B.1–27

URBAN DESIGN METHODS

Integrated Urban Research Tools

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Andreas Bernögger). This method of distancing (combined with the viewpoint of the flaneur) was also used to reflect on the past by Benjamin in *Berlin Childhood around 1900* and *Passages*.

> [A] book is not only a fragment of the world but itself a little world … which the reader inhabits. …. The book for him was another space in which to stroll (Sontag 1979, 21).

This is another highly interesting thought, because it extends the methods of *flânerie*, comparison, and estrangement described above to the creation of a critical distance to books and imaginary worlds. It immediately brings to mind both utopian (Aldous Huxley's *Island*) and dystopian (George Orwell's *1984*) novels, as well as the utopian visions of planners like Le Corbusier (in his plans for Paris or Algiers), Ludwig Hilbersheimer (Hochhausstadt), Frank Lloyd Wright (Broadacre City), and groups like the Metabolists (Kenzo Tange's Tokyo City Bay Project) or Archigram (Walking City, Plug-in-City). Such ideas inspire creative thoughts as well as dissent, and nourish reflections on and criticisms of the built and planning reality. But urban designers, who are necessarily employed in thinking about and participating in the designing of the future, find inspiration and the chance to compare and estrange themselves not only in this virtual "other world":

> … this corner of the Zoological Garden bore traces of what was to come. It was a prophetic corner. For just as there are plants that are said to confer the power to see into the future, so there are places that possess such a virtue. …. In such places, it seems as if all that lies in store for us has become the past. (Benjamin 1987, 43; translation based on Fraser 2013).

Just as Foucault's heterotopias depict utopias within real spaces, Benjamin evokes a similar concept of past, present, and future processes being intrinsic in certain places – places where tomorrow can be found today. In reflecting on his childhood, Benjamin also searches for the "present contained in the past" and the traces left by it.

This text is based on the writing of Andreas Bernögger and was edited by Angela Million.

B.15

NARRATING THROUGH GRAPHICS

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Narrative graphics are tools for visually communicating complex information, ideas, systems, and networks to an audience in a simplified, accessible, and attractive manner. The goal is not to present the raw data itself, but to gather, organize, and reduce the data in order to provide concise insights and information about the topic. As Edward Tufte put it, "to envision information – and what bright and splendid visions can result – is to work at the intersection of image, word, number, art" (Tufte 1990, 9). This section focuses on visual representations of space and time as maps and diagrams in the field of urban design. It is also informed by the evolution of narrative graphics in their application across a broad array of related fields throughout the twentieth century.

Following the revision of key literature and the review of reference projects (among others, Bertin 1983; Tufte 1990; Abrams and Hall 2006) alongside the definition of narrative graphics above, five possible but by no means exhaustive categories of application emerge: research analysis and (re)presentation; manifestos; design processes and visualizations; networks and systems; and awareness and debate. These categories even represent an evolution in the way narrative graphics have been used; more broadly, they also represent changes in the understanding of space and consequently in design thinking and design processes. Narrative graphics are a snapshot in time, reflective of society and its priorities and ideals, that help us understand the spaces that we inhabit.

Imhof, E. (1962–1976) **Mount Everest Map**.
Printed map of Mount Everest 1:100 000.
From a Swiss secondary-school atlas.

London Poverty Maps, Charles Booth, 1902[1]
A social investigation initiated by Charles Booth in 1886 resulted in a series of maps visualizing the extent and spatial distribution of poverty amongst the approximately six million inhabitants of the ever-expanding metropolis. The London Poverty Maps were published in several editions – the last in 1903 – and used survey data along with ethnographic observation to create a potent and precise image of social inequality. A palette of colors ranging from black to yellow was used to distinguish the different social classes, which were in turn associated with other attributes such as income, criminality (for example, the lowest class in black is further described as "vicious, semi-criminal"), health, and so on, creating a compelling narrative.

Boston Cognitive Mapping, Kevin Lynch, 1960[2]
American planner Kevin Lynch's famous graphics were developed as part of his wide-ranging study of the perception of urban form. They are best known for visualizing the theory of the five basic elements (paths, edges, districts, nodes, landmarks) which, according to Lynch, help urban dwellers form mental maps of their environment. It is important to understand, however, that these maps were not simply derived from a theoretical argument but were based on extensive field research, including site visits and interviews as well as oral descriptions and sketches from the residents themselves. The evocative power of the cognitive maps, therefore, lies in the combination of a theoretical, academic perspective with the insights of the public.

Mount Everest, Eduard Imhof, 1962[3]
Eduard Imhof's hand-drawn maps of mountainous regions explore the potential of cartography to illustrate the third dimension through the use of color and shading. Also noteworthy are his theoretical contributions to the aesthetics of cartography and his use of scientific as well as artistic arguments to explain the working process of drawing a map.

Autobahnplanung Oranienplatz, Fotomontage, Kohlmaier and von Sartory, 1969[4]
The iconic collage by architect Georg Kohmeier and artist Barna von Sartory is a critical commentary on postwar urban planning in Berlin, and specifically the planning principles of the car-friendly city. The existing, dense, and compact urban fabric was being razed to make place for new developments with little, if any, consultation of the residents. This collage juxtaposes a Los Angeles highway with an aerial image of Oranienplatz in Kreuzberg in order to demonstrate the scale and extent of demolition that a new planned highway would necessitate.

Facemap Toronto, Julie Bogdanovicz, 2013[5]
This map of Toronto focuses on social inequality between the three clearly distinguished classes of poor, middle class, and

A *grid plan* is an urban pattern in which every street crosses another at a right angle (*Dictionary of Urban Regional Planning* 2015). To this day, it is the most commonly applied organizing principle in urban design (Schenk 2013). As it has been in use for such a long time, it has also been discussed a great deal. Curdes (1997) described grids as continuous two-dimensional connection and division elements. Shpuza (2007) later discussed urban grids as independent systems with an internalized global logic tied to patterns of connectivity between the streets. Similarly, Weston (2011) wrote that a modular grid was meant to be both rational and universally applicable.

Throughout the long history of the city, grid patterns have proven successful as a universally valid organizing principle that is both adaptable and resilient (Schenk 2013). Nevertheless, they are discussed critically, particularly where the regular grid is concerned.

Generally speaking, grids offer easy navigation through parallel and orthogonal structures. A clear and simple development pattern within a city enables residents and visitors to understand the organization of an area and make their way around (Curdes 1997). All the functions within a grid are automatically connected. Grids enhance the efficiency of transport networks for pedestrians as well as for public transportation and cars (Kostof 1991).

In our constantly changing cities, grids provide a good mechanism for reacting to new social, technological, and economic requirements by altering connections or shifting uses
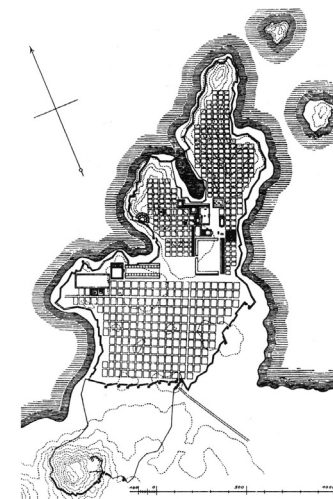
within the network. Instead of being limited by blocks of the same size, a grid may eventually be adjusted by connecting or splitting blocks, or by removing and relinking the connections (Schenk 2013). A heterogeneous mix of compatible housing and building types, as well as land uses, are possible even with similar block sizes. As such, it is possible to develop a diversity of neighborhoods within the city by accommodating different building typologies. The use of irregular grids, in contrast to very straight grids, allows specific urban spaces to be created (Schenk 2013). Grids are usually easily expandable, and the regular grid is particularly so (Curdes 1997). A grid pattern is both robust and flexible, and is suited to being adapted to meet changing needs without abandoning the basic urban design and its qualities (Schenk 2013).

Individual areas within the grid design possess a high spatial quality of their own. It is therefore not necessary to change

The ancient Greek city of Miletus

Kostof (1992) argues that the grid is geographically and historically universal. No other urban structure can be applied as a standard at any site. As a result of this universality, a wide range of diverse references in terms of scale, project size, geometry, historical background, adaptability, contemporary design, and so on can be named. Throughout the long history of this structure, many cities have been founded based on a grid design. We will therefore begin our references here with a short review of historic examples. A grid was often used in the foundation of Greek and Roman cities, thereby serving as examples for the later development of major cities in Europe. In circa 500–400 BC, Miletus was designed as a grid-planned town. Its design is most probably attributable to Hippodamus, who is considered to be the father of urban planning, and the city used his basic design of regular, orthogonal squares. The Roman grid was organized with the Cardo Maximus (the main north-south-oriented street and the Decumanus Maximus (the main east-west-oriented street) acting as the main axes for the city plan. The forum was found at the intersection of these two principal streets and the city was surrounded by rectangular defensive walls. This arrangement is still recognizable in many European cities founded as parts of Roman colonies. Like many other American cities – such as Washington D.C., Portland, Chicago, and

Philadelphia – New York City is a representative example of a city that uses a grid pattern on an urban scale. The New York City Commissioner's Plan was first presented by a commission appointed by the New York State Legislature in 1811. Despite criticism, it is currently viewed favorably by urban planners, and discussion of its size and associated functions have been fruitfully discussed. One of these discussions concerns the benefits of shorter blocks: as there are many ways to get to a specific destination, it is possible to choose the fastest and shortest way. Short blocks prioritize pedestrians, making walking an easier and faster option. With its unique block size of 200 by 200 feet (approximately 61 m × 61 m), Portland serves as a good example of this, whereas most other American cities have much larger block patterns. Most blocks in New York were built at the 200-foot scale in order to create a pedestrian-friendly downtown. Barcelona should also be named as a well-known example: the Barcelona Grid, also called Cerdà's Plan after its original designer Ildefons Cerdà, dates from 1859 and is renowned for its unique octagonal geometry and the size of its squares. Cerdà's focus on greenery created green spaces as walkable spaces, which have proven to be advantageous to the city. Milton Keynes in Great Britain and Chandigarh in India, both built in the 1960s, were designed based on more recent requirements, such as an increased volume of traffic.

and instability; in the shifts from modernism to postmodernism, from structuralism to post-structuralism, from constructivism to deconstructivism, from systems in equilibrium to systems out of equilibrium, from closed to open systems, and from entropy to self-organization and complexity that recognizes notions such as chaos, the edge of chaos, fractal structures, and nonlinearity (Portugali 2005).

There are four main limitations when dealing with complexity. Firstly, simulation models originally designed for the study of complexity and self-organization have become the message itself. Secondly, the complexity of cities tends to overlook the fact that complexity theory is a new science that is critical of the "first culture" existing within cities themselves, which sees cities as simple systems (Portagali 2005, 17–38). Thirdly, and as a consequence of the above, most studies on the complexity of cities do not engage with the qualitative assessment of cities raised by the pertinent complexity theories. Fourthly, students investigating the complexity of cities have indiscriminately applied theories and models that were originally developed to deal with natural phenomena to cities, ignoring the implications resulting from the fact that cities are not natural phenomena but rather artefacts of their creators and surroundings (Portugali 2009).

This text is based on the writing of Yijie Bu and was edited by Angela Million.

B.21

ENGAGING HUMANS AND NONHUMANS IN DESIGN

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