

INTERNATIONAL SPECIALISED SKILLS TRAINING FELLOWSHIP



An investigation into European restoration techniques
and process

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The Australian Context

19th Century architecture is evident all over Australia, particularly in the major cities. Those buildings that have survived the demolition period during the post-war building booms are now the focus of much attention. A small industry has developed around the conservation of these buildings involving stonemasons, solid plasterers, and other trades, as well as architects and conservators.

Restoration requires both the knowledge and ability of the original skill and new skills to preserve and repair original material. It is not a static industry but one that requires constant development and invention.

Very little money is spent on research into methods and systems of repair. Although the restoration industry should not be exclusive, there is too much work being performed by people who are skilled in commercial building but who know very little about restoration. Systems are being used that have been primarily developed for industrial use but cross over into restoration. For example, cleaning systems developed to clean the insides of oil tankers are being used to clean stone.

As we mature as a nation our architectural cultural heritage has become more and more important. Increasingly we must become aware not only of the aesthetic value and therefore commercial value of our heritage but of the intrinsic value it has in forming our identity. Most of the buildings we work on are still in use and are indeed living, breathing monuments to our past, present and future. Preservation of these buildings is widely recognised as an essential activity in the development of our cultural identity. The collating, recording and project management side of the industry has enjoyed unprecedented development. The development of skills on-site is lagging far behind.



Render repair: South Melbourne Town Hall

Although I believe change is happening in the restoration industry, particularly where it occurs in Melbourne and Sydney, it lacks the maturity necessary to take it to new levels of expertise. There are a number of reasons for this, one of them being quite simply the lack of buildings and for those that do exist, a lack of private or public monies made available to restore them.

It is different of course in different cities. Cities like Sydney and Brisbane for instance, where there is a predominance of sandstone buildings, require more repair and substantial quarrying companies to serve this need.

In terms of developing our knowledge bank of skills, the biggest drawback has been the insecure nature of the industry. Large projects emerge, substantial effort is galvanised into securing the appropriate artisans for the work, the work is finished and this critical is disbanded. In such a climate it is impossible to focus on training for the present, let alone the future, and therefore we go on relying on skills developed in a European context, if they are available. Skills then become like secrets and as with all things that become less utilised, the skills die.

To mature as an industry, we need to develop a collective agenda and a new professionalism that has certain obligations connected with training and development. A commitment to seek the knowledge to ensure that not only are these monuments to our past and origins preserved, but also the skills that enabled these structures to exist are maintained. After all when we admire a building of significant architectural and material beauty we are celebrating human endeavour in all its forms, especially the work of the hands.

As my scholarship became more an exposure to some of Europe's conservation industry rather than a course in ornamental carving, looking at our industry in Australia and where it needs to be has become the focus of this fellowship report.

Skills and Knowledge Gap

The focus of my work as a stonemason and as managing director of Ad Astra Stone has been façade restoration. Ad Astra Stone's trade staff are either stonemasons or solid plasterers.

The specific needs of façade restoration are largely learned on the job. We consistently have trouble finding people with the right skills. The adhoc development of the restoration industry has meant that adequate structures for long term sustainability do not exist and a large part of my European journey was to learn from and address these issues. Although current business knowledge and advice is useful on a general level, we need to grow in our understanding of restoration specific structures, for example, sustainable programs for ongoing education amongst staff. We need ways to ensure continuity through marketing to appropriate bodies, and ways of addressing restoration problems through the important use of national and international connections.

In summary the skills gap in Australia in regards to conservation are:

1. Being more fully aware of ways of dealing with common conservation concerns when restoring a building and knowing of and about advances and discoveries in this field.
2. Having appropriate connections both nationally and internationally to address these issues.

3. Linking the Australian experience with what's going on in other countries, especially with those that have an older and more mature industry.
4. Developing a more focussed training program with the possibility of an organised "journeyman" phase throughout Australia and with an international component.

THE STUDY PROGRAM

The Nature of the Program

The first part of my program overseas was spent in France visiting various restoration sites different from our own experience as a consequence of age and style. After travelling through France I spent two weeks at the Parisienne headquarters of Thomann Hanry learning about their work, the scale and nature and how they organise it. After this I spent a fortnight in the Basilica di San Marco working with the restoration team.

Educational Institution/Host Organisation

Thomann Hanry

Thomann Hanry is a French restoration company, which has patented a cleaning system that does not use water or chemicals.

Ad Astra Stone was involved in some restoration work at Parliament House and there was a cleaning component. We were instructed to clean with water and chemicals. I was unhappy with this process because of the pollution it caused, because despite attempts to the contrary, the chemicals still ended up in the river in some form. The health and safety aspects (this chemical had the ability to eat down to your bone marrow), and the unknown effects on the stone (yellow and brown stains developed due to some quixotic formula caused by the water, acid pollutants type concoction) were further issues to be dealt with.

By chance I happened along a magazine article about this company and the cleaning of the Louvre Museum in Paris and the Chicago Tribune tower in Chicago. I contacted them and after a series of negotiations we have formed an alliance. We have completed St. Mary's Cathedral in Sydney, the interior of St. Andrew's Cathedral and the Supreme Court of NSW, to name but a few. This association has enabled us to bring to Australia a stone cleaning system that uses the best available technology and techniques without repeating mistakes that have already been resolved.

Thomann Hanry is a family owned company that has an annual turnover of around \$30,000,000.00. My time was spent observing the technology and just as importantly the organisational structure; how they managed twenty different sites at once, the marketing and tender process, etc.

The Fellowship

In 1997 ISS awarded me with a Training Fellowship. As a result I travelled in April 1998 to Italy to undertake a study program at the European Centre for Skills of Architectural Heritage Conservation, Venice.

Located on the island of San Servolo, Venice, the European Centre provides training, working and living accommodation. Because the opportunity had been

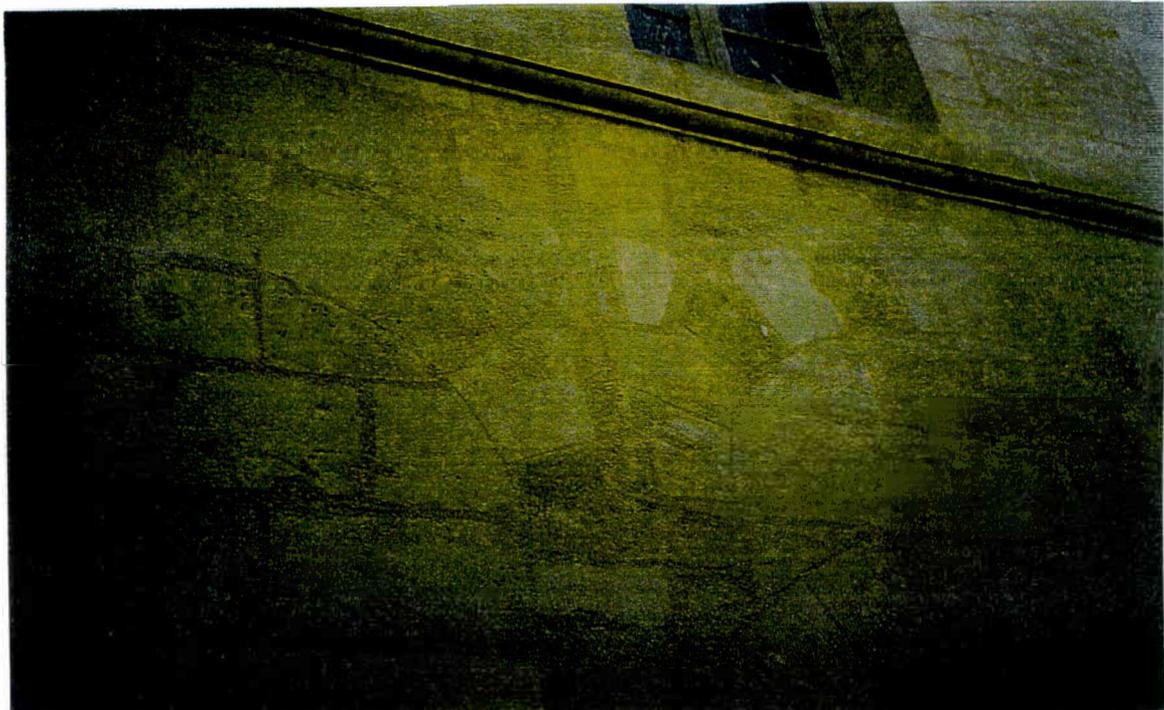
established to travel to Venice through the Training Fellowship, the itinerary was extended to maximise benefits of travel to Europe. I therefore spend time in France looking at various restoration sites and working with the French restoration company, Thomann Henry. As the course in Architectural carving was cancelled before I arrived, I then shifted my focus to spending time with the restoration team at San Marco in Venice.

I began my journey with my wife Anne, together with Jean Delaporte, director of Thomann Henry in Paris, and his family. We travelled to the South of France, to Uzes in Provence. Here we visited many ancient churches and walled villages. The simple beauty of architecture which is able to develop from a culture and the land in which it resides is breathtaking. The first part of the journey was allowing again this cultural heritage to fill our minds and indeed our bodies with beauty.

In this area is the famous Pont du Gare, a Roman aqueduct built to transport water to the then Roman city of Nimes, and St Gilles du Gare, a Romanesque church built with elaborate carvings on the façade which was painstakingly restored over many years.

From there we went to St Jerome, a church half in ruins but whose tower has been the subject of admiration of stonemasons for centuries. It has a spiral staircase, a vaulted ceiling which spirals, arches and curves at the same time. The mason's marks of the 16th to 18th century journeymen were evident on the walls. Apprentices came to this place at the end of their time to study the staircase and to then make a miniature model as their masterpiece before entering the guild.

Near the Pont du Gare we visited the quarry owned and run by Thomann Henry. The stone is a coarse grained limestone peculiar to this part of Provence and used in restoration work in surrounding districts and in the making of furniture.



Repaired limestone wall: Bordeaux

The next stage of our journey was Bordeaux where we met Michel Landois the manager of the company Serge La Roche, a stonemasonry company working in Bordeaux, and the surrounding district and Paris. This company is also owned by Thomann Henry in Paris and is used when there is an extensive amount of stonemasonry to do. Here we saw various restoration projects in process, and witnessed differing techniques (Picture of repaired wall on previous page). The sheer volume of work for stonemasons renders their skills more common, more known and consequently more desired even in new construction.

After Bordeaux we went to Normandy, to Mont san Michelle, to Calvados country and the beautiful timber and masonry structures of this region. During this period we visited many of the major Cathedrals and monuments including a day with a restoration team of carvers in a Cathedral in Troyes. A significant difference between restoration projects here and in France and indeed all of Europe is the length of time dedicated to their completion. Here we run restoration projects like building sites and this has some real disadvantages, especially regarding the quality of craftsmanship.



Carving of Gargoyles and Foliage: Cathedral in Troyes

Two weeks before my time at San Marco I spent time with Jean at the office of Thomann Hanry and met the staff and visited the restoration sites in Paris. It was of real assistance to see the resources dedicated to developing their business profile, enhancing their reputation and accruing work. This alone has been the cause of changes to my own company structure, with real results in the level and quality of the work tendered for and won.



Paris of course is extremely beautiful. It is a mecca of restoration activity. I felt myself to be very fortunate to be there, able to experience in a small way how the French maintain their architectural heritage and to have the privilege of in depth instruction from a major player in the Parisian restoration industry.

Restoration in Paris and indeed all of France is tightly controlled. Each *arrondissement* or area of Paris has its conservation architects in control of all works on historic buildings of which there are thousands. Much of the control and the specified techniques and applied technologies are the result of years of experience, of success and colossal failures. The development of *façade gommage* for instance is in response to the extensive damage caused by sandblasting.

From Paris I headed for Venice and the beginning of my time at San Marco. I arrived in Venice, which is extraordinary in itself and headed for the island of San Servolo where I was staying. This is a ten minute vaporetti ride from San Marco. I arrived on Saturday and immediately explored the island. There was some building happening because San Servolo after having served as an asylum was being converted into a university and it also housed the European Centre for the preservation and conservation of restoration skills. There were no courses happening when I arrived as mine had been cancelled. Saturday and Sunday I spent exploring Venice.



Basilica di San Marco

San Marco had a dual religious and political function because historically it was the Doges Chapel. Because of this it has been richly adorned with works of art, carvings and gold objects and precious stones. It was considered the embodiment of the Republic.

Conserving the Basilica is conserving more than just a church, it is the heart of Venetian civilisation. It was in this context that I entered the San Marco restoration team for a short stay, to work in the place where an Englishman by the name of John Ruskin developed much of the conservation theory that we work with today, even in Australia.

Venice is loved and cherished by more than just the Venetians and even today there are international bodies concerned with Venetian problems. The conserving of its character is probably their deepest concern and of course destruction by natural causes such as rising water levels.

Program Content

Work at San Marco

Sandro Imarosto spent time with me as a guide. He was one of the team of craftsmen working on San Marco and he spoke a small amount of English. I started work in the baptistery but there was not much happening so I went to admire the church. Sandro then took me around the roof to show me the brick dome structure and buttresses. We then went onto the lead roof to see how the domes were constructed. They are built out of really large timbers like ribbing in a boat. One of the Domes was completely rebuilt with the others only having the rotten timber replaced.

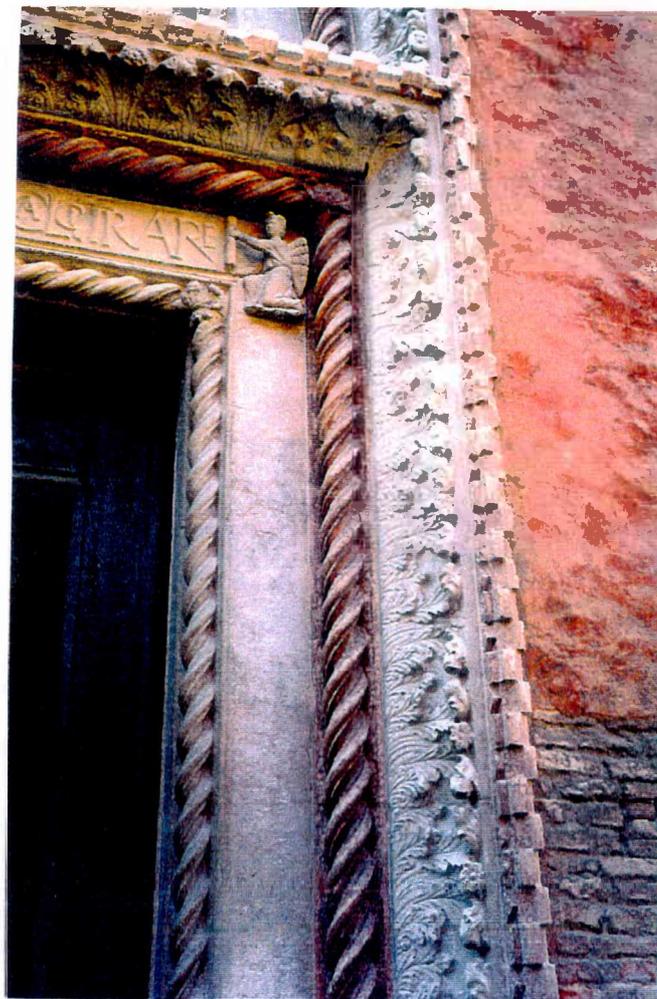


San Marco

I also looked at all the marble carving at roof level, which has been repaired and/or consolidated. The conservation focus was *repair as found*, to keep as much of the original fabric as possible. None of the repair work (at least in this phase of San Marco's history) included stone replacement. They have been trying to leave as much of the original fabric as possible. The repairs included pinning and epoxy repairs colour matched to suit and cleaning. The cleaning process was similar to *façade gommage* using a super fine powder, but painstakingly slow because of the nozzle size. They also consolidated the marble using methyl silicate

Most of the foliage carving was pinned with copper and mortar rendered behind, with copper wire strapping pieces together.

We then looked inside the church at the incredible mosaics and went to the mosaic workshop. I saw how they take "negatives" of an existing mosaic with paper and water and colour. They lay the pieces on to the paper with a natural clag (made from flour and water no less) and they back them with a lime rich mortar to stick to the floor or wall. Repairing mosaics is a painstaking and tedious work requiring hours upon hours cutting the pieces of stone or glass and picking out bad mortar with dentist's tools. Some of these men had been doing this work for forty years.



Istria foliage carving

In the afternoon I began work on copying a carving in the Istria Stone. Istria is to Venice what bluestone is to Melbourne. It is used everywhere from stairways and channel edgings to fine carving.

Much of the early twelfth century carving was done in this stone and the piece I was carving was a decorative foliage panel from the entrance to San Marco. Istria is used because of its resistance to damp and salts, the two obvious sources of decay in Venice.

Working in the baptistery with Michel and Sandro we pulled apart a baptismal font to replace the iron with lead. Some of the work at San Marco was repairing more ancient repairs

. This work was a real revelation to me and an answer to some perplexing problems we had faced in Melbourne. San Marco indeed does not have a horizontal or vertical line in it. Constant movement means of course that joints crack and fall out which weakens the structure and opens it up further to decay. In answer to this problem they lead every joint, both horizontal and vertical. Learning to do this was critical to increasing my knowledge here.

Work at San Marco is very slow. It is more like an archaeological site. Every movement must be documented and photographed by the right people, so there is much waiting. The engineer must check that all is well structurally, and the architect must make decisions about repair methods.

Sandro took the time to show me another jewel of San Marco – the floor and its patterns and how they achieve the three dimensional effect.

At San Marco they go to enormous lengths to preserve the building in its present state, arrest deterioration but do not change it to an 'as new' state.

Sandro showed me the use of lime and brick dust as a mortar between the floor mosaics: one part lime and one part brick dust or one part lime, half brick dust and four parts sand. The marble cladding in San Marco, much of which was stolen from Greece and Constantinople is patterned so as the pattern looks as though the stone has been opened out like a concertina. The effect of this is extraordinary and produced by the special way in which you cut the stone.

My time at San Marco consisted mainly of a general appraisal of the works there. Enough to help me reflect on our own situation in a world context. Australia is in a unique position because we are still creating our architectural history in a major way, and already we have in place a care that took other countries centuries to develop. We have also some of the finest pieces of 19th century building ever produced. Our craftsmanship was at a very high level. Maintaining this and developing ways for this heritage to flow into our built environment today is the challenge that we face.

Outcome of the Study Program

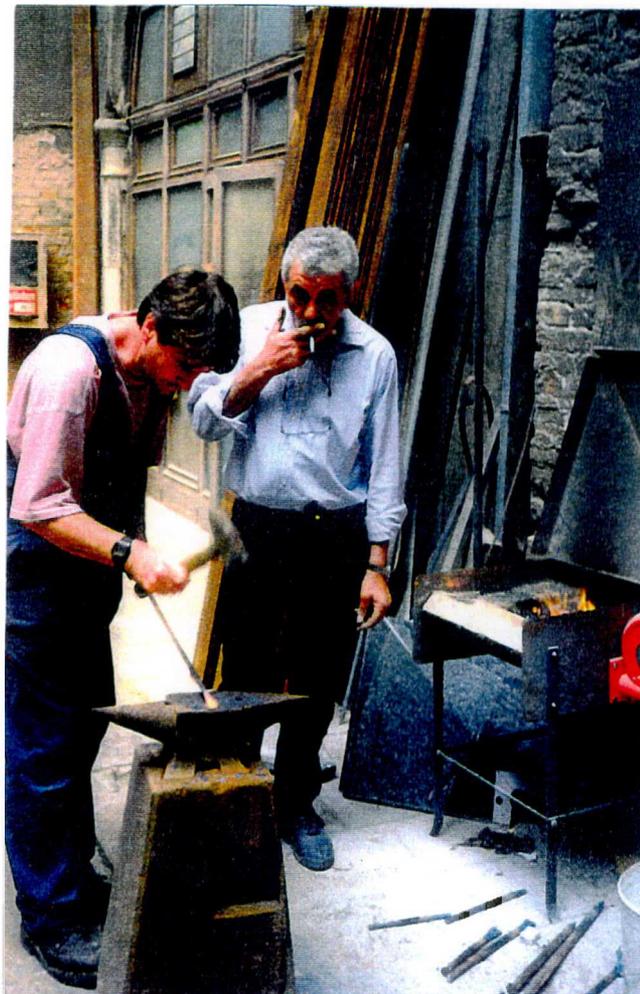
Working with Thomann Henry with introductions to other restoration sites opened up a whole world of knowledge and experience. Working in San Marco widened this experience and also put me in touch with one of the dominant theories affecting building conservation even in Australia. San Marco is pre-eminent in the development of conservation theory, in particular the "repair as found" outlook to ensure the preservation of original fabric and styles. This journey has demystified

the industry for me. It has driven home the need for intercultural exchanges to develop and expand the skill base needed for the preservation of our cultural and architectural heritage. In knowing more about the thinking behind conservation work and the various applied theories, we can learn a language that enables us in an informed way to decide on the appropriate approaches to restoration work. This is particularly important in Australia, with such a young European history and many of our historic buildings still in use and needing to be modified for contemporary needs.

Recommendations

The size of the restoration industry in Australia requires much overseas input if we are to preserve our buildings with the 'best practice' available. The training of apprentices in all skill areas is not restoration focussed and there is no input at all from the architectural profession.

Although some architects manage a selected tendering process, it is still possible for unskilled enterprises and non-restoration specific commercial building companies to be the principles on some of our major heritage buildings. The effect of this is that conservation work is often driven only by price, and follows commercial building program time lines leading to bad workmanship and the use of practices that cause further damage.



Making carving chisels: San Monarco

It should not be possible to work on these buildings unless the company is a 'heritage restoration' listed company, made up with the appropriate personnel, management and conservation knowledge proven via technical expertise, graduate and post-graduate building conservation study and conservation focussed management policies. For example, training of apprentices, post-graduate training for staff, etc. Those same rules should apply to conservation architects as well.

It is only in this way that the industry can enforce high standards of compliance, making it feasible for companies to develop and train staff appropriately because it is a requirement. This in turn is supported by the industry because it is not possible to compete on heritage projects without the appropriate infrastructure. This is what I mean by maturity.

Apprentice training should be longer for restoration focussed tradespeople. There needs to be not only a focus on hand skills but on knowledge of the intellectual developments within the industry. Skilled areas related to the main task should also be studied with each apprentice having a passing knowledge. For example, stonemasons are sometimes required to consolidate stone. An apprentice should finish their time not only knowing how to work stone but what consolidation is, how it is done, what are the various different products and methods and what are the risks involved.

A journeyman phase should also be instituted, supported perhaps by grants and enabling apprentices to work under other masters, on other projects in Australia and overseas.

Ad Astra Stone has implemented this idea and has placed an employee in New York with Thomann Hanry to develop his cleaning skills as a *gommere* (technician skilled in using *façade gommage* stone cleaning system) and another with Serge La Roche, a stonemasonry company operating out of Bordeaux.

The recognition of things of beauty and of things well made is something learned. The less that people know about a skill or a thing of beauty, the less they recognise it and therefore the less they require or desire it. And so the skill dies.

I try to develop in myself and with those whom I work and live a sense of beauty, of right proportion and craftsmanship. The industry needs to support this approach for not only for the sake of the buildings that we work on but the human endeavour that created them.