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THE ROLE OF SCIENCE PARKS IN THE CONFIGURATION OF MODERN TERRITORIES

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1. - POLYCENTRISM: THE SPACE OF MODERNITY

One of the outstanding needs at the beginning of this new century of vertiginous changes is to redefine the concept of town within the frame of generalised urbanisation towards which the world is heading, augmented by two phenomena, perhaps the most relevant and meaningful of our time, technology-computer revolution and its correlation with telecommunications and economy. The computing revolution has led to an economical system whose activities – capital turnover, businesses, transactions, etc- are performed from a distance. Today, the so-called agglomeration economies, based upon the physical proximity to the markets, to the source of resources and to the exchange centres are increasingly less important. Nowadays, it's not so important to live near the work place, because one can work from one's place of residence, as the world is at our fingertips from our computer. Nowadays, it's not so important to live near the town centre, because the town has many centres spread out over the land. A few kilometres of asphalt have sufficed for a new town-region reality to be shaped by the town's conceptual limits -those beyond which the town cannot be seen or is no longer perceptible. The ancient town with ramparts is nowadays diluted in the town-territory, town-region, metropolitan area or whatever you want to call it.

This regional and metropolitan town space is a network made up of different centres (the significant spots in town; residential areas; service, business and transportation centres; science parks; monumental zones; etc.) and connections that are the means of communication. The important feature of a network is the strength of its weave, the cohesion. However, the regional town network does not always show cohesion because within those centres there are weak parts and strong parts, areas with great urban intensity, of great symbolic capacity, where the town is absolutely present showing the best of its attributes, together with others that are social exclusion zones, sectors (both productive and human) centrifuged by globalisation, as they cannot fulfil this competitive role imposed by it: degraded historical districts, immigration strongholds or, simply, monofunctional spaces - like, for instance, universities and science parks- which, even though they fit in the urban economic system, do not make the town, as the substantial features are lacking, that is, above all, diversity, versatility or multifunctionality; the opposite is the ghetto. Every area of town should tend to be, in itself, a kind of reflection or microcosm of the whole of the town, that is, from those areas you should not feel that you are in a subordinate spot, in the periphery, suburbs or in a marginal district, but with all the connotations of centrality, understanding this as a complexity of functions entailed by life itself: a decent house, shops, facilities, public spaces and leisure places. But, the urban fullness of the multiple centres of the present town is just one half of the model. The other half is the maximum possibility to move and communicate. The centres must be as solid as the connections, and this refers to a number of subjects pending in our towns, allowing the town council to elaborate a sensible policy of infrastructures that should consolidate the communication matrix, in accordance with the network's logic, and not only due to spasmodic electoral impulses. As Jordi Borja and Manuel Castells say: "We cannot accept the dual town, one that consolidates centres and periphery that mutually exclude each other, nor a town that segregates, social and functionally, populations and activities. Towns must be polycentric, districts must be versatile and activity zones must be multivalent. Each part of town must have its own monuments, symbols and identity. However, a democratic

town also maximizes the possibilities of movement of its inhabitants. Public and accessible transportation systems are very often the keys to choosing a job or a house, and it is also a requisite for the formation of a collective feeling and a project of town". These ideas could be summarized in an expression similar to a manifesto: nowadays, modernity, applied to town planning, is not the dual and excluding town or the jumbled town, dispersed over the land; it is the constant reproduction - in each area, each zone, each neighbourhood, perfectly interconnected - of the best attributes of diversity that are treasured by the ancient historic town. Should we refer to specific cases in Southern Europe, the model of town we are talking about is the Mediterranean town.

2. - THE VERTEBRATION OF THE PERIPHERY: PARQUE TECNOLÓGICO DE ANDALUCÍA

Those who fifteen years ago decided to create the Parque Tecnológico de Andalucía in Malaga, could already intuit the features of globalization, both in the strictly economic aspects and in the land-related repercussions. The model chosen was the intermediate type between second and third generation parks: a peripheral location outside of the consolidated town, in order to obtain a big area of land at a low price and thus, be able to use high standards of quality, both in the urbanisation and in the garden areas. At the same time, it would be an intermediate spot between small traditional centres of population, farms and industrial premises. That is the reason why the location had the extra aim of vertebrating these emplacements, integrating them into a common logic and encouraging the growth of the town towards its natural expansion area (the so-called "Productive Triangle", formed by the Park, the University and the Airport).

The original model of the Park was based upon a big estate with different sized plots that would host buildings of technological companies, in a pleasant environment with many park and garden areas. This initial model entailed certain management difficulties because, on the one hand, only multinational companies had enough resources to purchase and build on the plots, and, on the other hand, it was very expensive to maintain the garden areas in relation with their little use because they were placed on small hills, that would make a beautiful landscape, but were not much integrated into the rest of the complex. This circumstance brought about the orientation of the management of the park towards a new model where the built areas took priority over the plots areas, developing two new concepts for the location of the companies: centres of business or **nests**, or completed buildings to let, the success of which outlined the future; and the **containers**, multifunctional buildings that were offered for sale before the completion of the building works. Thus, the purchasers could finish the building works as they liked.

On the other hand, in the world evolution of parks, from the first examples in the 60's up to today, with the development of the international markets and Internet, there has been a significant change that affects the emplacement and management strategies. It is well known that these days parks are geared towards knowledge rather than pure technology; it is important but it is just one more element in the scheme "knowledge-innovation-market-growth". This significant change of strategy also implies, necessarily, new ways to design space and infrastructure in the parks, progressing to more complex sites that host, not only companies or research centres, but also training centres at different levels and areas that have been specially designed for work and for

the so-called “workers of knowledge”, where it is possible to link infrastructures for work from a distance or mini-companies with the possibility of residence, as well as service and leisure spaces that can unite all these activities into a balanced and human environment. So, we are facing the change from an industrial space, highly qualified but, all things considered, monofunctional, into another space that allows the complexity and versatility of social behaviour, a setting for the three stages of human activity, that is, home, leisure and work. In other words, from the technological precinct of the parks we go to the multifunctional and versatile space of the **towns of knowledge**.

3.- EXPANSION OF THE PARQUE TECNOLÓGICO DE ANDALUCÍA (PTA) AS A DEFINITION OF A MODEL OF A TOWN

The success of the Parque Tecnológico de Andalucía has forced its expansion, the project of which agrees with the philosophy upon which this change of trends is based; however, its application acquires here an economical and territorial dimension of greater scope, as in some way, the new Parque Tecnológico de Andalucía expresses and strengthens the model of town to which an urban-regional Malaga is committed. As already mentioned, the urban regional town, the metropolitan town with many centres, must show its condition as a town in each one of those centres, and not in the monotonous atony of the ghetto. It could be that the initially peripheral location of the park, the environment, pleasant and remote, and the good connections with the town, the University and the Airport, have been necessary conditions for the development of the innovation and high-tech corporations that have established themselves in the park, but from the town planning point of view, the result could be seen as a splendid working ghetto for qualified engineers. With the expansion conceived as a town of knowledge, both features are stressed, that is, it will be necessary to value the product for its spaces, specially conceived for knowledge and technological innovation, and for its characteristics of a **town**, with its multiple residential, commercial and leisure services combined with the technological services in a natural symbiosis. But at this point, it is necessary to avoid a non-desired effect.

Actually, the new model of Park is nothing but a modern copy, in the technological version, of the medieval ideas of Ebenezer Howard, materialized in the City Garden of Letchworth. But, what might have been, in 1898, a splendid contribution to the history of town planning, restraining the excesses of the industrial town, nowadays may become a sort of “techno-country-club” for the privileged. It is necessary to combine here terms that are initially contradictory, such as isolation and integration. Immediately, there appears the concept of neighbourhood, space with its own personality, where you notice the “location feeling”, that may be identified as such, but at the same time, it belongs to the town structure, as a substantial part of it. The new PTA performs the urban role of bridge between the ancestral land and modern times. Its foundations are planted in the local aspect, between two traditional population centres of agricultural origins, as well as in the global aspect thanks to its communications network, the character of its population and the very nature of its activities. It takes the land and shapes it as a recognisable urban structure and focuses it towards the unlimited exterior that is the universe of knowledge and the globalized markets.

4.-GENERAL FEATURES OF THE PROPOSED PLANNING

The expansion takes place over a reserve area foreseen in the town planning in force in the North of the present estate, with an area of 900.000 Sq.m. The following are the preliminary studies of the project, a graphic report to be submitted to a debate by the institutions with competence in the park, in order to shape the model in the most precise and consensual way as possible, as befits such a strategically important project as this.

The estate is topographically characterized by a hill, which divides the waters that cross from East to West, drawing a slight arch, with two plains on each side. The building zones are placed just like a real street village, adjusted to the outline of the crest, so that both plains are absolutely free for the development an 18-hole golf course in two directions. This course would allow the town a green environment of great landscaping and natural quality, and it would also reduce, with its management, the park's maintenance coefficient between 20% and 25%.

The buildable strip is vertebrated by a road that goes across the crest from one end to the other – connecting it, respectively, with the present park and the population centre of Campanillas- which doubles and in some cases goes underground, in order to endow the complex with the necessary parking lots, as it is an aim to erase as much as possible from the landscape the sight of parking areas and traffic. In the upper plan, wherein appears the line of the natural land, there is another axis, that runs parallel to the previous one, for pedestrians, unitary and diverse, that runs through the three areas of the strip, with a series of promenades, squares, cornices over the garden area, squares for public facilities, miradors, etc. Over this platform are fitted the central points of vertical communication that link this level with the underground parking lot. Differentiated from the functional and typological point of view, the three areas are as follows: the first area (A) destined for single plots, with a ground area of 35.918 Sq.m. and 46.693 Sq.m. buildable; with such an area, we satisfy the possible demand of plots that form the original model of the Park, that changes, as aforementioned, to the model of built areas in niches or containers, that is exactly the main aim of the central zone of the complex (B). This area is the most urban space of the strip. It has three-storey buildings, for offices to let or for sale, placed around central public spaces with shops, restaurants, bars and facilities that encourage meetings, relations with others and, in short, a real perception of urban life, but with environmental conditions that the regular agglomerations do not usually allow. Buildings do not form an enclosure, given that between them there are many open areas in the way of miradors from which you look onto the golf course, the landscape in the distance and the present Park. The generic aim is to obtain a technopolis with a linear shape, with low buildings, but with enough concentration, all along the crest, to obtain a quality town environment, that shall be assisted by the variety of architectural volumes, by the use (avoiding the inherent dehumanisation of a monofunctional space, even if it is a place specialized in high-technology) and by fitting in with the landscape and the free -private or public- areas. The size of this area is 95.965 Sq.m., with a buildable area of 124.754 Sq.m.

A small depression in the run of the crest marks the way to the third area (C), which is a small plateau with an almost round edge. This area will be the housing area for the workers of the Park, and it shall also meet the new phenomenon, between residential and laboral, of teleworking and the setting up of minicompanies. The building here is terraced over the slopes of the plateau, almost in 360°, and it leaves a free broad central

area for gardens and local sports facilities. The total number of teleworking units is 372, over a surface of 40.995 Sq.m. that coincides with the buildable area.

5. - THE TOWN OF KNOWLEDGE AND THE HISTORICAL CENTRE

Encouraged by the PTA's success, and very particularly, by the added value that the urban and territorial point of view provides to the town, the council of Malaga has decided to extend the concept of **district of knowledge** to a degraded sector of the historical city centre. The idea is to carry out to the extreme the principle of functional and morphological integration, recommended for the expansion mentioned in the previous paragraphs. In the previous case, we talked about territorial vertebration and in this case, we must talk about urban reorganization.

The sector chosen is one of the first districts that appeared in town after demolishing the Moslem walls in the 18th century, arranged with the regularity of the urban layout of the Enlightenment. It is characterised by its local nineteenth century architecture and the existence of several important urban milestones, such as the ancient garage "Las Delicias", over which it is projected to build the museum "Larios" of Science and Technique of the 19th Century, the ancient Parador de San Rafael, nowadays cultural facilities and siege of the Public Corporation of Tourism, the new town market and the Music Academy María Cristina, of great local tradition, among others. Despite these facilities, already existing or in project, the neighbourhood suffers a deep degradation as the inhabitants have left, the houses are getting old and the accelerated demolitions threaten to completely erase any sign of the original layout. Malaga Town Hall has wisely included this area within an Area of Subsidized Rehabilitation that turns the district into a sector of special care. Thus, it is appropriate to choose this area and study it.

But for us, the viability of a complete rehabilitation like the one we aim at can only be conceived starting from a wise proposal of use that places the operation within the normality of the market, so that private investors can be stimulated to join due to the incentive of the initial public investment, as a beginning stage. In this respect, we start from the existing necessity for which there exists a certain market: the renewed appeal of the central areas as preferential housing destination – although it is uncomfortable, the attraction of the old town prevails – contrasting with the economical difficulties to buy the first home, due to the high land price, especially for the young, who thus are kept out of the real estate market. Previous experiences of full rehabilitation of degraded districts of the town have only been partially completed – and quite often frustrated – as there lacked the basic element that we have mentioned several times in this document, that is, versatility. Past experiences have been excessively uniform, because they have been aimed at one single social ring, highly marked by social welfare, or by its exclusive – and obsessive – dedication to the use as home, thus leading, in the end, to real residential ghettos.

These are the reasons that have lead us to propose the possibility of rebuilding the district as a "little town of knowledge", that is, a neighbourhood for couples and young professionals, who can combine work and home by means of residential models that, placed into the historic scene, may entail an innovating reinterpretation of the traditional typology. Typologically, the point is to propose interior spaces to live in, to

work and to run a company, either in a private dwelling or a collective one, and morphologically, the point is to create roads, squares and urban environments, facilities and places for leisure suitable for this kind of population. To this end, we think that this historical scene, rigid at first sight, offers much more versatility than the recently created modern sectors. The idea underlying this initiative is to try to prove that the concept of **quality** inherent to innovation and the high-tech spaces cannot forget that it is referred to **quality of life**. It does not necessarily imply exclusivity and isolation, but, on the contrary, integration, so that bringing new techniques for the residential and infrastructure renewal of the district – perfectly equipped to be incorporated to the network – can combine and be enriched with the rules of traditional neighbourhood; it won't lose the sense of the human scale; thus, it won't lose the sense of place. If we have said before that the Science Park is a kind of interactive transmitter between local and global, we can now say that knowledge is a transmitter between those very elements and one more: History.

6. - GENERAL CONCLUSIONS

- Due to the very nature of the activity, and to the need to keep at a distance the primitive concept of industrial park, the technological innovation corporations have demanded, very often, quiet, suburban spaces with easy access by car, with high environmental quality and bordering with the countryside, just like a modern recreation of the “City Garden” or the myth of the happy Arcadia.
- However, insofar as these implantations take the shape of an enclosed and exclusive condominium, the capacity to vertebrate the land, by providing new elements of intelligibility and cohesion is not put to use. The science park cannot be a technological version of a “country club” but a possibility to organize the land, giving it its own identity: a chance, in short, to “make the town”.
- Park and town are two overlapped concepts that must obtain the maximum profit from their mutual synergies. The concept “park” brings new demands of quality in infrastructure, in the valuation of environmental factors, in the accessibility, and in the proposal of new architectonic typologies that combine residence with teleworking and domestic or unipersonal companies. The concept “town” carries the attributes of what has universally been valued in the urban scope, that is, the mixture, diversity, the human scale and the possibility to exchange ideas, meetings and the whole system of personal relationships that have characterized and enriched communal life for centuries.
- Parks are, thus, the transmission and exchange centres between the land and local roots of the place where it is situated, together with the universe of knowledge and globalization: the physical and urban materialization of the principle: “think global, act local”
- Their great centralizing capacity enables parks to contribute, in a very efficient way, to materialize the polycentric metropolitan model with which nowadays the continuous urban ground, which is now the land on which the majority of our towns are situated, must be structured and interpreted.

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