. A lid at the top of the box could be opened to admit light for viewing opaque prints (fig. 4). The stereoscope could be held or secured to a table stand. The lenticular stereoscope had the advantage of being more portable and less expensive to produce than Wheatstone's reflecting stereoscope. It could also accommodate stereo images in different formats.<sup>27</sup>

In spite of the superiority of his apparatus, however, Brewster had difficulty attracting the interest of English opticians. After a year of trying, he went to France, where he was enthusiastically received by the Abbé Moigno, author of *L'optique moderne*.<sup>28</sup>

Legend has it that the two men nearly got no further, however, owing to the physical deficiencies of a number of prominent French *savants*. Brewster and Moigno sought the blessings of the members of the physical section of the *Academie des sciences* for the new stereoscope. However, so the story goes:

Arago unluckily had a defect of vision which made him see double, so that on looking into the stereoscope he saw only a medley of four pictures. The Abbé then went to Savart, but he was quite as incapable of appreciating the thing, for he had but one eye. Becquerel was next visited, but he was nearly blind, and consequently cared little for the new optical toy. The Abbé, not discouraged, called upon Pouillet...He was a good deal interest in the description of the apparatus, but unfortunately he squinted, and therefore could see nothing in it but a blurred mixture of images. Lastly Biot was tried, but Biot was an earnest advocate of the corpuscular theory of light, and until he could be assured that the new contrivance did not contradict

that theory, he *would* not see anything in it. Under the circumstances, the wonder is that the stereoscope ever got fairly into France.<sup>29</sup>

Indeed. Fortunately, Moigno connected Brewster with the eminent Parisian optician Soleil and his son-in-law Jules Duboscq who were, apparently, both fully sighted. Soleil and Duboscq were immediately excited by the possibilities of the new design. According to Brewster, “[they] saw at once the value of the instrument, not merely as one of amusement, but as important auxiliary in the arts of portraiture and sculpture.”<sup>30</sup>

### **Commercial Take-off of the Stereograph**

Brewster did not have success with his stereoscope in England for almost two years, until 1851. That year Duboscq displayed the lenticular stereoscope alongside a number of philosophical instruments at the Great Exhibition, for which he was honoured with a Council medal. More importantly, one of the stereoscopes attracted the interest of Queen Victoria, and Brewster presented a specially constructed viewer to her and Prince Albert before the closing of the Crystal Palace.<sup>31</sup> Albert and Victoria’s admiration for the instrument reported fostered an immediate demand for the stereoscope, both in England and France.<sup>32</sup>

One of the key contributors to (and beneficiaries of) the explosion of interest in the stereoscope that followed was the London Stereoscopic Company. It was formed in 1854, by George Swann Nottage, a man of humble origins and limited education. Nottage quickly expanded his operation from the production of lenticular stereoscope to include stereographs. He dispatched professional photographers to the Middle East and North America.<sup>33</sup> William England, one of the firm’s key photographers, produced views of Ireland (1858), North America

(1859) and Paris (1861). Gernsheim notes that England's series "America in the Stereoscope" excited much interest in England – no doubt in part because it was the first set of stereographic views of American scenery and architecture available to European viewers.<sup>34</sup>

Within two years of the firm's inception, Nottage had sold half a million stereoscopes and had a trade-list of approximately 10,000 different stereographs. In addition to the lenticular stereoscope (and other models based on that design), two technological innovations abetted the rapid growth of the industry. Beginning around 1853, stereographers were able to employ twin-lens cameras, which simplified and hastened the production of negatives.<sup>35</sup> More significantly, new photographic processes, particularly the collodion wet-plate negative and albumenized paper, made possible not only shorter exposure times, but also the practical mass-reproduction of images.<sup>36</sup>

Fuelled by the demand for images, stereo photographers took pictures of whatever they thought would appeal to the tastes of the Victorian middle-class consumer. Brewster, writing in 1856, observed that:

Photographers are now employed in every part of the globe in taking binocular pictures for the instrument, – among the ruins of Pompeii and Herculaneum – on the glaciers and in the valleys of Switzerland – among the public monuments in the Old and the New World – amid the shipping of our commercial harbours – in the museums of ancient and modern life – in the sacred precincts of the domestic circle – and among those scenes of the picturesque and the sublime.<sup>37</sup>

A 1856 catalog from the London Stereoscopic Company illustrates the diversity of the subject matter available in stereograph in the mid-1850s. The listing includes landscape views of Wales, Scotland, the isles of Wight and Jersey, as well as architectural views of Pompeii, Naples, and other locations in Italy,

France, Switzerland and the British Isles. Nearly two hundred and fifty views of the rebuilt Crystal Palace at Sydenham are featured. Also offered for sale are various genre subjects (i.e., "Return from Shooting," and "the Egg Girl"), theatrical reenactments ("The Murder of Abel" and "Beautiful Scenes from *A Winter's Tale*") and "Miscellaneous Subjects of the 'Wilkie' character," which depicted staged scenes of life among the different classes. The catalog indicates that stereographs were available in several different formats, reflecting the adaptability of the lenticular stereoscope. While simple card views cost 1s. 6d. each, choicer subjects such as the Crystal Palace were more expensive, ranging in price from 2s.-3s. (the more expensive views included written descriptions on the backs of the view cards). Daguerreotype statuary sold for 5s. 6d. each. Albumen on glass views (mounted with a gold fillet) were the most expensive, retailing for between 6s. 6d. and 7s. 6d.

A similar variety of cost and design was to be found among stereoscopes. Viewers ranged in price from 2s. 6d. for a "Japanned Tiny Stereoscope" to 50s. for a Rosewood or Mahogany model with parts of polished ebony and ivory. Selections of views along with a stereoscope were available at a reduced price. The London Stereoscopic Company also sold storage boxes, telescopic brass stands and stereoscopic camera sets. These sets included the camera and chemicals, and ranged in price from £5 5s. to £10 10s., the latter being for a camera "admirably adapted for export to India, or other warm climates."<sup>38</sup>

By 1858 the London Stereoscopic Company's list of views had grown to more than 100,000 titles. The company's motto was "No home without a stereoscope," and it appears from contemporary reports that during the height of

the stereoscope “craze” the apparatus nearly reached this extent of dissemination – at least among the middle and upper classes.

During the mid-1850s, the two most important competitors of the London Stereoscopic Company were Gladwell’s City Stereoscopic Depot and Negretti & Zambra (both based in London).<sup>39</sup> In addition, hundreds of smaller shops throughout Europe sold stereographs. In 1858 a stereoscopic lending-library opened in London. For an annual fee of one guinea members could borrow and exchange views as frequently as they desired.<sup>40</sup>

The decade saw numerous minor improvements to the design of viewers and cameras, as well as experimentation with different ways of presenting stereographs. The variety of models produced from the 1850s onwards gives some indication of the interest in the format and the variety of uses to which it was put. In addition to hand apparatuses, larger desktop viewers holding as many as 100 view cards in a revolving drum were popular during this period.<sup>41</sup> At the opposite end of the scale, there existed a significant demand for pocket viewers, and various models were put on the market in England, France and the United States.<sup>42</sup> In March 1853, for example, Claudet patented a folding pocket stereoscope: a little morocco leather case with lens fitted into the cover. When opened, it formed a box stereoscope, and was used to display a single daguerreotype image, such as a portrait of the owner or his or her family. J. F. Mascher patented a similar model in the United States in 1855. He also designed a stereoscope that folded ingeniously into a locket, allowing the contents to viewed in relief.<sup>43</sup>

While stereographic portraits were made, they were not a principal subject of stereography.<sup>44</sup> In fact, by the early 1860s, English and American

photographers had come to associate different formats with particular ranges of subject material. *Carte-de-visite* was for portraiture, while stereographs were primarily for “travel views” (landscapes and architectural subjects), with simple staged scenes of a comedic or sentimental nature rounding out a stereo publisher’s selection.<sup>45</sup> The case appears to have been slightly different in France, where stereoscopic photographers excelled in producing theatrical narrative scenes, as well as “artistic” or pornographic views.<sup>46</sup>

### **“Natural Theology” and “Natural Magic”**

The belief that stereographic representations could provide an experience equivalent to unmediated vision appears to have been widespread during the 19<sup>th</sup> century. Writing in the late 1860s, Hermann von Helmholtz remarked that the belief that stereographs presented a near perfect substitute for viewing objects with the naked eye was very common and “certainly very natural in some ways.”<sup>47</sup>

At the root of this notion, I would argue, were two seemingly contradictory discourses, those of “natural theology” and “natural magic.” The first celebrated the perfection of the human senses as the basis for knowledge about the natural world; the second the illusionistic, almost magical aspects of applied scientific discoveries. The Victorian understanding of the stereograph, I would suggest, moved fluidly between these two understandings of the format.

Natural theology, according to Robert J. Silverman, “exalted the perfect design of the human sense organs as the basis for a truthful representation of nature.”<sup>48</sup> Not surprisingly, given the historical affiliation of vision with knowledge, the eyes occupied the pinnacle of the sensual hierarchy, and were the

natural theologian's favorite illustration of the perfection of the divinely inspired human form.<sup>49</sup>

For many 19th century scientists and photographers, the eye thus provided the archetype for the camera. According to Thomas L. Hankins and Robert J. Silverman, "the analogy between the eye and the camera owed much of its power to the notion that the divinely constructed human form offered the model for the most efficient application of physical principles."<sup>50</sup> With the eye established as the ideal instrumentation for producing knowledge of nature, photographers, scientists, journalists and art critics lauded innovations that made photography more like "normal" human vision.<sup>51</sup>

From this perspective, stereoscopic photography was regarded as a significant advancement upon regular "monocular" photography. Brewster's lenticular stereoscope and binocular camera were praised in precisely these terms.<sup>52</sup> Likewise, commentators from the scientist Joseph Le Conte (1881) to popular publications, such *Anthony's Photographic Bulletin*, praised the stereograph on the basis of its resemblance to normal human vision.<sup>53</sup> So acceptable, in fact, was the stereograph's report that Helmholtz concluded that the medium accurately reproduced "the same view of the object which an observer would have had by occupying the place where the camera was."<sup>54</sup>

Later in the century, Underwood evoked natural theological arguments to frame its product. In a saccharine parable printed in the inaugural issue of the *Stereoscopic Photograph*, Bert Underwood related the fortunes of "Princess Stereoscopy," the much maligned heir to the throne of the "Realm of Illustration." Prior to the birth of the Princess, Underwood tells us, everyone in the kingdom was cruelly hindered because they had only one eye. While "old



King Photography” was a “great improvement,” he too was a cyclops. Princess Stereoscopy, however, was born with two eyes, and was therefore “absolutely truthful,” according to Underwood. “Her very nature was such that she was incapable of deception.”<sup>55</sup> In a related vein, Albert E. Osborne’s claim that “the two small photographs...serve as windows through which we look, and *beyond* which we see life-sized representations in all three dimensions, breadth, height and depth” can also be understood from the perspective of natural theology.<sup>56</sup>

While the presuppositions of natural theology played a crucial role in establishing how 19<sup>th</sup> century observers “saw” the stereoscope (and saw “through” it), other discourses – parallel and at times overlapping – also influenced how the instrument was received and understood.<sup>57</sup> Victorian entertainment belies a fascination with scientifically-produced illusion. So-called philosophical toys such as the kaleidoscope, the phenakistoscope or fantascop, the stroboscopic disk, the zoetrope, and of course the stereoscope all enjoyed immense popularity in the early part of the 19<sup>th</sup> century.<sup>58</sup> According to Don Slater, the basis for the public appreciation of these devices derived from the interest in scientifically produced illusion, also known as “natural magic.” Predominantly a pre-Enlightenment character, the “natural magician” used scientifically based apparatuses (such as prisms, projectors and mirrors) to create illusionistic effects. What set natural magicians apart from other types of charlatans was that science, and scientific devices were used to deceive the senses of their audience (as opposed to using slight-of-hand or invoking “evil spirits”).<sup>59</sup>

According to Hankins and Silverman, natural magic didn’t completely disappear in the 18<sup>th</sup> and 19<sup>th</sup> centuries, but was subsumed under new categories

such as entertainment, technology and natural science. Both Wheatstone and Brewster, for example, were interested in natural magic, even as they extolled the triumph of modern science over superstition.<sup>60</sup>

Miles Orvell has argued that an understanding of photography as illusion, rather than simply as a mechanical report of nature, informed the Victorian approach to photographic images. “[T]he 19<sup>th</sup> century’s practice of photography was founded on an understanding of the medium as an illusion,” he suggests, “and the realism of Victorian photography is properly understood as an ‘artificial realism,’ in which the image offers the viewer a representation of reality, a typification, a conscious simulacrum – though a simulacrum that elicited a willing suspension of disbelief.”<sup>61</sup>

The stereograph’s purchase on visual reality was thus multidimensional. The affinity of the viewing instrument to the human form suggested that it provided an even more truthful account of nature than regular photographs. From the perspective of natural theology, Brewster’s claim that the stereoscope allowed one to acquire “as perfect a knowledge” of a place as actually looking upon it with one’s own eyes was perfectly coherent.<sup>62</sup> At the same time, the device could be enjoyed for its illusionistic effects, for creating not simply representations but, in the words of Slater, “simulations,” spaces of “absorbing virtuality.” As with modern theme parks, IMAX movies, and virtual reality games, stereograph viewers could experience “a re-creation of the real, not simply a picture of it.”<sup>63</sup> Both natural theology and natural magic suggest that for 19<sup>th</sup> century viewers, the stereoscope produced the sensation of witnessing a captured spectacle, and not merely of looking into a box.<sup>64</sup> This complex understanding of the stereoscope survived into the 20<sup>th</sup> century, I would argue,

and informed Underwood's notion of stereographic travel (see chapters three and four).

### Success and Decline of the Stereograph in Europe

The mass production of stereographs in England and France in the late 1850s was a watershed in the so-called industrialization of photography. In 1862 the London Stereoscopic Company sold nearly a million views and the French concern of Ferrier probably sold the same quantity.<sup>65</sup> According to André Rouillé, the vogue for stereographs was the first major surge in the photographic business, prior to spectacular success of the *carte-de-visite* after 1860 (figs. 5 & 6).<sup>66</sup>

The appeal of the stereograph to members of the Victorian and Second Empire bourgeoisie should not be underestimated. According to Gernsheim, "The stereoscope seemed to have become an inexhaustible source of enjoyment, finding a place in every drawing-room, for it provided 'refined amusement combined with useful instruction' – the criterion of Victorian recreation."<sup>67</sup> Robert Hunt (1856) commented upon the wide dissemination of the device amongst the middle-class, and noted its appeal to men and women, adults and children: "The stereoscope is now seen in every drawing room: philosophers talk learnedly upon it, ladies are delighted with its magic representations, and children play with it" (figs. 7 & 8).<sup>68</sup>

Not everyone embraced the stereograph, however. Charles Dickens, for example, saw the parlour stereoscope as a trivial distraction. "The application of photography to the stereoscope produces an extremely pretty toy that is of no use except as an elegant and valuable illustration of a train of scientific reasoning."<sup>69</sup> Across the channel, Charles Baudelaire, who heaped loathing on



Fig. 5. Manufacturing stereographs, 1865. The mass production of stereographs was a boon to the industrialization of photography. From Pellerin, *La photographie stéréoscopique*, 98.



Fig. 6. Manufacturing stereographs, 1860. After developing, cards are hung to dry, cut by machine, stamped and hand-tinted. Ibid.

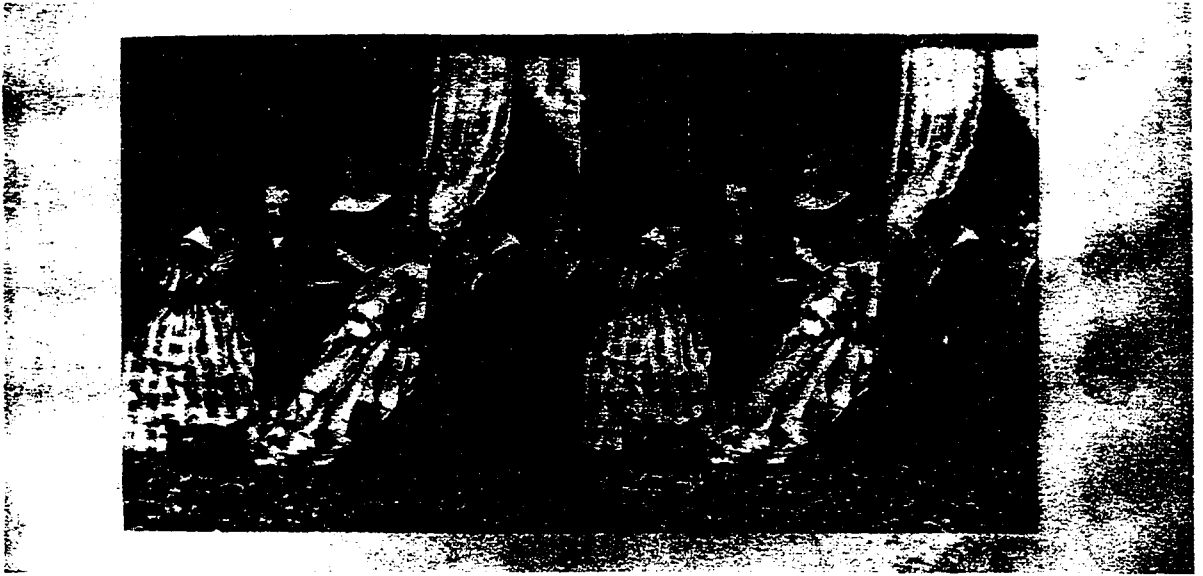


Fig. 7. "Séance de stéréoscopie avec Alexis Gaudin," 1875. A staged scene which might have also served as an advertisement for the photographic concern of Gaudin. From Pellerin, *La photographie stéréoscopique*, 99.



Fig.8. Viewing bank of stereoscopes, 1868. Public viewing facilities such as this were common during the "stereo craze" of the 1850s and 60s. Note that, as in fig. 7 (above), the viewers are predominantly women. Ibid.

photography in "The Modern Public and Photography," acknowledged the popularity of the stereoscope even as he scorned its users: "It was not long before thousands of pairs of greedy eyes were glued to the peepholes of the stereoscope, as though they were the skylights of the infinite. The love of obscenity, which is a vigorous a growth in the heart of natural man as self-love, could not let slip such a glorious opportunity for its own satisfaction."<sup>70</sup>

In England, the stereo craze began to wane in the course of the 1860s, commencing a cycle of interest lost and found again that continued into the 20<sup>th</sup> century. In 1872, a British critic remarked upon the instrument's diminished popularity in England, the country where the fad had originally begun: "Of all the photography buying people in the world we have most given the stereoscope the go-by. It is still a popular instrument on the continent...while in America it still takes the lead, as the enormous exports of stereoscopic views that annual take place from this country alone testify."<sup>71</sup>

A variety of factors likely contributed to the stereograph's decline at this time, including loss of novelty, falling production standards as well as competing media. R.S. Clay speculated that "questionable subject-matter" and deteriorating production standards led to the instrument's loss of popular appeal:

Unfortunately, as it became popular, so at last it degenerated, and the more unscrupulous dealers produced slides of a questionable kind; these were condemned in the press and formed the subject of considerable correspondence. Judged by modern standard, the majority, although somewhat vulgar, would not now perhaps be considered either offensive or improper. However, this, together with the sale of slides which were only composed of two exactly similar pictures, caused the stereoscope to go out of fashion, as the gentry and better classes of the community ceased to take an interest in it, and by about 1868 the craze had entirely died out.<sup>72</sup>

Another significant factor in the stereoscope's decline in Victorian England was likely the rising popularity of the *carte-de-visite*, which became the most widely produced and circulated form of photographic reproduction in the 1860s.<sup>73</sup>

Photographs of individuals and family members, as well as the leading figures in politics and the arts, were all produced and circulated in mass quantity in the *carte-de-visite* format. *Carte-de-visite* were less expensive than stereoscopic views, and lent themselves better to portraiture – a major preoccupation of the middle-class.<sup>74</sup> *Carte* images of royalty and celebrities were often included in the bourgeois-family photo-album, stuck in beside the familiar pictures of the relatives, to create a feeling of association with the celebrity, or with the person in power.<sup>75</sup> Unlike the stereoscopic view, the *carte* required no special viewing apparatus and, placed in an ornate album, could be viewed by several people at once.<sup>76</sup>

In subsequent re-incarnations in Europe the stereograph did not possess the novelty that it enjoyed during the 1850s and 1860s, an appeal that fit so well with the Victorian fascination with optical toys. Darrah reports that after 1862 the medium “never again reached the pitch of enthusiasm” in England and France that it enjoyed in the preceding years. However, as will be discussed chapter two, the stereograph's success in the United States fueled a significant revival in both countries during the 1890s.<sup>77</sup>

## CHAPTER 2

### HISTORICAL OVERVIEW, PART 2: THE STEREOGRAPH IN THE UNITED STATES, c.1850-1939

#### **Introduction and First Blossom in America, 1850-1861**

Although information about Wheatstone's invention was available through American periodicals such as *The Journal of the Franklin Institute* beginning in 1839, there appear to have been few if any significant contributions made by North Americans to stereoscopy or stereography prior to the 1850s. As discussed in chapter one, the early fifties saw an explosion of commercial interest in stereography in England and France, as new photographic technologies (particular the collodion wet-plate negative process) and a new design of stereoscope (the Brewster lenticular viewer) did much to simplify and popularize the format. In 1854, however, while photography's "great 19<sup>th</sup>-century bonanza" was underway in Europe, photographic dealers in the United States were just beginning to produce their own stereographs for sale. It wasn't for another four years, until 1858, that the "stereo craze" fully manifested itself in the United States.<sup>1</sup>

Much of what is known about early American stereography relates to the rise of notable producers and publishers. In the mid-1850s, William and Frederick Langenheim started what became the first important concern to deal in stereographs in the United States, and played an important role in the commercial introduction of the format into the United States.<sup>2</sup> In 1854 the brothers sold stereo views on glass, paper, and porcelain.<sup>3</sup> Also that year, they



published the first major series of stereographic cards in the United States: twelve images on glass taken on a specially arranged journey from Philadelphia to Niagara Falls, along the southern route of the Reading, Catawissa, Williamsport and Elmira Railway.<sup>4</sup> As we shall see, the connection made by the Langenheims between the stereograph and the railway, and with tourism more generally, was prescient: both were to be major, recurrent subjects in American stereography.

Interest in the stereo trade increased progressively, particularly after 1858 or 1859.<sup>5</sup> A notice appearing in the *American Journal of Photography* in 1858 acknowledged the growth of the trade and sought to define its character:

Stereoscopes are at last coming into vogue with us, and we are actually getting up a taste for them...It were strange indeed if many parlors were without them; what is better adapted to enlarge the attention of a visitor whilst temporarily delayed, waiting for the appearance of the lady of the house? What a better interlude during an evening party than to fill up a pause with a glance at a fine stereoscopic view? Certainly, nothing better displays the beauties and marvels of the Photographic Art...It is a good sign that the taste has commenced in the right direction – Landscapes, Architecture and Composition.<sup>6</sup>

The stereoscope is described here in terms that would have been familiar in England or France at the same time. Essentially a domestic distraction, there were, as the quote indicates, intimations that the medium could also edify. However, this aspect was not to be systematically exploited until the end of the century.

The above passage is also interesting for the emphasis it places on a certain category of stereographic subject matter. “Travel views” – a loosely defined term which includes images of landscapes, architecture and people – probably comprised the most important single category of stereographs in the

19<sup>th</sup> century, although simple staged scenes (typically of a comic or sentimental nature) were also popular and widely distributed. It is worth noting the range of travel subjects offered in the United States prior to the Civil War. In the late 1850s, for example, the American Stereoscopic Company sold stereographs of Paris, Vienna, Moscow, and St. Petersburg.<sup>7</sup> Images of Philadelphia, Baltimore, Pittsburgh and Washington were also available, as were popular tourist highlights in Niagara Falls and the White Mountains. The American Stereoscopic Company also sold “foreign views” imported from the London firm of Negretti & Zambra, which depicted scenes in Europe and the Near East (Egypt and the Holy Land).<sup>8</sup>

According to Darrah, by 1860 there were as many as two hundred American photographers producing stereographic views.<sup>9</sup> Many of the most prominent of these sold their pictures through the firm owned by Edward Anthony, which began issuing stereo views in 1858. E. & H.T. Anthony’s grew quickly and became, according to Darrah, the most important publisher of American stereographs during the 19<sup>th</sup> century. Between 1859-1881 the firm offered more than ten thousand different titles, including foreign views and “spectacular coverage” of the United States.<sup>10</sup> Still, compared to the business done in Europe, the stereo trade in the United States was in its infancy. In 1862 the London Stereoscopic Company sold nearly a million stereographs from a catalog of 100,000 titles, and the French concern of Ferrier probably sold the same quantity.<sup>11</sup>

Beginning in 1859, a new design of stereoscope provided a considerable impetus to the American stereo trade. The creator was Oliver Wendell Holmes, a Harvard wit, medical doctor and popular and frequent contributor to the *Atlantic*

*Monthly*. Holmes' stereoscope was lighter, easier to use and less expensive to manufacture (and thus purchase) than other viewers available at the time. Joseph L. Bates manufactured several stereoscopes for Holmes and added his own improvements, contributing a hood to block extraneous light and a sliding card holder to facilitate easier focusing. The Holmes Stereoscope, or Holmes-Bates Stereoscope as it was sometimes known, became the standard design for viewers in the United States and was manufactured until the early 1970s. (The stereoscope the man in fig. 1 is holding is a direct descendant of the Holmes-Bates viewer.) Its wide and rapid adoption by American manufacturers was abetted by the fact that Holmes did not patent his design, but made a point of offering it free to the public.<sup>12</sup>

Holmes was an enthusiastic evangelist of photography, particularly of the stereograph (a term he claimed to have coined).<sup>13</sup> Perhaps drawing upon the discourses of natural theology and natural magic, Holmes wrote in the *Atlantic* that stereographic representations could serve as substitutes for real places or objects: "*Form is henceforth divorced from matter*. In fact, matter as a visible object is of no great use any longer, except as the mold on which form is shaped. Give us a few negatives of a thing worth seeing, taken from different points of view, and that is all we want of it. Pull it down or burn it up, if you please."<sup>14</sup> Holmes' musings on the subject – the most original, provocative and at times bizarre of the 19<sup>th</sup> century – were influential even down to the turn of the century.<sup>15</sup> Underwood republished his article "The Stereoscope and Stereograph" through at least seven editions, and utilized his writings in its rhetoric concerning stereographic travel. The company even incorporated Holmes' phrase "sun-

sculpture” (which he used to distinguish stereography from photography or “sun-painting”) into its trade logo.

### **The Civil War, the Post-War Boom and the Opening of the West**

Not surprisingly, the American Civil War provided the central subject for all photographic activity during the first half of the 1860s. Certainly, the conflict was the first war to be photographed systematically from start to finish.<sup>16</sup>

Photographers who covered the fighting typically produced stereographic negatives. Unlike hand-drawn illustrations, stereographs were produced almost instantaneously and for this reason, as well as for their illusion of depth, they were held to offer more realistic, unsentimental and truthful visual accounts of the war than traditional means of graphic representation.<sup>17</sup>

While the Civil War undoubtedly heralded a new era of war reportage, stereographers were not above playing with the truth to make it better conform to long-established conventions of war representations. In his discussion of the famous stereograph entitled *Home of the Rebel Sharpshooter*, Michael Carlebach notes that the photographers Timothy O’Sullivan and Alexander Gardner moved the body of a dead Confederate soldier from open ground to a rocky area in order to secure a more dramatic image. They placed a knapsack under the young soldier’s head, facilitating a better view of his features, and created a sense of story and irony by propping a rifle against the rocks.<sup>18</sup> To enhance the emotional impact of the image, Gardner later composed a lengthy caption, claiming that the soldier had been mortally wounded by a shell fragment, and had “laid down upon his blanket to await death.” In actual fact, the young man was not killed at

that location, was likely not a sharpshooter, and probably did not even own the rifle (which might have been supplied by Gardner).<sup>19</sup>

Beginning in 1862, Anthony issued views produced by the “Brady Photographic Corps” in stereo and *carte-de-visite*. Ultimately, Anthony published more than 2,000 stereographs of the Civil War, some 900 of which were taken by photographers organized by Brady.<sup>20</sup> Most of these depicted Union camp scenes, hospitals, supply dumps and other non-combat scenarios, although Gardner, O’Sullivan and James F. Gibson also photographed the bloody aftermath of the battle of Gettysburg after they split from Brady in 1863.<sup>21</sup> In spite of high sales, Brady’s venture was a personal financial disaster. A Congressional grant for \$25,000, issued several years after the end of the war, did not cover his losses, and he was forced to give to Anthony a complete set of negatives in lieu of overdue payment for photographic supplies and equipment.<sup>22</sup>

Although stereographs of battlefields and new war machines were popular during the war, interest in stereographs of the conflict declined dramatically following the cessation of hostilities.<sup>23</sup> Darrah reports that after 1868, demand for such images practically vanished.<sup>24</sup> One might reasonably speculate this was due, in part, to people’s reluctance to stimulate memories of the painful war years. Holmes, for example, claimed he was determined to bury his collection of war stereographs “in the recesses of our cabinet as we would have buried the mutilated remains of the dead they too vividly represented.”<sup>25</sup>

In spite of the public’s distaste for images of the fractious conflict, the period between the end of the Civil War and the late 1870s saw the rapid and widespread production of stereographs in North America. Stereographs were almost exclusively the preoccupation of middle-class adults during this time, and

were consumed as news, entertainment, education, advertising and tourist souvenirs.<sup>26</sup> By the late 1860s, "Stereoscopic Emporiums" catering exclusively to the stereo trade were a familiar feature in American cities. According to Richard Ryder, "the public eagerly awaited the latest views by particularly popular stereographers, and the Emporiums promoted them with all the ballyhoo that would attend the appearance today of the latest bestsellers by a favorite novelist."<sup>27</sup> By the early 70s, stereoscopes were widely disseminated and had become something of a fixture in the middle-class home. According to *Anthony's Photographic Bulletin* (December 1872), "a home without an instrument and a collection of views is almost an anomaly."<sup>28</sup>

The one facet of American life that appears not to have been photographed were the "squalid and sordid slums that had already marred the land." Perhaps because they were mass-produced, and therefore designed to appeal to the tastes of the greatest number of consumers, few stereographs depicting scenes of civil strife or poverty were published in the 19<sup>th</sup> century.<sup>29</sup> This remained the case into the early years of this century, in spite of the trend towards social realism in other genres of photodocumentary.

The most significant impetus to the stereographic trade, as well as the "greatest focal point for photographic coverage" in the period after the Civil War, was the westward expansion which followed the progress of the Central Pacific and Union Pacific railroads between Omaha and San Francisco.<sup>30</sup> The railroad, according to Carlebach, "was the visual centerpiece of postwar photography."<sup>31</sup> The railroad and the camera were a natural fit. The completion of the United State's first transcontinental railway in 1869 fostered the public's interest in the "scenic wonders" of the American West, and further stimulated

the demand for stereographs (fig. 9).<sup>32</sup> In turn, such views, along with those produced on the ambitious Western geological surveys conducted during this period, served to promote the railroads and fostered western migration and tourism.<sup>33</sup>

Strong connections between stereographs and travel/tourism also existed in the eastern United States. The dominance of the stereograph over other forms of photography in locations such as Niagara Falls and the White Mountains (New Hampshire) was predicated on the medium's close association with the growing tourism industry (fig. 10). According to Southall, "it was perhaps not merely a coincidence that the popularity of stereo photography first peaked in America in the post Civil War years of the late 1860's, and early 1870's, a period of economic growth in general, and a travel boom in particular."<sup>34</sup>

The stereo trade continued to grow in the United States into the 70s. More patents for stereoscopic cameras and viewers were issued during the 1870s than in any other decade in the 19<sup>th</sup> century.<sup>35</sup> In late 1871, *Anthony's Photographic Bulletin* remarked that the "demand for stereoscopic views is really surprising, chiefly of course for American scenery, but including every known and almost unknown foreign object of interest, whether in landscape, works of art, or portraiture."<sup>36</sup>

In spite of the lofty subject matter of some of the views, stereographs remained, in essence, a parlour amusement. *Scribner's Monthly* (1874), for example, advised readers, that "[w]hile you are arranging the parlor, just have a thought for the visitors who must sometimes wait to see you, and carefully refrain from putting every object of interest beyond their reach...The late magazines, a book of good engravings, a household volume of poetry, a



Fig. 9. "The Great Interior Basin, 1873." This stereograph was part of a series of views of the American West. Other views included: "Pacific Railway Smash-up," and various views of Ogden City, Utah, Weber Canyon, and the "Vicinity of the Great Salt Lake." (Robert J. DeLeskie collection.)



Fig. 10. "Below the Tower, Winter Niagara N.Y.," c. 1869 by Charles Bierstadt. Niagara Falls was possibly the most photographed location of the 19<sup>th</sup> century (Darrah, *Stereo Views*, 189). (Robert J. DeLeskie collection.)



stereoscope and views, photographs of foreign scenes...are all good aids to the occupation of stray minutes.<sup>37</sup>

Some commentators sensed a potential for stereography that extended beyond mere entertainment. One such critic noted that “the stereoscope has long ceased to be a popular novelty and has gradually become recognized among the established aids to instruction and investigation, but its full value in either respect is scarcely yet generally fully appreciated, or by any means exhausted.”<sup>38</sup> In spite of such discussion, the device was not employed as a tool of edification or instruction in the immediate post-Civil War period. These applications would have to wait another thirty years, and for a series of significant transformations to take place in both the stereo trade and in American society.

### **Decline and Revival in the United States, 1874-1882**

Despite the stereograph's tremendous popularity in the first part of the 70s, the trade entered a commercial and creative decline in the United States and Europe as the decade progressed. According to Darrah, the only important market for stereographs that remained in Europe by 1880 was the American tourist.<sup>39</sup> In the US, interest in stereography was also fading, except at summer resorts and tourist attractions.<sup>40</sup>

The reasons for this decline are not entirely clear. There is evidence that the principal cause of the stereo trade's woes might have been, initially, economic. Darrah claims that the financial depression in 1873 bankrupted many photographers, due to poor sales and falling prices. Prior to the depression, card stereographs retailed at between 25 and 35 cents per view, with some images in the “artistic” size costing as much as 50 cents each. This made stereographs

relatively expensive when compared with the wages and living standards of the day. During the depression, however, many publishers were forced to reduce their prices to 15 or 10 cents per card. As things worsened, prices plummeted: stereographs were offered at five cents each, or even as low as two for five cents. In order to offer views at such low prices, producers were forced to cut the costs of production through methods such as using cheaper card stock. Many also resorted to copying popular cards without the permission of the original stereographer or publisher. According to Darrah, this practice became widespread, and a tremendous quantity of copied stereographs were issued in the 1870s and 1880s, particularly between 1874 and 1877.<sup>41</sup> Coupled with the depression and the medium's loss of novelty, suggests Southall, the general decrease in quality precipitated by pirating during the 1870s and early 1880s contributed to the popular and commercial loss of interest in the medium.<sup>42</sup>

Changes in technology also appear to have been a factor. The introduction of new technology (including gelatin dry plates, roll film and hand cameras), which played a role in recreating photography as an amateur hobby, might have made the purchase of stereographs less attractive to tourists and consumers than previously.<sup>43</sup> At the same time, some of these new inventions, particularly the dry-plate process, were seized upon by publishers who were looking to simplify production and reduce costs (Ben Kilburn was one such early adopter). A loss of sharpness initially resulted from the use of bromide-gelatin negatives, and it took several years for full quality to return to Kilburn's prints. While these changes would ultimately benefit producers, they initially posed a hindrance and reduced the quality of views.

I would suggest that what has been described as a period of decline by writers such as Darrah and Gernsheim might be also understood as one of transformation. While numerous local producers abandoned the format, a handful of major manufacturers and distributors were developing new sales methods that enabled them to weather the lean years of the 1880s. Underwood was one such company, and it emerged from this period to become, arguably, the most important producer of stereo images in the world from the mid-1890s until the First World War. The methods of selling, marketing and presenting stereographs perfected by Underwood were highly influential, and might be seen as characteristic of the trade which emerged in what Gernsheim has referred to as "the second period of stereoscopy."<sup>44</sup>

### **Origins of the Underwood Concern**

Underwood was not originally formed as a publishing concern, but as a distribution and house-to-house canvassing business by the brothers Bert and Elmer Underwood (fig. 11). Before starting the company, Elmer was part owner of a print shop in Ottawa, Kansas.<sup>45</sup> Bert had worked a variety of jobs, including as a book canvasser for "Dr. Hall's Health at Home," where he learned the ins and outs of door-to-door sales. During his travels he met an agent selling stereographs, and became interested in the then "out of date" format. A natural salesman, Bert started peddling stereographs himself. This endeavour was so successful that he was able, with some trying, to convince his older brother to sell his share in the successful printing business and join him in early 1882.<sup>46</sup>

Underwood & Underwood, as the concern became known, grew rapidly. Within a year the brothers had trained numerous agents and dispatched them in



*Elmer Underwood—Circa 1890.*



*Bert Underwood—Circa 1890.*

Fig. 11. Elmer (b. 1859) and Bert (b. 1862) Underwood. From Brey, "Ten Million Stereo Views," 7.

Kansas and Missouri, where they canvassed original views by Charles Bierstadt, J. F. Jarvis and the Littleton View Company.<sup>47</sup> Underwood quickly acquired exclusive sales rights for these publishers west of the Mississippi, and the brothers were actively involved in sales.<sup>48</sup> In 1884, Bert worked territories in western Iowa, Nebraska, North and South Dakota and Minnesota, while Elmer canvassed in Illinois and Wisconsin. During the winter months they moved south, covering Kentucky, Tennessee, Arkansas and Louisiana. In the spring of 1885, Elmer moved into Pennsylvania and began expanding the firm into the large markets in the Eastern and Southeastern United States. At the same time, Bert started selling on the West Coast, and Underwood agents covered the territory from San Diego (California) to Puget Sound (Washington).<sup>49</sup> By 1885, Underwood had extended its franchises to all of the United States (except for Bierstadt's shops in Niagara Falls and Jarvis' outlets in Washington).<sup>50</sup>

In 1887, Underwood began distributing views by Strohmeyer & Wyman.<sup>51</sup> That year, it was necessary to open a supply depot in Baltimore, Maryland to serve the territory east of the Mississippi, as well as the southern states. Underwood moved north as well, and business in Canada was sufficient to warrant the opening of an office in Toronto in 1888. The move into international markets was cemented with the company's branch in Liverpool England in the summer of 1890.<sup>52</sup> To better supply their foreign agents, Underwood relocated their main office to New York in 1891, and moved their Liverpool operation to London in 1894 to take advantage of trade on the continent.<sup>53</sup> That year, Underwood shipped three million stereographs and 160,000 stereoscopes to England. According to Brey, by the mid-1890s, Underwood was selling views wholesale or through agents in all European countries, Australia, New Zealand,

South Africa, India, Japan, Cuba, Mexico and nearly every country in South America.<sup>54</sup>

By the early 90s, Underwood had sole management of over 7000 negatives. The combination of suppliers provided the company with a thorough, well-rounded catalog. Almost three quarters of the nearly 900 views listed in the *Catalogue of Underwood & Underwood's Choice Stereoscopic Views* (1890) are travel subjects (the number is split almost evenly between American and foreign locations); the remainder are comic, sentimental and other miscellaneous subjects, including sports, wildlife, celebrity portraits, allegorical scenes, and statuary. These proportions probably indicate the relative importance of the different categories to sales agents, and once again emphasize the importance of travel views to the commercial trade.<sup>55</sup>

### *Canvassing*

Underwood's growth occurred in the midst of the general worldwide decline in the stereo trade described above. Much of the company's success during this period was predicated upon its adept utilization of door-to-door canvassing, an innovative sales techniques originally introduced to the stereo trade from Ben Kilburn in 1879.<sup>56</sup>

Although pioneered by Kilburn, door-to-door canvassing was perfected by Underwood in the 1880s. Underwood's success with this sales method was undoubtedly a key factor in the company's rapid expansion. The growing population in the west provided Underwood with a largely untapped market, and the canvassing method was an ideal way of reaching the dispersed, primarily rural-based western settlements. Competition was also less fierce, with

regional photographers abandoning the stereo format, and with little rivalry originating from the entrenched, large-scale distributors in the urbanized and commercially saturated east (such as Anthony's). Working westwards, Underwood was able to refine their sales methods and to accumulate the capital and know-how necessary to move into the lucrative eastern and international markets (figs. 12 & 13).

Since canvassing was ultimately adopted by most of the major turn-of-the-century stereographic publishers and distributors, it is worth considering in greater detail.

The Underwood *Manual of Instruction* (1890) for canvassers gives a clear indication of the methods and rhetoric employed by the company's sales agents. The approach was basically high-pressure door-to-door sales, with the manual providing agents with a detailed script and questionable self-motivation tips such as "No is not always an answer in canvassing any more than in courting."<sup>57</sup>

Canvassing was divided into two phases: sales and delivery. In the first phase, the agent was instructed to proceed door-to-door, not missing a single house, and bringing with him a stereoscope and a small collection of views to demonstrate to potential customers. A typical, introductory solicitation was provided by the manual:

Meet the person with a smile, and say, "I have something very beautiful I want to show you [for] just a minute." If they ask what you have, *never* tell them, but say, "It is something new in this line, and I can show you much better and easier than I can tell you." If they say they cannot buy anyway, say, "Oh, I am only showing now, and (with a smile), I have something so interesting I *do* like to show it. You can spare *just a minute*." In fact, be so persistent and yet such a gentleman that they can neither get rid of you or get out of patience, so finally consent to look at what you have.<sup>58</sup>

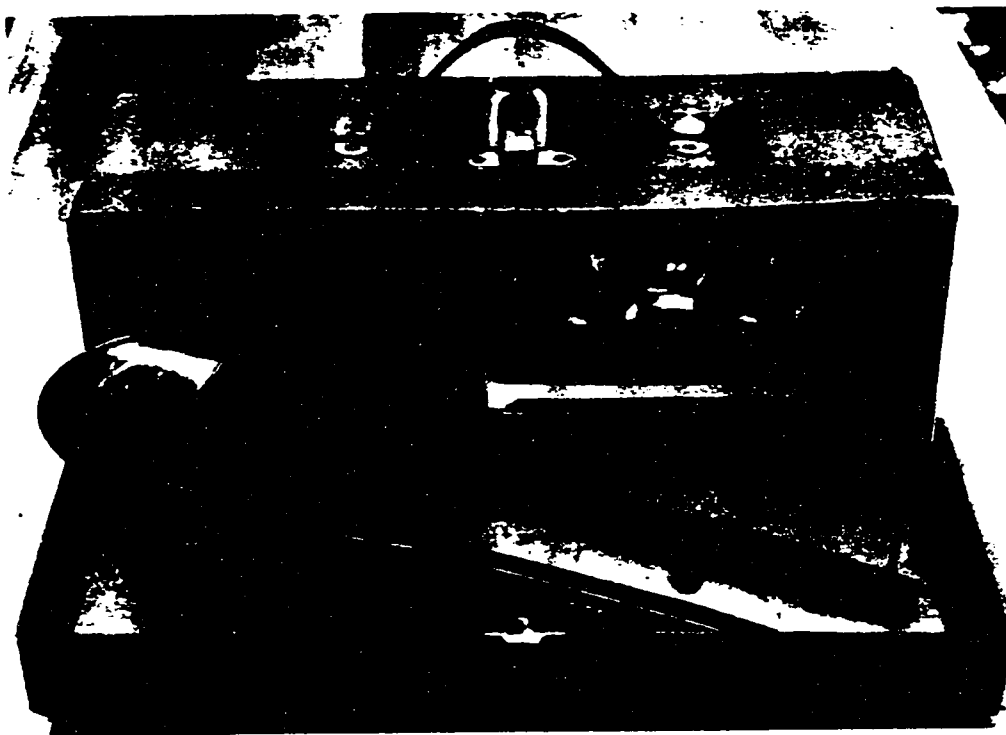


Fig. 12. A canvassing case carried by an H.C. White agent. From Brey, "Ten Million Stereo Views," 9.



Fig. 13. "The fresh view agent soliciting" (C.H. Graves (Universal Photo Art Co.), #3268) View canvassing was common enough to be a source of humour. Here, an agent applies a technique not found in the Underwood *Manual of Instruction*. From Waldensmith, "Stereo Views," 39.



Once invited indoors, the agent's objective was to secure an order for a stereoscope and an indeterminate number of view cards. The manual advised the canvasser to get the client seated and looking at stereographs through the demonstration viewer. Agents were instructed to emphasize the quality and clarity of the stereoscope, but if the client already owned a good viewer, the pitch shifted to the stereographs, with all of the characteristics of sharpness and clarity previously attributed to the stereoscope now applied to the images.<sup>59</sup>

After the client had looked at the final view, the canvasser would take back the stereoscope and "looking the person squarely in the eyes," say, 'If I will bring you *just as good* a lens as this in about so many days, you will want one of them won't you!'" Agents were encouraged to emphasize the low cost of the scope (90 cents) and stereographs (between 8 1/3 and 16 2/3 cents each), but were warned never to reduce the price of their goods because "it simply lowers their value in the minds of your patrons."<sup>60</sup> Following this, the manual suggested a variety of persuasive tactics and arguments:

Then advance the reasons why they should have one in their home, that it costs so very little and yet is so interesting. It is something every one appreciates. If company comes in and they are busy, their company can *entertain themselves* with a stereoscope and collection of views, during their necessary absence from the room. Children read, hear people talk, and [can] study about places of note. They can never go to these places; it would cost hundreds of dollars to visit only a few of them, and stereoscopic views, as seen through a good glass, give them a better idea than they can get in any other way.<sup>61</sup>

While this pitch implies the relevance of stereographs for home education and self-culture, it does not emphasize these applications to the extent that Underwood did following the advent of its stereo tours in the late 1890s. Also, although one of the suggested uses of the stereograph is as a cheap form of travel

substitute, this speech contains none of the painstakingly argued rhetoric, pertaining to the stereoscope's ability to psychically transport viewers through space, that became a mainstay of the company's sales tactics after 1897. The stereograph is presented in terms essentially similar to those used to describe it since the 1850s: a vaguely edifying but primarily entertaining form of parlour entertainment.

A key component of the Underwood sales pitch involved mentioning the names of local buyers who might be known to the client. "*Local personal INFLUENCE,*" the manual assured the agent, "*is impossible* for anyone to resist entirely."<sup>62</sup> Underwood continued and refined this practice after the development of the Travel System. Post-1897 sales literature contained the names of famous national and international customers, including Andrew Carnegie, Thomas Edison, and the office of Pope Pius X. Public libraries, schools and universities that made significant purchases were also recorded (the exact amounts were listed beside the name of the purchaser), as were lengthy endorsements from educators, stressing the instructional value of the Underwood stereo tours.<sup>63</sup>

After an agent canvassed a town or village for approximately two weeks, the second phase of the sales operation commenced: delivery.<sup>64</sup> Canvassers placed their orders with the nearest Underwood supply depot, and received the goods by express post. Upon delivering the stereoscope, the Underwood agent would bring four or five hundred views and canvass his clients once again, this time trying to sell them as many stereographs as possible. Sales of quantities as high as eight, ten or fifteen dozen stereographs were rare, but not unheard of.

For orders of six dozen views or more, agents could, at their discretion, include a free stereoscope in the deal.<sup>65</sup>

In spite of the risks and hardships, canvassing for Underwood could be lucrative. A letter written to Underwood by J.L.O. Chandler, an eight-year veteran of the firm, gives some indication of the travel patterns and earnings of the most successful salesmen. Chandler began work in January 1885, in Paducah, Kentucky. He worked for some time in Kentucky, then travelled to New Orleans and, later that year, to California (possibly with Bert Underwood), where he canvassed the towns of Sacramento, Stockton, San Jose, Los Angeles, San Diego and Santa Barbara. The next year he worked in Oregon and the year after that in Ohio. This was followed by two winters in North and South Carolina and Virginia, one summer in Massachusetts, two in Canada, and "one in Nova Scotia." In October 1890, he travelled to England, where Underwood was in the process of setting up a supply office. During the two years he spent abroad, Chandler claims to have made one trip to Palestine and Egypt (again, possibly following Bert Underwood, who photographed in those regions in the early 1890s), and one through Belgium, Switzerland, Germany, Italy and France. Chandler reported that his expenditures for this international expedition were \$3400 and his earnings \$5800. He claims that, in the eight years he worked for Underwood, he travelled approximately 57,000 miles and banked \$18,000. Based on his experience, he judged that agents could make from \$50 per month (an average wage for a salesperson at the time) up to \$500 per month during exceptionally good sales periods.<sup>66</sup>

Seasonal workers augmented the full-time sales force, which was concentrated in the cities and larger towns, where winter transportation was less

difficult. The majority of Underwood canvassers were male college and divinity-school students, aged 18-25.<sup>67</sup> However, it appears that women might also have worked as canvassers.<sup>68</sup> Working for three months between terms it was apparently possible to earn enough money for the upcoming school year.<sup>69</sup> The exact size of the sales force is not known, but in the summer of 1901 Underwood claimed to have dispatched approximately 4000 canvassers, many of whom were not only students but teachers.<sup>70</sup> In addition, the other major publishers at this time each employed annual sales forces of more than 1,000 agents. According to George Hamilton, a former president of Keystone (and once a canvasser himself), "the countrysides of the Nation literally swarmed with stereograph salesmen throughout the Summer months."<sup>71</sup>

### **Resurgence and Decline: The "Second Period" of Stereography, 1894-1923**

Underwood's growth in the late 1880s was founded on the success of their canvassing technique. The expansion of the company also coincided with and might have precipitated a revival of commercial and creative interest in stereography. A 1891 edition of *Photographic Mosaics*, for example, mentions the resurgence of the stereo trade in connection with the activities of companies such as Kilburn and Underwood: "It is very evident that the stereoscopic picture is coming back to remain. We are acquainted with several persons who are at the present time doing a very satisfactory business in this direction. Their method is not only to retail the product through the shops, but there is a great deal of quiet canvassing done after the manner of the book-agent, which brings large and satisfactory returns."<sup>72</sup>

After nearly a decade of neglect, the American photographic journals began to carry articles addressing stereography. There is frequent mention of stereography, for example, in volume 23 (1892) of *Anthony's Photographic Bulletin*, and the sources of these commentaries suggest that the revival was occurring not only in the United States but in Europe as well.<sup>73</sup> "Letters from France" (1892), a regular column in *Anthony's* by Léon Vidal, editor of *Le moniteur de la photographie*, frequently carried news of developments in French stereography and encouraged readers to utilize the medium.<sup>74</sup> Meanwhile, in England, G.A. Thomason (1892) asserted that stereography was not dead and speculated that it would yet become the most popular form of amateur photography.<sup>75</sup>

What had been perceived by many to be a dead art at the beginning of the 1890s was thriving in the United States and in Britain by the end of that decade. Hundreds of thousands of viewers and tens of millions of views were produced and sold each year between the late 1890s and First World War. Stereographs were available through bookstores, drug stores, department stores, mail-order catalogs and canvassers.<sup>76</sup> It has been suggested that a stereoscope could be found in virtually every middle- and upper-income home in the United States at the turn of the century.<sup>77</sup>

The greater ease and efficiency brought to stereography by the invention of lighter cameras, dry-plate negative processes and roll-film, along with innovative sales methods and an increase in amateur interest in the medium, all likely played a role in reviving the stereo trade in the 1890s.<sup>78</sup> However, to leave the explanation at this is obviously incomplete. Other factors contributed to the success of commercial stereography during this time: socio-cultural factors which not only facilitated a revival but which contributed to the shape it assumed.

Changing expectations and practices of middle-class tourism, as well as an increased interest in foreign geography and news due to burgeoning U.S. expansionism, all fostered a thirst for visual information about the lands and people beyond (and within) America's borders. The connection between turn-of-the-century commercial stereography and American society will be discussed at greater length in chapters four and five.

### **Emergence of Underwood Stereoscopic Tours and the Travel System**

Riding the crest of the format's resurgent popularity, Underwood began to produce its own stereographs in the early 1890s, when Bert and Elmer took up stereography. By 1897 the company had a regular retinue of staff photographers and freelancers working for it. That year, Underwood purchased the photoprinting facilities of Jarvis and Bierstadt, as well as of William H. Rau of Philadelphia, effectively completing its transformation from a distributor of stereographs to a publisher of original images.<sup>79</sup>

Underwood's success was fueled by the popularity its "stereoscopic tours," beginning in the late 1890s. As I will discuss in greater detail in the following chapter, these tours began as thoughtfully arranged sets of travel views, where the order of the cards mimicked the itinerary of an actual guided tour. I would speculate that these series emerged in part as a way of "hooking" customers into purchasing large quantities of cards. Given that Underwood stereographs were available primarily through canvassers or by mail-order, salesmen would likely have encouraged customers to acquire a sufficient number of cards to make their ownership of a stereoscope worthwhile. The arrangement

of travel views into series of 72 or 100 cards provided a quick and easy way for interested clients to acquire a larger number of stereographs, without having to labour over the content of individual views.

The reasons behind the popularity of Underwood stereo tours and the Travel System are certainly more complex than this, however. In chapters four and five I will examine the roles played by the rise of middle-class tourism and American economic, military and administrative expansionism in the emergence of the Travel System. One additional factor seems to me to be of particular relevance: the interest in self-improvement or “self-culture” among late 19<sup>th</sup> century middle-class Americans.

According to Joan Shelley Rubin, the practice of self-culture was based on a number of assumptions: that culture could be dissociated from wealth; that it could be acquired; that the process of acquiring culture entailed reading certain books and avoiding others; and that the ultimate goal of self-culture was not merely the accumulation of facts but a process of nurturing the mind and spirit in a way consistent with “Christian character.”<sup>80</sup> These assumptions reflected the republican values that had flourished in the United States since the revolution. “The democratization of property ownership and the rise of republicanism enhanced the prospect that Americans of more modest means could attain the respectability formerly limited to the aristocracy,” writes Rubin. “Although the relationship between money and ‘the best people’ remained ambiguous, many writers of popular advice manuals stressed that genteel conduct did not depend on financial resources.”<sup>81</sup>

During the second half of the 19<sup>th</sup> century, highly respected figures such as Joseph Stevens Buckminster, William Ellery Channing, Ralph Waldo Emerson,

Charles Eliot Norton and Charles W. Eliot all promoted and supported the cause of self-culture. In many cases they even produced or endorsed self-improvement texts or anthologies themselves. Meanwhile, companies such as Houghton, Mifflin & Co. did a booming business selling “Great Books” through mail order, while “self-help” publications in a more populist vein proliferated. These included publications with descriptive titles such as *Architects of Fate: Or, Steps to Success and Power, a Book Designed to Inspire Youth to Character Building, Self-Culture and Noble Achievement* (1897), *A Man’s Value to Society: Studies in Self-Culture and Character* (1897), and *Self-culture, Intellectual, Physical, and Moral* (1901).<sup>82</sup>

It is worth noting that, as a means of acquiring culture, these texts frequently privileged visual-based experience. “The best education grows from the broadening intelligence that comes through eye and ear and the simple experience of life,” advises the author of *The Practice of Self-Culture* (1904); “The actual observation of a fact is of far more educational value than the knowledge of the same fact from a book.”<sup>83</sup>

Jib Fowles argues that stereographs were seen by American consumers as a means to self-improvement. “The initial impetus behind stereograph viewing was, for many, the staunchly Protestant one of self-betterment through learning. As the nation industrialized following the Civil War, economic growth created opportunities for social mobility, and knowledge was one of the recognized propellants. The person who gained visual familiarity with things distant was more learned and thus a better candidate for success.”<sup>84</sup>

Underwood clearly saw and positioned their stereo tours within the discourse of self-culture. They even published their own self-improvement text,



entitled *The Stereograph and the Stereoscope: What They Mean for Individual Development, What They Promise for the Spread of Civilization* (1909). Underwood's quarterly publication *The Stereoscopic Photograph*, bore the masthead "For the Home and School" and featured articles such as "The Stereograph in the Evening School," and "The Child and the Stereograph," as well as advertisements for purveyors of fine books such as Houghton Mifflin & Co. ("If you are forming a library begin with the best books – Houghton, Mifflin & Co. Mail order American classics").<sup>85</sup> Beginning around 1905, Underwood even issued their travel series in boxes designed to resemble hardcover books. This allowed the sets to be conspicuously displayed on a bookshelf alongside other "great books." Coupled with the fact that the tours were sold door-to-door by well-dressed, college students, and contained written endorsements by university professors and well-known cultural figures, the Underwood Travel System would have undoubtedly appealed to buyers interested in self-improvement.

Stereo tours can thus be understood as providing middle-class consumers with a means of acquiring cultural capital. According to Becker, "Stereographs...symbolized conspicuous consumption, both in their possession and in the claim to 'refinement' and 'culture' that their use implied. Significantly, they provided a means of education at a time when it was becoming an increasingly important route of social mobility."<sup>86</sup> By furnishing proof of one's personal and social advancement, stereo tours accrued benefits to consumers, regardless of what their actual educational or cultural value might have been.

### *Diversification of Underwood Operations*

Beginning in June 1901, Underwood began publishing *The Stereoscopic Photograph*, a quarterly magazine. Issues were generously illustrated with finely reproduced photographs from Underwood's growing archive. Though tastefully composed, the magazine was essentially a promotional tool for the company. Articles covered a range of topics, from a "behind the scenes" look at stereo manufacturing in Underwood factories, to information about on-going scientific expeditions accompanied by Underwood stereographers, and editorial-style pieces comparing American and Chinese culture. Articles promoting the stereograph in the classroom also appeared in several numbers. The magazine changed its name to *The Traveler* after the September 1902 issue, apparently due to complaints from readers who found the former title too technical. The title change does not seem to have helped much with sales, and the magazine folded in 1904.<sup>87</sup>

Increasingly important to Underwood as a source of revenue were photographs (usually printed from one half of a stereograph negative) sold for reproduction in newspapers and magazines.<sup>88</sup> In 1896 Underwood began to supply photographs to illustrated papers in London and New York. Around this time, the company formed a "News Department" (possibly the first photographic stock house) which supplied photos to illustrated periodicals and magazines, as well as to advertisers.<sup>89</sup>

### *Keystone, White and Other Turn-of-the-Century Publishers*

Underwood's success and the general revival of the stereo trade quickly attracted competitors. B.L. Singley started the Keystone View Company in

Meadville Pennsylvania in 1892 on the local success of thirty views he had taken of damaged caused by the flooding of French Creek.<sup>90</sup> By 1900, Keystone had a trade list of 9000 titles and was employing door-to-door canvassers. The company entered the educational market at the same time or slightly before Underwood in 1898, and imitated the Underwood boxed travel-sets. Largely on the strength of its educational material, Keystone experienced rapid growth in the first decades of the 20<sup>th</sup> century and eventually came to dominate all corners of the stereo market, producing stereographs for use in home and school.

The H.C. White company also profited from the renewed interest in stereographs. White, situated in North Bennington, Vermont, had manufactured Holmes-Bates stereoscopes since 1874, and became the principal supplier of viewers in the United States in the latter part of the 19<sup>th</sup> century. In 1899, the company made the leap into publishing. Like the other major concerns, White sold its images door-to-door. Beginning in 1904, White issued travel sets with guidebooks closely imitating Underwood stereo tours. When business declined in the early 'teens, White followed many of its contemporaries and sold its archive to Keystone (around 1915).<sup>91</sup> The company continued to exist for many years, however, producing toy wagons for children.

In addition to Keystone and White, a number of smaller competitors vied with Underwood for a portion of the stereo market. The Stereo Travel Company, Griffith and Griffith and C.H. Graves (Universal Photo Art Company) were the most significant. Darrah estimated that there were, in addition, approximately 20 other smaller publishers that produced notable runs of views around the turn-of-the-century. Several of these concerns employed canvassers and published their own versions of stereo tours.<sup>92</sup>

The unprecedented demand for stereographs at the turn of the century encouraged publishers to exploit wider markets through the production and sale of less expensive cards. Major publishers such as Underwood and Keystone retailed their stereographs at six cards for one dollar, while Underwood stereo tours sold for between \$12.00 and \$19.00 (see Appendix A). The price of a single tour was roughly equivalent to what a working person might expect to earn in a week.<sup>93</sup> This strongly suggests that the target-market for the boxed-sets were affluent members of the middle class. The amount of cultural capital required to competently decode the tours suggests the same conclusion.<sup>94</sup>

While Underwood and Keystone were generally content to cater to the middle class, other publishers, including some of Underwood's chief competitors (such as White and Griffith) moved to meet the demands of working-class consumers. Using half-tone printing methods (similar to the means used to reproduce photographs in newspapers) and cheap cardboard, stereographs could be produced very inexpensively. "Lithoprints," as these types of stereographs are called, retailed at only three cents per view, or as little as 85 cents per hundred. Such cards were generally not sold through canvassing but were available through bookstores, drug stores, department stores and mail-order catalogs, and were often given away as free premiums.<sup>95</sup> The American Cereal Company, for example, awarded buyers who collected all of the letters in "Pettijohn" (the brand name of the product) a free stereoscope; the following year, the company included lithoprint travel views in its boxes of cereal to induce multiple sales.<sup>96</sup> Between 1898 and 1928, millions of lithoprints were sold or given away. The range of subjects published in half-tone closely paralleled those available in the higher quality format through the larger companies,

although it appears that there might have been a greater emphasis on comic and sentimental scenes. Many producers, such as Sears Roebuck and T. W. Ingersole, published travel series modeled on the efforts of Underwood, Keystone, White and Griffith. These cards did not come with an accompanying book or maps, but often had descriptive texts printed on their backs.<sup>97</sup>

### **Decline of the American Stereo Trade**

Stereographic series, particularly tours, continued to form the backbone of the Underwood's operations through to 1910. However, the educational market became increasingly significant to Underwood and its competitors as the decade progressed. Keystone in particular was a leader in this area and came to dominate the new market for visual aids fostered by the introduction of the curricular and pedagogical reforms characteristic of the Progressive Era. The use of stereographs in formal education was widespread until the late 1920s. In fact, Keystone boasted in the late 20s that its educational sets were used in schools in every American city with more than one hundred thousand people.<sup>98</sup>

In spite of the continued popularity of the tours, and the growing market for visual aids in the classroom, the stereographic aspect of the Underwood concern began a steady decline after 1910. Few new stereo negatives were added to the company's files after 1912, except for a final, brief burst of activity during the early war years (1914-1916).<sup>99</sup> Beginning that year, Underwood sold negatives to the educational division of Keystone. From 1912 to 1920 Keystone, which was then swallowing up the archives of Kilburn, Berry, Kelley & Chadwick and White, continued to acquire negatives from Underwood. In 1920 Underwood terminated production of stereographs, and between 1921-23 all remaining stereo

stock and rights were conveyed to Keystone. Keystone was the sole remaining large-scale producer of stereographs in the U.S. after 1923. Largely on the basis of its educational series, it continued to produce stereographs until 1939, when it finally terminated regular production of three-dimensional photos. The company continued to manufacture views for optometrists, however, and filled individual orders until as late as 1970.<sup>100</sup>

The Underwood Brothers retired in 1925. In 1931 the company was reorganized into four independent organizations: Underwood & Underwood Illustrations Studios of New York, Chicago and Detroit which sold photographs to advertisers; Underwood & Underwood Portraits, Inc., of New York, Philadelphia, and Cleveland; Underwood & Underwood, located in Washington and Chicago, which made photographs of individuals and events, “chiefly of a political character”; and Underwood & Underwood News Photos, Inc., New York.<sup>101</sup> This last company was run by Bert Underwood’s son E. Roy Underwood, and existed until 1978, when its historic negative archive was sold to George R. Rinhart, owner of Hastings and Rinhart Galleries Ltd.<sup>102</sup>

Bert Underwood died in Tucson, Arizona, on December 28, 1943. Elmer died in St. Petersburg Florida, August 17, 1947.<sup>103</sup>

As in the other periods of decline, the exact reasons for the deterioration of the stereo industry after 1910 are not clear. In the case of Underwood, the increasing importance of other aspects of the photographic publishing business (particularly images sold for half-tone reproduction in newspapers and magazines) appears to have overshadowed the production of original stereo views. In addition, there is some indication that the First World War played a

role by disrupting Underwood's overseas operations and by diverting staff and resources to the front.<sup>104</sup>

In terms of the more general decline, it is possible that competing modes of entertainment (the rise of the motion-picture industry) and the increasing accessibility of alternative forms of inexpensive visual/photographic information (such as illustrated daily newspapers and weekly/monthly periodicals) simply made the medium redundant. Harold Becker adds to this theory the speculation that, in an age when novelty was a highly valued commercial attribute, the stereoscope was slow to change its outward appearance and so became seen as outdated and outmoded to "modern" American eyes.<sup>105</sup>

It should be noted that the stereograph, as a means of visual communication, did not simply vanish overnight. While its popularity in the home dwindled after the First World War, it still possessed enough credibility to be employed in formal education for another two decades. 1917-1920, for example, were considered banner years for Keystone.<sup>106</sup>

What appears to have happened, I would suggest, is that for a variety of reasons the primary market for stereo views shifted from the home to the classroom. Once installed there as a tool of visual education, its fortunes became circumscribed by changing discourses of pedagogical techniques, progressive educational reform, and school board economics.<sup>107</sup> A closer examination of this shift, and of the role of the stereograph in the evolution of visual education, would make a very interesting area of future study.

Interest in three-dimension representations didn't vanish, of course. Currently, there exists a new interest in the kind of immersive entertainment once offered by the stereograph. This is evident in current 3-D IMAX films,

“virtual reality” imaging technology, and even the recently produced “3Discover” battery powered stereoscope. Consumer interest in stereographic representation – which has been, historically, nothing if not cyclical – might once again, in a modest way, be on the rise.



### CHAPTER 3

#### EVOLUTION OF THE UNDERWOOD TRAVEL SYSTEM, c.1897-1912

I will now turn from the general history of the stereograph to consider its specific application in Underwood travel sets. Proceeding chronologically, this chapter will examine what is known about the evolution of the Underwood Travel System between 1897, when the company began including guidebooks with specially arranged collections of cards, through 1905, when it might be said to have finalized the design, and to 1912 when Underwood effectively ceased production of stereo tours and began to sell their negatives to Keystone. The close reading of the material presented here will form the basis of the socio-cultural interpretation offered in chapters four and five.

#### **Journeys through the "Perfecscope," 1897-1900**

While collections of travel views had been published since the 1850s, Underwood stereo tours were unprecedented in terms of complexity and sophistication. No earlier publisher had attempted to depict the architecture, agriculture, industry and people of diverse regions of the globe with the comprehensiveness undertaken by Underwood after 1895. According to Darrah, "Nothing like it had appeared in stereo before."<sup>1</sup>

It appears Underwood conceived and began the project in the winter of 1895-96. The inaugural subject country was Egypt, followed later in 1896 by

Judea.<sup>2</sup> This endeavour produced two series of stereographs, both published in 1897: *The Land of the Pharaohs Through the Perfecscope* and *Journeys in the Holyland Through the Perfecscope*.

“Perfecscope” was a synonym for stereoscope used by Underwood, perhaps originating from the company’s emphasis on the quality of its viewers (it did not retain this term after 1900). The journeys offered by *Pharaohs* and *Holyland* consisted of stereographs (100 and 72 cards, respectively), ostensibly arranged in the order that a sightseer on a guided tour might encounter them. The cards were accompanied by a “guidebook,” which was essentially a pamphlet containing short descriptive texts keyed to each of the cards (the *Pharaohs* guidebook had 59 pages, the *Holyland* tour 74 pages).<sup>3</sup>

Stereographs of travel subjects had of course been sold in series since the 1850s. Stereo publishers appear to have recognized early on that there existed an impulse towards collection and accumulation in the consumption of photography; what Sontag calls the medium’s appeal to “consciousness in its acquisitive mood.”<sup>4</sup> Producers such as the London Stereoscopic Company and Negretti & Zambra offered large runs of related views, and pictures of lands made famous by art, literature or religion provided a logical choice of subject matter.<sup>5</sup> Negretti’s *Egypt and the Holy Land* (1857) and *Our India Empire* (1859), for example, were collections of one hundred cards each that depicted landscape and architecture in the title countries.<sup>6</sup>

The texts that accompanied 19<sup>th</sup> century collections of stereographs were typically limited to brief descriptive captions, sometimes enhanced by the inclusion of a biblical quote or a few lines of poetry where the subject warranted it. Attempts were made, however, to extend or elaborate the relationship

between text and stereograph. Charles Piazzzi Smyth's *Teneriffe, An Astronomer's Experiment* (1858), for example, used 20 stereographs to document the author's trip to a mountain top in the Canary Islands.<sup>7</sup> *A Walking Tour in Brittany* (1859) married author John Mounteney Jephson's descriptions of peasant traditions and scenic highlights with 90 stereographs, packed separately in a box with lock-and-key.<sup>8</sup> *Egypt, Nubia and Ethiopia* (1862), published by Negretti & Zambra, included floor plans and historical and archeological descriptions along with 100 stereographs.

In the above examples, however, the stereographs served primarily to illustrate the text, much as wood cuts or regular photographs might have. The relationship between text and image in *Pharaohs* and *Holyland* was of a different order. In addition to providing rudimentary architectural, ethnographic and historical information, the descriptive passages, in the words of the company, worked to "connect, locate and describe" the different stereographs.<sup>9</sup> Consider this example from *Pharaohs* (each number corresponds to a new stereograph):

#### 5. The Farewell Offering – Leaving for the Desert,

Is the last drink of pure water offered to the Shêkh of this village by one of the favorites of his harem. He is mounted on his richly caparisoned trusty camel for a long journey across the Libyan Desert, the most desolate part of the African Sahara.

At length we have passed the line where vegetation ceases, and are ascending the sandy hill which rises a hundred feet and more above the valley to the level of the Libyan Desert. Our donkeys are more than willing to take a rest before the

#### 6. Ruins of the Temple, Sphinx and Great Pyramid.

This temple just before us (older than history) is the remains of a large building constructed of granite and alabaster, excavated in 1853, and is believed to have been a temple of the Sphinx founded by the "Hor-shesu," a prehistoric people of Egypt.<sup>10</sup>

Here the text suggests the viewer is actually standing in the presence of the Sheik on his “richly caparisoned trusty camel,” or in front of the ancient temple.

Furthermore, the simple transition between the two views links the images into what can be described as a coherent and linear spatial narrative. As I will discuss at greater length in the following chapter, such textual strategies served to locate the observer in the imaginary geography of the tour, and so reaffirmed the guiding proposition of the tours’ designers: that the conjunction of text and image could provide a nearly perfect substitute for “real” travel.

Sales figures for *Pharaohs* and *Holyland* are unknown but were evidently sufficient for Underwood to expand its line of travel sets.<sup>11</sup> The brothers hired additional staff photographers, and contracted freelancers for specific assignments. Travel sets of Italy, Greece, Russia, Austria, Switzerland, Japan, Cuba, Puerto Rico and the Philippines all appeared by 1899.<sup>12</sup> Before 1900-1901, however, these series were sold without the accompanying booklets that characterized the 1897 Egypt and Palestine tours. Instead, they were packed much as travel sets had been since the 1850s: a one-line descriptive caption was printed on the face of each card and repeated on the back in up to six languages (reflecting the importance of Underwood’s international markets).<sup>13</sup>

It is not clear who within the company came up with the idea of the stereo tour. However, given Bert and Elmer’s involvement in the day-to-day operations of the company, it is logical to assume that the concept originated with one (or both) of the brothers. Regardless of who came up with the idea, an employee named Albert E. Osborne appears to have played a key role in developing and fleshing out the design of the stereo tours.

By his own account, Osborne became a canvasser for Underwood during the vacation following his freshman year (in the late 1880s or early 1890s). When he graduated from college, Underwood hired him as a recruiting agent, and he made the rounds of colleges and universities in New England and the Midwest. Osborne recalled that this was around the time that Underwood began to photograph countries systematically, and he claims that the “sight of the classified stereographs, together with suggestions of plans for descriptions” motivated him to take the position.<sup>14</sup>

Osborne’s role in the company quickly grew beyond sales recruiting. He made a practice of showing the early travel series to professors at the universities he visited, and solicited their feedback and comments.<sup>15</sup> The endorsements he gathered from respected educators and public figures became a hallmark of the Underwood marketing-approach, and the company included countless favourable quotes from clergy, professors, political figures and famous writers in its sales and promotional material, and in the introductions to its tour guidebooks. This letter, from Archibald Henry Sayce, a pre-eminent Oxford Orientalist, is typical:

I have been greatly pleased with Messrs. Underwood & Underwood’s stereoscopic photographs of Egypt. The stereographs have been selected with great skill, and are admirably illustrative of Egypt, both ancient and modern. Each of them is a study in itself; it is at once clear, artistic and well chosen. I cannot conceive of anything better, either for educational purposes, or for preserving a permanent memorial of the country and its inhabitants.<sup>16</sup>

The endorsements usually emphasized the educational value of the tours, as well as unique features of the Underwood sets, such as the map-locating system. The following excerpt, taken from a letter by G. S. Junkerman (MD, DDS, Dean),

appears to betray evidence of coaching: *"By the aid of the descriptive books and patent maps that accompany the tours one can gain a knowledge of a country and its people which could be obtained in no other way except by a visit to the country itself."*<sup>17</sup>

Some insight into how these endorsements were gathered is provided by a letter written from W.E. Long, a colleague of Osborne's, to Charles W. Eliot's secretary Jerome D. Greene (fig. 14). Long was trying to obtain an interview with Eliot, the President of Harvard University (and a proponent of self-culture). His pitch argues that his motive was not in fact commercial. "Personally, I advocate the use of the device as best I can, because I believe it supplies a real need," writes Long. "I want to see if this belief is in accord with the opinions of the greatest educators of the country. If the cause is a just one, it will and should prosper. If there is nothing in it, it will be sure to receive the swift and final condemnation of those authorities who are able to judge of its claims for recognition." Of course, Long included a list of "Indorsements from Prominent Educators" along with his letter, with those from Harvard faculty duly circled.<sup>18</sup> Evidently, his efforts were unsuccessful: it appears that Eliot never signed his name to an endorsement of Underwood stereographs. Ironically, however, he did become involved with Underwood's chief competitor Keystone, by serving on the editorial board of the "Keystone 600 set" educational stereograph series.<sup>19</sup>

As discussed in chapter two, stereo tours were sold beneath the rubric of self-culture. Beginning around 1900, Osborne wrote numerous pamphlets, articles and even books that explicitly spelled out and extolled the applicability of stereographic tourism to education and the project of self-betterment.<sup>20</sup> Judging from the (relatively) sophisticated presentation of stereoscopic travel developed in *The Stereograph and the Stereoscope: What They Mean for Individual*

now, for little, corner is  
yearly and awfully run down  
whooping cough, and Bert  
to endure it.

W. A. FRIED  
GENERAL-AGENT  
FOR  
**Underwood & Underwood**  
STEREOSCOPIC VIEWS  
ORIGINAL VIEWS  
FROM ALL PARTS  
OF THE GLOBE  
NEW YORK HARBOR.  
St. Petersburg Aug. 13 1897.  
WASSILI OSTROM NITTLERER, PRESIDENT  
N. Y. N. Y.

ELMER UNDERWOOD  
BERT UNDERWOOD

OFFICES  
NEW YORK. LIVERPOOL.  
OTTAWA, KANSAS. TORONTO, CANADA.

Dear Father & Mother =

B. UNDERWOOD, President  
HENRY A. STROHMMEYER, Vice-President  
E. UNDERWOOD, Treasurer  
H. BURDET WYMAN, Secretary

**UNDERWOOD**  
STEREOSCOPIC  
PHOTOGRAPHS  
FROM ALL PARTS  
OF THE GLOBE

MAIN OFFICES  
NEW YORK, LONDON,  
OTTAWA-KANSAS,  
TORONTO-CANADA,  
ARLINGTON, N. J.

WORKS & STU  
ARLINGTON,  
WASHINGTON,  
LITTLETON, N. H.

STEREOSCOPE FACTORY  
WESTWOOD, N. J.

CLASSIFIED  
SETS OF TRAVEL  
STEREOSCOPIC LIBRARY.  
STEREOSCOPIC  
MAP SYSTEM  
EXTENSION  
STEREOSCOPIC  
CABINET.  
TWENTIETH CENTURY  
ALUMINUM  
STANDARDS  
STEREOSCOPE.

Cable Address: "VIEWS"  
Telephone 2079 15th St.  
5th Ave. & 19th Street  
New York, Oct. 31, 1902.

FROM  
School Department,  
W. E. LONG.

Fig. 14. Examples of Underwood letterhead. The company took great care to promote the notion of world travel by stereograph in all aspects of its self-presentation. *Top*, detail from a letter by Elmer Underwood to his parents in 1897, written on letterhead apparently originating from the St. Petersburg branch office (photocopy from the California Museum of Photography collection). *Bottom*, W.E. Long of Underwood's School Department solicits the office of Harvard President Charles W. Eliot in 1902.

*Development, What They Promise for the Spread of Civilization* (1909), it is possible to conclude that Osborne was a principal architect behind the “theoretical” dimension of the Travel System, as well as the initiator of several key elements of its design (including the map system, described below).

Osborne was an indefatigable evangelist of the stereograph, and he championed the medium with a fervour that surely went beyond the requirements of his job. Along with E. N. Titchener, a respected Professor of Psychology at Cornell, Osborne drafted a statement attesting to the stereograph’s power to psychically transport viewers. Furthermore, he convinced 25 of the leading university-trained psychologists, philosophers and educators in the United States to sign it!<sup>21</sup> The credentials of the signatories suggest the degree of credibility possessed by the Travel System. Not surprisingly, the statement was used repeatedly by Underwood as a promotional device, and was later recycled by Keystone after it acquired the last bits of Underwood’s stock and rights in the 20s.<sup>22</sup>

The quest to convince others of the near miraculous powers of the stereograph continued even into Osborne’s old age. In 1939, when he was nearly seventy, Osborne published a short book that reiterated his ideas about the stereograph’s role in progressive education.<sup>23</sup> Citing the “tragic need for bigger men and women,” he explained how, foremost among educational aids, the stereograph might help to expand people’s horizons and provide humanity with – as the title of the book put it – “an alternative to revolution and war.”<sup>24</sup>



### Travelling through the Stereoscope, 1900-1905

In 1900, Underwood published a new Palestine set called *Traveling in the Holy Land Through the Stereoscope*. This appears to be the first instance where Underwood referred to one of its sets as a “stereoscopic tour,” a term the company applied to its travel series from this point on.

*Holy Land* was sold in a leatherette case with the title emblazoned across the lid in gold-coloured ink. It was comprised of a different selection and arrangement of stereographs than the *Holyland* series, along with a more elaborate text (220 pages) written by Jesse Lyman Hurlbut, the author of several publications for Sunday-school and Biblical study. From this point on, Underwood credited all of its guidebook authors and used their credentials to help sell tours.<sup>25</sup> The writers were typically Sunday-school teachers or university professors, though some were explorers and world travellers. Early authors included James Ricalton, who became renowned as a travel writer and photographer; and Rev. D. J. Ellison, whose text for the Italy tour was introduced by James C. Egbert, Professor of Roman Epigraphy and Archeology at Columbia University. Mabel Sarah Emery appears to have been the only woman to compose guidebooks for Underwood.<sup>26</sup>

Included with the new *Holy Land* series for the first time were seven maps, upon which were marked in red ink the precise locations from which the various stereographs were taken, as well as the exact field of vision captured by each image.<sup>27</sup> The maps ostensibly allowed the “stereo tourist” to judge the relative distance between views, and to gain information about parts of the city or landscape which were not depicted in the pictures. They also served as a kind of prop, contributing to the illusion that the observer was taking a real tour.

According to Ellison's preface to *Italy Through the Stereoscope* (1901), "just as it would be foolish to visit Italy without guide-books and maps, so also would it be foolish and even more so, to use stereographs of Italy without such helps."<sup>28</sup>

Similarities between the stereo tours and "real-life" tours were further enhanced by the fact that the maps were closely modeled after and in some cases directly copied from the maps and charts which accompanied the popular Baedeker guidebooks (figs. 15 & 16).<sup>29</sup>

The inclusion of maps and the patented locating system were possibly Osborne's brainchild. By his own account, he was struck with the idea of the locating system while attempting to place stereographs from the Greece tour on a Baedeker map of Athens:

Many of the stereographs could be located at once because of their relation to the Acropolis. But there were two that could not be easily located. After careful reading of the Guidebook, however, I got the idea that in one stereograph I was looking over Athens toward the northeast, and in the other I was looking across this field of view toward the northwest. If this hypothesis were true, I ought to see from the second position certain buildings in certain relationships. As I put this second stereograph in the stereoscope and looked out over the city, there the buildings were! I had never had an experience of which I was more sure than this one – that I had been for the instant in Athens, near enough to touch some tiles on a house roof!<sup>30</sup>

Underwood patented its map-locating system in the United States, England and Europe in the summer and winter of 1900. The company considered the map locating system to be a valuable contribution to stereography – or, at least, a good marketing ploy – and it proclaimed that it provided "the final step necessary to make stereographs the most perfect substitute for actual travel." "It is," concluded the company, "without a doubt, one of the most important strides



Fig. 15 "Environs of Athens," 1908. Map no. 1 from Underwood's *Greece* tour.

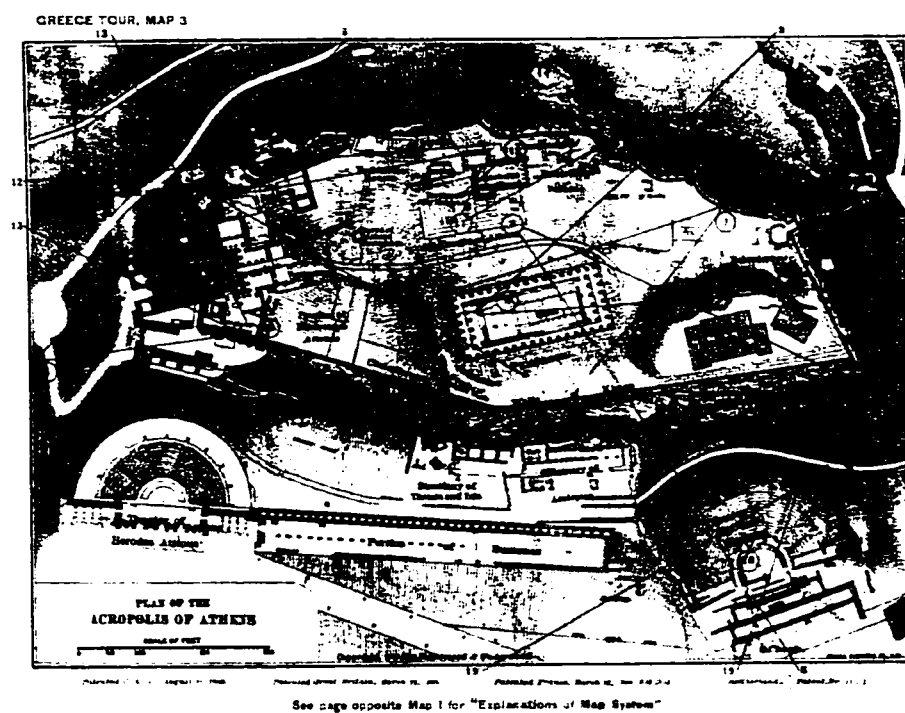


Fig. 16. "Plan of the Acropolis of Athens," 1908. Map no. 3 from Underwood's *Greece* tour. View lines are drawn in red. Circled numbers refer to individual cards, and indicate the location where the viewer is supposed to be "standing."

in the advancement of stereoscopy that [has] been made during the last half Century.”<sup>31</sup>

Along with the new maps came new guidebooks, closely following the model of Hurlbut’s *Holy Land* text. The texts typically began with an introductory chapter or “Author’s Preface” which introduced the subject country and outlined the tenets of stereographic travel. The introduction to the Egypt tour is typical:

Together we are about to make the tour of a remarkable river valley, more thickly strewn with monuments of early civilization than is any land in all the world. We are not (actually) to enter the country in the body, but this will make no difference, if we can obtain the experiences, the states of consciousness, of being there. Such experiences are obtainable by the right use of the stereoscope, the stereographs and the accompanying maps. Though we do not actually walk from place to place, still we shall know what it means to stand in one hundred different places in the valley, and if you note carefully where we stand in each case, you will be making the tour of the country with very many, if not all, of the experiences which you would gain by an actual visit.<sup>32</sup>

Standardized instructions, relating the five steps of “How to Use Stereoscopic Photographs” were also included. After “a” adjusting the sliding rack to focus the image and “b” directing a “strong steady light on the stereograph,” the observer was instructed to:

c. Hold the stereograph with the hood close against the forehead and temples, shutting off entirely all immediate surroundings. The less you are conscious of things close about you the more strong will be your feeling of actual presence in the scenes you are studying.

d. Make constant use of the special patented maps...[R]ead through once the text that bears on the location of each stereograph before taking [it] up...in this way you will know just where you are, and the feeling of actual presence on the ground will be much more real and satisfactory.

e. Go slowly...Travel by means of stereographs encourages leisurely and thoughtful enjoyment of whatever is worth enjoying. You may linger as long as you like...without fear of being left behind by train or steamboat.

Indeed, you may return to the same spot as many times as you like without any thought of repeated expense.<sup>33</sup>

Many of the guidebooks also featured a separate section at the beginning or end containing a brief history of the country in question.

The main body of the text was comprised of descriptive passages numerically keyed to each view. The entries were considerably more elaborate than those which had appeared in the 1897 guidebooks, with many running to three or four pages, and some to more than 20. As was the case with the 1897 texts, post-1900 authors attempted to emulate the informal, verbal delivery of a “live” tour guide. Descriptions mixed archeological, ethnographic and historical information, interspersed with the author’s personal anecdotes. An excerpt from the first entry in Ricalton’s *China Through the Stereoscope* (1901) is illustrative:

#### 1. Britain’s Rich Mart of the Orient – Hongkong from the Harbor.

We are on the upper deck of one of the many steamers that ride at anchor in the beautiful harbor of Hongkong, and there we see before us in the distance, at the base of that dark, green mountain side, the city of Victoria, generally called Hongkong, after the island on which it is situated...

Hongkong is a British crown colony and was a “voluntary” cession from China made sixty years ago, in settlement of trade difficulties between the two countries which had extended over a period of two hundred years. It is now the most important entrepot of the far East, with a native population of two hundred and fifty thousand and about twelve thousand Europeans...

In the center of our field of vision a distant mountain peeps over the shoulder of Victoria Peak. It is Mount Davis, nearly nine hundred feet high, and around its base is a Chinese cemetery. Between Mount Davis and the sea, on a gentle slope facing the northeast, thousands of little mounds, designated by simple board tablets, indicate the burial place of the victims of the bubonic plague which has prevailed for many years in this city. The cemetery is not an attractive resort. Neither the friends of the victims buried there nor leisure strollers are ever seen near the silent hillside; there even the dead menace the lives of the living.<sup>34</sup>

While the texts tended to emphasize the timeless, unchanging qualities of the lands they covered, they sometimes addressed recent events, providing a form of “stereo-journalism” (see chapters four & five for a more detailed consideration of this aspect of the tours). This was most clearly the case in the work of Ricalton who, because he both wrote guidebooks and took pictures, was in a unique position to produce this sort of stereographic reportage. In the example below (also from *China*), note how the historical immediacy of current events cause Ricalton to abandon the typical “you are there” style of the stereo tours:

47. Burning of Tongku – U. S. S. “Monocacy” at Landing with Hole through Bow made by Chinese Shell.

This scene shows Tongku a few days after the capture of the forts at Taku. The relief expedition under Admiral Seymour had failed to reach Peking, and after great loss and privation had returned to Tien-tsin. It was supposed by every one that all within the legations had been massacred...I reached this place on the Fourth of July; you see the flags out on the “Monocacy.” Notwithstanding the gloomy news from every quarter, every foreign warship flung out the Stars and Stripes in honor of the American nation’s birthday. There was no jubilant popping of firecrackers...but there was the crackling of destructive flames which were everywhere devouring the vacated homes of the terrified inhabitants.<sup>35</sup>

Compared with the *Pharaohs* and *Holyland* texts, the new guidebooks handled the transitions between views with a greater degree of sophistication. The rather awkward practice of employing the caption of the stereograph in the text of the transition was abandoned. However, as this example from *Italy through the Stereoscope* indicates, the movement of the observer’s body through space was still implied: “We shall now go beyond the piazza, beyond even the broad marble steps, and stand back of the quilted curtain which closes the doorway of this church, the vast resplendent, incomparable St. Peter’s.”<sup>36</sup>

Directed by the text, the observer would replace *Position 6. St. Peter's and the Vatican – Greatest of churches, great of palaces* with *Position 7 The Great Altar (95 feet high), St. Peter's Church, Rome, and so on.*

In 1901, Underwood published tours of China, Egypt, Italy and Russia, complete with the new guidebooks and maps.<sup>37</sup> Additional tours, comprised only of cards with, in some cases, descriptive texts printed on the reverse side, were also available. Countries featured in this manner included the United States, Austria, France, Germany, Great Britain, Greece, Scandinavia, Switzerland, Cuba, Japan, the Philippines, and Puerto Rico, as well as subjects involving several countries such as the Spanish-American and Boer Wars.

### The Underwood Travel System, 1905-1923

By 1905, Underwood had added guidebooks and maps to the 100 card series of Switzerland, and to several of its United States sets.<sup>38</sup> Numerous smaller series, including *Jerusalem, Nazareth, Travel Lessons on the Life of Jesus*, and *Travel Lessons on the Old Testament* were published, although these were simply repackaged “subsets” culled from longer tours (similar subsets were also produced from the China, Italy and Russia series).

These titles of some of these “sub-sets” suggest the importance of series prepared for classroom or Sunday school use. As I indicated in chapter two, this was an increasingly significant market for Underwood after 1900. By 1905, Underwood offered a variety of educational series, available under such general headings as “Geography and Commerce,” “Life of the People” and “History – Literary Landmarks – Architecture.”<sup>39</sup> In addition to pre-arranged collections such as these, school boards could also customize their own sets using

Underwood's "subject catalogue." The subject catalogue contained a number of different major categories, such as "physiography," "industry and commerce," and "religion." Under each of these headings were a variety of subheadings. For example, "industry and commerce" contained the subcategories of "vegetable products," "animal products," "mineral products," and "transportation and distribution." Each of these, in turn, was further subdivided. Under "vegetable products," for example, are "cereals" (including the sub-subcategories of wheat, corn, barley, etc.), "lumber," "agricultural processes" and so on. In the manner, thousands of views were organized and classified. The category of "Barley," for example, lists the following views (negative numbers are to the right):

Barley harvest, Palestine, 3119.  
 Heading barley, Iwakuni, Japan, 3931.  
 Flailing barley, Oshima Island, Japan, 3922.  
 Winnowing barley, Chemulpo, Korea, 4528.  
 Coolies flailing barley, Fusan, Korea, 4533.  
 Harvesting barley, near Olden, Norway, 670.<sup>40</sup>

The cards listed above were drawn from different country tours; in this case, from the Palestine, Japan, Korea and Norway series. Using the negative numbers to order from this list, a teacher or principal could tailor his/ her own series to fit specific curricula. The "subject catalogue" was thus a forerunner to the more elaborate educational indexes and series published in the following two decades by Underwood and Keystone.<sup>41</sup>

In 1905, Underwood began referring to its programme of stereographic tourism and its collection of stereo tours as the "Underwood & Underwood Travel System."<sup>42</sup> A 1905 catalogue introduced the system in this way:



The Underwood Travel System is unique. It consists in travel of the truest kind, yet it does not utilize either ship or railroad, or any of the ordinary bodily conveyances....[It] is largely mental. It provides travel not for the body, but for the mind, but travel that is none the less real on that account. It makes it possible for one to feel oneself present and to know accurately famous scenes and places thousands of miles away, without moving his body from the armchair in his comfortable corner.<sup>43</sup>

The assertion that stereographs, in conjunction with guidebook and maps, could provide a substitute for actual travel was one that the company had maintained since 1897 (the origins of this position will be discussed in detail in chapter four). Underwood's description of stereoscopic travel in 1905 was, perhaps, more precise and consistent than it had been in the guidebook introductions in 1900 and 1901, but the argument was essentially the same. Except for the newly coined rubric, the only major change to the travel sets that occurred after 1901 was cosmetic. In or slightly before 1905, patrons could purchase series in "volume cases," which, as mentioned in chapter two, were boxes designed to resemble hard-cover books.<sup>44</sup>

### **Production of Stereo Tours**

There is, unfortunately, little information about how Underwood actually produced its stereo tours. While the names of the guidebook authors are known, which stereographer produced what image is generally not. In fact, very few Underwood photographers have been identified by name, owing to the lack of company records and the fact that Underwood, like most of the mass publishers at the turn of the century, did not print stereographers' names on the view cards.

There is a certain amount of information we can infer from the product itself, however. The relationship between the production of text and image

appears to have fallen into two general categories. First, and most commonly, authors were contracted and allowed to select, arrange and describe already existing images from Underwood's negative archive. In certain circumstances, the writers probably worked in conjunction with stereographers, providing them with detailed "shopping lists" of images, and in some cases even noting particular vantage points. In the preface to *Egypt through the Stereoscope* (1905), James Henry Breasted gives a rare account of the relationship between author and stereographer.

[T]he selection of the stereographed scenes employed, was facilitated by the dispatch of a special artist in the employ of the publishers, to make on the spot a large list of stereographs, indicated by the author, who located the position for each stereograph on maps and plans, the list being accompanied by full instructions. Were it possible to eliminate the element of accident in the production of such a series of stereographs, there would be no difficulty in placing in the author's hands by this method, all and exactly the stereographs wanted. Happily there are in this series only three cases in which the author would have made a different selection had accident not prevented.<sup>45</sup>

In spite of his claims, Breasted and his stereographer did not actually produce every image included in the final tour in this manner. In the edition of the tour which I viewed at the University of Toronto Rare Book Collection, cards bore copyright dates ranging from 1896 to 1904. This suggests the work of a variety of stereographers, and the earlier dates (1896 and 1897, particularly) appear to indicate that the views were made well before the 1900 version of the text was commissioned.

The range in dates signals another confusion that hinders attempts to attribute definitive authorship to the tours. David E. Haberstick notes that surviving Underwood negative archives contain duplicate, variant, substituted

and updated images with identical captions. Comparisons between different editions of catalogues also indicate that tours were always flexible and subject to modification.<sup>46</sup> In other words, they were perpetually works in progress. Haberstick attributes this to the “marketing genius” of the Underwood brothers, and suggests that Bert, in particular, was a keen observer of consumer demand who relied on his analyses to fine-tune the composition of boxed sets.<sup>47</sup>

Although the majority of tours were produced through collaboration between various photographers, writers and editors, the work of James Ricalton was a notable exception. Ricalton, a prolific photographer and traveller, supplied the images for numerous Underwood series (the Philippines, Japan, the Russo-Japanese War), as well as the text and stereographs for complete tours (*China through the Stereoscope* (1901) and *India through the Stereoscope* (1907)).<sup>48</sup> However, it should be noted that the extent to which Ricalton purchased negatives produced by local or itinerant photographers is unknown (this was a common practice among travelling stereographers dating back to the 1850s). Neither is it clear if Underwood substituted his stereographs with images produced by other photographers in later editions of the sets. It is important to recall that a salable end product was undoubtedly more important to the company than insuring the integrity of an individual author or photographer’s work or vision.

Ricalton is the Underwood stereographer about whom the most is known, and his life provides some insight into the character and activities of other turn-of-the-century stereographers.<sup>49</sup> Before joining the Underwood staff in the early 1890s, he worked as a country schoolmaster. In spite of this, he seems to have travelled extensively. He had even spent a year in the employ of Thomas Edison, assisting the famous inventor by scouring Ceylon, India, Burma, the Malay

Peninsula, China and Japan for bamboo samples, out of which Edison hoped to produce an improved electric lamp filament fibre.<sup>50</sup>

Probably on the basis of his strong background in travel, Ricalton was hired by Underwood in 1891 or 1892.<sup>51</sup> During the next 20 years, he travelled more than half a million miles, circling the globe at least six times and completing more than 43 Atlantic crossings.<sup>52</sup> He accomplished this in the days before airplanes or automobiles, and before telephones were widely disseminated. Ricalton photographed five major conflicts: the Graeco-Turkish War, the Boer War, the Spanish-American War, the Boxer Uprising, and the Russo-Japanese War, producing images for Underwood which were published in stereo and also as half-tone illustrations in newspapers and magazines.<sup>53</sup> Charles W. Stoddard, the famous travel lecturer, made nearly exclusive use of Ricalton's work. Burton Holmes, a travel lecturer who wrote guidebooks for Keystone, also relied on Ricalton's photographs.<sup>54</sup>

Ricalton employed various means to ensure that he got a good shot. While photographing a royal procession held in Delhi, for example, he rented space along the parade route in advance, and erected a scaffold so as to provide himself with a high angle view (he also contacted bodyguards to keep other onlookers from scaling the tower). In Jerusalem, he sat on a plank anchored beneath a balcony to obtain pictures of the Eastern Pilgrimage making its way down a narrow street to the Church of the Holy Sepulchre.<sup>55</sup> Judging from the numerous excellent travel views published at this time by the major stereo concerns, such initiative was characteristic of the successful travelling stereographer.

Although improved transportation and communication had done much to ease the hardships of world travelers, the itineraries of travel stereographers frequently took them far away from modern conveniences. The individuals attracted to this line of work needed a high degree of self-reliance, self-confidence and determination. As Haberstick points out, while stereophotographers working for companies such as Underwood, Keystone and White were providing a form of “post-Cookian” touristic entertainment, they themselves were engaged in the very real travail of pre-Cookian travel (I will consider this distinction in greater detail in chapter four).<sup>56</sup>

Although the deluxe stereo tour (consisting of stereographs, guidebook and maps) was the emblematic example of the Travel System, only a small number of the generally available stereographic sets actually contained all of these elements.<sup>57</sup> Most of the more than three-hundred sets assembled by Underwood between 1902-1910 were published without accompanying guidebooks or maps. Most series, in fact, consisted only of cards with explanatory notes printed on the back, or simply with the caption, repeated in several different languages on the reverse side.

The reason for this was probably economic. The time and expense involved in producing and publishing guidebooks, along with customizing and indexing the maps, probably meant that Underwood selected only best-selling series for the deluxe treatment. Complete tours were sold at a slight premium above the purchase price of regular series. Guidebooks typically added from 20¢ (for a pamphlet containing descriptive text) to \$1.90 (for a 602 page volume with ten maps) to the price of a tour. Underwood allowed customers to purchase guidebooks and volumes cases separately from stereographs. Purchasing a fully

featured 100 card series raised the price from \$16.67 (stereographs only) to \$19.00 (cards, guidebook and volume case) (see Appendix A). Judging from the aggressive Underwood sales literature, one imagines that canvassers did everything in their power to persuade customers to purchase complete tours. In the absence of sales records, the fact that the different guidebooks were published through numerous editions by Underwood (and by Keystone after 1923) suggests they were popular and widely purchased items (see Appendix B).

The locations chosen by Underwood appealed to American and international consumers in a variety of ways: as potential vacation spots (Italy, Sweden, Niagara Falls or Yellowstone), as destinations for religious pilgrimages (the Holy Land, Italy), and as regions appealing to the artistic, architectural or historic tastes of middle-class consumers (Egypt, Greece, Italy). As I will discuss in chapter five, Anglo-American imperialism also supplied Underwood with subjects. Ricalton's *China* series, for example, provided stereographic coverage of a prominent, recent historical event (the Boxer Rebellion), and offered Americans a rare glimpse into a part of the world that was of increasing concern to the United States' industrial and political leaders. In the same way, tours of the United States encouraged a sense of national pride while at the same time disseminating information about the emerging world power to viewers in Canada, Europe, Asia, Australia and South America. Before radio and television, and while half-tone printing and the cinema were still in the early stages of development, stereographic series sold by Underwood played an important role in "bringing the world" to Americans, but also in bringing the United States – and its world view, as reflected in the company's presentation of different countries – to everybody else.<sup>58</sup>

Surprisingly, Underwood commissioned few new guidebooks after 1905. The company published texts for the tours of India (Ricalton), Ireland (Charles Johnston) and Norway (M. S. Emery) in 1907, and a deluxe version of the Sweden (Jules Mauritzson) series appeared in 1909. There appear to have been few, if any, additions after that. As I indicated in chapter two, Underwood's interest and energy was diverted after 1910 to educational series and particularly to its news and advertising photo operations. The company continued to sell tours through the teens, however, and Keystone re-published Underwood travel sets after 1923 until at least the end of the decade.

## CHAPTER 4

### CULTURAL CONTEXT AND ANALYSIS, PART 1: THE TRAVEL SYSTEM AND THE RISE OF MODERN TOURISM

#### **“Travel” Becomes “Tourism”**

Leisure travel is a comparatively recent phenomenon. In the late 18<sup>th</sup> century, travel on the European continent was a costly, physically demanding and frequently dangerous undertaking – the province of “exiled monarchs, adventuring aristocrats, merchant princes, and wondering scholars” according to Daniel Boorstin.<sup>1</sup> Yet less than 100 years later, leisure travel had become a major preoccupation of the Euro-American middle class, supported by a vast international network of railroads, steamships, telegraph lines, hotels, restaurants, post offices, banks and guided tour outfits.<sup>2</sup> As I will discuss, this change was closely connected to the rise of the middle-class. It also signaled a fundamental transformation of the practices and expectations of travel itself.

#### *Origins of Tourism*

The European Grand Tour – that form of travel for reasons other than business or war that most closely resembles modern leisure travel – originated in the late 16<sup>th</sup> century. The Tour centered on Italy, France and Germany, and provided the European nobleman with a means of completing his education, of familiarizing him with recent developments in the arts and sciences, and of



furnishing him with the contacts and political background necessary for a diplomatic position. As such, the Tour frequently took several years to complete.<sup>3</sup> It is important to note that travelers of the 16<sup>th</sup> and 17<sup>th</sup> centuries were drawn to foreign capitals by their contemporary art, architecture, scholars and universities, and not simply by a region's "catalogue of ancient monuments," as modern tourists typically are.<sup>4</sup>

According to Louis Turner and John Ash, travel on the European continent increased during the 18<sup>th</sup> century, entering a "golden age" between 1763-1793.<sup>5</sup> Increasingly, however, these tourists were no longer the "exiled monarchs and adventuring aristocrats" described by Boorstin. A new class, hungry for cultural capital and eager to follow in the footsteps of their social betters, had arrived. In the words of Turner and Ash, "the Grand Tour was no longer an aristocratic preserve; it had been invaded by the bourgeoisie."<sup>6</sup>

This "invasion" was facilitated by the bourgeoisie's rapid rise to economic, social and cultural influence during the 18<sup>th</sup> century. Although they followed itineraries established over the preceding 200 years, the bourgeoisie brought a distinctly different set of preconceptions and expectations to travel. According to James Duncan and Derek Gregory, bourgeois travel during this period was influenced by Rousseau's call to "return to nature," as well as by the work of Romantic writers and poets such as Goethe and Byron. The bourgeois Romantic Grand Tour, as it is sometimes called, privileged the elevation of personal perception and "a passion for the wildness of nature, cultural difference and the desire to be immersed in local colour."<sup>7</sup> Roger Cardinal describes the essential character of Romantic travel as "the fertility of unprogrammed,

nonchalant itineraries; the suggestive magic of distance and wildness; the excitement of tactile engagement; the equation of strangeness with authenticity.”<sup>8</sup>

Bourgeois travel, however, existed in a state of contradiction. The technological and logistical machinery required to furnish leisure travel to increasing numbers of middle-class would be Byrons undercut the Romantic notion of the “unprogrammed” experience of the picturesque and sublime. “Although 19<sup>th</sup> century middle-class tourism undoubtedly fed off the poetic and exotic associations of Romanticism,” argues Cardinal, “it equally required down-to-earth travel information, including details of distances timetables, fares and the like.”<sup>9</sup>

By the mid-19<sup>th</sup> century, this “down-to-earth” travel information was supplied to Europeans and Americans in an increasingly commodified fashion. Companies such as Thomas Cook (which practically invented the modern guided tour) and Baedeker and Murray (who independently fostered the market for tourist guidebooks) came to play an increasingly influential role in determining *where* the middle-class travelled to, *how* they got there, and *what* they did when they arrived. According to Foster Rhea Dulles, packaged tours and guidebooks ameliorated the uncertainties and risks of independent travel, and “opened up Europe for thousands of newcomers.”<sup>10</sup>

At the same time, however, the success of the organized tour and the tourist guidebook led to a homogenization of travel experience. Packaged tours meant travelers were more than ever going to the same places, seeing the same sights, and crowding the same resorts.<sup>11</sup> As organized tours gained popularity, suggests Karen Beth Brown, “the extent of personal interaction with a foreign culture was curtailed. Travelers surrounded themselves with other travelers,

accommodations and food became standardized, and the tour itineraries rarely allowed for individual diversions.” The focus of travel, she claims, had clearly shifted from open-ended exploration to circumscribed activity.<sup>12</sup> At the same time, the goals of travel had become less clear. While the purposes of travel were clearly defined in the first half of the 19<sup>th</sup> century, by the later period the goals were less unified and coherent. Travel in and of itself was seen to be a suitable goal by the turn of the century, suggests Brown.<sup>13</sup>

Foreign travel remained closer to its aristocratic origins in America longer than in England.<sup>14</sup> However, following the end of the Civil War, leisure travel among the American middle class began to expand rapidly. Whereas only 30,000 Americans had traveled overseas in the mid-1850s, that number had doubled by the 1880s, and more than tripled by the end of the century. The trend, of course, continued to accelerate, and by the 1950s, a million Americans were annually travelling abroad.<sup>15</sup>

Attempting to assess the cultural significance of this transformation, Boorstin contrasts the aristocratic, Grand Tour era *traveller* with the middle-class *tourist*. “The traveler,” argues Boorstin, “was working at something; the tourist was a pleasure seeker. The traveler was active; he went strenuously in search of people, of adventure, of experience. The tourist is passive; he expects interesting things to happen to him. He goes ‘sight-seeing’ ... He expects everything to be done to him and for him.” Foreign travel, according to Boorstin, ceased to be an activity and became a commodity.

### Stereography and 19<sup>th</sup> Century Tourism

As discussed in chapter one, stereographs were closely connected with travel-based subjects from the onset of the medium's commercial introduction in the 1850s. Indeed, just as the *carte-de-visite* was used almost exclusively for portraiture, stereographs became generically associated with depictions of "non-local" landscapes, architecture and people.<sup>16</sup> A strong argument can be made that the interest in travel views helped to establish the commercial viability of the stereo trade. "It was perhaps not merely a coincidence," suggests Southall, "that the popularity of stereo photography first peaked in America in the post Civil War years of the late 1860's, and early 1870's, a period of economic growth in general, and a travel boom in particular."<sup>17</sup>

Circulating through the parlours of Europe and North America, stereographs offered middle-class viewers an unprecedented wealth of visual information about the non-local visible world.<sup>18</sup> They helped generate and sustain interest in foreign sights, and provided an incentive to travel by serving as "appetite-whetters for the real thing."<sup>19</sup>

In the period before postcards or amateur hand-cameras (such as the Kodak Brownie), stereographs were probably the single most important kind of pictorial tourist souvenir.<sup>20</sup> Stereo photographers working in touristic regions such as Niagara Falls or the White Mountains typically covered the same scenes through different seasons and weather conditions, or from the prospect of different adjoining towns or resorts. This allowed tourists to select views that evoked familiar or favourite scenes and vantage points, thus allowing them to assemble a personalized collection of stereographs with which to document their trip. Short notes were often written on the backs of the cards to further

personalize them. Phrases such as “as seen” frequently appear and indicate, according to Southall, “the tourist’s ability to accept the photographer’s vision and representation of a scene as a record of the tourist’s own personal experience at the site.”<sup>21</sup>

Stereographs also provided an important form of travel substitute. According to Altick, representational stand-ins for actual travel such as the panorama and diorama became popular in Europe in the late 18<sup>th</sup> century, when the French Revolution and Napoleonic Wars disrupted the Grand Tour on much of the Continent.<sup>22</sup> The stereograph clearly belonged to this tradition of representational substitutes. “The stereoscope was the cosmorama and the panorama finally domesticated,” suggests Altick. Stereography presented serious competition to earlier forms of travel-based entertainment. From the London Stereoscope Company’s stock of 100,000 views, notes Altick, “the mid-Victorian family could select all the scenes ever shown” at the panoramas in Leicester Square, Piccadilly, Regent Street, and Regent’s Park. Altick speculates that the popularity of the stereograph might in fact have helped deliver the *coup de grâce* to the London pictorial entertainment business after the 1850s.<sup>23</sup>

19<sup>th</sup> century commentators even suggested the stereograph might replace leisure travel itself. Brewster proposed that “Those who are neither able nor willing to bear the expense, and undergo the toil of personal travel would [by means of the stereoscope] acquire as perfect a knowledge of Rome’s localities, ancient and modern, as the ordinary traveller. In the same manner, we might study the other metropolitan cities of the world.”<sup>24</sup>

Brewster was not alone in suggesting that stereographs could serve as a touristic substitute par excellence. In fact, by the late 1850s the advantages and

pleasures of vicarious stereographic travel were largely taken for granted. The author of "Stereoscopic Journeys" (1857) for example, saw the simulation of "the enlarging and ennobling" experience of travel as the "highest mission of the stereoscope."<sup>25</sup> Meanwhile, in the United States *Scientific American* (1860) noted that with "a pile of pictures by their side," even Americans of modest means could "make the European tour of celebrated places, and not leave the warm precincts of their own firesides."<sup>26</sup>

The most outspoken proponent of the stereograph as travel substitute was probably Oliver Wendell Holmes. In "Sun-painting and Sun-Sculpture; with a Stereoscopic Trip across the Atlantic" (1861), Holmes proposed to conduct *Atlantic Monthly* readers on a "brief stereographic trip, – describing, not from places, but from the photographic pictures" he had in his own collection.<sup>27</sup> Holmes' article is especially interesting to us because it assumes the shape of a guided tour. The itinerary commences in Niagara Falls and New Hampshire, before proceeding to Boston, Charleston and New York. From there, Holmes devotes considerable space to stereographs of famous locations in England, before moving quickly through a selection of views of continental Europe and the Middle East.<sup>28</sup> Throughout, Holmes frequently addresses the reader in a manner that suggests he/she is sharing the same view as he: not only of the stereograph, but of the location itself:

Here we are at the foot of Charing Cross...To the left, the familiar words 'Morley's Hotel' designate an edifice about half windows, where the plebeian traveller may sit and contemplate Northumberland House opposite, and the straight-tailed lion of the Percys surmounting the lofty battlement which crowns its broad *façade*. We could describe and criticize the statue as well as if we stood under it, but other travellers have done that.<sup>29</sup>

Four decades later, Underwood drew extensively on Holmes' example in the creation of their own form of stereographic travel.<sup>30</sup>

As "appetite-whetters," souvenirs and substitutes, stereographs were deeply implicated in the practices and expectations of 19<sup>th</sup> century leisure travel. And yet, the part played by stereography in the emergence of modern tourism has been virtually ignored, even by those commentators who have acknowledged photography's central role. "Photography gives shape to travel," argues Sontag. "It is the reason for stopping, to take (snap) a photograph, and then to move on...Indeed much tourism becomes in effect a search for the photogenic; travel is a strategy for the accumulation of photographs." Yet this aspect of photography's role in tourism – taking snap shots – did not become a standard practice until the introduction of lightweight, amateur hand-cameras at the end of the 19<sup>th</sup> century. Prior to that, stereographic travel views had circulated through European and American parlours for nearly half a century, helping to shape and define Victorian expectations of leisure travel.

### The Underwood Travel System and Tourism

It is beyond the scope of this thesis to offer a detailed assessment of the stereograph's impact on 19<sup>th</sup> century tourism. We might however begin to suggest the direction such study might take by more closely examining the Underwood Travel System's relationship with turn-of-the-century middle-class tourism.

I would suggest that the Underwood Travel System was significant to the practices and expectations of modern tourism in three ways. First, the highly

standardized nature of the views included in Underwood tours served to reinforce and reproduce visual expectations of the non-local visible world; in effect, they helped to solidify a visual “canon” of touristic sights. Second, the highly structured design of the Travel System reflected and reaffirmed the fact that tourism itself had become a highly mediated, thoroughly circumscribed undertaking. Third, and perhaps most significantly, Underwood’s notion of stereographic tourism, which conflated travel experience with *visual* experience, reflected and helped to sustain what I will identify as the visual bias of modern mass tourism. I will now consider each of these points in greater detail.

Stereographic representation throughout the 19<sup>th</sup> century was highly formulaic, tending towards central, eye-level compositions that emphasized the 3-D effect of the binocular camera. There also existed a tendency towards standardization in the depiction of certain themes or locations. Mid-19<sup>th</sup> century stereographers worked within pre-existing visual traditions, and drew upon codes of depiction and presentation already established in other media. According to Southall, stereographers worked “in the midst of a broad cultural environment that readily presented [them] with pictorial models in paintings, popular prints” and even guidebooks.<sup>31</sup> They thus functioned within the enabling parameters of what Southall calls a “collective vision”: an accessible, widely circulated body of visual knowledge about particular sites and locations. The outcome of the play of these various forces was the widespread duplication of subjects and themes, as well as the similar aesthetic approach to these subjects.<sup>32</sup>

Southall notes that while in many cases the style or “way of seeing” evident in stereographs drew from earlier media, there are frequently great



differences between the way a subject is presented in stereo, and the way it is covered (if at all) by other media. These differences, argues Southall, are frequently reducible to innate features of the stereographic apparatus.<sup>33</sup> For example, the tinting and hand colourization of stereo views simply could not achieve the same subtlety as a painting. Also, the atmospheric effects so important to the works of Romantic landscape painters such as Casper David Friedrich, Albert Bierstadt, Samuel F.B. Morse, and Thomas Cole were difficult to achieve with the wet collodian negative, which was overly sensitive blue light and which usually rendered skies as a flat white void.<sup>34</sup> The technological sometimes intersected the ideological in interesting ways. Unlike the landscape paintings of Cole or Bierstadt, which situated human figures in poses of romantic contemplation of their surroundings (often with their backs to the viewer), the majority of stereographs depict figures at close range facing the camera. The reasons for this were partly technical: human figures generated a sense of scale and augmented the illusion of stereoscopic depth by providing a foreground. But there was an ideological aspect as well. For 19<sup>th</sup> century American photographers, Southall suggests, an untouched landscape appeared “rude” and “wasteful.” Another reason for the presence of human figures was more practical. In the days before portable amateur cameras, human figures could be seen by the stereo tourist as a kind of stand-in: “The use of figures in a photograph would probably have been particularly attractive to tourists, who could view the anonymous figures as surrogates for themselves.” According to Southall, “the landscape is thus transformed into a background for a portrait, rather than being the subject of the image.”<sup>35</sup> “Well-dressed visitors to the wild...stare back into the camera. No longer in awe of nature, instead, they are

paying their respects to the camera.”<sup>36</sup> This legacy of stereography became a lasting feature of tourist photography, as Friedrich’s and Bierstadt’s Romantic men and women who boldly faced the sublime were replaced by Jane and John Doe tourist, who faced the camera.

Although they were frequently of above-average technical and artistic quality, Underwood stereographs were in every way typical of the medium. When photographing well-established touristic destinations such as Niagara Falls or Rome, Underwood stereographers replicated pre-existing representational strategies. In fact, it was not unheard of for travelling Underwood photographers to simply purchase negatives produced by local photographers for inclusion in upcoming boxed-sets. Many of these images were reproduced over the course of several decades, and eventually ended up in the Keystone sets of the 1920s and 30s.

By disseminating a massive archive of “typical” touristic views, I would argue that the Travel System helped delineate the “canon” of touristic sites in Europe and North America. It re-affirmed what was worth looking at (the Leaning Tower of Pisa, the Eiffel Tower, Niagara Falls, etc.) and even from what vantage point one should look. Along with competing media such as postcards, half-tone reproductions and early cinema, stereographs worked to create and sustain touristic expectations of foreign sights. What people “gaze upon” when they travel, argues John Urry, “are ideal representations of the view in question that they internalise from postcards and guidebooks (and increasingly from TV programs). And even when they cannot in fact ‘see’ the natural wonder in question they can still sense it, see it in their mind. And even when the object fails to live up to its representation it is the latter which will stay in people’s

minds, as what they have really 'seen.'"<sup>37</sup> For turn-of-the-century Americans, I would argue, stereographs produced by companies such as Underwood provided one of the most significant sources of the "ideal representations" described above by Urry.

Not only were Underwood's images standardized, but with the introduction of the Travel System, the organizational context within which they were presented also became highly formulaic. Stereo tours appropriated not only the itineraries of guided tours, but also mimicked them through the use of supporting media (guidebooks and maps), and by filtering the "experience" of the foreign location through the character of the expert tour guide. The captions on the front and back also reproduced and perhaps helped to construct what Urry describes as the archetypal tourist experience: "to see *named* scenes through a *frame*, such as the hotel window, the car wind-screen or the window of the coach."<sup>38</sup> Elaborating this concept, Anne Friedberg argues that "the tourist industry successfully marketed an organized mobility, [and] arrayed prearranged 'sights' in narrative sequence. The guidebook served as textual captions to otherwise visual 'sights.'"<sup>39</sup> Indeed, one almost wonders whether Underwood boxed sets were mimicking guided tours, or whether it was the other way around

I would suggest that the organizational aspect of the Travel System described above served to re-enforce the expectation of leisure travel as a highly structured, thoroughly mediated activity. By presenting stereo tourism as a series of sight-seeing opportunities with the physical dimension of travel pushed into the background, the Underwood Travel System reinforced similar expectations of actual guided tours.

My third and perhaps most significant point is that the Travel System suggested that touristic experience was, at its essence, reducible to *visual* experience. This theme was established through numerous Underwood publications. Ellison's preface to the *Italy* tour is typical:

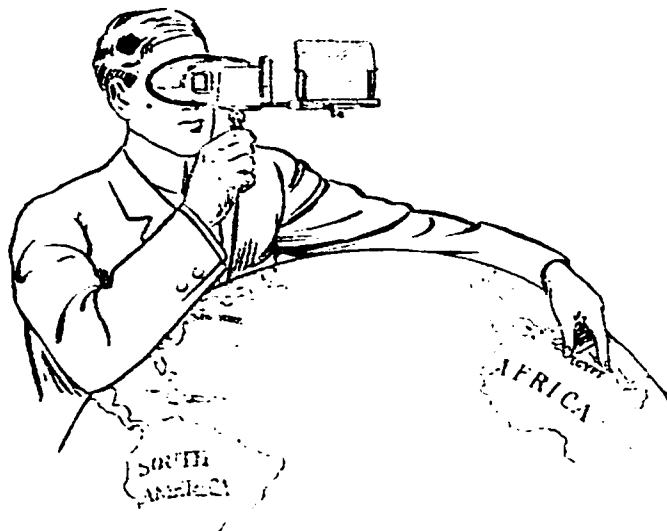
[T]ogether with you, I am to see Rome; to have the old feelings of being in the very presence of the ancient city's streets and ruins, beneath the Italian sky and sun. Not only may we see Rome before us, solid and substantial, not only are we to get the same clear, accurate visual ideas, as does the person who visits Italy, but with our eyes shut in by the hood of the stereoscope, we may have a distinct sense or experience of location here and there in Italy. This will mean that we may be thrilled with the very same emotions one would have were he actually on the spot. We shall not only see the ancient Arch of Constantine, even to the words inscribed upon it, but we may and should enjoy the very same feelings the tourist experiences after his journey of many thousand miles.<sup>40</sup>

Note how in the above example, Ellison equates stereographic representations with unmediated visual experience, and implies that visual experience subsumes the very experience of travel itself (fig. 17).<sup>41</sup>

The equation of travel experience with *visual* experience is not simply reducible to Underwood sales rhetoric, I would argue. Instead, we might understand this emphasis upon visual experience as constitutive and defining not only of the Underwood Travel System, but of modern mass travel itself.

In her work on the origins of sightseeing, Judith Adler suggests that between the 17<sup>th</sup> and 19<sup>th</sup> centuries there occurred a shift from a scholastic emphasis on touring as an opportunity for discourse to travel as eyewitness observation. "The aristocratic traveler...went abroad for *discourse* rather than for picturesque views or scenes," argues Adler. "The art of travel he was urged to cultivate was in large measure one of discoursing with the living and the dead – learning foreign tongues, obtaining access to foreign courts, and conversing

TO BE WITHIN ARM'S REACH OF DISTANT COUNTRIES IT IS ONLY NECESSARY TO BE



WITHIN ARM'S REACH OF THE UNDERWOOD STEREOGRAPH TRAVEL SYSTEM

Fig. 17. "To be within arm's reach of distant countries, it is only necessary to be within arm's reach of the Underwood stereograph travel system." Underwood reinforced its equation of travel experience with visual experience through graphics such as this, which appeared as part of a 1913 sales catalogue.

gracefully with eminent men, assimilating classical texts appropriate to a particular place, and, not least, speaking eloquently upon his return.”<sup>42</sup> However, beginning in the 17<sup>th</sup> century, travel sermons began to emphasize the importance of first hand observation, promoting the “ascendancy of the eye over the ear.” “The eye found favor as affording a more detached, less compromising form of contact than the ear...one more conducive to judicious, but socially distant appropriations,” writes Adler. “The wise traveler kept his eyes open and his mouth closed.”<sup>43</sup> The visual component of travel changed from a primarily objective, pseudo-scientific ideal of detached observation in the 17<sup>th</sup> and early 18<sup>th</sup> centuries, to a Romantic notion founded on experiences of beauty and sublimity.<sup>44</sup>

The concept of the picturesque completed this transition. Originally pertaining to 18<sup>th</sup> century landscape studies, the idea of the picturesque had begun to enter the tourist’s vocabulary by the early 19<sup>th</sup> century. The picturesque defined a way of seeing touristic sites: of appreciating them for their pictorial or painterly qualities, and of applying notions such as balance and composition to naturally occurring landscapes or cityscapes. Innumerable descriptions from 19<sup>th</sup> century travel literature describe touristic sites in pictorial terms. According to James Buzard, “it is under the aegis of...[the] picturesque that the art of Continental travel-writing, and the art of the European tour in general, shifted its allegiance from a *textual* or discursive model to an imagistic one.”<sup>45</sup>

The model of stereo travel constructed by Underwood was emblematic of this shift, I would argue. By suggesting that the act of looking at a stereographic representation of the Arch of Constantine provided the same experience as actually standing before it, the Travel System bespoke the priority of the visual

dimension of tourism. Underwood's success and the wide-spread dissemination of its tours, I would suggest, is indicative of how deeply ingrained travel's visual bias had become.

In his discussion of the "tourist gaze," Urry refers to the range of expectations, performative strategies and interpretative frameworks that come into play "when tourists engage in the quintessential act of tourism: sightseeing."<sup>46</sup> The viewing of tourist sights, suggests Urry, "often involves different forms of social patterning, with a much greater sensitivity to visual elements of landscape or townscape than is normally found in everyday life."<sup>47</sup>

By emphasizing the visual dimension of touristic experience, and by circumscribing the act of sight-seeing within a heavily mediated context, I would argue that the Underwood Travel System played a role in codifying, solidifying and promulgating the range of practices associated with the tourist gaze. Along with woodcut illustrations, paintings, photographs and even the early cinema, Underwood stereographs "visually objectified" the touristic gaze, allowing it to be "endlessly reproduced and recaptured."<sup>48</sup>

Stereographs in general and the Underwood Travel System in particular thus played an important role in shaping how 19<sup>th</sup> and early-20<sup>th</sup> century American tourists "saw" the non-local visible world. They defined for the tourist what was worth looking at, and what they should expect to see. Above all, they suggested to the tourist that their experience of travel would be a primarily visual one. For all intents and purposes, tourism became "sightseeing."

## Conclusion

The Underwood Travel System was a product of the age of mass tourism. It offered a sophisticated form of travel-based “edutainment” that served both as an incentive to middle-class tourism, and as a representational substitute for it. Furthermore, Underwood’s notion of armchair travel, founded on the equation of travel with visual experience, reflected and perpetuated the visual-bias of leisure travel identified by Adler and Urry. By presenting an enormous range of highly standardized views in a highly mediated, carefully structured viewing context, the Underwood Travel System not only helped to construct and sustain Americans’ expectations of the non-visible world, but to define the very experience of modern tourism.

Tourism, of course, did not exist in a vacuum. It is not surprising that those nations which engaged most energetically in leisure travel during the 19<sup>th</sup> century – Britain, France, Germany and later the United States – were also established or emerging imperial powers. “All forms of travel,” suggests Peter Osborne (2000), “and therefore all travel photography...was in some way touched by colonialism.”<sup>49</sup> In the next chapter, I will return to the question of cultural context. Building on Urry’s notion of the tourist gaze, I will attempt to resituate the Underwood Travel System within turn-of-the-century U.S. economic, military and administrative expansionism.



## CHAPTER 5

### CULTURAL CONTEXT AND ANALYSIS, PART 2: THE TRAVEL SYSTEM AND UNITED STATES EXPANSIONISM

As we have seen, the Travel System reflected and likely contributed to the development of a particular set of practices and expectations related to “seeing” touristic sites (Urry’s tourist gaze). It is important to note that the increased visual bias of touristic experience, and its replication through representational forms, did not occur in a vacuum; neither did the emergence of the Underwood Travel System as a highly structured presentation of images of the non-local visible world. Both emerged within a specific historical and political context. In this chapter, I will attempt to situate the Travel System within a different, though related context to that of tourism – namely, American economic, military and administrative expansionism.

#### “Traveling by the Underwood Travel System”

I would like to return to the picture with which I began the introduction to this thesis (fig. 1). It depicts a man, an American, dressed in fashionable Gilded Age clothes, sitting at a polished desk. His back is half turned to the camera as he confidently surveys a stereograph. The setting suggests a well endowed parlour or home library, and the low bookcase, with its rows of what appear to be leather-bound volumes, evoke the collections of classics sold by companies such as Houghton, Mifflin & Company. Above the bookcase, there is a little ceramic

bas-relief lion, a stock-symbol of power and empire. The man's right index finger is pressed firmly against the page of a thick book, marking his place as he turns to look into the viewer. A map spills over the edge of the table. Details are difficult to determine: a plan of a city, crisscrossed with angles. There can be no mistaking the location, however; nor, in fact, the site which the man has fixed his eyes upon. The name is clearly emblazoned across the creased paper: *Rome*.

The picture is a promotional image produced by Underwood (the picture is actually one-half of a stereo pair). The volumes on the shelves behind the man are, of course, Underwood stereo tours, and the man is looking at a view from one of Underwood's most successful travel sets, *Rome Through the Stereoscope*. The picture was produced in 1908, when the Underwood stereo concern had reached the pinnacle of its success and influence. The self-assertion displayed in the picture probably reflects the confidence felt by the Underwood brothers, whose long efforts and success in the stereo trade had resulted in wealth and prestige. In fact, the man in the picture is Bert Underwood. Given this, the image serves as a kind of self-portrait, both a marker of and tribute to the brothers' accomplishments, appropriately presented in 3-D. They had come a long way from Ottawa, Kansas.

Viewed as a promotional tool, this image contains multiple levels of rhetorical and semiotic meaning. The library setting, the bookshelves filled with boxed sets, the open volume and detailed map, as well as the man's serious and studious posture, emphasize the didactic aspect of the Travel System, as well as its significance to the pursuit of self-culture and social mobility (see chapter two). As a representation of stereographic travel, the picture is also telling. On the one hand, the image of the man absorbed in the stereograph, his eyes and expression

hidden from the viewer, suggest the inward-looking and above all visual dimension of touristic experience which, as we saw in chapter four, came to characterize 19<sup>th</sup> century mass travel. On the other hand, the presence of the stereoscope, guide book and map bespeak the extent to which the tourism had become a heavily mediated, mass-produced phenomenon. The picture epitomizes the internal tensions and contradictions of the new practices and expectations of mass tourism which Urry has identified as constitutive of the tourist gaze.

As we peer deeper into the tableaux, new layers of significance reveal themselves. Consider the titles on the bookcase to the right of the man. There we find, mixed in with boxed sets of popular European tourist destinations such as Switzerland and France, tours of Egypt, Palestine, the Philippine Islands, India, Mexico, Ceylon, Puerto Rico, and Korea. Egypt and Palestine notwithstanding, these locations were not touristic destinations but, rather, contested regions of military and economic influence: place names known to Americans from newspaper headlines and political speeches rather than from Cook and Baedeker. Their inclusion indicates how the Travel System not only reproduced the itineraries of mass tourism, but reflected the parameters of the international stage: a stage upon which the United States was playing an increasingly active role.

### **American Expansionism and the “New Frontier”**

The ocular fascination that Americans living in the late 1890s exhibited towards the lands and populations existing beyond their borders was not simply or strictly motivated by the desire for leisure travel. The 1890s was a period of

intense change and upheaval in the United States. Much of the decade was marked by bloody strikes and a crippling depression (1893-1898). Partly in response to mounting domestic problems, American political and industrial leaders began to emphasize overseas expansion as the “*sine qua non* of domestic prosperity and social peace.”<sup>1</sup> As William Appleman Williams describes in *The Contours of American History*, “Very candidly, and with considerable forethought, America pushed its way into the struggle for economic empire between 1895-1898.”<sup>2</sup> The Spanish-American War, the “temporary” title to the Philippines, and the Open Door Notes were justified by American leaders within the framework of what Williams describes as “a strategy of empire [based] on economic rather than territorial expansion.”<sup>3</sup> The Frontier, mythologized in Frederick Jackson Turner’s influential treatise *The Frontier in American History*, had shifted from the American West to the Far East, and middle-class Americans began to see themselves as part of this new national and international order. Walter LaFeber reports that many Americans at this time had even begun to see the U.S. as “the new Rome.”<sup>4</sup>

As American entrepreneurs, politicians and soldiers clambered onto the international stage, Americans at home demanded news of their compatriots’ exploits. Stereograph producers were quick to respond and Underwood, Keystone and White dispatched photographers to areas not typically associated with either religious pilgrimages or middle-class tourism. Underwood led the charge and by 1901 the company had published travel sets of China, Japan, the Philippines, Cuba and Puerto Rico, as well as collections covering the Spanish-American and Boer Wars. These images of “the new frontier” were immensely popular, just as stereographs of the opening of the American West had been

thirty years before, and the major stereo concerns ramped up production. Underwood itself was producing as many as 25,000 stereographs per day during this boom period.<sup>5</sup> In fact, both Darrah and Earle link the general revival in the U.S. stereo trade during the 1890s to "this nervous period of imperialistic expansion." Public demand ran high for stereographic images of conflicts involving Americans (the Spanish-American War, the Boxer Rebellion), its allies (The Boer War), and its competitors (the Russo-Japanese War) (fig 18).<sup>6</sup>

### *China through the Stereoscope*

The Underwood tour of China, subtitled "A Journey Through the Dragon Empire at the Time of the Boxer Uprising," was one of the most popular tours the company produced during this period.<sup>7</sup> Lavishly assembled, with six maps and a nearly 400 page guidebook, the set went through numerous printings before being acquired by Keystone, who continued to publish the series until the 1930s. The Underwood brothers knew how to make the most of a good thing, and issued several "spin off" tours, including sets of "Hong Kong and Canton," "The Boxer Uprising," "Peking," and an alternate 100-view set of China with descriptive texts but no guidebook (called "China No. 2").<sup>8</sup>

Unlike most Underwood tours, the China set was both photographed and written by one man: James Ricalton. Ricalton had spent nearly a year photographing the war in the Philippines before being dispatched to China by Underwood. He claims to have spent a year in China and to have produced more than 1600 negatives.<sup>9</sup> His images are sharp, well composed and dynamic, and represent some of the company's best work from the period.

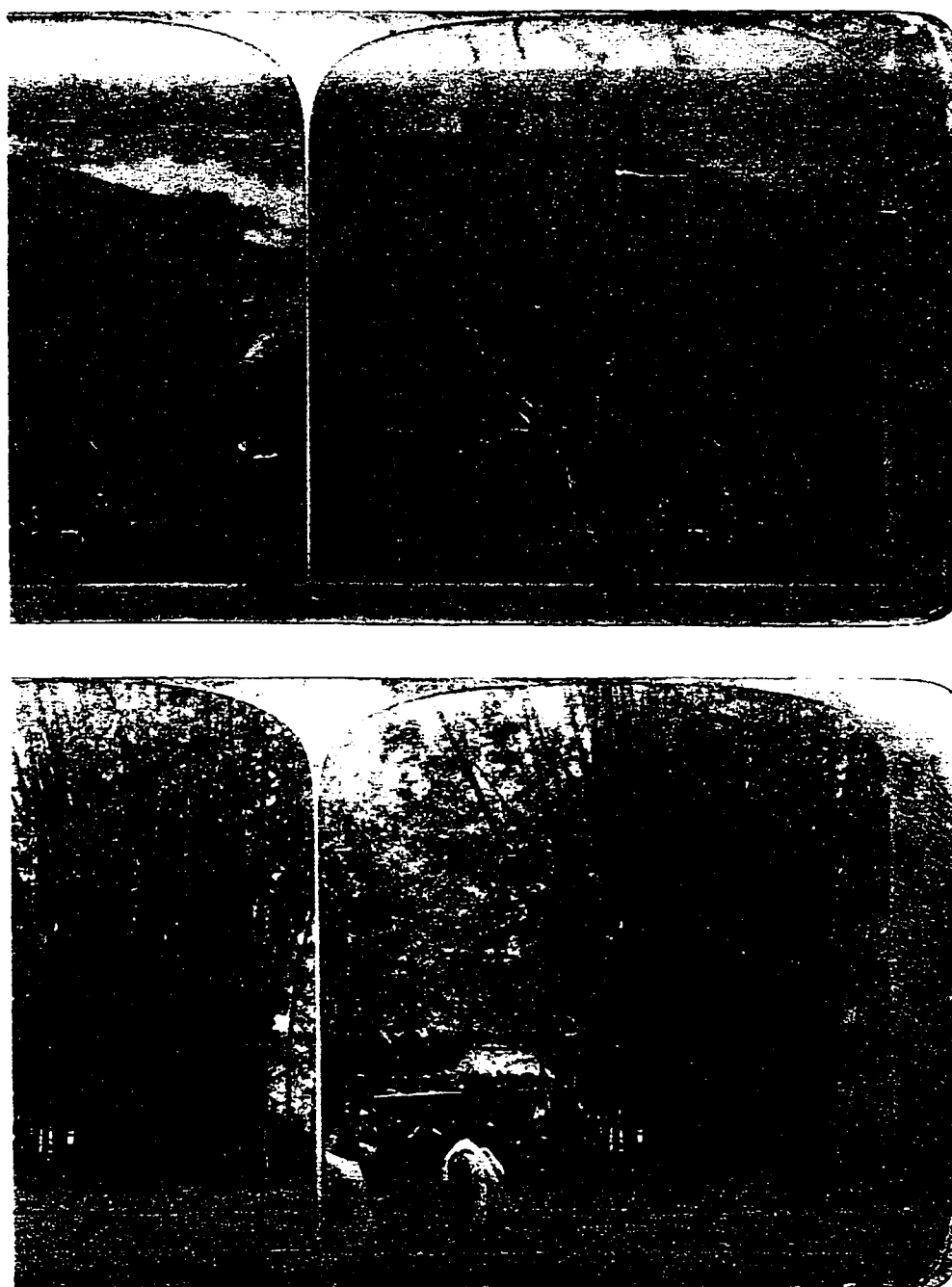


Fig. 18. Two Underwood views of the war in the Philippines. Above caption reads: "The open field over which the Washington Boys charged the Filipinos - from the Church Tower, Taquig, P.I. Copyright 1899." *Bottom*: The First Idaho - encamped among the Bamboos - Philippine Islands. Copyright 1899." (Robert J. DeLeskie collection.)

Ricalton appears to have arrived in China some time in June 1900, at a point when the so-called Boxer Revolution was at full steam. The uprising was a peasant revolution, supported by the Empress Dowager and Chinese government, that attempted to drive all foreigners from China. By late 1899, members of the Boxer sect were openly attacking Chinese Christians and Western missionaries. The killing of foreigners and converts escalated to the point where in early June an international relief force of 2,100 men was dispatched from the northern port of Tientsin to Peking with a mandate to "restore order." By Aug. 14, 1900, the international force had captured Peking, effectively terminated the "uprising," though hostilities were not officially ended until September 1901.

Ricalton's arrival in the summer of 1900 was no coincidence. Americans had vested interests in China, both symbolically and financially, and the uprising was daily headline news. Underwood was fortunate to have had one of their best photographers stationed nearby.

One of the most striking aspects of the China tour is the tension between the guiding parameters of the Travel System and the actual subject matter that Ricalton photographed and described. As we have seen, Underwood travel sets typically followed the itinerary of a guided tour, favouring sites of historic interest or natural splendor, while virtually ignoring the modern people and social conditions of the area or region photographed. This was not the case with the China tour, which includes views with captions such as "Dying in the 'Dying-Field,'" where Discouraged Poor are allowed to come to die, Canton, China" (view no. 14), and "Native Christians fleeing from the 'Boxers'" (no. 49).

This is not surprising: China had not been conquered by Cook or Baedeker, and remained essentially closed to Western leisure travel.

Frequently, Ricalton plays the role of war correspondent more than that of tour guide. Consider the following text, belonging to view no. 47 “Burning of Tongku – USS ‘Monocacy’ at Landing with Hole through Bow made by Chinese Shell”:

This scene shows Tongku a few days after the capture of the forts at Taku...The war was on, and every nation was rushing forward troops with all the hurried bustle of desperation. I reached this place on the Fourth of July...Notwithstanding the gloomy news from every quarter, every foreign warship flung out the Stars and Stripes in honor of the American nation's birthday.<sup>10</sup>

Ricalton is clearly discussing events that had taken place in the past, to which he and not the stereo viewer, was witness. Presented within the context of the tour, the stereographic image that accompanies this text becomes a historic tableaux, and the stereoscope a kind of time machine, capable of transporting the viewer chronologically as well as geographically to participate in a moment of national pride. The Travel System thus allowed American viewers to vicariously visit key points of their nation's recent past as easily as it facilitated their imaginative travel to major tourist destinations. In doing so, I would argue, it fostered a sense of involvement and participation in the enterprises of the nation.

“Living in an era in which wars, imperialism, and ‘spheres of influence’ made old maps and national identities obsolete,” argues Babbitts, “Americans had an obligation to know about faraway people and strange places.”<sup>11</sup> In the age before television, when cinema and half-tone printing were still in their infancy, stereographs provided a crucial form of widely disseminated visual information



about the expanding frontier of U.S. interests and involvement. Yet, this influx of information could be confusing and intimidating. The highly structured presentation of visual and text-based information that characterized the Underwood stereo tours, I would argue, provided viewers with familiar framework through which to approach change. Underwood offered to mitigate the strangeness of the Far East by conducting Americans on a guided expedition of China; it allowed Americans to vicariously participate in the Spanish-American War by providing them with a form of vicarious war tourism.

In this way, Strain suggests, the Travel System served to orient American viewers. Orientation, according to Strain, is a “visual operation or a uniting of the pieces into a whole.” She argues that orientation took place at three different levels in the viewing of a stereographic tour. The first is at the physio-psychological level, where the two images of the stereograph are brought together in an act of visual concentration. “The spectator,” writes Strain, “thus appeared to be at the site of the production of visual meaning, an active subject in the face of a static image of a cultural Other.” Second, as we have seen, the guidebooks and maps served to geographically orient the viewer, locating them in a particular country or region, in front of a specific site, even providing a precise location on a detailed, scale map.<sup>12</sup> Third, Strain argues that the Travel System helped to orient and define “the nature of the viewer’s relationship to unfamiliar people whose images have been photographically captured.”<sup>13</sup>

The China tour employs multiple strategies of orientation. The accompanying guidebook begins in typical Underwood fashion, by attempting to situate the viewer geographically:

[L]et us be sure we have a definite consciousness of our surroundings in this part of the world. Remember we are looking somewhat south of west [of Hong Kong]. Then by reference to the maps we can see that the great mass of China lies off to our right, stretching away for over two thousand miles. Directly before us, six hundred miles distant, is French or Indo-China, and further in that direction is Siam and the Malay Peninsula, Singapore being nearly fifteen hundred miles away. Luzon, the northernmost of the Philippine Island, lies over six hundred miles sharply to our left. Back of us is Formosa, about four hundred miles away, while Tokio, Japan, is one thousand miles beyond Formosa. San Francisco is nearly six thousand miles distant behind us and over our left shoulder.<sup>14</sup>

What is occurring here, I would argue, is not simply geographic orientation, but also the placement of the viewing subject on a grid of international power relations. The imperial powers of France and Japan, competitors for U.S. influence in the region, are clearly referenced. So too is the British Empire, represented by the city of Hong Kong, which the stereo tourist is “facing” in the above quote. Also mentioned are the Philippine Islands, which the United States now controlled, following the end of the Spanish-American War. The final point, of course, is San Francisco, delineating the edge of the old frontier, and the start of the new.

Another level of orientation may be detected in the China tour’s depictions of non-Western, non-European people. The guidebook begins with a process of historical orientation, comparing China with the ancient empires of Egypt, Phoenicia, Babylon and Greece. “One venerable contemporary of those old empires alone remains to connect the present with the hoary dawn of history,” asserts Ricalton, “and this solitary antique among the nations of to-day we are now to visit through the stereoscope...[T]o see China is to turn back the wheels of time and gaze into the dawn of human history...In China, a veritable world of antiquities, relatively associated, moral, social, literary, political and

industrial, are offered for our inspection. The word change was not in Pa-out-she's dictionary, and China under the Manchus is China under Chow."<sup>15</sup>

Throughout the tour, China's brutality and backwardness are implicitly contrasted with American and European progressiveness. While Underwood produced few images of rural poverty in the United States, and carefully censored images of poverty or suffering in American cities, these subjects abound in the China tour. Views such as no. 30, the "King of the Beggars – The Chief of a Beggar Guild – vain in his Excessive Raggedness", no. 31. "A Chain Gang in China" and the above mentioned view no. 14 "Dying in the 'Dying-Field'" provided Americans with images of the poor and disenfranchised in China. Ricalton concludes the tour with this summary: "We have witnessed in our wanderings the wretchedness of hopeless poverty and suffering, and the stupid and demoralizing luxuries of wealth...We have been stoned by the superstitious rustics among the mountains; we have 'chowed' with mandarins. We have looked upon the bloody and harrowing circumstances of war."<sup>16</sup>

It should be noted that such comparisons were not restricted to Underwood's depictions of non-Western, non-European people. The theme of American innovation verses retrograde traditionalism runs through virtually all of the Underwood tours, including the European sets. The *Italy* tour, for example, praises the historical achievements of Italy, but disparages modern Italians for their "backward" practices. "I never visited a place where the inhabitants seem so bent on washing clothes as they do here," Ellison advises his readers, adding "they seem to prefer to hang them out to dry in the most historical and most conspicuous places, as if to show their contempt for worldly pride and bygone greatness (fig. 19)."<sup>17</sup>

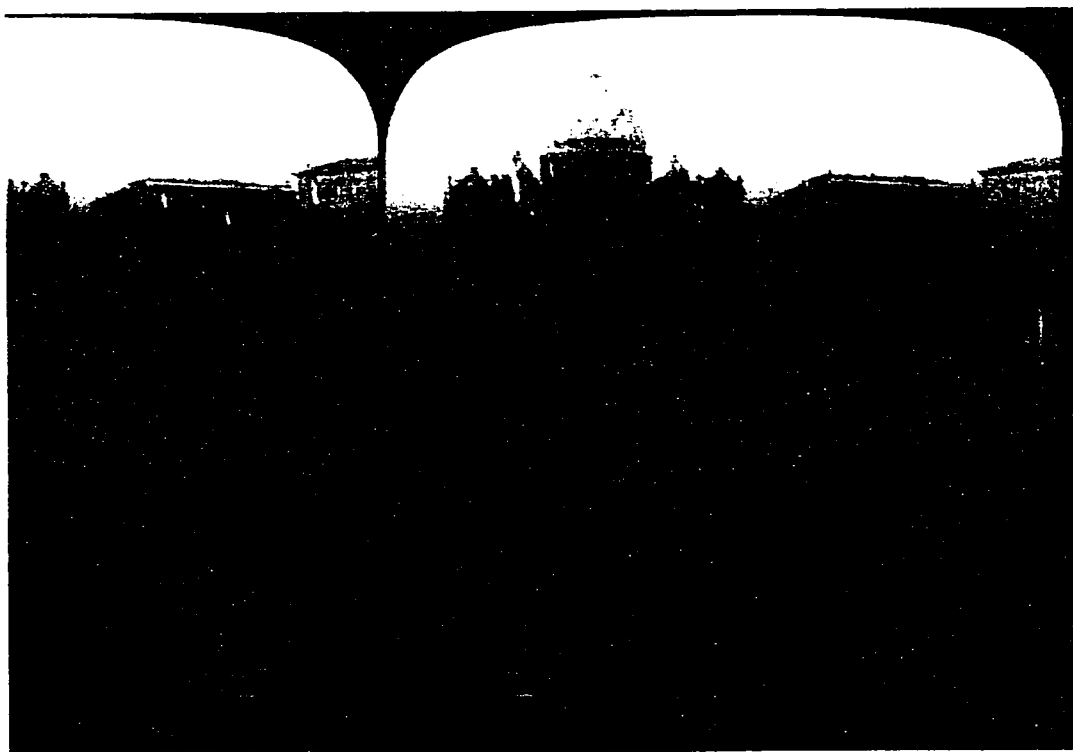


Fig. 19. "St. Peter's and the Vatican—Greatest of Churches, Great of Palaces." Detail. Underwood recycled many of their negatives in different tours. This image appeared as no. 6 in the 1901 *Italy Tour*, and as no. 55 in the 1905 *A Trip Around the World*. (Robert J. DeLeskie collection.)

Examining Keystone's "Travel Tour of the World Through the Stereoscope," a rival product to Underwood's world tour, Babbitts notes how the choice of subject matter and even the composition of individual images constructs a valued relationship between the United States and the rest of the world. Of the 72 images, 16 depict views of the United States, while the other 29 countries in the tour are typically allotted between one and three pictures each. The American scenes, Babbitts points out, show technological and scientific inventions, natural wonders, fertile farmlands, busy factories and modern cities. People are rarely the focus. In contrast, scenes of the Middle East, South America and Asia prominently feature people, frequently working with "primitive tools," engaged in artisanal practices, wearing traditional costumes, or undertaking religious practice or worship. The implication, suggests Babbitts, was that America was the emblem of progress, while tradition was equated with backwardness and impeded progress in the non-Western world (fig. 20).<sup>18</sup>

Babbitts suggests that these descriptions, integrated into the context of the Travel System, offered a kind of "proof" of the superiority of the white race over "less advanced people," along with evidence of the "triumphant progress of science and technology" in the United States. Using comparison and analogy, she writes, "the depiction of other countries highlighted America's strengths, underscored its weaknesses and confirmed its uniqueness. China's decadence served as a counterpoint for America's progressive government and economy; Japan's skilled and contented craftsmen a model for America's dissatisfied workers; South America's poverty-stricken peasant villages the antithesis of prosperous American farm communities; and America's bustling commercial

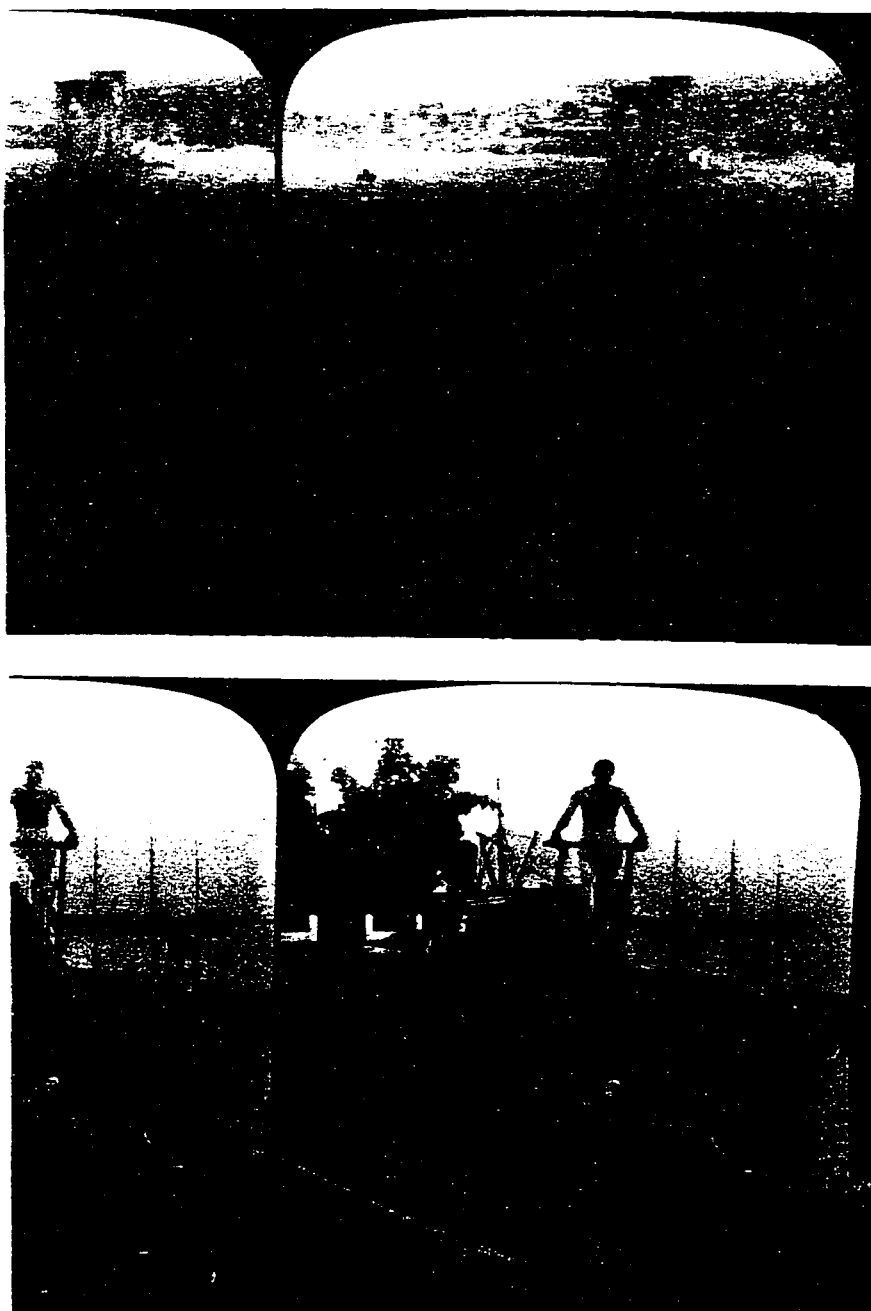


Fig. 20. Comparison of two views from *A Trip Around the World*, c. 1907. *Top*, "The wonder of the age, the Brooklyn Bridge." *Bottom*, "A Filipino Saw Mill." (Robert J. DeLeskie collection.)

cities the modern successors to Europe's monuments, cathedrals, and historic relics."<sup>19</sup>

### The Travel System and "Imaginative Geographies"

In the same way that touristic representations were founded upon longstanding pictorial traditions (such as the notion of the picturesque), the depictions of the non-local visible world offered by the Underwood Travel System were based upon pre-existing cultural models. Information about the non-Western, non-European world circulated with increasing density in the U.S. during the late 19th century, particularly after the closing of the Western frontier and the "opening" of the Asian-Pacific frontier. It was also becoming increasingly visual knowledge, manifest in photographs, lithographs, post-cards, magic lantern slides, half-tone reproductions, and early cinema, but also interior design, museum displays, and significantly, a host of international expositions held across the United States from the Columbian Exposition in Chicago in 1892, to the Louisiana Purchase Exposition in St. Louis in 1904. Along with this range of representational practices, the Underwood Travel System disseminated what Harvey Green has referred to as "a special sort of edited visual knowledge about the world before the American public."<sup>20</sup>

In *Orientalism* (1979), Said argued that artistic and scientific discourses work over time to create associations and presuppositions about other places and people. These "imaginative geographies" come to define a people's sense of themselves ("us") and others ("them").<sup>21</sup> The textual and visual knowledge promulgated by the Travel System, I would argue, contributed to the creation of American "imaginative geographies" of home and of the rest of the world.

American imaginative geographies underwrote U.S. involvement overseas: in the Philippines, or in Panama. Consider, for example, the twelfth image in the Underwood Tour of Panama (1906). Titled "Exploring the upper Changre River among the wooded hills of the Isthmus of Panama," it depicts a canoe jutting away from the viewer into an inky tropical river. A man with dark skin steadies the boat at its head; another man sits in the rear of the vessel. Bounding the horizon is a barrier of jungle. The text, printed on the back of the card, informs us that somewhere, behind the trees, is the railway and the canal. What does the text tell us about else what lies "out there," in the empty space, surrounding the image:

There are few settlements along this part of the river; the people are negroes, native Indians or half-breeds, utterly ignorant, very dirty and very shy, as they are little used to seeing strangers. They live in the most primitive fashion in palm-roofed huts.<sup>22</sup>

Here, the Panamanian landscape is presented as virtually devoid of human habitation or industry. The natives are ignorant and primitive, and apparently incapable of exploiting the material and commercial wealth which other cards in the series indicate are abundant in the region. If the native Panamanians were incapable or unwilling to develop the region, then Americans would step in. As Strain has pointed out in her close reading of this travel set, images and descriptive passages such as these affirmed American technological and organizational superiority over indigenous Panamanians, and even over competing European interests in the canal region. In this way, suggests Strain, the Panama tour served to justify U.S. involvement in the region.



### Stereo Tours and the “Imperial Gaze”

Once again, let us return to Underwood’s picture “Traveling by the Underwood Travel System” (figure 1). The picture reveals yet another layer of significance: as a metaphor for the relationship between the American viewer and the subjects of his or her purview. The idealized stereo tourist is quintessentially modern, dressed in fashionable garb – the very emblem of “the Progressive Era.” Meanwhile, the countries he views are stored like books on a shelf. They people whose images are captured within do not gaze back. They are, by inference, static and unchanging.

In this picture, Urry’s tourist gaze intersects what Kaplan has called the “imperial gaze.” By this, she refers to a gaze structure that fails to acknowledge that “non-American peoples have integral cultures and lives that work according to their own, albeit different logic.” The imperial gaze implicitly assumes the centrality of the white western subject, who views the people of the non-Western, non-European world from a position of superiority, and of paternal condescension.<sup>23</sup>

Discussing the gaze, turn-of-the-century anthropology, and stereographic tours, Strain argues that Underwood’s representations of the competing people involved in the Panama Canal project (Spanish, French and Panamanians) provided an ideal opportunity to fortify the image of America and Americans. “In this construction of an American image on the rubble of other nation’s supposed failures or inadequacies,” she argues, “a group of linked qualities becomes salient in a cross-cultural measure of worth; the enterprising spirit bolstered by corporate and engineering know-how and sprinkled with a bit of

paternalistic benevolence for good measure becomes a way of defining the American spirit and its influence abroad.”<sup>24</sup>

The stereo tours are thus significant not only for what they tell us about how Americans viewed people from other countries and cultures, but also how they perceived themselves – or perhaps, how they *wanted* to perceive themselves during a period of cultural upheaval and transformation. Following Kaplan and Strain, we might suggest that the Travel System, along with other forms of communication such as newspaper editorials, World Fairs and political speeches, played a role in the construction of an idealised American self-image: confident, entrepreneurial, technologically advanced, and free from stultifying traditionalism and superstition.

It is important to note that the Travel System not only helped to construct American notions of the self and the non-local visible world: it also disseminated an image of Americans and an essentially American view of the world to stereo buyers across Europe, Central and South America, and even parts of Asia. According to Brey, Underwood claimed to have shipped three million views and 160,000 stereoscopes to England in 1894.<sup>25</sup> Given the dominance of American stereo producers such as Underwood, Babbitts speculates that many, if not most of the stereographs seen by Europeans at the turn of the century were made in the United States.<sup>26</sup>

“Crafted for U.S. consumption, the American vision of itself and its place in the world became a transnational vision with every foreign purchase,” Babbitts suggests.<sup>27</sup> Underwood tours set in the U.S. (such as “The Grand Canyon of Arizona,” “Washington, D.C.,” “The World’s Fair (St. Louis Purchase Exposition),” “Yosemite Valley,” and the 100 card series “The United States”)

presented the natural and human-made wonders of America to viewers around the world. Furthermore, the editorial content of Underwood's foreign tours, such as the China and Philippine sets, propagated American perspectives on foreign affairs. In this way, stereographs served as a precedent to later media that also spread an American point-of-view, particularly radio and television.

Perhaps one of the most significant aspects of the world-wide spread of the Underwood Travel System is located not in the content of the images, but rather in the very act of viewing them. Non-Americans who bought stereographs not only saw images of America as a progressive, modern nation, but also engaged in what was arguably becoming a quintessential American act – the consumption of mass-media. Jib Fowles has argued that “what American viewed is not of any great account compared to the fact that, for the first time in human history, such a large proportion of a population was looking at an extended but finite set of carefully produced secular images.”<sup>28</sup> In a similar vein, Babbitts notes that “more than the images, the *viewing experience* itself may have been the most significant contribution the stereograph industry made to a European understanding of American.”<sup>29</sup> Just as stereo tours suggested that travel experience was essential visual, the Travel System implied that all relevant knowledge about the world – about foreign people, places and events – could be rendered visible. In the words of the company: “To see is to know.”

By connecting individuals with the work of the nation, and by coalescing the American self-image through comparisons with other people and cultures, the Travel System supplied a technique for locating and cementing one's sense of personal and national identity during a period of intense social transformation. Consumed by Americans at home beneath the rubric of self-culture, or in the

classroom as a component of educational reform, stereographic tours likely played an important role in the popular dissemination of knowledge – knowledge of other places and people, but also of the self – in the days before radio, television and home computers came to supply their own forms of “arm-chair tourism.”

## CONCLUSION

This thesis has been organized along the lines of two basic queries. The first asked how one could account, historically, for the model of “stereoscopic travel” presented by the Underwood stereo tours and Travel System, c. 1897-1912. The second question was broader. It asked how and to what extent the stereograph represented a departure from other forms of contemporary visual media (e.g. photographs, postcards, half-tone reproductions, and early motion pictures).

I would like to begin this conclusion by reviewing the arguments developed in the preceding chapters as they relate specifically to these two questions.

Chapter one attempted to provide a background against which to consider the emergence of the Underwood Travel System by presenting a chronological historical narrative of the scientific invention and commercial exploitation of the stereograph in Europe during the period c.1839-1862. This chapter argued that while stereography was closely related to photography, it differed from it in important ways. For example, stereographs became associated with certain genres of subject matter (such as travel views), while photographs became associated with other representational modes (such as portraiture). Furthermore, the pseudo-scientific discourse of natural theology suggested that stereography could in fact be understood to provide a more accurate account of nature than regular photography. Together with the overlapping discourse of natural magic,

natural theology implied that stereographs could provide an experience equivalent to unmediated vision. This strengthened the link between stereographs and travel subjects, I argued, and laid the groundwork for the notion of stereographic travel espoused by Underwood Travel System.

Chapter two examined American stereography during the period c. 1850-1939. This chapter further explored the close link between stereography and travel subjects. It also examined the cyclical fortunes of the American stereo trade, and considered how new sales and marketing techniques implemented by the Underwood Brothers in the 1880s contributed both to a general worldwide revival of the stereograph in the late 19<sup>th</sup>/early 20<sup>th</sup> centuries. Finally, it outlined a general history of the Underwood concern, and attempted to situate it within the context of the changing fortunes of the turn-of-the-century American stereo trade.

In chapter three, I undertook a more detailed examination of the Travel System itself. Here, I considered the constitutive elements of the Underwood tours (cards, book, maps, storage case) in greater depth, and identified historical precedents (the collections of cards published by Negretti & Zambra). I also attempted to reconstruct a chronological history of the evolution of the Underwood Travel System. The Travel System, I suggested, was an evolving product that emerged through a complex inter-relationship between market forces, practical considerations, and ideology (as represented by the input of stereo enthusiasts and acolytes such as Albert E. Osborne).

Chapter four situated the Travel System within a much wider social context: the emergence of middle-class tourism. Over the course of the 19<sup>th</sup> century, a series of technological and social transformations made leisure travel

accessible to a greater number of people in Europe and North American than every before. The design of the Travel System, I argued, drew upon the middle-class' interest in leisure travel. However, Underwood stereo tours did more than simply reflect this interest. Instead, in conjunction with a range of other representational practices (painting, woodcuts, and amateur photography), the Travel System played a role in transforming the very practices and expectations of tourism itself. It did this, I argued, by helping to construct and sustain what I identified as the visual bias of modern mass travel.

I continued the social/ contextual reading of the Travel System in chapter five. Here, I argued that the emergence of the Travel System must be viewed from the perspective of the changing geo-political realities of late 19<sup>th</sup> century/ early 20<sup>th</sup> century America. The choice of non-traditional locations for stereo tours (i.e., China, the Philippines, and Panama,) reflected the public demand for information about these locations: a demand fostered by the United States' political, military and entrepreneurial activities. In addition to reflecting this interest, the Travel System helped to shape these experiences for American stereo viewers. By providing visual and textual points of reference and comparison for American viewers, the Travel System offered, in the words of Strain, "a discourse of self rendered through the image of the Other."<sup>1</sup> Finally, I concluded that just as the Travel System suggested that touristic experience was essential visual, it also helped to perpetuate and sustain the notion that all relevant knowledge about the world – about foreign people, places and events – could be rendered visibly.

To conclude the first line of inquiry cited above – that is, how can we account, historically, for the emergence of the Underwood Travel System – I would summarize my argument by emphasizing the following four key points:

- 3) The general concept behind the Travel System emerged from the longstanding association of stereographs with travel subject matter. This association stemmed from the early years of the medium's commercial introduction in the 1850s and was connected with the stereograph's perceived ability to reproduce the experience of "real" (i.e., non-mediated) visual experience. Underwood built upon the stereograph's connection with travel subject images, and refined the notion of "stereographic" travel by supplementing Holmes' popular treatises (1859, 1861, 1863) with the testimonials of contemporary psychologists and educators;
  
- 4) Specific factors at work in the American stereo trade during the 1880s and 1890s also contributed to the emergence of the Travel System. For example, the sale of collections of thematically linked views was well suited to the canvassing sales method perfected by Underwood in the 1880s. Furthermore, the consolidation of the stereo industry during that decade provided the surviving concerns (such as Underwood) with the resources necessary to undertake large-scale projects such as the production of stereo tours (these resources included capital, distribution networks, experienced stereographers and negative archives);



- 5) The emergence of the Travel System should also be seen as a response to a range of socio-cultural concerns held by middle-class consumers; i.e., “self-culture,” tourism and a burgeoning interest in international affairs. The design of the Travel System reflected these concerns and, as I argued in the chapters summarized above, played a role in constructing and defining them;
- 6) The Travel System emerged in response to the growing demand among middle-class consumers in North America and Europe for *visual* knowledge about the world at home, and abroad.

Although I believe these factors help provide a framework through which to explain the emergence of the Travel System, there are undoubtedly other lens through which the topic might be viewed. Batzli’s doctoral thesis (1997), for example, approaches Underwood and Keystone stereo tours from the standpoint of cultural geography.<sup>2</sup> Also, the conflict between modernism and anti-modernism explored by T. J. Jackson Lears, or the tension between imitation and authenticity explored by Miles Orvell, suggest other potentially fruitful interpretive approaches to the topic. Likewise, work by Anne Friedberg and Linda Williams might provide a theoretical point of entrance for discussing the gender of the stereographic consumer and viewer.<sup>3</sup> Hopefully, historians and academics in the field of Visual Cultural Studies will come to see stereography as a worthy topic of consideration, and will continue to elaborate and expand the range of interpretive paradigms.

I would now like to turn to the second thesis question, which asked to what extent the stereograph represented a departure from other forms of

contemporary visual media (e.g. photographs, postcards, half-tone reproductions, and early motion pictures).

As discussed in chapters one and two, the technological development of stereography was closely tied to that of photography. While stereography is today viewed as a minor, ultimately “dead end” branch of regular photography, it is important to note that it was not perceived that way during much of the 19<sup>th</sup> century. Indeed, as my discussion of natural theology suggests, many inventors, practitioners and scientists held stereography to be superior to regular monocular photography because of its presumed closeness to bi-focal human vision. Furthermore, as suggested by the discourse of natural magic, the “suspension of disbelief” inherent in the notion of stereographic travel might be indicative of the wider Victorian understanding of photography, which celebrated photography for its illusionary qualities, as well as its objective, mechanical report of nature.

As stated throughout this thesis, there existed a strong connection between stereographs and travel subject images. It is arguable that until the introduction of postcards and the widespread adoption of the amateur Kodak hand camera (both at the end of the 19<sup>th</sup> century), stereographs provided the primary and most important source of photographic information about the non-local visible world to viewers in North America and Europe. This possibility needs to be researched and tested in greater detail. If true, the study of stereography could add much to our understanding of how North American and European perceptions and expectations of the non-Western world were constructed and maintained by stereographs through the later part of the “Age of Imperialism.”

On a related note, the role played by stereography in the construction of the codes and conventions of travel photography and photojournalism has been remarked upon by commentators such as Carlebach, but has not been fully explored to date.<sup>4</sup> As I indicated in chapter one, stereographs provided an important form of visual reportage before half-tone printing. Connections persisted even after the half-tone print had come of age. Freelance photographers, for example, worked for stereo publishers as well as newspapers and magazines (James Ricalton is a prime example). The degree to which the professional practices and collective vision of stereographers were carried over into early-20<sup>th</sup> century photojournalism is thought provoking and could be researched in greater detail. One can further ponder what connections existed between the forms of pictorial reportage contained in Underwood's sets of South Africa, the Philippines and China and emerging sources of early 20<sup>th</sup> century visual reporting, such as newsreels.

Stereography, I would argue, was absolutely central to the practices and expectations of the production and reception of photography that emerged during the 19<sup>th</sup> century. However, having stated this, we should be careful not to over-emphasize the differences between stereography and other forms of photographic representation, or to over-ascribe the importance of stereography to 19<sup>th</sup> and early 20<sup>th</sup> century visual culture. The stereograph, I would suggest, is ultimately best considered as but one of the many forms of photo-mechanical reproduction that transformed picture making in the 19<sup>th</sup> century, leading to Benjamin's "Age of Mechanical Reproduction."<sup>5</sup> As part of this range of representational forms and practices, the stereograph contributed to what Ivins calls "one of the greatest changes in visual habits and knowledge that has ever

taken place.” “This exact repetition of pictorial statements has had incalculable effects upon knowledge, and thought, upon science and technology, of every kind,” argues Ivins. “It is hardly too much to say that since the invention of writing there has been no more important invention than that of the exactly repeatable pictorial statement.”<sup>6</sup> Ivins summarizes this transformation in his famous statement, “The nineteenth century began by believing that what was reasonable was true and it wound up by believing that what it saw a photograph of was true.”<sup>7</sup>

Or a stereograph. Through the influence of discourses such as natural theology and natural magic, and through specific contexts of production and reception such as the Underwood Travel System, stereographs equated knowledge with visual knowledge. In this way, stereographs in general and applications such as the Travel System in particular both reflected and helped construct the epistemological shift described by Ivins.

The legacy of stereography extends to the present day, to the “sight-bite” culture perpetuated by television news programming, advertising and expressive forms such as music videos.<sup>8</sup> If we do indeed inhabit the “image-choked world” described by Sontag, where we sometimes sense that images have come to supplant reality, then surely the origins of this condition owe something to the proliferation of stereographs in the 19<sup>th</sup> and early-20<sup>th</sup> century.<sup>9</sup>

## NOTES

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### Introduction

<sup>1</sup> Oliver Wendell Holmes claimed to coin “stereograph” in his 1859 article “The Stereoscope and the Stereograph” (*Atlantic Monthly* (June 1859), 738). Stereographs are also known as “stereoscopic photographs,” “stereoscopic views,” “stereo views” or “stereo cards.” The term “stereopticon,” which is sometime used as a synonym for stereograph, actually refers to magic lantern slides.

The adjectives “stereographic” and “stereoscopic” are often used interchangeably in the literature – both present day and historic. I believe some inaccuracy results from this. As I will discuss in chapter one, the stereoscope was invented prior to the discovery of photography and was originally designed to view hand-drawn illustrations. However, it was the application of photography to stereoscopy that led to the commercial success of the apparatus and the wide spread dissemination of stereo views. “Stereographic” thus strikes me as the better adjective to use when referring to the production, distribution and consumption of 3-D images in the 19<sup>th</sup> and 20<sup>th</sup> centuries, because it emphasizes both the photo-mechanical origins of the reproductions as well as the *representational* aspect of stereoscopy. I will use “stereoscopic” in reference to the science and study of stereoscopy (i.e.. binocular vision). Of course, I will maintain original usage when quoting sources.

As a final note on usage, “stereographic” appears to be more common in North American literature than in European, which has always preferred “stereoscopic.” This is probably due to the fact that “stereograph” was coined by an American (Holmes) after “stereoscopic photograph” was already established in common parlance in Europe.

<sup>2</sup> The earliest reference to a stereo view being produced photographically appears to be either 1839 or 1841, when William Henry Fox Talbot and Henry Collen made stereoscopic Talbotypes for Wheatstone. Wheatstone remembered the date as 1839; Collen as 1841. See Nicholas J. Wade, ed., *Brewster and Wheatstone on Vision* (Toronto: Academic Press, for the Experimental Psychology Society, 1983), 35-36. Darrah cites 1939 as “the arbitrary date marking the end of commercial manufacture of stereographs” (William C. Darrah *The World of Stereographs* (Gettysburg, Penn.: W.C. Darrah, Publisher, 1977), 44).

<sup>3</sup> Hermann Vogel, *Philadelphia Photographer* (20, 1883), 282; quoted in Robert Taft, *Photography and the American Scene* (New York: Dover Publications, Inc., 1938), 167.

<sup>4</sup> Taft, *Photography and the American Scene*, 502, n. 374. In literature on the stereoscope, this is an often reproduced figure, although Taft is seldom noted as the original source. Taft cites a letter dated Jan. 27, 1936 from Elmer Underwood as the basis of this information. Darrah reproduces this figure and estimates that Underwood’s annual output of stereographs was more than 7 million (William C. Darrah, *Stereo Views: A History of Stereographs in America and Their Collection* (Gettysburg, Penn.: Times & News Publishing Co, 1964), 117).

<sup>5</sup> To avoid undue repetition, I will refer to “Underwood & Underwood” simply as “Underwood” in this thesis. The names of other major stereo concerns will also be shortened after they are initially introduced. For example, the Keystone View Company will be referred to as Keystone; Kilburn Brothers as Kilburn, etc.

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<sup>6</sup> Roger Leavitt, "Sketch of the Career and Business of Underwood & Underwood" TMs [photocopy], Ottawa, Kansas Public Library.

<sup>7</sup> D. J. Ellison, *Italy Through the Stereoscope: Journeys in and About Italian Cities*, ed. James C. Egbert (New York: Underwood & Underwood, 1901), 581.

<sup>8</sup> *Ibid.*, 589.

<sup>9</sup> Frank Morton McMurry, *The World Visualized for the Class Room: 1000 Travel Studies through the Stereoscope and in Lantern Slides, Classified and Cross Referenced for 25 Different School Subjects: Teachers' Manual* (New York: Underwood & Underwood, 1915), xiv. Emphasis in original.

<sup>10</sup> *Ibid.*, xvii-xix.

<sup>11</sup> Jean-Claude Lemagny and André Rouillé, eds., *A History of Photography: Social and Cultural Perspectives*, trans. by Janet Lloyd (New York: Cambridge University Press, 1987), 275.

<sup>12</sup> For example, see William Jerome Harrison, *A History of Photography, Written as a Practical Guide and an Introduction to its Latest Developments* (New York: Arno Press, 1973; reprint 1887); or Alfred Thomas Story, *The Story of Photography* (Rochester, N.Y.: Visual Studies Workshop, 1974; reprint 1902).

<sup>13</sup> Richard Rudsill, *Mirror Image: The Influence Of The Daguerreotype On American Society* (Albuquerque: University of New Mexico Press, 1971), 4.

<sup>14</sup> Taft, *Photography and the American Scene*, 167-185.

<sup>15</sup> Beaumont Newhall, *The History of Photography* (New York: The Museum of Modern Art, 1978); Alison Gernsheim and Helmut Gernsheim, *A Concise History of Photography* (London: Thames & Hudson, 1965); *ibid.*, *The History of Photography* (London: Thames & Hudson, 1969). The chapter on stereography in *The History of Photography* is also reprinted in Helmut Gernsheim *The History of Photography Volume II—The Rise of Photography 1850-1890: The Age of Collodion* (London: Thames & Hudson, 1987).

<sup>16</sup> Naomi Rosenblum, *A World History of Photography* (New York: Abbeville Press, 1984), 34-35. She is likely referring to Edward W. Earle, ed., *Points of View: The Stereograph in America—A Cultural History* (Rochester: Visual Studies Workshop, 1979).

<sup>17</sup> For example, see Rosenblum *World History of Photography*, 167-168; 198-199.

<sup>18</sup> See Newhall, *The History of Photography*, 74; 83; Rosenblum, *World History of Photography*, 167-168; 259.

<sup>19</sup> Jonathon Green, *American Photography* (New York: H.N. Abrams, 1984), 194.

<sup>20</sup> *Ibid.*, 195. For example, see John Szarkowski, *Looking at Photographs* (New York: Distributed by New York Graphic Society, Greenwich, Conn., 1973).

<sup>21</sup> Susan Sontag, *On Photography* (New York: Dell Publishing Co., Inc., 1977); Alan Sekula, *Photography Against the Grain: Essays and Photo-works 1973-1983* (Halifax: Press of the Nova Scotia College of Art and Design, 1984).

<sup>22</sup> Green, *American Photography*, 194.

<sup>23</sup> William Welling, *Photography in America: The Formative Years 1839-1900* (New York: Thomas Y. Crowell Company, 1978).

<sup>24</sup> Earle, *Points of View*.

<sup>25</sup> Victor Burgin, ed., *Thinking Photography* (London: Macmillan Press, 1982); John Tagg, *The Burden of Representation: Essays on Photographies and Histories* (Amherst: University of Massachusetts Press, 1988); Abigail Solomon-Godeau, *Photography at the Dock* (Minneapolis: University of Minnesota Press, 1991).

<sup>26</sup> Richard C. Ryder, "America Through the Stereoscope" *American History* 28 no. 2 (April 1983), 8-17; Amy E. Stark, "Lovel August Reeve (1814-1865) Publisher and Patron of the Stereograph," *History of Photography* 5 no. 1 (January 1981), 3-15; Wade, *Brewster & Wheatstone*.

<sup>27</sup> Howard Rheingold, *Virtual Reality* (Toronto: Simon & Schuster, 1991), 64.

<sup>28</sup> Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, Mass: MIT Press, 1992).

<sup>29</sup> It may seem unfair to criticize Crary on the basis of historical accuracy when he is not, as he makes clear, interested in writing "true history" or "restoring to the record 'what actually happened'" (ibid., 6). Nor is stereography the principal concern of his work. But while a history of facts may be secondary to Crary's project, he does rely upon them to support his claims when need be, and so he cannot entirely expect to escape scrutiny on this level.

<sup>30</sup> Crary, *Techniques of the Observer*, 127.

<sup>31</sup> Ibid.

<sup>32</sup> Darrah, *World of Stereographs*, 20. Peter Gay has also indicated the ready availability of pornographic photographs to those "in the know" in mid-to-late 19<sup>th</sup> century major European cities (*The Bourgeois Experience* (New York: Oxford University Press, 1984), 358-359).

<sup>33</sup> See, for example, Robert Silverman, "The Stereoscope and Photographic Depiction in the 19<sup>th</sup> Century" *Technology and Culture* 34, no. 4 (October 1993); Judith Babbitts "Made in America: A Stereoscopic View of the United States," in *American Photographs in Europe*, eds. David E. Nye and Mick Gidley (Amsterdam: VU University Press, 1994); David E. Haberstick, "American Photographs in Europe and Illusions of Travel," in *American Photographs in Europe*, eds. David E. Nye and Mick Gidley (Amsterdam: VU University Press, 1994); Thomas L. Hankins and Robert J. Silverman, *Instruments and the Imagination* (Princeton: Princeton University Press, 1995).

<sup>34</sup> Darrah, *Stereo Views*; ibid., *World of Stereographs*.

<sup>35</sup> Crary is a rare and notable exception.

<sup>36</sup> Please consult the Works Cited for a complete list of these and other sources.

<sup>37</sup> Michael Schudson, "Historical Approaches to Communication Studies," in *A Handbook of Qualitative Methodologies for Mass Communication Research*, eds. Klaus Bruhn Jensen and Nicholas W. Jankowski (New York: Routledge, 1991), 177-179.

<sup>38</sup> Ibid., 177.

<sup>39</sup> Victoria E. Bonnell and Lynn Hunt, *Beyond the Cultural Turn* (Berkeley: University of California Press), 1999.

<sup>40</sup> Ibid., 6.

<sup>41</sup> Ibid., 9.

<sup>42</sup> Ibid., 11.

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<sup>43</sup> Ellen Strain, "Stereoscopic Visions: Touring the Panama Canal," Paper presented at the Visible Evidence Conference, 1995, 12.

## Chapter 1

<sup>1</sup> David Brewster, *The Stereoscope—It's History, Theory, and Construction* (London: John Murray, Albemarle Street, 1856), 8.

<sup>2</sup> D'Orléans perfected the binocular telescope (1671), invented the binocular microscope and described several other instruments of binocular vision (Gernsheim, *The History of Photography Volume II*, 272).

<sup>3</sup> Ibid., 61; Harold Arthur Layer, "Stereoscopy: An Analysis of its History and its Import to Education and the Communication Process" (Ph. D. diss, Indiana University, 1970), 7. See also Brewster *The Stereoscope*, chapter 1, for an account of binocular vision in the works of thinkers from Galen to Wheatstone.

<sup>4</sup> Crary, *Techniques of the Observer*, 7.

<sup>5</sup> Martin Jay, *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought* (Berkeley: University of California Press, 1994), 151.

<sup>6</sup> Crary, *Techniques of the Observer*, chapters 3 & 4 passim.

<sup>7</sup> R.S. Clay "The Stereoscope" *Transactions of the Optical Society* 29, no. 4 (1927-1928), 149.

<sup>8</sup> The thaumatrope (1825) consisted of a circular piece of card with strings attached at both ends and simple designs printed on opposite sides. When rotated, the two images (such as of a bird and an empty cage) appeared to be combined. The phenakistoscope or fantascop (1832) and the stroboscopic disk (1833), along with the zoetrope (also called the dedeleum) were rotating disks that provided the visual impression of moving images. For a more complete description of these devices, see Wade, *Brewster & Wheatstone*, 196-197.

<sup>9</sup> Crary, *Techniques of the Observer*, 104.

<sup>10</sup> Silverman, "Stereoscope and Photographic Depiction," 729.

<sup>11</sup> These achievements, like most of Wheatstone's contributions to the study of binocular vision, were hotly and not always accurately contested by his rival, Brewster. For example, Brewster claimed that two nearly identical sketches by Jacopo Chimenti Daempoli (1554-1640) formed a stereoscopic pair, and thus proved that knowledge of the stereoscope pre-dated Wheatstone. However, the American professor E. Emerson refuted Brewster's claim by arguing that any stereoscopic or pseudo-stereoscopic effects produced by the drawings were accidental, the inevitable result of minor discrepancies in the renderings. The matter remained controversial for some time, until Helmholtz weighed in against Brewster in 1867, and the matter appeared to be finally at rest (Wade, *Brewster & Wheatstone*, 46-49).

<sup>12</sup> Ibid., 70.

<sup>13</sup> R.L. Gregory, *Eye and Brain: The Psychology of Seeing* (London: Weidenfeld and Nicolson, 1977), 67.

<sup>14</sup> Wade, *Brewster & Wheatstone* 1983, 65.



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<sup>15</sup> Gregory, *Eye and Brain*, 67.

<sup>16</sup> Crary, *Techniques of the Observer*, 125-126.

<sup>17</sup> Layer, "Stereoscopy," 8.

<sup>18</sup> Wade, *Brewster & Wheatstone*, 4.

<sup>19</sup> See "Contributions to the Physiology of Vision – Part the First. On Some Remarkable, and Hitherto Unobserved, Phenomena of Binocular Vision," in *Philosophical Transactions of the Royal Society* (128, 1838): 371-394; reprinted in Wade, *Brewster & Wheatstone*, 65-92. Charles Wheatstone, "On Binocular Vision; and on the Stereoscope, an instrument for illustrating its Phenomena" appeared as a report of the "last meeting of the Royal Society" in the *Journal of the Franklin Institute* 1839 v. 23.

<sup>20</sup> Letter in *Silliman's American Journal of Science*, v. 35 (1839), 14; quoted in Layer, "Stereoscopy," 8.

<sup>21</sup> Wade, *Brewster & Wheatstone*, 73.

<sup>22</sup> Gernsheim, *The History of Photography Volume II*, 62.

<sup>23</sup> Wheatstone recalled the year as 1839; Collen as 1841 (Wade, *Brewster & Wheatstone*, 35-36).

<sup>24</sup> Gernsheim, *The History of Photography Volume II*, 62.

<sup>25</sup> Wade, *Brewster & Wheatstone*, 1-2.

<sup>26</sup> *Ibid.*, 33. See Brewster's "Account of a New Stereoscope" *Report of the British Association. Transactions of the Sections*, 1849, 6-7; reprinted in Wade, *Brewster & Wheatstone*, 135-137.

<sup>27</sup> *Ibid.*, 33-35. Brewster's original model was actually a modification of a stereoscope proposed by Wheatstone in 1838 (Gernsheim, *The History of Photography Volume II*, 62).

<sup>28</sup> Brewster, *The Stereoscope*, 29-30.

<sup>29</sup> *Scientific American* 23 no. 21 (November 19, 1879), 322. Emphasis in original. Whether or not the serious-minded and somewhat self-important Brewster was actually confronted by such a succession of skeptical French Cyclopes, it makes a good story.

<sup>30</sup> Brewster, *The Stereoscope*, 30.

<sup>31</sup> *Ibid.*

<sup>32</sup> Gernsheim, *The History of Photography Volume II*, 64. See also Brewster's account of the early success of his design (*The Stereoscope*, 31).

<sup>33</sup> Darrah, *Stereo Views*, 7.

<sup>34</sup> Gernsheim, *The History of Photography Volume II*, 66.

<sup>35</sup> Layer, "Stereoscopy," 9.

<sup>36</sup> Prior to 1851, the two principal means of securing a photo-mechanical image (in either two-dimensions or three) were the daguerreotype and the Talbotype (also known as the calotype). Each format had particular disadvantages which limited their application to commercial stereoscopy. Daguerreotypes produced a single, highly detailed image with no intervening

negative. This was ideal for the production of unique portraits of individuals or families. However, daguerreotypes could not be reproduced without considerable time and expense. The Talbotype was a negative-positive process that required a longer exposure time and resulted in images of lower resolution. It was hence more commonly applied to the photography of architecture and objects rather than of people. In addition, Talbot had a tightly controlled patent on his process which made it expensive to license. Due to pressure from the presidents of the Royal Academy and the Royal Society, he relinquished control of his patent in August 1852. The one area where he retained control was commercial portraiture: a significant exception, because portraiture was then the most lucrative market for commercial photography (Newhall, *History of Photography*, 35).

The collodion "wet-plate" negative process, invented in England by Frederick Scott Archer in 1851, was better suited to the mass reproduction of stereo and photographic images than either the Daguerreotype or Talbotype. Like the Talbotype, the collodion was a negative-positive process, but it used a plate of glass coated with collodion (a mixture of gun cotton in alcohol and ether) for the negative instead of paper. Pyrogallic acid was used in developing instead of gallo-nitrate of silver, facilitating shorter exposure times (*ibid.*). While the collodion process could be used to produce unique, daguerreotype-like images (ambrotypes and tintypes), it could also be employed to produce positive prints with greater ease and speed than previous methods (*ibid.*, 48-49).

The collodion process was keenly exploited by A. E. Disderi, the inventor of the *carte-de-visite*, a tremendously influential and widely produced form of portraiture that flourished in France, England and North America in the 1850s and 1860s. Collodion negatives, along with albumen paper (invented by Louis-Desiré Blanquart-Evrard in 1850) were also generally adopted by stereographers. With certain adaptations, these processes remained the standard way of producing photographic images of all sorts (including stereographs) until the 1890s (Darrah, *World of Stereographs*, 1).

<sup>37</sup> Brewster, *The Stereoscope*, 36-37.

<sup>38</sup> "Catalogue of Binocular Pictures of the London Stereoscopic Company," 1856. Printed in Brewster, *The Stereoscope*.

<sup>39</sup> Darrah, *World of Stereographs*, 4.

<sup>40</sup> Gernsheim, *The History of Photography Volume II*, 67.

<sup>41</sup> *Ibid.*, 64.

<sup>42</sup> Clay, "The Stereoscope," 159.

<sup>43</sup> "Committee on Science and the Arts: Report on J. F. Mascher's Stereoscope," in *Journal of the Franklin Institute* 29, no. 3 (March 1855), 214-215.

<sup>44</sup> Darrah, *World of Stereographs*, 183.

<sup>45</sup> Typical English sentimental views included titles such as "Broken Vows," depicting a young woman at a church observing her betrayer's wedding; and "In the Bitter Cold," which showed a homeless widow and orphan in the snow (John Jones, *Wonders of the Stereoscope* (London: Jonathan Cape, 1976), 90). Two of the most popular topics for humorous views revolved around the duplicity and naivete of the clergy, and the ridiculousness of women's clothing, particularly the crinoline (*ibid.*, 94).

<sup>46</sup> Elizabeth Anne McCauley *Industrial Madness: Commercial Photography in Paris, 1848-1871* (New Haven: Yale University Press, 1994), 98. For an excellent example of the range of stereographs available in Second Empire France, see Denis Pellerin, *La photographie stéréoscopique* (Bibliothèque nationale de France, 1995).

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<sup>47</sup> Hermann von Helmholtz, *Helmholtz's Treatise on Physiological Optics* (New York, Dover Publications, 1962), 680.

<sup>48</sup> Silverman, "Stereoscope and Photographic Depiction," 733.

<sup>49</sup> William Paley's *Natural Theology* (1802), for example, regarded the eye as the ideal optical instrument, and accepted its alleged perfection as evidence of the existence of God. Other writing in this tradition, such as *Animal and Vegetable Physiology Considered with Reference to Natural Theology* (1834) also posited the eye as a perfect and refined optical instrument. See Silverman, "Stereoscope and Photographic Depiction," 733.

<sup>50</sup> Hankins and Silverman, *Instruments and the Imagination*, 161-163.

<sup>51</sup> Silverman, "Stereoscope and Photographic Depiction," 734.

<sup>52</sup> Gernsheim, *The History of Photography Volume II*, 64.

<sup>53</sup> See Joseph LeConte, *Sight: An Exposition of the Principles of Monocular and Binocular Vision* (New York, D. Appleton & Company, 1881), part 1, chapter 2 and 3 passim; part 2 passim; C.T. Catam, "Stereoscopic Photography" *Anthony's Photographic Bulletin* 27, no. 11 (November 1896), 369.

<sup>54</sup> Helmholtz, *Helmholtz' Treatise*, 299.

<sup>55</sup> Bert Underwood, "The Sleeping Princess" *The Stereoscopic Photograph* 1, no. 1 (1901), 19.

<sup>56</sup> Albert E. Osborne, *The Stereograph and the Stereoscope: What They Mean for Individual Development, What They Promise for the Spread of Civilization* (New York: Underwood & Underwood, 1909), 4-5. Emphasis in original. Osborne also employed references to Le Conte to justify Underwood's concept of stereoscopic travel (*ibid.*, 3-4, 29).

<sup>57</sup> Hankins and Silverman, *Instruments and the Imagination*, 152.

<sup>58</sup> For a description of these devices, see Wade, *Brewster & Wheatstone*, 196-197.

<sup>59</sup> Hankins and Silverman, *Instruments and the Imagination*, 4.

<sup>60</sup> *Ibid.*, 4-5.

<sup>61</sup> Miles Orvell, *The Real Thing: Imitation and Authenticity in American Culture, 1880-1940* (Chapel Hill: University of North Carolina Press, 1989), 77.

<sup>62</sup> Brewster, *The Stereoscope*, 164.

<sup>63</sup> Don Slater, "Photography and Modern Vision: The Spectacle of 'Natural Magic,'" in *Visual Culture*, ed. Chris Jenks (New York: Routledge, 1995), 218-219.

<sup>64</sup> Hankins and Silverman, *Instruments and the Imagination*, 154.

<sup>65</sup> Taft, *Photography and the American Scene*, 184.

<sup>66</sup> Lemagny and Rouillé, *History of Photography*, 41.

<sup>67</sup> Gernsheim, *The History of Photography Volume II*, 67.

<sup>68</sup> Robert Hunt, *Art Journal* (March 1856), 11; quoted in Earle, *Points of View*, 28. Hunt's quote is particularly interesting, because through its example (presented as a contrast between different categories of viewers), the instrument is as closely connected with women and the domestic

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sphere as with science. Baudelaire, in his condemnation of the device, also linked its use with women (see note 73). The question of the gender of the Victorian consumer of stereographs is of considerable interest. Linda Williams's work on the subject of 19<sup>th</sup> century viewing practices provides an interesting basis for a general consideration of the stereograph and gender (see "Corporealized Observers: Visual Pornographies and the 'Carnal Density of Vision,'" in *Fugitive Images: From Photography to Video*, ed. Patrice Petro (Bloomington, Indiana: Indiana University Press), 1995).

<sup>69</sup> Charles Dickens, quoted in Darrah, *World of Stereographs*, 5.

<sup>70</sup> Charles Baudelaire, "The Modern Public and Photography" in *Classic Essays on Photography*, ed. Alan Trachtenberg (New Haven, Conn.: Leete's Island Books, 1980), 87.

<sup>71</sup> *Anthony's Photographic Bulletin* (December, 1872), 764-744; quoted in Earle *Points of View*, 48.

<sup>72</sup> Clay, "The Stereoscope," 165.

<sup>73</sup> Lemagny and Rouillé, *History of Photography*, 40.

<sup>74</sup> For a consideration of portraiture, photography and the middle-class, see Tagg, *Burden of Representation*, 34-59.

<sup>75</sup> Lemagny and Rouillé, *History of Photography*, 40.

<sup>76</sup> Elizabeth Anne McCauley, A.A.E. *Disdéri and the Carte-de-visite Portrait Photograph* (New Haven: Yale University Press, 1985), 46.

<sup>77</sup> Darrah, *Stereo Views*, 9.

## Chapter 2

<sup>1</sup> Welling, *Photography in America*, 103.

<sup>2</sup> Darrah, *World of Stereography*, 21.

<sup>3</sup> Darrah, *Stereo Views*, 7.

<sup>4</sup> Welling, *Photography in America*, 105.

<sup>5</sup> Taft, *Photography and the American Scene*, 179.

<sup>6</sup> *American Journal of Photography* 1 (August 1, 1858), 82; quoted in Welling, *Photography in America*, 129.

<sup>7</sup> Darrah, *Stereo Views*, 107.

<sup>8</sup> Darrah, *World of Stereography*, 21.

<sup>9</sup> *Ibid.*, 23.

<sup>10</sup> Darrah, *Stereo Views*, 36.

<sup>11</sup> Taft, *Photography and the American Scene*, 184.

<sup>12</sup> Darrah, *World of Stereography*, 2-3.

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<sup>13</sup> Oliver Wendell Holmes "The Stereoscope and Stereograph" *Atlantic Monthly* (June 1859), 243.

<sup>14</sup> *Ibid.*, 80. Emphasis in original.

<sup>15</sup> See Holmes "The Stereoscope and Stereograph"; "Sun-Painting and Sun-Sculpture" *Atlantic Monthly* (July 1861); "Doings of the Sunbeam" *Atlantic Monthly* 10 no. 62 (December 1862).

<sup>16</sup> Michael L. Carlebach, *The Origins of Photojournalism in America* (Washington: Smithsonian Institution Press, 1992), 62.

<sup>17</sup> *Ibid.*, 82.

<sup>18</sup> *Ibid.*

<sup>19</sup> *Ibid.*, 87.

<sup>20</sup> Darrah, *World of Stereography*, 153.

<sup>21</sup> Ryder, "America Through the Stereoscope," 11. Also Darrah, *World of Stereography*, 153.

<sup>22</sup> Ryder, "America Through the Stereoscope," 12.

<sup>23</sup> Carlebach, *Origins of Photojournalism*, 81.

<sup>24</sup> Darrah, *World of Stereography*, 154.

<sup>25</sup> Holmes, "Doings of the Sunbeam," 11-12.

<sup>26</sup> Darrah, *Stereo Views*, 96; 91.

<sup>27</sup> Ryder, "America Through the Stereoscope," 13.

<sup>28</sup> *Anthony's Photographic Bulletin* (December 1872), 766; quoted in Earle, *Points of View*, 50.

<sup>29</sup> Darrah, *Stereo Views*, 96.

<sup>30</sup> Welling, *Photography in America*, 183.

<sup>31</sup> Carlebach, *Origins of Photojournalism*, 112.

<sup>32</sup> Welling, *Photography in America*, 199.

<sup>33</sup> Carlebach, *Origins of Photojournalism*, 128.

<sup>34</sup> Thomas Southall, "White Mountain Stereographs and the Development of a Collective Vision," in *Points of View*, ed. Edward E. Earle (Rochester: Visual Studies Workshop, 1979), 98.

<sup>35</sup> Earle, *Points of View*, 44.

<sup>36</sup> Quoted in Welling, *Photography in America*, 224.

<sup>37</sup> *Scribner's Monthly* (February 1874), 500; quoted in Earle, *Points of View*, 54.

<sup>38</sup> C.F. Himes, "Contributions to the Subject of Binocular Vision" *Journal of the Franklin Institute* 92 (1871), 263.

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<sup>39</sup> Darrah, *Stereo Views*, 109. A similar depression, affecting photography more generally, had begun earlier in Europe, in the late 1860s or early 1870s (Gernsheim, *The History of Photography Volume II*, 68).

<sup>40</sup> Darrah, *Stereo Views*, 109.

<sup>41</sup> *Ibid.*, 17.

<sup>42</sup> Thomas W. Southall, "The Kilburn Brothers Stereoscopic View Company" (Masters thesis, University of New Mexico, 1997), 59.

<sup>43</sup> *Ibid.*, 59.

<sup>44</sup> Gernsheim and Gernsheim, *History of Photography*, 259.

<sup>45</sup> Leavitt, "Career and Business of Underwood & Underwood," no page.

<sup>46</sup> *Wilson's Photographic Magazine* (1894), 67-68.

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

<sup>48</sup> Darrah, *Stereo Views*, 109.

<sup>49</sup> *Wilson's Photographic Magazine*, 68.

<sup>50</sup> Darrah, *World of Stereography*, 46.

<sup>51</sup> *Wilson's Photographic Magazine*, 69.

<sup>52</sup> *Ibid.*, 68-69. Taft gives 1889 as the date for the opening of both the Toronto and Liverpool offices (Taft, *Photography and the American Scene*, 502, n. 374). Of interesting historical note, Bert Underwood apparently resided in Toronto during 1889 (Howard J. Banker, ed., *The Underwood Families of America, Volume 1*, compiled by Lucien Marcus Underwood (Baltimore: Gateway Press, Inc., 1976), 209).

<sup>53</sup> *Wilson's Photographic Magazine* 31 no. 446 (1894), 69.

<sup>54</sup> William Brey, "Ten Million Stereo Views a Year" *Stereo World* 16, no. 6 (January/February 1990), 11.

<sup>55</sup> Also of interest are ten views advertised at the back of the catalog illustrating the damage caused by "the Great Louisville Tornado" of March 28, 1890 (*Catalogue of Underwood & Underwood's Choice Stereoscopic Views*, 1890, n.p.). This series suggests the role stereographs played in disseminating visual information and reportage before practical half-tone printing facilitated modern photojournalism.

<sup>56</sup> Darrah, *World of Stereography*, 45-46.

<sup>57</sup> *Manual of Instruction*, 1890, 9.

<sup>58</sup> *Ibid.*, 4. Emphasis in original.

<sup>59</sup> *Ibid.*, 7.

<sup>60</sup> *Ibid.*, 13-14.

<sup>61</sup> *Ibid.*, 6. Emphasis in original.

<sup>62</sup> Ibid., 7. Emphasis in original.

<sup>63</sup> See *Price-List* (New York: Underwood Periodicals, 1908).

<sup>64</sup> *Manual of Instruction*, 1890, 8.

<sup>65</sup> Ibid., 13-14.

<sup>66</sup> J.L.O. Chandler, letter to the Editor, *Wilson's Photographic Magazine* 31, no. 447 (March 1894), 112.

<sup>67</sup> Darrah, *World of Stereography*, 47.

<sup>68</sup> Samuel A. Batzli, "The Visual Voice: "Armchair Tourism," Cultural Authority and the Depiction of the United States in Early Twentieth Century Stereographs" (Ph.D. diss. University of Illinois at Urbana-Champaign, 1997), 52, n. 125. Batzli's source for this information about female canvassers is a newsletter published by Keystone (The Keystone View Company, *The Keystone Review* 2 (November 1899), 4).

<sup>69</sup> Hamilton 1949, 17.

<sup>70</sup> "Snap Shot" *Stereoscopic Photograph* 1 no. 1 (June) 1901, 21.

<sup>71</sup> G.E. Hamilton, *Oliver Wendell Holmes, His Pioneer Stereoscope and the Later Industry* (NY: Newcomen Society, 1949), 17.

<sup>72</sup> *Photographic Mosaics* 1891, 20, quoted in Earl *Points of View*, 66.

<sup>73</sup> Gernsheim claims that the revival of stereographs commenced in England in 1887, and from there spread to France (*The History of Photography Volume II*, 68). He might, however, be referring to a revival of amateur practice, because his evidence appears to be largely based on lectures and publications by W. I. Chadwick (secretary of the Manchester Photographic Society) in England, and A. L. Donnadiou and F. Drouin in France, rather than actual sales figures. In terms of commercial stereography, it appears that American companies, particularly Underwood, played a more significant role in the resurgence in both the United States and England. See *Wilson's Photographic Magazine* 31, no. 446 (February 1894), 69.

<sup>74</sup> See *Anthony's Photographic Bulletin* 23, no. 21 (November 12, 1892), 650.

<sup>75</sup> G. A. Thomason, *Anthony's Photographic Bulletin* 23, no. 22 (November 26, 1892), 691.

<sup>76</sup> Darrah, *Stereo Views*, 111-112.

<sup>77</sup> John Waldensmith, *Stereo Views—An Illustrated History and Price Guide* (Radnor, Penn.: Wallace-Homestead Book Company, 1991), 1. Note however that Waldensmith, a collector and amateur historian, does not offer any empirical data to support this claim.

<sup>78</sup> It is worth point out that not all commentators in the early 1890s presented the picture of a stereographic revival. Emil de Neuf, for example, noted in the *American Annual of Photography and Photographic Times Almanac* (1894) that "in hunting through art store for stereoscopic views I found almost always the same answer: 'We have no call for them, they are out of date.'" While this comment might indicate that a revival was not so widespread and certain as some commentators have assumed, it could also illustrate de Neuf's ignorance of the fact that sales of stereographs had dramatically shifted from shops to door-to-door canvassing.

<sup>79</sup> Darrah, *World of Stereography*, 47. Underwood stereoscopes were produced in New Jersey, in Arlington at a factory acquired from Strohmeier & Wyman, and at Westwood, at a plant owned by Henry E. Richmond. Underwood bought Richmond's factory in 1901 and retained him as manager until at least 1914 (Brey, "Ten Million Stereo Views," 11).

<sup>80</sup> Joan Shelley Rubin, *The Making of Middle Brow Culture* (Chapel Hill: University of North Carolina Press, 1992), 5-6.

<sup>81</sup> *Ibid.*, 2-3.

<sup>82</sup> Orison Swett Marden, *Architects of Fate: Or, Steps to Success and Power, a Book Designed to Inspire Youth to Character Building, Self-Culture and Noble Achievement* (Toronto: Briggs, 1897); Newell Dwight Hillis, *A Man's Value to Society: Studies in Self-Culture and Character* (Chicago: Fleming H. Revell Company, 1898); John Stuart Blackie, *Self-culture, Intellectual, Physical, and Moral* (Edinburgh: D. Douglas, 1901).

<sup>83</sup> Hugh Black, *The Practice of Self-Culture* (New York: The Macmillan Company, 1904), 101, 103. Underwood tours could satisfy this last requirement, of course: as will be discussed in chapter four, the company purported that its Travel System provided viewers with a sensory experience equivalent to actual travel.

<sup>84</sup> Jib Fowles, "Stereography and the Standardization of Vision," *Journal of American Culture* (Summer 1994), 91.

<sup>85</sup> See ads at the front and back of *The Stereoscopic Photograph* 1, nos. 1, 3 (1901).

<sup>86</sup> Howard S. Becker, "Stereographs: Local, National and International Art Worlds," in *Points of View*, ed. Edward E. Earle (Rochester: Visual Studies Workshop, 1979), 65.

<sup>87</sup> John Dennis, "The Stereoscopic Photograph: 'The Only Magazine in the World in the Stereoscopic Field'" *Stereo World* 21, no. 6 (January/February 1995), 9.

<sup>88</sup> Taft, *Photography and the American Scene*, 502 note 374.

<sup>89</sup> A press release from Hastings Galleries Ltd., the company which bought what remained of Underwood & Underwood News Photo, Inc. in 1978, claims that "Around 1904 [Underwood] set up a sales agency that would, for the next thirty years, virtually dominate the news photo field" (Hastings Galleries Ltd., press release, n.d., no page).

<sup>90</sup> Darrah, *World of Stereography*, 48.

<sup>91</sup> *Ibid.*, 51.

<sup>92</sup> *Ibid.*, 52.

<sup>93</sup> Paul Howard Douglas. *Real Wages in the United States, 1890-1926* (New York: A. M. Kelley, 1966), 637.

<sup>94</sup> A former salesperson, recalling his days as a canvasser for an Underwood competitor, claimed that well-to-do farmers were, in fact, the most responsive market (Hamilton, *Oliver Wendell Holmes*, 17). Rural families and people living in small towns had less access to entertainment and educational opportunities than their big city counterparts, and so might have been more inclined to purchase stereographs, which were conveniently sold door-to-door in the summer months.

Whether the primary consumers of Underwood stereo tours were men or women is unknown. As Anne Friedberg and Linda Williams have pointed out, new technologies such as the stereoscope or the cinema may have held a special appeal to women, offering them an unprecedented degree of "virtual" mobility and visual pleasure. See Anne Friedberg, *Window*



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*Shopping: Cinema and Postmodernism* (Berkeley: University of California Press, 1993), 4; Linda Williams, "Corporealized Observers: Visual Pornographies and the 'Carnal Density of Vision,'" in *Fugitive Images: From Photography to Video*, ed. Patrice Petro (Bloomington, Indiana: Indiana University Press, 1995), 21-22.

<sup>95</sup> Darrah, *World of Stereography*, 53-43.

<sup>96</sup> Susan Strasser, *Satisfaction Guaranteed: The Making of the American Mass Market* (New York: Pantheon Books, 1989), 168.

<sup>97</sup> Darrah, *World of Stereography*, 54-55.

<sup>98</sup> See "Stereographs in the Public School" (Burton Holmes, ed., *A Trip Around the World Through the Telebinocular* (Meadville, Penn.: Keystone View Company, 1928), iii).

<sup>99</sup> Of interesting note (and a rare biographical tidbit), Bert Underwood was apparently commissioned as a major in the signal corps of the U.S. Army during World War I, where he served as commanding officer of the Photographic Division. He was also the New Jersey delegate to the National Progressive Party conventions at Chicago in 1912 and 1916 ("B.E. Underwood Dies in Tucson," *Arizona Daily Star* (Dec. 29) 1943, no page.).

<sup>100</sup> Darrah, *World of Stereography*, 51.

<sup>101</sup> Taft, *Photography and the American Scene*, 502, n. 374.

<sup>102</sup> Hastings Galleries Ltd., press release, no page.

<sup>103</sup> "B.E. Underwood Dies in Tucson," no page; "Underwood, Elmer Judson," biographical note printed by the Cedar Falls Historical Society, no date, no page.

<sup>104</sup> Leavitt, "Career and Business of Underwood & Underwood," no page.

<sup>105</sup> Becker, *Stereographs*, 95.

<sup>106</sup> Layer, "Stereoscopy," 40.

<sup>107</sup> See Layer, "Stereoscopy," ch. 4 (41-71) and 5 (72-111) for a discussion of the stereograph in American schools and education from 1920 onwards.

### Chapter 3

<sup>1</sup> Darrah, *World of Stereographs*, 48.

<sup>2</sup> "Classified Tours," *Stereoscopic Photograph* 1, no. 1 (June 1901), 33. It is possible that Bert Underwood made a number of these negatives (Darrah, *World of Stereographs*, 47). Although Darrah implies that Bert was the sole Underwood photographer prior to 1897, Lucas claims that Ricalton was hired as a photographer some time in or shortly after 1891 (Christopher J. Lucas, ed., *James Ricalton's Photographs of China During the Boxer Rebellion: His Illustrated Travelogue of 1900* (Lewiston, NY: E. Mellen Press, 1990), 30). Ricalton might thus have contributed to both the Egypt and Holy Land tours of 1897.

<sup>3</sup> The authors of these texts are not listed. Judging from the consistency in tone and certain points of cross-reference, they appear to have been written by the same person, possibly one of the Underwood brothers or perhaps Albert Osborne.

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<sup>4</sup> Sontag, *On Photography*, 4.

<sup>5</sup> Darrah's extensive listings of stereographic series by geographic location gives some indication of the popularity and scope of this method of presentation (see *Stereo Views* and *World of Stereographs*).

<sup>6</sup> These series are described in Darrah, *Stereo Views*, 100.

<sup>7</sup> Stark, "Lovel August Reeve," 8.

<sup>8</sup> *Ibid.*, 12.

<sup>9</sup> *Journeys in the Holy Land Through the Perfescope* (New York: Underwood & Underwood, 1897), 3.

<sup>10</sup> *The Land of the Pharaohs Through the Perfescope* (New York: Underwood & Underwood, 1897), 7.

<sup>11</sup> In addition to *Pharaohs* and *Holyland*, another Underwood travel set, *A Trip Around the World Through the Perfescope*, was sold in 1897 (New York: Underwood & Underwood). Unlike the above mentioned series, the stereographs in this set were not originally produced with the end product (a boxed travel set) in mind. Instead, one hundred images were culled from Underwood's considerable negative archive and knitted together after the fact, through simple descriptions and connecting passages contained in a slim (20 pages), accompanying pamphlet.

<sup>12</sup> *The Stereoscope and Stereoscopic Photographs* (New York: Underwood & Underwood, 1899).

<sup>13</sup> Earlier cards had captions printed in three or four languages (English, French, Spanish, and sometimes German) and later ones six (English, French, Spanish, German, Russian, and Swedish) (Darrah, *World of Stereographs*, 48).

<sup>14</sup> Albert E. Osborne, *The Stereograph and the Stereoscope: What They Mean for Individual Development, What They Promise for the Spread of Civilization* (New York: Underwood & Underwood, 1909), 2.

<sup>15</sup> *Ibid.*, 2-3.

<sup>16</sup> *The Underwood Travel System: What Is It?* (New York: Underwood & Underwood, 1908).

<sup>17</sup> *Ibid.*, 16. Emphasis in original.

<sup>18</sup> W.E. Long to Jerome D. Greene, Oct. 31, 1902, C. W. Eliot Papers, Harvard University Archives.

<sup>19</sup> Darrah, "World of Stereographs," 49.

<sup>20</sup> See, for example, Albert E. Osborne, *Why Man Has Used Pictures, and A Comparison Between the Telephone and the Stereoscope* (New York: Underwood & Underwood, 1904); and *ibid.*, *Stereograph and the Stereoscope*.

<sup>21</sup> Albert E. Osborne, *An Alternative for War and Revolution: A More Humanity-Centered Education* (Chicago, Ill: The Educational Screen, Inc., 1939), 30-31. This "Psychologist's Statement" was reprinted in Osborne, *Stereograph and the Stereoscope*, as well as in various Keystone publications (such as Holmes, *Trip Around the World*).

<sup>22</sup> See the "Psychologist's Statement" in Holmes, *Trip Around the World*, 32-34.

<sup>23</sup> See Osborne *Alternative for War and Revolution*.

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

<sup>25</sup> Exceptions to this rule were the “mega tours” of the United States and the “Around the World” tours. See Batzli, “The Visual Voice,” 88.

<sup>26</sup> James Ricalton, *China Through the Stereoscope: A Journey Through the Dragon Empire at the Time of the Boxer Uprising* (New York: Underwood & Underwood, 1901); *ibid.*, *A Trip Around the World Through the Perfecscope* (New York: Underwood & Underwood, 1899); D. J. Ellison, *Italy Through the Stereoscope: Journeys in and About Italian Cities*, ed. James C. Egbert (New York: Underwood & Underwood, 1901); Mabel Sarah Emery, *Russia Through the Stereoscope; a Journey Across the Land of the Czar From Finland to the Black Sea, Personally Conducted by M. S. Emery* (New York: Underwood & Underwood, 1901); *ibid.*, *Switzerland Through the Stereoscope – a Journey Over and Around the Alps* (New York: Underwood & Underwood, 1901).

<sup>27</sup> See “New Patent Map System,” *The Stereoscopic Photograph* 1, no. 1 (June 1901), 35, which notes that this tour was the first to be equipped with maps.

<sup>28</sup> Ellison, *Italy*, 12.

<sup>29</sup> Osborne, *Alternative for War and Revolution*, 30. In the introduction to the *Egypt* tour, Breasted acknowledges Baedeker for the use of 17 of its maps and plans (James Henry Breasted, *Egypt Through the Stereoscope* (New York: Underwood & Underwood, 1905), 16). I have not determined whether Baedeker maps were used to such an extent by the other tours. As to the origin of the non-Baedeker maps in the Egypt tour, Breasted explains that “the large map of Egypt (No. 3) was drawn in Berlin under the author’s supervision, from the atlas of ancient Egypt, issued by the Egypt Exploration fund” (*ibid.*).

<sup>30</sup> Osborne, *Alternative for War and Revolution*, 30. It is a little confusing that Osborne remembered coming up with the idea for the maps while looking at a guidebook to the Greece tour. The map system was patented and employed for the first time in 1900 (the tour of Palestine, as noted above, being the first series sold with maps). However, to my knowledge no guidebook existed for the Greece tour prior to 1901. This discrepancy might mean that such a text did exist and I have not chanced upon it, or that Osborne was working from an early draft of a guidebook published later. Then again, he might have simply remembered it wrong. It is difficult to tell, owing in part to the lack of a definitive Underwood bibliography (See Appendix B).

<sup>31</sup> “New Patent Map System,” 35.

<sup>32</sup> Breasted, *Egypt*, 47.

<sup>33</sup> Ricalton, *China*, 13-14.

<sup>34</sup> *Ibid.*, 19-21.

<sup>35</sup> *Ibid.*, 192.

<sup>36</sup> Ellison *Italy*, 101.

<sup>37</sup> “Classified Tours,” 33.

<sup>38</sup> According to a 1905 catalogue, the following U.S. sets included guidebooks and maps: *Grand Canyon of Arizona*; *McKinley’s Washington Life and His Journeys*; *Niagara Falls*; *United States*; *Washington D. C.*; *Yosemite Valley*. *Roosevelt’s Tours, His Home and Public Life*; *Yellowstone National Park*; and *The World’s Fair (St. Louis Purchase Exposition)* were published with cards only. *Original Stereographs Catalogue No. 25* (New York: Underwood & Underwood, 1905), *passim*.

<sup>39</sup> *Original Stereographs Catalogue No. 25*, 6.

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<sup>40</sup> Ibid., 94.

<sup>41</sup> See, for example, McMurtry, *The World Visualized for the Class Room*; Holmes, *Trip Around the World*.

<sup>42</sup> It is difficult to pin-point the exact date that Underwood began using this term. The earliest reference I have been able to find is in a 1905 catalogue (*Original Stereographs Catalogue No. 25*, 3-4).

<sup>43</sup> Ibid., 3.

<sup>44</sup> I have not determined the exact date when Underwood began issuing cards in volume cases, but, as above, the earliest reference I can find is 1905 (ibid., 15). Prior to this, cards were packaged in "leatherette cases," which were basically cardboard boxes (see Ricalton, *China*, 358).

<sup>45</sup> Breasted, *Egypt*, 14-15.

<sup>46</sup> Haberstick, "American Photographs in Europe," 69-70. The two most important archives of Underwood stereograph negatives are probably the "Underwood & Underwood Glass Stereograph Collection" at the Smithsonian Institute, and the Keystone-Mast Collection at the California Museum of Photography (University of California, Riverside).

<sup>47</sup> Haberstick, "American Photographs in Europe," 70.

<sup>48</sup> Certain collaborations, such as that between Manuel Gonzales and Frederick Starr, might have produced similar results. In 1905-1906, Gonzales took stereographs of Starr's expedition up the Congo River. Starr indicated in 1912 that the text was completed but had not yet been published (*Congo Natives: An Ethnographic Album* (Chicago: Printed for the author by the Lakeside Press, 1921), 8). There is no mention of the guidebook or of a separate Congo tour anywhere in a c.1913 Underwood catalogue, however (*Catalogue No. 27* (New York: Underwood & Underwood)). Underwood began to scale back its stereograph publishing operations after 1912, and, with the advent of the war in 1914, it is possible that plans for a complete "Congo" tour were simply set aside.

<sup>49</sup> Ricalton's work as a photographer was "rediscovered" in the mid-1960s by the editors of *Life* magazine, and two guidebooks written by Ricalton for Underwood were republished in 1990 (Lucas, *Ricalton's China*; ibid., *James Ricalton's Photographic Travelogue of Imperial India* (Lewiston, NY: E. Mellen Press, 1990)).

<sup>50</sup> Lucas, *Ricalton's China*, 27-28.

<sup>51</sup> Ibid., 30.

<sup>52</sup> Ibid., 32.

<sup>53</sup> Ibid., 37-38.

<sup>54</sup> Ibid., 33.

<sup>55</sup> Ibid., 34.

<sup>56</sup> Haberstick, "American Photographs in Europe," 69.

<sup>57</sup> See, for example, the description of the Travel System in *Original Stereographs Catalogue No. 25* 1905, 3-4.

<sup>58</sup> This dimension of the circulation of stereo tours will be considered more fully in chapter five.

## Chapter 4

<sup>1</sup> Daniel Boorstin, *The Image, or, What Happened to the American Dream* (New York: Atheneum, 1962), 3.

<sup>3</sup> Louis Turner, and John Ash, *The Golden Hordes: International Tourism and the Pleasure Periphery* (London: Constable & Co. Ltd., 1975), 32-33.

<sup>4</sup> *Ibid.*, 44.

<sup>5</sup> *Ibid.*, 38.

<sup>6</sup> *Ibid.*, 41.

<sup>7</sup> James Duncan, and Gregory, Derek, eds., *Writes of Passage: Reading Travel Writing* (London: Routledge Press, 1999), 6.

<sup>8</sup> Roger Cardinal, "Romantic Travel, " in *Rewriting the Self*, ed. R. Porter (London: Routledge Press, 1997), 147.

<sup>9</sup> *Ibid.*, 149.

<sup>10</sup> Foster Rhea Dulles, *Americans Abroad: Two Centuries of European Travel* (Ann Arbor: The University of Michigan Press, 1964), 107.

<sup>11</sup> *Ibid.*, 106-107.

<sup>12</sup> Karen Beth Brown, "From Travel to Tourism: The Relation of Photography to Social Change in Nineteenth-Century America" (Ph.D. diss., New York University, 1992), 81.

<sup>13</sup> *Ibid.*, 72.

<sup>14</sup> Boorstin, *The Image*, 88.

<sup>15</sup> *Ibid.*, 79.

<sup>16</sup> See McCauley, *Industrial Madness*, 98.

<sup>17</sup> Southall, "White Mountain Stereographs," 98.

<sup>18</sup> I have borrowed this term from Jib Fowles. See "Stereography and the Standardization of Vision" *Journal of American Culture* (Summer 1994), 90.

<sup>19</sup> Richard D. Altick, *The Shows of London* (London, England: The Belknap Press of Harvard University Press, 1978), 478.

<sup>20</sup> Peter Osborne, *Travelling Light: Photography, Travel and Visual Culture* (Manchester: Manchester University Press, 2000), 19.

<sup>21</sup> Southall, "White Mountain Stereographs," 100.

<sup>22</sup> Altick, *Shows of London*, 180.

<sup>23</sup> *Ibid.*, 233-234.

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- <sup>24</sup> Brewster, *The Stereoscope*, 164.
- <sup>25</sup> "Stereoscopic Journeys" *Eclectic Magazine* 40 (1857), 560; quoted in Hankins and Silverman, *Instruments and the Imagination*, 175.
- <sup>26</sup> *Scientific American* (June 2) 1860; quoted in Orvell, *The Real Thing*, 73-74.
- <sup>27</sup> Oliver Wendell Holmes, "Sun-Painting and Sun-Sculpture" *Atlantic Monthly* (July 1861), 16.
- <sup>28</sup> *Ibid.*, 18-28.
- <sup>29</sup> *Ibid.*, 18.
- <sup>30</sup> Underwood republished Holmes' treatise "The Stereoscope and Stereograph" through numerous editions. See Appendix B.
- <sup>31</sup> Southall, "Kilburn Brothers," 84.
- <sup>32</sup> *Ibid.*, 97.
- <sup>33</sup> Southall, "White Mountain Stereographs," 97.
- <sup>34</sup> Southall, "Kilburn Brothers," 86.
- <sup>35</sup> Southall, "White Mountain Stereographs," 104-105
- <sup>36</sup> Southall, "Kilburn Brothers," 85-86.
- <sup>37</sup> John Urry, *The Tourist Gaze: Leisure and Travel in Contemporary Society* (London: Sage Publications, 1990), 86.
- <sup>38</sup> *Ibid.*, 100.
- <sup>39</sup> Friedberg, *Window Shopping*, 59.
- <sup>40</sup> Ellison, *Italy*, 21.
- <sup>41</sup> See chapter one for a discussion of how the intertwined discourses of natural theology and natural magic contributed to the Victorian acceptance of stereographic images as visual truth.
- <sup>42</sup> Judith Adler, "Origins of Sightseeing" *Annals of Tourism Research* 16, no. 1 (1989), 9.
- <sup>43</sup> *Ibid.*, 11, 12.
- <sup>44</sup> *Ibid.*, 22.
- <sup>45</sup> James Buzard, *The Beaten Track* (Oxford: Clarendon Press, 1993), 187-188.
- <sup>46</sup> Urry, *Tourist Gaze*, 1-2.
- <sup>47</sup> *Ibid.*, 3.
- <sup>48</sup> *Ibid.*, 3.
- <sup>49</sup> Osborne, *Travelling Light*, 18.

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## Chapter 5

<sup>1</sup> William Appleman Williams, *The Contours of American History* (Cleveland & New York: The World Publishing Company, 1961), 355.

<sup>2</sup> *Ibid.*, 348-349.

<sup>3</sup> *Ibid.*, 368.

<sup>4</sup> Walter LaFeber, *The New Empire—An Interpretation of American Expansion 1860-1898* (Ithaca & London: Cornell University Press, 1963).

<sup>5</sup> Darrah, *World of Stereographs*, 109.

<sup>6</sup> Earle, *Points of View*, 19; Darrah, *World of Stereographs*, 49.

<sup>7</sup> *Ibid.*, 48.

<sup>8</sup> See *Underwood Catalog No. 25*, 5.

<sup>9</sup> Ricalton, *China*, 12.

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

<sup>11</sup> Babbitts, "Made in America," 42.

<sup>12</sup> Strain, "Stereoscopic Visions," 8.

<sup>13</sup> *Ibid.*, 9.

<sup>14</sup> Ricalton, *China*, 20.

<sup>15</sup> *Ibid.*, 9-10.

<sup>16</sup> *Ibid.*, 357.

<sup>17</sup> Ellison, *Italy*, 92-93.

<sup>18</sup> Babbitts, "Made in America," 47.

<sup>19</sup> *Ibid.* 46.

<sup>20</sup> Harvey Green, "Pasteboard Masks, the Stereograph in American Culture 1865-1910," in *Points of View*, ed. Edward E. Earle (Rochester: Visual Studies Workshop, 1979), 114.

<sup>21</sup> Edward Said, *Orientalism* (New York: Vintage Books, 1979), 54.

<sup>22</sup> *Notes of Travel No. 40* (New York: Underwood & Underwood, 1907), no page.

<sup>23</sup> Ann E. Kaplan, *Looking for the Other* (New York: Routledge, 1997), 78-79.

<sup>24</sup> Strain, "Stereoscopic Visions," 12-13.

<sup>25</sup> William Brey, "Ten Million Stereo Views," 11.

<sup>26</sup> Babbitts, "Made in America," 41.

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<sup>27</sup> Ibid., 41.

<sup>28</sup> Fowles, "Standardization of Vision," 91.

<sup>29</sup> Ibid., 42. Emphasis in original.

## Conclusion

<sup>1</sup> Strain, "Stereoscopic Visions," 12.

<sup>2</sup> Batzli, "Visual Voice." Unfortunately, I only became aware of the availability of Batzli's thesis as I was concluding my own. Its account of how (and why) Keystone altered Underwood tours after it acquired them is particularly interesting.

<sup>3</sup> T.J. Jackson Lears, *No Place of Grace* (New York: Pantheon Books, 1981); Orvell, *The Real Thing*; Friedberg, *Window Shopping*; Williams, "Corporealized Observers."

<sup>4</sup> Carlebach, *Origins of Photojournalism*.

<sup>5</sup> Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations*, intro by Hannah Arendt (New York: Schocken Books, 1968).

<sup>6</sup> William M. Ivins, *Prints and Visual Communication* (London: Routledge & Kegan Paul Ltd., 1953), 2-3.

<sup>7</sup> Ibid., 94.

<sup>8</sup> Batzli, "Visual Voice," 195.

<sup>9</sup> Sontag, *On Photography*, 15.



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## APPENDIX A

UNDERWOOD & UNDERWOOD  
PRICE GUIDE, 1908

*For the United States only*

## PRICE-LIST

Stereoscopic Tours of the World. Guide Books with Patent  
Key Maps. Volume Cases. Extension Cabinets. Stereoscopes.  
comprising

THE UNDERWOOD  
TRAVEL SYSTEM

PRACTICAL. SCIENTIFIC. UNIQUE



UNDERWOOD & UNDERWOOD

NEW YORK    LONDON    OTTAWA, CAN.    TORONTO    SAN FRANCISCO

*In effect February 15th, 1908*

# UNDERWOOD STEREOSCOPIC TOURS

## THE UNDERWOOD TRAVEL SYSTEM STEREOSCOPIC TOURS OF THE WORLD

The scenes comprising our different Tours are carefully selected by persons of wide experience and liberal education. Patrons get the best satisfaction from the Tours by taking them as we have them arranged. One hundred stereographed places of one country, systematically arranged, are generally found much more desirable than the same number of scenes scattered over several countries. Many of our patrons are placing all of our Tours in the libraries of their homes. Schools and public libraries are turning more and more to the stereoscope to put students and readers in touch with the actual places of which they are studying.

We now furnish Guide Books for a considerable number of the Tours, as will be seen by referring to the following list. Patent Key Maps, by which each scene is definitely located, go with these books. Each Guide Book is written by a well-known author, thoroughly conversant with the country, city or locality which the Tour covers: the writer assumes the role of a personal guide, standing by the side of the traveler on the spot. Ask our salesman for a copy of our pamphlet, "The Underwood Travel System," or drop a card to us for one.

Note that all our subjects are ORIGINAL stereoscopic photographs, *not* copies.

The Tours are listed on the following pages alphabetically in two sections—the shorter Tours last.

TOURS BY COUNTRIES—	No of Posi- tions	PRICES				
		Stere- graphs	Case	Book	List Price	Net Selling Price
AUSTRIA TOUR .....	84	\$14.00	\$ .70	....	\$14.70	\$14.50
BELGIUM TOUR—with explanatory notes*	24	4.00	.25	....	4.25	4.20
BRITISH-BOER WAR .....	36	6.00	.30	....	6.30	6.20
BURMA TOUR .....	50	8.33	.60	....	8.93	8.75
CANADA TOUR—with explanatory notes*	72	12.00	.70	....	12.70	12.50
CEYLON TOUR—with explanatory notes*	30	5.00	.30	....	5.30	5.20
CHILDREN'S TOUR ("Real Children in Many Lands")—with guide book by M. S. Emery, 222 pages, cloth.....	18	3.00	.25	.90	4.15	4.00
CHINA TOUR—with guide book by Prof. James Ricalton, 358 pages, cloth, and eight Underwood patent maps .....	100	16.67	.75	1.45	18.87	18.75
CUBA AND PORTO RICO TOUR.....	100	16.67	.75	....	17.42	17.25
DENMARK TOUR .....	36	6.00	.30	....	6.30	6.20
ECUADOR TOUR .....	42	7.00	.60	....	7.60	7.45
EGYPT TOUR—with explanatory notes*, guide book by James H. Breasted, Ph.D., 360 pages, cloth, and twenty Underwood patent maps....	100	16.67	.75	1.80	19.22	19.00
ENGLAND TOUR .....	100	16.67	.75	....	17.42	17.25
FRANCE TOUR .....	100	16.67	.75	....	17.42	17.25
GERMANY TOUR—with explanatory notes*	100	16.67	.75	....	17.42	17.25
GREECE TOUR—with guide book by Rufus B. Richardson, Ph.D., 363 pages, cloth, and fifteen Underwood patent maps.....	100	16.67	.75	1.80	19.22	19.00

\* These explanatory notes are printed on the backs of the stereograph cards.

	No. of Posi- tions	PRICES			
		Stere- graphs	Case Book	List Price	Net Selling Price
<b>HAND COLORED SERIES.</b>					
(These consist of choice scenes from various parts of the world.)					
SERIES No. 1.....	100	25.00	.75	25.75	25.00
SERIES No. 2.....	72	18.00	.70	18.70	18.50
SERIES No. 3.....	36	9.00	.30	9.30	9.25
SERIES No. 4.....	24	6.00	.25	6.25	6.20
HOLLAND TOUR—with explanatory notes*.....	24	4.00	.25	4.25	4.20
INDIA TOUR—with explanatory notes,* guide book by Prof. James Ricalton. 383 pages, cloth, and ten Underwood patent maps.....	100	16.67	.75	1.80	19.22
IRELAND TOUR—with explanatory notes,* guide book by Charles Johnston. 262 pages, cloth, and seven Underwood patent maps.....	100	16.67	.75	1.70	19.00
ITALY TOUR—with guide book by D. J. Ellison, D.D., and Prof. James C. Egbert, Jr., Ph.D., 602 pages, cloth, and ten Underwood patent maps.....	100	16.67	.75	1.90	19.32
JAMAICA TOUR.....	24	4.00	.25	4.25	4.20
JAPAN TOUR—with explanatory notes*.....	100	16.67	.75	1.70	17.25
JAVA TOUR.....	36	6.00	.30	6.30	6.20
KOREA TOUR.....	48	8.00	.60	8.60	8.50
MANCHURIA TOUR.....	18	3.00	.25	3.25	3.25
MEXICO TOUR.....	100	16.67	.75	1.70	17.25
NORWAY TOUR—with explanatory notes,* guide book, edited by Prof. Julius E. Olson, with an introduction by Hon. Knute Nelson. 372 pages, cloth, with eight Underwood patent maps.....	100	16.67	.75	1.80	19.22
PALESTINE TOUR—(the Holy Land) with guide book by Rev. Jesse L. Hurlbut, D.D., 220 pages, cloth, and seven Underwood patent maps.....	100	16.67	.75	1.50	18.92
PALESTINE TOUR No. 3—comprising Palestine Tour No. 1, Travel Lessons on the Life of Jesus and Travel Lessons on the Old Testament (all duplicates omitted) with three books.....	139	23.17	1.35	2.90	27.42
PANAMA TOUR—with explanatory notes*.....	36	6.00	.30	6.30	6.20
PARIS EXPOSITION TOUR.....	36	6.00	.30	6.30	6.20
PERU TOUR.....	60	10.00	.65	10.65	10.50
PHILIPPINE TOUR.....	100	16.67	.75	1.70	17.25
PILGRIMAGE TO SEE THE HOLY FATHER—with explanatory notes,* guide book by Rev. Father John Talbot Smith, LL.D., 148 pages, cloth, and two Underwood patent maps.....	36	6.00	.30	6.30	6.20
PORTUGAL TOUR.....	60	10.00	.65	10.65	10.50
PRESIDENT McKINLEY TOUR No. 5—with guide book, 183 pages, cloth.....	60	10.00	.65	1.40	11.05
The same with real leather case, velvet-lined, inscription in silver.....	60	10.00	2.15	1.40	12.55
PRESIDENT McKINLEY TOUR No. 2—positions selected from Tour No. 5.....	24	4.00	.25	4.25	4.20
PRESIDENT ROOSEVELT TOUR.....	36	6.00	.30	6.30	6.20
ROME TOUR (a part of Italy Tour. Positions 1 to 46)—with guide book by D. J. Ellison, D.D., and James C. Egbert, Jr., Ph.D., 310 pages, cloth, and five Underwood patent maps.....	46	7.66	.60	1.35	9.61
RUSSIA TOUR—with guide book by M. S. Emery, 216 pages, cloth, and ten Underwood patent maps.....	100	16.67	.75	1.20	18.62
RUSSO-JAPANESE WAR.....	100	16.67	.75	1.70	17.25
SCOTLAND TOUR—with explanatory notes*.....	84	14.00	.70	14.70	14.50
SICILY TOUR.....	54	9.00	.65	9.65	9.50

\* These explanatory notes are printed on the backs of the stereograph cards.

	No of Positions	PRICES				
		Stereographs	Case	Book	List Price	Net Selling Price
SPAIN TOUR .....	100	16.67	75		17.42	17.25
ST. PIERRE AND MONT PELEE TOUR—with guide book by the celebrated traveler, George Kennan, and three Underwood maps .....	18	3.00	.25	.20	3.45	3.40
SWEDEN TOUR—with explanatory notes* .....	100	16.67	.75		17.42	17.25
SWITZERLAND TOUR—with guide book by M. S. Emery, 274 pages, cloth, and eleven Underwood patent maps .....	100	16.67	.75	1.45	18.87	18.75
TRAVEL LESSONS ON THE LIFE OF JESUS—with hand book, 230 pages, cloth, by Rev. Wm. Byron Forbush, Ph.D., and four Underwood patent maps .....	36	6.00	.30	.70	7.00	6.70
TRAVEL LESSONS ON THE OLD TESTAMENT—with hand book, 211 pages, cloth, by Rev. Wm. Byron Forbush, Ph.D. and four Underwood patent maps .....	51	8.50	.60	.70	9.80	9.20
TRIP AROUND THE WORLD—with explanatory notes,* guide book and map .....	72	12.00	.70	.20	12.90	12.75
UNITED STATES TOUR—with explanatory notes,* guide book and four Underwood patent maps .....	100	16.67	.75	.25	17.67	17.50
UNITED STATES TOUR No. 2—Positions all different from those in the above tour .....	100	16.67	.75		17.42	17.25
UNITED STATES TOUR No. 3—Comprising U. S. Tour No. 1 and the special tours of Washington, Grand Canyon, Niagara Falls, Yellowstone and Yosemite (all duplicates omitted) with six books .....	200	33.34	1.50	2.25	37.09	36.50
WASHINGTON, D. C. TOUR—with guide book by Rufus Rockwell Wilson, 178 pages, cloth, and four Underwood patent maps .....	42	7.00	.60	1.20	8.80	8.60
WORLD'S FAIR—Louisiana Purchase Exposition Tour—with explanatory notes,* guide book and Underwood patent map .....	55	9.17	.65	.15	9.97	9.75
<i>In China—</i>						
BOXER UPRISING TOUR—positions 43-68 of the China Tour, with guide book and three Underwood patent maps .....	26	4.33	.30	.20	4.83	4.70
HONG KONG TO CANTON TOUR—positions 1-15 of the China Tour, with guide book and three Underwood patent maps .....	15	2.50	.25	.15	2.90	2.90
PEKIN TOUR—positions 69-100 of the China Tour, with guide book and two Underwood patent maps .....	32	5.33	.30	.20	5.83	5.70
<i>In Egypt—</i>						
CAIRO AND THE PYRAMIDS TOUR —(Positions 1-27 of Egypt Tour), with explanatory notes* .....	27	4.50	.30		4.80	4.75
ELEPHANT SERIES—hunting wild elephants, tame elephants at work, etc., with explanatory notes* .....	12	2.00	.20		2.20	2.20
GETTYSBURG BATTLEFIELD TOUR .....	12	2.00	.20		2.20	2.20
GRAND CANYON OF ARIZONA TOUR —with explanatory notes,* guide book and two Underwood patent maps .....	18	3.00	.25	.20	3.45	3.40
<i>In Greece—</i>						
ATHENS TOUR—positions 1-27 of Greece Tour .....	27	4.50	.30	†	4.80	4.75
HUNTING SCENES .....	30	5.00	.30		5.30	5.20

\* These explanatory notes are printed on the backs of the stereograph cards.

† The guide book for the complete tour is desirable. The prices of the books are given opposite the names of the complete Tours.



		PRICES				Net Selling Price	
		Stereo- graphs	Case	Book	List Price		
In India—							
BOMBAY TO CASHMERE TOUR— positions 1-27 of India Tour, with explana- tory notes* .....		27	4.50	.30	†	4.80	4.75
In Ireland—							
QUEENSTOWN, CORK AND DUBLIN TOUR—positions 1-36 of the Ireland Tour, with explanatory notes* .....		36	6.00	.30	†	6.30	6.25
NEW YORK CITY TOUR.....		30	5.00	.30	...	5.30	5.20
NIAGARA FALLS TOUR—with explanatory notes,* guide book and two Underwood pat- ent maps .....		18	3.00	.25	.20	3.45	3.40
NIAGARA IN WINTER.....		12	2.00	.20	...	2.20	2.20
In Norway—							
HARDANGER AND BERGEN TOUR —positions 26-52 of Norway Tour, with explanatory notes* .....		27	4.50	.30	†	4.80	4.75
In Palestine—							
JERUSALEM TOUR—positions 9-35 of the Palestine Tour, with explanatory notes,* guide book and an Underwood patent map.....		27	4.50	.30	.20	5.00	4.85
RUBY MINING TOUR—some of the positions taken from the Burma Tour, with explanatory notes* .....		9	1.50	.20	...	1.70	1.70
In Russia—							
MOSCOW TOUR—positions 47-73 of the Russia Tour, with guide book and three Underwood patent maps.....		27	4.50	.30	.15	4.95	4.85
ST. PETERSBURG TOUR—positions 8- 46 of the Russia Tour, with guide book and five Underwood patent maps.....		39	6.50	.60	.20	7.30	7.15
SAN FRANCISCO DISASTER SERIES....		36	6.00	.30	....	6.30	6.20
SPANISH BULL FIGHT SERIES .....		12	2.00	.20	...	2.20	2.20
In Switzerland—							
BERNESE ALPS TOUR—positions 17- 36 and 47-53 of Switzerland Tour, with guide book and three Underwood patent maps .....		27	4.50	.30	.15	4.95	4.85
ENGADINE TOUR—positions 39-46 of Switzerland Tour, with guide book and four Underwood patent maps.....		8	1.33	.20	.10	1.63	1.63
LAKE LUCERNE TOUR—positions 6-16 of the Switzerland Tour, with guide book and three Underwood patent maps.....		11	1.84	.20	.15	2.19	2.19
MONT BLANC TOUR—positions 78-100 of the Switzerland Tour, with guide book and two Underwood patent maps.....		23	3.84	.25	.15	4.24	4.20
ZERMATT AND THE MATTER- HORN TOUR—positions 54-68 of the Switzerland Tour, with guide book and two Underwood patent maps.....		15	2.50	.25	.15	2.90	2.90
YELLOWSTONE NATIONAL PARK TOUR—with explanatory notes,* guide book and an Underwood patent map.....		30	5.00	.30	.20	5.50	5.40
YOSEMITE VALLEY TOUR—with guide book by Charles Q. Turner and an Under- wood patent map.....		24	4.00	.25	.20	4.45	4.40

\* These explanatory notes are printed on the backs of the stereograph cards.

† The guide book for the complete tour is desirable. The prices of the books are given opposite the names of the complete Tours.

## UNDERWOOD PATENT EXTENSION STEREO- GRAPH CABINETS

Our Extension Cabinet protects the stereographs, systematizes them and provides for unlimited expansion. Being sectional, it permits of any arrangement in sections to fit the space available. Each drawer holds 100 stereographs. The volume cases are not used with this cabinet. The larger drawer at the bottom will accommodate two Stereoscopes. It is built up in the same manner as a sectional bookcase.

This Cabinet is especially adapted for homes where space in the library or other room is limited. With this Cabinet no more floor space is required for 2,000 stereographs than for 200.

No. 36—Quartered Oak Extension Cabinet, oxidized trimmings (for holding 3,600 stereographs and 4 stereoscopes).....	\$ 48.00
Same, with contents.....	625.00
No. 24—Quartered Oak Extension Cabinet, oxidized trimmings (for holding 2,400 stereographs and 4 stereoscopes).....	36.00
Same, with contents.....	420.00
No. 12—Quartered Oak Extension Cabinet, oxidized trimmings (for holding 1,200 stereographs and 2 stereoscopes).....	15.00
Same, with contents.....	208.00
No. 10—Quartered Oak Extension Cabinet, oxidized trimmings (for holding 1,000 stereographs and 2 stereoscopes).....	13.00
Same, with contents.....	173.00
No. 8—Quartered Oak Extension Cabinet, oxidized trimmings (for holding 800 stereographs and 2 stereoscopes).....	11.00
Same, with contents.....	140.00
No. 6—Quartered Oak Extension Cabinet, oxidized trimmings (for holding 600 stereographs and 2 stereoscopes).....	9.50
Same, with contents.....	107.00
No. 4—Quartered Oak Extension Cabinet, oxidized trimmings (for holding 400 stereographs and 2 stereoscopes).....	7.50
Same, with contents.....	73.00
No. 2—Quartered Oak Extension Cabinet, oxidized trimmings (for holding 200 stereographs and 2 stereoscopes).....	5.25
Same, with contents.....	39.00
Quartered Oak "Extension," oxidized trimmings (for holding 200 stereographs and to be used in "building up" the Extension Cabinet).....	2.50
Quartered Oak Cabinet, hinge cover, piano finish, velvet lined (for holding 200 stereographs and 2 stereoscopes).....	3.75
Same, with contents.....	37.50
Quartered Oak Cabinet, hinge cover, piano finish, velvet lined (for holding 100 stereographs and 2 stereoscopes).....	3.25
Same, with contents.....	20.50

Since some of the Tours do not yet have guide books, *no guide books are included in the above prices of filled cabinets.* When Tours are chosen that have guide books, the price of the books should be added. See preceding pages for prices of the books.

## SPECIAL CABINETS

To accommodate patrons who desire a cabinet of the very highest quality of workmanship, we make up a special Underwood Extension Cabinet of finest selected solid mahogany, quartered oak or black walnut, after the same general style of our regular stock extension cabinets as indicated above. This cabinet has a heavy finished base and removable top. It is made to order only.

Standard Macey or Wernicke Sectional Bookcases, for housing Underwood Tours in "volume cases," are furnished as desired.

Prices on the Special Extension Cabinets and the Sectional Bookcases will be quoted on application.

## THE UNDERWOOD STEREOSCOPIC LIBRARY

The Library consists of thirty-seven of the more important Tours. It makes an unique and worth-while addition to the best homes and to the working efficiency of public libraries.

We put up these thirty-seven Tours in two ways:

(1) These Tours are put into thirty full morocco *de luxe* Volume Cases richly lined with velvet, with the name of the country and the embossed ends stamped in real gold; all enclosed in a Macey or Wernicke all-mahogany, etched glass. Sectional Bookcase. With the above are furnished two selected and polished mahogany Stereoscopes, with genuine morocco leather hoods.

The price of the library is .....\$675.00

The price of same without Bookcase is .....\$655.00

(2) Each of the thirty-seven Tours is put into a Volume Case bound in high grade dark brown bookbinders' cloth with the name of the country stamped in gold on the back. The Tours, thus cased, are enclosed in a Macey or Wernicke quartered-oak Sectional Bookcase and accompanied by two polished mahogany Stereoscopes with genuine leather hoods.

The price of this library is .....\$510.00

The price of same without Bookcase is .....\$500.00

## THE UNDERWOOD VOLUME CASES

Our regular Volume Cases, referred to above and mentioned on preceding pages, are bound with high grade dark brown, bookbinders' cloth. They resemble well bound books. The name of the Tour is stamped on the back in silver or real gold leaf.

For those who wish something more exclusive than the above cases, we furnish handsome *de luxe* Volume Cases of full morocco, a rich maroon in color, lined with velvet. These are an ornament to the most elegantly furnished home.

## UNCLASSIFIED STEREOGRAPHS

While there can be no question but that our patrons get much more satisfactory results from our Tours as described in the preceding pages, except in special cases (as for school purposes, etc.), we cannot pass over our magnificent series of selected, *unclassified* Stereographs. These are of the same high grade as those composing the Tours.

We have chosen from our collection of about 200,000 subjects only the most desirable for publication, and carry regularly in stock about 7,000 different scenes. Every Stereograph must pass a rigid examination as to merit before being published. Three thousand and more of the outlooks are now accurately described on the backs of the cards, adding materially to their interest and value.

Our hand colored Stereographs are colored by experienced water-color artists. For list of subjects see Part III of Catalogue No. 26.

Original Stereographs, per dozen.....	\$2.00
Original Hand-Colored Stereographs, per dozen.....	3.00

## CHILDHOOD, COMIC AND SENTIMENTAL SUBJECTS

We have a large, well-selected variety of childhood scenes that are highly educational and entertaining. Also our variety is large of humorous and sentimental scenes. These scenes of childhood and in the lighter vein often add spice and interest to the regular "travel" tours. Many of the sentimental scenes are published in small sets; we list here only three of these:

"Is Marriage a Failure?" Set.—18 Stereographs in case .....	\$3.00
"French Cook" Set.—10 Stereographs .....	1.67
"American Volunteer" Set.—6 Stereographs .....	1.00

Complete lists of the Childhood and Sentimental scenes are given in Part II of Catalogue No. 26.

## STEREOSCOPES

Our combined aluminum and mahogany Stereoscopes have practically displaced all the old styles. They have more patent protection than any other hand stereoscopes.

The lenses, which are the most vital part of the Stereoscope, are scientifically and skillfully ground from the purest glass, perfectly matched, accurately set, and cannot come out. We supply regularly the following styles.

The TWENTIETH CENTURY Stereoscope, patented, made of engraved satin finished aluminum and imported mahogany, shellac finished, hood chamber coated with Egyptian black, each.....	\$1.10
The TWENTIETH CENTURY SPECIAL Stereoscope, patented, black japanned, aluminum hood, lens holder and shaft holder, neatly engraved; figured mahogany shaft, view holder and handle, five-coat finish and hand polished, each.....	2.00
The METEOR Stereoscope, patented, richly engraved aluminum hood, patented aluminum lens sockets in mahogany frame; figured mahogany shaft, view-holder and handle, five-coat finish and hand-polished, each.....	3.00
The MOROCCO HOOD METEOR Stereoscope, patented, aluminum hood covered with black morocco leather; otherwise the same as the Meteor," each.....	3.00

The above Stereoscopes are all fitted with our new patented stereograph-holder clamping-spring and our patented nickel-plated folding handle, superior to all others.

The No. 8 Stereoscope, patented; plain aluminum hood, patented aluminum lens sockets in birch frame, folding handle, each.....	.80
Stereoscope Stands, mahogany, nickel trimmings, each.....	.80

Special Stereoscopes of different woods to match the woodwork and furnishings of particular rooms, with or without aluminum trimmings, made to order.

## UNDERWOOD & UNDERWOOD

3 and 5 West 19th St., Corner Fifth Ave., New York

## APPENDIX B

LIST OF UNDERWOOD & UNDERWOOD  
PUBLICATIONS, 1890-1915

The following is a list of Underwood publications. It does not include sets of cards that were published without guidebooks. Where multiple editions were published, I have included them under the first reference.

While the bibliography is by no means complete, I believe it represents one of the most comprehensive to date. It should be noted that most of the entries after 1895 were published simultaneously in London, England. Where additional information about individual publications is available, I have included it as a note.

1890

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