



Historical Geography and Geosciences

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Historical Geography, GIScience and Textual Analysis

Landscapes of Time and Place

 Springer

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Introduction

*History is not the past, but a map of the past drawn from a particular point of view to be useful to the modern traveler.*¹

Henry Glassie, *Passing Time in Ballymenone*

In 1992, Stanley W. Trimble, conjuring the specter of Carl Ortwin Sauer, spoke of the “Great Retreat” of historical geography from engagement with physical phenomena.² Indeed, research in the field during the late twentieth-century “cultural turn” focused its gaze through the lenses of structuralist/post-structuralist, post-colonial, gender, ethnic, critical, and literary theory, trimming many of the sails in the Anglo-American historical geography fleet. This is not to say that we should not keep the waters navigated during the “cultural turn” charted in our logbooks. There was no need to throw the physical phenomena baby out with the bathtub water at the end of the last century, and there is no need now to abandon perspectives and insights acquired during the cultural turn. We need to embrace all theories, methods, and tools accrued since the field’s pre-modern incarnation in order to transform historical geography’s teaching and research practices in the twenty-first century. It can be argued that in the West, the practice the ancient Greeks designated *γεωγραφία* (*earth-writing*, trans. *geographia*) emerged as bridge between Strabo’s (63 B–23AD) graphic and poetic impressions of place, and Herodotus’ (484 BC–425 BC) chronicling of events and regional cultures. In addition, Eratosthenes, (276 BC–194 BC) keeper of the Great Library at Alexandria, calculated the spherical nature of the earth, and contributed with the efforts of Euclid (300 BC–200 BC), Ptolemy (100–170 AD), and Al-Idris (AD 1100–1165) to infusing *geographia* with the language of mathematics, the theorems of geometry and the calculations of terrestrial, astronomical and oceanic navigation.

¹Henry Glassie, *Passing Time in Ballymenone: Culture and History of an Ulster Community*. Philadelphia: University of Pennsylvania Press, 1982., pg. 621.

²Stanley W. Trimble, 1992, Preface, in eds. Lary M. Dilsaver and Craig E. Colten, *The American environment: Interpretations of past geographies*. Rowman & Littlefield., pg. xvi.

Like the mutually reinforcing struts of architecture that allow a suspension bridge to seemingly float in the air above a body of water, practices in these classical fields coalesced over time to provide support and stability to *geographia* as a discipline. Though lost to the Dark Ages, this early ‘transdisciplinary’ knowledge system with roots in the Mediterranean basin, was rediscovered during the Florentine Renaissance. Practices of *geographia* infused the permeable borders of late medieval and early modern European literary, historical, scientific and cartographical discourse. Modern historical geography’s genealogy is protean, and as the study of place and period, it has traditionally focused on the *geographia* of the past, and how these “foreign countries” (as David Lowenthal would phrase it) are parsed and plotted into the geographical present. In the seventeenth century, Philipp Clüver published *Germaniae antiquae libri tres* (1616) based on the writings of the Roman historian Tacitus, and this text stands as one of the founding works of early modern historical geography. However, for the most part until the nineteenth century, practices in historical geography drew upon Biblical hermeneutics and antiquarian geographies of classical Greco-Roman literature and history.³

Prior to introducing this volume’s sixteen chapters, the following sections provide a *précis* of sorts, on interchanges between geography and history over the past 100 years.

Environmental Determinism and the *Fin De Siècle*

At the close of the nineteenth century, “End of Geography” debates dominated historical and geographical thought. With the earth seemingly mapped in its entirety, *environmental determinism* emerged as a theory promoting that human culture and agency were strongly dictated by the physical environment. It has been argued that its origins lie in a pseudo-scientific reading of Charles Darwin’s study of human evolution in *On the Origins of Species* (1859). Providing a rather crude and racist analysis of people and place, *environmental determinism* (also called *geographical determinism*) focused its myopic eye on cultural groups of color, inhabiting regions located between the Tropics of Cancer and Capricorn. It was also deployed in ethnographic studies on indigenous and diasporic peoples in the Americas, Asia, Oceania, and in colonized European regions such as Ireland, Scotland, and Scandinavia. German zoologist and biologist Friedrich Ratzel’s work *Anthropogeographie* (1882–1892) and *Der Lebensraum* (1904) drew upon the theory to define culture as an organism seeking a “living-space”. *Lebensraum* was partially based upon observations made during his travels in the Western United States, where Ratzel perceived an “annihilating struggle, the prize for which was the land, the space,” between Anglo-European settlers and indigenous high plain tribes.⁴ In addition, British geographer Halford Mackinder’s “World Island” and “Heartland”

³W. Gordon East. 1965. *The Geography Behind History*. New York: Norton & Company, Inc., pg. 2.

⁴Sven Lindqvist, 1996. *Exterminate all the Brutes*. New Press.

theories in *The Geographical Pivot of History* (1904) have been critiqued as having a taint of *fin de siècle* deterministic thought.⁵ However, it was Ellen Churchill Semple (a student of Ratzel's) and her book *Influences of Geographic Environment* (1911) that introduced the theory of environmental determinism to American academics. Ratzel's influence can be seen in historian Frederick J. Turner's *The Significance of the Frontier in American History* (1894), a lecture that still casts a long shadow over spatial historiography in the United States. Drawn to period geographical thought, Turner played with the idea that regional environments shaped the stages of human cultural progress, an idea challenged by the doyen of the Berkeley School of Cultural Geography geographer Carl Ortwin Sauer in *Historical Geography and the Western Frontier* (1969).

The Roles of Human and Historical Agency

Though Turner scrutinized physiographic maps, demographic and census data to formulate his grand thesis on American historical processes, he did very little actual fieldwork in the 'frontier' regions he was writing about. Indeed, many historians conflate the map as a result of various processes, but a map is merely a subjective snapshot in time. Drawing on British historical geographer H. C. Darby's analogy, a map can be seen as a 'still' taken from a frame in a spool of film. However, during the *fin de siècle*, more nuanced works in historical and cultural geography belied the influences of *environmental* and *geographical determinism*. August Meitzen published a statistically granulated regional study, *Settlement and agriculture of the west and east Germans, the Celts, Romans, Finns and Slavs* in 1895. Paul Vidal de la Blache's, *Atlas General Histoire et Geographie* (1912) and Lucien Febvre's *La Terre et l'évolution humaine, introduction géographique à l'histoire* (1922) repudiated deterministic readings with the theory of *possibilism*. In their works, human and environmental phenomena are posited as interactive forces, strongly influenced by a region's cultural dispositions and unique physiography. As doyens of the French *Annales* school of history, de la Blache and Febvre's studies of regional *pays* were temporally dynamic, and deployed cartography as an effective tool for analysis and scholarly communication.

In turn, Sauer, who began his college studies in geology, was particularly influenced by the Germanic *Landschaft* tradition and the *Annales* school. In a series of field-based studies in northern Mexico, Sauer illustrated the roles played by human agency and time in shaping environments. In *The Morphology of Landscape* (1923), Sauer described geography as "a critical system which embraces the phenomenology of landscape, in order to grasp in all of its meaning and color the varied terrestrial scene."⁶ He further stated

⁵Gerry Kearns, 2009. *Geopolitics and empire: The legacy of Halford Mackinder*. Oxford University Press on Demand.

⁶Carl O. Sauer, 1969. *The Morphology of Landscape. Land and life*. Univ. of California Press., pg. 321.

that “we cannot form an idea of landscape except in terms of its time relations as well as its space relations. It is in continuous process of development, or of dissolution and replacement.”⁷ Attempting to strike a balance on the interplay between human agency and environmental processes, Sauer invoked de la Blache’s warning of perceiving “the earth as ‘the scene on which the activity of man unfolds itself,’ without reflecting that this scene itself is living.”⁸

In *Forward to Historical Geography* (1941), Sauer moving on from positions discussed in the *Morphology of Landscape* described the “reconstruction of past culture areas” as “a slow task of detective work,” and argued that historical geographers needed to acquire the “ability to see the land with the eyes of [. . .] former occupants” and place themselves as a “member of the cultural group and time being studied.”⁹ To do this, historical geographers needed to combine knowledge of how a culture functioned, with a command of existing historical data and an intimate familiarity with physical terrain.¹⁰ In *Agricultural Origins and Dispersals* (1952), Sauer situated the map as a “visual hypothesis” in order to consider questions on human agency, cultural processes, and physical landscapes.

In contrast to Sauer’s panoramic perspective, H. C. Darby, doyen of historical geography in Britain, drilled down through the historical and cultural sediments of the English landscape and created a method we can coin as “longitudinal geohistoric-stratigraphy”. Darby’s major works, the *Draining of the Fens* (1940) and *The Domesday Geography of Midland England* illustrate his richly empirical, if not theoretically descriptive regional focus.¹¹ In addition, William George Hoskins argued in *The Making of an English Landscape* (1955) that “a landscape historian needs to use botany, physical geography and natural history as well as historical knowledge to interpret any given scene fully.”¹²

In 1949, the French historian Fernand Braudel published *La Méditerranée et le Monde Méditerranéen à l’Epoque de Philippe II* (1949) introducing a new lexicon and temporal dynamic to describe multiple cycles and overlapping scales of time: the *longue durée* (spanning centuries, and almost imperceptible), *histoire conjoncturelle* (the slow, but perceptible rhythm of social history), and *histoire événementielle* (the time of daily life, and the historical event).¹³

⁷Ibid., 333.

⁸Ibid., 321.

⁹Carl O. Sauer, 1941. Foreword to historical geography. *Annals of the Association of American Geographers*, 31(1), pp. 1–24, pgs. 10; 23.

¹⁰Ibid., pg. 4.

¹¹Darby, H. C. (1953). On the relations of geography and history. *Transactions and Papers* (Institute of British Geographers), (19), 1–11.

¹²W. G. Hoskins, 1955. *The making of the English landscape*.

¹³F. Braudel, 1949. *La Méditerranée et le monde Méditerranéen à l’époque de Philippe II*. Colins.

Computing, Cultural, and Spatial Turns

Published on the cusp of geography's Quantitative Revolution (1950s and 1960s), Braudel's ideas did not readily diffuse into historical geography. While many historical geographers huddled with humanistic geographers to form a response to the Quantitative Revolution's skeletal landscapes of spatial statistics, a few did engage in its methods by applying FORTRAN computer language to perform punch card analyses of historical data.¹⁴ These efforts foreshadowed early developments in the digital humanities, and it is important to distinguish the use of quantitative methods from attempts to reframe geography as a nomothetic, rather than idiographic discipline. One response to the revolution was Clarence Glacken's *Traces on the Rhodesian Shore* (1967) illustrating how changes in environmental perception from classical Greco-Roman culture, to the Age of Enlightenment shaped Western history and culture.¹⁵ In history, scholars like Emmanuel Le Roy Ladurie (a doctoral student of Braudel's) published a regional, quantitative study *The Peasants of Languedoc* (1966). Ladurie extolled the virtue of computing methods in *The Territory of the Historian* (1973). However, one of the most influential twentieth-century geographers to consider questions on computation, time, and environment was Torsten Hagerstrand. His works *The Computer and the Geographer* (1967) *Space, time and human conditions* (1975) and *Survival and Arena: on the life-history of individuals in relation to their geographical environment* (1978) cartographically operationalized Braudel's cycles of history. Illustrating a prescience that currently informs GIScience and the digital humanities, Hågerstrand introduced geocoding to human and critical geography by plotting people's daily *lifepaths*, in 3D space–time cube/prism diagrams.

In 1971, H. C. Prince argued that the focus of historical geographers should be at the center of three interpenetrating worlds: the *real*—as represented in documents, the landscape, and maps; the *abstract*—models of past spatial order; and the *perceived*, which he claimed were “past worlds, seen through the eyes of contemporaries, perceived according to their culturally acquired preferences and prejudices, shaped in the images of their assumed worlds.”¹⁶ In 1975, the *Journal of Historical Geography*, founded by H. C. Darby in Britain, provided an outlet for work on empire, commerce, landscape, theory, identity, race, class, and gender. In 1993, *Historical*

¹⁴R. Johnston, and J. D. Sidaway, 2015. *Geography and geographers: Anglo-American human geography since 1945*. Routledge.

¹⁵C. J. Glacken, 1967. *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century*. Berkeley: University of California Press.

¹⁶H. C. Prince, 1971. Real, imagined and abstract worlds of the past. *Progress in Geography* 3, 1–86.

Geography, published in the United States, followed suit. The cultural and spatial turns of the 1980s and 1990s, promoted debates on subjects such as decolonization and postmodernism, the crisis of representation and identity politics, and produced critiques of ‘traditional’ historical and cultural geography practices. Engagements with critical, Marxist, feminist and post-structural theory, rather than solely empirical studies of cultural regions, landscapes, and physiographic surveys were called for.

In particular, Allan Pred’s *Lost words and lost worlds: Modernity and the language of everyday life in late nineteenth century Stockholm* (1990) deployed time-geographic montage, historical and linguistic methods to map the daily life path of a Swedish docker named Sörmlands-Nisse. In conveying the “phantasmagoric” world of Stockholm through the prisms of language and literature, Pred argued that “the use of poetic forms is not an end in itself, but an attempt to exploit the physicality of the text, to exploit the landscape of the page.”¹⁷

Other major works that integrated historical and geographical methods, with arguably wider impacts than disciplinary journals, include Paul Carter’s *The road to botany bay: An essay in spatial history* (1987) detailing the colonization of Australia with a clear epistemological distinction between the “geographer’s space” and the practice of “spatial history.” Additionally, David Lowenthal’s *The Past is a Foreign Country* (1985), provided an exegesis on the late-Renaissance segregation of historical and fictional narratives, and its influence on questions of historical validity and the veracity of source materials. Lowenthal asserted that historians who claim a unique fidelity to the past and fiction writers who claim exemption from such fidelity, are both deluding themselves and their readers.¹⁸ In *The Landscape of History* (2002), John Lewis Gaddis asked, “What if we were to think of history as a kind of mapping,”¹⁹ by linking the ancient practice of mapmaking with the archetypal three-part conception of time (past, present, and future). Both try to identify patterns and manage infinitely complex subjects by imposing abstract grids—longitude and latitude to frame space and hours and days to mark time.²⁰

Historical Geography and Geographical History

While historical and cultural geography practices seemed to cleave away from engagements with the physical environment toward the end of the twentieth century, there remained a persistent strand of work integrating environmental, and ecological methods, fieldwork, and various theoretical lenses. Donald Meinig’s *The Shaping of America: A Geographical*

¹⁷A. Pred, 1990. *Lost words and lost worlds: Modernity and the language of everyday life in late nineteenth-century Stockholm*. Cambridge University Press.

¹⁸D. Lowenthal, 1990. *The Past is a Foreign Country*. 1985. Cambridge: Cambridge UP.

¹⁹J. L. Gaddis, *The Landscape of History: How Historians Map the Past* (Oxford: Oxford University Press, 2002), 32.

²⁰*Ibid.*

Perspective on 500 Years of History (1986, 1993, 1998, 2004) stands as a monumental work, harking back to the tradition of a Braudelian *grand project*. Meinig's panoramic, four-volume study mapped out the regional stages of settlement, national development, and post-colonial creation of vernacular landscapes in the United States from 1492 to 2000. In Ireland, E. Estyn Evan's *The Personality of Ireland: Habitat, Heritage and History* (1973) inspired by the work of H. J. Fleur and Sauer, integrated geography, history, anthropology, geology, and ecology thereby signalling a shift in modern Irish historical–geographical practices. Commensurate work can be found in John Andrews' *The Paper Landscape* (1975) a topographical exploration of the 1836 Ordnance Survey of Ireland. William Nolan's *Fassadinin: Land, Settlement and Society in Southeast Ireland c.1600–1850* (1979) and Annegret Simms' *Continuity and Change: Settlement and Society in Medieval Ireland c. 500–1500* (1986) blend tropes in history, geography, biography, and landscape studies, and Patrick Duffy *Exploring the history and heritage of Irish landscapes* (2007) provides a historical look at the island's cultural landscapes by mining local source data on physical and built environments.

E. Cotton Mather's *The American Great Plains* (1972) parsed this “inarticulated” region of the “West” physiographically and culturally, while down in the cotton and bible belt of the U.S.A., Sam Bowers Hilliard's *Hogmeat and Hoecake: Food Supply in the Old South, 1840–1860* (1972) blended demographic techniques and research on environmental conditions to study the production and diffusion of Antebellum food staples. Carville V. Earle's *The Evolution of a Tidewater Settlement System: All Hallow's Parish, Maryland, 1670–1783* (1975) revisited assumptions on how the colonial tobacco economy impacted the soils and affected the physical landscape of the Atlantic seaboard parish. In *Geographical inquiry and American historical problems* (1992), Earle teased out distinctions between historical geography and geographical history. The former “focuses upon those relationships which have shaped the evolution of place and landscape,”²¹ while the latter focuses upon “those relationships which have shaped human affairs in the past.”²²

Jared Diamond's Pulitzer-Prize winning *Guns, Germs and Steel: The Fates of Human Societies* (1997) an international best seller, drew on tropes in Anglo-American historical geography. However, his study was met with a furious backlash from social scientists, historical, human, and critical geographers who argued that *Guns, Germs, and Steel* reintroduced *environmental determinism* into the public imagination. Diamond responded by making forceful and accurate distinctions between late nineteenth-century racialized discourses, and his own consideration of the interplay between geographical factors, world regions and human agency.

Mike Davis also focused on historical, geographical and environmental factors in *Late Victorian Holocausts: El Niño Famines and the Making of the*

²¹Alan R. H. Baker (2007) *Classifying Geographical History, The Professional Geographer*, 59:3, 344–356, pg. 347.

²²Ibid.

Third World (2000), providing a convincing critical-Marxist reading of the El Niño-Southern Oscillation, and its relations to colonial practices and indigenous famine in the late nineteenth century.

Integrations: Historical Geography, GIScience, and Textual Analysis

Geocomputing labs at the University of Edinburgh, and Harvard University in the 1960s, '70s, and '80s facilitated the entrance of mainstream GIS platforms into academic, public, and private worlds in the 1990s. Initially, GIS was the provenance of the earth sciences, environmental studies, and urban planning, but in the 1990s and 2000s it was employed in historical geography research projects such as the *Great Britain Historical GIS* at Portsmouth University, and the *China Historical GIS* at Harvard University. Although many historians, geographers, and geoscientists regard geographical information science (GIS) as a mapping practice, its platforms have evolved into new types of visual database technology and interactive media. As a database technology, GIS spatially parses and itemizes attribute data (as a row of statistics, a string of text, an image, a movie) linking coordinates to representations of the locations to which the data refers.²³

In this light, historical geography and textual analysis methods can help address what Donald G. Janelle has described as “the underlying complexities in the human organization of space that present methodological problems for GIS in linking empirical research questions with alternative theoretical frameworks.”²⁴

Key texts that have grappled with such GIS problems include Anne Kelly Knowles' *Past Time, Past Place: GIS for history* (2002), Ian Gregory and Paul Ell's *Historical GIS: Techniques, methodologies and scholarship* (2003), Meghan Cope and Sara Elwood's *Qualitative GIS: A Mixed Methods Approach* (2009), and Alexander von Lunen and Charles Travis' *History and GIS: Epistemologies, Considerations, Reflections* (2012). In particular, a volume edited by David Bodenhamer, John Corrigan, and Trevor M. Harris *The Spatial Humanities: GIS and the future of humanities scholarship* provides methodological insights into addressing Janelle's concerns.

In the fields of literary, textual, rhetorical analysis, Franco Moretti's *Maps, Graphs and Trees* (2005) and *Distant Reading* (2013) provide Marxist and quantitative mapping and systemic analysis of the modern novel, and complement Barbara Piatti's *Literary Atlas of Europe*, and Ian Gregory and David Cooper's *Mapping the Lake Districts* online literary GIS projects. William Least Heat-Moon's *PrairyErth: A Deep Map* (1991) deployed a stratigraphic literary heuristic to explore scales of time and senses of place in

²³Ian N. Gregory, and R. G. Healey, “Historical GIS: structuring, mapping and analysing geographies of the past.” *Progress in Human Geography*, 31(5), 2007, pp. 638–653.

²⁴D. G. Janelle, “Time-space. In Geography” in: N. J. Smelser and P. B. Baltes, eds. *International Encyclopedia of the Social and Behavioral Sciences*. Amsterdam: Pergamon-Elsevier Science, 2001, pp. 15746–15749.

Chase County, Kansas. Lastly, Robert J Mayhew (2011) coined the term *geohistoriography*, as a means to conceive of history and geography as rhetorical disciplines, with the latter providing a spatial discursive framework to shape the narrative scales of the former.²⁵ Mayhew's neologism curiously echoes Philip J. Ethington's (2007) observation that: "The past cannot exist in time: only in space. Histories representing the past represent the places (*topoi*) of human action. Knowledge of the past, therefore, is literally cartographic: a mapping of the places of history indexed to the coordinates of spacetime."²⁶

In conclusion, triangulating methods in historical geography, GIScience, and textual analysis may help us conceive of new ontologies and epistemologies to understand the dynamics of human and environmental phenomena in the past, the present, and our possible and speculative futures.

Chapter Contents

The chapters comprising Part I *Landscape, Time, Text* illustrate the hermeneutic potentials afforded by blending methods in historical geography, GIScience, and textual analysis. Chapter 1 *Ghost Cathedral of the Blackland Prairie* by Charles Travis and Javier Reyes draws on data from the IMPUS Historical GIS database and other sources, contextualized by the "text maps" of the film, *Places in the Heart* (1984), novel *Einstein's Bridge* (1997), and the National Academy of Sciences and National Academy of Engineering site location report for a Federal government Superconducting Super Collider (SSC) tunnel ring project. The socio-cultural and historical contextualizations provided by these cinematic, imaginary, and engineering "text maps" guide a GIS extirpation of the local and deep history of Waxahachie, Texas by juxtaposing a cartographical *filmscape* of the 1930s Texas Blackland Prairie with a *sideshadow* model of the SSC project, abandoned by the Federal government in the 1990s.

Emily Lethbridge's Chap. 2, *Digital Mapping and the Narrative Stratigraphy of Iceland*, outlines the ongoing Icelandic Saga Map (ISM) project linking Iceland's rich medieval textual corpus with the country's eight geographical regions. The project facilitates a better understanding of the various functions the island's historical and geological landscape fulfills in situating the medieval sagas and other works, as well as encouraging reflection on the role that Icelandic landscapes have played in the transmission and reception of works such as the *Njáls Saga* over a millennial time period.

Chapter 3, *Dead Men Tell Tales: History and Science at Duffy's Cut* by William E. Watson, J. Francis Watson, and Earl H. Schandelmeier, discusses

²⁵R. J. Mayhew, 2011. "Historical geography, 2009–2010: Geohistoriography, the forgotten Braudel and the place of nominalism." *Progress in Human Geography*, 35(3), 2011, pp. 409–421.

²⁶P. J. Ethington, 2007. "Placing the past: Groundwork for a spatial theory of history." *Rethinking History*, 11(4), 2011, pp. 465–493.

the GIS mapping of an 1832 mass grave of Irish immigrant railroaders and their by homicide at Mile 59 of the Philadelphia and Columbia Railroad track in Chester County, Pennsylvania. Stories of the worker's death due to a Cholera outbreak were originally disseminated by a few contemporary newspapers, in addition, stories abounded in railroad and local folklore, which told of Irish ghosts dancing on graves close to the railroad fill which laborers were building at the time of their deaths.

Chapter 4 "*Please Mention the Green Book:*" *The Negro Motorist Green Book as Critical GIS*, by Ethan Bottone maps out the Jim Crow era travel guide created for and by African-Americans, which has received much recent popular and academic scrutiny. Consisting of almost 30 editions published between 1936 and 1966, the *Green Book* features thousands of addresses for businesses that catered to African-Americans during a period of institutionalized discrimination and segregation. By comparing the spatial data of the *Green Book* to historical census data, trends in urban neighborhood composition explain how and why African-American travel patterns shifted within New Orleans' neighborhood.

Part II, titled *Cultures, Networks and Mobilities* carries on from the previous section to explore GIScience mappings of historical spatial practices that led to discrimination, marginalization, migration and strategic mobility. Chapter 5 *Queer Cartographies: Urban Redevelopment and the Changing Sexual Geography of Postwar San Francisco* by Damon Scott reflects on the methodological and historiographic insights gained using GIS to reconstruct the impact of urban renewal on "hangouts for homosexuals" on the San Francisco waterfront during the 1950s and early 1960s. These stigmatized places—which entered the popular-spatial imaginary through contemporaneous local press coverage of bar raids—were initially documented as historical sites by LGBTQ community archivists who culled basic information about the physical location, approximate years of operation, and business type from oral history transcripts, newspaper clippings, early gay bar directories, and nightlife columns in the city's first gay periodicals dating to the early 1960s.

In Chap. 6, Don Lafreniere and Jason Gilliland's *Revisiting the Walking City: A Geospatial Examination of the Journey to Work* collates city directories and decennial censuses through the use of probabilistic record linkage techniques. Their method uncovers the relationship between work and home for over 5,000 workers in London, Ontario in 1881. A GIS network-derived journey to work model recreates journeys that consider the many natural and built environment barriers that influenced the paths and distances workers traveled on a daily basis.

In Chap. 7, *Corruption and Development of Atlanta Streetcar Lines in the Nineteenth Century: A Historical GIS Perspective*, S. Wright Kennedy employs historical geographic systems (HGIS) to trace the formative years of public transportation in Atlanta. This study finds evidence that Atlanta city leaders engaged in corrupt bargains to benefit themselves with little regard for the lasting effects on the city's transportation network and spatial development. Streetcar networks in postbellum Atlanta created demographic patterns that persist until today. By illustrating how HGIS can enable

historians to distil new value from sources underutilized in urban history, this chapter shows how such sources can be collated by a GIS into an extensive archive of historical urban processes.

This section's concluding Chap. 8, "*A Brother Orangeman the World Over*": *Migration and the Geography of the Orange Order in the United States*, is a case study by Cory Wells and Charles Travis focused on the Orange Order, a Protestant organization established in County Armagh in 1795 and its diasporic resettlement patterns from the Province of Ulster, in Ireland to North America. Settlement patterns were typically anchored by Orange Lodges, established as nodes on trans-national migration networks that reached from Northern Ireland to the United Kingdom, North America, Australia, New Zealand, and West Africa. The chapter's case study sources data from the *The International Bureau of 'Orange' Information*, a body established in 1903 to gather information on the Order's diasporic communities.

The volume's third section, Part III *Climate, Weather, Environment*, provides unique examples of topics generally explored from a geoscience perspective, but which tease out socio-cultural, political, historical, and economic dimensions of human-environmental phenomena. Chapter 9 by Jase Bernhardt titled *Mining Weather and Climate Data from the Diary of a Forty-Niner* provides an especially compelling case study of how such documentation can be employed to determine spatiotemporal patterns in historical meteorology. Gideon Nichols, a farmer in Long Island, New York, elected to venture across the United States in 1849 to partake in the California Gold Rush.

Chapter 10, *Unmappable Variables: GIS and the Complicated Historical Geography of Water in the Rio Grande Project*, by Daniel R. Beene and K. Maria D. Lane provides a GIScience/discourse study of on the U.S. Bureau of Reclamation's Rio Grande Project which radically changed irrigation practices and the legal structure of water deliveries along the entire reach of the watershed. Using a sequential exploratory research design, the chapter explores how water governance has precipitated ecological change and the loss of cultural knowledge, political change, the exacerbation of inequalities, and legal conflict leading to political battles between New Mexico and Texas, and in communities downstream of the Elephant Butte Dam.

Chris Hewitt's *Supplying the Conquest: A Geospatial Visualization and Interpretation of Available Environmental Resources at the Battle of Hastings in 1066* in Chap. 11 presents a never before considered GIScience interpretation of environmental resources available to English and Norman armies at the Battle of Hastings in 1044. The mapping and discussion of the battle's historical and geographical contexts explores the types of natural and man-made resources were available to the two combating armies. Findings contribute to existing literature on the battle in terms of the volume and location of abundant resources including food, water, iron, salt, and timber available in the Hastings area.

Robert Legg, Francis Ludlow, and Charles Travis' Chap. 12, *Mapping the Irish Rath (Ringfort): Landscape and Settlement Patterns in the Early Medieval Period*, discusses a GIScience and geostatistical study of

ringfort locations in the Irish Midlands sourced from the Irish Government's Department of the Environment, Heritage and Local Government archeological site spatial database. This study also draws on Irish medieval archeological and historical database records and fieldwork analysis to consider the relations between different environmental contexts and types of ringfort settlement patterns.

The volume's final section Part IV *Place, Philology, History* provides case studies and theoretical considerations on the mapping of historical landscapes from a variety of perspectives. Chapter 13, Ryan Horne's *Mapping Power: Using HGIS and Linked Open Data to Study Ancient Greek Garrison Communities*, discusses in the context of the *Pleiades* project how the institution of the *phourarchia* was a critical component of Greek civic and military identity. The chapter's mapping illustrates how this institution was central to the control of cities within the Athenian Empire in fifth century BCE and to maintaining isolated outposts on the border of the Parthian Empire in the second century CE.

Gordon Cromley and Chris Post's Chap. 14, *The Preservation of Paradox: Bismarck Towers as National Metaphor and Local Reality*, explores the network of memorials to Otto von Bismarck, first minister-president of the Kingdom of Prussia and later the first Chancellor of the German Empire. Representing tensions between place and wider geographic discourses, approximately 240 Bismarck Tower memorials were built between 1867 and 1935. While each tower is grounded within a specific local narrative, they were meant to provide a link to a larger discourse on national identity within the community.

Chapter 15, *Mapping the Historical Transformation of Beijing's Regional Naming System*, by Yong Yu focuses on the introduction of humanist and Marxist philosophies, and a shifting trend from empirical examination to theoretical discussions in historical geography using GIS visualization. Through spatial analysis, this chapter illustrates how the naming of regions in Beijing has been transformed from the humanistic and practical ways during the Ming Dynasty (1368–1644), to the social constructionist ways during the Qing Dynasty (1644–1912), and then to the scientific ways during the Republic of China (1912–1949).

Chapter 16, *Geographical Enrichment of Historical Landscapes: Spatial Integration, Geo-Narrative, Spatial Narrative, and Deep Mapping*, by May Yuan reviews cartographic and phenomenological views of landscape, and discusses four geospatial approaches to enrich historical landscapes geographically. Montello's categorization of *figurative*, *vista*, *environmental*, and *geographic* spaces helps to transition landscape concepts between phenomenological and cartographic perspectives. In addition, GIST methods of spatial integration, geo-narrative, spatial narrative, and deep mapping incorporate geographic features, feelings, events, and senses to enrich the representation, analysis, and communication of historical landscapes. Furthermore, recent developments in unmanned aviation vehicle (UAV) surveys, virtual reality, and augmented reality hold great potential for further geographic engagements with and enrichments of historical landscapes through the holistic synthesis of cartographic and phenomenological perspectives.

Conclusion

Chapters in this volume illustrate a variety of approaches blending methods in historical geography, GIScience, and textual analysis that explore a number of topics, subjects, and themes, and perhaps answer the spirit of a recent question posed by John Hudson in 2015:

What would historical geographers of old been able to accomplish had the Excel spreadsheet been available to them? (One can imagine the delight Andrew Clark would have had using a spreadsheet to calculate sheep-swine ratios in Nova Scotia). Historical data are available to all of us, free of charge, and in downloadable form that can be copied, cut, and pasted straight into a GIS mapping program, but there is little hint that this matters in historical geography.²⁷

Indeed, not only scholars in historical geography but GIScience and textual analysis need to move beyond their own methodological silos to address collective questions larger than their disciplinary foci can envision alone.

In conclusion, by triangulating the methods of these heretofore distinct modes of inquiry, new means to explore the broad realms of human-environmental phenomena emerge. Emphasizing that the *caesura* between empirical/descriptive and interpretive/aesthetic disciplines is but a fiction, the chapters featured in this edited volume suggest alternatives, remedies, and ways forward.

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²⁷John C. Hudson. 2015 Colten & Buckley reviewed by Hudson, *Historical Geography* B4–B5, Vol. 43.

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Part I

Landscape, Time, Text

Ghost Cathedral of the Blackland Prairie: Waxahachie, Texas, *Places in the Heart* and the Superconducting Super Collider

Charles Travis and Javier Reyes

Abstract

Methods blending approaches in historical geography, GIScience and text can aid in extirpating how various perceptions of landscape (cultural and physical), identity (individual and collective) and sense of place (historical and contemporary) coalesce around a specific locale, or place. Data drawn from the IMPUS Historical GIS database and other sources were contextualized in this chapter's exploration by the use of the following "text maps": the film, *Places in the Heart* (1984), the novel *Einstein's Bridge* (1997) and the National Academy of Sciences and National Academy of Engineering site location report for a Federal government superconducting super collider (SSC) tunnel ring project. Drawing on the socio-cultural and historical contextualization provided by these cinematic, imaginary and engineering "text maps", a GIS deep mapping of the local and deep history of Waxahachie, Texas, juxtaposes a cartographical *filmscape* of the 1930s Texas Blackland Prairie with a *sideshadow* model of the SSC project, abandoned by the Federal government in the 1990s.

Keywords

Waxahachie · *Filmscape* · Local history · *Places in the Heart* · Superconducting super collider · GIScience *sideshadow*

1.1 Introduction

In *The Making of an English Landscape* (1955), William George Hoskins argued that "a landscape historian needs to use botany, physical geography and natural history as well as historical knowledge to interpret any given scene fully."¹ Drawing on Hoskins's perspective, and other tropes in traditional and "new" cultural geography, this chapter re-considers how GIScience abstract framings of space and time can be applied in conjunction with the subjective and non-Euclidean place-mapping techniques employed by historical, cultural and literary scholars. The choice of Waxahachie, in Ellis County Texas as the location of this chapter's deep local history, borrows from William Least

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¹Hoskins, W. G., 1955. *The making of the English landscape*.

Heat Moon's survey of Chase County, Kansas in *PrairyErth: A Deep Map* (1991), described as:

[...] the work of an encyclopaedist without an alphabet. It is arranged geographically, quadrant by quadrant, around the county, "my arbitrary pattern ... that of a Japanese reading a book, up to down, right to left" The grid that Heat-Moon imagines for his book is part actual, part imaginary -it corresponds to the 12 U.S. Geological Survey maps that cover the center of the county, and it resembles the grid that 'an archaeologist lays over ground he will excavate.'²

This mélange of techniques applied in an exegetical use of GIS to illuminate how various perceptions of landscape (cultural and physical), identity (individual and collective) and sense of place (historical and contemporary) coalesce around a specific locale, or place. Perceptions of Waxahachie, Texas framed by the texts of Robert Benton, native-born writer and filmmaker, John G. Cramer, a physicist and hard science fiction writer, and the text of a proposal drafted for the Federal government by the National Academy of Sciences and National Academy of Engineering (NASNAE) to construct a superconducting super collider (SSC) will be explored in this chapter using GIS. *Places in the Heart* (1984) is a film written, directed and set in Waxahachie by Robert Benton and won the 1985 Academy Award for Best Original Screenplay. *Einstein's Bridge* (1997), a hard science fiction novel by the physicist John G. Cramer, is parsed in conjunction with the NASNAE's plans for the Federal SSC tunnel ring to be bored into the bedrock under Ellis County. Drawing on the historical and cultural contexts provided by these cinematic, imaginary and engineering texts, the chapter's discussion will juxtapose a GIS cartographical *filmscape* mapping of the 1930s Texas Blackland Prairie with a *sideshadow* GIS model case study of the SSC project, abandoned by the Federal government in the 1990s.

1.1.1 Waxahachie Local History and the Apocrypha of Place Naming

The seat of Ellis County Texas, Waxahachie is located where the tail ends of the Appalachian and Deep Southern cultural landscapes entwine and taper out on to the cotton and cornfield plains of the east and central Texas Blackland Prairie, named after the black and deep dark-gray alkaline clay of its soil. Before Anglo-European settlement this physical landscape was molded by lightning strike wildfires and migratory plains bison whose massive herds stamped down and fertilized the clay to stimulate growth of prairie tallgrasses. Unfolding an old Texaco road atlas, with oil smudges and coffee ring stains on its creased and faded pages, one can locate the town just about 30 miles southwest of Dallas. Waxahachie can be located just beneath where Interstate Highway 35 East crosses US Highway 287 on the road-map—just like the "X" of its third letter. However, trying to pin down the etymology of its name is a descent into apocrypha. Officially, the town's name is purported to signify "buffalo" and is taken from Waxahachie (or Buffalo) Creek which rises a mile north of neighboring Midlothian at 32°29' N, 96°59'. The creek parallels a rail-road track and meanders south skirting the western edge of Waxahachie's historic district before parting ways with the rails. Following twists and turns southward to Navarro County, the creek returns to mother earth at 32°13' N, 96°35' W, three miles south of the Bardwell Reservoir. In contrast, the rail tracks forge on into the landscapes of antebellum memory, carrying ghost trains of cotton bales from the haunted cargo terminals of Dallas and Waxahachie to the port of Houston on the Gulf of Mexico.

Various sources seek the origin of Waxahachie's place name from the Muscogee Creek word *wakvhvce*, the Alabama-Coushatta word *waakasi hachi* and the Wichita word *waks'ahē*:

²Klinkenborg, V. 1991. Cameos of Kansas: PRAIRY-ERTH (a deep map) By William Least Heat-Moon. *Los Angeles Times*. 20 October 1991. http://articles.latimes.com/1991-10-20/books/bk-20_1_chase-county.

ts'i. Rough translations of these tongues parse Waxahachie to mean “cow or calf’s tail.”³ An *Ethnolinguistic Map of Texas*, dated to 1776 (Fig. 1.1) by L. L. M. Skeels locates Waxahachie in Wichita tribal territory. However, Wichita linguists dispute that the town name refers to “buffalo” with other linguists noting that *hatchie* was an indigenous term for “creek” or “river” used in parts of Tennessee, the Carolinas, Mississippi and Alabama. In the early nineteenth century, the region was the nomadic home of the Tonkawa (*tichkan-watich*, “the most human of people.”) Anglo settlement and the US Government’s Native America policy forcibly relocated the tribe to the Washita River Reservation in Oklahoma. The first recorded white settler in the area was a Methodist preacher who squatted illegally along the Waxahachie Creek. The first “legal” settler was a farmer named William R. Howe, who arrived in 1843, followed by Emery Rogers, a settler from Alabama, who is recorded as the town’s first official citizen. After being granted a homestead in 1847, Rogers built a cabin, and planted a field, and by

[...] early June, when the cornstalks were just beginning to put on their first true leaves, the Rogers family found their prairie land alive with buffalo. Everywhere they turned, not 100 yards from their cabin’s front door, buffalo gathered. The large animals had migrated each year from the west for hundreds of years to feed, mate and rest along the waterways of Waxahachie Creek.⁴

Regardless of the town’s place name apocrypha, Ellis County and Waxahachie as its seat became Cartesian facts on 23 December 1849. On that date, two bills introduced by Edward Hampton Tarrant having passed the third session

of the Texas State Legislature were signed into law by Governor Peter Bell.⁵ Three years previously, on 29 December 1845, Texas had entered the Union as a slave state. Initially sparking the Mexican-American War (1846–1848), the long run consequence of slave-statehood raised racial and political strife, and secession fever in the region. Figure 1.2 illustrates the 1860 US Census’ topography of slave holding in the central and eastern parts of Texas prior to the US Civil War (1861–1865).

During a period of drought from July to September 1860, Waxahachie was seized by the hysteria of a panic that gripped north Texas. Fires causing hundreds of thousands of dollars in damages broke out in Dallas and a dozen other towns. While the origins of the fires remain a mystery, they were initially ascribed to defective phosphorus matches. Charles Pryor, editor of the *Dallas Herald* newspaper who lost his printing press to fire, fanned the flames of public hysteria by suggesting the fires were set by slaves and white abolitionist allies. On 31 July the *Houston Telegraph* newspaper reported:

A letter from a merchant in Waxahachie ... relates that a plot was discovered to carry out murders and destroy the town on Sunday July 22 similar to the Dallas affair. Two white men were hanged on Sat., July 21, and some twenty-odd negroes were to be hung also next week.⁶

Historian Donald E. Reynolds argues that the fires were accidental, but the conflagrations allowed secessionists to whip up anti-Union sentiment in the period, leading up to the Civil War. Lynching, violence and terror lasted into the autumn of 1860, and contributed to the political

³Geographic Identifiers: 2010 Census Summary File 1 (G001): Waxahachie city, *Texas American Factfinder*. U. S. Census Bureau; Felty, M. L. Waxahachie, *Handbook of Texas*. Texas State Historical Association. Retrieved 5 June 2014.

⁴Stott, K. M., 2002. *Waxahachie: Where Cotton Reigned King*. Arcadia Publishing.

⁵Hamilton, J., 2019. Our Waxahachie Heritage – How did Waxahachie get its name? *Waxahachie Sun*, 5 March 2019. https://www.waxahachiesun.com/news/local/our-waxahachie-heritage-how-did-waxahachie-get-itsname/article_a8a5fce0-3f9f-11e9-8bef-0b3d47578f1a.html.

⁶*State Gazette*, August ii, 1860, quoting the *Houston Telegraph*, July 31; Reynolds, D. E. 2007, *Texas Terror: The Slave Insurrection Panic of 1860 and the Secession of the Lower South*. Baton Rouge: Louisiana State University Press.

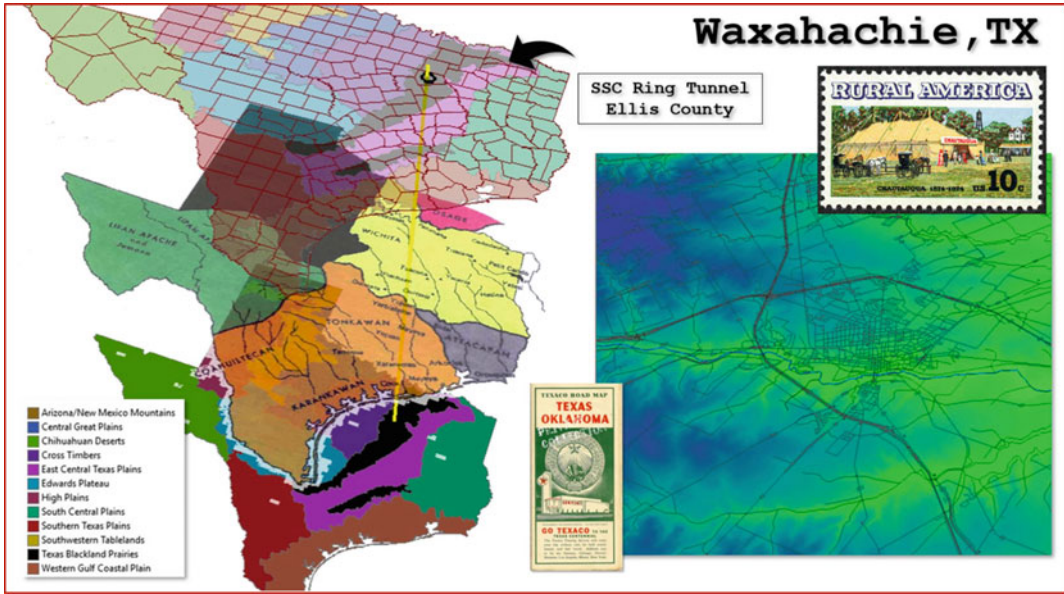


Fig. 1.1 Local History Deep Map: yellow line indicates location of Waxahachie (**Image Left**) Lower map, *Texas Natural Regions*, Middle map, *Indigenous Languages 1776*, Upper map, *Texas County Map with proposed location of SSC Ring Tunnel Project*. (**Image Right**) US Postage Stamp celebrating Rural America Chautauqua Movement. *Digital Elevation Topography of Waxahachie Creek Area* overlaid with *TXDOT Highways 35 and 287 and Waxahachie town street grid* (Sources *Natural Regions*, EPSG 4269 *Texas Natural Resources Information System*, Public Domain (Creative Commons CC0);

Skeels, L.L.M. 1972. *An Ethnohistorical Survey of Texas Indians*, Texas Historical Survey Committee, Office of State Archeologist, Report No. 22, Austin, Texas; DEM Raster, grdn33w097_1, United States Geological Service; 35-276 HWY and Waxahachie Street Grid, GIS Appraisal Information, Ellis Appraisal District, TxDOT Roadways. TNRIS. SSC Ring Tunnel, Javier Reyes, 2018. US stamp honoring the 100th anniversary of the Chautauqua movement (Public Domain)) (GIS images created by Charles Travis)

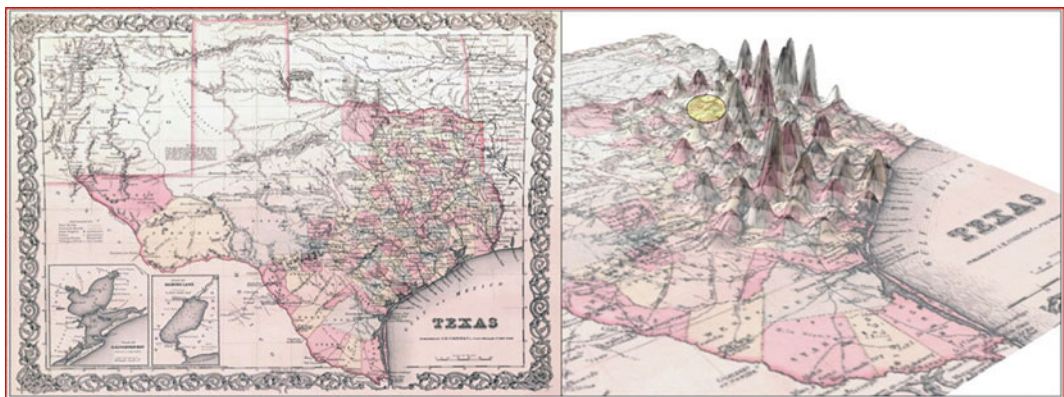


Fig. 1.2 Map Left J. H. Colton, *Texas*, 1854. **Image Right:** *The Topography of Slavery in Texas, 1860* (Sources J. H. Colton, *Texas*, color lithograph, 33 × 41 cm., 185[4], in *Colton's Atlas of the World* (New York and London: J. H. Colton and Company, 1855), plate 35. Source: *The University of Texas at Arlington Libraries Special Collections*; 3D kernel

density graphing of slave holding per Texas county, 1860 on 'rubber sheeted' Colton 1854 *Texas*, map. Height extrusions illustrate locations with greatest densities of slaves according to the 1860s U.S. Census). Yellow sphere indicates approximate location of Ellis County (GIS image created by Charles Travis)

atmosphere that led to the February 1861 referendum vote on Texas' secession from the Union.⁷ After the Civil War, reconstruction and the growth of rail-road networks brought a measure of prosperity to Waxahachie. During this time the southern and the border states of the broken Confederacy supplied a stream of migrants who by 1873 revived Ellis County's Blackland Prairie cotton culture.⁸ The Texas State Legislature passed a bill in 1875 granting rail-road investors the right to build a track to Waxahachie, leading to a spike in the town's population. Within a year, over 5000 bales of cotton and 140 carloads of lumber were shipped along this new rail-road line, spurring the growth of the town economy and the construction of its ornate Victorian homes, numerous businesses and small factories.⁹ By 1902, Waxahachie boasted a fully operating cotton textile mill, the home of Trinity University and a population of over 4000 citizens. In 1912, an electric inter-urban line running through town connected Dallas with Waco. Soon, the Oak Lawn Academy, a center of higher education for African-Americans, and the Chautauqua Summer Assembly, organized by the Texas Synod of the Cumberland Presbyterian Church, brought national speakers such as William Jennings Bryan and Will Rogers to Waxahachie. In the 1930s, despite the Wall Street Crash of 1929, the town's population was nearly 8000 and the home to a high school, four elementary schools, three banks, three cottonseed oil mills, five cotton gins, two daily and two weekly newspapers, and over 280 businesses and factories, including garment, broom, ice and

ice cream manufacturers.¹⁰ Industrialization during the Second World War, and the national economic boom that followed, created jobs in poultry processing, clothing, furniture and fiberglass manufacturing. During the 1970s, Waxahachie's population increased to more than 13,000 and by 2000 was nearly 20,000 (Fig. 1.3).

Waxahachie carries the appellation "Gingerbread City" and is listed on the National Register of Historic Places due to the period Victorian architecture (c.a. 1860–1900) that graces 300 of the town's most ornate homes and buildings.¹¹ In 1988, the area around Waxahachie was chosen as the site for the superconducting super collider (SSC) which was to be the world's largest sub-atomic particle accelerator, with a planned ring circumference of 54.1 miles (87.1 km). More than a dozen tunnels were bored into the Austin Chalk sediment underlying Ellis County before the project was canceled by Congress in the 1990s.¹²

1.2 GIS, Maps and Cinematography

*Like art, historical geography is a social practice which ends in representation.*¹³

1.2.1 Historical Geography and the Cartographic Illusion

Giuliana Bruno describes film making as a form of "modern cartography," which transforms images into different types of visual and spatial architecture.¹⁴ In addition, Tom Conley argues that movies should be considered as maps, because they act as visual structures to shape the

⁷Ibid.; Phillips, M., 2009. Texas Terror: The Slave Insurrection Panic of 1860 and the Secession of the Lower South. *The Journal of Southern History*, 75(2), p. 448.

⁸Stott, Ibid.

⁹Felty, Ibid.; Crocket, G. L. 1932. *Two Centuries in East Texas*. Dallas: Southwest, facsimile reprod., 1962; Hawkins, E. D., et al., 1972. *History of Ellis County, Texas*. Waco: Texian; *Memorial and Biographical History of Ellis County*, 1892. Chicago: Lewis, rpt., as *Ellis County History*, Fort Worth, 1972. Historical Publishers; Richardson, T. C., 1940, *East Texas. Its History and Its Makers*. 4 vols., New York: Lewis Historical Publishing. Vertical Files, Dolph Briscoe Center for American History, University of Texas at Austin.

¹⁰Ibid.

¹¹Ibid.

¹²Staff, Wire services Q & A: Texas supercollider project scrapped. *St. Petersburg Times*. 29 December 2009.

¹³J. B. Harley, 1989. Historical geography and the cartographic illusion. *Journal of Historical Geography*, 15(1), pp. 80–91, p. 80.

¹⁴Bruno, G. 2002. *The atlas of emotion: Journeys in art, architecture, and film*. New York: Verso, pp. 8–9.



Fig. 1.3 The 1900 Chaska House, one of dozens of “Gingerbread City” Victorian homes in Waxahachie, the seat of Ellis County, Texas (Wikimedia Commons)

imaginations of spectators. Accordingly, films can be used as tools for deciphering the worlds they depict. Films can be parsed through each frame and image. As they gradually unfold and change the scenery, they assemble subjective worlds for the eyes of the audience.¹⁵ Les Roberts observes that “the idea that a film could function as a map, indeed could even be a map, is itself not new, as illustrated by Walter Benjamin’s musings on the possibility of a cinematographic map of Paris.”¹⁶ Roberts notes that *cinematic cartography* focuses on “locational properties of the moving image, and the concomitant processes of spatial and temporal navigation—historiographical, ontological, geographical, archaeological, architectural—that these make possible.”¹⁷ From a technical perspective, the ability to apply *Python* and *Java* coding languages, and integrate artificial intelligence/deep learning, and R methods in GIS is creating a new, reflexive type of interactive visual media that can communicate “spatial/platial” data in a variety of formats. In this light, cinematography defined as “the process

of taking ideas, words, actions, emotional subtext, tone and all other forms of non-verbal communication and *rendering them in visual terms*,”¹⁸ and emerging GIS methods are becoming very similar.

1.2.2 Texas Cinematic Geographies

J. T. Caldwell observes that historical recollection, contextualization and rehabilitation are made possible through the medium of film.¹⁹ Cinema captures the milieu of particular eras, while also preserving the historical events and cultural attitudes of past generations. Film can also serve as an archive, which can preserve in this age of global warming, a visual record of physical landscapes from the recent past, prior to drastic changes created by natural and anthropogenic causes (Fig 1.4). In the case of Texas, James Dean’s sullen rancher-cum-oilman in *Giant* (1956) is framed by the iron orchards of oil wells dotting the bleak Chihuahuan Deserts in

¹⁵Baetens, J. 2008. Cartographic Cinema by Tom Conley Review. *Leonardo*, 41: 3, pp. 295–296, The MIT Press, p. 295.

¹⁶Roberts, L., 2012. Cinematic cartography: Projecting place through film. In *Mapping Cultures* (pp. 68–84). Palgrave Macmillan, London.

¹⁷Ibid.

¹⁸Brown, B. 2002. *Cinematography*. Oxford: Focal Press, ix.

¹⁹Caldwell, J. T. 2008. *Production culture: Industrial reflexivity and critical practice in film and television*. Chapel Hill, NC: Duke University Press.

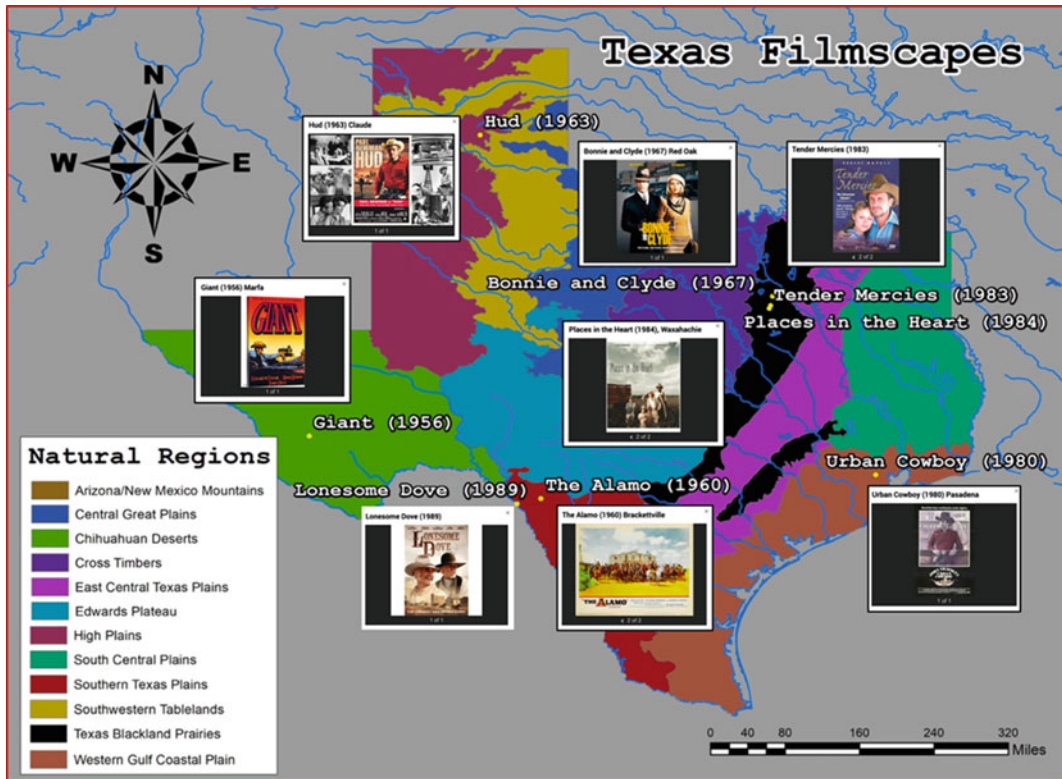


Fig. 1.4 Texas physical geography *filmscapes* and human geography representations (**clockwise from top**) *Hud* (1963) Southwestern Tablelands; *Bonnie and Clyde* (1967) and *Places in the Heart* (1984) Blackland Prairies;

Urban Cowboy (1980) Western Gulf Coastal Plain; *The Alamo* (1960) and *Lonesome Dove* (1989) Southern Texas Plains; *Giant* (1956) Chihuahuan Deserts; *Tender Mercies* (1983) Blackland Prairie (GIS Map by Charles Travis)

the west of the state. *The Alamo* (1960) and the opening of *Lonesome Dove* (1989), both set in the nineteenth century, depict dry and dusty Southern Texas Plains, as they may have existed before Anglo and European settlement. *Urban Cowboy* (1980) set in the marshy Western Gulf Coastal Plain on which Houston sits, juxtaposes film-shots of oil refinery towers and fires with rodeo arenas, mechanical bulls and the working-class culture of Gilley's now defunct country and western music club. A trio of films, *Bonnie and Clyde* (1969), *Tender Mercies* (1983) and *Places in the Heart* (1984) depict the poor, small, agrarian communities of north Texas dotting the eastern plains of the Blackland Prairie region. The actor Robert Duvall, playing an alcoholic ex-country musician in *Tender Mercies*, stated that he was interested in depicting the lives of ordinary Texans "without parodying

them, ... [as] many Hollywood films tend to do."²⁰ The human and physical geographies of east Texas are framed in the film by Duvall's "aging face, a road map of dead ends and dry gulches."²¹ The film's director Bruce Beresford drew parallels between the landscapes of Texas and those of his native Australia. Though *Tender Mercies* was shot around the Waxahachie area, the film's setting is nameless; however, for Beresford, Ellis County's terrain reminded him of the antipodean bush country, and the rural culture of Australian Outback communities.²²

²⁰Duvall, R. 2002. *Miracles & Mercies*.

²¹Corliss, Richard. 1983. Heart of Texas. *Time*, p. 63.

²²Slawson, Judith. 1985. *Robert Duvall: Hollywood Maverick*. New York City: St. Martin's Press.