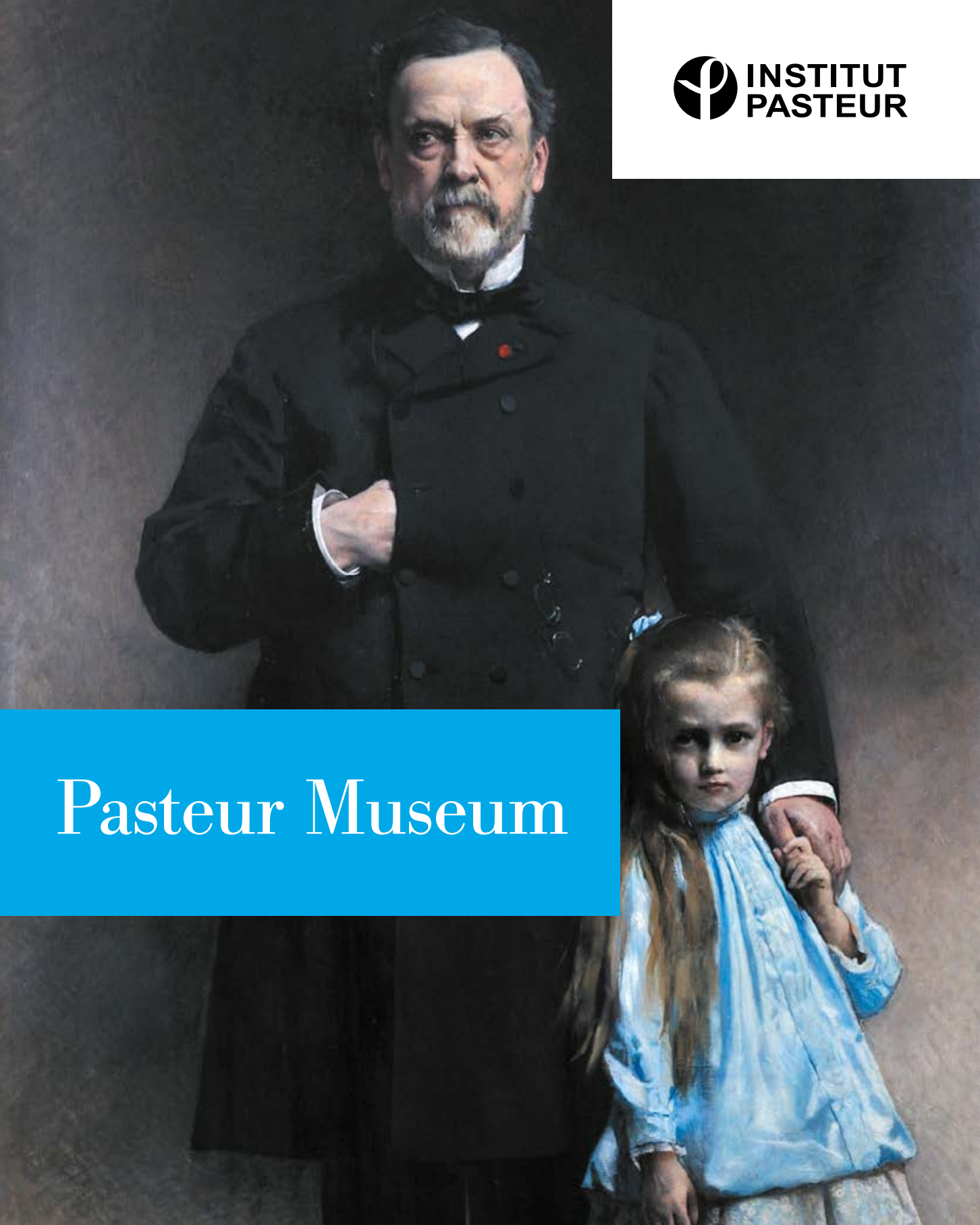
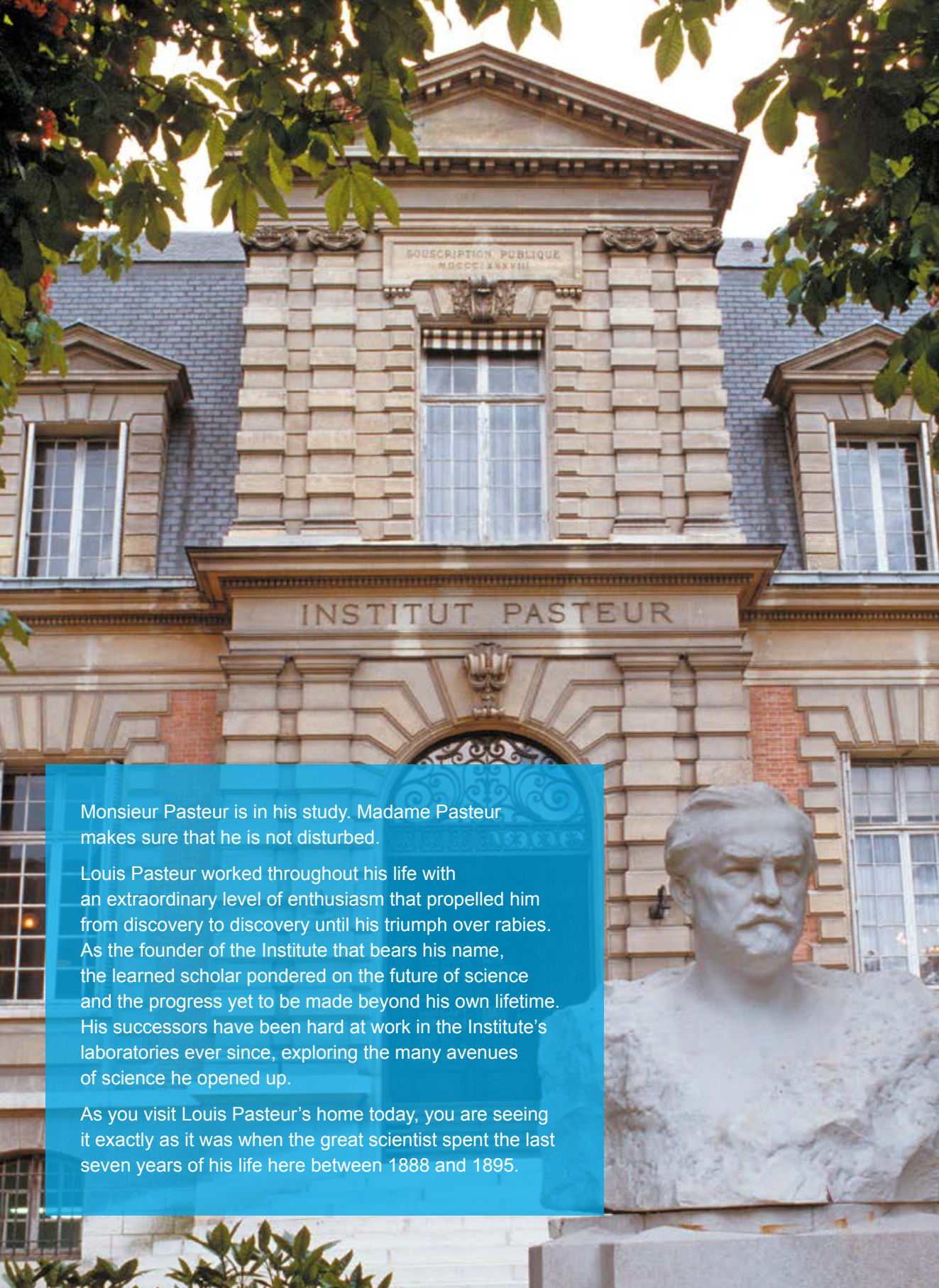
INSTITUT PASTEUR



Pasteur Museum



Monsieur Pasteur is in his study. Madame Pasteur makes sure that he is not disturbed.

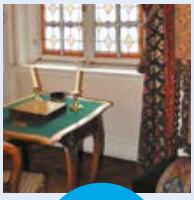
Louis Pasteur worked throughout his life with an extraordinary level of enthusiasm that propelled him from discovery to discovery until his triumph over rabies. As the founder of the Institute that bears his name, the learned scholar pondered on the future of science and the progress yet to be made beyond his own lifetime. His successors have been hard at work in the Institute's laboratories ever since, exploring the many avenues of science he opened up.

As you visit Louis Pasteur's home today, you are seeing it exactly as it was when the great scientist spent the last seven years of his life here between 1888 and 1895.

SECOND FLOOR

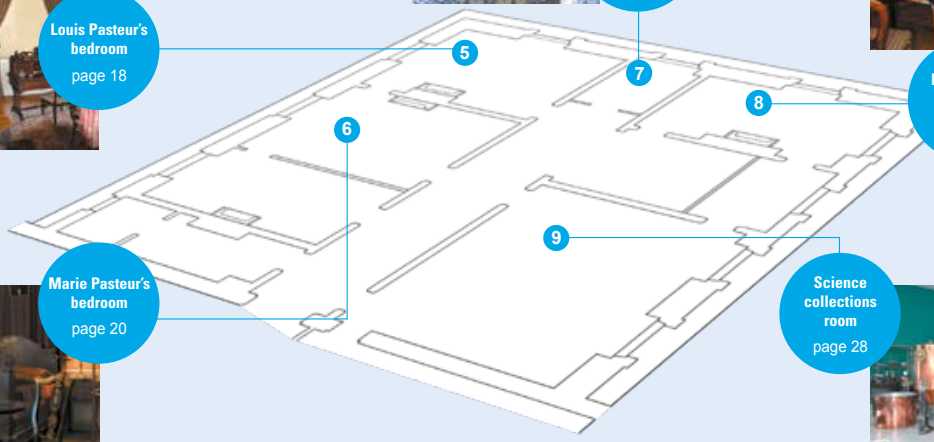
The private apartments and science collections room

Bathroom
page 23



Louis Pasteur's bedroom
page 18

Living room
page 24



Marie Pasteur's bedroom
page 20

Science collections room
page 28

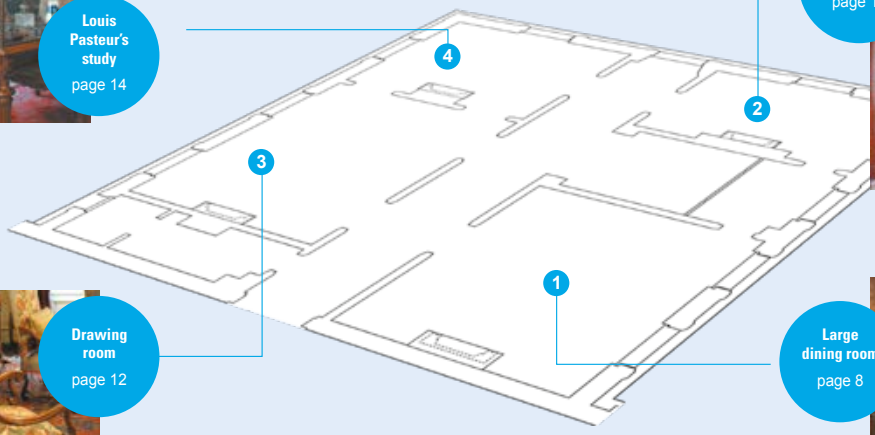
FIRST FLOOR

The reception rooms

In the four rooms open to visitors, the furniture and decoration have not changed since Louis Pasteur and his wife lived here.

Louis Pasteur's study
page 14

Small dining room
page 10



Drawing room
page 12

Large dining room
page 8

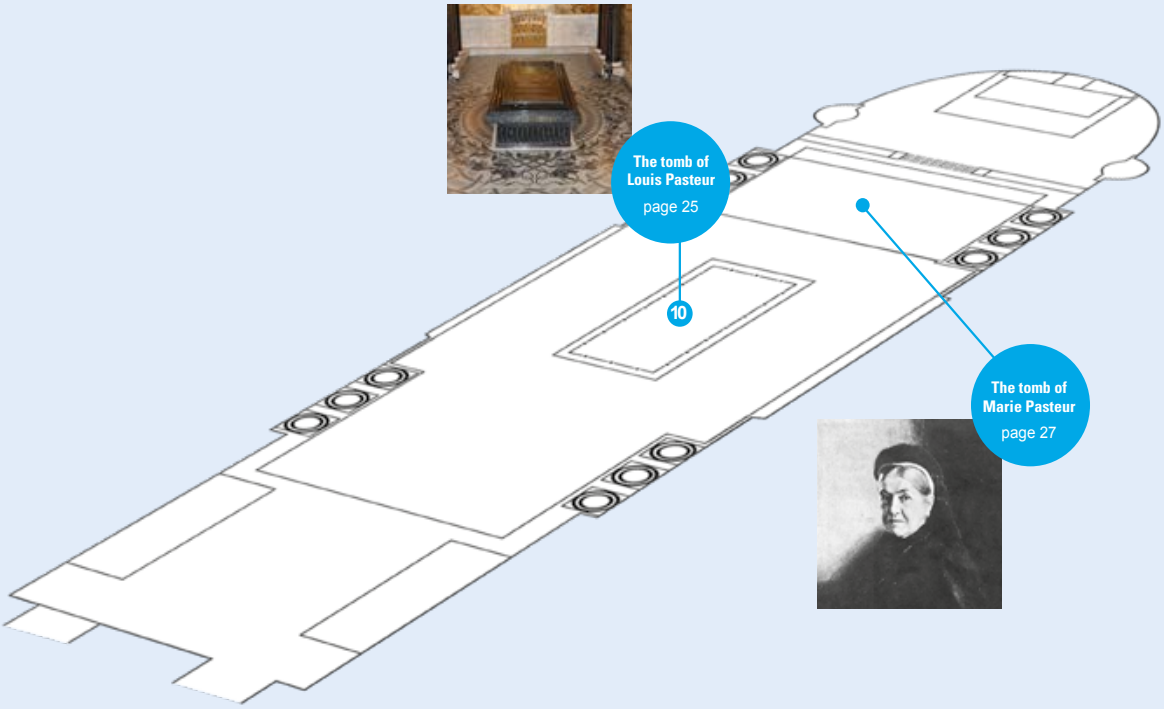
GROUND FLOOR

The funerary chapel

The ground floor is taken up with a Byzantine-style funerary chapel, the final resting place of Louis Pasteur. When he died in 1895, it was his wife's wish that Louis Pasteur should rest in peace in his own Institute rather than in the Panthéon, as the French government had planned following his state funeral. The stunning mosaics of shimmering gold and vibrant colors illustrate some of Louis Pasteur's many discoveries.

His wife also rests here at the foot of the altar.

Louis Pasteur's death mask is displayed in a reliquary opposite that of Émile Roux, one of his successors as head of the Institut Pasteur.



INTRODUCTION

The final home of a great scholar whose work is universally celebrated.

Louis Pasteur photographed in the grounds of the Institut Pasteur by Henri Mairet in 1895. This was the very last photograph of the scholar.

Between 1857 and 1888, Louis Pasteur lived on Rue d'Ulm at the École Normale Supérieure.
But from 1888 onwards, he lived with his family in the Institute, surrounded by his laboratories and devoted disciples, who included Duclaux, Grancher, Roux, Chamberland and Mechnikov.

The first Institut Pasteur building was made of dressed stone, burrstone (a fine-grained sandstone) and brick, with a Louis XIII-style façade. The layout is simple: two large parallel wings linked by a broad central corridor, one wing facing onto Rue du Docteur Roux (previously Rue Dutot) and the other – slightly longer – at the rear.

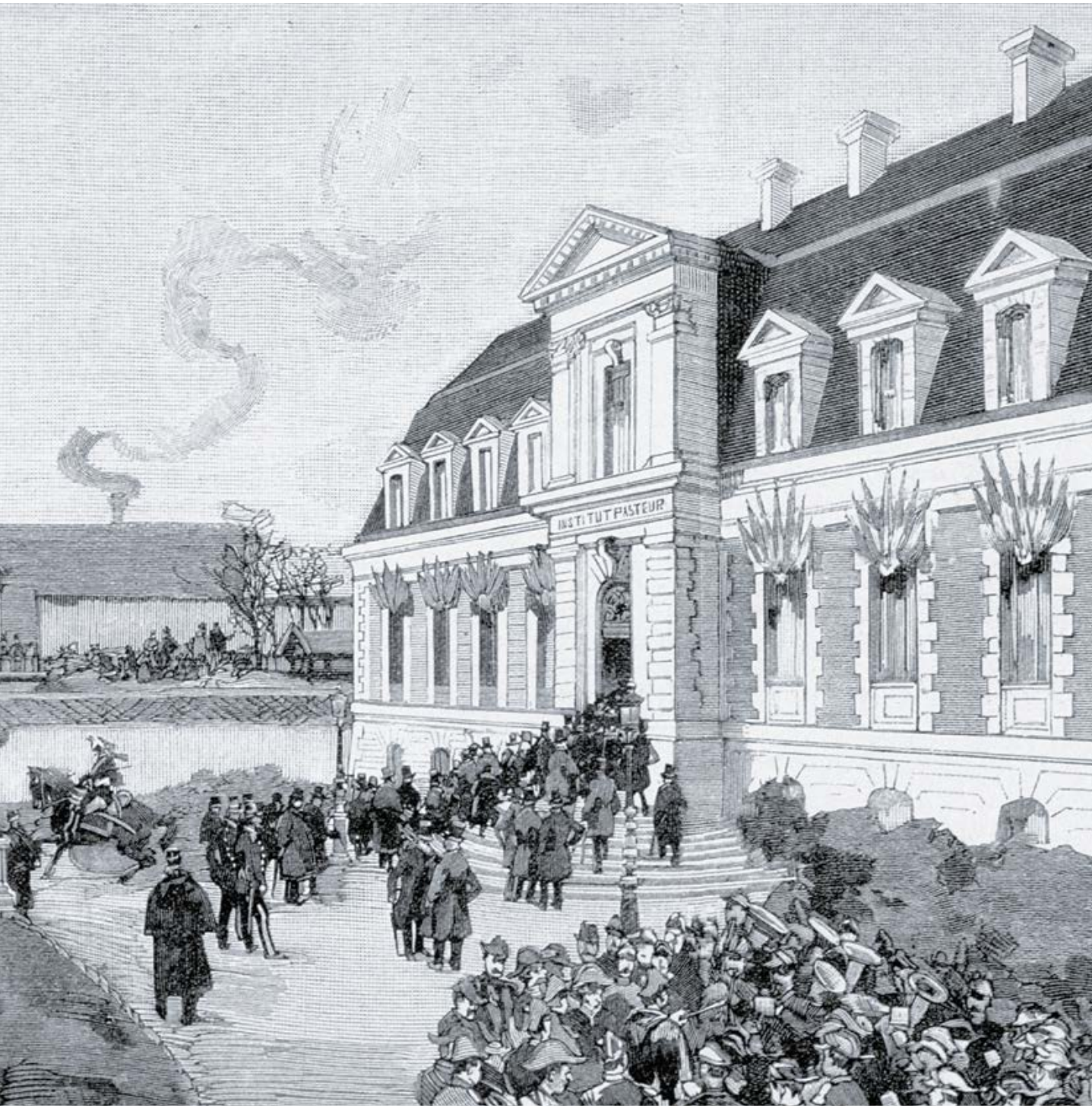
Each wing has a basement, ground floor and three upper floors, the top floor being capped by a mansard roof. The first and second floors at the front of the building's south wing were reserved for the private apartments of Louis Pasteur and his wife Marie.

The rooms in which he spent the final seven years of his life remain exactly as he would have known them; it was here that he savored without false modesty the honors heaped upon him by the great and good of this world. In these affectionately intimate surroundings, the couple lived a quiet life brightened by the presence of their grandchildren.

But the story of the Institut Pasteur was only just beginning.

OFFICIAL OPENING OF THE INSTITUT PASTEUR ON NOVEMBER 14, 1888.

Anonymous engraving



An Institute for a great man

When Louis Pasteur developed his rabies vaccine, the level of enthusiasm for his work was such that the decision was made to open a center for rabies vaccination.

A major fundraising appeal was launched by the French Academy of Sciences in 1886, and thanks to the generosity of people in France and throughout the world, the Institut Pasteur was set up at 25 Rue Dutot in the Vaugirard district of Paris just two years later.

But the ambitions of Louis Pasteur certainly did not stop at rabies vaccination or indeed at the borders of France. The Institut Pasteur's research set out to tackle every type of infectious disease. Institutes were created throughout the world by talented scientists inspired by the global adventure initiated by Louis Pasteur.

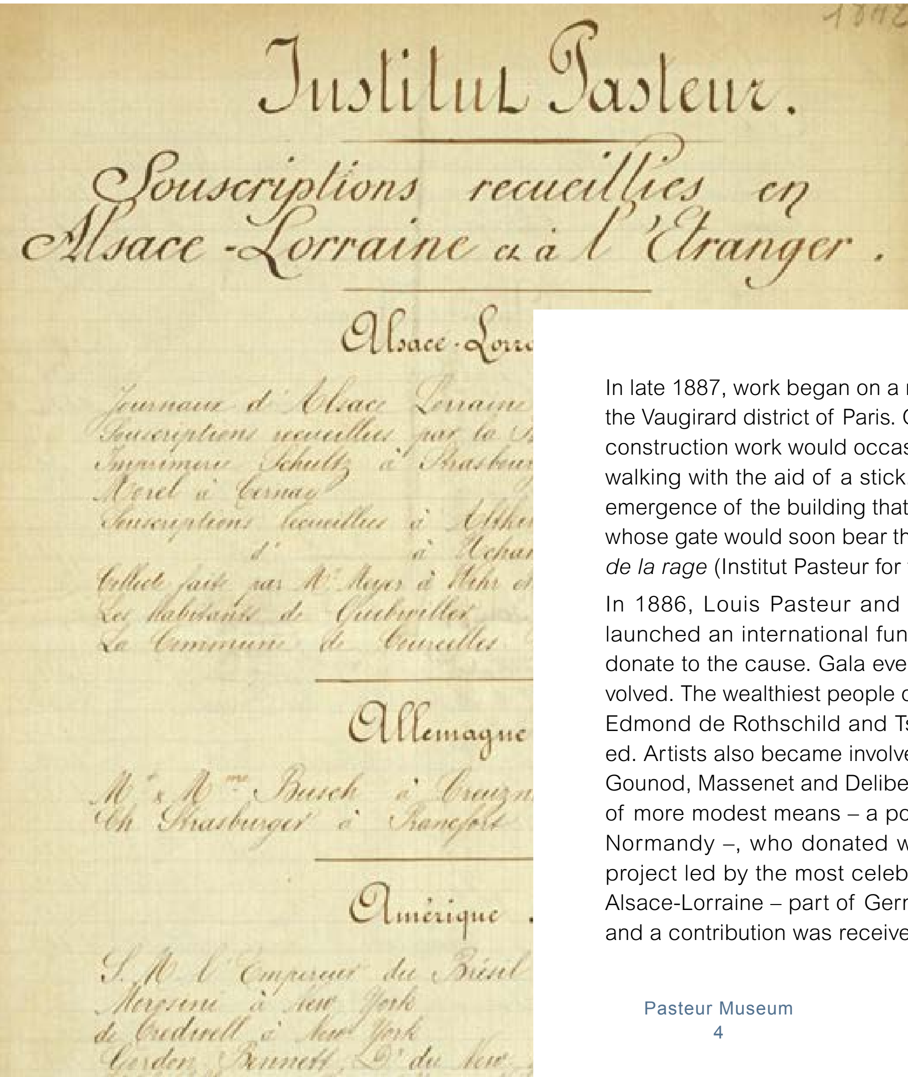
The culmination of a scientist's vision, the Institut Pasteur has pursued its threefold scientific, social and humanist mission ever since.

A unique Institute in the global landscape

Louis Pasteur, March 1, 1886:
“We have the opportunity to set up a rabies vaccination center.”
The plan to create an Institute bearing his name was rapidly adopted. Unusually, the Institute was set up as a private foundation. Its global presence is equally noteworthy – the Institut Pasteur network spans every continent and is the only structure of its kind in the world.

“You don’t ask a person in need which country they come from or which religion they believe in. You say: You are suffering; that’s all that matters; you are my responsibility and I will take care of you!”

Extract from the speech given by Louis Pasteur on June 18, 1886 at the official opening of the maternity home founded by the Société Philanthropique. In Œuvres, Vol. VII, p. 411.



In late 1887, work began on a major construction project on Rue Dutot in the Vaugirard district of Paris. Crowds of passers-by curious to watch the construction work would occasionally glimpse a man of advanced years walking with the aid of a stick. Stone by stone, he watched the gradual emergence of the building that marked the culmination of his dream, and whose gate would soon bear the words: *Institut Pasteur pour le traitement de la rage* (Institut Pasteur for the treatment of rabies).

In 1886, Louis Pasteur and the French Academy of Sciences had launched an international fundraising appeal, calling on the public to donate to the cause. Gala events were organized and the press was involved. The wealthiest people of the day, including Marguerite Boucicaut, Edmond de Rothschild and Tsar Alexander III of Russia, all contributed. Artists also became involved, from Sully Prudhomme to Saint-Saëns, Gounod, Massenet and Delibes. Contributions even flowed in from those of more modest means – a policeman from the Jura or a postman from Normandy –, who donated what they could to be part of this major project led by the most celebrated scholar of the day. Newspapers in Alsace-Lorraine – part of Germany since 1871 – also took up the cause and a contribution was received from the young Joseph Meister.

On July 6, 1885 at the age of nine, he had become the first person to be vaccinated against rabies. Pasteur was clearly moved by this gesture: "I was never happier or more touched than when amongst the long list of names of donors, all of whom I would like to thank personally, I saw that of my young friend Joseph Meister." It took just two years to collect the two and a half million gold francs needed to buy the 11,000m² plot of land and construct the building. The names of all the donors were published in the *Journal Officiel*.

The building work had not been entirely completed by the official opening on November 14, 1888, but two brick buildings draped in French national flags stood proudly amongst the surrounding empty land and market gardens. Socialites, celebrities, members of the Institute, student delegations, ambassadors, ministers, prefects and the French President Sadi Carnot himself were all there to celebrate the event. Too emotional to speak, Louis Pasteur asked his son to read out the speech he had prepared. Outside, crowds jostled to catch a glimpse of the proceedings. Vaccination against rabies had elevated the scholar to the peak of his fame.

Throughout its history, the Institut Pasteur has been a private foundation with officially recognized charitable status. The basic principle of the initial appeal launched to raise funds meant that the Institute would always remain private. Its first director, Louis Pasteur himself, defined his role with these words: "It will be simultaneously a clinic for the treatment of rabies, a research center for infectious diseases and a center for learning." All those who have succeeded Louis Pasteur as head of the Institute have adhered to these guidelines ever since.

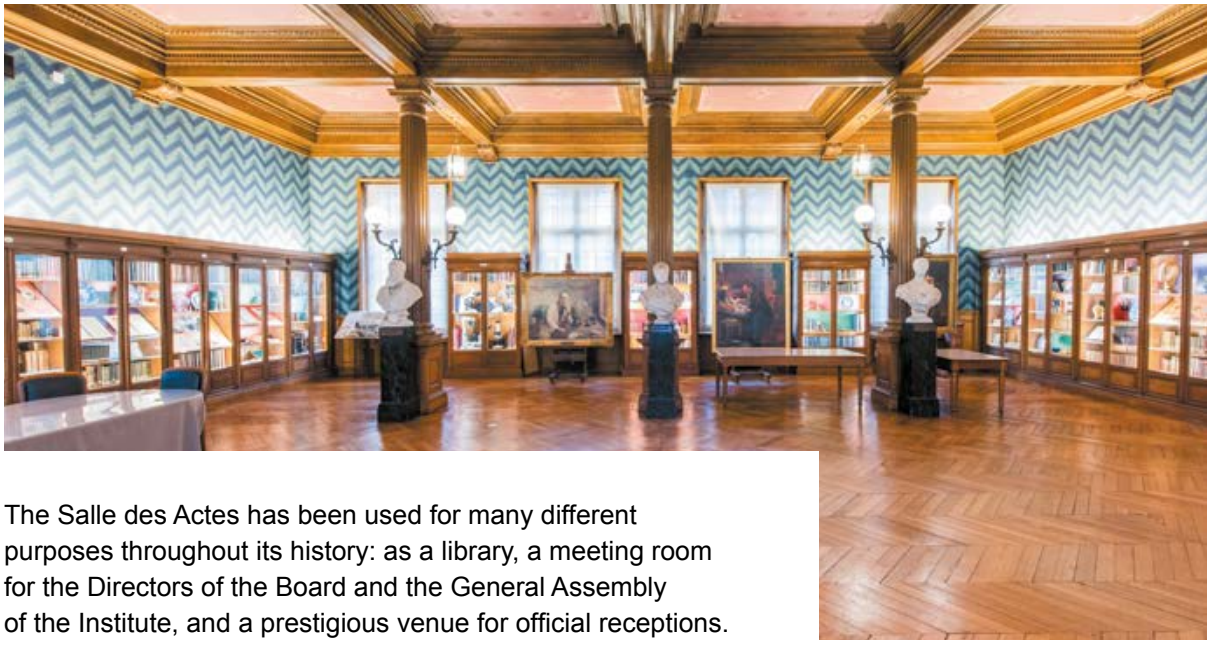
THE EPIC STORY OF THE INSTITUT PASTEUR INTERNATIONAL NETWORK

The Institut Pasteur International Network is staffed by scientists from all fields. Their multidisciplinary research has been tackling infectious diseases for more than a century. The scope of their work is vast, and many of them are currently researching emerging diseases (AIDS, SARS, avian influenza, etc.) and antimicrobial resistance (resistance to antibiotics, antiretrovirals, antimalarials, etc.). All perpetuate the spirit of Louis Pasteur by combining research with education and prioritizing work that benefits public health. The research conducted at these Institutes was recognized with ten Nobel Prizes between 1908 and 2008.

Three great Institut Pasteur scientists: Alexandre Yersin, Albert Calmette and Charles Nicolle.

Speech given by French President Sadi Carnot at the official opening of the Institut Pasteur on November 14, 1888 in the Salle des Actes (see next page).

The Salle des Actes



The Salle des Actes has been used for many different purposes throughout its history: as a library, a meeting room for the Directors of the Board and the General Assembly of the Institute, and a prestigious venue for official receptions.

It was in this room that the Institute's opening ceremony was held on November 14, 1888, and where the coffin of Louis Pasteur rested before being carried to Notre-Dame on October 5, 1895. From 1890 onwards, the Salle des Actes contained a library of scientific publications that gradually expanded until 1994, when it was transferred to the Scientific Information Center.

The walls of this imposing, almost square room are decorated with dark blue wallpaper and the panels of the ornate wood-beamed ceiling are painted pink. With nine windows, the room is bathed in natural light. The pendant lamps and elegant bracket lamps mounted on six columns add further elegance and provide plenty of artificial light. In one of the glass display cases, there is a porphyry urn containing the ashes of Ilya Mechnikov. Originally from Ukraine, this great scholar worked at the Institut Pasteur from the very beginning of the project, and expressed a wish to remain in the company of the Institute's scientists after he died. In front of the columns stand the busts of major donors, including Tsar Alexander III of Russia, Baron de Rothschild, the Comte de Laubespin, Don Pedro II (Emperor of Brazil), Cécile Furtado-Heine and Marguerite Boucicaut. Large portraits honor the memory of Duclaux,[1] Roux[2] and Mechnikov.[3]

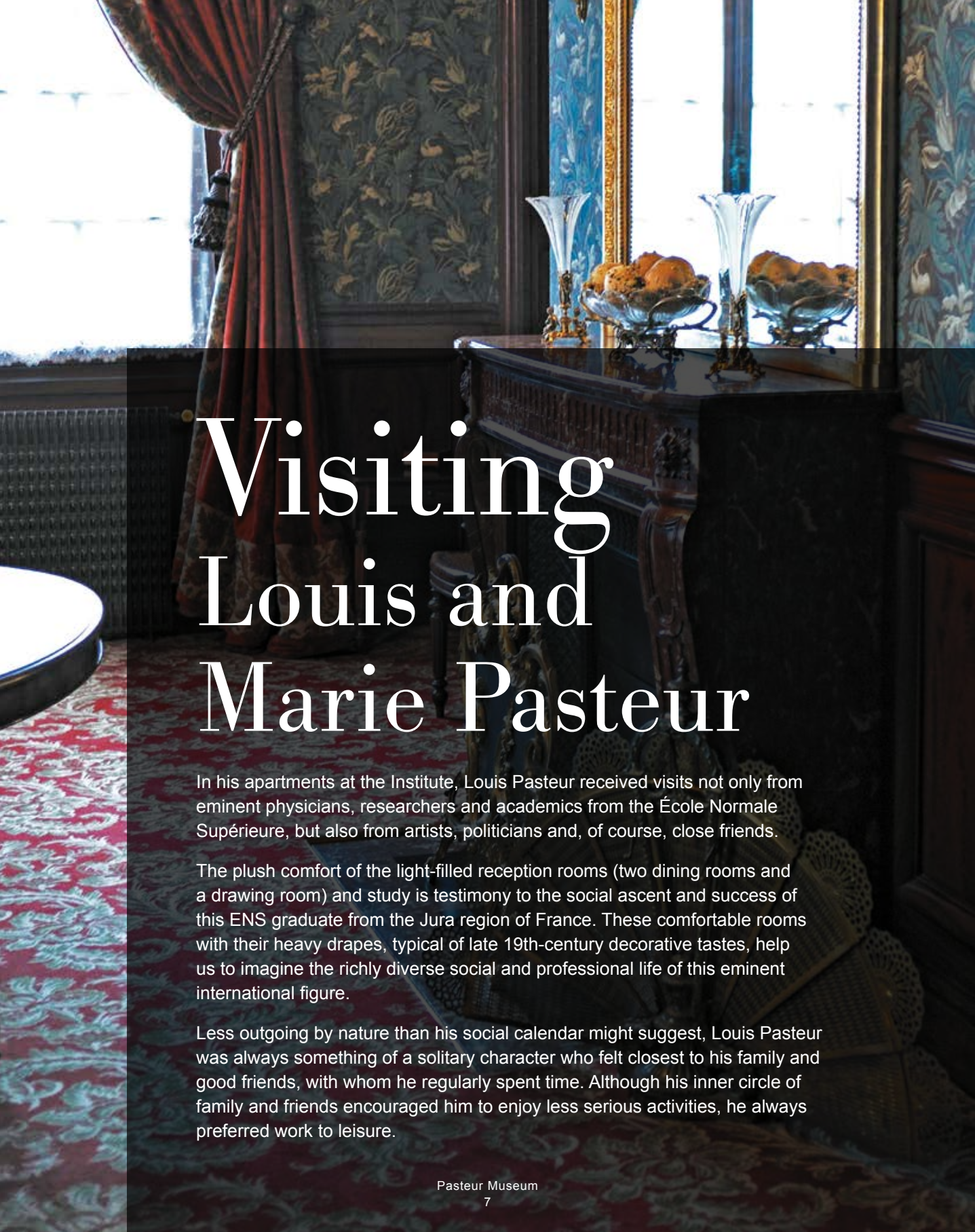
Nowadays, this room is mainly used for official ceremonies. When the Institut Pasteur celebrated its 130th anniversary, the content of the glass display cases was redesigned by French artist Hervé Di Rosa. He came up with the idea of a scientific and artistic narrative that would combine his own hybrid, multifaceted, fantastic artistic creations with the history of Louis Pasteur and the scientists that succeeded him at the Institut Pasteur, together with their techniques and discoveries.

Ceramic pot by Hervé Di Rosa in a glass display case in the Salle des Actes.
The display cases in the Salle des Actes now feature an extensive series of exhibits including painted ceramics specially created by the artist alongside objects and artifacts from the Pasteur Museum collections.

1. Émile Duclaux succeeded Louis Pasteur as head of the Institute in 1895, remaining in the post until 1904.

2. Émile Roux was Director of the Institut Pasteur from 1904 to 1933.

3. Ilya Mechnikov was the joint winner of the 1908 Nobel Prize in Physiology or Medicine.



Visiting Louis and Marie Pasteur

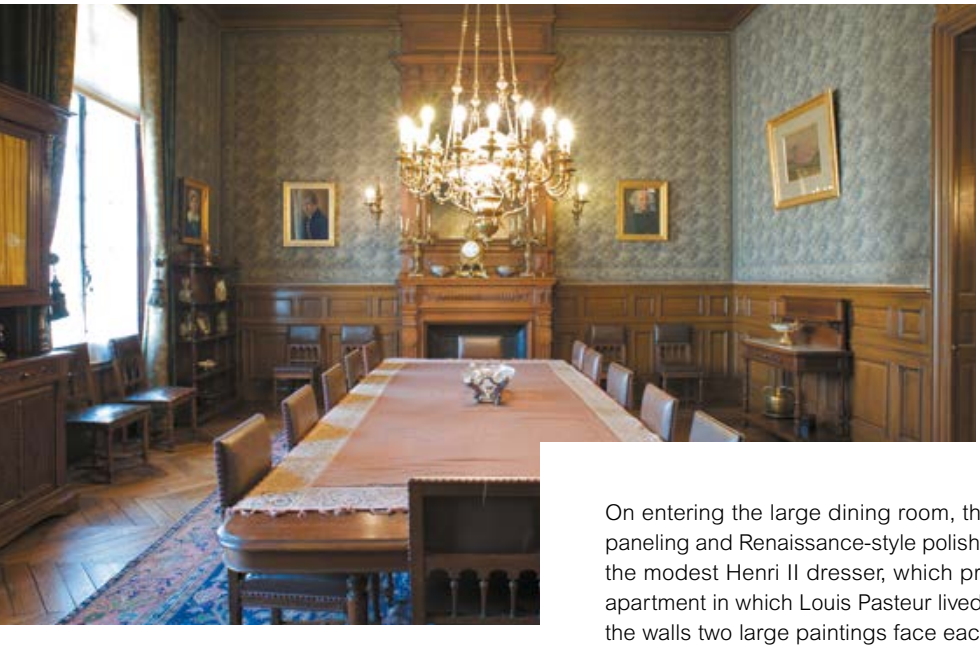
In his apartments at the Institute, Louis Pasteur received visits not only from eminent physicians, researchers and academics from the École Normale Supérieure, but also from artists, politicians and, of course, close friends.

The plush comfort of the light-filled reception rooms (two dining rooms and a drawing room) and study is testimony to the social ascent and success of this ENS graduate from the Jura region of France. These comfortable rooms with their heavy drapes, typical of late 19th-century decorative tastes, help us to imagine the richly diverse social and professional life of this eminent international figure.

Less outgoing by nature than his social calendar might suggest, Louis Pasteur was always something of a solitary character who felt closest to his family and good friends, with whom he regularly spent time. Although his inner circle of family and friends encouraged him to enjoy less serious activities, he always preferred work to leisure.

The large dining room [1]

A formal room reserved for distinguished guests, the large dining room underlines the fame enjoyed by Louis Pasteur. The portrait by Albert Edelfelt showing Louis Pasteur closely examining a jar containing a spinal cord infected with rabies (see opposite) celebrates the scholar's flagship discovery and so pleased its subject that he commissioned the painter to produce a replica of it, the original having been commissioned by the French government.



DECORATIVE OBJECTS

The majority of the decorative objects are gifts presented to Louis Pasteur in recognition of his work. They reflect the taste of this period which fell between neoclassicism and Art Nouveau, as seen in the water lily inspiration for this stoneware planter from the studio of Mougin Frères of the École de Nancy.

LAZZARO SPALLANZANI.

(Albert-Jules Edouard, 1888)

This portrait of the biologist Spallanzani was hung by Louis Pasteur as a tribute to one of the first scientists to refute the theory of spontaneous generation in the 18th century. Louis Pasteur saw himself very much as Spallanzani's successor. The two great men of science face each other across the large dining room, as if in scientific discussion.

On entering the large dining room, the eye is drawn first to the wooden paneling and Renaissance-style polished oak furniture. This contrasts with the modest Henri II dresser, which probably came from the Strasbourg apartment in which Louis Pasteur lived immediately after his wedding. On the walls two large paintings face each other: the first, commissioned by Louis Pasteur, hangs above the fireplace. Painted by Albert-Jules Edouard, it portrays the illustrious biologist Abbé Spallanzani who, in the 18th century, refuted the possibility of spontaneous generation. Louis Pasteur always saw Spallanzani as one of his seminal influences.

The other painting is undoubtedly the most famous and most telling portrait of Louis Pasteur. The work of Finnish painter Albert Edelfelt, who was also a personal friend of Pasteur's son Jean-Baptiste, it portrays the scholar closely examining a jar containing the spinal cord of a rabbit inoculated with the rabies virus.

The dining room also contains a bust of Louis Pasteur sculpted by Paul Dubois, then one of the directors of the Paris École des Beaux-Arts. On either side of the large paintings hang pastel portraits by the young Louis Pasteur himself. Facing the windows, two colorful charcoals by Pointelin depict the landscapes of Pasteur's native Jura.

The small dining room 2

With its dual aspect and pleasing proportions, the small dining room has a particularly welcoming feel. It was here that Louis and Marie Pasteur ate their meals in the company of family and close friends.

The small dining room has been perfectly restored and the interior includes some wonderful hidden gems *(see opposite)*. All the furniture here is arranged as it would have been in Pasteur's day. In the center of the room stands the dining table, its pedestal richly carved with garlands of fruit. The pink glass vase on the table is also original. The mantel of the red marble fireplace displays an elegant pair of vases delicately fashioned in crystal and gold-enameled bronze by Henry Sormani. A fruit bowl completes the composition.

A fan-shaped fireguard in gilded bronze and a Louis XVI-style spark guard add the final touches to this typically bourgeois 19th-century room.

Vase (detail).

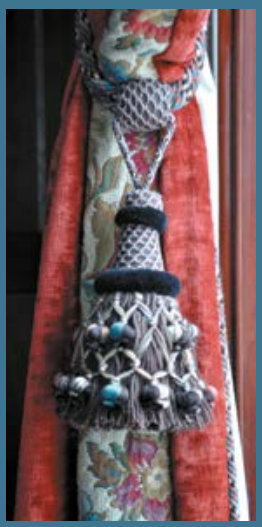
Antonin Mercié's sculpture *Quand même* is displayed on the first floor in front of the stained glass windows in the vestibule. This is an allegorical piece symbolizing the region of Alsace, which became part of Germany in 1870 – an event that particularly saddened Louis Pasteur.

The small dining room seen from the doorway.

The room as it is today is the result of a meticulous process of restoration based on a photograph from 1910, the year in which Madame Pasteur died. The carpets, wood paneling, wallpaper, curtains and furniture were all chosen after careful research to recreate the original charm and character of the room. Every element, from trumeau to chandelier, wall lamps, fireplace, ornaments and furniture, has been painstakingly returned to its original position.

AN EXEMPLARY RESTORATION PROJECT

The extensive program of restoration that began in 2008 has restored the room's original atmosphere. This superb project was made possible by the generosity of Anne Cox Chambers, President of the Pasteur Foundation American Advisory Board. A fragment of wallpaper discovered at the very beginning of the project made it possible to recreate the pattern of the original and match its color so that an identical paper could be produced.



Details of the wallpaper and trimmings.

The drawing room 3

This spacious room evokes the pinnacle of the fame enjoyed by the scholar who conquered rabies and was showered with so many honors. It contains a host of objects presented as marks of admiration and gratitude for his work. Each refers to a moment in the scientist's life and emphasizes the great impact Louis Pasteur had on those around him and the era in which he lived.

The drawing room perfectly recreates the atmosphere of a late 19th-century society apartment thanks to its authentic interior: the elegant Louis XIII-style furniture perfectly offsets more playful elements such as the velvet drapes at the windows and doors, the Napoleon III footstool, the upright piano, the peacock feathers in a Théodore Deck vase, and the black and red screen. It was here that Louis Pasteur liked to host his friends, famous writers and artists such as Léon Bonnat, and foreign luminaries like J. C. Jacobsen.

THE ART OF BEING A GRANDFATHER

In this large painting, we see Louis Pasteur at the peak of his fame: he has been awarded the Grand-Croix of the Légion d'Honneur, he is the Permanent Secretary of the Academy of Sciences and is a member of both the French Academy and the Academy of Medicine. This portrait was commissioned from Bonnat by the Danish brewer J. C. Jacobsen in recognition of Louis Pasteur's work to improve beer. The scholar poses with his granddaughter Camille, and in a particularly touching detail the girl's fingers are entwined around her grandfather's thumb.

The magnificent malachite vase with gilded bronze mounts was a gift from Prince Alexander Petrovich of Oldenburg in 1892 in recognition of the vaccinations offered to Russian citizens from Smolensk. The engraved silver vase on the pedestal table near the window was offered by Swedish admirers. The chimney piece is flanked by two large bronze sculptures, one presented by the commune of Aubenas and the other by the department of Cantal. The first is decorated with cherubs, their hands full of silk cocoons, around a small microscope, while the second symbolizes Pasteur's work on the anthrax vaccine with a syringe as the centerpiece, surrounded by cows and sheep. One particularly noteworthy item is the Gallé *pâte de verre* vase in shades of brown and red, created using a secret process known only to the famous ceramicist from the Lorraine region *(see opposite)*.

The stuffed ermine was presented by the veterinary surgeon Rossignol, who organized the famous experiment at Pouilly-le-Fort that decisively demonstrated the effectiveness of the anthrax vaccine.

On the walls hang portraits of family members by famous artists: Marie-Louise (Louis Pasteur's daughter) by Henner, Jeanne Boutroux (Louis Pasteur's daughter-in-law) by the same artist, a portrait of Jean-Baptiste (Louis Pasteur's son) by Edelfelt on one easel, and a portrait of Camille Vallery-Radot by Edelfelt on a second easel.

A MAN HONORED IN HIS OWN LIFETIME

The medal cabinet displays the many national honors awarded to Louis Pasteur, including the Grand-Croix of the Légion d'Honneur in 1881 and the Brazilian Imperial Order of the Rose in 1886.

A TRIBUTE ENGRAVED IN GLASS

This vase by the well-known Lorraine artist Émile Gallé was presented to Pasteur by the professors and students at the École Normale Supérieure to mark his jubilee year of 1892. The semi-transparent glass reveals microorganisms and a microscope, evoking the discoveries made by the scholar. This line of verse by Victor Hugo emerges from the glass:

"In contemplation I wander, but always my instinct brings me back / To the basis of human suffering."

RUSSIAN TRIBUTE

The drawing room also underlines the links between Louis Pasteur and Russia. Pasteur's discovery of the rabies vaccine in 1885 brought him international fame. Some Russians who had been bitten by a rabid wolf made the journey from Smolensk, on the other side of the world, to be vaccinated. Not being a doctor, Louis Pasteur could not administer the injections himself, but he personally supervised the vaccination sessions. As a sign of thanks for the care provided, Prince Alexander Petrovich of Oldenburg presented him with a superb malachite vase with gilded bronze mount in 1892.

The study 4

Together with the laboratory, Louis Pasteur's favorite room was his study. Without his love of work and opinionated nature, he could never have become the legendary scholar we know today. Certain details also introduce us to a more sensitive and less well-known side of Louis Pasteur, that of a patriot profoundly devoted to his region and country.

The scholar's desk, with many of his personal possessions displayed under glass.

Louis Pasteur had a particular affection for his study and loved the time he spent there. A collection of everyday objects is displayed on his desk, including a magnifying glass, a box with decorative iron filings, an inkwell, a small precision balance, a Royal Copenhagen vase and a bronze hunting dog. A letter opener decorated with the French flag is another reminder of Louis Pasteur's fervent patriotism.

Louis Pasteur with his grandson, Louis. (photo: Pierre Petit, 1892)

A DEVOTED FAMILY MAN

The life of Louis Pasteur was driven by two unstoppable forces: work and family. As a father severely tested by the death of three daughters, he showered immense affection on his grandchildren Louis (pictured) and Camille.

That devotion is clear from his answers to this modest questionnaire:

- What is your favorite color?
  Pink
- What is your favorite smell?
  Violets
- What are your favorite flowers?
  Roses
- Which animal do you like best?
  Horses
- What is your favorite eye and hair color?
  Brown
- What do you see as the most commendable virtue?
  Honesty
- Which vice do you find most hateful?
  Lying
- What is your favorite way of spending time?
  Thinking of my dear grandchildren
- What do you find most relaxing?
  Spending time with them
- What is your definition of happiness on earth?
  Working for their benefit

Extract from *Mes Confidences*, January 21, 1894, Paris.

Louis Pasteur at his desk, seen through the camera lens of Dornac in 1892.

"SHE WAITS"

Print of Jean-Jacques Henner's famous painting L'Alsacienne.

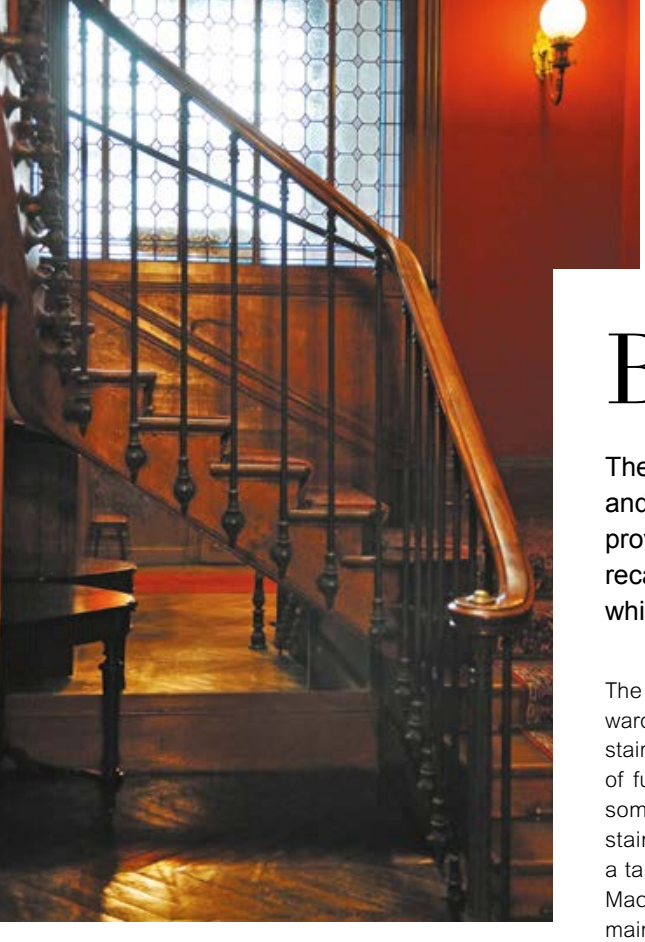
A print of the famous Henner portrait known as *L'Alsacienne* conveys the same spirit of belonging. The legend behind this young woman dressed all in black reads simply: *"She waits."* Louis Pasteur never forgot the distress that followed the defeat of 1870 *(see opposite)*.

The windows are flanked by two large bookcases on which Louis Pasteur kept his books. The top of the cartonnier cabinet displays a plaster bust by Eugène Guillaume of Jean-Baptiste Dumas, one of Louis Pasteur's teachers, of whom Louis Pasteur said: "He is an awakener of souls and exercises an unimaginable level of influence!"

The mantelpiece displays a series of daguerreotypes and photographs of family members, including Louis Pasteur's father.

A Champollion engraving of Louis Pasteur's grandchildren, Camille and Louis, hangs above the cartonnier.

The large Louis XV clock in green tortoiseshell and gilded bronze was bequeathed to Madame Pasteur by her cousin.



The staircase with double handrail leads to the second floor of the apartment.

Between floors

The galleries and staircase connect the rooms on the first and second floors. The prints and photographs on the walls provide a unique insight into the life of Louis Pasteur. Some recall the modest beginnings of the household in Strasbourg, whilst others illustrate the glory days of the great scholar.

The apartment that was made available to Louis Pasteur from 1888 onwards comprises ten rooms and two galleries connected by a straight-run staircase. When Louis Pasteur first moved in, he brought a large amount of furniture and several objects with him from the Rue d'Ulm. The handsome first floor gallery is hung with scarlet fabric and illuminated by a stained glass window. In addition to a wooden chest embellished with a tapestry, the gallery also contains a chest of drawers purchased by Madame Pasteur the day after the jubilee ceremony in 1892. It was used mainly to store speeches, degrees and diplomas. On the wall hangs the famous photograph of the Russians who came all the way from Smolensk to be vaccinated *(see page 13)*.

The staircase leading to the second floor is distinctive for its double handrail. It was designed to enable Louis Pasteur to move between floors easily despite being impeded by a degree of paralysis following his stroke.

In the upstairs gallery hangs a reproduction of the famous Rixens painting depicting Louis Pasteur on the arm of French President Sadi Carnot at the celebration of his jubilee – a clear indication of the level of fame Pasteur had acquired at this point in his life.

A FAMILY DONATION LAYS THE FOUNDATION FOR THE MUSEUM

In the 1930s, Professor Louis Pasteur Vallery-Radot, grandson of the eminent scholar, was keen to perpetuate the spirit of the family home by recreating the apartment with its original layout. He donated all his grandparents' furniture and objects to the Institut Pasteur.

Louis Pasteur's jubilee at the Sorbonne on December 27, 1892. (after the painting by Jean-André Rixens)

The private world of the Pasteur family

Visiting these private apartments gives visitors an authentic glimpse into what was a peaceful family life in which mementos played an important role. It is rare to have such close access to the everyday life of a celebrity living in late 19th-century Paris.

The modest, intimate objects speak of the family's provincial roots. Photographs and paintings coexist, as was typical for the end of the century, in an unostentatious middle-class eclecticism that reveals traditional values and habits.

The decor gives the impression of time standing still.

Louis Pasteur's bedroom 5

Louis Pasteur's bedroom adjoins that of his wife and tells us about both the private life of the great scholar and his talents as an artist. It faithfully recreates his private space and once again emphasizes Louis Pasteur's attachment to his roots and family.

PORTRAIT OF CÉCILE

Auguste Leloir (c. 1865)
Cécile Pasteur died from typhoid at the age of thirteen.

The bedroom walls prominently display the portraits he produced of his parents when he was young. Of Louis Pasteur's many talents, the first to emerge was a gift for art, and he particularly loved drawing. Encouragement came from Monsieur Pointurier, his drawing tutor, who recognized in him an astonishing artistic gift linked to his keen abilities of observation.

Between 1836 and 1842, Louis Pasteur drew around forty portraits, almost all of them in pastels. His mother was his first model. In his teenage years he showed a rare gift, bringing to his art an extraordinary eye for accuracy and his characteristic dedication. Later, his talents as an observer would be applied with equal precision in the pursuit of scientific discovery.

The bedroom also contains a portrait of his daughter Cécile that he commissioned from Auguste Leloir. Rumor has it that during the portrait sittings, Louis Pasteur took notes in an attempt to discover the secrets of the painter's technique.

JEAN-JOSEPH AND JEANNE-ETIENNETTE PASTEUR, THE PARENTS OF LOUIS PASTEUR

Pastels by Louis Pasteur, 1842 and 1836.

"He wanted to depict his mother as she was every day when she set out to market wearing a white bonnet with her shoulders covered by a blue and green tartan shawl. Her clear, straight gaze illuminates her face."

René Vallery-Radot

Madame Pasteur's bedroom 6

In this rather austere bedroom, nothing has moved and time seems to stand still. Family keepsakes are everywhere, with several photographs displayed on the mantelpiece and hung on the walls. This is the personal world of a woman of real spirit who, despite living in the shadow of her husband, played a driving role in his success.

Family photos on the mantelpiece: Marie Pasteur, Louis Pasteur and, in the small frame, Madame Pasteur's mother.

Madame Pasteur's bedroom is another treasure of the museum. Entering this room is a moving experience, because the simple and very personal items on display create the distinct impression that the bedroom is still in use. On the wall hangs a print of Sainte-Madeleine Church in Strasbourg, where the couple were married in 1849. There is also the very last photograph ever taken of Louis Pasteur, seated in his armchair in the grounds of the Institut Pasteur.

Marie Pasteur, née Marie Laurent, the daughter of the Director of Education for Strasbourg, was an assertive, devout woman. Guided by a strong moral compass, she occupied an essential place in the life of the great scholar, one that was little known to the public.

Louis and Marie Pasteur supported each other through the family dramas they experienced together. They had five children: Cécile, Camille and Jeanne, all of whom died prematurely; Jean-Baptiste, who had no children himself; and Marie-Louise, who married René Vallery-Radot. Marie-Louise and René gave the Pasteurs three grandchildren: Camille, Marie-Madeleine (who died aged one month) and Louis, none of whom had children themselves.

Opposite: small everyday objects, each an intact and treasured memory of the past.

Madame Pasteur did not have time to finish her crochet work, which remains incomplete in her work basket.

THREE OF LOUIS AND MARIE PASTEUR'S FIVE CHILDREN

Marie-Louise (1858-1934),
Cécile (1853-1866)
and Jean-Baptiste (1851-1908).

JEAN-BAPTISTE PASTEUR

Louis and Marie Pasteur's son became a diplomat.
Photo taken c. 1890.

Madame Pasteur's bedroom (cont.)

Madame Pasteur was an invaluable source of discreet, unwavering support for her husband, and she made no effort to hide her pride in his fame. She made sure he was undisturbed when working, stopped him from being bothered and transcribed his notes and letters when illness overwhelmed him.

Her husband's research always came first, and she was tireless in her support for his work. This was not always easy, but was nevertheless rewarded by the admiration she always had for Louis Pasteur, even at the most testing of times.

She often acted as his secretary. Émile Roux even said that "she is the best colleague Louis Pasteur has." She took dictation from him and kept his press cuttings. After the death of her husband, she paid scrupulous attention to safeguarding his image and memory. The care she lavished on preserving the souvenirs, property and work of Louis Pasteur made a major contribution to the knowledge we have of him today.

Louis Pasteur recognized her contribution and demonstrated his affection for her with a solemn declaration in his will.

Louis Pasteur and his wife in 1889. (photo: Lejeune)

"This is my last will and testament. I bequeath to my wife everything the law allows. May my children never stray from the path of duty and show their mother all the tenderness she deserves."

Paris, March 29, 1877

With a bathtub, hot and cold water and a heated towel cabinet, the bathroom boasted a level of comfort rarely seen at this time.

The bathroom contains many beautiful pieces of porcelain and Gien Moustier china in the Bérain pattern.

The bathroom 7

Like the rest of the apartment, this is one of very few examples of 19th-century bathrooms conserved in their original state. Its modernity may surprise many. The room also provides clear, practical proof of the rigorous approach to hygiene taken by Louis Pasteur.

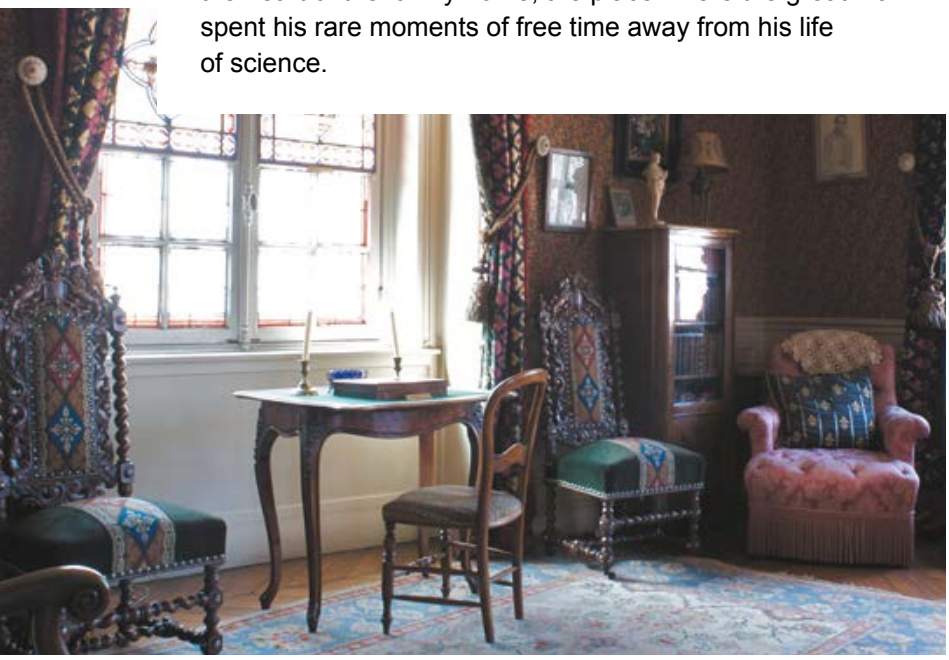
The small blue-gray painted bathroom boasts a handsome parquet floor, marble sink and zinc bathtub.

The overall impression is one of ingenuity and contemporary style. A short heating pipe leads to the wall-mounted towel cabinet, a clever precursor to the heated towel rail. The wash basin and bathtub both have hot and cold taps – a clear sign of comfort and luxury at a time when rooms dedicated to personal hygiene had yet to become commonplace. On the left-hand side, a glazed cabinet contains the cape and personal effects of Louis Pasteur, his University of Strasbourg professorial gown and the *Habit Vert* official costume worn at his induction into the French Academy.

The cleanliness of the room perfectly illustrates Louis Pasteur's obsession with hygiene. The scholar lost no opportunity to drive home the fundamental importance of hand washing. The fact that this simple gesture is a reflex in hospitals and homes today is thanks to all the efforts he made to have this simple principle adopted in his own era. Louis Pasteur was the first scientist to prove that humans are also capable of passing on infectious germs. He focused his attention on human and veterinary pathology at the Academy of Medicine after the Franco-Prussian War of 1870. After hearing his case, many physicians and surgeons changed their views and habits.

The living room 8

The living room introduces us to the surroundings in which Louis Pasteur met with friends, relaxed and read. It was the heart of the family home, the place where the great man spent his rare moments of free time away from his life of science.



FAMILY AND WORK

The stained glass windows in the living room are by Gaspard Gsell. On the right is the Pasteurs' daughter Marie-Louise *(photo)*, and on the left an allegory of chemistry. The window therefore represents the two driving forces of Louis Pasteur's life: his family and his work.

LOUIS PASTEUR AND HIS FRIEND BERTIN

The two friends would meet each other to play Écarté on Rue d'Ulm. Bertin (real name Augustin Bertin-Mouret de Villers-le-Lac) was a man with a keen sense of humor and one of the few friends with whom Louis Pasteur could totally relax.

The original stained glass windows above the small card table originally came from the vaccination room at the École Normale Supérieure on Rue d'Ulm, the previous home of Louis Pasteur.

The carved elephant tusk was given by Alexandre Yersin, one of the first members of the Institute and founder of the Institut Pasteur in Nha Trang, Vietnam. The embroidered fabric that covers the mantelpiece was a gift from Albert Calmette, founder of the Institut Pasteur in Saigon, who worked with Camille Guérin to develop the BCG tuberculosis vaccine.

One of the most striking pieces in the living room is the Louis XVI writing desk that had previously belonged to Madame Pasteur's mother. Another item of furniture, a bread safe in carved walnut from Provence, is a reminder of the time when Louis Pasteur worked on diseases affecting silkworms in the south of France. There are also two Napoleon III chairs in the neo-Gothic style. The strips of tapestry (blue and red diamonds in a floral style) are the work of Estèle Vichot, Louis Pasteur's niece born in 1850. The Gothic-style letter P carved at the top of one chair back identifies it as that of Louis Pasteur. Above one of these chairs hangs a small understated pastoral painting depicting a spray of flowers.

The Voltaire-style Napoleon III armchair where Madame Pasteur sat remains in precisely her favorite position.

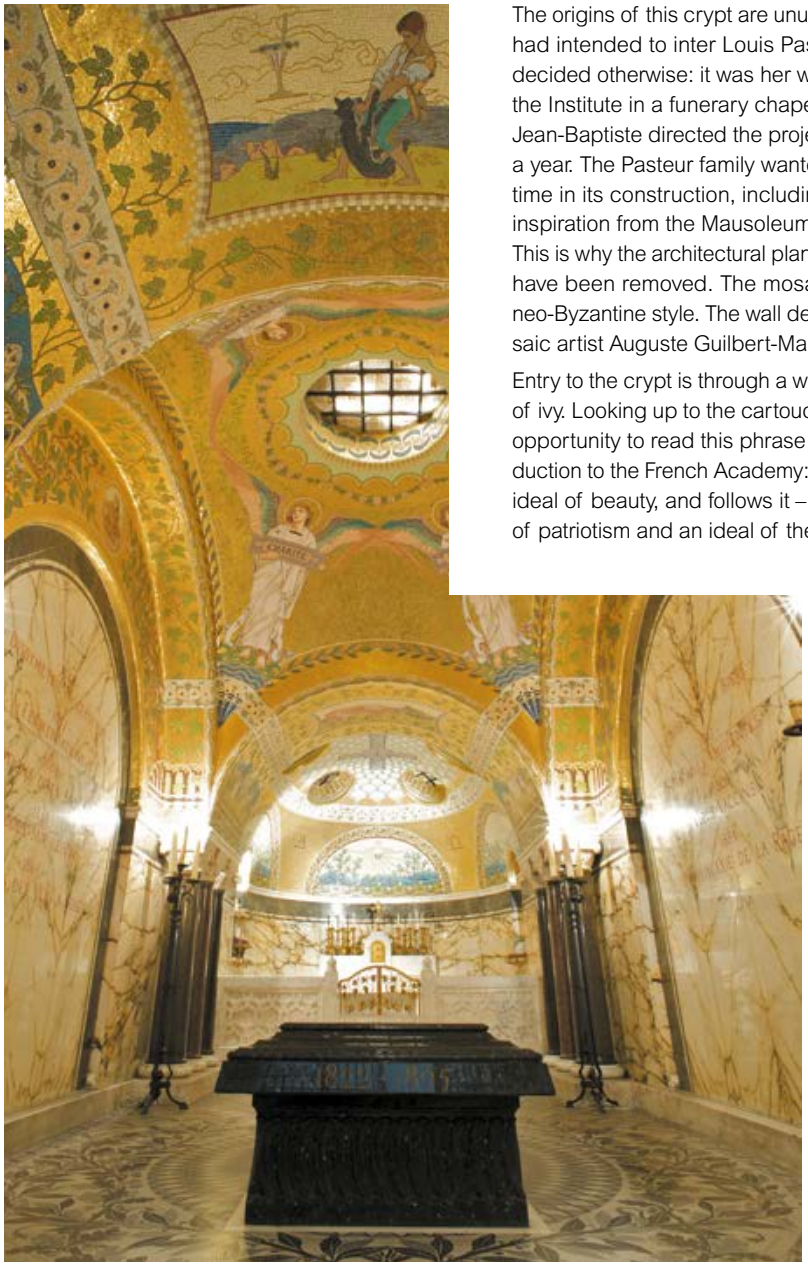
Here lies Pasteur 10

The idea of a funerary chapel in a Parisian building with Louis XIII-style façades may seem surprising. Nevertheless, at the request of his wife, it is here that Louis Pasteur lies, in this crypt designed by Charles-Louis Girault.

The passing of Louis Pasteur was marked by a state funeral, but Marie Pasteur refused to have her husband interred in the Panthéon, so an underground chapel was built in the Institute itself. Perfectly representative of the symbolist period, the chapel is well worth a visit, for many reasons. The magnificent polychrome mosaics illustrate the most important aspects of Louis Pasteur's work. More important still, this contemplative space introduces visitors to the spiritual dimension of the great scholar's life in which science became a virtue on an equal footing with faith, hope and charity.

The origins of this crypt are unusual, to say the least. The French government had intended to inter Louis Pasteur in the Panthéon. But Madame Pasteur decided otherwise: it was her wish that her husband should rest in peace at the Institute in a funerary chapel built specifically for the purpose. Their son Jean-Baptiste directed the project, and the crypt was completed in just over a year. The Pasteur family wanted to involve the great creative names of the time in its construction, including architect Charles-Louis Girault, who took inspiration from the Mausoleum of Galla Placidia in Ravenna, northern Italy. This is why the architectural plan shows a Latin cross from which the transepts have been removed. The mosaics of the cupola are in an early Christian, neo-Byzantine style. The wall decorations reflect the combined talents of mosaic artist Auguste Guilbert-Martin and painter Luc-Olivier Merson.

Entry to the crypt is through a wrought iron gateway decorated with branches of ivy. Looking up to the cartouche in the center of the arch gives visitors the opportunity to read this phrase taken from Louis Pasteur's speech on his induction to the French Academy: "Happy is he who bears within him a god, an ideal of beauty, and follows it – an ideal of art, an ideal of science, an ideal of patriotism and an ideal of the Christian virtues."



THE CRYPT

The center of the floor is dominated by the tomb of Louis Pasteur, made from Swedish granite.

PASTEUR'S SCIENTIFIC ACHIEVEMENTS IN MOSAICS

From top to bottom: Jupille fights off a rabid dog, rabies research and cholera in chickens.

STATE FUNERAL

The state funeral was held on October 5, 1895 in the Cathedral of Notre-Dame de Paris. In front of the black-draped cathedral, a final tribute was paid to the great scholar at a ceremony attended by French President Félix Faure. Huge crowds gathered to bid a last farewell to Louis Pasteur.

The epitaph is framed by palm and poppy branches symbolizing glory, sleep and death. The gilded mosaic represents the sky, and the gray and black floor the earth. The polychrome mosaics that cover all the arches in the chapel illustrate Pasteur's major achievements. The ceiling of the first arch, showing the young shepherd boy Jean-Baptiste Jupille, depicts Louis Pasteur's work to tackle rabies. The left side portrays his work on silkworm diseases. Opposite, the vine and bunches of grapes refer to the pasteurization of wine.

The walls of the truncated transept are clad in panels of marble on which the great achievements of Pasteur have been carved in chronological order.

Sculpted from dark green Swedish granite, the tomb of Louis Pasteur occupies the center of the crypt. On either side of the tomb, columns of red and green porphyry support capitals in Carrara marble.

Above the white marble altar, a rustic landscape is illuminated by shafts of light emanating from a dove symbolizing the Holy Spirit. This landscape is flanked by the symbols for Alpha and Omega: the beginning and end of all things.

Towards the back of the chapel, there is an altar beneath which lies Madame Pasteur. In the niche to the left is the death mask of Louis Pasteur, and facing it on the right that of Émile Roux, his disciple who would become Director of the Institut Pasteur for 30 years and is buried in the grounds.

Louis Pasteur's final resting place is a magnificent illustration of the unique position occupied in France's collective memory by the illustrious scholar, a legendary scientist who embodied the very spirit of progress.

DETAIL OF A MOSAIC

Louis Pasteur's son Jean-Baptiste Pasteur was directly inspired by the mosaics in the church of Ravenna in Italy.

The science collections room ⑨

To most people today, the name of Louis Pasteur brings to mind the rabies vaccine. But his work extends far beyond that discovery.

Louis Pasteur was originally a pioneer in the field of crystallography. His early research focused on molecular dissymmetry. He then turned to the process of fermentation and demonstrated that germs could spread through the air. This was the bridge that took Louis Pasteur from chemistry to biology and laid the foundations for modern microbiology. His name is also forever associated with the process that revolutionized the food industry: pasteurization.

And by proving the microbial theory of disease, he revolutionized both medical and surgical practice. Thanks to Louis Pasteur, asepsis and antisepsis became an obvious necessity.

TRIPLE FOLDING POCKET MAGNIFIER

The magnifier used by Louis Pasteur at the start of his work on crystallography in around 1848.

Crystallography: mysterious acids

Louis Pasteur was twenty-four years old when he turned his attention to the problem posed by the German physicist Eilhard Mitscherlich. Why should two apparently identical chemicals (sodium-ammonium tartrate and sodium-ammonium paratartrate) have different effects on polarized light?

He observed that on one of its edges, the tartrate crystal had a miniscule facet that always sloped in the same direction, whilst for the paratartrate, the same facet was sometimes angled to the right and sometimes to the left. He then separated the two types of crystal, made a solution of each type and discovered that depending on whether the facet was angled to the right or the left, the polarized light was deflected either right or left.

Lastly, he noted that a mixture made up of equal parts of the two paratartrate solutions had no effect on the polarized light. So it was demonstrated that two chemicals which seemed identical could indeed have different molecular structures. This discovery of dissymmetry proved to be the basis for stereochemistry. Dissymmetry is what separates the organic world from the mineral world.

Louis Pasteur then observed that a solution of paratartrate, which has no effect on polarized light, becomes active following fermentation, thereby proving – contrary to what chemists believed at the time – that fermentation is the work of a living organism.

PARATARTRATE CRYSTALS

It was by examining these crystals that Louis Pasteur discovered the concept of molecular dissymmetry.

LOUIS PASTEUR'S LABORATORY NOTES ON BUTYRIC FERMENTATION (FRAGMENT).

February 12, 1861.

Work on fermentation

In 1854, aged thirty-two, Louis Pasteur was appointed Dean of the Faculty of Science at the University of Lille. Lille and its surrounding region were home to many distilleries. Concerned over inconsistencies in the production of alcohol from sugar beet, the region's distillers asked Louis Pasteur to work on the processes of lactic and alcoholic fermentation. Louis Pasteur observed that alcoholic fermentation is brought about by a living organism – the fermenting agent – and that defective fermentation results in the appearance of the small rod-shaped organisms that produce lactic acid. He also observed that in order to study fermentation, it was first necessary to:

– prepare a sterile fermentable medium by boiling,

– seed this medium with a trace of pure fermenting agent.

This is the very foundation of all microbiological techniques.

Pasteur was then able to demonstrate that every wine disease was specific to a different fermenting agent. He developed a protocol to prevent the development of these diseases: the wine must be heated to between 55°C and 60°C. At this temperature, it becomes stable and retains its bouquet. This method is now known around the world as pasteurization.

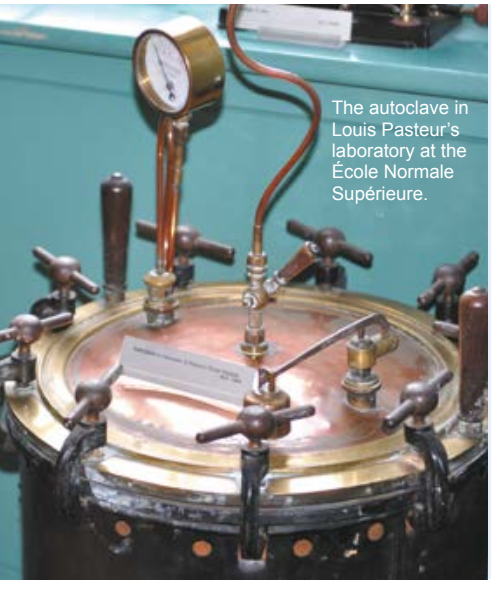
Whilst studying fermentation, Louis Pasteur noticed that some microorganisms thrived in the absence of air (anaerobic), whereas others thrived in the presence of air (aerobic).

The great debate over spontaneous generation

One of the great scientific questions of the age concerned the origin of fermenting agents. The theory of spontaneous generation was deeply rooted in the scientific world. Louis Pasteur set out to address the question, relying entirely on the experimental method.

He showed that dust in the air contains microorganisms that grow and multiply. He also demonstrated that even those liquids most likely to deteriorate would remain unaltered if they were kept airtight after heating. To achieve this, he used swan neck flasks, bringing the infusion to the boil for several minutes until all the water vapor had exited via the neck, and then allowing it to cool. During the cooling period, dust and germs in the incoming air were trapped in the first curve of the neck. Although the liquid remained in contact with the external air, it was unaltered because the germs had not been able to penetrate.

This (400x) Nachet microscope was used by Louis Pasteur in around 1860 for his work on fermentation and spontaneous generation.



The autoclave in Louis Pasteur's laboratory at the École Normale Supérieure.

Hygiene: Louis Pasteur declares war on germs

It was Louis Pasteur who first recommended the use of asepsis, the technique which paved the way for the rapid development of modern surgery. He recommended sterilizing cloths, "flaming" to sterilize scientific instruments, and washing hands.

In 1865, a silkworm disease ravaged the French silk industry, and Napoleon III set Louis Pasteur the task of solving the problem. Louis Pasteur discovered that there were two diseases caused by two different microorganisms.

He decided to separate out the female butterflies to allow them to lay eggs separately. He then killed the females to examine them under the microscope. If they were infected with the microorganisms, he destroyed the eggs; if not, he allowed them to develop.

These years of research were a prelude to the work that Louis Pasteur longed to conduct on a phenomenon that to him seemed perfectly obvious: the role played by microorganisms in the emergence and development of disease in humans and animals.

Louis Pasteur invents vaccination using a weak form of pathogenic germs

In 1796, the British physician Edward Jenner inoculated a young child with pus taken from a young woman accidentally infected with cowpox. A few months later, he was able to demonstrate the effectiveness of this primitive vaccine in protecting the boy against the smallpox virus. Edward Jenner would then go on to "vaccinate" several children.

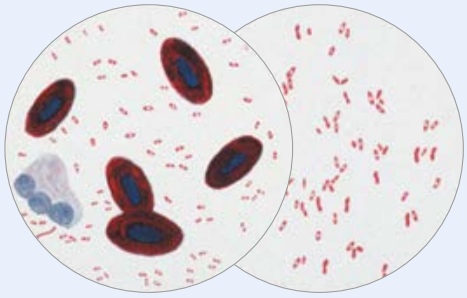
In the 1880s, Louis Pasteur and his colleagues observed that when cultured for several weeks or exposed to adverse conditions, the bacteria that caused cholera in hens changed in ways that reduced their virulence. Animals that were then inoculated with these bacteria did not go on to develop the disease, and, better still, were protected against any subsequent infection by the more virulent infectious agent. Louis Pasteur had discovered vaccination using a weak form of pathogenic germs. He then applied this principle to other animal diseases (anthrax in sheep and erysipelas in pigs) before famously applying it to rabies. Louis Pasteur managed to weaken the agent responsible for rabies without actually having identified it. His was the first vaccine against this disease, and was administered for the first time to a boy called Joseph Meister in 1885. We all know the result: "The child is saved."

It was not long before a host of people with animal bites began arriving at the École Normale Supérieure from all over France and even abroad.

Extract of rabbit spinal cord.

JOSEPH MEISTER

1885.



The fowl cholera bacillus *(Atlas de microbiologie Macé (detail), 1898).*

Microscopic preparations in the blood of infected chickens *(left circle)* and in pure culture *(right circle).*

Anthrax vaccines.

The Jura, home of the Pasteur family

The house in Dole where Louis Pasteur was born was turned into a museum in 1923. The house in Arbois, the only one owned by the scientist, was bequeathed to the French Academy of Sciences in 1991 and painstakingly restored. Since 2013, both houses have been managed by the cultural association *Terre de Louis Pasteur*, and the story of Louis Pasteur's years in the Jura is explored through a series of fascinating scientific and artistic exhibits.

LOUIS PASTEUR'S BIRTHPLACE IN DOLE

On the banks of the Canal des Tanneurs, the house where France's most famous scientist was born in 1822 marked the first chapter in what was to be an amazing life story. Through a collection of personal documents and stunning pastels, the birthplace museum shows how Louis Pasteur, the son of a tanner who spent his childhood in Dole, became an outstanding, world-famous scientist. Louis Pasteur retained a strong connection to his roots in the Jura, as demonstrated in the speech that he gave in 1833 for the inauguration of the commemorative plaque on the house where he was born: "Oh! my father and my mother! Oh! my dear departed ones, who lived so modestly in this little house, I owe everything to you!"

Louis Pasteur's birthplace – 43 rue Louis Pasteur, 39100 Dole, France

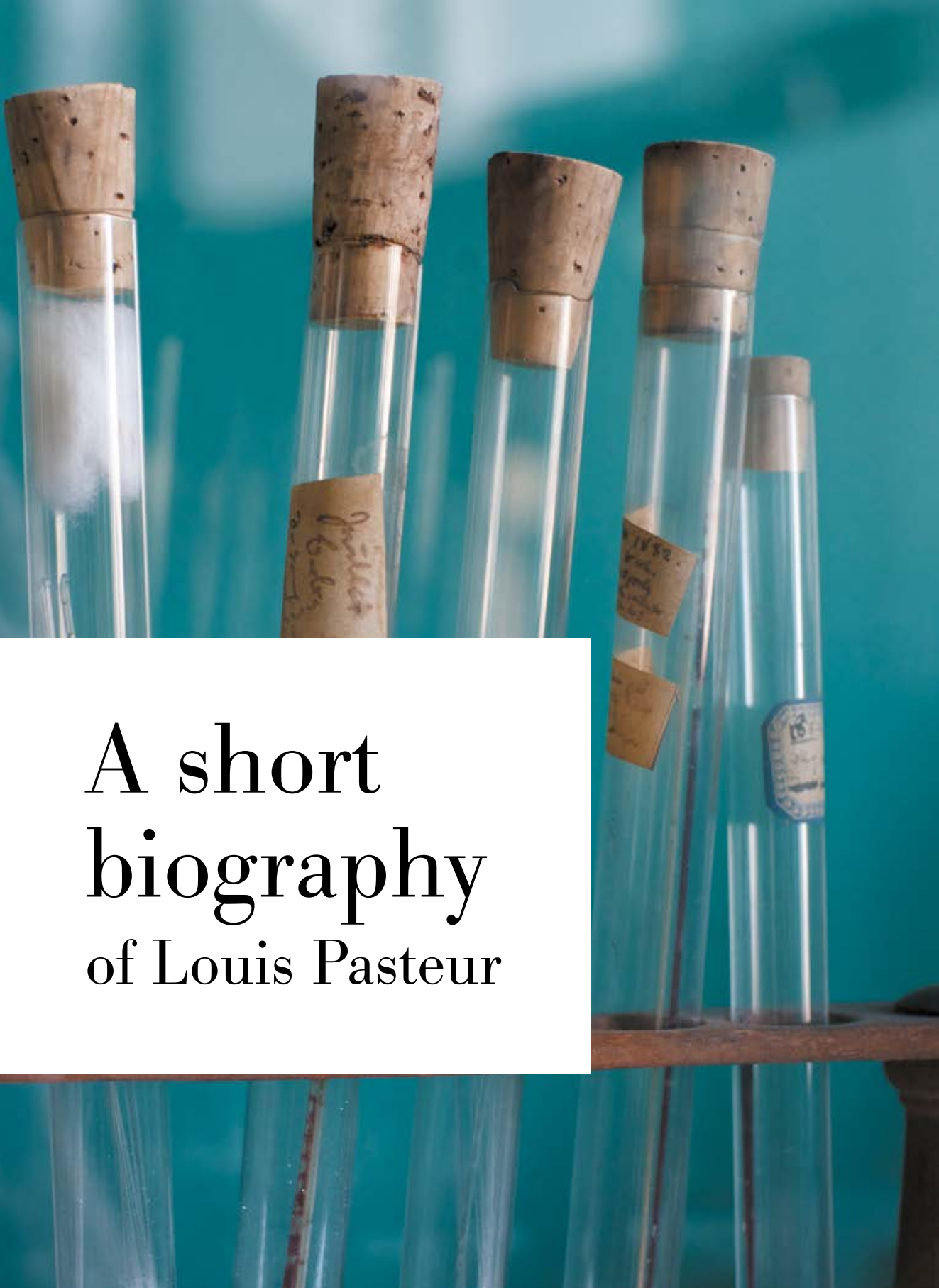
LOUIS PASTEUR'S HOUSE AND LABORATORY IN ARBOIS

Louis Pasteur moved to this house when he was 8 years old, and he went back to visit every year throughout his lifetime. It was a peaceful place where he enjoyed spending time with his family and friends. The house has been preserved in its original state, including the scientist's private laboratory. Flasks, test tubes and microscopes speak of the research he carried out in the Jura. It was in Arbois that Louis Pasteur worked on fermentation and developed the famous process known as pasteurization. With the experiments he carried out in his vineyard near Montigny-les-Arsures, he refuted the theory of spontaneous generation of microorganisms once and for all.

Louis Pasteur's family home – 83 rue de Courcelles, 39600 Arbois, France

Jura
TERRE DE
LOUIS PASTEUR
DOLE / ARBOIS

www.terredelouispasteur.fr



A short biography of Louis Pasteur

“The ability to be surprised is the first step on the

Louis Pasteur c. 1843.

Soleil’s saccharimeter. This instrument was used by Louis Pasteur during his work on crystallography in 1848.

1822

Louis Pasteur is born in Dole, in the Jura, France, on December 27.

1827

His family moves to Arbois.

Louis Pasteur always retained a connection to the Franche-Comté region, and returned there regularly.

1839

After a brief period in Paris, Louis Pasteur completes his secondary education at the Collège Royal de Besançon.

Obtains a *Bachelier ès lettres* (high school certificate specializing in literature) in 1840.

Obtains a *Bachelier ès sciences mathématiques* (high school certificate specializing in mathematics) in 1842.

1843

Admitted to the École Normale Supérieure (ENS) after coming fourth in the entrance exam.

Studies under J.-B. Dumas at the Sorbonne.

1847

Submits theses in chemistry and physics.

Awarded a PhD in Science.

1849

Appointed Professor of Chemistry in the Faculty of Science at the University of Strasbourg.

Marries Marie Laurent, daughter of the Director of Education for Strasbourg.

1850

Birth of daughter Jeanne (who dies in 1859).

1851

Birth of son Jean-Baptiste.

1853

Birth of daughter Cécile (who dies in 1866).

Awarded the Paris Pharmaceutical Society prize for the synthesis of racemic acid.

Appointed Chevalier of the Légion d’Honneur.

1854

Appointed Dean and Professor in the Faculty of Science at the University of Lille.

1857

Receives the Royal Society Rumford Medal for his work on crystallography.

Appointed as Administrative Head & Director of Scientific Studies at the ENS.

1858

Birth of daughter Marie-Louise.

1859

Awarded the Experimental Physiology Prize from the French Academy of Sciences for his work on fermentation.

1861

Awarded the Jecker Prize from the Academy of Sciences for his research into fermentation.

road to discovery"

Madame Pasteur and her daughter Camille in 1864.

The historical building of the Institut Pasteur is also home to the Pasteur Museum.

The cupola above the crypt depicts the four virtues: Faith, Hope, Charity and Science.

1862

Elected to the Academy of Sciences (mineralogy section).

Awarded the Alhumbert Prize for his research into spontaneous generation.

1863

Napoleon III asks Pasteur to study the contamination of wine.

Appointed Professor of Geology, Physics and Chemistry at the École des Beaux-Arts.

Birth of daughter Camille (who dies in 1865).

1867

Awarded the Grand Prix at the 1867 Paris World Fair for his method of heating wines to improve their keeping qualities.

Appointed to the Chair of Chemistry at the Sorbonne.

Resigns from his administrative duties at the ENS.

1868

A stroke leaves him paralyzed on one side.

Appointed Commandeur of the Légion d'Honneur.

1873

Elected to the French Academy of Medicine.

1878

Appointed Grand Officier of the Légion d'Honneur.

1879

Daughter Marie-Louise marries René Vallery-Radot.

1882

Elected to the French Academy. Inducted into the Academy by Ernest Renan.

Speaks at the International Congress of Hygiene in Geneva on the production of weak forms of viruses.

1886

International appeal for funds to set up the Institut Pasteur.

1888

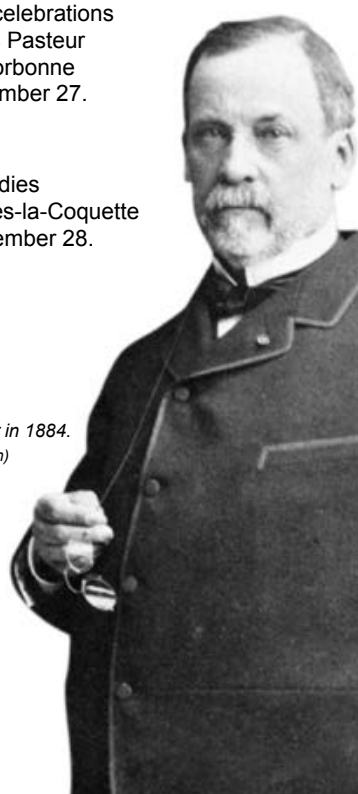
Official opening of the Institut Pasteur on November 14.

1892

Jubilee celebrations for Louis Pasteur at the Sorbonne on December 27.

1895

Pasteur dies at Marnes-la-Coquette on September 28.



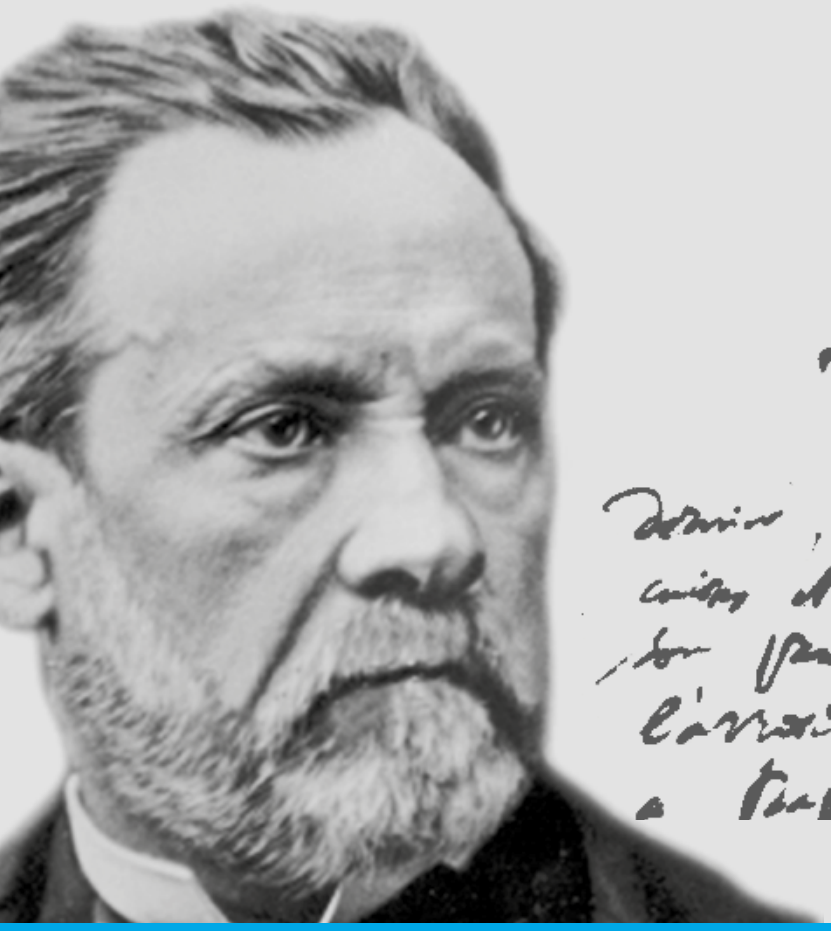
Louis Pasteur in 1884.
(photo: Petersen)

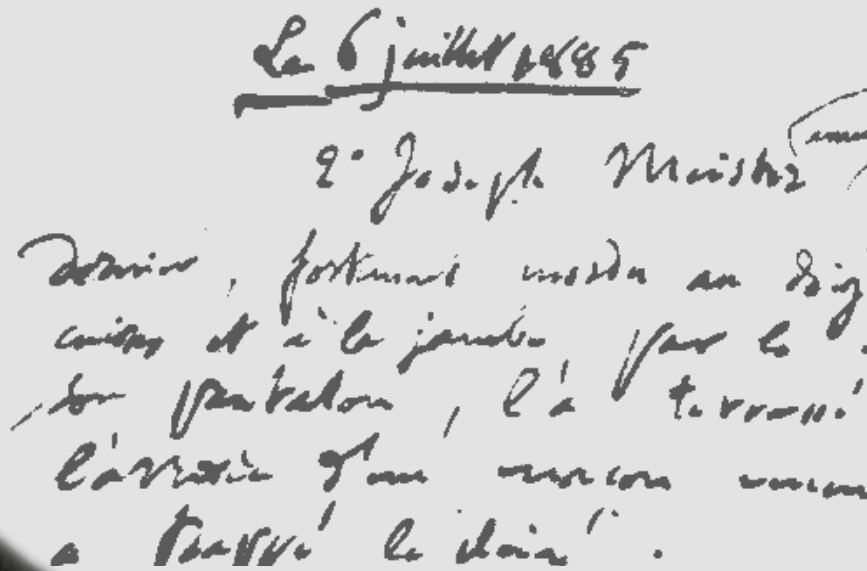
Design and production: BRIEF

Words: Institut Pasteur / BRIEF

Photo credits: Institut Pasteur *(covers, fold-outs, 1, 2, 3, 4, 5, 8, 10, 12, 13, 14, 15, 16, 18, 19, 21, 22, 24, 27, 29, 30, 31)* • Olivier Panier des Touches/Dolce Vita *(covers, fold-outs, 7, 8, 9, 10, 12, 13, 14, 18, 22, 23, 24, 26, 28)* • Agnès Rastoin *(fold-outs, 6, 7, 8, 10, 11, 13, 15, 16, 17, 19, 20, 21, 23, 25, 26, 27, 28, 29, 30, 31)* • François Gardy *(page 6)* • All rights reserved.

Thanks to: Louis Pasteur's birthplace in Dole and Louis Pasteur's house in Arbois. Hervé Di Rosa, Galerie Keza.





Pasteur Museum
25 rue du Docteur Roux - 75015 Paris - France

www.pasteur.fr

INSTITUT PASTEUR

MAISONS DES ILLUSTRES — MINISTÈRE DE LA CULTURE

ISBN 978-2-901320-37-1

9 782901 320371

€10