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# REVITALISING THE DIMINISHED CRAFT OF SOLID PLASTERING

An International Specialised Skills Institute Fellowship.

**BRIAN MAXWELL**

Sponsored by The Perpetual Foundation / Eddy Dunn International Fellowship 2016

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# 1. Acknowledgements

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The Fellow Brian Maxwell would like to thank the following individuals and organisations who generously gave their time and their expertise to assist, advise and guide him throughout his Perpetual Foundation: Eddy Dunn Endowment International Fellowship.

## **Awarding Body – International Specialised Skills Institute (ISS Institute)**

The ISS Institute plays a pivotal role in creating value and opportunity, encouraging new thinking and early adoption of ideas and practice by investing in individuals.

The overarching aim of the ISS Institute is to support the development of a ‘Better Skilled Australia’. The Institute does this via the provision of Fellowships that provide the opportunity for Australians to undertake international skills development and applied research that will have a positive impact on Australian industry and the broader community.

The International Specialised Skills Institute was founded 29 years ago, by a small group of innovators including Sir James Gobbo AC, CVO, QC, and former Governor of Victoria, who had a vision of building a community of industry specialists who would lead the upskilling of the Australian workforce. The Fellowship program builds shared learning, leadership and innovation across the broad range of industry sectors worked with. Fellows are supported to disseminate learning’s and ideas, facilitate change and advocate for best practice through the sharing of their Fellowship learnings with peers, colleagues, government, industry and community. Since its establishment, ISS Institute has supported over 450 Fellows to undertake skill and knowledge enhancement across a wide range of sectors which has led to positive change, the adoption of best practice approaches and new ways of working in Australia.

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The Fellow sincerely thanks the Perpetual Foundation and Eddy Dunn Endowment. In 1998, the Perpetual Foundation (the 'Foundation') was established to provide a way for benefactors to contribute to improving the lives of others. The Foundation is structured in a way that enables specific endowments to be established in their own name. While the Foundation supports a range of charities and causes, a key objective is to direct funds towards projects that focus on preventative measures and education. In addition, to projects that address the root cause of problems, rather than providing short-term remedies.

The aim of the Eddy Dunn Endowment International Fellowship is to promote the acquisition of higher-level skills and an appreciation of international best practice in the traditional trade fields, with a particular interest in mechanics. It is intended to examine innovative approaches that demonstrate potential benefits for the Fellow and for Australian industry and enterprises.

The Fellow would like to thank all the people he met and laughed with during the Fellowship Journey. It was a wonderful, unforgettable experience because of the generosity and kindness of the many new and old friends the Fellow encountered with. Most of them, if not all, responded with enthusiasm when requested for their time and knowledge. For some of them it was an hour, but others gave the Fellow weeks of their time: it was always with willingness to share. This is an important distinguishing quality of a craftsperson.

Ray Wiltshire has been an enthusiastic mentor and great supporter of the Fellow's ideas and ambitions, so many thanks for his patience. There are a few people in Australia practising the traditional methods, so it is nice to come across others that one can share stories with.

Many thanks to The Perpetual Foundation - Eddy Dunn Endowment and International Specialised Skills Institute for offering a Fellowship and enabling individuals to gain experience in traditional trades. Recognition of the lack of higher-level skills available in Australia has led to these organisations supporting a Fellow who has the passion but can struggle with the lack of resources or training to deliver international best practice. It is not only the opportunity to travel with support but also access to a network of ISS Institute fellows is which is invaluable. Thank you to the staff at the ISS Institute for their perseverance and commitment in assisting the Fellow.

## 2. Executive Summary

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### Plasterwork - What is it?

The word plaster has been derived from Greek origin emplaston, meaning “daubed on”. Followed by Latin emplastrum, then Medieval Latin plastrum, then Old French plastre. Finally, the word plaster was first recorded in c1300 English.

Plastering is generally the application of materials to cover a wall or ceiling substrate of a building. It is an ancient profession. Currently the trade of plastering has three main sections, Drywall, Fibrous and Solid, which reflect the evolution of the materials, building design and demand on suppliers.

Drywall Plastering involves installation of factory-made gypsum products, including plasterboard sheets and cornices, to interior walls and ceilings. Drywall paper faced sheets were invented in 1916, initially being developed as a measure of fire resistance, but was not introduced in Australia until 1947 and is still extensively used in most buildings today.

Fibrous Plastering consists of gypsum plaster reinforced with a fibrous material to form a homogeneous composition which is used to produce several forms including sheets, cornices, vents, cover strips and columns. In 1885 canvas plaster decorations started to be produced in Australia but true Fibrous Plaster was introduced in 1910.

This report concentrates on the older practice of Solid Plastering. This form is the original craft that has been used since the beginning of building shelters. But it is the least known of the three sections. Although the tools and application methods are like the ancient times, the connection and knowledge of the traditional craft has been lost with the introduction of the other two more recent sections.

Renders and plasters are common terms used to describe the application of materials that are based on a binder which is usually mixed with aggregates. Traditional binders are clay, lime and gypsum and later during the industrial revolution came the development of natural and artificial cements. Render is a generic term for exterior applications and plasters the generic term for interior applications.

The object of covering part or an entire structure with render or plaster includes:

- » Protection - from the effects of the weather
- » Insulation - from extremes in temperature
- » Acoustic properties - improving or reducing sound
- » Sanitary properties - hard wearing, cleanable surfaces
- » Decoration - providing a pleasing appearance.

These benefits have remained relevant for centuries and can still be utilised today on a present building. Even the materials used in ancient times are used on historical and modern buildings. The plaster used by the Egyptians for their finest work was derived from burnt gypsum and was therefore the same as our “Plaster of Paris”. Its base was of lime plaster, which when used on reeds, laced together with cords, for lathing, is practically the same technique as found on Australia’s early buildings.

Interior plasterwork is applied over many different materials including brick, stone and timber. Lime, cement and gypsum are binders mixed with aggregates to create a plaster that is applied to the wall in a plastic state but then sets and

hardens after a period. While in a wet, soft state the plaster can be manipulated to any desired shape depending on the design or function requirements. Smooth finishes are common because they can provide a sanitary surface for easycare and comfort or a blemish free surface preparation for washes or paints. Interior plasters can also provide insulation, acoustic properties and decoration.

Exterior renders commonly have a clay, lime or cement binders and are specified to be durable to resist the effects of the weather. These renders can provide protection for other building elements by dispersing water to prevent moisture ingress into the building. Artisan qualities can be used for elaborating decorative features. A common finish on the facade was to imitate a stone building by scribing lines in the finished surface of the setting render.

Modelling is an ancient art and the best method of expressing form as it deals with the third dimension. Figure modelling was done in the workshop with clay or gypsum plaster. Modelling “in-situ”, such as relief work on a ceiling, is done on the smaller features with the traditional materials. The increased demand for decorative plaster work in the mid 1850’s also brought changes to the industry. Before this time plasterers would turn their hand to plain work or decorative work. Then after the 1850’s some of the decorative plasterers were able to practice their craft separately, opening modelling factories.

Moulding and casting are used to make repetitions of a pattern. Until the 1830’s lime plaster was the only material available from which to make decoration. When Plaster of Paris was imported, it made an immediate impact on decorative plaster work. For the first time, cast decorations were added to cornices and decorated ceiling roses began to enhance the centres of ceilings.

**Use it or lose it.** This phrase can be used with many topics or subjects. Commonly the reference is to the brain. Use the brain and you will hopefully avoid losing your ability to remember, or co-ordinate. Another topic is language. If a person has learnt a language and is not able to use this language on a regular basis, this ability will fade gradually, and eventually only little amounts of words or phrases

will be recalled. A musical instrument, knitting or playing cards, if you don’t use the skill regularly your ability to utilise it when you want it again will be diminished. The profession of Solid Plastering has been in a steady decline because its skills have not been utilised. With the introduction of new materials produced in a factory, the ability of the plasterer to create a facade which displays the artisan qualities highly valued in building, has been depleted to the unsatisfying basics. Many building elevations, rooms and gardens are devoid of colour, decoration or shapes once presented to cause a person a feeling of elation and happiness being this last one situated in a picturesque environment obtaining a rewarding emotion of well-being.

Solid Plastering is a profession that can be traced back in history for many thousands of years. The Egyptian pyramids and the Sistine Chapel are fine examples of early plasterwork. These are famous structures that most people would recognise, yet, few would realise the contribution plasterwork has made in preserving and showcasing these culturally important buildings. This is a profession that would serve kings and emperors but nowadays, most citizens would not be aware of the history, significance, benefits, characteristics or possibilities of this ancient skilled craft.

The objectives of the Fellow’s journey and report have deviated slightly from the initial interactions with the ISS Institute team because of the experiences encountered overseas. It remains a goal to deliver training programs of the best international practice but now added to this objective, there is the challenge to increase awareness and, thus, participation in the Solid Plastering Craft. The overseas itinerary was derailed when scheduled meetings and training courses were cancelled at Europe’s leading restoration school because of the low participation numbers. Enquiries with other schools teaching traditional methods revealed the same issues. This predicament reinforced the challenges faced in Australia are also encountered in Europe. With internet promotion, seminars for CPD points, training workshops, engaging with TAFE, membership in organisations, trade show displays and community engagement events, the Fellow endeavours to

raise awareness of the role traditional Solid Plastering skills can play in the current building industry. The aim are to increase apprenticeship opportunities and reskill current Solid Plasterers to further their employment opportunities.

Currently there is two Solid Plastering apprentices enrolled with Queensland Skillstech, a Registered Training Organisation (RTO) contracted to deliver trade-based training at TAFE. The Australian Government Job Outlook website indicates high demand for solid plasterers in the future. Subsidies are provided to employers for apprentices, apprenticeships are delivered in a shorter time to add appeal but none of these are working to attract new workers. The completion rate for apprentices in all trades for Australia is 66%. Numbers have been depleting for many years.

It was the Fellow's desire to be granted an ISSI Fellowship and use it to attract new people to the profession but also re-skill experienced workers to prolong their careers. This has created the motivation required to follow the Fellowship ambition. The Fellow's plan has revolved around educating and training people on the benefits, uses and particularly, the artistic nature of the profession because all these factors can attract a larger number of workers. Increased female participation will be a target because the suitable craft skills include attention to detail, design opportunities, modelling opportunities, good hand co-ordination and colour selection. More females involved in the profession can be positively related to employee engagement and retention, higher job satisfaction, more organisational dedication, more meaningful work, higher quality of work and will benefit the whole building industry with gender diversity.

To complement the training programs and events which the Fellow is currently involved in, Brian has developed and followed a strategy to encourage more discussion and participation in the craft of plasterwork. This report is going to be a vital tool to inform, educate and train a community interested in preserving and utilising an old and rare craft which can be useful and relevant into the future.

Performing the task of plastering can fulfil and satisfy the artisan immensely. A once respected profession is languishing because the potential is being underestimated. Designing an object or a building that can be admired as a projection of skills and workmanship delivers a great delight in the observer, as big as the satisfaction to the craftsman. Whether a chef, sportsperson or politician, many people want to achieve a level of performance that could be considered their best. Most craftspeople wish for a project that provides them with quite a big challenge and reward, assists in attaining a level of equal respect, realises an ambition, contributes in a team, engages with a like-minded community, and practice endeavours that can be beneficial to the environment. All these advantages can deliver a rewarding profession which can be reflected to achieve a fulfilling, accomplished life. Plasterwork has been utilised since prehistoric times to protect, decorate, insulate and stimulate and it is the fellow's ambition to educate, train and revitalise a diminishing craft.

*Baroque Facade. Dresden, Germany*



# 3. Fellowship Background

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## Understanding the subject - providing context

Since humans have been building, they also have been plastering. The important history of constructing and building up structures and buildings can also highlight the history and benefits of plasterwork. The major characteristics of ancient plasterwork are to provide protection from water and wind, insulation from heat and cold, acoustic properties to control sound, sanitary surfaces for good health and hygiene and decorative features to inspire can all be translated to modern building architecture. A building is a human-made structure with a roof and walls, appearing in a variety of sizes, shapes, designs and functions. Building construction has been adapted throughout history due to weather conditions, different site locations, individuals' specific uses, aesthetic reasons and development and discovery of different building materials. A building can fulfil many needs including primarily being used as shelter from weather, providing privacy and security, storage and a comfortable living and working environment. Prehistory begins as early as 35,000BC and extends to about 3,000BC in the lands of the eastern Mediterranean and until well after 2,000BC in parts of western Europe. On the time scale of humankind, these dates correspond to the earliest years of modern human evolution from cooperative hunting and gathering societies into agricultural civilisations with a fixed settlement area and a ruling class.

Human settlement seems to have originated on a small clan or family level. Two of the earliest known urban communities are Jericho, Israel (8,000BC) and the trading town of Catal Huyuk (6,500 - 5,700BC) in Anatolia, part of present-day Turkey. Jericho was a fortified settlement and the earliest dwellings consisted of circular mud huts that may have had conical roofs. Catal Huyuk was unfortified and residents seem to have gained access across roofs. Mud brick walls, a post and

lintel timber framework enclosed rectangular spaces that abutted the neighbouring houses so that together they established a perimeter town wall. Interspersed with the houses there were windowless shrines containing decorative motifs of bulls and cult statuettes of deities. These seem to indicate that the themes of prehistoric cave art had not been discarded by this early urban society.

The significant prehistoric building achievement of Western Europe was Megalith constructions, composed of large stones or boulders. The oldest known surviving building from an occupied site is Barnenez, a 72-metre passage tomb in France, built in 4,850 BC. Ireland is particularly rich in Megalith tombs, with over 500 documented sites. Newgrange in County Meath, built 3,200BC, is one of the most impressive. Decorated boulders surround the perimeter of the mound and parts of the stonework in the passage and chamber are decorated with incised patterns, including diamond shapes and spirals.

In Anatolia, Syria, northern Mesopotamia and central Asia, mud brick was utilised. In southern Anatolia, these mud brick houses were plastered and painted with elaborate scenes of humans and animals. The Sumerians in southern Mesopotamia are generally credited with being the earliest of ancient civilisations, followed closely by Egypt, China and the Indus Valley.

The focus of Sumerian life was the temple, and, in this region, there is little stone or wood available for building but what did exist in huge quantities was alluvial mud. The Ziggurat at Ur built around 2100BC still stands today but was constructed 1,000 years later than the earliest giant temples of the Sumerians such as those at Eridu and Urak.



During the Old Kingdom in Egypt, 2575 - 2134 BC, Pyramids were built chiefly to contain the bodies of pharaohs. The earliest is the step pyramid or Ziggurat of Zoser, but the three pyramids in Giza, on the outskirts of Cairo are considered the finest. They are regarded as one of the Seven Wonders of the ancient world and are the only survivors of the seven. The Egyptian Pyramids contain plasterwork executed around four thousand years ago. The technical processes and hand tools discovered are similar in design, shape and purpose to modern times.

The main entrance to the city of Babylon was through the Ishtar Gate. Glazed brickwork, decorated with Heraldic animals, sometimes in relief, adorned the Ishtar gate. The animals, not only real ones such as lions and bulls but also obscure mythical ones, were originally modelled on a large panel of soft clay. The coloured panel was then cut into bricks, fired, and reassembled on the wall. The technique was not new, but it had never been employed on such a large scale before. It so impressed the Persians, who under Cyrus the Great captured Babylon in 539BC, that they took Babylonian craftsman back to decorate their capital at Susa.

From around the 1950's, domestic construction has evolved from a craft industry into a complex manufacturing industry. Traditional construction utilised a craft practice based on tradition with traditional materials, prescriptive standards, apprenticeships with broad based skills, independent supervision and local government administration. Current construction procedures utilise manufactured systems, a range of modern materials, specific skill training, individual quality management systems and private certification.

The modern building process includes a design brief, design, documentation, approvals, construction, and maintenance. Plasterers with a broad skill base can be utilised during the design stage, the construction stage and importantly the maintenance stage thus providing many job opportunities and diversity within the building industry. The maintenance field is particularly important for the older plasterers because their skills and experience should be recognised and utilised in this vital component.

## The Australian Situation- Identifying Points of Interest

In Australia and globally there is a challenge attracting the younger generations to consider a career with a trade qualification. Equally important there is an issue retaining qualified trade's people to stay in the industry. The following 3 tables are from The Department of Employment Job Outlook website. The tables assist by offering a comparison with other professions. They highlight the areas which this report suggests could be improved.

Table 1.

	Weekly Pay \$	Future Growth	Unemployment	Employment Size	Skill level rating	Full-time Share	Average full-time hours	Average age	Gender share
<b>Solid Plaster</b>	1,600	strong	average	5,100	medium	72%	43	37	1%
<b>Brick layer</b>	2,070	stable	low	19,300	medium	77%	42	38	1%
<b>Carpenter</b>	1,358	moderate	low	92,500	medium	87%	44	32	1%

<b>Electrician</b>	1,823	moderate	low	111,900	medium	90%	45	34	2%
<b>Radiographer</b>	2,354	strong	low	20,500	very high	67%	41	37	71%

Solid Plastering is rated as a small occupation with only 5,100 workers but observing a strong future growth. Last year, women accounted for less than 3% of the construction workforce compared to 51% in the non-construction workforce<sup>1</sup>. Compounding the issue of low female participation is that female apprentices are significantly less likely to complete their training and remain in the workforce. It is disappointing with only 1% female participation particularly when the profession should be attractive to females because of the hand coordination skills required, possibility to design objects, face to face interaction and teamwork are all attributes that contribute to a valued work environment.

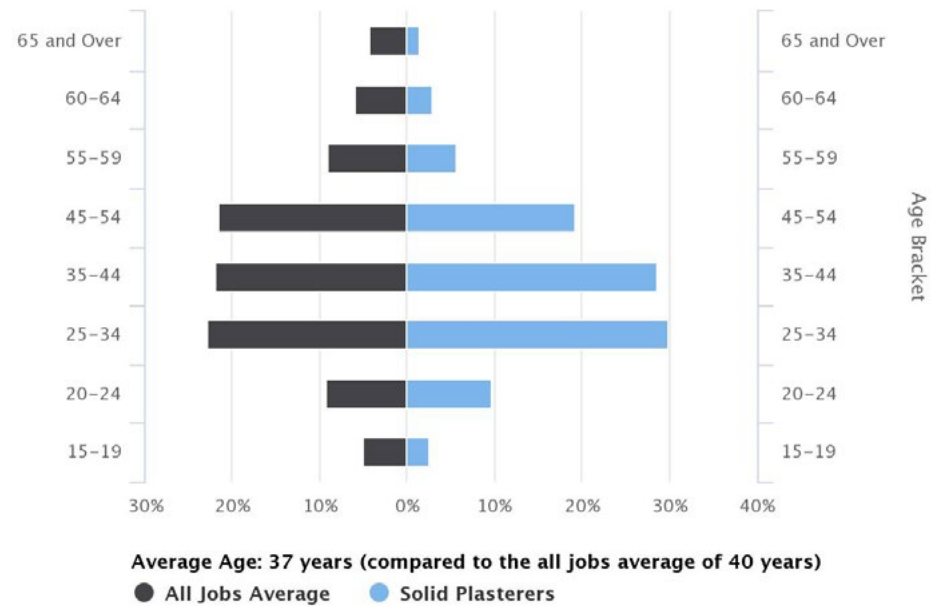


Table 2.

The above age profile reflects that from the age of 44, there is a decrease in participation. Keeping or encouraging the more experienced workers can improve the quality of work, improve planning, provide leadership and increase knowledge and skills. Working on new construction sites can be physically taxing, unrewarding, gender biased and monotonous. Retraining the workforce with skills that can be adapted to the restoration or maintenance field can extend a career because the projects can be more satisfying, more challenging, more diverse and less physically demanding.

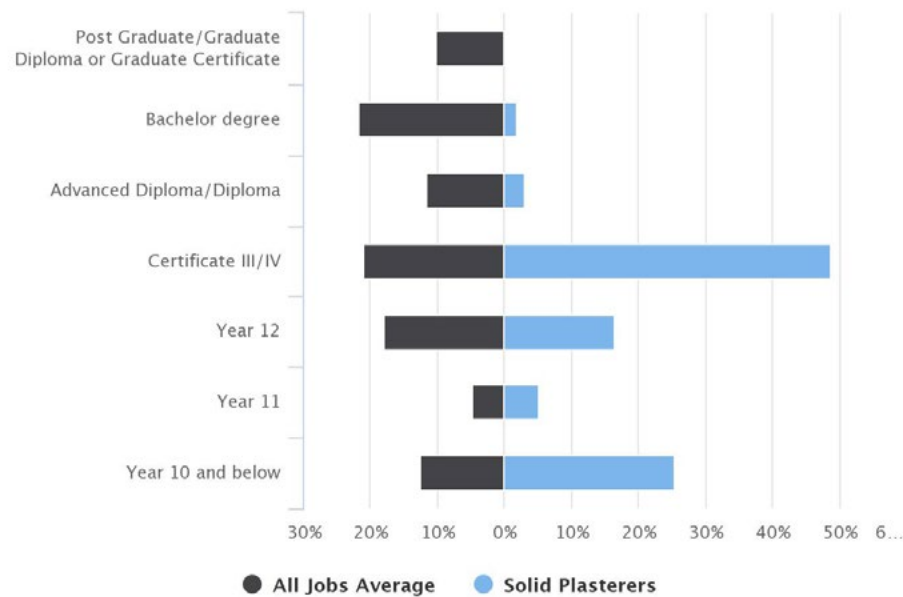


Table 3. Source: ABS Census 2016

Unfortunately, 25% of all Solid Plasterers have an education level of Year 10 or below, this is half the national average. Increasing the minimum standard of education and increasing the number of educated and trained workers with a minimum of a Certificate III can improve the quality of work and pay conditions. More skills and knowledge could mean more rewards in monetary terms and work satisfaction. Completing an apprenticeship can improve the future job opportunities because it provides a real workplace experience, recognised qualifications, a standard of training practices, investment in career prospects and show a willingness to develop skills.

Table 4. Training Comparison

Units of Competency for a Certificate III, 2019	Plastering, Technical Publication No.32, April, 1946
Core Units	
Work effectively and sustainably in the construction industry	Craftmanship in Plastering
Plan and organise work	Plastering Tools
Conduct workplace communication	Scaffolding
Carry out measurements and calculations	Materials
Read and interpret plans and specifications	Solid Plastering - plain work
Apply basic levelling procedures	Lining, plumbing and levelling
Erect and dismantle restricted height scaffolding	Roughcast and texture work
Apply OHS requirements, policies and procedures	Portland cement paving
Cut and fix paper-faced cornices	Construction of running moulds
Handle Solid Plastering materials	Running a mould on the bench
Use Solid Plastering tools and equipment	Running a mould in position
Prepare surfaces for plaster	Portland cement mouldings and pressed work
Apply float and render to straight and curved surfaces	Casting moulds
Apply set coats	Fibrous plaster - materials, plant and equipment
Restore and renovate solid plasterwork	Casting Fibrous plaster sheets
Elective Units	

Making of moulds for fibrous plaster	
Use explosive power tools	Fixing fibrous plaster walls and ceilings
Work safely at heights	Trade calculations
Operate elevated work platforms	
Carry out concreting to simple forms	
Erect and maintain trestle and plank systems	

The above table is a comparison between 1946 and 2019 training subjects for apprentices. Across most trades there is a trend currently to fast track the apprenticeships system in order to have qualified workers ready to be unsupervised and to receive the incentive money sooner. Unfortunately, the apprentices do not receive the benefit of broad skills as the many trades have become skill specific. One main difference would be the time allocated to deliver the training at the college. Many current employers want the apprentice on site all the time, so they do not receive the benefits of a school learning environment, contact with other apprentices, opportunity to try different skills and exposure to a variety of materials. Also, in 1946 plastering workshops would produce many of their own products because the workers would have a broad skill set to design, produce and repair. Nowadays, factories produce products for workers to install and replace so the skill set is limited. The masters in the past would practice plain, decorative, conservation and repair methods. All traditional skills have been widely recognised as having a strong demand in Australia and throughout the world.

**Fellowship context**

The aims of travelling overseas:

- » To receive the best education and training on traditional Solid Plastering skills, so these skills can be transferred to an Australian audience to benefit the community

- » To understand the global challenge of craft skill shortages
- » To compare the training methods in Europe
- » To work with practitioners in Europe to understand their practices and methods
- » To continue to engage with a network of fellow practitioners
- » To discover new methods, latest technologies, latest updates on the use of materials
- » To learn new techniques for modelling
- » To learn new techniques of moulding.

The objectives on my return:

- » To revitalise an ancient craft
- » To teach traditional skills in order to satisfy the demand
- » To raise awareness of the possibilities, so this craft can continue be to relevant today
- » To increase participation numbers of apprentices to supply future demand
- » To increase the participation numbers of the more experienced workers
- » To highlight and develop a sustainable profession for existing Solid Plasterers
- » To generate respect for the Solid Plasterers among their peers and other professions.

Realising the possibilities requires the Solid Plasterers to firstly understand the historical uses and benefits of the craft. Trade schools today teach for a modern building industry. The current skill set is narrow, as is the list of materials used. Large manufacturers supply a range of materials produced and package conveniently. With a narrow skill set the work quality will reflect the same narrow profile.

A broad range of skills can lead to a broad range of projects, demand for your services, more monetary rewards, further career opportunities, extend the working career in the profession and create job satisfaction. There is a demand for Solid Plasterers with traditional skills throughout Australia but also across the world. The traditional skills are being taught outside of the standard apprenticeship system to fulfil the demand. Currently no specific training for traditional Solid Plastering skills exists in Australia. In other countries schools have developed to fill the gap between modern demands and traditional skill demands.

### Fellowship methodology

2018 Perpetual Foundation, Eddy Dunn Endowment International Fellowship Program:

- » October 29 - November 3: study Tour with Donald Ellsmore. Ostuni, Italy
- » November 5 - November 23: work experience with Thomas Schubert, StuckArt. Dresden, Germany
- » November 9 – 10: Trade Fair. Denkmal, Conservation, restoration and old building renovation. Leipzig, Germany
- » November 11. network meeting: Leipzig, Germany
- » November 26 - December 7: Work Experience with Feinraum. Zurich, Switzerland
- » November 29: study tour and meeting with Calcina, Swiss Limes Forum. Zurich, Switzerland
- » December 10. meeting and workshop tour. Jan Ludwig. Zurich, Switzerland
- » December 12: meeting and factory tour. Calchera San Giorgio. San Giorgio, Italy.

### Fellowship experience - Australian relevance

#### Study Tour with Donald Ellsmore - Ostuni, Italy



*Study tour group with Lime Kilns.*

Donald Ellsmore trained as an Architect and in recent years was instrumental in founding the Longford Academy, a building conservation training organisation. Donald arranged a study tour around Ostuni, Italy featuring Trulli and Masseria construction techniques. Also featured throughout the week was the use of traditional building materials. Tours to two lime production facilities was complemented by workshops on the use of lime in Trulli construction. Lime has been used as a binder in buildings for many centuries and it seems to be no

answer on who or how it was discovered yet its immeasurable importance in the long history of Solid Plastering. Being an extremely versatile material, it can be used as the binder in mortars for bedding, pointing, rendering, grouting, flooring, concrete and plastering. Lime can be mixed with a variety of other materials depending on the application.

When heated, calcium carbonate undergoes a chemical change. At temperatures in excess of 800°C carbon dioxide is driven off, producing a material called quicklime. This process is called calcining. Temperatures of 950°C need to be reached in order to attain the required heat for the core of the limestone lumps. Kilns for 'burning' the limestone have progressed with technology but essentially the process is the same since ancient times. Quicklime is then used to produce a lime putty which is added to aggregates to produce various mortars.

Among the convicts of the first fleet were two plasterers. When they arrived neither limestone or gypsum could be found in the explored areas around the new settlement. Clay and mud were used as alternatives for renders applied to the exterior and interior of some early buildings. Despite desperate searches for limestone it was not the first lime binder used. Sea shells are made up from the same chemical compound as limestone and had been used to make plasterers in Europe and America. Gangs of male convicts were sent in boats to search for shell deposits in the inlets around the harbour. The shells were gathered and burnt into lime. Limestone was eventually discovered in Tasmania in 1804. By 1828 there was 31 plasterers, all convicts, in New South Wales. It was not until the 1830's that free plasterers began to arrive to Australia.

Solid Plasterers need a good understanding of the traditional and modern materials. Craftsmanship is the skill employed in doing the job properly. A good craftsman is one who has complete mastery over tools and materials and can use them with skill and honesty. The accumulated results of centuries of experience traditionally have been handed down from master to apprentice from generation to generation. Lime is a fundamental ingredient in traditional plasterwork. To

witness lime production on a large scale was inspiring because you can feel more connected to the material and the user can become more aware of the products possibilities.

### **Thomas Schubert - [www.stuckart.eu](http://www.stuckart.eu)**

Residing in Dresden has presented Thomas Schubert with two conflicting experiences: growing up with the restrictions of the German Democratic Republic (GDR) and prospering after the GDR. Dresden, capital of the Eastern State of Saxony, is distinguished by the celebrated art museums and classic architecture. The city was known as the Jewel Box, because of its Baroque and Rococo city centre. A career in Solid Plastering has presented Thomas with the unexpected opportunity to recreate and reproduce a city devastated by bombing during WW2 and then suppressed after the war.

The decision to recreate the Baroque built facades in the Historical Old Town of Dresden has presented many opportunities for Dresden and its citizens. The story of the re-construction is compelling. Millions of tourists annually gather to admire the appearance and atmosphere of the reconstructed historical old town. Walking the cobbled streets can give a real sense of the Baroque era when many of these buildings were designed. With many cities embracing modern, progressive centres, the appreciation of an old centre is witnessed through the number of visitors and the proud satisfaction expressed by its citizens. Photos and the citizens memories were the only sources used to re-construct the buildings.

Thomas Schubert has benefitted greatly because he has been able to practice the traditional skills of his chosen craft. Thomas started his trade in 1981 at the State-owned heritage preservation company in Dresden. Electric tools such as mixing drills were not available in the GDR. A Bismarck, like a lorry or hoe was used to mix mortars. Because the restrictions on traveling, GDR apprentices could not go on to participate in the Journeyman System, Wanderjahre. In 1991 further study at a European Preservation Centre, in Venice, followed the master craftsmen training in Dresden. Nowadays, Thomas is dedicated to the restoration of architectural

monuments and buildings. The Solid Plastering craft has a long tradition and Thomas practices these old craftsmanship techniques. He can reconstruct or restore many components of buildings from different centuries again in detail. Thomas endeavours to preserve the existing fabric for posterity. In doing so, he works closely with monument protection authorities and other institutions. By pooling expertise, he can create high conservation value for the building facade.



*Photo (left).  
Baroque  
modelling by  
Thomas Schubert  
for Regiment  
House re-  
construction.*

*Photo (right).  
Tympanum  
modelling from  
donated photos.*





*Thomas Schubert's workshop*

Wandjahre dates to the medieval times and it is currently practiced by German speaking countries. 3 years and 1 day is the minimum period of the journey. In medieval times, the apprentice was bound to his master for several years. He would live with the master, receiving most or all his compensation in the form of food and lodging. After the years of the apprenticeship the apprentice was absolved from his obligations. The guilds however, would not allow a young craftsman without experience to be promoted to master. Spending time as a journeyman, with the maximum of six months with one employer in order to gain experience in different workshops, became an important part of the training of an aspirant master. Only after half of the required journeyman years would the craftsman be registered with

a guild for the right to be an apprentice master. After completing the journeyman years, he would settle in a workshop of a guild and after several more years he would be allowed to produce a 'masterpiece' and present it to the guild. With their consent he would be promoted to guild master and would be allowed to open his own workshop. The journey man/ woman is required to be unmarried, childless and debt free, so there is no chance to run away from social obligation during their journey. The journey man/woman is also required to wear a specific uniform for work and one for the evenings and must present themselves in a clean and friendly manner.

A guild is an association of artisans or merchants who oversee the practice of their craft. Guilds began in the high middle ages as craftsmen united to protect their common interests. In the German city of Augsburg, craft guilds were mentioned in the Towncharter of 1156. No specific guild, union or association exists in Australia for Solid Plasterers. The Australian Brick and Blocklaying Training Foundation conducts programs to address the skill shortage by a small levy on the sale of clay bricks and concrete masonry and a matching contribution from brick and block manufacturers. The ABBTF provides information and services for apprentices, parents, teachers and employers. This is a great example of a united profession working together for the benefit of all involved.

#### **Denkmal. Leipzig. 9,10 November. [www.denkmal-leipzig.de](http://www.denkmal-leipzig.de)**

Leipzig has been a trade city since at least the time of the Roman Empire. The city sits at the intersection of the Via Regia and the Via Imperii, two important medieval trade routes. As Europe's leading trade fair for conservation, restoration and old building renovation, Denkmal has brought together international experts in Leipzig, Germany biannually since 1994. The exhibition featured 447 exhibitors, including around 72 international exhibitors which have attracted 14,200 visitors from 17 countries. Denkmal is regarded as the most comprehensive advanced training event in the entire industry. The program includes specialist lectures, workshops, seminars, symposia, conferences, discussion rounds and award ceremonies.



MUTEC has been taking place together with Denkmal since 2010. The international trade fair for museum and exhibition technology, with a comprehensive range of products offers inspiration for experts, decision makers and investors from museums, libraries, archives and other cultural institutions. Together Denkmal and MUTEC form a trade fair network that is unique in Europe, building a bridge between the various sectors and inspiring interdisciplinary dialogue around the preservation of cultural heritage.

An example of collaboration at Denkmal is in the following press release:

Cultural heritage needs restorers: joint conference discussion with VDR and VRH

*“The Verban der Restauratoren as representative of the academically trained specialist and the Verban der Restauratorem im Handwerk VRH representing the practically trained specialist were invited for a joint conference for the first time. In lectures, representatives of both professional groups will give an overview of how they make a decisive contribution to safeguarding the quality of monument preservation in compliance with internationally recognised professional ethical principles and codes. Best practice examples will be used to illustrate the outstanding achievements and expertise of the conservators of VDR and VRH in the preservation of historical monuments on many building, art and cultural assets. The focus is also on how the two professions complement each other productively in their special fields and why restorers from Germany enjoy an excellent international reputation. Together, the associations want to promote interdisciplinary discourse, define common interests and improve public awareness of restoration.”*

This event was very useful because it hosted the material manufacturers beside the craft practitioner so the attendees could see and feel the traditional skills and tools used in one location. Europe and particularly Germany, have a deep connection with the ancient crafts and thus are considered leaders in preserving the skills but also utilising the skills with new technology. Denkmal was a rewarding

experience because it delivers information and supports a community of like-minded practitioners.

### **Feinraum.ch**

Based in Zurich, Switzerland, Feinraum is an example of a community of craftspeople working together with traditional materials on historical and contemporary buildings. The team has researched old recipes and applied them in modern context. The Swiss population is considered a healthy society and there is a strong awareness for wanting to live in a healthy environment in their homes. Feinraum create sanitary, natural and healthy surfaces. Lime is the main constituent within the recipes and colours are considered important in the finished work.



*Decorative ceiling in Villa Patumbah*



*Fellow Brian Maxwell in the workshop of Feinraum*

### **Calcina.ch**

The Buildings Limes Forum was established to encourage expertise and understanding in the appropriate use of building limes and education in the standards of production, preparation, application and aftercare. The Forum aims to achieve its purposes by exchanging information, encouraging practical research, encouraging development of craft skills, educating building professionals and developing contacts. The UK, Ireland, Scandinavia, Italy, Switzerland, Iberia and Mexico have independent Building Limes Forums. Australia has established a chapter since 2013.

The Switzerland Limes Forum, Calcina had its inaugural meeting on November 12, 2011. The Fellow joined a Calcina organised event which toured Villa Patumbah. The purpose was to visit the colour exhibition. The importance of colour in decoration is presented with a focus on a colour in each room. The methods of production, origins, past users are presented with a self-guided tour colour card. Pigments in oil paints, frescos, distempers, casein paints are featured.

After the tour the Fellow attended a Calcina meeting attended by 13 members from Zurich and surrounds. The agenda included:

- » welcome and introduction
- » presentation by Carlo “making buildings picturesque’ what is the role of crafts?
- » exchange of ideas, How?
- » planning the next steps. How? meeting, email, etc
- » when is the next meeting?

Carlo spoke in his presentation about:

- » what is the role of the crafts?
- » understanding the material
- » communicating the benefits
- » discussing the design, colour with the clients
- » pride in your job
- » care for the finish
- » care for other professions
- » being engaged with your work.

**Jan Ludwig. stuckateurbetrieb.ch**

Although only a young craftsman, Jan is representing how a traditional craft can be used in a contemporary scenario. Jan has established a Plaster workshop and is creating unique objects from exclusive designs. Trained in traditional methods he has adapted his skills to satisfy another market. Across the world there is a revival in artisans, crafts and natural products and Solid Plastering can connect with all these because it has a genuine long history of providing useful, practical skills.



*Jan Ludwig produces contemporary designs*

**Calchera San Giorgio.**

Across the world there is a resurgence in traditional materials, particularly lime products. Italy is a source for much of the excitement. The production of lime has experienced a resurgence in recent times because since the 1980's the benefits of lime have been rediscovered. For conservation work specifications, historical plasters should be repaired with a compatible, similar material and that is usually a lime binder. From the 1900's artificial cements have become more common to use because they set quicker and harder. Passing the recipes through the generations of master to apprentice has been practiced for a long time and as artificial cements became more popular the knowledge of mixing with a lime binder has diminished. In the last 30 years there has been a steady increase in specification of lime for building purposes. Another selling point of artificial cements was there convenience. Most hardware's would stock bags of cement with a bag of sand, just add water and mix with a simple device. Lime producers are starting to sell 'packaged products' so lime also can be more convenient to use and mix thus appealing to a broader market.

Calchera San Giorgio are producing lime-based products suitable for historic buildings or modern buildings. An example of a traditional product that has become popular is Polished Plasters. These are based on old recipes but have been adapted to feature in modern buildings. The popularity has created a small revival in the traditional skill of applying a set coat.



*Sample panels at Calchera San Giorgio*

### **Fellowship period**

The Fellowship started from Ostuni, Italy on October 28, 2018 and finished in Venice, Italy, on December 13, 2018. A total of 46 nights. Trains, planes, buses, cabs and just walking provided the commuting methods from Italy to Germany then to Switzerland and Italy again.

### **Fellow biography**

Brian began a journey into Solid Plastering unaware of the possibilities or history of the profession. A family friend, Frank Keane, asked him to assist by labouring on a big job site in Toowoomba in 1996. Initially the request was for two days but after this time came the offer for full-time work. Brian was twenty-two and was still undecided on a career path. University studies had been deferred, TAFE business courses had been done but nothing really grabbed his attention. What he could offer was reliability, hard work and a contribution to a team and Frank recognised these attributes even if Brian considered this a short-term option until he could either travel the world or become a farmer to follow his ancestors' path. But something was triggered. Solid Plastering grew a seed that had been planted during the numerous excursions through Europe's biggest historical attractions as a child. From a young age Brian could recognise and admire the workmanship and skills of the craftspeople that created structures and now Brian had the opportunity to be involved. Completing an apprenticeship was a good start for the basics but only highlighted the void between the modern plasterer and the ancient plasterer. Brian wanted to work with the traditional methods and materials like the artisans that had created the magnificent plasterwork of the past. At trade school in the 1990's, little reference is made to the past skills and the current apprentices, (as seen in Table 4) have no exposure to the past skills. Unfortunately, overseas work and study is the only option to be exposed to the traditional methods. Fortuitously, the Fellow was in the position to follow his passion and appetite for discovering the techniques of the past masters. To respect the work practices, retain the detail and admire the workmanship of the previous generations still motivates Brian to learn more, but to share, inspire and create for the future generations can now be achievable.

Having received a Fellowship was a privilege that Brian did not want to be complacent with. Realising that not everyone has the desire or means to travel overseas for training, and realising also there is a demand for these skills, the ISS Institute Fellowship provided the Fellow with the confidence and skills to tackle the

ambitious task of educating a community so this ancient craft can be revitalised to deliver the needs, standards, quality and satisfaction required by all involved.

Having gained the knowledge of the past masters, so as to teach the best methods has taken Brian on a rich journey up to this point. After having realised the gap in the knowledge attained during the apprenticeship, the pursuit to replicate the past skills began as follows:

- » 2003 to 2008 - Work through Europe on historical places
- » 2011 - Conservation of Traditional Buildings, David Young Summer School, Canberra
- » 2011 - The European Centre for Heritage Crafts and Professions, Villa Fabris, 3 Month Architectural Conservation course
- » 2013 - James Love Churchill Fellowship, Plaster Conservation Methods, UK, Italy
- » 2016 - Longford Academy. Longford, Tasmania.

### **Abbreviations / Acronyms /Definitions**

<b>CSQ</b>	Construction Skills Queensland
<b>CPD</b>	Continuing Professional Development
<b>SPAB</b>	The Society for The Protection of Ancient Buildings
<b>RTO</b>	Registered Training Organisation
<b>ABBTf</b>	Australian Brick & Blocklaying Training Foundation Ltd
<b>MUTEC</b>	Museum and Exhibition Technology
<b>VDR</b>	Verban der Restauratoren
<b>VRH</b>	Verban der Restauratoren im Handwerk
<b>TAFE</b>	Technical and Further Education

## 4. Fellowship Learnings

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### Knowledge, transfer and dissemination

The sharing of knowledge has begun, and this is an exciting aspect because it can deliver a very satisfying feeling when the recipient appreciates and recognises the benefits of the interaction. The goal is to educate and train. By providing people with more skills and knowledge this can reveal opportunities that can transfer into more work, a higher standard of work, a better engagement with workers, a more rewarding project outcome, advantages over competitors, broader scope of works, better rate of pay, and increased opportunity to work interstate or overseas.

Educating the benefits of Solid Plastering to an audience will hopefully generate renewed interest in a craft that can play a role with traditional skills being adapted to provide a service to the new and historical buildings.

## 5. Personal, Professional and Sectoral Impact

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Since receiving the ISS Institute Fellowship the Fellow has:

- » delivered Plaster Restoration training to local practitioners in Yangon. Myanmar. Developed a training program with lectures and workshops at The Secretariat Building with The Yangon Heritage Trust. Separately on another project, the Fellow has trained local masons on a Hotel restoration project.
  - » became a board member and training assistant of Longford Academy. The Academy delivers building conservation training to practitioners working with or interested in traditional methods at the World Heritage Sites of Woolmers and Brickendon Estates. Three courses are conducted each year with an emphasis on practical works on the historic Estate buildings.
  - » conducted training with owners of historic buildings. Example - Dorset Hotel, Derby, Tasmania. The owners wanted to learn how to restore the interior walls using the traditional methods. With a knowledge of the materials and methods they can continue maintenance and repairs confidently and with best practice methods.
  - » mentored other Solid Plasterers. Example - Stewart McKenzie of Melbourne. Working with Stewart to educate him on building with lime and casting techniques so he can pursue more employment possibilities and continue his ambition to produce natural house environments. Example - John Russo of Brisbane. Teach the methods of mould running and use of traditional materials to prolong his career and satisfy his interests in historic finishes.
  - » collaborated with Solid Plasterers to share knowledge. Example Ray Wiltshire from Melbourne, work with Ray to develop training programs and promote the craft skills.
- » participated at the annual Lost Trades Fair, Kyneton and Toowoomba. Display and educate visitors on Building Conservation techniques.
  - » developed a 'Building with Limes' course. Example - delivered a one-day course to home owners at the Murwillumbah Community College. Theory and practical skills.
  - » participated in the ISSI Illuminate series. Presented a talk with the title of 'don't waste a resource'. The aim was to educate and raise awareness of the workmanship of the past craftspeople.
  - » continued involvement with the Australian Chapter of the Building Limes Forum. Contributed articles to the newsletters.
  - » meeting with Trade teachers at TAFE, Skillstech to offer a one-day introduction course on traditional methods and materials to the Solid Plastering apprentices and potential apprentices.

Future proposals-

- » Visit schools with Trade based programs to promote the craft skills
- » Contribute to the CSQ 'Try-Our-Trade' wet trades display event to encourage new apprentices
- » Introduce the SPAB Maintenance Co-operatives Project to Australia. Discussions have begun with SPAB and they are offering to support the idea of sharing this successful community initiative

- » Develop a CPD program targeting Architects, promoting the traditional and contemporary uses of Solid Plastering
- » Deliver a seminar series with support from organisations like the National Trust, to educate the broader community and get people engaged
- » Aim to introduce a 'traditional methods' subject into the current Solid Plastering Certificate III structure
- » Engage further with ISSI to support and promote the craft industry sector
- » Promote the 'don't waste a resource' campaign to engage with the community for protecting, retaining and re-adapting older buildings. Promote respect for the past masters and their work
- » Engage with Construction Skills Queensland to promote their publication on Women in Construction.



## 6. Recommendations and Considerations

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The Fellow considers the following in order to act and fulfil a real impact that benefits our country, specifically, this state. By continuing the association with training organisations such as Longford Academy, the Fellow has given access to an audience of broad practitioners.

The Fellow suggests to:

- » promote as a craft not a trade - to receive equal respect with peers and other professions. Artisans and crafts are currently popular so utilise this opportunity
- » promote the connection with ancient methods and guilds
- » promote the 'have skills will travel' mantra
- » promote the artistic or artisan qualities to attract more participation, particularly increased female numbers
- » promote the benefits of plasterwork - protection, insulation, acoustic control, sanitation and decoration and how these can still be relevant on contemporary buildings
- » promote the use of traditional methods and materials, because these skills can be used to retain the existing plasterwork so we 'don't waste a resource'. Example - website, council engagement
- » show the benefits of an apprenticeship - more skills, more money, more long-term prospects. Example - job skills statistics
- » show connection with professional organisations, continue professional development. Example - membership of Building Limes Forum, SPAB
- » encourage association with a network of peers, like-minded people to offer support and knowledge. Example - Solid Plasters Alliance Queensland
- » encourage association with community groups to share the knowledge and provide information or assistance on community projects
- » assist in generating interest in the building craft sector, it may be important to provide support and encouragement. Solid Plastering has no specific union or association providing advice to the employee or employer. Example - The Electrical Union are recognisable and provide a support network for their members
- » being part of a group or organisation can foster alliances, create networks, deliver education, update of latest news, provide moral support. Without this group support a craftsman may feel that he is struggling on his own against an industry stereotype.

### **Connections - Networks - Peer Groups**

#### **Memberships -**

- » Society for the Protection of Ancient Buildings (SPAB)
- » Building Limes Forum
- » ICOMOS (International Council on Monuments and Sites)
- » National Trust
- » Association for Preservation Technology International (APT International)

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