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AN APPROACH TO THE IDEAL CONCEPT OF URBAN PLANNING IN THE 18TH CENTURY: COLONIAL SETTLEMENTS IN ANDALUSIA

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Abstract: Enlightened thought as an intellectual movement that developed in Europe in the Age of Enlightenment was the basis of modern critical thinking in a global vision that associates culture, economy, politics and society and in which planning plays a strategic role as the enforcer of these ideas as a mediator between theory and praxis. The main objectives of this thesis are to link this thought with the concept of “ideal city” in the 18th century, analyse applicable cases of colonial settlements in Andalusia, analyse their direct links to Europe and America, recognise the existing formal elements of the colonising and founding phase and from the territorial, urban and architectural scope, as well as carrying out an assessment and critical analysis of the current urban-territorial configuration. The systematic analysis of new settlements and a case study based on updated methodology helps us to understand these clear examples of application of the new ideals and enlightened principles of economic and social reform within the concepts of habitat and city in the Golden Age.

This particular research addresses integration as a fundamental principle of architectural thought, interdisciplinarity as an articulation of the various fields and the different scales of work, as well as the importance of the relationship of urban planning with the natural and social environment as an agent of transformation under general principles. In this regard, the research addresses a complexity of the socio-spatial dialectic from the perspective of the discipline, a dialectic in which a cross-sectional analysis of the processes becomes necessary.

Key words: Enlightenment, Urban planning, Andalusia, Colonial settlements, Heritage.

1. Introduction

The thesis realizes an investigation on a interesting topic on his theoretical concept, the critical analysis on the “ideal urban planning” in the enlightenment, base of the modern thought, and that has been not much investigated from the urban-territorial point of view. The topic propitiates a route for the enrichment of the architectural and urban knowledge across the critical analysis, realized under a global and integrative perspective of several disciplines focused in the concept of the city and habitat, innovating with an original topic, including a work area from international references up to the local thing and to articulate and to relate the different scales of work, institutions and sociocultural agents.

The targets marked are: to analyse the theoretical principles and enlightens thoughts in Spain in the Golden century and his application to the urban development matter; to analyse the cultural aspects and urban experiences with direct influences in the New Colonial Settlements of Sierra Morena and Andalusia; to recognize the formal existing elements of the foundational stage from the urban-territorial area; to contribute a methodology of investigation updated for the scope of the previous targets.

The approximation has been developed from a methodology that includes diverse approaches: interpretation of philosophical literary texts, analysis of historical mapping, analysis of juridical historical regulation, critical rereading of the bibliography, multidisciplinary connection, generic perspective of the historical, diagnostic context of the case of studies, abstract analysis between utopia and reality, identification of formal existing elements, identification of the direct influences, etc. The register of information, work to geographical level by geo-reference and the production of own documentation in the matter take a fundamental part for the accomplishment of the thesis, which conclusions have tried to give content to the originality and innovation.
2. State of the art

There are numerous studies and research papers that analyse everything relating to enlightened thought in Spain and its application to different disciplines: politics, economy, social, art, science, cultural, etc. There are direct sources such as the works of Montesquieu (1748), Thomas More (1516), and Pablo de Olavide (1797) himself. We found also papers, articles, books and documents reflecting European influences and historical-cultural precedents for the occurrence of these reforms and movements in Spain in the Golden Age including “Historia de España en el siglo XVIII. La España de los borbones” (García 2002).

There are also bibliographic references on urban planning in general and in Spain in the 18th century including the works of Benevolo (1979), Chueca Goitia (1970), Collins (1980), Cravagnuolo (1998) and Lozano (2011).

With respect to the New Settlements of Sierra Morena and Andalusia Process, there are books on the person who promoted them, Pablo de Olavide, including those by Deformeaux (1959), Alcázar (1930), Marchena (2001) and Perdices Blas (1992), as well as the process of settling itself, such as those by Caro Baroja, Enrique Alcázar and Hamer Flores, also including two doctoral theses: “Utopía y realidad en la ilustración española: Pablo de Olavide y las Nuevas Poblaciones” (Fernández 1989) and “Nuevas Poblaciones en la España de la Ilustración” (Oliveras 1998), the latter published by Arquithesis.

There are also many publications contained in the records of various specialist conventions on the New Settlements in Andalusia (organised by the Centro de Estudios Neopoblacionales) that address the process from different fields, as well as research carried out by the official chroniclers of these settlements, with a library of authors on the new settlements structured into: Pablo de Olavide y Jáuregui; Carolina settlements; the new settlements of Sierra Morena; the new settlements of Andalusia; conventions and symposia on new settlements, and literature on the new settlements of Sierra Morena and Andalusia.

It is also necessary to mention as part of the state of the art of the existing historical documentation on the process of settlement that we can find in various archives and that, in some cases, have been published, and in other cases not, such as: Royal Decrees of Graces, Representations, Mortgage Records Books, Edicts, Instructions, the Custumal of Settlements, Royal Provisions, Surveying and Demarcation Books, as well as what is most suitable for focusing on for analysis in this research paper: the original historic maps.

However, and herein lies the originality of the paper, fewer papers linking enlightened thought and influences from other disciplines to the field of urban planning and the new concept of “ideal city” that can be interpreted through an analytical methodology and the diagnosis, by seeking out of common essential elements in the texts and documents of the period’s most important personalities and a critical re-reading of the most significant cases of the urban-territorial application of these thoughts in Spain and internationally.

The link to urban development practices carried out in other countries in this historical context or previous to these settlements and the influence on these latter is also original.

Even the fact that historical knowledge is subjected to ongoing revision due to the new tools of theoretical knowledge that are subject to changes of direction caused by human sciences through a hybridisation of the fields of knowledge where research is being seen more from a critical perspective and than a purely scientific one. In addition, current computer tools allow us to posit a methodology of analysis and an approach that are very precise and innovative for drawing conclusions. Thus, a topic that has already been investigated can be subjected to review and/or updating.

In this regard, the research addresses a complexity of the socio-spatial dialectic from the perspective of the discipline, a dialectic in which a cross-sectional analysis of the processes becomes necessary. As an internationally focused research project, it was necessary to search archives and literature abroad; the work of research in the field has been the necessary international search in files and literature abroad, being examples of sources the National Archives of Peru in Lima and the State Archives in Venice.

The study of this case – which has not been investigated from the urban or territorial point of view, and is an unknown example in this field and a unique case due to its orography and an example of the
application of the new enlightened ideals and principles of the economic and social reform in terms of habitat and city in the Golden Age – includes few monographs on this particular municipality, among which are the one by the municipality’s parish priest Hernández Parrales (1968), which is unreliable from a historical perspective. The recent publications from the Asociación Cultural de Estudios Iptucianos (AAVV 2012-16), which include the transcriptions of original document from the settlement stage in Prado del Rey are better references.

3. The formation of the New Colonial Settlements

Taking into account the own ordinances and capitulated the Custumal of the settlements and other legal provisions, is expressed as the primary development and control by the Crown of a prior planning that reflects the characteristics of each settlement keeping the respect for laws, issued and consistent with the physical reality of the environment in which the sits.

For this reason, the layouts of these urban nuclei of settlement presented a varied urban traces and with certain references to the large urban works of the 18th century, although more limited economically and with less provision of means, having a rural character where the premium functionality to the aesthetic. In these maps appear effectism, perspective as elements of Baroque for the design of the urban fabric. It must be noted in the new settlements of the fact that there are not two equal planning or urban planning layouts in the quarantine of nuclei that make up the same.

This fact has been the highlight of own linkage that exists between projected and the environment in the planned, since, under a regulatory base common to all the urban communities, the only place in the differentiate the that are recorded, i.e., that the morphological characteristics of each joint, depended on full of physical environment, geographic, strategic in the orographic, which settled in. Therefore, the ideas of the urban planning of the 18th century was developed in these small rural communities, although, with buildings very austere and simple, based on the functionality and rationalism that characterises the popular architecture, to the margin of making large or luxurious buildings, taking care of the way urban dignity that characterises these colonies. Authors such as Chueca Goitia (CHUECA, 1970:54) coincide in that the new settlements of Sierra Morena constitute the most important settlement of the carried out in the 18th century.

The design of these New Settlements was done by military engineers and not by artists or architects for the reasons that we studied in previous paragraphs, remaining linked this design to a strategy of territorial settlement, in this case, as we have seen, from a main axis of communication, where a similar urban characteristics have already analyzed and with clear precedents, from an orthogonal mesh and with a middle reflection of ecclesiastical power, political and economic (fig. 1).

![Fig. 1. Current photography of the town center of Prado del Rey (Cádiz, España). Photography courtesy of Francisco Chacón Martínez, 2015.](image-url)
The basis of the settlement in the territory of these settlements defend a symbiosis between the scattered rural settlement in austere buildings by the fields, complemented with some small communities of service more concentrated and that serve as support to the previous (These features are very good in the original drawings of Prado del Rey and Almajar). However, as described by Jordi Oliveras (OLIVERAS, 1998: 103): “In Sierra Morena, the principle is wanted to promote the life in isolated houses built in the same area of cultivation, but already from the beginning there were certain resistances and soon, due to the relaxation of Custumal, the villagers tended to live in the villages better communicated and still more in the capital cities.”

Therefore, although not reflected as military elements in the settlement of the American cities, it is the importance that the military engineers were paid in these colonies, in the implementation of an architecture of urgency (especially due to that that had rapidly to give shelter to the displaced settlers from abroad in a principle) as a participant in the implementation of the same. Hence that is most remarkable technique that the art, what practical and functional priority is on aesthetic or formal, remaining marked even in the same Custumal.

We must understand the difficulties in the initial establishments of these settlements to agglomerate the settlers in makeshift camps aided by the military, without sufficient conditions of habitability. In fact, nothing more than many buildings began to be implemented to present symptoms of deterioration. Therefore, the speed of the works, the hand of unskilled labour, poverty of material, were causing the initial implementation of this bad.

Urbanistically, the new settlement in its beginning runs of form similar to a camp of the military and, in fact has a direct relationship with the major Treaties studied in military academies, are these the engineers that already that really were responsible for designing the cities (RUEDA, 1997:4). The initial location of the New Settlements was established in its origin from a report issued by the Marquis of Fontanar led to Campomanes in 1767.

4. Cartographic analysis of the New Colonial Settlements

For the general territorial analysis of the new settlements, which will be detailed in the case study, it is important to a reading of the cartography (fig. 2) of the uprisings by the importance of the same since he embodies the original state of the urban communities and territory of the colonial settlements and, therefore, the essence of how he took out the company colonising as expression of the enlightened theory described.

To analyse the same and see what has been their evolution and to recognise the formal elements existing in the present is fundamental to translate this mapping into up-to-date maps and overlay the elements to define the state of conservation of the urban and territorial fabric (fig. 3). Methodologically it begins for the collection of the oldest maps that are of these settlements, i.e., the planimetric maps in the beginnings of the settlement stage.

It takes as basis for the assembly map the current cadastral maps and that serves us to ride the georeferenced historical maps, and this form of power, to define the exact location of the first territorial elements. It is very interesting in the representation of the definition of the nuclei of settlement within the territorial limits. Also the cartographic basis helps us to specify the scale and the guidance in the historical cartographic drawings1.

One makes a clearance level of original de in high quality and restored the folds caused by the scanning of the original map that has a match for and coincidence of the various points in the map. Through the QGIS v. 2.18.7 (computer software) and of its plugin Georeferencer, is achieved through making specific points of a Raster image to georeference them in the System of Coordinates EPSG 3042, making them coincide with real points obtained from the Data Base of updated of the Headquarters of Cadastre (Electronics June 2017).

Both in the territorial analysis such as urban is seeking points of coincidence that could not have been modified in the reality such as corners of streets or main geometric boundaries of urban public spaces (scale) or the location of the nuclei of settlement (territorial scale). It carries out for the alteration of the

1 Update of the vectorial cartography: 05/06/ 2017.
image base the type of transformation "Thin Plate Spline" within the configurator, and from here he was applying a transparency is to check the overlay is necessary if the geo-referencing of more points. Once the historical maps superimposed on the cadastral maps current, we can identify the various elements that, historically, formed the original core to analyse power its urban evolution.

Fig. 2. Map from current cadastre (June 2017), from the georeferencing of the same using the QGIS software (v. 2.18.7) and system of coordinates, ETRS89 EPSG3042 on aerial photo (Bing Maps Aerial 2017). Municipal de Prado del Rey. S/1:150000.

Fig. 3. Modeling of the municipality of Prado del Rey using QGIS 2 ThreeJS. Base of the Digital Model of Andalusia (ACE inhibitors) and satellite image Bing Maps Aerial 2017. Overlay of the municipality and current mapping of 1874 after their georeferencing. Southeast view.

5. Urban evolution of the New Colonial Settlements

In these diagrams we can appreciate the various comparative form of elements common to the cities and how each urban core is a form of is different to the rest and that is mainly conditioned by their geographical conditions of settlement as well as by the axes of communication with the rest of nuclei in the territory. Formally, there are variety of typologies in regard to the proportions of the blocks or the spatial arrangement of their positions, which offers a speech in this heterogeneous urban analysis, more detailed in the case study.

There is a great variety in the formal settlements, but all maintain a speech: the common position as central element, the regular grid formation in the main axes and that in all the cases were conditioned by the territorial situation and the communication established between these cities (fig. 4).
The main characteristics from a perspective of the New Settlements of Sierra Morena and Andalusia can be summarised in:

a) Prior planning.
b) Custumal of settlement as the Magna Carta.
c) Dispersed rural population.
d) Urban areas of service.
e) Camino as main axis around which is developed in the urban core.
f) Layout orthogonal to this axis.
g) Directions based cardinal axes with variations in function to its territorial relationship.
h) In distribution of farming plots.
i) Austere vernacular architecture, sober and functional.
j) Perspective, effectism in the own urban planning urban layout of the Baroque but with the functionality and rationalism (military engineers).
k) Centre urban core: political, economic and religious power.

There are diverse villages that settle in areas with a topography more abrupt than another ones, as Montizón, or that are linked by a geographical element or by an important axis of communication between two attached urban cores, as Carboneros. It is possible to verify that these preexisting elements determine the configuration of the tracing of the new settlement because they mark some prevalents directions that later they must adapt the public specific architectures. Any urban core develops in an orthogonal perfect reticule. Though the perpendicular axes follow the disposition of the streets and the squares with different proportion and grants to every urban core its own peculiarity, though the original buildings could be almost identical in volume, typology and composition of the fronts, always according to the tradition of a popular, austere and functional architecture.

In the maps of Ampudia y Valdés, the buildings don’t fill the plots and the blocks do not appear clearly identified and closed. In the growing processes, the fronts of the blocks are closed in their own perimeters leaving often big courts or interior gardens that are articulated in a complex fragmentation
of the urban plots. Currently the plots, which were conforming in two by two leaving a space with independent access towards the back of the housing, they have been filled completing the constant front that defines the street.

Each block respects its own dimensional limits of the original tracing but, at the same time, it articulates specifically its fronts and its corners, its emergent architecture, its principal entry and service, its interior distributions, its monumental gaps, according to the complex and specific functional and symbolic necessities.

In some of the urban cores of the towns (The Porrosillo, Aldeahermosa, Venta de Santos, Canada Rosal, El Campillo, all the villages of Fuente Palmera and the majority of the parishes), a last evolutionary phase of extension has disfigured the original plot. The major heights of the buildings in the latter phase also have altered the proportions of the urban foundational landscape.

The square always is structurally tied to the tracing of the streets and to the dimension of the blocks across the repetition of a module. The clearest example we have it in the urban core of Prado del Rey, with rectangular blocks of 60x30m and with central module of the square of 30x30m. The main square like epicentre of every urban body is the place where to plan physically the city and is, simultaneously, the place that provides orientation and measure to the urban plot. The central square, with its geometric frame of reference, is the scenic and monumental space.

In the urban cores of the settlements we find a great variety of configurations of the square as central space: rectangular, square, hexagonal, linear forms, in diagonal. We find also diverse solutions on their relation with the tracing of the blocks: squares opened and closed in their four wings, opened and closed in his corners, as well as symmetrical squares I concern of a predominant axis, but also asymmetric others. This variety provides to every square an own spatiality that difference of the rest in spite of sharing the same morphologic principle.

The location of the religious architecture and the public architecture in direct relation with the square like space of articulation of the urban life is a common aspect of the different Colonial Settlements. It is pertinent to highlight in the representation of Ampudia and Valdés the way in which our engineer reflects the singular buildings, especially in the parishes, inside the block to differentiate the religious use and the civil use. The equal-distribution of the original plots as was establishing the Custumal, that already has remained partly upset, we can estimate in the internal composition of their residential blocks.

In regard to its evolution we can appreciate diverse casuistry that already announced in the scheme of the new settlements:

1) Settlements with extension of the foundational structure. In the greater part have been siting up their blocks in his original and evolutionary growth, the network has lost completely the principle with the regulator that began to shape: distorts the original urban growth is for the that was configured, creating a new plot of diverse configuration to the founding is colmatan; interior; the plots are divisions in the residential; increasing the heights of the buildings changing the urban landscape, founding etc. In some cases there is the annexation of two urban communities next (fig. 5, 6).

Of course example can be found in his capital, La Carolina. Performing the comparative of the maps made by Cayetano Dolgado in 1848 and represented schematically, where is a intent of symmetry, proportion and perfection of own foundational planning, the current reality leaves us a configuration quite diverse in the evolution that the city suffers from the mid-19th century.

2) Settlements annexed to their parish. They are the case of El Portazgo with Santa Elena or the case of La Escolástica with Carboneros, where the annexation of both urban cores is made for the extension of themselves. In the case of the parishes Prado del Rey and Almajar, settle in two next meadows, finally they settle in one urban core between these meadows.

3) Settlements with its foundational structure. In these cases we find that settlements remain the original density colmatándose their blocks in a certain way and begins to occur in its evolution, a distortion of its original clarity (fig. 7, 8).

4) Settlements that are currently are farmsteads or in semiruinas. There is a great interest since it preserved the configuration from a founding urban urban and architectural point of view, with the density and spatiality of the original configuration, with a value from an urban point of view property. They retain their physical limits, equidistribution of the, configuration of its square or central space, provision of buildings and the height of the same relationship with the territory, and the roads that make up the. In against is his poor state of conservation and the greater part of the buildings in ruins (fig. 9, 10).
5) Settlements or disappeared completely in ruins. Thanks to the georeferencing of the phase of territorial analysis has been discover his exact original position, as the cases of Buenos Aires, La Cruz or Tamujosa (fig. 11, 12).

Fig. 5, 6. Extension of the foundational structure: Current aerial photo of La Carolina (Plaza de los jardiniños). https://www.google.es/maps/place/23200+La+Carolina,+Jaén/. Accesed 01 Jul 2017.

Fig. 7, 8. Founding Structure: Current aerial photo of Isabela (Parish of La Carolina). https://www.google.es/maps/place/23214+La+Isabela,+Jaén/. Accesed 01 Jul 2017.
6. Conclusions

There is a direct relationship between the enlightened principles and the beginning of the settlement company such as, for example, the principle of enlightened egalitarianism. It establishes in the distribution of farming plots distributed and that is reflected in the urban and territorial of the various colonial settlements. Common elements such as the meadows are of articulators in the management and individual interest within a community.

Within the social organisation of states, under the principle of equality, an organisation where the craftsmen have a more direct link with the urban communities and the service where civil and religious are concentrated in the heart of the cities to give service to the settlement. Thus the real centre of the settlements is the square as a key element of this social organisation, without hierarchies and representative of the “popular sovereignty.” The housing of the peasant is trafficking with the same attention that the supervisor or the church as examples of civil and religious power.

In regard to the economic reform, the new settlements linked the agricultural reform to the innovative practice systems of production and exploitation of the farming plots. The territorial equity applies a smallholder model instead of that of the large estates of the time. The common architectural elements
such as deposits, mills, etc. reflect a reform in the agricultural activity analysed by many enlightened theorists of the time as a new policy of development or on the ideal of the city community. The criteria of rationality are applied. Reason as instrument of search and closely linked to the natural laws is the basis of enlightened thought and reflected in the morphology of the new urban and territorial settlements: the grid layout, the management according to the cardinal axes, the square as central element, the relationship between the settlements as a territorial system, form part of a strategic development carried out mainly by the military that were the beginning of the settlement company. The Cartesian grid in this case guarantees the measurability of the land and the geometrically fair equality of the land.

In regard to the social reform, although it has interest more from a point of view than urban, ethnological introduction of the Central European settlers to carry out the settlement company in desert areas of Madrid-Seville-Cadiz road, a search of real social reform that is an important not influenced with the society and experience existing in the Spain of 18th century. It aims to bring a new approach to education for the learning of a new “ideal society” according to the theoretical principles illustrated and towards a “natural state of happiness of being and of the community. The compulsory education that established the Custumal of the Settlements plays an important role in this section. You cannot differentiate the new communities with the theoretical projects of those utopian social reformers.

Since the territorial scope, are identified and preserved elements common to the colonial settlements and that are themselves of the founding phase: the plot distribution fabric in the territory; the communal areas, usually consistent with the areas most abrupt; the roads and paths of the foundational communication between cities; the foundational areas of occupation.

Since the urban area, in the new colonial settlements appear various common elements but with distinctive nuances that give identity to each one of them. On a same ordinances, its urban form depended on the physical environment, geographical and strategic in the orographic, which settled, as well as by the axes of communication with the rest of nuclei in the territory. From the architectural point of view the square is recognizable, so between the forms, functions and central place of overview of the institutional architecture and religious. The square is especially the geometric framework for the enormous and monumental scenic central space.

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