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The Valorisation and communication of the university scientific patrimony.
The characteristics of the Palazzo Poggi museum at the University of Bologna

The University of Bologna wishes to express its gratitude and to thank the organisers for this invitation to take part in a conference that sees representatives from many prestigious European universities gathered together to discuss a subject which, through a reciprocal exchange of experience, will contribute to the intensification of contacts and relations between our universities.
The title of my talk, "***The Valorisation and communication of the university scientific patrimony***", aims to contribute to the central theme of this conference, starting from the specific case of the Palazzo Poggi Museum, the main history of science museum at the University of Bologna.
A university museum is not only a place for the preservation of ancient scientific instruments. It is, above all, a centre for scientific research, the promotion of culture, exhibition activities, and support for the didactic activities of the University and schools in the region. It is a place where new forms of scientific communication are set up, where the traditional separation between science and humanistic studies finds a common aim.
Our mission is certainly not a simple one, and it is rendered more difficult by an ever-increasing lack of public funds. It is a mission, however, that the university Museum of Palazzo Poggi has followed for five years with results that, I believe, have been more than satisfactory.

The Palazzo Poggi Museum was not created from collections accumulated over centuries. Its originality derives from the revival of the laboratories and collections of the ancient Institute of the Sciences, housed in their present locations in Palazzo Poggi from 1711 to 1799. The Institute of the Sciences came to the attention of the European Scientific Community as being the first public scientific institution devoted to scientific research and training, following the methodological criteria of direct observation and experimentation.
Until the beginning of the XIX century, its rooms contained the most complete and best-equipped centre of philosophy and experimental science. Because of the rich instrumentation it offered and the ample spectrum of disciplines involved - from natural history to archaeology, from chemistry to physics, from astronomy to anatomy, to applications of mathematics and rational mechanics - for European scientists it represented a sort of "encyclopaedia for the senses" with its state-of-the-art equipment, the methodologies it proposed and the research circles it cultivated. It was for many a place of wonder, and for the intellectual elite of the century of the Enlightenment, the House of Solomon rebuilt.
And it had a further characteristic: its rooms, functioning as scientific laboratories in the XVIII century and destined to gather together the *wunderkammer* of Ferdinando Cospi and the late renaissance collection of Ulisse Aldrovandi, also contained one of the most prestigious centres of sixteenth-century painting in northern Italy, including frescos by Niccolò dell'Abate, Pellegrino Tibaldi, Prospero Fontana, Nosadella and Ercole Procaccini.

From the period of the Napoleonic reform of academies and universities, the rich patrimony of the Institute of the Sciences came to constitute the laboratories of the new university Faculties and, subsequently, to form the historical nucleus of the patrimony of the academy of Fine Arts, the Civic Archaeological Museum, and the Civic Museum of Ancient Art.

In autumn 2000, the university of Bologna not only reopened the rooms that had housed the Institute of the Sciences in the 18th century within the sixteenth-century Palazzo Poggi to the public, but also returned the building to its historic splendour, replacing, within its walls, long used as offices and storerooms, the scientific discoveries and instruments that had been collected and used during the XVIII century.

A Documentation Centre at the Museum has been opened called *Oltre le due culture* (Beyond the two cultures), aimed at helping to overcome the rivalry between the scientific and humanistic academic disciplines. The Centre, besides organising research, debate, temporary exhibitions, and interdisciplinary teaching, also produces bibliographical material, reviews and texts, also accessible on the web, and has set up a centre for network exchange and collaboration with other scientific institutions and European museums.

The cultural activities (lectures, conferences and publications) and the temporary exhibitions organised within the rooms of the museum, share the purpose of the Centre to provide historical evidence and formative background to the most important results in the field of interrelations between the humanistic sphere, scientific knowledge and artistic representation; to propose, that is, within a historical and historiographical context, a cultural experience and an association between different forms of intellectual production, that, during the modern age, have found in Bologna a prestigious centre.

The publications, conferences and exhibitions over the last 5 years have all been based on this idea: *Il mondo in ordine* (*The world in order)* (2002) illustrated the scientific conception of the world in the modern age. *Antichità del Mondo*: *Fossili, linguaggi, rovine* (World's Antiquity, March-November 2002) devoted to the relationship between geology, archaeology and chronology from the Renaissance to the Enlightenment, the monographic exhibition devoted to the mathematician and painter Lucio Saffaro and her works (March-June 2004), and the exhibition *Rappresentare il corpo: L'anatomia da Leonardo all'Illuminismo* (Representing the body: anatomy from Leonardo to the Enlightenment, December 2004-April 2005), our next exhibition *La scienza allo specchio dell'arte* (Science mirrored in Art) (October 2005-January 2006), the *Albert Einstein in Bologna* exhibition (November 2005-January 2006), *Observing, describing, classifying: from myth to science*, scheduled for autumn 2006.

Almost in a revival of its didactic functions, as well as preserving and exhibiting the laboratories of Palazzo Poggi, the Documentation Centre, the Museum and the university, have established a collaboration with the schools of the Emilia-Romagna Region, in order to develop a permanent teacher-training facility and promote the historical-scientific among the students. The Museum also hosts and collaborates with a Masters qualification in *scientific historical museography* and has founded a university e-learning programme in museography and museology.

MUSEUM EXHIBITION

The setting up of the Museum has been a long and difficult task involving many experts over many years in collecting and unearthing what has remained of our eighteenth-century scientific and artistic heritage.

The availability of a significant part of the original and nineteenth-century furnishings has enabled us to reconstruct the research and teaching programmes that made the Bolognese scientific community famous.

Our job has not been one of assembling heterogeneous material, according to rigorous criteria, or inventing *ex novo* museum collections with only have a particular category of object in mind.

Instead, we have tried to reconstruct a sequence of laboratories, fully researched over recent years, that we thought had been completely lost. All of this has made it essential to retrace the diaspora, initiated in the Napoleonic era, to bring back, where possible, to the rooms of Palazzo Poggi, the collections, furnishings and scientific instruments that belonged to the Institute and to return, despite many missing links, value and meaning to exhibits which, removed as they were from their original context, had lost their historical potential, as well as their original usefulness, inevitably consumed by time and by the advancement of technical and scientific advances. On the basis of the documentation and papers by those who played a significant role in that exceptional period of Italian scientific ferment, we have not only managed to replace large parts of the collections in their original historical context, but also to return them to that system of interrelations that forming the fundamental basis of a precise scientific "mentality", and making them essential documents for the interpretation of today's modern scientific civilisation.
It has been a real job of scientific archaeology, since the experts, as the objects were replaced in their historical locations, have witnessed the emergence of the outlines of a civilisation and a scientific world known until now only through fragments of knowledge and indirect accounts.

ULISSE ALDROVANDI

a) <u>The Display</u>
The display in the rooms devoted to the natural history museum of Ulisse Aldrovandi, which the Institute of the Sciences was able to integrate with its own collections in 1742, enables us to illustrate the type of work that has been undertaken.
The present display was realised using furnishings that, based on an eighteenth-century model, were constructed at the beginning of the twentieth century, and proposes, according to Aldrovandi's subdivision of Nature into three Kingdoms, natural history exhibits selected and preserved according to sixteenth-century techniques. This includes seventeen volumes of watercolours that the Bolognese naturalist commissioned from painters, draftsmen and engravers, in order to complete and accurately describe a clearly imaginary collection. The xylographic matrixes drawn from that extraordinary repertoire of images – covering a fundamental period in the history of modern scientific illustration - served to illustrate the printed volumes of Aldrovandi's *Storia Naturale* (Natural History).
The selection derives from a precise cultural assumption: an exhibit that a late renaissance naturalist like Aldrovandi comprehensibly obtained with difficulty, acquired, at the end of the sixteenth century, within that collectionist and taxonomic context, a relative and comparative value, connecting it to other documents concerning the natural world. Today, placed in a modern showcase and next to documents with a very different kind of value, and which were much easier to obtain, it would suffer from a loss of historical potential, a mortifying negation of historical significance.
It is for this reason that our display aims to preserve and emphasise the artistic merit of the collection, the exploitation of the various exhibits within their specific context, but also to recreate a system of relationships enabling us to fully appreciate the individual exhibits today (whether naturalistic, or drawings, water-colours, illustrated manuscripts, printed volumes, scientific correspondence, wooden carvings, etc.) within the theoretical conceptions of Aldrovandi, bringing those conceptions back to the great debate among sixteenth century naturalists, and ideally placing this debate within the cultural framework of the period.
This type of historical display has required the restoration of material, the introduction of a system of LED lighting, in order to guarantee ideal conditions for the preservation and illumination of different kinds of exhibit, as well as the restoration of the historical atmosphere, in order to guarantee the safe-guarding of a patrimony of great artistic and scientific value.

A series of activities accompany the exhibition *stricto sensu*, designed to promote both a high level of popularisation and a scientific approach for the specialist visitor.

b) Scientific approach

The display, inserted within the framework of the Celebrations for the IV Centenary of Ulisse Aldrovandi, is accompanied by technical and scientific cataloguing of the exhibits, and by an innovative publishing enterprise, consisting in an on-line national edition of Aldrovandi's corpus of works, including his published writings, manuscripts, watercolour plates and the so-called *Hortus siccus*.

Three conferences, two of which on the subject of natural history and naturalist collections and a third devoted to modern research by naturalists, will allow us to open a discussion that will go beyond the actual occasion of the exhibition itself, to involve researchers and experts with great experience in the field.

c) Popularisation

The exhibition entitled *Observing, describing, classifying: from myth to science* is not only designed to attract experts in the field. The exhibition, devoted to the discoveries of the XVI and XVII centuries, and to the naturalistic expeditions of the XVIII century, responds to the requirement of modern scientific thought aimed at widening the world's horizons and the frontiers of knowledge. This requirement has often interwoven myth with science, the methodical observation of the naturalist with the production, sometimes rigorous, sometimes fantastic, of artists and writers. *Ulysses* and the *Ship* will be the emblems of a collections of paintings, watercolours, drawings and engravings (including works by Tibaldi, Dosso Dossi, Taddeo Zuccari, Dürer, Arcimboldo, Caravaggio, etc.), diaries, miniatures, scientific illustrations, documents, accounts of journeys, discoveries, atlases, and real and imaginary maps, in an attempt to establish relations between the journeys of the classical era and XVI and XVII century novels, the discoveries in the New World of the correspondents of Ulisse Aldrovandi and the scientific expeditions of Joseph Pitton de Tourefort (illustrated by Claude Aubriet), Pierre-Louis de Maupertuis, Bougainville and Philibert Commerson, Michel Adanson, etc.

A series of multimedia applications, filmed, will integrate and connect the various sections of the exhibition.

ANATOMY

The display

The Program of activities connected to the full renovation of the natural history Museum of Ulisse Aldrovandi follows, a year later, the same pattern that the Palazzo Poggi Museum employed in the two years 2004-2005, in order to exploit the ceroplastic collections in the fields of anatomy, physiology and obstetrics, constituting one of the most prestigious treasures of the museum.

From the end of the XVII century, ceroplastic anatomy, or rather the art of reproducing whole human figures or anatomical parts for didactic purposes in various materials (ivory, bronze, plaster, wood, and wax) spread throughout Europe. Ceroplastics saw Bologna, in particular, – from the XIII century an important centre of the university anatomical school – as an important centre for the reproduction, for teaching purposes, of figures or individual parts of the human body.

It was the Bolognese artist Ercole Lelli who began the first systematic anatomical ceroplastics work, which was then continued by his student, Giovanni Manzolini, and by Anna Morandi and Luigi Cardini.

Also in this case the retrieval of the original furnishings and other containers constructed from those models, has enabled us to set up three rooms, not only proposing the anatomical parts in use in the XVIII century, but also of the functions served by these rooms and the scientific concepts that

motivated and prompted their realisation. The integrity of the collections, the reconstruction of the various environments and contexts, enable visitors to immerse themselves in the contexts and scientific adventures occurring during the XVIII century, without, however, losing a sense of the historical development and advancement of anatomical knowledge and scientific techniques.

In this case, the distribution and collection of materials is, in itself, a particularly effective means of popularisation.

A first room displays the 8 anatomical statues and plates containing individual bones, realised by Ercole Lelli in the 1740s for the Institute of the Sciences. They constitute a mark of the excellence of artistic anatomy and, at the same time, they report the most innovative results of the myology and osteology of the period. They also represent the specific characteristics of a professional figure - Lelli being a perfect example - of fundamental importance to the training of physicians and anatomists. Lelli was also an excellent painter and sculptor, as the works on display in the room clearly show. He trained as an anatomist at the University and in the city hospitals, and was an important theoretician of the knowledge and representation of the human body, as testified by his work *The Anatomical atlas for the use of painters*.

But the studies of skeletons and of the muscular system were, in the mid-1700s, a frontier that was anything but impassable. The following room, containing the anatomical exhibits by Giovanni Manzolini and Anna Morandi, clearly demonstrate this. The production of the generation following Lelli's shows the transformation from anatomical representation to the illustration of anatomical-physiological phenomena, no longer aimed at the exhibition of individual parts, but concerned with the study and reproduction of the organs of the senses, the uro-genital apparatus and the cardio-vascular system. Systems of organs and the sensorial system: studies supported by the physiological teaching of Marcello Malpighi, the English and German physiology of the early 18th century, and more recent analyses by Anton Maria Valsala conducted on the nerve and muscle fibres affecting the operation of the sense organs; within a few years extraordinary results were to be achieved at the Institute of the Sciences by Luigi Galvani.

Explanatory applications

The realisation of anatomical waxworks consisted of various phases. First of all, it was necessary to obtain the parts to be reproduced; then, for each part, a drawing or initial figure "of an ordinary material" was made, on which layers of coloured wax were applied to imitate the real colours. The wax, diluted with turpentine, was mixed with mastic and tallow. Even for waxworks, the base was generally made of bones removed from human skeletons, which, in the case of whole figures, were supported by an iron framework allowing them to be manipulated into the desired pose. An exhibit simulating the realisation of an anatomical waxwork for didactic purposes now allows visitors to follow all the phases of workmanship leading to results that, in their complete form, can be admired within the showcases.

The third anatomical room demonstrates the fact that anatomy, and medical theories in general, had acquired great importance even outside university classrooms, in eighteenth-century civil life. On display in this room we find wax and clay exhibits, constituting the furnishings of the obstetrics school of the physician Antonio Galli. Birth, in the hands of midwives with no scientific training, consisted at the time in an extremely risky event, for both mother and child, even more alarming in a phase of worrying demographic decline, such as that of the mid-eighteenth-century.

Galli's intention was two-fold: to introduce the study of birth to the surgical curriculum as a field of medical specialisation; to offer scientific training suitable for midwives, generally lacking in any preparation that could enable them to learn from essays or theoretical lessons. The clay models of the uterus, many of which could be manipulated, constituted the essential basis of a didactic method, not only enabling the visualisation of particular phenomena, but also the tactile exploration of organs.

Explanatory applications

Clarification of the technical contents and procedures to which this room is devoted in this case consists of a group in polychrome clay, specially realised on the basis of rediscovered eighteenth-century documentation. The work – a further and actual proof of the association between the artistic and scientific worlds - reproduces one of Galli's lessons to midwives at the Institute. The waxworks, instruments, knives, and furnishings contained in the room, are "shown in the functions for which they had been realised".

Popularisation and specialist studies

Also in the anatomical section, an exhaustive work of research and popularisation accompanies a permanent exhibition aiming at the full exploitation, not only of the exhibits themselves, but also of their scientific conception, as well as their historical and cultural background.

In particular, a large exhibition has been held, entitled *Representing the body. Art and anatomy from Leonardo to the Enlightenment,* which attracted over 30 thousand visitors. Over two hundred exhibits, including paintings, drawings, sculptures, engravings, books and illuminated manuscripts, documented the collaborative relationship between art and science in the acquisition, representation and popularisation of anatomical knowledge. The great tradition of the Bolognese anatomical school constituted the backbone of an exhibition that went beyond national boundaries, to compare different geographical and cultural environments, underlining significant moments in the history of science, history of art and, in general, the history of modern ideas, culture and thought. Together with 11 autographed drawings by Leonardo da Vinci, Dutch and Italian anatomical canvases were displayed (Dutch School, Carracci, Passarotti, F. Zuccari, Loves Borgianni, drawings and prints by Pollaiolo, Baccio Bandinelli, Lelli, etc.). As well as paintings, drawings, statues and plaster casts, the exhibition included fine illuminated and illustrated manuscripts, and prints.

A catalogue and videoguide accompanied the exhibition.

A series of 13 lectures provided more in-depth study of the artistic, literary, theological, historical and cultural themes connected with the subject of the body.

As every archaeological excavation, a "revived museum" is also a *work in progress*: there are still many gaps to be filled, many instruments and important objects to be found, many environments still to be recreated.

The 3D reconstructions of the natural history and experimental physics galleries that will serve create, for the visitor, an even more authentic experience of the eighteenth-century scientific world, today serve as an inventory of what still needs to be improved and a guide for the retrieval of what is still missing.