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14. Victorian SimCities: Playful Technology on Google Earth

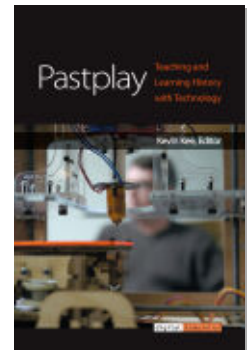
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Victorian SimCities

Playful Technology on Google Earth

Patrick Dunae and John Sutton Lutz

The best vantage point for viewing a landscape is from above. That is the premise of *Google Earth*, which opens from a vantage point high in space, and then zooms down through the atmosphere to a point on the earth. Nineteenth-century visual image makers also knew that high places offered the best perspectives on the landscape. In a pre-airplane era, they imagined how landscapes would appear if they were seen from the perspective of a bird, flying high in the sky, or from a balloon floating over the land. They developed their imagined perspectives in panoramic lithographic views, which are commonly called bird's-eye views. When advances in photographic technology permitted, Victorian image makers perched on high buildings, whence they created a sequence of images that created panoramic photographs. These images—bird's-eye views and panoramic photographs—offer a remarkable picture of urban landscapes of the past, and a fascinating perspective for historians. The images also provide an engaging platform where students can play with the past. When these images are deployed with interactive digital technologies, our muse Clio is more playful than ever before.

We are using panoramic views in conjunction with *Google SketchUp*, the popular 3D modeling program, and *Google Earth* technology to engage secondary school students and undergraduate history students and draw them into the work of history by literally asking them to draw history. We are focusing on the city of Victoria, British Columbia, ca. 1890, for our prototype, but as we will explain, the historical resources that we have deployed can be utilized in other cities. Students are invited to become historical detectives and by building up documentation and inferences, re-create part of the lost landscape of Victorian Victoria. The more they play, creating

buildings with *Google SketchUp* and uploading them to *Google Earth*, the more we expand our *SimCity—Virtual Victoria*.

Our method is to present history as a mystery, and the recovery of past landscapes as a particular mystery that students can help solve. Our objective is to introduce students to broad topics in historical geography and urban history, and our premise is that students learn best when they can see and experience the urban places. We cannot transport students back to Victoria, ca. 1890, via a Holodeck, but we can facilitate a process whereby they deploy historical records in a way that will enable them to see a world that is now gone and engage closely with this past.¹ Consider the process of a biographer, who reads extensively on his subject and manages to get “under the skin” or “inside the mind” of his subject. Or consider the words G. Kitson Clark, the distinguished Cambridge historian of Victorian England, used to exhort his students to read voraciously in order to connect to the historical period they were studying: “Read, read, read—until you can hear them [Victorians] speak.”² Our students follow a similar regimen as they study and re-create buildings and streetscapes. At the end of the day, using playful technologies, we hope they will be able to experience the sights, sounds, and possibly the smells of a Victorian city.

We developed the project with encouragement of the new literature, which shows that students like digital technologies and are adept at acquiring and utilizing knowledge and skills in an electronic environment. A growing body of literature suggests that history students relate easily with primary documents in digital formats, and that students engage readily in self-directed learning activities when these opportunities are presented within a web environment.³ The literature also suggests that critical reasoning skills increase when students understand how different kinds of primary records are related and can be used to better understand historical questions or events. In such cases, students learn to “think like a historian.”⁴ The challenge of teaching undergraduate students to think like historians was a catalyst in the creation of The History Education Network, a consortium of some of Canada’s leading history education researchers.⁵ Studies completed by these and other scholars confirm our view that teaching is enlivened if we can turn students into researchers and learning is enhanced if we enable students to answer historical questions themselves.⁶ This pedagogy is sometimes called inquiry-based learning. Its growth parallels the exponential growth of primary sources that are available in digital formats online.⁷

In our own work we have observed that students find the past intriguing, are motivated to solve puzzles, and given a choice prefer to work on assignments that have real-world applications. They also put more effort into projects where they will be seen by a wide audience and for which they can claim

some credit for the creation. We have designed our Victorian *SimCity* project to capitalize on all these motivating factors. While providing a background to the project we want to introduce four elements that link *homo discens* (the learner) to *homo ludens* (the playful). These elements involve detecting spatial perspectives, researching biographies of historical structures, re-creating lost urban environments, and repopulating historical landscapes.

Detecting Perspective

The projects described in this chapter began a few years ago with a project called *Virtual Victoria: View from the Steeple*. We had discovered a collection of photographs in the British Columbia Archives offering a panoramic view of Victoria. The photographer was unknown and the images were not dated. After some detective work and close analysis of the photographs we determined that Richard Maynard, a well-known photographer, had created them in 1891. By studying foliage, shadows, and other details in the photographs, we were able to pinpoint the date to May 1891 (see figure 14.1).

But this was only part of our *CSI: Urban History* (!) exercise. We needed to determine the photographer's vantage point. After further research, we realized that Maynard had taken the pictures from the top of the nearly complete



Fig 14.1: A panoramic photograph of Victoria, British Columbia, 1891. Image A-03380 courtesy Royal BC Museum, British Columbia, Archives.

Roman Catholic cathedral on Blanshard Street. Since the pitch of the cathedral roof was very steep, we concluded that Maynard had taken the pictures when the nave had been completed and covered but before the roof was installed. Building records indicate that this would have been around May 1891, thus confirming our earlier deduction about the date of the photographs. Later, we were able to determine where the photographer stood on the roof. We could do so because the cathedral caretaker allowed us to climb up to the cathedral bell tower. The top platform of the bell tower was level with the top of the roof and so offered nearly the same vista as Maynard experienced back in 1891.

While we do not advise students to engage in this form of extreme history, this kind of detective work is easily replicated by providing students with panoramas or even single images and asking them to identify the approximate year (which they can do by looking at other dated photos), the time of year (leaves, shadows), and the time of day (shadows), and then having them locate the perspective of the photographer.

Biographies of Lost Buildings

Comparing a photograph taken today with a photo or an artist's rendering of a city a century ago reveals that many buildings have gone missing and have been replaced in the ensuing years. What have we lost? In this stage of our project, we get students to solve that mystery one building at a time. There are two often overlooked wake-up resources that allow groups of students to work on collective projects, with the intention of publishing their work to the web: panoramic photos and panoramic lithographic views.

Panoramic lithographic views, commonly known as bird's-eye views, occupy a kind of middle space between maps and photographs. They were very popular in the United States and Canada from the mid-nineteenth century to the early years of the twentieth century. They were often commissioned by chambers of commerce and newspapers, which sold them to local subscribers. They depicted a community as it might appear from above.

Itinerant artists usually created these images. The artist would systematically walk every street, making sketches of all the buildings and distinctive landscape features he or she encountered. The artist then determined an imaginary vantage point and rendered all of the sketches into a perspective panoramic image. The images were printed as lithographs and sold to the public, usually in the community they represented. Since local residents knew exactly what their community looked like, at least from the ground, the images had to be accurate. And, for the most part, they were. True, they often exaggerated local commercial or industrial activities. In bird's-eye



Fig 14.2: Detail of 1889 bird's-eye view of Victoria, British Columbia. Courtesy of Library of Congress Geography and Map Division, catalog number 75696734; digital ID g3514v pm010770.

views, harbors are always crowded with vessels and railway yards are always bustling with freight trains taking locally manufactured goods to distant markets.⁸ But they are accurate in showing the layout of streets and the location of major buildings, including schools and churches. Although the bird's-eye views usually focused on city centers, they frequently depicted residential homes in the suburbs. We have checked details on a bird's-eye view of Victoria published in 1889 with contemporary photographs and have been favorably impressed with the high degree of accuracy (see figure 14.2).

Archivists and map librarians have long appreciated the informational value of panoramic maps.⁹ Curiously, though, urban historians and historical geographers have devoted very little attention to these records. But as the Cornell University historian and urban planner John W. Reps has noted, there are “a number of ways scholars can use images of North American cities produced during the era of urban lithographic viewing.” Reps suggested several lines of inquiry in his magisterial survey, *Views and Viewmakers of Urban America*: “An individual city can be examined in detail to show many aspects of its land use and development. A view can also provide many helpful clues to the architectural character of a community. Views from two or more cities can be compared for a variety of purposes or as sources for images depicting such things as works of municipal engineering or maritime activities.”¹⁰ Moreover, as Reps remarked in *Panoramas of Promise*, a study of urban views of the Pacific Northwest, nineteenth-century lithographs are compelling and emotionally appealing. Even a casual observer can connect

readily to the images. “Whether scholar or not, we can with the aid of these views take ourselves back in time to the early years of the towns and cities in the Pacific Northwest and in our imagination approach their outskirts, walk their streets, admire their buildings, and appreciate the richness and variety of the urban scene in this region a century or more ago.”¹¹

Although we could have used the 1889 bird’s-eye view of Victoria, we started with the 1891 Maynard panoramic photos described above and were able to “stitch” them together to re-create the photographer’s panorama. We afterward created a website—entitled *Virtual Victoria, 1891:View from the Steeple*—where we tried and tested some simple, but playful, digital technologies.¹² History students were assigned to write biographies of the more prominent structures in the photographs. To complete such an assignment, students conduct research using nineteenth-century city directories. These publications, which were compiled for every major city in the country, offer a wealth of information on urban landscapes. The directories were usually organized in two sections, comprising an alphabetical directory and a street directory. The former was a list of adult residents and householders, with information about the person’s occupation, place of work, and residence. Street directories provided information about commercial, industrial, and residential places; they identified buildings according to their geographic location and placed them in relation to neighboring buildings and intersecting streets. Theodore Hershberg, the American historian and sociologist, utilized city directories to create his innovative “interdisciplinary history” of Philadelphia, and Sherry Olson, the eminent urban geographer and historian at McGill University, has used directories to create a social ecology of late nineteenth-century Montreal. We are building on their work in this project.¹³ Directories for towns and cities in British Columbia, including Victoria, have been scanned and posted online by the Vancouver Public Library.¹⁴ We have made information for Victoria even more accessible on our Vancouver Island digital archives, *viHistory*. Resources on this website include a searchable database of the 1892 alphabetical directory of Victoria and Victoria City property tax assessment records. The *viHistory* website also provides links to contemporary newspapers and indexes that enable researchers to identify architects, contractors, and other information about Victoria City buildings.¹⁵

In our prototype we annotated the Maynard 1891 panoramic images by creating image maps, with “hot spots” and pop-up windows (see figure 14.3). Admittedly, this was a “low-tech” exercise, but it was also very gratifying, as students enthusiastically engaged with the assignment. By consulting city directories, newspapers, and other contemporary records, students were able to chronicle the buildings in great detail. At this point we appreciated the value of creating building biographies.

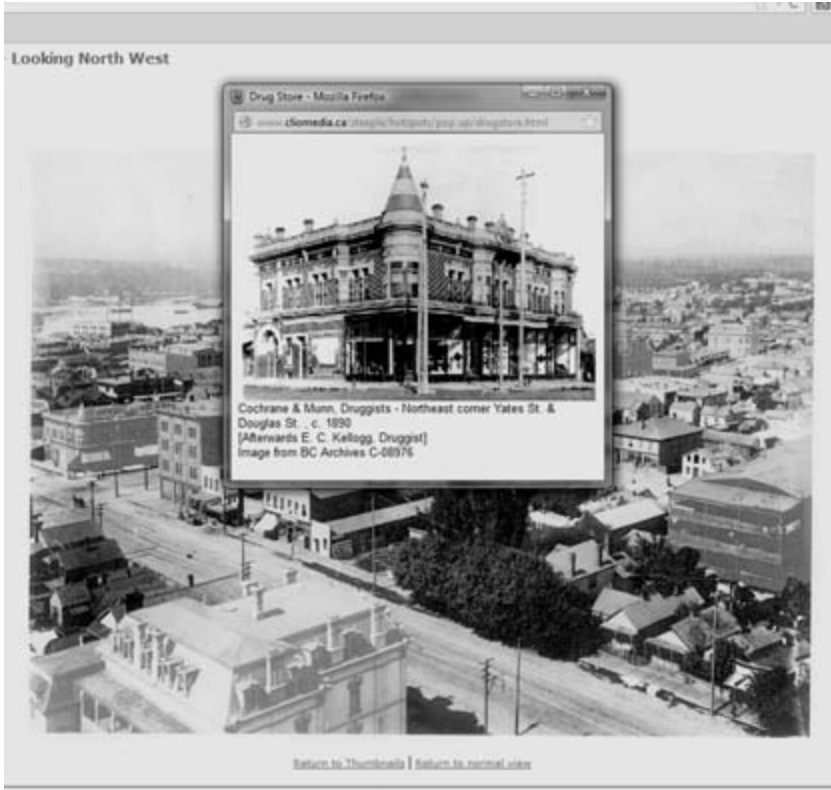


Fig 14.3: A screen shot from the *Virtual Victoria*, view from the steeple website. Screen shot courtesy of the authors.

The next step in this exercise was to use the sequence of panoramic photographs to create the illusion of motion and a sense of virtual reality. We accomplished this by using Apple *QuickTime*. With this application, the sequence of historical photographs is presented as a video. Using their mouse buttons and the Control and Shift keys, viewers can make a full 360-degree flight around the city, and they can zoom in to buildings or streets at any time to have a closer look at the environment.

Rebuilding the Past

The faux-video flyover that we created was rewarding; students and members of the general public continue to access it on our *View from the Steeple* website in large numbers. But while our vantage point on top of the

cathedral gave us a remarkably clear view of Victoria in 1891, our perspective was nevertheless limited. We could only see what the photographer saw. We could see the façades and roofs of downtown buildings, but we could not see the sides of the buildings or façades of buildings that were obscured by other structures. To mitigate these limitations, we determined to create a digital model of the buildings in one of the panoramic photographs. For this exercise, we selected a photograph that depicts a downtown city block bounded by Yates Street, Douglas Street, Johnson Street, and Blanshard Street. From the photograph, we could see the façades of buildings on Yates Street and the backs of buildings on Johnson Street. We could see portions of the buildings on Douglas Street and Blanshard Street. We wanted to see them entirely. We wanted to create an application that would allow us to walk around this downtown city block and inspect each of the structures. We wanted to explore the backyards of the buildings and fly over them. With these objectives in mind, we began to plan our 3D Virtual Victoria to see if we could get students to build the city with us. In this respect, we are following the work of John Bonnett, the Brock University historian and communications theorist who has created a 3D model of Sparks Street in Ottawa.¹⁶ He built his digital model with Vectorworks, the robust computer-aided design (CAD) software program. But professional programs like Vectorworks can be rather daunting to students and require a relatively steep learning curve. After discussing our objectives with heritage architectural designers and educators, we decided to use *Google SketchUp*. We are very pleased with our decision because *SketchUp* is readily accessible, free, easily extensible, and already structured for *Google Earth*.

We searched the photographic collections of the provincial and city archives to locate photographs of the streetscapes and buildings we wanted to re-create. We used fire insurance plans to position the buildings precisely. Fire insurance plans or maps were produced by fire underwriting firms to assist in assessing fire risk. The plans were drawn to a scale of one inch to fifty feet and so are very detailed. They provide information about the size, shape, and structure of buildings. Fire insurance plans for Victoria, published by Charles E. Goad & Company in 1891, were particularly helpful in creating our 3D building models.¹⁷

The next task was to find a research assistant who had some expertise with *SketchUp*. Fortunately, a senior student at the University of Victoria, James Strickland, was available. He had a background in computing science and an interest in nineteenth-century architecture. He was ideal to help us embark on this project. Using historical photographs and fire insurance plans, James created a foundation and framework for several buildings. In one of his progress reports, he explained his methodology as follows:

I grab a portion of the [1891] fire [insurance] map, rotate it as necessary to account for the non-perfect scanning (and original drawing), then import it into *SketchUp* as a 2D base, scaled to the correct size. The determination of the “correct” size could probably be improved, but the street dimensions I’ve calculated from the fire maps match the street dimensions shown on the [present-day] Victoria CRD [Capital Regional District] maps and *Google Earth* to within 1% or 2%. I then trace the 2D outlines, converting them to 3D according to the best sources I can find. Sources include: a) current photographs, modified as necessary to account for changes over the years; b) archival photographs (including photos from the *Virtual Victoria, 1891: View from the Steeple* website); c) the 1889 bird’s-eye view of Victoria on the *viHistory* website; d) the number of floors indicated on the 1891 fire insurance plan—using approximate heights and roof shape according to the plan.¹⁸

He exported one of the models to *Google Earth* and the results were very encouraging (see figure 14.4). But the project proved to be very labor-intensive and more time-consuming than we anticipated. Still, thanks to his work, we had a better idea of the magnitude of the task.¹⁹

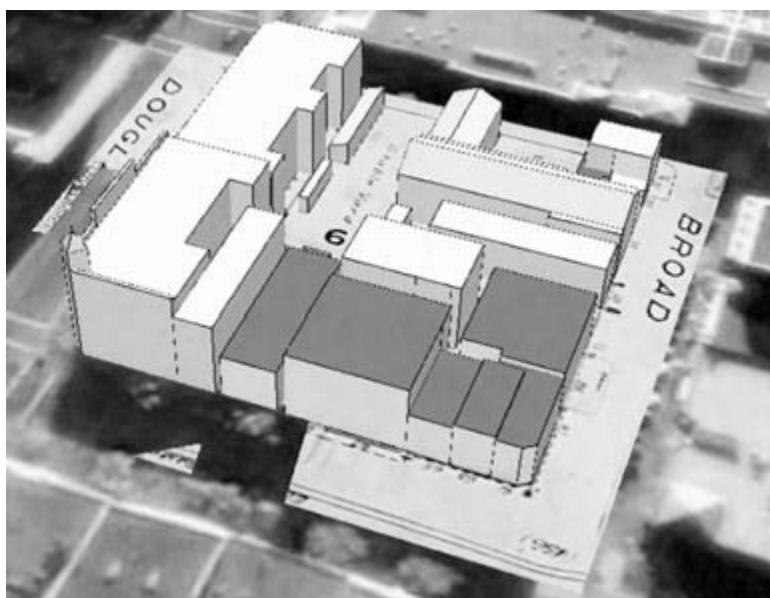


Fig 14.4: A *SketchUp* model and 1891 fire insurance plan geo-referenced to *Google Earth*. Image courtesy of the authors.

The project resumed in the autumn of 2008 at Vancouver Island University with a new research assistant who had the technical skills and creative vision that we wanted to bring to the project. Andre Serin specializes in computer-designed floor plans for building contractors and interior designers. Andre built on the foundations that James had created and used a similar methodology. He developed the designs in more detail and ultimately modeled an entire city block in downtown Victoria, ca. 1891. He created the streetscape using archival images and fire insurance plans, and with the measurements he made of the 1891-era buildings that are still standing. Having the actual specifications of certain buildings, he said, enabled him to estimate the specifications of buildings no longer extant. In this way, he was able to create a very accurate representation of this particular “lost landscape” of Victoria (see figure 14.5). With his *SketchUp* model, viewers can fly over and navigate between the buildings. They can maneuver around the block and see the distinctive corner entrances of structures that faced street intersections. They can see the diverse styles and relative scales of the buildings. Altogether, we are delighted with what we have achieved. Eventually, we intend to “landscape” the block by recreating some of the trees and bushes that occupied the space in 1891.



Fig 14.5: A panoramic photograph and *SketchUp* model of Victoria, British Columbia, 1891. Image courtesy of the authors.

With this experience the next step is to have students actually conjure up the buildings they have studied out of thin air and *Google SketchUp*,²⁰ borrowing from playful technologies and digital games, particularly from *SimCity*. This popular computer game was first released in 1989. In the game, players create and manage a city, which becomes increasingly complex as the game proceeds. In the first version of the game, now called *SimCity Classic*, the urban environment is shown as a flat, top-down map. In the next version, *SimCity 2000*(1994) developers used an isometric model for the city and added a rotation feature that enabled users to view their city from different perspectives. The visual landscape was enhanced in *SimCity 3000*(1999), which also used an isometric model for the city and 2D sprites to simulate 3D buildings. *SimCity4*, a more recent version of the game, uses 3D modeling and animation. In their own way, the nineteenth-century artists who drew the lithographic views used 2D sprites to suggest a 3D environment. We are using a *SimCity* approach with our bird's-eye view of late nineteenth-century Victoria. We have started to create 3D models of a few buildings and a few city blocks as prototypes, but eventually we hope to expand the digital landscape to as much of the city as possible with student-built structures. Basically, we identify historical buildings on panoramic photos and bird's-eye views and invite students to create *SketchUp* models of the buildings. We have commenced with modest residential bungalows built pattern-book designs in Victoria neighborhoods like James Bay. Having modeled one of the bungalows, we can readily re-create neighboring structures in this part of the city (see figure 14.6). Similarly, many

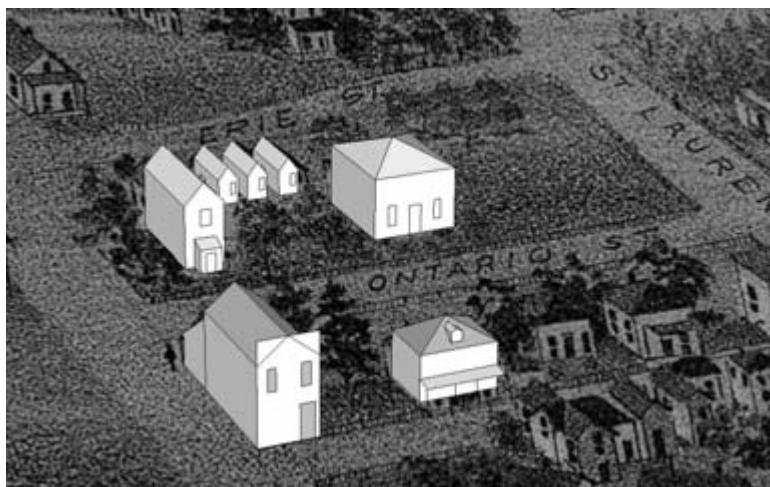


Fig 14.6: Detail of 1889 bird's-eye view of Victoria geo-referenced to *Google Earth* with *SketchUp* sprites by Nick Ward. Image courtesy of the authors.

warehouses and office blocks in late nineteenth-century Victoria were built to standard and relatively simple designs and can be modeled quite easily. And as our *SketchUp* skills increase, we will tackle more challenging structures, such as the city's architecturally ornate churches and cathedrals. Models of the structures can then be examined in desk-top viewers or uploaded to *Google Earth*. As more structures are modeled and placed online, our Virtual Victoria will expand, in the same manner as a SimCity expands and develops in the course of the game.²¹

Repopulating Historical Landscapes

As part of a next phase we want to link the *SketchUp* models to a geographical information system (GIS). Essentially, GIS is a method of representing and analyzing geographically referenced information. In its simplest form, GIS is a way to link attribute data (information about people and events) to spatial data and points on the earth. Our attribute data are derived from city directories and nominal census records. We have detailed census records for the entire population of Victoria in 1891 and with this information we can repopulate the historical landscape of the city.²² When we associate the census data to our 3D models of historical buildings, viewers will not only be able to zoom over and walk around the buildings. They will be able to virtually knock on the building doors and, through the census information, meet the occupants! Ultimately, we can see a time in which an avatar of the researcher will meet and interact with avatars of Victoria's 1891 population. In this respect, we are developing an application that William G. Thomas anticipated in his essay on digital humanities and the historical imagination. He encouraged historians in the field of digital humanities to use GIS and other technologies in order to achieve "highly interpretative and imaginative digital creations." By extending historical GIS, he suggested, historians "might attempt to recreate 'lost landscapes' in ways that fully allow readers to move and navigate through them." The goal of our Virtual Victoria project is to re-create the downtown core of Victoria in 1891 in 3D and to link each building to all the census, directory, tax assessment, cartographic, photographic, and anecdotal evidence that exists of it. Researchers will be able to query the spatial organization of the city and armchair time-travelers will be able to wander the streets and meet occupants.²³

The prototype of much of what we are developing might readily be adopted and developed in other communities because many cities in Canada were documented in bird's-eye views. To offer a few examples, exquisite lithographic views were created for Brantford, Ontario, in 1875, Halifax (1879



Fig 14.7: Detail of a panoramic photograph of Toronto, 1856, suitable for a 3D model. City of Toronto Archives, Fonds 1498, Item 14.

and 1890), Sherbrooke (1881), Winnipeg (1884), Montreal (1889), Ottawa (1895), St. Thomas, Ontario (1896), Vancouver (1898), and Dawson City (1903). The images are freely available on Library and Archives Canada’s *Living Memory* website and the U.S. Library of Congress’s *American Memory* website.²⁴

As far as photographic panoramas, Toronto is documented in a remarkable set of photographs created in 1856. The photographs, thirteen in all, provide a 360-degree view of the city. They were taken from the top of the newly opened Rossin House Hotel (later called the Prince George Hotel) on the corner of King Street and York Street (see figure 14.7). The panoramic photographs of Toronto could be treated in the same way as the Maynard images of Victoria. They could be annotated as image maps and presented in a *QuickTime* faux-video application. That would be a very useful, and fun, exercise.²⁵

Conclusion

A recent study on heritage and social media considered the proliferation of computer-generated visualizations of historical landscapes and raised questions about the “seductive misuse of digital technologies.” The authors were worried that “virtual” historical landscapes, which sometimes appeared to be “realer than real” on fixed video screens, could mute rather than stimulate, critical reflections about the past. “For a public increasingly accustomed to the passive consumption of historical content,” they wrote, “there is a dangerous illusory aspect of which digital archaeologists, humanists and

heritage professionals need to be aware.”²⁶ Digital historians will appreciate their concerns. But the digital applications described in this chapter involve creation, not consumption; they call for critical scrutiny, not a passive gaze. If the past is indeed “a foreign country,” as L. P. Hartley and David Lowenthal have famously suggested, we are going to travel there as building contractors and detectives, not tourists!²⁷ And as we observed in a recent forum on pedagogy, since the past is not boring, the discipline of history can only appear to be dull if we, history teachers and practitioners, present it in a boring way to our students. “History becomes dull when we take the mystery out of it and deprive students of the real work of the historian: finding clues and solving puzzles.”²⁸

By challenging students to solve the mystery of the missing buildings, to identify and do a life history on the buildings when found; and then, using fire insurance plans, old photographs, and lithographic views to reconstruct them, we are asking students to deploy a wide range of historical skills and learn a new one, the use of *Google SketchUp*.

With the mystery of the photographer’s perspective, the challenge to identify landscape features, and the quest to bring them back into being, we have presented three ways of playing with visual representations of the past that exploit the puzzle-solving element that is the essential element of game-based learning. But unlike games, these playful historical strategies have real-world outcomes of interest to both the student-creators and a much larger audience on the world wide web. They offer us a new perspective on the past—the view from outer space as we zoom into 1890s Victoria on *Google Earth*.

NOTES

1. Our reference is to the virtual reality facility featured in the popular television series, *Star Trek: The Next Generation* (1987–94). In the series, officers aboard the twenty-fourth-century starship *Enterprise* used the Holodeck as a portal to the past and a vehicle for exploring, among other places, Victorian London, the frontier American West, and 1940s Hollywood. Holodeck historical episodes are described in Denise Okuda and Debbie Mirek, *The Star Trek Encyclopedia* (New York: Pocket, 1994).

2. G. Kitson Clark, *Portrait of an Age: Victorian England* (London: Oxford University Press, 1977), 179.

3. Robert A. Scheider, “Improving Student Achievement by Infusing a Web-Based Curriculum in Global History,” *Journal of Research on Technology in Education* 36, no. 1 (2003): 77–93; David Hicks, Peter Doolittle, and John K. Lee, “Social Studies Teachers’ Use of Classroom-Based and Web-Based Historical Primary Sources,” *Theory and Research in Social Education* 32, no. 2 (2004): 213–47; Cynthia Hynd-Shanahan, Jodi Patrick Holschuh, and Betty P. Hubbard, “Thinking Like a Historian: College Students’ Reading of Multiple Historical Documents,” *Journal of Literary Research* 36,

no. 2 (2004): 141–71; Richard Van Eck, “Digital Game-Based Learning: It’s Not Just the Digital Natives Who Are Restless,” *Educause* (March–April 2006): 16–30.

4. John W. Saye and Thomas Brush, “Scaffolding Critical Reasoning about History and Social Issues in Multimedia-Supported Learning Environments,” *Educational Technology Research and Development* 50, no. 3 (2002): 77–96; and A. M. Shapiro and D. Niederhauser, “Learning from Hypertext: Research Issues and Findings,” in *Handbook of Research on Educational Communications and Technology*, ed. David H. Jonassen, 2nd ed. (Mahwah, N.J.: Lawrence Erlbaum Associates, 2004), 605–20.

5. The History Education Network is “a collaborative network across the diverse fields of history, history education and school history teaching in Canada. It brings together people from across Canada and internationally to inform, carry out, critique, and implement research into history education.” Like many scholarly organizations in Canada, it is a bilingual body, known in French as Histoire et Éducation en Réseau. Its acronym is THEN/HiER and its website, accessed October 15, 2012, is <http://www.thenhier.ca>.

6. Peter Seixas, “A Modest Proposal for Change in Canadian History Education,” *Teaching History* 137 (December 2009): 26–32; Ruth Sandwell, “Reflections on the Great Unsolved Mysteries in Canadian History Project: A Pedagogical Perspective,” *Canadian Diversity / Diversité canadienne* 7, no. 1 (2009): 88–92; Peter Seixas, “What is Historical Consciousness?” in *To the Past: History Education, Public Memory and Citizenship Education in Canada*, ed. Ruth Sandwell (Toronto: University of Toronto Press, 2006), 11–22; Ken Osborne, “Teaching History in Schools: A Canadian Debate,” *Journal of Curriculum Studies* 35, no. 5 (2003): 585–626. There is a large and growing literature on this, which is perhaps best summarized in Keith Barton and Linda Levstik’s *Teaching History for the Common Good* (Mahwah, N.J.: Lawrence Erlbaum Associates, 2004).

7. John Sutton Lutz, “Riding the Horseless Carriage to the Computer Revolution: Teaching History in the Twenty-first Century,” *Histoire Sociale / Social History* 34, no. 68 (November 2001): 427–36.

8. The imagery of urban lithographs is discussed in Richard H. Schein, “Representing Urban America: 19th-Century Views of Landscape, Space and Power,” *Environment and Planning D: Society and Space* 11 (1993): 7–21. Schein discusses a shift in the perspective provided in these popular images and how the shift represents a late Victorian “industrialist-capitalist order.” The images are also examined by Isabel Thompson Breskin in a Ph.D. dissertation on the history of art entitled “Visualizing the Nineteenth-Century American City: Lithographic Views of San Francisco, 1849–1905” (University of California, Berkeley, 2002).

9. In 1976 the Public Archives of Canada organized a major exhibit of lithographic views and published an informative exhibit catalogue. See Canada Public Archives, *Bird’s-Eye Views of Canadian Cities: An Exhibition of Panoramic Maps (1865–1905)*, July to November 1976 (Ottawa: Public Archives of Canada, 1976).

10. John W. Reys, *Views and Viewmakers of Urban America: Lithographs of Towns and Cities in the United States and Canada, Notes on the Artists and Publishers, and a Union Catalogue of Their Work, 1825–1925* (Columbia: University of Missouri Press, 1984), 78.

11. John W. Reys, *Panoramas of Promise: Pacific Northwest Cities and Towns on Nineteenth-Century Lithographs* (Pullman: Washington State University Press, 1984), 63. See also idem, *Cities on Stone: Nineteenth Century Lithographic Images of the Urban*

West (Fort Worth, Tex.: Among Carter Museum, 1978), and *Bird's-eye Views: Historic Lithographs of North American Cities* (Princeton, N.J.: Princeton University Press, 1998).

12. *Virtual Victoria, 1891: View from the steeple*, accessed October 15, 2012, <http://cdhi.mala.bc.ca/steeple/index.htm>.

13. Theodore Hershberg, ed., *Philadelphia: Work, Space, Family, and Group Experience in the Nineteenth Century. Essays Toward an Interdisciplinary History of the City* (New York: Oxford University Press, 1981); Sherry Olson, "Occupations and Residential Spaces in Nineteenth-Century Montréal," *Historical Methods* 22, no. 3 (1989): 81–96.

14. Vancouver Public Library, British Columbia City Directories 1865–1947, accessed October 15, 2012, <http://www.vpl.ca/bccd/index.php>.

15. Victoria city directories and an extensive array of other historical records are accessible at our *viHistory* website, accessed October 14, 2012, <http://www.vihistory.ca>. This website, launched in 2005, is a joint venture by the University of Victoria (UVic) and Vancouver Island University (VIU). A database of building permits, issued for the City of Victoria, 1877–1921, was added to the *viHistory* website recently. Historical material about Victoria, British Columbia, is also available at the *Victoria's Victoria* website, which features digital research projects, mainly by undergraduate history students at UVic. It was accessed on October 17, 2012, and is located at <http://web.uvic.ca/vv/>. *Victoria's Victoria* includes an index to the *Victoria Daily Colonist* newspaper. The online edition of this newspaper, 1858–1920, was accessed October 15, 2012, and is available at <http://www.britishcolonist.ca>.

16. See John Bonnett, "New Technologies, New Formalisms for Historians: The 3D Virtual Buildings," *Literary and Linguistic Computing* 19, no. 3 (2009): 273–87; idem, "Mediating the Past in 3D, and How Hieroglyphs Get in the Way: The 3D Virtual Buildings Project," in *Mind Technologies: Humanities Computing and the Canadian Academic Community*, ed. Raymond George Siemens and David Moorman (Calgary: University of Calgary Press, 2006).

17. On the function and value of these spatially related records, see Diane L. Oswald, *Fire Insurance Maps: Their History and Application* (College Station, Tex.: Lacewing, 1997). See also Jason A. Gilliland and Mathew Novak, "Positioning the Past with the Present: The Use of Fire Insurance Plans and GIS for Urban Environment History," *Environment History* 11, no. 1 (January 2006): 136–40.

18. The Victoria Capital Regional District (CRD) has posted geo-referenced maps for Victoria on its Regional Community Atlas, accessed October 16, 2012, at <http://crdatlas.ca>. The CRD Atlas features a wallpaper image of an 1878 bird's-eye view of Victoria.

19. This work was supported by two SSHRC Image, Text, Sound and Technology grants awarded to Kevin Kee (Brock University): "Simulating History: The Collaborative Development of Best Practices for History Simulations and Serious Games" (2006) and "The Poetics of History Simulations" (2007).

20. Students and faculty who have access to a site license for ESRI products might like to investigate their recently released (2012) CityEngine software, which allows the creation of highly detailed and generic 3D buildings.

21. We have benefited greatly from the expertise of Nick Ward, a digital design engineer and consultant based in Cumberland, British Columbia. He has provided guidance in transforming historical bird's-eye views into *SketchUp* models, which are

accessible on *Google Earth*. He is developing lesson plans suitable for secondary school courses in history, geography, and anthropology using *SketchUp* modeling software. His work is described on the *RebuildCanada* website, accessed October 15, 2012, <http://rebuildcanada.org/rebuild/tiki-index.php>.

22. Nominal census records, created during the 1891 census of Canada, are preserved on microfilm and available from Library and Archives Canada. Records for the city of Victoria were transcribed in 1998 as part of the Canadian Families Project. We are grateful to the project directors, Peter Baskerville and Eric Sager (History Department, University of Victoria), for sharing portions of their database with us. Census data for Victoria and other Vancouver Island communities, ca. 1871–1911, are available on *viHistory*.

23. William G. Thomas III, “Computing and the Historical Imagination,” in *A Companion to Digital Humanities*, ed. Susan Schreibman, Ray Siemens, and John Unsworth (Oxford: Blackwell, 2004), 56. Thomas, professor of history at the University of Kansas, was the director of the Virginia Center for Digital History and co-editor of the award-winning *Valley of the Shadow* website, accessed October 18, 2012, <http://valley.vcdh.virginia.edu>.

24. The Library and Archives Canada images are available at their website, accessed October 18, 2012, <http://www.collectionscanada.gc.ca/website/index-e.html>; the Library of Congress images are available at <http://memory.loc.gov/ammem/pmhtml/panhome.html>, accessed October 15, 2012.

25. The panoramic photographs of Toronto were discovered some years ago in the British Public Record Office in London. Apparently, they had been submitted to the Colonial Office by municipal officials in Toronto to bolster the city’s bid to be selected as the permanent capital of the United Province of Canada. The images, accessed October 15, 2012, are posted at http://commons.wikimedia.org/wiki/Panorama_of_Toronto_in_1856.

26. Neil Silberman and Margaret Purser, “Collective Memory as Affirmation,” in *Heritage and Social Media: Understanding Heritage in a Participatory Culture*, ed. Elisa Giaccadi (Abingdon: Routledge, 2012), 18.

27. The reference is to the frequently quoted opening lines in L. P. Hartley’s novel, *The Go-Between* (London: Hamish Hamilton, 1953): “The past is a foreign country: they do things differently there,” and to the influential study by British historical geographer David Lowenthal, *The Past is a Foreign Country* (New York: Cambridge University Press, 1985).

28. John Sutton Lutz, “Should History Be Fun? Putting Mystery Back Into History,” *Canadian Issues / Thèmes Canadiens* (Fall 2006): 75.