

# ANNEXES

## I. “El Paradigma Higienista”

The biggest urban reformations and hygiene, in major cities in Europe, were performed during and after the Industrial Revolution in the 19<sup>th</sup> century. The industrial city was becoming very dense, over-populated, and full of industries, factories, heavy transports and mines. Next to the factories many slums and cheap, small, unventilated, congested and unhealthy housings started to appear, many of them shared by several families. On the other hand the industrial era meant the rise of a new class, the bourgeois. This middle class took political and economical power and affected all the sectors including the urbanization of the cities like for example the “ensanches”. They changed the idea of property in that it became private without restrictions or taking into consideration community interests. From there on rises the principle of private property.

During this period, cities in Europe started growing up rapidly and one of them is Manchester (in 1850 the population reached 400.000 inhabitants).<sup>1</sup> Catalonia was called ‘Catalan Manchester’ (Busquets, 2005) or “Catalonia is the factory of Spain”.<sup>2</sup> During this period, Barcelona experienced a major growth; an urban and structural transformation that would shape the city and urban planning as we know it nowadays. Barcelona witnessed large movements of population moving from the country to the city and became overcrowded and full of important industries and factories (Bonaplata Mill, Espanya Industrial, La Maquinista Terrestre y Marítima, Ricart i Cia, Batlló Textile...) concentrated in zones mixed with residential buildings producing an overlap of industrialization and urbanization. This situation led to an increase in territorial connections through road systems and the railway train, Barcelona/Mataro, that arrived to the city in 1848, and an increase in urban industrial services (stations, warehouses...) and consumption services (gas, sewerage network...). However, it also led to very high mortality rates of the urban population due to densification and poor hygienic conditions. In 1859 the population in Barcelona’s historic town reached 150.000 inhabitants (Busquets, 2005).

Heavy industries and transport started looking for appropriate spaces for maximum benefits without respecting the natural surroundings or responding to any organic plan. Within these cities appeared the so-called fast-growing working class neighborhoods that lacked infrastructures, equipments, hygiene and sanitation. This caused excessive labor force, hunger, poverty and high death rates.

They were cities of breeding grounds for the massive spread of disease, and hence the disastrous arrival of the 19<sup>th</sup> century epidemics. Due to that, class struggles appeared, the bourgeoisie itself was warned by many revolutions that were happening at that time and trade unions enforced and brought together the social working class who had no wealth other than their children.

For this reason, many regeneration projects were developed in the face of such urban conditions. As a matter of fact, it is the industrialists and capitalist manufacturers who believed that it was their duty to correct the serious flaws that they had caused. Thus, urban achievements were inspired and often performed by the hands of the middle class, the bourgeoisie.<sup>3</sup> One of the biggest urban regenerations, of that period are: Baron de Haussmann’s Paris transformation in 1853 and Ildefons Cerda’s Barcelona’s expansion and ensanche plan in 1860.

During the late 19<sup>th</sup> century, measures were taken in order to improve the bad conditions that the industrial revolution had brought upon our old cities. Thus the necessity of an “ensanche” appeared as a reaction toward the Industrial city and as a need to expand the old city.

In Spain, the first step of the “sanitation movement” was taken with the 1787 ‘Real Pragmatica’ which enacted the relocation of cemeteries, attached to churches inside the walled city, to the outskirts, for reasons of hygiene

1. *Geografía Urbana* [online]. [Accessed: 28 November 2011]. Available at: <[http://html.rincondelvago.com/geografia-urbana\\_2.html](http://html.rincondelvago.com/geografia-urbana_2.html)>

2. According to Jordi Nadal and Jordi Maluquer cited in Busquet (2005).

3. *Geografía Urbana* [online]. [Accessed: 28 November 2011]. Available at: <<http://html.rincondelvago.com/geografia-urbana.html>>

and salubrity. In early 19<sup>th</sup> century, many riots against the church occurred and many of them were burnt down. Naturally, this left many vacant spaces and land, hence, in 1836 a Spanish bylaw for expropriating ecclesiastical land was passed, leaving them in the hands of the municipalities and the bourgeoisie in order to serve different purposes such as “esponjamiento” of the city by opening plazas and streets, construction of new dwellings, public buildings and administrations. Thus, with the demolition of the old city’s walls and the confiscation of lands emerged the “ensanche” with its new paradigm of an open city.<sup>4</sup>

In his article ‘Saneamiento de las poblaciones’ in the ‘Revista de Obras Publicas’, García Faria writes, in more details, that the data from the ‘Dirección de Beneficencia y Sanidad’ monthly bulletin shows that among the 70 province capitals in Spain “solo hay 10 cuya mortalidad se halle comprendida entre 24 y 30 por 1.000; 35 la poseen variable de 30 a 40 por 1.000; en 22 oscila entre 40 y 50 por 1.000, y las tres restantes poblaciones cuentan una mortalidad que alcanza la elevada relación de 52 a 53 por 1.000; mientras esto ocurre aquí, sabemos que en Londres, en 1885, según el Dr. Corfiel, medical officer of health de Saint Georges Square, ha tenido una mortalidad de 20’3 por 1.000; 28 grandes poblaciones de Inglaterra y Escocia la han contado de 21’6 por 1.000; Darlington, Barow-in-Furness, Bourton-on-Trent, Hastings y Maidstone la han tenido menor de 16 por 1.000. Según el Dr. Simons, Weimar solo ha tenido 14’31 por 1.000; Chicago, 20’41; Baltimore, 20’79; Cleveland, 10’60; San Fransisco, 20’5; San Luis de Missouri, 21’3; New-Haven, 20’4; Cristiania, 20’8, y Croydon solo 15 por cada 1.000 habitantes” (García Faria, 1886: 145).

## 1. Plans for Ciutat Vella

Before the demolition of its walls, Ciutat Vella underwent a series of urban transformations. The buildings’ facades were restored and renewed, and the city fabric was reformed with new layouts and alignments by creating new connections and roads such as Carrers de Ferran, Jaume I and Princesa, and outside the walls like Passeig de Gracia (1824). Another development that facilitated urban improvements was the acquisition of urban spaces and the creation of new plazas and markets by the demolition of old churches and monasteries. For example, Plaça de Sant Jaume replaced Sant Jaume Church (1820-23), Plaça Reial replaced Capuchin convent (1848), market Santa Catarina replaced the Dominican monastery and the Boqueria market replaced Sant Josep monastery.

This expropriation of land especially of ecclesial land was made possible by Álvarez Mendizábal’s 1837 Act that regulated their change of use and the ‘Ley de Expropiación Forzosa’ in 1836 and later in 1879, where the first authorized to expropriate lands that are dedicated to public and urban spaces like streets, plazas, bridges, gardens, etc., and the second allowed interior reforms in areas with more than 50.000 inhabitants and stated the method of expropriation in case of opening a new road between two parallel strips, affecting the area up to a depth of 20 meters on both sides of the road (Busquets, 2005).

By 1859 the old town became very overpopulated (150,000 inhabitant in an enclosed perimeter of 64,000) and dense of urban activities and poor hygiene that the citizens called for the demolition of the walls around it and its expansion. Barcelona was a contradictory city that on one hand had a growing economy and majestic plazas like Plaza Reial, and on the other hand, had problems with the working-class; people had low wages, treated poorly, and had a short life expectancy due to poor hygienic conditions. According to Busquets, Dr. Pedro Felipe Monlau “was one of the staunchest champions of demolition: the need to improve hygiene conditions in order to reduce illness was vital” (2005: 117).

In 1895 the first bylaw of sanitation was sanctioned, ‘Ley sobre Saneamiento y Mejora Interior de las Poblaciones’, and it was based on expropriation for the sake of sanitation in housings and growth areas especially in the historic center. It expanded the economic and financial benefits for carrying out sanitation works and

improvements affecting by that the builders and not the promoters. It opened a possibility of concessions in the interior reform process leaving the local councils in charge. Furthermore, it provided the 1879 'Ley de Expropiación' with parameters regarding sanitation and improvement of urban centers different to those used in the Eixample. It inflicted the removal of cemeteries and burials into the outskirts of the city, the supply of water and a sewerage system, the improvement of urban public services and paving of streets, the construction of slaughterhouses, the creation of squares and public gardens, and the dissemination of ideas concerning the benefits of sunlight and open air. In 1904 another bylaw of sanitation 'Instrucción General de Sanidad' was passed that imposed local councils to approve the 'Reglamentos de Higiene' that enforces the development and achievement of hygienic rules and norms.<sup>5</sup>

After pulling down of the town walls, the city reform and new plans were first based on demolitions to create streets, and one of them is the major opening of the Vía Laietana that, on one hand, increased accessibility and connection and led to the construction of new buildings and businesses, and on the other hand, it involved major management problems and the demolition of many important buildings.

Cerdà and Garriga i Roca proposed different plans for the city where the latter advocated specific reform "from within" and the former proposed that Ciutat Vella should be part of the new city (Busquets, 2005).

In 1879, the Baixera Plan defined a specific strategy with general layouts to restructure most of the existing fabric. However, the plan was not approved till ten years after. Angelo J. Baixeras worked on an "opening up" or "*sventramento*" of the city but his plan was modified several times and not until the early 20<sup>th</sup> century (and after his death in 1892) that it was completed as part of the Hygiene and Culture program. The operation was finally undertaken in 1907 with an agreement between the Council and the 'Banco Hispano Colonial'. He proposed a road layout and prolongation of main roads which he called Arteries A, B and C. Artery A was Vía Laietana which the agreement enabled its construction, Artery B was a vertical prolongation from the Plaça de la Universitat until the Parallel, and Artery C was a horizontal prolongation from the Ciutadella to Montjuïc. Cerdà's "reform" plan had the same prolongation of Arteries A and C but that of Artery B was a prolongation of Muntaner Street down to the port. The 1918 Darder Plan was similar to the Baixera Plan except for the Artery C which was modified in order to create less damage to the old buildings like Hospital de Santa Creu. Antonio Darder sought to reduce the impact of straight lines in the district and construct building alignments that were drawn back from the streets. However, both Arteries C and B were never carried out. In Florensa's plan, heritage was of great importance and led to the meticulous task of grouping buildings and spaces, and of restoring and working on many areas, among others, the excavations in the Plaça del Rey, Plaça Nova and Avinguda de la Catedral and the reconstruction of Plaça de Sant Felip Neri (Busquets, 2005).

As a matter of fact, by means of different instruments all these plans and proposals aimed to improve hygiene and health, to open up streets, align buildings, restore and construct new facades, and create new squares and gardens by demolishing urban elements or group of buildings.



Fig.1 The burning of convents in 1835



Fig.2 The opening of Vía Laietana

5. CAMPESINO FERNÁNDEZ, A.J. *Ciudades mediterráneas y medio ambiente* [online]. Dpto. de Geografía y Ordenación del Territorio. Extremadura: Universidad de Extremadura [Accessed: 28 November 2011]. Available at: <[http://www.laciudadviva.org/export/sites/laciudadviva/recursos/documentos/A.J.Campesino\\_Fernandez\\_\\_Ciudades\\_mediterraneas\\_y\\_medio\\_ambiente.pdf-f82ef64c289a-35d2389a22c0d5f826d7.pdf](http://www.laciudadviva.org/export/sites/laciudadviva/recursos/documentos/A.J.Campesino_Fernandez__Ciudades_mediterraneas_y_medio_ambiente.pdf-f82ef64c289a-35d2389a22c0d5f826d7.pdf)>

## 2. Cerdà Plan

In 1854 the City Council agreed upon the request of the Captain General of Barcelona to demolish the town walls and expand to its extensions (Eixample) and connect to the surrounding towns of Gràcia, Les Corts, Sants, Sarrià, Sant-Gervasi, Sant Martí and Sant Andreu. As a matter of fact, the space outside the walls was empty due to military restrictions in the sector. Barcelona was a city under military control and nothing could be built within a 1.25km radius of its walls; the shooting distance of the cannons.

A plan for the extension was needed, therefore, in 1859 the City Council announced a competition for the Eixample for which 14 projects were submitted and among them Antoni Rovira i Trias's "radiocentric" design and Ildefons Cerdà's *ensanche* project on which he had been planning and drafting at his own expense since 1854. During the exhibition of the projects, Cerdà being an engineer and the other contestants being architects presented his project in a separate room. In November 1859 the City Council of Barcelona announced the winner, the Catalan architect Antoni Rovira i Trias, however, in June of the next year 1860, the Madrid government intervened and announced the approval of the Cerdà's plan cancelling Rovira's previous triumph (Busquets, 2005).

Cerdà's proposal for the Eixample is based on his theories and studies written in his 'Teoría de la construcción de las ciudades aplicada al proyecto de reforma y *ensanche* de Barcelona' (1859) and 'Teoría General de la Urbanización' (1867).

He made a thorough study of the existing urbanization, construction, quality of life and well being of the inhabitants in the old city and made a large statistic and synthesis from which he derived his theory which was based on three components: hygiene, circulation and extension of the city into the Barcelona Plain. According to Cerdà's studies people were living in dramatic conditions with extremely high mortality rate with lack in ventilation and open spaces, hence, an analysis of the city's position, location, climatology and sun-lighting condition was made that helped him to take planning decisions. His basic layout is formed by a grid of equal repeating elements on 880 hectares of land, 550 blocks in between streets of 20 to 50m wide. The blocks consisted of a system of 16 meters high, four storey blocks of 113.3 meters and covered 12,370 square meters oriented at 45° angles from the north, repeating the Roman layout. They were of three types: 'U', 'L' and parallel shaped and that is to leave at least 50% of the blocks for courtyards, gardens, plazas and parks that serve as public spaces providing ventilation and lowering the population density. Their most characteristic feature is their chamfered corners or 'chaflanes' and the idea behind them was to ensure, on every intersection, more fluid traffic in all directions and to be converted into small and visible plazas.

Moreover, he paid great attention to the design of the streets since he witnessed the difficulties that the narrow streets in the old city caused, not only for carriages and pedestrians, but also for air circulation. For this reason, three types of street widths were suggested in order to create a highly efficient system, connection and circulation. The first type is 20 meters wide and they are a common type of the structure. The second one is 35 meters and the third is 50 meters such as the Gran Via, Diagonal, Parallel and Meridiana that are high-speed main connectors within and to the outskirts of Barcelona.

The principal objectives of the "*ensanche*" are; to equip citizens with new housings; to provide through its design a low-density, spacious, hygienic city and a quality of life; to create a good connection with the old city, the outskirt towns and the train station; and to show concern for traffic and urban circulation (Busquets, 2005).

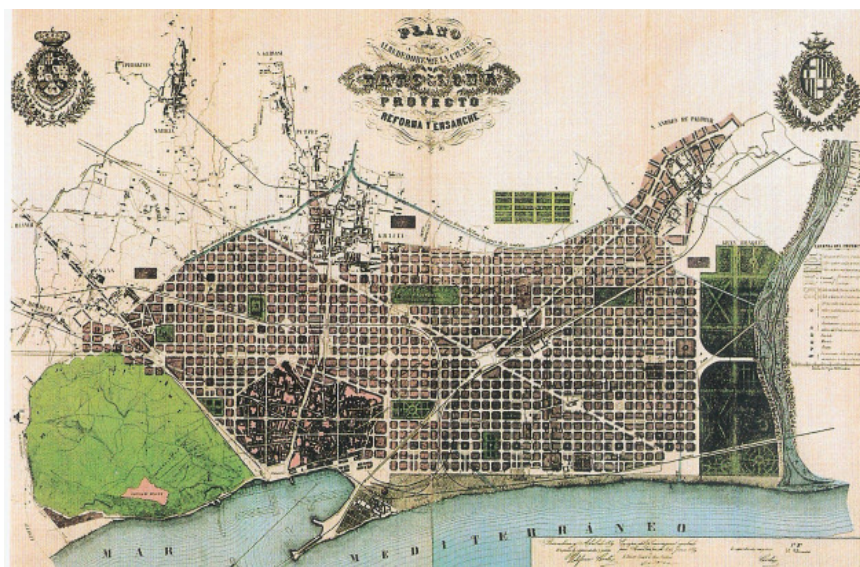


Fig.3 Cerda's plan of the Eixample

### Ensanche and Sanitation

*“To speak of sanitation or of ensanche is then, to speak of the essential nature of 19<sup>th</sup> century urbanism, of the expansive, clarifying undertaking that took the form of broad streets, larger plots, well-aired homes, urbanized spaces. It is therefore natural that ‘Ensanche’ and ‘Sanitation’ should have come together so frequently in projects and proposals, in conjunction with the concept of ‘Remodelling’” (Solà-Morales M., 2010: 44).*

Around 1880 major sanitary service projects were developed in Spain. While European cities like Paris, Brussels and Vienna were busy remodeling their centers, in Spain they were focusing more on remodeling the new city, the ensanche. For a period of time neglecting the existing historic town for the sake of the new city was to a large extent based on its unhealthy conditions; overcrowding, lack of ventilation and sunlight, difficulty removing garbage and the insalubrities of housings.

In Spain, between 1860 and 1880, the wave of urban population increase was at its peak. Cities like Madrid and Barcelona had over 200.000 inhabitants. During the 1880s especially in 1885 Spain had its third major cholera epidemic of the 19<sup>th</sup> century (cholera epidemics in 1834, 1854, 1865, yellow fever in 1870 and 1885 and later tuberculosis).

In Barcelona, mortality in some blocks was of 13'4 per 1.000 and in others it reached 53'6 per 1.000 (Garcia Faria, 1886). Up till the mid-century, one-tenth of the ensanche's surface area, in Madrid and Barcelona, had been built and technicians and engineers had concentrated only on layout design, buildings, roads, bridges, network of services, access and supply. In 1861 and 1864, a 'Ley General para la Reforma, Saneamiento, Ensanche y Otras Mejoras de las Poblaciones' was formed and it declared the public utility of properties in streets, squares and markets. It also retained the land owner as a protagonist of urban development and it proposed the free cession of land by its owners.<sup>6</sup>

Nevertheless, not until the 1880 that urban hygiene, urban utilities and sanitation work captured their attention. Dr. Monlau insisted on the necessity of urban hygiene, but its arguments were not easily approved nor

6. CAMPESINO FERNÁNDEZ, A.J. *Ciudades mediterráneas y medio ambiente* [online]. Dpto. de Geografía y Ordenación del Territorio. Extremadura: Universidad de Extremadura [Accessed: 28 November 2011]. Available at: <[http://www.laciudadviva.org/export/sites/laciudadviva/recursos/documentos/A.J.Campesino\\_Fernandez\\_Ciudades\\_mediterraneas\\_y\\_medio\\_ambiente.pdf-f82ef64c289a-35d2389a22c0d5f826d7.pdf](http://www.laciudadviva.org/export/sites/laciudadviva/recursos/documentos/A.J.Campesino_Fernandez_Ciudades_mediterraneas_y_medio_ambiente.pdf-f82ef64c289a-35d2389a22c0d5f826d7.pdf)>

applied in Spain due to the economical crisis and depression of that time. Despite of that, Cerda perceived a need for hygiene in the ensanche that even goes beyond the epidemic's fears and reaches and affect the entire physical order of civic and community life in the city (people had low wages and treated poorly) (Solà-Morales M., 2010).

In 1891 the sewerage plan for Barcelona was drafted by the same Pedro Garcia Faria, mentioned above, though plans as such had been produced in European cities since the 1880s. According to him sanitation should be *"en la parte viaria como en la interviaria"* (1886, pp. 147). He adds that *"en Barcelona también observamos que durante la última epidemia, las calles estrechas, lóbregas y malsanas resultaron fuertemente castigadas, mientras las anchas y menos insalubres solo han sufrido débilmente. De las 18 calles en que la mortalidad por cólera excedió de 10 individuos, no hay una sola que pertenezca al ensanche..."* (1886: 148-149).

However, works under the term "sanitation" did not only include running water and sewerage but it also introduced elements and innovations of public comfort that made urban space more pleasant and useful, such as, street lighting, street pavement, urban parks, public spaces and services.

Later, in the early 20<sup>th</sup> century, Cerdà's regulations were modified and the plot building ratio changed from 50% to 73.6%, permitting construction in the patios and a maximum building height of 22 meters and later of 24.40 meters ignoring Cerdà's original idea of the courtyard.

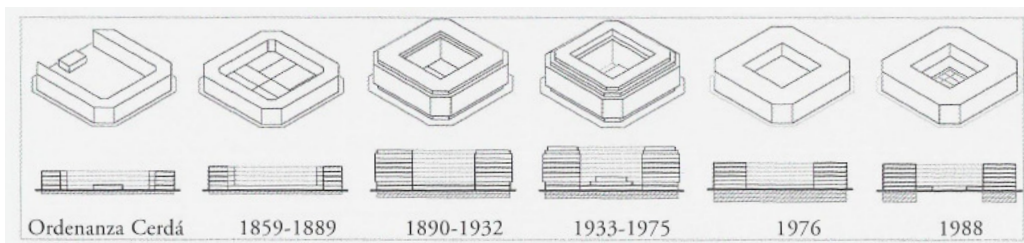


Fig.4 Infilling and densification of the Eixample

### 3. Periphery

Barcelona's industrial and demographic growth spread to the towns in Barcelona Plain were it was easy to accommodate large number of industries and workers. They represented a population of 50,000 inhabitants in 1857 which had multiplied by four by 1900. Their functional profile was marked by their industrial fact. In Sant Martí, mostly in Clot and Poblenou, there were about two hundred factories of mainly textiles, metallurgy and foodstuffs; Sants had Espanya Industrial and Fabrica Guell; Les Corts had Can Batlló in 1867; Barceloneta with La Maquinista Terrestre y Maritima and Nueva Vulcan; and Gràcia had small workshops and some vapors. Other centers like Sant Andreu, Sarrià, Sant-Gervasi and Horta were mainly agricultural and were affected by residential or summer migration.

These centers had a different process of physical construction from that of the Eixample and they were subject to expansion and growth of common "suburban models".

In 1897 the municipalities of Sants, Gràcia, Sant Andreu del Palomar and Sant Martí de Provençals were annexed to Barcelona except for Horta in 1904 and Sarrià in 1921.

During the 19<sup>th</sup> century, the basic projects for those territories were, first, associated with urbanization of roads and rural tracks, creating streets based on easements due to the railway lines, canals and channels that fragmented the areas, extending avenues with pavements, trees and gardens for better connections such as, Pas-

seig de Santa Eulàlia in Sarrià, Passeig Fabra i Puig leading to Horta and Passeig de Torras i Bagges in Sant Andreu. Second, the construction group of similarly typed buildings on roads or any access like the street blocks in Gràcia and Poblenou. Third, the formation of the “fabrics of streets” as in Poble sec. Fourth, the geometric plan of streets with a central square presided by a public building and a public fountain for hygiene purposes as in Les Corts, Poblesec, Gràcia Vilapicina, Sant Andreu, La Sagrera and El Clot. All these factors explain the urban “suburban” development of those areas and their organic almost geographical layouts (Busquets, 2005).

The incorporation of these municipalities to Barcelona led to a necessity to build more roads and to create a plan of interconnections between them and the Eixample. Therefore, in 1903 the new Barcelona Council announced an international competition for a preliminary interconnections plan. The first prize was awarded to the French architect and urbanist Leon Jaussely, in 1905, who proposed an urban theory with the title “Romulus” and was approved and publicly exposed in 1907. His plan showed a rejection of Cerdà’s plan and grid by introducing to it oblique elements. His plan was based on three criteria: zoning of activities (residential areas, worker housing, industry...), road system that was organized around five radial axes and two ring roads that include Gran Plaça de Les Glories and green spaces system where he used the distribution of green spaces in Paris and London as models.

*“Jaussely’s project consolidated a new urban reality that differentiated the parts according to their assigned or zoned use or the nearest infrastructures. It also established an excellent system of green spaces....along with a whole range of squares of different shapes and sizes, representing a far-sighted theoretical and practical approach”.* (Busquets, 2005: 194) Although his proposals were changed and adjusted but the general logic of his idea prevailed.



Fig.5 Jaussely’s Plan

After World War I and the crisis of 1921, hygiene problems started to arise because of immigration that reached an annual average of 30,000 inhabitants and the expansion continued. Dormitories for single workers, low-cost houses as in Baró de Viver, self-built districts like Roquetes, shanty towns or “barracas” as the Somorrostro and illegal urbanizations as in La Trinitat and El Carmel started to appear. It led to conditions of overcrowding and high density, lack of space, services and hygiene, poverty, fragmentation and isolation. Busquets refers to a series of articles by +F. Dalmases Gil referring to the terrible conditions and dangers of streets, the lack of urban infrastructure and the illegal planning permissions in the slums of El Carmel, *“There is no lighting, no*



sewerage network, nor any trace of urbanization. It is evident that there is no health or social service, no clinic and no policing" (2005: 247).

This matter was even worsened after the Civil War (1936-1939) and increased in the 50s 60s and 70s. There was a lack of economic resources and political repression with the beginning of Franco's dictatorship. A new economic order was implemented and many production means were physically destroyed which led to a state policy encouraging self-sufficiency, local production, and protection of industries from domestic competitions. Barcelona witnessed an even more massive mass migration fleeing the tyranny or leaving the rural areas to seek work in the developing industries of Barcelona. As a result, lack in residential spaces became a serious matter. New codes and plans appeared intending to solve the shortage of housing such as the 'Protected Dwelling Act' of 1939 and the 'Discount Housing Act' of 1944. Many more shantytowns or slums appeared, expanding throughout the districts and the county "comarca", causing more disproportionate growth, marginal urbanization and self-built districts and "polígonos de vivienda" such as La Verneda. With the 1953 Comarcal Plan -- that proposed an urban system constructed according to zoning of functions, a "multinuclear" district system providing each municipality with the principal functions as though they were independent, and an organic reassembling of the new aggregated urban-- many new mass housing estates appeared, with the coordination of the 1957 'Social Emergency Plan', in order to relocate all the shanty towns such as La Mina and Trinitat. They were located in isolated settlements, dense and poorly built. This act of densification added a large residential mass to Barcelona and the surrounding municipalities, transforming the area into an integrated metropolis resulting in social segregation, urban conflicts and lack of urban planning, services, sanitation, centrality and image. It is during this period is when the urban social movements and the "asociaciones de vecinos" were formed as oppositions against some projects of the Comarca Plan and the Ribera Plan, as I have mentioned in the Barcelona model. These movements had a strong popular reaction against Vallbona-Torre Baró-Trinitat Plan, all peripheral self-built areas, which enhanced and excited the solidarity of another six neighboring districts that came to constitute a common front called "Nou Barris" or Nine Districts, later recognized as a city district (Busquets, 2005).

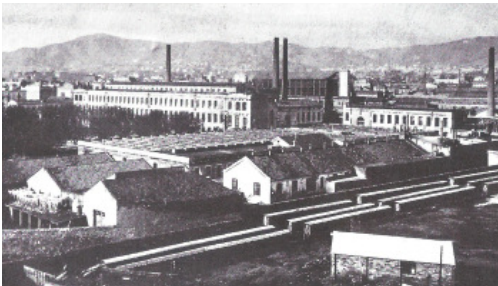


Fig.6 Espanya Industrial in Sants in 1847



Fig.7 Shanties of Somorrostro in the 1960s



Fig.8 The Besos area in the 1970s

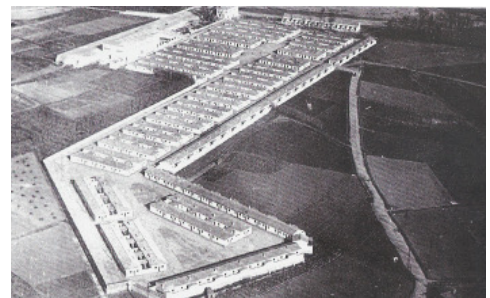


Fig.9 "Casa baratas" in Baro de Viver 1924

#### 4. Garden City

Another reaction to the unhealthy cities of that time caused the rise of a new urban concept called the garden city. It was first initiated by Ebenezer Howard who published its concept in his book 'cities of tomorrow', in 1898 and later re-edited in 1902. Howard organized the Garden City Association (later known as the Town and Country Planning Association or TCPA), which created First Garden City, Ltd. in 1899 to create the garden city of Letchworth. Garden cities were intended to be planned, self-contained communities surrounded by "green belts" (parks), containing proportionate areas of residences, industry and agriculture. His starting point is the rejection of the industrial city and the criticism of the abandoned rural country. He believes that the city and the countryside should integrate together and forge a new civilization. The structure of these cities should be either of 52,000 inhabitants (large) or 32,000 inhabitants (small) with an urban nucleus that shares an area of 2,400 hectares, 400 of them for the city and 2000 for agriculture. These new cities will be designed for a better social life and healthy living. Their land will be of public or communal property and they will be surrounded by a large green, rural belt (Johnson, 2008).

Howard's scheme of the garden city is radio centric which first highlights a central park from which six radial axes split. The central park is surrounded by public buildings and services (museums, town halls...) forming the first ring and a commercial urban center forming the second ring, and which he called Crystal Palace. The industries are located on the exterior rings and the last ring is reserved for agriculture that supplies the city.<sup>7</sup>

Two garden cities were built using Howard's ideas: Letchworth Garden City (1903) and Welwyn Garden City (1920), both in Hertfordshire, England. They both acquired Howard's design principles: predominance of green areas, separation of main and secondary roads, isolation of houses with interior pedestrian spaces, zonification and commerce, industries and agriculture on the exterior rings.

Letchworth plan was a competition won in 1904 by both architects and town planners, Raymond Unwin and Barry Parker. They planned the town in the center with Howard's large agricultural greenbelt surrounding the town, but the design was more 'organic' than Howard's symmetric design.

However, the idea of garden city played a role in the creation of neighborhood suburbs and the New Towns that were appearing in England after World War II.

Garden cities were not only influential in England but greatly impacted various countries, among others, Australia, South Africa, Argentina, Canada and especially the United States. In Spain, many were influenced by it such as Cerda's idea of "*urbanizar el campo y ruralizar la ciudad*" and Soria's slogan "*para cada familia una casa; en cada casa una huerta y jardín*".<sup>8</sup>

In Barcelona, in the early 20<sup>th</sup> century, further changes and improvements were applied to the city, as a result the Great Exhibition of 1929. It started first with the electrification process that improved urban conditions and helped developing a fully industrial society and urban images such as, new street lights, electric trams and railroads. And second the arriving of the Metro with two lines; Gran Metropolitano (from Rambla to Lesseps) and Línea Transversal (from Plaça d'Espanya to Carrer Marina through the Gran Vía axis). Most important is with the garden city concept, open spaces became a priority in Barcelona and new parks system was created. The concept of the majority of those gardens and parks were derived Howard's garden city as well as from Adolphe Alphand's promenades of Paris.

The green areas in the city were low although 10 per cent of urban land should have been given to open spaces according to the Municipal Statute. The only parks in the city were the Citadel (Ciudadella), parts of Montjuïc, Passeig Nou, Jardí del General, Letamendi, Sagrada Família, Les Glories, Desert de Sarrià, Hort Labyrinth and Güell Park where the last three were, in fact, private spaces and later opened for public use.

Two important figures appeared during this period, Nicolau Maria Rubió i Tudurí who became the Director-

7. *Geografía Urbana* [online]. [Accessed: 28 November 2011]. Available at: <<http://html.rincondelvago.com/geografia-urbana.html>>

8. CAMPESINO FERNÁNDEZ, A.J. *Ciudades mediterráneas y medio ambiente* [online]. Dpto. de Geografía y Ordenación del Territorio. Extremadura: Universidad de Extremadura [Accessed: 28 November 2011]. Available at: <[http://www.laciudadviva.org/export/sites/laciudadviva/recursos/documentos/A.J.Campesino\\_Fernandez\\_\\_Ciudades\\_mediterraneas\\_y\\_medio\\_ambiente.pdf-f82ef64c289a-35d2389a22c0d5f826d7.pdf](http://www.laciudadviva.org/export/sites/laciudadviva/recursos/documentos/A.J.Campesino_Fernandez__Ciudades_mediterraneas_y_medio_ambiente.pdf-f82ef64c289a-35d2389a22c0d5f826d7.pdf)>

ate of Public Parks in 1918, the French landscaper Jean-Claude-Nicolas Forestier who designed park elements in Montjuïc in 1915 and Cebrià de Montoliu who founded the Garden City Civic Corporation, 'Sociedad Cívica La ciudad jardín' in 1912 (Busquets, 2005).

Many analyses and criticism of the situation faced by industrial cities were carried out and solutions of collaboration and decentralization were studied to improve living and environmental conditions. Gardens and open spaces were also a form of sanitation "seen as being necessary both to alleviate the ills of the industrial city and to further embellish it" (Busquets, 2005: 216). These new spaces were categorized into several parts: urban garden-parks, district gardens, children's parks and large spaces. The green spaces closer to the city were smaller in size than the ones further away from the center. Forestier-Rubió team started with the introduction of urban open spaces into the city and the fruit of their efforts were; Laribal Park, Passeig de Santa Madrona, the Amargos gardens, the Greek theatre and the Miramar gardens which were all gardens and park of Montjuïc, the Plaza d'Armes in Ciutadella, Guinardó Park, Pedralbes Park, Turó Park, and Plaça Francesc Macià.

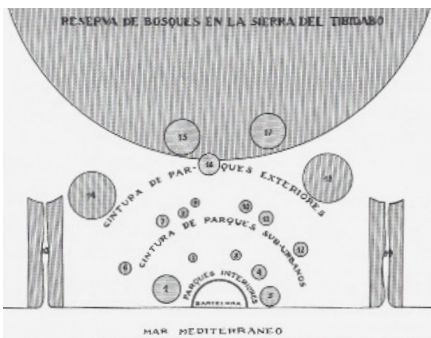


Fig.10 Forestier-Rubió's Parks System in the 1920s

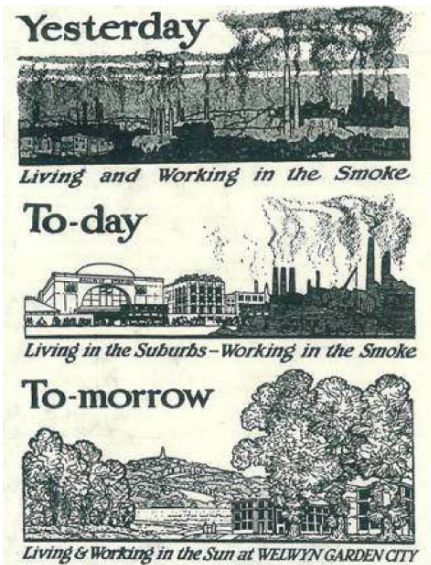


Fig.11 Promotional poster 1918

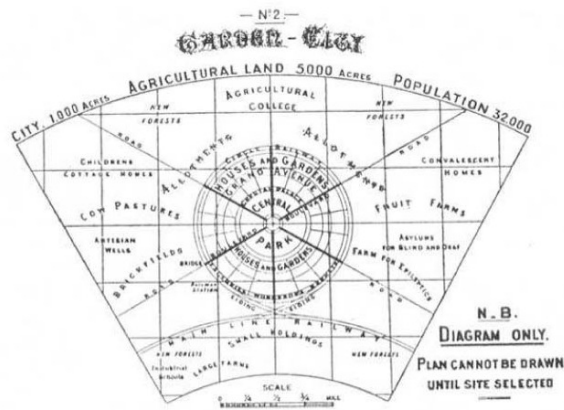
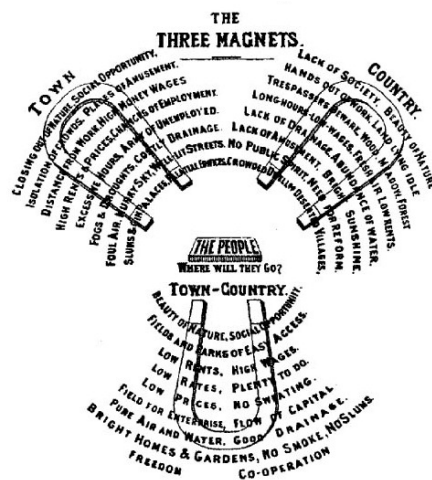


Fig.12 Howard's Garden City of Tomorrow 1920

## 5. GATCPAC

After the 1929 Exhibition, Barcelona witnessed many changes; politically with the elections and the triumph of the left, economically with the Great Depression, socially with migration and overpopulation with reaching one million inhabitants in the 1930s and urbanistically with the lack of space, housing, facilities and transport.

In 1930, the GATEPAC were formed (Grupo de Artistas y Técnicos Españoles Para el Progreso de la Arquitectura Contemporánea) and later the GATCPAC (Grup d'Artistes y Tècnics Catalans per al Progres de l'Arquitectura Contemporània), where the 'C' stands for Catalan instead of the 'E' for Español. They were a Spanish branch of the Le Corbusier's C.I.A.M, and their most famous members are Josep Lluís Sert, Antoni Bonet Castellana, Josep Torres Clavé, José Manuel Aizpurúa and Fernando García Mercadal. They published the famous magazine A.C., or 'Actividad Contemporánea' of which 25 issues were published between 1931 and 1937. They collaborated with Le Corbusier and Pierre Jeanneret, where the first started visiting Barcelona frequently after 1928. It was a very important time in Barcelona and in 1932 the 4<sup>th</sup> CIRPAC Congress was hosted in the city.

Together they studied and analyzed many cities under the term of 'functional city' with its principle's functions of habitation, leisure activity, work and circulation. The problems of dysfunctions and the studies and solutions they proposed for the "functional city" were later applied to Barcelona. These solutions also contained hygienic and health concerns, "...la ciudad funcional racionalista también se contienen preocupaciones ambientales: (...) las zonas de habitación han de ofrecer las máximas garantías de salubridad, situando al individuo en viviendas rodeadas de vegetación, sol y aire puro; las zonas de reposo, anexo indispensable a las zonas de habitación, harán factible la recuperación de fuerzas y su conservación, siempre en íntimo contacto con la naturaleza..."<sup>9</sup>

In 1934 they prepared a plan for the Barcelona metropolitan area called Plan Macià or the 'New Barcelona'. It consisted of a new plan for the city to improve its current state. Through the Plan, they were one of the first to apply, in Barcelona, the system of sanitation through creating spaces and not fragmenting the city with new roads. In this respect, the GATCPAC and Le Corbusier were opposed to the urban model of the 1929 exhibition, especially Rubió i Tudurí's "Urban development in the Barcelona Plain" and his suburban mechanism of "little house and garden" or "caseta i l'hortet" (the Catalan version of the English garden city), and the plans for the Ciutat Vella like the Baixera Plan (Busquets, 2005).

The Plan Macià and the "Functional city" proposal classified the city according to the following areas:

- a) An area of habitation, with dwellings and hotels
- b) A production area, with the port, industrial areas and the city
- c) A civic center
- d) A recreational sector, with green and beach areas
- e) Traffic and circulation areas to interconnect the above

The industrial area and port was promoted to the west behind Montjuic, the distribution of the areas was organized in accordance with the Gran Via's axis that connects the Plain from river Llobregat to the river Besos. A particular emphasis was laid on Parallel and Meridiana roads which crossed at the port to constitute the city center. A Y-shaped series of skyscrapers were posted in the lower area of Ciutat Vella, presenting a new seafront image (Busquets, 2005).

Furthermore, they made an analysis for the old town Ciutat Vella, the "ensanche" and the periphery, or as they call them, the aggregated towns.

9. CAMPESINO FERNÁNDEZ, A.J. *Ciudades mediterráneas y medio ambiente* [online]. Dpto. de Geografía y Ordenación del Territorio. Extremadura: Universidad de Extremadura [Accessed: 28 November 2011]. Available at: <[http://www.laciudadviva.org/export/sites/laciudadviva/recursos/documentos/A.J.Campesino\\_Fernandez\\_Ciudades\\_mediterraneas\\_y\\_medio\\_ambiente.pdf-f82ef64c289a-35d2389a22c0d5f826d7.pdf](http://www.laciudadviva.org/export/sites/laciudadviva/recursos/documentos/A.J.Campesino_Fernandez_Ciudades_mediterraneas_y_medio_ambiente.pdf-f82ef64c289a-35d2389a22c0d5f826d7.pdf)>

## 1) Ciutat Vella:

**Analysis:** Due to the industrialization, the old town became very dense and contagious. The open spaces, patios, gardens, and plazas disappeared making way for unorganized, cheap constructions. Many of the streets were full of garbage dumps and high constructions leaving no space for trees, ventilation, clean air and sunlight. All these aspects were leaving the area as a nucleus for infections and causing a lack of hygiene, and well being.

**Solution:** Their solution to that problem was sanitizing the old town by performing a kind of surgery on certain points in its urban fabric by demolishing the infected spaces and replacing them with public spaces, thus, providing the citizens with open spaces, trees, clean air, ventilation and sunlight. *“Es una intervención más de cirujano, que de arquitecto. Urge extirpar de raíz los focos más peligrosos de infección. Hay que demoler cuanto antes las agrupaciones de viviendas que acusen, según estadísticas, mayor mortalidad. En su lugar quedara un gran espacio libre donde la naturaleza pueda enmendar los abusos o errores de una civilización”* (GATCPAC, 1934: 17).

Unlike the Baixera Plan, that proposed an “opening up” of road axes, and Adolfo Florensa’s grouping of buildings and spaces, the GATCPAC proposed a plan of Ciutat Vella with open urban spaces.

*“Mucho más esencial que la creación de estas vías (que no resuelven ningún importante problema de tráfico y que, en cambio, crean nuevos conflictos, atrayendo dicho tráfico hacia la ciudad vieja en lugar de desviarlo de ella) es el problema de la higienización de la Barcelona infecta que el GATEPAC considera mucho más importante que el proyecto de enlace de monumentos. Opinamos que debe exigirse una intervención, mas de cirujano que de arquitecto, que extirpe de raíz, demoliendo cuanto antes las viviendas que según estadísticas, acusen mayor mortalidad, de acuerdo con un plan realizable por etapas. En los espacios que dejaría libre esta demolición, debe procurar el Municipio enmendar los abusos y errores de una civilización, dejando que penetre el sol, plantando árboles y edificando pequeños pabellones de utilidad colectiva (escuelas, bibliotecas infantiles, guarderías, etc.)”* (GATCPAC, 1934: 20).

## 2) Ensanche:

**Analysis:** Regarding the “ensanche”, Cerdà’s plan was mostly criticized for its lack in zone and function classification, mixing industries with housings, the depth of the buildings which force them to have small interior patios for ventilation and the streets layout. It was not well respected and private interests were more important than public and collective ones providing more revenue and income to landowners. Therefore, constructions inside the blocks were permitted, public gardens and pedestrian streets were eliminated, green zones inside the blocks never existed and instead of having buildings only on two sides of the block it was enclosed on its four sides worsening the living conditions and preventing sunlight and ventilation to some inhabitants.

**Solution:** Therefore, they proposed limiting the “ensanche” and creating a new model for the un-built areas of Poblenou and Sant Martí. A new, large grid was proposed to restructure a layout that would include open construction according to the principle of the “Ville Radieuse” that Le Corbusier had entitled “for every house a tree”. The suggested super grid was of three streets, divided into highways and pedestrian roads, and included open construction with hygienic characteristics.

The dwelling model adopted the 400x400m block or “super manzanas” that acquired an organized construction without interior patios, and provided a better quality of life with their collective services, public spaces, gardens, squares, greenery, ventilation and light. On the basis of this module, the district produces six groups of row houses with narrow facades, comprising a ground floor and two storeys and it produced a density of over 60 dwellings per hectare (Busquets, 2005).

## 3) Aggregated towns or periphery:

Analysis: These areas were supposed to be immediately incorporated to Cerda's plan but this was not the case until half a century later (1897-1904). During this time they were expanding chaotically and developing as mixed zones of industries and housings in very poor conditions. Even Jausseley's 1903 extension plan was partially able to connect them to the center. The railroads passed through their expropriated lands in arbitrary paths sometimes trapping vast of land in between their rails like in Sant Andreu. The circulation is very difficult due to the irregularity of their layout plan.

Solution: Their solution was limiting these areas' irregular growth and grouping them. Therefore, they worked on a Zoning plan separating work from living and placing green areas that will protect and isolate the dwellings from the industries' noise and smoke (due to the dangers of the industries that were mixed with housing). They built a high-density urban worker's dwelling called bloc house or 'Casa Bloc' in Sant Andreu opposite Avinguda Torras i Bages, planned the Recreation and Holiday Resort increasing movements towards the countryside or the coast and proposed two industrial zones one in 'Zona Franca' near river Llobregat and the other near river Besòs "*depende esto del desplazamiento del ferrocarril de la costa y de la dirección de los vientos dominantes, que nunca deben arrasar los vapores y humos de la industria a la habitación*" (GATCPAC, 1934: 18). However, most of the projects were put on hold with the eruption of the Civil War (1936-1939).



Fig.13 Macia Plan 1932-1934

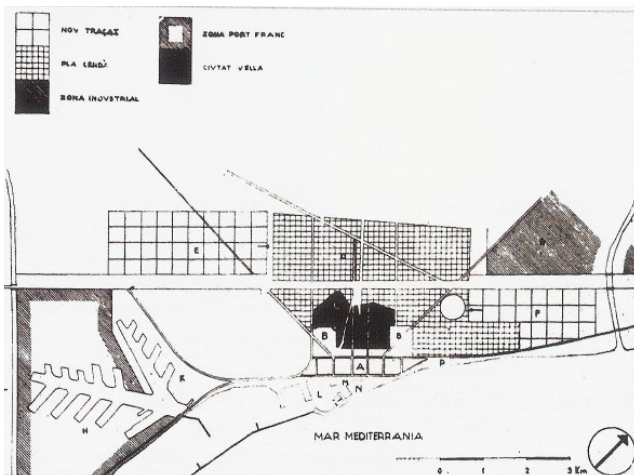


Fig.14 Macia Plan zoning and general scheme

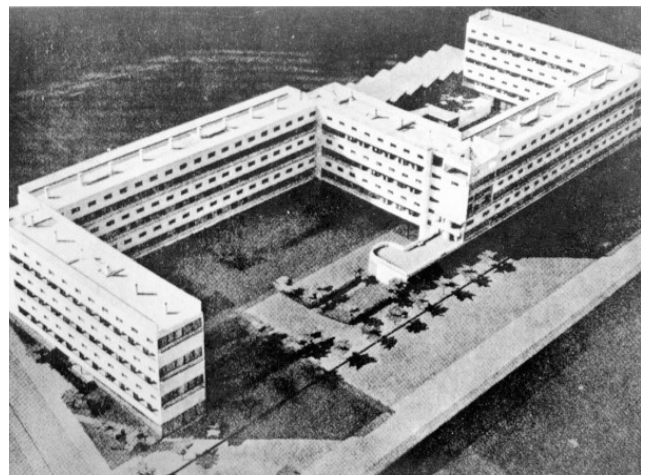


Fig.15 GATCPAC's 'Casa Bloc' in Sant Andreu

## II. Camillo Sitte and the Modern Movement

By the late nineteenth century, European planning focused on creating broad, straight boulevards, public squares arranged primarily for the convenience of traffic, and monumental views. Such practices were first performed by Baron Haussmann in his midcentury redevelopment of Paris. Camillo Sitte criticized these plans for failing to create urban spaces appropriate to the scale of people, and for being so formalized as to be unwelcoming. He criticized the planning practices that emphasized symmetry, grandeur, and formality at the expense of livability, and complained about how the plazas of his day could be empty spaces formed by four streets bordering a piece of land. To create lively spaces, he proposed following the design objectives that shaped medieval cities.

Moreover, Sitte criticized the modern planning of gardens and trees alignment. It is important that how and where the greenery is applied. He claims that *“the closer such landscape elements encroach upon the center of a large city, and especially upon large monumental structures, the more difficult it becomes to find a universally satisfactory and artistically faultless solution”* (Sitte, 1889, Collins & Collins, 1965).<sup>10</sup> He believed that greenery in a public space, such as the introduction of the English park to the major plazas, produces a conflict between the effects of naturalism and the rigor of a monumental style. From this comes his principle that trees should not be an obstruction to the line of sight, and this rule in itself requires a return to the Baroque parks and models with their trimmed trees. But this is impossible in modern city planning since it would put an end to almost all tree-planting. In addition to that, parks and gardens should be enclosed such as the gardens and inner courtyards of the old towns that, unlike the public parks of today, are guarded from the wind and dust of the streets providing a refreshing air, daylight and greenery (Sitte, 1889, Collins & Collins, 1965).<sup>11</sup>

Sitte illustrated his theory by proposing a change of orientation in the treatment of public spaces that shaped the Ringstrasse. He planned buildings and monuments that would reduce the volumes of open spaces and formed squares that would define. Thus, *“a chain of squares would substitute the large avenue, and public spaces of a baroque-classical style will be manipulated to produce smaller-scale compositions much more appropriate to classical-medieval structures”* (Acebillo, 1987: 41). Nevertheless, Sitte recognizes the modern planning extraordinary achievements concerning hygiene in contrast to that of the older period. It is largely due to the modern engineers work that sanitary conditions of European cities have improved and mortality figures decreased. They have *“performed miracles and have rendered everlasting service to mankind”* (Sitte, 1889, Collins & Collins, 1965).<sup>12</sup>

However, the Modern movement, especially Le Corbusier, was against Sitte’s ideas and approach to urban space. As a reaction to the industrial city’s problems, their functionalism gave priority to cars and fast movement across the urban space which caused alienation between the open spaces and the buildings around them. They paid a little attention to the historically created public spaces, hence, the existing urban enclosures with closed vistas, such as streets and squares, were to be demolished in favor of vast open spaces which provided a setting for a free and flexible location of buildings. Their aim was to redefine the relationship between public and private spaces, reshape the urban spaces and create large quantities of open spaces for hygienic as well as aesthetic reasons (Madanipour, 2003).

In their eyes public spaces had a mere residual value, and their *“method of defining architecture as a function becoming a form brought with it the reduction of public spaces to completely banal forms”* (de Solà-Morales I, 1987: 13). Their planning resulted in vast expanses of spaces with little connection to other spaces in the city. They became underused areas watched from the top of high-rise buildings or from car windows (Madanipour, 2003). The modernist movement *“se hacía un esfuerzo de modernización del concepto de plaza, modernización que pasaba por*

10. Taken from SITTE, Camillo. Modern Systems. Artistic Limitation of Modern City Planning. *City Planning According to Artistic Principles* [online]. Repts, John W. (ed.). New York: Cornell Universtiy [Accessed: 30 November 2011]. <<http://www.library.cornell.edu/Reps/DOCS/sitte.htm>>

11. Ibid.

12. Taken from SITTE, Camillo. Modern Systems. Artistic Limitation of Modern City Planning. *City Planning According to Artistic Principles* [online]. Repts, John W. (ed.). New York: Cornell Universtiy [t: 30 November 2011]. <<http://www.library.cornell.edu/Reps/DOCS/sitte.htm>>

una mayor especificación de sus funciones”, like for example the central square of Brasilia and La Défense de Paris, “dos plazas que desmienten cualquier cualidad urbana del entorno. La primera porque en ella se niega la calidad visual del itinerario sin adquirir la autonomía monumental que confería la arquitectura barroca o neoclásica; la segunda porque es una discriminación de los peatones a una escala que no admite ninguna corrección ni ninguna aplicación de funciones variadas, sin capacidad estática ni incitaciones dinámicas. Las últimas tendencias hacia plazas integradoras intentan superar los defectos de Brasilia o de La Défense, pero siguen llevando la desconsideración del elemento fundamental, que es la calle” (Bohigas, 1986: 84).

For this reason, those who remained unconvinced by such an imposition onto the existing urban environment, returned to the historic notions of public space (Madanipour, 2003).

Read (1982) warned that the industrial city’s problems were real problems and “while it may be reasonable now to reject the forms which Modernists evolved in their response to the problems of the industrial city, those problems will not be removed simply by looking further back to the pre-industrial city” (Carmona, et al., 2003: 71).

In this post-modernism period, the square played an important role, “la plaza como elemento fundamental de la ciudad es el centro de la nueva óptica y su articulación con la calle conforma el sustrato teórico de los nuevos diseños; una actualización de la morfología urbana tradicional” (Pérgolis, 2002: 60).

Once again spatial enclosure became a main requirement in urban design. Streets, squares and small, mixed land uses became an essential part of the city generating a strong relationship between the public space and the buildings around it. “The conclusion is that a degree of, rather than complete, enclosure is required. A balance must also be struck between achieving enclosure and considerations such as permeability and legibility, which importantly influence how well the space is used” (Carmona, et al., 2003: 141).

A prime example of these changing and often contradictory interpretations of and approaches to public space and squares is the city of Barcelona.

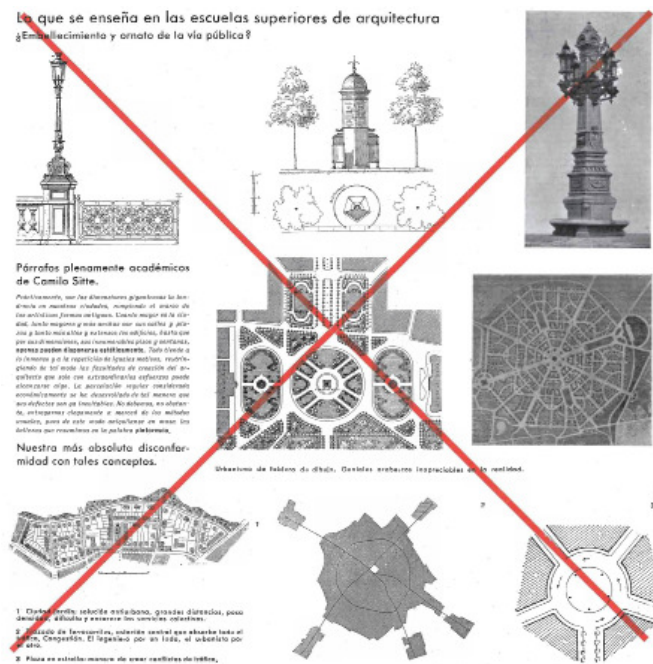
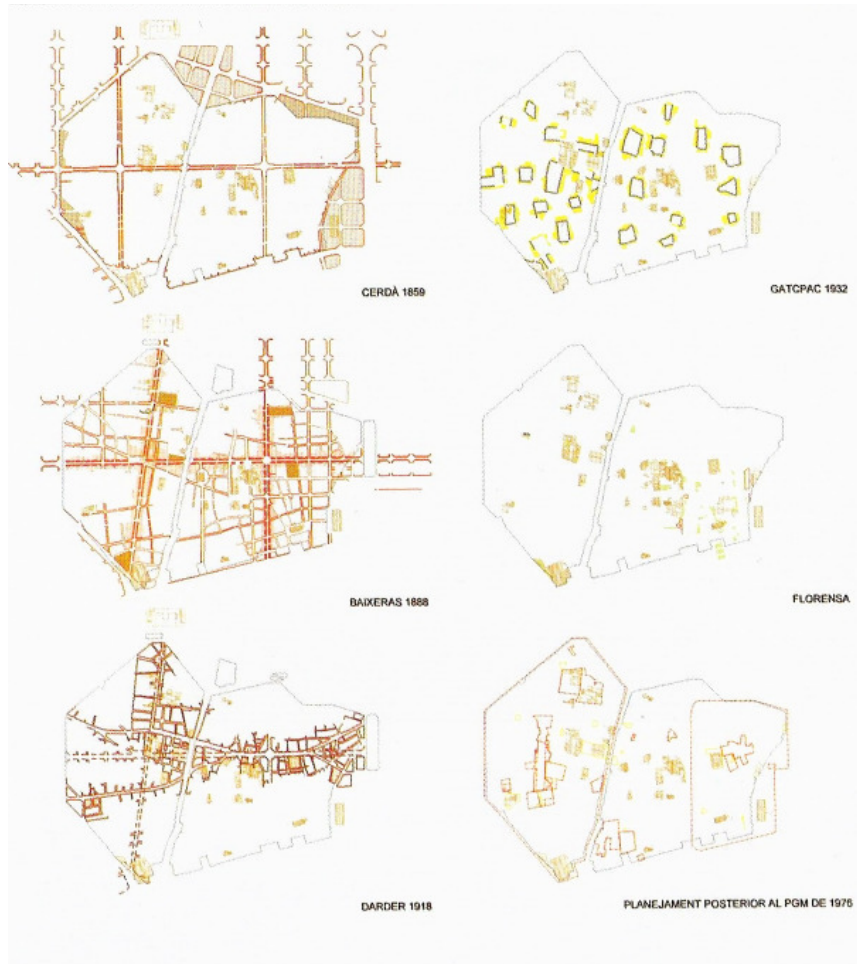


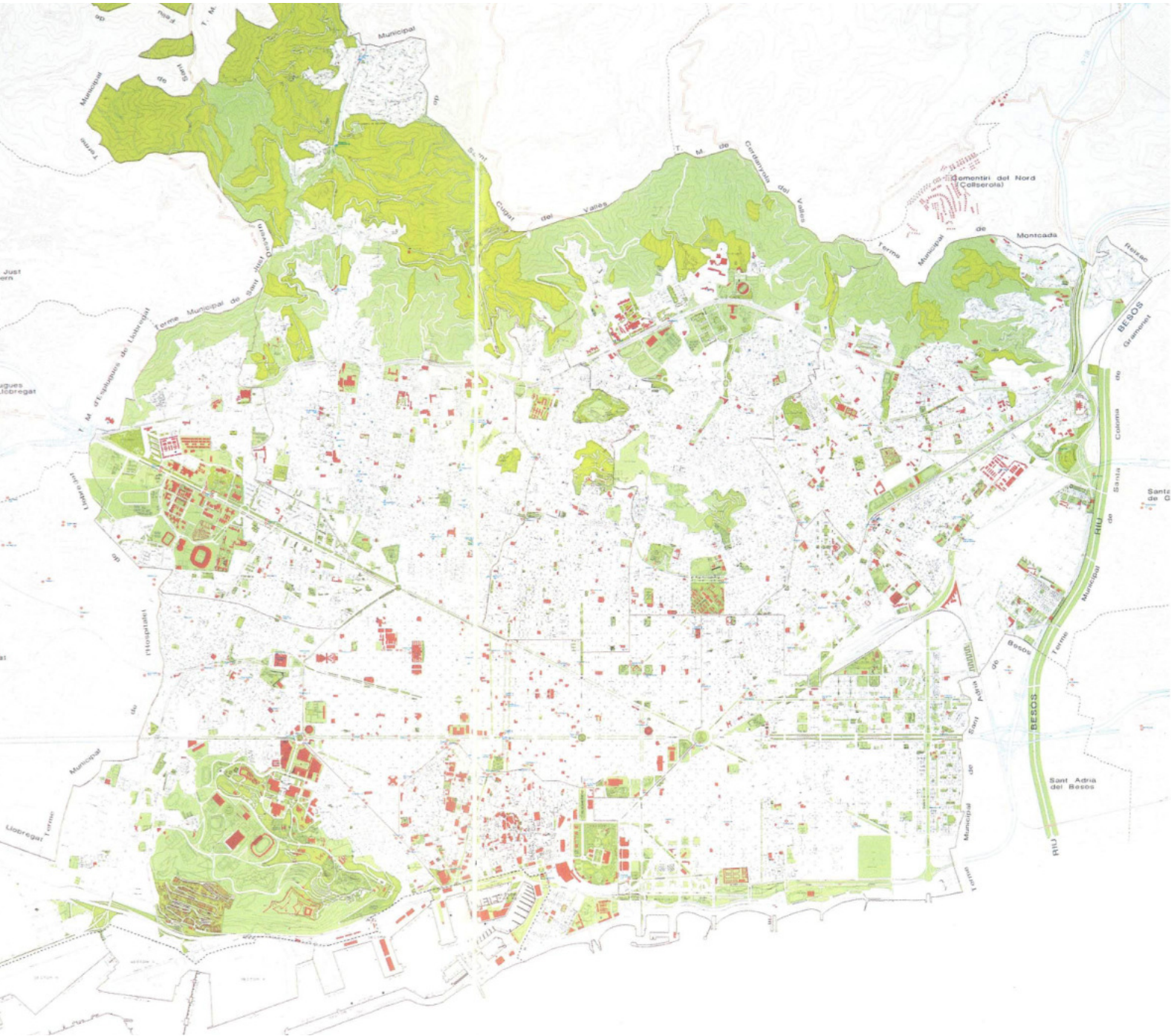
Fig.16 GATCPAC’s criticism of the Architecture schools’s teaching methods and Camillo Sitte’s concept



## Main plans marking the evolution of Ciutat Vella prior to the PGM



## Public spaces of Barcelona between 1979 and 2004



## BIBLIOGRAPHY

**ACEBILLO**, Josep A. Structure and Significance of the Urban Space. In AA.VV. *Barcelona Espais i Escultures (1982-1986)*. Barcelona: Ajuntament de Barcelona, 1987, pp.41-44.

**BUSQUETS**, Joan. *Barcelona: the urban evolution of a compact city*. Rovereto: Nicolodi, 2005.

**CAMPESINO FERNÁNDEZ**, A.J. *Ciudades mediterráneas y medio ambiente* [online]. Dpto. de Geografía y Ordenación del Territorio. Extremadura: Universidad de Extremadura [Accessed: 28 November 2011]. Available at: <[http://www.laciudadviva.org/export/sites/laciudadviva/recursos/documentos/A.J.Campesino\\_Fernandez\\_\\_Ciudades\\_mediterraneas\\_y\\_medio\\_ambiente.pdf-f82ef64c289a35d2389a22c0d5f826d7.pdf](http://www.laciudadviva.org/export/sites/laciudadviva/recursos/documentos/A.J.Campesino_Fernandez__Ciudades_mediterraneas_y_medio_ambiente.pdf-f82ef64c289a35d2389a22c0d5f826d7.pdf)>

**CARMONA**, Matthew. **HEATH**, Tim. **OC**, Taner. **TIESDELL**, Steve. *Public Place – Urban Space*. Oxford: Architectural Press, 2003.

**GARCÍA FARIA**, P. Saneamiento de las poblaciones. *Revista de Obras Públicas* [online], 34, tomo IV (9), 1886, pp.145-150 [Accessed: 08 January 2012]. Available at: <[http://ropdizigital.ciccp.es/pdf/publico/1886/1886\\_tomoIV\\_9\\_02.pdf](http://ropdizigital.ciccp.es/pdf/publico/1886/1886_tomoIV_9_02.pdf)>

**GEOGRAFÍA URBANA** [online]. [Accessed: 28 November 2011]. Available at: <<http://html.rincondelvago.com/geografia-urbana.html>>

**GEOGRAFÍA URBANA** [online]. [Accessed: 28 November 2011]. Available at: <[http://html.rincondelvago.com/geografia-urbana\\_2.html](http://html.rincondelvago.com/geografia-urbana_2.html)>

**JOHNSON**, Craig. *Green Modernism: The Irony of the Modern Garden Cities in Southeast Asia* [online]. 44<sup>th</sup> ISO-CARP Congress 2008 [Accessed: 28 November 2011]. Available at: <[http://www.isocarp.net/Data/case\\_studies/1364.pdf](http://www.isocarp.net/Data/case_studies/1364.pdf)>

**MADANIPOUR**, Ali. Why are the design and development of public spaces significant for cities? In CUTHBERT, Alexander R. (ed.). *Designing cities: critical readings in urban design*. Oxford: Blackwell, 2003, pp.139-151.

**PÉRGOLIS**, Juan Carlos. *La plaza: el centro de la ciudad*. Bogota: Stoa Libris, 2002.

**SITTE**, Camillo. Modern Systems. Artistic Limitation of Modern City Planning. *City Planning According to Artistic Principles* [online]. Reys, John W. (ed.). New York: Cornell University [Accessed: 30 November 2011]. Available at: <<http://www.library.cornell.edu/Reps/DOCS/sitte.htm>>

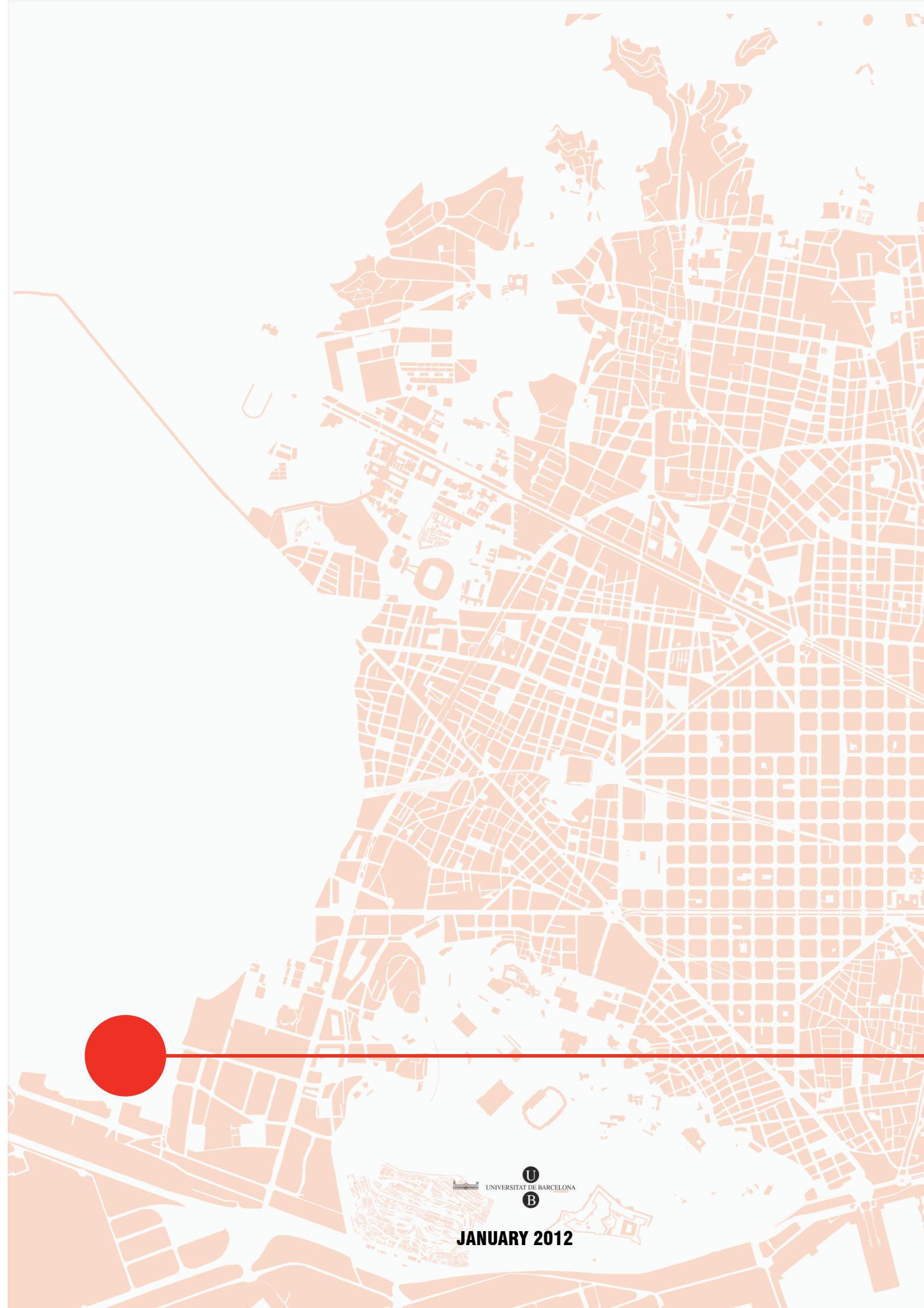
**SOLÀ-MORALES**, Ignasi de. Matters of Style. In AA.VV. *Barcelona Spaces and Sculptures (1982-1986)*. Barcelona: Ajuntament de Barcelona, 1987, pp.13-18.

**SOLÀ-MORALES**, Manuel de. *Cerdà / Ensanche*. Barcelona: Edicions UPC – Escola Tècnica Superior d'Arquitectura de Barcelona, 2010.

## FIGURE INDEX

<b>Fig.1</b> The burning of convents in 1835. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	121
<b>Fig.2</b> The opening of Via Laietana. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	121
<b>Fig.3</b> Cerda's plan of the Eixample. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	123
<b>Fig.4</b> Infilling and densification of the Eixample. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	124
<b>Fig.5</b> Jausseley's Plan. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	125
<b>Fig.6</b> Espanya Industrial in Sants in 1847. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	126
<b>Fig.7</b> Shanties of Somorrostro in the 1960s. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	126
<b>Fig.8</b> The Besos area in the 1970s. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	126
<b>Fig.9</b> "Casa baratas" in Baro de Viver 1924. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	126
<b>Fig.10</b> Forestier-Rubió's Parks System in the 1920s. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	128
<b>Fig.11</b> Promotional poster 1918. Source: JOHNSON, Craig. Green Modernism: The Irony of the Modern Garden Cities in Southeast Asia [online]. 44th ISOCARP Congress 2008 [Consulted: 28 November 2011]. Available at: < <a href="http://www.isocarp.net/Data/case_studies/1364.pdf">http://www.isocarp.net/Data/case_studies/1364.pdf</a> >-----	128
<b>Fig.12</b> Howard's Garden City of Tomorrow 1920. Source: JOHNSON, Craig. Green Modernism: The Irony of the Modern Garden Cities in Southeast Asia [online]. 44th ISOCARP Congress 2008 [Consulted: 28 November 2011]. Available at: < <a href="http://www.isocarp.net/Data/case_studies/1364.pdf">http://www.isocarp.net/Data/case_studies/1364.pdf</a> >-----	128
<b>Fig.13</b> Macia Plan 1932-1934. Source: A.C. La revista del GATEPAC [online] [Accessed: 09 January 2012]. Available at: < <a href="http://www.reactiva.cat/~upcdca/images/stories/docs/Expo_AC_Reina_Sofia.pdf">http://www.reactiva.cat/~upcdca/images/stories/docs/Expo_AC_Reina_Sofia.pdf</a> >-----	131
<b>Fig.14</b> Macia Plan zoning and general scheme. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	131
<b>Fig.15</b> GATCPAC's 'Casa Bloc' in Sant Andreu. Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	131
<b>Fig.16</b> GATCPAC's criticism of the Architecture schools's teaching methods and Camillo Sitte's concept. Source: G.A.T.E.P.A.C. A.C. Documentos de actividad contemporánea. Barcelona: Revista trimestral n.13, 1934-----	133
<b>Main plans marking the evolution of Ciutat Vella prior to the PGM.</b> Source: BUSQUETS, Joan. Barcelona: the urban evolution of a compact city. Rovereto: Nicolodi, 2005-----	134
<b>Public spaces of Barcelona between 1979 and 2004.</b> Source: MONTANER, Josep (ed.). <i>Barcelona 1979-2004: Del desarrollo a la ciudad de calidad</i> . Barcelona: Ajuntament de Barcelona, 1999-----	135





 UNIVERSITAT DE BARCELONA



**JANUARY 2012**