From Tomar to Angra: Interpretative Hypothesis of Geometric Pattern Morphology

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Abstract: This paper is focused on the study of the urban form of Tomar, which was founded in Portugal by the Order of the Temple during the 12th century. It is centered on the site where the Order of the Temple was created, Jerusalem, and also on the Templar European headquarters, Paris, in Marais neighborhood; as well as on its headquarters in Portugal, Tomar; and finally, on Angra which was set up in Azores at the beginning of the Portuguese discoveries in 1427. While exploring possible Templar principles on setting up medieval geometric cities, the aim of this paper is to expose that Tomar is a truly relevant case on that process and, therefore, that Portugal have had a significant role on medieval geometric urbanism. The achievements of this paper show that the selected territories share common settlement principles which are based on both similar geometric rules and analogous hierarchy schemes. Regarding that, it will be possible to state that cultural and population exchanges with France should not be considered as the sole factor to shape European medieval urbanity. Portugal should have had a role on that process, too. At least, it should be possible to explore other hypothesis on further pieces of research, according to the exposed arguments.

Key words: Portugal, Tomar, medieval European urbanism, geometric pattern morphology, bastides.

1. Introduction

Tomar is an unavoidable settlement as regards the medieval conquest of the Iberian Peninsula and the Portuguese overseas expansion (started in the 15th century). It is also a significant example of the geometric urbanism on medieval Europe [1, 2]. Indeed, Tomar is crucial to deepen knowledge about the medieval Portuguese city and to overcome the idea that medieval geometric urbanism was exclusively originated in France and then spread out to other European kingdoms. That should be a simplistic hypothesis. Instead, the Catholic military orders may have had responsibility on the emergence of the geometric pattern morphology, according to their significant role in medieval Europe. It is effortless to accept the importance of the Catholic military orders, scattered by different European kingdoms, as a possible unifying factor of urban phenomenon in Europe and also as a possible factor for the emergence of the medieval urban regularity. Indeed, it is known that military orders took an important role in Europe while medieval territoriality was being defined.

The strong expression and the solid regularity that the phenomenon of geometric settlement reached in France as well as French medieval systematic immigration to foreign kingdoms probably explain that reality has been underestimated when assigning to this country the emergence of the bastides. On the one hand, Christian reconquest had taken place even before the foundation of urban settlements both in southern France and in Aquitaine. On the other hand, Christian Reconquest had favored the creation of an urban network which had extended itself to define Iberian borders. Even if it is true that real efforts had been made to attract francigini in order to create an urban bourgeoisie in many Iberian kingdoms, it is not believable that French people were able to shape urbanity, since they were trivial bourgeois (according
Fig. 1  Templar Key territories, from Jerusalém to Angra.

to their immigrant status). That would not be credible neither in Iberian north territories nor in the north of Portugal. Instead, the question should be much more complex. A morphological approach will show common geometric principles in the selected Templar territories (Fig. 1): Jerusalem, which was located on the pilgrimage place to the Holy Sepulcher; Paris (Marais), where Templars settled after leaving Jerusalem; Tomar, founded during the conquest of the southern Iberian territories still occupied by Muslims; and Angra which was located on maritime route to Indies and northern Europe in Azorean Terceira Island, whose spiritual domain was then belonged to Templars’s survivor and their heir, the order of Christ\(^1\)

\(^1\)The French King Philippe IV (1268-1314) got the extinction of the Order of the Temple and the confiscation of all Templar assets from Pope Clement V (1260-1314). He achieved his aim on October 13, 1307. The land of the temple in Paris was occupied by royal troops and Templars were arrested in their castles, convents and lands. Since the beginning of the process, Philippe IV had also developed international efforts in order to be followed by other European royal houses. The Portuguese King D. Dinis (1261-1325) reacted against the extinction of the Order of the Temple ordered by the Bull Voxin Excelsis, in 1312. The monarch strived to protect the Templars in Iberian Peninsula. The success of his initiative was confirmed by Pope Clement V by the bull Ad providam in May 2, 1310. In March 14, 1319, Pope John XXII (1244-1334) recognized the creation of the Order of Nosso Senhor Jesus Cristo (of our Lord Jesus Christ) in Portugal—bull Ad ea exquibus. All Templar assets were passed to the ownership of the new order. The arguments used by D. Dinis to defend Templars were related with the role that they had had for both territorial conquest and defense against Muslims in Portugal.

(Figs. 2-5).

By knowing those principles, it should be both possible to achieve a better interpretation of the Portuguese urban phenomenon in Middle Ages and to overcome the idea that medieval geometric urbanism was exclusively originated in France, concerning the aim of this paper and as it was said at the beginning.

The methodology adopted to proceed will be based on morphological analysis and historical substantiation provided by both bibliographic and documental sources. The mentioned morphological analysis will be also based on redesigned plans of the referred settlements. It will be pursued a synthesis that could highlight the most significant spaces and buildings. By doing so, it will be intended to induce more clear
deductions about urban development in each case and in data crossing.

2. Arguments

In his book New Towns of Middle Age, professor Beresford states that the word bastida is used in its Latin-script to refer almost every urban French settlements. He also states that this word was never used in England nor in Wales [3]. Nevertheless, A. E. J. Morris says that it is an unjustified restriction [3]. The Author asserts that the word bastide should be used to refer every medieval settlement.

In line with those arguments, Pierre Lavedan also denies the French origin of the bastides [4]. Balbas asserted, furthermore, that only a comparison between France and Norh of Spain would favor stronger approaches to this matter [5] (Fig. 6).

Among misconceptions, some historical facts did not bring this issue into light. The approximation between the different countries concerning the medieval regular settlement has been a consequence of the apparent closeness to France in that matter. Even so, it is not possible to assume that it would be possible to unify the urban phenomenon in question under a unique cause. It is true that some invariants might be responsible for the misreading. It is known that the bastides obey to seven basic principles on all occasions. They are settlements founded from no pre-existences, which result from a predefined plan and they also present a geometric pattern of elongated blocks morphologically. Moreover, they present an orthogonal grid formed by perpendicular and parallel streets which define constant sized blocks, whose dimensions are based on simple geometric proportions. In addition, a square takes a central position in the plan, regarding the cross of the most important streets. Furthermore, the town hall is located on that place which is also crossed by the streets that connect the city entrance with a gate in the fortified citadel. That square could be, instead, crossed by a street that connected

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Fig. 2 Jerusalem aerial view.
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Fig. 3  Tomar aerial view.

Fig. 4  Angra aerial view.
two opposite city entries—the ones that were located on the extremities of the street in question, which they are linked by. Centering on procedural concerns, the foundation of bastides regards motivations related with laying population, territorial enlargement and borders definition (the number of urban gates was conditioned both by the importance of the city and by how many transit routes its inner space would be acceded by).
Nevertheless, there are other causes that can be highlighted as active features for creating independence from France regarding medieval urbanism principles. Focusing on settlement problems, it is obvious that the need of setting up cities based on pragmatic and non-programmed concerns is much more effective to approximate different expressions and locations of medieval regular urbanism than the misread dependence of France. It means that an intuitive and empirically proven effectiveness of the morphological paradigm in question (the geometric pattern) is more relevant to its spread in Europe than any dependency of any country. Indeed, the hippocamian morphology shows it clearly as it exposes the capacity of geometric principles in providing the most proper proposals concerning ex novo urban foundations.

Besides, it is true that a linear layout is rather different from a reticular settlement. The first one obeys to the spatial notion of medieval man. He sees spatial structure as the link between two points like a path to a certain point in the space. This is due to an incapacity to read structured space on a physically and continuous basis. That kind of linking spatial points is not necessarily homogeneous, although it is done in straight way. Indeed, it reveals the lack of an effective spatial conceptualization, which depends on abstractness. As a consequence of the capacity for abstraction, the space would be understood as continuous and dependent on geometry instead. But that would happen later on. Indeed, at the Renaissance and on the treatises, the aesthetics and conceptual concerns reached a higher place, rather than centering on pragmatic matters as it had happened in medieval Europe. On these arguments, an opposition is not present between two models: one is creation and the other one foundation. Differently, a post-medieval conceptualization of the street as a whole space is mostly exposed which is structured by a set of facades that bring precise limits to urban space. This different notion emerged as solid new understanding values underlying modern urbanism. In Portugal, that was the time of King Manuel I (1495-1521). But before, Portuguese medieval urban phenomenon had, likewise, rational concerns as a purpose, instead of looking at the plan as an eloquent expression by itself.

To precisely understand the arguments brought up to this paper, it is fundamental to have present that the major irregularity of the Iberian bastides (when compared with the French ones) is not due to major disability hold by settlers. It may be differently understood that peninsular kingdoms had mostly acted over already existent settlements. That commitment significantly gave less freedom to impose urban form over the territory, which was a limitation reflected on urban layouts. Besides, the lack of material resources and population often brought less effectiveness to urban processes, which resulted in less regularity as well.

Moving on to the foundation of new medieval cities by Portuguese kings that took place, likewise, on the transition from the 12th to the 13th century, it seems that Portugal was not really different from England, neither from France, nor from north of Spain (Fig. 7). It is clear that similar urban characteristics also took place in Portugal: the foundation of planned cities happened here to ensure both urban settlement and territorial control as well. Besides, the location of Portuguese medieval cities took place knowing as well that the use of geometric principles made city deployment both effective and faster due to an easier land division. Those principles point out, moreover, a fundamental feature: the defensive advantage of the grid concerning urban settlement. This advantage highlights that not only French people were able to be aware of it, even in Middle Ages. Indeed, this advantage is pointed out since Aristóteles. Moreover, it is clear that European urban geometric tradition was supported by the experience on military camps [1]. It is important to underline that geometric order of military camps was an invariable truth. It had been a reality during Roman Empire and it was also true in Middle Ages. It is a fact that medieval military camps were arranged like
settlements, according to precise rules based on a clear understanding of urban space [5]. A paradigmatic example of that reality is given by King Alfonso X, el sabio (1221-1284), in Las Siete Partidas. Protracted sieges had effectively shown that the enunciated principles by Alfonso X did not remain as solely theoretical propositions. Some descriptions on military camps that took place during protracted sieges are an evidence of it. The first Crónica General is a good example: written in late 13th century, it relates that Fernando’s III (1201-1252) camp took place around Seville to conquer the city, in 1248, and that it was settled with streets and squares. It is also meaningful that the siege to Seville was organized with Templar involvement [6]. It is meaningful, above all, that it was possible to witness Templar presence close to that kind of geometric settlement at the time. In this context, it is also relevant to notice that, after two centuries founding new settlements in Medieval Europe, the geometric regularity was solely effective during the period of Templar affirmation in different European kingdoms.

That closeness between the Order of the Temple and the geometric urbanism was also a reality in Portugal. However, this fact must be clearly understood. Testifying a widespread power basis, the Order of the Temple was territorial and administrative responsible for extensive parts of Portugal [7]. According to that, D. Gualdim Pais (1118-1195), master of the Order of the Temple between 1158 and 1195, grants the first and the second charters to Tomar. That reality is truly important. Since this order had a territorial independent administrative organization not

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2 Alfonso X el Sabio (the Wise) was King of Castile and Leon from 1252 until his death. He was born in 1221, in Toledo, and died in 1284, in Seville. His court was a meeting place of both Galician-Portuguese and Provencal poets and also an important focus of cultural influence in Iberian Peninsula. He had not been successful as a politician, however, he was a profoundly learned man and an admirable scholar. Alfonso was versed in natural sciences, jurisprudence and classical languages. Las Siete Partidas was a codification of laws, which had been the most important collection of Spanish law for centuries.

3 Crónica General (General Chronic) is an historiographical account written in vernacular and driven by Alfonso X (1221-1284). Although it had been begun about 1270, the project was progressively phased out after 1275. It is assumed that the first 565 or 616 chapters would be completed during the reign of Alfonso X. However, the manuscripts reveal the intervention of writers from different eras.

4 Leonese and Castilian King, son of Alfonso IX of Leon, Fernando III, was probably born in 1201 and died in 1252. Those two kingdoms were definitely unified under his reign. It was also during his reign that was established a code of laws for all areas.
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only in Portugal, it is unsurprising that Templars made use of a precise range of architectural models and typologies. The rotunda or its variations with an octagonal plan was a kind of church that was widespread in many territories—Tomar, London, Paris, Metz, Laon, Segovia and Palestine as it was stated by Régine Pernoud [8]. The author also states that typological invariants were also used in rural areas: similar to Cistercian farms and priories [8]. Even if Templar churches obeying to a centred or polygonal plan were a minority, even if this kind of plan was not a Templar exclusive use—as it is referred by Elie Lambert, demystifying Viollet le Duc’s ideas (1811-1879) [8]—the truth shows that it is possible to witness the use of a Templar alternative type to that one. It is applied on the majority of Templar churches: rectangular plan topped by flat or semi-circular apse. Besides France, Portugal was marked by that reality as well. All Portuguese temples revealed the same spatial structure: headboard of a unique chapel and a single rectangular nave [9].

All the arguments set above bring up a fundamental question. Knowing that the Order of the Temple took an important role in European foundation of new cities (which in many cases remained under the administration of the military order in question), it is possible not to believe that the urban structuring principles applied under the king’s authority are the same as the ones used in territorial areas under Templar’s power and administration. It means that, considering their experience and role in territorial enlargement, it is not credible that Templars would not be able to settle new towns on their own. Furthermore, two other facts are truly meaningful in the context: on the one hand, it is known that Templars made use of their own typologies in religious architecture and, on the other hand, that geometric settlement was part of the inheritance of the military camps tradition. Thus, it is acceptable to explore Templar’s participation in the process of setting up geometric urban foundations. Indeed, this is a valid hypothesis since the different arguments give support to a basic idea: at this point, it is easily acceptable that medieval geometric urbanism was not a French exclusive creation. It is clear that other factors should have been present on the widespread of that urban model over medieval Europe rather than the usually considered ones.

3. Jerusalém (10th Century, Conquest by the Crusades)

Jerusalem (Fig. 8) was the capital of a Christian kingdom from 1099 (the date of its conquest) to 1187 and later on from 1229 to 1244. Thus, city development does not result from a linear and continuous process.

The primitive city of David was originated in 1004 B.C. Although it had a defensive wall already, it could not resist to several periods of occupation and destruction. The Muslim occupancy and Jewish follow one another until Jerusalem fell under the dominance of Roman Empire. The original Holy Sepulchre Church must be underlined as one of the most significant testifies of the Roman-Bizantine period. It is the most important Christian building in the city and it was consecrated to worship in 335 A.D.

Later on, in 614 A.D., the majority of the urban structure as well as the byzantine building were destroyed. It happened when Persians took control of the city in alliance with Jews. Nevertheless, Jews and Christians were under Muslim dominance a decade after. Jerusalem was then consecrated as the third city in Muslim cities hierarchy, after Meca and Medina. That lasted for 450 years. As it was mentioned before, the crusaders took the city in 1099 and they offered, afterwards, many incentives in order to attract new settlers.

The westernized era was there reflected on an intensive building activity. The reuse of the Temple Mount was one of the most significant signs of it, due to its impressive aspect which was recognized by Christians. Thus, it was converted into a Christian place. The Dome of the Rock received a new meaning as a Christian temple: Templum Domini. The al-Aqsa
Mosque—the Teplum Salomonis—would be used as Templar headquarters for the future.

The description above sets up the main moments of Jerusalem. As mentioned before, the city is characterized by sedimentation of various cultural strata. According to that, the crusades found an urban structure inherited from the Roman-Byzantine time, regarding its main characteristics and defining elements.

The Temple Mount in Jerusalem can be interpreted as the focus of the urban plan, since the general urban order refers to it. Indeed, Decumanus begins in the Jaffa Gate (which is linked to the namesake harbor where Christian pilgrims docked) and it takes direction to the Temple Mount. As a consequence, that layout gives a symbolic value to the site in question since it places Temple Mount as the ultimate end of the pilgrim route. Moreover, Cardo reinforces that role. It is located perpendicularly to Decumanus and it unifies two gates of the city by crossing urban space.

Besides the fact that those axes ruled the organization of the city plan, they divided the urban space in four neighborhoods—Armenian, Jewish, Christian and Muslim. Thus, the city was given a clear and ordered urban structure since it had been divided in four parts. Indeed, the urban layout is the result of a geometric basis that is expressed by a cruciform scheme.

In conclusion, those two axes embody an axial macrostructure that commands city plan, which focuses itself on Temple Mount.

4. Tomar (11th Century, Conquest by the Crusades)

Regarding the area under the influence of the Portuguese cities of Leiria and Coimbra, the first king of Portugal, D. Afonso Henriques (1109-1185) built a defensive line that was defined with castles in Pombal, Redinha and Ega. It was complemented afterwards with the ones of Almourol, Cardiga and Ozêzar. On that purpose, D. Henriques was helped by Templar Knights.

That defensive structure should be reinforced with a

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5 The defensive line of Coimbra was further reinforced in Montemor-o-Velho, Miranda do Corvo, Foz de Arouce and Penacova.
6 Later, Gualdim Pais also founded the Castles of Monsanto and Idanha.
7 The action of the Templars was felt even in the enlargement of the territory that they had undertaken over the Tagus to Castelo Branco, Idanha-a-Velha, Proença-a-Velha and Monsanto among other places.
central point that would be able to effectively protect the heart of the kingdom, Coimbra, from Muslim attacks conducted on the Roman route through Tomar Valley (Figs. 9 and 10).

Tomar is therefore a medieval settlement due to Templar military power. The Order of the Temple
began the construction of the local castle on March 1, 1160. D. Gualdim Pais (1118-1195) was the Portuguese templar master at the time. The hill in the left river bank was chosen as its location. Inside the defensive walls, a village was also built: Vila de Cima (upper town)—its first charter was granted in 1162. Still on the hill, it was built afterwards an extramural neighborhood, fulfilling common mechanism of Portuguese medieval urban growth: Arrabalde de S. Martinho. It is bringing to reality common medieval urban growth procedures, likewise, that it was built a new urban extension in foothills: Vila de Baixo (lower town). Ever since then, the most significant development of Tomar would be registered over Vila de Baixo.

The main street of Tomar, Corredoura, was set up according to the western road segment of the preexistent Roman route Olisipo/Bracara (Lisbon/Braga) and it took direction to Porta de Santiago in the castle. If the location of Corredoura is observed from the castle, it seems that there exists a firm correspondence between them. It is even possible to state that Corredoura spatial position was set by the castle. Indeed, Corredoura was defined for defensive reasons: its direction towards the castle would permit that any attacker would be noticed when crossing the bridge.

That is a fundamental moment. It is known that Corredoura exists there since the first year of Tomar and that its second charter was granted in 1174. Moreover, it is true that, at that time, Várzea Pequena neighbourhood in Vila de Baixo was already outlined. This gets more important as it seems that an idea of urban plan was also thought already. Indeed, Vila de Baixo (in the foothills of the Mount) was developed with both orthogonal and regular spacing between streets, regarding the founding urban axis as Corredoura was. Since it extended defensive reasons to the remaining street directions of the plan layout, it is possible to say that the Templar experience on military camps was brought to reality.

Besides the orthogonal development, it was consequently defined a squared layout traced by the main streets and the most significant buildings. This urban layout was developed over national and local routes. The geometrization of the plan was set up, therefore, according to both defensive reasons and necessity of structuring the country. Thus, it was ensured a defensive and settlement network, in which Tomar took part.

Corredoura was set up from the pre-existent Roman rout as a path to link the bridge to Porta (gate) de Santiago. Rua (street) Direita da Várzea Grande and Rua Direita da Várzea Pequena were set up with the aim of linking national routes between them. Rua da Graça was set up as a link between Porta de Almedina and Chão do Pombal. Rua Direita dos Moinhos, the eastern limit of Tomar, was defined as an access to functional and productive units of Tomar. In that scheme, it is important to emphasize the role that both the northern and the southern limits of Tomar assume, concerning their connection with defensive gates both in the castle and in Almedina. According to that, it is clear that the urban layout was set up by establishing relations between functional purposes and the ones related with symbolic and representative issues. In Corredoura, those issues were materialized upon the rhetoric and strong Templar power. In Rua da Graça, they were related with the functional representativeness held by Casa do Conselho.

The described layout sets up a cruciform scheme. If a comparison between the castle of Tomar and the occupation of the old city of Jerusalem is made, it is shown that a morphological influence took place from east to west. Indeed, it is clear that in Tomar, the Templar stronghold was built on a platform leaning against the outer urban wall like in Jerusalem. Besides, it was also built separately from the surroundings by a

8The date is attested on a tombstone that is placed as a window lintel in the castle. Transcription: Era 1198 (1160 in Christ’s Era), Regnante Alfonso Illustissimo Rege Portugalis, magister Galdinus Portugalen Siurn Militum Templi, Cum Fratibus suis, Primo dei Mar Ci Cepit Edificare Hoc Castellum nomine Thomar, Quod Prefatus Rex Obtuli Deo et Miltibus Templi.

9Arrabalde is an inhabited area outside the walls, which is formed close to a city gate.
walled structure. Likewise, that structure refers to the enclosure of the temple wall itself in Jerusalem, and to the second curtain wall, in Tomar. In both cases, the Templar stronghold was the highest place inside the walls.

It was also inside the walls that the Dome of the Rock (Templum Domini of the Templars) and the Rotunda of the Templars were located. They were placed on the left hand side in Jerusalem as well as in Tomar. Instead, the Templar accommodations, the old Templum Salominis, on the al-Aqsa Mosque in Jerusalem, and the Redoubt Templar with castle in Tomar, can be seen on the right hand side.

Beyond that, it is shown that the Temple Mount is an open platform detached from the remaining urban plan in Jerusalem. And in a similar basis, it is seen that the Templar area was located in the northern sector of the walled enclosure of Tomar. In both cases, the Templar headquarters were, likewise, separated from the inhabitants’ area.

It is also seen that the city of Jerusalem takes form from two axes that intersect each other at right angles. That way, a geometric scheme is formed by which the general city settlement is defined: one of those axes links Jaffa gate to the most symbolic local place—in other words, it links city entrance to Temple Mount. The other axis, perpendicular to the first one, physically relates the gate of Damascus with the gate of Zion crossing city space.

Similar principles can be observed in Tomar. A path whose origin was located outside the bridge was directed towards the castle, up the slope, giving access to Porta de Santiago. Besides, Rua Direita da Várzea Grande and Rua Direita da Várzea Pequena took a spatial position which is almost perpendicular to that first urban axis—Corredoura. Therefore, this spatial scheme is similar to the one formed by Decumanus and Cardo in Jerusalem.

Beyond that, it is seen that the city market is located in the intersection of Roman-Byzantine axis of Jerusalem and it is also possible to notice a similar urban scheme in Tomar. Indeed, two fairs took annually place in Praça (square) de S. João since Middle Ages. Besides, this square was located in the intersection of Corredoura with both Rua Direita da Várzea Grande and Rua Direita da Várzea Pequena.

In the end, it is possible to point out that the urban layout based on the existence of citadel (Alcâçova) and inhabitants’ area outside the walls (Almedina) spreads out from Jerusalem to Tomar, doing so with precise principles that shape both the interior of the defensive walls and Vila de Baixo.

5. Angra (15th Century—Foundation)

The first islands in Azores were discovered in 1427 in the context of the Portuguese Discoveries. That happened when sighting Santa Maria and São Miguel and “probably, five more islands successively” as Oliveira Marques states (Fig. 11) [10].

In 1431-1432, Gonçalo Velho (both knight and navigator in the house Infante D. Henrique 10 (1394-1460) and friar of the Order of Christ) arrived in two referred islands. The expedition he led was promoted by D. Henrique with the purpose of beginning the permanent and final settlement in Azores. Nevertheless, the year commonly accepted for the discovery of the Terceira Island is 1447 and its name corresponds to the chronological order in the discovery process.

In 1460, the spirituality in that archipelago was held by the Order of Christ [11]. This fact definitively approximates Azores and Templars’ heirs11.

10Son of King D. João I (1357-1433), Prince Henrique was born in Oporto in 1394 and died in 1460. He became known as navigator, as his cognomen. This epithet was due to his involvement in Portuguese discoveries. He had an active role on the first expansionist travel and always stayed connected to this period of history of Portugal, with its decisive action in North Africa and in the Atlantic.

11Answering Dom Henrique’s request, Pope Calist III has already issued bulla Inter Cætera in March 13, 1456, which confirms bulla Romanus Pontifex issued by Pope Nicolau V. It grants the power, dominion and spiritual jurisdiction over the lands, ports, islands and places already acquired and those who were to be conquered by Dom Henrique from Africa to the Indies as they were subtracted from the Muslims and conquered to Christian religion.
The first settlement developments in Angra are directly related with natural conditions held by both local cove and natural relief. Those conditions gave a secure anchorage guarantee as well as a protection against dominant winds and a favourable insolation.

The reported context validates the settlement process described by José Manuel Fernandes [12]. The author states that it mainly comprised three phases:

1. The first one occurred in the 15th century and it was related with the need for both anchorage and immediate settlement. It took place near the sea shore with the choice of natural coves that allowed the mooring of little ships according to inexistent docking conditions well prepared;

2. The second phase, which is more relevant for the context of this paper, took place on the transition from the 15th to the 16th centuries. This phase corresponded to a deeper territorial knowledge. As a consequence, the importance of settlements which had been founded without an informed notion of the coast line was revised. It was taken in consideration the ability to prevent possible enemy attacks. Angra reflects this process;

3. The third phase was related with both population stabilization and territorial enlargement on the areas under major cities influence. It occurred in the 17th and 18th centuries: it is not relevant to this paper as it is an evidence that the initial urban structure definition of Angra must be located before the period in question.

In Angra, the first phase happened between 1460 and 1474 as it was marked. It corresponded to a primitive perched settlement. Afterwards, Angra was led by a development towards the Atlantic Ocean since it had reached an important position as both population centre and trading local on the maritime route to Indies. That characteristic way of settlement in Azores took place perpendicularly to the sea shore towards the ocean. It happened between 1474 and the end of the century and it is testified by Beco (alley) das Alcaçarias, Ruas do Pisão, Garoupinha, Galo e Espírito Santo, as these were the urban founding elements [13].

In the same period, Casa da Alfândega (custom house) was built (1499), which was located near the coast line, opened to the ocean and to continental
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Portugal. Still in that period, Casa da Câmara (town hall) was erected in a complementary location to Castelo de S. Luís (Castle of Saint Luís). Thus, this building almost embodied a civilian hillside contraposition to the military one. It gave, therefore, support to the paradigmatic dichotomy Alta Militar/Baixa civil—military upper town/civilian lower town—that recurrently took place in Portuguese late medieval urbanism. On hillside, likewise, the link between Angra and its hinterland was defined. That was ensured by Rua do Galo and Rua da Sé. These two streets are extremely relevant as they embodied an axis that put in connection with each other—Praça Velha and Largo da Sé. Moreover, they gave support to their perpendicularly intersection held by Rua de Lisboa. That street was directed to Praça Velha and to Casa da Alfândega by its extension over Rua de S. João towards the sea. Once the axial urban pattern was determined by that scheme, seven further streets would be defined. As they would be crossed by other streets, an almost perpendicular and parallel scheme would be set up.

According to the described process of Angra urban growth, it was set up a similar logic to that one already focused. Indeed, Angra urban structure is based on an axial system of references analogous to the one of Tomar. It is meant that both the principles and the symbolism that put in relation the more meaningful key spaces and the most significant buildings are truly close: Rua de Lisboa (Rua Direita), Rua da Sé e do Galo; Cais da Alfândega (custom house quay), Praça Velha; and Casa da Câmara. Moreover, urban axiology determines urban layout composition through a structure of elongated blocks, what happened in Angra and in Tomar as well.

It the end, it is clear that the intersection point of the urban axes locates the market as an important urban place. That reality can be either seen in Angra, Tomar or Jerusalem. It embodied a correspondence between urban principles that can be seen, furthermore, in a wider range of rules and spaces of those three settlements as it was marked above.

6. Villeneuve du Temple (12th Century—Foundation)

Paris had a strong urban evolution in the Middle Ages. The motivations behind urban growth were linked with the development and raise of the religious communities. Agglomerations of diverse origin were therefore constituted outside the original island where Paris was founded, cité (city), on both banks of the Seine, as they were centered on many monasteries. Thus, some new settlements appeared around Paris (Fig. 12).

The Order of the Temple was included in that phenomenon. In its case, small craftsmen, welcomed into the Templar enclosure, the Enclos du Temple in Marais, were looking to escape from royal city taxes and jurisdiction. As a consequence, they established an alternative economic center as Pierre Lavedan said [14]. Pierre Couperie also referred the Order of the Temple as participant in the activity of population and urban renewal after the royal permission to build activity outside the walls. The subsequent exploration of Marais is then referred by the author as the most rational option [15].

The unique characteristics that the Templar settlement morphologically exposes, besides the methodology and the instruments used to settle it, define a reality somewhat different from the one that characterized the remaining city of Paris. That reality is particularly interesting in the context of this paper. The Templar urban operation in Marais had begun in the last quarter of the 13th century and it had a joint date in 1279. In August, the Templars and the King signed an important agreement through which the Templars got confirmed the right of high justice on the land that they owned, north of Philip-Augustus wall, between Rue du Temple and Rue Vielle-du-Temple: it was the Land of the Temple.

In 1279, the Templars were among the largest real
estate owners in the city. Their properties essentially consisted of blocks or simple set of houses, scattered through the medieval city, especially north of the Seine, both inside and outside the wall. The limits were given by Rue Vielle-du-Temple, to the east; Rue Roix-de-Sicile and Rue Saint-Croix-de-la-Bretonnerie, to the south; and Rue du Temple, to the west.

Taking advantage of their possessions on the right bank of the Seine, more than just a suburban new Templar settlement did arise in the new context of urban transformation in Paris. Even today, it is possible to confirm the intent of the operation and to notice patent parallelism and orthogonality between the streets.

In that context, the Templars got permission from Philippe IV, le Beau14 (1268-1314), to open another entry on the defensive walls. Thus, Porte de Chaume joins Porte du Temple and Porte Barbette as an access point to Villeneuve du Temple. Since it is located in the centre of the settlement, it was given a reason to open a new street. An effective communication between Paris and the main axes of the new urbanization was obtained. Therefore, Rue Neuve du Temple, Rue Nouvelle Poterne, or simply Rue de la Porte Nouvelle was the epithet that marked the new central axis of the Templar settlement. This street existed since the year of 1288. However, its name had been changed to Rue du Chaume from late 16th century on.

14Philippe developed a policy towards the centralization of political power. During his reign, important historical events took place such as transferring the Pope’s residence to Avignon. His aim was the one of looking to put the papacy in dependence on France. In line with that policy, Philippe took control of much of Templar assets, after the extinction of the Order of the Temple.
Including that new street, there were nine further streets traced. Among them, five began on Temple Street, whose orientation takes direction to eastbound: Rue Richard de Pouliers was already decided in 1282. It was inhabited in 1292 and referred from 1296 on; Rue Jean de Saint-Quentin was already inhabited in 1292 and cited from 1296 on; Rue Jean L’Huillier (now called Rue des Hudriettes) was cited from 1287 on; Rue Noyer existed since 1297 (it is now disappeared); Rue des Etuves (now named Rue Braque) was already inhabited in 1282 and cited from 1296 on [16].

To the east of Rue de la Porte Nouvelle, other new streets were traced. These ones were directed to Rue Vielle-du-Temple: Rue du Paradis (partially coincident with the current Rue Franc-Bourgeois) existed since 1288 on; Rue du Chantier was cited from 1293 on, it extends Rue des Etuves and still exists, however, it is somewhat different now; Rue des Quatre Fils-Hemom (now named Rue Quatre Fils) was cited from 1305 on.

Moving on to the context of this paper, it is seen that the new Templar settlement urban structure, in the Parisian Marais neighborhood, is defined according to a property division that guarantees morphological regularity. It is also possible to point out an almost orthogonal urban structure which was sustained by two axes and to confirm as well that one of them took direction from one of the city gates to Enclos du Temple. Therefore, it is possible to state that common urban principles are identifiable in the layout of Jerusalém, Tomar, Angra and Marais. Indeed, these principles hold, likewise, the tracing of Villeneuve du Temple in Paris.

7. Conclusions

History proves that “the regular form of the city is as old as the art of set a city” [17]. In other words, it is possible to state that whenever there is a strong power established, urbanism happens as always, orthogonal. Furthermore, it is known that “the military function conditioned the formation of most medieval towns...” [5].

These statements give support to the arguments shown before. As it is believable, the insularization of an urban model imported from Jerusalem is noticed, which enters Portugal through Tomar.

The conclusion is that the Roman-Byzantine tradition inherited from the East marked the course of both the Templars and their Portuguese heirs—the Order of Christ (founded in Portugal in 1318)—doing so from the East to Europe and from Tomar to Angra.

The definition of that urban model is based on an urban structure made by an axial urban composition of elongated regular blocks, whose origins and destinations are identifiable on notable points of urban space. Its formalization is built by linking the most relevant urban entry with the representative centre of power or, instead, with the civil or religious-military ones. That urban scheme was also built by linking two other city entries between them—the ones that put together major transit routes of both local and national territories. That occurred perpendicularly to the first axis referred above.

Indeed, the urban form of Tomar took definition from the major transit routes. In a prosaic basis, the geometric urban principles took in consideration both local defensive precepts and the need of linking and defending the territory as a whole—at the time, Portugal was being conceived and consolidated as an independent nation.

The words above may deny the most traditional way of looking at medieval geometric pattern morphology, which usually reveals that urban regularity had firstly been thought in France and then it was scattered over Europe, due to cultural and population exchanges and as an exportation of ideas. Indeed, Tomar brings up a contribution to overcome that idea and to put Portugal, likewise, in line with other countries, with a relevant role on developing the geometric pattern morphology phenomenon in medieval Europe.

It the end, the travelling from the East to the West and from Tomar to Angra shows that it should be possible to identify stronger settlement principles of
shaping geometric urban form in Middle Ages, rather than simply accept those ones that have remained dependent on French immigration. Indeed, by an interpretative context enlargement, the diverse arguments may have exposed an alternative possibility of reading geometric European urbanism in Middle Ages. At least, it is possible to open alternative paths on researching on this issue. Regarding its regularity and closeness to Order of the Temple, Tomar is truly relevant to that purpose for it allows an alternative approximation to Portuguese settlement processes and also to European ones as a consequence.

References