

GUEST EDITOR'S NOTE

This thematic issue traces its roots to the meeting “Engineering and the Natural Sciences: Communication and transportation infrastructure in the history of the sciences in Ibero-America.” The event was held at the Universidade de La Plata, Samay Huasi, La Rioja province, Argentina, on May 1-6, 2006, under the coordination of Irina Podgorny and Wolfgang Schäffener. In these pages, you will find papers presented there, along with other contributions focused primarily on the relations between pathways, communications, and the sciences in early twentieth-century Brazil.

At the meeting, we made a commitment to analyze the relationship between the development of the natural sciences and the development of the infrastructure needed to convey and transport information, objects, and people on the American continent in the nineteenth and twentieth centuries. We were interested in bringing together two separate lines of research: first, the shaping of space by the means of transportation (navigation, railroads, public roads, etc.), communication media (telegraphy, telephony, postal services, etc.), and architectural media (new cities and spaces for new knowledge and scientific disciplines), and second, the development of those sciences involved in the construction of spatial and temporal networks within national territories (geology, archeology, paleontology, biology, geography, etc.).

The thesis underlying the meeting – which is also the guiding thread of this issue – can be summed up as follows: writing the history of these disciplines requires study of the transportation and communication technologies that shape space at the same time that they shape scientific practices and knowledge and then apply them. The scientific meeting received support from the Secretaría de Ciencia e Tecnología e Innovación Productiva (*Secyt* – RC 20051177) and from the German Academic Exchange Service (DAAD), through the Walter Gropius Chair at the School of Architecture and Urbanism, Universidad de Buenos Aires.

The relationship between scientific knowledge, on the one hand, and transportation and communication infrastructure, on the other, produced complex networks that have been the object of little research to date (cf. Vettors, in this issue). This relationship also raises issues regarding the construction of “national sciences” during what we may call Latin America’s post-colonial period. This infrastructure and the exchanges resulting from it opened up transnational channels that afforded the creation of a continental space.

The goal of this set of articles, documents, and images is to contribute to the analysis of these technological and scientific networks through an interdisciplinary examination of concrete cases and projects, while underscoring that this is not merely a topic for Argentinean, Brazilian, or Peruvian history but a topic tied to the history of exchange with Europe and other nations in the Americas.

In the territories targeted by scientific exploration, a number of the articles point out how the “field” was governed by communication and transportation technologies that relied on animal power (mules, wagons) and, in some communication circuits, on paper (correspondence) and fuel (steamboats and trains). In singular fashion, these technologies intermingled with those that Peter J. Hugill, in *Global Communications since 1844* (1999) – drawing inspiration from Harold Adams

Innis (*Empire and Communications*, 1950) and Lewis Mumford (*Technics and Civilization*, 1934) – sees as marking the advent of the so-called Neotechnic age.

Hugill refers to electric communication, whose first successes date to the mid-1840s. The Neotechnics era was to be characterized by new transportation methods made feasible thanks to the generation of electricity, by the idea of individual mobility, and by the internal combustion machine, in other words, the trolley, the bicycle, and the car, which dominated the flourishing urban circuits of the 1890s. We could say that these late nineteenth-century exploratory journeys engendered a situation in which the traveler circulated objectively, via circuits defined by technologies that the middle and upper social classes of the modern city would gradually abandon. This is why the relationship born between these cultures of communication and transportation during nineteenth-century scientific explorations presupposes the study of geopolitics and the social relations of scientific investigation.

In this project, centered on constructing a network to describe the past of ‘territory’, while taking space and time into account, we are interested in studying the conflicts between the different “technical worlds” that interface within communication networks – networks that in turn are used as instruments to mediate between these worlds.

In recent years, production in the history of science has paid close attention to the actual practices of science. In this regard, theory has placed value both on the history of the scientists conducting experiments as well as on the history of the manufacturers of instruments and devices, who have now taken their place on stage as essential laborers in the history of the production of knowledge. As Timothy Lenoir has underscored in “Inscription Practice and Materialities of Communication” (1998), “the emphasis on practice and on the local context of investigation initiated by the first generation of lab studies prompted a new wave of inquiries into the ways these different domains of practice mesh with one another locally and translate globally to other sites. These inquiries have included exploration of the ‘articulation work’ necessary in linking up different social worlds, as well as examination of how networks of heterogeneous actors, practices, and different social worlds, including industry and markets, are knit together in usable, effected packages. Other lines of work (so-called studies of materialities of communication) have led directly from considerations of science as practice to the view of science as culture studies”. Inspired by Derrida, Lacan, and Foucault, these studies have emphasized “the materiality of literary and scientific inscriptions – graphic traces as well as the media for producing signs such as standardized paint pigments, photographic equipment, and phonographs – as a precondition for and constraint upon other forms of literal and literacy sense-making.”

With this in mind, we hope this dossier will also contribute to a re-reading of the works of Harold Adams Innis (1894-1952). Both Innis and Lewis Mumford explored the relation between the weight and the same possibility of communication and transportation linked to knowledge and administration. In this regard, one medium of communication may better adapt itself to transportation or to the dissemination of knowledge through time, especially if the medium is heavy and durable and not readily transported. To the contrary, if the medium is light and easily transportable, it will better adapt to the transportation or spread of knowledge through space. In this sense, a number of the papers published here refer implicitly or explicitly to this relation between the physical characteristics of means, or media, and the possibility of creating and spreading ideas and knowledge.

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