
The study of urban form in Germany

Burkhard Hofmeister

Technische Universität Berlin, Strasse des 17. Juni 135,
10623 Berlin, Germany¹

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Abstract. *Urban geography in Germany is unique inasmuch as there was a period of three decades at the beginning of the twentieth century during which geographers focussed their research on urban morphology. In analysing the layout and the building fabric of towns their most important tool was the town plan. This period was followed by periods during which urban functions and urban structures were the major concerns of urban geographers. However, in the second half of the twentieth century there were again innovative contributions to the study of urban form, stimulated by the activities of architects and urban historians, the research of British geographers, such as A.E. Smailes and Berlin-born M.R.G. Conzen, the urban conservation movement, and activities of the study group Die alte Stadt.*

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During the 1880s, when geography became established as a scientific discipline in German universities, the first generation of professional geographers undertaking research in the field of human geography was mainly concerned with the two basic questions of where and why urban places had come into existence. The location of towns and their *raison d'être* were the dominant topics until about the turn of the century.

Friedrich Ratzel, the most prominent geographer of this first period, had been trained as a pharmacist before studying natural sciences. He was appointed to the chair of geography in the University of Leipzig in 1886. A good example of the methodology of this first generation of geographers was his treatise *Die geographische Lage der großen Städte* (The geographical location of large cities) (Ratzel,

1903). The author was, however, not merely concerned with where cities were located. He tried to find out about the motives of the founding fathers of an urban place and what growth factors might have attracted them to this particular locality. It was in this context that Ratzel coined the term *Raumqualität* (quality of space). What he had in mind was an evaluation of the particular site and situation chosen for the settlement in question.

Around the turn of the century some representatives of human geography began to argue that the study of location and of genetic questions was far from satisfactory. Walter Geisler in the introductory chapter of his book *Die deutsche Stadt. Ein Beitrag zur Morphologie der Kulturlandschaft* (The German town: a contribution to the morphology of the cultural landscape) pointed out

that we shall only be able to answer the question of what a particular landscape looks like 'if we do not restrict ourselves to the mere distribution of geographical objects but rather describe their form' (Geisler, 1924, p. 365).

The urban morphology epoch

While physical geographers were occupied with the description of landforms, and their vegetation cover, human geographers started to focus on the layout of urban places, the street patterns, transportation lines, squares, open spaces and the three-dimensional building fabric. Thus the following three decades became known as the morphological or physiognomic epoch of German urban geography.

The layout of towns was considered a rewarding object of research because of its persistence. The longevity of street patterns became particularly evident after the Second World War when, even in areas that had been heavily damaged by air raids, reconstruction work often followed existing streets, a phenomenon that induced city planners to comment that 'we are building around our own sewers'.

This second epoch of urban geography may be traced back to the time span from 1899 to 1928. It started with the publication of Otto Schlüter's *Über den Grundriß der Städte* (On the layout of towns) (Schlüter, 1899). Schlüter was appointed to the chair of geography in the University of Halle in 1911. It was he who coined the terms *Morphologie der Kulturlandschaft* (morphology of the cultural landscape) and *dingliche Erfüllung der Erdoberfläche* (objects shaping the earth's surface). The Finnish geographer J.G. Granö was influenced by this methodology of German geographers and, while proclaiming *Reine Geographie* (pure geography), in turn influenced German geographical studies far into the 1920s.

Schlüter published a treatise on the settlements of north-eastern Thuringia in 1903. Other authors contributing to the

morphology of urban places in Germany were E. Schrader (1922), with his publication on the towns in Hesse, and Robert Gradmann, with publications on the towns in Württemberg (1914) and Swebia (1916). The culmination of the morphological epoch was reached when, after writing his famous monograph on Danzig in 1918, Geisler published his aforementioned comprehensive treatise *Die deutsche Stadt* (Geisler, 1924).

The last important study along these lines was Rudolf Martiny's *Die Grundrißgestaltung der deutschen Siedlungen* (The layout of German settlements) (Martiny, 1928). But in the meantime Hans Bobek (1927) had already stimulated a change of direction with his treatise *Grundfragen der Stadtgeographie* (Basic questions of urban geography), in which he pointed out that the functions of urban places were far more important than their morphological appearance. As a consequence, the morphological approach to urban geography developed little over some three decades, and was to celebrate its revival only in the latter years of the twentieth century.

The methodology of the morphological approach

As to the methodology of urban geographers during the morphological epoch, the town plan became the characteristic instrument of their endeavours. They analysed the street patterns, especially the length, width and direction of streets.

The first German scholar to make extensive use of town plans for analysing the layout of German towns seems to have been the Strassburg-based high school teacher J. Fritz (1894) with his essay on *Deutsche Stadtanlagen* (German towns). Two other significant publications were Eugen Oberhammer's paper *Der Stadtplan, seine Entwicklung und geographische Bedeutung* (The town plan, its development and geographical relevance) read to the Sixteenth Meeting of German Geographers and published in the conference proceedings

(Oberhummer, 1907), and the treatise by Hugo Hassinger (1910) *Über Aufgaben der Städtekunde* (On the problems of urban studies), published in *Dr. A. Petermann's Mitteilungen*. Both authors underlined the importance of historical town plans for tracing the original settlement layout. They discussed in detail the discernment of ancient cartographers and the reliability of old town plans.

Hassinger stressed the fact that old town plans provide evidence of the original design of towns. He argued that the oldest streets were laid out with regard to the surface relief and the distribution of water bodies, and reflected early human features such as old rural field paths and town gates and town walls. Such main routes, set by nature and by man, have in later times been connected with each other by subordinate or secondary streets. A third category are those streets that have later been added to the original street network as necessary corrections, for instance the replacement of old narrow streets by modern broad boulevards. A final category are those arbitrarily constructed streets as they are found in the grid-like patterns of recent suburban areas (Hassinger, 1910).

The various publications on the layout of German towns stressed two issues that initiated a vigorous discussion among German geographers. First, by means of comparison of the layout of towns in various parts of Germany some authors came to the conclusion that not only rural villages but also towns looked different on either side of the so-called Elbe-Saale-Line. These two rivers were, for many centuries, the dividing line between the regions to the west, settled by Germanic tribes, and the regions to the east, settled by Slavic tribes and only after 1200 colonized by Germanic people from farther west.

Consequently, towns to the west of the Elbe-Saale-Line were believed to have grown over a number of centuries with the result that their street patterns were more or less irregular. In contrast, the towns east of the Elbe-Saale-Line were founded by the colonizing people under the rule of particular

governing authorities on the basis of some prepared plan so that they had a much more regular street pattern, if not an exact grid. It was even argued that the population of west German towns mainly grew by the expansion of existing towns in various directions by the elongation of existing streets into the surrounding area while the population of eastern Germany mainly grew by the founding of new villages and towns.

Opponents of this theory retorted that there were also regular street patterns in the towns of the western German provinces, and that the partition of Germany into two great settlement regions with irregular and regular layouts respectively was just too simplified a story of how Germany had become populated.

Very likely this discussion had been influenced by the work of historians, in particular the famous book by S. Rietschel (1897) on *Markt und Stadt in ihrem rechtlichen Verhältnis* (Market and town and their juridical relationship).

The second issue was the significance of market places and town walls in the layout of towns. It was argued that the market had developed over several centuries from a mere widening of the main street to a centrally-located square of increasing size, and in some towns there were even several market places each devoted to the trade in a particular commodity, such as horses or other animals, meat, grain, vegetables, fish or forest products. There was, indeed, certain evidence of the market place becoming more prominent with increasing distance east of the Elbe-Saale-Line.

Almost every German town that existed by 1200, or was founded after 1200, was a walled town in accord with the motto *Bürger und Bauer trennt die Mauer* (citizen and peasant are separated by the wall). In many cases the wall followed a roughly circular line, and this had an impact on the direction of at least a few streets. Some streets ran parallel to the wall while others ended in front of it. One or two thoroughfares were oriented toward the gates, which were the only entry points into town. The extreme

case was four gates at the four cardinal points and two main streets connecting these gates and forming a cross in the centre of town.

When, after 1500, a number of towns were fortified with large ramparts and bastions, these fortifications had a still greater impact on the layout of towns. Some newly-founded fortresses, such as Neuf Brisach near the French-German border, had a spectacular layout dominated by a huge centrally-located *place des armes* and an exact grid pattern of streets. When in more recent years those fortifications were dismantled, the open spaces were often used for ring roads and railway lines.

A special category of towns in Germany were the numerous court-towns of the royalty and high nobility of the former German sovereign territories. These towns used to be designed according to the founders' conception, the streets being oriented toward the royal palace. Some such layouts were a combination of both a radial street pattern and a grid.

In a post-war treatise on Mannheim, Friedmann (1968) pointed out that the *esprit géométrique* had completely ruled the layout of town to the extent that the rows of blocks (each a perfect square within a perfect grid) were each assigned a letter of the alphabet and each individual block was assigned an additional number. The houses were not numbered along the streets but rather along the four sides of the individual block.

In contrast to the layout, less attention was paid to the third dimension, namely the building fabric. There were at least six aspects to be investigated: first, the position of houses relative to the direction of the streets; secondly, housing densities as related to compact city blocks or free-standing houses; thirdly, the age and style of the buildings; fourthly, the construction material with regard to its workability and the building style; fifthly, the height of buildings, also with regard to the construction material; and sixthly, the shape of the roofs.

One major issue discussed by Hassinger (1910) and several other authors was the

extent to which town houses had been derived from the peasants' houses of the town's rural environs, the influences from farther afield, and the effects building regulations might have had on houses. Such influences and regulations may have either supported or prevented the acceptance of foreign building materials and foreign architectural styles.

Initially there was discussion about whether the gable had originally faced the street and whether in the course of time a *Giebelschwenkung* (turn of the gable) had taken place so that a greater number of houses, particularly those outside the old town kernel, were now standing in a longitudinal direction, i.e. parallel to the street.

Evaluation of the urban morphology epoch

The morphological approach to urban geography as it was practised in the first three decades of the twentieth century was not really a complete paradigmatic change. Genetic and location factors as well as urban functions had always been objects of urban geographical research. Thus the whole first chapter of Geisler's book *Die deutsche Stadt* (1924) was devoted to the question of the choice of *topographische Lage* (site) for any new settlement. Several authors made statements to the effect that urban form must not be isolated from other urban aspects, such as location, growth factors and the functions of towns. The only difference in comparison to the previous period and the following periods of the discipline was the fact that more emphasis was put on the question of urban form while other aspects of urban research were of minor importance. During those three decades urban form became the starting-point and the major topic of urban geography.

Some authors claimed that, on the basis of urban form, conclusions could be drawn about the genesis of an urban settlement. Changes of the direction of streets and of the size and shape of building blocks served as indicators for tracing different stages of

development of a town, as did changes of building materials and architectural styles. Even Bobek acknowledged the results of the urban morphological research of Schlüter and other scholars (Bobek, 1927).

It is hard to judge how important and how successful those discussions on the form of towns were. It may be somewhat disillusioning to learn that at the very end of the urban morphology epoch both Geisler (1924) and Martiny (1928) in their respective publications stated that architects and directors of museums, rather than geographers, had cared about research on urban form. Geisler pointed out that 'it is characteristic that there are quite a few excellent compendiums of geomorphology, but that except for a few monographs there is virtually no systematic treatment of the morphology of the cultural landscape' (Geisler, 1924, p. 365). These were not inspiring statements about the period of urban geography that now came to an end.

Post-war geography and the study of urban form

The period from 1928 to the mid-1950s was dominated by research on urban functions and urban structure. Bobek with his early publications had served as a pacemaker; Christaller's central place theory of 1933 was a milestone, as was the editorial work of Passarge (1930) on *Stadtlandschaften der Erde* (Townscapes of the world), to mention just a few of the outstanding contributions of the time.

The study of urban form was, however, not totally neglected. The first author to have returned to urban morphology seems to have been H.F. Gorki (1954) with his treatise on *Die Grundrisse der westfälischen Städte* (The layout of Westfalian towns). The author distinguished radial, grid, featherlike, parallel and single-street patterns of the town kernel. He came to the conclusion that two major types of layout, a circular-radial type and rectangular-rectilinear type, occupied distinct areas within the province of Westfalia

and that these may very well be identified with areas where, on the one hand, towns had grown progressively and, on the other hand, they had been founded according to some preconceived plan (Gorki, 1954, pp. 17-18).

Three major attempts were made to push the study of urban form into new directions. The first of these was a treatise by Ilse Möller (1959) on a suburban area of Hamburg, dealing with the suitability of different house types for specific functional uses. Möller distinguished between seven *soziale Grundstrukturen von Gebäuden* (basic social structures of houses) in the particular part of Hamburg she investigated: first, small residential houses; secondly, large residential houses divided into small flats; thirdly, large residential houses divided into large flats; fourthly, rows of suburban villas; fifthly, free-standing villas of normal size; sixthly, free-standing villas of extraordinary size; and seventhly, public buildings. She then mapped the distribution of each basic structural type and tried to establish areas dominated by one or two such types. She claimed that each basic structural type had a typical capacity for certain urban functions seeking accommodation. The higher the function, the greater was the demand for appropriate housing.

The lower-rank basic structures will accommodate all kinds of shops, such as grocery shops and general merchandise shops as well as small craftsmen's shops and restaurants, the small residential house being even more attractive to such enterprises than the large residential house divided into small flats. Of the high-rank basic structures, the large residential houses divided into large flats and the rows of suburban villas, and particularly the free-standing villas, very seldom accommodate such shops and craftsmen's enterprises. However, all these high-ranking basic structures are most appropriate for physicians' and solicitors' offices, administrative offices, fashion parlours, boarding houses, publishing firms and consulates. The last three functions, owing to their higher demand for space and their

greater need for display, even prefer the suburban villas (Möller, 1959, pp. 141-2).

The second treatise was the dissertation by Arnold Schulze (1962) *Die Sielhafenorte* (Tidewater channel settlements) on those very peculiar settlements along the German coast of the North Sea. His investigation was devoted to *Formengenese* (genesis of form). The author's intention was to trace those tidewater channel settlements to the original rows of houses facing the coast line and to show the various steps of development to the rather sophisticated present-day *Deich-nischensiedlungen* (cove and dike settlements). The author stressed that, despite the loss of the seaport function of some of the tidewater channel settlements and their transformation to tourist or commuting settlements or residential places for agricultural workers, their peculiar layout and building fabric have been largely preserved to the present day.

The third treatise was the article by Friedrich Huttenlocher (1963) in *Geographische Zeitschrift* on *Städtetypen und ihre Gesellschaften anhand südwestdeutscher Beispiele* (Clusters of urban types in southwestern Germany). The author claimed that physiognomic types of towns are regional types inasmuch as in any particular region the dominant construction material not only determines the prevailing colour of the buildings, but also certain architectural features and details of style, these being dependent upon the workability of the material in question. A result of his studies was recognition of what he called *Materialprovinzen* (provinces of dominant construction materials).

He distinguished between three such provinces in southwestern Germany: the region of the red sandstones of the Odenwald Mountain, northern Black Forest and Upper Rhine Valley, the Keuper sandstone region of the Neckar Valley and a portion of Kraichgau, and the Backstein region of bricks in Upper Swabia. He also pointed out that houses started to look different as soon as people ran out of particular construction materials. For instance in Brandenburg, a

glaciated region, the steeple of Berlin's Nicolai Church erected in 1223 was built of erratic boulders, but after these became rare people switched to different construction materials, and the French monastic church erected in 1271 was built of brick.

In addition to these three approaches, there have been other contributions to urban morphology, such as the monographs on the former ducal residences of Alt-Mannheim (Friedmann, 1968) and Wolfenbüttel (Ohnesorge, 1974) and the treatise by Krings on Belgian towns (Krings, 1984).

A number of German geographers did field work on urban places outside their own country. Although their investigations were generally more concerned with other aspects of towns, they nevertheless made some valuable contributions to urban morphology. For example, Elmar Sabelberg (1984) provided most stimulating accounts of Italian towns. Judged by the numbers of geographers involved in urban studies, the most intensively investigated towns are those in the Islamic culture realm (Wirth, 2000) and Latin America.

Contributions from outside Germany

In the English-speaking countries there was no urban morphology epoch, in the first half of the twentieth century at least, comparable to that in Germany. In the United Kingdom urban morphology was initiated in the 1950s when A.E. Smailes (1955) published his famous paper 'Some reflections on the geographical description and analysis of townscapes' in the *Transactions of the Institute of British Geographers*. However, British geography received an important impetus from a study on the townscape of Alnwick by M.R.G. Conzen (1960), a Berlin geographer who had emigrated to Great Britain and whose ideas returned, so to speak, via England to his country of birth (Whitehand, 1981).

In the United States urban morphology had never been an important issue – the papers by John Leighly on Swedish towns (1928)

and Baltic towns (1939) were rather exceptional. It was only after the 1960s that American geographers began to make up for this neglect. *Cum grano salis* these American contributions to urban form might be equated with post-war German social geography, if Rickert's house façades are seen as a social-geographic indicator in terms of Hartke's Munich school of social geography, a point made by Joseph Hajdu (1968).

Developments in other fields

There were also incentives from other disciplines. In 1952 the architect and city engineer Karl Gruber published his famous book *Die Gestalt der deutschen Stadt* (The shape of the German town) which contained numerous drawings and offered a wealth of information on the form of towns throughout Germany (Gruber, 1952). The urban historian Heinz Stoob initiated the voluminous *Deutscher Städteatlas* (Atlas of German towns) (Stoob 1973 ff). There had been co-operation between geographers and the representatives of various disciplines in preparing the historical atlases of the German Länder. Atlases such as the *Historischer Atlas von Baden-Württemberg* contained several issues on the layout of medieval towns, the comments on which were usually written by geographers (Scheuerbrandt, 1976).

An impetus not to be underestimated came from the environmental movement in general and the urban conservation movement in particular after Earth Day 1970. People in many countries had become aware of the fact that, in the two and a half decades after the Second World War, much harm had been done to nature and little attention given to environmental issues. In the field of urbanism this meant that too much of the urban heritage had already been destroyed and replaced by modern and often rather sterile structures and that there was a high demand for careful restoration and cautious conservation. This, in turn, meant that there

was a need to produce inventories of the older parts of towns and to care about their layout and building fabric. Planners were in need of preparatory investigations with regard to urban renewal programmes, the distant effects of prominent buildings, the compactness of streets and squares, and deficiencies such as the lack of ventilation or exposure to sunshine.

In 1973 a study group called *Die alte Stadt* (The old town) was founded in Esslingen am Neckar. Eventually some 140 towns with historic kernels in the German-speaking countries of Germany, Austria, Switzerland and South Tyrol became members of this association which regularly held meetings twice a year, the member towns being represented by their mayors, their chief engineers, their urban conservationists, their local historians and archivists. A quarterly journal of the same title, *Die alte Stadt*, was founded, on the editorial board of which served, among others, one professional geographer. The present author had the honour to hold this position for 15 years. The journal served as a kind of link between practising town administrators and planners on the one hand and academics specializing in urban affairs on the other.

Stadtgestalt and Sozialtopographie

Urban geographers in Germany have thus resumed research on urban form since the mid-1970s. In 1979, H. Schroeder-Lanz organized a Canadian-German symposium on *Stadtgestalt-Forschung* (urban morphological research) in Trier with a remarkable number of foreign geographers participating. The proceedings were published some years later in two large volumes (Schroeder-Lanz, 1982/1986). One contribution to this symposium, by Jürgen Lafrenz, is particularly noteworthy. He applied the so-called metrological method (the science dealing with weights and measures) to his research on street patterns. After looking for standard measures determining the sizes of lots and the width of

streets, he searched for deviations and tried to detect disruptions of urban growth on the basis of such deviations.

In a later paper (Lafrenz, 1989), the same author used the city of Lübeck as an example for what he called *Bewertungszyklen* (evaluation of cycles of buildings). According to his findings there have been two such cycles in this town's recent past. The economic growth during the nineteenth century led to lot sizes, street widths and building heights that differed from the traditional street pattern and building fabric of the old town. From the beginning of the twentieth century through to the 1920s, people made attempts to correct those errors. A second cycle started after the Second World War when, during the course of reconstruction, many old and partially destroyed buildings were torn down and replaced by modern structures, these usually being out of proportion to the traditional building stock. After 1970, the urban conservation movement made people sensitive to such blunders, and another reevaluation in favour of traditional forms led to a more subtle treatment of townscapes.

A different line of research was the so-called *Sozialtopographie* (social topography), that is social data assigned to individual lots or building blocks or even larger units of the town. Since statistics are subject to certain restrictions at the level of the individual lot, this method cannot always be applied using present-day data. However, historical data may be used to reveal earlier developments of towns. Research along these lines has already produced interesting results, the investigations by Dietrich Denecke (1980) being of particular note. But there are other disciplines involved in this kind of research: for example, there are the contributions by the urban planner Cord Meckseper. His paper *Stadtplan und Sozialstruktur in der deutschen Stadt des Mittelalters* (Town plan and social structure in the German medieval town) (Meckseper, 1972) is of special note.

Various authors claimed to have found evidence that as early as the late Middle Ages tanners had been banned from the town proper and that housing for them was

provided outside the town walls along the banks of a river or canal. Tanning and certain other noisome crafts were thus concentrated in particular streets, the names of which reveal to the present day the former location of such crafts. Even back in the fifteenth century, differences in housing rents between the more- and less-centrally located streets made for the segregation of higher- and lower-status residents as well as different commercial functions. In 1515 the famous merchant Fugger in Augsburg started to provide low-rent housing for his employees in one section of his huge estate. In a German ducal residence the duke around 1550 restricted carriage entrances to a limited area near his castle, thus forcing the nobility to live right next to the ducal estate. These are just a few examples, already in early historical times, of making urban form and function coincide.

Conclusion

The study of urban form has had a comparatively long tradition in Germany. It was the main concern of human geographers during the first three decades of the twentieth century. During the 1950s and the 1960s some interesting contributions were made that opened up different lines of investigation. In the wake of the urban conservation movement after 1970, the founding of the study group *Die alte Stadt* in 1973 and stimulation from representatives of other disciplines and from foreign geographers, there has been a remarkable revival of urban form studies in Germany. Although no bread-and-butter issue, urban form has, in recent years, received adequate attention from German geographers.

Note

1. Address for correspondence: Zenostrasse 1A, D-83435 Bad Reichenhall, Germany.

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