

Gyuris, F., Michel, B. and Paulus, K. (eds.): Recalibrating the Quantitative Revolution in Geography: Travels, Networks, Translations. Abingdon–New York, Routledge, 2022. 232 p.

The questions of how, where, and by whom geographical knowledge is produced caught the attention of many scholars in recent decades. These issues are of interest to the researchers of the history of geographical knowledge and the geography of scientific knowledge (LIVINGSTONE, D.N. 2003), while it is also important how scientific methods, concepts, and ideas move from one particular place to another (JÖNS, H. et al. 2017). The volume I revise in the following pages is a recent contribution to these efforts. The aim of the editors was to approach the history of quantitative human geography from a critical point of view, that is, to challenge the Anglophone narratives and the Western hegemony (TÍMÁR, J. 2004; PAASI, A. 2015) in this sense.

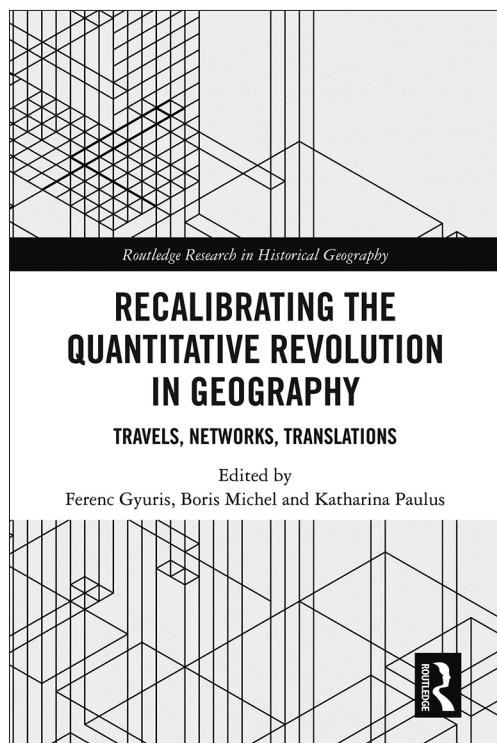
Recalibrating the Quantitative Revolution in Geography: Travels, Networks Translations is an outcome of scholarly discussions which were taken place between 2017 and 2020, primarily in the frameworks of international conferences and workshops. Key events leading to the birth of the volume were "Neue Kulturgeographie –

New Cultural Geography" conferences between 2017 and 2020, the session "Histories of the Quantitative Revolution from a Different Perspective: Practical Implementation in Service of Political Agendas" at the 2018 Annual Meeting of the American Association of Geographers and a workshop on the histories of quantitative revolutions in geography in 2019.

The introductory chapter presents the goals of the volume and its underlying approach by applying a metaphor represented by a piece of art by Gertrud "Gego" Goldschmidt, namely the *Reticulárea*. This artwork from 1969 shows a combination of "metal rods" which "form a web of complex networks and meshes. While there is a remarkable regularity in triangles of different sizes, there is also chaos and distortion. It is not clear whether all the elements form one interconnected structure or whether different structures coexist within this space. The web has neither a centre nor any clear boundary, and it appears to be a structure composed of the surface without any content" (p. 1). While the *Reticulárea* fits to the positivistic paradigm of the 1960s focusing on universal models and abstraction of individual phenomena, it is also a starting point for the critical deconstruction of the traditional history of 'the quantitative revolution'. One should think of the history of quantitative geographies as "a history of many connections of small and large networks of traveling ideas and people and the constant transformation and translation of these ideas and concepts" (p. 2) in the editors' point of view.

In order to "recalibrate" the Anglophone (and more specifically US-centred) narrative on the rise of quantitative human geography and spatial science, most of the chapters of the volume (1) bring together papers on the histories of non-American national traditions (Chapters 2 to 4, and 6 to 11), while (2) taking into account the roles of both formal and informal academic networks forming local geographical schools (Chapters 2 to 13), and (3) analysing the international and national political, social and economic contexts which shaped the application of quantitative methods (Chapters 2 to 11). As can be seen, most of the volume discusses similar topics and takes a coherent approach to present selected national cases. However, Chapters 5, 12, and 13 are rather different compared to the rest of the book in several aspects. Therefore, I first focus on Chapters 2 to 4, and 6 to 11 and show at the end of my revision in which respect can the remaining three chapters be considered different.

Michiel van MEETEREN (Chapter 2) provides a history of spatial science in the Netherlands. Following the formation of scholarly networks and institutions in line with the social and political contexts from the 1920s up until the late 1960s, he shows that quanti-



tative traditions were present in the Dutch context decades before the 'quantitative revolution' in the US. However, these achievements are mainly missing from the mainstream historiography of Dutch human geography as these quantitative researches took place primarily within governmental institutions, and many of them were never published. The chapter vividly illustrates how Dutch geographers influenced by the student uprisings in the late 1960s "were so immersed in the American hegemonic presentation that they overlooked curating their own tradition" (p. 14).

Chapter 3 presents the *Geographies of quantitative geographies in Brazil*: Mariana LAMEGO takes "a place-based narrative trying to cover a broad materialised network of bodies and artefacts responsible for the quantitative revolution diffusion in Brazil" (p. 31). Deriving from the local institutional histories of the cities of Rio Claro and Rio de Janeiro embedded in international scholarly networks, LAMEGO shows how quantitative geographies were applied at these places: spatial diffusion of quantitative methods and theories was possible through personal connections established long before the quantitative revolution, serving as channels for the mobility of the human (people and their knowledge) and non-human (books, computers) means of academic work.

Chapter 4 also places Brazilian quantitative geography in an international context: the role of translations of academic papers initially written in English and French languages can be considered central in Brazilian "academic modernization" (p. 46) due to the country's peripheral position. Revising the articles published in two major geography journals, the *Boletim Geográfico* (1966–1976) and *Revista Brasileira de Geografia* (1970–1982), Guilherme RIBEIRO points out that one should think of translations published in the Global South as a political issue; "what who and which themes" (p. 56) are circulated has a key role in the formation of national traditions in peripheral countries. The findings of the chapter are mind-provoking. However, due to the anonymity of the translators for the large majority of the articles, it was not possible for the author to provide thorough, structured knowledge of the background of the translators themselves (for example, personal networks and motivations), which could offer insight into the selection process of the translated articles.

Chapter 6 provides an account of the changing role of quantitative methods in Hungarian human geography from the early 20th century until the 2000s, and the evolution of the institutional framework. Ferenc GYURIS shows how quantitative methods were applied in different eras for mainly political goals: statistics were mobilized in the interwar period to serve the territorial revision of the Treaty of Trianon. After WWII, quantification was led by changing geopolitical power relations. During the state socialist period, 'neutral' and 'objective' mathematical models were

imported from Soviet and Western authors serving territorial development and planning, while after the transition of the 1990s, applied quantitative geography gained importance due to the availability of EU regional policy funds. GYURIS presents how the changing geopolitical influences were related to the application of foreign scholarly literature throughout the period analysed.

The contribution of Olivier ORAIN (Chapter 7) presents the emergence of a new quantitative and theoretical paradigm in French human geography. By analysing the broader social and political changes, it shows how and why Marxist and critical quantitative geography emerged in the late 1960s and how it developed until the 1990s. Considering the formal institutional framework of the university and academic system, it also reveals that the new approach started as a movement and gained ground after a generational shift in the era of academic expansion amidst a growing number of academic jobs.

Katharina PAULUS and Boris MICHEL analyse in Chapter 8 how quantification, modelling and remote sensing technologies affected geography's relation to nature in Germany and how this process related to the sub-disciplinary divide of human and physical geographies. Chapter 9 by Boris MICHEL focuses on the mechanisms which resulted in the city becoming one of the main objects of geographical research. The case of German human geography reveals that the rise of industrial capitalism and the city as an essential product coincided with the application of quantitative methods from the 1920s onwards. Both Chapter 8 and Chapter 9 are thought-provoking as they take the objects of scientific inquiry to a central place and explain the discipline's shifting views on those objects through transformations occurring in the social and economic systems in which scientific knowledge has been produced.

In the following chapter, Larissa ALVES DE LIRA takes a *longue durée* approach to follow the early stage of quantification in Brazilian geography. Based on the papers published in the *Revista Brasileira de Geografia* between 1938 and 1960, the author scrutinizes the quantitative works of geographers at governmental agencies. Publications containing statistics in the form of tables, images, and maps are considered. In the period analysed, the Brazilian state was a leading actor in gathering and processing statistical data driven by the goal of modernizing the country. ALVES DE LIRA also reveals that the work of Brazilian geographers was mainly influenced by French, German, and Anglophone schools of thought.

Matteo PROTO's Chapter 11 discusses the long-term evolution of Italian quantitative geography from the late 19th century onwards. In his contribution, the author provides an overview of the intellectual heritage Italian geographers' work was built upon, the development of the academic institutional framework, and

the political-social context, which made quantitative geography an important pillar of applied research during and after the interwar period. As the author puts it, “since the beginning of the 1950s certain innovative theoretical and methodological approaches arose in Italian geography that were not too dissimilar from the coeval dominant paradigm, mainly connected to applied economic geography and aimed at empowering the quantitative and modelling approach that had emerged previously with the rise of positivism at the end of the 19th century” (p. 174). However, “what took place throughout the 1970s was a progressive critique of the role geographical knowledge played in sustaining and neutralizing political discourse” (p. 176).

While the chapters analysed above focus on national traditions of quantitative geographies and their transformations, Chapters 5, 12, and 13 are dealing with specific projects and biographies of US geographers; it is not only the scale of analysis that is different in these chapters but also the geographical focus. What seems to make these chapters fit into the volume is that they contribute to deconstructing the traditional narrative on ‘the quantitative revolution’. Chapter 5 concentrates on the origin and development of digital mapping in the US. The approach Matthew W. WILSON takes in this chapter considers the personal biography of Howard FISHER and the role of the institutional context in order to “disrupt the easy origin stories with the cul-de-sacs of experimentation and failure, tenuous allies and adversaries, and the fragility of thought and action” (p. 66). The central subject of the chapter is the SYMAP project, which was an innovative achievement in digital mapping in the 1960s, organized by FISHER and Betty BENSON. Chapter 12 is dedicated to William BUNGE and his book titled *Theoretical Geography*. The authors, Trevor BARNES and Luke R. BERGMANN, scrutinize BUNGE’s personal and academic background to explain the main features of his manuscript and the novelties it brought about. Matthew HANNAH’s Chapter 13 presents the projects of Peter GOULD in the 1980s and Alain BADIOU in the 2000s, which aimed to elaborate on the ways quantitative social science could be critical for the sake of “rescuing mathematical thinking from the negative connotations it has acquired in the critical cultural and social thought of recent decades” (p. 195). While Chapters 5 and 12 deal with the processes forming quantitative geography and spatial analysis in the 1960s and aim to shed light on less-known mechanisms and personal stories affecting the developments of the approach, Chapter 13 discusses the efforts to revisit the role and future potential of quantitative social research.

In the final chapter, the authors discuss some concluding questions about their thoughts on quantification in geography with respect to past, present and future processes. Chapters of the volume have

shown that the US-centred narrative on ‘the quantitative revolution’ has serious shortcomings: national traditions of quantitative geography are diverse and, in many cases, preceded the positivistic-quantitative turn of the 1950s. On the other hand, it is also apparent that there are many similarities in the histories of different national cases. Even the early endeavours in quantitative geographies were led by the states, and research took the form of applied science to underpin development plans and to gather knowledge in a way useful for political power. One can also learn from the volume that different national schools of thought impacted each other due to the personal and formal institutional networks.

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