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The Study of Urban Form as an Archipelago: The Case of Ankara

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Abstract

Since the founding of the Turkish Republic, Ankara has been an experimental city that became a laboratory for urban production in line with the ideals of the republic. This experimentation resulted in multifarious urban forms. The initial emphasis of this research is to extract autonomous urban forms of Ankara as a city built with a set of aggregations on a fluvial land that has been transformed into an ambiguous entity remarkably varied in the form in time. To understand episodes of the city based on geography, it is crucial to founding a dialogue between the morphological layers of the city and the elevation of the topography. To be able to develop this kind of dialogue this paper aims to reread the city by referring to the concept of "archipelago" as an analytical tool from a typo-morphological perspective. The word archipelago is referred by O.M.Ungers and Rem Koolhaas to describe typologically the ensemble of self-sufficient built urban forms that are delimited via a common ground. In the case of Ankara, the common ground appears as the distinctive topography consisting of valley floors shaping the physical pattern of the city. A qualitative morphological decomposition method is pursued to generate a catalogue of types in several layers, mainly building footprints, street systems, and topography, in order to achieve three-dimensional morphological analysis. In accordance with this decomposition, a character mapping results in categorizing the city form as follows: gated enclaves, stacks, and objects. In addition to the extraction, pursuing two major trajectories as landform and urban form in the character mapping leads to the exploration of analogies on the urban scale.

Keyword: *archipelago, urban form, Ankara, landform*

1. Introduction

The research is based on the review of the collection of studies on the form of Turkish cities and especially the urban form of Ankara, the capital city, to build a formal discourse relating the city's already existing typologies and natural aspects. This paper explores the typical formal relations developing around topography limitations common to many Turkish cities on an urban scale. In this respect, the initial attempt is to produce a taxonomy of urban form and landform based on physical geometries and spatial capabilities. This taxonomy of formal relations will constitute the basis for a design discourse, a site-specific manifesto. Accordingly, this research aims to explore the episodes of the city based on its territory by founding a dialogue between the urban form and the landform, culminating in a synthesis of both. This exploration is conducted through a descriptive methodology, accompanying the taxonomy, strengthened by a spatial and geometric classification of the city's built typologies and geomorphological structures. In this regard, this paper conceptualizes Ankara as an archipelago and attempts to formalize the concept as a generative tool via formal definitions. A collection of defined assemblies and landforms are listed through the study as a

catalogue of urban forms for the city Ankara. At the end, a method of synthesis of both is proposed through the diagram as character mapping.

2. Background

2.1. What is Archipelago?

Archipelago is a metaphor of an architectural entity that appears as aggregations of autonomous fragments conceptualized as islands on a delimiting ground in a city. This formal autonomy through the identification of different assemblies is emphasized via the diagrammatic works conducted by O.M. Ungers and Rem Koolhaas in their collaborative seminal work, The City in the City: Berlin as a Green Archipelago. Whereas the assemblies correspond to the built forms, the ground becomes the landform that links the assemblies. Aureli says that while the islands were imagined as the city, the area in between was intended to be the opposite: a world in which any idea or form of the city was deliberately left to its dissolution (Aureli, 2011, p.225).

The main aim of morphological characterization is to identify areas that display a distinct character in a settlement (Kropf, 2011, p.394). So, the islands of the archipelago are systematic, self-sufficient, idiosyncratic structures, in other words cities, in a settlement. Description of formal islands requires the foundation of a language that establishes its own rules and grammar. A series of analytical maps were generated to extract the morphology of each island for Berlin regarding the following: building structure, axes, street systems, architectural objects, and nature (Hertweck, Marot, 2013, p.47). This was an attempt to derive unique characteristic built forms infilled in nature as built islands of a green archipelago. In other words, those maps and diagrams were the depictions of elimination within the built forms that do not follow the contours of their context. In this respect, this research is an attempt to set those rules and grammar based on the reinterpretation of archipelago as both concept and analytical tool. What Ungers accomplished in both Dialectic City and The City in the City: Berlin as a Green Archipelago serves as the foundation for this attempt, which is distinguished by the inclusion of landform as a grammar. As long as the language is found, it is possible to reproduce the new words. In this respect, the foundation of diagrammatical language not only enable the identification of islands, but also leads the use of it as a generative tool based on the descriptive formal units of islands. Despite the fact that the main socio-political impetus between 1970s Berlin and 2020s Ankara is disparate, the resemblance within the fragmented state of the physical environment in macro, mezzo, and microscale leads us to use the concept of the archipelago as an analytical tool.

2.2. The Built Form and Landform of Ankara

Since the foundation of the Turkish Republic, Ankara has been an experimental city that has become a laboratory for urban production in line with the history of republic ideals. Six different planning periods are correlated with this history (Figure 1) (Çalışkan, 2009). This experimentation has resulted in the assemblage of multifarious urban forms in the city of Ankara. As a result, rereading the urban forms may be accomplished through the conception of the archipelago as a morphological study. Hermann Jansen's plan was a reinterpretation of the Lörcher Plan that shapes the macro form of Ankara. Yücel-Uybadin plan with the densification that totally changes the urban tissue by reconstructing the central urban blocks was a reaction to the Hermann Jansen plan that stands insufficient for population growth later in 1950'ies (Çalışkan, 2009, p.164). The 1990 Ankara Plan was an intervention to be able to enlarge the city's borders and generate new typologies for the macro form of Ankara against the illegal settlements that are increasingly appearing on the undersigned edges of the city, both in the centre and periphery, due to the previous plan's inadequacy to enhance the city's edges (Günay, 2006). The 2015 Plan was a structural plan that focused on more natural ground and geomorphological components, which resulted in the creation of urban corridors throughout the city (Çalışkan, 2009). The 2025 Plan and its application are questionable. It is clear that shaping the macro form of the modern city without sectional/partial interventions that turn the urban tissue into a patchwork is no longer viable. The falsifications of past phases with the desire for new practical models that fluctuate between the concentration and deconcentration on the city's spatial structure represent Ankara's urban history as an urban pendulum (Çalışkan, 2009, p.211). At this point, the fundamental approach against this oscillation and accumulation of falsifications might be to determine the exact location of the urban pendulum to extract the analogies and be able to describe the current condition from an urbanist point of view. The shift towards the fragmentary interventions on urban fabric does not represent an urbanist point of view yet. Instead, due to the speculative practices through the construction industry with the pragmatist intentions, the patchwork becomes the juxtaposition of arbitrary built forms constructed without ideological concerns

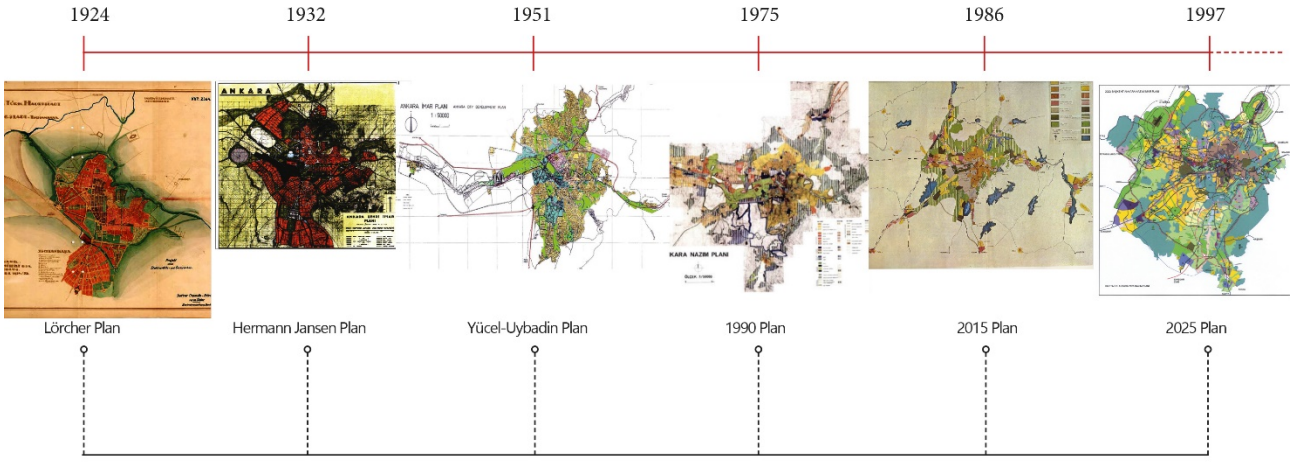

Figure 1. *The six planning periods in the history of Ankara since foundation of Turkish Republic*

and peculiar assemblies of architecture that resulted in anti-urbanist actions (edited by the author from Çalışkan, 2009, p.208).

The landform of the metropolitan region of Ankara is a clear calyx form (Yavuz, 2018). The city is set on an area where a large flat plain is surrounded by a set of hills and this geomorphological system results in several streams starting from hills and converging in the large plain. 1928 Jansen plan acknowledges this landform and proposes a system of valleys and waterways. The envisioned city was a series of enclaves that were connected by the system of these green fingers. The current configuration of the built form is shaped through the valley floors and plain systems over the fluvial land (Yavuz, 2018, p.76). One of the previous studies for this research depicts the plain and basin system, which was discovered in a classification based on land elevation in a diagrammatic depiction as a geomorphological map. According to this categorization, the land comprises valley floors, higher and lower terraces, plateaus in different elevations, ridges, and hills (Erol, 1973) (Figure 2). In this respect, we are able to describe the geometric form of the land as linear, curvilinear, and radial on the plan. The landform is not characterized as a certain determinant for the evolution of built form, some parameters delimit and influence the arrangement of the built form on the ground (Altaban, 1987, p.7). Accordingly, the preliminary studies for the 2015 plan reinterpret the elevations of the landform, as well as the geomorphological characteristics of the land, which are evaluated in terms of microclimatic conditions and settlement allocation based on the five elevations in the city of Ankara, which are valley and basin floors (800-850m), lower terraces (850-900m), higher terraces (900-1000m), lower plateaus (1000-1100m), and middle-higher plateaus (1100-1500) (Erol, 1973). The results were related to the tendency to air pollution, the possible degree of density, the proper scale of the buildings for the sites, possible zoning on

Figure 2*. The geomorphological map of Ankara superimposed by infrastructure in 1985 (Altaban, Tekeli, 1987)*

those different elevations, differentiation of buildable and unbuildable sites, which need to be transformed into green corridors, in respect to the relief type. However, the urban form typology was not yet the subject of those studies. Although it is supposed that the configuration of the built form is a systematic structure composed through the geomorphological features of the terrain (Yavuz, 2018, p.76), this systematic structure is not yet represented as the compatibility with the urban form typologies. In this respect, analysing the

urban formation within a form-based framework that eliminates other parameters will ensure the spatial substratum of the urban fabric at the physical level. By creating a visualized catalogue, the extraction of the spatial substratum will improve the ability to expose form-based spatial issues.

3. Methodology

In this respect, this research begins the analysis by categorizing built form and landform separately to be correlated at the end. The categories of form are first defined from a top-down approach at first to make major categories and understand the city structure, then looking into certain sections of the city, the categories have been further developed in a bottom-up manner by exploring architectural features with a typomorphological perspective. Typomorphological perspective is majorly established through the diagrammatic thinking developed by O.M. Ungers based on dialectic relations. The dialectic investigations of the urban form require the identification of different typologies based on their geometries. O.M. Ungers, in Dialectic City, implements this identification based on a typological theme (Jacoby, 2018, p.1232) through the visualization of different layers that shape the core area to be designed. So, the diagram becomes a strong definitive element at this point. The description of the morphological layer through diagrammatic representation is followed by a taxonomy that depends on the alternating parameters on spatial qualities, function, and scale. The layers of the urban form vary from urban block typologies, objects, and green areas to squares and towers according to the specific condition of a site to be managed as it was implemented in the concept of the archipelago through Berlin. Accordingly, the taxonomy of the built environment is conducted in three scales: macro, mezzo, and micro. The macro scale is defined by both landform and the urban form. A character mapping of selected areas in the city is produced as a result of the classification done through the street systems, built forms, landforms, and urban block systems (Figure 3). The description of the typologies is categorized according to particular parameters that depict the differences in macro and mezzo scale. The differentiation in macro scale is exercised in respect to the following determinants scale of the urban blocks, the scale of the built units, urban tissue (pattern of the street systems). The expression of the built form in space is recorded by dividing the analytical determinants into two. In this research, the geometry of the built environment reveals the link between the part and the whole. Accordingly, the built forms are classified based on the following determinants: the geometry of aggregations of assemblies, the geometry of an assembly, the size of a unit in an assembly. On the other hand, the spatial expression of the geometry is classified based on two parameters: the relation between the assembly and aggregation and the relation between the aggregation and landform.

The visual data obtained by three main layers, which are figure- ground, topography contour lines in 10 meters intervals and street systems, is classified to be described in itself for each selected assembly of the city. This formal classification covers the following: orientation, arrangement, and elevation for landform, outline: shape, size, the proportion for urban form, and configuration type for the void pattern. As a character matching, the spatial synthesis is achieved through the definitions as following: spatial quality as edge, limit,

barrier for landform, spatial geometry (linear, curvilinear, radial...), and block type (apartment block...), an edge or barrier for urban form, the system of axes and configuration for the void pattern. The following subject will detail how those methodology steps were applied to the study area of city Ankara.

4. Results and Discussions

Regarding the autonomy of form in line with topography in the city, we were able to identify 23 case studies- which might be called island or assembly- as distinguishable (Figure 4). The similarities discovered during the character mapping of those 23 assemblies followed two separate trajectories. One of the trajectories as the urban form has revealed the three main assembly types in the city; gated enclaves, stacks, and objects- as following parameters: formal analogy within the assembly, aggregation type, unit type of aggregation, and the development type of assembly following the contours of the ground, landform. The second trajectory was the identification of the function of the landform morphologically. The outcome of the analysis has provided us the knowledge of four main aspects as following: if the topography acts as a limit of an assembly or not, if the contours act as an edge depending on the elevation type-hillside, ridge, valley floor- the spatial quality depending on the geometry due to the shape of contour lines-a valley corridor, a city terrace, a pocket space between the hills-and, lastly, if the topography acts as an intensifier of the urban form depending on its arrangement over the land.

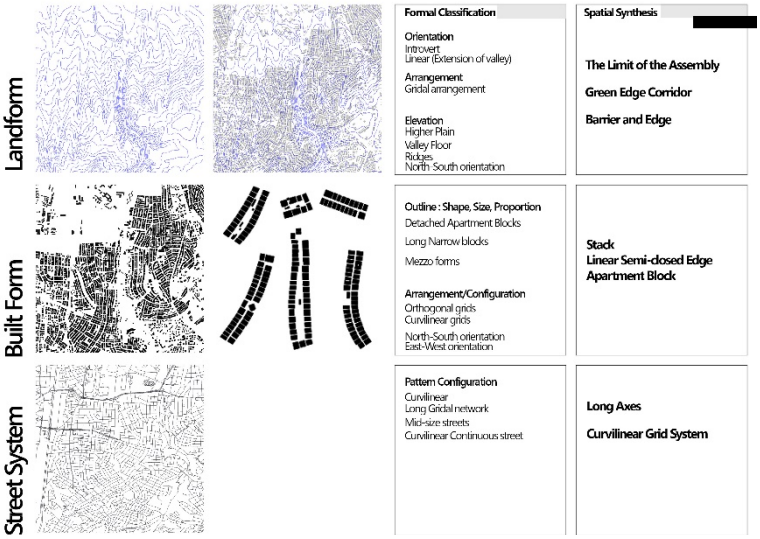

Figure 3. *One of the character mapping table of Ankara (prepared by the author*

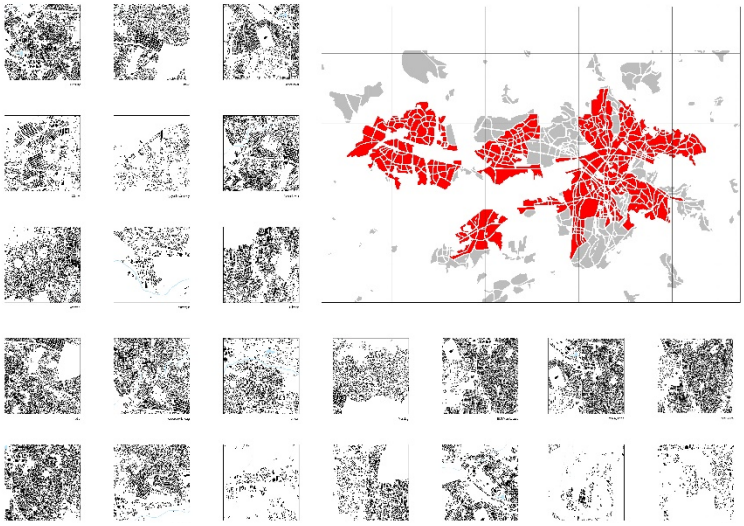

Figure 4. *Analysed 24 assemblies in Ankara (The footprints are achieved through GIS software by the authors)*

A. Gated Enclaves: As the capital city, Ankara has many governmental institutions based on closed campuses; the recent housing demand in Turkey is inclined towards gated communities; these forms are defined as gated enclaves. According to the typologies of these enclaves, they are categorized in three forms. The first one is the residential peripheries of the city that appears after the 1990 Ankara Plan. The second one is

the sites of the three universities on Eskişehir Road. The void pattern of those sites, which are bordered through landscape and long linear roads, is dominant to the built forms. The third one is the sites of the governmental institutions in the very core of the city. Although they are located at the city core as large green areas on top of hills, the current spatial implementations cause impermeability in the centre of the city.

B. Objects: There are many individual big blocks in the city with single architectural objects designed as free-standing units detached from their environments. Such objects sometimes are connected to the urban environment with the help of the surrounding landscape. There are mega forms as an individual or composite elements embedded in the city. The peculiarity that they represent results in a generation of a unique identity for those built forms as objects in the city. The rigidity/solidity of them also reinforces the idiosyncrasy of those elements as impermeable complex units. According to the type of arrangement of these objects on the common ground, we categorized in eight typologies as following: Dispersed campus, agglomeration in linearity, the core of landscape, dispersed in a gated enclave, the core of stacks, the core of linearity, core campus installed in stacks, composite clusters, and infill objects.

C. Stacks: Some regions in the city have developed with smaller parcels and singular architectural units on these parcels. These units come together and display an indigenous urban block type-not a typical urban block type that consist of adjacent apartment, instead an apartment block type consisting of a series of detached apartments located in almost 5 meters intervals-following the contours of landform and the street network. The total area obtained through the dense pattern of those clusters of urban blocks characterizes the macro form of the city as idiosyncratic/distinguished stacks on the common ground of the city. In line with the superimposition of different parameters, the built form is classified as following: Large-size closed edge block, Semi-closed edge block, Small-size closed edge block, Dispersed apartment island, Green courtyard block, Granular clusters, Permeable semi-closed edge block, Incomplete block, Dentriculated block.

5. Conclusion

It is anticipated to contribute and facilitate the morphological analysis process in the city via the taxonomy and the character mapping produced by the conceptualization of archipelago. The conceptualization of the city Ankara as an archipelago is a beginning to the identification of urban form that has been dissolved through the years as most of the cities today and the beginning of the use of formal descriptions as a generative tool for Ankara. It is foreseen that a detailed analysis of each of the extracted 23 assemblies as a result of character mapping on mezzo and microscale will contribute to the generative nature of the urban form and identification. In this respect, what we achieved for Ankara is as following:

The three typologies described as gated enclaves, stacks, and objects represent a potential to generate composite structures in the city. The keywords-like linear, curvilinear, edge, block, etc.-that constitute the character mapping are the essential element for this generative nature. For future design interventions, the analogies between the geometries of both urban form and landform give the ability to match the features of

different assemblies that might be defined as new composite structures-like linear-edge assembly. The landform of the undefined areas that are not included in the 23 assemblies can be analysed to be characterized by a matching urban form through the observed analogy on the character mapping of those 23 assemblies.

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