CHÂTEAU DE VERSAILLES

THE CHÂTEAU DE VERSAILLES PRESENTS

SCIENCE & CURIOSITIES AT THE COURT OF VERSAILLES

AN EXHIBITION FROM 26 OCTOBER 2010 TO 27 FEBRUARY 2011

Science and Curiosities at the Court of Versailles

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Science and Curiosities at the Court of Versailles

IT HAPPENED AT VERSAILLES...

DISSECTION OF AN ELEPHANT WITH LOUIS XIV IN ATTENDANCE

The dissection took place at Versailles in January 1681 after the death of an elephant from the Congo that the king of Portugal had given Louis XIV as a gift: "The Academy was ordered to dissect an elephant from the Versailles Menagerie that had died; Mr. du Verney performed the dissection, Mr. Perrault wrote the description of the main parts and Mr. de La Hire made the drawings. No anatomical dissection had ever been so dazzling, because of the Animal's size, the meticulousness with which its various parts were examined or the skill and number of Assistants. The subject was stretched out on a sort of fairly high theatre stage. The King deigned only to attend the examination of some of the parts, and when he came he hurriedly asked who the Anatomist was, for he did not see him; Mr. du Verney immediately rose from the Animal's flanks, which had swallowed him up, in a manner of speaking."

In *Mémoires de l'Académie royale des sciences. Depuis 1666 jusqu'à 1669,* 1733.

THE FIRST ELECTRICITY EXPERIMENT IN THE HALL OF MIRRORS

On 13 June 1746 Abbot Nollet had 12, then 64 and eventually 140 people join hands, forming a human chain in the Hall of Mirrors to share the shocking experience of what at the time was called an electrical "concussion".

"Monday 14 June [1746]: I spoke above of the abbot Nollet and his experiments for Monsieur Le Dauphin and the Queen... First he only experimented with hand-rubbed glass tubes. Since then he has had a glass globe made that is moved by a big heated wheel warmed by holding the said globe in his hand... He performed several experiments, all of which were successful, before conducting one in the big gallery here... it was highly successful and very easy to feel... we held hands on the parquet floor, just having to make sure our clothes did not touch each other."

Mémoires du duc de Luynes

MARIE-ANTOINETTE PURCHASES THE MOST ELABORATE ANDROID, THE ROBOT'S ANCESTOR

In the 18th century automatons, which widely circulated, fascinated people and illustrated the desire to create an artificial man by building moving mechanical parts mimicking human anatomy. The Germans Peter Kintzing, who made the mechanism, and David Roentgen, who crafted the case, probably sent *the tympanum player* to the French court. Aware of its perfection and scientific interest, the queen purchased the item in 1784, depositing it in the Academy of Sciences cabinet in 1785. *The tympanum player* is a condensed version of all the experiments on body movements since Vaucanson. A musical instrument in the form of a female android, it plays tunes by striking 46 strings with two little hammers. The mechanism, hidden beneath the dress inside the stool on which the player sits, consists of a spring motor and a brass cylinder with 16 lever-driven cams that activate the arms' joints and the tiny spikes dictating the hammers' movements.

WHEN ASTRONOMERS HELPED CREATE FOUNTAINS

Many scientists put their knowledge to work at the Versailles building site but abbot and astronomer Jean Picard (1620-1682) probably played one of the most important parts by adapting his telescope to survey over long distances. Picard's work on the grounds from autumn 1674 was indispensable for bringing water to the fountains.

THE FIRST HOT-AIR BALLOON FLIGHTS

Backing from the Academy of Science helped the Montgolfier brothers, Joseph (1740-1810) and Étienne (1745-1799), obtain permission to demonstrate their hot-air balloon in the king's presence at Versailles on 19 September 1783. This was the first test flight with living creatures: a sheep, duck and cock were on board. The balloon was released, rose to a height of approximately 500 metres, flew eight minutes and landed at Vaucresson with all passengers safe and sound. The demonstration was important for the brothers, ensuring them Louis XVI's support, but also for the king: foreign delegations were at the Court that day to sign the Treaty of Paris. The hot-air balloon became a royal invention illustrating French ingenuity to the European nations.

ACCLIMATING PINEAPPLES IN THE KING'S KITCHEN GARDEN, GROWING RICE AT TRIANON

The pineapple, native to the New World, is very sensitive to cold and quickly dies if the temperature regularly falls below 10° C, but in the winter of 1733 Le Normand successfully acclimated one in the king's kitchen garden. Claude Richard acclimated *Zizania aquatica (rice)* in the aquatic plants' pool at Trianon.

CREATING THE FIRST SCIENTIFIC INSTRUMENTS FOR THE PRINCES' EDUCATION

The princes' scientific education at Versailles required the acquisition of costly instruments and the creation of veritable physics cabinets. In addition to globes, scientific instruments and mathematics kits, new tools were created for the purpose of making invisible things visible.

LOUIS XV'S PASSION FOR ASTRONOMY

In 1722 Claude Delisle and the Cassinis ignited Louis XV's passionate interest in geography. They created libraries and private drawing rooms around the Cour des Cerfs to practice another passion, astronomy, and acquired sumptuous telescopes and microscopes.

LOUIS XIV ACQUIRES A BURNING MIRROR

In 1669 François Villette (1621-1698), a Lyon engineer and the king's fireworks maker, captured Louis XIV's imagination with a demonstration of the burning mirror, a forerunner of the solar furnace, which the monarch purchased for the tidy sum of 7,000 pounds. It concentrated the sun's rays on a focal point in order to burn, melt or vitrify various materials at very high temperatures in order to determine their composition.

THE DETAILED MAP OF FRANCE, FORERUNNER OF THE ORDNANCE SURVEY MAP

From 1684 to 1789 the Cassinis worked on the first map of France drawn up by using land-surveying and altitude-measuring techniques. In 1756 the first plates were presented to Louis XV, who founded a donors' society to encourage financing by members of the court, saving the endangered project.

Science and Curiosities at the Court of Versailles

FOREWORD BY JEAN-JACQUES AILLAGON

SCIENCE AND CURIOSITIES AT THE COURT OF VERSAILLES, an exhibition off the beaten track, traces decades, if not centuries, of research, experiments and publications. It throws into relief the fact that Versailles, in a singular, unsuspecting way, was not only a seat of power and of the permanent representation of that power but also a breeding ground of what we would call the scientific spirit, where researchers asserted their claim, which soon became irrepressible, of knowing the world and mastering its forces, mechanisms and inner workings the better to establish humanity's domination of nature, hostile and feared for so long. This passionate demonstration, useful because it dispels many superficial, preconceived ideas, has been made possible by systematic research at the Château de Versailles Research Centre, which Béatrix Saule skilfully runs with an iron fist.

NUMEROUS FRENCH AND FOREIGN CULTURAL AND SCIENTIFIC INSTITUTIONS have also collaborated with the show. Several French institutions are now guardians of collections that came from the dismemberment of the Crown's collections during the Revolution. Others – the Academy of Sciences or the Paris Observatory – share with Versailles the honour of having been founded by Louis XIV. Many historical and scientific bonds helped to amass the mountain of work required to update knowledge about this new face of the Château de Versailles. The exhibition commissioners, Béatrix Saule and Catherine Arminjon, deserve congratulations for promoting and emphasising the work with this exciting show. In passing, I would like to thank the generous lenders.

ROYAL VERSAILLES, WHERE LOUIS XIV AND HIS TWO SUCCESSORS LIVED, was far from indifferent to the promotion of knowledge, even turning the palace into an astonishing laboratory. But the institution in charge of its heritage today does not settle for displaying and enhancing its splendour. Versailles is still a place of research and knowledge. That is the very purpose of the Château de Versailles Research Centre, a public interest group associating the Culture and Communication Ministry, Yvelines General Council, École des hautes études en sciences sociales, Université Paris IV-Sorbonne, Université de Versailles Saint-Quentin-en-Yvelines, Muséum national d'histoire naturelle, Institut national de l'audiovisuel, École du Louvre, Université Paris-I Panthéon-Sorbonne and Institut national de patrimoine with the Établissement public du musée et du domaine national de Versailles. It is also the purpose of the Versailles Baroque Music Centre, which does decisive work restoring and performing France's 17th- and 18th-century musical heritage.

IT'S STILL THE CASE FOR THE DAILY CONSERVATION WORK of the Musée national des châteaux de Versailles et de Trianon, whose skill I would like to salute; or, with regard to the knowledge of the monumental heritage of which Versailles is in charge, the historic monument architects assigned to the site, Frédéric Didier, Pierre-André Lablaude and Gabord Mester de Paradj, whose work is based on the heritage and gardens department's competence. As at 17th- and 18th-century Versailles, nobody ever loses sight of the fact that the service of splendour cannot do without a taste for seriousness and research.

I WILL CONCLUDE THESE FEW LINES by thanking the sponsors associated with this beautiful project, in particular Alten, Samsung, Saint-Gobain and the MacDonald Stewart Foundation.

Jean-Jacques Aillagon
Former minister,
President of the Établissement public
du musée et du domaine national de Versailles

Science and Curiosities at the Court of Versailles

FOREWORD BY BÉATRIX SAULE

THIS EXHIBITION WILL PROBABLY GIVE VERSAILLES A NEW IMAGE. The goal is to reveal the unexpected aspect of a palace devoted to work, not idleness; a space of responsibility, aware of the importance of scientific research; a society where "seriousness and knowledge" had a place alongside highly-prized "wittiness".

MEMOIR WRITERS HAVE SCARCELY TOUCHED UPON THAT ASPECT, at the most hinting at it here and there. To make the transition from clues to proof, one must turn to the places of knowledge and experimentation the royal residence offered men, in particular through the tasks and positions they were assigned, and to the facts, well recorded by gazettes. Then the presence of science and technology looms forth in many forms. But their impact must be assessed: was it "real" science or, as Bachelard put it, a "science of marquises"? And how can that be shown?

IN ORDER TO EXPLORE THIS STILL-NEW TOPIC at the crossroads of many disciplines, the Château de Versailles Research Centre asked Antoine Picon and Thomas Widemann to lead a three-year programme offering historians of Versailles and science historians a chance to exchange their ideas for the first time.They closely cooperated with the great institutions that inherited the royal foundations' mantle, whose precious help and generous, truly extraordinary loans have helped turned the project into reality. Lastly, many meetings with the greatest experts and Catherine Arminjon's commissionership contributed new information validating the orientations and choice of works, instruments and documents.

FRÉDÉRIC BEAUCLAIR DESIGNED THE EXHIBITION, which integrates genuine items ranging from humble sketches to masterpieces and modern, if not downright experimental, processes – the topic itself demanded it – into a single whole to recall, explain and reconstitute experiments and vanished places.The work has revealed an unsuspected richness. The mosaic of places, men and facts that *Science and Curiosities at the Court of Versailles* presents, each of which could be focus of a full-fledged exhibition in itself, must be perceived not as a conclusion but as a stepping-stone to new research.

Béatrix Saule
Curator
Director of the Établissement public
du musée et du domaine national de Versailles

CHÂTEAU DE VERSAILLES

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SCIENCE AND CURIOSITIES AT THE COURT OF VERSAILLES

26 October 2010 to 27 February 2011 – Africa and Crimea Rooms

HERE IS A SHOW THAT WILL REVEAL A NEW, UNEXPECTED FACE OF VERSAILLES AS A PLACE OF SCIENTIFIC INQUIRY IN ITS MOST VARIOUS FORMS WITH WORKS AND INSTRUMENTS FROM THE OLD ROYAL COLLECTIONS, SPECTACULAR ACHIEVEMENTS OF BEAUTY AND INTELLIGENCE, THAT WILL BE ASSEMBLED FOR THE FIRST TIME AND INTEGRATED INTO AN ORIGINAL, INNOVATIVE EXHIBITION DESIGN.

VERSAILLES IS THE PLACE WHERE CONTROL OVER SCIENCE WAS EXERCISED. At the urging of Jean-Baptiste Colbert, Louis XIV's "prime minister", royal authority became aware of the benefits of scientific research. The foundation of the Academy of Sciences established a new relationship between the government and scientists, whose work had to serve the kingdom. Research at the observatory funded by the royal treasury gave a decisive impetus to solving the problem of longitudes that lasted throughout the 18th century and was as strategically important as atomic research 200 years later. That is one illustration among many others of the tremendous strides made towards a full-fledged science policy.

VERSAILLES, A PLACE WHERE SCIENTISTS EXCHANGED IDEAS. Many learned men, including some of the most famous, assiduously frequented the Court as physicians, army engineers, tutors, etc. The physicists Benjamin Franklin and Abbot Nollet compared their theories in front of the king and the encyclopaedists Diderot and D'Alembert met in the office of Dr. Quesnay, physician to Madame de Pompadour, Louis XV's favourite. Some courtiers were real experts.

A PLACE OF SCIENTIFIC AND TECHNOLOGICAL EXPERIMENTS AND APPLICATIONS. Château de Versailles offered many research resources. Anatomists and zoologists could study the menagerie's ostriches, pelicans, rhinoceroses and other rare animals, botanists and agronomists the plants on the grounds of the Trianon and "hippiatrists", the forerunners to veterinarians, the horses in the Grand Stables.

A PLACE WHERE SCIENCE WAS TAUGHT AND PRACTICED. Educators developed new teaching methods using cutting-edge tools for the royal children and the kings' personal practice. While Louis XIV considered himself a protector of the arts and sciences without practicing them, his successors, Louis XV and Louis XVI, became true connoisseurs.

A PLACE OF DEMONSTRATION. A presentation to the king or demonstration before the Court was the highest honour, equivalent to winning a Nobel Prize. It was a way of obtaining subsidies or finding outlets for inventions. Many people know about the first hot-air balloon flight, but numerous other events have fallen into oblivion, such as the burning mirror demonstration in front of Louis XIV or the electricity experiment in the Hall of Mirrors under his successor's reign.

FOR THE EXHIBITION THE GREATEST SCIENCE HISTORIANS CONTRIBUTED THEIR EXPERTISE IN CLOSE COOPERATION WITH THE PRESTIGIOUS SCIENTIFIC AND HERITAGE INSTITUTIONS THAT INHERITED THE MANTLE OF THE ROYAL FOUNDATIONS, WHICH MADE TRULY EXCEPTIONAL LOANS. THE DESIGN EVOKES, RECONSTITUTES AND IMMERSES VISITORS ALL AT THE SAME TIME.

The Établissement public du musée et du domaine national de Versailles organised the exhibition with help from the Alten group and the Saint-Gobain company.

ALTEN

SAINT-GOBAIN

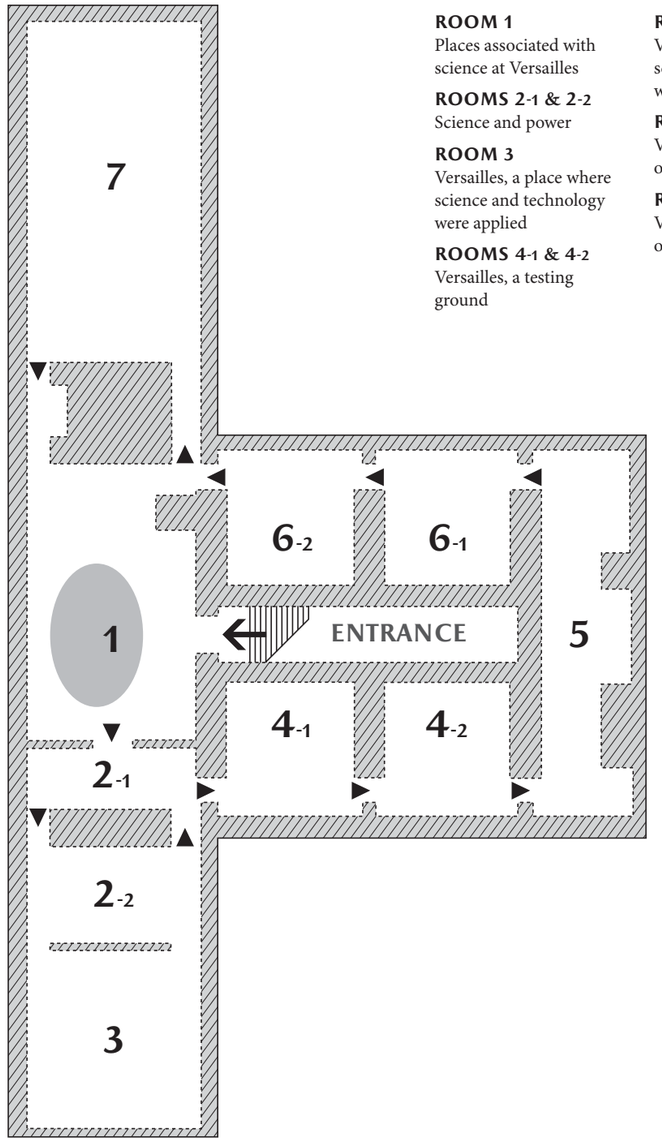
With support from the Macdonalds Stewart Foundation and Samsung Electronics France.

PART I

THE EXHIBITION

Part I – The exhibition

FLOOR PLAN



ROOM 1
Places associated with science at Versailles

ROOMS 2-1 & 2-2
Science and power

ROOM 3
Versailles, a place where science and technology were applied

ROOMS 4-1 & 4-2
Versailles, a testing ground

ROOM 5
Versailles, a place where science and technology were taught

ROOMS 6-1 & 6-2
Versailles, a place of princely practices

ROOM 7
Versailles, a place of demonstration

Part I – The exhibition

THE EXHIBITION ROUTE, BY BÉATRIX SAULE

GROUND FLOOR – GALERIE DE PIERRE BASSE

Louis XV's rhinoceros (1770-1793)

One of the main exhibits at Versailles' exotic menagerie, created by Louis XIV and expanded under Louis XV.

THE FRENCH GOVERNOR OF CHANDERNAGORE ACQUIRED this male Indian rhinoceros for King Louis XV in 1769. The animal landed in Lorient on 4 June 1770 but had to wait two and a half months while a special vehicle was built to bring him to his final destination, Versailles. After an eventful journey, he arrived on 11 September of the same year. He was on public display for 22 years, even though the Royal Menagerie had started declining in 1785.

DURING THE FRENCH REVOLUTION the rhinoceros was brought to the National Plant Garden but did not get there alive: a revolutionary killed him with a sabre. The body was brought to the new natural history museum in Paris, where it was dissected and stuffed by Jean-Claude Mertrud and Félix Vicq d'Azyr. This was the first time an animal of that size had undergone a modern taxidermiy process. The event took place in a tent in front of the museum's amphitheatre at the end of September; conditions were so bad that when Vicq d'Azyr died the following year at the age of 46, some people blamed it on the operation.

THE SKELETON IS STILL ON DISPLAY in the Comparative Anatomy Gallery. The stuffed animal, its skin varnished and stretched on a cylindrical frame made of oak and Hazelwood hoops, is visible in the Grand Evolution Gallery.
When experts restored the object in 1992 they realised the original horn had been replaced by a much bigger one from a black African rhinoceros. They replaced it with a mould of a truncated Indian rhinoceros horn from the old royal collections, which may in fact have belonged to Louis XV's rhinoceros.

Albino quail and an albino thrush killed by Louis XV and Louis XVI and sent to the king's garden

AN ALBINO QUAIL AND AN ALBINO THRUSH KILLED by Louis XV and Louis XVI, respectively, are on display with the rhinoceros. They were sent to the king's garden in Paris on account of their rarity.

ROOM 1
PLACES ASSOCIATED WITH SCIENCE AT VERSAILLES

A REPLICA OF CORONELLI'S CELESTIAL GLOBE, a symbol of science in the service of power because it shows how the sky looked when Louis XIV was born, is at the entrance. A 360° video shows that every form of scientific endeavour – application, experimentation, teaching, practice and demonstration – took place in the palace and its outbuildings, gardens, parks and environs. A section of the exhibition focuses on each of those areas.

ROOMS 2-1 & 2-2
SCIENCE AND POWER

VERSAILLES, THE ABSOLUTE MONARCHY'S OFFICIAL SEAT for over a century between 1682 and 1789, controlled science through the Academy of Sciences, founded in 1666.

ROOM 2-1
The foundation of the Academy of Sciences

ORIGIN
Prior to Louis XIV's reign, Paris had the old Sorbonne, the Collège de France (founded by François I), the king's garden and the Académie Française (created by Louis XIII), private coteries where learned Frenchmen and foreigners engaged in scientific pursuits. Colbert tied them to the king with the idea of putting science to work in the State's service.

FOUNDATION
In 1666 Colbert gathered a dozen great minds, mostly astronomers, around the Dutchman Huygens. Other famous men were gradually drawn in, such as Jean-Dominique Cassini, who ran the observatory created the following year. Unlike the Royal Society of London founded in 1660, the king did not give the group any rules but members received a yearly stipend.

HOW IT WORKED
The scholars were free to pursue their personal work but also participated in collective projects useful to the kingdom. Some involved Versailles, then under construction, but most focused on issues such as longitudes, the cartography of France and colonial possessions, natural history, etc. Meetings took place at the king's library on Rue Vivienne in Paris.

The Royal Academy of Sciences in the 18th century

REORGANISING THE ACADEMY
In 1699 the king granted the body the official title of Royal Academy and gave it regulations drafted by Pontchartrain, chancellor and secretary of State of the king's household, and his nephew, the abbot Jean-Paul Bignon, who chaired the group, which met in the Louvre's Caryatides Room.

DISCIPLINES
The 20 January 1699 regulations established six sections: geometry, astronomy, mechanics, anatomy, botany and chemistry. Natural history, mineralogy and physics followed in 1785.

COMPOSITION
The academy now had 70 members appointed by the king after being nominated by its members. Ten "honorary" members were chosen from among "recommendable" courtiers for their intelligence in mathematics or physics, from among whom the king named the president and vice-president.

AN INSTRUMENT OF SCIENTIFIC POLICY
Early in the year the academy would hold a public meeting and go to Versailles to present its publications. The ritual underscored that the Royal Academy of Science offered the king tangible proof of the work he subsidised. The relationship between Paris and Versailles was now defined and the academy served as the instrument of official science.

Introducing the members of the Academy of Sciences to Louis XIV

THIS PAINTING, WHICH SHOWS THE KING VISITING THE ACADEMY, celebrates the society's founding in 1666 and the creation of the observatory (in the background) the following year. However, the scene is imaginary because it predates the monarch's only visit to the academy, on 5 December 1681.

LOUIS XIV IS SURROUNDED BY HIS BROTHER, Monsieur, and the aristocrats in his retinue. In the centre of the composition, Colbert acts as a go-between, introducing him to the academicians (many of whom remain hard to identify).

The Court

1. **THE KING**
2. **MONSEIGNEUR LE DAUPHIN**
3. **MONSIEUR, THE KING'S BROTHER**
4. **THE DUC DE ROCHECHOUART** (1600-1675), first gentleman of the king's chamber

The government

5. **JEAN-BAPTISTE COLBERT** (1619-1683), the king's finance minister and superintendent of buildings
6. **CHARLES PERRAULT** (1628-1703), the king's first architect

The academicians

7. **ABBOT DU HAMEL** (1624-1706), academy secretary, anatomist and the king's chaplain
8. **PIERRE DE CARCAVI** (1600-1684), mathematician, surveyor, the king's librarian
9. **CHRISTIAAN HUYGENS** (1629-1695), dutch mathematician, physicist and astronomer
10. **GIOVANNI DOMENICO CASSINI** (1626-1712), italian astronomer and mathematician

Hypothetical identifications

11. **ABBOT JEAN PICARD** (1620-1682), astronomer and mathematician
12. **PHILIPPE DE LA HIRE** (1640-1718), astronomer, mathematician, surveyor, academician in 1678
13. **ABBOT EDME MARIOTTE** (ca. 1620-1684), physicist
14. **JACQUES BORELLI** (ca. 1623-1689), chemist

THE OBJECTS EVOKE AREAS OF INQUIRY or the young academy's achievements.

RIGHT
The Languedoc Canal project, a celestial globe (by Blaeu), Abbot Picard's quadrant and, on the floor, a telescope.

ON THE TABLE
A map of the moon (probably by Cassini, 1671-1679), drawing of a dissection performed by Perrault (1675 -1676) and small precision scale.

BACKGROUND, LEFT
Under an armillary sphere, skeletons of animals dissected in the 1670s and a pendulum clock invented by Huygens.

IN THE FOREGROUND
A globe showing France and Guyana, alluding to the 1671 Richer expedition.

ROOMS 2-2
Science and power

THE MINISTERS
At Versailles, the Academy of Sciences was under the authority of the superintendent of the king's buildings – first Colbert, then Louvois – and, later, the secretary of State of the king's household. Those ministers participated in appointing academicians and setting up scientific institutions, commissioned "inquiries" throughout the kingdom and expeditions to distant places, granted subsidies and encouraged the dissemination of research.

THE PRIORITIES
During the Colbert period the goals were to enhance the king's prestige and serve the kingdom with pragmatic, useful projects. Later, under the Encyclopaedists' influence, moral utility and public welfare were the aims. The focus was on astronomy for navigation, geometry and chemistry for artillery, geodesics and cartography for surveying, medicine and pharmacy for public health, botany and agronomy for fighting famines and physics for technical applications.

FOUNDING SCHOOLS AND FORMING SCIENTIFIC ACADEMIES
The earliest engineering schools were founded to help further useful technology and industries: the École des ponts et chaussées (civil engineering, 1747-1760), École du génie maritime (shipbuilding, 1741-1765), École du génie (engineering) in Mézières (1748-1756) for fortifications and École des mines (mining, 1783). The Academy of Surgery (1731-1748), veterinary schools in Lyon and Alfort (1761-1765), agriculture societies (1760-1763) and Royal Society of Medicine (1778) came into being at the same time.

SCIENTISTS AT THE COURT
Versailles recruited the greatest scientists, including the king's, queen's and princes' physicians, surgeons and apothecaries; the teachers of the Children of France; and army engineers. Their presence at the Court attracted other learned men. For example Diderot, d'Alembert, Helvétius, Dupont de Nemours, Turgot and others visited Quesnay, Louis XV's doctor, in his palace entresol. Scholars, scientists and enlightened courtiers frequented salons in Paris and Versailles.

THE GOVERNMENT AND THE "ENCYCLOPEDIA"
The palace suspended publication of Diderot's and d'Alembert's *Encyclopaedia* in 1752 and banned it altogether in 1759 because some articles cast doubt on religion and institutions, but it continued encouraging the accumulation of knowledge and technology. As early as 1664 Colbert had planned a *Description des arts et metiers* ("description of crafts and trades"), an initiative pursued by the *Enquête du Régent* (1716-1718), a broad examination of the level of technological development and the status of natural resources in every region in France.

THE ISSUE DIVIDED THE COURT, with Madame de Pompadour, a group of courtiers, and Malesherbes, even though he was in charge of censorship, backing the Encyclopaedists. It split the academicians as well. Some felt dispossessed of their work, leading Duhamel du Monceau to resume the old Description des arts et métiers projet, published from 1761 on. After many trials and tribulations, the banned, unabridged Encyclopaedia was published – clandestinely – in 1765.

ROOM 3
VERSAILLES, A PLACE WHERE SCIENCE AND TECHNOLOGY WERE APPLIED

VERSAILLES' UNPRECEDENTED SCALE POSED FRESH CHALLENGES REQUIRING NEW SCIENTIFIC AND TECHNOLOGICAL SOLUTIONS. THE NEW NEEDS INVOLVED THE GARDENS AND GROUNDS MORE THAN THE PALACE, BUT SCIENCE AND TECHNOLOGY WERE ALSO PUT TO WORK MAKING THE ROYAL RESIDENCE MORE BEAUTIFUL AND COMFORTABLE. IN RETURN, SCIENTISTS WERE GLORIFIED.

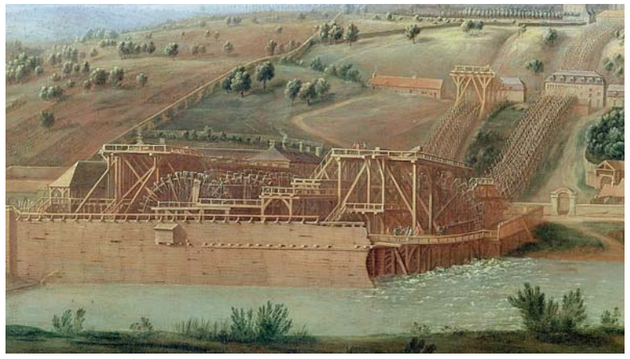
Surveying and measuring: geodesics, geometry and optics

VERSAILLES' TERRAIN DID NOT NATURALLY LEND ITSELF to the king's projects: it was rough and had no water the fountains could use. The grounds and environs had to be measured and surveyed. To find water, the astronomer-abbot Jean Picard led a team of academicians to develop and perfect new instruments and calculations taking the Earth's roundness into account.

PICARD ADAPTED HIS ASTRONOMICAL TELESCOPES to surveying instruments in order to measure angles and levels. He proved it was impossible to divert the waters of the Loire, a plan that Riquet, who had built the Canal du Midi, had convinced Colbert was the right solution. In addition to saving the Royal Treasury money, Picard's solutions were practical and sustainable for supplying water for drinking as well as for the fountains.

MEANWHILE, Le Nôtre and his assistants were busy measuring and surveying the estate's grounds with instruments and geometry and optics knowledge that dated for the most part to the late 16th century but had been refined and theorised since then.

Waterworks and hydraulics



THE PROGRESS OF SCIENCE
The empirical became scientific. Pierre Perrault published the first flow calculations in *De l'origine des fontaines* (*On the Origin of Fountains*, 1674). Mariotte worked on his 1686 *Traité du mouvement des eaux et autres fluides (Treatise on the Movement of Water and Other Fluids)*, completed after his death at the request of Louvois. Gobert, intendant of the king's buildings, began the first studies on friction, which he described in his 1702 *Traité pratique des forces mouvantes (Practical Treatise on Moving Forces)*. Alongside Picard, Römer calculated the pipe thicknesses necessary for their resistance.

HYDRAULIC MECHANICS
The huge network relied on gravity: water had to be not just plentiful (9,500m3 for a two-and-a-half hour show) but also on higher ground. A whole complex of pumps, aqueducts, reservoirs and artificial ponds was created. The Marly machine, the system's most spectacular feature, was based on technical principles that had been mastered since the early 16th century but never implemented on such a scale.

SCIENCE AND POLITICS
The king always wanted more water. Louvois asked Vauban to divert the Eure to Versailles. To cross the valley at Maintenon, Vauban, with Academy of Sciences backing, proposed a drain-aqueduct that was never built. Louvois, who wanted to enhance the king's glory, ordered the building of a 70m-tall bridge-aqueduct. The pre-eminence of political and symbolic matters in technical choices led to the failure of this over-ambitious projet, which was interrupted by wars.

Construction

OTHER THAN USING SWEDISH COPPER to cover the roofs, Versailles' builders employed traditional, tried and true techniques and instruments, such as the squirrel-cage crane depicted at the end of the north wing, visible in the palace view opposite.

HOWEVER, A RECENT LASER READING of the Grande Orangerie's vaults shows that Jules Hardouin-Mansart applied a stone-cutting method conceived by La Hire, an Academy of Sciences member whom Louvois appointed as head of the Royal Academy of Architecture in order to encourage the application of sciences to that art.

Science in the décors

PRESIDING OVER THE ICONOGRAPHIC PROGRAMMES of Versailles' décors, Colbert saw to it that the sciences and techniques he encouraged were not forgotten. No sooner were discoveries made than they appeared in an allegorical form.

ASTRONOMY WAS THE MOST PRESTIGIOUS SCIENCE in the 17th century. The moons of Saturn and Jupiter, which Cassini and Römer had just discovered, feature in the Grand Apartments, where each room is dedicated to a planet. Cupids calculate longitudes in a corner of the Salon des Nobles.

THE PUBLICATION OF CLAUDE PERRAULT'S *book on the natural history of animals* and its contribution to the Royal Menagerie determined the subject of an allegorical scene on an arch in the Salon de Mercure: *Alexander has animals brought to Aristotle so that he can write his natural history.*

NO SOONER HAD THE CANAL DU MIDI BEEN OPENED in 1681 when it was celebrated in the Hall of Mirrors, whose décor was completed in 1684.

UNDER LOUIS XVI THE WAINSCOTING IN THE KING'S WARDROBE depicted an electrical machine, vacuum pump, Archimedes screw, crane for unloading ships, etc. – all recent inventions.

For beauty and comfort

THE ARCHIVES – minutes of Academy of Sciences meetings, registries of inventions and papers of the buildings' or factories' administration – reveal science and technology's ongoing contributions to meet the palace's needs.

ROOMS 4-1 & 4-2
VERSAILLES, A SCIENCE AND TECHNOLOGY TESTING GROUND

VERSAILLES BENEFITED FROM SCIENCE AND TECHNOLOGY. IN RETURN, VERSAILLES OFFERED ITS OUTBUILDINGS, POOLS, GARDENS AND FARMLAND AS RESEARCH RESOURCES. SCIENTISTS STUDIED PLANTS AND ANIMALS; SUBSIDIES ALLOWED THEM TO BUY EXPENSIVE EQUIPMENT. ZOOLOGY, BOTANY, AGRONOMY, MEDICINE, SURGERY AND PHARMACY RECEIVED MOST OF THE RESOURCES.

ROOM 4-1
Zoology and veterinary sciences

THE KING'S GARDEN
Louis XIII created the *Royal Garden of Medicinal Plants* in Paris and put it under his first physician's authority. The garden's original purpose was to train doctors and apothecaries but the study of nature – natural history – gradually replaced medicine in the 18th century. Buffon headed the institution from 1739 to 1788.

DISSECTIONS OF MENAGERIE ANIMALS
In the 1660s animal anatomy began a period of unprecedented growth. The Versailles menagerie was created for pleasure but fuelled that development by providing scientists with animal cadavers. Claude Perrault and du Verney dissected them at the academy, in the king's garden or even at Versailles, sometimes in the monarch's presence, for the academy's publication of *L'Histoire naturelle des animaux (The Natural History of Animals)*. In the 1720s La Peyronie, Louis XV's first surgeon, performed a whole series of dissections in front of the young king. In Buffon's monumental *Histoire naturelle*, which he began writing in the 1740s, the sections about the beaver, zebu, tiger, and rhinoceros and many other animals relied on specimens from the royal "zoo".

FROM PRESTIGE TO USEFULNESS: THE TRIANON MENAGERIE

Madame de Pompadour, Buffon's protector, talked Louis XV into creating a domestic menagerie at Trianon from 1749 to 1751 for her entertainment, but also for utility. It included a cowshed, sheepfold, two big chicken coops and an area for acclimatising foreign breeds, including Dutch cows, all kinds of pigeons and "beautiful species of chickens". Buffon and Buch'oz must have made the most of the collection for their works.

MERINO SHEEP AT RAMBOUILLET

Under Louis XVI, Daubenton crossed merino sheep with French breeds to improve the fineness of wool. In 1786, after Buffon's successful experiments at Montbard, the king of Spain sent Louis XVI 300 ewes and 50 rams from his country's best breeders. They were immediately brought to the experimental farm at the Rambouillet estate, which Louis XVI had just acquired.

HIPPIATRICS AT THE STABLES

The Lafosse family, the king's blacksmiths for generations, contributed advances in their craft as well as in anatomy and the veterinary sciences. In 1761 Philippe-Étienne, the dynasty's last member, proposed creating a hippiatric school but Bourgelat, who founded the veterinary schools in Lyon and Alfort, supplanted the projet.

ROOM 4-1 & 4-2
Medicine, surgery and pharmacy

WITH FEW EXCEPTIONS, THE COURT WAS NOT THE SETTING OF EXPERIMENTS IN THE LITERAL MEANING OF THE WORD BUT PARTICIPATED IN MEDICAL PROGRESS BY CALLING IN THE BEST PRACTITIONERS AND PROMOTING NEW TECHNIQUES.

THE MEDICAL PROFESSION AT THE COURT

The doctors, surgeons and apothecaries tied to the king and royal family were good, numerous and assiduous at the Court. Most of them, Academy of Sciences members and teachers at the king's garden, were abreast of the latest discoveries. Their publications or practices made almost all of them famous: the physicians Fagon, Chirac, Helvétius, Sénac, Lassone, Vicq d'Azyr (Marie-Antoinette's doctor), surgeons Félix de Tassy, Maréchal, Dionis, La Peyronie and La Martinière, apothecaries Lémery and the Boulduc dynasty. Obtaining a position at the Court was the crowning achievement in a notable career; sometimes it led to something more. For example, Louis XV summoned the eye surgeon Daviel, a cataract specialist and threw all his weight behind a technique that had not yet met with general agreement.

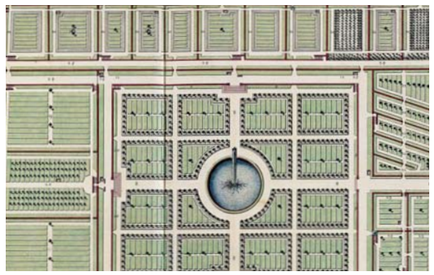
THE REACH OF MEDICAL PROCEDURES ON THE ROYAL FAMILY'S MEMBERS

Kings and princes would make a powerful gesture in favour of science when they submitted their sacred bodies and royal blood to medical procedures, turning them into examples and guaranteeing their safety. Examples include Félix de Tassy's operation on Louis XIV's fistula in 1686, new remedies based on antimony, ipecac or quinine, jaw operations on Louis XV's sons and Lassone's smallpox inoculations of the young princes the day after their father died of the disease.

COMMAND AND DISSEMINATION OF KNOWLEDGE

Louis XIV and Louis XV bought very costly "secret" remedies. Louis XV took many ineffective steps against charlatans and poisoners before creating, on Dodart's initiative, the Secret Remedies Commission (1728), most of whose members were Court officers; the Royal Society of Medicine replaced it in 1778. At Versailles itself, the king's apothecaries had laboratories at the end of the south wing and gave public lectures.

ROOM 4-2
Botany



THE KING'S KITCHEN GARDEN

The fruit and vegetable garden (expanded to nine hectares in the 1680s) was created to supply the royal tables with produce but also served as a place of scientific experimentation under La Quintinie, whose *'Instructions pour les jardins fruitiers et potagers (Instructions for the 'Fruit and Vegetable Gardens)* was considered authoritative as soon as it posthumously came out in 1690. The garden's novelty lay mostly in the large-scale development of new methods for forcing vegetables and pruning fruit trees, and the use of expensive glass bells and chassis.

TRIANON, EUROPE'S BIGGEST BOTANICAL COLLECTION

When Louis XV decided to plant new gardens at Trianon in 1750, he entrusted the task to Claude Richard, a horticulturalist and hothouse specialist, who, with his son Antoine, created Europe's biggest botanical collection (4,000 varieties). For over 30 years French botanists brought plants back from their expeditions around the world or exchanged them with foreign scientists, including the Swedish botanist Linné. The new plants were acclimated in the fruit, flower and botanical gardens, which had double-glazed greenhouses, and in pools for the aquatic varieties.

CLASSIFICATION, RESEARCH AND DISSEMINATION

In 1759 botanist Bernard de Jussieu and his assistant, Michel Adanson, catalogued the king's garden, where plants were laid out according to his new "natural" method based on the observation of all their parts, but mainly the embryo in the seed and the stamens. His work was part of the general concern with classification characterising the period. The carefully named and classified collection's rich variety encouraged the growth of research. Commerson had just classified the plants at Trianon, where Duchesne performed experiments on crossing strawberries – the earliest research on the evolution of species.

ROOM 4-2
Agronomy

THE IMAGE OF THE NOURISHING KING

The 1740s saw the growth of a veritable craze for agronomy and rural economy. Louis XV encouraged agricultural research at Versailles to fight famine. In 1754 he experimented the new agricultural system proposed by Duhamel du Monceau, an agronomist, engineer and economist who spent much time at Trianon.

THE FIGHT AGAINST BLIGHT

In 1755 Mathieu Tillet, who had already worked on "the cause that corrupts and blackens wheat grains in their ears", was invited to pursue his research at Trianon. He grew blighted and cured seeds on a nearly one-hectare plot and sent the results to the intendants in all the provinces to be disseminated. Sauvigney, an agronomist from Franche-Comté, experimented with fodder plants (alfalfa and clover) at Trianon.

NEW CROPS

Meanwhile, Richard successfully acclimated rice in a canal dug in the botanical garden, a feat Linné admired, and Duchesne developed new squash species. Twenty years later, in 1786, Parmentier came to Versailles to give Louis XVI potato flowers, thanking the king for letting him grow the tubers on the Sablons field in Neuilly.

DEVISING THE FIRST ECONOMIC MODEL

Quesnay and his physiocrat friends collected agricultural and economic data in his palace entresol, where in 1758 he devised the Tableau œconomique, a schematic representation of the kingdom's economy aiming to show the flow of real wealth and the net product, making it possible to calculate the impact of political measures such as tax reform or the liberalisation of foreign trade.

ROOM 5
VERSAILLES, A PLACE WHERE SCIENCE AND TECHNOLOGY WERE TAUGHT

THE YOUNG PRINCES LEARNED SCIENCE AND TECHNOLOGY AS PART OF AN EDUCATION THAT AIMED TO MAKE THEM FIT TO REIGN OR AT LEAST COMMAND. FROM LOUIS XIV TO LOUIS XVI THEIR SCIENCE INSTRUCTION, WHICH UNTIL THEN HAD CONSISTED OF LEARNING ABOUT "CURIOUS" SCIENTIFIC PHENOMENA AND ACQUIRING A PRACTICAL KNOWLEDGE OF CRAFTS, WAS TRANSFORMED INTO METHODICAL LESSONS ON THE CUTTING EDGE OF KNOWLEDGE, DISPENSED BY THE KINGDOM'S GREATEST MINDS.

THE SUBJECTS EMPHASIZED

The traditional subjects were geometry for fortifications and artillery, geography for military topography, and astronomy, a subject considered worthy of kings. That was still true for the princes of Louis XIV's Court and for Louis XV, although greater emphasis was put on the sciences on account of the Regent's influence and the young king's personal interests.

CHANGES

In the mid-18th century education was organised into disciplines and at Versailles the experimental sciences (physics and chemistry) really came into their own. Knowledge about plants and animals was taught on walks at Trianon. Mathematics split off from surveying and naval engineering became a science in its own right.

TEACHERS

Academicians rather than Jesuits had taught sciences since Louis XIV and Bossuet, the Grand Dauphin's tutor but, unlike other forms of knowledge, they were entrusted to visiting scientists or engineers until the creation of new, permanent teaching positions, including geography for Delisle in 1718 and physics and natural history for Nollet in 1758. Two science sub-tutors were hired in 1760.

DEDICATED PLACES

Under Louis XIV trips to the academy, observatory or king's garden for experiments supplemented lessons in theory. Young Louis XV also visited private cabinets (Truchet and Pajot d'Ons-en-Bray) until returning to Versailles, where libraries and laboratories were created for him. In 1744 Louis XV transformed Louis XIV's prestigious Medals Cabinet to make it available for Abbot Nollet before the learned priest created the Physics Cabinet for the Children of France at the Hôtel des Menus-Plaisirs in 1758. The Marquis de Sérent's cabinet of ethnographic curiosities was acquired for the princes' education on the eve of the Revolution.

THE EARLIEST TEACHING INSTRUMENTS

The earliest teaching instruments, created by Nollet "to make invisible things visible", appeared alongside models or miniature armies, which had already long existed, globes, mathematics kits and treatises written specially for the young princes. An inventory of the Physics Cabinet for the Children of France shows there were over 200 of them.

ROOMS 6-1 & 6-2
VERSAILLES, A PLACE WHERE PRINCES PRACTICED SCIENCE AND TECHNOLOGY

WITTINESS STILL MATTERED MORE THAN SERIOUSNESS AT VERSAILLES, DESPITE THE RISING IMPORTANCE OF TEACHING SCIENCE, WHICH WAS NOT CONSIDERED WORTHY OF THE PRINCES' ATTENTION – SO THEY HAD THEIR LESSONS IN THE KING'S PRIVATE STUDIES. SCIENTIFIC INSTRUMENTS, BOOKS AND MANUSCRIPTS WERE AMIDST LOUIS XIV'S RARE, PRECIOUS COLLECTIONS IN HIS STUDY. THE SUN KING PROTECTED THE SCIENCES BUT DID NOT PRACTICE ANY OF THEM, UNLIKE HIS SUCCESSORS, WHOSE SCIENCE CABINETS DEVELOPED ON THREE FLOORS AROUND THE COUR DES CERFS.

ROOM 6-1
Science books in the libraries

EACH PRINCE AND PRINCESS – and even favourites – had a library in his or her private apartments. The number of scientific works was limited but covered every area of research.

LOUIS XV HAD BOOKS ON ALL THE SCIENCES. Most were recent works – either introductions or books on practice, such as Pierre Polinière's *Les Expériences de physique (Physics Experiments)*, Jean-Baptiste Sénac's *Le Nouveau cours de chymie (The New Chemistry Course)* or Chomel's *Abrégé de l'histoire des plantes usuelles (Abridged History of Common Plants)*.

MADAME DE POMPADOUR owned the first edition of the *Encyclopaedia*, which Louis XVI had purchased for her in 1777. Among Louis XV's daughters, Madame Adélaïde seems to have been the most intelligent; she owned a copy of *L'Histoire de l'Académie royale des sciences (The History of the Royal Academy of Sciences).*

LOUIS XVI'S LIBRARY HAD MANY BOOKS on maritime expeditions and works in English, including one on astronomical observations at Greenwich. The Comte de Provence was the most erudite courtier; he owned original Latin editions of Linné's treatises and Newton's *Opuscula*.

MARIE-ANTOINETTE, read little but possessed the major books on botany and zoology published in France, Germany and England, with beautiful watercolour plates.

Louis XV's scientific practices and collections

SCIENTIFIC KNOWLEDGE

Louis XV was one of the most learned princes of his time; his knowledge was primarily scientific. At the age of seven he took a passionate interest in geography and cartography; at 11 he discovered astronomy. On the fringes of his education he learned about surgery and anatomy; medicine led to his interest in botany.

LOUIS XV'S SCIENTIFIC PRACTICES

Louis XV pored over the maps in his geography gallery, attended dissections, classified plants at Trianon, and observed the sky, not missing a single astronomical event.
An optics and physics cabinet on the grounds of his little Château de La Muette housed the biggest telescope in existence at the time.

THE SCIENTISTS' FRIEND

Louis XV sought out the company of great minds, including the astronomers Cassini and his son Cassini de Thury, the Lemonnier brothers – one an astronomer, the other a physician-botanist – the surgeon La Peyronie and, among the courtiers, the Duc d'Ayen, Duc de Croÿ and Duc de Chaulnes, a famous scientist who invented precision instruments.

SCIENCE AND BEAUTY

His collections of art and precious objects included not just paintings, sculptures and gemstones, but also the most beautiful, ornate and up-to-date scientific instruments. Designed for the best minds and made by the finest craftsmen, they reflect the amazing level of knowledge at the time.

Passemant's astronomical clock

PRESENTED TO THE ROYAL ACADEMY OF SCIENCES ON 23 AUGUST 1749, AFTER THE MECHANISM WAS COMPLETED; PRESENTED ON 7 SEPTEMBER 1750 TO THE KING, WHO ACQUIRED IT AND COMMISSIONED THE CASE; BROUGHT TO CHOISY IN OCTOBER 1753, AFTER THE CASE WAS COMPLETED, AND TO VERSAILLES IN JANUARY 1754; NOT SOLD DURING THE REVOLUTION.

PASSEMANT'S ASTRONOMICAL CLOCK, a scientific and technical wonder, is the outcome of 20 years' work. His calculations were a summary of astronomical knowledge at the time. Dauthiau worked on the mechanism for 12 years and it took the Caffieris four years to make the case (Louis XV chose the model).

Engineer: Claude-Siméon Passemant (1702-1769)
Clockmaker: Louis Dauthiau (1730-1809)
Sculptors and bronze artists: Jacques (1678-1755) and Philippe II Caffiéri (1714-1774)

THE ACHIEVEMENT CONSISTED OF CONNECTING what was then considered the infinitely big (the planets' orbits, shown by the moving sphere in the summital globe) to the infinitely small (seconds shown by the swinging pendulum) with phenomenal simplicity: a single shaft with just 60 wheels and pinions driven by the swinging pendulum activates all the movements.

IT SHOWS THE:

- state of the sky at any time according to Copernicus;
- signs of the Zodiac;
- real and average time;
- days, months and years (taking account of leap years);
- phases of the moon.

THE CLOCK CHIMES EVERY QUARTER HOUR, and whenever it is set to do so.
In addition, the difference in dilation of the pendulum's steel and copper acts as a natural thermometer.

THE MECHANISM COMPRISES THREE BLOCKS: that of the pendulum in the front, the chimes in the rear and the planets on top. Each block can be "disengaged" and that of the planets accelerated to predict eclipses. The weights must be raised just 22 cm every six weeks.

AS SOON AS THE CLOCK ARRIVED AT VERSAILLES, it was put in the Grand Study of the king's Small Apartment, which thenceforth became known as the *Cabinet de la Pendule*, or Clock Study.

ROOM 6-2

Louis XVI's scientific practices and collections

A PASSION IN THE KINGDOM'S SERVICE

The inventory of the king's private studies reveals a passion for science and technology that, in addition to his personal interest, reflects his desire to make the kingdom Europe's leading military and industrial power.

NEW ROOMS FOR NEW COLLECTIONS

New masterpieces – Roentgen's secretary incorporating automatons, Lemaire's barometer, Janvier's clock, etc. – joined the collections of curiosities and scientific instruments in the king's private apartment, where rooms were turned into a library, geography gallery and even a "conservatory" of curiosities. The prints and drawings hanging willy-nilly on the beautiful wainscoting attested to the king's interests.

THE SEA AND GEOGRAPHY

Louis XVI, an expert on the sea and geography, surrounded himself with ship models, shipbuilding plans and views of French ports, including Cherbourg, one of his reign's greatest achievements. He corrected his maps himself, followed Captain Cook's voyages and commissioned La Pérouse's scientific expedition.

PHYSICS AND MECHANICS

On the upper floors Louis XVI had 10 laboratories, workshops and libraries, including a chemistry cabinet, physics gallery where he performed electricity experiments, artillery cabinet, two rooms to house his five towers and a forge for the lock and cabinet-making workshops.

ROOM 7

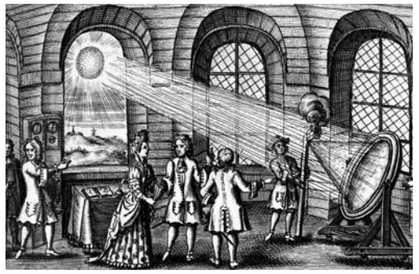
Versailles, a place of demonstrations

A PRESENTATION TO THE KING AND DEMONSTRATION BEFORE THE COURT WERE THE HIGHEST HONOUR. HOWEVER, THE PURPOSE WAS ALSO TO SELL AN OBJECT TO THE CROWN OR FIND OUTLETS WITH MANUFACTURERS, FOR CAPITAL, BOTH PUBLIC AND PRIVATE, WAS CONCENTRATED AT THE COURT.

The *Gazette de France* and *Journal des Savants* attest that presentations to the king occurred very frequently, even though it was not easy to obtain permission because he mistrusted charlatans.

DEMONSTRATIONS BEFORE THE WHOLE COURT were fewer and more like science shows intended to entertain, satisfy curiosity for new discoveries and boost the kingdom's prestige.

Eight examples of presentations to the king or demonstrations before the Court



THE BURNING MIRROR

In 1669 François Villette (1621-1698), a Lyon engineer and the king's fireworks maker, presented a burning mirror he had invented to Louis XIV and the Court at Saint-Germain. Other devices to concentrate the sun's rays were already in the laboratories but this was the first one of its kind and size, a genuine technical wonder. The nearly instantaneous vitrification of stones and bricks, reduction of the greenest wood to ashes and fusion of the hardest steel impressed audiences.

In 1685 Antoine de La Garouste (1644-1710) demonstrated a bigger mirror that was five feet tall. This time Versailles' Little Gallery was the scene of the so-called "phosphorus" experiment, which the king invited princes and princesses to attend. A candle burning front of the mirror lit the whole gallery up so brightly that Louis XIV managed to read a letter at the opposite end of the room: a real wonder!

The king acquired both mirrors for the Academy of Science. The very high temperatures they produced, much hotter than those of the laboratory's furnace, made it possible to put forth hypotheses on the structure of metals.

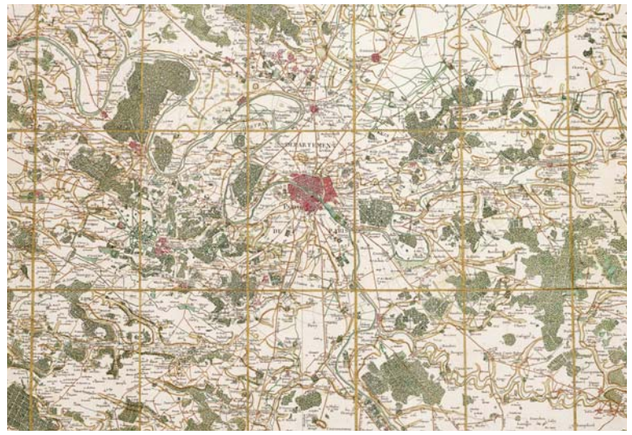
THE ELECTRICITY EXPERIMENT

By Abbot Nollet in the Hall of Mirrors on 13 June 1746, a typical example of science as entertainment:

"Monday 14 June [1746]: I spoke above of the abbot Nollet and his experiments for Monsieur Le Dauphin and the Queen... First he only experimented with hand-rubbed glass tubes. Since then he has had a glass globe made that is moved by a big heated wheel warmed by holding the said globe in his hand... He performed several experiments, all of which were successful, before conducting one in the big gallery here... it was highly successful and very easy to feel... we held hands on the parquet floor, just having to make sure our clothes did not touch each other." (Mémoires du duc de Luynes)

PASSEMANT PRESENTED HIS "CREATION OF THE WORLD" CLOCK to Louis XV on 2 March 1754 to boost his fame; he did not need a buyer because someone had already acquired it. At Trianon the engineer presented the timepiece he had just created at the request of Dupleix, general governor of the India trading posts, for the king of Golconda. The only purpose was to show the king his new achievement. The case depicts the Creation of the land, water, rocks, clouds and sun, at the centre of which the clock gives its various movements to the Earth. The globe rotates, showing which countries are in daylight. Rocks and waterfalls serve as the universal horizon; the sun's ray indicates noon. The poles go up and down depending on the declination of the sun, which indicates the length of the days, succession of the seasons and exact time at every point on the Earth. A planetary in the clouds indicating each planet's movement accelerates when it passes closest to the sun and slows down when it passes furthest, according to astronomical tables. The moon waxes and wanes amidst the clouds.

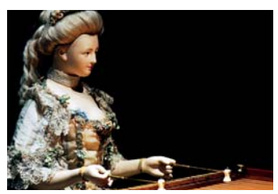
CASSINI'S MAP



On 13 September 1756 the directors of the Société de la Carte de France (Map of France Society), led by Cassini de Thury, presented the first leaf, showing Paris, of "the Map of France drawn geometrically by order of His Majesty", to Louis XV at Versailles in order to convince the king to find the money necessary to complete it: several months earlier a lack of funds on account of war had thrown the project into jeopardy. A worried Cassini went to the king's going-to-bed ceremony in Compiègne and told him of his plan to form a society of private individuals who would step up and provide financial backing. The next day Madame de Pompadour, Louis XV's favourite, and seven major Court figures pledged contributions. The king gave the new society the results of all the work carried out until then and all the necessary instruments. The rest of the money needed for Cassini's map was raised in a matter of days and the project moved forward.

THE HARD-PASTE PORCELAIN MAKING PROCESS AT THE MANUFACTURE DE SÈVRES

On 29 December 1769 Joseph Macquer (1718-1784), a chemist at the Manufacture Royale de Sèvres, tested his recently developed porcelain's heat resistance before Louis XV, Madame Du Barry and major Court figures assembled in the king's new dining room. Sèvres had made a softer, more fragile porcelain until then. The discovery of kaolin in Saint-Yrieix enabled Macquer to produce the first hard-paste porcelain pieces. Every year from 1758 Louis XV exhibited the latest Sèvres products in his private apartment in order to encourage people to buy them as Christmas presents, a tradition Louis XVI continued.



THE TYMPANUM PLAYER

This automaton, which the queen acquired as a curiosity in 1784 but gave to the Academy of Sciences because of its scientific value, is more than just a toy. It was made to illustrate Jacques Vaucanson's (1709-1782) research on body movements with the idea of creating an artificial being that would free people from having to perform repetitive tasks: the robot's forerunner. Aware of its scientific interest, the queen had it deposited at the Academy of Science in 1785.

MESMER'S TUB, an example bordering on charlatanism, 1781.
Franz-Anton Mesmer (1734-1815), a Viennese doctor, came to Paris in 1778. According to his theory of animal magnetism, any individual could heal a neighbour of incurable diseases with a "natural fluid" by passing his or her hands over the body. He met with scorn from the Royal Society of Medicine's experts, but by 1780 Mesmer was so successful he developed the "tub" method for group treatments. Patients tied to one another with ropes sat around a tub with iron rods coming out of it. Crushed glass or iron filings and bottles were at the bottom. Mesmer and his assistants touched the diseased parts of the patients' bodies with the iron rods, setting off hysteria, convulsions and – healings! As soon as he arrived in Paris the first doctor of the Comte d'Artois, Charles Deslon, supported Mesmer, whose patients included the Duchesse de Chaulnes, the queen's lady-in-waiting, and Princess de Lamballe, the superintendent of her household. The procedure convinced the Court's philanthropists. In 1781, probably under their influence, Marie-Antoinette had Mesmer granted a 20,000-pound lifelong annuity and another 10,000 pounds to open a magnetic healing practice and school, under surveillance. He turned the offer down. In 1784 Louis XVI appointed two commissions, one from the Academy of Sciences, the other from the Royal Academy of Medicine, to investigate Mesmer and his techniques, but they handed down split opinions. Mesmer left France in 1785, rebuking his students for not having kept his "secret".

THE HOT-AIR BALLOON
On 19 September 1783 the most famous demonstration before the Court ensured the king's backing for its inventors and boosted the kingdom's prestige.
Support from the Academy of Science helped the Montgolfier brothers, Joseph (1740-1810) and Étienne (1745-1799), obtain permission to demonstrate their hot-air balloon at Versailles. The azure balloon with the king's initials on it was tethered 19 metres above the palace's forecourt. A wicker basket containing a sheep, duck and cock inside was tied to it: this was the first test flight with living creatures. The balloon was released, rose to a height of approximately 500 metres, flew eight minutes and landed at Vaucresson with all the passengers safe and sound. The king, who watched the ascension through a telescope from his apartment, received Étienne de Montgolfier and expressed his satisfaction. The demonstration was important for the brothers, ensuring them Louis XVI's support, but also for the king because foreign delegations were at the Court that day to sign the Treaty of Paris. The hot-air balloon then became a royal invention illustrating French ingenuity to the European nations. The first human flight took place at the Château de La Muette on the following 21 November.

Part I – The exhibition

THE EXHIBITION'S DESIGN

FRÉDÉRIC BEAUCLAIR DESIGNED THE EXHIBITION WITH THE AIM OF MAKING IT EASIER FOR THE GENERAL PUBLIC TO UNDERSTAND THE MANY THEMES AND OBJECTS. GEOMETRICAL VOLUMES, A STRUCTURED WALK-THROUGH AND NUMEROUS STATE-OF-THE-ART TECHNIQUES WILL HELP ACQUAINT VISITORS WITH SCIENCE, A SUBJECT THAT MIGHT SEEM DAUNTING.

EACH SECTION FEATURES ITS OWN DESIGN THEME in close connection with the scientific discipline covered. The exhibition has many allusions. For example, the reconstruction of Madame de Chateauroux's flying chair makes the application of the sciences in daily life more explicit.

THE DESIGN SEEKS to be deliberately spectacular right from the start, where a replica of Coronelli's globe, the symbol of science in the service of power, and a 360° elliptical screen immerse visitors into the heart of the places associated with science at Versailles. This spatial introduction's temporal counterpart is Henri Testelin's 1666 painting *La fondation de l'Académie des sciences (The Foundation of the Academy of Sciences)*.

- *Versailles, a place where science was applied,* sheds light on the building site's scale and the new challenges it raised. The use of anamorphosis stresses that idea.
- The *zoology* section features the same layout, an octagonal shape and adjoining courtyards, as the floor plan of the old menagerie built in the gardens of Versailles between 1662 and 1664.
- The *botany* room resembles a big glasshouse based on the ones at Trianon that Richard used to acclimate the pineapple.
- The room devoted to the *princes' education* attempts to recreate the mood of the Cabinet des Enfants de France at Versailles' Hôtel des Menus-plaisirs by assembling all the scientific instruments on a big laboratory table.
- Louis XV's and Louis XVI's scientific passions and collections are on display in a section that has the feel of a library and collection cabinets. The room is cluttered with objects and decorated with the motifs of the sovereign's wardrobe cabinet, where all the period's latest technological inventions are shown, to recreate the spirit of cabinets of curiosities under Louis XVI.
- The room focusing on the scientific demonstrations that took place before the court and king at Versailles is designed to look like a "fair-exhibition" with various stands, each devoted to an experiment and its history up to the presentation at Versailles.

Part I – The exhibition

MULTIMEDIA IN THE EXHIBITION

DESIGN OF THE EXHIBITION'S MULTIMEDIA PROGRAMME

Patricia Bouchenot-Déchin
Polphile Conseil

PRODUCTION OF THE 360° FILM

François-Hugues de Vaumas/Aloest productions

3D MODELLING OF THE MENAGERIE

Hubert Naudeix/Aristeas

AT THE EXHIBITION'S ENTRANCE A 360° FILM SHOWN ON A 3M HIGH ELLIPTICAL SCREEN 32M AROUND PLUNGES VISITORS INTO THE HEART OF A VERSAILLES THEY HAVE NEVER IMAGINED. TO THEIR GREAT SURPRISE, SEVERAL SPECTACULAR PROCESSES IMMERSE THEM SEVERAL MINUTES IN TWO CENTURIES OF HISTORY AND NEARLY 20 PLACES ASSOCIATED WITH THE SCIENCES TO SEE THE FIRST HOT-AIR BALLOON FLIGHT, THE DISSECTION OF A HORSE IN THE STABLES, AN ECLIPSE AT THE GRAND TRIANON AND OTHER EVENTS AS IF THEY WERE THERE.

FOR THE FIRST TIME IN THE WORLD, a camera with eight HD lenses to make a seamless 360° film has been mounted on a cable-cam set up between two 60m high cranes for a spectacular tracking shot over 400m above the palace. In another post-production feat, animation and computer graphics work has been done on exceptionally large images for the first time. Integrating moving images of old documents into contemporary, spectacular pictures allows a touching, dynamic evocation of the excitement at the court of Versailles. In meeting that challenge Versailles proves it is still a place where spectacular experiments, innovations and demonstrations still occur, just as they did under Louis XIV's reign.

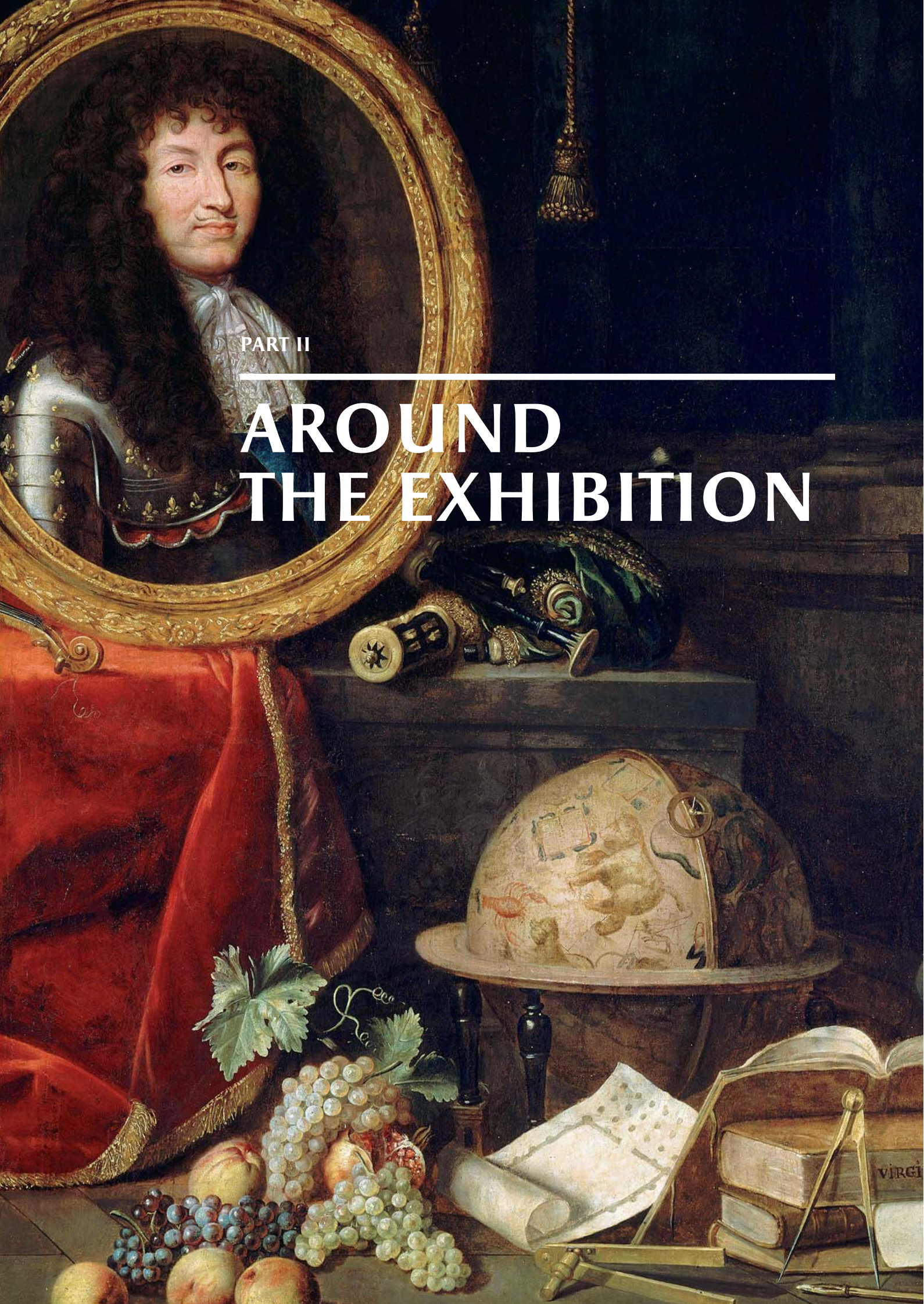
Animations, videos and 3D reconstructions to understand and discover better

THIS IS THE FIRST TIME A 3D RECONSTRUCTION of Louis XIV's exotic menagerie has made it possible to see and walk through the legendary place. The digital model is on display in the room devoted to zoology and veterinary science.

AN ANIMATED PRESENTATION OF HOW WATER WAS BROUGHT TO VERSAILLES, technical feat during Louis XIV's century, is opposite a model of the Marly machine and helps visitors better understand the scientific challenges involved.

THE WORK OF SEVERAL GENERATIONS OF CARTOGRAPHERS on the Cassini, map, the first detailed map of France, is put in its historical context.

VIDEOS ON THE HALL OF MIRRORS ELECTRICITY EXPERIMENT, presentation of the burning mirror to Louis XIV, optical games around the hidden portrait of Louis XV and use and functioning of scientific, technical and artistic masterpieces illustrate the relationships between the objects and works on display and put them into perspective.



PART II

AROUND THE EXHIBITION

Part II – Around the exhibition

ONLINE: AN INTERNET SITE, WEB TV AND BLOG PLATFORM FOR TEACHERS

www.sciences.chateauversailles.fr

SINCE THE *Court Splendour and Louis XIV, the Man and the King* shows, each historical exhibition at Versailles has been an opportunity to produce a website.
The www.sciences.chateauversailles.fr site was designed to:

- **MAKE PEOPLE WANT TO SEE THE SHOW** and help them prepare for it with scientific anecdotes and unusual, unexpected objects at Versailles;
- **OFFER A CONTENT OF REFERENCE** that the show's commissioners have established for those wanting to learn more about its various themes.
- **FOR PEOPLE WHO ARE UNABLE TO VISIT THE EXHIBITION OR WANT TO SEE IT AGAIN,** the site will stay online after the show is over.
- **SPECIAL CARE WAS TAKEN IN PRODUCING THE CONTENT OF THE VIDEOS** shown on the site, the social networks and sites with shared content.
- **THE WEB TV, WHICH HAS APPROXIMATELY 20 VIDEOS**, offers a behind-the-scenes glimpse of the show with unusual images such as work on the rooms and the objects' arrival, in particular Louis XV's rhinoceros.

The web series "In search of..."

THE SIX EPISODES IN THE WEB SERIES "IN SEARCH OF...", which will be online before the show, present the exhibition's main institutional partners and major, mysterious or unusual works.

IN SEARCH OF...

- **THE SUN KING'S BURNING MIRROR MIROIR ARDENT** (Paris Observatory)
- **THE WAXEN INDIAN HEAD EN CIRE** (Versailles municipal library)
- **THE SCALPEL AND RETRACTOR** used to operate on Louis XIV (Musée d'histoire de la medicine)
- **LOUIS XVI'S MERINO SHEEP** (Bergerie nationale de Rambouillet)
- **MARIE-ANTOINETTE'S TYMPANUM PLAYER** (Conservatoire national des Arts et Métiers)
- **LOUIS XV'S RHINOCEROS** (Museum d'Histoire naturelle)

Blog platform for teachers

THE CHÂTEAU DE VERSAILLES IS OPENING A BLOG PLATFORM on its Internet site in partnership with the Versailles Education Authority's CRDP. The platform, accessible from 26 October by logging onto http://blogs.chateauversailles.fr, enables teachers with an academic e-mail address (e.g.: prenom.nom@ac-versailles.fr) to create a blog to discuss and share their visit to the château or its aftermath and in-class applications.

Part II – Around the exhibition

PUBLICATIONS

The exhibition catalogue
Science and Curiosities at the Court of Versailles

A collective work edited by Béatrix Saule and Catherine Arminjon
In bookstores mid-October 2010

THE COURT OF VERSAILLES WAS A PLACE OF EXCHANGES. Many scientists assiduously frequented the palace as the princes' tutors, health officers, etc. Others came for a presentation to the king, the highest honour and a way to obtain subsidies to continue their work or find outlets for their inventions.

THE CREATION OF THE ACADEMY OF SCIENCES in 1666 established a contract between scientists and the government; there was no break between academic circles and the court until the Revolution. According to its statutes the academy had 10 "honorary members" chosen by the king from among the greatest enlightened aristocrats, who had "cabinets of curiosities".

CONTENTS

I. *Science and power,* by Béatrix Saule, Roger Hahn, Françoise Bléchet, Alexandre Lunel, Yves Laissus, Simone Mazauric, Madeleine Pinault Sorensen, Loïc Charles, Antoine Picon and Antoine Lilti
II. *Versailles, a place where science was applied,* by Guy Picolet, G. Farhat, P. Dechin, Hélène Verin, Raphaël Morera, François Bellec, Jean-Luc Tamborero, Nicolas Milovanovic et Raphaël Masson
III. *Versailles, a testing ground,* by Joan Pieragnoli, Stéphane Schmitt, Annick Heitzmann, Cécile Callou, Bernard Denis, Christophe Degueurce, Catriona Seth, Antoine Jacobsohn, Gabriela Lamy, Denis Lamy, Nadine Vivier, A. Muratori-Philip and Christine Lehman
IV. *Science and the princes* by Pascal Mormiche, Paola Bertucci, Bruno Belhoste, Pierre Xavier Hans, Antony Turner, Geneviève Guilleminot, Thomas Widemann, Marine Masure-Vetter, Amiral Bellec and Jan Vandermissen
V. *Versailles, a place of consecration, demonstration and dissemination* by Christine Lehman, Christine Blondel, Monique Pelletier, Marie Thébaud-Sorger, François Zanetti and Antoine d'Albis
VI. Conclusion by Robert Halleux

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Authors

Fifty experts in their fields present major breakthroughs in mathematics, astronomy, physics, chemistry, botany, medicine and other areas.

Publisher

Co-published by Rmn éditions/Établissement public du musée et du domaine national de Versailles,
24 x 28cm, soft cover with flaps, 280 pages, 300 colour illustrations, €45, nomenclature EP 19 5683, ISBN 978-2-7118-5683-1,
on sale in all bookstores

Découvertes special issue
Versailles and science

DÉCOUVERTES GALLIMARD PRESS CONTACTS

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Catherine Arminjon
New - 8 modules / €8.40
Published 14 October 2010

VERSAILLES, THE SEAT OF POWER, was also a **court of great minds** where science was everywhere. All decisions were made at Versailles, which could not afford to overlook the importance of scientific research.

THIS «DÉCOUVERTES» SPECIAL ISSUE INCLUDES EIGHT FOLDING MODULES:

1. THE CREATION OF THE ACADEMY OF SCIENCES in 1666 set up a new relationship between the government and scientists, who no longer had to fret about material concerns; in return, their research had to benefit the kingdom. That political choice fostered scientific and intellectual growth in architecture, engineering, hydraulics, geography, physics, cartography, medical science, electricity and other fields.

2. SCIENCE IN THE SERVICE OF BUILDING AND IMPROVEMENTS AT VERSAILLES. The latest research in hydraulics, geometry and astrophysics were implemented at the worksite, garden layout and digging of the Grand Canal.

3. THE PRINCES' SCIENTIFIC EDUCATION. The king's children received a modern education with state-of-the-art tools.

4. THE KING'S PASSIONS FOR SCIENCE. The same was true for the monarchs' personal practice: their studies had instruments of great scientific and technical value.

5. ZOOLOGY. With the exotic menagerie and dissections of animals, and, later, the development of domestic breeds, Versailles offered research resources and ushered in the birth of veterinary science.

6. BOTANY AND AGRONOMY. A veritable zoology, botany and agronomy research centre was created at Trianon. Plant species, including pineapples, figs, coffee and rice, were acclimated at the king's garden.

7. MEDICINE, SURGERY AND PHARMACY. Medicine moved forward by leaps and bounds under the Bourbons. France's first Academy of Surgery was founded in 1736 with Louis XV's backing; treatises on medicine, the earliest child delivery instructions taught in all the provinces, the princes' inoculation against smallpox and Gautier Dagoty's anatomical plates attest to scientific advances.

8. DEMONSTRATIONS BEFORE THE KING. Many great minds, including the most famous scientists, frequented the court. A presentation to the king – Cassini's map of France, the Hall of Mirrors electricity experiment, the tympanum player (the first robot), the Montgolfier brothers' aerostatic demonstration, etc. – was considered the highest honour.

Author

Catherine Arminjon, general heritage curator, is co-commissioner of the "Science and Curiosities at the Court of Versailles" exhibition.

Science Under the Ancien Regime

Vincent Noce
Published in October 2010

PRESS CONTACTS

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THIS LITTLE BOOK IS THE SECOND IN THE NEW COLLECTION, whose goal is to confront an art critic's gaze and ponderings with commentary by scientists, historians, etc. for an unexpected account, didactically written for the general public.

THE BOOK EXPLORES SOME FAILURES, hoaxes and big disputes that are also part of the history of science but have faded into oblivion as scientific certainties have been established.
It is full of accidents, mistakes and fierce controversies on the world's origins, the nature/nurture debate, the Cartesian theory of the pineal gland as the seat of the soul, the theory of fluids, etc., that have stoked the passions of intellectuals and artists – who demonstrate that error can also be a source of creativity.

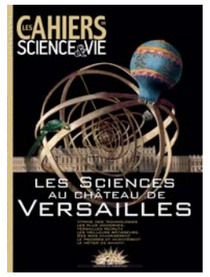
Author

Vincent Noce is an art critic at *Libération*, member of the heritage journalists association and author of *Descente aux enchères* (Lattès 2002). In 2005 he published *the Égoïste collection* on art thefts and trafficking (Lattès).

Publisher

Rmn éditions, softcover pocketbook, approximately €12, ISBN 978-2-7118-5784-5, on sale in all bookstores.

Les Cahiers de Science & Vie
Versailles – Power and Science et *The Sciences at the Château de Versailles*



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Claire Leprovost
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claire.leprovost@mondadori.fr

***Les Cahiers de Science & Vie*, partners of *Science and Curiosities at the Court of Versailles*, introduces you to science's place at the court of Versailles.**
***Cahiers de Science & Vie* issue 119 and special issue 4 of October 2010.**
On sale from 12 October to 14 December 2010.

WHAT LINKS MIGHT EXIST between the modernism espoused by the scientific revolution's leaders and the absolute monarchy, long associated with obscurantism?

WHAT COMMON GROUND CAN BE IMAGINED between scientists, who have a reputation for rigour and seriousness, and a dazzling court known for frivolity?

BY NURTURING EACH OTHER, Versailles and men of science strengthened the kingdom's power and helped spread the idea of scientific progress.

WHAT SCIENCE OWES VERSAILLES

- Louis XIV is not really known for his scientific policy, yet by founding the Academy of Sciences, offering its members stipends and assigning them a precise mission, the Sun King invented the profession of scientist. He also created the Paris Observatory (*page 24*) and opposed the archconservative University of Paris to impose William Harvey's blood circulation theory, ordering it taught at the king's garden, the natural history museum's forerunner. *Read on page 18.* Louis XIV was also behind the emergence of veterinary medicine (*page 42*), the comparative anatomy of animals (*page 45*) and the creation of the King's Garden, which concentrated the most important breakthroughs in agronomy and botany (*page 34*).
- Louis XV, who was passionate about astronomy and cartography, worked for the recognition of surgery, commissioned César-François Cassini to make the first complete map of France (*page 48*) and implemented public health measures (*page 54*).
- Louis XVI, who was also interested in science and technology, invested much in the *La Pérouse* expedition and financed the Montgolfier brothers' experiments with his own funds.

All three backed the scientific revolution, which began in the 17th century and led to great discoveries.

WHAT VERSAILLES OWES SCIENCE

Versailles was beholden to science on several counts. What would its status have been without the unprecedented technical knowledge implemented in building this colossal, 50-year project that turned a dismal swamp into France's glittering Ancien Regime showcase? *Read on page 58*

How could anyone overlook the design and implementation of an extraordinary marvel of hydraulic engineering, the Marly machine, designed for the continuous spectacle of the great fountains? *Read on page 68*

To entertain the court, the kings invited scientists to present their discoveries, the highest honour they could receive. The Montgolfier brothers' hot-air balloon flight above the palace courtyard in 1783 had a tremendous impact throughout Europe. *Read on page 78*

Also on sale

A 164-page deluxe special double issue.
This issue contains the best articles *Les Cahiers de Science & Vie* has published on the builders of Versailles' science and technology, presented in a new layout.

The Versailles Menagerie

Gérard Mabille and Joan Pieragnoli
Published November 2010

THE MENAGERIE, LOUIS XIV'S FIRST CREATION AT VERSAILLES, quickly became a place where people came to stroll and seek entertainment; the king enjoyed going there on the Grand Canal in chosen company. Later he gave it to his beloved granddaughter, the Duchesse de Bourgogne.

THE MENAGERIE, WHICH NO LONGER EXISTS, was designed by architect Louis Le Vau and remodelled by Jules Hardouin-Mansart. Seven enclosures around a pavilion acting as an observatory contained exotic birds and animals, including ostriches, pelicans, game of all kinds and even a rhinoceros under Louis XV. Many visitors wrote of their delight and amazement at beholding the creatures.
But Versailles' animals were also remarkable objects of study for the brand new Academy of Sciences.

THE BOOK'S 3D RECREATION of the Menagerie and its odd inhabitants helps to share contemporaries' enthusiasm for this building with an unprecedented function.

PRESS CONTACT

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Auteurs

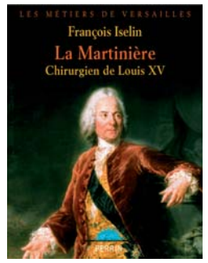
Gérard Mabille was the head curator of the Museum of Decorative Arts the Louvre Museum's objets d'art department before becoming the head curator at the Château de Versailles.

Joan Pieragnoli, a historian and art historian, has been doing research on the Versailles Menagerie since 2007.

Publisher

Éditions Honoré Clair
Format: 21.5 x 24 cm
Bound, mat film
96 pages
115 colour illustrations
Price not including tax: €24
ISBN: 978-2-918371-07-6

La Martinière
Louis XV's Surgeon



François Iselin
Published 30 September 2010

"SIRE, VERSAILLES IS THE PLACE TO BE ILL!" the king's surgeon and old friend La Martinière told Louis XV, confined by Madame Du Barry at the Petit Trianon, on 29 April 1774. The good doctor did not leave his patient's bedside until his death 15 days later. François Iselin, a surgeon for 45 years, traces the extraordinary social rise of Germain Pichault, an apprentice surgeon-barber from Poitu who became Louis XV's First Surgeon. At 24 he entered the service of Charles de Lorraine, Grand Ecuyer de France (head stablemaster), becoming his friend and protégé. Thanks to him, under the name "de La Martinière" he began a prestigious medical career specialising in surgery, still an inexact science in the 18th century.

LA MARTINIÈRE BROKE NEW GROUND by launching fundamental reforms in the exercise of the profession, which became a medical speciality practiced by university doctors, but also in its teaching: he set up the Royal Academy of Surgery and built the surgery school, which still exists.
But being the King's Surgeon was also a round-the-clock occupation: attentive to the king's every need and slightest complaint, he never his left side from the moment he rose until the time he went to bed – a relationship that created intimate, secret bonds.

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Author

François Iselin, a surgeon with a passionate interest in the history of medicine, spent years researching and writing this detailed, informative book. He has published many works about medicine.

Éditions

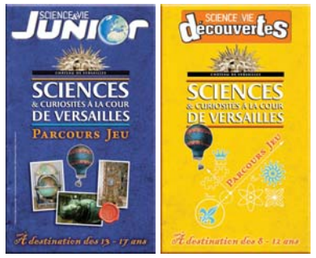
Éditions Perrin
220 pages
Price: €19.90

Part II – Around the exhibition

EDUCATIONAL ACTIVITIES

FOR TEACHERS AND YOUNG PEOPLE

A game in partnership with *Science & Vie Junior* and *Science & Vie Découvertes*



BECAUSE CURIOSITY IS A VERY NICE FLAW TO HAVE!
Science & Vie Junior, the teen press leader, and ***Science & Vie Découvertes***, the magazine for children aged eight to 12, wanted to team up with the "Science and Curiosities at the Court of Versailles" exhibition by creating a game geared towards each age bracket. Young people will be able to discover the show in a fun way with riddles allowing them to find a password and win educational prizes.

AVAILABLE FREE AT THE EXHIBITION ENTRANCE
Downloadable from **www.sciences.chateauversailles.fr**

CRDP/Château de Versailles partnership

THE VERSAILLES EDUCATION AUTHORITY REGIONAL EDUCATIONAL DOCUMENTATION CENTRE (CRDP) and the Château de Versailles are teaming up to offer teachers wishing to introduce the palace and its history to their students educational resources and tools to help them with the visit.

THIS LONG-TERM PARTNERSHIP established when the *Science and Curiosities at the Court of Versailles* exhibition opened consists of **publishing an issue of the CRDP's magazine Docsciences** about the show, setting up an educational resources portal with materials from the Château de Versailles and **designing a blog platform** for teachers.

DOCSCIENCES

VERSAILLES, SCIENCES AT THE COURT, a special issue on the exhibition.
Co-published by CRDP/Château de Versailles.

«DOCSCIENCES JUNIOR» ON PAPER and www.docsciences.fr on the web are at the crossroads between science and art history. They offer educators, students' parents and children's guides lavish artwork and many teaching resources on two levels ("DocJunior" and DocExpert").

THE MATERIALS ENABLE EVERYBODY to plan or prolong the visit and digitally round out knowledge by pursuing the wonderful journey through science and its history. They are indispensable supplementary tools for all the show's visitors.

A VISIT / A BLOG

THIS PLATFORM OFFERS PRIMARY AND SECONDARY SCHOOL TEACHERS the chance to create blogs in order to plan their visit or do post-visit work with their class. To help them, the Château de Versailles education department has made the blog it specially created when **the platform (http://blogs.chateauversailles.fr)** was launched available to them. They will find helpful hints for developing their blogs (integration of videos, personalisation, etc.) and content that the Château de Versailles team developed to enhance it (texts, images, etc.).

THE BLOG PLATFORM is the first step in the multi-faceted partnership between the CRDP and the Château de Versailles, which will continue after the exhibition closes.

Curiosphère partnership

CURIOSPHERE.TV, THE FRANCE TÉLÉVISIONS EDUCATIONAL WEBTV intended for all education mediators, offers over 2,100 videos illustrating various themes such as sustainable development, media education and orientation, as well as 280 dossiers on the First World War, Israeli-Palestinian, Napoleon and other topics and 13 spheres on music, the sky, space, prevention, etc.

NATURALLY, CURIOSPHERE.TV has teamed up with the *Science and Curiosities at the Court of Versailles* show. To mark the occasion, find videos and a dossier on curiosphere.tv, in particular on how science was used to build the palace and educate the princes at the court.
http://www.curiosphere.tv

SCHOOL GROUPS

4 November 2010 to 25 February 2011.
Booking required.

FAMILIES

22 and 30 December 2010 from 10:30am to 12:30pm.
Booking required.

INFORMATION AND BOOKING

Educational activities office
tel.01 30 83 78 00
activites.educatives@chateauversailles.fr

EDUCATIONAL ACTIVITIES AT THE CHÂTEAU DE VERSAILLES

Staged event

A gentleman has just been appointed to the king's cabinet of sciences. He is amazed: an astonishing world is unveiled to him. He shares his surprise at the progress and breakthroughs presented at the Court with young visitors. Observations of the planets, the science of water and fountains, electricity and the earliest balloon flights were dreams that came true at Versailles.
A staged event directed and acted by a member of the Compagnie Baroque theatre company.

Meetings with teachers

The government's power over science, which the superintendent of buildings and, later, the secretary of State of the king's household exercised at Versailles, fostered France's intellectual and scientific growth throughout the 17th and 18th centuries. The royal collections' books and instruments, recognised as art masterpieces, will also be seen for their scientific and technical value.
Guided tour by exhibition commissioner **Catherine Arminjon.**
Reserved in priority for teachers from the mid-primary to secondary school levels.
Wednesdays 17 and 24 November 2010 at 2pm. Maximum 30 people per date.

Part II – Around the exhibition

SYMPOSIUM

THE COURT & SCIENCE: THE BIRTH OF SCIENCE POLICIES IN EUROPEAN COURTS IN THE 17TH AND 18TH CENTURIES

3, 4 & 5 February 2011 – lower gallery of the Château de Versailles

International symposium organised by the Château de Versailles Research Centre in cooperation with the International Academy of the History of Science

Free admission subject to the availability of seats
Booking required

By internet
www.chateauversailles-recherche.fr
(in "Evènement sur inscription")

By phone 01 30 83 75 12
By fax 01 30 83 77 49

By post
Centre de recherche du château de Versailles – Virginie Esteve – Pavillon de Jussieu -RP 834 – 78 008 Versailles cedex

UNDER THE ANCIEN REGIME THE COURT, as the seat of power and the place where capital was concentrated, backed scientific research as long as it served the kingdom's general interests and its sovereign's glory. A new idea came to the fore at a time when no separation existed between two cultures – scientific and technical on one side, humanist and artistic on the other. Most of the time, modernity could not exist with the princes' active backing. The court, a place of experimentation and technological innovation, appears to have been a driving force behind research leading to practical applications. The involvement of Europe's sovereigns – through their education and special relationships with scientists – often fuelled the growth of scientific knowledge in many fields.

THE SYMPOSIUM WILL PRIMARILY FOCUS on European states' scientific policies during the Ancien Regime, concentrating particularly on "fundamental" research and "useful" research (improving health, fighting famine, making technological progress, constructing buildings, etc.).

PROGRAMME

Thursday 3 February 2011

Opening, Jean-Jacques Aillagon, *president of the Établissement public du musée et du domaine national de Versailles* & Béatrix Saule, *director-general of the Établissement public du musée et du domaine national de Versailles*

The roots of the idea of science policy in Europe
General introduction, Robert Halleux, *University of Liège, International Academy of the History of Science*

SESSION I – NATIONAL SCIENCE POLICIES I
Chair: Robert Halleux, University of Liège, International Academy of the History of Science
- *Science as an integration practice in the society of princes. Monaco's Grimaldis and scientific curiosity (17th-18th centuries)*, Thomas Fouilleron, Nice-Sophia Antipolis University
- *Science policy in Berlin*, Eberhard Heinrich Knobloch, University of Berlin, International Academy of the History of Science
- *Science policy in Dresden*, Peter Plassmeyer, Kunstgewerbemuseum Schloss Pillnitz, Staatliche Kunstsammlungen Dresden

SESSION II – NATIONAL SCIENCE POLICIES II
Chair: Eberhard Heinrich Knobloch, University of Berlin, International Academy of the History of Science
- *The court and the protection of technological innovations in France and England (1600-1666)*, Aurélien Ruellet, François Rabelais-Tours University
- *The court of France and science, 17th-18th centuries*, Chantal Grell, University of Versailles Saint-Quentin-en-Yvelines
- *Science policy in the Ottoman Empire*, Efthymos Nicolaïdis, National Foundation of Scientific Research, Athens
- *The Marquis of Pombal and Portugal's science policy*, Henrique Leitao, Centro de História das Ciências, University of Lisbon

Friday 4 February 2011

SESSION III – SCIENTIFIC SOVEREIGNS
Chair: Chantal Grell, University of Versailles Saint-Quentin-en-Yvelines
- *The king, the army and science under the reign of Carlos III*, Jean-Paul Le Flem, Paris IV–Sorbonne University
- *EExploring the evidence of scientific and artistic patronage of Polish King Jan III Sobieski, 1674-1696): a focus on the Library in Wilanów Palace*, Marta Golabek, Wilanow Palace
- *Lost illusions. Süssmilch, the Academy of Berlin and Frederick II: the failure of a population policy*, Jean-Marc Rohrbasser, Institut national d'études démographiques
- *Science policies and practices at the court of Rome during the Enlightenment. The little-known renewal of the Pio-Clementine pontificates (1769-1799)*, Gilles Montègre, Grenoble II-Pierre Mendès-France University

SESSION IV – EXCHANGES AND DISSEMINATION OF SCIENCE AT THE COURT

Chair: Efthymos Nicolaïdis, National Foundation of Scientific Research, Athens

- *The journeys ordered by the king at Versailles*, Jan Vandersmissen, University of Liège
- *Versailles and Philadelphia: the case of André Michaux*, James E. McClellan III, College of Arts & Letters, Stevens Institute of Technology
- *The colonies office and scientific knowledge: the relationship between science and action in the building of an Atlantic project (1763-1767)*, Marion Godfroy, University of Caen

Saturday 5 February 2011

SESSION V – SCIENTIFIC PRACTICES AT THE COURT

Chair: Simone Mazauric, University of Nancy 2

- *Scientific instruments and practices: the development of choices and practices in the Physics Cabinet of the Children of France at Versailles after the Menus Plaisirs inventories (1758-1765)*, Pascale Mormiche, University of Versailles Saint-Quentin-en-Yvelines
- *The court as a place of accreditation and vector of the dissemination of remedies. Quinine and a few other drugs in the 17th century*, Samir Boumediene, University of Nancy 2
- *From fundamental research to applied research: Maurepas' recruitment of Duhamel du Monceau to the navy: a secret recruitment?*, Patrick Villiers, Littoral-côte d'Opale University
- Conclusions, Michel Blay, Centre national de la recherche scientifique

PART III

THE EXHIBITION PARTNERS

Part III – The exhibition partners

SPONSORS

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ALTEN IS DELIGHTED TO CONTRIBUTE THE SUCCESS OF THE *Sciences and Curiosities at the Court of Versailles* exhibition. Our sponsorship dovetails with our convictions: technological innovation is at the heart of Franc's development and, more broadly, the progress of societies.

VERSAILLES ON THE CUTTING EDGE OF TECHNOLOGY reveals the little-known face of its role as a place of scientific research. The Academy of Sciences, founded on Colbert's initiative, was the prototype of research organisations centuries later. Scientific projects strengthened France's economic potential. As time went on, faith in the progress of scientific and technical knowledge became a powerful vector of social change. Engineering is one of the world's noblest professions; ALTEN has made it its strategy.

IMAGINING TECHNOLOGICAL SOLUTIONS TO MEET TOMORROW'S MAJOR CHALLENGES. At Versailles, questions about the causes of physical phenomena came before observation and experimentation. The show raises our awareness of how important imagination, creativity and innovation were in economic, social and personal development.

Simon Azoulay
Alten chairman and CEO

Part III – The exhibition partners

SPONSORS

CONTACT

Sophie Chavallon
Communication director
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AFTER ACTIVELY PARTICIPATING in the recent, beautiful exhibition *Louis XIV, the Man and the King,* Saint-Gobain is pleased to support *Science and Curiosities at the Court of Versailles.* Our own history is deeply bound up with that of this place in many ways – and not just the 1684 delivery of the 357 mirrors in the hall of the same name. Versailles was the highly symbolic seat of power and the geometrical crossroads of a whole society, between «the Court and city», as historians say. In the 18th century our board of directors had already perfectly grasped how the place worked and who the main players were. Two of our most famous shareholders, and feminist forerunners no less – Madame Geoffrin and her daughter, the Marquise de la Ferté-Imbault – skilfully deployed the art of what is today called political and economic *lobbying* with ministers and leading members of the Court. Madame Geoffrin was actively involved in elections to the Academy of Sciences, and the palace is where the privilege of being Versailles' exclusive supplier was renewed in 1757 during a sensational interview with Madame de Pompadour. Versailles is also where Madame de la Ferté-Imbault gave the future Louis XVI's sisters, Madame Clotilde and Madame Elisabeth, philosophy lessons from 1771 to 1773.

THE GROUNDBREAKING SHOW'S theme deeply involves us and represents continuity in other ways. Part of it focuses on hydraulic engineering and waterworks, two areas where our subsidiary, Saint-Gobain PAM, which has recently completed an exemplary project replacing some of the original pipes on the palace grounds, is involved around the world. Another theme is windows and mirrors. I think visitors will find it interesting to see the documents our company has loaned, which underscore the importance of the 1688 invention of glass casting, the first breakthrough of its kind in Saint-Gobain's long history. That decisive technological innovation made it possible to significantly increase the size of windows and mirrors, which had a tremendous influence on the décors not only of Versailles, but also of other chateaus as well as mansions in big towns. We see that as the roots of one of our biggest markets today: interior decoration. Lastly, as Saint-Gobain positions itself on the new and renewable energy market by developing its solar power skills and products, we could not help but be struck by the fact that the «burning mirror» experiment, the forerunner of that new technology, took place at Versailles.

History is full of thought-provoking connections, **FROM THE SUN KING'S FOUNDING OF OUR COMPANY IN 1665** to solar power today.

Pierre-André de Chalendar
Saint-Gobain chairman and CEO

Part III – The exhibition partners

SPONSORS

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ENCOURAGING ENCOUNTERS BETWEEN ART AND THE PUBLIC has always been at the heart of the cultural and artistic action Samsung has carried out in France for over 10 years. By supporting the *Science and Curiosities at the Court of Versailles* exhibition, Samsung is helping to reveal an unexpected facet of the world-famous historical site: that of a veritable science and experimentation laboratory. The show's original, groundbreaking design integrating many multimedia tools and the latest Samsung technology enable visitors to see Versailles as a centre of innovation still on the cutting edge of technology.

Part III – The exhibition partners

SPONSORS

Fondation Macdonald Stewart

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THE MACDONALD STEWART FOUNDATION, a private non-profit group, has pursued corporate philanthropy for over a century. Its scope of activity includes medicine, education and preservation of the historic and cultural heritage.

MRS LILIANE M. STEWART CHAIRS THE FOUNDATION, which actively helps preserve and raise awareness of the achievements inventors, discoverers, creators, artists and craftsmen have left us over the centuries. The foundation has particularly encouraged Franco-Canadian cultural exchanges, especially on the museum scene, through the Stewart Museum.

OVER THE YEARS THE MUSEUM HAS GATHERED REMARKABLE COLLECTIONS of globes, old maps and scientific instruments that have enriched the documentary body of Canadian history. In cooperation with many French institutions, it has hosted prestigious exhibitions, including *Madame de Pompadour and the Flowering of the Arts, From Trammel to Table and Napoleon on Saint Helena Island*.

THE CONCERN WITH PRESERVING HISTORY AND RAISING AWARENESS OF A SHARED HERITAGE TRANSLATES into major preservation efforts and support for the protection of architectural heritage. Thanks to the foundation's work, historical treasures shedding light on the history of New France and the French presence in the New World are now accessible, restored and protected.

WITH COOPERATION AND SUPPORT FROM THE SOCIÉTÉ DES AMIS DE JACQUES CARTIER, the foundation continuously contributes to the smooth running and long-term viability of the Jacques-Cartier Manor in Saint-Malo, the famous explorer's last residence.

FOR SEVERAL YEARS THE SOCIETY HAS PARTICIPATED IN THE BROUAGE CHURCH'S RESTORATION by offering stained-glass windows with support from the governments of the provinces that Samuel de Champlain explored.

WITH HELP FROM THE INSTITUT FRANCE-CANADA, it has participated in the creation of the Prix Samuel de Champlain, awarded annually since 1997 to people who contribute to the French language's influence on both sides of the Atlantic.

THROUGH THE LILIANE AND DAVID M. STEWART PROGRAMME for Modern Design created in 1991, the foundation promotes knowledge about international design by organising travelling exhibitions and publishing works on the most important aspects of 20th-century design.

THE FOUNDATION HELPS STRENGTHEN THE LINK BETWEEN YESTERDAY AND TODAY, between knowledge and know-how, for the benefit of present and future generations by encouraging historical research and the collection of artefacts tracing the establishment of European civilisation in the New World and the development and collection of present and future contemporary design.

Part III – The exhibition partners

THE ROYAL FOUNDATIONS' INSTITUTIONAL HEIRS

{BnF

TO FIND OUT MORE

www.bnf.fr

THE BIBLIOTHÈQUE NATIONALE DE FRANCE, A VAST MEMORY IN MOTION

THE BIBLIOTHÈQUE NATIONALE DE FRANCE LOOKS AFTER A HERITAGE ASSEMBLED OVER FIVE CENTURIES THROUGH COPYRIGHT REGISTRATION AND AN ACTIVE ACQUISITION POLICY. ITS MISSION IS TO COLLECT THOSE TREASURES, PRESERVE THEM AND MAKE THEM AVAILABLE TO A WIDE PUBLIC. THE PURPOSE OF THE BNF, THE TRUSTEE OF THE NATIONAL HERITAGE, IS TO TRANSMIT IT TO PRESENT AND FUTURE GENERATIONS. IT CONTRIBUTES TO THE NATIONAL COMMUNITY'S CULTURAL INFLUENCE AND THE DISSEMINATION OF ITS UNIVERSAL VALUES.

THE BNF'S HISTORY is intertwined with that of France; it began when François I created copyright registration in 1537. The Royal Library came into its own under the reign of Louis XIV, when the royal collections that could no longer fit into the Louvre were moved to Rue Vivienne and gradually opened to the public. It became the National Library during the Revolution. Its area and collections grew at a steady pace in the 19th and 20th centuries, becoming one of France's greatest cultural institutions when it merged with the Bibliothèque de France in 1994 and the François-Mitterrand site was completed in 1995. The BNF boasts over 14 million books and printed materials, 12 million posters, photographs and prints, as well as manuscripts, periodicals, maps, plans, scores, sound documents, videos, coins and medals. They cover every intellectual, artistic and scientific discipline. The public can consult the continuously growing collections at five sites (François-Mitterrand, Richelieu, Bibliothèque de l'Arsenal and Bibliothèque-Musée de l'Opéra in Paris and Maison Jean-Vilar in Avignon), which welcomed over 1.3 million people in 2009. The BNF publishes and disseminates digitised reference catalogues in order to ensure access to the entire national and international intellectual community. The bnf.fr site provides access to all its catalogues and its online library Gallica.
The BNF hosts many thematic and monographic exhibitions, on site or online, that allow everybody to discover its collections, from the most unexpected to the most precious. In recent years some of them, such as "The legend of King Arthur", "Controversies", "Qumrân, the secret of the Dead Sea scrolls", the Henri Cartier-Bresson photo show and the current "Raymond Depardon's France" show have been tremendously successful. They have also been an opportunity to honour the artists who have entrusted us with their works and the collectors who have made donations.
The library hosts an intense cultural life including symposia, conferences, lectures, readings, concerts and educational actions. Famous specialists lead the conferences, which are organised in series about literature, science or politics and focus on every area of knowledge.

Part III – The exhibition partners

THE ROYAL FOUNDATIONS' INSTITUTIONAL HEIRS

Bibliothèque municipale
VERSAILLES

CONTACT

5, rue de l'Indépendance américaine
78000 Versailles
tel. 01 39 07 13 20 - Fax. 01 39 07 13 22
bibliotheque@versailles.fr
www.bibliotheques.versailles.fr

The Versailles Municipal Library **INHERITED PART OF THE COLLECTIONS OF THE CHÂTEAU DE VERSAILLES** and the great Court families. It boasts over 100,000 volumes printed from the late 15th century to 1811.

THE PRESTIGIOUS SETTING OF LOUIS XV'S FORMER NAVY AND FOREIGN AFFAIRS MINISTRY, which Jean-Baptiste Berthier built in 1761-1762 on the initiative of the Duc de Choiseul, houses outstanding collections confiscated during the Revolution from the libraries of Kings Louis XIV, XV and XVI, Marie-Antoinette at Trianon, Madame Du Barry, the Comte and Comtesse de Provence, Louis XV's daughters, etc.

THE COLLECTIONS ARE TIED TO COURT LIFE. Albums from the King's Study document the milestones of Louis XIV's reign and illustrate the young king's tastes and interests (Israël Sylvestre's and Van der Meulen's royal houses, Le Brun's tapestries, ancient statues and busts, the 1662 Carrousel and the Fêtes de Versailles). There are also 18th-century albums of royal weddings.

BINDINGS FEATURING THE KING'S, PRINCES' AND SENIOR CIVIL SERVANTS' COATS OF ARMS form the core of the collections, which grew with various 19th- and 20th-century bequests and gifts, in particular the Jean and Henriette Lebaudy donation. Especially noteworthy are collections devoted to 16th-century poetry, religious books with emblems, Jansenism, 17th- and 18th-century French music scores inherited from the king's music library, 3,000 literary and diplomatic history manuscripts from the same period, 19th- and 20th-century literary manuscripts, old periodicals, and books, prints and photographs about Versailles.

EVERYBODY IS WELCOME TO ITS RECORD LIBRARY, Happy Hour library and neighbourhood annexes, more orientated towards public reading. Researchers, who can consult the catalogue – digital up to 1811, from 1980 to the present and soon from 1811 to 1914 – appreciate its collections (over 750,000 documents and 900 current periodical titles). Music scores (the Philidor Collection), 17th- and 18th-century images of court life, Versailles manuscripts and 19th- and early 20th-century local newspapers have been digitised in partnership with the Bibliothèque Nationale de France, Ministry of Culture, Château de Versailles Research Centre and Yvelines Departmental Archives. The history of the buildings and collections features in a 2010 éditions Chaudun publication on *war and foreign affairs ministry buildings* edited by Basile Baudez, Elisabeth Maisonnier and Emmanuel Penicault.

Part III – The exhibition partners

THE ROYAL FOUNDATIONS' INSTITUTIONAL HEIRS

musée des arts et métiers le cnam !

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www.arts-et-metiers.net

THE MUSÉE DES ARTS ET MÉTIERS, WHICH BOASTS A COLLECTION OF APPROXIMATELY 80,000 OBJECTS, is the heir to the machine theatres and physics cabinets that flourished in Europe's great courts from the Renaissance to the Enlightenment. It houses the collections of the Conservatoire National des Arts et Métiers, an institution created in the middle of the Reign of Terror in 1794 on a proposal by Abbé Grégoire, who wanted to gather all the «machines, models, tools, books and drawings» intended to perfect French industry under one roof. The first technical objects included the machines Jacques de Vaucanson created or brought together at the Hôtel de Mortagne in Paris, which became the "King's Cabinet of Mechanics" in 1782. The physics cabinets of Abbé Nollet and Alexandre Charles and, later, Antoine Laurent de Lavoisier's laboratory, soon joined the prestigious collection, which in 1798 moved to the former priory of Saint-Martin-des-Champs, where it still is today. Throughout the 19th century donations from manufacturers, scientific societies and the universal exhibitions gradually expanded the collections, forming a rare heritage tracing the history of scientific knowledge and technological innovation from the Enlightenment to the present. That heritage, which serves the general public as well as students training to become high-level technicians or engineers, is presented in seven major themed collections (scientific instruments, materials, construction, communication, energy, mechanics and transport). The Conservatoire National des Arts et Métiers, an institution devoted to superior lifelong professional training, offers a retrospective of the development of science and technology.

THE ROYAL FOUNDATIONS' INSTITUTIONAL HEIRS

l'Observatoire de Paris

LOCATION AND CONTACTS

The institution is located at three sites:

Paris
61 avenue de l'Observatoire
75014 Paris (headquarters)
tel. 01 40 51 23 01

Meudon
5 place Jules Janssen
92195 Meudon
tel. 01 45 07 76 27

Nançay
Station de radioastronomie,
route de Souesmes
18330 Nançay
tel. 02 48 51 86 21

THE PARIS OBSERVATORY, A MAJOR ASTROPHYSICS RESEARCH CENTRE

FOUNDED IN 1667, THE PARIS OBSERVATORY IS EUROPE'S BIGGEST ASTROPHYSICS RESEARCH INSTITUTION AND ONE OF THE WORLD'S MOST ACTIVE AND PRODUCTIVE ASTRONOMY CENTRES. IT EMPLOYS 750 PEOPLE.

RESEARCH

THE PARIS OBSERVATORY'S ACTIVITIES COVER ALL THE MAIN ASTRONOMY AND ASTROPHYSICS RESEARCH THEMES. Researchers focus on the measurement of space and time, the planets and their moons, the stars and their environments, the galaxies, and the origins of the universe. The scope of its activities requires close interactions between various disciplines, a fruitful national cooperation policy and international relations.

TEACHING

THE PARIS OBSERVATORY IS A FRENCH ASTRONOMY RESEARCH INSTITUTE with the status of a major public scientific, cultural and professional institution. Like a university, it can confer degrees and offers a master's in the sciences of the universe and space technology, a unique programme in partnership with major Île-de-France universities. The observatory is the seat of the Île-de-France Astronomy and Astrophysics Graduate School, which offers a first-rate, internationally recognised three-year programme.

DISSEMINATION OF SCIENTIFIC AND TECHNICAL KNOWLEDGE

THE PARIS OBSERVATORY OFFERS A PACKED SCHEDULE OF PUBLIC EVENTS and mediation (www.grandpublic.obspm.fr). The goal of these activities is to spread scientific knowledge and stir a broad public's interest in the development of ideas and technology that have led to the latest astronomical knowledge. They offer a wide audience a lively approach to the sky and the cosmos and the possibility of direct contact with researchers.

THE ROYAL FOUNDATIONS' INSTITUTIONAL HEIRS

INSTITUT DE FRANCE
Académie des sciences

TO FIND OUT MORE

tel. 01 44 41 45 51
www.academie-sciences.fr

THE ACADEMY OF SCIENCES: ORIGINS TO THE 21ST CENTURY

THE FIRST ACADEMY OF SCIENCES (1666-1699)

THE ACADEMY OF SCIENCES WAS FOUNDED after Colbert's 1666 decision to set up an institution devoted to developing science and advising the government on technical matters. It met in the king's library but had no statutes or written regulations.

THE ROYAL ACADEMY OF SCIENCES (1699-1793)

LOUIS XIV ENACTED THE FIRST OFFICIAL REGULATION FOUNDING THE ROYAL ACADEMY OF SCIENCES ON 20 JANUARY 1699. It was located in the Louvre and included 70 members: *10 honorary members, 20 resident fellows* (three surveyors, three astronomers, three mechanics, three anatomists, three chemists, three botanists and a permanent secretary and treasurer), who did most of the academic work, *20 associates and 20 students*. The academy's work and publications (History and Memoirs) put it at the forefront of the growth of scientific knowledge during the 18th century. The Convention abolished all the academies on 8 August 1793.

THE FIRST CLASS OF THE NATIONAL INSTITUTE OF ARTS AND SCIENCES (1795-1816)

IN 1795 THE CONSTITUTION OF 22 AUGUST AND THE LAW OF 25 OCTOBER on the organisation of public education set up a National *Institute of Arts and Sciences* grouping together the old academies, which had no organic ties between them under the Ancien Regime.

THE NATIONAL INSTITUTE HAD THREE CLASSES: *hysical and mathematical sciences; moral and political sciences; and literature and fine arts.* Scientists were the most numerous (60 out of 144 members). The first class was divided into 10 sections (mathematics, mechanical arts, astronomy, experimental physics, chemistry, natural history and mineralogy, botany and zoology, medicine and surgery, rural economy and veterinary science).

THE CONSULAR DECREE OF JANUARY 1803 reorganised the National Institute into four classes. An 11th section, geography and navigation, was added to the first class. The total complement was increased to 63 members, 100 correspondents and eight foreign associates. The sections were split up into two divisions: mathematics and physical sciences.
In application of the decree of 20 March 1805, the institute left the Louvre in 1806 and moved into the old Collège des Quatre-Nations, where it still is today.

1816

IN 1816 THE RESTORATION renamed the institute the academy and gave it autonomy while keeping it within the Institut de France, which had five academies after the Academy of Moral and Political Sciences was re-established in 1832. In 1835, François Arago's influence led to the creation of the *Comptes Rendus de l'Académie des sciences,* which quickly became an essential national and international publication.

THE 20TH CENTURY

THE STATE REACTED TO THE TREMENDOUS STRIDES IN FUNDAMENTAL RESEARCH by reorganising national scientific research and, starting in the 1930s, setting up various structures with closer ties to industrial applications and economic life. In 1976 the Academy of Sciences underwent a deep reform, welcoming scientists involved in recent research developments, to remain faithful to its calling and be recognised as the scientific community's spokesperson.

THE 21TH CENTURY

A REFORM MOVEMENT RESUMED, leading to a new definition of the Academy of Sciences' missions and structures, approved by decrees in 2002 and 2003.
Today the Academy of Sciences brings together French scientists and top foreign researchers. It has 234 members, 107 correspondents and 140 foreign associates representing a broad spectrum of scientific disciplines. At each election, half the new members must be under 55 years old.
The academy reflects, evaluates and makes proposals, in particular with regard to social issues raised by the development of science and its applications, the organisation and quality of research and science teaching, the development of international scientific relations and the influence of science as an essential part of modern culture.

Part III – The exhibition partners

THE ROYAL FOUNDATIONS' INSTITUTIONAL HEIRS

Muséum national d'Histoire naturelle

A FEW KEY FIGURES

Five missions: research, collections, teaching, expertise, dissemination

1,900 people, including 450 researchers

68 million specimens in the collections

350 master's and PhD students

Over two million visitors a year

12 sites in Paris and in regions

TO FIND OUT MORE

www.mnhn.fr

THE MUSEUM HAS ADDRESSED TODAY'S BURNING ISSUES – BIODIVERSITY AND THE PRESERVATION OF NATURE – EVERY DAY FOR 350 YEARS.

IN 1635 THE ROYAL GARDEN WAS CREATED as a place to teach and to grow medicinal plants. In 1793 the Convention issued a decree turning it into the Museum of Natural History. It has been a place of major discoveries in the natural sciences for four centuries. Over time it has been developed by great minds – Buffon in the 18th century and Daubenton, Lamarck, Geoffroy Saint-Hilaire and Cuvier in the 19th – who provided unparalleled teaching, added to and studied the collections and passed their knowledge on to the public.

TODAY over 1,900 people, including researchers, teachers, curators, taxidermists and gardeners, still share the same goal: **knowing nature better to preserve it better.**

THAT COMMITMENT IS BASED ON FIVE MISSIONS. As a **research** centre, the institution relies on field studies and laboratory research, a wide range of disciplines, outstanding **collections** of specimens and documents and recognised **expertise**. In addition, it shares its knowledge through **teaching** and **disseminating** information. Over two million people visit its exhibitions, zoos and botanical gardens or attend its conferences and activities in the galleries every year. The goal is clear: to make knowledge about nature more accessible to as many people as possible.

universcience

UNIVERSCIENCE: TOWARDS A NEW ART OF LEARNING SCIENCE

Directed by Claudie Haigneré, universcience, WHICH WAS BORN OF THE CLOSER TIES BETWEEN THE CITÉ DES SCIENCES ET DE L'INDUSTRIE AND THE PALAIS DE LA DÉCOUVERTE (decree of 4 December 2009), aims to become the operator of reference in the dissemination of scientific and technical knowledge. At both sites, universcience already boasts recognised expertise with regard to accompanying families, schoolchildren, students and teachers and intends to go beyond the know-how it has acquired to fulfil its public service mission by aiming for excellence in the dissemination of scientific knowledge through all of its cultural and educational components.

UNIVERSCIENCE HAS THREE AMBITIOUS GOALS

FIRST, UNIVERSCIENCE WANTS TO HELP ALL CITIZENS understand a fast-changing world to make them veritable participants in their own education. To achieve that goal, it intends to provide them with new tools and points of reference to grasp the 21st century's complexity. Universcience intends to make encouraging young people to go into science careers a priority in the service of economic dynamism and social cohesion by arousing a "passion for science" at a very early age. Because universcience aims to become a national operator of reference, it strives to set up a science network by creating an influential national cluster with all the European and international partners. The overarching goal of putting science back into culture and at the heart of society assumes broadening the targeted public, relying on new uses involving the internet and capitalising on those changes by creating new tools in the service not only of leisure but also knowledge.

INNOVATIVE TOOLS

LAUNCHING A SCIENCE TELEVISION NETWORK ON THE WEB, **www.universcience.tv** on 1 January and putting a science and technology resources portal, **www.universcience.fr** , online on 1 February **are the first steps in achieving the goal of transmitting a passion for science to as many people as possible.** With a new name and logo, universcience builds on the legitimacy and expertise of two sites, the Palais de la découverte and Cité des sciences et de l'industrie, has a strong scientific projet and invests in meeting the challenges of the 21st century. **With Claudie Haigneré as president, universcience plans to implement those new orientations to restore science's pride of place in society at large.**

LE FIGARO LE FIGARO MAGAZINE SCOPE

THE FIGARO GROUP

THE FIGARO GROUP, A SCIENCE AND CURIOSITIES AT THE COURT OF VERSAILLES EXHIBITION PARTNER

THE FIGARO GROUP has culture in its genes, so it is only natural that we wanted to be associated with the *Science and Curiosities at the Court of Versailles* exhibition. All of the group's various titles have mobilised for that partnership.

EVERY DAY LE FIGARO, France's leading general-interest daily with a circulation of 326,000, gives art and culture pride of place in its third supplement, "Et Vous".

ON WEDNESDAYS, FIGAROSCOPE, the Paris Ile-de-France cityguide, sums up the main art trends of the day in its exhibitions section. On Wednesday 3 November it will offer a special pullout supplement entirely about *Science and Curiosities at the Court of Versailles*.

EVERY SATURDAY, LE FIGARO MAGAZINE presents the most beautiful exhibitions and the most emblematic artists on lavishly illustrated pages. It will present the exhibition's highlights in a long article on Saturday 23 October.

LES CAHIERS DE SCIENCE & VIE: THE WORLD'S ROOTS

LES CAHIERS DE SCIENCE & VIE, A BIMONTHLY MAGAZINE, sheds light on science and deeply explores themes involving archaeology, anthropology and history. The topics gravitate in particular around ancient civilisations, culture, knowledge and know-how, but also science and technology in every period and civilisation. Each issue revolves around a core theme illustrated by many articles and interviews with recognised experts. *Les Cahiers de Science & Vie* gives itself the time, room and resources to get to the bottom of things. It is not cut off from the present but tries to give those themes meaning for our times. The layout is sober and elegant, and the exceptionally lavish and often original artwork includes many recreations made in close cooperation with researchers and historians. *Les Cahiers de Science & Vie*, which has a certain humanist commitment aiming to encourage the dissemination of cultural and historic heritage, advocates the sharing of knowledge with rigour and rationalism. It was therefore only natural for the magazine to team up with *Science and Curiosities at the Court of Versailles,* which stresses the relationship between science and power under the Ancien Regime.

LES CAHIERS DE SCIENCE & VIE is offering two issues on sale at newsagents from 12 October to 14 December:
- "Versailles, power and science",
- A prestigious double issue, "Science at the Château de Versailles".

LES CAHIERS DE SCIENCE & VIE INTRODUCES YOU to science's place at the court of Versailles. What relationship could have existed between the modernism espoused by the scientific revolution's leaders and the absolute monarchy, long associated with obscurantism? What common ground can be imagined between scientists with a reputation for seriousness and rigour and a dazzling court reputed for its frivolity? By nurturing each other, Versailles and scientists established the kingdom's power and helped spread the idea of scientific progress.

BECAUSE CURIOSITY IS A VERY NICE FLAW TO HAVE!
Science & Vie Junior, the teen press leader, and *Science & Vie Découvertes,* the magazine for children aged eight to 12, wanted to team up with the *Science and Curiosities at the Court of Versailles* exhibition by creating a game, a 16-page document, geared towards each age bracket.

THAT WAY, YOUNG PEOPLE CAN HAVE FUN EXPLORING the exhibition, answering riddles to find a password that will be the key to winning many educational prizes.

Part III – The exhibition partners
PARTNERS

FRANCE 2

TO INFORM, CULTIVATE AND ENTERTAIN, THE TRIO BORN WITH TELEVISION, HAS ALWAYS BEEN THE GOAL OF FRANCE 2, THE FRANCE TÉLÉVISIONS GROUP'S GENERAL INTEREST, GENERAL PUBLIC NETWORK.

FRANCE 2 HAS ONE GOAL: MAKING CREATIVITY he priority in its programme policy, confirming its rank as the leading public network.

FRANCE 2 HAS ONE MISSION: DEVELOPING programmes for citizen-viewers.

FRANCE 2 HAS ONE IMAGE: AN IDENTITY reflected in its programme schedule but also in the men and women who connect it to the public.

IN SEPTEMBER 2010 France 2 gave itself the means to meet the legitimate needs and expectations of the people who watch it, attached to their values. Thus, in 2010 France 2 will again feature historical, scientific or investigative documentaries as a major part of its programming. It will air these great documents of culture and knowledge in prime time.

FRANCE 2'S COMMITMENT TO CREATION, combined with all the talent mobilised, has naturally led the network to become a partner of the *Science and Curiosities at the Court of Versailles* exhibition, the event of the season at the Château de Versailles.

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FRANCE INFO AND THE CHÂTEAU DE VERSAILLES

SCIENCE AND CURIOSITIES AT THE COURT OF VERSAILLES

TALK SHOWS, NEWS AND DEBATES: CULTURAL NEWS has a varied, important place on the air at France Info.

FRANCE INFO, which supports the many events punctuating cultural news, is happy to be associated with *Science and Curiosities at the Court of Versailles.*

FRANCE INFO LISTENERS WILL FIND reports and interviews about *Science and Curiosities at the Court of Versailles* on the air and online at france-info.com.

DIRECT MATIN

ON 6 FEBRUARY 2007 THE BOLLORÉ AND LE MONDE GROUPS LAUNCHED DIRECT MATIN, a free newspaper that became the Paris bridgehead of the "Direct Ville Plus" network's dailies circulating in the regions thanks to partnerships with Midi Libre, Le Progrès, La Provence, Sud Ouest and La Voix du Nord.

TODAY DIRECT MATIN'S 10 REGIONAL EDITIONS, in Paris Ile-de-France, Montpellier, Lyon, Marseille, Bordeaux, Strasbourg, Lille, Nantes, Côte d'Azur and Toulouse, deliver the day's essential news with in-depth articles from Le Monde and Courrier International, useful information and local news. The coverage is comprehensive, condensed, accessible and geared to city life so that it can be read as quickly as possible.

VOYAGES-SNCF.COM

VOYAGES-SNCF.COM, A MAJOR FRENCH TOURISM PLAYER, has over 10 million single visits a month. The site offers rail and air tickets, holidays and shows in partnership with the French railways, Eurostar, Thalys, Lyria, 180 airlines, 108,000 hotels, 10 car rental companies, etc. Voyages-sncf.com helps customers on the move with its mobile platform Voyages-sncf.mobi, which receives one million single visits a month and is accessible on all terminals and operators. Voyages-sncf.com also has an iPhone application available in the AppStore travel section.

VOYAGES-SNCF.COM IS AN SNCF GROUP COMPANY.

Part III – The exhibition partners
PARTNERS

DOCTISSIMO

DOCTISSIMO, THE FIRST GENERAL PUBLIC HEALTH AND WELLNESS PORTAL, aims to help you and those you love at crucial times in your lives. It puts health, medication, pregnancy, nutrition, sexuality, fitness and psychology issues and all the current scientific knowledge about wellness into clear language everybody can understand. The site has nearly eight million single visitors a month.

FOR 10 YEARS DOCTISSIMO HAS BEEN POPULARISING HEALTH and wellness topics to help everybody understand the body and how it behaves. The goal is for them to take their health into their hands and become the main player in their wellness.

WE COMMUNICATE THE LATEST MEDICAL DISCOVERIES, so it seemed only natural for us to team up with *Science and Curiosities at the Court of Versailles* and participate in recounting the scientific adventures that Versailles initiated and witnessed.

WE WILL FEATURE CERTAIN MEDICAL ACHIEVEMENTS and curiosities, such as the instruments used to operate on the Sun King's fistula and Madame de Coudray's childbirth dummy.

WE WILL TAKE YOU BACK TO JEAN-FRANÇOIS DE LA PÉROUSE'S voyage commissioned by Louis XVI, who was very interested in science, to evoke the epic period of the great round-the-world maritime expeditions.

A REPORT AND SLIDE SHOW will provide a more comprehensive overview of this unique exhibition.

APPENDICES

USEFUL INFORMATION ILLUSTRATIONS AND AUDIOVISUAL RESOURCES

Appendices

USEFUL INFORMATION

ÉTABLISSEMENT PUBLIC DU MUSÉE
ET DU DOMAINE NATIONAL DE VERSAILLES
RP 834
78008 VERSAILLES CEDEX

Location
The Château de Versailles' Africa and Crimea Rooms

Information
tel. 01 30 83 78 00
www.chateauversailles.fr
www.sciences.chateauversailles.fr

How to get there
SNCF Versailles-Chantiers (departing from Paris-Montparnasse)
SNCF Versailles-Rive Droite (departing from Paris Saint-Lazare)
RER Versailles-Rive Gauche (departing from Paris Line C)
Bus 171 Versailles Place d'Armes (departing from Pont de Sèvres)

Access for people with disabilities
People with reduced mobility can be dropped off by car or cab near entrance H in the main courtyard.

Opening times
Every day except Monday from 9am to 6:30pm (last admission at 6pm)
until 31 October and 9am to 5:30pm (last admission at 5pm) from 1 November.

Admission
€15 (château + exhibition), reduced price (château + exhibition) €13 audioguide included.

THEMED TOURS

Individuals can take themed tours of *Science and Curiosities at the Court of Versailles* at 10am on 14, 20, 28 and 30 November, 1, 14 and 15 December 2010, 20, 21, 23, 26 and 28 January, 2, 4, 5, 8, 10, 17, 18 and 27 February 2011.
National museum guides will give them in French.

Information and booking

tel. 01 30 83 78 00
E-mail: visites.thematiques@chateauversailles.fr

Information and booking for groups

E-mail: visites.conferences@chateauvervailles.fr

BOOKING WITH BOTH MUSEUMS REQUIRED FOR ALL TOURS

Château de Versailles
Marie-Armelle Hoyau
01 30 83 75 05
handicap@chateauversailles.fr

Musée des arts et métiers
Marion Havas
Mediation manager
01 53 01 82 89

Bibliothèque nationale de France
Special services for disabled visitors:
Carole Roux
01 53 79 37 37
accueil.handicap@bnf.fr

CONTACTS FOR PEOPLE FAR FROM THE MUSEUMS

Château de Versailles
Marie Ollivier
01 30 83 74 96
public.specifique@chateauversailles.fr

Musée des arts et métiers
Jamila Al khatib
01 53 01 82 88

Bibliothèque nationale de France
Diversification of publics:
Sylvie Dreyfus
01 53 79 53 17
sylvie.dreyfus@bnf.fr

SPECIAL TOURS

THE CHÂTEAU DE VERSAILLES offers special publics coupled group tours of *Science and Curiosities at the Court of Versailles* in partnership with the Bibliothèque Nationale de France and Conservatoire National des Arts et Métiers. Visit the exhibition before going to the BNF to see Coronelli's globes or the CNAM to discover the atmosphere of the physics cabinets of Monsieur Charles or the royal children's famous tutor, Abbé Nollet.

TOUR COUPLED WITH THE BIBLIOTHÈQUE NATIONALE DE FRANCE FOR PREFORMED GROUPS OF VISUALLY IMPAIRED PEOPLE:
Two times two guided tours coupled with each museum, in other words two groups that take a guided tour at Versailles followed by one at the BNF.

- Guided tour of the exhibition at the Château de Versailles
  Wednesday 10 November 2010 at 2pm
  Friday 26 November 2010 at 2pm
  Price: €25

- See Coronelli's Globes at the Bibliothèque nationale de France
  Wednesday 17 November 2010 at 10:30am
  Wednesday 1 December 2010 at 10:30am
  Free

COUPLED TOUR IN FRENCH SIGN LANGUAGE (LSF) WITH THE MUSÉE DES ARTS ET MÉTIERS FOR DEAF AND HEARING-IMPAIRED GROUPS:
Two times two guided tours coupled with each museum, in other words two groups that take a guided tour at Versailles followed by one at the Musée des Arts et Métiers.

- Guided tour of the exhibition at the Château de Versailles
  Friday 7 January 2011 at 10:30am
  Wednesday 2 February 2011 at 10:30am
  Price: €25

- **See the musée des arts et métiers collections**

  The museum proposes walking through its collections and discovering the atmosphere of the physics cabinets of Monsieur Charles and Abbé Nollet, where great experiments on mechanics, hydraulics and electricity took place. The princes were taught with tools on the cutting edge of scientific research. Madame de Genlis, who used models to explain science and technology to her pupils, stands out because of her modern teaching methods.
  Wednesday 12 January 2011 at 2:30pm
  Wednesday 9 February 2011 at 2:30pm
  Price: €40

COUPLED TOUR WITH THE BNF FOR PEOPLE FAR FROM THE MUSEUMS:
- Guided tour of the exhibition at the Château de Versailles: 18 November, 8 December 2010, 13 January and 9 February 2011.
  Price: €25

- See Coronelli's Globes at the BNF: 25 November, 15 December 2010, 20 January and 16 February 2011.
  Free

WITH THE MUSÉE DES ARTS ET MÉTIERS:
- Guided tour of the exhibition at the Château de Versailles: 17 November, 9 December 2010, 14 January and 10 February 2011 at 2pm.
  Price: €25

- See the collections of the musée des arts et métiers: 24 November, 16 December 2010, 19 January and 17 February 2011.

Appendices

ILLUSTRATIONS AND AUDIOVISUAL RESOURCES

ILLUSTRATIONS

SCIENCE AND POWER

Members of the Academy of Science Being Introduced to Louis XIV
Tapestry cartoon for a room that was never built, the continuation of the History of the King series woven at the Manufacture des Gobelins
Ca. 1680
Henri Testelin (1616-1695) after Charles Le Brun (1619-1690)
Oil on canvas| H. 348 cm; w. 590 cm
Versailles, musée national des châteaux de Versailles et de Trianon, © château de Versailles, Jean-Marc Manaï

Louis XIV, Protector of the Arts and Sciences
1672
Jean Garnier (1632-1705)
Oil on canvas | H. 163 cm; l. 204 cm
Versailles, musée national des châteaux de Versailles et de Trianon, © RMN (Château de Versailles) | Daniel Arnaudet | Hervé Lewandowski

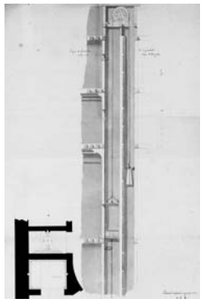
Antoine-Louis Lavoisier, Chemist (1743-1794)
1784
François-Louis Brossard de Beaulieu (1727-1810)
Oil on canvas | H. 73 cm; l. 57 cm
Versailles, musée national des châteaux de Versailles et de Trianon, © RMN (Château de Versailles) | Gérard Blot

VERSAILLES, A PLACE WHERE SCIENCE AND TECHNOLOGY WERE APPLIED

Perspective View of Apollo's Pool and the Grand Canal with Its 17th-Century Flottilla
17th century
French school
Gouache and gold highlights on paper
H. 12.5 cm; l. 16.5 cm
Versailles, musée national des châteaux de Versailles et de Trianon, © RMN (Château de Versailles) | Gérard Blot

View of the Marly Machine
1722
Pierre-Denis Martin (1663-1742)
Oil on canvas | H. 115 cm; l. 165 cm
Marly-le-Roi/Louveciennes, Musée-Promenade © RMN (Château de Versailles) | Rights reserved

Graphometer
17th century
Michael Butterfield (1634-1724)
Brass, glass, steel, bronze
Ø 33 cm, base: H. 155 cm
Private collection
© château de Versailles | Jean-Marc Manaï



Flying Chair Created for Madame de Châteauroux in the King's Small Workshops at Versailles. Cross-sections and plans of the mechanism Blaise-Henri Arnoult made in 1743
Agence des Bâtiments du roi, 1743
Watercolour drawing
H. 122 cm; l. 54.4 cm
Paris, Archives nationales,
© Atelier photographique des Archives Nationales

PAINTED DÉCORS

Aristotle Having Animals Brought to Alexander So That He Can Write His Natural History
Salon de Mercure, Jean-Baptiste de Champaigne, 17th century.
Musée national des châteaux de Versailles et de Trianon
© RMN (Château de Versailles) | Daniel Arnaudet

Glory
Detail of the Crossing of the Rhine, Hall of Mirrors, Charles Le Brun, 17th century.
Oil on mounted canvas
Versailles, musée national des châteaux de Versailles et de Trianon © RMN (Château de Versailles) | Gérard Blot | Hervé Lewandowski

Putto Carrying a Graphometer,
detail of *Mercury's Chariot*,
Salon de Mercure, Jean-Baptiste de Champaigne, 17th century.
Versailles, musée national des châteaux de Versailles et de Trianon
© RMN (Château de Versailles) | Gérard Blot

VERSAILLES, A TESTING GROUND

Antoine Parmentier (1737-1806), Agronomist and Botanist
1812
François Dumont l'Aîné (1751-1831)
Oil on canvas | H. 130 cm; l. cm
Versailles, musée national des châteaux de Versailles et de Trianon, © RMN (Château de Versailles) | Gérard Blot

A Potted Pineapple
1733
Jean-Baptiste Oudry (1686-1755)
Oil on canvas | H. 128 cm; l. 90 cm
Versailles, musée national des châteaux de Versailles et de Trianon
© RMN (Château de Versailles) | Gérard Blot

Collection of plans of the chateaus and gardens of Versailles in 1720
Collected for Louis-Antoine de Pardillan, Duc d'Antin, Surpeintendent of the King's Buildings (1665-1736)
1720
Jean Chaufourier (1679-1757)
Watercolour drawings | H. 45 cm; l. 565 cm
Versailles, musée national des châteaux de Versailles et de Trianon,
© RMN (Château de Versailles) | Hervé Lewandowski

The Anatomical Angel
1746
Jacques Gautier Dagoty (1716-1785), texts by Joseph-Guichard Duverney
H. 78 cm; l. 53 cm
Versailles, bibliothèque municipale
© château de Versailles | Jean-Marc Manaï

Seven-month-old fœtus in its womb: part of a demonstration dummy accompanying Abrégé de l'art des accouchements "The Abridged Art of Childbirth"
Ca. 1759
Padded linen | H. 36 cm; Ø womb: 24 cm
Musée Flaubert et d'histoire de la médecine, CHU – Hôpitaux de Rouen
© Photo Bruno Maurey | Musée Flaubert et d'histoire de la médecine

Scalpel and retractor Félix de Tassy used for Louis XIV's fistula operation in 1686
Wrought iron
Scalpel: 23.6 cm
Retractor: 28.2 cm x 13 cm
Paris, musée d'histoire de la Médecine
© François Doury

View of the Royal Hospital's Apothecary in Saint-Germain-en-Laye
(not in the exhibition)
17th and 18th centuries
Saint-Germain-en-Laye, musée municipal © château de Versailles | Jean-Marc Manaï

Louis XV's Rhinoceros
Arriving at the Versailles Menagerie on 11 September 1770
H. 160 cm; l. 350 cm
Paris, Muséum national d'histoire naturelle
© MNHN | audiovisual department

Albino Quail, Coturnix coturnix
Hunted by Louis XV and sent to the King's Garden for study
Stuffed bird | H. 25 cm; l. 18 cm
Paris, Muséum national d'histoire naturelle
© MNHN | audiovisual department

Albino Thrush, Turdus pilaris
Hunted by Louis XV and sent to the King's Garden for study
Stuffed bird | H. 25 cm; l. 18 cm
Paris, Muséum national d'histoire naturelle
© MNHN | audiovisual department

Male Merino Sheep Born in Spain and Newly Imported to France
(one-sixth actual size)
Begun by Maréchal and finished by Wailly
Watercolour drawings | H. 42 cm; l. 47 cm
Bergerie nationale de Rambouillet
© château de Versailles | Jean-Marc Manaï

Female Merino Sheep Born in Spain and Newly Imported to France
(one-sixth actual size)
Begun by Maréchal and finished by Wailly
Watercolour drawings | H. 42 cm; l. 47 cm
Bergerie nationale de Rambouillet
© château de Versailles | Jean-Marc Manaï

Treatise on Hippiatrics
1772
Philippe-Étienne Lafosse
Print | H. 55 cm; l. 36 cm
Maisons-Alfort, École nationale vétérinaire
© Christophe Degueurce | École nationale vétérinaire d'Alfort

VERSAILLES, A PLACE WHERE SCIENCE AND TECHNOLOGY WERE TAUGHT

Globe showing the seas' depths and the celestial vault

Commissioned by Louis XVI in 1786 for the Dauphin's instruction
Edme Mentelle (1730-1815)
and Jean Tobie Mercklein
Wood, cardboard, brass, iron and stucco, H. 240 cm; l. 130 cm
Versailles, musée national des châteaux de Versailles et de Trianon © RMN (Château de Versailles) | Droits réservés

Centrifuge

Late 18th century
After Abbé Nollet's model (1700-1770)
Brass, metal, varnished wood, rope
H. 125 cm; L. 109 cm; l. 58 cm
Montreal, musée Stewart,
© Musée Stewart, Montreal

Head of an American Indian

from the Cabinet of the Marquis de Sérent
Wax | H. 30 cm; l. 20 cm
Versailles, bibliothèque municipale
© château de Versailles | Jean-Marc Manaï

VERSAILLES, A PLACE OF PRINCELY PRACTICES

Allegorical portrait of Louis XV

1762
Charles-Amédée Van Loo (1719-1795)
Oil on canvas | H. 67 cm; l. 56 cm
Versailles, musée national des châteaux de Versailles et de Trianon, © Château de Versailles

Astronomical clock

Presented to the Royal Academy of Sciences on 23 August 1749, presented to the king in 1750
Mechanism: 1749; bronze: 1753
Engineer: Claude-Siméon Passemant (1702-1769)
Clockmaker: Louis Dauthiau (1730-1809)
Sculptors and bronze artists:
Jean-Jacques et Philippe Caffieri (1725-1772)
Gilt bronze
H. 206 cm; L. 83.2 cm; l. 53 cm
Versailles, musée national des châteaux de Versailles et de Trianon, © château de Versailles | Christian Milet

Louis XV's and Louis XVI's Grand Barometer

1772-1776
Sculptor: Jean-Joseph Lemaire (1740-1820 ?)
Optician: Toré
Gilt carved oak
H. 171 cm; l. 150 cm
Versailles, musée national des châteaux de Versailles et de Trianon, © RMN (Château de Versailles) | Daniel Arnaudet

Barometer and thermometer

1774
Jean-Joseph Lemaire (1740-1820 ?)
H. 191 cm; l. 16 cm
Versailles, musée national des châteaux de Versailles et de Trianon © RMN (Château de Versailles) | Gérard Blot

Microscope Louis XV gave King Stanislas

1751
Alexis Magny (1712-vers 1777)
after the Duc de Chaulnes
Bronze, shagreen, mirror, glass, enamelled metal
Microscope: H. 42 cm; l. 24,5 cm
On deposit at the Lycée Poincaré in Nancy
Inv D. III. 924
Nancy, Musée lorrain © Musée Lorrain, Nancy | photo C. Philippot

Terrestrial and celestial globes held up by Atlases

From Louis XVI's library
1777
Pierre Lartigue (1745-1826)
and Louis Lennel (1740-1784)
Bronzed plaster | H. 152 cm; l. 58 cm
Versailles, musée national des châteaux de Versailles et de Trianon, © RMN (Château de Versailles) | Daniel Arnaudet

Louis XVI Giving His Instructions to La Pérouse, 29 June 1785

1817
Nicolas André Monsiau (1754-1837)
Oil on canvas | L. 227 cm; l. 172 cm
Versailles, musée national des châteaux de Versailles et de Trianon, © RMN (Château de Versailles) | Gérard Blot

The Comte d'Artois' guilloche tower, installed in a study of his apartment in the south wing at Versailles in 1773

1773
Antoine Wolff (before 1720-1778)
Wood and gold-plated metal
H. 202 cm; L. 1 405 cm; l. 62 cm
Versailles, musée national des châteaux de Versailles et de Trianon, © château de Versailles | Jean-Marc Manaï

Gregorian-type telescope owned by Madame Sophie of France

nscription and arms on the sheath: "Fait par Mme Sophie de France"
2nd half of the 18th century
Gilded by Boismare
Telescope: brass, leather and glass;
Tripod: wood and brass
Total h.: 163 cm
Glass: L. 110 cm; Ø 15 cm /
Tripod: H. 120 cm;
L. base: 88 cm
Paris, musée national de la Marine, © musée national de la Marine | S. Dondain

Moving celestial globe from the king's physics cabinet at the Château de La Muette, presented by the Marquis de Marigny

1759
Claude-Siméon Passemant (1702-1769) and Dauthiau (1730-1809)
Bronzes: Caffieri
Plaster and cardboard;
mount: incised gilt bronze
Ø of the globe: 50 cm; Ø total: 64 cm;
total height: 75 cm
Paris, Observatory
© Observatoire de Paris

Sculpted decor
Sculpted decorations in Louis XVI's wardrobe
1788
Versailles, musée national des châteaux de Versailles et de Trianon château de Versailles | Jean-Marc Manaï

VERSAILLES, PLACE OF DEMONSTRATIONS

The Creation of *the World clock*
1754
Mechanism by Joseph Léonard Roque after Claude-Siméon Passemant (1702-1769)
Case by François-Thomas Germain (1726-1791)
Wood, gilt and silverplated bronze, gilt copper
H. 150 cm; L. 92 cm; l. 76 cm
Versailles, musée national des châteaux de Versailles et de Trianon, © RMN (Château de Versailles) | Franck Raux

Aerostatic Experiment Performed at Versailles on 19 September 1783 by Étienne de Montgolfier with the King, Queen and Royal Family in Attendance
Versailles, bibliothèque municipale
© château de Versailles | Jean-Marc Manaï

Burning mirror
Ca. 1670
François Villette (1621-1698)
Tinplated bronze, base of painted carved wood
Ø of the mirror: 97 cm
Base: 77 cm
H. 41 cm
Paris, Observatory
© Observatoire de Paris

De Catoptrica theoremata,
Theses Mathematicae de Optica,
1691
Jacques Cassini
Paris, Observatory
© Observatoire de Paris

Cassini's maps
1783
César-François Cassini de Thury (1714-1784) and Jean-Dominique Maraldi (1709-1788)
H. 59 cm; l. 93 cm
© Bibliothèque nationale de France

The Tympanum Player
(general views)
1784
Peter Kintzing (1745-1816) and David Roentgen (1743-1807)
Steel, wood, ivory, brass, textile
H. 122,5 cm; L. 123 cm; P. 65 cm
Inv. 7501
Paris, musée des Arts et Métiers | Conservatoire national des arts et métiers © Musée des arts et métiers-Cnam, Paris | photo Philippe Hurlin

The Tympanum Player
(view of the mechanism/automaton from the back)
1784
Peter Kintzing (1745-1816) and David Roentgen (1743-1807)
Steel, wood, ivory, brass, textile
H. 122,5 cm; L. 123 cm; P. 65 cm
Inv. 7501
Paris, musée des Arts et Métiers | Conservatoire national des arts et métiers © Musée des arts et métiers-Cnam, Paris | photo François Delastre

AUDIOVISUAL RESOURCES

All the videos are available on the Château de Versailles' youtube channel
http://www.youtube.com/chateauversailles
The youtube player can be used to watch all the videos.

WEB SERIES

In search of Marie-Antoinette's tympanum player at the Musée national des Arts et Métiers
Made by Studio K
© château de Versailles | 2010

In search of the scalpel used to operate on Louis XIV Musée d'histoire de la médecine
Made by Studio K
© château de Versailles | 2010

In search of the waxen Indian head at the Versailles Municipal Library
Made by Studio K
© château de Versailles | 2010

In search of the Sun King's burning mirror at the Paris Observatory
Made by Studio K
© château de Versailles | 2010

VERSAILLES MENAGERIE

Clip from the 3D recreation of the Royal Menagerie of Versailles
Made by Aristeas
© château de Versailles | 2010

THE MAKING OF THE 360° FILM

Made by Aloest productions
© château de Versailles | 2010