



CHAMBORD



Restored Roof Lanterns

History and architectural symbolism

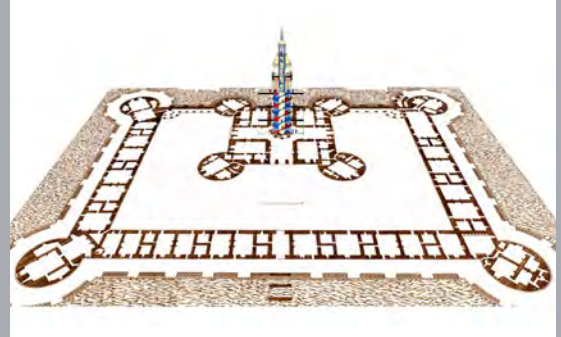
1519: A palace began to emerge in the heart of the marshy land of Sologne, its construction ordered by a young King François I. It was a monumental feat of architecture that the king enjoyed showing off to other rulers and ambassadors as a symbol of his power, engraved in stone.

The Château's floor plan and décor were designed around a central axis, its famous double helix staircase inspired by Leonardo da Vinci, that spirals up from the ground floor to the terraces capped by the Lantern Tower.

■ François I's initial concept

The upper parts of Chambord were essential components of the Château, allowing visitors to spot the monument from a distance. They form its distinguishing silhouette bursting out of the forest.

The architectural composition of the Château, and especially of its upper sections, is a carefully planned illustration of the all-powerful divine right of King François I, imbued with the monarch's own personal values, built on both chivalry and an obsession with Antiquity and Italian humanism that was instilled in him by his mother Louise of Savoy.

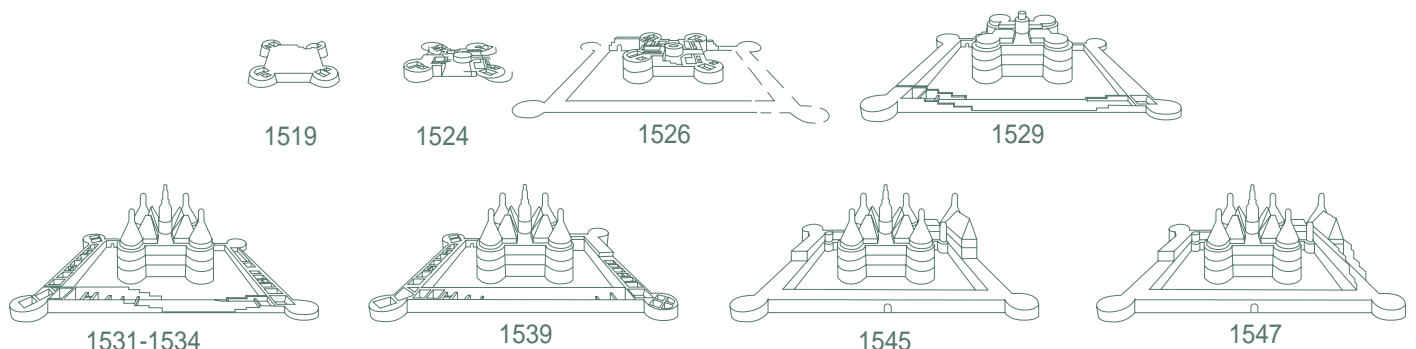


A COLOSSAL PROJECT



1539: After 20 years of building work, Chambord's central keep was completed. As many as 1,800 workers were involved at peak times in the project. More than 20,000 tonnes of tufa limestone were carried up the Loire on barges from Tours to the Port of Saint-Dyé. The slate roofing materials were extracted from quarries near Angers, the wood for the framing was felled in nearby forests, and the lead used for waterproofing arrived after crossing the channel from England.

These raw materials were then cut, hewn, sculpted and raised, in some cases more than 50 metres above ground, before finally being assembled.



■ Architectural message

The initial concept was laid out in a square, centred plan. The concept's floor plan and elevations, featuring centred-plan church designs by Bramante and Leonardo da Vinci, were all expressions of the king's divinity. The absence of a chapel – replaced by oratories in the bedchambers inside the keep – further corroborates that symbolism.

Within the square, a revolving plan at the corners endows this architectural portrait of an almighty king with an impression of perpetual movement, of eternity. The central double helix staircase running through the building from top to bottom, connecting the heavens to the earth, represents the duality of the king, both human and divine, along with the duality of good and evil referenced in his motto.

■ The upper parts of the Château: Abundant decorations

The different architectural elements were chosen with care and designed to express François I's message both visually and spatially... and therefore sensorially. Three components came into play: forms, décor and measurements (number and dimensions). The exuberance that was injected into each of those components elevated the political message to communicate the aesthetic, poetical strength of its artistic and architectural expression.

In echo to the focal point of the Lantern Tower, a demonstration of François I's pre-eminence as the authority above all others, the four towers positioned at the cardinal points symbolized the reach of the king's power, extending in all four directions – to his kingdom and beyond.



LANTERN TOWER

A double helix staircase – the backbone of the Château – climbs up through the middle of the keep, all the way to the terraces. Above that, the empty core of the grand staircase contains a spiral stairway that extends outside the main structure in a turret leading to the lantern.

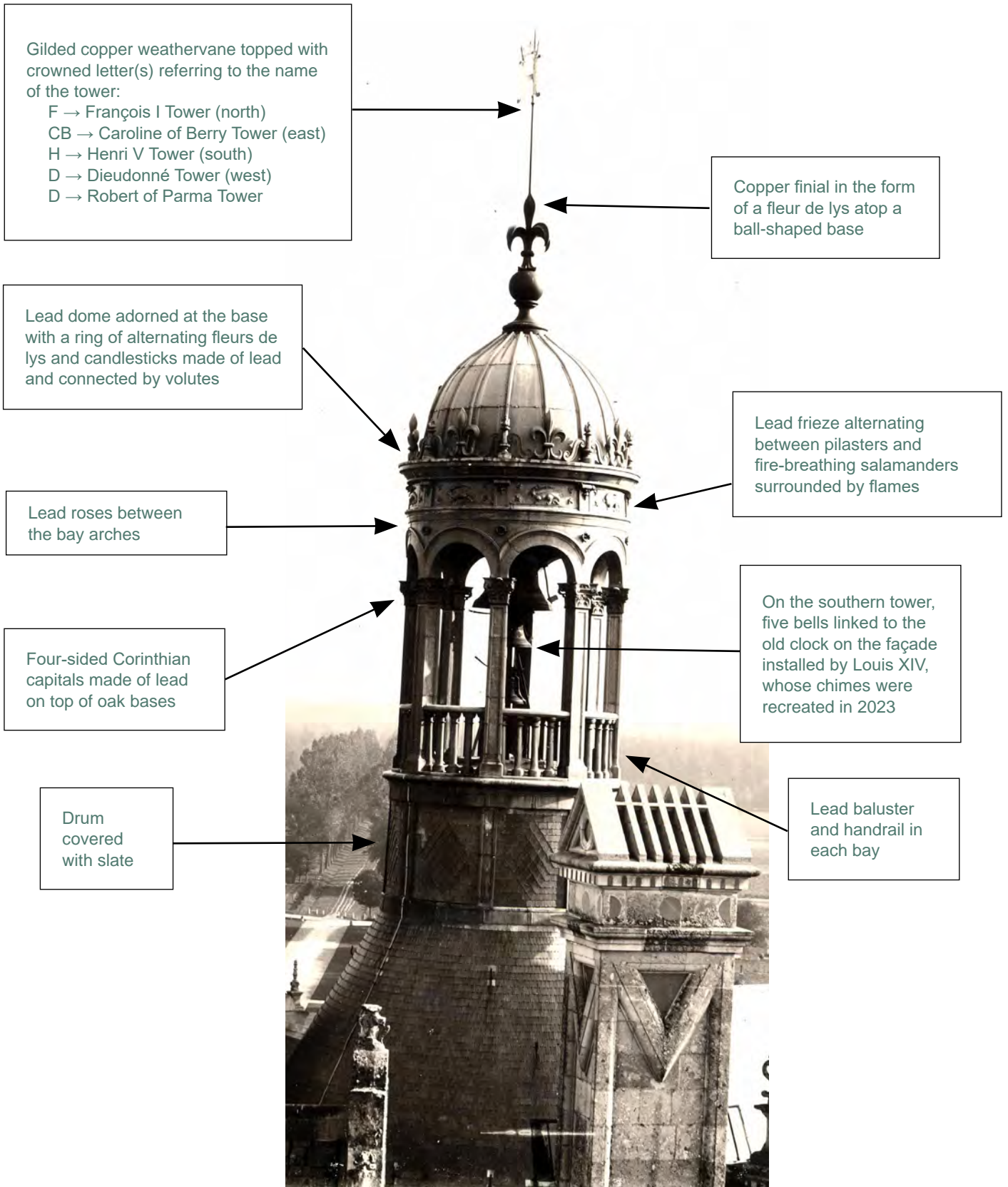
That lantern itself is capped with a roof lantern that, at its highest point, rises 32 metres above the terraces and 53 above the ground below.

CORNER TOWERS

The roof lanterns on the keep's four corner towers undoubtedly featured substantial finials and probably some additional ornamentation.

From a perspective of François I's political and poetic messaging, the presence of completely unadorned roof lanterns in locations that were so visible (the tallest after the Lantern Tower) and so symbolic (the cardinal points) would have made no sense and been incoherent with the rest of the monument.

■ Neo-Renaissance decorations on Chambord's roof lanterns in the late 19th century



■ Historical status of the roof lanterns in the 19th and 20th centuries

During the French Revolution, the Château's furniture was pillaged, and the building suffered substantial damage that left it in a state of great dilapidation: "The lead roofing on the terraces, the lanterns and the turrets had disappeared; rot had altered the solidity of the magnificent oak framing the attic space." (Louis-Victor Desbois and his son Victor Desbois, *Chambord: Notice sur les travaux de restauration exécutés au château de 1882 à 1894*, Paris, 1894)

1828-1850

1st series of emergency repair work for safety reasons. Roof lanterns topped with weathervanes gilded with the initial for the name of the tower.

Architect: Pierre-Jean-Alexandre Pinault

1881-1898

2nd series of repair and restoration work on Lantern Tower's lantern (installation of sculpted lead décor inspired by the stone décor at the top of the tower).

Architect: Desbois and son, supervised by Jules-André Grenouillot, Chief Architect of Historic Monuments

1950-1969

3rd series of work following an accidental fire on 7 July 1945 that completely destroyed the roofing on Henri V Tower and the adjacent pavilion. Once the tower's lantern was rebuilt, the others were restored according to the same model, removing the decorations made by Maison Monduit that was installed in the late 19th century.

Architect: Michel Ranjard, Chief Architect of Historic Monuments, and Paul Robert-Houdin, the Château's architect and curator beginning in 1962



Property of the Count of Chambord until his death in 1883, then of the Countess of Chambord until her death in 1886, followed by the Princes of Bourbon-Parma, nephews and heirs of the Count of Chambord (Robert, Duke of Parma, and Henri, Count of Bardi).

Property of the State since 1930.

■ Lead décor by Maison Monduit

The lead ornamentation that was produced in the late 19th century for Chambord's roof lanterns was the work of the old Parisian workshop Maison Monduit Fils. Specializing in artistic leadwork, the firm worked on many projects including the spire on Notre-Dame Cathedral in Paris and the Statue of Liberty.

Three of the four towers on Chambord's keep were decorated with lead ornamentation between 1895 and 1898. The last, the Dieudonné Tower (the western tower), remained incomplete following the death of the Duke of Parma, despite the fact that some of the décor had been delivered in 1899. Salamanders, columns and candlesticks sat in their crates, stored in a study at the Château for over a century.

The crates containing the old Monduit leadwork were finally opened and inventoried in 2016. Their discovery in perfect condition made it possible to precisely recreate the original decorations, with the expertise of the workshop at Loire Ornaments.

In 2014, the fleur de lys that had been intended to top Chambord's western tower was identified at the Château de Pierrefonds (donated by the heir to Maison Monduit, Mrs. Pasquier-Monduit, in 1969).



Lead ornaments left at Chambord after 1898, used as models for recreating its décor from the late 19th century (from the Château's collections)



Workers at Monduit Fils, photographed on a terrace at Chambord in the late 19th century (postcard from the Château's collections)



Stephen A. Schwarzman, major donor to Chambord

Domaine national de Chambord extends its thanks to Stephen A. Schwarzman, a major donor to Chambord, for his ongoing support. After making a donation in 2017 to finance the recreation of the Château's formal gardens, Mr. Schwarzman continues to share his passion for Domaine national de Chambord.

“Chambord is a national treasure, with significant importance to the cultural heritage of France, the French people as well as the international community.

I'm proud to provide additional support for this restoration to ensure future generations can enjoy and learn from all that Chambord has to offer.”



Stephen A. Schwarzman visiting the formal gardens during their restoration, February 2017 © DNC

Biography of Stephen A. Schwarzman

Mr. Schwarzman is Chairman, CEO and Co-Founder of Blackstone, one of the world's leading investment firms with \$1 trillion in AUM (as of June 30, 2023) and businesses in private equity, real estate, hedge funds, credit, infrastructure and life sciences.

In both business and philanthropy, he dedicates himself to tackling big problems with transformative solutions. Mr. Schwarzman's major gifts include £200 million to help establish a new centre at the University of Oxford to redefine the study of the humanities for the 21st century, \$350 million to create a new college at MIT dedicated to the study of artificial intelligence, \$150 million to build a first-of-its-kind student centre at Yale, and \$100 million to renovate and expand the New York Public Library.

He also founded an international fellowship program, Schwarzman Scholars, at Tsinghua University in Beijing to educate future leaders about China.

At over \$575 million, the program is modelled on the Rhodes Scholarship and is the single largest philanthropic effort in China's history coming largely from international donors.

In addition to Chambord, Mr. Schwarzman is a patron of the Louvre and the Musée des Arts Décoratifs in Paris. The Republic of France has awarded Mr. Schwarzman both the Légion d'Honneur and the Ordre des Arts et des Lettres at the Commandeur level. Mr. Schwarzman is one of the only Americans to receive both awards recognizing significant contributions to France. He was also awarded the Order of the Aztec Eagle, Mexico's highest honour for foreigners, for his work on behalf of the U.S. in support of the U.S.-Mexico-Canada Agreement in 2018.

Mr. Schwarzman holds a B.A. from Yale University and an M.B.A. from Harvard Business School.





Roof lantern restoration project

Launched in 2021 and completed in June 2023, the restoration of the Château's six roof lanterns, supervised by François Chatillon, Chief Architect of Historic Monuments since 2004, was carried out as part of a single project. Aside from occasional repairs, **no restoration work had been performed on the lanterns for more than 50 years.**

■ Reinforcement and protection of framework

The need to protect the framework had become urgent, at the risk of it being undermined by water seepage and stability issues. Scaffolding was initially installed to remove the slate and lead roofing from the lanterns and examine their state of health. Three of the six roof lanterns were found to have structural support problems and many defects in their waterproofing.

The work that was done on them involved repairing skeletal flaws, namely including repairs to the framing, incorrectly assembled parts, the straightening and reinforcement of centrepieces and the braces needed for their structural integrity, the replacement of excessively damaged wooden parts and correction of the waterproofing of the lead and slate roofing.

■ Re-establishment of decorative unity

An analysis of changes in Chambord's roofing revealed a series of several decorative looks featuring imposing finials at the top and ornamentation at the base of each dome, in stylistic unity with the stone decorations on the Lantern Tower and at the corners.

The look before this project was relatively bare compared to the profusely intricate stonework of the upper sections, which disrupted the monument's decorative unity. This was the result of the "minimalist" aesthetic choice that was in favour in 1950 when the roofing was rebuilt on the Henri V corner. After being destroyed by a fire in 1945, it was reconstructed in the very understated style of the first half of the 19th century. The François I and Caroline of Berry lanterns were restored next, following the same model of removing the ornamentation that had been put in place in the late 19th century, creating a divergence with the stone decorations.

The National Heritage and Architecture Commission, based on a report from the Ministry of Culture, approved the recreation of the old lead decorations – fleurs de lys, salamanders and candlesticks – and the gilding on the weathervanes in their last known state (from the second half of the 19th century).

Key figures

- 6 restored lanterns (the four made of lead on the keep and two made of slate)
- 12 metres in height with the weathervane (10.3 m without)
- 15 tonnes (weight of one roof lantern)
- 80 tonnes of scaffolding rising 54 metres in the air
- 30 people working on the project
- Nearly €4 million spent on this restoration project



■ Contractors and trades

Like an open-air laboratory, the restoration of Chambord's roof lanterns involved a variety of fantastic tradespeople who skilfully met the challenge of preserving an assortment of ancient materials like wood, lead and slate.

Three companies in the Centre-Val de Loire region worked on this project: Guèble (a member of the Villemain Group), which put up the scaffolding, and Battais-Centre and Ateliers Perrault, which restored the framework.

The ornamentation work was carried out by Loire Ornaments, whose workshop is located in the Maine-et-Loire department. Assisted by Couvertures de Loire, they reworked and recreated all the lead decorations.

A certified "Living Heritage Company", Atelier Mariotti gilded the lanterns' weathervanes, while Atelier Tollis worked on the colours for the leaden domes.

The roofing was restored by "groupe UTB". Two of the lanterns have slate roofing (*Chapel Tower and Robert of Parma Tower*), while the four on top of the keep feature lead roofing (*Dieudonné, François I, Henri V and Caroline of Berry Towers*).



Reproduction of Chambord's bells

As a sort of final stage in the restoration of the roof lanterns, Chambord's nine bells were installed in Henri V Tower in September 2023, in the exact location of the old 17th century bells.

Chambord enlisted the services of Alexandre Gougeon, an independent bell-maker from the Loir-et-Cher department, to create the new bells.

■ A bit of background

In 1683, King Louis XIV commissioned a clock for the front of the Château de Chambord from clock-maker Gilles Martinot. The dial was installed in the central arch on the second floor of the keep's southern façade. It was connected to a mechanism placed in the neighbouring tower (on a level with the terraces) and to three bells in the roof lantern.

From that point onwards, the keep's southern tower (now known as Henri V Tower) was referred to as the "bell tower" in many ancient plans and documents.

The system of bells was altered during repairs to the attic and the lantern of Henri V Tower. Unfortunately, that series of chimes ringing the hours was partially destroyed or dismantled after an accidental fire consumed the tower's attic on 7 July 1945.

■ Characteristics of the nine bells made of bronze (copper and tin)

Note	Weight (kg)	Diameter (mm)
C 4	250	750
E 4	135	600
G 4	80	500
C 5	59	350
D 5	42	310
E 5	31	300
F 5	26	280
G 5	20	250
A 5	16	235



Detail of the central bell in Chambord's south tower, pre-1945, Gonzague Dreux, negative © Dreux Family Collection

The tripod set-up can clearly be seen here, connecting the three bells and the hammer that strikes the bell's sound bow on the hour and the quarter hour.



South tower of the castle keep, destroyed by fire on 6 July 1945, around 1945-1946, Gonzague Dreux, negative (?) © Dreux Family Collection

The bell tower was consumed by flames in 1945. All that remained was part of the superstructure (chimney stacks and dormer windows).



Installation of the bells, Tuesday, 19 September 2023 © Olivier Marchant, Domaine National de Chambord

William Henry Fox Talbot (1800-1877)
Château de Chambord
16 June 1843
Print on salted paper
National Science and Media Museum (UK),
1937-2319/3 (provenance: Matilda Talbot)
© Science Museum Collection (London)

This is the oldest known photograph of Chambord. The framework of Dieudonné Tower is missing (having been dismantled to be rebuilt).

The south tower of the castle keep can be seen here with its bells. The set-up included two small bells held side by side by a sort of wooden arm. Those smaller bells are topped by a larger one.



■ France Relance recovery plan

Recovery credits made it possible to launch the project to restore the six turrets, avoiding the need to stagger the restoration over five years whilst helping to bolster the heritage sector by conducting a project of extraordinary scope and quality.

The project was originally supposed to begin with several phases in 2020, at a pace of one or two lanterns per year. The first COVID shutdown brought all work on the Château to a halt for nearly a year. The historic monuments credits and unspecified credits granted to Domaine National de Chambord by Roselyne Bachelot, French Minister of Culture, in the name of support under the recovery plan, enabled the resumption of the entirety of the rest of the project.

This pooling of funds made it possible to offer heritage firms and craftspeople the chance to work on a stable project involving a wide array of trades, after they had suffered severe financial repercussions due to the various COVID shutdowns. For some tradesmen (like ornamentalists and gilders), it is a rare opportunity to gain access to an operation that provides so much work all at once.



■ Domaine National de Chambord

Domaine National de Chambord, which was created by Article 230 of the French law of 23 February 2005 on the development of rural areas, is a publicly owned national enterprise. It is under the threefold supervision of the Ministries of Agriculture, Culture and the Environment and under the full protection of the President of the French Republic.

Since July 2023, its Board of Trustees has been chaired by Philippe Donnet, CEO of the Generali Group. And since January 2023, the Chambord public enterprise has been led by Pierre Dubreuil.

Its statutory decree no. 2005-703 of 24 June 2005 assigned it a number of key functions:

- Preserving, inventorying, protecting, restoring, enriching on behalf of the State, promoting and presenting to the public buildings and furnishings comprising Domaine National de Chambord
- Welcoming the broadest possible audience, by any appropriate means, to the Château and property under its responsibility, increasing visitor numbers to the Château and the property, spreading the reputation of the Château, the property and their collections, designing and implementing educational and dissemination actions that aim to ensure equal access to culture for all

- Contributing to the enrichment of France's national collections by acquiring cultural assets on behalf of the State, either for free or for a price
- Performing scientific studies of the buildings' architecture, the collections, the gardens, the forest, the wildlife and the hunting at Chambord
- Overseeing the State-owned forest property allocated to it, with an objective of achieving its sustainable development
- Managing hunting on the property with an eye to maintaining balance between forestry and wildlife and to preserving biodiversity
- Participating, within the scope of its purview, in national and international efforts to preserve architectural and monumental heritage, as well as forests and wildlife. In accordance with its areas of expertise as defined by Article 230 of the aforementioned French law of 23 February 2005, it may exercise any activities that are related or complementary to its main functions.





domaine national de Chambord

DOMAINE NATIONAL DE CHAMBORD

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United Nations
Educational, Scientific and
Cultural Organization



The Loire Valley between
Sully-sur-Loire and Chalonnes
Inscribed on the World Heritage
List in 2000