

SCIENTIFIC MONITORING AND DOCUMENTATION OF THE VENARIA REALE RESTORATION SITES

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KEY WORDS: Architecture, Cultural Heritage, Databases, Monitoring, Surveying

ABSTRACT

The Venaria Reale is a huge baroque architectural complex near Turin, dating from the second half of the XVII century onwards and it is part of the so called “Corona di Delitie”, this is the complex ring of ducal residencies outside the capital. They all made up an articulated system of *loisir* residences and large areas of state land, some of which with hunting rights. In 1999 a great restoration began, financed by Italian Government and European Union.

A new multidisciplinary working team (specialists working in the fields of history of art and architecture, archaeology, surveys of the historical architecture, structural analysis and chemical characterization of the materials) was then currently created by Regione Piemonte, together with Soprintendenze del Piemonte, Politecnico di Torino, Università di Torino, to operate in Venaria Reale in order to collect, process, document, manage, coordinate and analyse, almost in real time, the huge amounts of data resulting from restoration work.

The principal goals of the working group are:

Research and scientific monitoring, Documentation and Database.

The innovative aim in this experience is: first, creating an integrated and multidisciplinary working team, which is operating while the building site is open; second, taking advantage of the restoration to accumulate knowledge about historical architecture, knowledge which wouldn't be recoverable after the restoration is done, neither before work starts; third, helping and sustaining agencies, architects, firms involved in the restoration, in order to help understanding and take right decisions in relation to just excavated structures and every time a deepening of knowledge is requested.

THE CONTEXT: RESTORATION OF VENARIA REALE PALACE AND REGIA MANDRIA

The project to restore and redevelop the extraordinary baroque Venaria Reale and Regia Mandria complex, near Turin, kicked off a new season in 1998 of reorganising cultural policy and redeveloping the subalpine metropolitan area. This tendency is likely to be confirmed over the coming years, thanks to the restoration of all the residences built by the dukes and kings of the House of Savoy circling the capital city. The project is worth many hundreds of millions of euros, for which agreements between institutions, local authorities and private individuals were drawn up at the end of the nineties. The works, some of which are already underway and others which are about to begin, are likely to turn Turin and its surrounding area into one of Europe's largest restoration sites over the next few years. As it is, Venaria Reale is already one of the most important projects to redevelop a cultural asset currently in progress in the European Union and the direct financial commitment from the Ministry of Culture is comparable only to a few other recovery programmes in Italy at the moment.

Linked to the scheme to recover the residences is the “Corona Verde” project whose aim is the reconstruction, as far as possible and with action targeted at environmental and landscape redevelopment, of the functional and stylistic continuity which characterised the vast gardens, hunting routes and land around the city, during the 17th and 18th centuries. With this continuity, as highlighted by the ducal architect, Amedeo di Castellamonte, in the 1670s, a “corona di delitie” or crown of delights was purposely created, a continuous system of *maisons de plaisance*, parks and hunting reservations for the principle of *loisir*, but serving also as a strategic means of controlling the political and trade situation in the areas close to the ducal capital.

While the architecture is being restored, at Venaria Reale, designing and building are taking place especially *around* the

palace (the remarkable expanse of garden space; the redesign of the inner courtyards with their striking 17th and 18th century architectural backdrops) and *inside* it (museological arrangement of the apartments, ceremonial areas, the Gallery, the Diana Hall, stables and Citroniera).

The projects are the result of international contracts, the last of which – for the Juvarra's Citroniera – have still not been tendered. For the Venaria Royal Palace, the most important works involve the recovery of the entire 17th century palace, the marvels of Juvarra in the Diana Gallery and Saint Hubert's chapel (interior works overseen by the Architectural and Environmental Assets Office), and part of the vast 18th century structures built by Benedetto Alfieri. The contract has been given to the group made up of Fiat Engineering (structures and installations), Gae Aulenti (museology), Cesare Volpiano (restoration coordinator) and Libidarch Associati, with the assistance of a large team of experts (among others, Piero Castiglioni for lighting and Karlheinz Müller for acoustics).

The royal palace will become a museum of Savoy court life, with an itinerary covering 10,000 m² that will bring to life the arts, everyday life and court rituals – such as hunting – the organisation of the land, culture and economy of the dukedom and kingdom of Savoy in the 17th and 18th centuries.

In order to adapt the building to its use as a museum, a new access is to be created that will give character to the courtyard of honour from the entrance of the Clock Tower right up to the arcade of the 17th century royal palace. Wide use of multimedia technology will be made inside to support the articulated itinerary that will be created through the basement levels and the *piano nobile*, covering a surface area of over 10,000m².

It is important to note that the state of the buildings before the restoration work was rather different in character from other Savoy residences, which have been put to more appropriate uses, thus enabling long-term and more regular maintenance to safeguard the architecture and décor. At Venaria, on the other hand, the signs of two centuries of military appropriation and

later of longstanding neglect, have led to specific restoration difficulties, intensified by the size of the buildings and the quality of the architecture, frescoes and stuccos. An example of this is the Royal Palace of Diana, the central body of the complex, commissioned by Charles Emmanuel II in the mid 17th century, where hundreds of square metres of 17th and 18th century frescoes and decorations are being recovered, which to this day were hidden beneath dull monochromes created in the 19th and 20th centuries.

With regards to the intended use of the other sections of the vast complex (the restoration sites cover more than 950,000m²), it is to be remembered that the 18th century Carriage Houses will be home to the workshops linked to the activities of the new Conservation and Restoration Centre for works of art, located in the large stables and Alfieri's riding school on the south side of the Palace. The new institution will work alongside the Istituto Centrale del Restauro e l'Opificio delle Pietre Dure (Central Institute of Restoration and Stonework) to bring about a seat of excellence to train new generations of restorers.

In the vast and striking 18th century stables – large vaulted premises covering approximately 100 metres in length – the team led by Pietro Derossi and Giorgio Fea (with Boris Podrecca at the initial ideation phase) has set up new metal structures to create separate rooms. The architectural basis of the project is characterising the form given to the internal spaces, one designed as the lecture hall-to-be of the school of restoration, and the others as the workshops and teaching areas.

A fundamental aspect linking up the various parts of the complex will be the reconstruction of an articulated system of courtyards, outside itineraries, connecting areas and, above all, vast historical gardens designed by Amedeo di Castellamonte and subsequently brought to remarkable dimensions in the 18th centuries with the vital contributions of Michelangelo Garove and later Filippo Juvarra. The restoration project for the gardens (team led by Libidarch Associati, again with an articulated interdisciplinary pool of experts, including Brian Dix and Ippolito Pizzetti), takes the difficult, and sometimes questionable route of bringing the baroque garden up to date, by proposing notions that evoke the atmosphere of the 18th century (otherwise totally erased by subsequent military occupation of this site, when it became a practice ground for the cavalry and artillery), that are filtered through a contemporary layout.

The large stables (also the work of Garove, Juvarra and Alfieri) in the Mandria park – which became the residence of Victor Emmanuel II and later of the marquises Medici del Vascello – will be fully restored, with the exception of the apartments of Victor Emmanuel II, and will be home to a *hotel de charme*, temporary exhibition areas, bookshop, auditorium and research library. The rearranged Mandria Castle will be a support building to the Nature and Landscape Centre, where, once completed, a thematic itinerary will unravel, covering an area of four thousand square metres and dedicated to the relationship between man, nature and man-made landscape, again making wide use of multimedia technology. This project is directed by the French team led by Alain Boeffard. The Rubbianetta farm, 19th century structure west of Mandria Castle, will house the Horse Centre, with places for research and documentation, but also for hippotherapy activities. This project is directed by Giancarlo Battista. Manens Intertecnica has directed the design of the vast technical islands and “substations” throughout the complex.

Lastly, the remarkable Citroniera area and Juvarra's large stable – 150 metres in length – initially assigned to become the new Egyptian Museum of Turin (this plan was dropped as a result of opposition from Turin institutions) are currently being reworked by the group led by Paolo Marconi.

SCIENTIFIC MONITORING ACTIVITIES ON THE RESTORATION SITES

The work in progress at Venaria Reale has brought to light a number of complex and somewhat new aspects for consideration in the Italian context of the last few years. These are matters concerning restoration and architectural design methods, raised by the need to operate – with various subjects acting at the same time in a number of places – on an extremely varied but strongly connected corpus of baroque masterpieces; matters that weave there way through the relationship between project culture and management of cultural assets, apparent in the crucial role played by the complex administrative and management organisation that has buttressed the ideation and works. The encounter between designers and purchasers, for example, takes place via an independent office responsible for technical support and project management, the “Venaria Reale Project” Back Office. Additional control activities have also been implemented, in compliance with ISO quality standards, also with the assistance of outside service companies.

Above all, *the Restoration Site Documentation and Scientific Monitoring Structure* was specially set up in 1999* in order to collect, manage, coordinate and analyse in real time the vast quantity of information that comes to light during the course of work on more than 10 restoration sites covering a surface area of well over 100,000m². The working group of this project is coordinated by the authors of this paper. It is a new experience that is meant to assist, in collaboration and under the guidance of the Protection Agencies, the restoration activities with an interdisciplinary team of around fifteen operators working onsite to carry out historical and archive research, architectural and topographical analyses, archaeological surveys, critical documentation of the restoration sites and subsequent archiving in a special database which will store all the information emerging during the works.

The structure was commissioned and sponsored by the Piedmont Region Department of Culture and by the Piedmont Soprintendenze ai Beni Architettonici e Artistici (Office for Architectural and Artistic Assets) and set up in partnership with the Politecnico di Torino and University of Turin. The same bodies set up the advisory committee to which methods and results are referred**.

The main objectives of the monitoring Structure are:

Documentation. In time order, the main and most immediate aim of the Monitoring Structure is to collect and organize all the data of historical, artistic and architectural interest gathered

* Our thanks go to Alberto Vanelli, Director of Cultural Assets for Regione Piemonte, and Inspectors Francesco Pernice and Carlenrica Spantigati, Vera Comoli and the entire scientific committee for its continuing support of the activities carried out over these years. None of the activities described here would have been possible without their conviction and support and continuous cultural and operative exchange.

** Scientific and Technical Commission for Restoration and Scientific Monitoring: Michela Di Macco (Università di Torino); Andreina Griseri (Accademia dei Lincei); Mirella Macera (Piedmont Architectural and Environmental Assets Office); Pasquale Bruno Malara (Piedmont Regional Inspector for Culture); Vera Comoli Mandracci (Politecnico di Torino); Francesco Pernice (Inspector with Piedmont Architectural and Environmental Assets Office), Luisella Pejrani (Piedmont Archaeological Assets Office); Carlenrica Spantigati (Inspector with Piedmont Office for Historical, Artistic and Demoethnoantropological Heritage); Alberto Vanelli (Piedmont Region Director of Cultural Assets).

from the restoration sites, and this is to be carried out according to the scientific standards chosen together with the scientific and protection agencies. To achieve this, the Monitoring Structure documents the main phases of work and at the same time collects and examines the surveys, reports, material analyses, and technical and photographic documentation produced.

These materials are being catalogued using a special database created specially by CSI Piemonte. The software program is compatible with the regional Guarini cataloguing system and allows critical indexing and consultation of heterogeneous materials (drawings, photographs, technical reports, historical documents).

The mass of these materials will be stored in the Documentation Centre of the Venaria Reale Project, currently being set up, so that it can be made available to the general public, institutions and researchers.

Scientific monitoring. This is the main task of the working group, carried out through its daily attendance at the restoration sites and onsite identification of elements of historical, documentary, artistic and architectural value. These activities are always carried out in partnership with the Protection Agencies and Works Directors – and with the collaboration of the firms – and aim to provide, within a short a timeframe as possible, the knowledge needed to make accurate organization and protection choices during the works, discussed by the scientific committee. To achieve this, the structure is organised to conduct immediate historical archive research, architectural and topographical surveys and digital photography, aimed, for example, at improving understanding of the numerous discoveries made during the works).

Furthermore, the Monitoring Structure contributes, again under the guidance of the Protection Agencies, to the process of sampling, archaeological surveys and instrumental analysis.

Research. Alongside these activities, the Monitoring Structure carries out an independent but complementary research programme, coordinated by its own scientific consultants, who are members of the teaching staffs of the Politecnico di Torino and University of Turin. The complex restoration process at Venaria Reale and Mandria provides a unique opportunity for in-depth study of the art and architecture of the House of Savoy. A valuable and unrepeatable chance to study the architectural and artistic language, the baroque building site and the construction phases of buildings. In particular, the working group is involved in the critical review of the periodization of the Venaria Reale complex, in the survey and study of elements of architectural and artistic interest that can only be accessed while the works are in progress or that are due to be removed for restoration purposes, in the analysis of 17th and 18th century technology and construction features and in precise identification of the contribution made by architects, artists and workers.

The Monitoring Structure database is creating – and already gives partial access to – the following study materials and documentation*:

- Around **60,000 digitized images** archived on disc concerning all stages of the restoration work
- A complete database of **iconography of historical/architectural and historical/artistic importance** relating to the Venaria Reale complex, and

reproductions of numerous period photographs from Turin archives and institutions

- Digital photographic reproduction of **archive documents** concerning the critical historical analyses being made
- more than **100 architectural surveys** of structures, decorative details and construction features
- **Reports and charts** covering themes analysed in depth during the current restoration work, such as the historical flooring charts of the Royal Palace, and **critical bibliographies and registers**
- The **topographical surveys** (currently being drawn up) of **discoveries of ancient structures** made during excavations in the gardens and in the areas facing the Royal Palace and the **archaeological reports** of discoveries made. **Archaeological surveys with network of GPS benchmarks**
- **Chemical and physical analysis** (shiny and delicate sections etc.) carried out in collaboration with the department of chemistry of the University of Turin or critical interpretations of analyses carried out during the works in independent laboratories
- **Complete registers of the new historical archive documentation** resulting from the research carried out before and during the restoration works by the monitoring team.

The Documentation and Monitoring structure benefits from the services of professionals in the sector, and collaborates with the Politecnico di Torino and University of Turin on specific research programmes. It provides opportunities for PhD students, scholarship holders and researchers to study historical construction techniques and materials. The Venaria Project is also an open space for students looking for practical experience to complete their university training (Politecnico, II Faculty of Architecture, first level degrees in Architecture and in History and Conservation of Architectural and Environmental Assets, specialisations in Architecture and in Architecture for Restoration; I Faculty of Engineering, degree course in Construction Engineering). Again, for these experimental schemes, in partnership with the Piedmont Architectural and Environmental Assets Office, the Venaria Reale restoration site has reached national attention as being a forum within which it may be possible to set up a procedures protocol for documenting integrated knowledge.

Among the activities of the Monitoring Structure is also placed the partnership with the Mestieri Reali Project, which was commissioned and sponsored by the Fondazione Cassa di Risparmio di Torino, and whose aim is to train professionals and firms specialising in architectural restoration, using the Savoy Residence sites as a practice ground. The Venaria Reale Project's involvement in the training courses was focused primarily on the restoration site documentation methods, and more generally on the information acquired during the restoration activities and on technical management of the sites. The activities of the Mestieri Reali Project are now approaching their second year, which will be between September 2005 and September 2006**.

The make-up of the Documentation and Monitoring Structure is naturally multidisciplinary in nature, its operators having specialist skills ranging from history of art and architecture to archaeology, from historical architectural surveying to structural and materials analysis. A team that is able to work on the restoration site as well as in the archives or laboratory,

* The collected material may be viewed by appointment at *Progetto La Venaria Reale*, Via Bertolotti 2, 10100 Torino, Italy, tel. +390115592211. The experience of the Venaria Reale restoration site can be seen online www.lavenariareale.it

** The Mestieri Reali Project can be seen on www.fondazionecri.it

producing a group effort that is not normally seen on other restoration sites*.

Hence, restoration operations are observed and documented from a great many viewpoints, using heterogeneous skills, thus supporting the restoration or documentation process itself for future reference.

Methodology and Approach

The fact that operators come from a variety of disciplines makes it easier to pool knowledge together. Within the same structure, the art historian works alongside the surveyor, the archive researcher can compare the treatises, manuals and historical contract documents with findings on-site. For example, where possible, the archaeologist and architecture historian monitor the emptying of the vaults and the flooring. Discoveries made of wall sections, piping etc. are examined by comparing them with archives, while stratigraphic data and chemical analyses are compared against the pay of maintenance workers in the 17th and 18th centuries. In terms of historical research, working at close quarters with the restoration site involves a process that is not typical of traditional research, with its own specific approaches. Indeed, an in-depth knowledge of the structure of archive sources is required, where emphasis is given to those sources that point to the technology used and to real constructions (the *instructions*, which in Savoy administration refers to the technical directions given by the ducal architects, payments etc.). Investigative analyses may also be directed at such fixtures as the tapestries or telamons in the historical apartments, analysing, through fresh research, the relationships between architecture and functionality, decorative items and the ceremonial use of space, which are also useful for finalising the museum itineraries.

Being able to operate on an open site has made it possible to investigate specific aspects of technology and construction history, which are otherwise not easily found on similar sites. This has made it possible to collect a large amount of data regarding the installations in a large baroque palace: piping, heated flooring, doors and windows, vaulted systems. This last element is of particular importance for understanding the concept of space in Baroque Piedmont. Moreover, minor details have also been brought to light on the restoration site, such as the vault filling or ancient floor foundations, wooden ceilings, which have rarely been seen. The vaults have been discovered and the ceilings have been discovered, and so has the masonry, which in the highly bureaucratic context of the Savoy building site, were subjected to the dictates of detailed specifications and legal demands authorising, at least in theory, what today we might call their performance and their dimensions. The site's material aspect thus becomes an opportunity for further investigation into the relationship between treatise, manual, legislation and restoration site, which, naturally, does not always correspond to an ideal set-up, but rather to practical and economic concerns.

On the other hand, the monitoring structure has not only dealt with documenting the historical building site, but also the current restoration site. As it records each phase of restoration, the monitoring activities become testimony for future times of

the operations carried out today, based on criteria of the recognisability of today's integrations and modifications.

The presence of a passionate working team on the site has also made it possible to bring the attention of the protection agencies and works management to elements in need of consideration and re-assessment while the work is still in progress, so that operations can be better guided, as in the cases of historic colours, the characteristics of fixtures, and an ancient distribution system that was damaged during state military ownership and so on.

The complex database system has enabled:

- systematic collection of data, thus preventing important information from being wasted
- critical reorganisation of the large quantity of technical material related to site operations, thus enabling a critical historical re-reading of documentation whose purpose is chiefly technical and operational (from coring to performance analyses on existing materials).

In its relations with those working on the restoration site, the Monitoring Structure has managed to pass on to the firms, designers and works managers the scientific standards for documentation established with the Superintendence Offices, thus making it easier to collect materials in a structured way.

Naturally, integrated knowledge on the restoration site requires specific emphasis on relationships with firms and works management, for time scheduling – an aspect addressed by the outline law on public works – for safety aspects and for defining documentation and surveying standards to be applied by persons operating on the site. These are areas that are linked to safety and finances, and that deserve proper definition at the project planning stage and which should be regulated, say, when tender specifications are being drawn up. In these areas the road to awareness, much less to the application of standards, is still a long one.

On the restoration site of the Venaria Reale Palace, the aim has been not only to document the works, but also to provide integrated (and true transdisciplinary) testimony of all phases of the restoration process, creating a corpus of documents, ranging from a priori documentation to documentation that may be interpreted at a later date. This is a site of knowledge for a process of awareness and a critical and careful reading of the conservation aspects of heritage.

* Between 1999 and 2005, the following have taken part, on different occasions, in the activities of the Monitoring Structure: Silvia Beltramo, Francesco Bosso, Paolo Cornaglia, Silvia Ghisotti, Francesca Grana, Alessandro Grazzini, Loredana Iacopino, Mara Liuzzi, Enrico Lusso, Admir Masic, Luca Perricone, Marta Santolin, Marco Subbrizio, Donatella Zanardo, Ursula Zich, coordinated by Mauro Volpiano.