

Commentary on “A History of Twentieth-Century American Academic Cartography” by Robert McMaster and Susanna McMaster

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In their contribution to the recent special issue of *Cartography and Geographic Information Science* on “Exploratory Essays: History of Cartography in the Twentieth Century” (Vol. 29, No. 3, pp. 305-321), McMaster and McMaster make the claim that “although the main development of thematic mapping can be traced to nineteenth-century Europe, it is in the twentieth-century United States that thematic cartography evolved as an academic discipline” (p. 306). In this commentary, I will argue and provide evidence for the idea that fundamental contributions to the development of academic thematic cartography were made in Europe, and that these developments occurred earlier than those implied by McMaster and McMaster in the U.S. In other words, I intend to show that the McMasters’ conclusion is a serious overstatement, possibly a blatant misstatement. Unfortunately this is not the first time such an inaccurate statement has been made in a U.S. publication; such statements are sometimes regrettably recited as received wisdom by others.¹ Appearing as it does in a special issue on the history of 20th century cartography, the claim by McMaster and McMaster deserves to be elaborated further and supported by evidence, as it is an important yet doubtful assertion.

The statement by the McMasters is comparative in nature, but no factual comparisons are provided to support the claim. The authors acknowledge the existence of academic cartography outside the U.S. (p. 305), but they do not elaborate on that point. Two cartographers on the advisory board for the special issue are from German-speaking nations, yet the McMasters do not include

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Germany, Austria, or Switzerland in their list of countries with “very rich cartographic activity” (p. 305). By only broadly sketching the recent history of academic cartography in German-speaking nations (i.e., Germany, Austria, and Switzerland), one can show that the McMasters’ statement is factually wrong. Although the authors assert their exclusive focus on the history of academic cartography only in the U.S., it is informative to compare that history to the history in the German-speaking nations, as those nations form a homogeneous unit in terms of cartographic research and teaching activities, due to their shared language and similar academic practices.

Key cartographers in Germany at the turn of the 20th century—the McMasters’ “incipient period” (p. 306: a period dominated by few key individuals teaching at academic institutions)—were A. Hettner (Heidelberg, with cartographic publications as early as 1901 and 1910); A. Penck, R. Kiepert, and W. Behrmann (Berlin); M. Eckert and F. Ratzel (Leipzig); and H. Wagner (Göttingen). Max Groll received a lecturer position in cartography at the Berlin University in 1902. He is well known for a two-volume cartography textbook published in paperback format. This textbook, which was updated several times and extended in 1970 by G. Hake, has been a standard text in academic cartography ever since (currently in its 8th edition, Hake et al., 2002). In Austria, K.

¹“Academic study of map design did not emerge as a scientific discipline until after the second World War (McMaster and Thrower (1987)”, quoted from Buttenfield and Mackness (1991, p. 429).

Peucker (educated in Berlin and Breslau) started his academic career in cartography at the “Wiener Hochschule für Welthandel” (“Vienna University for World Trade”) in 1910. Peucker wrote influential works on theoretic (thematic) cartography and is known for his editorship on many atlases that include thematic maps.

Despite WWI, thematic cartography developed further at many academic institutions in the German-speaking nations. The contributions of Max Eckert’s *Kartenwissenschaft* (1921/25), discussed in Montello’s article in the same special issue of *CAGIS*, is better known to English-speaking cartographers than the contributions of the scholars cited above, as some of his writings have been translated (e.g., Joerg 1977). In Zürich, Eduard Imhof founded in 1925 at the Swiss Federal Institute of Technology (ETHZ) what was most probably the world’s first academic cartography department. Among other things, Imhof’s research dealt with developing the Swiss High School and Secondary School atlases, and later the Swiss National Atlas. As early as 1923 he was lecturing on cartographic design, and his “thematic cartography” course began in the summer of 1954, at the ETHZ. Imhof would later become the first president of the International Cartographic Association (1961-64). Imhof also taught international courses in cartography at the ETHZ in 1957 and 1960. He participated in the Second International Cartographic Conference (Rand McNally Conference) in Evanston, Illinois, in 1958, which the McMasters mention in their article.

The occurrence of two world wars in Europe during the first half of the 20th century will always be a major factor to consider when making any historic comparisons between the U.S. and European countries. Academic developments in cartography in the German-speaking countries were severely impacted by the two world wars, especially in Germany and Austria. The wars were probably one reason why the sheer volume of academic activity (totals of institutions and people involved) is smaller in terms of absolute numbers than in the U.S. (of course, raw figures should be population- or institution-weighted for comparison). But in spite of the wars, the qualitative impacts of European thematic cartography on academia are considerable in terms of research paradigms and particular research foci such as (but not limited to) map design, semiology, map semantics, generalization, and map perception and cognition (as shown, for example, in the Montello article in the special issue).

Until WWII, academic thematic cartography evolved in Europe as a result of the increased need

for maps on socio-demographic and economic (industrial) developments, as well as for identifying locations of natural resources, typically published in regional and national atlases. These developments were not exclusive to the German-speaking countries. Important academic cartographic works in this respect were the Russian atlases (1851, 1869-1873, 1914) and the Soviet atlas publications by Baranskij (1929-31). Baranskij started lecturing on “economic cartography” at the Geography Department of the University of Moscow in 1932. Arkadi Preobrazenskij’s textbook on “Economic Cartography,” showcasing much of Baranskij’s cartography principles, appeared in Russian in 1953, and was translated into German in 1956. Preobrazenskij’s text, together with the British cartography textbook by Monkhouse and Wilkinson (1952), were the two main textbooks for thematic cartography instruction in the German-speaking countries before the 1960s. Interestingly, Preobrazenskij traces the dasymetric mapping technique back to the Russian cartographer Semenov-Tjan-Sanskij (1922, cited in Preobrazenskij 1956: 40). Dasymetric mapping is often falsely attributed to J. K. Wright in the U.S., although Wright (1936) acknowledged its Russian roots. Another notable and early European contribution to the thematic mapper’s toolbox is the value-by-area cartogram. Hermann Haack and H. Wiechel published a cartogram depicting election results from the German Reichstag in 1903 (cited in Eckert 1925).

Aside from the established cartography centers in Berlin (A. Penck, at this point joined by N. Krebs and E. Tiessen), Vienna (E. Peucker), and Zürich (E. Imhof), new cartography programs emerged after WWI in Frankfurt am Main (W. Behrmann), Breslau (W. Geisler), Greifswald (W. Witt), Halle (O. Schülter), and Hannover (N. Creutzburg). The first cartographic society in Germany was founded in 1937, with participants from academia, government, and the map-publishing sector. Although academic cartography in Germany and Austria was under Nazi control during WWII (and thus confined to war-related activities), theoretical cartographic publications continued to appear in academic journals (e.g., on classification, color, map types) such as the *Jahrbuch der Kartographie* (“Yearbook of Cartography”) published in 1941-2.

After the war, academic cartography programs were first reinstated in Germany in Bonn and in Hannover (E. Meynen, K. Brüning, and W. Witt), and developed rapidly elsewhere after that. New cartographic societies were subsequently founded in Germany (1952), Austria (1961), and Switzerland (1969). One of the major cartographic

conferences in the German-speaking countries is the “Deutscher Kartographen Tag” (“German Cartographer Day”), which has taken place since 1952. The term “thematische Karte” (“thematic map”) was coined by N. Creutzburg at the first “Kartographen Tag” meeting. The major journal for academic cartography in the German-speaking countries is the *Kartographische Nachrichten*, published since 1951.

A series of thematic cartography textbooks written in German appeared in the late 1960s: “Thematic Cartography” by E. Arnberger (1966), “Thematic Cartography” by W. Witt (1967), “Thematic Cartography” by E. Imhof (1972)—to name just a few. Unfortunately, none of them were ever translated into English. The first edition of the “International Yearbook of Cartography” (edited by E. Imhof) appeared in 1961. The editorial board featured about 10 European cartographers and only one U.S. scholar, A. H. Robinson.

Another issue to consider when comparing U.S. and European academic cartography programs is that unlike in the U.S., academic cartography programs in Europe can be found at either engineering schools or universities, each with different research foci. True European specialties are Ph.D.-granting cartography departments and applied-science schools (i.e., “Fachhochschulen”) granting Masters degrees in cartography, as well as trade-school-like academic programs for cartography apprenticeships. Cartography departments are typically associated with engineering schools and thus have a more applied focus. These schools form independent academic units, as opposed to the cartography programs with a theoretical emphasis within geography departments at universities. Examples of European cartography centers are the ETH Zürich (founded by Imhof in 1925), ITC Enschede (1950), FU Berlin (1964), and TU Dresden² (founded by Pillewizer in 1959). The number of cartography programs within geography departments in the German-speaking countries, including their professors and graduates, would be too large for this paper to list.

The main point of this commentary is not to argue who was doing what, when, and where first in academic cartography. Academics are in the “business of ideas,” and it is well known that ideas are not generated in a vacuum but often appear in different parts of the world more or less simultaneously, sometimes being influenced by schools of thought, sometimes in isolation. One of the major

impediments to any history is the potential danger of linguistic fragmentation. To overcome the pitfalls of the language barrier, it becomes crucial to access key publications in their original language and not to rely solely on translated sources. Many important contributions have not been translated into the current dominant academic language (English), but that does not mean they do not exist. Bertin is only one classic example of this problem (original in French in 1967, translated into German in 1974, into English in 1983). Imhof’s work is another good example. He is mostly known in the U.S. for relief representation and label placement, because this work has been translated into English. His key contributions on thematic cartography (not only the 1972 textbook) are virtually unknown in the U.S. because they have not been translated.

Finally, one might claim that thematic cartography did not reach the status of a “discipline” early on in Europe. However, a discipline is more than a group of people working at U.S. academic institutions. Research paradigms, scholarly activities (e.g., academic journals, conferences, society meetings), and educational practices disseminated through textbooks also contribute to a discipline, but these are omitted from the McMasters’ discussion. I have shown above that these kinds of activities were in place and well developed in the German-speaking countries as early as, or even earlier than, in the U.S.

An article on the history of 20th century cartography may focus on only one part of the world, be limited to academic institutions and scholars, and only rely on works published in one language. However, some claims are more important than others. Obviously, when important claims are made, we all want them to be as accurate as possible.

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²Eidgenössische Technische Hochschule (ETH) Zürich (“Swiss Federal Institute of Technology”), International Training Centre for Aerial Survey (ITC) Enschede, Freie Universität (FU) Berlin (“Free University Berlin”), Technische Universität (TU) Dresden (“Technical University Dresden”).

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