

ook, object, symbol, the Tower is all that man puts in it, and this all is infinite. A spectacle looked at and looking, a useless and irreplaceable building, a familiar world and heroic symbol, the witness to a century and an always new monument, an inimitable and endlessly reproduced object, it is the pure sign, open to all times, all images and all senses: the unbridled metaphor; through the Tower, men exercise this great faculty of the imagination, which is their freedom; since no history, however dark it may be, has ever been able to take theirs away.

Roland Barthes, The Eiffel Tower, 1964



## Contents

The Société d'Exploitation de la Tour Eiffel (SETE), guardian of the monument's longevity	P. 4
A few numbers	P. 6
Visiting the Tower: let's climb	P. 8
Gustave Eiffel, genius inventor	P. 10
The creation of the Eiffel Tower	P. 12
The lifts, key parts of the Tower	P. 17
The Eiffel Tower, home to science experiments	P. 19
The Eiffel Tower, a luminous wonderland	P. 21
Painting the Tower: a sizable challenge!	P. 27
A site of challenges and exploits	P. 29
The Tower and the arts	P. 31
Practical information	P. 36



# The Société d'Exploitation de la Tour Eiffel (SETE), guardian of the monument's longevity

The Société d'Exploitation de la Tour Eiffel (SETE) is a local public company, with 99% of its capital owned by the City of Paris and 1% by the Métropole du Grand Paris.

Its board of directors is chaired by Jean-François Martins, Councillor of the City of Paris. It is made up of elected representatives of the City, Department and Métropole du Grand Paris.

Managed by Patrick Branco Ruivo, SETE employs approximately 360 people and had turnover of €25.29 million in 2020.

#### A public service delegation contract defines its scope of action

Created in 2005, SETE (now called Société Nouvelle de la Tour Eiffel) was chosen by Paris City Council to maintain and run the Eiffel Tower. With over 6 million visitors to the Tower every year, SETE's objectives are to modernize the facilities, reception spaces and services offered to visitors, while respecting a sustainable development approach and maintaining a high level of security.

An agreement signed with the City of Paris, the monument's owner, defines SETE's missions under its public service delegation contract. The most recent contract was signed in November 2017, for a period of 13 years.



Visitors to the Tower are at the center of SETE's priorities. Its aims is to create a wide-reaching program of transformations, organized around three areas:

**Improving the visit experience**: extending the Eiffel Tower's perimeter to the gardens located on each side of the monument, increasing online ticket sales and revising visitor itineraries.

**Maintaining the monument**: development work, including strengthening security and accessibility (protective partitions), redeveloping the second floor and maintenance work (North lift, 20<sup>th</sup> painting campaign, etc.).

**Strengthening the monument's national and international reputation**: attracting local visitors by creating new services and content (mobile tour guide, kids' tour, official guided tours, etc.), participating in major events run by the City of Paris (Olympics and Paralympics), organizing its own events and supporting the Tower's heritage online through digital community management.

Nearly **800 people** are involved in making the Eiffel Tower operational every day. Half are employed by SETE, the other by concessionaires (boutiques, buffets, restaurants, telescopes), subtenants (Police Prefecture, Paris Fire Brigade, TDF, Institut de Radioprotection et de Sûreté Nucléaire, Météo France and Airparif) and service providers (janitors, security guards, etc.).



### A few numbers

More than a monument, the Eiffel Tower is **the symbol of Paris and France!** It is undeniably **one of the most well-known works of structural art in the world** and most frequently depicted silhouettes.

Here are a few key numbers integral to the Tower's history.

Its current height in feet, including the new 20-foot antenna installed in March 2022.

20

The number of years it was supposed to exist. It was saved by the science experiments encouraged by Eiffel, particularly the first radio transmissions, then telecommunications.

1889

The year it was built. For the World Exhibition of 1889, a date that marked the hundred-year anniversary of the French Revolution, a major competition was launched in the French government's Journal Officiel.

The average number of years between painting campaigns.

6,000,000

The average number of annual visitors, with 75% from overseas, making it the most visited ticketed monument in the world.

Over 300 million visitors have come to see it since it opened to the public.

800

The number of employees, both of SETE and the concessionaires, who work at the monument on a daily basis.

#### 2 years, 2 months & 5 days

How long it took to build, a true technical and architectural feat. Ground was broken on January 28, 1887 March 31, 1889 marked the completion of the Tower, in record time, representing a high point for the industrial era.

"Utopia achieved" in the late 19<sup>th</sup> century - this was the demonstration of French genius as embodied by Gustave Eiffel.

The speed of the lifts, in ft/second.

1,665

The number of steps from the esplanade to the top, taking the staircase in the East pillar.

More specifically, there are 345 steps from the esplanade to the first floor; 359 from the first to the second; and 932 between the second and third floors.

20,000

The number of lightbulbs that make the Tower sparkle.

2,500,000

The number of rivets on the Tower, which are small parts used to assemble two metal pieces.

Lift capacity

North: 920 people/hr East: 650 people/hr West: 920 people/hr Duolifts: 1140 people/hr Jules-Verne: 10 people/trip

336

The number of lightbulbs (sodium-vapor lamps) with 600-watt power that give the monument its lovely golden glow.

The number of lifts from the ground to the second floor: I in the East pillar, I in the West pillar, I in the North pillar, I (private) in the South pillar serving Le Jules Verne Restaurant and I goods lift in the South pillar.

From the second floor to the top, 4 lifts operate in pairs.

10,100

The weight of the Eiffel Tower in tonnes, including its installations.

60

The approximate weight in tons of paint for each campaign.

## Visiting the Tower: let's climb!

Exploring the Eiffel Tower means exciting all your senses: feeling giddy as you go up via the lift or the stairs, gazing upon the incredible view of the City of Lights, being surprised as you step onto the glass floor on the first floor, and more...

In 2018, the perimeter of the Eiffel Tower extended to the side gardens. Over **2 hectares of historic gardens registered as Classified Wooded Areas (EBC)** are available to visitors. Hundred-year-old trees, ponds, around 2,000 shrubs and 20,000 perennials, gazebos and a rocky waterfall... Certainly worth taking the time for a stroll before (or after) your visit.

#### Online sales: towards a new digital era

Travel habits are evolving and wait times have become an key aspect of visiting a tourist site. To respond to visitor needs and make it easier for them to organize their day, the proportion of tickets sold on the website (www.toureiffel.paris) — all time-stamped — has steadily and significantly increased. 50% of tickets available have been sold online since summer 2018.

The initial objective set by the DSP of 80% of tickets sold online in 2021 was a sizable challenge. Achieving it remains complicated while the North lift is out of service (most efficient lift and with the greatest capacity — works scheduled to finish in 2023). The idea is to reduce the average wait time at the foot of the monument and optimize flows, all while responding to the main objective of making the Eiffel Tower a flawless demonstration of high-quality Parisian hospitality.

Once you arrive on the esplanade, enjoy a spectacular view of the Iron Lady. From underneath the monument, discover its refined puddle-iron structure, counterbalanced by the strength of the four pillars, North, East, South and West. Rising up from these points, the Tower dominates Paris, at 1,083 feet high.

#### The 1899 lift machinery: technical prowess of the era

The machines used for the Tower's East and West lifts are over a century old. Located below ground, restored and digitized, this impressive hydraulic machinery continues to take visitors all the way to the top.

Let's stop at the first floor. At 187 feet high, standing on the glass floor, you will have the unique sensation of walking in mid-air. On the platform, visitors will discover a piece of the historic stair that used to connect the second floor to the top. Gustave Eiffel used it to get to the office that he installed for himself. The stair was dismantled in 1983, once obsolete.

The Ferrié Pavilion is home to a 1,076 ft² boutique full of cultural items and a café, as well as *Madame* Brasserie with two-Michelin star Chef Thierry Marx at the helm.

There are also occasional seasonal events organized on this floor: themed terrace, DJ sets, etc.



The Louvre, the Grand Palais, the winding river Seine, Montmartre, Les Invalides, Notre-Dame, and more...The **second floor** promises a treat not only for the eyes, but the taste buds as well. Here is where the restaurant, Le Jules Verne, is perched, as well as a macaron bar, a takeaway food stand and boutiques.

**Final destination:** the top, 906 feet high! With two levels (one indoor, one outdoor), you can stroll around and enjoy the view while enjoying a glass of champagne. So romantic! On the third floor, you can also step back in time through the monument's history, by seeing the reconstruction of Gustave Eiffel's office. Featuring realistic wax figures, this space shows the genius constructor and his daughter Claire receiving a visit from famous inventor Thomas Edison. You can also see the phonograph he gave to Gustave Eiffel, among other items.

The orientation panels found at the top offer the opportunity to locate yourself and see the directions and distances towards the great cities of the world. They also feature the silhouettes of the these cities' iconic monuments. For each, the geographic location (country flag, name of the city) and the building's height are marked.

On the platform, you can also find a model of the top of the Tower in 1889, to a 1:50 scale. Painted in the monument's original "red-brown" color, it shows the initial architecture of this floor at the time.

## Gustave Eiffel, genius inventor

The Tower is not Gustave Eiffel's only creation. This passionate, authentic genius was able to go beyond his own limitations, leaving behind monuments like the dome at the Nice Observatory, the metal structure in the Statue of Liberty, the metal framework at Le Bon Marché and Crédit Lyonnais in Paris, and the railway bridge in Bordeaux. It is thanks to this level of experience that the Eiffel Tower still dominates the Parisian landscape, as initially, it was constructed to stand for just 20 years.



#### A passionate engineer

An engineer by training, Eiffel founded and developed his company, which specialized in metal framework with the Eiffel Tower its crowning achievement. He then dedicated the last thirty years of his life to experimental research.

Born in 1832 in Dijon, he graduated from École Centrale des Arts et Manufactures engineering school in 1855, the same year that the first major World Exhibition was held in Paris. After spending a few years in south-west France, where he supervised construction work for the large railway bridge in Bordeaux, he started his own business in 1864 as a "constructor", i.e. as an entrepreneur specialized in metal framework.

#### A legacy of international heritage

Eiffel left behind hundreds of metal structures of all kinds. While bridges - particularly railway bridges - were his area of expertise, he also proved himself in the area of framework and industrial facilities. His career was marked by a fine series of projects and works, where the company's inventiveness had even more free rein: "portable" bridges, sold as "kits" all over the world, the structure of the Statue of Liberty in New York, and of course, the Eiffel Tower.



## The creation of the Eiffel Tower

For the World Exhibition of 1889, a date that marked the hundred-year anniversary of the French Revolution, a major competition was launched in the French government's Journal Officiel. The challenge was to "study the possibility of erecting an iron tower with a square base on Champ-de-Mars, 410 feet wide and 984 feet high". Out of 107 projects, it was that of entrepreneur Gustave Eiffel, engineers Maurice Koechlin and Emile Nouguier, and architect Stephen Saucestre that was selected.

#### An unusual project

The assembly of the pillars started on July 1, 1887 and was completed 21 months later. All elements were prepared at the Levallois-Perret factory just outside Paris, the seat of the Eiffel company. Each of the Tower's 18,000 parts was designed and calculated before being traced down to the minutest detail and assembled in approximately 16-feet parts.

Fifty engineers and designers created 5,300 drawings and over a hundred laborers pre-fabricated over 18,000 different pieces. On site, between 150 and 300 laborers, supervised by a team of highly experienced workers from large metal viaduct projects, assembled the giant Meccano-style construction.

The monument was inaugurated on March 31, 1889. On this day, Gustave Eiffel climbed the Tower's 1,710 steps to raise the tricolor French flag at the top. Until 1929, the Eiffel Tower was the highest building in the world, at which point the Chrysler Building (1,047 feet) overtook it.

#### Instant success for the highest tower in the world...

The 1889 Paris World Exhibition received millions of visitors. Nearly 2 million of them came to discover the Eiffel Tower, i.e. nearly 12,000 per day! From the beginning, the Tower was a huge hit.

In the first week, even though the lifts were not yet operational, nearly 30,000 visitors climbed the monument by foot, 1,710 steps to the top. At the time, the Eiffel Tower was the highest tower in the world and people from all over the world rushed to the heart of the capital to admire this jewel of architecture. The public wanted not only to experience the giddying climb but above all, admire the hitherto unseen panorama of Paris.

#### ...but a controversial beginning nevertheless

Like many large architectural projects that are now a part of our heritage, the Tower had its share of detractors. When it was being constructed, there were violent protests from multiple figures. On February 14, 1887, *Le Temps* published an open letter, written by around fifty artists from the world of literature and art who opposed the Eiffel Tower. This missive was addressed to Mr. Alphand, curator of the 1889 World Exhibition, to protest against the construction of a 984-foot tower on the Champ-de-Mars. Gustave Eiffel defended his project tooth and nail, but the controversy continued. Some would later publicly apologize.

#### Extract from the letter\* published in "Le Temps" on February 14, 1887

"We, writers, painters, sculptors, architects and passionate devotees of the hitherto untouched beauty of Paris, protest with all our strength, with all our indignation, in the name of slighted French taste, in the name of art and of French history threatened, against the erection, in the heart of our capital, of the useless and monstrous Eiffel Tower, which public malignity, often marked by common sense and the spirit of justice, has already named 'Tower of Babel'. Without falling into the exaltation of chauvinism, we have the right to proclaim that Paris is the unrivaled city of the world. Above the streets, the widened boulevards, and the magnificent walks rise the most noble monuments that the human race has produced. The soul of France, creator of masterpieces, shines amidst this august flowering of stones. Italy, Germany and Flanders, so justifiably proud of their artistic legacy, possess nothing comparable to ours, and from all corners of the globe Paris attracts curiosity and admiration. Are we going to let all this be profaned? Will the city of Paris go on to associate itself still further with the eccentric, mercantile imaginings of a machine builder, to become irreparably ugly and dishonor itself? For the Eiffel Tower, which the commercial-minded America itself would not want, is, doubtless, the dishonor of Paris. Everyone feels it, everyone says it, everyone is deeply aggrieved by it, and we are but a weak echo of the universal opinion, so legitimately alarmed. Finally, when the foreigners come to visit our Exhibition, they will exclaim, astonished: 'What? It is this horror that the French have found to give us an idea of their taste, so much vaunted?'And they will be right to make fun of us, because the Paris of the sublime Gothic, the Paris of Jean Goujon, Germain Pilon, Puget, Rude, Barye, etc., will have become the Paris of M. Eiffel.

It suffices, moreover, to realize what we are doing, to imagine for a moment a vertiginously ridiculous tower dominating Paris, as well as a gigantic factory chimney, crushing with its barbarian mass Notre-Dame, Sainte-Chapelle, the dome of the Invalides, Arc de Triomphe, all our monuments humiliated, all our architectures shrunken, which will disappear in this astonishing dream. And for twenty years, we will see, stretching out over the entire city, still quivering with the genius of so many centuries, we will see the odious shadow of the odious column of bolted sheet metal stretch like an ink stain. It's up to you, those who love Paris so much, who have embellished it so much, who have so often protected it against the administrative devastation and the vandalism of industrial enterprises, that it is the honor to defend once more. We leave it to you to plead the cause of Paris, knowing that you will deploy all the energy, all the eloquence that must inspire, in an artist such as yourself, love for what is beautiful, what is great, what is right. And if our cry of alarm is not heard, if our reasons are not listened to, if Paris is persists in the idea of dishonoring Paris, we will have at least, you and us, heard a protest that honors it."

<sup>\*</sup> Among the long list of signatories appear the names of the architect of the Opéra, Charles Garnier, writers François Coppée, Alexandre Dumas fils, Charles-Marie Leconte de Lisle, Guy de Maupassant, Sully Prudhomme, etc.





#### Gustave Eiffel's reply

"I will tell you all my thoughts and all my hopes. I believe, for my part, that the Tower will have its own beauty. Because we are engineers, do we believe that beauty does not concern us in our constructions and that at the same time that we make solid and durable, we do not strive to make elegant?

Do not the true conditions of force always conform to the secret conditions of harmony? The first principle of architectural aesthetics is that the essential lines of a monument are determined by perfect appropriation to its destination. Now, what condition have I had, above all, to take into account in the Tower? Wind resistance. Well! I claim that the curves of the four edges of the monument, as calculated, starting from a large and unusual thickness at the base, tapering to the top, will give a great impression of strength and beauty; for they will translate to the eyes the boldness of the design as a whole, just as the many voids in the very elements of the construction will strongly assuage the constant concern not to deliver unnecessarily to the violence of hurricanes, surfaces dangerous for the stability of the building. There is, furthermore, in the colossal, an attraction, a particular charm, to which theories of ordinary art are hardly applicable. Would you say that it is through their artistic value that the Pyramids have so powerfully struck the imagination of men? After all, are they anything but artificial hills? And yet, where is the visitor who remains indifferent in their presence? Who has not come back from them filled with irresistible admiration? And what is the source of this admiration, if not the immenseness of the effort and the grandeur of the result? The Tower will be the tallest building that men have ever built. Will it not be so grandiose in its own way? And why would that which is admirable in Egypt become hideous and ridiculous in Paris? I search and I admit that I can not find.

Royalty, international figures, artists, and more... among its many famous visitors, the Eiffel Tower has attracted French actress Sarah Bernhardt, the Prince of Wales (future King Edward VII) and the Princess of Wales, George I of Greece, the Shah of Persia, Prince Baudouin, and others besides... plus other, more unexpected figures, such as William F. Cody, better known as Buffalo Bill.

### Did you know?

The Eiffel Tower was behind the boom of postcards in France and it was in 1889 on visitor request that the monument's administration started to sell the famous "Libonis" cards, named after the famous engraver. The oldest postmark found on an Eiffel Tower postcard dates from August 21, 1889.





## The lifts, key parts of the Tower

When the Eiffel Tower opened for the 1889 World Exhibition, visitors could access the floors of the monument using lifts. These lifts were a true demonstration of technical prowess for the time — never before had such heights and loads been tackled — and they offered the possibility to hundreds of thousands of visitors to ascend in complete safety to admire Paris, from the beginning of the Tower's operation.

While nowadays, lifts may seem like a normal facility, for the time, this was a major feat. Some historic lifts are still in operation and represent pieces of industrial archeology. This carefully preserved, incredible heritage attests to Gustave Eiffel's visionary genius, even today.

#### Lifts from the past...

Between the ground and second floors, the four pillars were equipped with one or two lift cabs. In June 1889, five hydraulic lifts were brought into operation to accommodate visitors. Their juddering technology led Gustave Eiffel to modernize these means of ascending the Tower for the 1900 World Exhibition.

Between the second and third floors, visitors could go up in an "Edoux" lift, the world's only hydraulic machine of this kind. The upper cab was pushed by a 266-feet hydraulic jack, with the lower cab forming the counterweight. You therefore had to change cab halfway up, along a bridge where you could admire the impressive view.

In the North and South pillars, there were "Otis" lifts, which were dismantled in 1910. In the East and West pillars, the lifts serving the first floor were installed by French company Roux, Combaluzier et Lepape. Lacking efficiency, they were replaced in 1889 by hydraulic lifts built by Fives-Lille.



#### ... And present

From the ground to the second floor, there are three lifts for visitor use in the North, East and West pillars. Another exclusively serves Le Jules Verne restaurant, located in the South pillar. A service elevator (goods lift) can also be found in the South pillar. From the second floor to the top, two sets of two double cabs can be used for the trips up and down.

The cabs, electrical and digital systems, and the historic machinery that operates them are constantly revised, repaired and greased. They are regularly checked by the monument's technicians, who set them in operation early in the morning, before visitors arrive, and monitor their functioning all throughout the day. They are piloted by the Tower's welcome agents.

#### **Numbers:**

number of miles traveled each year by the lifts, i.e. two and a half times around the Earth.

3,500 average number of visitors transported per hour by all the lifts.

speed of the lifts, in ft/second.

Lift capacity:
North: 920 people/hr
East: 650 people/hr
West: 920 people/hr
Duolifts: 1140 people/hr
Jules Verne: 10 people/trip

#### Spotlight on the historic lift renovations

Launched in October 2008, the modernization of the West lift was completed in 2014. It was a long operation, involving teams of 10 to 45 people with multiple different vocations.



#### A unique prototype

These lifts, dating back to 1899, feature mechanics with no international equivalent. Neither a lift in the traditional sense, nor a cable car or funicular system, they do not belong to any particular category and do not correspond to any standard in force. This machinery, over a century old, therefore had to be adapted to modern safety criteria.

#### Why modernize?

Beyond the required steps to bring the lift into conformity with current regulations, the modernization efforts aimed to improve the performance of this historic equipment and optimize maintenance conditions.

Now, it's time for the North lift to be renovated. The works launched in autumn 2017 are mainly focused on renovating the pulleys, cabs, automation system and tracks. Beyond providing better-performing equipment, renovating the lift will make it possible to improve the conditions for visitors as well as the work of SETE employees, which will be facilitated by more modern facilities. The lift will available to the general public once again in 2023.

## The Eiffel Tower, home to science experiments

The Eiffel Tower was meant to be destroyed only 20 years after it was built. To prevent this, Gustave Eiffel had the ingenious idea to give it a scientific vocation: the Tower was saved!

#### Proven scientific utility

When he first presented his project in 1886, Gustave Eiffel knew that only the Tower's scientific usefulness could preserve it from its adversaries and extend its lifespan. The engineer explains: "It will be an observatory and laboratory for all, such as has never been made available to scientists. That is why, from the very first day, all our scholars have encouraged me with their best wishes."

And indeed, from 1889, the Eiffel Tower has been used as a laboratory for scientific experiments and data collection, and many apparatus have been installed there (barometers, anenometers, lightning rods, etc.).

#### Aerodynamics research

The day after the Tower was inaugurated, Gustave Eiffel installed a meteorology laboratory on the third floor. He was also passionate about aerodynamics and performed a series of observations on falling bodies. He then designed an "automatic system sliding along a cable stretched between the second floor of the Tower and the ground". He had a small wind tunnel built at the foot of the Tower. From August 1909 to December 1911, he performed 5,000 tests. Furthermore, Gustave Eiffel encouraged many scientific experiments on the Tower: Foucault pendulum, mercury pressure gage, physiology studies and radio links.

In the end, it was the Tower's role as a giant antenna that saved it from destruction.

### Did you know?

Two wind turbines overlooking the roofs of Paris

As part of the 2015 overall renovation of the first floor, two wind turbines were installed, 23-feet high and with a 10-foot span, 417 feet above ground at the second-floor level, as this space was the most suitable for optimal wind capture.

#### The Eiffel Tower and the history of broadcasting

Gustave Eiffel succeeded in saving the Eiffel Tower by proposing that it become a huge antenna base to assist in wireless transmission.

#### First wireless telegraph link by Eugène Ducretet

On 5 November 1898, Eugène Ducretet performed the first wireless telegraph trials between the Eiffel Tower and the Pantheon (2.5 miles distance). The transmitter was installed at the top of the Tower. In 1899, the waves crossed the English Channel for the first time.

#### Wireless transmission saves the Tower

In 1903, still in search of a way to save "his" Tower, for which the City of Paris's concession was scheduled to end six years later, Gustave Eiffel suggested to Captain Gustave Ferrié, then in charge of studying the military applications of wireless transmission, that he use the Tower for his experiments. He funded this operation, which made it possible to transmit and receive across a 250-mile distance. The Directorate of Military Engineering authorized Captain Ferrié to install antenna on the Tower. On January 21, 1904, the Eiffel Tower officially became a wireless transmission station.

#### The first radio and television shows

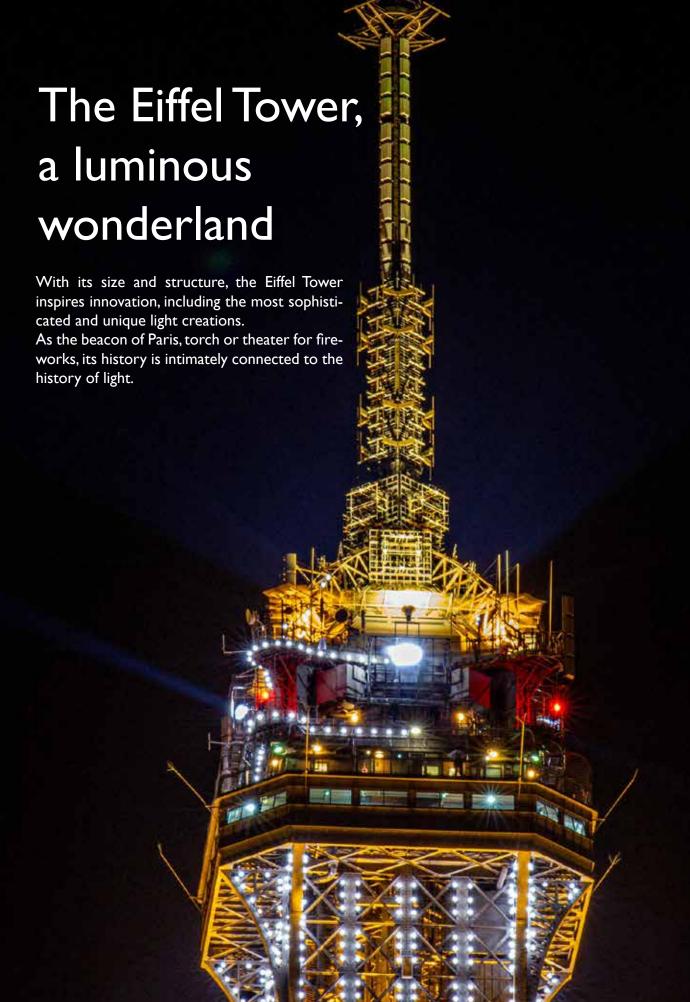
In 1921, initially on an experimental basis, a civil broadcaster played music programs, serialized fiction and finally a "Spoken Newspaper" from 1925, picked up by keen listeners on simple crystal sets. Radio Tour Eiffel became well-known among Parisians at the time. Experimental shows were recorded and artists such as Sacha Guitry and Yvonne Printemps were invited. Then, in 1935, a television studio was built on Rue de Grenelle, and the Eiffel Tower broadcaster started to operate. From 60 cables when the facility was set up, it then went to high definition with 180 cables. On June 2, 1953, thanks to the Tower broadcaster, people all over France could watch the Queen of England's live coronation on television.

#### The Tower grows with advances in television

In 1957, live broadcasting satellite dishes were installed, making it possible to broadcast shows on three television channels on 819 cables, as well as a frequency modulation (FM) radio transmitter. A new antenna brought the Eiffel Tower to a total height of 1,052 feet. In 2000, a new ultra high frequency (UHF) antenna led to a change in the Tower's height, to 1,063 feet. In 2010, major work on the TDF equipment prepared for Ile-de-France to transition to digital terrestrial television (DTT). In March 2022, a new 20-foot antenna was added to the top of the Tower to allow for broadcasting of DAB+ radio (digital audio broadcasting). The Iron Lady now measures 1,083 feet! The new equipment considerably increases the quality of digital radio coverage in Paris and Ile-de-France. It joins the dozens of antenna that allow TDF to broadcast nearly 30 DTT channels and 32 radio stations to 12 million Ile-de-France residents in a 43-mile perimeter around the Eiffel Tower.







At midnight on December 31, 1999, the entire world discovered the Tower's beacon and sparkles. Since then, every evening, the Eiffel Tower adorns itself in gold and sparkles the first five minutes of every hour, while the beacon shines across Paris.

The beacon, two beams of light with 50-mile range, is made up of four motorized marine-style floodlights. They are computer-piloted, using specific software and a programmable robotic system that controls their movements. Performing a 90° rotation, they are synchronized to form a cross-shaped double beam pivoting 360°.

Then, the sparkles are lit up on top of the golden lighting. Created by lighting designer Pierre Bideau, who has created many lights in France and overseas, it was turned off 18 months after starting operations, as the system had arrived at the end of its capabilities. The first renovation was performed in 2003 and designed to last 10 years: a true record for lighting! Its lifespan was extended thanks to the reduction in the duration of the sparkles each evening, from 10 to 5 minutes.

### The unique installation of 20,000 sparkling lightbulbs:

- 25 steeplejacks for 5 months
- 25 miles of string lights and power cables
- 40,000 ties and 80,000 miscellaneous metal parts
- 60 tonnes of ironwork and metal pieces
- 230 electrical closets and cases needed
- 32,800 ft<sup>2</sup> of safety netting
- 120 KW of electricity



The Eiffel Tower sometimes swaps its traditional lighting for special lights for national and international events Here are a few examples:

1889: on the night of its inauguration, 10,000 gaslights line the trusses and platforms. Two floodlights at the top light up the monuments of Paris. The red-white-blue beacon at the top is the most powerful in the world.

1925-1936: thanks to André Citroën, 250,000 colored lightbulbs decorate the monument. The name Citroën written on three sides could be seen from 25 miles away in all directions.

1958: 1,290 spotlights are installed in multiple channels on Champ-de-Mars to light up the Tower.

Christmas 1978: the Tower is decorated with a Christmas tree lit up with 30,000 bulbs.

April 5, 1997: launch of the luminous countdown "J – 1000 avant l'an 2000" (1000 days until the year 2000) located 328 feet above the ground, facing Trocadéro. Lit up day and night, it counted down the days until the year 2000.

December 31, 1999: the Eiffel Tower *rings in the new year 2000*. At midnight, a 3.5 minute firework display was set off, an unprecedented ballet of pyrotechnics.

**September 06, 2007**: for the launch of the **Rugby World Cup** taking place in Paris, the Eiffel Tower features an oval rugby ball decoration.

July 2008: during the French Presidency of the European Union, the Tower is adorned with blue and the stars of the European flag.

October - December 2009: for the climax of its 120<sup>th</sup> birthday celebrations, the Eiffel Tower offers a festive, innovative light show to the public every night. Thanks to cutting-edge LED spotlights, the monument is lit up with a shower of lights, strobe effects and dynamic color combinations.

From 2013: the Eiffel Tower lights up in pink for **Pink October**, international campaign for the fight against breast cancer.

June 2014: launch of the ".paris" domain: the message "www.bienvenue.paris" is projected on the platform of the monument's first floor and relayed on the Tower's official social media in real time.

June 9 to July 10, 2016 – EURO 2016: during David Guetta's opening concert on June 9, a light show takes place on the monument. The Eiffel Tower was at the heart of the EURO 2016 program, with a light show by Orange on every match night.

August 3, 2016: the Eiffel Tower is illuminated with the colors of Brazil for the start of the Olympic Games in Rio.

November 4, 2016: the Eiffel Tower lights up in green to celebrate the Paris Climate Accords.



February 3, 2017: the Eiffel Tower shines with the colors of Paris' candidature for the 2024 Olympic and Paralympic Games.

**September 28, 2017**: the message "300 millions de mercis!" (300 million thanks!) is displayed on the Tower to celebrate 300 million visitors welcomed since it opened to the public in 1889.

December 8 to 10, 2017: special illumination in tribute to Johnny Hallyday.

July 15, 2018: blue-white-red light following the French team's victory in the 2018 FIFA World Cup.

**September 13 and 14, 2018**: special illumination of the Eiffel Tower as part of the event **Japonismes 2018** marking the 160<sup>th</sup> anniversary of diplomatic relations between France and Japan.

October 6 to 7, 2019: for the event **White Night 2018**, the Eiffel Tower hosts a work by artist ZEVS called *Eiffel Phoenix*: cette obscure clarté qui tombe des étoiles. This light performance aimed to move the lighting system away from the structure in the aim of "redistributing time, the electric light of the Eiffel Tower".

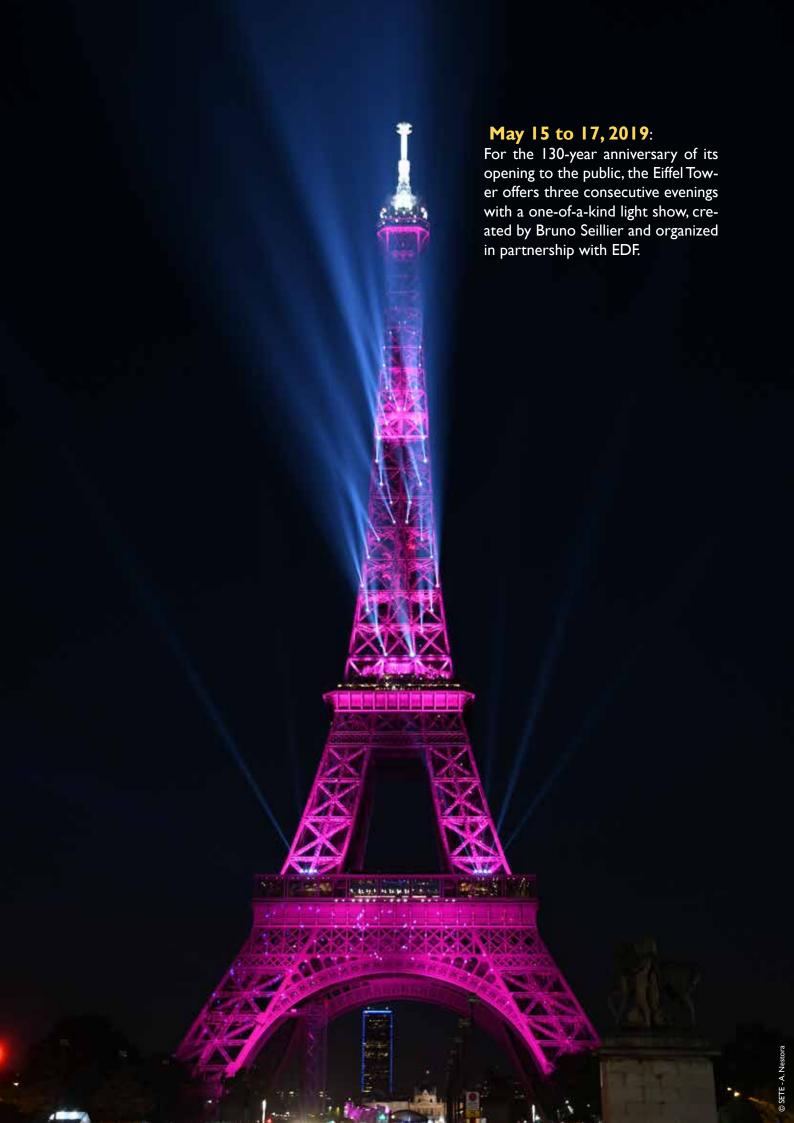
May 15 to 17, 2019: For the 130-year anniversary of its opening to the public, the Eiffel Tower offers three consecutive evenings with a one-of-a-kind light show, created by Bruno Seillier and organized in partnership with EDF. The highly spectacular light show featured many unprecedented light effects: laser spotlights showcasing the Tower's lacy ironwork, strobe effects, double-helix light effects, and more... For 12 minutes, it retraced the monument's history, to a joyous, dramatic soundtrack.

May 2, 2020: special sparkles in tribute to all the people involved in the fight against COVID-19.

**November 2021**: for the occasion of **75 years of UNESCO**, special sparkles on November 12, accompanied by a projection of the international organization's logo. On November 20, as part of World Children's Day, the **Tower is lit up in the UNICEF colors**. Lastly, on November 30, special sparkles for **Josephine Baker's induction into the Pantheon.** 

**January 2022**: for the second time in its history, the Iron Lady is lit up in blue and the stars of the European flag to celebrate the **French Presidency of the European Union**.

February 2022: the Eiffel Tower features the colors of the Ukrainian flag for three days, in support of the people of this country.



## Painting the Tower: a sizable challenge!

"It can never be overstated that paint is the key way to preserve a metal structure and that this careful process is the only guarantee that it will last."

Gustave Eiffel, La Tour de 300 mètres, Lemercier – Paris 1900

The painting campaign is an important event in the monument's life and, like everything related to the Eiffel Tower, boasts a truly mythical character: the longevity of an internationally known work of structural art, the color of an iconic monument of the Parisian landscape, the technical prowess of painters unaffected by vertigo, and the sizable resources implemented for the size of the object to be painted.

#### An enormous structure, guarantor of the Tower's durability

The Eiffel Tower is made from puddle iron, a material with almost infinite longevity as long as it is regularly repainted. However, multiple factors can damage this metal: rust, the pollution of a major city, bird excrement, etc. The cleaning of the monument and above all the new coats of paint regularly added with care and by hand are therefore essential to protecting the structure and ensuring its longevity.

From its creation, the Eiffel Tower has been entirely repainted every 7 years on average.

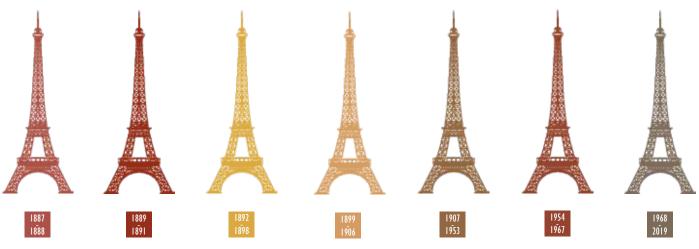
#### "Eiffel Tower brown", a color just for Her... until 2019

Especially designed for the Tower and for its exclusive use only, the color was "Eiffel Tower brown" from 1968 to 2019. It appeared in three shades, from the lightest at the top to the darkest at the bottom, to maintain the appearance of the monument soaring into the Parisian sky. Throughout its life, the Tower has also had other colors, like yellow-orange in 1899 or red-brown in the 50s. Now, it is painted "yellow-brown".

During the previous campaign in 2009, around twenty painters, equipped with harnesses and moving in total safety thanks to 37 miles of lifelines, climbed the Tower to apply approximately 60 tonnes of paint onto 820,200 ft<sup>2</sup> of surface to be maintained, including certain zones that are extremely difficult to access.

They sanded, cleaned, and applied anti-rust treatment and finish paint up to 1,083 feet high. Painters nowadays still use traditional methods that date back to Gustave Eiffel's time: the Eiffel Tower is only painted by hand. All "distance" techniques are forbidden, painters must hold the brush in their hand.

#### History of the Eiffel Tower's colors



"Venice red"
paint, applied in
the workshop
before the elements were assembled

A very thick coat of "brown-red" is applied.

The Tower becomes "ocher-brown".

5 shades from yellow-orange at the base to light yellow at the top are applied. From this campaign on, the 7-year cycle is practiced for reapplying the paint.

The color is called "yellow-brown".
The 1917 campaign was interrupted, due to the war.

or is called A new color for the Eiffel Tower, which became was inter-

The color "Eiffel Tower brown" was chosen for its harmony with the Parisian landscape. It is used in three shades, from the darkest at the bottom to the lightest at the top.

#### 2020: 20th painting campaign: a unique campaign of its kind

From one campaign to the next, teams seek to improve the quality of methods and working conditions, drawing on experience acquired from previous campaigns and evolutions in technology. The studies carried out for the 20<sup>th</sup> painting campaign are also part of an aim to use techniques that respect the monument and its durability as much as possible.

#### A technical and human challenge

The Tower must also protect itself from its number I enemy: corrosion. The works will last for nearly three years and include sanding for part of the structure for the first time. To prepare for this exceptional operation, many studies were carried out beforehand to test how the works would be organized and carried out across the monument.

#### Layers of paint sanded for the first time

After 19 consecutive campaigns, the paint has reached a thickness of up to 0.12 inches and an estimated mass of 350 tonnes. The decorative arch located on the Champ-de-Mars side will therefore be sanded, up 5% of the surface area. For the rest of the structure, the scraping and repainting method will be used.

#### A full assessment

Each campaign is an opportunity to check the condition of the structure in detail and replace small corroded metal parts if necessary. The technicians reuse an innovative yet historic technique: **hot riveting**, once used by Gustave Eiffel's workers, to achieve the delicacy of the elements making up the building.

#### The "yellow-brown" color: back to the historic shade

While the 20<sup>th</sup> painting campaign is groundbreaking in many ways, it is also distinctive for its choice of color. "Yellow-brown" is in fact the color chosen by Gustave Eiffel in 1907, when the Tower became a permanent fixture.





## A site of challenges and exploits

The Eiffel Tower has sparked many sporting, artistic and scientific exploits, as well as hosting incredible challenges and crazy scenes. Many events have occurred throughout its history. Here are a few extracts.

- 1905 Newspaper "Le Sport" organizes the championship for the first-floor staircase, won by Forestier in 3min12s. The prize is a bike.
- 1923 Journalist Pierre Labric, future mayor of Montmartre, descends from the first floor to the ground by bike, without authorization. This descent had a huge impact. The cup awarded to the champion can be found nowadays in the Eiffel Tower basement.
- **1964** For the Tower's 75<sup>th</sup> anniversary, mountaineers Guido Magnone and René Desmaison climb the Iron Lady. The event is broadcast on Eurovision.
- 1983 Motocross ascent and descent by Charles Coutard and Joël Descuns.
- 1989 For the Tower's centenary, tightrope-walker Philippe Petit crosses a 2,300-foot wire between Palais de Chaillot and the Eiffel Tower.
- 1998 Hugues Richard beats the record for climbing the stairs of the Eiffel Tower on a mountain bike, from the ground floor to the second floor.
- 1999 For the first time, a golf competition is organized in Paris, with the starting and finishing holes under the Eiffel Tower.
- **2000** For the 6<sup>th</sup> World Firefighters Games, the final challenge, which involves climbing stairs from the ground to the first floor in full firefighting kit, was held at the Eiffel Tower.
- 2002 Hugues Richard beats his own record for the mountain bike ascent, set in 1998.

- 2003 The Eiffel Tower is bedecked in the colors of Paris' candidature for the 2012 Olympic Games. The start of the centenary Tour de France is set at the foot of the Eiffel Tower.
- 2004 Andorran mountain-biking champion Xavier Casas beats his mountain bike stair climbing record: 1,300 stairs! This feat earned him an entry in the Guinness Book of Records.

The same year, French ice-skating champion Sarah Abitbol and Stéphane Bernadis inaugurated the 2,150 ft<sup>2</sup> ice rink, installed for the end-of-year period on the first floor of the Eiffel Tower. It welcomes over a thousand ice skaters each day, an international success.

- **2007** From June I to I0, the Tower gets its feet wet: a 2,580 ft<sup>2</sup> dive pool is installed on the monument esplanade, allows over 3,000 visitors to discover scuba diving.
- 2010 On May 29, roller skate champion Taïg Khris beats the world record for a jump from a platform located on the Tower's first floor, with a 41-foot free fall.
- 2015 In June, the Eiffel Tower, in partnership with Lolë and My Little Paris, offers visitors morning yoga sessions on the first floor of the monument. This unique initiative was concluded on the esplanade with a giant yoga class on June 21, with nearly 1,500 participants all dressed in white.



2015 - A stair-climbing time trial called **La Verticale de la Tour Eiffel**® is born, co-organized with EcoTrail. Over a hundred runners from all around the world tackle the monument's 1,665 stairs.

2017 - A 2,025-foot zip line is installed in June, from the second floor to the end of Champ-de-Mars. As a nod to the French Open, around a hundred visitors each day can step into "the skin of a tennis ball".

On December 9, as part of the Telethon, France Télévisions organizes a series of challenges. The Eiffel Tower was the location for one of them, involving crossing a 2,133-feet long slackline.

2018 - For the French Open, the French Tennis Federation and Mairie de Paris install a **life-size tennis** court on the esplanade.

The Eiffel Tower also hosts an **unusual auction**, for a 70% complete skeleton of a new species of carnivorous dinosaur that measured 30 feet long.

In December, for the Telethon, the "Flying Man" Franky Zapata performs a flight on his flyboard between the Tower's four pillars, hundreds of feet above the ground.

2019 - In August, a ceremony is organized on the esplanade to celebrated the 75<sup>th</sup> anniversary of the liberation of Paris. A 50x65 foot French flag was hung between the first and second floors by members of the Paris Fire Brigade.

As for the sports side of things, the Paris Saint-Germain women's soccer team came to the Tower's stairs for a vertiginous training session!

2021 - Highliner Nathan Paulin makes two crossings between the Eiffel Tower and Chaillot - Théâtre National de la Danse, for the European Heritage Days on September 18 and 19 and the launch of the Cultural Olympiad: 2,200 feet crossed at 230 feet in the air, on a line nearly 1 inch wide.

### The Tower and the arts

From the beginning, the Eiffel Tower has been a source of inspiration for artists. Both unknown and famous, illustrators, painters and of course photographers have all drawn on this huge structure as the subject of their works. The Iron Lady has been reproduced in all artistic domains, but it is probably paintings and cinema that have been the most prolific and featured the greatest number of representations of the monument.

In the pictorial arts, Robert Delaunay was the one who established the Tower as a pictorial object, twenty years after it was completed, in a series of canvases from 1909 to 1926. He painted it around thirty times, always under a different light and angle.

Like Delaunay, Marc Chagall was born with the Eiffel Tower. The painter, who was also an illustrator, engraver and decorator, was inspired by Cubism early on. The Eiffel Tower, a work of art in and of itself, was therefore a natural inclusion in his work, with its quadrangular pyramid form. Georges Seurat also painted it in 1888. Then came "Le Douanier" Rousseau, Signac, Bonnard, Utrillo, Gromaire, Vuillard and Dufy, to name just a few, who all celebrated the Tower.

#### A few painters who placed the Tower at the center of their works:

1888 - Georges Seurat: "La Tour Eiffel" (Fine Arts Museums of San Francisco).

1889 - Jean Beraud: "Entrée de l'Exposition Universelle" (Musée Carnavalet, Paris).

1890 - "Le Douanier" Rousseau: "Moi-même, portrait paysage" (Narodni Galerie, Prague).

1890 - Paul Signac: "Seine Grenelle" (Private Collection).

1911 - Robert Delaunay: "Tour Eiffel dite la Tour Rouge" (S.R. Guggenheim Museum, New York).

1910/1912 - Robert Delaunay: "La Ville de Paris" (MNAM - Centre G. Pompidou, Paris).

1913 - Marc Chagall: "Paris vu par la fenêtre" (S.R. Guggenheim Museum, New York).

1926 - Romaine Brooks: "Jean Cocteau" (MNAM - Centre G. Pompidou, Paris).

1954 - Marc Chagall: "Champ de Mars" (Museum Folkwang, Essen).

1954 - Nicolas de Staël: "La Tour Eiffel" - Musée de Troyes.

Also, Raoul Dufy, Gino Severini, Utrillo, Bernard Buffet, Pol Bury, Roger Lersy, and more.

In literature, the Tower has often been taken as a central subject in stories, but it was mainly during the monument's construction that there was the most written about it. Alphonse Allais, Guillaume Apollinaire, Blaise Cendrars, Jean Cocteau, and more - both writers and poets have made the Iron Lady dance under their pen. One of the most well-known is Roland Barthes and his book of essays called "The Eiffel Tower", which combines the author's passionate text and photos by André Martin.

#### **Extract from Roland Barthes' book**

"Look, object, symbol, the Tower is all that man puts in it, and this all is infinite. A spectacle looked at and looking, a useless and irreplaceable building, a familiar world and heroic symbol, the witness to a century and an always new monument, an inimitable and endlessly reproduced object, it is the pure sign, open to all times, all images and all senses: the unbridled metaphor; through the Tower, men exercise this great faculty of the imagination, which is their freedom; since no history, however dark it may be, has ever been able to take theirs away."

It was also a source of inspiration in classic French "chanson" music. This tradition has featured many spectacular shows causing crowds to flock at the foot of the Tower, such as on September 25, 1962, when Darryl F. Zanuk organized a breathtaking production for the release of his film *Le jour le plus long*. Edith Piaf appeared on the first floor and sang before 25,000 Parisians. Charles Aznavour and Georges Brassens would follow in 1966 to support the campaign against hunger. Jean-Michel Jarre hosted the 50<sup>th</sup> anniversary of Unesco on July 14, 1995.

On July 10, 1998, the concert of the three tenors José Carreras, Placido Domingo and Luciano Pavarotti brought over 200,000 spectators to the base of the Tower. On June 10, 2000, Johnny Hallyday beat all the records with a crowd of 600,000 for a concert and pyrotechnic show.

The Tower is also a number-one spot for private concerts in the Gustave Eiffel Room on the first floor (Alanis Morissette, Robbie Williams, Texas, Raphaël, Marc Lavoine, Christophe Maé, Justin Bieber, Aya Nakamura, and more) and for shooting video clips. Rap group PNL filmed the clip for their song *au DD* there, which won the Victoires de la Musique 2020 and has racked up nearly 150 million views on YouTube!

#### A few songs that celebrate the Eiffel Tower:

Michel Emer: "Paris, mais c'est la Tour Eiffel..."

Charles Trénet: "Y a d'la joie, la Tour Eiffel part en balade..."

Léo Ferré: "La Tour Eiffel a froid aux pieds..."

Jacques Dutronc: "Seine Grenelle" (Private Collection).

Pascal Obispo: "Je suis tombé pour elle..."

Musical theater: "Les Mariés de la tour Eiffel" by Jean Cocteau

"Silhouette", a work by Estonian composer Arvo Pärt. Tribute to Gustave

Eiffel, created in 2010.

#### Fireworks & pyrotechnics: its most unique artistic vocation

Ever since it was built, the Eiffel Tower has been intimately connected to fireworks. The first display took place before the Tower was even finished, on July 14, 1888. In 1989, on June 17, the Mairie de Paris offered an exceptional show, retracing 100 years of history around the Tower. In an explosion of multicolored lasers, singers, dancers and acrobats created a wonderland. Ten years later, on the night of December 31, 1999, the Eiffel Tower rang in the year 2000 by wowing everyone with a spectacular ballet of fire and light, broadcast all around on the world on 250 television channels. An unforgettable show!

The year 2009 was also one to remember, with the Tower's 120<sup>th</sup> birthday. Starting with a concert by Johnny Hallyday on Champ-de-Mars, it was a magical moment with video projections enchanting the Parisian sky for the first time. Even the Tower got moving, dancing on its pillars and turning around to the rhythm of the music, wowing the 700,000-strong crowd. We should also mention the show by Bruno Seillier in May 2019, to celebrate 130 years of being open to the public.

Since then, every year, pyrotechnicians push their creativity to offer the public an ever-more breathtaking show for Bastille Day, launched from the Trocadero gardens or the Tower itself, making full use of its structure.

#### Action, romance, science fiction - the Tower can do any genre

The film career of the famous Iron Lady would put a good number of young stars to shame, given how rich and varied it has been. Her lithe silhouette can be seen in dozens of films, with action everywhere you can imagine, from the underground machinery to the top.

She owes her first appearance to Louis Feuillade and Inspector Juve, who valiantly climbs the monument in pursuit of criminal mastermind Fantômas. She also plays a symbolic role in many apocalypse films and is the target of alien attacks. From War of the Worlds (1953), Mars Attacks! and Independence Day (1996) through to Men in Black (1997) and Armageddon (1998), science fiction and fantasy love her.

She is also the site of human exploits. Alain Pol filmed the climb of four mountaineers in A *l'assaut de la tour Eiffel*. A few years later, in 1994, another ascent would mark the memories of young cinephiles: that of Mimi-Siku, the little *Indien dans la ville*, by Hervé Palud.

But undoubtedly, romance is her favorite. In *Ninotchka* by Lubitsch, in 1939, the Tower is the site for the stone-cold Greta Garbo to discover Paris, drink champagne and be seduced by an aristocratic Latin lover. In 1959, Fred Astaire meets Audrey Hepburn there in *Funny Face*. More recently, it has even inspired Bollywood, and in 2016, hosted shooting for the romantic comedy *Befikre*, the first Indian film entirely shot in France, specifically in Paris. In autumn 2017, the final episode of the Netflix series *Sense8* was shot on the monument's walkways.

From the beginning, the Eiffel Tower has captivated and fed the fantasies of many directors. The Eiffel Tower has appeared **on-screen over a hundred times** in films, cartoons, animated movies, series and documentaries. And the enthusiasm does not look likely to die down.

#### Cinema & the Eiffel Tower: born at the same time

In 1897, when the Tower was only 8 years old, she discovered the beginning of her stardom under the lens of the Lumière brothers. They placed their camera in the lift and filmed the Palais du Trocadéro, the esplanade and gardens as it ascended, through the monument's metal structure. The first vertical tracking shot in cinematic history was born. And the Iron Lady's film career had begun!

Since then, the Tower has had a long love affair with cinema a passion that has not

affair with cinema, a passion that has not grown cold over time. From the birth of cinema to now, its presence in films offers them a timeless and romantic setting.









### Practical information

The Eiffel Tower is open every day from 9.30 am to 11.45 pm in winter and 9.30 am to 12.45 am in summer.

#### **Prices**:

**Ticket with stair access** (to the 2nd floor): adults €10.70 - youths (aged 12-24) €5.40 - children (aged 4-11) €2.70.

**Ticket with lift access** (to the 2nd floor): adults €17.10 - youths (aged 12-24) €8.60 - children (aged 4-11) €4.30.

**Ticket to the top**: adults €26.80 - youths (aged 12-24) €13.40 - children (aged 4-11) €6.70.

Children under 4 can visit the Tower for free.

**Top tip! Combined ticket** (stairs to the second floor then lift to the top) Adults €20.40 - youths (aged 12-24) €10.20 - children (aged 4-11) €5.10

In around 10 minutes, you can climb to the I<sup>st</sup> floor by foot, surrounded by the structure of the Iron Lady. A unique experience!

Wait times for the security screening and ticket office are available on the Tower's website in real time, in the "Planning a smooth visit" section.

#### Information & bookings: www.toureiffel.paris



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