

## INSIDE THE LIBRARY

### How the collection was formed

When the Library was founded, its holdings amounted to around 8,000 books (among them the oldest in the collection, such as the Metz Codex and the Beato de Don Fernando) plus antiquities and coins which were transferred to the Archaeological Museum when this was established in 1867. Numerous acquisitions were made in the 19<sup>th</sup> and 20<sup>th</sup> centuries as a result of disentanglement and the purchase and donation of private collections (Barbieri, Usoz, Carderera, Madrazo, etc.). In the 20<sup>th</sup> century, the legal deposit system –the primary source of acquisitions– was reinstated. In the course of its 300-year history, the collection has also suffered losses through robberies, transfers and war.

### The current collections

The Library's holdings are organised into different collections according to their subject matter and characteristics:

- Manuscripts, personal archives, incunabula, rare and curious printed matter, the Cervantes Collection, the theatre, etc.
- Engravings and drawings, photographs, posters, ex libris, and 'ephemera'.
- Ancient and modern maps, atlases, travel books, postcards, etc.
- Musical documents and recordings: scores, books, magazines, recordings and composer archives.
- Spanish newspapers and magazines from the 17<sup>th</sup> century on.
- General material.

### Reader services

In 1712, the Library used to open for six hours a day, during which time it was used by an average of twelve male readers: women did not obtain the right to use it until 1838. By 1896, readers were more numerous and enjoyed the benefits of over 300 reader places and such facilities as electric lighting and heating in the Recoletos building. A room for students and workers was opened in the 1930s.

The general regulations on book-lending of 1940 excluded the National Library from providing this service, which it offers only to other libraries. In 1986, the National Newspaper Library was incorporated into the National Library, thereby making a rich source of newspapers and periodicals available to its readers.

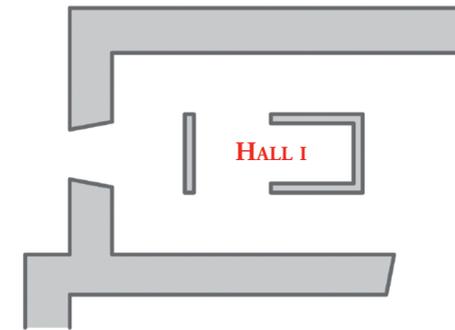
### The staff

The Royal Library started its existence staffed by a director and four librarians who, until 1716, compiled its catalogues without receiving a steady wage. In 1761, the librarians became servants of the king. They were usually educated people, versed in palaeography and diplomacy, and after 1856 were required to carry out their professional studies at the School of Diplomacy. Then this closed in 1900, training became more flexible and Arts graduates were permitted to join the professional body of archivists and librarians, either by competition or discretionary appointment. The system of qualifying examinations and their content have changed gradually from 1858 up to the present day.

Today, the National Library's staff is made up of nearly 600 professionals with very varied training.

### The directors

The Library's first directors were the king's confessors; in 1761 Juan de Santander's new Constitution introduced the innovative stipulation that the post should be occupied by the chief librarian. After 1858, the same person also assumed the role of head of the newly-created Association of Librarians. Among those who have served as director are writers Juan Eugenio Hartzenbusch (1862-1875), Manuel Tamayo y Baus (1884-1898), and philologists Menéndez Pelayo (1898-1912) and Rodríguez Marín (1912-1930). The (then life-long) post was occupied from 1932 to 1975 by a librarian, appointed on merit by the Board. In 1990, Alicia Girón became the institution's first female director.



## THE SPANISH NATIONAL LIBRARY THROUGH HISTORY

### HISTORICAL CONTEXT

#### Royal collections

Until the modern era, books were luxury objects owned by kings, nobles and religious orders. In medieval Spain, the most significant libraries were those of Al Hakam II in Cordoba and the School of Translators in Toledo.

From the 16<sup>th</sup> century on, European monarchs amassed important collections, many of which provided the bases of national libraries. In Spain, Philip II created what was known as 'the rich library' in the monastery of El Escorial, famous for its codices and manuscripts collected from all over Europe. In 1633, Philip IV installed his private library in the High Tower of Madrid's Alcazar (the 9<sup>th</sup> century castle which stood on the site now occupied by the Royal Palace); this collection was to be the nucleus of the National Library.

### 1712-1811

#### The Enlightenment: the founding of the Royal Public Library

After the War of Spanish Succession, Philip V incorporated the libraries of defeated noblemen into the Hapsburg collection to create the Royal Public Library (1712); this was the first of a series of Enlightenment inspired cultural institutions (Royal Academies, and so on). In 1716, the Library began to be financed from taxation on tobacco and playing cards, and was granted the privilege of receiving a copy of every book printed in Spain. In 1743, Benedictine scholar and private librarian Fray Martín Sarmiento called for more suitable premises for an institution whose publishing activities were already noteworthy, as attested to by Cristóbal Rodríguez's Bibliotheca Universal de la Poligraphía Española (1738).

## 1812-1866

### Liberal revolution and a National Library

Although the Cadiz Parliament passed Bartolomé Gallardo's bill proposing that a library be created for the nation, it was Madrid's Royal Public Library that eventually became the National Library in 1836. Its holdings were augmented significantly by the effects of disentailment legislation. Meanwhile, Liberal governments began endowing the nation with an incipient library network and creating a professional body of archivist-librarians (1858) and a training college for them. At the end of her reign, Isabella II laid the foundation stone of the present-day National Library building (1866).

## 1868-1939

### Libraries for the people and public teaching

The revolution of 1868 promoted libraries as a means of combating the illiteracy that affected 75% of the population. Even so, when the Second Republic (1931-1936) was declared, the illiteracy rate was still 33%. This period produced important initiatives aimed at the advancement of education such as the Patronato de Misiones Pedagógicas and public libraries, which were interrupted by the Civil War. The end of the war and the ensuing dictatorship resulted in the exile or 'purging' of outstanding librarians such as María Moliner, Jordi Rubio and Tomás Navarro Tomás, and in the abandonment of such cultural policies.

## 20<sup>th</sup>-21<sup>st</sup> centuries

### Regional libraries and computerisation

After the transition to democracy, libraries of all kinds were established and the National Library was able to fulfil its role at the service of research and at the head of the library system. The 1989 regulations of the Spanish Library System endorsed this role, describing it thus: a cooperative structure based on State coordination and recognition of the library competence of autonomous regional and local administrations. Currently, many autonomous regional libraries fulfil the defining functions of national libraries within their territories. A challenge that all of them have had to tackle has been computerising their systems, culminating in digitising their holdings and making them available on the internet: a network of webs which aspires to create a genuinely world-wide digitised library that makes the whole of human knowledge accessible by computer.

## THE NATIONAL LIBRARY BUILDINGS

### 1712-1895

#### No fixed abode

In its early days, the Library occupied various different premises, none of them particularly suitable:

- **1712-1809:** Pasadizo de la Encarnación, a corridor-like building that connected the Hapsburg Alcazar to the Real Convento de la Encarnación.
- **1809-1819:** Convento de la Trinidad Calzada, a convent that stood on the site of the present day Calderón Theatre.
- **1819-1826:** Casa del Consejo del Almirantazgo, the former Admiralty building today occupied by the Centre for Constitutional Studies.
- **1826-1895:** Mansion of the Marqués de Alcañices, on the site where the Royal Academy of Medicine now stands.
- In 1861, Parliament approved the construction of the present building, to which the Library moved in 1895.

### 1895

#### Palace of Libraries and National Museums

To the accompaniment of music by Barbieri, composer of music for the Spanish popular theatre, Isabella II laid the building's foundation stone on 21 April 1866, on land formerly occupied by the kitchen gardens of the Agustinos Recoletos monastery, in a manufacturing area on the outskirts of Madrid. Carlos María de Castro's urban expansion plan would transform this area into an aristocratic neighbourhood.

Jareño and Ruiz de Salces designed the building as a palace-museum in the neo-Grecian style, and it was inaugurated in 1892 on the occasion of the four hundredth anniversary of the Discovery of America. It initially housed various institutions, and throughout its existence has undergone continuous modifications, including work by Luis Moya (1957) and Junquera and Pérez Pita (1987-2000).

#### Monumental sculpture in the Recoletos building

The leading sculptors of the period vied with each other for the Royal Academy of Fine Arts' competitively awarded commissions to decorate the facades of the National Library.

The pediment, an allegory of the Sciences, Arts and Letters, is the work of the prolific sculptor Agustín de Querol (1860-1909). The iconographic range is extended by the statues of the stone staircase, notable among which are the figures of Saint Isidore and Alphonse X, the Wise, by José Alcoverro (1835-1908), and Cervantes by Juan Vancell. Inside the building are statues of Isabella II by Piquer y Duart and of Francis of Assisi by Pérez del Valle, deposited on loan by the Prado Museum with the Museum of Modern Art, which was based in Recoletos until 1975.

### 1933

#### The Alcalá de Henares site

The idea of creating a deposit library so that the exchange of duplicates could be centralised was frequently considered by Spanish librarians. It was put into practice in Alcalá de Henares in 1934, only to be halted by the Civil War. Almost five decades later it was relaunched, in 1984, on land given to the Ministry of Culture by the municipality of Alcalá. The planned National Lending Library, inaugurated in 1993 as the Centre for Access to Documents (CAD), is now the National Library's second headquarters.

The 35,000 square metre modular building, designed by Francisco Fernández Longoria, consists of towers that house the deposits and central work areas, and can accommodate up to 11,500,000 volumes.

## It disseminates: cultural contribution and cooperation

The National Library's collections are accessible not only to the researchers that use it but also, through temporary exhibitions of its holdings, to the wider, non-specialist public. A programme of in-house exhibitions takes place in both the Sala Recoletos and the Sala Hipóstila. Also, exhibitions and museums all over the world ask to borrow items from the National Library's collections, totalling an average of a thousand loans each year.

Talks and book presentations featuring prominent figures take place regularly, and literary, artistic and scientific seasons are also staged.

The National Library produces a number of publications, including exhibition catalogues, professional monographs, facsimile reproductions of treasures from its collections and periodicals such as *Bibliografía española* (Spanish Bibliography).

Initiatives such as Open Door Days and the National Library Museum share a common objective: to make Spain's bibliographical heritage better-known in a readily accessible way, and to make the National Library user-friendly to the general public.

Cooperation with other libraries, research centres and cultural bodies in Spain and abroad, and participating in international conferences, are also among the National Library's basic functions, taking the form of mutual arrangements, technical help, seminars and specialist symposia.



## DAY BY DAY AT THE NATIONAL LIBRARY

What is the legal deposit?

What is its purpose?

In what other ways does the National Library acquire publications?

What kind of works does it buy?

What does cataloguing mean?

What classification system does the National Library use?

What is a topographic signature?

Which branch of preservation is responsible for documents' environmental conditions?

When should they be restored?

How can their contents be preserved?

What reader services does the National Library provide?

How many reader places does it have?

What can be done from its website?

What cultural contribution does the National Library make?

Does it lend items to other institutions?

What important periodical does the National Library publish?

## WHAT THE NATIONAL LIBRARY DOES

### It collects: purchases, exchanges and donations

The National Library is the custodian of a record of Spanish culture: twenty million documents, according to 2006 data, collected, organised and conserved so that our culture can be studied.

It takes in 900.000 new items every year. Over 90% of these annual additions are accounted for by the legal deposit, a legal requirement according to which all Spanish-based printers and other producers of publications must submit a specific number of copies to various deposit libraries and to the National Library.

The earliest-known precedent to the legal deposit in Spain is the royal decree issued by Philip III in 1619 aimed at building up the collection of the library at El Escorial. Regulation of the modern version dates from 1957, and was modified in 1971 and 1973. Its aims are to develop a national bibliographic collection that provides the basis for compiling and publishing the national bibliography, and statistical monitoring of Spain's publishing output.

Acquisitions are also made by:

- Purchasing, so as to incorporate works of interest exempt from the legal deposit requirement because of where they are produced, or early works and special material to complete the historical collection.
- Donations, which are incentivised among private individuals and institutions.
- Exchanging publications with other organisations.

### It processes: cataloguing, classifying and allocating titles

When they arrive at the Library, documents are stamped and fitted with an anti-theft device. They are then catalogued, i.e. described in terms of their data and distinctive characteristics. Catalogue descriptions, or records, are standardised in accordance with international rules. The next step is classification, which involves grouping documents into pre-established classes or groups according to their content, or subject. The Library uses subject headings or content descriptors and UDC (Universal Decimal Classification), a system that divides knowledge into nine main categories.

Headings, normally subject descriptors and proper names that form part of the description (author, title, etc.), are used for finding documents in the catalogue. This is why it is important to establish an accepted form for them by means of authority control. Only thus is it feasible, for instance, to group together the works of an author who has used different pen names or forename-surname combinations in the course of his/her life.

Nowadays, these three processes are automated and information is presented in international standardised formats.

Final process. The last phase of this technical process involves describing specific documents or 'copies', including all their special features such as dedications, details of provenance, defects, binding characteristics, etc. that distinguish them from the rest of the print run. Finally, they are ordered by size (sizing) and a sticker, or book label, bearing a code, or topographic signature, is stuck on the spine of each, indicating its position in the 300 000 linear metres of shelving in the Recoletos and Alcalá de Henares deposits.

### It preserves: preventive conservation, restoration and reproduction

Preserving collections, one of the top priorities in national libraries, involves three approaches:

Preventive conservation creates the optimal environmental conditions for preservation. To this end, conservators study the humidity, temperature, pollutants and lighting in the book deposits and, with the help of the building's maintenance technicians, rectify any potentially harmful levels.

Occasionally, items are in such a precarious state of conservation that they cannot be consulted without causing further damage. In such cases, restorers carry out physical conservation or restoration, using appropriate methods to stabilise them physically and chemically, after which they can be consulted or exhibited again. Treasures such as the 10<sup>th</sup> century Metz Codex, drawings by Goya, and Blaeu Atlases have been restored in the National Library's workshops. As well as preventive conservation and restoration, the National Library practises an ambitious collection reproduction policy. The aim is to use photography, microfilming and digitalisation both to make its collections known to the general public and as alternative vehicles for permanent storage of its image archive. Its laboratories provide reproduced material when requested by other libraries and researchers all over the world and also work on thematic projects such as the Acid Book Plan, the Historical Press and the Hispanic Digital Library.

### It disseminates: collection management and services

The rooms of the National Library provide a total of six hundred reader spaces, from which the reference collections (handbooks, dictionaries, bibliographies) can be consulted or items from the stacks can be requested.

The General Information and Reader Registration Room, General Room, Cervantes Room, Goya Room, Barbieri Room, Newspaper and Periodicals Room, Bibliographic Information Room and Library Documentation Room provide for different users according to their needs and particular specialisation.

Other Library services include providing bibliographical information and catalogue access, reproducing held items, and processing loan or reproduction requests received from other libraries in Spain or abroad.

On average, the rooms are used by around four hundred readers a day. The number of distance users has multiplied recently because of the services available through the Library's website, including consulting its catalogue and databases, downloading bibliographical registers, accessing digitalised items, and making arrangements for such things as advance reservations and inter-library loan requests.

## Writing systems

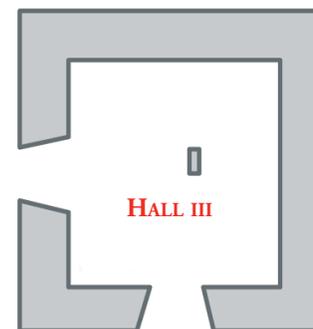
Writing emerged out of necessity: once language had acquired a stable structure, a way of depicting it had to be found. With bureaucratization came the need for book-keeping –documenting and recording activities.

Not all languages have their own writing system, which explains why the same system can be used by various languages and why a language can move from one system to another:

The oldest-known writing system was based on the use of pictograms, simple drawings in which the thing represented is readily recognisable. The simplification inherent to this system facilitated the depiction of vocabulary and also made it usable in other areas and cultures.

The next step was the use of ideograms, conventional images that represent a specific word, morpheme or phrase. By a process of abstraction and simplification, these symbols gradually became dissociated from what they directly represented. This culminated in the creation of logograms and phonograms representing abstract words, verbs and so on, requiring to be read as words and finally turning into syllabic codes.

Syllabic codes led to alphabetic writing, a simpler system with relatively few signs that was easily learned, swiftly executed, economical, and required only minor modifications to adapt to different linguistic situations.



## WRITING AND ITS MATERIALS

Who invented paper?

What is the purpose of a watermark?

How many sheets of paper are there in a ream?

When and where was the first paper mill installed in Europe?

How is Braille read?

What is the purpose of the Bliss system?

Do clay books exist?

What characteristics must a good information vehicle possess?

Do stones talk?

How is a papyrus sheet made? What is a palimpsest?

Can all bird feathers be used for writing with?

What is an Arston for?

Can slate sing?

What is a daguerrotype?

What information used to be recorded on wax cylinders?

Why was writing invented?

Do all languages have writing systems?

Which peoples used cuneiform writing?

What does the word hieroglyphic mean?

## Paper

Paper has been the most important writing material, and the longest-used. Invented in China in the 2<sup>nd</sup> century AD, it was brought to the western world by the Arabs, who also improved its manufacture. Essentially, paper is a thin sheet made of pulped plant fibres –obtained from cloth, wood, straw and other materials– which are ground up, bleached and rinsed in water, then dried and hardened by special processes. The resulting material is light, delicate, resistant, functional, economical and easy to make from abundantly available raw material.

The spread of paper use was both a cause and effect of the development and dissemination of printing: Gutenberg's invention needed a suitable material, and at the same time would not have become as widespread as it did had paper not been available.

From the 18<sup>th</sup> century on, paper manufacturing moved slowly but surely towards industrialisation; by today the whole process has become mechanised and automated, and uses cellulose, mostly derived from wood, as its principal raw material. This has led to a serious environmental problem –deforestation– which the use of recycled paper attempts to mitigate.

## Adapted communication systems

Since ancient times, various systems have been invented to help people for whom communication is difficult for one reason or another:

In the early 16<sup>th</sup> century, Francisco Lucas devised a system of letters carved on wood to enable the blind to read by touch. A century later, printer Pierre Moreau cast moveable lead type for the same purpose. There were various subsequent attempts before 1825, when Frenchman Louis Braille created the system of reading and writing for the blind that bears his name. Braille consists of sixty-four characters made up of different combinations of six raised dots that can be read with the fingertips.

At first, Braille was written using a 'slate' and stylus on special paper capable of retaining the raised dots. From very early on, however, there were moves towards mechanisation and today most Braille writing is automated.

For people with speech difficulties, methods based on graphic systems are used in which symbols represent words and concepts, generally accompanied by the corresponding written word to make it easier for the interlocutor to understand. There are two types: pictographic systems, such as the Pictographic Communication System or the PIC Pictogram, and logographic systems such as the Bliss System and the Rebus System.

## Writing media and instruments

Down the ages, human beings have used all kinds of materials on which to record information: stones, leaves, tree bark, tortoise shells, bamboo canes, bones, clay, metals, animal skins, fabrics, and products made from these raw materials, such as papyrus, parchment and paper; and, more recently, synthetic materials.

Not all cultures have evolved writing systems, but they have all used consistent ways of conveying information by manipulating certain objects or decorating others using conventional symbols imbued with informative content.

The invention of writing was a fundamental advance in preserving and transmitting knowledge, but it relied on two essential elements: a medium on which to preserve the written symbol and an instrument with which to draw that symbol. Man used whatever material was most readily available, and its characteristics influenced the type of writing adopted and the instrument used: chisel, brush, quill, stylus, fountain pen, ballpoint pen, pencil, etc.

The earliest extant written records were engraved on clay tablets. Later, the Egyptians invented papyrus manufactured using the papyrus reeds that grew wild along the banks of the Nile.

Parchment was invented in Pergamum, using the skins of sheep, calves and goats.

Papyrus and parchment continued in use until paper became widespread, promoting the advance of printing and remaining the most universally used material until the advent of computer media in the latter half of the 20<sup>th</sup> century.

## Image and sound media

The history of the media used for recording real images and sounds parallels that of scientific progress. Various methods of capturing and reproducing them were experimented with from the 19<sup>th</sup> century on. Reproducing sound and certain kinds of image requires specific equipment.

The word photography, used for the first time by John Herschel in 1839, derives from the Greek words phos (light) and graphis (stylus), so that photography could justifiably be said to mean 'drawing with light'. The media used for recording images are very much influenced by the different physicochemical nature of the elements used in obtaining them. The main ones are metal (daguerrotypes, tintypes or platinotypes), paper (calotypes, albumin paper, etc.) and glass (glass plates or ambrotypes) treated with light-sensitive substances.

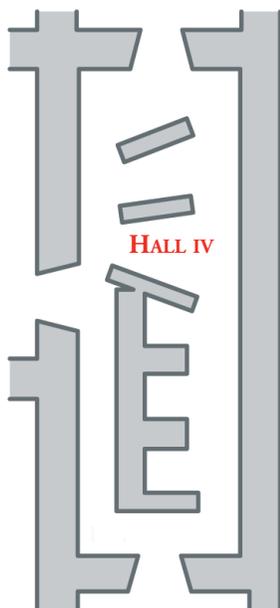
In 1884, Georges Eastman Kodak patented a film that consisted of a long roll of paper coated with a sensitive emulsion, going on to make the first flexible film out of cellulose nitrate in 1889 and thereby paving the way for the use of celluloid film, whose highly-flammable material was used for cinematographic films until 1940. Effective colour photography was developed in the early 20<sup>th</sup> century.

The medium used for sound recording depends on what recording system is employed. Systems based on mechanical analogue recording technology have used smoked paper cylinders, tin-plate, wax cylinders and wax, ebonite, slate and vinyl discs.

The development of electromagnetism enabled magnetic analogue recordings to be made on magnetic tapes, initially manufactured from metal oxide coated paper. Before long, paper was superseded by plastic and, later, by polyester. The video tapes used in video cassette recorders are a very similar, albeit wider, medium.

The next step in the history of sound recording consists of digital recording systems that use metal tapes (DAT), compact discs and DVDs.

Both CDs and DVDs use a plastic polycarbonate substrate on which information is stored, to which a reflective layer of aluminium is added and the whole is then covered with a protective coating. These media make it possible to store all kinds of information –images, sound and data– and will soon probably be overtaken by others with greater storage capacity.



## THE HALL OF THE MUSES

*“For me, effective medicine and rest are to be found only in the study and cultivation of the Muses”*

**Ovid**, Roman poet (43 BC-17 AD)

In the 3<sup>rd</sup> century BC, the *Mouseion* was built in Alexandria. This was a temple dedicated to the Muses –goddesses of the arts and sciences and sources of inspiration for poets and artists– and devoted to learning, teaching and research. It housed the famous Library of Alexandria, known throughout the Ancient world for its unrivalled magnificence, which survived until it was destroyed by fire in 48 BC.

After the loss of the Mouseion, the word was reinstated during the Renaissance by Lorenzo de Medici, who called his collection of works of art and codices a Museum. From then on, the term was associated with the private collections of kings and patrons until after the French Revolution, when museums became part of the national heritage.

This hall is the sanctuary of the National Library's Museum. This is where a selection of the original works that the Library keeps in storage is displayed. For conservation reasons, these unique pieces are substituted periodically, items for display being carefully chosen to reflect the scope and nature of the Library's holdings. These treasures, which have been preserved down the centuries, give visitors some idea of the richness of Spain's cultural heritage and the regularly changing exhibits provide a surprise with every new visit.

The displays of original works are organised into three consistent thematic areas: **Emotion and Beauty**, **Communication and Knowledge** and **Fable and Fantasy**.

*"Language locks the words to express the feelings of the soul"*

**Fray Luis de León** (1527-1591), Spanish poet

*"I have always imagined that Paradise will be some kind of library"*

**Jorge Luis Borges** (1899-1986), Argentinian writer

*"Art is a lie that makes us realize truth, at least the truth that is given us to understand"*

**Pablo Picasso** (1881-1973), Spanish artist

*"Artistic beauty is not representing a beautiful thing, but beautifully representing a thing"*

**Immanuel Kant** (1724-1804), German philosopher

*"Beauty is the splendour of truth"*

**Plato** (5<sup>th</sup>-4<sup>th</sup> c. BC), Greek philosopher

*"I know that poetry is indispensable, but to what I could not say"*

**Jean Cocteau** (1889-1963), French film director

*"There is only one good –knowledge; and one evil– ignorance"*

**Socrate** (470-399 BC), Greek philosopher

*"To know how to wonder and question is the first step of the mind towards discovery"*

**Louis Pasteur** (1862-1895), French chemist and microbiologist

*"Music is the arithmetic of sounds as optics is the geometry of Light"*

**Claude Debussy**, (1869-1951), French musician

*"A wise man is one who is constantly amazed"*

**André Gide** (1869-1951), French writer

*"History, rival of time, storehouse of deeds, witness for the past, example and counsel for the present, and warning for the future"*

**Miguel de Cervantes Saavedra** (1547-1616), Spanish playwright, poet and novelist

*"Thinking is feeling, feeling is thinking"*

**Miguel de Unamuno** (1864-1936), Spanish philosopher and writer

*"And, alas, thus stangely wrought*

*Restless, rapid, on I fly.*

*Nothing everything am I*

*Since I am the Human Thought.*

*See, if such strange changes give*

*Thee, O Man, true views about me,*

*Since the thing that lives without me,*

*Scarcely can be said to live"*

**Pedro Calderón de la Barca** (1600-1681), Spanish playwright and poet

*"What fable invents, history sometimes re-enacts"*

**Victor Hugo** (1802-1885), French poet, novelist and playwright

*"Fantasy deserted by reason produces impossible monsters: united with it, fantasy is the mother of the arts and the source of their wonders"*

**Francisco Goya** (1746-1828), Spanish painter

*"There is more pleasure to building castles in the air than on the ground"*

**Edward Gibbon** (1737-1794), British historian

## BOOKS AND THE INDUSTRIAL REVOLUTION

### (19<sup>th</sup> century)

The industrial revolution that took place in Europe during the 19<sup>th</sup> century brought with it notable economic and technological progress. The repercussions on methods of production were major and ongoing. One example was book printing: technological progress allowed many copies to be produced relatively quickly, thereby achieving what had been the main objective since the invention of the printing press. One of the first major steps forward was the invention of the flatbed printing machine by German Friedrich König, which made printing three times faster. The new machine was driven by steam, the main source of energy for 19<sup>th</sup> century machinery. The flat-bed machine was soon superseded by a new invention, the rotary press, which used spools of continuous paper and whose greatest innovative feature was the capacity to print on both sides of the paper at the same time.

The linotype composing machine represented another step forward: this was invented by German clock-smith Ottmar Mergenthaler and built in the United States in 1866. The linotype system was improved, then overtaken by monotype, which made correction easier. Equally important was the production of paper using wood-pulp, ground up and treated with chlorine and bisulphites to produce cellulose. The process was first used in 1843 by German Friedrich Gottlob Keller. All these technological advances paralleled others of a social nature, such as positivist philosophy, scientific progress, the emergence of the concept of the citizen as a subjective being with duties and rights, and the expansion of universalist values in general.

## THE FUTURE OF LEARNING

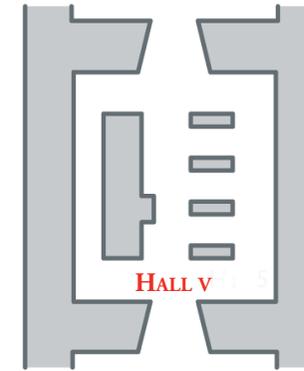
*"When you go to bed, you can take one of two things, a person or a book, not a computer".*

Ray Bradbury (1926)

The ongoing development of new technologies and the rapid growth of the Internet has revolutionised access to, and consumption of, knowledge. Nowadays, much of the information generated in the world is accessible on the web: blogs, links, digital newspapers, e-mails, digital libraries, servers, e-books, search-engines... all these terms belong to a continually changing lexicon that reflects both the need and appetite for information in modern-day society.

All this has produced, and continues to produce, enormous quantities of data that circulate daily around the web via public and private web-sites which are being constantly updated and are essentially ephemeral in nature in that they lack any vehicle other than the virtual. How to preserve all these data for the future is one of the main challenges with which today's registries, newspaper archives and libraries are faced. Libraries in particular are adapting to new technologies and the major changes occurring in information processing, especially in the area of digitisation and diffusion of holdings and collections so that they can continue in the 21<sup>st</sup> century to fulfil the function of keeping a record of knowledge.

Books, the classic medium in any library and for centuries associated with printed paper, have also been affected by the digital revolution and face a problematic future in the light of electronic publishing and its new formats. Will e-books replace traditional books? And if so, how will we adapt to them and how will our writing and reading habits change?



## A RECORD OF KNOWLEDGE

*"I seized the book, opened it, and in silence read that section on which my eyes first fell"*

Saint Augustine (4<sup>th</sup> century),  
*The Confessions*

Two clay tablets discovered at the Tell Brak archaeological site in Syria during the 1980s are estimated to date from the 4<sup>th</sup> millennium BC. The upper surface of each is notched with what archaeologists believe to be a representation of the number ten. They are the oldest known pieces of evidence in a long history –the history of knowledge.

These rooms aim to provide a guided tour to that history, using the record of it provided by the National Library's collections to do so.

Material has been divided into two main chronological blocks, before and after the invention of printing in the mid-15<sup>th</sup> century. The first of these was characterised by 'hidden knowledge': knowledge at that period was an instrument at the service of those in power. Printing brought about a generalisation and diversification of knowledge: generalisation in the sense that it became accessible to everyone, and diversification in that the range of knowledge expanded into other areas to match society's requirements. Unquestionably, printing changed the world. Plato, Aristotle, Virgil, Horace, Saint Augustine, Saint Isidore... all these could now be read without the need for a go-between.

## 'SECRET KNOWLEDGE'

### Antiquity and the Middle Ages

*"There is a history of reading"*  
**Robert Danton**  
*The kiss of Lamourette* (1990)

The legendary Alexandria library –the most renowned and splendid in the Ancient World; the library of Pergamum; the imperial Palatine and Octavian libraries; the Ulpia library, founded by the Spanish-born emperor Trajan; the dazzling Byzantine libraries, including that of Constantine –still in existence in 1453; the library of the monastery of St. Catherine on Mount Sinai; the library of the Emperor Charlemagne; the late-10<sup>th</sup> century Cordoba library of al-Hakam II which amassed 100 000 books; the first ecclesiastic and monastic libraries such as those founded by Origen in Caesarea in Palestine and destroyed by the Arabs in 637; King Alphonse the Wise's famous School of Translators in Toledo; the aristocratic libraries in the 15<sup>th</sup> century that heralded the dawn of the new, Renaissance, era. . . Over the centuries all these places served as repositories for the oldest records of mankind which, 'like still fresh tracks across a field of snow' (Walt Whitman, *Leaves of Grass*), today enable us to understand our past. The manuscripts they contained, copied by hand, were written by and for an elite: they would have been inaccessible to the general populace, which had not yet learned to read.

The holdings of the National Library include examples of this secret knowledge, some of which can be seen in this room. The visitor information provided during the itinerary explains their significance at the time when they were produced, their later importance and how they came to be acquired by the Library.

## THE SCRIPTORIUM

*"Those who know not how to write believe it to be effortless, but it is demanding work that dims the eyes, bows the back, mortifies the belly and ribs, causes pain to the kidneys and engenders weariness throughout the body"*  
**Fiorenzo**, Illustrator (10<sup>th</sup> century)

Throughout the Middle Ages, *scriptoria* were created in monasteries and abbeys. These were workshops dedicated to producing books which, for the most part, were made by the monks themselves. Initially, the books were destined for the monasteries' own small libraries, being essentials of monastic life. They were needed in the liturgy and for training the monks, and also served as vehicles for the prevailing moral and religious teaching of the day: the Psalter; the Bible, the *Liber misorum*, the *Liber comicus*, the Spanish Canonical Collection or *Beatos*, and the writings of Saint Augustine, Saint Gregory the Great and Saint Isidore would have been among them. Copyists and illustrators absorbed many influences, from Christian to Muslim traditions, including elements originating in the Carolingian world and even Ireland. The most famous of these workshops were those of San Millán de la Cogolla, Santo Domingo de Silos, San Pedro de Cardeña and San Martín de Albelda. Some of them produced notable figures, such as Florentius and Magius.

## THE GUTENBERG GALAXY

*"The memory of the past is the only future we have left"*  
**Augusto Roa Bastos** (1917-2005)  
*The Admiral's Vigil*

Although anticipated in 11<sup>th</sup> century AD China, printing was invented in the 1450s in the German town of Mainz by Johann Gutenberg (1398-1468). This event owed much to important advances (engraving, xylographic books, paper, 'fatty' ink, moveable type, the press) made in the field of reproducing written matter that saved effort, time and money.

Above all, however, the invention of typography resulted from social and economic development during that period, which generated an increasing demand for access to knowledge. For the first time since the invention of writing, it became possible to produce books quickly and in large numbers. *Scriptoria* had been superseded and printing was to change the world: "I shall try to buy a volume for you but I fear this will not be possible, not only because of the distance, but because copies are sold even before they are completed." (Letter dated 12<sup>th</sup> March 1455, from Enea Silvio Piccolomini to Cardinal Carvajal telling him about the presence of the Gutenberg Bible at a fair).

## THE GENERALISATION OF KNOWLEDGE

### (16<sup>th</sup>-19<sup>th</sup> centuries)

*"The question is", said Alice, 'whether you can make words mean so many different things."*  
*"The question is who's to be the master; that's all".*  
**Lewis Carroll** (1832-1898)  
*Through the Looking-Glass*

The rapid spread of printing produced major changes in the way of living and thinking of nations because it fostered the progressive growth of written culture and gave an enormous boost to literacy: only fifty years after the invention of printing, around 1500, there were ten million printed books in Europe. Furthermore, it enabled scientific and political ideas to circulate freely, making them difficult to control by the State and the Church, primarily the latter, which gradually lost the monopoly it had exercised over the reproduction and content of written matter. Hitherto forbidden works began to be published, effecting profound social change. Another significant area of progress that followed the birth of printing was that national languages became standardised now that the rules and conventions governing them could be disseminated. The spread of printing also laid the foundations for education at all levels, allowing scientific research to evolve and, especially from the 19<sup>th</sup> century on, enabling written mass media to become widely accessible.

To sum up, access to culture and education for society as a whole was provided primarily by three significant processes: education, literature and newspapers and periodicals. Space is allocated in this room to each of these long processes, and they are illustrated by books and other publications which –in some cases because of their intrinsic merit, in others because of what they stand for– contribute to a general overview of knowledge and its manifestations during this period.



## MUSICAL ENGRAVING AND PRINTING SCORES

In 1485, the printing presses of Pablo Hurus produced the earliest Spanish book containing printed music the *Missole Cesorougustonum*. Contrary to what this might suggest, it took a long time to overcome the problems that printing musical scores entailed, and what typographical processes and engraving techniques should be used were a controversial issue for centuries. Two ingenious early 16<sup>th</sup> century approaches illustrate the dilemma. Ottaviano Petrucci's method of printing staves, notes and texts in three successive stages, as opposed to Pierre Attaignant's complicated system of moveable type, each piece consisting of a block bearing a musical symbol and stave lines.

Not until the 18<sup>th</sup> century did chalcographic technique start to predominate in this area of printing, when using burins to engrave metal plates was replaced by the simpler and more uniform method of applying punches embossed with musical symbols to the reverse side of the plate and striking them with a hammer.

In Spain, these traditional methods survived well into the 20<sup>th</sup> century because there was so little demand for 'printed' music.

**The Calcografía de Santamaría** was one of the most prolific metal-engraving workshops of its day. Established in 1873 by Serapio de Santamaría García, it remained in continuous operation until the 1940s, still run by descendants of the original founder. Although the workshop must have engraved and printed several thousand publications, only around five hundred accredited examples have been preserved.

This rare relic of industrial archaeology, acquired by the National Library in 1990, consists of more than 2.000 items, many of them bought from Parisian manufacturers in the 19<sup>th</sup> century by the workshop's founder.

### Café society

*"A café is like a big fair at which endless products of the human mind are exchanged"*

**Benito Pérez Galdós**

*"The Café de Levante has exerted more influence over literature and contemporary art than two or three universities and academies"*

**Ramón del Valle-Inclán**

### NCR cash register, class 400 model 442X, series no. I 257 795

Inv. 5539

Manufactured between 12<sup>th</sup> April and 2<sup>nd</sup> May 1913

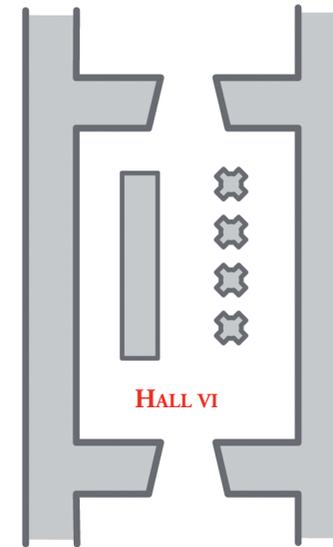
This was used at the National Library from when it was first bought until its retirement in the old cafeteria in the mid-1970s. Invented by a distrustful Dayton saloon-owner in 1879 to prevent his staff from pilfering the takings, these machines were nicknamed "incorruptible cashiers". NCR (The National Cash Register Company) bought the patent in 1884, and within four years had become a multinational, doing business in 121 countries.

### Sterling Derby Pianola

Connecticut ca. 1918-1919

Mahogany case, two piano pedals and two additional ones to operate the bellows. This automatic musical instrument, a collector's piece, was acquired by the National Library in 1990.

In the late 19<sup>th</sup> century, more or less simultaneously, gramophones, organettes, push-up piano-players and pianolas were adopted for use in middle-class drawing-rooms and places of public entertainment such as dance rooms, cafés and salons the long-cherished aim of reproducing sound had been achieved at last.



## LITERARY CAFÉS AND WORKSHOPS

What, in the 19<sup>th</sup> century, was an incorruptible coshier?

Which painter decorated the Café de Levante?

In which café was Chueca a pianist?

Was Manuel Blancafort's family involved in music?

Can bookbindings talk?

What does backing a book' mean?

Who wrote the first treatise on bookbinding?

What is copperplate engraving?

What does the acronym BAT stand for?

What is a *sacamentiras* for?

## THE BOOKBINDER'S ART AND TECHNIQUE

*"Binding: The strong cover of a book, which holds the sheets together, etc. 1647*

**The Shorter Oxford English Dictionary on Historical Principles**, Oxford University Press, 1947

Bookbinding, or the art of binding, combines a useful purpose protecting a book and making it easy to handle ? with an ornamental or artistic one embellishing it.

Although both purposes are already discernible in scrolls and tablets, the term 'binding' applies only to the book format we know today, derived from the codex, or *liber quadratus*, made by joining together several sets of quadrangular leaves fastened to each other.

Bookbinding could be said to be a modest branch of engineering, made up of detailed procedures that respect the behaviour and tensile properties of materials, and work to precise measurements Well-executed bookbinding enables a book to 'function' to be easy to handle, to open and close properly and fulfils the ultimate purpose of protecting it.

The number of operations involved conveys some idea of how complex, labour-intensive and specialised the bookbinder's work is.

## BOOKBINDING DOWN THE CENTURIES

*"Bookbinding is the art of covering a book to suit its character, merit, worth and purpose"*

Mariano Monje Ayala, bookbinder

The oldest known examples of bookbinding are 3<sup>rd</sup> century Coptic, their wooden boards covered in leather and stamped by using hot irons, pressure, or beating with tools. These techniques were still in use, with few innovations, in the monasteries of medieval Europe

Not until the late 15<sup>th</sup> century was this art form renovated in any significant way: the Arabs used lighter, more flexible materials, such as cardboard, for the boards, and covered them in leathers of the morocco type. The influence of their decorative style and gilding techniques was spread throughout Europe by craftsmen working for the Crown of Aragon from two hubs of activity southern Italy and the Hungarian court of Matthias Corvinus.

Aldo Manuzio adopted the new 'arabesque' style for his publications which, when introduced into France, triggered the 'French period' in the history of bookbinding. While the Baroque made the elaborate fan (*o l'éventail*) style and *pointillé* tooling fashionable, Rococo taste inclined more towards mosaic and lacy (*o lo dentelle*) patterns. In the late 18<sup>th</sup> century, the sober Neo-Classical style imposed greater decorative restraint, which continued into the Empire style. British bookbinding flourished during this period. Meanwhile, the Romantic movement was generating interesting bindings, such as the *rocoille*, cathedral and (typically Spanish) *cortina*, or curtain, types. Nevertheless, with historicism holding sway, the movement degenerated into pastiche, against which Modernism and talking bindings' (based on motifs referring to the book's content) reacted, reinstating an original art form. In the 20<sup>th</sup> century, artists such as Legrain, Paumard, Bonnet, the Brugallas and Palomino strove to rescue artistic bookbinding from the bibliophile territory to which it seemed to have been relegated by the industrialisation of the processes involved.

## BINDINGS IN THE NATIONAL LIBRARY

The National Library's vast holdings, containing a wealth of bindings exemplifying almost every period, technique and style, are more than amply equipped to illustrate the most exhaustive history of Spanish bookbinding. In addition to those made widely known through catalogues and exhibitions, they include two outstanding collections of bookbindings.

**The Rico y Sinobas Collection**, composed of 1.138 examples of covers which survived the practice common in many old libraries of re-binding their collections in a uniform style.

Acquired by the Spanish State in 1901, it provides additional evidence about the decorative styles used in Spanish bookbinding between the 14<sup>th</sup> and 19<sup>th</sup> centuries.

**National Awards for the Best Artistic Bookbindings**, a collection in the making. A competition for these awards has been held annually by the Directorate General of Books, Archives and Libraries since 1993. The task set is to create a binding for a specified work by a winner of the Miguel de Cervantes prize for literature. Since 1994, winning submissions have been donated to the National Library. The skill and good taste of the Library's own bookbinders have taken this award more than once.

## ENGRAVING

*"The history of engraving is the history of civilisation. When he leaves the imprint of his foot in the ground and cleaves the mud with his hand, man begins to realise that the earth takes on the shape that he gives it, and retains it, accepting his influence"*

Francisco Esteve Botey (1884-1955)

The texts of books have been illustrated and decorated since ancient times up until the 15<sup>th</sup> century, this was done by hand and was concentrated on capital letters, borders, vignettes and illustrations in 'illuminated' books. As early as the 13<sup>th</sup> century, imitating the processes used in printing fabrics and striking coins, multiple examples of one image (prints) were widely obtainable by applying paper to an inked matrix or plate engraved with a drawing. This production method, initially used for packs of playing cards, calendars and devotional pictures, was soon adopted for illustrating books. This was the start of the modern history of engraving, which has seen a succession of various techniques come and go, each determined by the material of which the plates are made wood, metal and stone are some of the most commonly used materials.

## WOOD ENGRAVING OR XILOGRAPHY

### With the grain, or wood-cutting

Printing from wood-blocks is the oldest technique of all and was the method used to illustrate incunabula (early printed books). An image is drawn on a block of wood by cutting away with a gouge those areas to appear as 'white' in the printed version. This creates a plate on which a design stands out in relief which, when inked and printed, produces a two-dimensional picture with broad lines and no tonal nuances.

### Against the grain

This technique uses very hard woods, such as boxwood, worked with a burin, or engraver's chisel, against the grain of the wood. It was used throughout the 19<sup>th</sup> century, especially for magazine illustrations, having been developed by Thomas Bewick in the 18<sup>th</sup> century.

## METAL ENGRAVING OR CHALCOGRAPHY

Although there is evidence that this technique was already in use in the 14<sup>th</sup> century, it was scarcely used in book production until the 16<sup>th</sup>. It was initially employed for covers and broad-sheets because its incised image could not be printed alongside typographical text, which was raised.

Techniques for engraving on metal divide into two major groups: **direct** and **indirect techniques**.

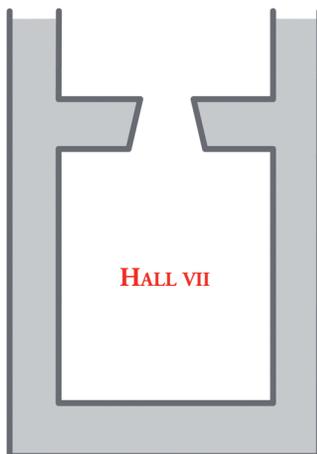
**Direct techniques** are based on working or cutting a metal plate, generally copper, with instruments such as a **burin** and a **dry-point**, with which the engraver incises little furrows in the plate. In both techniques, the depth and breadth of the furrow can be graduated, as can the distance between them, to obtain shading.

In the early 16<sup>th</sup> century, the so-called **indirect techniques** began to evolve, initially etching, then mezzotint in the 17<sup>th</sup> century and aquatint and soft varnish in the 18<sup>th</sup> century. All these work on the principle of exposing to a corrosive acid those areas of the plate where the ink needs to 'take'; white areas are protected or held back by varnishes; with guidance provided by 'State Proofs' (prints made before the engraving is finished), the engraver monitors the mordancy of the acid and capitalises on its action to obtain the effects he wants to achieve.

## LITHOGRAPHY

This technique, invented by Aloys Senfelder in the late 18<sup>th</sup> century, produces very rapid results. It is based on the chemical principle of the repulsion between water and oil: a design is drawn onto a limestone (lithographic) plate using a greasy pencil. Once the drawing is complete, the stone is washed in water and other substances and then inked.

All these techniques co-existed in the 19<sup>th</sup> century. Meanwhile, others were being developed that would overtake them, being more efficient at satisfying the voracious demand for periodical publications among them were **rotogravure**, **offset** and **four-colour printing**, all of them by-products of photographic processes.



## SIGNIFICANTS DATES IN THE HISTORY OF DON QUIXOTE

- 1547** Miguel de Cervantes is born in Alcalá de Henares, near Madrid.
- 1571** Cervantes loses the use of his left hand at the Battle of Lepanto.
- 1575** He is captured by corsairs and imprisoned in Algiers.
- 1584** Cervantes marries Catalina de Salazar; his only daughter is born, of another relationship.
- 1605** Juan de la Cuesta prints the First Part of *Don Quixote*, known as the Princeps edition.
- 1612** Thomas Shelton publishes the first translation of the novel into English.
- 1614** Alonso Fernández de Avellaneda's continuation of *Don Quixote* appears.
- 1614** Cesar Oudin publishes the first translation of *Don Quixote* into French.
- 1615** Juan de la Cuesta publishes the Second Part of *Don Quixote*.
- 1616** Cervantes dies of dropsy on Friday, April 23.

- 1617** Parts One and Two of *Don Quixote* are published as one edition in Barcelona.
- 1657** The first illustrated edition of *Don Quixote*, a Dutch translation, is published.
- 1695** The first musical work on the subject of *Don Quixote*, composed by Henry Purcell, is performed for the first time.
- 1738** In London, Tonson publishes a Spanish edition including biographical information about Cervantes.
- 1780** The Spanish Academy's edition, printed by Joaquin Ibarra, is issued.
- 1797-98** The Imprenta Real includes Manuel Manuel Joseph Quintana's *La vida de Cervantes* (Life of Cervantes) in its edition.
- 1833** The first american edition is published in Mexico.
- 1856** The first Spanish children's edition of the work appears.
- 1871-79** The first facsimile edition, revised by Hartzenbusch, is created.
- 1923** Manuel de Falla's *El Retablo de Maese Pedro* is premiered.