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I. THE DIFFICULTIES OF INTERDISCIPLINARITY

The city lies crosswise. It is in all senses of the word too big to be an object of scientific investigation – too complex, too unwieldy for easy answers. That is why many academics conclude that holistic answers will not do. But that is not the only explanation for the lack of progress when it comes to research on the city. Its development has been horizontal, not vertical, and so there has been little advancement despite minor innovations, and an overview is at best available for individual disciplines. Following well-travelled paths is, therefore, insufficient to get a handle on the city.

This introduction attempts to break new ground. It should be seen as an experiment. It began with an incident and an encounter with one of the greatest contradictions in contemporary social sciences.

The incident occurred during a working day at a trade fair in *Shanghai* gone wrong. It was late, and my colleagues had all long since gone back to their hotels. In front of the trade centre, I found that public transportation had shut down for the day and there were no more taxis to be had. As it was long past midnight, the only way back to my bed, around 10 kilometres away, was on foot. Even back then, Shanghai was already one of the second-tier global cities. Recalling *Saskia Sassen*'s eponymous study, which I had read not that long before, I walked past multiple *residential cities*, at least two *industrial cities*, a pristine *smart city*, an *old city*, and, finally, in *Pudong*, a *global city*. What was Shanghai then? I asked myself. One of those city types? A global city? Or all of them together? These thoughts prompted me to ask the fundamental question: What is a city?

Each of the above-mentioned prototypical city types can be adequately described, but it is not clear how they are connected. There were no criteria for making an informed assessment.

My search for an answer led me to those disciplines that have examined urban life, which revealed a contradiction. On the one hand, everyone is agreed that the city is complex and can only be grasped via an interdisciplinary approach. Research on the city even gave birth to a new discipline that is meant to provide an overview: *urban studies*.

But after theory comes practice. Interdisciplinarity is an admirable goal, but science is divided into disciplines and that is how research is in the main conducted. Hence all researchers of the city are confronted with the dilemma of the necessity of interdisciplinary investigation without being able to cope with the scope of this task. Furthermore, experts fear the criticism of colleagues from other disciplines if they spend too much time butting in where they do not belong.

Pragmatism reigns. While answering the key questions nearly always means having to think outside the box, anyone who takes the risk of doing so is usually timid about proposing their solutions. Few researchers have made serious inroads into interdisciplinarity. One exception in the field at hand is *Saskia Sassen*,

whose highly innovative "Global Cities" study links *sociology* and economics, although the latter discipline has been happy to ignore her to this day. Or the geographer *Elisabeth Lichtenberger*, whose best works connect *geography*, *history*, *urban planning*, *sociology*, and *economics*, with illuminating results.

Interdisciplinarity is no small risk, but it is often rewarded with insights that could not have otherwise been gained. Along its arduous path lie questions that must be answered, such as: "Why should geographers be interested in the etymology of the word 'city' in 12 languages?" Yet the answer is obvious: Because knowing it makes them smarter and increases the value of their expertise, transforming it from an individual well-crafted tile into part of a mosaic. Through interdisciplinarity it may be possible to eradicate one of the greatest weaknesses of urban studies, namely that the relationship between individual insights is rarely explained. As a result, we know the price of everything, but rarely the value.

Any interdisciplinary approach raises the question of who is applying it. My doctoral studies were in political science and my post-doctoral thesis was in the field of history. Since the 1980s, I have been interested in the city as a research area, at first in an empirical analysis of the role of Berlin during the Cold War. That was followed by the creation of an encyclopaedia of the city of Berlin, commissioned by the Berlin Senate, as well as academic essays on the city and the description and theories of the city.

Looking at the city from an interdisciplinary perspective entails delving into a variety of disciplines. The most important tools for gaining such an overview are handbooks, encyclopaedias, and surveys. Going through this wealth of resources takes time – in this case around 10 years. Ignoring the maxim "publish or perish", however, has often been rewarded with surprising results.

This introduction is, therefore, an attempt to learn from other disciplines. What has been most fruitful is not only the answers provided by individual disciplines, but even more so their way of asking questions. They radically changed my idea of the city. And so, in the hope that this study can do the same for other inquiring minds, let us begin.

II. ON THE BENEFITS OF A TOOL

We do not know who built the first city. We do not know where it was erected or when, or by whom, and certainly not why. But we do at least have evidence enough to make an educated guess. While the exact site of the first city is not known, we can be fairly certain of the general area: the *Fertile Crescent*, as the American Egyptologist and historian *James Henry Breasted* called the winter rain area north of the Syrian desert in 1916.[2]

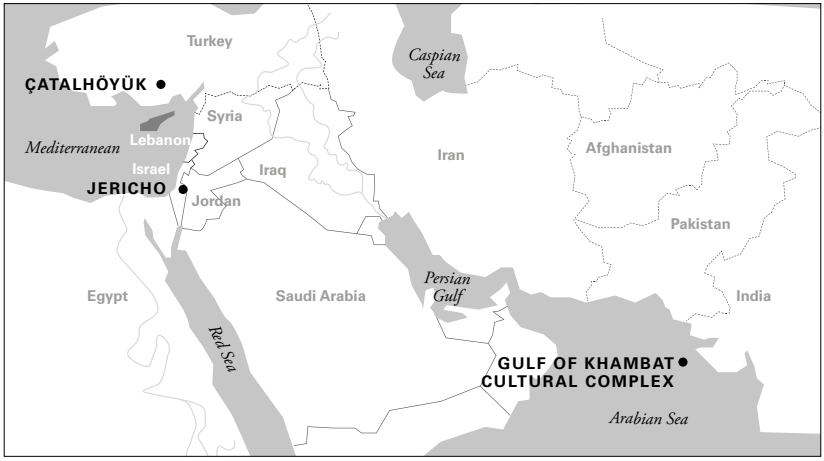

Figure 1. The Fertile Crescent extends from southeast to southwest along the northern bank of the Persian Gulf, including parts of what are now Iraq, Syria, Lebanon, Israel, Palestine, and Jordan. Occasionally northern Egypt is also included in the area.

Many of the ruins of ancient cities found to date are situated in this area. Whether or not one of these sites was in fact the first or oldest city is a question of the definition used. When does a settlement become a city? When is it large enough? When it has a certain number of inhabitants or when it covers a certain area? When a particular population density has been reached? When it has large buildings? When there is evidence of a division of labour, diversity of population, or even of transregional functions?

Depending on one's viewpoint, there are many candidates for the title of the first city.

2 Hans J. Nissen provides an up-to-date, scientifically precise overview in his history of the ancient central Asian region, in which he also explores the geographical and climatic conditions that made a sedentary lifestyle possible. See Nissen, Hans J. (2012), Geschichte Altvorderasiens. Munich, p. 6–11 and p. 23–9.

Çatalhöyük is a favourite. A large settlement with many thousands of permanent residents, it was situated on the Anatolian Plateau in what is now Turkey. In terms of *size* and *density*, Çatalhöyük fulfils two of the defining criteria of a city. Yet nothing has yet been found to show that it met other criteria, for example that it functioned as a *hub*. However, only around 5 per cent of the hill has been excavated, so it is too early to make a final assessment. We do know how old Çatalhöyük is: Its oldest parts date to ca. 7500 BCE, that is they are around 9,500 years old.

The site exhibits two features that speak against defining it as a city as we usually understand the term. It has neither streets nor squares; the houses abut each other and were perhaps accessed via ladders from the roofs. And its development contradicts most accepted theories of cities,[3] according to which smaller settlements grow gradually. Çatalhöyük seems to have been planned as a large settlement from its inception – a riddle that has yet to be solved.

Another candidate is *Jericho*, in what are now the Autonomous Palestinian Territories on the west bank of the River Jordan. The city claims to be the oldest city in the world, based on the remnants of towers and walls. However, these are not former city walls, as was first assumed, but a local feature. It is fairly certain that the settlement has been continuously inhabited since the 10th century BCE. But it is unclear whether this old settlement can be called a city.

A third candidate for the title of the oldest city lies outside of the Fertile Crescent. Discovered by Indian divers in 2002, it was given the prosaic name "GKCC", *Gulf of Khambhat Cultural Complex*. It is quite a large settlement located at a depth of around 20 to 40 metres in the Gulf of Cambay in the Arabian Sea, in Gujarat State, India. Excavations have only recently begun. One of the artifacts found, a piece of wood, has been dated twice, once at 7190 BCE and once at 7545 to 7490 BCE. Yet from the evidence to date, it is a disputed matter whether it can be called a city or even a civilization.

Çatalhöyük, *Jericho*, and *GKCC* are not cities. At best, all three are early forms of large settlements. It is also still unclear which questions they answer. What is certain, though, is that these answers were not permanent, for all these finds have been singular and nothing points to any of these sites having become a catalyst for long-term settlements. Their models do not seem to have been copied.

3 de.wikipedia.org/wiki/Stadtentstehung (accessed: 23 Apr. 2022). A fundamental text on function as a key aspect: Christaller, Walter (1968, original 1933), Die zentralen Orte in Süddeutschland. Darmstadt.



Figures 2–4. Çatalhöyük in Anatolia, reconstruction by the Museum of Pre- and Ancient History, Weimar | Jericho | Gulf of Khambhat Cultural Complex (GKCC) on the Indian coast.

On the contrary, no remains of large settlements have yet been found that can be dated to the following 3,000 years. From that time on, however, there seems to have been some advantage to living close together in larger settlements. Many sites, including *Eridu*, *Ur*, *Tell Brak*, and *Byblos*, all within the Fertile Crescent, have been dated between 5000 and 4000 BCE. Since then, the city has always been a form of human settlement.

We can thus draw two initial conclusions: For one, we know the area in which the city first developed, even if we do not know the exact site. It was the Fertile Crescent, or more exactly the Near East and (to include the *Gulf of Khambat Cultural Complex*) nearby regions. All of the large settlements found in other areas to date, whether in *China* or the *Americas*, were erected much later.

We also know around when the first cities appeared. If we regard the oldest finds as preliminary forms, we can safely say that since the 5th century BCE at the latest, or around 7,000 to 6,000 years ago, many people made the decision to live together in a form of settlement that we today call a city.

To which question is the city of that period the answer? Researchers' findings suggest that from that time on, this special form of living together provided long-term advantages, created new opportunities, and was flexible enough to adapt to new conditions. This verdict has stood the test of time. Seen this way, the city is not only a collection of buildings and people, it is more than anything an instrument and a method – a *tool*.

That is why those analyses fall short that claim that the *cities of antiquity* cannot be compared to modern *industrial cities* or to *smart cities*. On the one hand, this statement is a banality. Of course, cultural practices and technologies shape the form of the city in every era. On the other hand, this statement is simply false. For example, given a city like *Pompeii*, buried in the Vesuvius eruption of 79 CE and excavated in the modern era, we could easily fill it with urban life within hours, including infrastructure – from street food to Wi-Fi.

It is, therefore, important to decode the features and character of this tool that humans have been using for 200 to 250 generations across the globe, shaping our planet. The city is without a doubt one of the most astonishing inventions in the history of humankind. Even the examples named above exhibit features that are still found in today's urban centres. Let us thus try to decode these features, in a first step by turning to the relevant academic disciplines and their answers to the question: What is a city?