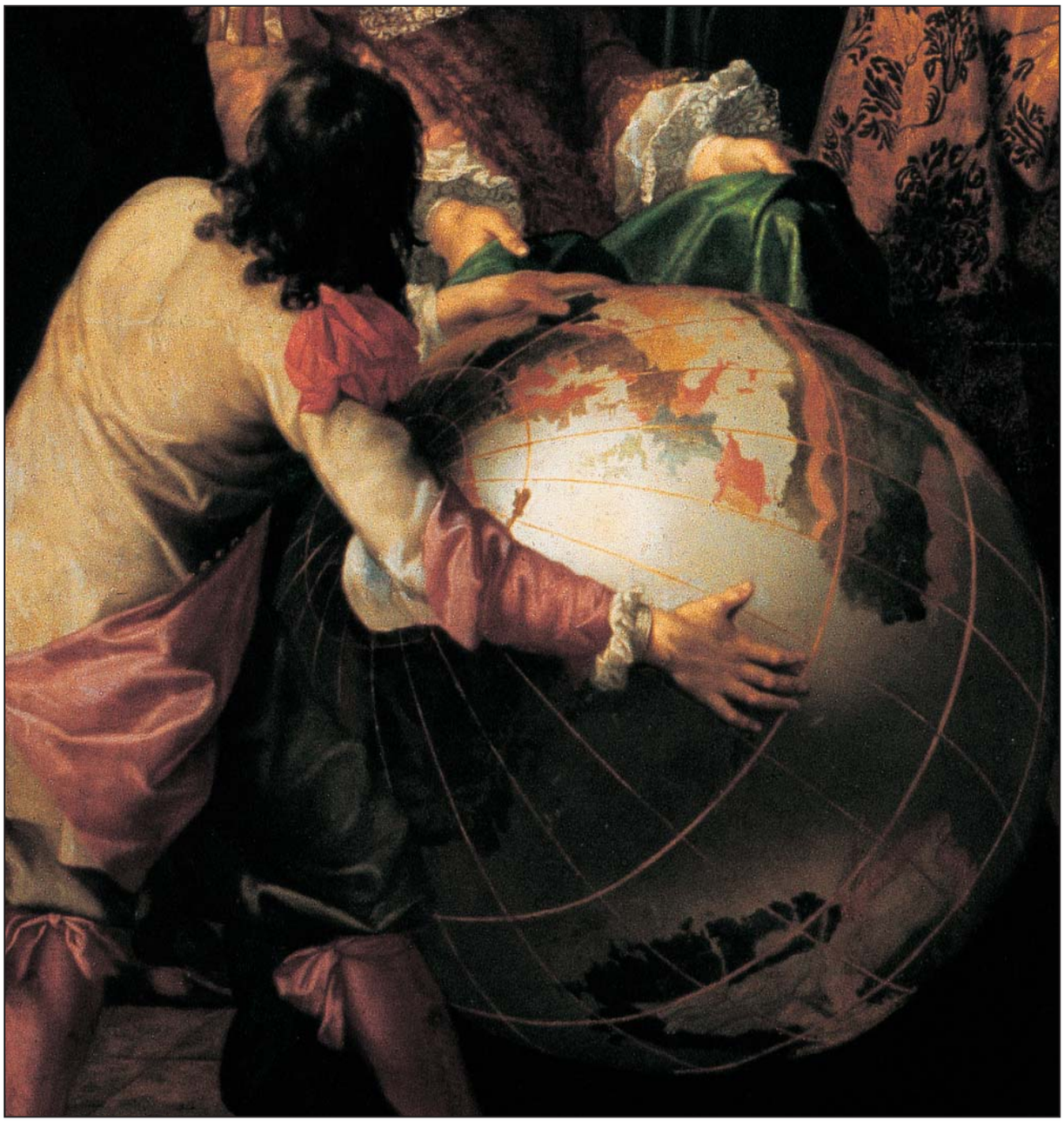
SCIENCE AND CURIOSITIES AT THE COURT OF VERSAILLES

26 OCTOBER 2010 - 27 FEBRUARY 2011



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PRESS RELEASE

SCIENCES AND CURIOSITIES AT THE COURT OF VERSAILLES

North Wing of the Château de Versailles, Africa and Crimea rooms
From 26 October 2010 to 27 February 2011

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EXHIBITION CURATORSHIP

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Béatrix Saule,
Director General of the Public Establishment of the Museum and National Estate of Versailles.

Curator
Catherine Arminjon,
General Heritage Curator.

STAGING-DESIGN

Frédéric Beauclair

THIS IS AN EXHIBITION THAT WILL REVEAL A NEW IMAGE OF VERSAILLES, AN UNEXPECTED FACET: IT WAS A PLACE WHERE THE PRESENCE OF THE SCIENCES WAS MANIFESTED IN THE MOST VARIED FORMS. THE EXHIBITION FEATURES WORKS AND INSTRUMENTS FROM THE OLD ROYAL COLLECTIONS, SPECTACULAR ACHIEVEMENTS OF BEAUTY AND INTELLIGENCE, THAT WILL BE BROUGHT TOGETHER FOR THE FIRST TIME IN AN ORIGINAL AND INNOVATIVE STAGING-DESIGN: VERSAILLES, ALWAYS AT THE CUTTING EDGE OF TECHNOLOGY!

THE SCIENCES WERE UNDER THE TUTELAGE OF VERSAILLES. Under the impetus of Colbert, the royal power became aware of the stakes involved in scientific research. The founding of the Académie des Sciences established a new contract between the power and the scientific community whose work had to serve the good of the kingdom. The Observatoire, financed by the royal treasury, gave decisive momentum to the resolution of the question of longitudes which engrossed researchers throughout the 18th century, and whose strategic importance was then comparable to that of our modern research on the atom: a manifestation among so many others in the most diverse fields of the emergence of a genuine scientific policy.

VERSAILLES, A PLACE OF EXCHANGES BETWEEN SCIENTISTS... Many scientists, including the most renowned, frequented the court for extended periods as tutors to the princes, health officers and engineers of the army and navy, etc. Diderot and d'Alembert met in the mezzanine of doctor Quesnay, Madame de Pompadour's personal physician. In the king's presence, the Abbé Nollet and Benjamin Franklin confronted their theories. And some courtiers became real experts in their field.

A PLACE FOR EXPERIMENTATION IN SCIENCES AND TECHNIQUES AND THEIR APPLICATIONS... The huge scope of the "Versailles" project raised new scientific, technical and sanitary questions: members of the Académie were consulted. In return, Versailles offered resources for research: the Menagerie and its rare animals were at the disposal of anatomists, the Trianon estate was available to botanists, zoologists and agronomists, while the Grandes Écuries (stables) saw the emergence of farriery, the prelude to veterinary science...

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A PLACE OF TEACHING AND PRACTICAL LEARNING... New teaching methods were devised for the princes, using tools derived from the latest research. The same applied to the personal practices of the kings. Although Louis XIV saw himself as a protector of the sciences, as he was of the arts, without practising them, in contrast, his successors, both Louis XV and Louis XVI, were true connoisseurs; and the instruments and scientific books in their collections are recognised as masterpieces of art and science.

A PLACE OF DEMONSTRATION. A presentation made to the king or a demonstration before the court, a supreme consecration that was the equivalent of a Nobel prize, offered scientists the opportunity of obtaining grants for pursuing research work or finding commercial outlets for their inventions. The flight of the first Montgolfier balloon is well known, but many others have been forgotten, such as the experiment with the "miroir ardent" (burning mirror) before Louis XIV or, in the following reign, the electricity experiment in the Hall of Mirrors.

THE EXHIBITION HAS BENEFITTED FROM THE EXPERTISE OF THE MOST OUTSTANDING HISTORIANS OF THE SCIENCES, CLOSE COLLABORATION WITH PRESTIGIOUS SCIENTIFIC AND ART HERITAGE INSTITUTIONS THAT ARE THE HEIRS TO THE ROYAL FOUNDATIONS, TRULY EXCEPTIONAL LOANS, AND STAGING-DESIGN THAT PROPOSES EVOCATION, RECONSTRUCTION AND IMMERSION TOOLS FOR VISITORS.

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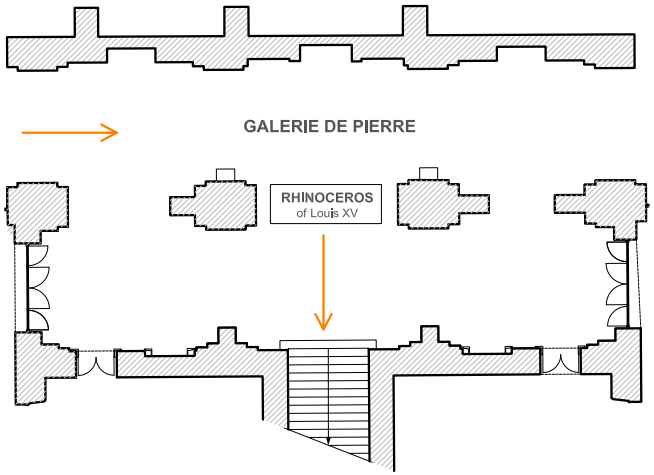
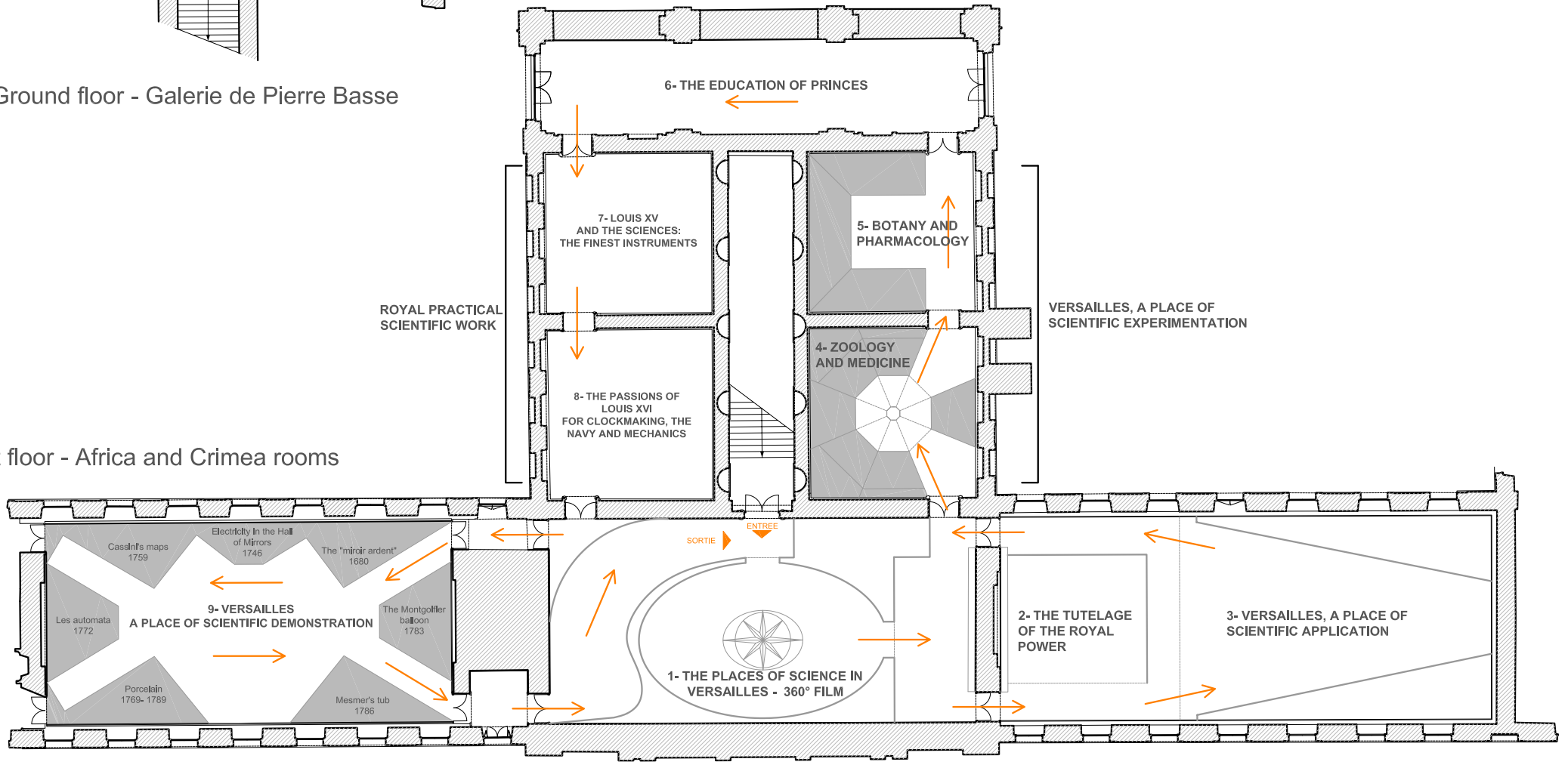
- from 1 November from 9:00 am to 5:30 pm (last admission: 5:00 pm)

Tickets: €15, reduced rate: €13
Passport: €18, €25 on the days of the Grand Musical Fountains Display. Audioguide included.



Ground floor - Galerie de Pierre Basse



CHÂTEAU DE VERSAILLES

Exhibition "Science and curiosities at the court of Versailles"

Direction du Patrimoine et des jardins
Service des plans et des affaires patrimoniales

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OVERVIEW OF THE EXHIBITION

GALERIE BASSE.

- The rhinoceros of Louis XV, which was one of the key attractions of the Exotic Menagerie of Versailles.
- Albino quail and thrush hunted respectively by Louis XV and Louis XVI and returned to the King's Garden owing to their rarity.

1- THE PLACES OF SCIENCE IN VERSAILLES – 360° FILM.

- Full-scale reproduction of the celestial globe of Coronelli (preserved today in the Biblio thèque Nationale de France). A large blue sphere 4 m. in diameter featuring the stars in the position they were in on the day that Louis XIV was born.
- Screening of a 360° film which shows each of the places of the palace and its surroundings where the sciences and techniques were presented and testifies to the omnipresence of the sciences in Versailles.

2- THE TUTELAGE OF THE ROYAL POWER

- Presentation of the relations between science and the royal power, from the institutional and social point of view, with the emphasis on:
  - The founding of the Académie des Sciences by Louis XIV.
  - The exercise of the ministerial tutelage over a century.
  - The Encyclopaedia controversy.
  - The intermediaries between the academic circles and the court (outstanding figures and salons).
  - The numerous foundations (supervisory bodies, learned academies, major schools).

- These points are illustrated by the large painting by Henri Testelin depicting Louis XIV to whom Colbert presents the members of the Académie des Sciences: Perrault, Mariotte, Cassini, Huygens, Bignon, etc. with elements evoking the different scientific fields: cartography, geography, anatomy, astronomy, mathematical instruments, celestial and terrestrial globes.

3- VERSAILLES, PLACE OF SCIENTIFIC APPLICATIONS.

1. The repercussion of recent scientific discoveries in the setting of Versailles:
   - Painted or drawn sketches of the vaults of the Grand Apartment (known as the Apartment of the Planets) which feature the new satellites discovered by the very young Académie des Sciences, an allusion to the dissections carried out in the Menagerie, etc.

2. The application of science for the layout of the park:
   - Treatises on optics and perspective.
   - Diagram for the application of the art of fortifications to the model of the terrain.
   - Treatises on Levelling and Measuring land by the Abbé Picard, a learned astronomer who developed a telescope derived from his observations of the sky for the grading of the Grand Canal.

3. The scope of the project:
   - Very large-scale reproduction of a view of Versailles under construction.
   - Scale model of a "French-style crane".

4. Hydraulics (the participation of scientists and engineers, engineering, the Marly machine, the pilot project of the Eure canal):
   - Paintings (views and portraits), engravings and drawings.
   - Large scale model of the Marly machine.
   - Piping system for the fountains and water spouts.

5. Various other applications of the sciences and techniques:
   - Mechanical inventions, such as the flying chair of Madame de Châteauroux (ancestor of the lift), chemical inventions, consultations of the Académie.

4- VERSAILLES, PLACE OF SCIENTIFIC EXPERIMENTATION: ZOOLOGY, MEDICINE AND SURGERY.

1. The link with the King's Garden (present Jardin des Plantes in Paris):
   - Documents relating to the dissections of animals in the Menagerie, carried out in Versailles and the King's Garden by Perrault, Du Verney and La Peyronie.

2. The Exotic Menagerie created by Louis XIV (at the extremity of the southern arm of the Grand Canal):
   - Engravings showing the buildings of the Exotic Menagerie.
   - 3D reconstruction of the Exotic Menagerie.
   - Paintings and drawings of the animals of the Menagerie.

3. The Domestic Menagerie of Louis XV in Trianon:
   - Watercolour and plan of the Menagerie in Trianon.
   - Portrait of Buffon and presentation of his Histoire naturelle.

4. The birth of veterinary science:
   - Painting showing the dissection of a horse in the Petite Ecurie (small stable).
   - Portrait of Daubenton, designer of the sheepfold in Rambouillet for the acclimatisation and breeding of merino sheep.

5. Medicine and surgery:
   - Portraits of the First Physicians and First Surgeons to the king (Fagon, Félix, La Peyronnie, Lassone).
   - Instruments for the operation on the fistula of Louis XIV and the child-birth mannequin of Madame du Coudray.

5- VERSAILLES, PLACE OF SCIENTIFIC EXPERIMENTATION: BOTANY, AGRONOMY AND PHARMACOLOGY.

1. The Kitchen Garden of Louis XIV:
   - Portrait of La Quintinie.
   - Forcing of early fruit and vegetables: hotbed melon, asparagus and others.
   - Evocation of the acclimatisations achieved by La Quintinie (fig tree) and by his successors, Lenormand father and son (coffee, pineapple).

2. At Trianon in the reign of Louis XV: the large hot greenhouses of the Richard gardeners
   - Plans.
   - Vellums and paintings for the hybridisations and acclimatisations achieved, including strawberries and rice.
   - Various documents relating to exchanges and sending of plants.
   - Plates from the Jussieu Herbarium: the post- Linnaean classification.

3. The persistence of the botanical vocation of Trianon in Marie-Antoinette's time:
   - The Garden of Eden: inventory of the rare plants preserved at Trianon with museographic effect (bouquet of new flowers named after princes or courtiers).

4. Researches in agronomy:
   - Acclimatisation of grasses and experimentation to prevent the corruption of wheat, on the leaching of soils, and others, carried out in Trianon.

5. Pharmacology:
   - Apothecary jars from the hôpital général de Saint-Germain (porcelain from Nevers, 17th century), showing the new medical preparations incorporating the new research findings in chemistry.
   - Portraits of apothecaries (Boulduc family).

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6- THE EDUCATION OF THE PRINCES.

1.The privileged disciplines at the court:

- Portraits of learned tutors.
- Scale model of the "Louis XV" ship for the education of the young king.
- Large portrait of the Dauphin, son of Louis XV, as a child, depicted with the scientific instruments in use at this time which illustrate the future interests of the King during his reign: mathematics, geography, astronomy, etc.
- Various documents: paintings, printed books, drawings and manuscripts.

2. The "Leçons de choses" (physics lesson book) of the Abbé Nollet, tutor in physics to the royal children in the reign of Louis XV:

- Physics instruments for experiments with their demonstration in 3D.
- Portraits of the Abbé Nollet, instruments from the physics laboratory of the royal children, mathematics cases, atlases, scale models of fortifications and ships.

3. The modernity of the teaching:

- Scale model of the chemistry laboratory of Madame de Genlis, tutor to the royal children.
- Plate from the Encyclopaedia used as a model.
- Plan and elevation of the Pavillon des Menus Plaisirs, for the education of the Dauphin, son of Louis XVI.
- Large celestial and terrestrial globe showing the depths of the seas, commissioned by Louis XV for the instruction of the Dauphin.
- Mannequin of a Canadian Indian, for the discovery of other peoples of the world.

4. Mathematical recreations.

7- ROYAL PRACTICAL SCIENTIFIC WORK: LOUIS XV AND THE SCIENCES: THE FINEST INSTRUMENTS.

1. Books from the royal libraries indicating the scientific disciplines practised by the king or in which he had a special interest: astronomy, geography, physical sciences and mathematics, botany, zoology, agronomy, medicine, surgery.

2. The artistic and scientific quality of the instruments in the royal studies:

- The Passemant clock, the masterpiece of the genre, indicates the time, the date, the zodiac sign and the position of the stars up to the year 9999.
- The two moving globes of Passemant, terrestrial and celestial, with a stand by Caffieri, from the La Muette study.
- The astronomy telescope of Mme Sophie, daughter of Louis XV.
- A microscope by Magny, developed by the duc de Chaulnes (a gift of Louis XV to his father-in-law, Stanislas Leszczinski).

3. Portraits of learned courtiers:
   - The duc de Chaulnes, Emilie du Châtelet, duc de Croÿ.

4. The astronomical observations of Louis XV:
   - Engravings (portraits of Maupertuis, la Condamine and Cassini father and son; view of the telescope at Passy, poem by Voltaire, etc.).
   - Small scientific instruments used for the observation made in Trianon in 1724.

8- ROYAL PRACTICAL SCIENTIFIC WORK: THE PASSIONS OF LOUIS XVI FOR CLOCKMAKING, THE NAVY AND MECHANICS.

1. The omnipresence of science in the studies of the king (decorative wall motifs from the wardrobe of the king in the Château de Versailles).

2. The practical scientific work and interests of the king:
   - Lathe of the Comte d'Artois.
   - Locks, mechanical marvels, designed and made by Louis XVI.
   - Cranes.
   - Scale models of artillery.
   - Clocks and barometers.
   - Louis XVI and the navy: scale models of the wood and stone cones of the port of Cherbourg, and ships.
   - Louis XVI and the great expeditions, including the celebrated voyage of La Pérouse.

9- VERSAILLES, PLACE OF SCIENTIFIC DEMONSTRATIONS.

Seven sections featuring historical objects present the circumstances of each demonstration, its scientific interest and its prolongations up to our day, in varying modes of presentation. Numerous scientists came to Versailles to present their discoveries to the king and the court. At the time, this was a supreme consecration, the equivalent of today's Nobel prize.

- **The miroir ardent (burning mirror)** (1670) which reduced metals to powder, ancestor of the solar furnace.

- **The electricity experiment in the Hall of Mirrors** (1746). Presentation of the electricity machine and the experiment during which 140 people joined hands and felt an electric discharge.

- **Cassini's maps of France** (1756) - the first Ordnance Survey map, the origin of the Land Register. Presentation of the first plates presented to Louis XV in 1756. It took a century to map out the kingdom (1684 to 1789). This project was saved by Louis XV, who set up a system of financing by members of the court, by founding a society of subscribers.

- **The automatons**, ancestors of robots, with the Dulcimer Player (1772).

- **Porcelain gifts for New Year's day.** Pieces of the new hard porcelain presented by the chemist Macquer to Louis XV at Versailles in December 1769 in the porcelain dining-room.

- **Mesmerism**. Scale model of the magnetising "baquet" (tub) of Mesmer used to "heal" certain illnesses. Highly controversial in the 18th century.

- T**he aerostatic experiment of the Montgolfier brothers** (1783) with the presentation of an animated scale model of the balloon. The flight of the first Montgolfier balloon took place on 19 September 1783 in the courtyard of the Château de Versailles.

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THE PRINCIPAL WORKS OF THE EXHIBITION

* work commented on later in the text.

GALERIE DE PIERRE BASSE.

- *Rhinoceros of Louis XV*, Muséum national d'histoire naturelle*
- *Albino quail and thrush hunted by Louis XV and Louis XVI*, Muséum national d'histoire naturelle.

1- THE PLACES OF SCIENCE IN VERSAILLES – 360° FILM.

- *Presentation of the members of the Académie des Sciences to Louis XIV by Colbert, 1667,* Henri Testelin, Versailles, Musée national des châteaux de Versailles et de Trianon.*

3-VERSAILLES, PLACE OF SCIENTIFIC APPLICATIONS.

- *Graphometer with sights*, Michael Butterfield, Private collection.
- *Scale model of the Marly Machine*, Swalm Renkim, 1780, Musée des Arts et Métiers.
- *Section and plan of the machine for the "flying chair" of Madame de Chateauroux*, Archives nationales.

4- VERSAILLES, PLACE OF SCIENTIFIC EXPERIMENTATION: ZOOLOGY, MEDICINE AND SURGERY.

- *Ostrich*, Nicasius Bernaerts, 18th century, Musée de Montbeliard, on deposit from the Musée du Louvre.
- *Farmyard*, Nicasius Bernaerts, 18th century, Musée du Louvre.
- *Farriery treatise*.
- *Health journal of king Louis XIV*, Bibliothèque nationale de France & Lancet and retractor of the surgeon Félix for the major operation on the fistula of Louis XIV in 1686, Paris, Musée d'Histoire de la Médecine.*
- *Mannequin of Madame du Coudray, foetus at 7 months*, Rouen, Musée Flaubert d'Histoire de la Médecine.
- *Complete myology, anatomical figure known as the "ange anatomique"* (anatomical angel), Jacques Fabien Gautier d'Agoty (1716-1785), Versailles, Bibliothèque municipale.

5- VERSAILLES, PLACE OF SCIENTIFIC EXPERIMENTATION: BOTANY, AGRONOMY AND PHARMACOLOGY.

- *Common fig tree*, 18th century, Muséum national d'histoire naturelle.
- *Pineapple plants in a pot*, Jean-Baptiste Oudry, Versailles, Musée national des châteaux de Versailles et de Trianon.
- *Zizania aquatica*, 18th century, Muséum national d'histoire naturelle.
- *Monseigneur le Dauphin ploughing*, Boizot, Bibliothèque nationale de France.
- *Portrait of Antoine Augustin Parmentier* (1737-1806), François Dumont Aîné (1751-1831), Oil on canvas, Versailles, Musée national des châteaux de Versailles et de Trianon.

6- THE EDUCATION OF THE PRINCES.

- *Pneumatic machine*, Abbé Nollet, Musée des Arts et Métiers.*
- *Mathematics set*, consisting of a level indicator, a protractor, a compass, a drawing pen, a pencil holder, end of the 17th century, early 18th century, Nicolas Bion, Paris, Musée du Louvre.
- *Chemistry laboratory, scale model of Madame de Genlis*, 1783, Augustin Charles Perier, Musée des Arts et Métiers.
- *Head of an American Indian,* from the "cabinet of curiosities" of Serent, Bibliothèque municipale de Versailles.
- *Terrestrial and celestial globe supported by a triangular base with 3 dolphins and winds* commissioned in 1786 by Louis XVI from Edme Mentelle for educational purposes, Versailles, Musée national des châteaux de Versailles et de Trianon.*

7- ROYAL PRACTICAL SCIENTIFIC WORK: LOUIS XV AND THE SCIENCES: THE FINEST INSTRUMENTS.

- *Telescope* with inscription on the shaft "made by Mme Sophie de France", Musée national de la Marine.
- *Microscope given by Louis XV to king Stanislas*, Alexis Magny (1712-circa 1777), Musée Lorraine de Nancy.*
- *Astronomical clock*, 1754, Claude-Simeon Passemant, Versailles, Musée national des châteaux de Versailles et de Trianon.
- *Allegorical portrait of king Louis XV represented by the virtues*, 1762, Charles-Amédée Van Loo (1719-1795), Versailles, Musée national des châteaux de Versailles et de Trianon.

8- Royal practical scientific work: the passions of Louis XVI for clockmaking, the navy and mechanics.

- *Lathe of the Comte d'Artois*, Versailles, Musée national des châteaux de Versailles et de Trianon.
- *Scale model of the Cherbourg cone*, a truncated openwork wooden cone frame, early 19th century, Paris, Musée des Arts et Métiers.
- *Planetary and solar clocks*, Antide Janvier, Private collection.
- *Louis XVI giving his instruct ions to the ship's captain La Pérouse for his voyage of exploration around the world, in the presence of the marquis de Castries, Minister for the Navy, 29 June 1785*, 1817, Nicolas André Monsiau (1754-1837), oil on canvas, Versailles, Musée national des châteaux de Versailles et de Trianon.*

9- Versailles, place of scientific demonstrations.

- *Miroir ardent*, François Villette, circa 1670, Observatoire de Paris.
- *The Dulcimer player*, 1784, Pierre Kintzing and David Roentgen, Paris, Musée des Arts et Métiers.*
- *Coffee pot* in hard Sevrès porcelain, Private collect ion.
- *Magnetising tub*, 1784, Franz Mesmer, Lyon, Musée de l'Histoire de la Médecine et de la Pharmacie.*
- *Scale model of the Montgolfier balloon of 1783*, Bréhier, 1961, Bourget, Musée de l'Air et de l'Espace.

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COMMENTARIES ON SELECTED WORKS OF THE EXHIBITION

RHINOCEROS OF LOUIS XV,
Muséum national d'histoire naturelle.

This male Indian rhinoceros was acquired for the king in 1769 by the Governor Chevalier de Chandernagor. The animal was offloaded in Lorient on 4 June 1770 and had to wait two and a half months while a special vehicle was prepared to transport it to the Royal Menagerie of Versailles. The rhinoceros was exhibited to the public for 22 years, although the Royal Menagerie began to decline from 1785 on. During the troubled times of the Revolution it was transported to the Jardin National des Plantes, but did not arrive alive as it was killed with a sabre. Its remains were transferred to Paris, in the newly built National Museum of Natural History, where it was dissected and stuffed by Jean-Claude Mertrud and Félix Vicq d'Azyr. This was the first modern taxidermy operation on an animal of this size.
The skeleton of the rhinoceros of Louis XV is now exhibited in the Comparative Anatomy gallery, while the stuffed animal, its varnished skin spread over a cylindrical oak frame and hazelwood hoops, is on view in the great Evolution gallery.

PRESENTATION OF MEMBERS OF THE ACADÉMIE DES SCIENCES TO LOUIS XIV BY COLBERT, HENRI TESTELIN, 1667,
Versailles, Musée national des châteaux de Versailles et de Trianon.

Louis XIV launched a thoroughgoing policy for the advancement of the sciences and their teaching. Colbert was responsible for organising the scientific community and attaching its skills to the service of the king, by founding the Royal Academies, including the Académie des Sciences.
The designing of the Palace and Park of Versailles required the skills of outstanding architects and engineers to produce a project to please the King and settle the Court and its administrators in Versailles. But Colbert also had to deal with the capital where the intellectuals gathered to share and pursue their activities. He succeeded brilliantly in attaching them to the King without obliging them to leave Paris by founding a system of Royal Academies which organised the culture of the kingdom.

This system took some years to become established. In 1663, Paris attracted many foreign guests to the learned circles that had multiplied in the capital. One of the most outstanding visitors, the Dutchman Christiaan Huygens, a specialist in optical instruments, frequented the circles of amateurs who met in private houses to share the latest discoveries in natural philosophy. Huygens proposed the setting up of a "Company of Arts and Sciences". Invited by Colbert to settle in Paris so as to implement his plan, he attracted a number of foreign scientists to the capital, such as the Dane Olaüs Roemer and the Bolognese astronomer Jean Dominique Cassini. The latter was entrusted with directing the Observatoire, and settled in France. These acquisitions of foreign scientists were the sign of a completely new royal policy in favour of the emerging sciences.
On 22 December 1666, the scientists gathered in an assembly to officially inaugurate the Académie des Sciences. This was an assembly of experts funded by the King and often called "la Compagnie", as Huygens had named it. These were men chosen for their special skills to be loyal and useful to the kingdom.
The King came only once to Paris to honour the scientists, in 1681. He visited the Observatory briefly two years later.
The system of Royal Academies supported by the Crown was envied in all the intellectual circles of Europe and was copied by other sovereigns in the 18th century.
A reorganisation was carried out in 1699 by Louis II Phelypeaux de Pontchartrain, Secretary of State to the King, who then acted as an intermediary between the King and the Academy. The links between Paris and Versailles were henceforth clearly defined, and the Academy, which had hitherto functioned only as an assembly of scientists consulted occasionally, became the official national instrument of science. During the 18th century it governed the scientific world as the King ruled the country.

PNEUMATIC MACHINE, ABBÉ NOLLET,
Musée des Arts et Métiers.

This machine made by the Abbé Nollet was used to carry out experiments demonstrating the effects of a vacuum: quenching a candle, asphyxiating an animal or reducing air pressure. It also demonstrated how the sound of a hand bell faded as the vacuum intensified.
In the 1740s, the Abbé Nollet, an outstanding figure in the international scientific community, had begun his career in Paris as a maker of scientific instruments in collaboration with eminent scientists. He joined the Académie des Sciences in 1733. The Abbé Nollet also founded a physics school where he gave popular classes in experimental physics and explained the laws governing the natural world with the help of elegant pieces of apparatus produced in his own workshop. These were decorated with black lacquer, red trimmings and gilt decorations that gave them an aesthetic quality worthy of the salons of high society. The classes given by Nollet covered a vast repertoire of experimental demonstrations staged like theatrical performances. Nollet published the first volume of his Leçons de physique expérimentale in 1743. In his dedication to the Dauphin de France, the Abbé proclaimed his willingness to offer his services to the young prince. A year later, Louis XV invited him to Versailles to take over the education of the prince. The Abbé took along a number of instruments which made a profound impression on the Court.

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Queen Marie Leszczinska was one of the most assiduous visitors to the Cabinet des Médailles, the room where Nollet gave his lessons and the queen went there regularly after mass. The Abbé returned to Versailles in 1745 at the request of the Dauphine, who also wished to benefit from his lessons in experimental physics.
By using his "artificial eye" and the camera oscura, a device for producing electricity and centrifugal forces, the fire pump and the magic lantern, Nollet succeeded in arousing curiosity and instructing, thus obtaining an immense success in Versailles. His experiments with electricity aroused the most enthusiasm in the Court.
Thanks to the Abbé Nollet, it was possible to form collections of demonstration instruments illustrating the principles of physics in different ways. The first collection of the royal children was put together under the control of the court's "Menus Plaisirs" administration in 1758. Four years later, over 180 scientific objects out of the 345 described in the catalogue of the Abbé Nollet were purchased, followed by more in 1765.

TERRESTRIAL AND CELESTIAL GLOBE SUPPORTED BY A TRIANGULAR STAND WITH 3 DOLPHINS AND WINDS, COMMISSIONED IN 1786 BY LOUIS XVI FROM EDME MENTELLE FOR THE DAUPHIN'S EDUCATION,
Versailles, musée national des châteaux de Versailles et de Trianon.

The 18th century was the golden age in France for makers of globes. Versailles still possesses two large hand-drawn globes commissioned by Louis XVI for the Dauphin, including this one. On 9 March 1786, for the education of the Dauphin, Louis XVI commissioned from the mechanical engineer Jean Tobie Mercklein a new "globe according to the measurements and proportions to be given by Monsieur Mentelle".
This globe is 2m40 high and 1m30 wide. The base in the shape of a concave triangle is decorated with a band bearing the signs of the zodiac in painted bronze green stucco separated by gilt motifs. This base supports three dolphins whose raised tails hold the horizon rim. In the centre, 4 gilt blowing winds seem to support an iron arc with 3 rollers of the same metal on which the meridian is held. The globe itself, hand-drawn and painted, occupies a considerable volume. It consists of a terrestrial globe with the land masses in relief and the marine depths encased in 2 hemispherical domes. The upper dome represents the Old World, while the lower one represents the New World. The interior of these domes forms a celestial globe on which are drawn and painted the constellations and signs of the zodiac. The originality of this teaching aid lies in the construction of a globe in relief and the presence of mobile cardboard compartments (which have disappeared) attached by screws to the two domes. It provided instruction in political, physical and ancient geography.
Edme Mentelle was a self-taught man who knew no foreign languages and devoted his life to the teaching of geography and history. He obtained all the documents needed for making this globe from the map depository of the Navy.

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MICROSCOPE GIVEN BY LOUIS XV TO KING STANISLAS, ALEXIS MAGNY (1712-CIRCA 1777),
Musée lorraine de Nancy.

Alexis Magny, a celebrated Parisian optician, was one of the suppliers to the court of the King. His speciality was microscopes, eight of which have survived until today, made between 1751 and 1754 to the specifications of the duc de Chaulnes, an outstanding scientist and intimate friend of Madame de Pompadour. He worked for many years for Bonnier de La Mosson, brother-in-law of the duc de Chaulnes, whose physics laboratory was very famous.
This monumental microscope is mounted on four finely carved gild bronze supports made in the workshops of the celebrated ironmaster Caffieri. Its eyepiece is protected by a gilt bronze cover. It is a genuine work of art and an example of the finest scientific instruments produced during the reign of Louis XV. This type of instrument also testifies to the scientific preoccupations of the period: observing and studying the two infinities, the Microcosm and the infinitely small with the microscope, and the Macrocosm and the infinitely large with the telescope, such as the one owned by Madame Sophie.

LOUIS XVI GIVING HIS INSTRUCTIONS TO SHIP'S CAPTAIN LA PÉROUSE FOR HIS VOYAGE OF EXPLORATION AROUND THE WORLD, IN THE PRESENCE OF THE MARQUIS DE CASTRIES, MINISTER FOR THE NAVY, 29 JUNE 1785, 1817, NICOLAS ANDRÉ MONSIAU (1754-1837), oil on canvas, Versailles, musée national des châteaux de Versailles et de Trianon.

This large painting, commissioned by Louis XVIII in 1817 to rehabilitate the image of his brother Louis XVI, depicts the meeting of 28 June 1785 between king Louis XVI, the Maréchal de Castries, then Minister for the Royal Navy and Colonies, and Jean-François de La Pérouse, who had already proved his naval prowess and personal qualities when serving as a ship's captain during the American War of Independence.
Here we see the king with his keen interest in science showing the expedition of La Pérouse in the Pacific on a map, with a terrestrial globe behind him. This voyage was immensely important for the monarch, who personally involved himself in the conception of the expedition and took part in drawing up the instructions. This colossal expedition around the world was designed to complete the work of Louis Antoine de Bougainville and especially that of Captain Cook. The King assigned several objectives to this mission. In economic terms, the goal was to find new markets for French products. On the scientific level, the king required La Pérouse to map the Pacific ocean. The intellectual goal, influenced by the Enlightenment, was to discover new peoples.
In his instruct ions, Louis XVI insisted on the necessity to treat well the indigenous peoples encountered and to respect their customs. All the scientific institutions (Académie royale des Sciences, Académie royale de Marine, Jardin royal des Plantes) were called upon to provide the enterprise with what it needed for its success. The expedition consisted of two ships (the Astrolabe and the Boussole) and was due to last four years. It was very carefully planned: for example, a mill was installed for the voyage to grind wheat into flour for the crews as the need arose.

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The expedition carried 227 men of whom 17 were scientists (engineers, astronomers, physicists, a clockmaker, a naturalist, a botanist, etc.). Different types of cargo were carried for trading. The officers and scientists had access to a large scientific library on board. In the various ports of call the highly conscientious La Pérouse entrusted his notebooks and the fruit of his expedition to emissaries responsible for taking them back to Versailles where the King followed this epic voyage with passion.
The expedition left from Brest on 1 August 1785. The Astrolabe and the Boussole were shipwrecked on the Vanikoro reef. At the moment of his execution, Louis XVI was still ignorant of this tragic outcome.

THE DULCIMER PLAYER, 1784, PIERRE KINTZING AND DAVID ROENTGEN,
Paris, Musée des Arts et Métiers.

This celebrated automaton was made in 1784 by the clockmaker Pierre Kintzing and the cabinetmaker David Roentgen. The dress dates from the 19th century.
The mechanical engineer Jacques Vaucanson, appointed Inspector of Manufactories by Louis XVI and a specialist among other fields in research into the reproduction of human movements, presented the Dulcimer Player to Marie-Antoinette and bequeathed to the Académie des Sciences all his mechanical collect ions, which formed the origin of the Conservatoire des Arts et Métiers.
The Dulcimer Player illustrates the research and special interest of the 18th century in the reproduction of mechanical moving anatomies, its fascination with these animated creatures and the inventiveness of mechanical engineers in the art of copying vital functions. Some of these automata have survived down to our time, including a woman playing 12 airs on a flute, a drummer and a digesting duck.
The female automaton plays eight tunes on the dulcimer by tapping the 46 strings of the instrument with two small hammers. The mechanism, hidden by the dress, is located under the stool on which the player sits: it consists of a power spring and a brass cylinder with 16 cam profiles which, by means of levers, activate the articulation of the player's arms, with sprockets dictating the movement of the hammers.

MAGNETISING TUB, 1784, FRANZ MESMER,
Lyon, Musée de l'histoire de la médecine et de la pharmacie.

Mesmer arrived in Paris around 1778 to secure recognition of his discovery of "animal magnetism" or hypnotism as a therapy for human illnesses. A wooden tub was filled with pieces of glass and metals. Metal rods were pushed into it and held by people suffering from certain ailments. Mesmer practised different experiments to freely treat people without resources for both medical and experimental purposes.
Mesmer organised spectacular and entertaining shows for the court which took an interest in his demonstrations.

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Claiming to be the founder of animal magnetism or hypnotism and advocating the study of the properties of this "natural fluid", Mesmer was regarded as a sort of charlatan, and animal magnetism as an archetypal pseudo-science was the subject of much controversy in France: the Faculty of Medicine condemned it in 1784. This did not prevent the spread of animal magnetism in different forms, with some hypnotists continuing to attribute its effects to Mesmer's "fluid", while others attributing it to the will-power or the imagination of the hypnotist and the patient.

SCALE MODEL OF THE MONTGOLFIER BALLOON OF 1783, BRÉHIER, 1961,
Bourget, Musée de l'air et de l'espace.

The flight of the first Montgolfier balloon which took place on 19 September 1783 in Versailles was an event of both political and scientific significance. The spectacular nature of the experiment also fulfilled the court's unceasing appetite for curious entertainments. The experts of the Académie des Sciences examined the machine of Montgolfier and certified that the king could take the risk of a public experiment, which he decided to finance.

On the morning of 19 September, the Maréchal de Duras, first gentleman of the king's chamber, welcomed Etienne de Montgolfier to Versailles. After handing over to the king a description of his invention during his levee, Etienne de Montgolfier went back to make the final preparations: "A moment later", he wrote, "the king, the queen, Monsieur, Madame, the Comte d'Artois, Mme Elisabeth etc. arrived one after the other and passed under our scaffolding and under the machine to hear my explanations…"

The interest of the monarch and his brothers in the invention was quite genuine. Apart from the spectacular side, the demonstration involved other stakes. Firstly, it was designed to demonstrate the royal policy of supporting inventors and manufacturers, because a whole series of modern products were required for the balloons (papers, glue and varnish, sulphuric acid, silk and other textiles, etc.).

Secondly, the experiment revealed the inventive genius of a modern country that had just taken its place in the centre of the world's political scene because in early September the Treaty of Paris which brought an end to the American War of Independence and settled the situation of the English colonies had been signed. Many ambassadors and delegations were still present, all sharing the same curiosity as the Court. An immense crowd attended the event, with spectators even on the roofs of the palace, consisting of courtiers, memorialists, visiting foreigners, and also many amateurs.

Decorated with the signs of the zodiac and the interlaced royal initials, this first balloon carried a rooster, a duck and a sheep. From his apartments, the king observed the incident-free flight and the landing of the first air passengers. Etienne de Montgolfier's success was immense and he became the official and uncontested inventor of the aerostatic machine. News of the experiment spread throughout Europe, relayed by numerous images associating the palace in the background of the machine in flight, and thus it totally fulfilled its function of political communication and demonstrated the great power of the French.

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MUSEOGRAPHY

THE GENERAL MUSEOGRAPHIC PLAN

Each section is independent with a staging-design linked very closely with the theme of the room. For example, the plan adopted for the zoology section is based on the old plan of the Menagerie as it was built in the gardens of Versailles from 1662 to 1664.
Similarly, the room dedicated to botany is presented in the form of a large greenhouse inspired by models of the Trianon estate, and the room presenting the education of the princes will present all the scientific instruments on a large laboratory table like the one used in the study of the royal children in the Hôtel des Menus-Plaisirs in Versailles.
The scientific passions and collections of kings Louis XV and Louis XVI will be presented in a setting of bookcases and cabinets displaying collections.
Lastly, the room devoted to the scientific demonstrations held in Versailles will be presented as an exhibition room with different stands devoted to each of these experiments.

The staging-design of the exhibition Science and curiosities at the court of Versailles is by **Frédéric Beauclair.**

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THE MULTIMEDIA IN THE STAGING-DESIGN

FOR THE FIRST TIME IN VERSAILLES, the staging-design gives a prominent role to the most innovative multimedia tools.

TO OPEN THE EXHIBITION, a 360° film, seamless and full HD, projected on an elliptical-shaped screen 32 m in circumference and 3 metres high will plunge the visitor into the heart of Versailles as never before imagined. Thanks to this technical innovation used for the first time in France, as well as many other means, the public will discover in a few minutes and to its very great surprise two centuries of history and about twenty places that were the setting for science.

VIDEOS SHOWING 3D RECONSTRUCTIONS of places no longer existing (such as the Exotic Menagerie of Louis XIV) recreate the scientific context of the 17th and 18th centuries and help visitors to better understand the links between the objects exhibited and what they represented at the time.

THE PREPARATION AND ENRICHMENT OF THE VISIT are also possible via the website dedicated to the exhibition: www.sciences.chateauversailles.fr, where specific contents will enable visitors to follow the mounting of the exhibition, to understand the functioning and point of the objects presented, and to learn while being amused.

PUBLICATION

SCIENCES ET CURIOSITÉS À LA COUR DE VERSAILLES

Collective work edited by Béatrix Saule and Catherine Arminjon
Published on 15 October 2010

THE COURT OF VERSAILLES was a place of learned exchanges; many learned scientists frequented it assiduously, tutors to the princes, engineers, health officers, etc. Others came for a presentation to the king, a supreme consecration and a means of obtaining grants for pursuing research work or finding commercial outlets for inventions.

THE FOUNDING OF THE ACADÉMIE DES SCIENCES IN 1666 established a contract between the royal power and the scientific community and, up to the Revolution, there was no hiatus between academic circles and the court: by its statutes, the Académie des Sciences included ten "honorary" members chosen by the king from among the highest nobles who all maintained exotic collections in their "cabinets of curiosities".

AUTHORS: fifty specialists in their disciplines present the considerable advancements made in all fields: mathematics, astronomy, physics, chemistry, botany, medicine, etc.

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