

REVIEW ARTICLE

Early ideas of urban morphology: a re-examination of Leighly's *The towns of Mälardalen in Sweden*

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Leighly, J. B. (1928) *The towns of Mälardalen in Sweden* University of California Publications in Geography III [collected Vol. III dated 1931].

As should be the case with any academic discipline, an understanding of the origins and development of its concepts and terminology can be useful in contemporary explorations of its disciplinary relationships, areas of interest and directions of development. Urban morphology is no exception, and there have been several explorations of origins and developments, not least on a country-by-country basis through a series of papers in *Urban Morphology*. In exploring English-language developments, German origins have become familiar (Whitehand, 1981); but the introduction of the term 'urban morphology' has become obscure. The *Oxford English Dictionary* (OED) does not specifically discuss *urban* morphology: its nearest approach is *village* morphology, citing a reference by the economic historian Maurice Beresford (1954). But the OED's citations are not systematic, and omission does not mean non-existence! In fact not only was the idea of systematically studying urban form commonplace rather earlier, before the turn of the century, especially in German-speaking geography (as Whitehand, 1981, shows), but perhaps the earliest publication of the term in English is the American geographer John B. Leighly's substantial study *The towns of Mälardalen in Sweden* (1928). This paper re-examines Leighly's study in terms of its background in the Berkeley school of cultural geography, heavily influenced by Carl Sauer; the ideas developed within the paper itself; and suggests why this early publication has virtually vanished from the consciousness of academic urban morphology today.

Sauer and his influence

Leighly's roots in the study of cultural landscape lie with Carl Sauer (1889-1975), the founder of this tradition at the University of California at Berkeley. Sauer, previously Leighly's academic mentor at Michigan, brought him to Berkeley, and was subsequently his PhD supervisor there. Sauer's personal influence on the US academic world has been widely studied: indeed it has been suggested that he is perhaps the most distinctive and studied geographer of the last century (cf. Denevan and Matthewson, 2009; see also M. P. Conzen, 1993; Kenzer, 1987a). Sauer 'soaked up' German ideas on cultural landscape while in Chicago and Michigan particularly before the First World War (see Kenzer, 1985), but he had also spent 5 years at school in Württemberg, and 'read German geographers [in the] evenings who were doing what I wanted' (M. P. Conzen, 1993, p. 26; Martin, 1987, p. ix). This German intellectual tradition, building on Ritter and a range of contemporary geographers, was reflected in his publication *The morphology of landscape* (Sauer, 1925). He headed Berkeley's Department of Geography between 1923 and 1954. There he created the 'Berkeley School', 'an intellectual dynasty ... a flowering of sustained excellence ... a cumbersome approximation to a personal dominion which resulted in intellectual direction' (Kenzer, 1987b, p. xiii). He influenced, directly or indirectly, scholars such as J. B. Jackson, Wilbur Zelinsky, David Lowenthal, P. F. Lewis and Donald W. Meinig

– although this influence and approbation were not universal and Richard Hartshorne, for example, was particularly critical of this approach (M. P. Conzen, 2001, p. 3089; see also M. P. Conzen, 1993, p. 30 n. 105).

Sauer's influence was particularly strong in the inter-war period, when 'British geographers were strikingly disinterested' in such German concepts (M. P. Conzen, 2001, p. 3089). But, in the quantitative revolution of post-war US geography, his approaches came to be derided as 'bumbling amateurism and antiquarianism' (Gould, 1979, p. 140).

The morphology of landscape conceptualized morphology as a synthesis: the identification of changing processes responsible for creating, and subsequently modifying, different forms. A time perspective was essential, especially for examining the change from a physical to a cultural landscape (Sauer, 1925, pp. 36-47). This was, to a large extent, the German concept of *Kulturlandschaft*. He did later draw back from this heavy emphasis on landscape (M. P. Conzen, 1993, p. 28). However, little critical commentary on *The morphology of landscape* appeared in print either at the time of its publication or subsequently (Mathewson, 2009, p. 11).

However inspirational, his means of engagement with his PhD students was described as '*laissez faire*', at least until they had produced a draft text: 'not being guided into any narrow path, we were entirely free to find our own' (Leighly, 1979, p. 7). Another former PhD student said 'that your interest was shared with Sauer was undoubtedly the most important factor' (Mikesell, 1987, p. 148). Sauer cared little for formal disciplinary backgrounds and did not require a Master's degree as a prerequisite for doctoral study: 'he trusted the students' native intelligence and ingenuity to overcome such obstacles as they encountered in their reading and in their original investigations' (Leighly, 1979, p. 6). Nevertheless, 'Sauer had a wondrous ability to get work out of us. He expected us to learn by our efforts. No one wanted his ignorance exposed to him if it could be avoided. He flattered us by expecting much from us' (Parsons, 1979, p. 12). Hence Sauer's

influence on his doctoral students was one of trust and inspiration, rather than one of finding willing volunteers to explore specific topics. It built on their curiosity, built up their confidence and rewarded their quality.

Leighly the person and scholar

Leighly came to Berkeley with Sauer as an 'associate' ('an anomalous rank in which one might pursue graduate study while teaching certain courses independently': Leighly, 1979, p. 6), and became the Department's first PhD award in 1927 for his Swedish work (<http://geography.berkeley.edu/about/history.php>) at a time when Berkeley was only the eighth US university to offer a PhD in geography (M. P. Conzen, 1993, p. 30). Following his PhD he became 'a valued departmental colleague' of Sauer (Gade, 2009, p. 40) and finally Head of Department. Sauer said of him that his 'intellectual curiosity is insatiable. I consider him the sort of man one finds only once in a blue moon' (Sauer to Holway, 12 March 1923, quoted in Macpherson, 1987, p. 72 and Martin, 2009, p. 114). But, initially, he was appointed to work in cartography and physical geography.

He was 'a man of unusual capacity' (Dunbar, 1981): 'a great thinker capable of transferring knowledge from one discipline to another' (Buffin-Bélanger, 2010, p. 114). He was 'an uncommon man, a physical scientist who was also a man of letters, renowned almost as much for his extraordinary command of, and love for, the English language as for his meticulous scholarship' (Parsons *et al.*, 1986). His papers were 'verbally efficient' and displayed 'polished phrases that one remembers for years' (Miller, 1988, p. 349). Parsons also described him as a 'quiet, unassuming gentleman scholar. Ignoring opportunities elsewhere, he chose to remain in the shadow of Sauer, his precise and logical mind a natural complement to that of the speculative and free-wheeling chairman. His unassailable integrity was legendary' (Parsons, 1979, p. 10). Apparently many of his ideas came from the need to organize and prepare

lectures (Miller, 1988: see also Leighly, 1983, for his comments on teaching): he was not a major collector of field data. But he did teach urban morphology, under that title, until at least 1930 (Miller, 1988, p. 353).

Influenced by Sauer's knowledge of German geography, Leighly was clearly aware not only of German urban geography, but broader geographical approaches. He wrote that 'we became acquainted with Walther Penck's *Die morphologische Analyse* (1924) soon after it appeared' (Leighly, 1979, p. 7) and 'I introduced students to [Penck's book] long before its publication in English [in 1953]. I translated orally the essential parts of the book, paragraph by paragraph...' (Leighly, 1983, p. 84). Sauer also hired, and facilitated visits from, German academics. So Leighly was familiar with the concept and term 'morphology' in geomorphology and landscape contexts; his application of this to urban landscapes was probably inevitable.

The towns of Mälardalen in Sweden

The towns of Mälardalen in Sweden, a shortened version of his 330-page PhD thesis, was published in 1928. It appeared in the *University of California Publications in Geography* series that Sauer had established soon after his arrival. Zelinsky (1988) called it 'greatly respected', and notes that Leighly went on to produce a 'classic monograph on *The Towns of Medieval Livonia* in 1939', although 'published ten years after the field work and perhaps out of a sense of obligation to work up the data' (Miller, 1988, p. 353). Miller calls both *Mälardalen* and *Livonia* 'classics' (1988, p. 353). But, despite these approvals, *Mälardalen* has not been widely cited, in so far as the 23 citations in Google Scholar (excluding a citation in an abstract of a conference paper on which the present article is based) are indicative. However, it is clear that Leighly strongly influenced R. E. Dickinson's comparative urban study *The West European City* (1951): the entire chapter on Sweden derives from Leighly, and this is the first, perhaps most systematic, country study in

the book. Clearly some current morphological scholars have not forgotten it, at least in terms of its contribution to the development of the discipline. Nevertheless, it is the study of large cities around the Baltic by Sten De Geer (1912) that Abarkan (2009) identifies as the first attempt to address the morphological aspects of Swedish settlements.

Mälardalen is of particular relevance in its exploration of urban form. It begins with a discussion of geology and physical geography in central Sweden, of pre-urban movements of people and culture, and a substantial historical overview of the historical bases for urban growth. The study covers ten towns, some of which at the time were scarcely more than villages. They included the 'dwarf towns' (population under 2000) of Sigtuna, Mariefred and Torshälla; the 'small towns' (population 'about 5000 or 6000') of Strängnäs, Arboga, Enköping and Köping; and the 'medium towns' (population 'about 30 000') of Västerås, Uppsala and Eskilstuna. It is not until page 29 that anything morphological is found, with discussion of house forms as elements of urban structure. Leighly uses what little archaeology there was, and historical maps, to discuss house plan and location on plots, identifying two types of enclosed building groups in this region (p. 32) and discussing the Swedish word *gård* (enclosure / yard): noting that there is no English equivalent 'for the complex of buildings devoted to the various functions of a town household' (p. 33, n. 28). A historical perspective shows developments in plots and building positions, and in building materials and forms.

An important facet of these, originally wooden, towns is their propensity to destruction by fire, and the effects of post-fire rebuilding on traditional plans (p. 44 ff). Brick allowed taller building but, although introduced into the region in the late-twelfth century, was only very slowly adopted outside monastic developments. Timber was abundant in this region. Hence 'fire has been, since the seventeenth century, the agent which has made [towns] plastic and susceptible to the influence of changing tastes' (p. 45). Event-

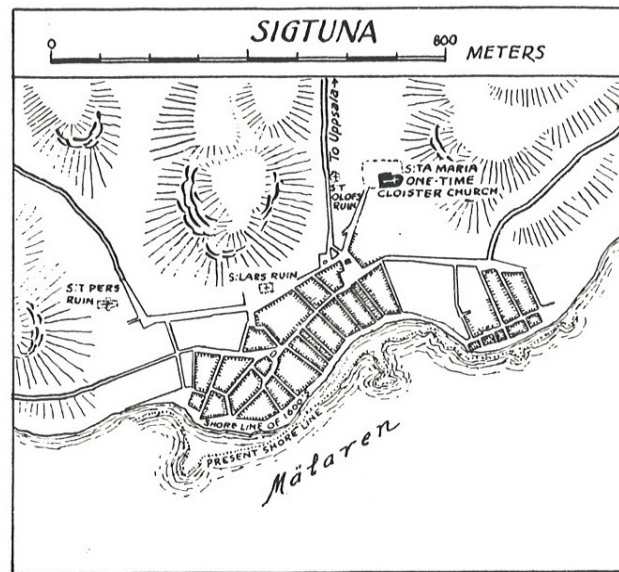


Figure 1. Sigtuna: hand-drawn plan by Leighly. Showing commonalities with contemporary work such as that by R. E. Dickinson.

ually central regulation, influenced by Mediterranean urbanism, compelled what is interpreted as a more orderly restructuring of fire-damaged towns.

Leighly then compares the individual towns under the heading of 'natural topography and communication routes in the plans of the towns', although his text does draw in many other issues too. He notes that 'medieval 'irregularity' in street pattern does not signify capriciousness' (p. 51) – it is regrettable that more do not recognize this, so many years later! He recognizes the significance of water communication in urban location, structure and form, including its effect on traditional buildings. And, taking account of the effect on water levels of isostatic uplift, changes are noted in the centre of gravity of a settlement, or the extension of its waterfront.

In short, although his own hand-drawn mapping largely consists of thumbnail street layouts (Figure 1) rather than detailed plot metrology, he presents a careful and systematic comparison of the towns, and identifies a number of issues that later morphologists – particularly M. R. G. Conzen – systematized and theorized, and for which new terminology was developed. Although there is

no plot analysis or metrology, there is some comparative measurement of street widths. The infilling of market squares with booths, and later permanent structures, is one example – Conzen's 'market concretion'. Another is the recognition of different stages in town growth from characteristics of street design, form and width, although Leighly did not explicitly delineate the stages on his maps. His archival work and language skills often enabled him to identify the date and reason for such changes and expansions – recognition of the significance of agents and agency. Conzen used terms such as 'plan unit', while Leighly uses 'element' and 'unit', not quite so systematically. Finally, and (particularly for this region) at an early date, he identifies characteristics of urban form associated with newer processes such as urban industrialization and suburbanization.

Leighly's other interests

Leighly's interest in other types of morphology is demonstrated in his paper on 'the morphologic significance of turbulence in the flow of water in streams' (1932) –

incidentally demonstrating the speed of his move away from *urban* morphology. Of his 66 papers published between 1922 and 1979, 5 were on fluvial geomorphology, 19 on geographical epistemology and 26 on meteorology (Buffin-Bélanger, 2010, p. 114). The paper published in 1932 was reviewed as a physical geography ‘classic’ by Buffin-Bélanger (2010), and Leighly’s ability to weave together a number of distinct ideas in order to propose a theory is recognized.

Buffin-Bélanger (2010, p. 114) concludes that ‘from his PhD and his overall career, one can say that Leighly was not a fluvial geomorphologist, nor was he a hydrologist’ – to which we can add that neither was he an urban morphologist. Even so, *The towns of Mälardalen* is clearly a work of urban morphology, and one in which he identifies and explores a number of concepts later developed and systematized by others. However, in an unpublished autobiography he wrote that ‘both from instruction and wide reading I learned a little about many things, but acquired special competence in none ... Those who come later will face more severe competition than I have faced, and probably have to be more specialized’ (quoted in Parsons *et al.*, 1986).

It is interesting to note in this respect that one of Leighly’s papers (1955) was criticized (Hartshorne, 1960, pp. 70-1) for suggesting that physical geography should exclude all consideration of human use and focus solely on tracing ‘the operations of the laws of nature upon the earth’. Given Leighly’s PhD thesis and two publications in urban morphology, development and land use, he was not unaware of the importance of human impact; instead criticism of him might be more about over-use of selective quotation (Hartshorne, 1960, pp. 70, 94).

Conclusions

The history of ideas is significant not just for its own sake but because it can teach us about past directions, past mistakes, and past successes. One of its key lessons is that

fashions in thought change and personalities are important both in learning and transmitting ideas and in forgetting or ridiculing them. So when Gould wrote that ‘we can parade our superficial catalog of Ritters and Ratzels’ (1979, p. 145) he seeks to dismiss a major intellectual tradition, a body of philosophy and knowledge about our impact on the earth, and by implication much of the underpinnings of urban morphology. His ‘much more profound questions’ are today addressed by sophisticated historical analyses, GIS- and GPS-based analyses of space and people’s use of it, sociological studies of agents and agency, and others. It is a rich field. But its deep history in German philosophy and intellectual tradition are also important.

So what is the significance of Leighly’s paper? Is it a morphological classic? It is certainly urban morphology, and merits our attention as a very early manifestation of urban morphology in English academic publishing. But it was conceived as a work rooted in a German-inspired intellectual tradition of cultural landscape studies. M. R. G. Conzen later wrote that ‘towns have a life history. Their development, together with the cultural history of the region in which they lie, is written deeply into the outline and fabric of their built-up areas’ (M. R. G. Conzen, 1960, p. 6). Leighly’s work substantially prefigures Conzen’s comments. Leighly is deeply rooted in cultural landscape as a research focus; and his opening comments on geology and physical geography in his study of the towns of Mälardalen show how aware he was of the types of influence that shape vernacular architecture, including form and building materials. He identified, albeit in a crude way and without today’s sophisticated means of representation, key features that later morphologists have studied in greater detail and with a more explicit focus on developing theory.

The towns of Mälardalen is evidence that some of the earliest English-language work in urban morphology was clearly following an international agenda, despite the difficulties of the early years after the First World War. It was a detailed empirical study of another

country, founded upon a clear engagement with the intellectual traditions of a third. And, at a point when the academic discipline of geography was relatively young (for parallels in the UK see Slater, 1988), Leighly's study was also deliberately engaging with other disciplines, including urban and cultural history.

So why, given the strong positive reception of this paper by his obituarists, is it so little cited? For, despite a first US citation in its year of publication (Morrison, 1928), *Mälardalen* is relatively little cited, and appears to have played little part in developing a Swedish or wider Scandinavian approach to urban morphology or urban geography (M. R. G. Conzen, 1948). His own personality plays a part: the breadth of his interests, his clear reluctance to 'blow his own trumpet' and, to an extent, willingness to remain in his mentor's shadow, highlight how different contemporary academic practice has become. The commonly-held generic move in academic research and writing from descriptive to critical; the conceptual richness and dissemination of later works by Conzen, Muratori, Caniggia and others; and the geographical focus on small Swedish settlements are all significant factors; but reviewing the content of Leighly's work in detail shows a surprising alignment to many ideas common in contemporary urban morphological writing. Leighly's contribution should be more widely appreciated. It is certainly a landmark in the field.

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