

# city as organism

new visions for urban life

22nd ISUF International Conference | 22-26 september 2015 Rome Italy

edited by  
Giuseppe Strappa  
Anna Rita Donatella Amato  
Antonio Camporeale

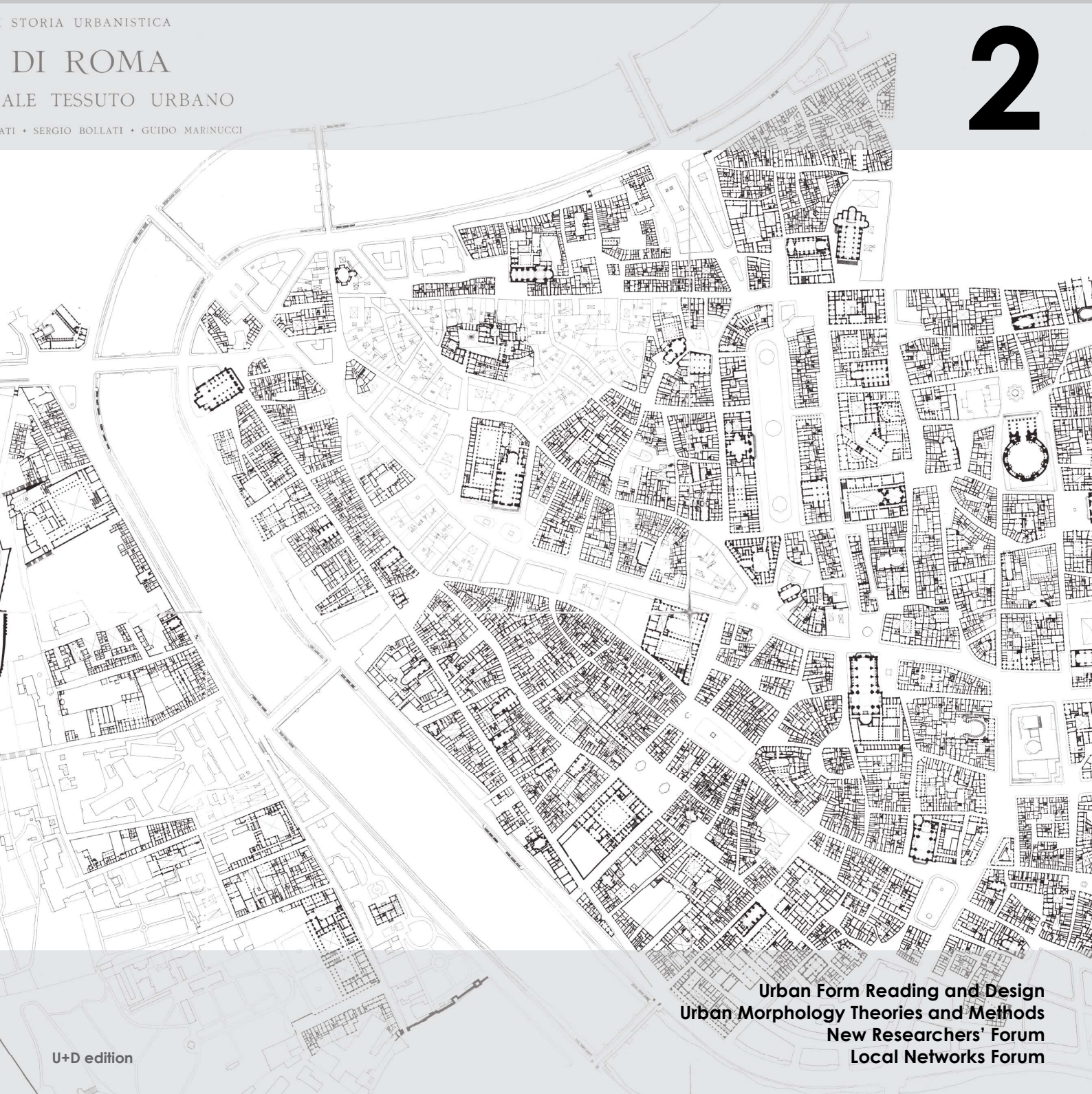
STORIA URBANISTICA

DI ROMA

ALE TESSUTO URBANO

ATI • SERGIO BOLLATI • GUIDO MARINUCCI

# 2



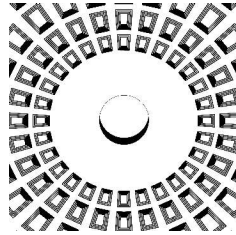
U+D edition

Urban Form Reading and Design  
Urban Morphology Theories and Methods  
New Researchers' Forum  
Local Networks Forum

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The term knotting indicates the architectural outcome of connecting together the different elements of a structure, in order to form a spatial knot within the architectural, or urban, organism. The knotting summarizes the arrangement of the 'building matter' around a center, following which, a knot -at the same time spatial, constructive and distributive- is originated. An example can be observed into the processes that preside over the formation of the Roman palace and their subsequent developments, as well as in the modern postal buildings, also generated through a knotting of paths, overturned around a central space.

The knotting, which metaphorically refers to knots, is the outcome of a process that can be appreciated and defined only once it is concluded; the same dynamics presides over the formation of some specialized buildings, for which we can recognize a pre-formative phase (which contains the conditions for the final definition), some transitional phases of the new organism, and the codified type.

However the complexity of knottings is increased by the different scales involved, since the strong interdependence that exists between buildings and paths. Probably is the scale of paths that defines the hierarchy of knottings within the urban fabric, allowing us to identify the processes that affect the building scale (that results in a building), the urban scale (that is the scale of a block or of a system of blocks), and the territorial scale in which, the dimension of both buildings and paths, has a supra-urban importance.

The notion of knotting, which has been studied in a pioneering way by Gianfranco Caniggia, was then analyzed by Giuseppe Strappa, who has studied the potentiality of knotting as a methodology and as a design tool.

If knottings really exist, or not, is a matter that concerns mostly the architectural and urban critical interpretation and, in this sense, this study should be considered as belonging to that genre.

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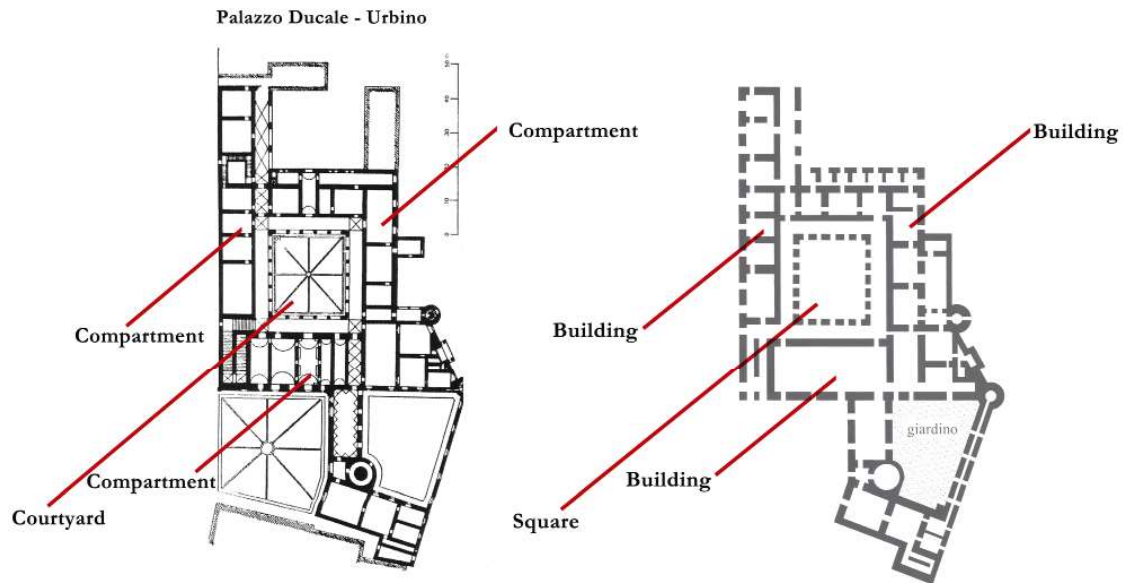
In this sense the knotting exists until we are able to understand its meanings within the city, in the same way the navigator reads in distant constellations figures who he already knows (the Zodiac, the Great Bear, the Virgo, etc), and he uses these similarities to give an understandable meaning to those aspects, vice versa merely phenomenal, that he uses to determine the route of his ship. With the same spirit then we researched the knottings within the dynamics of the city, by expanding the concept of architectural knot to the urban and the territorial scale: what we deduced was very useful for a critical interpretation of the central areas of several European cities but, mostly, it proved to be a fertile tool for design.

To facilitate the homogeneity of the dissertation, the argument has been divided into three different parts related to the scale of reference, therefore the criterion that has been followed to approach the study of knottings is mostly dimensional. This choice comes from the observation that the knotting constitutes an organic, aggregative typology, participating in the different scales of anthropic organization, or more precisely, that it exhibits several degrees of complexity depending on the level of specialization that it has and the type of 'influence' that it exerts over the urban fabric.

The relationship between knotting and urban fabric is complex as cause and effect of the structure of the latter. If we consider the knotting as a "specialization" respectively of the building, of the fabric and of the territory, we can then apply to it the statement about the dialectic between special buildings and urban fabric made by Gianfranco Caniggia: 'the location of the special buildings in the fabric is both cause and effect of the structuring of the same, and it changes in time and space, with the processuality of the fabric they belong'.

An objective difficulty that this subject poses is due to the fact that, since it is a processual organism, or better, since the knotting is the outcome of a process, it is possible to analyze it only before the specialization and the formation of the knot, or in the phase subsequent to its transformation. On the contrary it is almost impossible to analyze the knotting in a transitional phase, in other words during its formative process, similarly to

**Figure 1.** The “Town in the form of a palace”



what happened for the palace. For this reason it is perhaps helpful the study of a phase that could be defined as prototypical or pre-typical, in which namely, there are already many features useful to identify the organism in formation, but not enough to consider it as a knotting. In this case the story of fortified French medieval towns known as bastides represented an element of incredible interest, which, thanks to the planned urban grid (fairly similar from one city to another) allowed us to appreciate the different degrees of completeness in the formation of knottings.

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The term knotting indicates the outcome of the architectural gesture of join together elements originally unconnected, on the basis of the correlation between paths and urban fabric as also happens for those special types of buildings (palaces, convents) originated through a reuse of already existing buildings (arranged along the internal paths encircling open spaces). The formation of a new organism from already existing parts, similarly to what we mentioned about the palazzo, is the result of the reorganization of a series of elements around a central space and, in the building scale, normally is expressed through the roofing of the nodal compartment. The biggest problem is therefore to identify the higher degrees of knotting and to recognize their characteristics within the processes of specialization of the urban fabric.

A first subdivision, useful to define the extremes of the argument, is to classify it according to the scale, or rather depending on a purely dimensional evaluation of the phenomenon, by dividing it into three scales: the building scale, the urban scale and the territorial scale.

As for the different scales involved in the phenomenon, it is correct to say that for the building scale the outcome of the knotting is summarized through the transition from the courtyard to the nodal space, and it represents a process in which the mutation of the open space generates entirely new buildings, having a higher degree of organicity. We will analyze in a second time the degrees of organicity because they represent the level of specialization of the organism and its higher or lower complexity. The scale of the block affects an intermediate dimension between the building and the territory, which results, in most cases, in the fact that territorial paths (dimensionally bigger and hierarchically higher than the urban scale) are not involved into the knotting. The extent of the urban fabric and of the paths involved is therefore approximately limited to the size of one or two blocks.

**Figure 2.** A Parisian passage



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The most interesting example, well documented in literature, is probably represented by the Parisian passages, but also relevant are the Italian gallerias, the Japanese shōtengai and the German hofes and, of course, all those other types of passages spread across the old continent, from Bavaria to Crimea. In the most cases the urban knotting is the outcome of a new correlation between urban paths and inner courtyards of the buildings, but it can be also considered as a further development of the Hellenistic agorà, or of the Persian bazar.

Since originated from a processual matrix, then crystallized in terms of type, it is possible to define knottings all the derived 'planned' typologies. There are therefore cases in which a knotting has been planned, a fact that although easily ascertainable for the building scale, it is more rarely found in the territorial one.

In this case of course, if we consider the extent of the affected areas, we can note how the phenomenon occurred with a higher incidence in those geographical areas subject to a central planning, and where the resistance to International Style was stronger.

This explains why it is possible to find the principal cases of modern territorial knottings in Italy, France, Portugal, Chile, Poland and Soviet Union, all countries where construction occurred in continuity with the traditional dynamics of the urban fabric. It could be said, in some ways, that, the period in which this phenomenon was most widely diffused -the decade between the Forties and the Fifties- was not casual, but that it corresponded to the acute phase of the conflict between the modern International Style matrix and the so-called 'Other Modernity.'

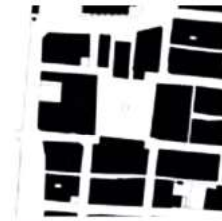
Figure 3. The morphology of the French bastides and its relationship with proto-knottings



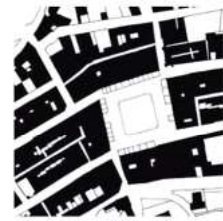
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MONSEGUR



SAUVETERRE DE GUYENNE



BLASIMON



VIANNE



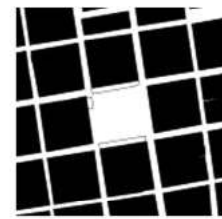
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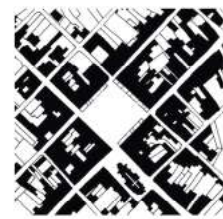
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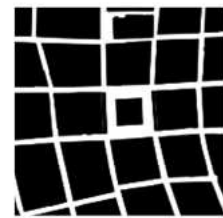
LIBOURNE



SOLOMIAC



CADILLAC



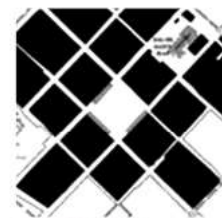
BEAUMONT



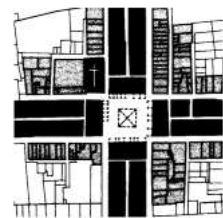
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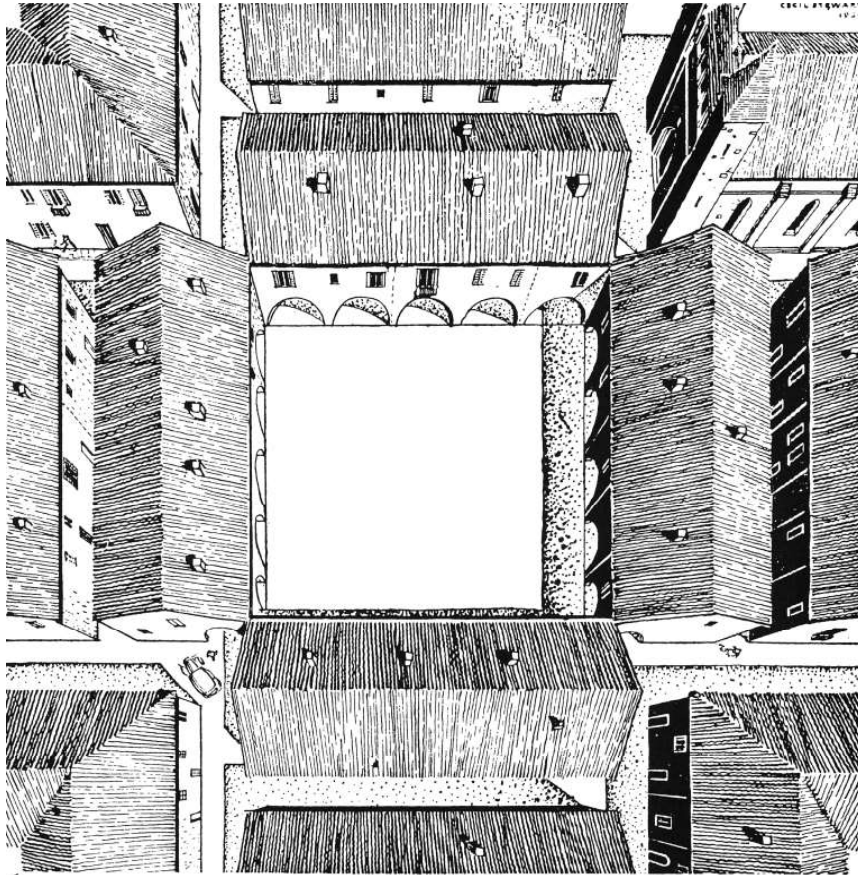


GEAUNE EN TURSAN



DAMAZAN

**Figure 4.** A territorial knotting in the central square of a bastide



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However, it is possible to notice how, even out of the period of maximum diffusion, there have been many cases of planned knottings even by contemporary architects, that although often limited to the urban scale, have interpreted the process in a modern way. A recent example is the project for the Funf Hofe in München by Herzog and De Meuron, that performs a process / project of knotting between the different buildings of a block, and simultaneously reinterpret the theme of 'passages'.

Finally, the territorial knotting -highest level of specialization of the fabric- implies the formation of an organism which configures a significant portion of territory; in the most ancient cases such as the proto-knottings, especially those within an unplanned fabric, it affects the city in all its extension, in further cases, or in the modern ones, the extension is limited to a urban district or a quarter.

The territorial knotting, that represents the more complex type of organism as an expression of the highest level of specialization, does not have a linear development, but it can be organized in logical more than chronological phases; its uptake in the Mediterranean basin is intended, according to some studies, as a branch of the Roman forum or of some spatial typologies of the Hellenistic period, as the Syrian colonnaded avenues (Apamea, Damascus, Aleppo, Homs , Antioch).

If it is correct to say that the spread of territorial knotting is essentially limited to the Mediterranean area, that is probably because not only its origin but also its critical fortune are a manifestation of an organic idea of architecture. In this regard, it is useful to remember that the origin of the cross-shaped pattern that the city has, according to Plato, is to be found in the form of the single house. The fortune of this statement, that implies not only a mere formal parallel but the acknowledgement of those dynamics typical of the organism that rule both the elementary and the complex units, will associate many



great theorists and architects throughout history, including Palladio and Louis Kahn, who will therefore agree with these principles.

The ambiguous status of the territorial knotting, a middle way between building and fabric, implies a greater difficulty in recognizing those characters useful to identify it unequivocally, and yet exactly in this difficulty lies in some ways its nature. A fortunate statement made by Baldassarre Castiglione in its Cortegiano defines the Ducal Palace in Urbino as a 'town in the form of a palace'. In a later drawing that depicts the same palace, is shown a couple of identical plans: in one the various architectural elements (walls, rooms, courtyard) have their correct names in the other the same elements are considered as buildings, paths, square.

If we look at this second plan, by considering it in the terms of a diagram we have a measure of the most striking aspect of the urban knotting, namely to be an organism that has both the features of the building and the fabric, but also we can experience the difficulties to identify it clearly within the urban fabric.

This analogy has been observed by many ancient authors, like Leon Battista Alberti and Palladio, and is linked to a tradition that recalls the Roman authors; the interpretation of the town (or of a certain part of the town) as a huge palace is, in this sense, intended not to be limited to a mere analogy but is aimed to the awareness that different analogous organisms share the same dynamics whatever scale they have.

However the most difficult aspect lies perhaps in discerning which organisms, within the broader category of 'urban fences' can be classified as territorial knottings and which ones not; there is in fact a large series of squares, such as plazas mayores, places royales and, in general, all the squares having a uniform architecture, which reveal many features typical of the territorial knotting but that do not belong to this category.

One of the most easily identifiable examples is the Circus in Bath which, even if having rhythmic facades, does not have any relationship of interdependence with the paths, so it cannot be considered a knotting but a mere nodality.

The origins of this aggregative typology are uncertain but we can follow their processual evolution by analyzing the inner squares of the French bastides, that can be considered as proto-knottings since they share the same dynamics of the Italian palace, having a matrix route, implanting routes, and connecting routes and then a form of specialization. One of the things that distinguishes a knotting from the basic square is the fact that there is the specialization of one side (or of one of the buildings overlooking the square) or the specialization of corners, a fact that indicates the transition from square to organism.

In many cases it is possible to see how one of the sides, both if the fabric is planned or not, begins to be specialized, becoming a church, a market or a governative building and how there is the formation of arcades or passages through a knotting of paths. On the same time we can note how the involved paths are almost always territorial and, at the same time, how the territorial path is the one that becomes specialized.

In Chinchon, in Spain, it is possible to appreciate how the walkways start to form a unitary ensemble, acting as an organism. In the initial phases of the phenomenon those connecting elements were mostly made of wood and once it became categorized, they were made of stone or marble.

From the study of cases like Avila we can gather the relation between urban fabric and territorial paths, in detail a ridge path.

In Venice where a previous originally spontaneous path is overturned into the square with the formation of the arcades we have the creation of a huge uniform new organism.

At this point the main features of the territorial knotting, like the unity of the organism (where the organic unity is formed through a series of individual entities having the same architectural language), the interrelationship between urban fabric and paths, the specialization of a side of a square into a thematic building, and the verticalization of the paths (that represents the overturning of the paths) can be clearly identified.

Last but not least from the analysis of the evolution of the rhythmic façade, the most visible aspect of knottings, we can gather a further proof of how this phenomenon is not limited to a circumscribed era but it is part of a process that continued uninterrupted until the Modern era and, in some ways, is still ongoing.

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