ENVIRONING MEDIA

Edited by
Adam Wickberg and Johan Gärdebo

First published 2023

2

ENVIRONING EMPIRES AND COLONIAL MEDIA

John Durham Peters and Adam Wickberg

2

ENVIRONING EMPIRES AND COLONIAL MEDIA

John Durham Peters and Adam Wickberg

For much of its history, the field of media studies has been biased toward questions of (1) ideological or attitudinal influence caused by (2) modern or emergent technologies. This chapter goes in another direction by thinking about media as (1) environing and (2) residual. Media are not only bright and shiny electronic gadgets produced by Silicon Valley or the vast information and entertainment empires of broadcasting, press, and film; they are also, more fundamentally, the means of organizing our cultural and natural worlds. They not only work upon hearts and minds but shape societal habits and ecological habitats. Media are agencies of civilizational and environmental order. The rise of digital media in recent decades has reinforced the fundamental logistical role of media as agencies that arrange, catalog, organize, network, and index people, places, and things. Digital media manage people and resources, time, space, and power, but this is also true of a long and diverse history of pre-electronic media. The tools of media theory that we have developed for audiovisual and digital media can be productively applied to the great pyramids of Giza and biblical scrolls, the Persian postal office and Roman roads, Venetian counting houses and medieval cathedrals. All of them process data, connect across space and time, and alter, to one degree or another, their cultural and natural environments.

Our understanding of media as fundamental constituents of organization joins the recent interest in infrastructures, defined as "large, force-amplifying systems that connect people and institutions across large scales of space and time" or "big, durable, well-functioning systems and services." Thus, nature can be viewed as the ultimate infrastructure.[1] Calendars, clocks, towers, names, addresses, maps, registers, arms, and money are all infrastructural media. Such media become second nature, morphing biorhythms and altering ecosystems. Today's planetary digital infrastructure builds upon the long legacy of resource management via databases. The deep sea, the global yield of corn, and planetary public health

depend for their very existence upon the circulation of data. In rural China today, AI affects pig farming as blockchain shapes chicken farming.[2] We argue for a longer genealogy of the nature-shaping logistical role of media that is so evident today. The technosphere had a long prehistory.

In this chapter, we refine and exemplify these claims via a case study of some environing media in Mexico. The country has a deep and rich media history. The past century has many examples. One is the fascinating history of Mexican broadcasting as told by our colleague Joy Hayes in her book *Radio Nation*.[3] Rubén Gallo's splendid book, *Mexican Modernity*, also illuminates the central role played by even more elemental media in both avant-garde artistic and architectural developments in the period immediately following the Mexican revolution.[4] By way of cameras, typewriters, radio, cement, and stadiums in the 1920s, Gallo shows how the energies released by the revolution took up these new media as things to think with and to design a new society with. They not only were topics for art or literature but were material shapers of art-making itself. This chapter follows Gallo's underlying assumption that media are not only channels for transmitting ideologies; they are modes that shape what it means to exist in a given time and place. Media have ontological force: they define what is and who we are. Mexican history has seen diverse media of control, surveillance, and spectacle.

In this chapter, our focus will be mostly on the 16th century, especially on the momentous clash of Spanish paper power and indigenous culture following *la conquista*. First, we turn to relevant work from two scholars who hail from two nations with rich media histories: Canada and Germany.

Innis and Siegert

In speaking of media as central constituents of civilization we draw on the work of the great Canadian historian and media theorist, Harold Adams Innis (1894–1952), who remains one of the most suggestive sources for understanding media in a deep historical and environing way. Like his younger and more famous Canadian colleague Marshall McLuhan, Innis held an expansive definition of media. Trained as an economic historian, he came to media through the study of staples – basic economic goods such as timber, fur, and fish that were so important for the historical development of Canada. The Canadian fur trade, the topic of an important book by Innis, was not just an obscure bit of economic history. Rather, the fur trade was the embryo for much of Canada's later history, and foreshadowed lasting dilemmas: the clash of native peoples and European settlers, ecological relations between fauna such as the beaver and world markets, the rise of a center-periphery system (a few families in Montreal more or less controlling much of Canada's territory via trading networks), and international relations with Europe and the United States (where the furs were typically sold as hats before falling out of fashion). Canadian history for Innis was a story of control of space across mountain, prairie, lakes, rivers, and oceans. But the control of time was also always important for him, both in integrating the country (standardized

time and time zones were invented in part by a Canadian, Sir Sandford Fleming) and in remembering the richness of the past (what Innis called the oral tradition).

From the analysis of staples, it was a short step to studies of media. In Innis's last, cancer-shortened years, he worked on a treatise that reinterpreted the history of civilization in terms of various media of communication.[5] He was particularly interested in the long span of history, in particular, in stone, clay, papyrus, paper, and electricity (to a lesser extent) as key media in civilizations such as ancient Egypt, India, China, Greece, Rome, medieval and modern Europe, and modern north America. (With his long-range perspective, Innis never would have dreamed of calling newspapers, cinema, radio, or television "old media" as they sometimes are in comparison to digital media!) He read widely in English and French and his massive, dense, and difficult texts are crammed with facts, events, and interpretations. Though this is not the place to explicate his work, one focus of his media theory was the relative weight that civilizations gave to space and time and the "bias" that media imposed on those two dimensions. Monuments and statuary, as heavy, durable media, are time-biased, and transmit along the time axis. Thus, ancient Egypt, with its pyramids and death cult, was a time-biased society. Documents and newspapers, as light, ephemeral media, are space-biased, and transmit along the space axis. The Roman Empire, with its roads, postal service, and military spread, or the United States, with its love of territorial expansion along various frontiers and disregard for the past, were space-biased societies.[6] So was Canada, to a lesser degree, whose geography was shaped by lightweight and easily transportable beaver pelts. He'd no doubt see the internet as grotesquely space-biased.

In Innis's view, media were fundamentally about power. For him the question was not so much how new media change our sensory perception or proprioception (as it was for McLuhan) but how they give advantages to new classes of experts. Each new medium grants some new occupational group a "monopoly of knowledge," special insider control and leverage that gives them advantage over others. Bill Gates held a kind of monopoly of knowledge on operating systems as Jeff Bezos has for online retail. Such figures who get hold of technical innovations at their most strategic chokepoint are found throughout history. For Innis the large political and ethical task of media theory was to fight monopolies and counter the massive space bias of modern civilization, especially the United States. Canada, a nation formed by various media of space and time, was precariously perched between past and future, between the empires of England, France, and the United States and its indigenous past.

Strangely enough, Innis never paid much attention to Mexico or to Latin America, and he hasn't received much attention there either. This is unfortunate, since he was a scholar of empire and communication, and an outspoken political critic of the way his nation was dependent on the ambitions of empires. He would have appreciated the saying:

> Pobre México
> Tan lejos de dios

Tan cerca de estados unidos. [Poor Mexico, So far from God, So close to the U.S.]

He felt the same way about Canada. Innis is productively read as a dependency theorist from a northern cold rich country instead of a southern warm poor one.[7] To Innis's way of thinking, Canada and Mexico would be siblings in several ways: their shared borders with the same colossus, their long *mestizaje* of native and European stock, their heritage of being the plaything of battling empires, their internal center–periphery relations that give so much power to one or two urban centers, and the importance of media in their histories. Innis was deeply concerned with the political, ethical, and cognitive imbalances that great power brings, and thought that US-style modernity had a dangerous "space bias." He always insisted on "the creativity of the periphery" or what liberation theologians call the "epistemological privilege of the oppressed," and believed that his marginal, Canadian point of view gave him special insight. Innis's research on the circulation of staples could apply richly to Mexico's economic and cultural history with its gold, silver, feathers, maize, and slaves all the way through the recent tragic and lucrative staple of narcotics, presided over by the cult of *la santa muerte*. An analysis of any one of these staples could reveal much about Mexico's complex and contradictory history.

Unlike Innis, recent German-language work in media history has much to say about Latin America and Mexico. Bernhard Siegert in particular has taken an intense interest in the Spanish empire and the media it used to invent and colonize Latin America.[8] Two of his books, not yet translated from the German, provide an analysis of Spain and New Spain. The first, *Passage des Digitalen* (The Digital Passage, 2003), is a deep history of the digital revolution.[9] The digital computer, in Siegert's argument, trails a long history of data processing that goes back at least to medieval Europe. An "inquisition" was originally a census or inventory of a kingdom, an effort to count people and property. In England, for example, the famous *Domesday Boke* (book of reckoning) in 1086 listed men of standing and their property. The Norman conquerors wanted to know who they could tax! Such practices were widespread in feudal Europe.

Siegert focuses on 16th-century Spain which took such data-gathering enterprises to new extremes. He shows that the spectacular, torture-filled side of "inquisition" in the Spanish empire was just part of its insatiable desire for information about its ever-increasing dominion. This information took three main forms: pictures (especially maps), numbers (especially lists, registers, and accounts), and words (narrative descriptions). Various institutions and actors, especially the Council of the Indies and the Casa de la Contratación [The House of Trade], were charged with the job of representing the Spanish empire. New professions defined by writing proliferated: scribes, accountants, cosmographers, notaries, and chroniclers. Philip II, the most important king of Spain in the 16th century, liked to say something that media theorists such as Siegert are fond of quoting: *Quod non est in actis, non est in mundo.* That is: if it is not on file, it doesn't

exist. He was also known as "el rey papelero" – the paper king – thanks to his love of governing through documents.[10]

Siegert's key point of transformation was the 1570s, though there was a longer prelude. The Casa de la Contratación in Seville was first founded in 1503 as a storehouse for managing trade with the new world but soon it became a clearinghouse for managing data about ships, cargo, people, and places. The record and the reality were supposed to match one to one. Under the initial leadership of Amerigo Vespucci, who was appointed to lead the Casa in 1508 and gave his name to the Americas, the Casa housed the "padrón real" (royal register), a constantly updated register of Spanish possessions. Siegert calls the *padrón real* a "metamedium" – the standard against which all other inquiries into the new world were measured. All returning ships' captains were required by oath to supply updates from their logs, something they seem to have done without enthusiasm. The position of royal cosmographer, nautical map- and instrument-maker, was created in 1523 and was occupied by a number of important scholar-bureaucrats in the next few decades. The most important cosmographer for Siegert was Juan de Ovando, who assessed the inefficiency of the Council of the Indies in the 1560s and then introduced sweeping administrative reforms in 1571. Ovando's aim was a total natural history of the Indies, involving, yet again, three kinds of data: graphical, tabular, and textual. Section 3 of his *Ordenanzas* called for nothing less than a complete and certified description and investigation of all things in the state of the Indies.[11] According to Ovando, if the crown's data were incorrect or out of date, the empire itself would be threatened with ruin. He dreamed of a permanent inquisition in the new world. In a sense, the aim was to create a simulation of the Spanish empire as a manageable totality. Of course, the Council of the Indies never achieved anything like this, but the ambition was a paper-machine filtering massive amounts of data. For Siegert, Spanish bureaucracy was a gigantic computer *avant la lettre* that processed documents instead of bits. As he remarks of this early Google, drawing an explicit line between digital and logistical media, "The colonial heterotopia in Latin America achieves for the first time a model of storage that we recognize today in the processing units [Arbeitsspeichern] of our computers."[12]

Siegert's next book *Passagiere und Papiere* (Passengers and Papers, 2006) directly concerns the transatlantic passage between Spain and New Spain. It examines how acts of writing helped to create new kinds of identity in the 16th century.[13] Like Innis, Siegert is interested in bottlenecks. He sees sea and ship as essential media in the history of the world.[14] The House of Trade in Seville had a royal monopoly overseeing all passengers and cargo to and from Spain. Seville was better suited for this task than a seaport such as Cadiz since it was more tightly controlled: everything coming or going had to pass through the Guadalquivir River.

Paper served as a similar kind of chokepoint. Writing, not torture, was the great instrument of *inquisición*: the legalistic inspection of identity, using the tools of documentation and legal hearings, oversaw the borders of the Spanish domain. Inquisition's procedures made it impossible for anyone to pass to the new world without

going through an ordeal of testifying, writing, and counting in an "interrogato-rio." Each person had to attest to – and in many cases thus create – their identity. As a by-product of all this bureaucracy, new ways of thinking about the self emerged. A person's identity was legitimate only when their oral account matched the written account on file. One motive for the paperwork was to prevent frauds and impostors – and to discover crypto-Jews and Muslims. The invention of the *pasajero* went together with the invention of the *picaro*, the sneaky, identity-defying rogue that populates Spanish literature and much else. Official records came to define personal identity, just as in our own time. "Spanish America is a special world: a world in which everything is counted – commodities, people, ships, books." To be a passenger was not only to sail across the sea; it was to have your data transferred from one register to another. The Spanish empire, for Siegert, was an empire of documents. Its task was to assemble an "exhaustive view of things." This was reflected even in urban design, as cities such as Santo Domingo, Lima, and Buenos Aires were laid out on grids – every point, in the spirit of Renaissance perspective, lying on an X-Y coordinate system. The spirit of registration bound people to places. The legal culture of inspection and documentation forever satu-rated Latin American culture with letters, in every sense of that word.[15]

Spanish media in the conquest

Logistical and environing media were central to the conquest of New Spain, and thus to the history of Mexico. Maps and names, calendars and compasses, horses and gunpowder, the biological agents of disease and *mestizaje*, and "cruz y cam-pana" (cross and bell) – many media mixed in the 16th-century cauldron. But above all, the medium *primus inter pares* was writing. As Hernan Cortés lamented: "Oh, if one were only illiterate, so as not to have to sign so many death certifi-cates." He knew all too well the connection between writing and death. Though no man of letters (*letrado*) himself, Cortés was a diligent Spanish bureaucrat, scru-pulously following procedures of documentation, sometimes to an almost absurd degree. The chronicler Bernal Diaz del Castillo, who like Cortés was an adven-turer rather than man of letters, reports of one encounter with hostile natives: "and as always, Cortés wanted to attend to documentation and made a demand in front of a Royal scribe." The natives were not impressed and responded with "a great shower of arrows." According to Bernal Diaz, Cortés conducted a for-mal ceremony, making three slashes into a tree to take possession of the land for the king and defend his right with the sword. "And in front of a Royal scribe they did this declaration," duly notes Bernal Diaz.[16] The legalistic scrupulous-ness with which the conquistadores warned the native peoples and documented everything before notaries and witnesses is almost Quixotic – to mention a later figure in the Spanish culture of documentary simulation in which fact and fiction blended together for both kings and knights errant.

Bernal Diaz's *Historia verdadera* may be profitably read for media history. Its story is logistical in the clearest military sense: the conquistadores sail, seek, map,

name, build fortifications, seek food, fight enemies, tend wounds, forge battle plans, and have relationships with native women. The Aztecs soon adopted the Spanish paper fetish even if they didn't understand how it worked.

> And the three first natives understood our language very well and demanded a letter from Cortés, using it not because they could read it, but because they understood well that when we sent messengers or orders, there was a paper called *amal*, a sign as an order.
>
> ["Y los tres principales lo entendieron muy bien por nuestras lenguas y demandaron a Cortés una carta, y ésta no porque la entendían, sino que ya sabían claramente que cuando enviábamos alguna mensajería o cosas que les mandábamos, era un papel de aquellos que llaman *amales*, señal como mandamiento"].

Thus, messengers to Cuauhtémoc ask for the authenticating mark of an official message. (Note how nicely the phrase "sign as order" unites the classic mixtures of communication and command, symbol and military, semiotics and tactics.)[17]

Classificatory and collecting zeal must certainly count as one of the most important of cultural techniques used by the Spanish. The period between 1570 and 1590 saw several projects with the common goal of achieving a description of the territories ("descripción de tierra"). One of the most significant was Ovando and López de Velasco's questionnaires that were sent out to every local governor several times during this period. The questionnaire consisted of 50 key questions, according to the art of geography, with data on provinces, seas, islands, rivers, mountains, and other places in relation to longitude, latitude, and size. This corpus of data survives as the *Relaciones geográficas de indias* and comprises thousands of pages, as well as a large number of maps and illustrations. It came to be the first statistical study performed by any nation and constitutes one of the primary sources of information about the early colonial period and the pre-Columbian era.

Francisco Hernández, a Doctor of Medicine and Philip II's personal physician, shows just how intense this collecting zeal could be. He was named "Chief Medical Officer of the Indies" in 1570 and sent on a five-year expedition to map all the natural resources of New Spain, as part of the ambition to achieve a description of the territories. The position meant that Hernández would do something similar to the cosmographers' work on geography in mapping the biodiversity of the Americas, for the purpose of advancing trade and exports from the region. At the same time, the cosmographer and navigator Andrés de Urdaneta had been the first ever to perform a cross-Pacific return voyage between Mexico and Southeast Asia, where the empire had just colonized the Philippines. Where the cosmographers of the Casa de Contratación like Ovando and Lopez de Velasco scaled up using the environing paper media of censuses, registers, questionnaires, astronomical observations, and maps, Hernández scaled down to the most minute detail of each plant, mineral, and animal that could be found in the American territories. Hernández sent back several shiploads of cargo with

large quantities of plants and instructions for their domestication and cultivation in European soil. Philip II impatiently wrote him several letters urging him to complete and send back the natural history of New Spain that he was compiling aided by local knowledge and painters. In the end, Hernández sent back no less than 16 volumes containing around 3,000 plants on 893 pages of text and 2,071 illustrations.[18] In an unpublished letter to Philip II dated 30 August 1577, Hernández writes that he has just returned from New Spain with a fleet a week earlier in very bad physical shape and with a great amount of valuable cargo that he wishes to present to the King.

> I will go [to Madrid] as soon as I can and bring with me the books that had already been sent, as well as translations of them into Mexican language, our commentaries of the things of the Indies and description of New Spain. I have also sent several boxes of medicinal herbs from this land that I have discovered and described, as well as wonderful plants to be planted here in Spain.[19]

Media of documentation thus played a crucial role for the Spanish not only with churches, schools, and offices but also in the environing process of new knowledge about the natural and cultural world. The Franciscan priest and missionary Bernardino de Sahagún spent most of his life in New Spain based at a Franciscan *colegio* at Tlatelolco. He and his native Aztec colleagues spent around 30 years on an encyclopedic project of gathering and showing "the things of New Spain." They described the people, their religion, history, agriculture, political structure, and natural world. In the preface to the book, written in 1576 during an epidemic outbreak, Sahagún compares the Aztecs to the Old Testament prophecy in which Jeremiah cursed Judea and Jerusalem, promising the arrival of a violent and aggressive people who would destroy them and their societies. According to Sahagún, this was exactly what had happened to the Aztecs, and the fear of their extinction and loss of their culture was a motivation for compiling the encyclopedia.[20] Sahagún also notes that "in this land which is now called New Spain, these people have lived for at least two thousand years, and that their knowledge and political structure far exceeds those of many European nations."[21] The book was completed in New Spain around the same time that Hernández was finalizing his work. In 1575 Rodrigo de Sequera arrived in New Spain with orders from Ovando to produce an illustrated bilingual edition of Sahagún's encyclopedia. The result was the incredibly richly illustrated 12 books with 2,468 hand-colored illustrations now known as the Florentine Codex, because of its 1,580 arrival in Florence as a diplomatic gift for Cardinal Ferdinando I de Medici.[22]

Aztec media

Certainly not only the Spaniards had media, as the case of Sahagún makes clear. Clearly the Aztecs had cultural techniques for controlling space, time, and people.

Let us mention just two among many. First, their calendar was clearly a data pro-cessor, a logistical organizer of days and years into larger recurring systems. As is well known, the Aztec calendar (derived from the Mayans) featured a nested system of two cycles, a 365-day agricultural-political calendar and a 260-day religious-sacred calendar (perhaps related to the period of human gestation). The two cycles coincided every 52 of the long years or 73 short years. The calendar was the central computer of the Aztec social order, a kind of massive algorithm that directed agriculture, war, reproduction, labor, and religious ritual. It was sort of like the television schedule of the 1950s through 1970s on steroids. It was run by priests who had what Innis would call a "monopoly of knowledge" in how to reckon dates and declare auspicious and inauspicious times. The calen-dar was a device of abstract calculation (a cognitive tool), but it also took form in concrete works of sculptural art in stone. It was not only a model of cosmic cycles; it was an instrument of power.

Aztec temples were broadcasting towers. The mark of towers as commu-nicative devices is optical and acoustic leverage: they can be seen and heard from great distances, and they can also see and sound at great distances.[23] In their battles with the Spanish, the Aztecs used their temples to great military advantage. The temples afforded vista points and strategic look-outs to survey the Spaniards' movements, and they were command posts that were very hard to capture. In earlier, more peaceful times, Montezuma showed Cortés and his men the amazing sight of Tenochtitlán from the Templo Mayor, a panoramic 360-degree view. The Spanish, in turn, were very eager once the fighting began to occupy the temples and to replace the deities there with their own banners. The Aztec elites used the temples as agents of spectacle and intimidation for their own people and for neighbors as well. Temples amplified the visibility of human sacrifices. As the mutilated bodies were cast down the steps, the elevated position of the altar afforded a cinematic view for many spectators. The priests also used the temples as a center point for broadcasting sound. Bernal Diaz reports that the Aztec drum – an excessively large drum – could be heard for two leagues from the temple. He thought "the sound of it was so horrible that they called it the instrument of hell." It was accompanied by conch shells, horns, and trumpets. (His dislike for the sound may come from hearing it herald the sacrifice of his captured comrades.)[24]

For the Aztecs, temples were not only places of religious sacrifice, but centers of political control and social organization. The Spaniards recognized their importance at once, installing "cruz and campana" as if they were taking over the television network, which has always been the first item of business for any revolutionary.[25] Temples were certainly agencies of social control, just as the cathedrals and churches built later from the same stones would become some of the key media of Mexican history.

Spanish and indigenous media yielded hybrids. Among them are fascinat-ing maps of local municipalities drawn and painted by indigenous artists.[26] The maps were often produced in an indigenous cartographic tradition which defined

territory by an enclosed sphere of logographic place-names representing bound-
aries and referring to common history. The representation of a closed circle,
a sphere, establishes the inside of the community for its self-representation on
the map. The map of Teozacoalco in Oaxaca from 1580 (Figure 2.1) is a good
example of indigenous cartography in colonial New Spain. The animals, plants,
mountains, and figures dotted around the circle are such logographic place-
names, which mark the border by referring to a feature of each area. As an
environing medium, the map has many interesting features spanning centuries
of environmental change. Apart from the current border, it also includes the
boundary of a previous dynasty from four centuries before the current, when
the neighboring Eoltepec was its subject.[27] In the top-right corner of the circle
rises an arc like a crescent moon which shows the logographic place-names of
the old territory of Eoltepec (the mountain of God). The environment changed
as the colonizers introduced new animals like horses and pigs. The painter of
this map reflects the Spanish presence in the area by interlacing the traditional
footprints of the paths with hoofprints to show that horse transportation was now
used there.[28] In the 21st century a team of archaeologists used the same map to
unearth the lost sites of this Mixteca kingdom, which now resided under modern
building structures but that the map correctly pointed out with the place-names.
The spherical shape of the map does not depart from a geometrical projection
however, but is rather a pictorial rhetoric of the community's importance and
unity as expressed in the closed circle. The environing effect of this map lies in
how it constitutes humans and their surroundings, while simultaneously serving
the interest of securing overview and orientation over time.

The list of Mixtec couples shows the genealogy of rulership of the town with
over 20 generations from the 11th century, ending with Montezuma, before the
small kingdom was subdued by the Spanish empire in the 1520s. Presenting the
genealogy on the map – one made at the request of the Spanish authorities –
was also a way of asserting the elevated history of the Mixtec kingdom of
Teozacoalco. This environing medium thus encapsulates both the space and time
axis that Innis articulates, becoming simultaneously monumental archive and an
instrument for colonial settlement. Perhaps this effect is due to the hybrid nature
and results from the clash between the very space-biased Spanish empire and the
more time-biased Mixtec kingdom. It is also possible that the inclusion of the old
boundaries in 1580 was the result of copying from an original map which had
simply been revised on the same manuscript rather than remade.

The map marks an interesting moment in Mexico's media history. It meas-
ures 176 × 138 cm and is made on a patchwork of about 23 blank paper folios
of European origin that was used by the imperial bureaucracy.[29] While native
paper-making techniques were never fully abandoned in New Spain, the use of
the Spanish standard medium of the folio is characteristic of the hybrid nature that
characterizes the maps made in response to the questionnaires. When the maps
came back to Royal Cosmographer López de Velasco in the 1580s, however, they
were formatted according to various local indigenous cartographic traditions.
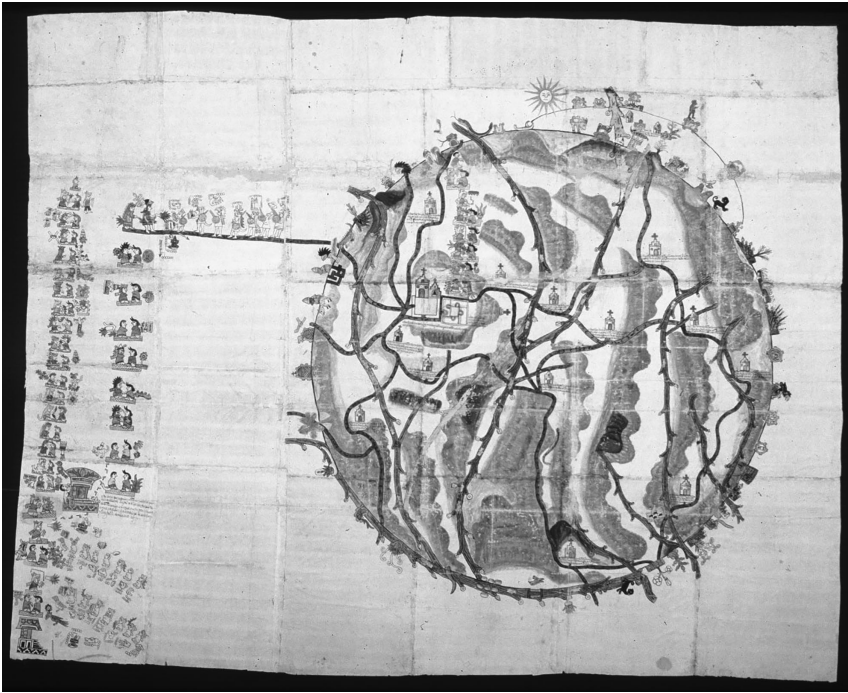
FIGURE 2.1   The Relaciones Geograficas Map of Teozacoalco, 1580. Courtesy of the Benson Latin American Collection, the General Libraries, the University of Texas at Austin.

This mosaic of communities and land went against his wish to standardize all territory under the label of New Spain. The clash of space-representation techniques was never resolved, and the project was subsequently abandoned, but the hybrid form is one of several consequences of the cataclysmic blending of genes, mores, languages, and pathogens after 1519.

Environing media – tragic and global

Such media as paper, maps, temples, bells, and cross clearly marked the political, religious, and lived landscape for people in 16th-century New Spain. In this sense, they were clearly environing. Both Innis and Siegert drop hints about the ecological impacts of their time-space-archiving media, but neither brings them into the foreground. But the clash of Spanish and indigenous media accompanied one of the most catastrophic environmental transformations of the past millennia, the depopulation due to new diseases. In what is known as the Great Dying in the Americas, a hard to calculate number of people, often estimated at 60 million, disappeared over a century.[30] The decrease in population occurred initially through European epidemics but their effects were aggravated by civil

wars, ethnocide, slavery, and resource expropriation.[31] The abandoned farmland, which has been estimated at 1 hectare per person, i.e. 60 million hectares of land, quickly began to regrow into dense woodlands with quick CO_2 uptake. This reforestation led to a dip in global CO_2 levels first stratigraphically attested around 1611 from 285 ppm to 272 ppm over the next 50 years, the last low point before the steady rise to our current 417 ppm. The decrease in CO_2 concentration also led to a planetary cooling of about 0.5°C. These data have been used to argue for a starting date of the Anthropocene in 1611 in what is known as the Orbis hypothesis.[32]

In this way, events in the media history of the early years of contact between the Old and New Worlds turn out to be directly connected to changes to the deep history of the Earth system. The Great Dying in the Americas contributed to the Little Ice Age in Europe, driving famine and wars in the 17th century.[33] The "teleconnections" in the atmosphere were parallel by the space- and time-transcending media of ship, document, gun, and map. These not only enabled a global exchange of human, animal, plant, and pathogen populations, but also started a world economic system linking local and global spaces: Seville, Havana, Callao, Manila, Madrid, Mexico City. Pacific and Atlantic joined in the world's first global trade network controlled by the Spanish empire, over which "the sun never set," a phrase probably first used by Carlos V. 1611 witnesses a moment not only when humans have built a genuine world system, but one capable of influencing its nonhuman Earth system of weather and climate. A radical shift in *cultural techniques* – taken in that term's most basic sense as agricultural engineering – altered the global climate. Not all of the environing media we have discussed carry Earth system forcing in this way, but that some of them might is highly suggestive.

Conclusion: toward an environing media history of Mexico

The media history of Mexico is yet to be written. We have emphasized similarities between old and new media more than their differences – *el padrón real* as Google, the Council of Indies as a database, *el Templo Mayor* as a broadcasting station, or *cruz y campana* as audiovisual media of conquest. Obviously Aztec media of political-religious control and Spanish media of military-religious conquest differ importantly from recent media, and we certainly recognize the risk of the media concept becoming vaporous by overgeneralization. Good analogies can inspire historical research, but good historical research will reveal the limits and qualify those analogies. Scholarship needs both grand comparisons and careful studies. We obviously think it is worth the risk.

Historical comparison can help us better understand our own situation. Digital media are in some ways astonishingly new. But in other ways they just raise the same old challenges. The recent SARS-CoV-2 crisis would be unthinkable without digital systems. It has not only been an epidemiological and economic and political event, but an environmental one as well. The long view reminds

us of the sober lesson that new possibilities for the management of space, time, and power do not relieve the old challenges: inequality, domination, the risks of disease and death, and the ability to completely turn our worlds upside down.

In a beautiful philosophical essay called "El tres y el cuatro" the great poet Octavio Paz ponders the legacy of the *letrados* for Mexico, the intellectual bureaucrats with university degrees in law who served as Latin American governors in the many positions assigned by the crown during the colonial period.[34] According to Paz, European settlers in the new world were motivated by the utopian ambition of escaping from history. "To the European mind, America was not only a geographical exception but also a historical and theological one." He details the role played by 16th-century visionaries in the foundation of Mexican culture, *letrados* who brought a potent mixture of Platonic utopianism, Roman stoicism, Christian primitivism, and Renaissance humanism to the task of building New Spain. That violence went together with the building of the new utopia proves Paz's central point, that Mexico is a country of contrasts. In the end what distinguishes Mexican identity for Paz is a tension between warring ideals. Mexico is an experiment to see if two civilizations based on the three (Europe) and the four (Mesoamerica) can live together. There are, he says, two ways to combine the three and the four: addition and multiplication. His conclusion: the identity of Mexico is still up for grabs. "We haven't arrived at either the seven or the twelve: Mexico is still a process."[35]

Paz does not quite connect the strain of national utopianism in Mexican history to its media history, although his interest in numbers as primal cultural organizers is reminiscent of Siegert, and of Friedrich Kittler, Siegert's teacher. Paz's thinking is friendly to the role media play in imagining nationhood.[36] Though writing about English immigrants to the United States, what James Carey says is equally relevant for New Spain:

> The desire to escape the boundaries of Europe, to create a new life, to found new communities, to carve a New Jerusalem out of the woods of Massachusetts, were primary motives behind the unprecedented movement of white European civilization over virtually the entire globe.

The colonial "migration in space was above all an attempt to trade an old world for a new and represented the profound belief that movement in space could be in itself a redemptive act." Carey sees this attitude toward space and movement as permanently giving the US experiment in creating culture at a distance an almost religious sense of mission. US culture has a peculiar attitude toward technology and communication – as devices burdened or blessed with larger political and cultural possibilities. Carey continues:

> The United States was, to flirt with more deterministic language, the product of literacy, cheap paper, rapid and inexpensive transportation, and the mechanical reproduction of words—the capacity, in short, to transport

not only people but a complex culture and civilization from one place to another, indeed between places that were radically dissimilar in geography, social conditions, economy, and very often climate.[37]

Here Carey, following Innis, ties American utopianism to its conditions of communication.[38]

He could have said the same thing about Mexico. America was invented before it was colonized, and the great experiments began already in Europe, in the famous thesis of Edmundo O'Gorman.[39] America was named, after all, after a map-maker, one who may never have visited the new world even if he did manage its facsimile in Seville, and maps are important environing media of imagination and control. As Siegert has pointed out in another essay, maps are not just representations of space but also spaces of representation.[40] By this chiasmus he means that rather than just representing a given world, maps are epistemic objects that construct notions of space and territory in the first place. In the Spanish Empire, as in many others, maps were considered highly classified national secrets that were guarded in particular rooms to which only trusted persons were admitted. America's history is a story of massive confusions between old and new realities – the Aztecs were taken as "moros" or "indios" by the Spaniards and the conquistadores had the luck to arrive in a sacred year of the calendar. The supposed *conquest* by Cortés was aided by a collision of local empires and wars, in which the Spaniards came to take advantage of the aspiration of the rival Tlaxcala to take down the Aztecs.[41] What makes Mexico distinct from the United States and Canada is the collision of two logistical media empires: Spain and the Aztecs. The United States and Canada, of course, have a long, sad, and complicated history with native peoples, but there were no indigenous state-based organizations north of the Rio Grande of comparable complexity. All three countries were shaped by environing media, but each had its own unique path. Perhaps one day Mexico will arrive, as Octavio Paz says, at the seven or the twelve, but in the meanwhile it remains a process, one in which media play an important part.

Notes

Parts of this essay appeared previously in *Critical Inquiry* (2022) Vol. 48, no. 4 as "Media: The Case of Spain and New Spain."

1 Paul N. Edwards, "Infrastructure and Modernity: Force, Time and Social Organization in the History of Sociotechnical Systems," *Modernity and Technology*, eds. Thomas J. Misa, Phlip Brey & Andrew Feenberg (Cambridge, MA: MIT Press, 2002), 196.

2 Xiaowei Wang, *Blockchain Chicken Farm: And Other Stories of Tech in China's Countryside* (New York: FSGO x *Logic*, 2020).

3 Joy Elizabeth Hayes, *Radio Nation* (Tucson: University of Arizona Press, 2000).

4 Ruben Gallo, *Mexican Modernity: The Avant-Garde the Technological Revolution* (Cambridge, MA: Cambridge University Press, 2005).

5 Published in part as *Harold Innis's History of Communications: Paper and Printing—Antiquity to Early Modernity*, eds. William J. Buxton, Michael R. Cheney, & Paul Heyer (Lanham, MD: Rowman & Littlefield, 2015).

6 See Harold A. Innis, *The Bias of Communication* (Toronto: University of Toronto Press, 1991).

7 William Melody, Liora Salter, & Paul Heyer (eds.), *Culture, Communication, and Dependency: The Tradition of H. A. Innis* (Norwood, NJ: Ablex Publication Corporation, 1981).

8 For other German media theorists interested in the Hispanic world, see for example: Hans Ulrich Gumbrecht, *Eine Geschichte der spanischen Literatur*, 2 vols. (Frankfurt: Suhrkamp, 1990); Wolfgang Schäffner, "Telematische Representation im 16. und 17 Jahrhundert," *Theatralität und die Krisen der Representation*, ed. Erika Fischer-Lichte (Stuttgart: Springer, 2001); Wolfgang Schäffner, "Die Verwaltung der Endlichkeit Zur Geburt des neuzeitlichen Romans in Spanien," *Die Endlichkeit der Literatur*, eds. Eckart Goebel & Martin v. Koppenfels (Berlin: Akademie Verlag, 2002); Silvia Fehrmann, Irina Podgorny, & Wolfgang Schäffner, "Un Colón para los datos: Humboldt y el diseño del saber," *Redes* 14, no. 28 (Nov. 2008), 77–80.

9 Bernhard Siegert, *Passage des Digitalen: Zeichenpraktiken der neuzeitlichen Wissenschaften, 1500–1900* (Berlin: Brinkmann & Bose, 2003).

10 Adam Wickberg, *Pellucid Paper: Poetry and Bureaucratic Media in Early Modern Spain* (London: Open Humanities Press, 2018).

11 Siegert, *Passage*, 86.

12 Bernhard Siegert, *Passagiere und Papiere: Schreibakte auf der Schwelle zwischen Spanien und Amerika* (Munich: Wilhelm Fink Verlag, 2006), 150.

13 Siegert, *Passagiere und Papiere*.

14 Bernhard Siegert, "Der Nomos des Meeres: Zur Imagination des Politischen und ihren Grenzen," *Politiken der Medien*, eds. Daniel Gethmann & Markus Stauff (Zurich: Diaphanes Verlag, 2005), 39–56.

15 Siegert, *Passagiere und Papiere*, 53, 62, 135. He notes his debt to the work of Roberto González Echeverría, "The Influence of Hans-Ulrich Gumbrecht," *Eine Geschichte der spanischen Literatur*, 2 vols. (Frankfurt: Suhrkamp, 1990), is also clear.

16 Bernal Diaz del Castillo, *Historia verdadera de la conquista de la Nueva España* (Mexico City: Porrúa, 2004), 51–52, 97.

17 Bernal Diaz, *Historia verdadera*, 360.

18 Adam Wickberg, "Plus Ultra: Coloniality and the Mapping of American Nature Culture in the Empire of Philip II," *Necsus: European Journal of Media Studies* 6 (2018): 217.

19 "Contratación, 5197," Minutas de Cartas del Tribunal de la Contratación, Archivo General de Indias, translation by the authors.

20 Bernardino de Sahagún, *Historia General de las Cosas de Nueva España* (1830 [1577]).

21 Ibid., 8.

22 *The Florentine Codex: An Encyclopedia of the Nahua World in Sixteenth-Century Mexico*, eds. Jeanette Favrot Peterson & Kevin Trerraciano (Austin: University of Texas Press, 2019).

23 John Durham Peters, *The Marvelous Clouds: Toward a Philosophy of Elemental Media* (Chicago: University of Chicago Press, 2015), 35–37, 175–177, 225–241, passim.

24 Bernal Diaz, *Historia*, 174.

25 Edward Luttwak, *Coup d'Etat: A Practical Handbook, revised edition* (Cambridge: Harvard University Press, 2016).

26 Barbara Mundy, *The Mapping of New Spain: Indigenous Cartography and the Maps of the Relaciones Geograficas* (Chicago: Perennial Books, 2000).

27 Ibid., 114.

28 Alex Hidalgo, *Trail of Footprints: A History of Indigenous Maps from Viceregal Mexico* (Austin: University of Texas Press, 2019), 42.

29 Ibid., 76.

30 Alexander Koch et al., "Earth System Impacts of the European Arrival and the Great Dying in the Americas after 1492," *Quaternary Science Reviews* 207 (March 2019): 13–36.

31 Clark Erickson, "Amazonia," *Contemporary Archaeology in Theory: The New Pragmatism*, eds. Robert Preucel & Stephen Mrozowski (Hoboken, NJ: Wiley, 2010), 108; Caroline Levis et al. "Persistent Effects of Pre-Columbian Plant Domestication on Amazonian Forest Composition," *Science* 355, no. 6328 (2017): 925–931.
32 Simon Lewis & Mark Maslin, "Defining the Anthropocene," *Nature* 519 (2015): 171–180.
33 Geoffrey Parker, *Global Crisis: War, Climate Change and Catastrophe in the 17th Century* (New Haven, CT: Yale University Press, 2013); Koch et al., "Earth System Impacts," 14.
34 Richard Kagan, *Students and Society in Early Modern Spain* (Baltimore, MD: Johns Hopkins University Press, 1974).
35 Octavio Paz, "El tres y el cuatro," *El laberinto de la soledad* (Madrid: Fondo de Cultura Económica, 2003), 554, 559.
36 See Benedict R. O'Gorman Anderson, *Imagined Communities* (London: Verso, 1983, 1991).
37 James W. Carey, *Communication as Culture: Essays on Media and Society* (Boston, MA: Routledge, 1989), 3, 16.
38 For Carey's tie to Innis, see "Space, Time, and Communications: A Tribute to Harold Innis," *Communication as Culture*, 142–172.
39 Edmundo O'Gorman, *La invención de América* (Mexico City: Fondo de cultura económica 2006).
40 Bernhard Siegert, "The Map is the Territory," *Radical Philosophy* 169 (Sept./Oct. 2011).
41 Matthew Restall, *When Montezuma Met Cortés: The True Story of the Meeting that Changed History* (New York: Ecco, 2018).

References

Buxton, William J., Michael R. Cheney, & Paul Heyer (eds.). *Harold Innis's History of Communications: Paper and Printing—Antiquity to Early Modernity.* Lanham, MD: Rowman & Littlefield, 2015.

Carey, James W. *Communication as Culture: Essays on Media and Society.* Boston, MA: Routledge, 1989.

del Castillo, Bernal Diaz. *Historia verdadera de la conquista de la Nueva España.* Mexico City: Cambridge University Press, 2004.

Edmundo, O'Gorman. *La invención de América.* Mexico City: Fondo de Cultura Económica, 2006.

Edwards, Paul N. "Infrastructure and Modernity: Force, Time and Social Organization in the History of Sociotechnical Systems." *Modernity and Technology*, edited by Thomas J. Misa, Phlip Brey & Andrew Feenberg. Cambridge, MA: MIT Press, 2002: 185–225.

Erickson, Clark. "Amazonia: The Historical Ecology of a Domesticated Landscape." *Contemporary Archaeology in Theory: The New Pragmatism*, edited by Robert Preucel & Stephen Mrozowski. Hoboken, NJ: Wiley, 2010: 104–128.

Favrot, Peterson Jeanette, & Kevin Trerraciano. *The Florentine Codex: An Encyclopedia of the Nahua World in Sixteenth-Century Mexico.* Austin: University of Texas Press, 2019.

Fehrmann, Silvia, Irina Podgorny, & Wolfgang Schäffner. "Un Colón para los datos: Humboldt y el diseño del saber." *Redes* 14, no. 28 (Nov. 2008), 77–80.

Gallo, Ruben. *Mexican Modernity: The Avant-Garde the Technological Revolution.* Cambridge, MA: Cambridge University Press, 2005.

Gumbrecht, Hans Ulrich. *Eine Geschichte der spanischen Literatur*, 2 vols. Frankfurt: Suhrkamp, 1990.

Hayes, Joy Elizabeth. *Radio Nation*. Tucson: University of Arizona Press, 2000.

Hidalgo, Alex. *Trail of Footprints: A History of Indigenous Maps from Viceregal Mexico*. Austin: University of Texas Press, 2019.

Innis, Harold A. *The Bias of Communication*. Toronto: University of Toronto Press, 1991.

Kagan, Richard. *Students and Society in Early Modern Spain*. Baltimore, MD: Cambridge University Press, 1974.

Koch, Alexander et al. "Earth System Impacts of the European Arrival and the Great Dying in the Americas after 1492." *Quaternary Science Reviews* 207 (March 2019): 13–36.

Levis, Caroline et al. "Persistent Effects of Pre-Columbian Plant Domestication on Amazonian Forest Composition." *Science* 355, no. 6328 (2017): 925–931.

Lewis, Simon, & Mark Maslin. "Defining the Anthropocene." *Nature* 519 (2015): 171–180.

Luttwak, Edward. *Coup d'Etat: A Practical Handbook*, revised edition. Cambridge: Harvard University Press, 2016.

Melody, William, Liora Salter, & Paul Heyer (eds.). *Culture, Communication, and Dependency: The Tradition of H. A. Innis*. Norwood, NJ: Ablex Publication Corporation, 1981.

Mundy, Barbara. *The Mapping of New Spain: Indigenous Cartography and the Maps of the Relaciones Geograficas*. Chicago: Perennial Books, 2000.

O'Gorman Anderson, Benedict R. *Imagined Communities*. London: Verso, 1983, 1991.
Parker, Geoffrey. *Global Crisis: War, Climate Change and Catastrophe in the 17th Century*. New Haven, CT: Yale University Press, 2013.

Paz, Octavio. "El tres y el cuatro." *El laberinto de la soledad*. Madrid: Fondo de Cultura Económica, 2003.

Peters, John Durham. *The Marvelous Clouds: Toward a Philosophy of Elemental Media*. Chicago: University of Chicago Press, 2015.

Restall, Matthew. *When Montezuma Met Cortés: The True Story of the Meeting that Changed History*. New York: Ecco, 2018.

de Sahagún, Bernardino. *Historia General de las Cosas de Nueva España*. Mexico City: Alejandro Valdés, 1830 [1577].

Schäffner, Wolfgang. "Die Verwaltung der Endlichkeit Zur Geburt des neuzeitlichen Romans in Spanien." *Die Endlichkeit der Literatur*, edited by Eckart Goebel & Martin v. Koppenfels. Berlin: Akademie Verlag, 2002: 1–12.

———. "Telematische Representation im 16. und 17 Jahrhundert." *Theatralität und die Krisen der Representation*, edited by Erika Fischer-Lichte. Stuttgart: Springer, 2001: 411–428.Siegert, Bernhard. "Der Nomos des Meeres: Zur Imagination des Politischen und ihren Grenzen." *Politiken der Medien*, edited by Daniel Gethmann & Markus Stauff, 39–56. Zurich: Diaphanes Verlag, 2005.Siegert, Bernhard. *Passage des Digitalen: Zeichenpraktiken der neuzeitlichen Wissenschaften, 1500–1900*. Berlin: Brinkmann & Bose, 2003.

Siegert, Bernhard. *Passagiere und Papiere: Schreibakte auf der Schwelle zwischen Spanien und Amerika*. Munich: Wilhelm Fink Verlag, 2006.

———. "The Map is the Territory." *Radical Philosophy* 169 (Sept./Oct. 2011).

Wang, Xiaowei. *Blockchain Chicken Farm: And Other Stories of Tech in China's Countryside*. New York: FSGO x Logic, 2020.

Wickberg, Adam. *Pellucid Paper: Poetry and Bureaucratic Media in Early Modern Spain*. London: Open Humanities Press, 2018.

———. "Plus Ultra: Coloniality and the Mapping of American Natureculture in the Empire of Philip II." *Necsus: European Journal of Media Studies* 6 (2018): 217.