

# BUILDING AN EMPIRE

A VIRTUAL EXPLORATION  
OF THE ROMAN WORLDS

20.12.19 – 08.03.2020

NÎMES

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# INTRODUCTION TO THE EXHIBITION

**From 20 December 2019 to 8 March 2020 the Musée de la Romanité is displaying an astonishing virtual exploration of the Roman Empire. Thanks to the tremendous capacity of the new digital techniques of the company Iconem, visitors are taken for a trip through history with spectacular projections of seven archaeological sites such as Palmyra, Aphrodisias, Lepcis Magna and Pompeii. Combining little-known monuments and world heritage symbols, the exhibition 'Building an Empire' is an invitation to discovering the urban and architectural models of Roman towns—that were so different and so similar.**

*The Musée de la Romanité: innovative programming for all publics*

*The Musée de la Romanité was opened on 2 June 2018 and has taken its position in the international cultural and tourist landscape; it has already made a positive contribution to the Nîmes area as it has already welcomed more than 370,000 visitors. Its permanent collections show 25 centuries of the history of Nîmes and its region thanks to 5000 exceptional works displayed around 65 multimedia installations.*

*Two first temporary exhibitions were shown to the public in summer 2018 ('Gladiators: Heroes of the Coliseum') and 2019 ('Pompeii, a Forgotten Story'). The museum thus enriched and broadened its coverage of the concept of 'Romanness' by approaching the theme with different eyes.*

*This new, entirely virtual temporary exhibition was designed following the educational line of the Musée de la Romanité—involving the 'immersion' of visitors so that they can live a true historical experience.*

Our collective unconscious associates Roman towns with a pattern repeated strictly throughout the Mediterranean area: *cardo* and *decumanus*, amphitheatre, forum, colonnades, etc. Does this representation have echoes in archaeological reality? Did this Empire imposed by arms dictate a uniform model? Or did the model—nourished and adapted by local civilisations—display as many differences as similarities?

From the sand of Egypt to Hadrian's Wall, from Lusitanian oppida to the shores of the Black Sea, Rome governed the destinies of hundreds of peoples and thousands of towns. In this extraordinary abundance of languages, customs, divinities and legal systems, the Roman Empire favoured a unifying model centred mainly on the towns set around the whole of the Mediterranean.

The remains of these towns and ancient accounts reveal strong similarities. The Roman cultural model generated by these places was gradually adopted by large proportions of the local populations. Thanks to a dense network of roads and Roman or Romanised towns, it was possible for a Roman citizen to travel all through the Mediterranean basin using Latin and the *sesterc*. As such a traveller moved around, he was confronted with the diversity of the Roman world and also its gradual unification around markers of Romanness.

## A digital voyage in the Roman worlds

This is the trip offered to visitors of the exhibition at the Musée de la Romanité. A large map of the Empire welcomes them so that they can gauge its maximum coverage in the 2nd century AD and see the seven sites that mark the visit. Throughout the exhibition, visitors can see the parallels between the great monument in Nîmes and the sites that have digital coverage. In the first part of the exhibition a projection of Pompeii—the most famous of Roman cities—invites visitors to become familiar with the Roman worlds.

The next part of the visit shows how the Roman architectural model was adapted in the Roman provinces in the Orient and Africa: Aphrodisias in what is Turkey today, Palmyra in Syria, Leptis Magna in what is now Libya and Carthage in Tunisia.

In a third space, a projection is focused on Baelo Claudia in Spain that is the most easterly of the sites shown in the exhibition. The specific case of the temple is analysed here and the one at the Spanish site is compared with another temple at the western edge of the Empire—that of Garni in Armenia. These are two clearly distinct temples that will remind visitors of the Maison Carrée in Nîmes.

The exhibition ends with a virtual reality environment designed by Ubisoft and that makes it possible to visit two emblematic sites of the Roman world that are now destroyed or difficult to get to: the temple of Baalshamin in Syria and the Roman basilica at Leptis Magna in Libya. The experience was designed initially for the exhibition 'Age-old Cities. A Virtual Journey from Palmyra to Mosul' at the Institut du monde arabe in Paris from 10 October 2018 to 10 February 2019.

The 3D digital scanning of all these heritage sites was carried out by the company Iconem, that made the 'Eternal Sites' exhibition at the Grand Palais (2016) and that entitled 'Age old Cities' at the Institut du monde arabe (2018) It is a precious scientific tool and also a support for mediation and the showing off of these sites. It makes it possible to design an entirely virtual and immersive exhibition with giant projections, plunging visitors into a gripping augmented reality visit.

Cartography, label and, immersive projection are used to allow general or detailed exploration and to see the latest historical discoveries. Accounts by classical authors bring out the important points of the Roman markers of Romanness. The views of each site (3D models) are focused on shared or unique architectural features.

This entirely digital, educational and emotional trip will be an extension to a visit of the city of Nîmes and its Roman monuments, reset in their context at the scale of an Empire, in an experience at the frontier between the virtual and the real.



3D model of the temple of Garni (Armenia)

© Iconem - Pascal Convert - Ministère de la Culture arménien



3D model of the ruins of the Hannibal District in Carthage (Tunisia)

© Club Didon Carthage - Iconem

# THE EXHIBITION ROUTE

## A little history...

**IMPERIUM** — A legal term that initially indicated the power to command held by a senior magistrate. By extension, the Empire refers to all the populations and territories on which imperium was exerted in the name of the Roman people.

In the 2<sup>nd</sup> century AD, the Antonine dynasty pushed the boundary of the Roman Empire beyond the Danube and to the fringes of Mesopotamia. **From Scotland to the Sahara, from the Atlantic to the Euphrates, around Rome and Italy, more than 40 provinces made the Mediterranean Sea a truly Roman lake.**

In 212, the emperor Marcus Aurelius Antoninus (Caracalla) awarded Roman citizenship to all free men living in the Empire. But beyond the legal status, what made the Roman identity? What factors allowed an inhabitant of the provinces to feel Roman? The western part of the Empire with its rapid Romanisation, especially in Gaul and Spain, has often been contrasted with the eastern part of the Empire that was lastingly marked by models of Greek inspiration.



Is there a Roman model shared by all the provinces of the Empire? Does Romanness have town planning and architectural criteria? Do they differ according to the regions?

For many years historians studied Romanisation as a process in which vanquished societies submitted to the forms of organisation used by the vanquisher. Now called into question, this concept of Romanisation had the merit of describing the homogeneity felt in comparisons of Roman towns that were nonetheless very varied and very far from each other. In practice, **Rome never sought to impose a single cultural or political model to provinces that possessed many languages, traditions and gods.**

**Nevertheless, the Roman world does seem to have been unified in its very diversity, centred on very clear markers of Romanness—the currencies used, the inscriptions on forums, the acanthus leaves that wound around Corinthian capitals, building techniques as in the sanctuaries of the Imperial cult, baths, amphitheatres, basilicas and the triumphal arches that gave structure to town layouts.**

**And what if immersion in the towns of the Roman worlds made it possible to see the different faces of Romanness?**

The exhibition 'Building an Empire' provides this immersion by using innovative techniques of digital treatment of our heritage. The Musée de la Romanité called on the services of Iconem, a French company specialised in this field. Using drones, still photography and algorithms, Iconem has made 3D models of several major Roman sites. The exhibition is an invitation to see the Roman worlds in a new way using the sites of Pompeii (Italy), Aphrodisias (Turkey), Garni (Armenia), Palmyra (Syria), Leptis Magna (Libya), Carthage (Tunisia) and Baelo Claudia (Spain). **This urban sample drawn from all the shores of the Mediterranean is to make it possible to understand the similarities and differences of these Roman worlds.**

**It also means that visitors can make a direct comparison of what they have learned with the environment of the Musée de la Romanité, sited in the heart of Nîmes where the main architectural and town planning markers of Romanness can be seen. Indeed, the city has an amphitheatre, a building strongly revealing the Roman way of life in a community, but also possesses two complexes related to the Imperial cult. The first is the Maison Carrée, one of the best-conserved Roman temples on a podium in the world. The second sanctuary of the Imperial cult is in the Jardins de la Fontaine. Numerous portions of fortified wall of the Roman town still remain, together with part of its towers and town gates. Another characteristic sign of Roman ways of life is the only water supply network known in Nîmes through its water tower and the aqueduct of which the Pont du Gard is the most monumental section.**

## Nîmes

*Without being a colony of Roman citizens like Narbonne, Orange and Arles, Nemausus was one of the largest towns in the Province of Narbonne and sited on the road running from Italy to the provinces of Hispania. Its position west of the Rhone put it halfway between the ports of Marseille and Narbonne: the Roman influence was also by way of trade.*

*Relations between Nîmes and Rome go back to the period when the Volcae Arecomici occupied the territory, that is to say at least since the 3<sup>rd</sup> century BC. The Volcae were allies of Caesar during operations conducted in Gaul—explaining why Nîmes became a colony under Latin law shortly afterwards in the 40s BC. And the family of the emperor Antoninus Pius who reigned for 22 years in the mid-2<sup>nd</sup> century AD, between Hadrian and Marcus Aurelius, was from Nîmes.*

*There is no doubt about the Romanness of Nîmes for past and present visitors: its monumental Roman treasures are rarely equalled. The Maison Carrée, a temple of the Imperial cult dedicated to the grandsons of Augustus is the best conserved of its kind in the Empire. Thanks to Augustus, the town had the right to have ramparts, towers and gates. With its four arches, Augustus' gate is the only urban gate with an inner courtyard that can still be seen in France. The 'La Fontaine' sanctuary, a complex linked to the Imperial cult, is dominated by the Tour Magne—the Roman monumentalisation of a protohistoric tower. Like Pompeii, Nîmes has a water intake facility where water arrived from Uzès, with the Pont du Gard being the most famous section of the route. Few amphitheatres are as well conserved as the Arena, and these are only public buildings whose elevations are still intact. Discussing the discoveries related to private dwellings, craft activities, necropolises or the use of the neighbouring area would be too long.*

## A TYPICAL ROMAN MODEL

### POMPEII

**The aim of the first projection is to show a Roman town whose boundaries are known, to demonstrate the rectilinear organisation of the layout and the main public monuments mentioned subsequently: amphitheatre, theatre, forum, basilica, temple devoted to the Capitol Triad.**

Brutally interrupted by Vesuvius in October 79 AD, the strictly Roman period of Pompeii lasted for only 158 years. It started in 80 BC when the town became a colony of Roman citizens just a few years after a siege by Rome during a dispute with its Italian allies. It is estimated that the 66-hectare town had a population of 12,000. Previously, this town that started to grow in the 6th century BC in Osci had, as throughout Campania, been subject to many influences—Greek, Etruscan, Samnite and Roman.

The institutions that became established in the new colony were very similar to those of Rome: two magistrates elected for one year had powers alongside an assembly consisting of local elites (decuriones) and two councillors. In the forum, the temple on a podium dating back to the 2nd century BC was renovated to take the triad of the Capitoline Hill in Rome: Jupiter, Juno and Minerva. Another urban change related to the establishment of the Roman colony was the construction by the two magistrates in charge of the colony of a large amphitheatre in the south-east angle of the town ramparts. Then the public sanctuary Fortuna Augusta was built in 3 AD: this feature of the Imperial cult is still a very strong mark of the Romanness of Pompeii.

Pompeii was buried under 4 to 5 metres of ash and pumice and archaeological exploration started only in the mid-18th century.

In the exhibition, the projection starts with an aerial route from the south to the north of Pompeii, following the Via di Stabia. The amphitheatre and the theatre area are then covered before a return to the monumental centre (the forum, the Capitol and the basilica).



## DO ALL ROMAN TOWNS HAVE AN ORTHONORMAL LAYOUT ?

Forerunners of our topographical engineers and possessing Etruscan marking out techniques, Roman surveyors were referred to as agrimensores as their job was to measure the territories of towns, and also as gromatici because for this they used a topographical instrument called a groma – a cross-shaped square on which four plumb-lines were hung.

*'The ancients set land measurements in orthonormal longitudinal lines. They first established two boundaries: an axis running from east to west and that they called decumanus; the second was from south to north and was called cardo'. Hyginus Gromaticus (1<sup>st</sup> century AD).*

*The two regulatory axes, cardo maximus and decumanus maximus, were set perpendicularly from point zero. The surveyor then just moved the groma along one of these axes to lay out a parallel axis. Two people could repeat this very simple operation to rapidly divide a zone into plots of equal size or lay out an orthonormal road network.*

*In fact, the positioning of the basic axes did not always correspond to the cardinal points. The town of Augustodunum (Autun, in the Lyon area of Gaul) was founded during the Augustan period on a previously unoccupied plateau. Its cardo maximus is not a strictly north-south axis but is formed by the axis of symmetry of the plateau. The surveyor's work does not therefore only consist of laying out a geometrical framework but in observing and taking into account the natural topography of the place. Indeed this plays an important role in town planning—for example for determining the alignment of a rampart or of the water system. The architect Vitruvius recommended aligning the streets of a town according to the types of wind that blew there.*

*Not all Roman towns have the grid pattern that the Ancients attributed to Hippodamus of Miletus. The road system also reveals different phases of spread or shrinkage of a town, as can be seen clearly in the case of Pompeii whose road network was defined well before the town became a Roman colony in 80 BC. The city of Rome itself is in no way a model in this respect. Romanisation or belonging to the Roman world does not always mean the replication of a pattern used in Rome itself.*

## THE ROMAN MODEL IN THE ORIENT AND IN AFRICA

Using the cases of Aphrodisias, Palmyra, Leptis Magna and Carthage, the idea is to see whether moving further from Rome and Italy also increases the distance as regards Roman town and architectural models.

### APHRODISIAS

The sequence devoted to Aphrodisias shows that buildings that are strong markers of Romanness (Hadrian's baths, the sanctuary of the Imperial cult) are present together with other structures that more feature a Greek influence (theatre, the tetrapylon of Aphrodite's sanctuary, the agora).



3D model of Aphrodisias (Turkey)

Close to marble quarries and reputed for the virtuosity of its sculpture studios, Aphrodisias was in the Province of Asia, one of the two richest in the Roman Empire, alongside Proconsular Africa.

It was founded at the beginning of the 2<sup>nd</sup> century BC. The town of Aphrodisias draws its name from of the goddess Aphrodite, the divine protector and whose sanctuary is one of the few sets of buildings not to be incorporated in the orthogonal layout of the town. In particular, it kept its monumental gate in the form of a subtle tetrapylon, that is to say a structure with four pillars, each consisting of four columns.

The town is a magnificent example of the combining of ancient Greek and Anatolian traditions and new Roman practices. The theatre is an original combination of Greek style tiers and a Roman scene wall. There is no trace of an amphitheatre at Aphrodisias but a large complex devoted to the cult of the Emperor shows the strengths of the links maintained with Rome. Around the temple of this Augusteum (called Sebasteion in Greek), bas-reliefs mingled

## **THE THEATRE : ROMAN ADAPTATIONS OF A GREEK BUILDING**

*The theatre was originally a building typically linked with Greek culture, the site of a dramatic representation played in honour of Dionysus. For a long time theatres in Rome were provisional and built of wood for staging sacred shows. The forbidding of the construction of theatres in masonry was finally ended in 55 AD by Pompeius Magnus.*

*'The theatres of the Greeks are not precisely the same as those of the Latins.' Vitruvius (1<sup>st</sup> century BC)*

*The island of Delos has a fine example of a Greek theatre. It has 5,000 seats and was built in the second third of the 3<sup>rd</sup> century BC, backing on to a hillside. Spectators were seated on the tiers in a horseshoe-shaped semi-circle that is structurally separate from the stage buildings where the actors play. Between the two lies a flat circular area, the orchestra, reserved for the choir.*

*What is the difference between the Roman version of the theatre and its Greek architectural models?*

*Rather than using natural relief, the theatre can be placed on flat land and this means that the tiers must be supported by a set of built vaults. Above all, the tiered seating forms a precise semi-circle that butts against the stage building. A Roman theatre is thus a single building, closed on itself and easily incorporated in orthonormal town layouts, as is illustrated by the theatre at Baelo Claudia that dates from the 1<sup>st</sup> century AD, that of Lepcis Magna built by Annobal Rufus, a local notable, in 1-2 AD, and also that of Palmyra.*

*It must not be considered that there is a strict division between Roman theatres in the western part of the Empire and Greek theatres in the east. The theatre at Aphrodisias built in the 1<sup>st</sup> century BC in the Province of Asia displays features associated with Greek theatres, such as the horseshoe shaped seating tiers that follow the slope of a natural hillside, and Roman features such as the three-level stage wall architecturally linked to the seating.*

*In the western provinces far from the Mediterranean, the plans of these buildings almost always combined the components of the theatre with those of the amphitheatre: the tiers were often in a horseshoe shape while the stage building, reduced in size, faced a central area that could be used as an arena.*

scenes inspired by Greek mythology and representations of the Julio-Claudian emperors. Aphrodite, the Roman Venus, was thought to be the mother of Aeneas, the Trojan who settled in Italy to found a new town and whose son Julian was considered as the ancestor of the Julians—the family of Julius Caesar, Augustus and his successors.

The division of the Roman Empire in the 4<sup>th</sup> century AD put Aphrodisias under the control of the Byzantine emperors. The decline of the town may have been quickened by a number of earthquakes.

The projection Aphrodisias starts with the splendid monumental gate to the sanctuary of Aphrodite. Several buildings around the agora in the centre of the town are then explored one by one: the *Sebasteion*, Hadrian's baths, Tiberius' portico and the theatre in the Greek tradition—compared with the theatres in the Roman tradition at Lepcis Magna and Palmyra.

## PALMYRE

**Palmyra is the site shown that is furthest from Rome.**

The town was in a desert region of the Province of Syria—an area that gradually became Roman from 64 BC. Previously dominated by the Hellenistic Seleucid dynasty, this vast area at the junction between the Mediterranean and Mesopotamia was a crossroads between Greek culture and the civilisations of the Near East.

The beauty of Palmyra's monuments owes much to the wealth of the caravaners who lived there when they were not travelling through Mesopotamia and the Persian Gulf to trade with the distant east.

In spite of its incorporation in a Roman province, the Aramean and Mesopotamian influence remained very strong at Palmyra, as shown by the sanctuaries at Bel, Baalshamin, Nebo and Allat where Greco-Roman features (such as Ionic or Corinthian columns) are mingled with oriental architectural traditions such as windows in temples or flat roofs decorated with merlons. Although it became a Roman colony at the beginning of the third century AD, Palmyra nonetheless had a theatre, baths, a vast agora surrounded by porticos and arches along the colonnaded street that crosses the whole town.



3D model of Palmyra (Syria)

© DGAM - Iconem

In the 260s AD, Palmyra defended the region against the Sasanian Persians. Queen Zenobia of Palmyra defended the eastern provinces for 15 years and these were effectively temporarily not under the control of the Roman Emperor. Rome subsequently housed a garrison in Palmyra to protect the province from Persian raids.

In the 7<sup>th</sup> century AD, the town became under the control of the Umayyads.

For visitors in classical times, certain specific features gave the town an exotic flavour, like the temple of Bel that had Greco-Roman facades while the rest corresponded to oriental architectural traditions: a flat roof decorated with merlons, a long lateral ramp to reach the podium rather than an axial staircase or peripheral steps, and access via the long side of the rectangle and not the short sides topped with pediments. Others are a reminder that the town belonged to the Roman Imperial world: the main street lined with a double colonnade, the theatre and an agora bordered with a quadriportico.

## **THE AMPHITHEATRE, A MARKER OF ROMANNESS PAR EXCELLENCE ?**

*The most famous vestige of ancient Rome is the amphitheatre inaugurated in 80 AD during the reign of Titus—the Flavian amphitheatre better known as the Coliseum. It seated 87,000 people and was the largest building of its kind in the whole of the Empire. In comparison, the amphitheatre in Nîmes had capacity for 24,000 people, Pompeii 20,000, Lepcis Magna 15,000 and Carthage around 30,000. The building was oval to ensure the best possible visibility whatever the position of the spectator in the tiered seating (cavea).*

*These monuments consisting of several levels of arcades were used for combats of gladiators (munera) and wild animal hunts (venationes) that took place on the sand ring (arena). There are sometimes underground technical facilities beneath the arena. These were used in shows to bring out fighters, cages and scenery: this is the case in Rome, Nîmes, Lepcis Magna and Carthage.*

*'There is nothing worse for morale than watching an event. The pleasure that you draw opens the door to vices. By chance one day at midday, I was at the show. I expected games, amusements, relaxation—diversion to relieve the eyes of seeing human blood. Quite the opposite! In the morning, men were thrown to the lions and bears and at midday to the spectators. There was only one exit for the fighters—death. The problem is settled by steel and fire. That is what is done to prevent the arena from remaining empty.'* Seneca (mid-1<sup>st</sup> century AD).

*A symbol of the Roman way of life, these vast, noisy edifices were often kept at the edges of towns. The amphitheatre is one of the most common features of the monumental trappings of a Roman town—at least in Italy and in the western provinces of the Empire.*

*Such buildings are very rare in the East. Did the Greeks find the shows not good enough for them? Not really, but the Greek and eastern towns of the Empire chose to renovate the orchestra of their theatre rather than build a new installation for holding these combats and hunts. As highlighted by Pierre Gros, 'the Roman world was at its limits here, in a context where forms clearly resisted better than morals.' The East reconciled the adoption of new Roman practices with fidelity to its preferred architectural forms.*

The theatre in Palmyra is shown in its state of conservation before the damage inflicted by the IS terrorist organisation in 2017. The visit then follows the major colonnaded street that forms the backbone of the plan of Palmyra which, unlike other sites, does not feature an orthogonal squared layout. Finally, the temple of Bel is shown with a view from above, showing the scale of recent destruction: only the two vertical sections of the monumental gate to the temple emerge from the dense mass of fallen masonry.

## LEPCIS MAGNA & CARTHAGE

**Lepcis Magna, in Proconsular Africa, is in a formerly Romanised province in the south of the Mediterranean.**

An old Punic town founded in Tripolitania, Lepcis Magna had a population of up to 100,000. Its trading port and the wealth of the inland area meant that Lepcis was already an important town when it became part of the Roman province of Africa, well before being honoured by the status of colony during the reign of the Emperor Trajan in 110 AD. The town already possessed a quadrangular forum bordered by porticos, a large market (9-8 BC), a theatre (1-2 AD) and several temples that show its Romanness: a temple in honour of Jupiter Dolichenus, Hercules, Liber Pater, Augustus and Rome. The monumental splendour of Lepcis Magna was worthy of the leading Roman towns. A circus was built in 112 AD in the immediate vicinity of the 56 AD amphitheatre. The Antonine period was rich for the town, which received three honorific arches in succession under the reigns of Trajan, Antonius Pius and Marcus Aurelius. The large bath complex dates back to Hadrian (126-127 AD).

Lepcis Magna reached its peak when one of its natives, Septimius Severus became emperor (192-211 AD). A new forum was then built with a basilica with absides and a temple in honour of the new imperial dynasty. A street 50 metres wide bordered with colonnades was more than 400 metres long and a splendid tetrapylon built in 203 AD in honour of the imperial family was built at the crossroads between the *cardo* and the *decumanus maximus*.

**The Severus forum** is a paved square bordered on three sides by a portico. A temple on a podium stands at the end and in the centre (a layout echoing the forum in Nîmes with the Maison Carrée, the forum at Pompeii with the Capitol and that of Baelo Claudia). Visiting this monumental set of structures shows many blocks of stone on the ground but also several columns and arches that are still standing.

The visit continues with 'immersion' in the large basilica on the other side of the forum. With three naves separated by Corinthian columns and side apses, it is a canonical example of an imperial period civil basilica.

## Carthage

*A former Phoenician colony found on the shore of present-day Tunisia, Carthage was attacked and razed to the ground in 146 BC by Scipio Aemilianus' troops at the end of the Third Punic War. Its territory was then annexed to create a Roman province of Africa whose capital was established at Utica, 30 km away.*

*From the Augustan epoch onwards, at the time of the change of era, a Roman colony was nevertheless placed at the site of former Carthage. With a very regular layout, the colonia Julia Karthago grew steadily during the High Roman period—to the point of supplanting Utica in the 2<sup>nd</sup> century AD and, with a population of 200,000, becoming the capital of Proconsular Africa. Byrsa Hill served as the centre of the urban layout. It featured a forum bordered by porticos and a basilica at the intersection between the *cardo* and the *decumanus maximus*.*

*Numerous structures demonstrate the importance of Roman Carthage: a naval base in a protected inland position, a vast trading port that was one of the busiest on the Mediterranean and the large baths built during the reign of Antoninus Pius. There are also numerous monuments built for entertainment: an amphitheatre seating an audience of more than 30,000 built in the 1<sup>st</sup> century AD, an immense 65,000-seat circus and a theatre built during the Antonine Period and then a 5,000-seat odeum during the Severus period.*

The **amphitheatre** is a very strong marker of Romanness that is found neither in Aphrodisias nor in Palmyra. Traces of underground passages under the ring and related to the holding of shows are clearly visible. The screen is split momentarily for a simultaneous view of the amphitheatre in Carthage, the capital of the Proconsular Province of Africa, whose underground passages are seen in the next plan.

The **macellum** (market) zone is served by a wide street crossed by two honorific arches. Showing a marketplace makes it possible to show another aspect that is distinct from public, administrative and religious monuments and to address the everyday and economic life of the Roman town.

The immersive visit of Lepcis Magna finishes with one of the most exceptional honorific arches in the Roman Empire. It is a **tetrapylon arch** built in 203 AD in the honour of Septimius Severus and the Imperial family by his fellow townspeople in Lepcis.



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3D model of the Lepcis Magna forum (Libya)



© Fonds Iconem - DOA - MAFL

3D model of the arch of Septimius Severus in Lepcis Magna (Libya)

## A CASE STUDY : BAELO CLAUDIA

**The voyage continues with a projection of the Spanish site Baelo Claudia in the Province of Baetica. This is in particular to examine the temple, a typical monument of the Roman model.**

The oldest vestiges of Baelo go back to the Augustan period, that is to say the decades at the change in era, but it is thought that the town was founded in the 2<sup>nd</sup> century on a Punic development (Carthaginian).

Located on the Straits of Gibraltar, the town had fortified walls and the remaining sections follow the strictly orthogonal street network before joining each other north of the town.

The town layout was established during the Augustan period but Baelo experiences a large 'monumentalisation' programme in the second half of the 1<sup>st</sup> century AD. The three temples dedicated to the Capitol Triad (Jupiter, Junon and Minerva) were built during the reigns of Claudius and Nero between 50 and 65 AD. Construction works continued in the subsequent decades all around the forum, at the level of the market, the basilica, a temple dedicated to Isis and the theatre. The awarding to the town of the privileged status of municipium during the reign of Claudius accounts for the monumentalisation of Baelo Claudia. This small town in Baetica drew its prosperity from its port activities and the production of *garum*, a much sought-after condiment made with fish fermented in salt.

Baelo Claudia was hit by an earthquake at the end of the 2<sup>nd</sup> century AD but the town continued to be occupied throughout Late Antiquity, even after the disintegration of the Roman provincial administration. It was abandoned during the period of domination by the Visigoths at the beginning of the 7<sup>th</sup> century AD and then rediscovered in the 18<sup>th</sup> century. Archaeological exploration started in 1917 and continues today under the management of the Casa de Velázquez.

A general view of the site in the exhibition shows the orthogonality of the town layout before plunging towards the monumental centre.

In the centre of this orthogonal road plan, the forum is set around a central space bordered by a basilica to the south, administrative buildings to the west, temples in honour of the Capitol Triad to the north and shops to the east. The temples in the forum with their podium and their free-standing columns in the façade only (pseudo-peripteral layout) are similar to the Maison Carrée in Nîmes.

### Garni

*Formerly a despotic state of the Achaemenid Persians dominated by the Seleucid dynasty, Armenia profited from Rome's victories over Antiochos III at the beginning of the 2<sup>nd</sup> century BC to free itself. Tacitus mentions the town of Garni as Gornea but it was known above all for having been a fortress and the summer residence of the kings of Armenia. The fortress of Garni was not under a province governed by a Roman magistrate but was part of a kingdom whose elite often looked to the Roman Empire while the people felt closer to their Parthian neighbours.*

*The temple was probably built during the reign of Tiridates I of Armenia in 76 or 77 AD when Armenia became a Roman protectorate. A quick look at the temple of Garni seems to reveal a false impression of the Maison Carrée with its podium, axial staircase and the 6-column facade. In fact, this temple has two features that are more those of a Greek than Roman architectural tradition. It not only had a clearly recognisable ionic order in the volutes of the capitals but it also has an open colonnade on its four sides that makes it possible to move all around the naos.*

*The violent earthquake that hit Armenia in 1679 was fatal for the columns and walls of the temple of Garni before attracting the curiosity of travellers in the 19<sup>th</sup> century and then that of archaeologists in about 1910.*

*The excavations performed at Garni showed that the site was occupied continuously for several centuries with a variety of influences: Greek, Aramaic and Armenian.*

The screen is divided provisionally for comparison with the **temple at Garni**: this also has a podium with axial stairs but belongs to a clearly distinct architectural category with its colonnade that is free-standing on the four sides (peripteral layout). It thus combines very Roman aspects (podium and axial access) and an Ionic Order colonnade that is open on the four sides in Greek style. Armenia was not an eastern province of the Roman Empire but a kingdom-client of Rome. This explains the very unusual mixture.



After this detour to the other end of the Empire, we look back at Baelo Claudia and the **theatre**. This building for shows is part of the orthogonal layout of the town. In line with the Roman plan, the semi-circular tiers of seats close in on the wall of the theatre scene. Baelo Claudia, is an extremely Romanised example of town planning and architecture—a feature shared by Baetica and Gallia Narbonensis (Gaul of Narbonne).

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3D model of the amphitheater of Baelo Claudia (Spain)

## HOW TO RECOGNISE A ROMAN TEMPLE ?

*A temple houses the statue of a deity in a room called naos in Greek and cella in Latin. It is thus symbolically a divine residence. These religious buildings display a great variety of layouts according to the multitude of gods and goddesses of various origins that coexist around the Mediterranean.*

*Some architectural patterns are characteristic of the Greek worlds, such as the holos (a circular naos surrounded by a circular colonnade), the presence of a free-standing colonnade enclosing the heart of the temple or the low step system allowing peripheral access to the temple (crepidoma). These features are nonetheless in the minority in Rome and the western provinces.*

*In the north-western provinces (Germanies, Three Gauls, Brittany) more than 650 temples dating back to the Romans feature tower style cella dominating a peripheral gallery in the same plane (circular, quadrangular or polygonal). Paradoxically, this Roman style that was strongly in fashion in the 1<sup>st</sup> and 2<sup>nd</sup> centuries AD was referred to as 'Romano-Celtic' as it was unknown in the Mediterranean provinces of the Empire.*

*'Not all the gods can have temples built in the same proportions because of the difference in the variety of sacrifices resulting from the ceremonies.' Vitruvius (1<sup>st</sup> century BC.)*

*However, a temple was not limited to its religious function. Its sometimes very central position in town planning—in the axis of the forum—is an indisputable marker showing that a town belongs to the Roman world. These temples were all built on a rectangular podium that gave them a dominant position and access only by single axial stairs on the short side. None was surrounded by an open-standing colonnade. It is not by chance that these temples with a very Roman formula were dedicated to the trio of poliad divinities of Rome—reference is made to the Capitol, the name of the hill on which the temple dedicated to Jupiter, Junon and Minerva was built on—or were linked to the Imperial Cult as in Aphrodisias and Nîmes.*

*The temple of Bel is in the Syro-Mesopotamian tradition and was built in 32 AD. With its pediments and a colonnade that is free-standing on all four sides, it could—from a distance—be considered as a Greek temple. As Bel was the god of Palmyra, the architecture of his temple is very singular for a construction during the Roman period: access to the naos is by a ramp on a long side of the building and the flat roof decorated with festooned merlons leaves the naos open to the sky. So what can be recognised of Romanness in the temple of Bel? There are at least two strong markers—the podium that gives it elevation and the Corinthian capitols of the architectural decoration.*



## GOING FURTHER IN THE VOYAGE : IMMERSION IN VIRTUAL REALITY DEVELOPED BY UBISOFT

Ubisoft, the leading French publisher of video games, offers to the public realistic and sensitive immersion in virtual reality at two of the sites of the exhibition: Palmyra in Syria and Lepcis Magna in Libya.

This was initially created for the exhibition 'Age old Cities. A virtual journey from Palmyra To Mosul' shown at the Institut du monde arabe in Paris from 10 October 2018 to 10 February 2019. It is now shown at the exhibition 'Building an Empire' with kind permission from the Institut du monde arabe.

Author of the series Assassin's Creed, whose success is based on the detailed, living reconstitution of towns, monuments and forgotten civilisations, Ubisoft is interested in the digital safeguarding of heritage and collaborated in the exhibition 'Age old Cities' by generating an original experience produced using Iconem 3D models drawn from photogrammetry. **For the exhibition 'Building an Empire', Ubisoft adapted this experience by recentring it on two important vestiges of Romanness: Baalshamin temple in Palmyra and the basilica at Lepcis Magna.**

Virtual reality was used because of the very strong immersion that it generates and the simplicity of access by users of all ages. The visitor—wearing a headset—finds himself inside the monuments. He can move within an area of 9 sq. m and look around everywhere to better appreciate the setting of the buildings. Subtle work on sound, animation and lighting brings these places back to life, giving visitors an incredible sensation of being there.

For Baalshamin, now totally destroyed, the VR experience brings out from the ruins of the temple a 3D reconstitution of the monument produced thanks to work at the University of Lausanne. Visitors can even see again the tree that had grown near the altar. The ruins are still standing at Lepcis Magna although they are threatened by erosion and the sea. Visitors can admire both the detail of nearby columns and the perspective formed by those further away.

## THE FATE OF ROMAN SITES

*What has happened to the buildings in the Empire towns with the gradual or sudden removal of Rome's power in the provinces? This trip through nearly 16 centuries has exposed ancient vestiges to twin destruction by nature and by man.*

*The most violent natural catastrophes have often discouraged the survivors from repairing the damage and, conversely, encouraged them to rebuild their lives differently or elsewhere. This was the case of Pompeii that was wiped off the map in October 79 AD by the eruption of Vesuvius and also—to a lesser degree—of Aphrodisias, Garni, Lepcis Magna and Baelo Claudia that were hit by earthquakes.*

*As regards Palmyra, part of the vestiges of the Bel sanctuary survived successive transformations into a fortress in the 12<sup>th</sup> century, a mosque and then a village. From 2015 to 2017, after executing Khaled Assad, former Head of Antiquities at Palmyra, the terrorist organisation Islamic State of Iraq and Syria (ISIS) blew up the vestiges of the temple of Baalshamin, the temple of Bel, the monumental arch, the colonnaded street, the stage wall of the theatre and several tombs outside the town.*

*The town of Carthage suffered serious damage in the 5<sup>th</sup> century AD caused by Vandals led by Gaiseric before the systematic theft of its marbles from the 7<sup>th</sup> century AD. In fact, the usual fate of ancient sites—even when they are inhabited continuously—is that they are used as quarries for construction materials. Those who take them may also re-use some materials in new buildings or process them—by making lime for example. Even Pompeii, although it was buried under ash from Vesuvius, did not escape this fate: the forum zone was the target of planned recovery of materials shortly after the eruption.*

*Ancient buildings are better conserved from this damage when they continue to be occupied. This was the case of the Maison Carrée in medieval Nîmes as it was used as the seat of consular power. And the amphitheatre was used as a fortress by the Visigoths before becoming a very densely populated district. In fact, re-use protected most of the outside appearance of the Roman buildings while causing irreversible damage to their interior organisation.*

*Built in 76-77 AD by the king-client of Rome, Tiridates 1 of Armenia, the temple of Garni has had an unusual life. Its walls and columns collapsed during an earthquake at the end of the 17<sup>th</sup> century. At the time of the Armenia Soviet Socialist Republic, it was decided in the 1970s to rebuild the temple with a mix of original materials available and new stone. This is called anastylosis—a practice described etymologically as putting upright again a column that has collapsed. Thus only the podium truly dates back to the 1<sup>st</sup> century AD.*

## PARTNERS

The world archaeological heritage has never been as sorely tested as in recent years. Many historical sites are threatened with disappearance by the action of man or nature. It is essential to pass on the memory of this heritage to future generations.

Iconem was founded in 2013 to bring solid, effective solutions in the face of the irreversible disappearance of traces of our history. Combining a passion for technological innovations and close field knowledge in countries experiencing crises, Iconem has developed expertise that is unique in the world for the 3D digitisation of endangered sites.

Iconem currently operates in some thirty countries, working with international organisations like UNESCO and the World Bank, governments (Afghanistan, Oman, etc.) and with major cultural institutions (The Louvre, Rmn-Grand Palais).

For several years, Iconem has also focused on sites whose conservation is endangered by climate events or by mass tourism. In particular, this has made it possible to digitise emblematic sites such as Delos, Lepcis Magna and Angkor.

Iconem develops innovative protocols in the heart of a technical ecosystem of excellence, working with scientific (Inria) and industrial (Parrot, Microsoft) partners. Two new techniques are combined:

- **Drones** that enable accurate, rapid and relatively inexpensive records of the most complex zones (isolated places, war zones, etc.)

- **3D photogrammetry**, with new algorithms used to generate very high quality models from thousands of drone photos. The results are such accurate photo-realistic environments that they allow both the scientific study of the sites by experts and new immersive experiences for the general public.

This expertise is passed on to certain local professionals by means of training courses organised by the team during its missions, in particular in Afghanistan, Iraq and Syria.

Iconem's final aim is mediation and promotion of the awareness of the general public to problems linked with the heritage protection through lectures and digital exhibitions.

Based in Paris, Iconem currently has a multidisciplinary team of some ten people: architects, computer specialists, engineers, 3D graphics specialists and archaeologists. Their strength is that they work together to solve the complex questions of conserving historical and archaeological heritage.



**ΓΑΡΠΙ**

Iconem travelled to Armenia to digitise several important Armenian heritage sites within the framework of a project by the French visual artist Pascal Convert. We should also like to thank the Armenian Ministry of Culture for its valuable support.

**ΛΕΡΚΙΣ ΠΛΑΓΓΑ**

Thanks to the Mission Archéologique Française de Libye (MAFL) directed by Vincent Michel and to support from Total, in 2018 Iconem was able to train professionals at the Libyan Department of Antiquities (LDA) in photogrammetry at Lepcis Magna and construct a 3D model of the site.

**ΡΟΜΠΡΕΪ**

Iconem digitised the whole Pompeii site in 2014 as part of a joint project of INRIA and the INRIA-Microsoft Research Centre with the authorisation and support of the Parco Archeologico di Pompei that manages the conservation and opening of the ancient site.

**ΡΑΛΠΥΓΕ**

Palmyra was hit hard by the violence of ISIS. With active, determinant support from the Directorate General of Antiquities and Museums, Syria (DGAM), Iconem was able to travel to the site and digitise it entirely after each of the two occupations by ISIS in 2016 and 2017.

**ΒΑΕΛΟ ΚΛΑΥΔΙΑ**

At the request of the French archaeologist Myriam Fincker and with support from the Institut de Recherche sur l'Architecture Antique (IRAA), the Casa de Velázquez and ARPAMED, Iconem digitised the entire Baelo Claudia site in 2017 to test scientific hypotheses using 3D technology.

**ΚΑΡΘΑΓΕ**

The Carthage association 'Club Didon', whose aim is the highlighting of the Punic heritage at the national and international scales, entrusted Iconem in 2018 with the task of training Tunisian professionals in the use of photogrammetry and simultaneously digitising the ancient vestiges of the town.

**ΑΡΗΦΟΔΙΣΙΑΣ**

The Geyre Foundation (Geyre Foundation Aphrodisias Excavations), founded in 1987 within the framework of excavation of the ancient town of Aphrodisias, supports scientific work at the site. In 2017 it instructed Iconem to make a 3D model of vestiges near the village of Geyre in southern Turkey.

Ubisoft is among the world leaders in the creation, publishing and distribution of video games and interactive services. The group has a substantial portfolio of international names such as Assassin's Creed, Just Dance, Rayman, Far Cry, Watch Dogs and the Tom Clancy video games series. Ubisoft teams use their international network of studios and distribution subsidiaries to provide gamers with original, unforgettable experiences on all the popular game platforms.

The video game sector is increasingly approaching the traditional world of culture

A foundation 'of public utility' for 32 years and based in Paris, the IMA promotes the culture of the Arab world. Through innovative projects such as the 'Age-old Cities' exhibition, the IMA now incorporates new technologies in the highlighting of the Arab world, its heritage and its creativity.

The Institut du monde arabe was designed to establish strong and lasting links between cultures to foster a true dialogue between the Arab world, France and Europe. This pluridisciplinary

and Ubisoft is creating virtual worlds that are rich in cultural and historical references in collaboration with experts in multiple fields: linguists, town planners, historians, etc. In this work in virtual reality, Ubisoft is proud to contribute to the presentation of the richness and diversity of Roman architectural models.

facility is an excellent place for the development of cultural projects designed in collaboration with the institutions, creators and thinkers of the Arab world.

The Institut du monde arabe has generously agreed to the use of the virtual reality experience developed for the 'Age-old Cities' exhibition so that it can be shown in the 'Building an Empire' exhibition.



## ΠΡΑΚΤΙΚΑ ΠΛΗΡΟΦΟΡΙΑ

**Exhibition « Building an Empire. A virtual exploration of the Roman worlds »**

**From 20 December 2019 to 8 March 2020**

**Musée de la Romanité**

(0)4 48 21 02 10  
www.museedelaromanite.fr  
16 boulevard des Arènes  
30 000 Nîmes

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- Disabled persons + 1 accompanying person
- Lecturers and curators régionaux, locaux et auxiliaires, conservateurs
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- French Ministry of Culture card-holders

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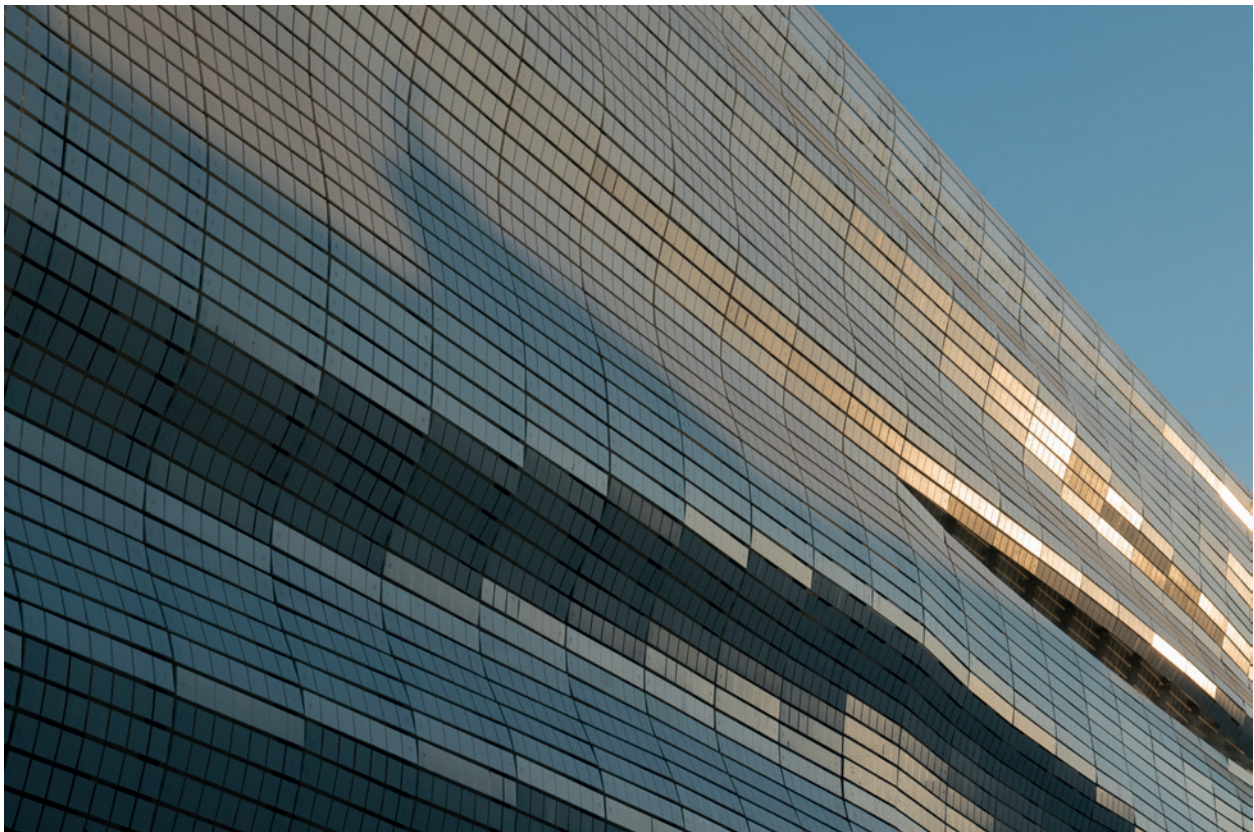
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20 décembre 2019  
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