

LA CIUDAD TEMPLÁRIA DE TOMAR. CUENTOS, CALLES Y PIEDRAS

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Resumen

La ciudad de Tomar, situada en el centro de Portugal, es conocida principalmente por el Convento de la Orden militar del Templo, que pasó a llamarse Orden de Cristo tras la extinción de la Orden de los Templarios. Actualmente, el convento está clasificado por la UNESCO como Patrimonio de la Humanidad. Además del convento, hay más patrimonio en esta ciudad, tangible e intangible, como la antigua sinagoga, la iglesia de San Juan Bautista y la Fiesta de los Tabuleiros. El autor propone una visita guiada por la ciudad que incluye no sólo los edificios patrimoniales y su historia, sino también las piedras de construcción de las edificaciones antiguas y recientes, pertenecientes o no al patrimonio histórico de esta ciudad, así como los pavimentos y revestimientos. Al contar la historia geológica de las piedras, su probable procedencia, meteorización y tratamiento, y mostrar sus fósiles y minerales, se añade un aspecto natural al cultural, ampliando el contenido y el interés de la visita, y complementando la oferta existente de visitas guiadas. Por tanto, el recorrido propuesto es un enlace entre el turismo cultural y el de naturaleza. Este tipo de visita es nueva en la ciudad de Tomar, por lo que este trabajo es innovador.

Palabras Clave: Turismo cultural, geoturismo, patrimonio cultural, Tomar, Portugal.

THE TEMPLAR TOWN TOMAR. STORIES, STONES AND STREETS

Abstract

The town of Tomar, located in the centre of Portugal, is mainly known by the Convent of the military Order of the Temple, which was renamed Order of Christ after the extinction of the Templar's Order. Actually, the convent is classified by the UNESCO as a World Heritage. Beside

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the convent, there is more heritage to be found in the town, tangible and intangible, like the former synagogue, the São João Baptista church, and the Tabuleiros Festivity. The author proposes a guided visit through the town which does not only include the heritage buildings and their history, but also the building stones of the ancient and recent edifications, belonging or not to the town's historical heritage, as well as pavements and coverings. By telling the geological history of the stones, their probable provenience, weathering and treatment, and showing their fossils and minerals, a natural aspect is added to the cultural one, amplifying the content and the interest of the visit, and complementing the existing offer of guided tours. Therefore, the proposed tour is a link between cultural and natural tourism. Such a kind of visit is new in the town of Tomar, so this work is an innovative one.

Keywords: Cultural tourism, geotourism, cultural heritage, Tomar, Portugal

1. INTRODUCTION

The town of Tomar is located in the centre of Portugal and has a very rich cultural heritage, tangible and intangible. The most known examples are the Convent of Christ, classified as a World Heritage of Humanity by the UNESCO, the former synagogue, the church of São João Baptista church, the church of Santa Maria dos Olivais, the Tabuleiros festivity and others.

To increase the value of Tomar's heritage, the author proposes the inclusion of geological themes in a guided visit. These themes are the construction stone types of the buildings, pavements and wall coverings, their mineral and fossil content, their origin and provenience (if possible), their treatment, as well as weathering phenomena. The aim of this article is to show that geology and the built heritage can complement each other, adding a natural dimension to the architectonic one.

For the tracking of the visit route, the following methodology was applied: research of bibliography and webography, scrutiny of geological and town maps, as well as aerial and satellite views, exchange of ideas with specialists and colleagues, and study trips in the town and to the heritage buildings. This work was completed by the organization of previous guided visits in the field, whose participants were students and teachers of the Senior University of Tomar, with interest in cultural heritage and geology, and by related experiences.

The addition of geology to visits in a city, or urban geology, is experiencing a growing interest. There are some publications of the author about this theme and about geotourism (Rosendahl & Gonçalves, 2019a, 2019b), as well as books about urban geology in Algarve (Pereira & Lopes, 2019; L. A. Rodrigues & Agostinho, 2016a, 2016c, 2016b).

2. HISTORY OF TOMAR

Tomar is a town with about 20.000 inhabitants (Câmara Municipal de Tomar, 2014) and has a history which comprises about 30.000 years. Due to the mild climate, the Nabão river with water during the whole year, and fertile soils in the river’s valley, the first traces of human settlement date from the Palaeolithic age (Câmara Municipal de Tomar, 2014).

During the reign of the roman emperor Augustus (30 B.C. – 14 A.D.), the city of Sellium was founded (Rosa, 1965). Some ruins of this town’s buildings can still be seen. In the 7th century, during the Visigothic colonization of the Iberian Peninsula, several convents of nuns and friars existed in the area. It was in this period when the legendary martyrdom of Santa Iria took place (Câmara Municipal de Tomar, 2014). From the following epoch of the Arabic occupation little is known.

The medieval town of Tomar got on the scene when the Templar convent was founded by Gualdim Pais in 1160. This fortified convent became the headquarters of the Order of the Templar knights in Portugal. After the extinction of this Order, in the beginning of the 14th century, the convent was the main seat of the successor of the Templar’s Order, the Order of Christ. During the permanence of Infant D. Henrique as the Order’s grandmaster in the 15th century, the convent of Christ was one of the most important centres of power in Portugal, and the town underwent a great economic development (Câmara Municipal de Tomar, 2014).

In 1510, the King D. Manuel I granted the New Charter to Tomar, and in the same century the town became an important artistic centre because of the presence and the work of important contemporary architects and painters (Câmara Municipal de Tomar, 2014). This golden age continued during the period of the Philippine domination (1580-1640), when the Spanish kings ordered the construction of the convent’s Main Cloister and the Pegões Aqueduct (Câmara Municipal de Tomar, 2014).

From the mid-17th century to the end of the 19th century, a great industrial development took place with the foundation of several factories.

In 1983, the Templar Castle – Convent of Christ complex was recognized by UNESCO as a World Heritage site.

3. URBAN GEOTOURISM

Tourism is a recreational activity based on subjective and aesthetic criteria, while geology is a scientific discipline based upon objective criteria. Therefore, tourism and geology are quite different fields of study. However, they can coexist and find a synthesis in geotourism (Garofano, 2012).

Geotourism, in a broad sense, is “a tourist segment mainly focused on the sustainable use (by geotourists and local communities) of the geological heritage, to which the cultural heritage (material and immaterial) of the areas can be added” (M. L. Rodrigues, Machado, & Freire, 2011, p.283), joining the geological and cultural heritage. This concept can be used as a sustainable way of promoting, developing and protecting areas with a rich and diversified heritage. Geotourism activities can be carried out either in the countryside or in cities (urban geotourism).

Urban geotourism consists of the study of construction and decorative stones used in buildings, monuments, pavements, etc. The building stones and their mineral and fossil content may reveal the story of their origin, their provenance, the kind of treatment to which they were submitted, and their way of interacting with the environment, that is, the state of alteration by environmental influences. As an aesthetic aspect, the stones give shape and colour to a building. Thus, a natural dimension is added to the architectural, artistic and historical dimension of the building, combining cultural and natural heritage (L. A. Rodrigues & Agostinho, 2016a, 2016c, 2016b).

The built heritage of a city can be seen as an open-air geological museum. The stones and their mineral and fossil content are accessible in an urban environment and can be visited throughout the year. There is no need for polluting off-street vehicles or long and exhausting walks. People with reduced mobility and many elder people can participate in the geological activity without having to travel to a quarry or walk through difficult terrain. So, urban geotourism proves to be a valuable contribution to inclusive tourism (Kérout, n.d.).

As this subject is intended to children and adults with historical and scientific interest, the tourist offer of a city will be enriched with the inclusion of geologic themes into the usual routes of cultural tourism. This implies the tracking of geologic-cultural itineraries, the installation of information panels, the preparation and printing of brochures or leaflets, the provision of online information digitized through GPS and respective interactive applications for smartphones, tablets, etc., the training of specialized guides, and other measures. A more detailed approach to the topic of urban geotourism can be found at (Rosendahl & Gonçalves, 2019b).

4. THE GEOLOGIC-CULTURAL ROUTE OF TOMAR

The tracking of the route (figure 1) has to obey to some criteria, which are: The way should allow the visit of the main heritage buildings of Tomar, it has to be clean and without major obstacles, the sites must show the geological issue in a clear and obvious way, there has to be enough space to receive a group of visitors, the participants should be protected from the driving vehicles, and the walking conditions should be appropriated for people with reduced mobility.

Figure 1. Proposed course of a geologic-cultural route in Tomar.



Source: Google Earth, author.

The proposed route is divided in two parts and fulfils these criteria. The first part begins in the Cafe-Bakery Rosa (Amorim Rosa street) and ends in the Cafe Estrelas de Tomar (Serpa Pinto street; “Corredoura”), which is the beginning of the second part. This part ends in the Convent of Christ. Only in the second part exists an ascending path with a height difference of about 150 meters to the Nossa Senhora da Conceição church and, finally, to the convent. A part of this way has to be walked following the access street to the convent which has no sidewalk.

Stop 1: Cafe-Bakery Rosa (Amorim Rosa Street)

The route starts in the Cafe-Bakery Rosa, in the Amorim Rosa Street. The wall behind the counter is covered by a plate made of travertine limestone, which is a porous sedimentary rock often found at thermal springs in calcareous areas (figure 2A). This stone is geologically very young, with “only” some thousand years.

Stop 2: Arcades of the Amorim Rosa Street

In front of the Café Pimpinela, the covering plates of the arcade’s floor show fossils of corals, snails and other organisms which lived in a sea with shallow water (figure 2B). The age of the

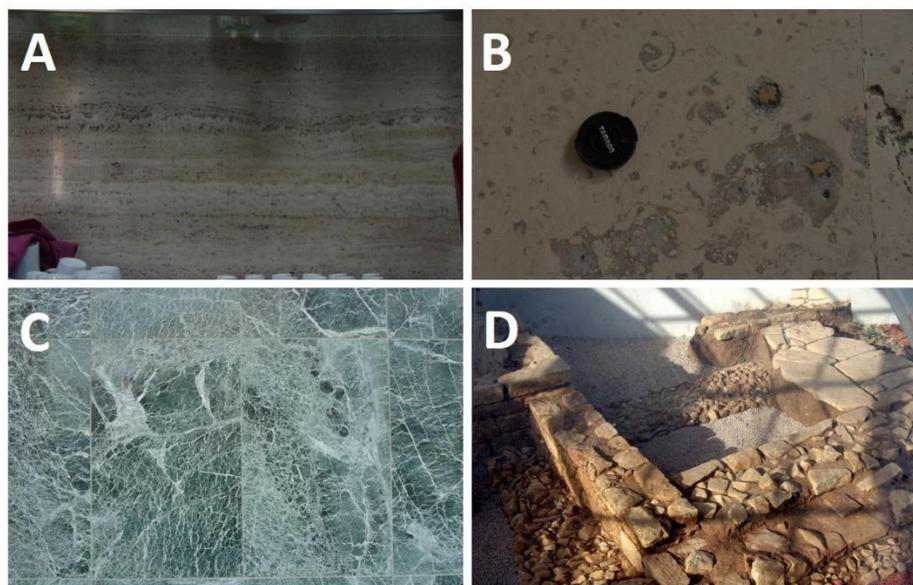
limestone is not quite clear, it is estimated to be from the Jurassic period, about 200-145 million years ago (International Commission on Stratigraphy, 2018).

Stop 3: Voluntários da República Street

In a facade of this street we can see plates made of green stones with numerous fractures, which are usually called “green marbles” (figure 2C). This designation is not quite correct. Marbles are metamorphic carbonate rocks which were subjected to higher pressure and temperature, which transformed the former limestone. Here, the original rock was not a sedimentary limestone, but it was formed as an undersea volcanic rock, the so-called ophiolith. When this material suffered the metamorphosis, it was transformed into a serpentinite. The green colour is due to its mineral content, which consists in hydrated olivine, serpentines, brucite, and others (Carmignano, Vieira, Brandão, Bertoli, & Lago, 2019). The age and the provenience of the rock are unknown.

Stop 4: Centro Republicano Street: Roman Sanctuary of the Waters

Figure 2. A – Travertine stone in the Cafe-Bakery Rosa. B – Fossils in the pavement limestone plates in the arcades of Amorim Rosa street. C – Serpentinite cover stone in a facade in the Voluntários da República street. D – Roman Sanctuary of the Waters.



Source: Author.

This witness of the roman occupation in the place named Sellium corresponds to a former fountain with basins for medical baths (figure 2D). The baths were remodelled during the period

of the emperor Augustus (1st century A.D.) and still used by the visigoths and during the medieval epoch (information panel at the site).

Stop 5: Convent and Church of Santa Iria; Old Bridge

This site is connected to the legend of Santa Iria, who was martyred here at about 600 A.D., and whose corpse was found later at Santarém. The convent’s portal and the lateral chapel of the church are National Monuments, and the church, the nun’s arch and the Santa Iria pool are classified as Property of Public Interest (Direção-Geral do Património Cultural - Ministério da Cultura, n.d.). The building of the convent and the church were reconstructed during the 16th century (figure 3A). In the interior, the church’s walls are covered with diamond type tiles from the same century (figure 3B). At the outer side, the portal of the church’s entrance is an arch decorated with Renaissance motives (figure 3C). At the convent’s riverward side, there is a niche with an image of Santa Iria (Almeida & Belo, 2007), as well as the pool of Santa Iria.

The first mention of the Old Bridge over the Nabão river dates from 1219 and the construction was renovated several times. Its actual aspect is due to works during the 16th century; later it was adapted to the traffic demands (Direção-Geral do Património Cultural - Ministério da Cultura, n.d.)

Figure 3. Convent of Santa Iria. A – Riverside front. B – Interior of the Santa Iria church. C – Renaissance portal of Santa Iria church.



Source: Author.

Stop 6: Santa Iria Street

Next to the Nun’s Arch which stretches across the Santa Iria street, there is an entrance whose stones show strong signs of tearing by iron oxidation (figure 4A). The rusting of an iron nail led to

an increase of its volume. This process developed forces which are strong enough to crack the stone.

Stop 7: Santa Iria Street / Norton de Matos Avenue

At the entrance of the Cafe D’Arco, the floor is covered with plates made of limestone with fossils of corals, snails and others. These fossils show that the limestone material was deposited in a marine environment with shallow water, during the Jurassic period.

Some walls in the Santa Iria street and the Norton de Matos avenue show patterns which derived from the internal structures of the marbles (figure 4B). A marble is a metamorphic rock whose original material is limestone. When a marble shows stripes or similar structures when cut across, the two sides of the cut are mirrored; this effect can be used to create a pattern.

Stop 8: Santa Maria dos Olivais Church

Figure 4. A – Effect of an iron nail’s oxidation on the limestone. B – Pattern in covering stones made of marble. C – Santa Maria dos Olivais church. D – Detail of the western facade.



Source: Author.

The church (figure 4C) was built in the gothic style during the second half of the 12th century. There were important interventions during the 16th century, at the time of the Kings D. Manuel I and D. João III, and in the 40s of the 20th century. It is classified as a National Monument (Direção-Geral do Património Cultural - Ministério da Cultura, n.d.). The construction material essentially consists of massive limestone, sometimes soft, with a variable content of debris and fossils. Several forms of the stone's alteration can be observed (figure 4D). The bell tower in front of the church might have served as a watch tower. There is a legend that the tower was linked to the castle by a secret tunnel.

Stop 9: Torres Pinheiro Avenue, Chicken Restaurant

The facade of the chicken restaurant “Casa dos Frangos de Tomar” is covered with plates made of a black rock with a blueish sheen, which changes its colour and sheen with the angle of view (figure 5A). The rock is an anorthosite composed of coarse plagioclase minerals and may contain labradorite crystals. This type of rock had its origin from the magma probably at a depth of some kilometres, at the boundary between the earth's crust and mantle (Alex Strekeisen, n.d.). It probably has an age of 2 billion years, as it may have been formed during the Proterozoic epoch (International Commission on Stratigraphy, 2018). There is no reference of its provenience. It is to be noted that a large part of the moon's surface is built up by anorthosite.

Stop 10: Western Entrance of the Arantes e Oliveira Bridge

The tiles of the bridge's sidewalk are made of “líoç”, a recifal limestone of cretaceous age with about 95 million years (International Commission on Stratigraphy, 2018), which contains numerous rudist fossils (figure 5B). The now extinct rudists were a group of clams with a coral-like shape, which were able to build up reef structures. The rock is largely used in Portugal and its extraction area lies at the north of Sintra near Lisbon.

Another rock type which can be seen here as pavement is a grey granite with coarse orthoclase crystals. A large part of the crystals are aligned and show the presence of a current in the liquid magma. Moreover, there are xenoliths in the granite (figure 5C). Those are relics of the pré-granitic rock mass which was partially assimilated when the granitic magma intruded. Other parts were not melted and persist now as foreign bodies in the granite.

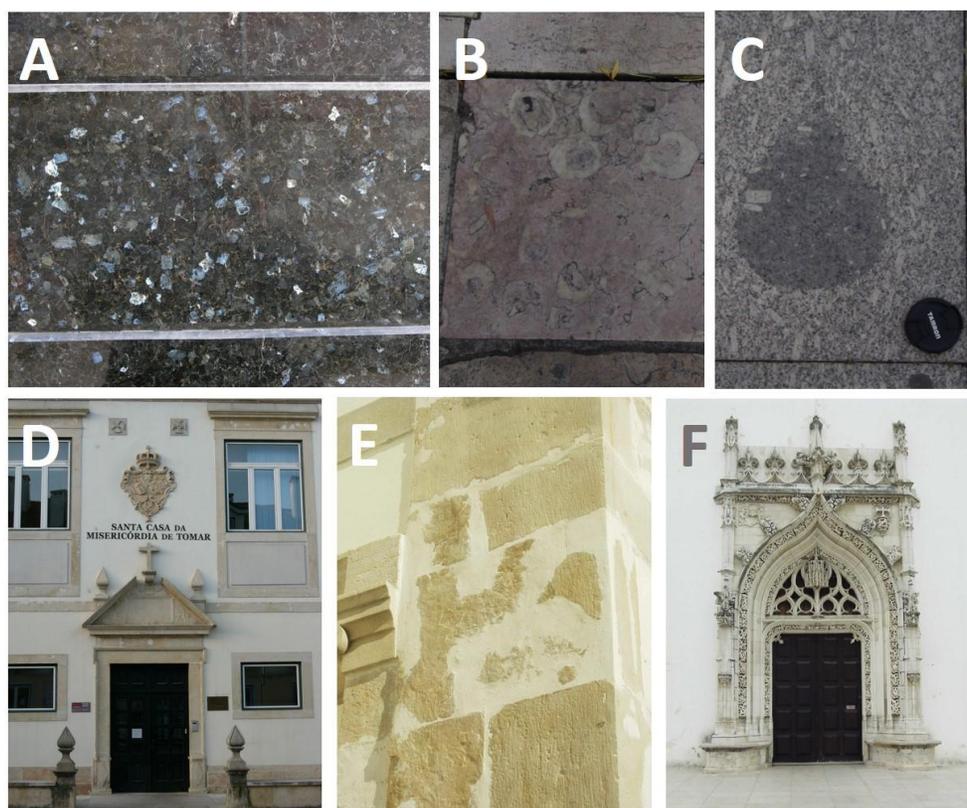
Stop 11: Former Hospital and Church of Santa Casa da Misericórdia

The construction of the church of Misericórdia began in 1567, and the adjacent hospital began to be built in 1672 (Almeida & Belo, 2007). The portal of the hospital is made in the

mannerist style (figure 5D). The facade of the former hospital was subjected to restoration works, which had a doubtful result. The caves formed by alteration in the visible limestone were filled with a bright mortar whose colour is quite different to that of the original stone. This gives the idea that this part of the restoration was realized very carelessly (figure 5E).

Stop 12: São João Baptista Church

Figure 5. A – Torres Pinheiro avenue: Anorthosite covering stone. B – Arantes de Oliveira bridge: Lioz limestone with rudist fossils. C – Place near Arantes de Oliveira bridge: Granite pavement with xenolith. D – Portal of the hospital of Santa Casa de Misericordia. E – Restoration works at the hospital of Santa Casa de Misericordia. F – São João Baptista church: Portal.



Source: Author.

The primitive church was constructed during the 15th century in the gothic style. In the 16th century it was remodelled, and was subjected to several interventions in the 20th century. The church is classified as a National Monument (Direção-Geral do Património Cultural - Ministério da Cultura, n.d.). The portal, in a flamboyant gothic style, has Manueline decorations (Almeida & Belo, 2007) and was built with the so-called Ançã-stone (figure 5F). This rock material has a

middle Jurassic age with about 163 to 174 million years, and was explored at Cantanhede near Coimbra (Portugal). It is a fine, white, compact limestone and quite soft (Leite & Moura, n.d.), so it is a stone often used for fine sculpture. On the other hand, there is the problem of weathering, when the stone is exposed to moisture. While the sculptures at the church in Tomar are in a good state, in other localities (cloister of Santa Maria da Vitória, Batalha, cloister of Santa Cruz, Coimbra) the Ançã-stone is heavily weathered, defacing some sculptures.

Stop 13: Former Synagogue

The synagogue was built during the 15th century. After the expulsion of the Jewish population, the space was used as a prison, chapel, and warehouse. In 1939 it was donated to the state; during the following time it was adapted for a museum and classified as a National Monument (Direção-Geral do Património Cultural - Ministério da Cultura, n.d.). In the interior (figure 6A), there are four central columns and some prismatic corbels which sustain the roof (Almeida & Belo, 2007). The limestone material used at the outside shows slight signs of weathering.

Stop 14: Royal Mills

Although there are documents about the existence of several mills in Tomar during the 12th century, the actual buildings come probably from the 15th century (figure 6B). At the beginning of the 16th century, they were remodelled and widened on behalf of the Order of Christ. In 1835, after the extinction of the Order, they were sold, and in the 20th century they were occupied by industrial installations like a mill, a foundry and an electricity plant (Almeida & Belo, 2007). Recently there are a museum of electricity with the original generators and spaces for cultural events.

Stop 15: Cafe Estrelas de Tomar

The top of the counter and the wall behind it are covered with plates made of gneiss, which is a metamorphic rock (figure 6C). It was subjected to high temperature and pressure, so some minerals were transformed and began to align themselves. Some signs of melting can be seen, as well as traces of currents in the hot and partly molten material. The marble stairs to the back exit show strong signs of wear, as the material's hardness is not enough to resist the daily pedestrian traffic (figure 6D). It was not possible to determine the age and the provenience of the stones.

Here is the end of the first part of the route. Who still has enough strength, may continue. Otherwise, the second part may be performed in another time.

Figure 6. A – Former synagogue, interior. B – Royal mills. C – Cafe Estrelas de Tomar, gneiss. D – Cafe Estrela de Tomar, stairs showing signs of wear.



Source: Mori (2021), author.

Stop 16: The Wheel of the Nabão River

The wheel on the left riverside (figure 7A), built in 1906 (Almeida & Belo, 2007), was part of an ancient irrigation system. It lifted water from the river to distribute it on the former arable fields. There were other wheels of this kind at the rivers of central Portugal, but they all disappeared except the wheel in Tomar.

Stop 17: Hermitage of São Gregório

This hermitage is a small chapel with an octagonal ground plan (figure 7B) and a quadratic sacristy, built in the 16th century (Almeida & Belo, 2007). It is classified as Property of Public Interest (Direção-Geral do Património Cultural - Ministério da Cultura, n.d.). The limestones of the columns and the Manueline portal show signs of weathering.

Figure 7. A – Wheel of Nabão River. B – Hermitage of São Gregorio.



Source: Author.

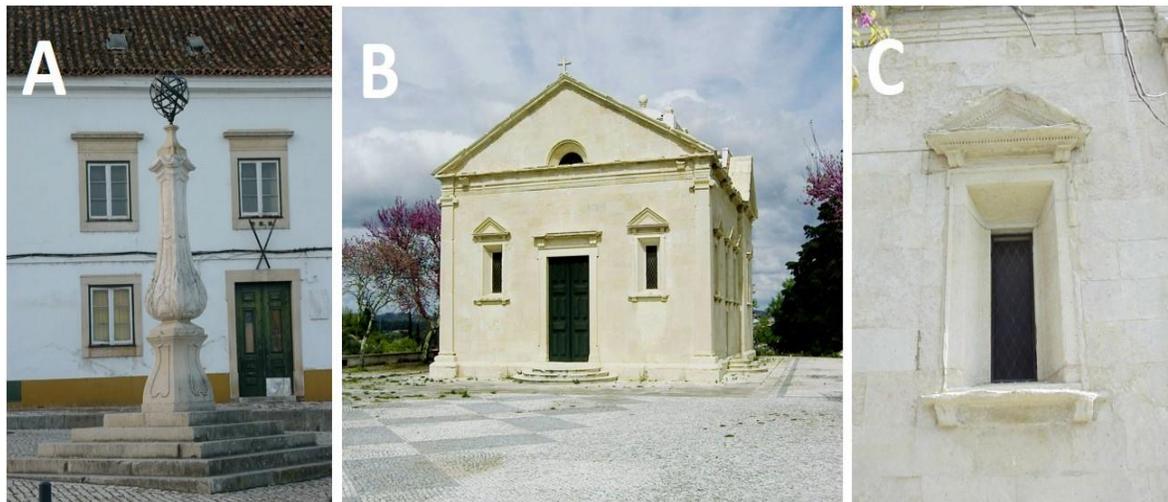
Stop 18: Pillory

The actual pillory (figure 8A) dates from the 18th century, although charters were attributed to Tomar in the 12th century and in 1510 (Almeida & Belo, 2007), giving the right of jurisdiction to the town. The actual pillory, in baroque style, consists of a limestone pillar which is crowned by a metallic armillary sphere and is a Property of Public Interest (Direção-Geral do Património Cultural - Ministério da Cultura, n.d.).

Stop 19: Nossa Senhora da Conceição Church

The church was built from 1551 to 1571 (Almeida & Belo, 2007) and is considered to be one of the finest examples of the European Renaissance (figure 8B). It has a rectangular ground plan, clear lines and sparse decoration on the outer side. In the interior there are three naves, divided by columns with Corinthian capitals. It is classified as a National Monument (Direção-Geral do Património Cultural - Ministério da Cultura, n.d.). There are some signs of weathering of the limestone (figure 8C) and infiltration of moisture.

Figure 8. A – Pillory. B – Nossa Senhora da Conceição church. C – Same church; window with signs of weathering.



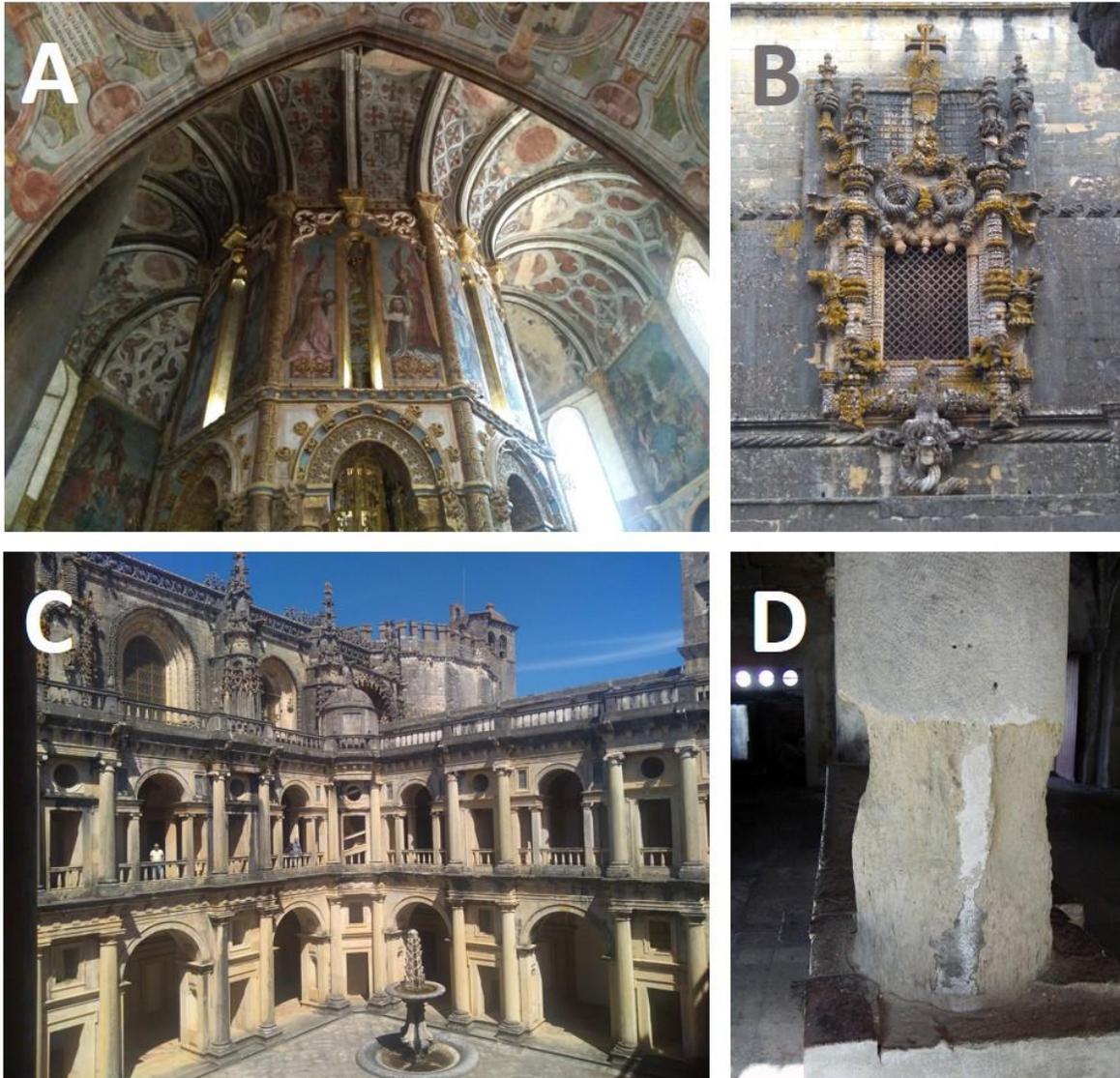
Source: Author.

Stop 20: Convent of Christ

The Convent of Christ, a National Monument and declared as World Heritage by the UNESCO (Direção-Geral do Património Cultural - Ministério da Cultura, n.d.), is one of the largest monumental ensembles of Portugal, which includes traces of ancient edifications as well as military and religious buildings from the roman period up to the 18th century. Its core is the “charola”, an octagonal chapel with eight pillars and sixteen wall panels (figure 9A), built in the 12th and 13th century as a place to perform the ceremonies of the knights of the Templar Order. After the extinction of the Templar Order in 1312, the Order of Christ was founded in Portugal as its successor. In the 16th century the convent was remodelled joining annexes and elements in Manueline style, like the famous Chapter Room’s window (figure 9B) or the main portal of the “charola”. The construction of the Cloister of the Spanish Kings (figure 9C) and the monastery began under King D. João III. and was concluded under the reign of the Spanish kings Philipp II, Philipp III and Philipp IV during the 16th and 17th century (Almeida & Belo, 2007).

The main construction material of the convent’s buildings is limestone, which shows a lot of different phenomena of weathering (figure 9D), giving an idea of the influence of moisture and wind during some centuries, which is a geologically very short time.

Figure 9. A – Charola. B – Manueline window of the Chapter Room. C – Philippine cloister; D – Column in the kitchen with heavy signs of weathering.

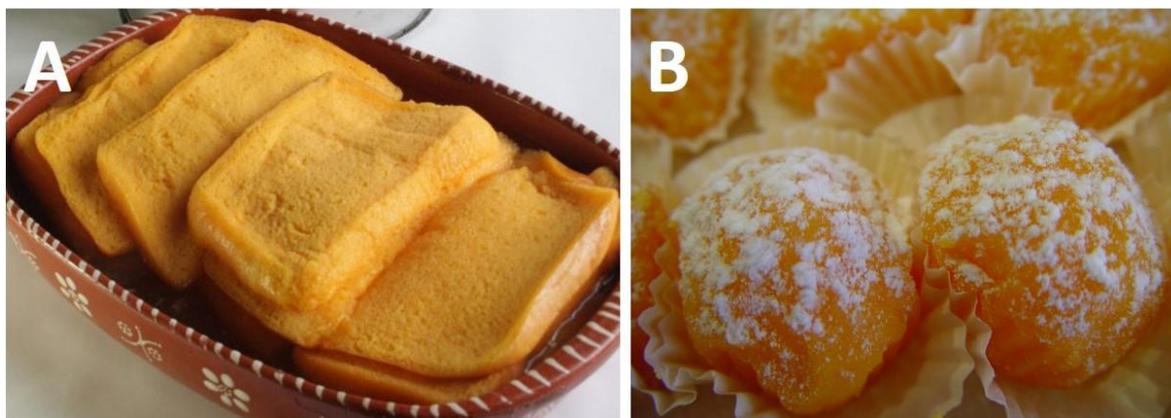


Source: Author.

Here is the end of the tour. In order to recover your strength, there is another cultural highlight which can be enjoyed in Tomar, besides the built and historic heritage: The typical pastry, with sweets which are made only in Tomar (Santos, 2021). There are the *Fatias de Tomar* (“slices of Tomar”, figure 10A), *Bolos de Cama* (“bed cakes”), *Beija-me Depressa* (“kiss me quickly”, figure

10B), or Queijinhos Doces (“sweet little cheeses”), which can be tasted in several Cafes and pastry shops along the way.

Figure 10. A – Fatias de Tomar (“Slices of Tomar”). B – Beija-me depressa (“Kiss me quickly”).



Source: Santos (2021).

5. CONCLUSIONS

Because of its long history, the town of Tomar represents a very suitable place for geotouristic activities. At nearly every corner, one can find traces from the past, and it is possible to join this heritage with geologic considerations. These places can be visited during the whole year, and the major part of the route is suitable for persons with reduced mobility.

Urban geotourism is a promising and interesting interdisciplinary tourist branch that can increase a town’s tourist offer in a positive way. As the main target group consists of people with medium-high income including culturally and scientifically interested adults and children, this activity will create an additional economic vantage as the guided visits are paid and may draw the tourist’s attention to other areas, like the local gastronomy. To take full advantage of its potential, it is necessary to prepare the cultural as well as the geological sites, and to create more channels of information, especially for digital devices.

Geotourism and cultural tourism have very similar objectives: both aim to disseminate knowledge and to promote the protection and conservation of the respective natural and cultural heritage (material and immaterial). Combining these two branches of tourism carefully, the result for operators and customers may result in a splendid win-win situation.

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