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Drawing the region: Hermann Jansen's vision of Greater Berlin in 1910

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The Greater Berlin Competition of 1910 signals a key transformation in the conception of the city. For the first time, the city was no longer drawn as a continuous bounded urban fabric, but as a set of linked and dispersed urban components distributed across the region. The competition drawings show the beginnings of a set of principles that architectural history usually attributes to modernism: a shared programme to plan the city as a linked but differentiated system of social, technical and biological functions.

This paper traces lines of continuity between the urban vision of Hermann Jansen, one of the two joint competition winners, and subsequent planning thought, in particular the 'Zehlendorfer Plan' of 1947. It argues that Jansen can be understood as having initiated the concept of the strategic urban plan—his 'skeleton' of urban growth—that can adapt and change according to need, and in negotiation with a range of disciplines and stakeholders. Jansen saw the residential quarter as a distinct component of this growth, which could be resolved at a different moment in time, by a different set of expertise. The 'Zehlendorfer Plan' exemplified this flexible adaptable form of planning in which the drawing serves as an instrument of negotiation.

Introduction

The Greater Berlin Competition of 1910 and the ensuing Urban Planning Exhibition have been described as the pinnacle of the new discipline of urbanism.¹ Both events signal the professional consolidation of the discipline as well as the recognition of urbanism as a distinct and internationally comparable phenomenon.

One hundred years later, the exhibition and publication 'Stadtvisionen 1910|2010' celebrated the centenary of the Greater Berlin Competition and contextualised its drawings with contemporary

urban plans of Paris, London and Chicago. Stadtvisionen's extensive visual archive and accompanying text testify to a key transformation of international urban thought between the nineteenth and the twentieth centuries. Instead of the bounded, compact city of the nineteenth century, 'Big Plans' announce the rise of the city region as a network of urban components drawn across the geography of the region. Instead of the relatively undifferentiated urban fabric that went before, the 1910 drawings show spatially and functionally differentiated urban segments, interspersed with green spaces

and linked by a network of traffic infrastructure. Instead of demarcation of building plot lines and space to be kept free of buildings so prevalent in the nineteenth century, now urban drawings begin to indicate an understanding of the city as a spatial, social, economic and technical synthesis.

While *Stadtvisionen* did not seek to establish direct lines of continuity to subsequent planning thought, many of the shared urban themes evident in the 1910 drawings foreshadowed modernist urban thought. In the architectural and urban literature on Berlin, the Greater Berlin Competition is generally understood as a precursor to the tenets of decentralisation, de-densification, the separation of functions and the importance of low-cost housing quarters that only came to be realised and implemented in the changed political landscape of the 1920s and subsequent eras. The architectural historian Julius Posener proposed that the Berlin Modernist *Siedlungen* of the 1920s realised important aspects of the concept of housing as articulated in the 1910s.² In contrast to the emphasis on the architectural project as the verifiable manifestation of urban planning ideas, this paper argues that it is the strategic function of the urban plan drawings, and in particular those of Hermann Jansen, one of its competition winners, that show the significance of this competition for subsequent urban planning.³

The paper traces implicit and explicit lines of continuity between Jansen and later planning thought. While the modernist *Siedlungen* of the 1920s have similarities to the residential quarters by Jansen, they cannot be traced to him explicitly. Significantly, however, Jansen's conception of green spaces will be shown to resurface in the green area plan by

Martin Wagner and Walter Koeppen in 1929. Most importantly, the continuity with Walter Moest's 'Zehlendorfer plan' of 1947 suggests that principles of Jansen's urban vision persist to the present.

Of all the competition entries, Jansen's drawings presented the most balanced synthesis of the new city region as a network of formally and functionally differentiated urban components, linked and dispersed across the region. Moreover, in contrast to his peers, Jansen understood this new spatial order as a flexible framework for growth and adaptation. He described his traffic network as a 'skeleton' for urban growth, itself subject to negotiation and adaptation according to need, and linking and differentiating the different vital organs of the city: the green spaces, industrial and residential quarters. His second emphasis lay on the design of the residential quarters, which, for the first time, were not only understood as urban segments, designed for a certain class of the population, but were employed as distinct components for urban growth. Formulated differently, Jansen proposes for the first time a form of reasoning about the city across scales—the scale of the city region, and the scale of the quarter.

It is this flexible, elastic approach to planning, which re-emerged through the 1947 'Zehlendorfer Plan' by his assistant Walter Moest. Moest reiterates Jansen's description of the traffic network as a 'skeleton' for urban growth, to be negotiated amongst a different set of stakeholders and disciplines from those concerned with realising the residential quarter. In other words, both plans are based on the premise that each of these scales correlates a spatial organisation with a relatively defined set of

urban questions. The scale of the quarter addressed the question of how to house and group the urban population, whereas the scale of the region addressed the question of how to link and distribute key urban components across the city region to achieve a balanced triangulation between living, working and recreation.

Jansen explicitly articulates the task of his drawings, not as the implementation of an authorial vision, but rather as instruments that assist in drawing together relevant stakeholders. Seen in this light, Jansen recognised the key role of the drawing as an instrument for spatial organisation as well as a platform of negotiation across disciplines.

In his text accompanying his competition entry, Jansen refers to the different municipalities as needing to come together in negotiation to achieve an overarching vision of the city region. While there is no empirical evidence to suggest that the stakeholders took up the opportunity to enter into discourse offered by these particular drawings, it is argued here that this understanding of the instrumentality of the drawings to serve and engender discussion across disciplines marks an important shift in urban planning. Each of the different scales evident in Jansen's drawings corresponds to a defined domain of socio-economic content. For example, at the scale of the quarter, the question of housing was articulated by the disciplines of social reform, but also required a negotiation with architects to define density and massing, proximities and distances between individuals and groups of the urban population to ensure hygienic and morally secure accommodation. The question of a balanced, healthy and prosperous agglomeration

was raised by economists, transport engineers, landscape architects, employees of the municipalities, but also needed to be resolved in terms of an urban layout, the proportion of the different urban components, their proximity and linkage to the inner city and adjacencies amongst each other. Architectural and urban drawings serve to make questions of socio-economic context thinkable and practicable as much as they further engender discussions such as how to house and group the urban population or how to organise the city region. Jansen's drawings exemplify this discursive understanding of the drawing at a key historical juncture.

The paper proceeds with a short introduction concerning the Greater Berlin competition and its winning entries. The following sections describe Jansen's competition drawings, and their lines of continuity to later urban thought, according to scales—from the scale of the quarter or neighbourhood, to the overview plans showing the distribution of quarters across the area of urban extension, to the regional network drawings that show the distribution of green areas and parkland, transport infrastructure and the distribution of industrial locations in relation to waterways.

The Greater Berlin competition

In 1907 the two architect chambers of Berlin jointly called for a new master plan to formulate a set of solutions to the perceived problems of the nineteenth-century city.⁴ Exponential growth of the city beyond its administrative borders, unregulated speculation, the lack of coordinated planning instruments, the need for a comprehensive transport network and the social problems perceived in the

dense typology of the Berlin block, all fuelled the need for a new ordering of the city.

The architect chambers perceived the metropolis as a set of overlapping political, hygienic and moral problems. Both source and solution to these problems were seen to lie in the environment, and thus the terrain on which the guarantor for progress and order was seen to be a new spatial order that would secure the welfare of the population. Accordingly, their guidelines asked that the competition drawings responded to the problems of the city:

... in an artistic manner, under consideration of the advanced technical, hygienic and economic demands of the new urbanism. Not only the conditions of the individual parts of the territory, also the conditions for socially satisfactory housing for the different population levels, as well as the useful and facilitated distribution of large and small industries are to be considered. Principally, it comprises a generous network of main traffic arteries, of railroads and waterways, the keeping free of already forested and green areas, the penetration of built mass with parks, streets and promenades, sports and playing fields, and the predetermination of squares for public buildings.⁵

All competition entries responded with solutions that proposed a new understanding of the territory, the organisation and the inter-scalar relationships of the city. The drawings comprised: large plans and bird's-eye perspectives of the new city region; monumental squares and groupings of buildings in the inner city; proposals for restructuring of traffic in the inner city; regional transport networks; drawings of green belts or wedges; and solutions for housing. Extensive written explanations described locally

specific solutions for new developments, traffic, green spaces and embellishments.⁶

However, the hierarchy and emphasis of the various requirements demanded by the competition brief differed significantly amongst the competition entries. For example, Wolfgang Sonne argued that the strength of the work submitted by the joint first prize-winners, Brix and Genzmer, lay in its various small-scale proposals, rather than in an identifiable vision for a metropolis of the future.⁷ Using history as a toolbox, Brix and Genzmer proposed a monumental imperial forum as an endpoint to a gigantic victory avenue, in addition to various other designs for groupings of cultural buildings. Christoph Bernhardt argued that Brix and Genzmer's main contribution lay in their extensive exploration of the traffic infrastructure.⁸ The competition entry proposed a north-south rail axis as a linchpin for Berlin's urban development, an extensive traffic network that was conceived as connecting areas of different functions and densities, and seventy-seven new traffic intersections in the inner city. The design and the location of residential areas were given comparatively little consideration.

The competition entry 'Et in Terra Pax' by the architect Bruno Möhring, the economist Rudolf Eberstadt and the traffic engineer Richard Peterson received third prize. It is famous for its urban diagrams, which juxtapose a concentric and a radial arrangement of green spaces as a development pattern for the city.⁹ The authors proposed the radial development of the city as the most adequate model for urban growth. The green areas penetrate as wedges into the inner city and growth was seen to take place along the railway lines running adjacent to the green spaces.

Residential, industrial and commercial quarters were to be strictly separated and linked by a traffic network.

The competition entry dealt relatively extensively with the configuration and location of residential quarters. The authors proposed a five-storey perimeter block development circumscribing an array of lower-rise buildings surrounding a central square. The block contained dwellings ranging from tenement flats to terraced houses and single-family houses, and, with its allotment gardens, introduced a rural element into the city.¹⁰ A second housing proposal showed a suburban middle-class development with formal references to the Garden City. Möhring, Eberstadt and Petersen expected residential growth to take place in existing settlements and along transport lines, rather than through the creation of new residential quarters.¹¹

The proposal that won the fourth prize, by the architect Bruno Schmitz, the traffic engineer Otto Blum and the engineering office Havestadt & Contag, was controversial. Its large charcoal-rendered aerial perspectives showed a monumental Berlin, with giant axes, domed buildings and groupings of monumental buildings surrounding unified squares, using an architectural language borrowed from the City Beautiful Movement, but exceeding the latter's scale.¹²

Supporters bestowed accolades on the entry, particularly the impressive artistic perspectives. But there were also those who were critical, such as Albert Brinckmann, who in a subsequent dispute in the journal *Die Bauwelt*, quoted comments from the local daily press such as 'fantastical', 'practically useless' and 'threateningly glum' to describe the plans.¹³ Whatever the views of its detractors, the com-

petition entry also dealt extensively with the regional traffic network and the location of industrial areas.¹⁴

Perhaps the shortcomings of Schmitz's entry were best summed up when compared to Jansen's proposal as noted by Le Corbusier:

The exhibition of the projects of the Greater Berlin competition shows an entirely realistic project by Jansen and a much more utopian by Bruno Schmitz, ... with architectural solutions that have a tendency to the monumental.¹⁵

The difference between Jansen's competition entry and those of the other competition winners is clarified in the preface to his submission. Jansen opens the description of his work by declaring his disagreement with the 'need' for monumental inner-city squares and buildings. He considered their realisation as questionable and assigned them a low priority given the more urgent issues to be addressed.¹⁶ Key amongst those in Jansen's mind is the need to plan 'for those 92 of one hundred, who are not able to spend more than 600 marks for residential purposes'.¹⁷ Accordingly, Jansen argues that 'the main point of this competition remains the ideal settlement of the inhabitants of Greater Berlin and the appropriate fast connections'.¹⁸ The relationship between the settlement of the urban population and their linkage and connectivity at the scale of the region is the driving principle of his plans for Greater Berlin. Despite his rejection of monumental central squares, Jansen nonetheless considered the aesthetic component of urbanism as paramount.¹⁹

None of the Competition's proposals were realised. The political and legal conditions for a joint regional approach to planning the city region

were not in place.²⁰ However, the ideas presented in the Competition made clear that the municipalities, which numbered over 200 in the area of Greater Berlin, urgently needed a framework to join up the planning of the city region. The most tangible result of the Competition was the formation of an association of interest between most of the larger municipalities that sought to cooperate on questions of infrastructure and planning in 1912.²¹ At the time, this association lacked the necessary planning authority, its only lasting legislative result being the contract to maintain and extend the forests of the Berlin city region in 1915. In the 1920s, the association changed from a loose association of interests into the municipality of Greater Berlin, creating the legal and administrative framework for a coherent city region.

The scale of the urban quarter

The quarter proposed in the competition entry by Hermann Jansen 'Tempelhofer Feld', is drawn as a distinct urban component (figs 1, 2). The axonometric shows a uniform neighbourhood, in which the individual buildings are formally subordinated to the articulation of the whole. The uniformity of the façades, the regularity of the block distribution and the balanced composition between the 'architectural square' in the foreground, with its monumental public building, and the green belt in the background, show the 'urban image' of a coherent neighbourhood.²²

Instead of the 'solid' fabric of the nineteenth century, out of which streets and squares appeared as if cut out of a ground of stone, the axonometric shows a balanced configuration of solids and

voids. The dense Berlin block of the nineteenth century, with its series of back buildings, side wings and courtyards, had been replaced by perimeter blocks that enclose large courtyards. The block no longer occupied single building plots and instead was designed as a linear unit, formulating a defined interior and a long curvaceous homogeneous street wall. The monumental arches at the short sides of the urban block served to increase ventilation. Jansen explicitly stated that these courtyards served to provide daylight and fresh air. The park in the background was intended as a communal space for association, play and recreation.

The plan also foregrounds the coherence and unity of the neighbourhood. A warped grid of curved streets and angled intersections weaves across the urban fabric, marking a differentiation and interiorisation of the quarter from its surroundings. These curved streets make the quarter less convenient for through traffic and propose the quieter character of residential streets. Two larger roads cut diagonally across the quarter, providing connections to the city, and formally balance the long strip of the park belt that stretches across its whole length. At the centre of the drawing, where the larger through roads intersect, a number of 'public buildings' and a public square form the heart of the neighbourhood. Other 'public buildings', annotated as schools and churches, are distributed regularly across the quarter and form 'sub'-focal points in this composition.

The drawing is a balanced composition of alternating solids and voids. The space between buildings comes into the foreground by virtue of the shaded outlines of the perimeter blocks and

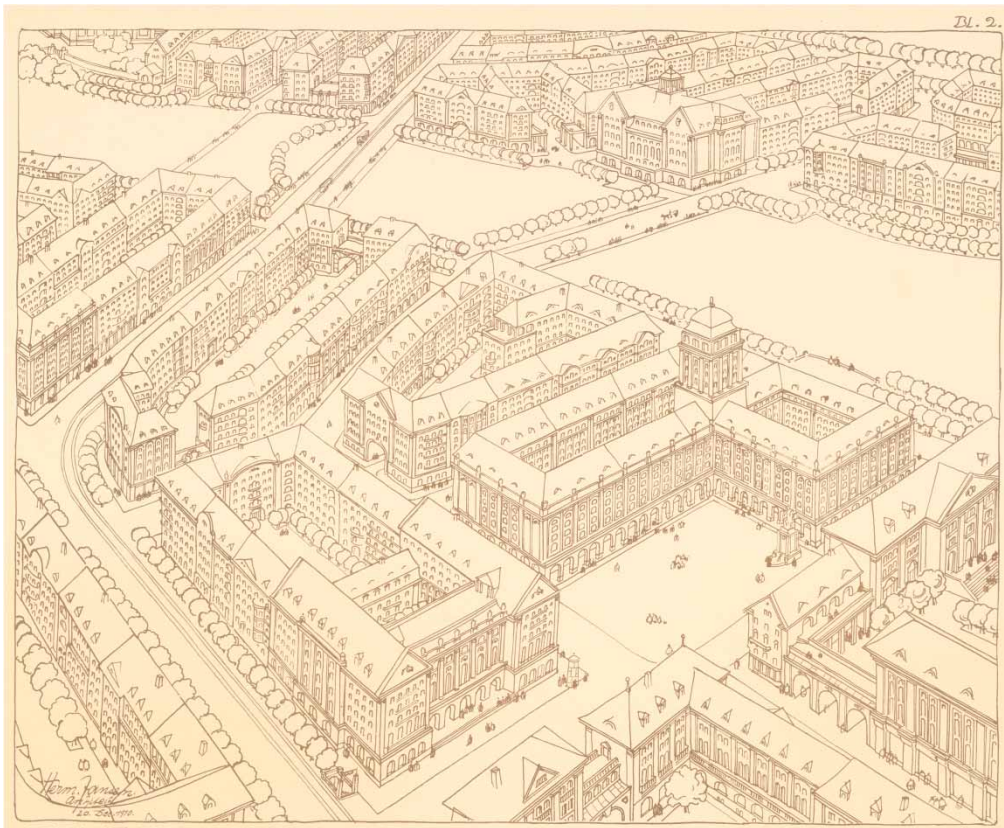


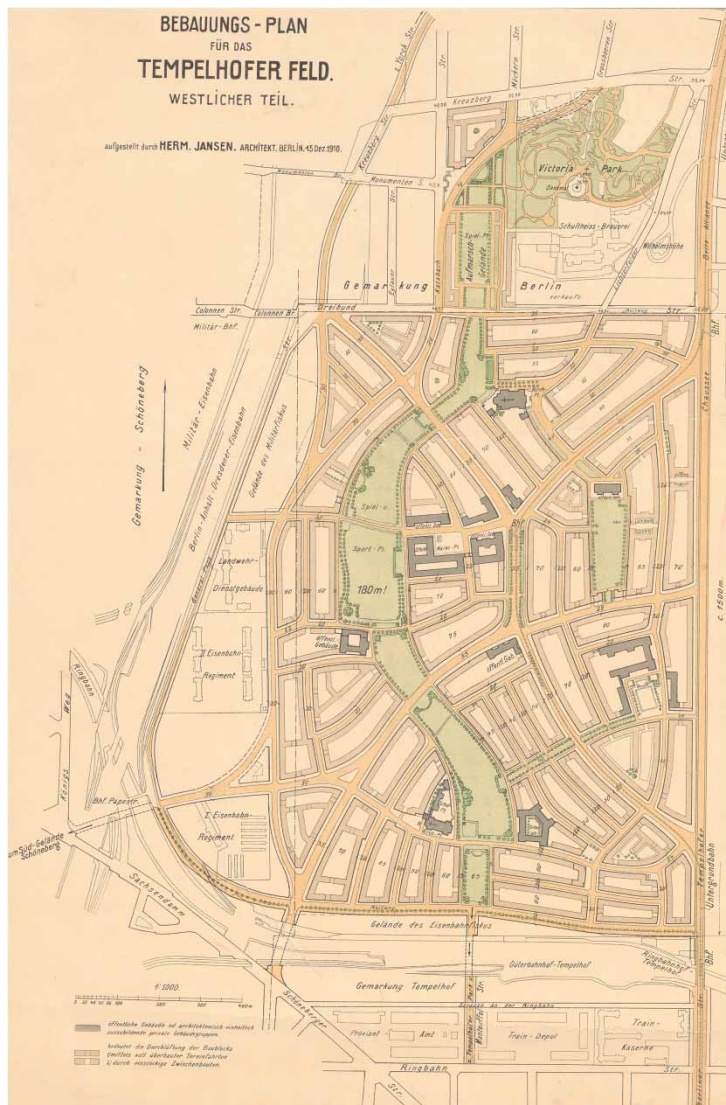
Figure 1. Hermann Jansen, Greater Berlin Competition 1910: aerial view of proposed development, Tempelhofer Feld (source, Architekturmuseum TU Berlin, Inv. No. 20563).

the numerical value in each void to indicate the maximum cross section of open space. In its centre, '180 m!' reads as the largest caption of the drawing, emphasising the hygienic and moral value of the now 'positive' negative space.

Jansen also proposed a 'Type of a Small-House Settlement Buckow-Rudow', designed with similar

formal principles of curvilinear streets, lined by perimeter buildings with generous gardens and a central green space as the focal point of the composition.²³ Its low-rise buildings and generous allocation of green space implied a more rural, idyllic setting. Typically for the time, Jansen aligned a typology with a distinct class of the urban population: the

Figure 2. Hermann Jansen, Greater Berlin Competition 1910: plan of Tempelhofer Feld (source, Architekturmuseum TU Berlin, Inv. No. 20 558).



'small-house settlement' denoted terraced houses and low blocks of flats for civil servants and workers.

The formal and spatial unity of the housing quarter is not an innovation by Jansen. The residential quarter or neighbourhood had emerged around the turn of the century as a distinct new scale in the urban fabric. I have described elsewhere the process of evolution from the continuous, undifferentiated fabric drawn in the 1860s to the emergence of spatially and programmatically distinct urban segments around 1900.²⁴

At the turn of the century, the residential quarter denoted a defined domain of typological exploration of how to array, group and distribute dwelling units and how to manipulate the overall plan layout to ensure a formal interiorisation and differentiation of the quarter from its urban surroundings. At the same time, the typological evolution of the block and the manipulations of the urban plans responded to concerns about a healthy, moral and economically secure way of living, as articulated by the disciplines of reform. In parallel, the ideal of healthy settlements for all of the population, in the form of terraced houses with a garden, was further proliferated through the garden cities movement and paternalistic workers' housing. However, as Julius Posener and others have shown, in Germany the idea of the Garden City came to be generalised as a widely applied formal principle for low-rise, green and low-density suburbs without any connotation of social or economic reform.²⁵

Seen in this light, Jansen's drawings of Tempelhofer Feld and Buckow-Rudow continue the dual evolution of the norms of living articulated by the disciplines of reform and the architectural exper-

imentation with the size, density, formal expression and spatial organisation of grouping the urban population. But given their novel incorporation into a plan for the overall growth of the city region, Jansen's drawings of Tempelhofer Feld can be seen as graphic documents that help to organise the discussion across disciplines of how to house and group the urban population. The play with solids and voids, the warping of lines, the sectional integration between the articulated façades and differentiated ground planes shown in the drawings of Tempelhofer Feld are immanently architectural explorations of how to cohere and differentiate a distinct segment of the urban fabric. The relatively new demands for healthy and hygienic living conditions, and the desired adequate moral and economic behaviour of individuals and groups of the population as articulated by the disciplines of social reform, are already integrated in Jansen's articulation of the neighbourhood.

The lower densities, the ordered arrangement of dwellings, the distance between built volumes to allow for the flow of air and access of light, the proximity and accessibility of green space to all, the balanced composition of housing, schools and key public buildings as focal points, incited a sense of community and supported moral and hygienic aspirations for its inhabitants. Formulated differently, questions 'external' to the domain of architecture, such as, for example, those of health and hygiene, were transposed onto the surface of the drawing where they were experimented with by questions 'internal' to architecture, such as density, adjacency or proximity. Here the drawings are not understood as mute representations, but as surfaces

of engagement between questions 'inside' and 'outside' of architecture and urbanism.

As such, the drawings of Tempelhofer Feld exemplify how the graphic contributes to making the very concept of housing thinkable and practicable as much as helping to entice further negotiations about the norms and ideals of healthy, hygienic and morally secure housing of the urban population.

It was not until the changed economic and political conditions of the 1920s that Jansen's and his peers' aspirations for adequate housing for lower incomes could be realised. Julius Posener suggested that Martin Wagner transposed key aspects of the 1910 housing concepts:

In the housing estates of the twenties, which evolved under his (Martin Wagner's) leadership and partly with his collaboration, deciding ideas of perimeter building, the small house settlement, and the interpenetration with greenery came to be realised to a respectable degree.²⁶

Martin Wagner's and Bruno Taut's famous modernist Siedlungen of the 1920s not only continue some of the formal precepts of the 1910s, but also continue spatially to define the needs of the modern family, and the spatial and programmatic services for groups of the population.²⁷ Despite a wealth of innovations in terms of construction, materials and architectural design, their experimentation with dwelling ranges and urban layouts can be seen in a lineage of the coevolution of the norms of housing defined by the disciplines of reform and the architectural and urban experimentation with distinct housing units beginning in the mid-nineteenth century.²⁸

The next section describes Jansen's strategic innovation in regards to the residential quarter. As we have just seen, the essential proposal for distinct housing quarters separated from industry and aligned with the new norms of hygiene and morally secure living was common at the time. However, none of the other competition entries proposed the quarter or neighbourhood as a component for urban growth, as one organ in the 'skeleton' of urban growth with which Jansen describes his vision for the new city region.

The scale of the city region

Jansen's overview plans (figs 3, 4) distribute built fabric, traffic infrastructure and green spaces across the city region. The urban fabric is drawn as an agglomeration of quarters: segments of the urban fabric whose predominantly concentrically organised street networks emphasise both their coherence and their differentiation from each other.

The drawings show a hierarchy of street networks—the primary network that spans and connects the city and the region, and a secondary network that distributes and interrelates the urban blocks such that coherent and differentiated quarters emerge. Furthermore, these traffic networks negotiate with different transport lines and green spaces. The quarters cluster around traffic interchanges, and are separated either by traffic infrastructure lines or by green corridors. The annotations not only differentiate between residential and industrial quarters, but differentiate the residential quarters further, listing 'small-dwellings', 'four-storey residential quarters', 'country-house quarters' (detached housing quarters) and 'workers quarters', the latter



Figure 3. Hermann Jansen, Greater Berlin Competition 1910: overview plan (source, Architekturmuseum TU Berlin, Inv. No. 20521).

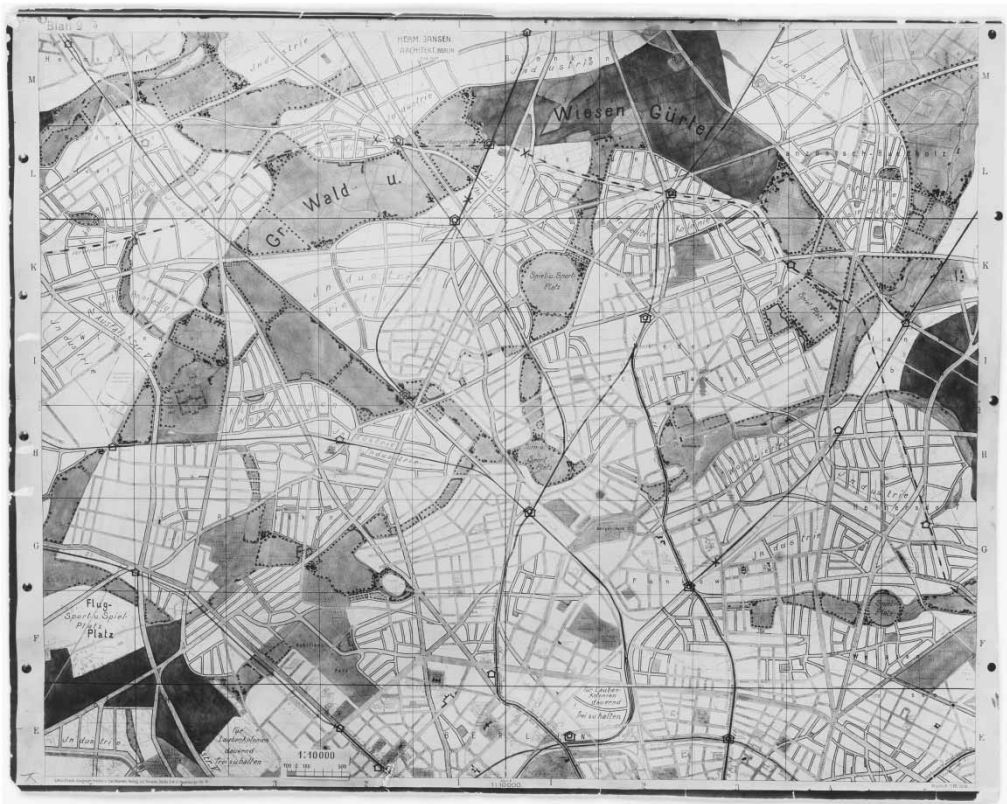
positioned adjacent to industrial quarters. Some of the clusters group residential and industrial areas in close proximity, separated by a green belt or traffic corridor.

In the accompanying text, Jansen argues that: It shall be demonstrated that the planned settlements were not arranged randomly, but rather that their creation resulted from existing circumstances. The industry is positioned adjoining

existing and planned train tracks and watercourses... the workers and small-house settlements belong ideally in the vicinity to the industrial areas... Industrial areas, particularly those with disrupting and health hazard works, are to be separated from residential areas, at least through a green zone.²⁹

The object of these drawings is not the 'higher artistic and hygienic levels' of housing developments, but

Figure 4. Hermann Jansen, Greater Berlin Competition 1910: overview plan (source, Architekturmuseum TU Berlin, Inv. No. 20515).



instead their distribution with adequate green space provision in conjunction with neighbouring communities.³⁰ Jansen's overview plans covered all the territory adjacent to the existing city. The drawings explore the distribution of quarters according to class and function in relation to topography and existing infrastructure, and the distribution, proximity

and secure distance of industrial locations in relation to residential quarters. These drawings aid reflection on the size, number and proportion of quarters, according to class, that the city requires, in a balanced equilibrium with places of work and green spaces. Whereas all competition entries proposed solutions for housing quarters, Jansen's

overview plans are unique in that they show the distribution and arrangement of residential quarters as a key layer of the overall urban plan. It is this comprehensive understanding of the city as a flexible organism, interrelating housing, working and commuting, that demonstrates Jansen's foresight and differentiates his approach of planning the city strategically from those of the other competition entrants.

Jansen's 'Forest and Green belt of Greater Berlin with Radial Connections' (Fig. 5) and 'Overview Plan Traffic Infrastructure' (Fig. 6) indicate that he understood the city as an open flexible network of different components spanning the region. Jointly these drawings conceptualise the city region as a natural, socio-economic and spatially connected formation.

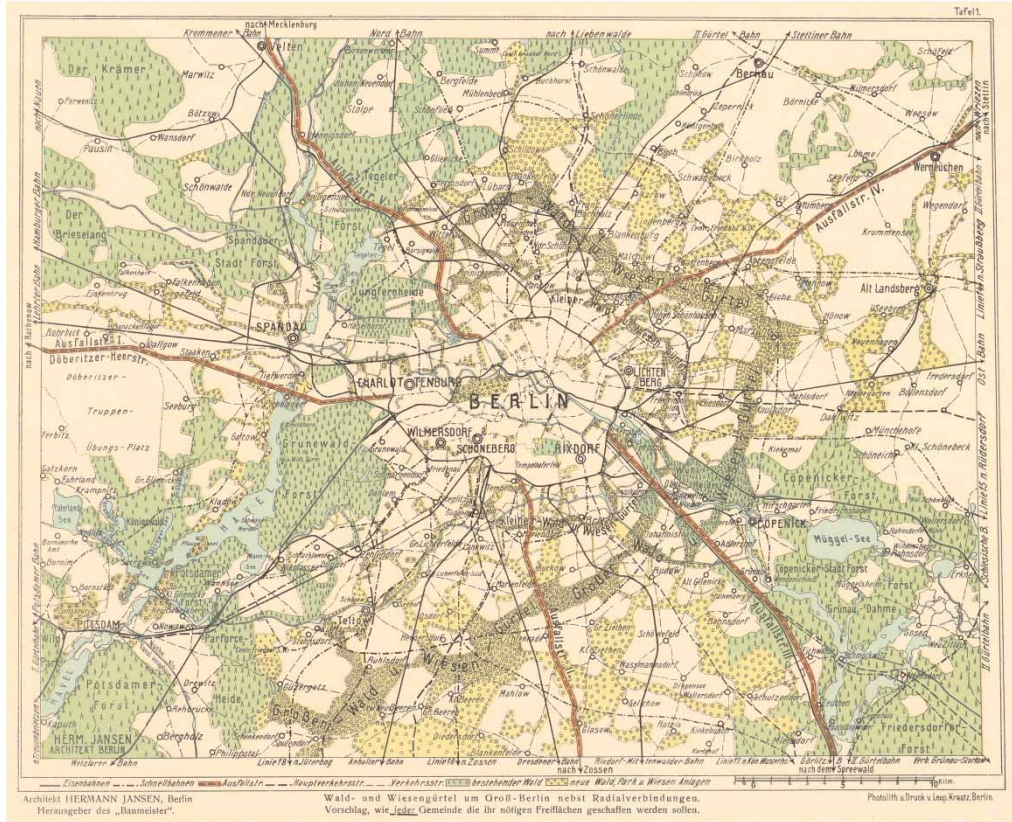
In his 'Forest and Green belt of Greater Berlin with Radial Connections', Jansen superimposes an inner and an outer forest and grassland belt onto the existing topography, connecting the existing forested areas. As we saw in his overview plans, Jansen suggested a regular mesh of green spaces sprawling across the new urban figure. Jansen's approach of using green space as an integrated functioning element within his organism of the city distinguishes his approach from his peers' more generic geometries of green belts and wedges penetrating the city. In Jansen's proposal, forests, parks, gardens and meadows are interlaced with the projected quarters, and serve to structure and delineate the projected urban fabric. Moreover, Jansen suggested that ideally, from each point in a quarter, 'the green belt is accessible by a minimum of 500–600 metres and a smaller or larger circle can be strolled through.'³¹

It is Jansen's focus on the usability and proximity of green spaces that would become directly influential for a later generation of urbanists. Martin Wagner's and Walter Koeppen's 'Free Area Schema for the Municipality of Berlin and Surrounding Zone' of 1929 referenced both Jansen and Eberstadt, but was based on similar spatial principles to Jansen's.³² It suggested a 'system of dispersion' rather than radial or concentric arrangements to deploy playgrounds, parks, sports areas and green connections across the whole city where needed.³³ Martin Wagner, then municipal building director for Berlin, figured prominently in this lineage to Jansen. Wagner's famous dissertation 'The Sanitary Green of Cities: A Contribution to the Free Area Theory' of 1915 draws on the consequences of Jansen's thought by analysing the use-value of different green areas for different groups of the population.³⁴ Wagner argued that:

... neither the green belt nor the green wedge theory can fully satisfy, if the basis for sanitary and not solely decorative green is the practical, physical use by people.³⁵

In line with Jansen, but now scientifically demonstrated, Wagner suggests that 'green areas [are] to be placed where their need arises, thus in close proximity to residential areas'.³⁶ Wagner's dissertation presented the first scientific research into the urban use-value of green spaces and formed the empirical basis for the Green Area Plan of 1929. Koeppen and Wagner emphasised that their plan served as a guideline, proposing flexible principles of implementation, open for negotiation rather than a prescribed figure to be realised.

Figure 5. Hermann Jansen, Greater Berlin Competition 1910: forest and green belt of Greater Berlin with radial connections, 1908 (source, Architekturmuseum TU Berlin, Inv. No. 20541).



Jansen's traffic network plan (see Figure 6) superimposed transport infrastructure, graphically coded according to different transport modes, onto a geographical map of Berlin and its surroundings. The city of 1910 is planned as being surrounded by two ring roads. The inner ring contains the existing fabric and constitutes a border from which lines of

connection from the exterior either come to an end or continue on into the centre. Jansen's emphasis lay on the traffic network extending beyond the inner city; its pattern of intersecting radial and concentric lines covers the territory of the city region with a relative regularity. Interchanges of traffic modes of different speeds allow the regular flow

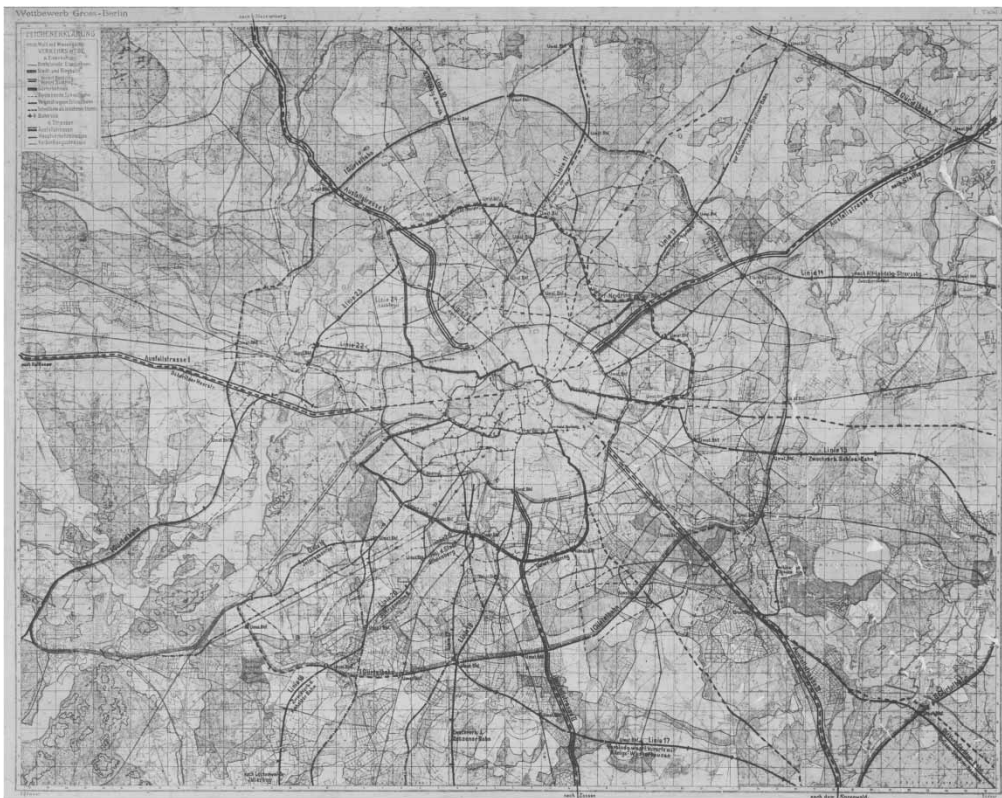


Figure 6. Hermann Jansen, Greater Berlin Competition 1910: transport network, 1908 (source, Architekturmuseum TU Berlin, Inv. No. 20534).

of people and goods across the territory. Different traffic networks are coded in the drawings, establishing a hierarchy of connectivity across the urban region.

In the competition text, Jansen explains that his traffic network plan is a response to the development process of the city in the preceding years. He argues that its fast growth, which he sees mainly

as the effect of industrial relocation to Berlin's outlying areas, had totally surprised traffic planners. Interestingly, he concludes from this observation not the possibility of predicting future patterns of growth through a set of prescribed traffic plans, but rather a 'skeleton' for urban growth:

Through large traffic arteries, and numerous railway stations of existing and planned railway

lines, the transport network of the outlying areas of Greater Berlin is to be determined in its principles. If one connects these main nodes with the traffic nodes of the existing and new settlements, with the banks of rivers and canals, and with the precious beauty of landscapes, as well as interconnect all of them, always with the aim of achieving as many attraction points as possible to ensure enduring economic and aesthetic advantages for the individual settlement, thus emerges a firm skeleton which is a condition of life for the further growth of the urban gigantic body and its individual healthy limbs.³⁷

Throughout his text, Jansen underscored that his drawings served to bring the various municipalities into negotiation in order to adapt and implement a transport network in the service of the overall city region. He recommended the urgent formation of associations of interest across municipalities in order to balance their individual interests, the competition between each other and the overarching interests of the 'gigantic urban body' of the city region. Seen in this light, his 'firm skeleton for the further growth of the gigantic urban body', turns into a flexible framework that can adapt to local circumstance and accommodate changing patterns of development.³⁸

The notion of the 'skeleton' of urban growth furthermore implied the bifurcation of reasoning about the linkages and connections of the region and the planning of the 'individual limbs' of the urban body. Jansen suggested that it would be possible to plan traffic arteries at an earlier moment in time than residential quarters. He argued that it was generally difficult to predict which kind of quarter would

be placed at a certain location. Instead, he proposed the assignation of areas for residential development as evolving according to need.³⁹

In other words, the conceptualisation of the region as a linked but dispersed network of components would allow each to be addressed by different sets of stakeholders, at different moments in time. In the case of the transport infrastructure this would demand negotiation between individual municipalities, transport planners and development companies. The formal and spatial articulation of the individual quarters would draw together architects, social reformers and health officials as key stakeholders in the process of conception and realisation.

Before considering the lineage of Jansen's plan in developments after the Second World War, it is interesting to note that the plan of 'New Waterways and Industrial Quarters' (Fig. 7) shown in the competition entry by Schmitz, Blum and Havestadt & Contag complements Jansen's drawings of residential quarters.⁴⁰ Schmitz's plan shows a minimum of information. Topography and geography have disappeared as elements to be considered and instead a white background serves to emphasise a few key graphic components. The location of the proposed 'Canal of the North', and potential adjacent industrial estates, stand out, but the drawing also shows built agglomerations, other industrial areas, canals, waterways and traffic infrastructures, drawn in code. Thus the drawing explores not only the location of large industrial plants along the canals, but tests also their overall distribution across the city region, their proximity to the city centre and other significant agglomerations, and

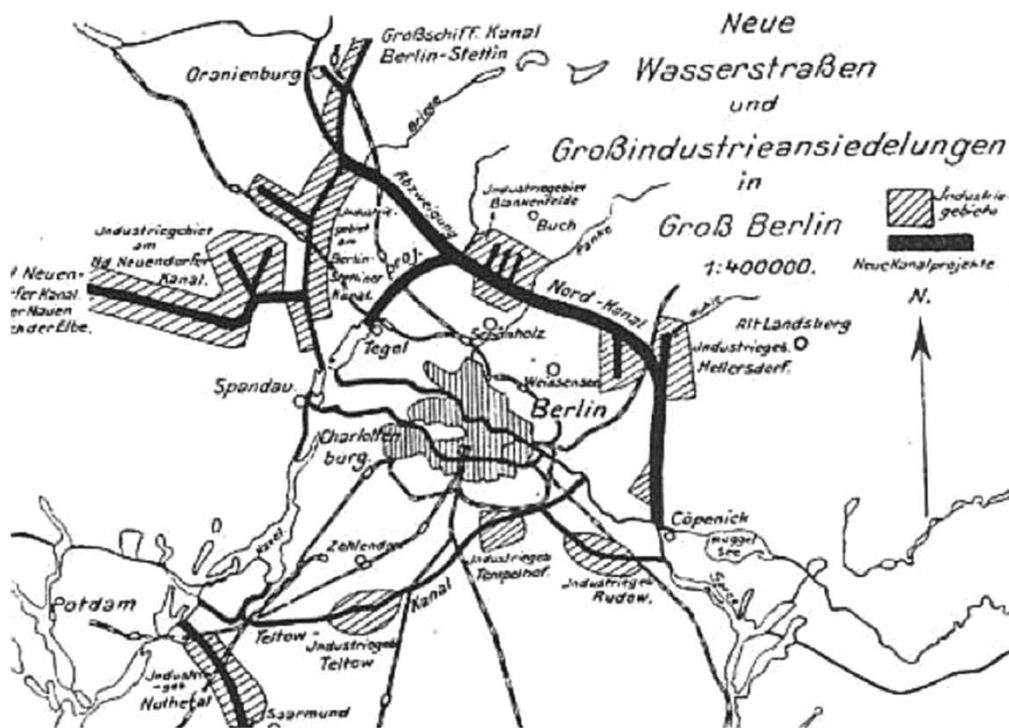


Figure 7. Schmitz, Blum and Havestadt & Contag: new waterways and industrial quarters, 1910 (source, <http://linie7.de/unser-bezirk/publikationen/historische-stadtplanungen/> [accessed 10/07/13]).

the distribution of other relevant infrastructure: waterways and railway lines. The selected range of components used in the plan and the domain of its exploration suggest that it could serve to draw in a very defined range of professions and expertise—planners, transport engineers, those controlling industrial capital and potentially both the municipality of Berlin and other relevant municipalities.

Interestingly, each of the residential quarters Jansen drew, finds in Schmitz's plan its industrial 'counterpart'. The annotations denote both an industrial quarter with the name of 'Tempelhof', and another one as 'Buckow-Rudow', each adjacent to the two housing quarters Jansen submitted in his competition entry. The competition guidelines had requested solutions to Berlin 'under consideration of the advanced technical, hygienic and economic

demands of the new urbanism'.⁴¹ The drawing of 'New Waterways and Industrial Quarters' raising the primarily economic question of the distribution and location of industrial quarters needs to be read in conjunction with Jansen's drawings of 'Tempelhofer Feld' and those of 'Type of a Small-House Settlement Buckow-Rudow', to achieve the synthesis between the technical, the economic and the 'socially satisfactory housing for the different population levels' demanded by the competition guidelines.⁴² The question raised in 'New Waterways and Industrial Quarters'—the distribution and location of industrial quarters—required the proximity of the work force. An urban reason that was concerned with the health and the welfare of the population and the prosperity of the city as described in the competition guidelines both required an adequate way of housing and grouping the population, but also their proximity to places of work.

The continuity of Jansen's plan

Jansen's overall urban concept of a comprehensively planned 'skeleton' of urban growth with its 'limbs' placed according to need, only came to fruition after its implementation following the Second World War. The planning of 1920s' Berlin focussed on the urgent need for housing, and, as in Wagner's critique, did not offer the political framework for the implementation of more far-reaching, comprehensive urban strategies.⁴³ The demise of the Weimar Republic and rise to power of the National Socialists led to a period with little impact on urban development.⁴⁴

In the wake of the war, new urban plans were sought for Berlin with the aim of 'planning a new, democratic city'.⁴⁵ Two competing plans dominated the discussion and were publicly exhibited in the ruins of the former Hohenzollern palace.

The 'collective plan', developed under the leadership of Hans Scharoun the then director of city planning, proposed a decentralised urban landscape through three parallel bands of development for work, transport, housing, leisure, gardening and small-scale agriculture to produce a local food supply. His ideas imposed a radically new urban format with meticulously defined functions and prescribed interrelationships between the different elements of the plan. Most of the pre-existing fabric still remaining would have been demolished.

By contrast, the plan produced by the Zehlendorf office, a department of the Berlin Planning Office, was based on maintaining as much as possible of the surviving urban structure. The 'Zehlendorfer plan' (Fig. 8), as it came to be known, bore the same title as Jansen's competition entry—'Within the limits of the possible'—and was explicitly dedicated to him by its author and former assistant Walter Moest.⁴⁶

The 'Zehlendorfer Plan' has visual similarities to Jansen's 'Forest and Greenbelt of Greater Berlin with Radial Connections' of 1910. Superimposed onto a topographical map of the city, the plan emphasises the same key components as those articulated by Jansen in 1910: a network of transport infrastructure, and a regular network of green areas and corridors interwoven with the urban fabric. Instead of Jansen's detailed projection of different residential and industrial quarters, the 'Zehlendorfer

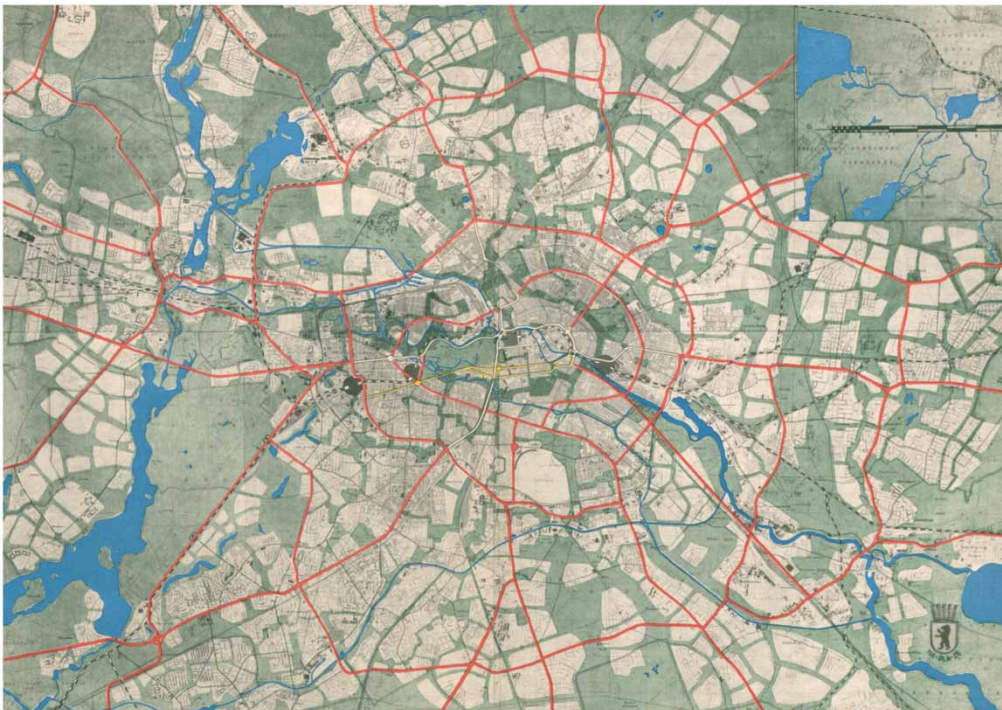


Figure 8. Walter Moest, Zehlendorfer Plan (source, Archiv der Akademie der Künste, Berlin, Hans-Scharoun-Archiv [BT-SLG-28-234/6]).

Plan' only indicated the locations of existing or planned new development by means of their delineation through the extensive mesh of green space.

Moest emphasises the traffic network as the starting point for the plan

The aim is clear: On the one hand, the traffic network has the task to provide the necessary fluid connections for the industries, on the other hand to provide for the whole working population the possibility to commute from their healthy situ-

ated place of living to their place of work in the fastest and most convenient way.⁴⁷

Similarly to Jansen, Moest proposes a hierarchy of roads, ranging from 'traffic arteries that summarise the whole city'; to 'smaller access roads leading to the individual quarters'; to 'quiet residential roads'.⁴⁸ An interconnected network of green parks and corridors was to be planned alongside the development of the street network, to be accessible on foot from each flat.

Also echoing Jansen, Moest declared the traffic network to be 'the skeleton for the recreation of Berlin'.⁴⁹ Moest emphasised the priority of this network's planning which was to precede urban development and the assignation of land uses to specific areas: 'such a form of planning leaves all possibilities for the future open ... the plan of the department will then also demonstrate that a clear traffic network automatically shows the most convenient location for the assignation of different areas.'⁵⁰ Moest argued that this 'skeleton' could be implemented in stages, through which the 'Organism of Berlin' could grow and adapt according to need, and subsequently be filled in: 'it is the rich task of the economists, the sociologists, the urbanists, the architects and other experts to fill the emerging spaces within this skeleton with the meat of economic, structure and building plans'.⁵¹

The 'Zehlendorfer Plan' formed the basis of a number of subsequent plans that served to prepare the first post-war ratified plan, the 'Land Use Plan' of 1950.⁵² The plan continued to prioritise the traffic network as the basis for planning and categorised land use under the headings 'dwelling', 'relaxation' and 'working'. Residential areas were classified into four different densities, but could encompass neighbourhoods of 6,000 inhabitants, each including a school and a sports field.

This plan is considered to be the first 'strategic' plan: that is, its role is explicitly defined as being a negotiation and decision-making instrument rather than as determining a built reality.⁵³ The plan was devised so as to be continually adapted, and in its principles remains the main instrument for the planning at the scale of the city region today. It is now

defined as forming the basis for decisions on land use and the spatial steering of investment, and articulates the principal aims of Berlin's urban development.⁵⁴

Instead of Scharoun's prescribed urban format, with fixed urban components and defined relationships between its parts, the 'Zehlendorfer Plan' initiated a flexible, 'elastic' way of planning, with development evolving according to need and circumstance. As Moest explicitly stated, this form of planning was seen to evolve according to scales. At the scale of the city region he foregrounds the traffic network as the skeleton of growth, to be planned alongside a network of greenery, which is then to be filled with the 'meat' of its urban segments—residential, industrial or commercial. Whilst Moest's plan left out these elements, intending that they be defined at a later stage, and therefore does not make any recommendations as to the nature of the residential quarter, the land-use plan of the 1950s, with its indication of neighbourhoods of 6,000 inhabitants, points to a generalisation of an understanding of the residential quarter or neighbourhood as a distinct urban component.

Jansen, Moest and the Land Use Plan of 1950 share an understanding of the city region as a natural, socio-economic and spatially connected formation. In each plan, the spatial organisation promoted the triangulation of living, working and commuting across the city region in a flexible framework for urban growth. By the middle of the century, Jansen's concept of reasoning across the spectrum from the scale of the region to that of the quarter had been generally accepted and implemented.

Conclusion

In the 1950s, the concept of the urban organism was generally understood as: 'the optimal functioning of the urban structure, ... the anticipatory planning of the whole city and its region, where all parts fit together well as a conception of wholeness and harmony'.⁵⁵ It is this understanding of the organic nature of the city and its optimal functioning that is present in Jansen's work and sets it apart from the other competition entries in 1910 as starkly as it distinguishes the work of Moest from that of Scharoun, some forty years later.

As noted by others, the Greater Berlin Competition of 1910 was seen to exemplify a key transformation in urban thought, whereby the emergence of the city region as a dispersed landscape of traffic lines, green spaces and differentiated segments of the urban fabric proposes a distinctly new urban spatial order in contrast to the compact, dense agglomerations of the nineteenth century. Many tenets of modern urban thought, such as the segregation of functions, the hygienic and moral importance of green space, the lower densities of residential areas and the provision of distinct housing quarters, particularly for the low-income population, were already internationally prevalent in the 1910s.

In this context, however, Jansen displayed exceptional foresight, not only in his comprehensive visual order of the new city region, but also in his strategic understanding of the drawing. Throughout his competition entry text, Jansen emphasises that his drawings are not so much prescriptive documents, but 'recommendations'.⁵⁶ For example, he describes the purpose of his overall plan thus:

The Overall Plan will be used to demonstrate to individual municipalities development opportunities that exist on the basis of their existing development plans, the extent to which these plans when situated within the Overall Plan contradict or connect with the plans of neighbouring municipalities and more importantly the relationship of these plans to the larger body of the city. Furthermore, they can judge whether their development plans are correctly weighted, be it towards scenic beauty, or in adequate siting, and whether possible improvements have been worked out in good time to ensure survival against the competition of neighbouring municipalities. The municipalities ought to be given a basis upon which associations of interests, as large as possible, can be formed, to ensure the maintenance of common interests in the execution of development plans, to address traffic problems, particularly those associated with through traffic, and to seek the acquisition of sufficient land areas pre-emptively, to be kept free of building in the immediate future.⁵⁷

Jansen's comments indicate that the strategic role of the drawing is to entice a range of different stakeholders into negotiation. In the quotation above, Jansen foregrounds the different municipalities upon whose territory the urban plans were projected. However, in conceptualising and realising something of the sheer size of the regional traffic infrastructure and green area plan, we can assume that the association of interest Jansen calls for would draw upon a diverse range of stakeholders and experts including transport planners, landscape architects, public health associations, social economists, politicians,

developers, investors and others. As described above, drawings of housing quarters in turn addressed a different set of experts, namely those concerned with the health and welfare of the population, primarily architects and the disciplines concerned with social reform.

This pattern of reasoning across scales was incorporated in the 'Zehlendorfer Plan' and implemented in the 'Land Use Plan' of 1950. By the 1950s, the concept of the quarter or neighbourhood as a defined socio-spatial concept had become widespread. As a consequence, the key urban issues of how to house and group the urban population and how to organise the growth of the city region could be distributed across scales and be resolved in relationship to each other and yet remain capable of being tackled at different points in time and within different domains of expertise.

Jansen's innovation can be further underscored by comparison with other dominant urban models of his time: for example, the German successors of Ebenezer Howard's urban model of the Garden City. In his competition entry for the extension of Breslau in 1921, Ernst May proposed an 'Urban Extension through Satellites', following Raymond Unwin's principles of arranging satellites in a ring surrounding the 'mother city' at a distance of thirty to forty kilometres.⁵⁸ Each satellite was planned for a population of 50,000–60,000 inhabitants, but linked to the central city by rail. The individual satellites were planned as residential satellites, industrial small towns or a mixture thereof. The jury awarded the design a special prize but came to the conclusion that Breslau and its catchment were too small for it to be implemented. Critics such as Martin Wagner

and Adolf Rading, a teacher at the Breslau Academy of Art, found fault with the rigidity of the 'satellite' system. Wagner argued that 'the dependence on the market will not allow the migration of industry from the city' and that the satellites would not be able to compete economically given the range of services a metropolis provided, such as schools, hospitals, technical infrastructure and cultural services.⁵⁹

Wagner testified to an urban reality that Jansen had understood nineteen years previously. The modern metropolis was a broad and dispersed field of technical, social and economic forces and actors whose dynamism could not be tamed through prescriptive planning. Instead, Jansen can be understood as having initiated the concept of the strategic urban plan—his 'skeleton of urban growth'—that can be negotiated and adapted according to need.

Then, as now, urbanism was a field of negotiation and decision-making. Its graphic component, the drawing, was not to be seen as representative of urban actors or of a built reality to come. Instead, Jansen's drawings exemplified how drawings are themselves a form of spatial and formal reasoning that make urban questions thinkable and practicable. They do this not only by transposing demands from other fields and disciplines into the realm of the graphic, but also by offering platforms of discussion and negotiation for a range of different stakeholders and disciplines.

Acknowledgement

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Notes and references

1. It is only recently that the Greater Berlin Competition and the Universal Planning Exhibition Berlin have received sustained scholarly attention. For an extensive discussion see W. Sonne, *Representing the State: Capital City Planning in the Early Twentieth Century* (Munich, London, New York, Prestel, 2003). A comprehensive documentation of the Greater Berlin Competition in its international context is in, H. Bodenschatz, C. Gräwe, H. Kegler, H. Nägelke, W. Sonne, eds, *Stadtvisionen 1910/ 2010: Berlin, Paris, London, Chicago* (Berlin, DOM Publishers, 2009) and C. Bernhardt, ed., *Der Wettbewerb Groß-Berlin 1910 im internationalen Kontext* (Berlin, Deutsches Institut für Urbanistik, 2010). See also J. Posener, *Berlin auf dem Wege zu einer neuen Architektur. Das Zeitalter Wilhelms II* (Munich, Prestel, 1979). For a contemporary, if polemical, overview of the Exhibition and the Competition, see W. Hegemann, *Der Städtebau nach den Ergebnissen der Allgemeinen Städtebau-Ausstellung in Berlin nebst einem Anhang: Die Internationale Städtebau-Ausstellung in Düsseldorf* (Berlin, Wasmuth, 1911).
2. J. Posener noted in *Berlin auf dem Wege zu einer neuen Architektur*, *op. cit.*, p. 250, that 'It's [the Greater Berlin Competition's] influence on the development of the urbanism of the twenties cannot be overestimated'. See also G. Kähler, *Wohnung und Stadt, Hamburg, Frankfurt, Wien. Modelle sozialen Wohnens in den zwanziger Jahren* (Braunschweig, Vieweg & Sohn Verlagsgesellschaft, 1985). *Stadtvisionen*, *op. cit.*, juxtaposed ten thematic areas of 2010 with eight themes of 1910, not derived through genealogy but through the thematic commonalities.
3. Hermann Jansen (1869–1945) was an architect and urban planner who had studied architecture under Karl Henrici at the Technical University of Aachen and continued his professional life in Berlin between 1898 and 1945. In 1920 he was appointed as a professor of town planning at the Technical University of Berlin. Following the plan for Berlin, Jansen prepared countless urban plans for German and European cities, and won the competition for the master plan of Ankara in 1928. H. Reuther, *Jansen, Hermann*, in: *Neue Deutsche Biographie* 10 (1974), available online at <http://www.deutsche-biographie.de/pnd117082066.html> and W. Ribbe, W. Schäche, *Biographien zur baulichen Entwicklung Berlins* (Berlin, Historische Kommission zu Berlin, 1987), pp. 387–406.
4. Vereinigung Berliner Architekten, *Anregungen zur Erlangung eines Grundplanes für die städtebauliche Entwicklung von Gross-Berlin* (Berlin, Wasmuth Verlag, 1907). The competition was announced in 1908 and the results determined in 1910. Contributors included Hermann Jansen, Joseph Brix and Felix Genzmer, Rudolf Eberstadt, Leon Jaussely and Siegfried Sitte a.o. On 19th March, 1910, two joint winners were announced: Hermann Jansen and the team of Josef Brix and Felix Genzmer. See *Beurteilung der zum Wettbewerb Gross-Berlin eingereichten 27 Entwürfe durch das Preisgericht* (Berlin, 1910).
5. Vereinigung Berliner Architekten, *Anregungen zur Erlangung eines Grundplanes für die städtebauliche Entwicklung von Gross-Berlin*, *op.cit.*, p. 3.
6. The Universal Planning Competition 'Greater Berlin' gave impetus for the General Town Planning Exhibition in Berlin 1910, held at the Royal Arts Academy. It displayed urban plans from Germany and abroad; solutions to transport; statistical studies of economic and social questions pertaining to sanitation, health, social problems, housing densities, mortality rates, employment and building inspection; layouts for suburbs, residential developments, garden cities and industrial

- regions with workers' housing; and plans for green spaces. It reached a broad audience, attracting 65,000 visitors. In the same year, the Exhibition was also shown in Düsseldorf and some sections of the Exhibition were presented at the International Town Planning Conference in London. See H. Becker, *Geschichte der Architektur und Städtebauwettbewerbe* (Cologne, Deutsches Institut für Urbanistik, 1992) and C. Crasemann-Collins, *Werner Hegemann and the search for universal urbanism* (New York, London, W.W. Norton & Company, 2005).
7. W. Sonne, *Hauptstadtplanung 1900–1914. Die Repräsentation des Staates in der Stadt* (PhD thesis, ETH Zurich, 2001), available at: <http://e-collection.library.ethz.ch/view/eth:24111> [accessed 15/01/14].
 8. C. Bernhardt, 'Ein städtebauliches Jahrhundertprogramm aus dem Geiste des Verkehrs. Der Beitrag von Joseph Brix und Felix Genzmer zum Wettbewerb 1908/10', in H. Bodenschatz, ed., *Städtebau 1908/1968/2008: Impulse aus der TU Berlin* (Berlin, Leue Verlag, 2008).
 9. An excerpt from the Competition text has been published and commented on in: V. M. Lampugnani, K. Frei, E. Perotti, eds, *Das Phänomen Großstadt und die Entstehung der Stadt der Moderne, Anthologie des Städtebaus, Vol 2* (Berlin, Gebrüder Mann Verlag, 2014), pp. 867–872.
 10. See W. Sonne, *Dwelling in the Metropolis: Reformed Urban Blocks 1890–1940* (Glasgow, University of Strathclyde, 2005), available online at: <http://strathprints.strath.ac.uk/3026/1/strathprints003026.pdf> [accessed 08/07/13].
 11. R. Eberstadt, B. Möhring, R. Petersen, *Gross-Berlin: Ein Programm für die Planung der neuzeitlichen Grossstadt* (Berlin, Wasmuth, 1910), p. 18.
 12. Bruno Schmitz, Otto Blum, Havestadt & Contag, 'Die Umgestaltung im Stadtbild Berlin', *Die Bauwelt*, 10 (1910), pp. 26–28. See also W. Sonne, '1910 BRUNO SCHMITZ: GROSS-BERLIN', in C. Kohn, ed., *Das ungebauete Berlin: Stadtkonzepte im 20ten Jahrhundert* (Berlin, DOM Publishers, 2010), pp. 26–28.
 13. A.E. Brinckmann, 'Phantastisch oder in den Grenzen der Möglichkeiten? Eine Entgegnung', *Die Bauwelt*, 20 (1910), pp. 10–11.
 14. F. Eiselen, 'Die Lösung der Verkehrsfrage im Wettbewerb Gross-Berlin', *Deutsche Bauzeitung*, 53 (1910), pp. 433–436.
 15. Le Corbusier, letter to William Ritter, 21/06/1910, quoted in: W. Sonne, '1910 BRUNO SCHMITZ: GROSS-BERLIN', *op. cit.*, p.26.
 16. H. Jansen, 'Vorschlag zu einem Grundplan für Gross-Berlin', in *Wettbewerb Gross-Berlin, 1910; die preisgekrönten Entwürfe mit Erläuterungsberichten* (Berlin, Wasmuth Verlag, 1911), pp. 1–22.
 17. *Ibid.*, p. 18.
 18. *Ibid.*, p. 1.
 19. W. Sonne, *Hauptstadtplanung 1900–1914, op. cit.*, pp.154–156.
 20. See C. Bernhardt, *Bauplatz Gross-Berlin: Wohnungsmärkte, Terraingewerbe Und Kommunalpolitik Im Städtewachstum Der Hochindustrialisierung (1871–1918)* (Berlin/New York, de Gruyter, 1998), pp. 273–275.
 21. M. Erbe, 'Berlin im Kaiserreich (1871–1918)', in W. Ribbe, *Geschichte Berlins, Vol.2* (Munich, C.H. Beck, 1987); H. Schwenk, 'Es hing am seidenen Faden. Berlin wird Groß-Berlin', *Berlinische Monatsschrift*, 6 (2000), pp. 4–14.
 22. H. Jansen, 'Vorschlag zu einem Grundplan für Gross-Berlin', *op. cit.*, p. 20. For an extensive discussion of Jansen's artistic contribution see W. Sonne, *Representing the State, op. cit.*
 23. *Ibid.*, p. 22.
 24. For the argument of the following paragraphs, see K. Borsi, 'The Strategies of the Berlin Block', in V. Di Palma, D.Periton, M.Lathouri, eds, *Intimate Metropolis:*

- Urban Subjects in the Modern City* (Abingdon, Routledge, 2006), pp. 132–152.
25. J. Posener, *Berlin auf dem Wege zu einer neuen Architektur*, *op. cit.*, p. 279.
 26. *Ibid.*, p. 250.
 27. See J. Haspel, A. Annemarie Jaeggi, eds, *Siedlungen der Berliner Moderne / Berlin Modernism Housing Estates* (Berlin, DKV-Edition, 2007).
 28. An exceptional contribution to the role of the drawing in the formation of the family and the domestic dwelling in the modernist American context is provided by H. Pai, *The Portfolio and the Diagram: Architecture, Discourse, and Modernity in America* (Cambridge, London, The MIT Press, 2002).
 29. H. Jansen, 'Vorschlag zu einem Grundplan für Gross-Berlin', *op.cit.*, p. 18.
 30. *Ibid.*, p. 4.
 31. *Ibid.*, p. 22.
 32. W. Koeppen, *Die Freiflächen der Stadtgemeinde Berlin*, Denkschrift Nr. 2 der Deutschen Forschungsgemeinschaft (Berlin, Amt für Stadtplanung der Stadt Berlin, 1929).
 33. *Ibid.*, p. 3.
 34. M. Wagner, *Das sanitäre Grün der Städte. Ein Beitrag zur Freiflächentheorie* (Berlin, Heymann Verlag, 1915). See F. Werner, *Stadtplanung Berlin: Theorie u. Realität. 1900–1960* (Berlin, Kiepert, 1978), p. 51. Wagner worked in the Zweckverband Gross Berlin between 1914 and 1918, and partook in the contract of securing and extending existing forests and green spaces in Berlin in 1915.
 35. *Ibid.*, p. 87.
 36. *Ibid.*
 37. H. Jansen, 'Vorschlag zu einem Grundplan für Gross-Berlin', *op. cit.*, p. 20.
 38. *Ibid.*, p. 3.
 39. *Ibid.*, p. 19.
 40. Bruno Schmitz, Otto Blum, Havestadt & Contag, 'Die Umgestaltung im Städtebild Berlin', *op. cit.*, p. 26.
 - Havestadt & Contag had been involved in the planning of Berlin's canals since the late nineteenth century. See H. Köhler, 'Der Teltowkanal—Vom Wunsch zur Idee', *Berlinische Monatsschrift*, 5 (2000), pp. 24–32.
 41. Vereinigung Berliner Architekten, *Anregungen zur Erlangung eines Grundplanes für die städtebauliche Entwicklung von Gross-Berlin*, *op. cit.*, p. 3.
 42. *Ibid.*
 43. K. Hüter, *Architektur in Berlin 1900–1933* (Dresden, Verlag der Kunst, 1988), p.161. A building zoning plan was implemented in 1925, prescribing building classes with the aim of lowering densities and separating functions. It only had a prescriptive effect in the outlying areas of new building, and was devoid of suggestions for a comprehensive conception for the development of the city. See Bruno Aust, *Berliner Pläne 1862–1994* (Berlin, Kraft & Druck Verlag GmbH, 2002).
 44. 'Upon examining the continuities between the Nazi and postwar periods, however, I became more convinced that, paradoxically, postwar rebuilding could be understood only in terms of continuities that reach back to the years before Hitler's 12-year Reich': J. Diefendorf, *In the wake of war: the reconstruction of German cities after World War II* (Oxford, Oxford University Press, 1993), p. xiv.
 45. See H. Frank, *Hauptstadt Berlin* (Berlin, Berlinische Galerie, 1991), p. 255. For an extensive discussion of planning after the Second World War, see J. Geist, K. Kuvers, *Das Berliner Mietshaus 1945–1989* (Munich, Prestel, 1989).
 46. W. Moest, *Der Zehlendorfer Plan. Ein Vorschlag zum Wiederaufbau Berlins*, Bericht über das Ergebnis der Untersuchung des Berliner Verkehrs durch die Außenstelle Zehlendorf des Hauptamtes für Planung in der Abteilung für Bau- und Wohnungswesen des Magistrats von Groß-Berlin (Berlin, Schriftenreihe der Neuen Bauwelt, Druckhaus Tempelhof, 1947).

47. *Ibid.*, p. 11.
48. *Ibid.*
49. *Ibid.*, p. 16.
50. *Ibid.*, pp. 9–10.
51. *Ibid.*, p. 17.
52. See Bruno Aust, *Berliner Pläne*, *op. cit.*
53. *Ibid.*
54. Senatsverwaltung für Stadtentwicklung und Umweltschutz, *Flächennutzungsplan Berlin – FNP 994. Erläuterungsbericht* (Berlin, Senatsverwaltung für Stadtentwicklung und Umweltschutz, 1994). Available at: http://www.stadtentwicklung.berlin.de/planen/fnp/pix/fnp/fnp_erlaeuterungsbericht.pdf [accessed 18/07/14].
55. F. Werner, *Stadtplanung Berlin*, *op. cit.*, p. 91.
56. H. Jansen, 'Vorschlag zu einem Grundplan für Gross-Berlin', *op. cit.*, p. 3.
57. *Ibid.*
58. For May's competition entry for Breslau and the ensuing dispute, see B. Störtkuhl, "Ernst May und die Schlesische Heimat", in, C. Quiring, W. Voigt, P. Schmal, E. Herrel, *Ernst May 1886–1970* (Munich, Prestel, 2011), pp. 45–47 and B. Störtkuhl, 'Der „Wettbewerb zur Erlangung eines Bebauungsplanes der Stadt Breslau und ihrer Vororte', in, H. Müns, M. Weber, eds, 'Durst nach Erkenntnis... Forschungen zur Kultur und Geschichte der Deutschen im östlichen Europa. Zwei Jahrzehnte Immanuel-Kant-Stipendium', *Schriften des Bundesinstituts für Kultur und Geschichte der Deutschen im östlichen Europa*, 29 (2007).
59. M. Wagner, 'Städtebauliche Probleme der Großstadt', *Soziale Bauwirtschaft*, 7 (1929): quoted in G. Kähler, *Wohnung und Stadt*, p. 246.