



AVENTICVM

A ROMAN CAPITAL CITY



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Avenches

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Foreword

«**A**VENTICVM - A Roman Capital City» is intended to be both a manual to study at home and a guide to accompany you on your next «escapade» to Avenches to discover the remnants of the ancient capital of the Helvetii. It is an invitation to learn about Avenches' rich past. It includes information not only on the ruins that can be visited, but also on archaeological features of the highest order that have either been re-buried or destroyed.

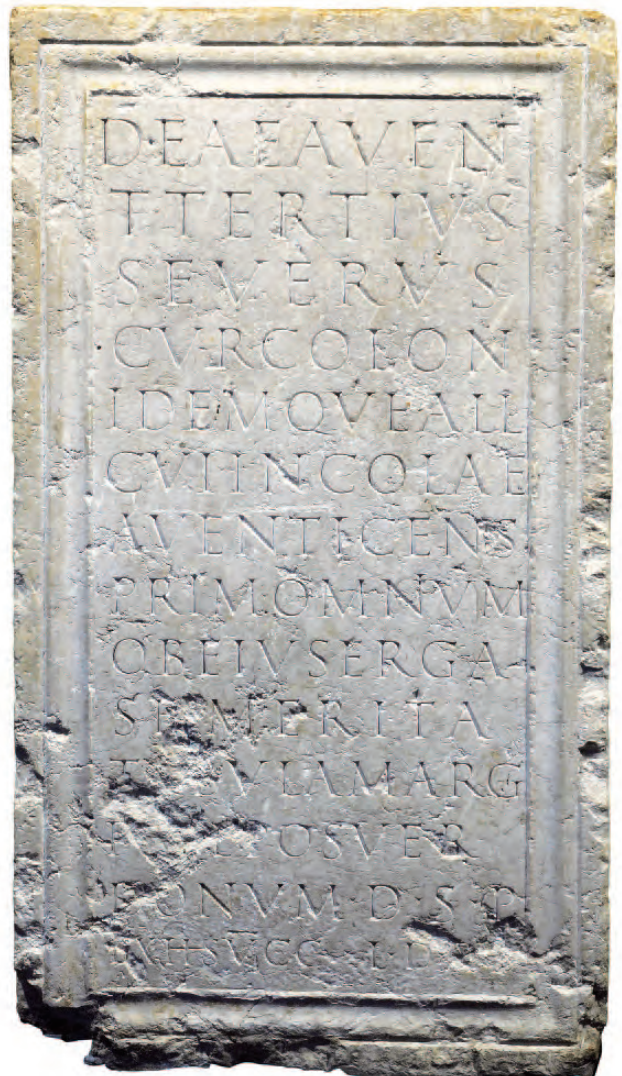
These pages are also a window into the Roman world. They offer the reader the opportunity to immerse himself, by means of many reconstructions, into the noisy, lively and colourful daily life of the inhabitants of a major Roman city. The numerous reconstructions in these pages have applied both traditional techniques of illustration and watercolour, as well as new technologies such as digital modelling and computer assisted drawing. This work also includes high quality aerial photographs taken from unconventional viewpoints by drones.

This book replaces Hans Bögli's earlier guide entitled «*Aventicum. La ville romaine et le Musée*» published for the first time in 1984 in the «*Guides archéologiques de la Suisse*» series and translated into English in 1989 («*Aventicum, The Roman City and Museum*»). Almost two decades have passed since its last revised and enlarged reissue (in French). In these last 20 years many rich discoveries have taken place, for the most part in the framework of rescue excavations, that have radically changed our view of the history of Aventicum. We no longer doubt, for example, that the Roman city was preceded by a Celtic occupation, and we now can assert that it was not totally devastated by the Alemanni invaders in the 3rd century.

Finally, this publication would not have been possible without the participation of a team that day after day lends its skills and enthusiasm to Aventicum, toiling to rescue, conserve, study and valorise the legacy of this exceptional heritage.

AVENTICVM – Site et Musée romains d'Avenches
Marie-France Meylan Krause, Director

THE ROMAN CITY



Geographical Framework and Natural Resources

Avenches is located in the heart of the Swiss Plateau – or Middle Land – between the Jura Mountains and the Alps, a region of plains and hills shaped by successive ice ages. It is a region conducive to human settlement and a natural corridor connecting the Rhone River Basin in the south-west to the Rhine Valley in the north-east. In Antiquity, this was the territory of the Helvetii, a Celtic tribe that established its capital in Avenches soon after the Roman conquest.

Avenches is in the so-called Three Lakes Region near Lake Murten. Lake Murten is connected by a canal to Lake Neuchâtel and beyond to Lake Biel and the Rhine River Basin by the Aare River. Access to this network of land and water routes in itself justified the choice of this location to build the city.

The largest sector of the city expanded into the plain, to the north-east of the hill that would later be the setting of the medieval town. To date, no trace of a Roman occupation has been identified on the top of this morainic hill.

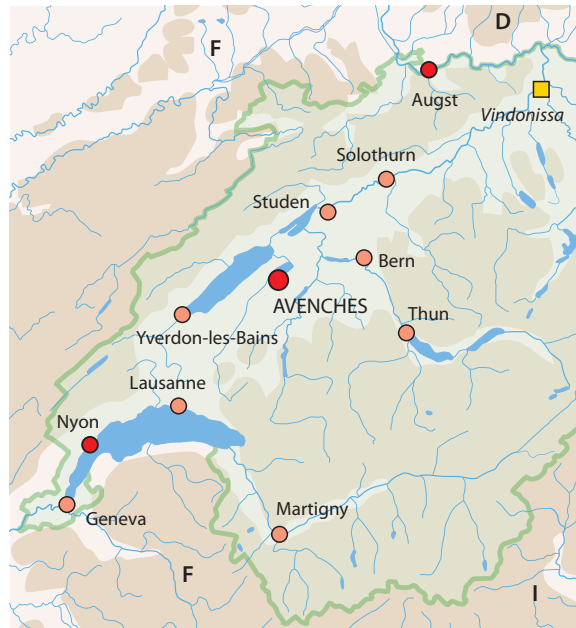


Fig. 2 – Map of Avenches and the main Roman settlements in western Switzerland.

- colony
- town / village
- military camp

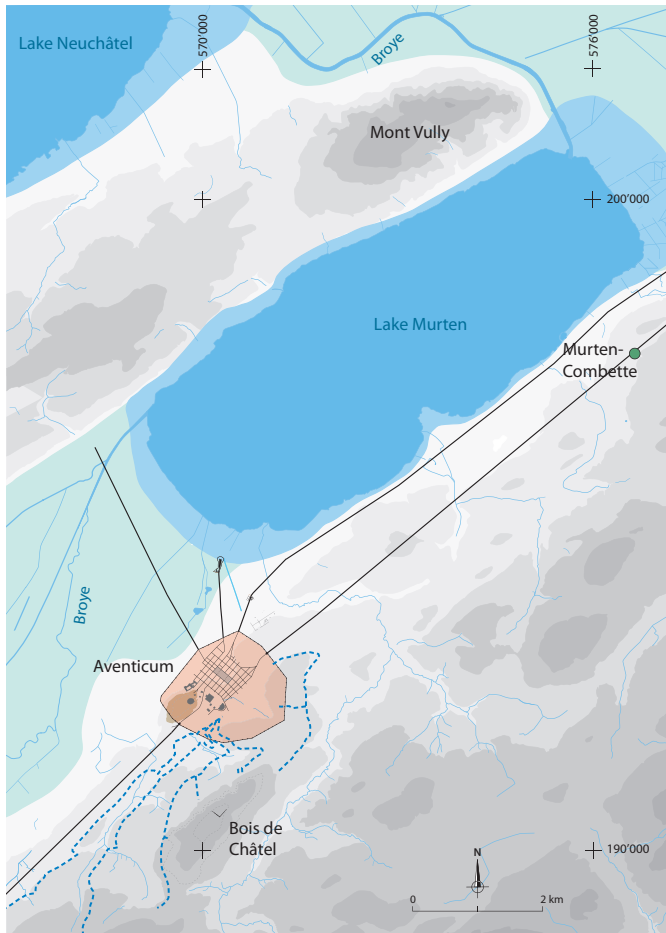
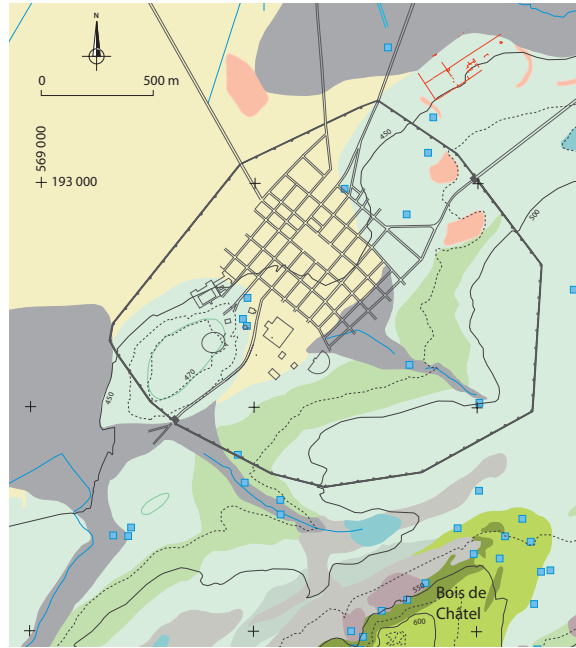


Fig. 3 – Location of the Roman city of Aventicum, Lake Murten, Bois de Châtel, Mont Vully and the large Roman country estate of Murten-Combette. Also shown are the approximate axes of the Roman roads and aqueducts.

Surrounded from the south to the north-east by the hills toward the Bois de Châtel and current villages of Donatyre and Villarepos, the plain proved conducive to designing a city with quarters following a regular layout in form of a grid plan. Apart from these regularly designed residential quarters, the city also developed along the axis of the major roads, in particular along the *decumanus maximus*, oriented south-west/north-east.

Drinking water was available from different springs along the slopes and at the foot of the Bois de Châtel hill. In the plain itself, groundwater was easily tapped by shallow wells. The building of the city – particularly several thermal baths complexes – required a long distance supply of water channelled through aqueducts.

Fig. 4 – The geological and sedimentological sequence of the region of Avenches.



The city builders faced two major challenges. One was specifically related to the shallow groundwater and the unstable, semi-swampy, nature of certain terrains, such as that around the Cigognier Sanctuary. These conditions forced builders to install a network of vertical wooden piles driven deeply into the waterlogged subsoil under the stone foundations of the buildings. Another problem related to construction was the lack of suitable building stones near the city, as there were only a few outcrops of fine greenish sandstone and coarse sandstone available along the slope of the Bois de Châtel. This shortage required them to ferry huge quantities of stones from quarries several miles away from the northern shore of Lake Neuchâtel. Clay, on the other hand, essential for the tile makers and potters, was abundant around Avenches. Wood was also probably procured from nearby forests.

Since the wide Lower Broye River Valley was periodically flooded and not particularly apt for agriculture, the supply of food to the thousands of residents of the capital was assured by a number of large agricultural villas established along the rolling hills overlooking the Lower Broye Valley and Lake Murten. One of these country estates was excavated at Murten-Combette (Canton of Fribourg).

From Aventicum to Avenches : A Historical Sketch

For a long time it was thought that Aventicum emerged *ex nihilo* shortly after the territory of the Helvetii was integrated into the Roman Empire in 15 BC. In fact, a few decades earlier, in 58 BC, the Helvetii, masters of nearly all the Swiss Plateau, had attempted to emigrate to western Gaul. However, Julius Caesar defeated them near Bibracte (Saône-et Loire) and forced them to return to their land.

Little is known about how the territory surrounding Aventicum was occupied during the Celtic period. We know, however, that there was a fortified settlement (in Latin *oppidum*) preceding the Gallic Wars on the Mont Vully a few kilometres north-east of Avenches. This fortification featured an imposing wall of stone and wood that was reconstructed a few years back (Fig. 5). There is also a theory, based on the finds of coins, of a Helvetii settlement founded after their return from Gaul to the south of Avenches on the hill known as the Bois de Châtel. But only future archaeological excavations will determine if this site was a permanent settlement or simply a temporary refuge.

Nonetheless, as seen by several recent finds, the plain of Avenches was far from uninhabited during Celtic times.

Fig. 5 – Reconstruction of a segment of the rampart of the Celtic *oppidum* of Mont Vully.





Fig. 6 – Marble statue of Agrippina the Elder, wife of Germanicus and mother of the Emperor Caligula. It belongs to a statuary group from the first half of the 1st century AD that embellished the city's Forum. The conserved fragments are represented in gray. Reconstructed height of the statue : 275 cm.

Several funerary and settlement features ranging from the end of the 2nd century to the second half of the 1st century BC have been brought to light by archaeology. Many of these finds are by the West Gate (Sur Fourches, Route du Faubourg) and in what would later be the western religious precinct. The nature and importance of these features, which apparently developed along a pre-Roman, south-west/north-east axis (corresponding to the future *decumanus maximus* or main road of the Roman town), are difficult to gauge. It is interesting to note, on the contrary, that no trace of a pre-Roman occupation has so far been reported on the hill where the later medieval town was built.

The Birth of the City

Probably since its founding, Aventicum was the capital of the « city » of the Helvetii, that is, the administrative centre of their territory under Roman jurisdiction. Aventicum was initially affiliated to the vast province of Belgic Gaul (*Gallia Belgica*) before joining, in about 85 AD, the new province of Upper Germania (*Germania Superior*).

Based on the current state of research, the adoption of a regular grid plan resulting in the rectangular residential quarters (*insulae*) dates to the end of the 1st century BC. The oldest identified houses (*insula* 20) are dated precisely by dendrochronology to 6-7 AD. About the same date, the port of Aventicum, crucial for the arrival of construction materials, was built on the shore of Lake Murten.

The city grew rapidly in the early years of the 1st century AD. Under the reign of Emperor Tiberius (14-37 AD), a number of residential quarters were already densely populated by houses of perishable materials such as earth and wood. It was at this time that the first public stone buildings were also being built. This is the case of the Forum, which was the administrative and religious centre of the new capital, and the « enigmatic » building with a pool in *insula* 19. At that time, the city may have been called Forum Tiberii, a name cited in the 2nd century AD by the geographer Ptolemy.

Even after the Roman conquest, the officials and ruling class of the new city continued to be members of the local Celtic aristocracy who remained loyal to the imperial power. Their ostentatious prosperity and attraction to Greco-Roman culture is seen through the funeral goods, architectural style and sculpted decor of two towering mausoleums at the site of En Chaplix erected circa 28 and 40-45 AD.

The growth of the city continued through the middle of the 1st century as seen by the construction of its first



Fig. 7 – Funerary inscription of Pompeia Gemella, probably the nurse of Titus who reigned as Emperor between 79 and 81 AD. The stone was unearthed toward the end of the 19th century in the cemetery near the West Gate. Height: 29 cm.

thermal baths (*insula* 23) and first stone temples in the western religious quarter (Round Temple, Derrière la Tour Sanctuary).

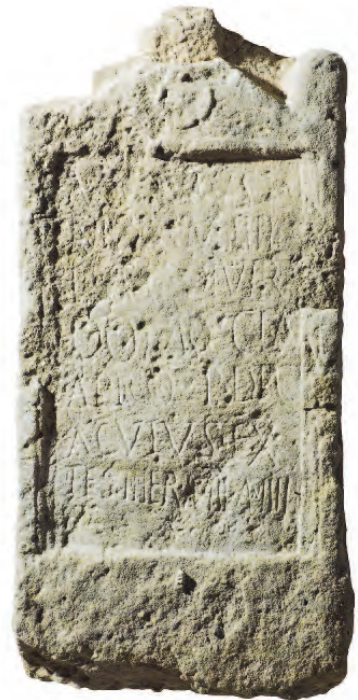
The Goodwill of the Emperor

The years 68-69 AD marked an important milestone in the history of Avenches. Rome saw a succession of four Emperors during this period of unrest and civil war. Since the Helvetii refused to follow Vitellius, one of the contenders for the supreme power, the Roman Army of the Rhine inflicted a heavy defeat on them. Their capital Aventicum, according to Tacitus, narrowly escaped destruction. However, shortly after taking power in 69, the Emperor Vespasian, who held a special relation with Avenches since his father and son Titus had resided in the city (Fig. 7), provided it with the privileged status of *colonia*. It was hence known as Colonia Pia Flavia Constans Emerita Helvetiorum Foederata. Construction of the city wall began at this time (71 AD). This wall, a symbol of the city's new status, was probably raised, in part, by detachments of Roman legionnaires (Fig. 8).

A Thriving City

The city grew dramatically in the next several decades. Public buildings flourished as seen by the En Perruet baths in *insula* 29, the Grange des Dîmes Sanctuary, the theatre linked to the great Cigognier Sanctuary and the amphitheatre. In the residential areas, the use of stone and masonry replaced the earlier earth and wood constructions. Houses inspired by Mediterranean models emerged, reflecting the prosperity of their owners. This « golden age » appears to have continued into the first half of the 3rd century, as evidenced in particular by mosaics adorning

Fig. 8 – The discovery in September 2012 of two funerary stelae of legionnaires near the West Gate has kindled the debate of the role of the Roman army in the city's urban and monumental development. These two soldiers who died in Avenches around 70 AD most likely belonged to a military detachment charged with the construction of structures such as the city wall. Height: 144 cm.



several residences. The largest of these, known as the Derrière la Tour Palace, was enlarged and embellished at the beginning of that century. The population of the city, estimated at 20,000, peaked at this time.

A Brutal or Gradual Decline ?

A period of turmoil began shortly after the middle of the 3rd century, combining political instability, economic crises and repeated incursions of more or less bellicose «barbarians». It has long been assumed that Aventicum was smitten by the fire and sword of the Alemanni invaders in about 275 and that it never rose again. Archaeology cannot confirm this brutal fate and continues to struggle to reconstruct in detail the steps of its decline.

Excavations around the theatre have established that this feature was surrounded by a defensive ditch at the end of the 3rd century suggesting it was transformed into a fortified refuge. These digs have also revealed a continuous occupation until the middle of the 4th century, characterised by a variety of workshops and recycling activities (metal, stone, glass) typical of Late Antiquity.



Fig. 9 – One of the most interesting discoveries from the Late Empire could be the earliest evidence of Christianity in Avanches. It is an inhumation burial of a young woman discovered in 1872 outside the West Gate. The rich grave goods included two glass cups engraved with the texts «VIVAS IN DEO» («*May you live in God*») and «(PIE) ZE(SES)» («*Drink to live*»).

In any case, Avenches' decline in the middle of the 4th century was a reality. Aventicum was, according to the writings of the ancient historian Ammianus Marcellinus, «... a city now abandoned, to be sure, but once of no slight importance, as is even yet evident from its half-ruined buildings». Although difficult to comprehend, the city survived and retained sufficient importance to become an episcopal see at the outset of the 6th century. Marius of Avenches (Saint Maire), author of a historical chronicle, was its last bishop toward the end of the 6th century.

Important data regarding the history of Avenches during Late Antiquity is probably still concealed underground in some unexplored area, most likely on the Bois de Châtel. An imposing fortification, identified more than a century ago on the summit of this hill, could have served as a refuge for the inhabitants of the region during these troubled times.

From the Middle Ages to Today

Traces from the Early Middle Ages (second half of the 1st millennium) are particularly rare in Avenches. It is unclear if an urban area really existed at this time. Characteristic archaeological finds are reported here and there, especially around the theatre and in the En Saint-Martin quarter south-west of the hill, where a parish church, unfortunately poorly dated, was unearthed.

After this dark period of the first millennium, remains of city, still under the control of the bishopric of Lausanne, become « visible » once again. In the 11th century a defensive tower related to the Diocese of Lausanne was built by Bishop Borcard of Oltigen above the western entrance of the Roman amphitheatre. This tower now houses the Roman Museum. In any case, it can be assumed that a village (« Vieux Bourg ») existed on the flank of the hill south of the amphitheatre. Two small cemeteries, one at the Grange des Dîmes Sanctuary and the other near the West Gate (Sur Fourches), are evidence of this reputed village. A small Benedictine priory was initially built on the top of the hill in 1134 near what is today the Sainte-Marie-Madeleine Church. However, the real « renaissance » of Avenches took place in the mid-13th century when a new city – the core of modern Avenches – was built on the top of the hill. Yet it was only much later, in the second half of the 20th century, that Avenches truly started to expand, especially to the west of the present road leading to Bern. This expansion began to cover several quarters of the Roman town. Up to then the ruins, for centuries, had

Fig. 10 – The 11th-century tower over the western entrance of the amphitheatre was heightened in the middle of the 13th century and remodelled once again in the 15th century. After serving different functions (guard tower, granary and prison), it became the Roman Museum in 1838. In the background, to the right, is the castle built in the 14th century that was later enlarged and remodelled by the Bernese authorities in the 16th century.





Fig. 11 – « La ville d'Aventicum ou Wiflisburg en Suisse » (« The city of Aventicum or Wiflisburg in Switzerland »). Engraving by Matthäus Merian the Elder (1642).

served as quarries for generations of builders. Modern Avenches, with a population that has more than doubled in half a century, now numbers nearly 4,000 residents.

Fig. 12 – Avenches today.



Centuries of Research

From the 15th to the 17th century: Aventicum Draws the Interest of Scholars and Collectors

The main monuments of Avenches, such as the lone-standing column of the Cigognier Temple and the city walls, have for years attracted interest and admiration. This is the case, for example, of Aymon de Montfaucon, Bishop of Lausanne, who paused in Avenches during a journey in 1494:

« The Lord Bishop left Fribourg on the 5th of December and arrived to his town of Avenches where he spent time listening to the tribulations of his subjects, who he soothed as best he could, and visiting ancient monuments in the area that are almost a wonder ».

Eminent travellers since the 16th century have taken notice of Avenches' divers inscriptions. Among the visitors, the poet, musician and professor of Latin, Henricus Loriti, aka Glarean (1488-1563), noted in 1515:

« See those large ramparts, not those encircling the small circular town, but those in the distance. The last grandeur of the race of Avenches is collapsing... Here stood in ancient times the capital of Helvetia. »

Aegidius Tschudi (Fig. 13), politician and self-taught scholar, considered the first historian of the Swiss Confederation, visited Avenches in 1536 on his way to the south



Fig. 13 – Aegidius Tschudi: politician, diplomat, geographer and historian (1505-1572).

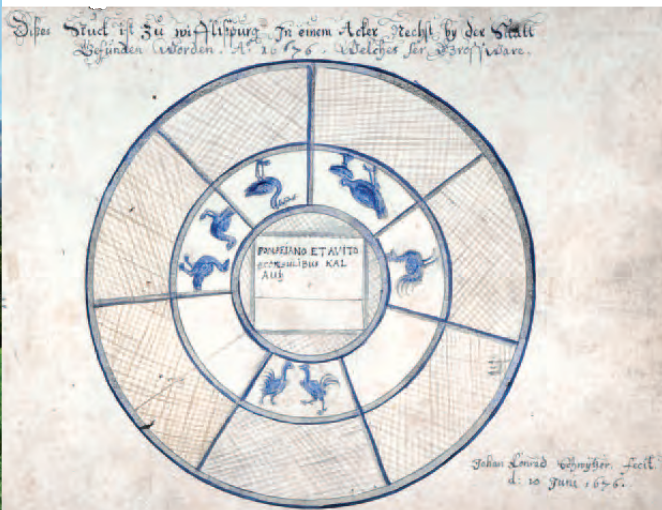


Fig. 14 – Drawing of the so-called «Consuls' mosaic» by Johan Conrad Schwytzer (June 10, 1676). In its centre is an inscription referring the calends of August during the consulate of Pompeius and Avitus, that is, August 1, 209 AD. The mosaic is no longer conserved.

of France and transcribed many inscriptions. Johannes Stumpf, chronicler and passionate epigraphist from Zurich, published a chronicle in 1548 with a page dedicated to Wiflisburg/Avenches.

Later, the erudite Johann Jacob Wagner, also from Zurich, professed his concern for the destruction of Aventicum's Roman vestiges. In «*Mercurius Helveticus*» (1684) he lamented the mosaic of the Maladaire (known as the «*Consuls' mosaic*») discovered in 1676 and destroyed less than three years later by treasure hunters (Fig. 14):

«*Sic omnia verti cernimus...*»

«*Thus we behold that everything passes...*»

Fig. 15 – Map of Avenches by Johan Caspar Hagenbuch (1731) drafted during a 30 day trip through Switzerland. This is the oldest map illustrating archaeological remains in Avenches, notably the city wall and the column of the Cigognier Sanctuary.

The 18th century: Beginnings of Scientific Research

The fascination with Roman history grew to its full extent in the 18th century due to the discoveries of Herculaneum and Pompeii in Italy. This is truly the beginning of a new form of archaeology, focused more on the scientific value of finds.



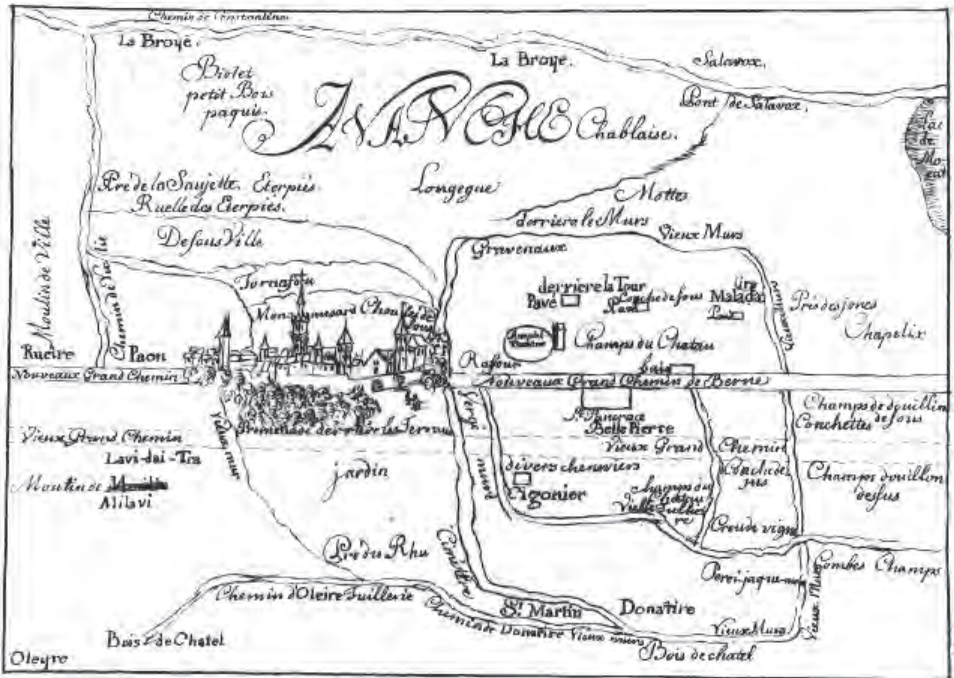


Fig. 16 – Plan of Avenches drafted by Samuel Schmidt of Rossens in 1749.

This new perspective will affect Aventicum as the Bernese rulers of the Pays de Vaud began to show interest in its glorious past. Roman finds, heretofore ending up in the hand of collectors and scholars, began to be regarded as evidence with the potential of enriching knowledge.

The Jesuit priest Pierre Joseph Dunod asserted in his treatise of 1709, « *La découverte entière de la ville d'Antre en Franche-Comté* », that the Roman city of Aventicum was, in fact, at Antre, France, and not in Avenches, Switzerland, following the discovery of Roman remains near Lake Antre (today in the Jura Department). This provoked a bitter scholarly controversy and exchange of letters and essays. The hypothesis of the Jesuit was definitely put to rest by Marquart Wild, at the time librarian of the city of Bern, who in 1710 published a seminal work entitled « *Apologie Pour la vieille Cité d'Avenche...* » (« *Apology for the Ancient City of Avenches ...* »). In this work he summarised the information about Aventicum based on a brief inventory of the recognised ruins known up to then.

We are indebted to theologian Johann Caspar Hagenbuch from Zurich, amateur of Roman Antiquity and renowned epigraphist, for one of Aventicum's oldest maps pointing out the archaeological ruins (Fig. 15).



Fig. 17 – Far-fetched depiction of a Roman monument based on the lone standing column of the Cigognier Sanctuary by Erasmus Ritter (1786-1790).

Fig. 18 – François-Rodolphe de Dompierre (1775-1844), the first curator of the Roman Museum of Avenches.



In 1747, the Bernese government assigned the surveyor David Fornerod the task of drawing up a detailed map of the town of Avenches with the location of the Roman ruins.

Samuel Schmidt, professor at the gymnasium of Bern, was on hand in 1749 to document the excavations carried out during the construction of the New Royal Road connecting Bern to Lausanne, a construction that destroyed the entire southern sector of the amphitheatre.

In 1783, the Bernese architect Erasmus Ritter was sent to Avenches to make an inventory of the ruins. He excavated several sites in 1786 and attempted graphic reconstructions of certain monuments (Fig. 17). He found an ally in Lord Spencer Compton, Earl of Northampton, who in 1780 took residence with his family in Avenches. This English aristocrat undertook systematic archaeological research that was documented by the painter Joseph-Emmanuel Curty from Fribourg. The « *Mémoire abrégé et recueil de quelques antiquités de la Suisse* » (« *Short Study and Collection of some Antiques in Switzerland* ») (1788) is considered the first scientific work dedicated to the site of Aventicum.

The 19th century: First Heritage Legislation and First Museums

Until the adoption in 1898 of the Cantonal Law regarding «the conservation of monuments and objects of art possessing a historical or artistic interest» and the Swiss Civil Code of 1912 declaring state ownership for all archaeological objects found in the different cantons, these finds belonged to the landowners where they were dug up. Many were sold to the highest bidder and scattered throughout private collections in Switzerland or abroad. Regrouping these dispersed artefacts so as to inventory, study and present them to the public was one of the major concerns of the two curators of Antiquities of the Canton of Vaud appointed in June 1822 by the Cantonal government. These men were François-Rodolphe de Dompierre (Fig. 18), Lieutenant Colonel at Payerne, for the north of the Canton, and Louis Reynier, Post Master of Lausanne, for the south.

1824 saw the creation of the Avenches Museum (Fig. 19). It initially began as a communal Museum but in 1838 became a cantonal entity and was moved to the tower overlooking the amphitheatre.

Emmanuel D'Oleyres, curator of the Museum from 1844 to 1852 and Inspector of Roads and Bridges of the Avenches District, like his predecessor, deplored the pillaging by both local landowners and the municipality itself. For example, municipal officials in the winter of 1846-1847 organised

a work site for the unemployed that resulted in the demolition of large parts of the Roman theatre.

In 1852, Frédéric Troyon, the curator of the Cantonal Museum of Antiquities of Lausanne, travelled to Avenches and established an inventory of 884 objects. Auguste Caspari, a pharmacist, completed the inventory from 1862 to 1888. He skilfully negotiated the acquisition of artefacts from the landowners. As a result of his commitment, the Museum's collection increased from 884 to a total of more than 2,000 artefacts (excluding coins).

Five booklets entitled «*Aventicum Helvetiorum*» authored by Conrad Bursian were published between 1867 and 1870 in the «*Mitteilungen der Antiquarischen Gesellschaft in Zürich*». These booklets included most of the archaeological artefacts known up to that time (Fig. 20).

The Association Pro Aventico Saves Aventicum from Destruction

Despite the presence of museum curators in Avenches, the Canton of Vaud failed to protect Aventicum's ruins. The Roman city was still the object of clandestine excavations and its artefacts continued to be dispersed.



Fig. 19 – The Vespasian Circle («Cercle Vespasien»), the first Municipal Museum (1824-1825), would later become the Casino. Its facade was inspired by that of Roman temples.

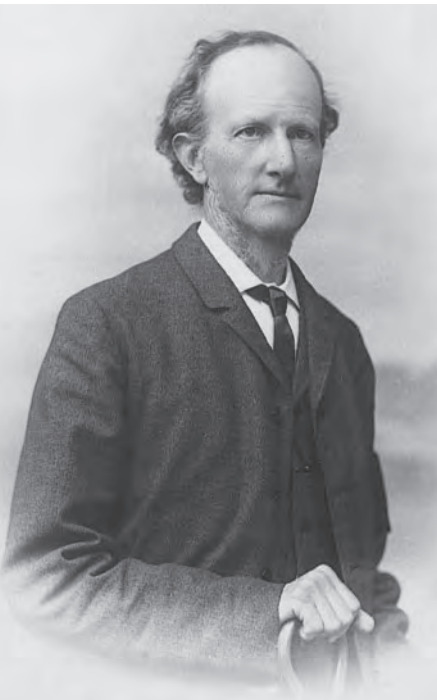


Fig. 20 – Drawings of various sculpted heads of the Roman Museum of Avenches on a plate of the publication «*Aventicum Helvetiorum*» by Conrad Bursian (1867-1870).

Fig. 21 – The She-Wolf relief, unearthed in 1862 at the Derrière la Tour Palace, is one of the iconic works of the Roman Museum of Avenches. It joined the Museum collection in 1896 after many adventurous events. Length: 109 cm.



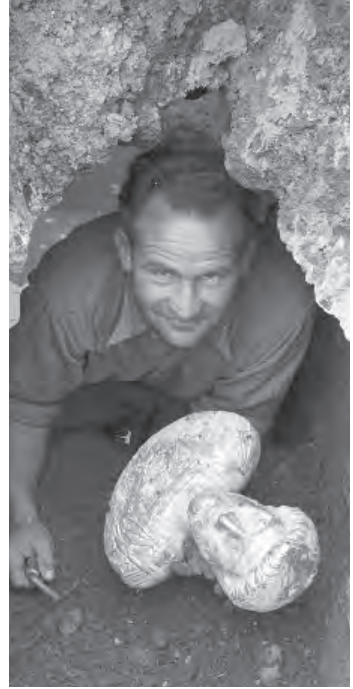
Fig. 22 – Eugène Secretan (1839-1919), one of the founders of the *Association Pro Aventico*.



Eminent personalities protested the looting and lack of systematic excavations and demanded that the government fund archaeological research. Since their calls were left unheard, the only means to protect Aventicum was to arouse the interest of the public by creating an association. On September 3, 1885, the *Association Pro Aventico* was created under the patronage of the Historical Society of Western Switzerland. It is due to this association that the ruins of the ancient city are still visible today. Systematic excavations were then carried out and the terrains of certain threatened ruins were acquired, saving them from destruction. The first «*Bulletin de l'Association Pro Aventico*» was published in 1887. It included reports of field observations of a number of «unofficial» uncontrolled digs. Furthermore, thousands of blocks from the ancient monuments continued to be pillaged and sold as building materials.

Louis Martin, a secondary school professor at Avenches, succeeded Augustus Caspari in 1888 and systematically researched the Museum's little-known collections. He was the first, in 1890, to establish a catalogue *raisonné*, initially of bronzes artefacts followed by marbles and mosaics. His most important work, however, is a catalogue of more than 1,100 coins.

One of the main objectives of the Reverend Francis Jomini, curator from 1900 to 1913, was to enlarge the collection. He did not hesitate to acquire artefacts at his own expense and donate them to the Museum. Like his predecessors, he lamented that removal of artefacts and repeatedly demanded legislation to halt this practice. In the 1920s, the economic crisis added to the difficulties. During this period, Ernest Grau, Jomini's successor, a secondary school professor in Avenches, had to simply content himself with managing the Museum until 1937.



The 20th century: Aventicum Unveils Itself

The international crisis of the first half of the 20th century was neither conducive to archaeological research nor to scientific publications. Nevertheless, systematic work took place in 1938 under the leadership of Cantonal Archaeologist Louis Bosset (Fig. 24) and Jules Bourquin, secondary school teacher in Avenches and new Museum curator. Workers for these sites were first drawn from the unemployed of Lausanne and later, during the war, from interned French soldiers. Then field work was funded by the philanthropist Maurice Burrus. The theatre and amphitheatre, as well as the Cigognier Sanctuary, were explored at this time. It was during this work that the famous gold bust of Emperor Marcus Aurelius was discovered in 1939 (Fig. 23).

The second half of the 20th century was marked by significant changes to the Museum. Under the direction of the museographer Victorine von Gonzenbach and the architect Pierre de Sybourg, curator from 1951 to 1960, the medieval tower's first and second floors were renovated and an office and a depository were arranged

Fig. 23 – April 19, 1939: Discovery of the gold bust of Marcus Aurelius in a conduit during excavation of the Cigognier Sanctuary by a team of unemployed workers from Lausanne.

Fig. 24 – Louis Bosset (1880-1950), architect and Cantonal Archaeologist of Vaud from 1934 to 1950.



Fig. 25 – Excavation in 1953 of the thermal complex of Perruet (*insula 29*). The features brought to light are preserved under a shelter to the east of the road to Bern.

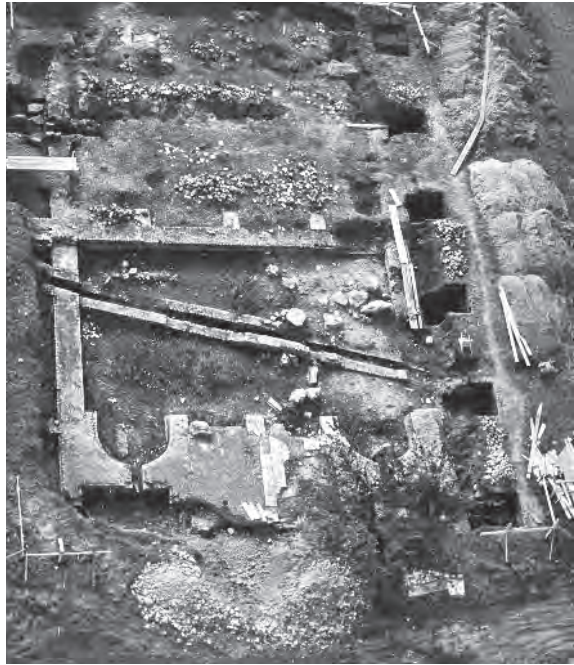


Fig. 26 – Hans Bögli examining a newly discovered bronze statuette of Bacchus (1966).



in the attic. The major field work of this period was the dig of the Perruet Baths (*insula 29*) (Fig. 25).

The early 1960s saw a dramatic increase in funding for the Museum following the creation of an industrial zone by the authorities of Avenches in a sector of the old Roman city. Rescue excavations, up to then led by Georg Theodor Schwarz, were placed in 1964 under the authority of the newly created *Fondation Pro Aventico* to ensure systematic research. As a result, each year between 5,000 and 15,000 new artefacts were catalogued.

In 1965, Hans Bögli (Fig. 26) was the first professional curator appointed by the cantonal authorities as director of the Roman Museum.

Decisive Legal Measures for the Protection of Aventicum

In 1969, a new law was adopted in the Canton of Vaud combining the protection of nature, monuments and archaeological sites. This law introduced preventive measures (inventory of monuments worthy of preservation, definition of archaeological zones requiring special building permits). Two decades later, on December 4, 1987, a law was adopted defining in detail the protection of various areas and monuments of Aventicum, as well as the process

involved in rescue excavations. The heart of the Roman city and surrounding areas were at that moment declared as an archaeological reserve and construction was prohibited.

The Canton of Vaud has for many years adopted a policy of acquiring the land surrounding the archaeological reserve for future excavation and valorisation of the potential features.

A great number of artefacts were added to the Museum collection in the late 1980s after the excavations in the framework of the construction of the A1 motorway (Fig. 27) and during the real estate boom in the 1990s. The collection today numbers several hundred thousand artefacts. And this number continues to increase as preventive operations are carried out throughout the year.

The results of research are published annually either in the form of articles in the « *Bulletin de l'Association Pro Aventico* » or in the form of monographs in the « *Aventicum* » series of the « *Cahiers d'Archéologie Romande* ». Another publication series, the « *Documents du Musée romain d'Avenches* », specialises in editing books and catalogues of exhibitions.

The Fondation Pro Aventico

In 1964, following the creation by the Municipality of Avenches of an industrial zone seriously threatening parts of the Roman city, the *Association Pro Aventico* created the *Fondation Pro Aventico*. Its mission was the protection, study, conservation and valorisation of Aventicum, in collaboration with relevant services of the Canton of Vaud, in particular the Roman Museum of Avenches. Financed by the Canton and the Swiss Confederation, this foundation accomplished its mission with a team of professionals. This foundation, however, was dissolved in 2014 following the decision of the Cantonal authorities to assume all the duties and guarantee employment of all the staff, a decision increasing official involvement that assures the future of Aventicum.



Fig. 27 – Lifting of a sculpture (Triton and Nereid) during the excavation of one of the En Chaplix funerary monuments (1989).

Fig. 28 – Archaeological excavation of the south-western quarters (Route du Faubourg), at the foot of the medieval city (2014).



Building Aventicum

A Gridded Layout of Streets

The city of Aventicum was built in a vast plain, facilitating its adoption of a regular, gridded layout, a model widely applied to Roman provincial cities (Fig. 29). A network of streets about 6 m wide formed the base of the grid, dividing the urban area into uniform «islands» or *insulae*. Each of these rectangular quarters, including the porticoes along the streets, measured approximately 110 x 75 m corresponding to over 8,000 m².

The *decumanus* and the *cardo maximus*, the two main roads, formed the base of the grid. Furthermore, their intersection determined the location of the Forum. The *decumanus*, about 9 m wide, seems to have borrowed its axis from an older pre-Roman thoroughfare. The *cardo maximus*, perpendicular to the *decumanus*, determined the longitudinal axis of the Forum. Further to the north, it divided three *insulae* in halves before stretching beyond the urban area toward the Mont Vully.

The length of the network of streets of Aventicum is estimated at about 14 km. They were not paved with stone slabs, but with layers of gravel and pebbles, a type of

Fig. 29 – Aventicum circa 180 AD.

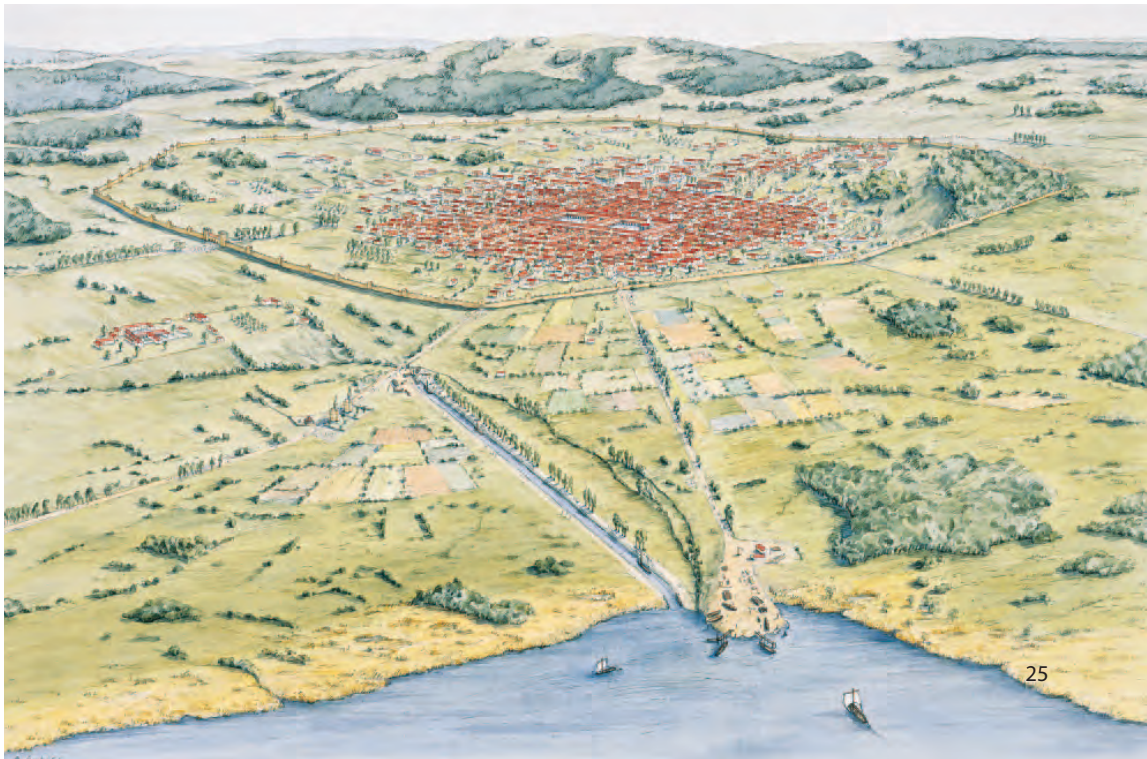


Fig. 30 – View of the road separating *insulae* 13 and 19. Its gravel surface (1) is flanked by a drainage ditch (2) and a portico (3) with columns standing on sandstone bases (4).



construction that required regularly maintenance (Fig. 30). Their surfaces were slightly cambered so as to drain rainwater to lateral, open air or covered ditches. This drainage system was connected to a larger network of walled conduits that channeled both rainwater and sewage toward the lower area of Aventicum, away from the residential areas.

Spread and Organisation of the Urban Areas

The initial gridded plan adopted for the residential quarters remained unchanged, despite the addition of a few quarters south of the city and the gradual expansion of the urban area along the main roads. The limits of the city before the construction of the wall, however, have never been clearly identified. With the erection of the wall beginning in 71-72 AD, the new colony's *intra muros* area covered 230 hectares. Slightly more than half of this surface (about 140 hectares) consisted either of wooded or cultivated fields that extended for the most part over the hills to the south (Fig. 31).

The hill of Avenches, devoid to date of any Roman occupation, overlooked the religious area that occupied a surface of about 20 hectares. The location of this sacred precinct was dictated, at least in some cases, by older, pre-Roman, funerary or religious features.

The 70 remaining hectares, about one-third of the total area of urban land, was split between the gridded residential quarters (42 hectares) and sectors along the outskirts of the city reserved for secondary activities such as crafts that

could provoke fires or foul odours. Over time, and depending on the development of residential areas, these crafts were moved even farther away.

The space reserved for residential housing in the heart of the gridded quarters probably varied greatly from *insula* to *insula*. These spaces included courtyards with wells where a number of domestic tasks were carried out. They also, at times, included shops facing the streets, as well as small workshops to carry out crafts requiring little infrastructure (bone, textile or leather workings, small-scale metal workings). The original layout of the residential quarters and their subdivisions into parcels, established during the original surveying of the land, saw few modifications over time despite numerous transformations and reconstructions of the houses.

When a Town's Identity is Expressed through its Public Buildings

The monumentalisation of urban Aventicum belongs to a process subject to many historical and economic factors. The construction of prestigious buildings demanded heavy financial support by rich investors who had both social and political motivations. Public monuments, however, could often not be constructed without the consent of the Emperor. It is therefore not surprising that the first signs of monumental architecture appear in sanctuaries related to the imperial cult.

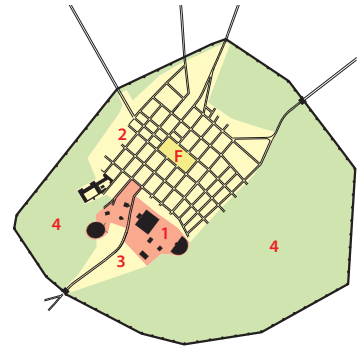


Fig. 31 – Schematic plan showing the distribution of buildings in the area of the city in the 2nd century AD.

- 1 Public buildings (western religious precinct, theatre and amphitheatre)
- 2 Area of high density (gridded residential quarters)
- 3 Area of high density (southwestern residential quarters)
- 4 Area of low density or devoid of constructions
- F Forum

Fig. 32 – Reconstruction of a building site at the entrance of the amphitheatre of Aventicum (building phase after 165 AD).





Fig. 33 – Overlays of coloured marble imported from the eastern Mediterranean are examples of the luxurious ornamentation of the major public buildings and residences of the rich. They decorated floors and walls.

Fig. 34 – Richly decorated cornice. The rock, Urganian limestone, was widely used in Aventicum.

When Aventicum gained colony status in 71 AD, it experienced a new phase of vigour simultaneous to its growing influence as the capital of the Helvetii. This development coincided with an upsurge in building activity, embodied by the completion of major architectural projects initiated under Vespasian. The best example marking the city's new political status was the construction of the city wall (5.5 km long) with its imposing gates.

Large-scale architectural projects from the end of the 1st century AD marked daily life in Aventicum (Fig. 32). Under Trajan, several projects such as the complex linking the Cigognier Sanctuary and the theatre, and presumably the amphitheatre, were raised almost simultaneously. It appears that the Forum also went through transformations at the turn of the 1st and 2nd centuries AD and meeting places (*scholae*) funded by guilds or wealthy families were raised in its periphery.

Certain influential families in the 2nd century, who had assembled large fortunes owing to long-distance trade (in particular with Italy), resided in large mansions fitted out with marble and mosaics (Fig. 33). At the end of the 2nd century, Aventicum gradually developed into a veritable centre drawing together the main regional political and religious functions.

Natural Resources and Building Materials

The earliest structures of Aventicum were built with wood and wattle and daub (a mixture of clay and straw; Fig. 125). Sun-dried mud-bricks were also used for certain constructions dating from the first half of the 1st century AD. At the end of the century, although most of the city's houses





Fig. 35 – The quarry of La Lance, near Concise (Canton of Vaud), on the northern shore of Lake Neuchâtel, supplied Aventicum with high-quality limestone.

were of masonry, terracotta and wood were used for many interior features and for roofing. Terracotta bricks supported the floors of thermal baths and hollow rectangular bricks (*tubuli*) conducted hot air and toxic fumes through the walls. The forests surrounding the city provided timber for construction of buildings (in particular their framework) and for the many oak piles driven into the subsoil under the masonry foundations to consolidate buildings raised in marshy areas.

Most buildings from the 2nd century AD were erected with small yellow Neuchâtel limestone blocks bound with lime mortar. Large blocks of grey-green, shell-rich sandstone or yellowish Urgonian limestone were used for buildings subjected to heavy loads or stress. Urgonian limestone also served almost exclusively for sculpted features (Fig. 34). All these stones came from quarries either in the vicinity or easily accessible to Aventicum. The shell-rich sandstone (*pierre de la Molière*) was quarried in the region of Estavayer-le-Lac (Canton of Fribourg) and the limestone at La Lance near Concise in the Canton of Vaud (Fig. 35). After extraction, these rocks were ferried to Avenches by boat, the most advantageous means of transport. Polychrome marbles at times adorned temples and the private residences of the rich (Fig. 33). The transport of these materials, from North Africa and Eastern Mediterranean, involved perilous journeys over land and sea. To the north of the Alps, to reduce their weight and cost of transport, these coveted polychrome marbles were generally cut into thin slabs and used as overlays.

Mandataries and Financing

Who was responsible for the construction and the financing of Aventicum's monuments? How long did these building



Fig. 36 – Assortment of tools used in different trades related to construction (trowel, hammers, picks, drill bit, compass, plumb line, chisels and spatulas).

Fig. 37 – Wealthy patrons financed public buildings. This inscription records that the prosperous tile maker Marcus Afranius Professus funded the construction of the hall of the municipal council (*curia*) of Aventicum. Height preserved at 116.5 cm.



sites last? Recent studies in Rome reveal that raising large, complex structures could be carried out surprisingly quickly. Monuments such as the Colosseum and the Baths of Caracalla or Trajan, for example, were raised in less than five to eight years. These prestigious and perfectly organised construction projects were obviously mandated by the Emperor and benefited from unlimited funding and experienced project managers.

In general, these types of works were funded by wealthy donors. It was indeed common that these benefactors, so as to increase their social prestige or accelerate their political careers, financed either the construction or renovation of a monument. At Aventicum several public buildings were funded by important personalities of Helvetian society. Inscriptions record that Afranius Professus funded the *curia* (council chamber) of the Forum (Fig. 37), that Tiberius Claudius Maternus, an aedile (magistrate), funded a room for exercise with balls (*sphaeristerium*) linked to thermal baths (Fig. 113) and that the wealthy Otacilii family probably financed the renovation of the theatre's stage. As recorded in the « Nautae Inscription » (Fig. 102), the chambers that served for gatherings of representatives of influential guilds (*scholae*) were financed most likely by their « pooled funds ».

It is also likely that large-scale projects, such as raising the city wall, were co-financed by municipal, provincial or imperial institutions. It is also worth noting that building Aventicum's walls probably benefited from the help of specialised military detachments.

Living in Aventicum

A Pyramidal Society

The population of Aventicum is estimated at its height to have numbered about 20,000. Most were of indigenous origin.

There is evidence at Aventicum, as elsewhere in the Roman Empire, that society was structured following a strict hierarchy, with the highest class represented by members of the Imperial Family. The writer Suetonius records that Flavius Sabinus, the father of Emperor Vespasian, had been a banker in Aventicum. Moreover, an inscription on the tombstone of the nurse and housekeeper Pompeia Gemella, indicates she probably served Titus, the future Emperor, when he resided during his youth in Aventicum with his grandfather (Fig. 7).

Some epigraphic documents also suggest the presence of members of the senatorial and equestrian orders belonging to the highest ranks of Roman society, just below that of the Emperor and his family.

Several influential local families marked the history of Aventicum. The wealth of these aristocrats was mainly generated by exploiting the land throughout the Helvetii tribe's territory. One family, the Camilli, was known to have dominated the political and religious life throughout the 1st century (Fig. 38). They became Roman citizens very early by imperial decree either after completion of a military career or after exercising senior regional political functions.

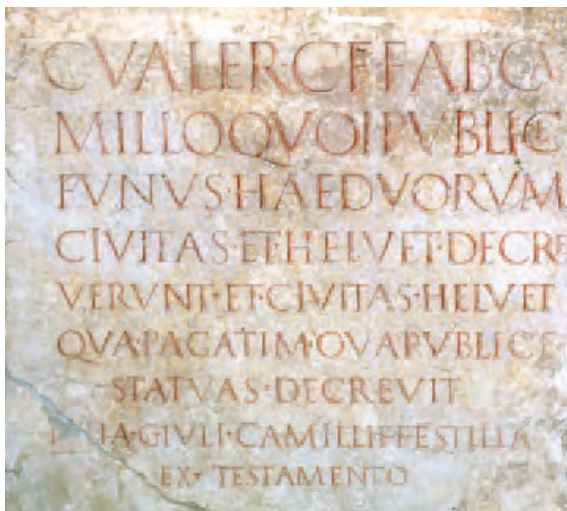


Fig. 38 – Marble dedication honouring C. Valerius Camillus, a prominent member of an aristocratic Helvetii clan.

Certain family members were *decurions*, local senators, who assumed legislative powers and responsibility of governing the official cults of the city. At the head of the executive were two senior *duoviri* serving as mayors and judges and often as imperial priests. They were assisted by two magistrates (*aediles*) who, acting like police, enforced the law in the market and at the games. At Aventicum there was also a prefect charged with the management of public works.

Rich, generous and ambitious freedmen (former slaves), in their search for social recognition, dedicated themselves to the city by taking on the title of custodians of the colony (*curatores coloniae*), a temporary duty aimed at financing the municipal government.

Professions related to medicine, commerce and crafts were held by the free middle or lower classes (citizens, foreigners and freedmen) or slaves. Slaves, depending on their master, could have a relatively privileged economic position. Aprilis, slave of the Camilli family, for example, had the means to offer a monument to the gods Silvanus and Neptune (Fig. 164).

Public Life

The residents of Aventicum readily met in the Forum, heart of the capital, to engage in business or political affairs or to perform acts of devotion. This meeting place promoted social life and brought together politicians, merchants and moneylenders. This complex comprised a temple located to the opposite of the administrative buildings such as

Fig. 39 – Reconstruction of a Gallo-Roman kitchen in the Roman Museum.



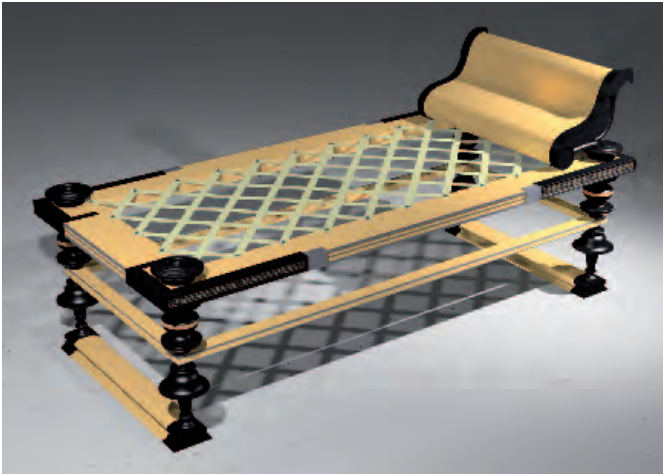


Fig. 40 – Bed garnished with bronze and silver discovered at the Derrière la Tour Palace. The bed was manufactured on the Greek Island of Delos in the 1st century BC. Below: reconstruction of an angle of the bed with some of its original parts.



the Curia (housing the decurions), and the Basilica (devoted to commercial, banking and judicial activities). The Forum also included shops and taverns.

Sanctuaries were also busy and crowded places. The deities were either Greco-Roman or Celtic, such as Aventia, an indigenous goddess, who lent her name to the city. These deities, in fact, were omnipresent in the daily life of all the population of Aventicum. Cults were public, presided by the decurions, or private, practised by different families, communities or associations. The deities were represented by images or statues in the chapels (*cellae*) of temples. There is also evidence of Emperor worship. Roman religion essentially required performing a series of prescribed rites and fulfilling a number of obligations.

The public baths were other meeting points where the population went to wash, swim or do sports. Exercise with balls took place in a specific area, the *sphaeristerium* (Fig. 113). The baths were generally equipped with latrines where users of contiguous facilities did not hesitate, at times, to discuss personal or commercial affairs. Libraries, rest areas, gardens and areas for strolling, offering other options to relax, were part of the thermal complexes.

Amphitheatres, places of gathering par excellence, presented gladiator combats and animal hunts held under the gaze of the gods and the Emperor represented by images and statues. The theatre also provided audiences with pantomimes and, presumably, «classical» representations.

Music was everywhere. It accompanied festivities, funerals and weddings, as well as combats, sacrifices, processions and performances. It was also part of the life of taverns

Fig. 41 – Bronze statuettes belonging to a *lararium* (household shrine) discovered in 1916 in a residential quarter of Aventicum (*insula 27*). From left to right: Fortune, Minerva, Mercury, Minerva, Lares and Juno. 1st-2nd centuries AD.



and other places of gathering. The most frequent instruments were flutes, horns, harps, lyres, lutes, cymbals, bells and tambourines. Parts of a hydraulic organ (Fig. 46), a rare musical instrument for that time, were discovered during excavation at the Derrière la Tour Palace. It is known that these types of instruments were featured in amphitheatres (Fig. 57).

Private Life

The technique of construction of private houses, originally of earth and wood with thatch or shingle roofs, evolved from the middle of the 1st century AD to masonry and tiled roofs. Shops and workshops under porticoes were built along streets. The upper floors of many residences of the rich could have accommodated servants and slaves, most likely numerous in the houses of the rich.

Many luxurious mansions in the centre and along the periphery of the city had heated rooms or baths and were embellished with mosaic floors, painted walls and pleasure gardens.

The kitchens often had earthen floors with a large rectangular fireplace at floor-level. In small residences, food was served either at a table or on the floor near the fireplace. In wealthy homes, the dining room comprised at least three couches arranged in a U layout (*triclinium*). Food was served on a small central table and eaten with the fingers. There is no evidence of the use of fork and knife. A small spoon with a pointed handle served to open egg shells. Women sat on chairs near the couches, whereas children and slaves were served separately.

Fig. 42 – Strainer indicative of the production of cheese.



The poor ate stewed cereals (*puls*), bread, beans and lentils, as well as different types of salads and vegetables grown locally. They consumed little pork, beef and mutton. Cheese was very popular (Fig. 42). The wealthy consumed higher-quality meat: suckling pig, lamb, poultry and game. They also had access to luxury goods imported from the Mediterranean: mackerel, oysters, garlic, dates, pine nuts, olives and figs. They all ate fruits, some introduced by the Romans, such as apples, plums, pears, cherries and peaches. Mulled wine (*defrutum*) and honey sweetened foods. Fish sauces (*garum*) from southern Spain, as well as other spices, flavoured their dishes. Wine, a product that prior to the Roman conquest was only consumed by the local elite, was now imported on a large scale from the Mediterranean and the Rhone Valley. Some wines may even have been produced locally. Beer and mead, Celtic beverages par excellence, also remained very popular.

Most houses were not equipped with running water. Water was drawn from wells or fountains. Furthermore, there is little evidence of toilets directly inside the houses. They probably were simple pits in small rooms, under a staircase or in the garden. Vases of different form could also have served as chamber pots.

Since wood and wicker are rarely preserved today, domestic Roman furniture is not well-known. The richest families had precious ornate beds (Fig. 40), tables, chairs, chests, cabinets, etc. The different rooms were illuminated by fireplaces, torches, candles and other oil and tallow lamps.

Most homes possessed a *Iararium*, a small domestic altar housing the deities that guarded the house (Fig. 41). These deities were offered sacrifices, food and gifts to assure protection, as well as to make wishes come true.

Fashions

Roman citizens, in official and public ceremonies, wore a toga over a long tunic covering the knee, with either short or long sleeves. The normal dress of men of indigenous



Fig. 43 – Artefacts related to body care and cosmetics (strigils, ceramic and glass vials, ear picks, tweezers, blue pigment pellets, bronze mirror and cosmetic palette).



Fig. 44 – Leather sole of a shoe with metal studs. Length: c. 25 cm.

Fig. 45 – Romans enjoyed playing games, in particular those of skill, chance, strategy and patience, such as the *stomachion*, similar to the modern puzzle. The imported marble game table and the tokens of various materials in the photograph were discovered in Aventiches. Length: 65 cm.

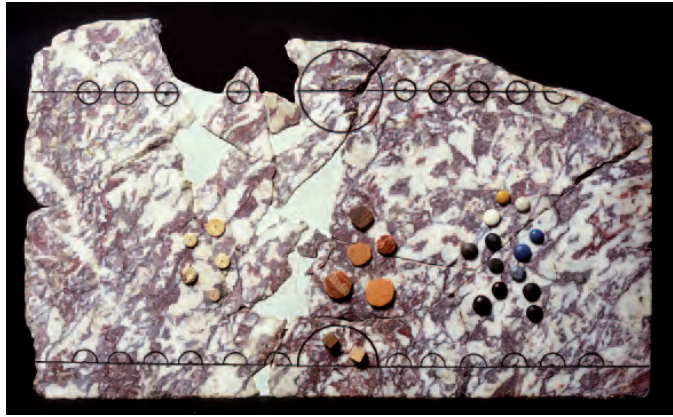


Fig. 46 – Bronze parts of a hydraulic organ discovered at the Derrière la Tour Palace. Below, mosaic depicting an organist and a horn player at the Roman villa of Nennig (Germany).



origin consisted of a short tunic with large sleeves that could be tightened at the waist. They wore hooded coats like ponchos and a scarf tied around the neck. Craftsmen wore short, sleeveless tunics with a belt at the girth, and only sewn on the left shoulder so as to maintain freedom of motion for the right arm.

Although some of the women followed Roman fashion often initiated by the Empress, their wardrobe was mostly traditional. It comprised a short or long tight undergarment covered by a large, sleeveless drape, attached at the shoulders by two fibulae (brooches). To go out, they donned a cloak that they could either wrap around their body or attach at the shoulder.

Although most of the garments were of wool and linen, the rich at times were clothed in leather or silk. Men and women usually wore leather shoes or sandals with studded soles (Fig. 44).

A great number of toilet and makeup utensils are evidence of the special care that men and women brought to their bodies. Women of high standing had hairstyles influenced by the Empresses, whereas men followed the fashion of wearing beards initiated by the Emperors of the 2nd century.

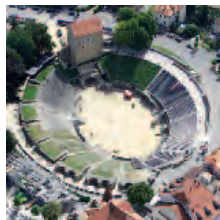


AVENTICVM AND ITS MONUMENTS



The principal monuments of Aventicum are the Amphitheatre, the Grange des Dîmes Temple, the Cigognier Sanctuary, the Theatre, the Perruet Thermal Complex (*insula* 29) and the City Wall, featuring the Tornallaz Tower and the East Gate. The more assiduous visitors can also see the modest remains of the West Gate and the Derrière la Tour Palace. The plan of the monuments is at the end of this volume.

This booklet also describes other Roman features that are no longer visible.



Amphitheatre

1

City Wall

6



Grange des Dîmes Temple

2

Tornallaz Tower (City Wall)

7

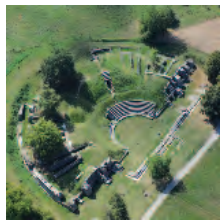


Cigognier Sanctuary

3

East Gate (City Wall)

8



Theatre

4

West Gate (City Wall)

9



Perruet Thermal Complex (*insula* 29)

5

Derrière la Tour Palace

10



The Amphitheatre

An Old «Acquaintance»

The engraver and printer Matthäus Merian the Elder (1593-1650) was the first to point out that the ruins in the eastern part of the old quarters of Avenches might belong to a Roman amphitheatre. His hypothesis was adopted as early as 1688 by Johann Jakob Wagner in his work «*Mercurius Helveticus*». However, another century would have to pass before researchers renewed interest in the feature. This came at the hands of Samuel Schmidt and Johann Rudolf Gruner who between 1751 and 1760 published «*Aventicum Romanorum*» with the first sketches of the amphitheatre's perimeter wall adorned with niches. A few decades later, in 1790, the amphitheatre was once again depicted in an ink and watercolour drawing by Erasmus Ritter.

Scientific and systematic exploration of the monument, nonetheless, only began toward the beginning of the 20th century. In 1906-1907, with the backing of

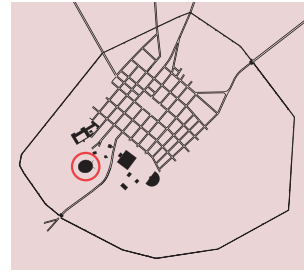


Fig. 47 – Amphitheatre. Aerial photograph (2014) showing the rebuilt tiered seating section and the medieval feature called the «Bishop's Tower» (above the arena's gateway) that houses the Roman Museum.



Fig. 48 – Amphitheatre. View of the excavation of the arena in 1943.

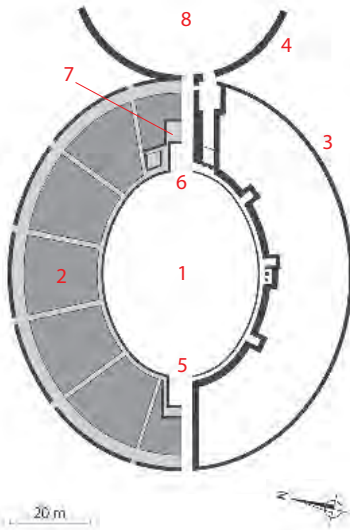


Fig. 49 – Amphitheatre. Plan of the first construction phase (early 2nd century AD). Left, elevation; right, foundations.

- 1 Arena (*arena*)
- 2 Tiers (*cavea*)
- 3 Perimeter wall
- 4 Semicircular retaining wall
- 5 West gate (« Gate of the Dead »)
- 6 East gate (« Gate of the Living »)
- 7 Terrace
- 8 Rafour Square (*Place du Rafour*)

the *Association Pro Aventico*, François Jomini began to excavate the amphitheatre's entrance at the Rafour Square. Louis Bosset, architect based in Payerne and Cantonal Archaeologist of the Canton of Vaud, then took charge of the project. Bosset initiated systematic campaigns of excavation and restoration from 1911 to 1926 and especially from 1940 to 1950 (Fig. 48). Subsequent restoration from 1950 to 1972, partly financed by the French patron Maurice Burrus, focused on the perimeter wall and the seating section (Fig. 52). The last major work took place from 1986 to 1995 and included the conservation of different masonries, the improvement of the building's drainage system and the modernisation of the Museum in the « Bishop's Tower » (Fig. 47).

The Original Construction

The original amphitheatre of Avenches was probably raised in the early 2nd century AD following the city's accession to the status of Roman colony in the framework of Emperor Trajan's policy of expansion. The construction, leaning against a hill, followed a simple design, devoid of



Fig. 50 – Amphitheatre. Stairway of the secondary south gate allowing access from the Rafter Square to the podium above the corridor encircling the southern sector of the arena.

ornamentation. Its overall dimensions were 98,95 x 85,95 m, while the arena measured 51,63 x 38,72 m.

Waste water was drained through an underground conduit that ran lengthwise under the arena passing the eastern entrance toward what is today the Rafter Square. Two arched gates gave access to the oval arena. The first of these entrances, to the west, was traditionally known as the «Gate of Death» (*porta libitinensis*). The second, to the east, was the «Gate of Life» (*porta sanavivaria*). The arena, between the gates, therefore symbolised an intermediate space between the present and the hereafter. Both gates were flanked by small service doors that served as entrances for the hunters and wild animals during hunting spectacles.

The wall bordering the arena was about 2.50 m high. To the north this wall's facing comprised large stone slabs, whereas to the south, vertical slabs formed a passageway along the arena (Fig. 51). This passageway, occupying only



Fig. 51 – Amphitheatre. View from the main entrance toward the corridor encircling the southern sector of the arena. In the centre is a short segment of the corridor reconstructed in 1949-1950.



Fig. 52 – Amphitheatre. View of the reconstruction in 1950 of a section of the tiered seating funded by the patron Maurice Burrus.

a segment of the perimeter, is exceptional in the Roman world. Moreover, the three independent staircases leading to it, and allowing a direct access from the arena to the seats of honour, have no parallel in Antiquity. Other singular features include a terrace (c. 20 m²) capping the eastern entrance (Fig. 53) accessed by a staircase from one of the lateral galleries connected to the Rafter Square. This unique architectural feature may have served as a platform to exhibit depictions of the Emperor and gods that, preceding the games, were marched in a procession (*pompa*) through the town. These depictions, visible to the spectators, participated, at least symbolically, in the games dedicated to them.



Fig. 53 – Amphitheatre. View from the south toward the main western entrance. Representations of deities and the Emperor probably stood on the terrace overlooking the arena. To the right are the solid foundations of the medieval tower.

The aspect of the amphitheatre's first phase of construction was very sober. The original perimeter of the building, on the hillside, was formed by an embankment crowned by a narrow wall that did not exceed 2.00 to 2.50 m in height. To the west, the main access for the spectators was cut deep into the hillside. The facade attained a height of 15 m only along its eastern side at the present Raifour Square. This facade was reinforced with a semicircular retaining wall almost devoid of ornamentation. The crowd gathered in the square at the foot of the wall before entering the amphitheatre. This is also probably where the wild beasts were exhibited on the eve of the games.

A Monumental Transformation at the End of the 2nd Century

A major remodelling of the amphitheatre took place after 165 AD and changed the aspect of its exterior (Fig. 54-55). The modest perimeter wall was replaced by a massive, monumental crown wall 7.50 m high, erected at the top of the backfilled embankment. This wall was decorated with semi-circular niches between pilasters, lavishing the structure with a facade of arches, typical of Roman amphitheatres. The primary objective of this renovation was probably to raise the seating from 9,000 to 16,000. To this end, the 24 rows of tiers of the earlier phase were completely dismantled and the angle was increased to 28°, allowing raising the number of rows to 31.

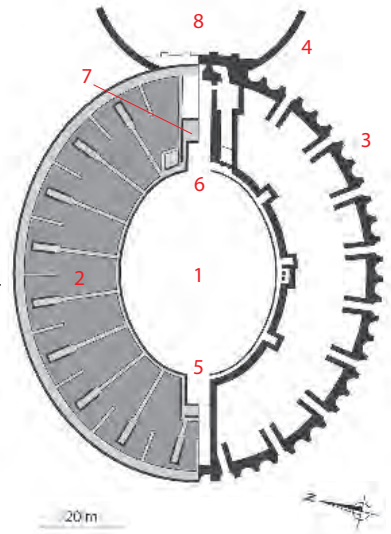


Fig. 54 – Amphitheatre. Plan of the second construction phase (after 165 AD). Left, elevation ; right, foundations. For description of the numbers see caption of Fig. 49.

Fig. 55 – Reconstruction of the amphitheatre's most recent phase (after 165 AD).

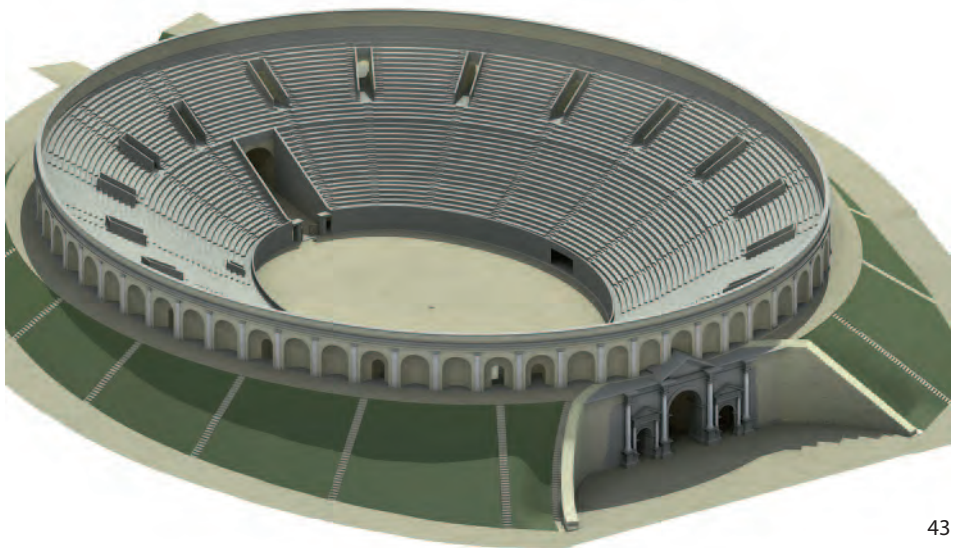




Fig. 56 – Amphitheatre. Reconstruction of the main entrance, resembling a triumphal arch, as seen from Rafour Square (phase after 165 AD).

The results of this remodelling are still visible today. The rows of tiers, on the whole, correspond to this latest construction phase. However, above the section of rows restored by Maurice Burrus in the north-eastern part of the *cavea*, a flight of steps with a discordant orientation corresponds to one of the 24 rows of the original construction. To access the tiered rows, one no longer entered directly from the top of the building, but traversed 20 vaulted passages (*vomitoria*). The construction of the new perimeter wall increased the external dimensions of the amphitheatre to 105 x 92 m without affecting the surface of the arena.

The erection of a monumental gateway (*propylon*) with arched passageways and decorative columns leading to the Rafour Square also took place in this phase (Fig. 56). It evokes a triumphal arch, highlights the city-side entrance and stresses the link of the amphitheatre with the ideology of victory.

Gladiatorial Combat

The amphitheatre was the scene of many spectacles, from hunting (*venationes*) and the famous gladiator combats (*munera*) to executions and acrobatics. Gladiators struggling for their lives were often equipped with weapons according to their role (Fig. 57). This rule guaranteed a certain degree of equality, as the decisive factor was the combatant's qualities.



Popular under the Empire were duels between an agile *retiarus* equipped with a net, trident and no helmet, and a *secutor* wearing a helmet, a shield and a sword. The heavy helmet of the *secutor*, although enhancing his protection, hindered his movements (Fig. 58).

Fig. 57 – Gladiatorial combat opposing a *retiarus* and a *secutor* in the amphitheatre of Aventicum. The combat took place to the sound of trumpets and an organ. Referees ensured compliance with the rules of combat. In the background: statues of gods stood on the terrace above the eastern front door.



Fig. 58 – Ivory handle of a folding knife depicting a gladiatorial combat between a *retiarus*, with a net, and a *secutor*, with helmet and a sword. Height of the gladiators: 8.8 cm.

An End that is only a Beginning

The destruction of the amphitheatre took place between the late 3rd and early 4th century AD with the dismantlement of certain large sectors. The arena, in fact, became a staging point for the preparation and transport of its blocks for the construction of other buildings. Later, a large lime kiln was installed in the southern lateral gallery leading to the Rafter Square, at the foot of a staircase still preserved today; this kiln operated until the 6th century AD. Construction of the tower, 23,50 m high, above the old eastern gate began toward the end of the 11th century at the initiative of Borcard of Oltigen, the Bishop of Lausanne.

Since the end of the restoration work in 1995, a number of cultural events have revived the amphitheatre of Avenches. Every summer it welcomes spectators who gather in droves to attend music festivals – opera, rock and military tattoos (Fig. 59).

Fig. 59 – The amphitheatre is regularly the venue for artistic productions, for example the Avenches Opera (2010).



The Western Religious Precinct

A Temple under a Barn

The ruins of the Grange des Dîmes Temple are today's only visible remains of the great religious precinct situated west of the ancient city (Fig. 60: 4). The place name «Grange des Dîmes» refers to a barn (*grange* = barn) built under Bernese domination to collect taxes (*dîme* = tithe). It is of note that the Bernese authorities unknowingly raised this barn on top of the ruins of the Roman temple.

In 1867, Conrad Bursian mapped the walls of a circular feature initially interpreted either as a fortified tower from the Late Empire or a baptistery of an early Christian church. So as to clarify this doubt, the Pro Aventico Association undertook an excavation in 1905-1906 under the direction of William Cart. This work, instead of identifying the circular feature, brought to light a square Gallo-Roman temple associated with exceptionally rich artefacts, such as a gilded bronze roof ornament (*acroterion*) (Fig. 64).

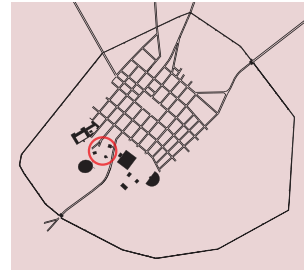


Fig. 60 – Plan of the western religious precinct.

- 1 Cigognier Sanctuary
- 2 Theatre
- 3 Lavoëx Sanctuary
- 4 Grange des Dîmes Sanctuary
- 5 Round Temple
- 6 Derrière la Tour Sanctuary
- 7 Amphitheatre

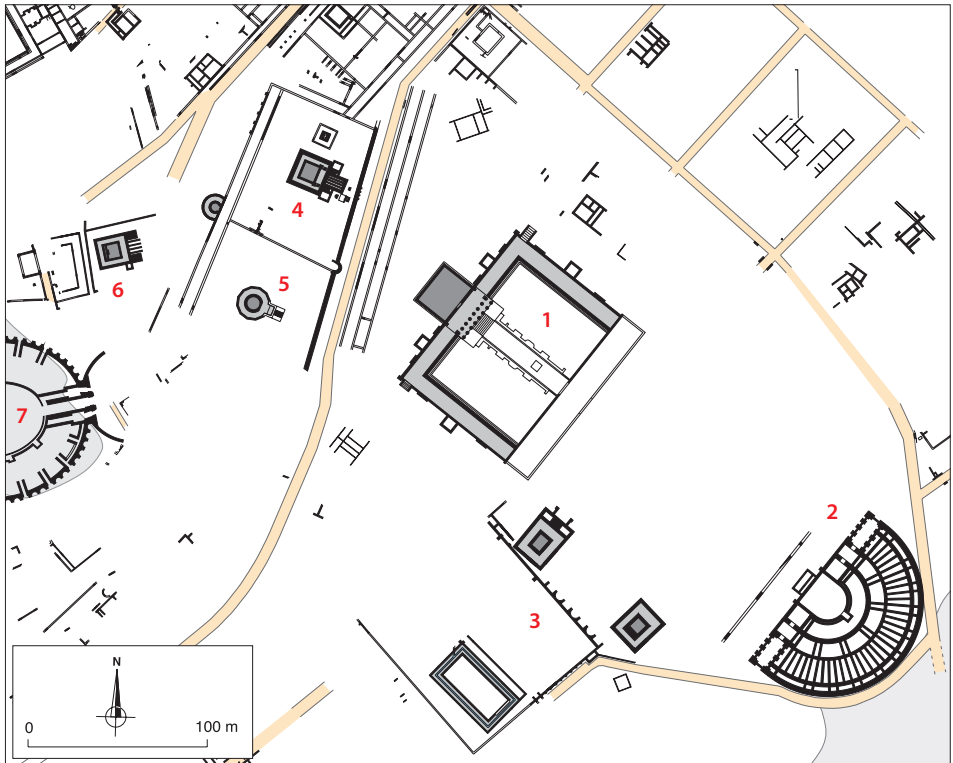




Fig. 61 – Aerial view from the east of the Grange des Dîmes Sanctuary (2014). The reconstructed foundations and the markings on the road indicate the temple's ground plan.

Excavations conducted by Hans Bögli followed in 1963-1965 and resulted in the site's first publication penned by Monika Verzar. However, the extension of the religious precinct to the west remained unknown. It was not until



Fig. 62 – Grange des Dîmes Sanctuary. Reconstruction from the perspective of Fig. 61.



Fig. 63 – Grange des Dîmes Sanctuary. Reconstruction of a sacrifice related to the imperial cult. The scene takes place at an altar at the foot of the temple.

1992 that trial trenches, in the framework of a construction project, identified a Round Temple to the south-west of Grange des Dîmes (Fig. 60: 5). This was obviously the above-mentioned circular feature. Successive field work unearthed a third temple with a square ground plan in 1996 at Derrière la Tour. Other discoveries to the north of the Grange des Dîmes Temple were made between 2004 and 2006 (Fig. 60: 6). All this field work allowed Philippe Bridel to publish in 2015 a new architectural study of the complex including the Grange des Dîmes and the Round Temples.

Classical Decor Combined with Celtic Architecture: The Grange des Dîmes Temple

The Grange des Dîmes Temple was built in the late Flavian period toward the end of the 1st century AD. Its reconstruction has always been a challenge due to its particular ground plan. It corresponds broadly to a type of construction with a gallery or portico labelled « Gallo-Roman » by specialists (Fig. 67). As suggested by the term, these temples are spread throughout Celtic territory, mainly in the north-east of France, Belgium, Holland, Germany, England and Switzerland. The Grange des Dîmes Temple is characterised by its impressive dimensions (20 x 20 m), its podium 3.50 m high and its porch (*pronaos*) preceding



Fig. 64 – Grange des Dîmes Sanctuary.
Gilded bronze ornament (*acroterion*)
from the roof of the temple.
Height: 90 cm.

its entrance (Fig. 62). Moreover, it is richly adorned with Corinthian columns, a classical entablature and a low wall (attic) above the gallery.

The limestone slabs of this attic were also embellished with heads of deities (Jupiter Ammon, Achelous; Fig. 66) arranged in medallions. This type of decor is known principally in Rome on imperial monuments. To the east, the temple was preceded by a stone staircase 8.35 m wide accessing the podium. Several parallel walls serving as foundations for the stairs are still visible today (Fig. 65). As seen in the temple's reconstruction, ten fluted limestone columns 4.80 m high stood on all three sides of the wide exterior wall bounding the portico. The fourth side, to the east, however, featured a porch (*pronaos*) 12.65 m high, jutting out along the axis of the stairs as an extension of the higher central room (*cella*) (Fig. 63). We are therefore in the presence of a religious feature that is close, in formal terms, to a classical Roman colonnaded temple while retaining a regional Gallo-Roman ground plan.

Other features to the east, at the foot of the stairs and related to the temple, are difficult to interpret. This is the case, for example, of a small monument with four columns bases at its corners that are still visible today (Fig. 65). We assume that these columns originally supported a sort of roof or stone canopy. We cannot be sure, however, if a statue stood in the space between columns.



Fig. 65 – Grange des Dîmes Sanctuary.
The parallel walls are the foundation
of the temple's entrance staircase.
In the foreground, to the right,
is the foundation of a sort of
small « shrine » with four columns
(*tetrastylon*).



Fig. 66 – Grange des Dîmes Sanctuary. Limestone block engraved with a mask encircled by a medallion (*imago clipeata*). This decorative element was part of an attic above the temple's gallery. Height: c. 120 cm.

The Round Temple

The nearby Round Temple was discovered in 1992. Its only visible features are the circular foundation of its central chamber (*cella*), now in the cellar of a modern house and off limits to the public. The architectural elements excavated *in situ*, nonetheless, allow advancing a reconstruction (Fig. 69).

The Round Temple was erected in the middle of the 1st century AD. Although sharing certain architectural features with the Grange des Dîmes, it differed in its circular or, more precisely, dodecagonal, ground plan, as seen during excavations and corroborated by Philippe Bridel's research. With a total diameter of 19 m, it is slightly smaller than its rectangular Grange des Dîmes counterpart. However, it shares other architectural features such as a *cella* (10 m in diameter) set on a podium and surrounded by a peristyle, as well as an entry porch with four columns (*pronaos*) (Fig. 68). This temple also features vertical notches cut into the column bases and capitals of the gallery indicating the presence of wooden partitions in the intercolumniations that shut off the gallery to the exterior.

The Derrière la Tour Sanctuary

The Derrière la Tour Sanctuary was only partially excavated and today none of its features are visible. Built at the same time as the Round Temple, toward the middle of the 1st century AD, this rectangular feature was raised on a podium. With dimensions (facade: 18 m) resembling that of the Grange des Dîmes, it held a dominant position within the western sacred precinct (Fig. 60 : 6). Its enclosure (about 1,000 m²) was surrounded by a wall.



Fig. 67 – The reconstructions of a classic Roman temple (1) and a Gallo-Roman temple (2) illustrate the main differences between the two types. The Roman temple is built on a podium and is accessed by stairs. It has a covered space (*pronaos*) in front of the room reserved for the deity (*cella*). The Gallo-Roman temple, on the other hand, is characterised by a central *cella* surrounded by a gallery or portico. It is believed that ceremonies took place outside the temples and that the faithful did not enter them.



Fig. 68 – Grange des Dimes Sanctuary. Reconstruction of the complex that includes the Round Temple (in the foreground) and the quadrangular temple (in the background). The sacred area is partially surrounded by colonnaded galleries.

Later, toward the end of the 2nd century, two other walled enclosures were raised uphill from the temple. There is, nonetheless, no solid evidence demonstrating the religious function of these features.



Fig. 69 – Grange des Dimes Sanctuary. Limestone column fragments belonging to the Round Temple.



Fig. 70 – Grange des Dimes Sanctuary. Adult burial in a sitting position found near the Round Temple. The burial dates to the Celtic period.

A Religious Complex Preceding the Founding of the Colony?

The Round and Derrière la Tour Temples are early religious features dating to the mid-1st century AD, before Aventicum obtained colony status. Apart from the Forum Temple, dating probably to the town's founding, and the En Chaplix complex outside the city, these two sanctuaries are Aventicum's oldest religious features. In this respect, it is interesting to consider the pre-Roman tombs unearthed under each of these temples. These burials suggest that the temples were the development of earlier cults dedicated to heroes or ancestors. This hypothesis is particularly relevant for the Round Temple as it covered two pre-Roman burials



Fig. 71 – Derrière la Tour Sanctuary. Silver finger of a statue. Length : 3.6 cm.



Fig. 72 – Derrière la Tour Sanctuary. Fibulae (brooches) probably deposited as offerings (scales vary).

where the dead were placed in an upright, sitting position (Fig. 70), a Celtic funerary ritual known in religious contexts.

Furthermore, the construction of these temples coincides approximately with the raising of a monumental white limestone statuary group representing members of the Imperial household. It appears that these statues were assembled in the area that would later be occupied by the Grange des Dîmes Temple in the late 1st century AD. Hence, in this early period when the town was probably still known as Forum Tiberii, the reigning Emperor was symbolically present in the religious area at the foot of the hill. This imperial presence was still manifest in the later temple as seen by its characteristic decor of busts in medallions. Philippe Bridel reckons that this temple complex reflects, through its monumental Gallo-Roman architecture, a true « Celtic identity ».

Considering the link between the pre-Roman tombs and the temples, the western religious precinct, at the foot of the hill of the future medieval town, could have been a complex dedicated to the ancestors of the indigenous elite. This entire area therefore could be regarded as a traditional local sanctuary. In fact, it can be considered the third religious centre of the capital, along with the religious buildings of the Forum, embodying imperial power, and the later architectural complex comprising the Cigognier Sanctuary and the Theatre, features probably dedicated to the Helvetii community (*civitas*) under the authority of the Emperor.

Fig. 73 – Small limestone altar dedicated to Mercure Cissonius unearthed in the area of the Grange des Dîmes Sanctuary. Height: 41.3 cm.



The Cigognier Sanctuary

« ... a lonely column rears a grey and grief-worn aspect of old days »

These words of pathos describing the impressive « Cigognier column » of Avenches (Fig. 74) are from « *Childe Harold's Pilgrimage* » published in 1812 by the famous British poet Lord Byron.

The column appears, however, for the first time in 1642 in an engraving by Matthäus Merian the Elder. A stork's nest at its summit gave it its name (*cigogne* = stork). However, it was not until a letter written in 1710 by François de Graffenried, Baron of Villars-les-Moines, that the column was linked to a large construction comprising two porticoes. In 1783, the Bernese government, the governing body of Avenches at the time, due to the growing threat to the monuments of Avenches, rushed the architect Erasmus Ritter to Avenches.

Ritter's interest in Roman architecture and his extensive knowledge of ancient building techniques would prove a boon to the Cigognier. Keen observer and scholar, Ritter made several detailed drawings of the temple's features.

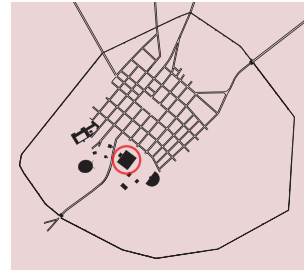


Fig. 74 – The column of the Cigognier Sanctuary.



Fig. 75 – Cigognier Sanctuary.
Excavations undertaken in 1940
at the foot of the column.

These drawings are especially valuable today because, like most other monuments of Avenches, the sanctuary's limestone blocks were either dismantled and reused elsewhere or ended up in lime kilns. Today only 2% of the original building is preserved.

The *Association Pro Aventico*, an organisation founded to study and preserve the ruins, commissioned the analysis of the monument to Paul Schazmann, an archaeologist from Geneva. In May 1918, Schazmann drafted a very detailed drawing of the Cigognier column. The majority of the sanctuary's remains, however, were still buried underground, limiting the possibility of its interpretation. In 1935, Louis Bosset began a new drawing of the Column using a special scaffolding. He immediately realised that it was impossible to understand the column without undertaking an archaeological dig. Thus, from 1938 to 1940, as part of a programme to give work to the unemployed, he carried out systematic field work (Fig. 75). Bosset unfortunately, never concluded his research. An interpretation of the complex, in fact, had



to wait for the detailed study by Philippe Bridel in 1982, following additional field work from 1975 to 1977. However, this most recent interpretation was also based on a partial view of the ruins. It cannot be excluded that the foundations of the temple (podium), still buried for the most part, hold further surprises (Fig. 76).

Fig. 76 – Aerial view from the east of the Cigognier Sanctuary. The eastern half of the colonnaded portico is marked at ground level.

Fig. 77 – Reconstruction of the Cigognier Sanctuary.

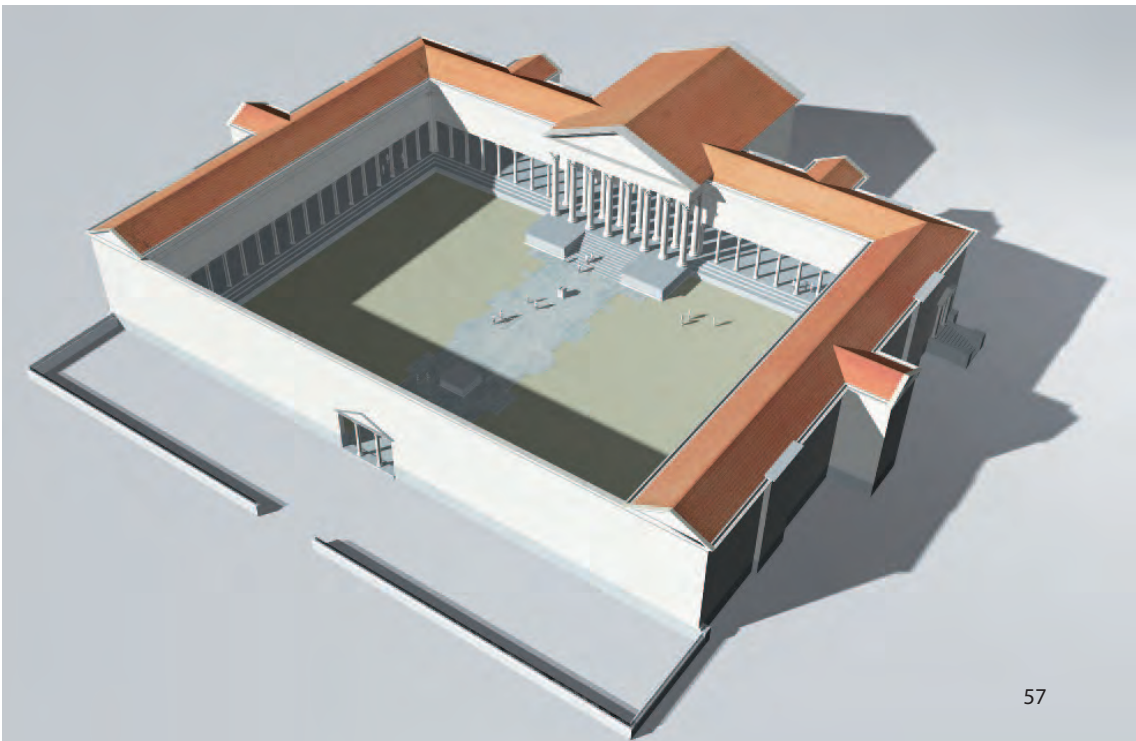




Fig. 78 – Cigognier Sanctuary. The « stork's column » has stood for nearly 2,000 years. It served as a link between the eastern colonnaded portico and the covered area (*pronaos*) to the front of the temple.

Monumental Architecture Following the Model of Rome

The Cigognier complex was built around 98 AD. Its design, however, was conceived two decades earlier in the 80s (Late Flavian period). The theatre, opposite the sanctuary (175 m away), was built along the same axis (Fig. 60: 1-2 and 80). Excavations have proven the existence, in these former wetlands, of earlier wooden constructions dating from the early 1st century AD. By the middle of the 1st century, the area underwent massive drainage work. This was followed, from about 70 AD, by the construction of residential stone buildings. However, to raise such a large sanctuary (106.80 x 76.65 m) three decades later, these private residences had to be totally dismantled. Archaeology cannot explain how the change of ownership of the property, from private to religious, was settled, and if the authorities had to resort to expropriation.

The architectural complex comprised essentially a Π -shaped colonnaded portico (*porticus*) around a large courtyard (80 x 61 m). The entrance to the temple was set slightly into the courtyard. Its back, on the other hand, stretched about 20 m beyond the wall (Fig. 77). The vestibule (*pronaos*), accessed from the central courtyard, had eight smooth limestone columns measuring about 10 m in height. The angles of the capitals were adorned with eagles. Taking into account the massive foundations of the podium, consisting of about 2'000 m³ of limestone blocks and mortar covering a surface of 35.10 x 26.75 m, the facade is estimated to have attained a height of 20 m.

Fig. 79 – Cigognier Sanctuary. Upper part of the cornice of the *cella* of the temple, decorated with marine animals, shields (*peltes*), figures and masks carved into a Jurassic limestone extracted from the La Lance quarry (Concise, Canton of Vaud). Length: 162 cm.



These impressive dimensions of the sanctuary required very stable foundations. This explains the dense network of oak piles driven into the substratum. The porticos adjoining the temple included smooth Corinthian columns about 6.40 m high, surmounted by an attic 4.90 m high (Fig. 81). The Cigognier column, the only standing feature, is essential to reconstruct the complex: it is the link between the north portico and the temple. Each of its four sides, of different shape, provides clues to the adjoining architectural elements. If the column had not survived, it would be impossible to offer a reliable reconstruction of the sanctuary as that advanced by Philippe Bridel in 1982.

Urgonian limestone was used for the visible parts of the temple and porticos. This white, dense rock was extracted at the quarry of La Lance along the shores of Lake Neuchâtel (Fig. 35). The cornices of the temple, richly decorated with marine and mythical figures and with corbels in the shape of human heads, were also carved from this rock (Fig. 79).

Worthy of mention is a paved path, 53 m in length, along the central axis leading to the entrance of the temple. It probably served in processions between the theatre and the temple. A massive square foundation in the middle of this path, measuring approximately 4.60 x 4.40 m, probably supported a monumental altar (Fig. 76-77).

Fig. 80 – Aerial view from the east of the Cigognier Sanctuary complex. The theatre (left) was raised following the axis of the temple (right).





Fig. 81 – Cigognier Sanctuary. Reconstruction of the temple as seen from the north-east colonnaded portico.

A Sanctuary for the *Civitas Helvetiorum* under the Emperor's Protection ?

The interpretation of this architectural complex is particularly difficult, since there is scant evidence to attribute it to a specific deity. The discovery of several inscribed artefacts relevant to different deities suggests that worship in the Cigognier Sanctuary by the Helvetii was not focused on a single deity, but on a wide pantheon of gods valued by the community. In fact, worship was not limited to Roman deities, but also to indigenous Celtic gods, as evidenced by a small votive altar found in the courtyard dedicated to Mars Caturix, the god of war (Fig. 135), and a monumental limestone capital with the inscription LVGOVES, evoking Lug the Celtic god of arts and crafts (Fig. 83).

The gold bust of Emperor Marcus Aurelius, discovered in 1939 in a sewage conduit in the sanctuary courtyard (Fig. 23), does not provide definitive clues as to the function of the sanctuary. Its presence does, however, add to the symbolism of the general architectural decor and

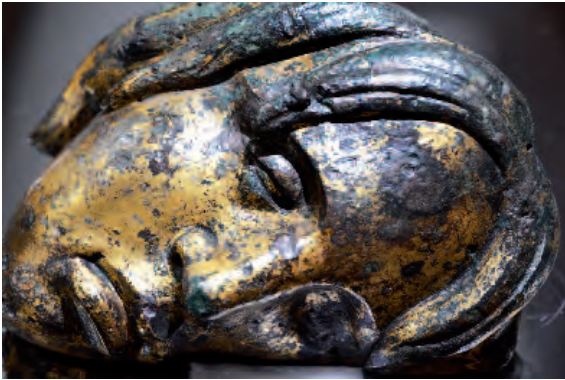


Fig. 82 – Cigognier Sanctuary. Gilded bronze head of a dead Celtic warrior.

layout (with its connection to the theatre) and suggests that the imperial cult played a major role in the sanctuary. The gilded bronze head of a Celtic warrior fallen in battle also conforms to this idea (Fig. 82). It belonged to a massive monument dedicated to Victory, reflecting imperial propaganda and celebrating the victories of the Emperor that marked the beginning of a period of peace and prosperity under Roman rule (*pax romana*).

A comparison of the Cigognier with other buildings of the Roman Empire provides interesting clues. From an architectural perspective it can be compared with the *Forum Pacis* in Rome built by Emperor Vespasian between 71 and 75 AD that served as a triumphal monument, designed, among other functions, to exhibit the treasures conquered during the Jewish war. The striking resemblance between the two constructions suggests that the Cigognier was a centralised sanctuary dedicated both to protective deities of the indigenous Helvetii (*Civitas Helvetiorum*) and to the Emperor, in connexion with the ideology of victory.

The Buildings at Lavoëx

The architectural complex at the place name Lavoëx, discovered in 1998, is located to the south-west of the open area between the Cigognier sanctuary and the theatre. This complex shows that building activities still took place in this area after the outset of the 2nd century AD. Indeed, it comprises two square Gallo-Roman temples, as well as another building to the west dating to the last third of the 2nd century AD. These constructions corroborate an expansion of the religious precinct toward the south-west after the outset of the 2nd century AD (Fig. 60: 3 and 84-85).



Fig. 83 – Cigognier Sanctuary. Corinthian capital of limestone engraved with a dedication to the Celtic deities LVGOVES. Height: 80 cm.



Fig. 84 – Lavoëx Sanctuary.
Rectangular and semicircular niches
along the enclosure wall behind
the two temples.

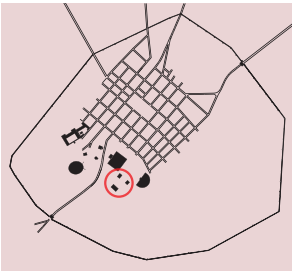


Fig. 85 – Lavoëx Sanctuary. Aerial
view during the excavations of 1998
revealing the two quadrangular
temples and, to the top, a long
enclosure wall with niches.

Unfortunately, the remains of these features are poorly preserved and difficult to interpret. One of the buildings, in the heart of the western enclosure, is particularly enigmatic. It has a rectangular layout (540 m²) and appears to be an open courtyard surrounded by a portico. A carefully built canal in the portico suggests a cult in which water played a major role.



The Theatre

A Highly Prized Stone «Quarry»

Although ruins had been known at En Selley since the early 18th century, it was only in 1786 that the Bernese architect and engineer Erasmus Ritter identified them as a Roman theatre (Fig. 86). At that time, the building was probably still well preserved. François-Rodolphe de Dompierre, the Curator of Antiquities for Northern Canton of Vaud in 1823, recorded that the theatre's walls were high and very strong. The situation changed a few years later in 1828 when these walls were dug up, not for scientific reasons, but for building material. This clandestine activity coincided with the construction of a lime kiln that remained operational until 1830. Different sectors of the theatre at that time were the property of individuals who saw the blocks as a lucrative source of income. The demand between 1840 and 1850 for cheap building materials led to a massive destruction of the monument. The construction was systematically dug up before being dismantled and sold as blocks. In the year 1842 alone, for example, a text mentions the transport of 1,000 cartloads of stones, a volume corresponding to the dismantling of walls that could have been four metres high.

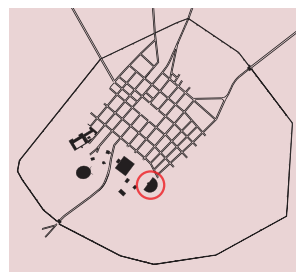


Fig. 86 – Aerial view of the theatre. A section of the seating was rebuilt during early restoration work.



Fig. 87 – Excavations in 1927 of the foundations of the theatre's entrance hall at the north-east corner of the building.

Fig. 88 – A facing of a wall of the theatre under restoration in 2013 with new yellow limestone blocks.



Large sectors of the theatre had disappeared when the pillaging finally halted. Auguste Rosset, commissioned in 1889 by the *Association Pro Aventico* to undertake a scientific study of the complex, could only save what had not been demolished during the previous half century. In 1892, besides the archaeological excavations, restoration was initiated under the direction of architect Théophile Van Muyden. This work lasted until 1916. Ten years later, Louis Bosset, at the demand of Albert Naef, resumed work that was only completed after campaigns from 1926 to 1930 and 1938 to 1941 (Fig. 87).

From 1998 to 2004, Georg Matter analysed the theatre in the framework of a doctoral thesis financed by the Swiss National Science Foundation. This work laid the foundations of a new restoration project that began in 2012 (Fig. 88).

Construction of the Theatre in the Early 2nd Century AD

he theatre of *Colonia Helvetiorum* was built on the northern slope of an aquifer hill in the early 2nd century AD, under the rule of Emperor Trajan. This terrain had been occupied in the previous century by a series of presumably private constructions. Its layout followed the typical semi-circular, « Gallo-

Roman » theatre model, best known in northern Gaul and Germania. The wall behind the stage of this model, instead of being two or three storeys high, tapered diagonally toward its centre proffering the spectators a view beyond the theatre (Fig. 90). In this sense, its visual and functional relationship with the Cigognier Sanctuary is obvious. The two monuments were clearly designed and built in unison, a notion that is also confirmed by chronological evidence.

The theatre measured 106.25 m along its facade and 66.4 m in depth. Accommodating nearly 12,000 spectators, it was one of the largest Gallo-Roman theatres. The audience gained access to the stone block stands (Fig. 89) through eleven covered radial accesses (*vomitoria*). They then passed along two wide walkways (*praecinctiones*) before taking the stairs (*scalaria*) to join their seat. Each spectator received a token inscribed with the assigned seat number, the row and the nearest entrance. In the lower zone, around the horseshoe-shaped area (*orchestra*) that served as the stage and choir, were two large stone tiers (*prohedria*), bases for the seats of honour reserved for senior officials, supreme priests and notables. Furthermore, a central niche, still visible today, was placed at this level (Fig. 91). It probably served to house altars and statues related to the practice of the imperial cult. The performance took place either on the semicircular orchestra



Fig. 89 – Features of the staircase of *vomitorium* 11 unearthed in 2013 in the theatre's south-east corner. These steps provided access from the outside to the middle section tiers.

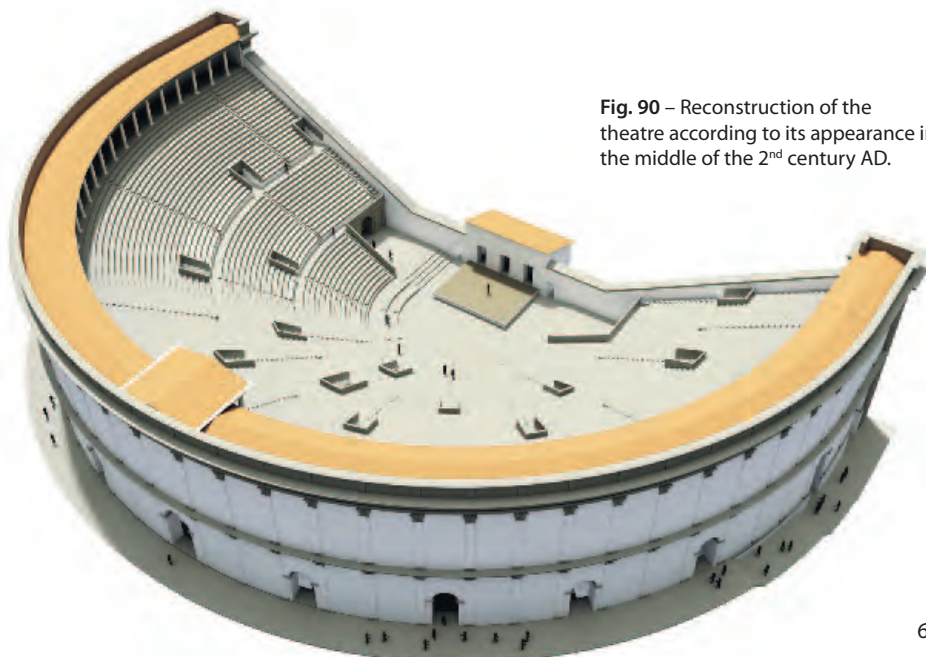


Fig. 90 – Reconstruction of the theatre according to its appearance in the middle of the 2nd century AD.



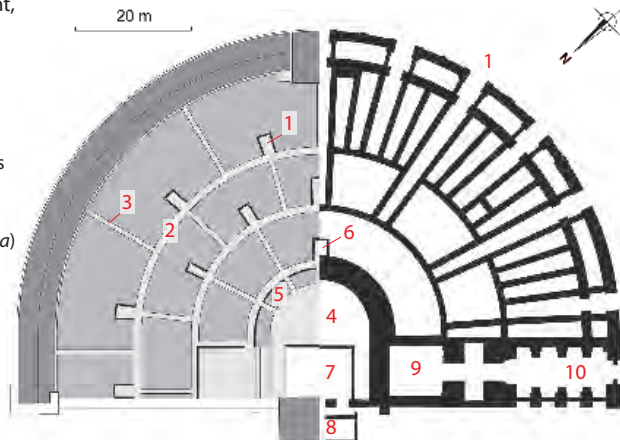
Fig. 91 – View from the north of the theatre's *orchestra* (foreground) and covered access (*vomitorium* 8) whose vault was restored in 1940 (background). The seating tiers (centre right) were restored in 1953. The niche's vault, to the left of the seats, was incorrectly reconstructed during early rebuilding.

or on a small wooden platform stage building. The theatre opened to the north, thereby ensuring a visual link with the Cigognier sanctuary built along the same axis.

The theatre of Avenches presents a variety of architectural features, such as walls of small yellow limestone blocks and large grey sandstone blocks. The variety of building materials contributed to the building's visual structure.

Fig. 92 – Theatre. Left, elevation; right, floor plan.

- 1 arched passageways to the stands (*vomitorium*)
- 2 walkway between the lower and upper tiers of seats (*praecinatio*)
- 3 staircases in the sector of the stands (*scalaria*)
- 4 orchestra (*orchestra*)
- 5 seats for guests of honour (*prohedria*)
- 6 niche
- 7 stage (*pulpitum*)
- 8 stage building (*scaena*)
- 9 access to the orchestra (*aditus maximus*)
- 10 lateral entrance hall



This is particularly evident along the theatre's perimeter wall that is divided into two floors following the tradition of the great theatres of the Mediterranean (Fig. 93). Other features, such as the vaults of the lateral entrance halls, reveal that the head architect was experienced and well-versed in Roman architecture.

A Treacherous Architectural Project

Recent analyses indicate that many obstacles had to be overcome during the theatre's construction. The masonry of the entrance halls, for example, suffered problems of stability related to the substrate. This problem occurred at the moment the construction attained the level of the foundation. Additional supporting pillars and roof arches were installed in the access halls to rectify these substrate related issues. The retaining walls along the slope also required reinforcement. Other drastic measures were also taken: two of the passages (*vomitoria*) had to be walled in, resulting in a less efficient access to the stands.

It is difficult to ascertain the reasons for the modifications undertaken during the construction. Maybe they were related to the level of the water table, an issue that could not have been detected before initiating work. In any case, these obstacles forced the constructors to take certain measures such as consolidating the foundations of the lateral sectors.

Actors and Events

There is little evidence as to the performances that took place in these Gallo-Roman theatres in the 2nd and 3rd centuries AD. These productions could have included a wide

A Monumental Architecture with a Regional Style

Architectural models imported from the Mediterranean world were often adapted to regional traditions and available building materials. The facade of the theatre of Aventicum, using different varieties of stone, illustrates well this phenomenon: the choice of a two-level architecture with pilasters is reminiscent of Mediterranean theatres, whereas the Corinthian and Tuscan capitals reveal a distinct regional style (Fig. 93).



Fig. 93 – Reconstruction of the decoration of the upper section of the theatre's exterior wall. Corinthian pilasters supported a cornice surmounted by an attic.



Fig. 94 – The theatre's south-west entrance hall after restoration work in 2012-2013.



Fig. 95 – Ivory box lid in the shape of a theatre mask. Height: 7.7 cm.

variety of genres, including mime, pantomime, dance, song, musical or mythological performances. Sacrifices and other rituals associated with the imperial cult also probably took place. Despite the find of a bronze statuette in Avenches representing an actor in traditional theatre garb (Fig. 96), classic tragedies and comedies were probably less frequent (Fig. 95).

The Fortification of the Late Empire

Little of the theatre's transformation into a fortification at the end of the 3rd century AD has survived. The main feature is a V-section ditch, approximately 7 m wide and 2 m deep, brought to light during excavations of the south-west corner of the complex. Although the precise extension of this ditch is unknown, it is not excluded that it surrounded the theatre's perimeter. Finds of military gear, including spearheads, decorated rivets and fragments of armour and swords, indicate that the theatre's conversion into a defensive feature took place around 270 AD and was probably the work of Roman soldiers.

Fig. 96 – Bronze vessel in the form of a tragic actor. His name DOVECVS is inscribed on his large belt. Early 3rd century AD. Height: 21 cm.



The Forum and its Surrounding Features

For a long time the Forum of Aventicum was supposedly «hidden» in the area between the Theatre and the Cigognier Sanctuary. The imposing Cigognier column was, in fact, considered at one time a feature of a monumental arch marking the Forum's entrance (Fig. 17). It was not until the early 1960s that the Forum was identified by archaeologists within *insulae* 22, 28 and 34, three of the city's central quarters, at the intersection of the two main roads (*decumanus* and *cardo maximus*) that define Aventicum's urban layout. This vast space, 210 x 100 m, comprising several major religious, administrative, judicial and commercial buildings, has left no visible remains. Only several modern footpaths laid out to coincide with the Roman streets offer an impression of the Forum's surface close to the baths of *insula* 29 (Fig. 97).

Due to the lack of extensive archaeological work, we can only speculate about the ground plan and design of some of the Forum's buildings. It is assumed that the Forum followed the layout of a series of other provincial forums and therefore included three main elements, here arranged along a longitudinal north-south axis (Fig. 98). The first was a sacred precinct (*area sacra*) with a temple (*insula* 22). The second was a public precinct (*area publica*), a vast open space occupied by statues and official inscriptions and bounded by porticoes sheltering offices and shops (*insula* 28). The third was the basilica, a large edifice housing legal and commercial affairs (*insula* 34).

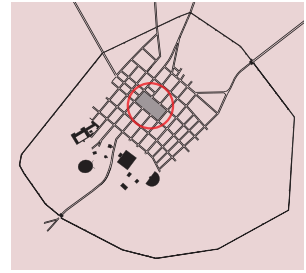


Fig. 97 – Hypothetical reconstruction of the Forum of Aventicum. Right: religious precinct and temple; left: public area and basilica. The numbers correspond to the different *insulae*.

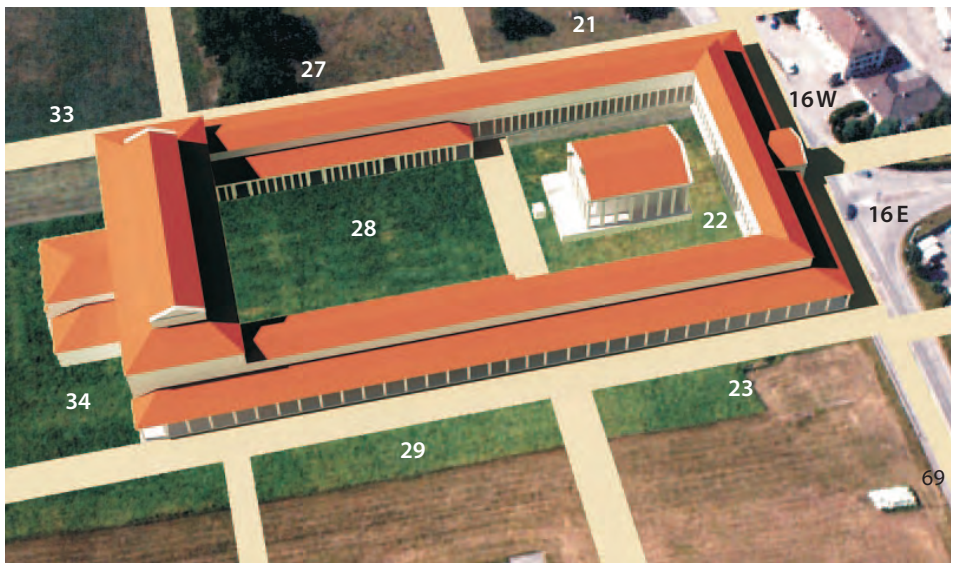




Fig. 98 – Computer assisted model of the Forum of the Roman city of Lutetia (Paris) that was similar to that of Aventicum. The sacred area, viewed from behind, comprised a temple on a podium surrounded by a colonnaded portico above an underground corridor with two naves (*cryptoporticus*). Outside the Forum, were shops facing the streets and preceded by porticoes. Top right, the public area and the Basilica.

The Forum's first masonry structures date to the reign of Emperor Tiberius (14-37 AD). They probably succeeded older wooden features that, to date, have never been observed. An extension of the Forum appears to have been added toward the end of the 1st century AD with the construction in *insula* 40 of a large building housing administrative offices, meeting rooms and perhaps a courtroom.

The Sacred Area

The sacred area was surrounded on three sides by a colonnaded portico raised above a covered or semi-subterranean passageway called a *cryptoporticus*. Access from the north was through a monumental gate along the axis of the *cardo maximus*, one of the city's two main roads. We know practically nothing about the temple except that the foundations of its podium (about 30 x 20 m) were dynamited in the 19th century to obtain backfill material. The temple was preceded by a paved esplanade that stretched along the street separating the sacred and public areas. The temple was dedicated either to the Emperor or to Jupiter Optimus Maximus. The imperial family was represented in the Forum

by white marble statues, as evidenced by fragments of statues unearthed near the northern entrance of the sacred area. The statuary group, dating to the second quarter of the 1st century, comprised at least six individuals of which only the deified Emperor (Divus Augustus) and Agrippina the Elder (Fig. 6) have been formally identified. A third is probably Tiberius, the reigning Emperor.

The Public Area

The large public area bordered by porticos comprised several small buildings (*scholae*) erected in honour of the more prominent magistrates of the city and their relatives. In the eastern part of the square, for example, several official inscriptions cite a *schola* (meeting room) built by decision of the members of the local municipal assembly (decurions). It was adorned with statues, notably one depicting the magistrate Quintus Cluvius Macer, who had exercised all the municipal functions.

The Basilica and the Curia

Many fragments of inscriptions were unearthed in a sector of *insula* 34 during excavations of the second half of the



Fig. 99 – Lion relief decorating a leg of a limestone bench from a meeting hall near the Forum (*insula* 33). Height: 44.5 cm.



Fig. 100 – *Insula* 33. Reconstruction of a meeting hall (*schola*) near the Forum's south-west entrance.

19th century. This early archaeological work also resulted in the discovery of several mosaics and the remains of a large building that is currently interpreted as the Basilica. Bordering the Forum to the south, this rectangular building comprised several naves and housed commercial and judicial affairs. The Curia of the Forum was adjacent to the Basilica to the south. This edifice, the city council's meeting hall, was erected, according to an inscription, in the first third of the 1st century AD.

The Forum's Surrounding Features

Buildings of public or honorific character were granted maximum visibility both at the major entrances of the Forum and in the adjacent quarters.

Two of these constructions, to each side of the *decumanus maximus*, housed statues and monumental inscriptions clearly visible from the street. The inscriptions honoured several members of the Otacilii, an illustrious family (Fig. 101).

Another building, at the north-east corner of *insula* 33, marked the entrance of the Forum (Fig. 100). It housed a black and white geometric mosaic (12 x 4 m) flanked by benches with stone legs adorned with lion carvings (Fig. 99). The closest counterpart to this building, perhaps a meeting hall, is the Curia Julia (Senate house) in Rome.

Another edifice, separated by a small street from the building in *insula* 33, housed about 15 mosaics. Several of its rooms were equipped with floor heating. Based on an inscription unearthed nearby (Fig. 102), this hall is supposedly the meeting place (*schola*) of one of the largest guilds of Aventicum, the boatmen of the Aare and *Aramus*.

Fig. 101 – Monumental inscription dedicated to Q. Otacilius Pollinus, the most prominent member of the Otacilii family. This fragmentary inscription, spread over several blocks, is the largest in Avenches. It was unearthed in *insula* 21, just south-west of the sacred precinct of the Forum.



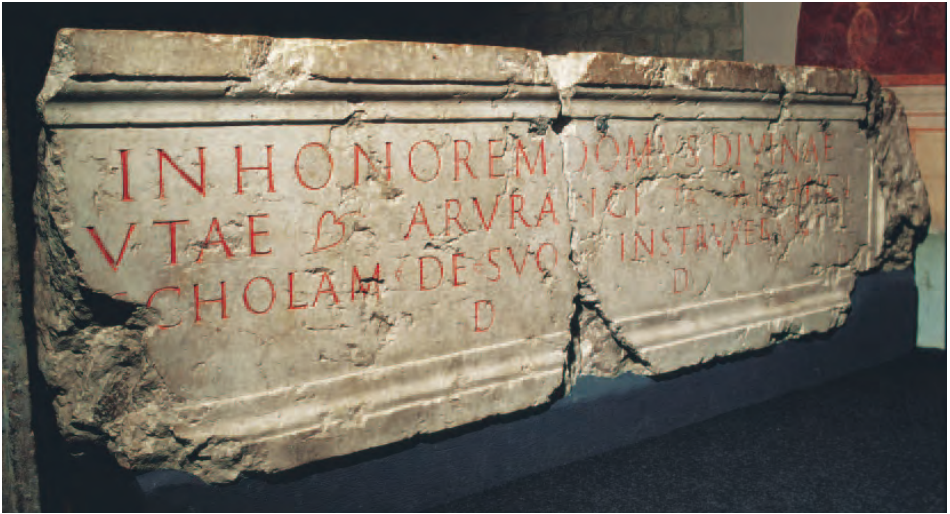


Fig. 102 – Inscription celebrating the building of the *schola* (meeting hall) of the boatmen of the Aare River and the *Aramus* (unidentified course or body of water). The white limestone block (2.78 m long) was found in 1803 near the Forum.

A series of buildings to the east of the Forum in *insula* 29 could have also served as meeting halls or offices. One housed a mosaic near its threshold with an inscription dated to the early 3rd century AD. The inscription alludes to the mosaic's donor, Marcius Flavius Marcianus, probably a high ranking magistrate. These structures occupied the area of the *insula* in direct contact with the Forum, hence clearly separate from the nearby bath complex. A similar division is evidenced in *insula* 23, adjacent to the sacred area of the Forum, where a building of unknown function was raised in the early 2nd century on top of an older thermal complex.

Schola or Library? An Enigmatic Building in *Insula* 23

The hypothesis of a religious character for an enigmatic building near the forum was advanced following the exceptional discovery of a ritual pit (*favissa*) during excavations in 1972 in the western part of the *insula*. The pit contained several fragments of an acrolithic statue of the goddess Minerva (Fig. 103). The statue's head, arms and legs were carved from stone, whereas its trunk, not visible, was of some other material such as wood or, less likely, bronze.

In light of this discovery, H. Bögli, the director of the excavations, identified the building as the *capitolium* of Aventicum, that is, a temple dedicated to the deities of the famous Capitoline Triad: Jupiter, Juno and Minerva. Ultimately, Philippe Bridel, on the basis of topographical and typological criteria, clearly refuted this hypothesis.

Furthermore, only evidence of one of the three deities was unearthed and no inscription dedicated to the Capitoline Triad has ever been found in Avenches.

The ground plan and architecture of the feature also do not lend themselves to the interpretation as a temple or shrine. It is much more likely that its central hall, where the statue of Minerva probably stood in a large niche, served as a meeting place. In fact, several buildings in the Forum and its surroundings are known to have housed gatherings of guilds or associations (*scholae*). Alternative interpretations see the building as a library or an archive repository (*tabularium*).

Fig. 103 – *Insula 23*. Acrolithic statue of the goddess Minerva. The head was carved from white marble. The conserved fragments are represented in yellow. Reconstructed height of the statue: c. 2.80 m.



The Thermal Complexes

Ruins of three major public bathing complexes have so far been identified in Avenches. Given the size of the city, other thermal complexes must have certainly existed. These unidentified baths, essential to the well-being of the population, were probably smaller, less elaborate and spread out in different quarters of the city.

Roman baths were nothing like current public bathing centres. They were more akin to centres of leisure comprising pools, saunas, massage rooms and areas of rest. During the milder periods of the year, visitors could take part in games and sports in the large courtyards. To relieve themselves, they at times gathered in ornate latrines, essential features of any important bathhouse. Thus, Roman baths were more akin to what we know today as Turkish baths or spas.

Bathing in wet or dry heat played a major role in these centres, as in Romano-Irish or Japanese steam baths. These centres were, therefore, frequented not only for personal hygiene but for their animated social life. In their libraries one could at times lend ear to orators, run across

Fig. 104 – Bath complex of En Perruet (*insula* 29). Grid of square terracotta piles of the underfloor heating system (hypocaust) of the warm room (*tepidarium*).





Fig. 105 – Excavation of a bath complex in 1786, presumably in *insula* 19. Watercolour by Joseph-Emmanuel Curty.

friends or acquaintances to discuss business. These complexes were also very noisy. Roman written sources cite the ruckus of children, the cries of grocers selling sweets, and masseurs and charlatans vaunting their services.

The first thermal bath of Avenches was discovered as early as 1750 in *insula* 19 by Samuel Schmidt, a local teacher, during construction of the road linking Lausanne to Bern. This is probably the same complex that was sketched in plans and watercolours toward the end of the 18th century (Fig. 105). Other minor excavations took place in *insula* 19 during the 19th century and in the 1940s and 1960s. However, substantial finds bringing to light spectacular features only took place in the 1990s.

The remains of the great baths of the Forum (*insula* 29) have also been recognised for a long time (Fig. 104) as the French architect Aubert Parent cited them as early as 1804. But it was not until the 20th century, specifically during work initiated in 1953 by Georg Theodor Schwarz, that these baths would be excavated (Fig. 25). The latest thermal complex discovered in Avenches is that of *insula* 23, explored in the 1970s under the direction of Hans Bögli.

The Thermal Baths of the Forum in *Insula 29* (The Perruet Baths)

The thermal baths of *insula 29*, located in the north-east of the Forum, was the most important bathing complex in Aventicum (Fig. 106). It was spread over the whole of the *insula* (105.5 x 71 m) and built after 77 AD, replacing the older baths of *insula 23*. It was, in turn, dismantled in the early 2nd century AD to make way for what may have been a public building, most likely a meeting hall.

The central area of these baths with its three large rooms was preserved after excavation and is now sheltered under a roof. The alignment of the rooms corresponds to the course followed by the Roman bathers. After changing clothes, they proceeded to an unheated room (*frigidarium*) measuring nearly 200 m² at the north-eastern end of the building. This room was crossed by an underground conduit that probably fed a water reservoir located to the north-west (Fig. 108).

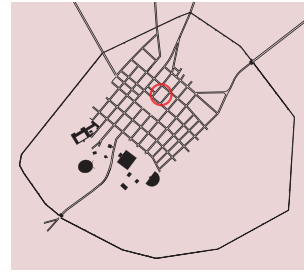


Fig. 106 – Bath complex of En Perruet (*insula 29*). Reconstruction of the more recent phase of the feature (after 120 AD).

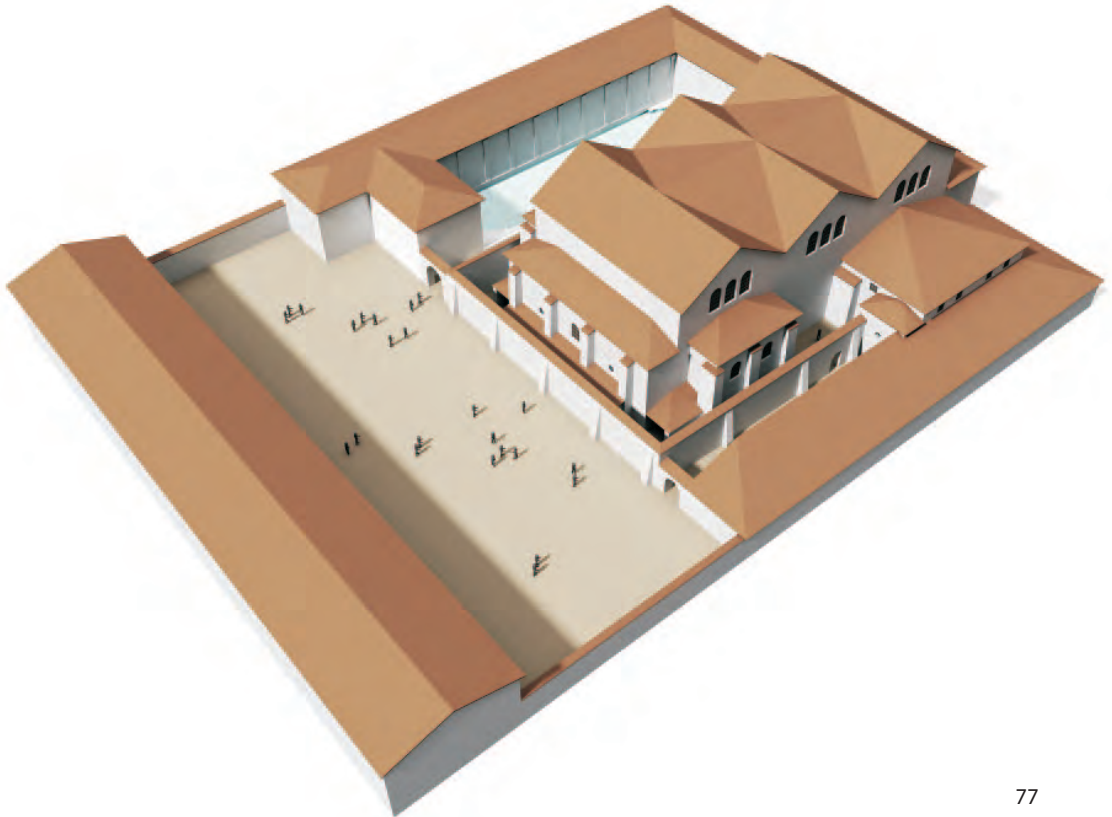


Fig. 107 – Reconstruction of the bath complex of En Perruet (*insula* 29). Cross-section of the hot room (*caldarium*) depicting the swimming pool, a niche with a *labrum* (ablution basin) and the heated underfloor (hypocaust). Recent phase (after 120 AD).

The north-eastern wall of the room featured three deep exedrae with a pool placed in the middle one, while the lateral niches probably housed round basins (*labra*). The warm room (*tepidarium*) was accessed from there by two large doors located to the south-west. It occupied about 200 m² and featured an underfloor heating system (hypocaust).

The hot air would flow between the piles of terracotta bricks holding up the floor, and then channelled up wall flues that conveyed it to the north-west and south-east. A large hot room (*caldarium*) (280 m²) to the south-west was probably accessed by two monumental gates adorned with bronze appliques, as seen in 19th-century sketches. This room was also equipped with underground heating and had deep recesses or alcoves along one of its long sides



(fig. 107). The central alcove was square and housed a small heated plunge-bath while basins (*labra*) stood in the lateral, semi-circular apses. Two other rectangular plunge-baths, heated directly from the south-west, were in alcoves along the short sides of the *caldarium*. This hot room was therefore provided with a total of three alcoves with plunge-baths along three of its sides. To the north-west of the central building, a small courtyard probably held a large open-air swimming pool (*natatio*). Another large area in the south-western end of the building was designated for games and sports (*palaestra*). This sector also included utility rooms that have yet to be studied in detail.

With the exception of fragments of wall-paintings and limestone and white marble floors slabs, very little of the luxurious decor of these baths has survived. Although the interior of the baths was sumptuously decorated, the exterior must have been sober. To ensure proper insulation of the building, it was necessary to reduce the surface of the walls facing outside. The central body of these baths was a compact structure at times reinforced, due to its height, by buttresses. Large windows in the upper part of the exterior walls ensured the entry of light (Fig. 106).

After 120 AD, a series of improvements and enlargements took place throughout the entire building. A square pool in the *frigidarium* replaced the semicircular central niche and the wall of the north-east facade was moved outward. The area south-east of the central building was also completely overhauled. From the current evidence, the whole entrance area was renewed and equipped with new rooms. One of these rooms (nearly 45 m²), equipped with direct heating, was accessible from both the *frigidarium* and the *tepidarium*. It may have served as a sauna (*sudatorium*) or cloakroom (*apodyterium*). The artefacts recovered in this sector reveal that these baths were in use until the middle of the 3rd century AD.

The Baths of the 1st Century AD in *Insula* 23

The thermal complex of the mid-1st century AD in the western area of the *insula* 23 was adjacent to the Forum. Its ground plan is very incomplete. It stretched 70 m along a longitudinal north/south axis marked by a large outdoor pool and probably a *palaestra*. It also had a heated room with an apse and a heated basin decorated with what is regarded as the oldest figurative mosaic in Avenches depicting

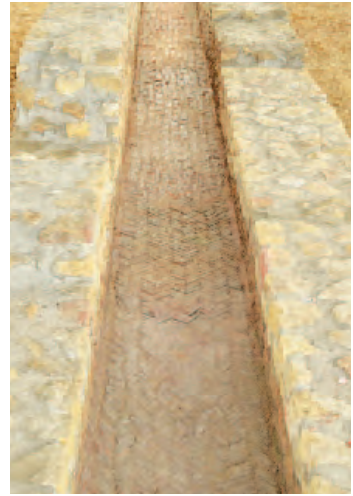
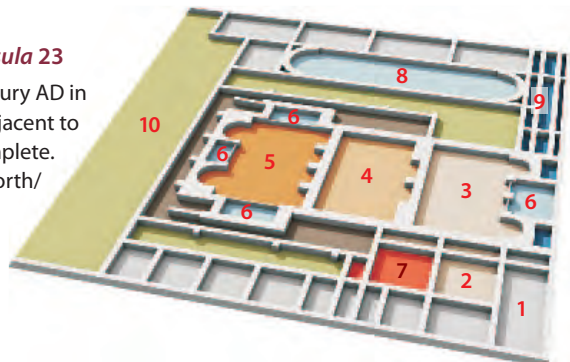
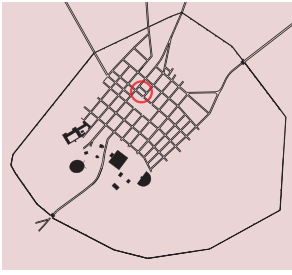


Fig. 108 – Bath complex of En Perruet (*insula* 29). Conduit under the floor of the cold room (*frigidarium*) that supplied water to the reservoirs to the north.

Fig. 109 – Bath complex of En Perruet (*insula* 29). Plan of the recent phase (after 120 AD).

- 1 Entrance ?
- 2 Dressing room (*apodyterium*)
- 3 Cold room (*frigidarium*)
- 4 Warm room (*tepidarium*)
- 5 Hot room (*caldarium*)
- 6 Pools
- 7 Sauna (*sudatorium*) ?
- 8 Court with swimming pool (*natatio*) ?
- 9 Reservoir
- 10 Area of exercise or sport (*palaestra*)





seahorses that are presumably elements of a marine procession. The warm and cold rooms of the baths are probably to be found in the unexplored area to the south (Fig. 110).

Shortly after the construction of a new thermal complex in the neighbouring district (*insula* 29), the facilities of the *insula* 23 were destroyed, toward the beginning of the 2nd century AD, and replaced by a new public building. This construction, placed under the protection of the goddess Minerva, is partially visible today below the cantonal road.



Fig. 110 – *Insula* 23. Detail of a mosaic (seahorses) decorating a basin of the bath complex and dating to the middle of the 1st century AD.

The Baths of *Insula* 19

The remains of these baths near the sanctuaries on the hill, identified in the 18th century and excavated during the 1990s, are no longer visible. To assure their protection and eventual future valorisation, they were backfilled after excavation.

These baths are older and probably as important as those of En Perruet (*insula* 29). Stretching over all of *insula* 19, they enjoyed a privileged position on the edge of one of the city's main thoroughfares (*decumanus maximus*). Their construction around 70 AD succeeded an earlier complex erected around 30 AD. The function of the older building (public baths? complex related to the nearby sanctuaries?) remains unknown (Fig. 111).

The baths underwent major transformations toward 135-137 AD. At this time the complex included several cold rooms (*frigidaria*). The larger of these had two corner bathtubs and a rinsing basin in the centre. An underground

service gallery led to the furnaces (*praefurnia*) that heated several rooms by the flow of hot air under their floor (hypocaust; Fig. 112). To the east of the building, three of the hot rooms were heated by furnaces, built on the side of the street between *insulae* 19 and 20.

The *palaestra*, an open area reserved for exercise, was in the sector now hidden under modern buildings and the Cantonal road. This is probably the site of the *sphaeristerium*, a space reserved to the practice of ball games (*sphaera* = ball). A commemorative inscription found nearby (dating to the 2nd century) ascribes the construction of this feature to Tiberius Claudius Maternus, an elected official (aedile) (Fig. 113). This sports hall, to date, is the only known example north of the Alps.

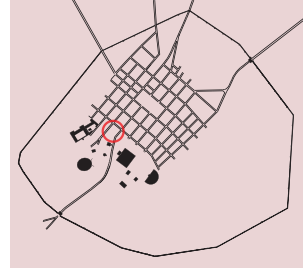


Fig. 111 – *Insula* 19. View of the pool of the public complex built in 29 AD with its semi-circular apse and stairs (left). The walls in the foreground belong to a more recent feature.





Fig. 112 – *Insula 19*. Reconstruction of the vestiges of the heated bath complex from the 2nd century AD. A vaulted corridor led to several underground furnaces.



Fig. 113 – Reconstruction of a public fountain assembled in the corner of the baths. An inscription commemorating the construction of a hall to exercise with balls (*sphaeristerium*) was unearthed near this feature in 1940.



The City Wall

«... under the threat of a fine of five florins».

A Long History of Research

As early as 1536, it was forbidden, under the threat of a fine of five florins, to remove blocks from the city wall of Avenches. The will to preserve the wall's ruins is indicative of the monument's importance. This regulation also reveals the scale of pillaging that took place after the Roman period. Yet the wall would have to wait another 300 years, until the mid-19th century, before it would be the object of archaeological work at its East Gate and Tornallaz Tower.

Jacques Mayor, Albert Nef and Louis Bosset excavated, restored and reconstructed the East Gate between 1897 and 1935. They also worked on the adjacent section of the wall connected to the nearby Tornallaz tower (Fig. 114-115). Between 1893 and 1907, under the supervision of the *Association Pro Aventico*, other wall segments were explored and restored, such as those behind the train station and to the north-east and south-west of the city.



Fig. 114 – City wall. Excerpt from the excavation log of Albert Naef (1907) illustrated with a reconstruction of the rampart and the V-shaped ditch preceding the wall.

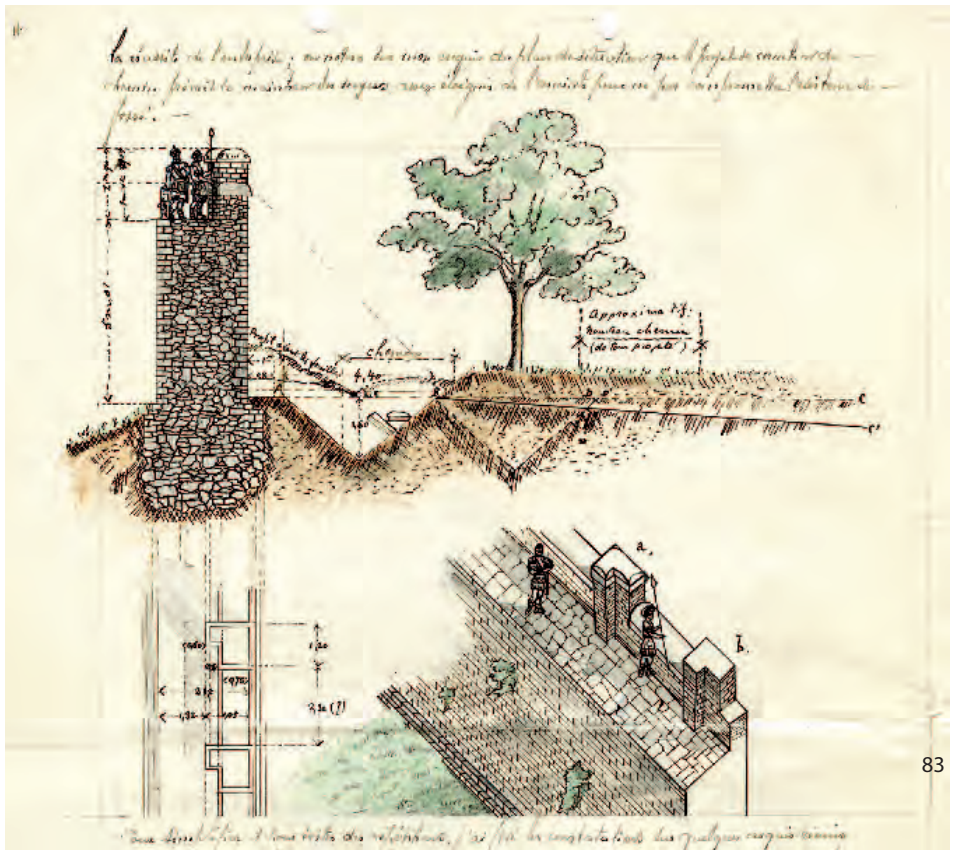




Fig. 115 – City wall. Restoration and reconstruction to the south of the Tornallaz tower (1916-1919).

In 1898, the Roman city wall was classified as a historical monument of national importance. In a contract signed March 4, 1909, the Commune of Avenches, owner of the rampart, committed itself to funding restoration. In addition, major excavations took place from 1920 to 1933 (Louis Bosset) and from 1960 to 1971 (Georg Theodor Schwarz and Hans Bögli).

An Impressive Feature More than 5 km Long and at least 5 m High

The rampart of Avenches, shaped like an irregular polygon, stretches along a 5.5 km perimeter encompassing a surface of 230 hectares (Fig. 116). It can be divided into three different topographical sectors. To the north it extends for 1.6 km through the wetland plain south-west of Lake Murten. To the south, it stretches westward and eastward, closing the polygon at the summit of the slopes of Villarepos and Donatyre. Finally, to the west, a segment extends along the foot of the hill where medieval Avenches would later be built.

To insure its stability in the swamplands of the northern sector, many oak piles were driven into the subsoil under its foundations. Since the tight network of wooden piles is still preserved due to conditions of permanent humidity, it is possible to determine, by means of dendrochronology, the exact year they were felled, coinciding, presumably, with the year of the wall's construction.



Fig. 116 – Plan of the city wall. Its perimeter stretches 5.5 kilometres.



Oak Piles under the Wall

A substructure of vertical oak piles driven into the subsoil under the masonry foundations of the city wall was initially observed during Louis Bosset's third archaeological excavation campaign in 1924. This technique of planting posts ranging from 0.6 to 1.8 m in length into the sandy wet subsoil was adopted to stabilise the wall's foundation as it stretched through the marshlands to the south-west of Lake Murten. The density of the oak piles, preserved today by the constant humidity (Fig. 117), attained up to 40 per square metre. Tree-ring dating reveals that most were felled between 72 and 76 AD. Current estimations indicate the use of at least 100,000 posts.

Fig. 117 – City wall. Section of the base of the wall. Oak posts driven into the sandy wet substratum stabilised the stone foundation.

The wall stood on masonry foundations 3.0 m wide and its elevation, 2.4 m thick, probably attained a height of at least 5 m. The outer facings were made of yellow limestones (quarried in the Jura Mountain range) bound with white lime mortar. Between the facings, the infill was a mixture of small rolled boulders, stone working debris and lime mortar. Although its top is not preserved, architectural elements brought to light in excavations suggest it was capped by a crenellated curtain.

Several conduits crossed the wall. These include at least one aqueduct supplying the city's reserve of water and several major sewers draining waste through its northern segment. A V-section ditch, 3.8 m wide and 1.6 m deep that served as defensive feature, was dug along the front of the wall in certain sections, in particular to the east. The backfill of this ditch contained a large number of stones

and architectural blocks resulting from both the rampart's intentional and natural dismantling. To the north and south of the East Gate, the ditch was emptied in the early 20th century. This part of the feature is visible today.

A Necklace of Pearls around a City: The Tornallaz and the other 72 Towers

The rampart was lined with 73 horseshoe-shaped towers distributed at 65 to 85 m intervals. Archaeological excavations have confirmed 54 while the remaining 19 are inferred. The Tornallaz (Tower No. 2), north of the East Gate, underwent many transformations over the years. It served as an observation tower both in the Middle Ages and during the Bernese domination (Fig. 119). Only the lower part of the masonry still visible today is Roman. It underwent restoration work as early as 1854 and 1856. Despite many medieval and modern transformations, the Tornallaz offers an authentic vision of a Roman city wall tower.

The preserved thresholds of the different towers indicate that their entrances, as expected, were accessed from the interior. Tiles unearthed in their demolition suggest they had roofs covered with tiles.

The City Gates

Four main gates (West, East, North and North-East) provided access to the city (Fig. 116). Although there were probably others, in particular to the south, they have never been identified by archaeology. The East and West Gates played an important role, both from the perspective of

Fig. 118 – City wall. View from the east of the East Gate (left) and the Tornallaz tower (right).



their location and their architecture. The West and North-East Gates were linked by the *decumanus maximus*, the main road crossing the city. The roads exiting the North-East and East Gates formed part the trans-regional routes crossing the Swiss Plateau, connecting Gaul to Germania to the north and to Raetia to the east.

The East Gate, a Work of Pomp

The monumental East Gate, a remarkable example of architecture, was excavated between 1897 and 1935 and reconstructed to a height of about 2 m (Fig. 118 and 121). It measured 28 m in length and 26 m in depth and was flanked by two external polygonal towers (Fig. 120). Between the towers, two passages, 3 m wide, served to access a circular inner courtyard 11.6 m in diameter. It is assumed that these passages were reserved for vehicles, while the two lateral entrances, 2.3 m wide, served for pedestrians.

Louis Bosset, as early as 1919, advanced a graphic reconstruction of the East Gate inspired by the St-André Gate of the Roman city of Autun in France. Although its accuracy was immediately questioned, this vision of the gate has endured. Influenced by the established ideas of his time, Louis Bosset virtually ignored the architectural features uncovered during excavations in the late 19th century (such as a great number of tiles) and capped the towers with crenellated platforms. A more recent reconstruction presents the gate flanked by two towers topped with tile roofs and a facade decor based on architectural evidence recovered in excavations (Fig. 120).



Fig. 119 – City wall. View from the south of the Tornallaz tower. Lake Murten and the Mont Vully are visible in the background.





Fig. 120 – City wall. Reconstruction of the outer facade of the East Gate.

Fig. 121 – City wall. View of the reconstructed masonry of the outer facade of the East Gate.

The West Gate

The West Gate was discovered 1964 by Georg Theodor Schwarz in trial trenches carried out during construction of the Avenches bypass road. Only its northern portion, including one of its two corner towers, was uncovered. The features of the gate, still partly visible today, are very similar to those of the East Gate in that they include two passages for carts flanked by passages for pedestrians.



When was the Rampart Built?

The date of the construction of the rampart remained vague until the 1960s. Pottery unearthed during Schwarz's excavations placed it roughly in the second half of the 1st century AD, ruling out the second half of the 3rd century date advanced previously by different specialists. Today its dating

Restoring the Restorations: a Sisyphean Task

The architects and archaeologists Albert Naef (1862-1936) and Louis Bosset (1880-1950) also reconstructed part of the East Gate and its adjoining wall during their excavation campaigns. For some sections, they reproduced the original stone blocks with cement (*simili-pierre*), a technique that was popular among architects and allowed to differentiate reconstructed features from the originals. Albert Naef paid particular attention to the overall understanding of the reconstruction, so as to offer the visitor a tangible representation of a Roman wall.

This desire to illustrate Roman architecture is particularly well-reflected in the wall section south of the Tornallaz Tower, reconstructed with a rampart walk and a crenelated curtain. Ironically, almost 100 years after completion, the restored masonry of the East Gate, so important from both the point of view of archaeology and history of art, is now in poor shape and frequently requires the intervention of conservators.



Fig. 122 – City wall. Visitors on the observation platform built in 1929 at the southern end of the East Gate.



Fig. 123 – City wall. The poor state of preservation of the restoration undertaken more than 100 years ago at the East Gate requires new work to secure and consolidate the masonry.

The City Wall in its Historical Context

The construction of the wall, beginning about 70 AD, as well as the urban development of Aventicum, are linked to the city's obtention of colony status in 71/72 AD. Various factors point to the rampart as primarily a monument of prestige. To begin with, its ditch is very small and the berm between the wall and the ditch is narrow (less than 1 m). The choice of the course of the wall is also indicative of its prestigious rather than defensive nature. In any case, this vast undertaking required many years to complete and involved enormous financial resources. It is probable that the army was also involved in raising the ramparts, as suggested by two stelae of soldiers of the Legio I Adiutrix discovered in 2012 (Fig. 8).

is based on tree-ring analyses. In fact, several dozen analyses of the wooden piles under its northern foundations place the felling of the oak trees between 68 and 76 AD. The rampart was therefore erected in the first years of Vespasian's rule.

According to the most current research, the wall endured until the 3rd century. Systematic pillaging of its blocks only began in Late Antiquity and persisted until the end of the 19th century.

Fig. 124 – City wall. A lizard residing in the gaps between the yellow limestones of the East Gate. Sections of the wall, bordered or covered by vegetation, are precious biotopes for many plant and animal species.



The Private Living Quarters

Aventicum attained its maximum extension throughout the 2nd century AD. Most of the circa 60 quarters (*insulae*) of the city were reserved for housing. Although the residential quarters occupied most of the space in the city, the wood and adobe houses have left few visible traces. The ancient landscape is in fact dominated by ruins of prestigious public buildings. These ruins, nonetheless, were vulnerable to systematic pillaging for their stones, a practice that continued as late as the beginning of the 20th century. It was only in the mid-1960s, as a result of the expansion of the industrial sector, that the first archaeological digs were conducted in certain areas of the Roman residential quarters.

The rapid romanisation of the population of Aventicum, essentially native Celts (Helvetii tribe), is recognised through changes in domestic architecture taking place from the mid-1st century AD. Traditional construction materials such as earth and wood were replaced by masonry (stone and mortar) that prompted a massive influx of limestone blocks from quarries on the northern shore of Lake Neuchâtel. These construction materials also gave way to new forms of domestic architecture that reaches its epitome in the 2nd century.

Of Wood and Earth

The oldest houses of the domestic quarters are the most difficult to identify because they are buried deep under successive layers of rubble accumulated for two centuries. A few of these older remains have been identified in specific areas of *insulae* 15 and 20. Tree-ring dating of



Fig. 125 – The remains of the oldest houses of Aventicum are very poorly preserved. The two pictures taken in *insula* 15 in 2013 correspond to two successive excavation layers of the same house. The wooden beams (left) of the base of the walls (now carbonised) rested on a stone foundation (right). The drawing above illustrates the mode of construction.





Fig. 126 – Sections of dismantled columns of molasse (fine green sandstone) that were part of a portico surrounding the inner courtyard of a private house in *insula* 12. Mid-1st century AD.

Fig. 127 – The painted decoration of this room of a house in *insula* 10 illustrates the luxurious lifestyle of the rich.



their beams date them to the beginning of the 1st century AD. The adobe or sun-dried brick walls of these houses, set on stone foundations (Fig. 125), supported roofs of thatch, shingles or tiles. The houses had dirt or gravel floors and at times flat hearths made of tiles or bricks. Open spaces at the rear of the houses, connected to the street, were reserved for craftwork or domestic chores.

The Houses of the Rich

The better-known houses of Aventicum date to a later period and belonged to members of the wealthy class. These private residences – called *domus* – set themselves apart from the modest houses by their size, layout and interior decor (Fig. 126-127). The more representative examples were built along the *cardo maximus*, one of the city's main roads, that divided the *insulae* just to the north of the Forum into two blocks equal in size (*insulae* 4 West, 10 East and 16 East). Their layout, like other residences in outlying districts of the city (north of *insulae* 3, 7 and 12) inspired by Roman houses in the Mediterranean, comprise large open-air leisure areas surrounded by private or public areas.

The Domus of Insula 13

About 75% of the surface of one *domus* in the eastern sector of *insula* 13, neighbouring the baths of *insula* 19 and near the Derrière la Tour Palace, was excavated between 1993 and 1995. A narrow passage separated it from the neighbouring property built on a terrace to the west. In the 2nd century, in its last phase of construction, this residence comprised three main buildings spread over about 2'000 m². Each presumably had an upper floor, doubling the living space. The buildings were laid out around a garden covering a surface of about 800 m² surrounded by a colonnaded portico. The main facade of the building, 50 m long, also had a covered gallery facing the street (Fig. 128).

Like all Roman dwellings of this type, the residence of *insula* 13 included private apartments for the owner and his family that were clearly separated both from the public spaces where visitors or customers were received and from the areas reserved for domestic activities. Most of the living rooms were equipped with floors of mortar, at times decorated by stones or tesserae of different colours forming simple geometric designs; certain rooms were embellished with mosaics. Guests were received by the master of the house in a large reception room with a heated floor (hypocaust). The walls and vaulted ceiling of its apse were decorated with frescoes depicting mythological scenes.

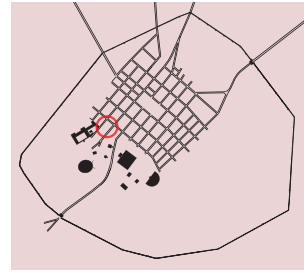


Fig. 128 – Reconstruction of a private house of *insula* 13.



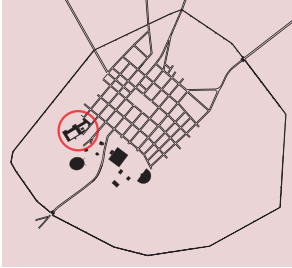


Fig. 129 – Reconstruction of the Derrière la Tour Palace in the present urban landscape. The amphitheatre and the medieval town of Avenches are in the background to the right.

The house was decorated with stucco, imported marbles and local white limestone, features that reflected the owner's wealth. The owner's affluence was also borne out by a small, private thermal bath, something quite exceptional in Avenches.

A large, T-shaped garden occupied nearly a third of the rear of the house and was embellished by a square basin (10 x 5 m) around which one could stroll in the shade of the porticos. It is likely that the rainwater collected in this basin then fed the cisterns of the house.

The Derrière la Tour Palace

The wealthy residence at Derrière la Tour differs from the urban Mediterranean model by its exceptional size, its floor plan and its relative isolation. It actually resembles large rural villas, such as Orbe (Canton of Vaud) and Colombier (Canton of Neuchâtel). This palace was raised on the edge of the city on the northern slope of a hill, a few metres above the level of the Broye Plain (Fig. 129). Furthermore, it was erected perpendicular to the slope, an orientation that deviates from that of the road network.





Fig. 130 – Derrière la Tour Palace. Drawing of the «Bacchus and Ariadne mosaic» by the surveyor David Fornerod (1752).

Three Centuries of Archaeological Research

A peculiarity regarding the Derrière la Tour Palace is its long history – over three centuries – of archaeological excavations and research. A distinctive mosaic brought to light at the beginning of the 18th century, designated «Bacchus and Ariadne mosaic» due to its central scene, is the first of a long, adventurous chronicle of finds (Fig. 130). This mosaic, totally uncovered in 1750-1751, the largest identified in Switzerland (18 x 12 m or 216 m²), was remarkably well documented for its time. Its depiction in a mid-18th century illustration is particularly precious since the mosaic itself vanished soon after it was brought to light.

The palace would have to wait nearly a century before new archaeological excavations (1861-1862) unearthed several rooms, porticos and stairways. Yet the most remarkable find in these campaigns was a stone relief depicting a she-wolf suckling Romulus and Remus (Fig. 21). Other important work was carried out in 1911-1912 and 1971. Apprehending the main phases of the palace's history, however, had to wait for modern rescue work in the late 1980s.

A Spectacular Expansion

As noted, the initial occupation of the sector, before becoming a residential quarter, began in 30-40 AD with the arrival of several workshops. The most notable was a glass workshop that remained operative until about 70 AD (Fig. 141-142). The first residential feature appeared shortly after the middle of the 1st century. From its original core, this building grew considerably until the 3rd century when it became a veritable palace.

Its original structure was more or less rectangular (approx. 80 x 40 m) with the U-shaped living quarters (an elongated main body and two wings) facing the plain. The central section and façade facing downhill comprised a series of walkways, galleries and porticos built along the slope. In the centre of its main body, the large room that would later house the celebrated mosaic already served as a reception room.

Fig. 131 – Reconstruction of the great courtyard of the Derrière la Tour Palace.



An important extension took place in the first half of the 2nd century. The main addition was a large courtyard, lined with porticos, uphill from the original building and flanked by two new extensions to the east and west (Fig. 131). The most remarkable and best conserved feature of this phase is a pavilion with an apse in an axial position behind the courtyard. This room, housing a mosaic and frescoes, is interpreted as a *triclinium* (dining room) (Fig. 134).

At the beginning of the 3rd century, the edifice continued expanding, taking on the dimensions of a veritable palace (nearly 200 m long). Its surface nearly doubled with the addition of new features organised around a second trapezoidal courtyard. This courtyard, adjacent to *insula 7*, was closed to the east by an elongated wing housing thermal baths, a feature that linked the palace to the gridded quarters of the city.

One is struck by the quantity of open space allocated to leisure (courtyards, terraces, galleries and reception rooms) compared with the space reserved for living quarters. These features, designed specifically to impress visitors, are typical of the residences of the largest estates. The large «Bacchus and Ariadne mosaic» in the reception room of the main body is attributed to this phase.

The palace's gradual decay began in the second half of the 3rd century. The pillage of construction material seems to have begun already at this time.

The Luxurious Features and Decors of the Palace

The luxurious amenities of the Derrière la Tour Palace are best illustrated by three of its preserved mosaics. Decor also included painted frescoes of fine quality (Fig. 132) and overlays of imported marble (Fig. 33) and white limestone from the Jura Mountains (Fig. 133). The luxury of the palace is also manifest by its architectural ornamentation, other features such as limestone basins, as well as dozens of stone and bronze reliefs and sculptures. Another opulent detail is the presence of components of the mechanism of an extremely rare and complex musical instrument: a hydraulic organ (Fig. 46).

The Residence of an Important Family

There is little doubt that the owners of the palace were among the important noble families of the city. A recent discovery has lifted the veil on this question. The find, a fragment of an inscribed bronze plaque unearthed during a rescue excavation in 1995, is part of a «table of patronage», a sort of contract binding a noble to a city and



Fig. 132 – Derrière la Tour Palace. Fragment of a painted wall plaster with a garland motif.

Fig. 133 – Derrière la Tour Palace. Fragment of Jura limestone overlay (Corinthian pilaster capital). Height: 31 cm.



Fig. 134 – Derrière la Tour Palace. Photograph of the excavated features and reconstruction of the summer *triclinium* (dining room) of the residence built in the first half of the 2nd century.

honouring him as a patron. The four letters OTAC therefore point to a member of the noble Otacilii family as owner of the palace.

Several finds suggest the exercise of administrative and official activities within the walls of the palace (judicial inscriptions, gilded bronze leg of the equestrian statue of an Emperor, and a number of writing implements, etc.). We can therefore imagine that the Derrière la Tour Palace, on occasion, housed eminent representatives of the provincial or imperial administration during their travels through the land of the Helvetii.



The Workshops

As in any town in Antiquity, many craftsmen set up shop in Aventicum. Their activities primarily met the needs of the local and regional population. It is possible, although difficult to prove, that some of their crafts reached a wider market, benefiting from the network of rivers, canals and lakes of the Three Lake Basin (Murten, Neuchâtel and Biel Lakes). In any case, there is evidence that raw materials (rock and other building materials, metal ingots, etc.) were transported throughout these waterways.

Craftwork in Aventicum is evidenced by a limited number of inscriptions. A rare example is the stone altar unearthed at the Cigognier Temple with a dedication by the stonemason Iulius Silvester to the god Mars Caturix (Fig. 135). Finds of artefacts directly related to crafts (tools, raw materials, characteristic waste products, discards and



Fig. 135 – Limestone altar unearthed at the Cigognier Sanctuary. It was dedicated by the stonemason Iulius Silvester to the god Mars Caturix. Height: 79 cm.

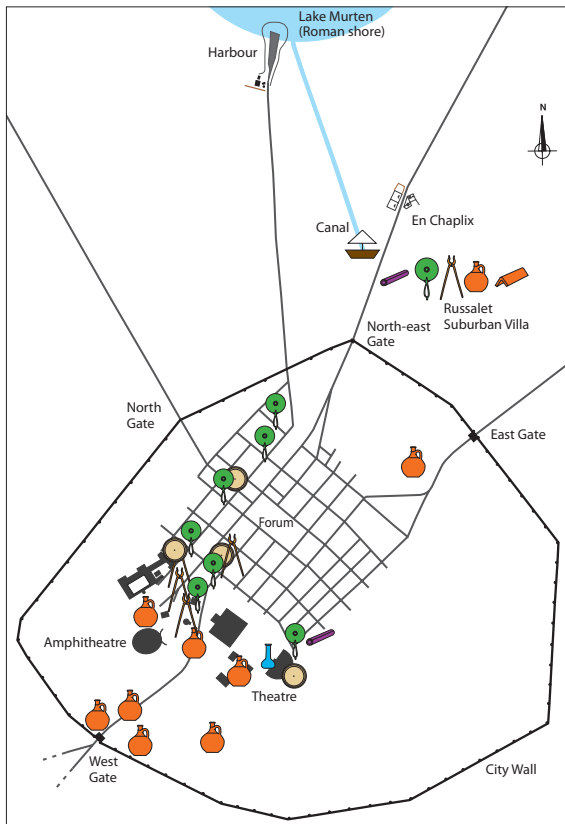


Fig. 136 – Spread of the main vestiges of craftwork in Aventicum from the 2nd century to the beginning of the 4th century AD.

-  tile makers
-  potters
-  naval woodworkers
-  bronze-smiths
-  blacksmiths
-  glass makers
-  lead workers
-  bone carvers



Fig. 137 – Heap of discarded potsherds at the À la Montagne workshop.

mis-fired or mis-shapen objects) are more common. Finds of workshops themselves remain, nonetheless, exceptional. They are either extremely poorly preserved or their features are very difficult to interpret when devoid of characteristic artefacts. Furthermore, certain craftsmen, such as basket makers, worked with perishable materials and tools that leave no trace.

The crafts identified at Aventicum include stone, wood, clay, metal, bone, textile, leather and glass working (Fig. 136). In addition, there is evidence of professional food processors (millers, bakers and butchers). As expected, crafts producing noise, odours or fire hazards, or those that required large working spaces (potters and brick makers), were relegated, for the most part, to the outskirts of the city. Other more discrete professions, such as bone carvers, cobblers, wool spinners or goldsmiths, were set up in residential quarters or in boutiques along roads to assure a direct contact with their clientele.

Like other professions of commerce and arts, artisans were often grouped in corporations or guilds in order to defend their common interests. Near the centre of town or where they exercised their craft, they had rooms or *scholae* where they could gather, debate and honour the deities of their trades.

Potters and Tile Makers

Crafts exploiting clay left many traces around Aventicum in the form of pottery workshops and tile kilns. In the 1st century AD a group of workshops in the north-east



Fig. 138 – View of the large tile kiln at Russalet. The vaulted conduit to introduce fuel into the combustion chamber is in the foreground.



Fig. 139 – Reconstruction of activity at the Russalet kiln.

quarters is evidenced by three circular tile kilns and a small pottery kiln. The names of some potters have survived (Felix, Iustus and Castus for example) stamped on certain vessels. At the end of the 1st century, after the construction of the city wall, craftwork left this sector and was replaced by the expanding residential quarters. In the 2nd and 3rd centuries, the workshops continued relocating to other areas, always outside the residential quarters, in particular in the south-west sector of the city.

Tile and brick production, probably linked to the nearby suburban Russalet villa, was operating beyond the city walls (see Fig. 160 : 9) during the second half of the 2nd century AD. It comprised two rectangular kilns sharing a fuel hole where the tile makers stockpiled wood and stoked the fire in the lower chamber. The perpendicular arrangement indicates that the kilns were probably fired alternately (Fig. 139). One is particularly impressive (Fig. 138). Its upper chamber (5.50 x 5.40 m), where the tiles were loaded, yielded about 10,000 flat tiles after each firing! Loading, firing and cooling required two to three weeks and consumed about 45 m³ of fuel. Although the workshop's production probably served the considerable demand in the city, some of it could have been «exported» on barges through the nearby canal.

Fig. 140 – Detail of a stamp on a tile designating the workshop's proprietor: M(arcus) AFR(anius) PROF(essus). This particular workshop has not yet been identified.



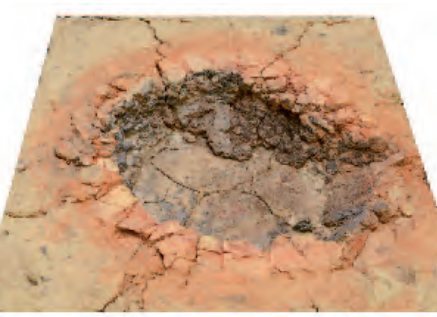


Fig. 141 – Base of a glass workshop kiln at Derrière la Tour.

Glass Makers

A glass-making workshop in operation between 40 to 70-80 AD was unearthed at Derrière la Tour under the ruins of the future palace, just beyond the regular gridded residential quarters. For the most part, its production comprised vials of various colours for ointments and perfumes (Fig. 143). The glass makers used several small circular furnaces measuring from 0.50 to 0.65 m in diameter (Fig. 141-142).

Two other glass workshops have been identified by their characteristic waste products. While the first is near the pottery and tile workshops in the north-east quarters, the second is in the area of the theatre.

Fig. 142 – Reconstruction of activity at the Derrière la Tour glass workshop.



Metal Workers

Iron, bronze and lead workings at Aventicum are evidenced, for the most part, by discarded tools, crucibles and waste (slag, cuttings and metal droplets). These by-products are scattered throughout the city and are most often indicative of short-term workings, in particular single orders in connection with construction sites.

One of the most remarkable of these workings was unearthed in the courtyard of a private house in *insula* 12. The feature, dating sometime from the late 1st to mid-2nd century AD, was a semi-buried workshop about 2.35 x 2.35 m with walls carefully coated with tile fragments (Fig. 144). Various features at its base, as well as characteristic fragments of moulds, suggest it was a casting pit for one or several large bronze statues (Fig. 145). These finds probably point to a single commission by the owner of the residence carried out by specialised craftsmen.

Other types of metal crafts have been identified near the theatre. These are evidenced, for example, by a large amount of plaque cuttings and droplets that point to a workshop specialised in recycling lead. These workings date to the beginning of the 4th century, when the city was in a phase of steep decline.



Fig. 143 – Characteristic perfume bottles from the glass workshop at Derrière la Tour.

Fig. 144 – Semi-subterranean workshop for casting bronze statue(s) in the yard of a house in *insula* 12.



Fig. 145 – Partial view of a model illustrating three phases of casting large bronzes in the semi-subterranean workshop of *insula* 12.



The Cemeteries

Interest in Aventicum's cemeteries is not new. Grave goods were already being recovered to enrich the museum collection in the 19th and early 20th centuries. The most fruitful of these early excavations took place outside the West Gate and resulted in a number of beautiful funerary inscriptions. The hundreds of graves unearthed throughout those years, unfortunately, were not recorded scientifically. This lack of rigour changed with the renewal of archaeological research in the 1980s in the framework of construction work. These last three decades of research, exploring hundreds of graves for the most part along the city's northern border, have yielded an assemblage of finds of great scientific interest.

Where are the Dead ?

According to tradition, the main cemeteries were located adjacent to the roads leading outside the city (Fig. 146). The cemetery outside the West Gate appears to have been the largest and the richest. It comprises burials scattered over several hectares, up to 600 m outside the gate.

Fig. 146 – Reconstruction of a Gallo-Roman cemetery «landscape» at the gate of a city.





Fig. 147 – Foundation of a square funeral monument at the Tourbières cemetery.

Other cemeteries outside the city are less known. The road exiting the imposing East Gate would, in theory, have been a prime location for a cemetery. However, excavations in this area have uncovered little evidence of burials. Outside the North Gate, old drawings reveal a rectangular building with buttresses, possibly a funerary monument. Elsewhere, a few graves along the road leading to the port were dug in the 19th century during railroad construction. Finally, to our knowledge, there is no evidence of a cemetery outside the North-East Gate.

Other cemeteries were explored farther away from the city centre. One of them was along the road to the harbour, not far from the dock. The modest nature of these burials has led researchers to ascribe them to the harbour workers. Another was at En Chaplix along the North-East Road. This complex comprised a sanctuary, two imposing mausoleums dating to the first half of the 1st century AD and a cemetery that remained in use as late as the 3rd century (Fig. 160: 7). By its nature and its location, this complex can be linked to an estate at the gates of the city (Fig. 160: 8). Another important necropolis was at Les Tourbières, near the end of the canal built in the 2nd century.

The burials discovered *intra muros*, with the exception of a few isolated cases possibly from Late Antiquity in the sector of the theatre, date either to the Second Iron Age (c. 450 BC-15 AD) or to the early decades of Roman times. Furthermore, in an area which later fell inside the perimeter of the city wall, a necropolis (À la Montagne) was in use from 30 to 70-80 AD. Its abandonment coincides with the building of the city walls and the expansion of the urban area.



Fig. 148 – Cremation burial with a ceramic urn at the Tourbières cemetery.



Fig. 149 – Inhumation burials at the Tourbières cemetery. The bottom of the wooden coffin is partially conserved (right).

Different Types of Funerary Rites

Funeral rites dating from the middle of the 1st to the beginning of the 3rd century AD are well documented. Cremation is the most common practice (Fig. 148). The corpse and personal belongings, food offerings and symbolic or protective goods were burned on a pyre. After the cremation, the remaining bones and ashes were collected and placed either in ceramic or glass urns, a wooden box or directly in a pit. Part of the burnt goods were also deposited in the grave.

Inhumation was also practiced during this period, especially for infants and young children. It increased progressively for adults from the middle of the 2nd century (Fig. 149), possibly under the influence of Eastern religions (but long before the arrival of Christianity). Cremation, however, remained predominant, at least until middle of the 3rd century. It was only in the next century that inhumation was adopted permanently. To date, the most interesting example of an inhumation is a female burial discovered in 1872 at the West Gate. A coffin carved from an oak trunk contained

Fig. 150 – Grave goods from different burials of the West Gate cemetery.





the remains of a young woman accompanied by rich grave goods. Among the goods were two glass cups bearing inscriptions with possible Christian overtones (Fig. 9).

Due to the lack of Roman written texts, the goods from the pyres and the pits are practically the only evidence that shed light on the funerary beliefs of the Gallo-Roman population (Fig. 150). In fact, it is very difficult to decipher, from the artefacts alone, between shared or individual convictions. The offerings of foods, beverages and personal belongings seems to reflect, in any case, a belief in the afterlife. A coin in the grave – the famed Charon obol – is thought to be a symbolic payment to the ferryman to cross the river to the underworld. The presence of protective amulets suggest that this final « journey » was hazardous.

A Few Names Among the Anonymous

For reasons related to conservation we have little data regarding the exterior aspect of these burials. Although it is assumed that most were marked on the surface, few of these surface features (made of different types of materials) have left traces. The rare finds of this type are several funerary stone stelae (Fig. 151) brought to light, unfortunately, outside their original context.

These types of elongated stelae, set vertically and at times decorated with reliefs, were engraved with the name of the deceased. They at times bore biographical information, as well as the name of the individual, family or friend, who ordered the marker.

Most were found at the West Gate cemetery. One is dedicated to the memory of Pompeia Gemella, probably the nurse of the Emperor Titus (Fig. 7). Another marker – a recycled limestone column – is actually more original than its inscription itself, dedicated to the memory of Decimus Iulius Iunianus (Fig. 151). Other recent finds include the stelae of two legionnaires from a military unit that may have taken part in the construction of the city wall (Fig. 8).

Fig. 151 – Examples of funerary stelae discovered at the West Gate cemetery. Height 146 and 132.5 cm.

The Religious and Funerary Complex of En Chaplix

Aerial photography over the plain to the north of Avenches during the drought of 1976 revealed cropmarks corresponding to many buried Roman features, in particular the harbour. These photographs also revealed a large rectangular building of unknown nature at En Chaplix (Fig. 152) along a road leading to the city, more than a kilometre from the centre of Aventicum.

Between 1987 and 1992, during construction of the A1 motorway, archaeologists explored more than 6,000 m² of the plain and brought to light some of the most spectacular finds in the Canton of Vaud (Fig. 153 and 160: 7). This work, in fact, uncovered a religious and funerary complex comprising two mausoleums, a cemetery with over 200 graves and a sanctuary of indigenous tradition.

The Sanctuary

The earliest feature of the site, a square ditch enclosure (23 x 23 m) with an opening to the east, dates to 15-10 BC (Fig. 154: 4). It surrounded a central cremation of a woman accompanied perhaps by her child. Brooches in the grave suggest that she was foreign to Aventicum, probably

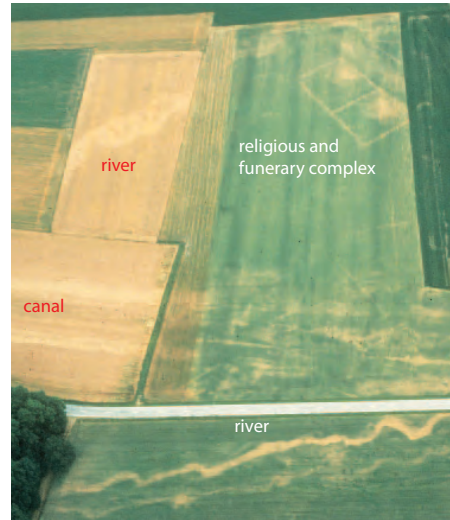


Fig. 152 – Aerial photograph of En Chaplix taken in the summer of 1976. The cropmarks correspond to ancient riverbeds, the 2nd-century canal (left) and the religious and funerary complex (top right).



Fig. 153 – View of the En Chaplix archaeological excavation during the summer of 1989. Foreground: enclosures and foundations of funeral monuments. Top left: motorway construction.



Fig. 154 – Schematic plan of the religious and funerary complex of En Chaplix.

- 1 Northern Temple
- 2 Southern Temple
- 3 Northern «shrine»
- 4 Enclosure (ditch; Augustan period)
- 5 Sanctuary (Northern enclosure)
- 6 Sanctuary (Southern enclosure)
- 7 Walls of the Russalet estate (*villa*)
- 8 Road
- 9 Roadside drainage ditches
- 10 Northern funerary monument
- 11 Enclosure of the Northern funerary monument
- 12 Southern funerary monument
- 13 Enclosure of the Southern funerary monument
- 14 Cemetery

from the Eastern Alps. The religious character (ancestor worship?) at this site is reflected by repeated offerings – especially coins – and by the construction, a few decades later, of a small temple, probably of wood, with a central room (*cella*) directly above the woman's burial (Fig. 154: 1). At about that time (c. 25-30 AD), the old enclosure ditch was replaced by a masonry wall. Another temple (Fig. 154: 2), poorly preserved, was erected in an adjacent enclosure. It is also interpreted as a funerary monument linked to rites honouring a prominent member of the family clan. Offerings and sacrificial rites inherited from Pre-Roman indigenous tradition are found inside the enclosures around the temples. Fig. 155 illustrates a pit in the southern enclosure containing the sacrificed remains of an ox and a dog.



Fig. 155 – Ox and dog sacrifice in a pit at the En Chaplix Sanctuary.

The Funerary Monuments

Two funerary monuments built respectively about 28 and 40-45 AD, and surrounded by adjoining rectangular enclosures, stood by the road, opposite the sanctuary (Fig. 154: 10-13). The remains of these features, brought to light during the archaeological work, comprised only their foundations and many scattered Jura limestone blocks. It is safe to assume that they were probably dismantled in Antiquity. In spite of their poor conservation, careful study provides a fairly accurate reconstruction of these «twin» mausoleums estimated to be 23 and 25 m high. The two had several superimposed decorative registers topped by a columned aedicula housing the statues of the deceased and their families. These aediculae themselves were topped by slender spires decorated with ornamental carved tiles (Fig. 156).

The different registers of the «twin» monuments were decorated with reliefs and sculptures, largely inspired from Greco-Roman mythology and iconography. Among the most beautiful is a group of aquatic monsters (tritons and griffons) and marine nymphs (Nereids) (Fig. 27), a relief showing Attis, a deification of an oriental shepherd, and the statue of a satyr with the young Bacchus on his shoulder, which adorned the spire of the northern

Fig. 156 – Colour reconstruction of the southern funerary monument of En Chaplix.

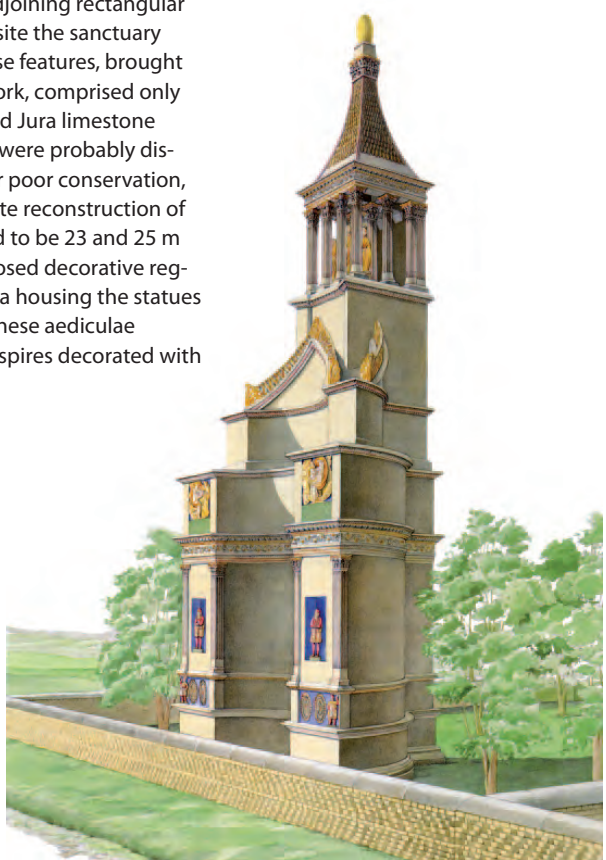




Fig. 157 – Limestone portrait of a male belonging to the statuary group of the «chapel» at the summit of the southern monument.

Fig. 158 – Inhumation of an adult at the En Chaplix cemetery. Grave goods include several ceramic vases.



monument. The representations of the deceased are very fragmentary. The only representation that has survived is a handsome portrait of a male (Fig. 157).

Since the inscriptions of the monuments have disappeared, the owners of the mausoleums remain anonymous. However, it is safe to say that they were familiar with Roman culture and belonged to the wealthy, founding class of the Helvetii city. What remains uncertain is whether the cremated remains of the deceased were housed in these monuments.

The Cemetery

A cemetery grew around the funerary enclosures of the mausoleums by the road from about 70 AD to the beginning of the 3rd century (Fig. 154: 14). Most of the graves were to the north of the walled enclosures, inside a space bound by ditches.

As expected, the majority of the burials were cremations. The charred bones of the dead were collected after the cremation and often placed either in a ceramic or a glass urn or directly deposited in a pit in the ground. Grave goods, most often burned, accompanied the bones and ashes.

Inhumation burials are not uncommon at the En Chaplix cemetery. This was also the rite at times practiced for children, adolescents and young adults. Their bodies were often laid to rest in wooden coffins assembled with nails. Sometimes they were accompanied by offerings, mainly ceramic or glass vessels (Fig. 158).

Although the richness of these graves is far from the scale of that of the large funerary monuments, the quantity and quality of the grave goods (glassware, ornamental elements, small coffers, wine amphorae, etc.) suggests this necropolis belonged to the affluent sector of the population.

The Harbour and the Canal

The city of Aventicum was built in the heart of a network of waterways that was essential to its urban development and prosperity. In fact, Lake Murten, one kilometre north of the city, was connected to the Lakes of Neuchâtel and Biel by means of the Broye and Zihl canals. Access farther away to the Rhine River Basin was possible through the Aare River. It was through these waterways that thousands of tons of rocks were shipped from quarries near the shoreline of Lake Neuchâtel to countless public and private projects in Avenches. Regional and local craftsmen also probably profited from these waterways to export their goods.

The Harbour

The harbour of Aventicum, located about a kilometre from the city in the prolongation of a straight road (Fig. 160: 5), consisted essentially of a quay that jutted out into the shallow waters of Lake Murten (Fig. 160: 3 and 161). The quay, about 100 m long, between 32 and 36 m wide and from one and two metres high, was built by backfilling gravel and rock into a space enclosed by a U-shaped palisade of vertical timber posts. The backfill was consolidated by a mesh of intersecting horizontal oak beams. Over time, a huge amount of gravel and rock was filled into the water along the outer edge of the quay creating a large artificial ramp or slipway used to draw boats to and from the water.

Tree-ring dating (dendrochronology) establishes that the harbour was constructed in 5 AD, a date that coincides with the creation of the urban road network. This dating is evi-



Fig. 159 – Reconstruction of Aventicum's harbour installations (c. 180 AD).

- It is surprising that the remains of Aventicum's harbour were found on dry land! It turns out that the level of the lake during Roman times was almost three metres higher than it is today. In fact, the ancient shoreline of Lake Murten was more than 500 m south of its current location (Fig. 3). No remains of the Roman harbour are visible today.

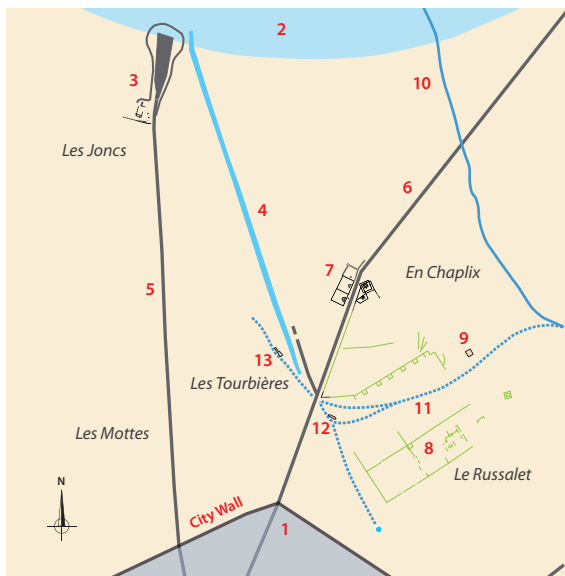


Fig. 160 – Schematic plan of the Roman features between Aventicum and Lake Murten.

- 1 Roman city of Aventicum
- 2 Lakeshore in Roman times
- 3 Harbour
- 4 Canal
- 5 Harbour road
- 6 North-East road
- 7 En Chaplix religious and funerary complex
- 8 Suburban estate (*villa*)
- 9 Tile workshop
- 10 Chandon River (present)
- 11 Ancient courses of the Chandon River
- 12 En Chaplix watermill
- 13 Tourbières watermill



Fig. 161 – Reconstruction of the harbour as it would have appeared in the 2nd century AD. The quay (right) was the extension of the road leading to Aventicum; the canal (left) was dug around 125 AD.

dence of the important role the harbour played in the early years of the city.

Three poorly preserved buildings of uncertain function and a few wells were found along the quay, just to the west of the road (Fig. 161). One of the buildings, crossed by a ditch, could have been a stable. A series of finds (hooks, net floaters and weights) indicates that fishing was an important activity.

Fig. 162 – Reconstruction of activity in the sector beyond the end of the canal (2nd century AD). The city wall is in the background.

The Canal

Around 125 AD, to the east of the harbour and its road, an unusual feature – a navigable canal – was dug between the shoreline of the lake and the North-East



Road (Fig. 160 : 4). It stretched 870 m before curving slightly as it joined the lake. It was 7 m wide and at its outset (to the south) attained a depth of about 4 m! Its banks were reinforced by horizontal planks and consolidated by vertical posts driven deeply into the subsoil. A road paved with stones ran along its eastern bank, allowing oxen, horses or men to haul boats to the city. The lake level, estimated at about 432 m, meant that the depth of the canal was about 80 cm, shallow enough to manoeuvre a flat-bottomed, keel-less barge.

The depth of the canal became progressively shallower upstream allowing boats to moor (Fig. 162). Furthermore, at the point there is evidence of naval carpentry (Fig. 165). The canal underwent maintenance and repairs, dated by tree-ring analyses to 148/149, 159/160 169/170 AD, before it was abandoned.

The question of the utility of this canal has been a subject of debate. Why build such a feature so close to the port and in a direction that does not correspond to that of the city? There is speculation, although no proof, that the city's port was abandoned, at least temporarily, due to important surges of the level of the lake. Field work undertaken since 1990 and new aerial photographs of the area preceding the canal have revealed the existence of a vast rural estate (Fig. 160 : 8) in this sector of the city's outskirts along the axis of the canal.



Fig. 163 – Wooden rib of the hull of a Gallo-Roman boat unearthed near the canal.





Fig. 164 – Inscribed base of a statue excavated uphill from the canal in 1990. The monument comprised several elements. The limestone column stood on a sandstone cube which, in turn, rested on an underground foundation of masonry. Vertical oak piles, under the foundation, partially preserved at the moment of the excavation, ensured the monument's stability. The original statue on the column has disappeared.

SILVANO ET NEPTVNO APRILIS
C. CAMILLI PATERNI SER(vus)

«To Silvanus and Neptune, Aprilis, slave of Caius Camillius Paternus, (raised this monument)».

The hypothesis that the canal was in fact a private endeavour seems to be confirmed by the discovery of a column erected near its southern end (Fig. 164). This column, at one time capped by a statue, bears an inscription dedicated to the gods Silvanus and Neptune (patrons of wood workers and boatmen) and features the name of Caius Camillius Paternus. It is therefore conceivable that this Helvetian nobleman was both the builder of the canal and the owner of the estate.

Fig. 165 – Gallo-Roman shipyard.



The Aqueducts

A city like Aventicum with about 20,000 inhabitants required a large supply of water. The daily consumption in the homes was supplied, for the most part, by wells dug in the backyards of the houses. However, urban public infrastructure such as the city's sewer network, the street fountains and especially the thermal complexes, required a considerable and regular reserve of water.

Aqueducts Several Kilometres Long

The aqueducts in Avenches were fed either by springs located on the slopes of the Bois de Châtel or other sources kilometres away (Fig. 3 and 4). The exact number of these conduits and their courses remain uncertain. For example, the courses of two or three aqueducts from the Bois de Châtel are hypothetical. Features of three other aqueducts from farther away have been identified here and there thanks to systematic field surveys or chance finds. The first was fed by a water resurgence about 15 km south-west of Avenches at Bonne Fontaine (Montagny-les-Monts, Canton of Fribourg). The source of the second was 3.5 km away, near the village of Oleyres. The third, about 5 km long, was fed by a spring at Coppet on the slopes of the Grand Belmont forest.



Fig. 166 – View of the section of an underground aqueduct at Joli-Val (1988).



Fig. 167 – View of the section of the underground aqueduct of Coppet. The conduit was cut through the molasse (sandstone) substrate (1941).

Underground Conduits

Only the short segments of the aqueducts of Bonne Fontaine and Coppet are visible today. They appear in the form of a masonry conduit about 50 cm wide and 60-70 cm high surmounted by a limestone tufa vault. Their interior was coated with a watertight hydraulic mortar. These underground conduits had manholes at regular intervals that facilitated their maintenance (Fig. 168). It is possible that these features took on the form of bridges to cross valleys or other natural obstacles.

For the moment, no aqueduct has been detected within the walls of Aventicum. The location of the distribution basins (*castella divisoria*) is also unclear. These features distributed water to the different areas of the city through a secondary network of masonry conduits and wood, lead or terracotta pipes.

Fig. 168 – Two major phases of construction of a subterranean aqueduct.

- 1 After digging the trench, construction of the walls, application of a watertight coating (mix of mortar and broken tiles) and installation of the vaulted roof.
- 2 Backfilling the trench and installation of the slab covering the inspection shaft (manhole).

Dating the Aqueducts

Although it is assumed that the springs on the slopes of the nearby Bois de Châtel were the first to be exploited, Avenches' aqueducts cannot be precisely dated. There are indications, nonetheless, that these features were part of original urban planning in anticipation of the construction of the first thermal complex, that took place around the middle of the 1st century AD.



The Watermills

The creative and innovative spirit of Greek and Roman engineers is well known, in particular in the field of hydraulic energy. Vitruvius, the famous Roman architect and engineer, penned a very accurate description of this mechanism powered by water to grind grains. Despite his written description and other evidence, historians have long postulated that watermill technology did not spread in Roman times and that it only became prevalent in the Middle Ages. Historians, in fact, were convinced for years that the large slave workforce in Antiquity was a major obstacle to technological progress.

However, the multiplication of the number of Roman watermills finds in the last decades has led archaeologists to correct this misconception. The rarity of watermills can, in fact, be explained by the difficulty of recognising them since they were most often located outside settlements and built of perishable materials (wood).

Vitruvius' description coincides with the majority of watermills identified in archaeological field work in that the mechanism comprises a vertical water wheel with blades powered by the weight or flow of water. The vertical motion of the water wheel is therefore converted to a horizontal rotation by means of gearing. Hence, even a slow



Fig. 169 and 170 – Excavated features of the infrastructure and water races of the En Chaplix watermill. Among the vestiges is a lava millstone (bottom left).



Fig. 171 – Reconstruction of the En Chaplix watermill.



Fig. 172 – Cross-section of the Tourbières watermill. The milling room housing the millstones is on a platform. The gearing mechanism, under the floor of the platform, is driven by the waterwheel (right).



turning water wheel could drive a millstone at the speed required to grind grain.

The most celebrated Roman watermill is at Barbegal near Arles in southern France. This mill, built on a steeply inclined rocky slope, was a veritable factory. An aqueduct at the top of the slope divided the water into two mill races, each driving the wheels of eight mills arranged side by side along the slope. The significant yield of flour of this factory supplied the important Roman city of Arles.

Most Roman watermills, however, were less sophisticated. The two excavated at Avenches, outside the city wall, near the canal (Fig. 160: 12-13), were identified by the presence of large millstones, as well as wooden features preserved by the constant waterlogged conditions. Dendrochronology (tree-ring dating) has dated wood samples of each watermill very accurately. Hence the watermills at En Chaplix and Les Tourbières can be dated respectively between 57 and 58 AD and circa 170 AD.

The watermills comprised wooden mill houses (respectively 4.7 x 2.4 and 2.5 x 9.5 m) set along the edge of ancient river courses. The position of the large wooden posts of the mill house, as well as elements of the water race and tail race, provide enough information to establish plausible reconstructions of each mill (Fig. 171, 172 and 175).

No trace of the wooden water wheels has been identified at Avenches. Nonetheless, other archaeological sites provide pertinent data for their reconstruction. Actually, the Roman features to channel the water to the wheel and the gearing mechanisms are basically the same to those of later pre-industrial mills.

Clearly, watermills in Antiquity were privately run installations, attached for the most part to large agricultural domains. Millers had to sell most of their production to bakeries and residents of neighbouring towns. It is possible that they also hired their services to other grain producers.

The significant number of large Roman millstones in museum collections suggests a great number of watermills in Roman Switzerland. The proportion of flour milled

- While Roman hand-operated rotary querns measure a diameter of about 40 cm, millstones for watermills, on an average, measure about 70 cm in diameter. These larger models, contrary to those driven by hand, are also more or less conical in section and, at times, are hewn from local rocks (especially granite). A larger number, nevertheless, was imported from distant quarries. The two Avenches watermills, for example, were equipped with numerous imported volcanic lava stones. Petrographical analyses pinpoint their source in the Massif Central in France. In fact, these millstones are at times the only surviving traces of Roman watermills.

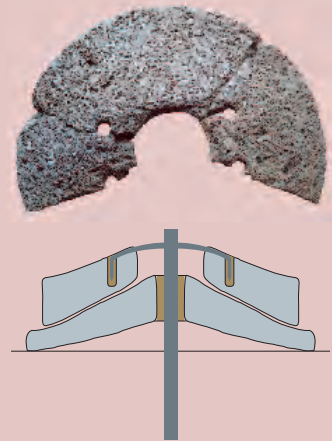


Fig. 173 – Fragment of a lava millstone of the En Chaplix watermill and schema of the section of a pair of millstones and the system that drove the upper stone by means of double cramps of iron attached to a vertical spindle.



Fig. 174 – Features of the infrastructure of the Tourbières watermill.

by the water-powered mills, as opposed to other hand-driven querns or animal-driven mills, remains impossible to quantify. One can nevertheless assume that a city of the importance of Aventicum, with many surrounding rivers and streams, was served by many watermills that have yet to be discovered. Moreover, the find-spots of many of the large «hydraulic» millstones in the collection of the Roman Museum of Avenches coincide with the edges of residential areas and the outskirts of the city. These locations correspond to the bases of slopes or hillsides with known or suspected watercourses or channels, locations favourable for watermills. This is the case, for example, of Sur Fourches, outside the West Gate, where many large Roman millstones were unearthed. It is also possible that some of these installations were built along the waters of the Ruz Stream, today channeled in an underground conduit just outside the city wall.

Fig. 175 – Reconstruction of the Tourbières watermill.



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Abbreviations

- AAS *Annuaire d'archéologie suisse*, Basel.
 AS *Archéologie suisse*, Basel.
 ASSPA *Annuaire de la Société suisse de préhistoire et d'archéologie*, Basel.
 BPA *Bulletin de l'Association Pro Aventico*, Avenches.
 CAR *Cahiers d'archéologie romande*, Lausanne et passim.
 Doc. MRA *Documents du Musée romain d'Avenches*, Avenches.

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