

The Agency of the Paper Plan: The Building Plans of Late-Nineteenth-century and Early-Twentieth-century Berlin

When at the beginning of the twentieth century the German political economist and town planner Rudolf Eberstadt (1865-1922) described the *Bebauungsplan*, a particular kind of plan for the building of the city, he highlighted the different aspects of this regulatory instrument in Germany.¹ He wrote: “The design, which orders and prescribes the division of the land area determined for town building is designated with the term building plan or town building plan. The building plan is a plan drawing; it contains the totality of regulations that refer to the partition of town building land by streets, public squares and traffic lines.”² From his short description we can begin to understand that at the time the building plan referred firstly to the *design*, which ordered and prescribed, secondly to the *drawing*, and thirdly to the *regulations*. Importantly for this article it was the medium of the paper plan and the cultural techniques of the plan drawing that brought together the design and the regulations.

At almost the same time, the British journalist William Harbutt Dawson (1869-1948), author and expert on the methods of municipal administration in Germany, claimed that: “The official town plan in which this idea finds expression is a distinctly German conception, and is one of the most valuable contributions made by Germany to the science of civic government.”³ He further discussed the need for a uniform and comprehensive building plan as a policy for land use and urban development. In that respect, and this is again an important observation, the regulations of the building plan were seen as both restrictive of, but also as generative of building the city.

In the nineteenth century, capitalist development, its effects on where and how people lived and settled, and on the growth and development of the city presented a wide range of practical problems for architects, engineers, political economists, politicians, and civil servants in Germany.⁴ The growth of the population and of the size of the city as well as its consequences, discussed as the “social question,” the “housing question,” and the “land question,” initiated their first attempts for urban reform, housing reform, and social reform.⁵ The most important practices and discourses focused on hygiene and sanitation, in connection with the establishment of drainage, water and sewage systems, slum clearance projects, as well as projects for the housing of the poor and the working class. The other central issues included the laying out of streets and public squares, the need for recreational areas, and solutions for traffic, mainly railway at the time, that were all to be included in the *design*, *drawing*, and *regulations* of the building plan for the city.

In Germany it was the profession and discipline of *Städtebau* that was concerned with finding practical and theoretical solutions to the problems of the transforming city in the late nineteenth and early twentieth centuries, such as for the increasing density of population, the worsening sanitary conditions, and the

growing social tensions.⁶ At some point, the growth of the city and its population was not only seen as a change in the number of citizens, but also as a change in the nature of the city itself. This new character was one of the main challenges, both for the profession and for the discipline. In Germany the term *Städtebau* carried two distinct meanings. On the one hand, it defined the administrative practice of regulating the building of the city, which emerged during the second half of the nineteenth century. On the other hand, it was used for the scientific discourse on the city, which was only established as an academic and scientific discipline in the time before World War I. In that respect it was first a profession and then a discipline. The term *Städtebau* does not directly translate into “urban planning” though, but rather into “town building,” indicating the centrality of “building” in the German architectural and urban debate at the time.⁷ This is for example also reflected in the term “building plan” used throughout this article, a direct translation of the term *Bebauungsplan*. The main interest here, however, is not in the terminology of the plans, but in their iconography. The article analyses the agency of the building plans and the methods by which the plans established relationships between the ways of visualizing and seeing the city (its forms of representation), the ways of thinking about the city (its forms of theorization), and the ways of administrating the city (its forms of organization). The building plans for the city of Berlin will be the site for the discussion of these relationships.

The Building Plans as Medium of Bureaucracy and as Cultural Techniques

The understanding of the building plans and the approach to their interpretation in this article is based on two principles. First, the article is primarily concerned with the general methods of the building plans as instruments and products of regulation and only secondarily with their individual content as specific layouts of urban form. This will provide a different perspective to the most recent writings on the building plans, such as Claus Bernet’s historic account whose focus was on the plan’s aesthetic structure and its early criticism, and Felix Bentlin’s detailed historic and spatial analysis of the planning objectives that was mainly concerned with the urban design elements of the plans, such as the city squares, the neighborhood ring boulevard, and the waterways.⁸ Second, the article sees the building plans as material objects, as paper plans that had to be produced by drawing, engraving, and printing, handled by different actors, carried and distributed by various systems, as well as stored and archived in plan chambers.⁹ Hence, the article emphasizes the agency of the paper plan in the regulation of the building of the city and closely investigates the unique visual representations of the graphic documents that constituted the emergent field of urban planning during the nineteenth century. In contrast to Ben Kafka’s view on social history’s previous interpretation of paperwork, the intention here,

like in Kafka's own work, is to look *at* the paper plans rather than only *through* them.¹⁰ These documents, however, are here not seen as neutral transmitters of the urban planning discourse, but rather as mediators between the administrative processes of the city and its territory.¹¹ Hence, the argument for considering the paper plans' contribution to the processes they facilitated.¹² According to Bruno Latour's Actor-Network-Theory not only human, but also non-human actors, in this case the paper plans as material objects and carriers of the plan drawings do have an agency in social networks. He argues that these kinds of non-human mediators have the capacity to "transform, translate, distort, and modify the meaning or the elements they are supposed to carry."¹³ Therefore, the article analyses the visual representations of the city in the building plans, not only as visualizations, but also as graphic methods for the production of knowledge about the city, the terms of the discourse on the city, and the techniques for its reform.

Following particular positions in German media theory, the article sets out to understand and theorize the paper plan as medium and the plan drawing as cultural techniques. This distinction allows thinking of the building plans as material objects, usually sheets of paper, but also published together in various municipal books and brochures, and of the making of the building plans as cultural techniques, for regulating, organizing, and administrating processes and relations. The medium allows the building plans to operate, to be circulated, and to be discussed. The cultural techniques instead lie in the acts of drawing out, of making visible, and of arranging disparate data. Importantly, as Cornelia Visman argued, "cultural techniques define the agency of media and execute procedural rules which the latter set in place."¹⁴ Hence, the detailed investigation of their specific cultural techniques is vital for the understanding of the agency of the building plans as paper based medium. Likewise, the German media theoretician Bernhard Siegert has argued that "*man* does not exist independently of cultural techniques of hominization, *time* does not exist independently of cultural techniques for calculating and measuring time; *space* does not exist independently of cultural techniques for surveying and administering space; and so on."¹⁵ Inverting his line of thinking this article asks if the cultural techniques of the plan drawing also do not exist independently of the medium of the paper plan, and develops an apparatus for looking at building plans equivalent to Robin Evans' apparatus for looking at drawings, and Roland Barthes' apparatus for looking at photographs.¹⁶ Moreover, following this method the building plans are seen as media of bureaucracy and the cultural techniques of the plan drawing as its operations.¹⁷ Media theory particularly emphasizes the material that carries these operations, such as the sheets of paper, which are seen as objects capable of performing and to some extent determining the operations of the building plans.¹⁸ In that respect the building plans are understood as technological objects, as part of the operative chain of administration, and also generative of the concepts of the medium and its techniques.¹⁹

The Building Bye-laws and Building Plans as Legal Instruments

This section traces the refinement of the specific instrument for the regulation of the building of the city during the late nineteenth and the early twentieth centuries in the German-speaking world. The focus is on Berlin, the capital city of Prussia and, since 1871, also of the German Empire, and hence in many instances exemplary. In Germany, the two main instruments of building regulation were the building bye-laws and the building plans, in contrast to England, for example, where building before the introduction of the Housing and Town Planning Act of 1909 was only regulated by means of the building bye-laws.

The building bye-laws and the building plan were both legal instruments, and also intricately linked. While the building bye-laws established, among other things, the legal base for the preparation and execution of the building plan, the building plan identified and localized the specific land areas of the validity of the building bye-laws. The building bye-laws were a legal text and a code of law, regulating how to build. For instance, they provided figures for the maximum use and exploitation of the building land, such as for the maximum height and volume of building, the maximum area of the building plot that could be built on, and the area to be left between buildings. The building plans were the visual instrument of regulation, the plan drawing of the building bye-laws. They were not blueprints or utopian designs for a new city, but the legal regulatory framework for the building processes of an already existing city. While the building bye-laws were the older instrument, this article will focus on the drawing up of the regulatory building plans as an architectural question in the manner argued at the time by the English architect, engineer, and town planner Raymond Unwin (1863-1940): “putting something down on paper in the way of a definite plan, that is an architectural problem.”²⁰

In the German discourse on the city and in the professional practice of its administration and building, we can roughly identify three main stages in the period up to World War I, from town extension, to town zoning, to town development; the last stage had a curious intersection with the birth of “town planning” in England. Importantly, each of these stages would always add a new “plan” to the repertoire of administering the building of the city, from the “building plan,” to the “building zones plan,” to the “town development plan.” This article proposes to look at the evidence of these various paper plans as the instruments of this process, focusing not on their individual designs, but on the building plans as bureaucratic medium in the administration of the building of the city. The intentions herein are twofold, first, to emphasize the centrality of the building plans in the German *Städtebau* and, second, to enrich our understanding of this central instrument by drawing out its full complexity. This article asks, how we can describe, and beyond that, theorize the building plans as a material

object, a plan drawing, a legal document, and a conception and projection of the building of the city in the future at the same time? In doing so, this essay further interrogates the relation between the production of knowledge on the city and the visualization of the city, or what Lisa Gitelman has called the “know-show function” of documents. For her, “documents help define and are mutually defined by the know-show function, since documenting is an epistemic practice: the kind of knowing that is all wrapped up with showing, and showing wrapped with knowing.”²¹ This also applies to the building plans investigated here.

Town Extension: 1859-1862

The town extension of Berlin by means of a building plan consisted of a series of procedures, from the drawing up of a building plan for the areas surrounding Berlin between 1859 and 1862, to the incorporation of the surrounding areas into the administrative area of the city in 1861, to the actual building of the town extension over time. The extension of the municipal area into, amongst others, the agricultural lands in the Northeast, Moabit and Wedding in the North, and Schöneberg, Tempelhof, and Rixdorf in the South, followed the partial growth of the city, but preceded its actual regulated extension. In that sense, the building plan could be seen as a medium to control the on-going building processes, as well as to enable and regulate the building of the town extension by extending the municipal area and designating former agricultural land as building land.

The so-called “Hobrecht Plan” was the first building plan for the surroundings of Berlin and remained the official building plan of the city until 1919 (Figure 1). It was drawn up under the direction of the architect, civil engineer, railway and sanitary engineer, and employee of the Royal Building Police, James Hobrecht (1825-1902), between 1859 and 1862. August von der Heydt (1801-1874), the Minister for Trade, Industry, and Public Works, officially awarded the commission of the plan in 1859. Hobrecht was then appointed as the director of the “Commission for the Composition of the Building Plan for the Surroundings of Berlin”. The commission of the Ministry required the summary of the existing plans, the documentation of the existing buildings and streets, and importantly the consideration of a sewer system, which, however, was only to be implemented between 1873 and 1893. The building plan was based on the building bye-laws for Berlin from 1853. Although the contemporary “Decree for the Establishment of Municipal Building Plans” from 1855 allowed for a much wider involvement of the municipality, it was only with the later “Law, relating to the Layout and Modification of Streets and Squares in Cities and Rural Towns” of 1875 that the right for the establishment of building plans was completely transferred from the state to the municipality.

In an often-cited decree from the Royal Higher Tribunal of 1869, the essence of the “Hobrecht Plan” was defined “as a collection of local police

regulations, by which is determined, which pieces of land in the municipal area of the town can be occupied with buildings, and which defined as public streets and squares, are to be left un-built-on.”²² The “Hobrecht Plan” was a “building plan,” defining its status as a legal instrument, a “town extension plan,” describing what it facilitated and regulated, and a “building line plan,” referring to its method, namely determining, by means of lines, the areas on which to be built and left un-built on.²³

In the existing literature, this building plan is generally described as the “Hobrecht Plan,” named after its presumed single author.²⁴ This is not the place to discuss authorship in the process of plan making, but it should be mentioned that the “Hobrecht Plan” was based on earlier maps and plans, such as Johan Carl Ludwig Schmid’s (1780-1849) street map of Berlin produced from 1827 to 1830, Peter Joseph Lennés’ (1789-1866) “Projected Embellishment and Green Corridor of Berlin with Immediate Surroundings” from 1840, and Sinecke’s “Situation Plan of the Capital and Residential City of Berlin with Immediate Surroundings” from 1856. It is also clear that Hobrecht was not the single author of the plan, but was in charge of a large team, and that a variety of other experts such as engineers, lawyers, and politicians were involved in the making of the plan. The building plan was also subjected to various authorities from the Police Presidium of Berlin, to different Prussian Ministries, all the way to the King of Prussia. Furthermore, the drawing up of the plan was also determined by the building bye-laws. And finally, when discussing the authorship of visual documents, such as maps and plans in the nineteenth century, one has to keep in mind that the surveyor, draughtsman, and designer, as well as the engraver, printer and publisher, were usually not the same person or company. The “Hobrecht Plan,” for instance, was surveyed and drawn by Lieutenant Boehm of the Topographical Department at the Prussian General Staff, engraved by the academic artist Dembé, printed by the lithographic institute of Leopold Kraatz, and published under the commission of the publishing house Dietrich Reimer.

What is usually discussed as the “Hobrecht Plan” though was actually the overview map of the “Plan of Berlin and Surroundings up to Charlottenburg,” printed in 1862. This is slightly misleading for a variety of reasons. First, the actual building plan was only the red brick colored section of this overview map of Berlin. The building plan did not include the old town in the center of the map, shown in grey, or the lands outside the red brick colored sections. Second, it represented the building plan as a whole, which was also not quite true since the building plan was actually a set of fourteen separate building plans, named Section I to Section XIV, each for a distinct surrounding area of Berlin. In the overview map the individual fourteen sections of the plan were bordering each other and formed a continuous ring around the map of the old town. This ring, however, would only be visible in the unique overview map. Third, it was not the building plan which architects and engineers would work with. They mostly used the individual sections, as we will discuss later. In the map we can see the thin

red lines identifying the individual sections of the plan, which were originally on separate sheets of paper and only assembled and shown together in this unique overview map. The individual plans instead were shown as what in cartography was termed island maps, maps depicting the respective areas literally as islands. Moreover, the individual plans on the island maps could not be added up to form the whole of the building plan, which is only shown in the overview map, because they were depicted in isolation, as islands within a sea of white paper.

The building plan for “Section V. Charlottenburg,” for example, had one borderline with the river Spree, which, due to the absence of the second river bank, looks much more like the coastline of an island than the bank of a river (Figure 2). It is my understanding that architects and engineers would only work in these sections of the actual building plan. This article therefore argues that, as a consequence, the city was only seen and hence would be conceived as a set of islands. This again had certain implications. Architects and engineers would not yet think about the city as a whole, they would not see the connections to the neighboring islands, and they would perceive the building land as an isolated island. Consequently, the architects and engineers of the town extension would only work on sections of the city, not yet thinking about their part as contributing to a bigger whole. There are already some early traces of the future solutions to this problem, nonetheless, namely the transition from island maps to frame maps for the depiction of the building plans. If we seriously consider the plan as a material object, then we can already observe the appearance of a grid, cutting along the lines of the folding of the plan. This kind of rectilinear grid would later be used to frame the maps for the subdivision of the building plans, rather than the island shapes of the administrative districts.

Before that epistemological change, however, the island map of “Section V. Charlottenburg” had been updated for at least ten times, according to the plans identified in the archive in 1862, 1873, 1877, 1885, 1888, 1889, 1891, 1893, 1894, and 1896. Furthermore, in one of the revised versions of “Section V. Charlottenburg” from 1873 (Figure 3) we can see how someone drew on the map of the territory of the *Berlin Hamburger Immobilien Gesellschaft*, a building cooperation that wanted to build on the land, and how the magistrate approved the revision in a cabinet order from 1874, authorized by the signature of the Royal Police President.²⁵ We can also see that parts of Section IV appeared on the plan and that the parts of the second riverbank and Section VII were drawn on the plan by hand, indicating the limitations of the building plan as a set of island maps. It seems as if someone “planning” with the set of the fourteen individual island maps of the “Hobrecht Plan” by then already required information about the connections of “Section V. Charlottenburg” to its neighboring sections.

Based upon the discussion above we can draw some conclusions on the iconography of the building plan. First, the building plan was a drawing into a map of an existing situation. This is evidenced, for example, by the drawing of the lines of the streets and squares on top of the lines of the lots of agricultural land.

In that sense, the plan was an inscription and a superimposition of a new layer. Second, the building plan was an orthographic projection, looking down from above. Therefore, the plan was not offering a view, but was instead giving an overview of a projected situation: the building land, as well as the streets and squares. Furthermore, it was not a drawing that would be translated directly into a building object, but rather a frame for a future building process. Third, the building plan was a conception of the future, or as the Italian urban planner and urban planning historian Giorgio Piccinato correctly observed “that the building plan is first of all a city extension plan, i.e. concerned with the city space of the future, with the expansion of the city in the open countryside.”²⁶ Importantly, it seems that in the building plan the future did not only have a temporal, but also a spatial dimension. For example, the architect and town planner Josef Stübben (1845-1936), the author of the first manual on *Städtebau*, stated in 1907 that: “In Germany official Town-plans are generally prepared *for so large an area* that ‘*the needs of the near future*’ are provided for.”²⁷ In that sense, the future was present in spatial terms as the size of the area for which the building plan was prepared for. The plan accounted for urban growth twenty-five years into the future, by designating an area of land for a growing number of inhabitants. Hence, the area in turn often represented an expected number of populations, such as the one and a half to two million of the “Hobrecht Plan.” Fourth, the building plan was a projection of the future into the map of a documentation of the present. This combination of future and present in one plan drawing caused considerable confusion in its time. In 1906, in his book on the plans of Berlin the first permanently employed city archivist Paul Clauswitz (1839-1927), director of the city archive of Berlin from 1879-1912 and specifically responsible for the collection of maps of the previous plan chamber, wrote:

In addition, there is a need for most of the common plans to include the division of the building determined in advance, in the municipal area of Berlin as well as in the surrounding area. Thus, the presence and the future are mixed in the plan lay out. What exists on site at the time and what should only be produced, the drawing does not allow differentiating. One gains a wrong image of the reality and is deceived on site with the plan in hand. Such maps must later also awake misconceptions about past conditions.²⁸

Clausewitz here described a typical situation in which the relation between the image of the city gained through visual representations and the reality of the city gained on site was questioned, and hence exposed. There was further confusion as the visual representation was a combination of a map of the present city and a plan of the future city, again typical for the building plans, and hence the image of streets, squares, and building land did not yet match the reality of agricultural land turned into building land. This is also a great example of the diverse agency of the paper plan that could be worked on in the office, in which case the image of the city was taken for its reality, and that could be looked at on site, in which

case its role in the construction of knowledge about the city was made evident. We should not take this to be false knowledge though, as in this case it was not the representation, but the territory of the city that was net yet up to date.

Town building: 1892-1893

A second instrument for the administration of city building was the so-called *Bauzonenplan* or “building zones plan,” drawn up for Berlin from 1892-1893. The plan designated building zones for building according to different building classes. It was another layer on top of the already existing building plan and its intention was to further differentiate, specify, and regulate the building of the city. The building plan was based on the building bye-laws for the suburbs of Berlin from 1892.²⁹ It followed the previous passing of the Lex Adickes for the city of Frankfurt am Main from 1891, regulating the grouping, re-allocation, and subsequent consolidation of building land.³⁰

The “building zones plan” (Figure 4) was primarily a consequence of the introduction of graded building bye-laws. The plan drawing was an overview map of the land areas of validity of the graded building bye-laws, designating different building bye-laws for different land areas to allow further differentiation of building, mainly with regard to program and building density. The “building zones plan” was a “building plan” or a “general building plan,” defining its status as a legal instrument, a “town building plan,” describing what it did and tried to regulate, and a “building zones plan,” referring to its method, namely further dividing the building land into areas for industry, public health and housing, and different building classes, such as closed, half-open, open, and for country houses only (to some extent equivalent to terraced, semi-detached, and detached houses in England).

A later overview map of the city territory from 1907 (Figure 5) shows the distribution of the further differentiated building classes of the building police regulation for the suburbs of Berlin, using the cultural techniques of the building zones plan. The different building classes specified the respective number of floors, the height of buildings, the use of land, the required land area for the same size buildable land, the permitted building for the same size building site, and the utilization factor. The building classes generally decreased in density quite systematically the further outward from the city center. The various color sections of the separate areas on the paper plan classify and locate the zones of the different building classes of the building bye-laws in the map of the territory of the city. At the same time the plan drawing gave the overview of their distribution and allowed identifying their boundary. The area of the former “Hobrecht Plan,” was not covered by these building bye-laws and therefore left uncolored. It is furthermore important to note the introduction of a grid and the fact that the different suburbs, still independent municipal areas, all had their

own small frame map in a larger scale within the large frame of the smaller scale map, indicating the lack of a unified plan for this now again larger surrounding areas of Berlin. In summary, the building zones plans were made to visualize, classify, distribute, and locate the land areas of the different building classes of the new graded building bye-laws in the plan drawing and in the territory of the municipalities of the suburbs of Berlin.

Following on from the discussion above we can draw further conclusions on the discourse on the city derived from the making of the building zones plan. In his previously mentioned excellent article on visual thinking in urban planning Söderström noted: "The first modern expression of zoning is the outcome of reasoning applied to plans."³¹ Importantly, for him and as part of functional zoning, "the plan established itself as a central notion in urban planning; and it is interesting to observe that its definition after 1920 had changed to mean what can be expressed in graphic terms."³² But how exactly were the terms of the discussion informed by what the architects and engineers could see or draw on the map or plan? One indication is that the term "zone" in geometry describes a two-dimensional area rather than a space or volume. At the same time, the term "area" was also used to name a piece of land. In 1907, Stübgen discussed the concept of a zone in a lecture. He argued:

Those portions of the Plan which correspond to the separate building-classes are generally called Building-zones, although the geometrical conception of a zone does not apply to the parts and sections of the plans in question, and the use of the word has therefore caused misapprehensions.³³

This is seen as further evidence that, as a consequence of the building zones plan, the city was being perceived as consisting of zones, in the geometric sense, meaning that the physical space of the city was also theorized and discussed in terms that had only been visible in the representation of the city territory in the paper plan.³⁴ This article argues that this articulating and "thinking in graphic terms", the verbal discourse on the city and *Städtebau*, was derived from the visual practice of the "making of building plans". This argument will be further discussed in the last section.

Town development: 1907-1915

The last sets of plans are from the competition for the obtainment of a base plan for the town building development of Greater Berlin in 1910. Its main objective was the design of baselines for a unitary building plan for Greater Berlin.³⁵ The baselines should become the base for the design of the individual building plans of the different municipalities and, at the same time, form a unitary building plan for Greater Berlin.³⁶ Rudolf Eberstadt, the winner of the third prize, presented

the Competition Greater Berlin as the state of the “planning” system in Germany in a lecture at the Town Planning Conference in London in 1910.³⁷ He stated:

The effects of the system now in force may be studied in most of our large towns in Germany; more than anywhere else, however, they are visible in Berlin. This is the reason why a competition for the planning of Greater Berlin has been proposed, to obtain, not a detailed map of building lines, but a real plan for the development of a modern town.³⁸

The “town development plan” was not a single “building plan,” but a set of plans for the development of the town as a whole, consisting of a “green area plan,” an “open area plan,” a “building zones plan,” a “base lines plan,” and a “traffic lines plan.” The plans were competition entries and therefore had no legal status. They marked, however, the beginning of thinking about the city not only in sections, but instead in layers and as a whole.³⁹

The published book announcing the competition contained the first visual representation of Greater Berlin. The map without a topography consisted of different colored areas distributed over a square grid. Concentric circles were indicating the distance from the center of the map and of the future municipal area, the city hall of Berlin. In comparison with the official building zones plan of the same year, discussed in the previous section, the separate small frames of the different scale maps of the suburbs of Berlin had disappeared, indicating the ambition of Greater Berlin to become one integrated territory.⁴⁰

The competition entries are in themselves meaningful documents for the state of the *Städtebau* discourse of that time.⁴¹ The architect Hermann Jansen prepared the documents, compiling some 1,786 uncoordinated building plans issued by the various communities in the area of Greater Berlin.⁴² This was already a major piece of work and also one of the objectives of the competition. It is therefore no surprise that the same architect would also gain one of the two joint first prizes of the competition.⁴³ The competition documents were a set of twenty-one maps to be handed out with the competition brief, for the architects to study and draw onto: one in the scale 1:60.000 (Figure 6), eight in the scale of 1:25.000 (Figure 7), and thirteen in the scale of 1:10.000 (Figure 8), all printed on card.⁴⁴ The main addition to the single overview map in the scale of 1:60.000 was the grid printed in sepia onto the grey survey map, establishing the area of the competition. The center of the map was marked with a small circle and located at Leipziger Platz. The only other color was azure for the water areas. The main addition to the eight maps in the scale of 1:25.000 were the existing building plans, planned railway lines, and water ways printed in red as well as the grid printed in brown onto the grey survey map. There was also the color version of these eight maps in the scale of 1:25.000 the with town extension printed in orange, public green in green, royal forest in dark green, meadows in light green, moorland in light blue, water in blue, sewage farms in yellow, city blocks in grey, public buildings in black, and open spaces not printed on. The main addition to the twelve maps in the scale of 1:10.000 were the building plans

printed in grey as well as the grid printed in brown onto the grey survey map. The public buildings were also printed in grey and the city blocks were not printed on.

More importantly, the documents show the main epistemological shift from the island map, showing the sections of the city territory according to the islands of the administrative districts, to the frame map, showing the sections of the city territory according to the frame of the geographic co-ordinates, meaning that the different sections of the map could now be separated and connected using the grid, and that one could zoom in and out of the city map.

The Making of Building Plans and Thinking About the City in Graphic Terms

In the last section, this article will consider two plans of the other joint first prize from the overall twenty-seven entries to the Competition Greater Berlin.⁴⁵ Joseph Brix (1859-1943) and Felix Genzmer (1856-1929), the first two professors of *Städtebau* and founders of the first seminar on *Städtebau* at the Royal Technical College in Berlin, submitted their proposal under the motto “Think of the Future.”⁴⁶ The two plans were the third and fifth sheets from a set of at least seventy sheets, most likely to be hung on a wall for the jury to inspect (Figures 9 and 10). The two plans complemented each other, one drawing filling the white space of the other drawing when they would have been superimposed. The green areas plan, the *Grünflächenplan* or *Grünplan*, as in the legend, showed the forest and park areas in dark green, the meadow areas light green, the arable land in yellow, the waterways in blue, and the parkways in green. The building classes and open areas plan, the *Bauklassen* and *Freiflächenplan* or *Bauzonenplan*, as in the legend, showed the existing building in dark grey, new closed building (row houses) in brown, the narrow open building (semidetached houses) in red, the wide-open building (detached houses) in yellow, the new industrial zone in light grey, and the waterways in blue.

Again, the question here is how did the medium of the paper plan and the cultural techniques of the plan drawing of the city contribute to the discourse on the city? Was there a “green area” or an “open area” in the discourse on the city and *Städtebau* before the making of building plans? The following quote from the PhD thesis of the German architect, town planner, and political economist Martin Wagner (1885-1957) from 1915 on the “sanitary green” of towns, understood as a contribution to the theory of “open areas” and with particular consideration of Greater Berlin, is presented here as evidence for a contemporary understanding of that question. He wrote: “Already for years town builders have given special attention to the distribution of the open areas in the town plan. The catch phrase ‘forest- and grassland belt’ shows in which direction one group of town builders thought to distribute the open areas over the town plan. The sanitary green shall be circularly laid around the town body and thus secure plenty of air and light for

it from all directions.”⁴⁷ Wagner laid out the principles and guidelines for the size and distribution of the different kinds of “sanitary green” in the plan drawing, considering the distribution of the “open area” as a concept in the medium of the paper plan, while thinking about the city territory in graphic terms and emphasizing the interconnections among the discourse, the cultural techniques of the plan drawing, the medium of the paper plan, and the territory of the city. This article argues that the “green area” and the “open area” as terms and concept of the discourse on the city and *Städtebau* came into existence in the discursive space of the plan drawing, namely in the “green areas plan” and the “open areas plan,” discussed here. They were terms and concepts derived from the material practice of the making of building plans, affecting planners in talking and thinking about the city in graphic terms. Hence, it is argued here that the “green area” and “open area” did not exist as such, prior to the making of plans, and that these terms and concepts only made sense in the “planning” discourse. Before that, in other disciplines and different scales of thinking about the city, architects, engineers, and planners were talking about fields, woods, parks, or meadows. These areas were only becoming “green areas” and “open areas,” were only becoming concepts by determining their characteristic and color (or lack of color) in the plan drawing. In that respect the building plans were not only a representation of a concept, but also had an agency in the making of that concept. The medium of the paper plan and the cultural techniques of the plan drawing, in this case zoning and coloring, made possible a distinct discourse about the city and *Städtebau* that would have been inconceivable without it.

Conclusions

In conclusion, the various building plans of late nineteenth-century and early twentieth-century Berlin were part of what the Swedish cultural geographer Ola Söderström called “the visual order of the civil servants,” describing urban planning as the work of employees in the municipal administration rather than as the vision of utopian planners.⁴⁸ In his article on visual thinking in urban planning he analysed the close relationship between planning and its visual mediation in maps and plans. For Söderström the principle of the civil servants’ synthetic device of the master plan “condensed three factors into a single document: space (the plan of a city or agglomeration), time (it prescribed the regulations governing future development), and the law (its effect was defined by the measures characteristic of each zone contained in the building regulation).”⁴⁹ This triad of space, time, and law has also forms the basis for the understanding of the building plans in this article. Söderström further argued that urban development and the modalities of the visual representations of the city mutually structure each other. In his investigation of the visualizations of the city he is more interested in the instruments and practices of urban planners

than in their theory though. He demonstrated that the plan created a new object, the city, insofar as it opened up a new field of visibility, visualizing what had been invisible until that time. In addition, Min Kyung Lee has argued that cartographic orthogonality allowed for a spatial continuity between the descriptive image of the map and the projective image of the plan. For her: “The urban plan would become the primary medium through which modern town-planning would be practiced, and in this process, the map would ultimately stand in for the city and determine its visibility.”⁵⁰

This article, in a similar manner to Söderström and Lee, has also argued that more than just visualizing the present city, the building plans allowed the planning of the future city. That of all the architectural drawings it was the “plan” that lent itself best to the process of “planning” might be obvious; what is less clear though is why exactly the “plan” should assume all the various functions contained in *Städtebau*. Was it due to the plan drawings’ particular cultural techniques of visual representation, or because of their strategic nature? Was it due to the medium’s specific materiality as paper plan, or because they were legal documents? It might be obvious, however, that the paper plan (the material object) facilitated the plan drawing (the visual representation) of the building bye-laws and building regulations (the legal document). The building plans as legal document in turn would facilitate the extension, building, and development of the city (the idea of how to build the city in the future and how to do so) in the drawing of a plan of the projected future city on paper. The building plans for the regulation of the building of the city had become development plans in the form of a plan drawing. Hence, the paper plan was not only a form of representation, but at the same time also a form of regulation and organization, containing a strategy for the future development of the city in the plan drawing itself. As such, the building plans of Berlin were highly ambiguous instruments, controlling and limiting the building and growth of the city, while at the same time facilitating the same process by legally turning agricultural land into building land.

The agency of the paper plan demonstrated in this article is manifold, but maybe two key arguments should again be emphasized in the end. First, the role of the paper plans in the production of visual knowledge of the city that is grounded in the know-show function of the building plans. It has been argued that the methods of visual representation of the city, mediated by their specific material presence as paper plans, had an agency in seeing the city and hence in thinking about the city. For example, as sections of islands and separate zones, and as wholes of grids and layers, as a combination of present and future city. Second, the role of the paper plans in the production of verbal knowledge of the city that is grounded in the practice of the making of the building plans. It has been argued that certain graphic terms and concepts of the discourse on the city and *Städtebau* were derived from the cultural techniques of the plan drawing, and that the paper plans had an agency in the making of these concepts. For example, as zones and as areas, such as “green areas” and “open areas”. These

claims made here are in addition to the more often attributed agency of the paper plans in the process of the reform of the city and its territory and show the important and complex mediating role of the paper plans.

¹ My understanding of the agency of the paper plan as a medium of bureaucracy has greatly benefited from the discussions and exchange with the editors of this special issue Min Kyung Lee and Sean Weiss, particularly during our session at the NCSA conference in 2015 and our subsequent workshop with Nancy Stieber in Boston. The clear and generous comments of my anonymous reviewer have helped to further clarify and sharpen my arguments in this article. My special thanks to all of them. All translations are mine unless otherwise noted.

² Rudolf Eberstadt, *Handbuch des Wohnungswesens und der Wohnungsfrage* (Jena: Fischer, 1909), 181.

³ His account was based on first hand observations. See William Harbutt Dawson, *Municipal Life and Government in Germany* (London: Longmans, Green and Co., 1914), 141-160, here 141-142.

⁴ For a more detailed chronicle of the construction of Berlin see the following excellent selection of contemporary texts. Iain Boyd Whyte and David Frisby, eds., *Metropolis Berlin, 1880-1940*, (Berkeley, CA: University of California Press, 2012).

⁵ For the role of the building industry and the private sector in this process, in relation to the communal policy and the public sector, see the following book. Christoph Bernhardt, *Bauplatz Groß-Berlin: Wohnungsmärkte, Terraingewerbe und Kommunalpolitik im Städtewachstum der Hochindustrialisierung. 1871-1918*, (Berlin: de Gruyter, 1998).

⁶ The best works on the subject in German are still the following. Gerhard Fehl and Juan Rodriguez-Lores, eds., *Stadterweiterungen, 1800-1875: Von den Anfängen des modernen Städtebaues in Deutschland* (Hamburg: Hans Christians, 1983). Juan Rodriguez-Lores and Gerhard Fehl, eds., *Städtebaureform, 1865-1900: Von Licht, Luft und Ordnung in der Stadt der Gründerzeit* (Hamburg: Hans Christians, 1985).

⁷ Other examples would include *Baukunst* (art of building), *Bauwesen* (building trade), *Baumeister* (master builder), *Bauverwaltung* (building administration), *Bautechnik* (building technique), *Baustoff* (building material), *Bauordnung* (building bye laws), *Bauvorschrift* (building code), etc.

⁸ The following two articles are still the best accounts of the “Hobrecht Plan” in English today. Claus Bernet, “The ‘Hobrecht Plan’ (1862) and Berlin’s urban structure,” *Urban History* 3, no. 31 (2004): 400-419. Felix Bentlin, “Understanding the Hobrecht Plan: Origin, composition, and implementation of urban design elements in the Berlin expansion plan from 1862,” *Planning Perspectives*, (2017), <https://doi.org/10.1080/02665433.2017.1408484>. The various relations between the “Hobrecht Plan” and the Berlin housing types are discussed in Katharina Borsi, “Drawing and Dispute: The Strategies of the Berlin Block,” in *Intimate Metropolis. Urban Subjects in the Modern City*, eds. Vittoria Di Palma, Diana Periton and Marina Lathouri (Abingdon: Routledge, 2009), 132-152.

⁹ My own understanding of the building plans as material objects has been shaped by the elaborate discussions with Catalina Mejía Moreno on the materiality of the photographic image. See for example Catalina Mejía Moreno, “The “Corporeality” of the Image in Walter Gropius’ *Monumentale Kunst und Industriebau* Lecture,” *Intermedialités*, no. 24-25 (Autumn 2014, Spring 2015), <http://dx.doi.org/10.7202/1034165ar>.

¹⁰ See Ben Kafka, "Paperwork: The State of the Discipline," *Book History* 12 (2009): 340-353, here 341. I thank my editor Sean Weiss for pointing that out to me.

¹¹ The plans operate like the sectional diagram of the soil of the Amazon Forest that via a series of processes established a 'circulating reference' between the paper in the office and the ground in the forest. See Bruno Latour, "Circulating Reference: Sampling the Soil in the Amazon Forest," in *Pandora's Hope: Essays on the Reality of Science* (Cambridge, MA: Harvard University Press, 1999), 24-58.

¹² See Bruno Latour, "Visualisation and Cognition: Drawing Things Together," in *Knowledge and Society Studies in the Sociology of Culture Past and Present*, ed. Kuklick, Henrika, JAI Press 6, (1986): 1-40, <http://www.bruno-latour.fr/articles/article/21-DRAWING-THINGS-TOGETHER.pdf>

¹³ Bruno Latour. *Reassembling the Social: An Introduction to Actor-Network-Theory*, (Oxford: Oxford University Press, 2005), 39.

¹⁴ Cornelia Vismann, "Cultural Techniques and Sovereignty," *Theory, Culture & Society* 30, no. 6 (2013): 83-93, here 83. See also Cornelia Vismann, *Files: Law and Media Technology* (Stanford, CA: Stanford University Press, 2012).

¹⁵ Bernhard Siegert, "Cacography or Communication: Cultural Techniques in German Media Studies," *Grey Room*, no. 29, (2008): 26-47, here 30.

¹⁶ Robin Evans, *From Drawing to Building and Other Essays* (London: AA Publications, 1997). Roland Barthes, *La chambre Claire: Notes sur la photographie* (Paris: Gallimard, 1980). Translated from the French by Richard Howard. *Camera Lucida: Reflections on Photography* (London: Cape, 1981).

¹⁷ Friedrich Balke, Bernhard Siegert and Joseph Vogl, eds., *Medien der Bürokratie* (Paderborn: Fink, 2016).

¹⁸ Bernhard Siegert, "Cultural Techniques: Or the End of the Intellectual Postwar Era in German Media Theory," *Theory, Culture & Society* 30, no. 6 (2013), 48-65, here 58.

¹⁹ Bernhard Siegert, *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real* (New York, NY: Fordham University Press, 2015). Translated from the German by Geoffrey Winthrop-Young.

²⁰ Raymond Unwin, "'Wholesale' Planning," in *The Practical Application of Town Planning Powers*, ed. Ewart G. Culpin (London: King & Son, 1909), 38-42, here 39.

²¹ Lisa Gitelman, *Paper Knowledge: Toward a Media History of Documents* (Durham, NC: Duke University Press, 2014), 1. See also Ben Kafka, *The Demons of Writing: Powers and Failures of Paperwork* (Cambridge, MA: The MIT Press, 2012), and Matthew S. Hull, *Government of Paper: The Materiality of Bureaucracy in Urban Pakistan* (Berkeley, CA: University of California Press, 2012).

²² *Archiv für Rechtsfälle, die zur Entscheidung des Königlichen Ober-Tribunals gelangt sind*, ed. Theodor Striethorst (Berlin: Guttentag, 1870), 217-230, here 217-218. As quoted in Claus Bernet, "The 'Hobrecht Plan' (1862) and Berlin's urban structure", *Urban History* 3, no. 31 (2004): 400-419, here 402.

²³ Reinhard Baumeister (1833-1917), the most important writer on town extensions in Germany introduced the term 'town extension plan' as synonymous with building plan. See Reinhard Baumeister, *Stadt-Erweiterungen in technischer, baupolizeilicher und wirtschaftlicher Beziehung* (Berlin: Ernst & Korn, 1876). Reinhard Baumeister, *Moderne Stadterweiterung*, (Hamburg: Richter, 1887).

²⁴ In German there are a few but mostly only descriptive accounts. Klaus Strohmeyer, *James Hobrecht (1825-1902) und die Modernisierung der Stadt* (Berlin: Verlag für Berlin-Brandenburg, 2000). Jutta Lubowitzki, "Der 'Hobrechtplan,'" in *Berlin-Forschungen*, ed. Wolfgang Ribbe (Berlin: Einzelveröffentlichungen der Historischen Kommission zu Berlin, 1990). Ernst Heinrich, "Der Hobrechtplan," *Jahrbuch für brandenburgische Landesgeschichte* 13, (1962): 41-57. On earlier attempts of the Berlin town extension according to plan see Friedrich Geist and Klaus Kürvers, *Das Berliner Mietshaus, 1740-1862: Eine dokumentarische Geschichte der 'von Wülcknitzschen Familienhäuser' vor dem Hamburger Tor, der Proletarisierung des Berliner Nordens und der Stadt im Übergang von der Residenz zur Metropole* (München: Prestel, 1980). The early critique of the "Hobrecht Plan" by Ernst Bruch in "Berlin's bauliche Zukunft und der Bebauungsplan: Mit einem Plan von Berlin und Charlottenburg," *Deutsche Bauzeitung*, (1870) and the polemic against the plan by Werner Hegemann in his otherwise excellent book *Das steinerne Berlin: Geschichte der größten Mietskasernenstadt der Welt* (Berlin: Kiepenheuer, 1930) has largely determined the view of the building plan up to today.

²⁵ The inscription on the plan by the Royal Police President Engel reads as follows: "For the municipality," "plan copy," signed by Engel, "Die in roter resp. grüner Farbe nun eingetragenen Straßenzügen sind genehmigt durch Allerhöchste Cabinets Ordre vom 21. März 1874, Berlin, den 23. Mai 1874, des Kgl. Pol. Präs., Engel."

²⁶ Giorgio Piccinato, *Städtebau in Deutschland, 1871-1914: Genese einer wissenschaftlichen Disziplin* (Braunschweig: Vieweg, 1983), 82. In principle, this book by Giorgio Piccinato and *Urban Planning and Civic Order in Germany, 1860-1914* by the American urban historian Brian Ladd were the two main reference books for the general context of this specific article. See Brian Ladd, *Urban Planning and Civic Order in Germany, 1860-1914* (Cambridge, MA: Harvard University Press, 1990).

²⁷ Josef Stübben, *Town-planning and Building Bye-laws* (London: Wightman & Co. Ltd., 1907), 4.

²⁸ Paul Clauswitz, *Die Pläne von Berlin* (Berlin: Seitz & Co., 1906), 48.

²⁹ See *Erläuterungen zur Baupolizeiordnung für die Vororte von Berlin vom 5. December 1892 nebst Übersichtsplan und erläuternden Holzschnitten* (Berlin: Ernst & Sohn, 1893).

³⁰ For the discussion of the Lex Adickes, the beginning of municipal land policy, and the vehement response to the public intervention in private law, private property, and the land market, as well as to the question of land expropriation see the following contemporary literature. Eugen Meyn, *Stadterweiterungen in rechtlicher Beziehung* (Berlin: Heymann, 1893). Carl Merlo, *Der Gesetzentwurf betreffend Stadterweiterung und Zoneneinteilungen, Lex Adickes* (Köln am Rhein: Kölner Verlags-Anstalt und Druckerei, 1894). Otto Clement, *Die Berliner Vororte-Bauordnung vom 5. Dezember 1892 und die Lex Adickes: Gesammelte Aufsätze und Aeußerungen der Presse* (Berlin: Funcke & Raeter, 1894).

³¹ Ola Söderström, "Paper Cities. Visual Thinking in Urban Planning," *Ecumene* 3, no. 3 (1996): 249-281, here 264.

³² *Ibid.*, p. 266.

³³ Josef Stübben, *Town-planning and Building Bye-laws* (London: Wightman & Co. Ltd., 1907), 5-6.

³⁴ See Christa Kamleithner, "Planung und Liberalismus," *dérive*, no. 31 (April 2008): 5-9. Christa Kamleithner, "'Life, Liberty, and the Pursuit of Happiness': Liberalism and the

Image of the City in German Planning Theory around 1870", in *Urban Planning and the Pursuit of Happiness: European Variations on a Universal Theme (18th-21st Centuries)*, eds. Arnold Bartetzky and Marc Schalenberg (Berlin: Jovis, 2009), 52-65. Christa Kamleithner, "Mit dem Markt planen: Zu den epistemischen Voraussetzungen moderner Stadtplanung," in *Planlos! Zu den Grenzen von Planbarkeit*, eds. Matthias Koch, Christian Köhler, Julius Othmer and Andreas Weich (Paderborn: Fink, 2015), 35-50.

³⁵ The announcement of the competition was accompanied by the following publication. Architektenverein zu Berlin and Vereinigung Berliner Architekten, *Anregungen zur Erlangung eines Grundplanes für die städtebauliche Entwicklung von Gross-Berlin* (Berlin: Wasmuth, 1907).

³⁶ The following book chapter provides a good discussion of the different ideas of the main competition entries, and also mentions the role of the competition documents. However, Wolfgang Sonne does not discuss the instrument of the town development plan as such and also not in specific relation to the new concept of town development. See Wolfgang Sonne, "Ideas for a Metropolis: The Competition for Greater Berlin 1910," in *City of architecture: Architecture of the city, Berlin 1900-2000*, eds. Thorsten Scheer Josef Paul Kleihues, and Paul Kahlfeldt (Berlin: Nicolai, 2000), pp. 66-77. The following book chapter is the first publication by the main author on the Competition Greater Berlin and emphasizes the centrality of the idea of unity for the unitary building plan. See Markus Tubbesing, "Der Wettbewerb Groß-Berlin: Die Suche nach der Einheit im Großstadt-Chaos," in *Stadtvisionen 1910/2010*, eds. Harald Bodenschatz et al (Berlin: DOM publishers, 2010), 64-69. The chapter is based on his doctorate. See Markus Tubbesing, "Der Wettbewerb Groß-Berlin 1908-1910" (PhD diss., Universität Bern, 2014).

³⁷ For the competition entry of his team see Rudolf Eberstadt, Bruno Möhring and Richard Petersen, *Gross-Berlin: Ein Programm für die Planung der neuzeitlichen Grossstadt* (Berlin: Wasmuth, 1910).

³⁸ Rudolf Eberstadt, "Town Planning in Germany: The Greater Berlin Competition," in *RIBA: Town Planning Conference. London, 10-15 October 1910, Transactions* (London: RIBA, 1911), 320.

³⁹ For the evaluation of the competition entries see the following two publications. *Beurteilung der zum Wettbewerb Gross-Berlin eingereichten 27 Entwürfe durch das Preisgericht* (Berlin: Wasmuth, 1910). *Wettbewerb Gross-Berlin: Die preisgekrönten Entwürfe mit Erläuterungsberichten* (Berlin: Wasmuth, 1911).

⁴⁰ Architekturverein zu Berlin and Vereinigung Berliner Architekten. *Anregungen zur Erlangung eines Grundplanes für die städtebauliche Entwicklung von Gross-Berlin*, (Berlin: Wasmuth, 1907): 2.

⁴¹ See Markus Tubbesing, "Die Kartengrundlagen zum Wettbewerb Groß-Berlin 1910 von Julius Straube," in *Die Pläne mit der Berolina: Kartographische Exkursionen mit Julius Straube*, eds. Gerd Heinemann and Andreas Matschenz (Berlin: Bien & Giersch, 2014), 8-11.

⁴² For a discussion of the subsequent drawings of Herman Jansen for Greater Berlin see the following article. Katharina Borsi, "Drawing the region: Hermann Jansen's vision of Greater Berlin in 1910," *The Journal of Architecture* 20, no. 1 (2015): 47-72.

⁴³ For his competition entry see Hermann Jansen, *Vorschlag zu einem Grundplan für Gross-Berlin* (München: Callwey, 1910).

⁴⁴ See Landesarchiv Berlin, Wettbewerbsunterlagen Gross-Berlin 1910, A 4246 - A 4248.

⁴⁵ For their competition entry see Joseph Brix and Felix Genzmer, *Grundplan für die Bebauung von Gross-Berlin* (Berlin: Ernst & Sohn, 1911).

⁴⁶ The 64 publications of their *Städtebau* seminar documents the presentations of the main experts of the time in Germany, such as Reinhard Baumeister, Joseph Brix, Rudolph Eberstadt, Felix Genzmer, Josef Stübben, Richard Petersen, and many more. See *Städtebauliche Vorträge aus dem Seminar für Städtebau an der Königlichen Technischen Hochschule zu Berlin*, eds. Joseph Brix and Felix Genzmer (Berlin: Ernst & Sohn, 1908-1920).

⁴⁷ Martin Wagner, *Städtische Freiflächenpolitik: Grundsätze und Richtlinien für Größe und Verteilung der verschiedenen Arten von sanitärem Grün im Stadtplane mit besonderer Berücksichtigung von Groß Berlin*, (Berlin: Heymann, 1915), 51.

⁴⁸ Ola Söderström, "Paper Cities: Visual Thinking in Urban Planning," *Ecumene* 3, no. 3 (1996): 261-275, here 261.

⁴⁹ *Ibid.*, 263.

⁵⁰ Min Kyung Lee, "An objective point of view: the orthogonal grid in eighteenth-century plans of Paris," *The Journal of Architecture* 17, no. 1 (April 2012): 11-32, here 29.