intimate immensity, an interior architecture

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Andrea Mina
B. Arch. M. Des.

School of Architecture and Design
College of Design and the Social Context
RMIT University
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abstract

The research engages the concept of ‘intimate immensity’. These words encapsulate some of the core issues underpinning the research; the allure exuded by small objects, and their provocations of reverie, where very close proximities between subject and artefact are required for there to be any meaningful engagement with the actual, material outcomes of the making. Through this compression, space and relationships are thickened, engendering intimate connections between the two. The ideas of intimacy are further enhanced by the very small sizes of the fabricated architectures. More pertinent is the aspiration of the works to transcend themselves, not by asking for meaning or translation and interpretation of their own forms, but rather to inspire and provoke very personal and individual imaginings/dreams by each who would encounter them.

Concerns for ‘an interior’ and of ‘the interior’ have had significant influence in affecting the trajectories of the research. The research is based on reflection and interrogation of my singular and personal practice of architecture that is driven by interests ranging from ‘small things’ and architectural discourses to the celebration of humanity’s ability to dream, invent and make tools. Through my research, making has been used as a tool for inquiry, as a means of both manifesting knowledge and seeking new understandings in knowing through doing where there are moments of realisation and of actualisation. Each of the thirty six artefacts produced act in themselves as different kinds of tools to facilitate other makings of spatial discourses.

The research has been conducted through an iterative process of making, thinking, exhibiting and the public articulation of the knowledge thus generated. This process has provided opportunities to interrogate outcomes and to subsequently generate spatial discourses and new work. By hand-making very small, enigmatically-scaled artefacts in the image of architecture, I have endeavoured to develop and articulate another mode of architectural practice.
intimate immensity, an interior architecture

andrea mina

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.
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Initially my research was titled ‘intimate immensity; the miniature as spatial discourse’; a specifically flexible title given the unpredictable nature of research through and by design – especially considering in this case the research is through making. The combination of the words, intimate and immensity, originate from Gaston Bachelard¹ and were used by Leon van Schaik to describe the very early material outcomes of my making². These words have proved useful as they are apt in encapsulating some of the core issues underpinning the research, some of which are the allure exuded by small objects through their small sizes and the potency of these small ‘containers’ to provoke reverie – a state of being described by van Schaik as ‘that state in which the totality of our intelligence – our full consciousness – engages with the world and enables us to think creatively’³.

Bachelard classifies immensity as being a philosophical category of daydreams (reverie) with ‘a sort of natural inclination, it contemplates grandeur. And this contemplation produces an attitude that is so special, an inner state that is so unlike any other, that the daydream transports the dreamer outside the immediate world to a world that bears the mark of infinity.’⁴ He argues our perceptions of ‘immensity’ are more the results of inner-immensity than an external-immensity, ‘we should realise within ourselves the pure being of pure imagination (   ) Immensity is within ourselves. It is attached to a sort of expansion of being that life curbs and
caution arrests, but which starts again when we are alone. As soon as we become motionless, we are elsewhere; we are dreaming in a world that is immense. Indeed, immensity is the movement of motionless man.” He makes the assertion that intimate space and world space blend through immensity, “it is through their “immensity” that these two kinds of space - the space of intimacy and world space - blend. When human solitude deepens, then the two immensities touch and become identical.”

That these words, 'intimate immensity', should be pertinent as part of a title requires more elaboration. Very close proximities between subject and artefact are required for there to be any meaningful encounter or engagement with the actual, material outcomes of my making, and it is through this compression that space and relationship are thickened, engendering an intimate connection between the two–therein rests the ‘intimate’. The ideas of intimacy are further enhanced by these architectures’ very small sizes, and the physical limitations this has in restricting their direct viewing/interaction to one person at a time. More pertinent is the aspiration of the works to transcend themselves, not by asking for meaning, translation or interpretation of their own forms, but rather to inspire, and to provoke very personal and individual imaginings/dreams by each who would encounter them.

3 ibid. pg 54
4 Bachelard, Gaston. The Poetics of Space, Beacon Press, Boston 1969 pg. 183
5 ibid. pg. 184
6 ibid pg. 203
an interior architecture

‘The miniature as spatial discourse’ was a useful by-line, up until the word ‘miniature’ became beset by its etymology and its present use – which alludes to a meta existence, of which the actual miniature object is but a representation at a smaller scale. The miniature is discussed in more detail in a following section. In preference, ‘an interior architecture’ offers a more comfortable companion to ‘intimate immensity’, albeit the necessity to contend with the inevitability of its misinterpretation: to mean that practice of interior design which is imprisoned by architectural hegemony. Concerns for ‘an interior’ and of ‘the interior’, have had significant influence in affecting the trajectories of the research. Part of the research’s sub-text addresses my contention that ‘interior’ and ‘exterior’ come into being through negotiations between their mutual existences; neither exists without a presence of the other. ‘Interior is also indelibly etched into Bachelard’s discourses on both ‘miniature’ and ‘intimate immensity’. An attempt has been made to engineer a coherent whole through the use of ‘an’ – singular - one interior architecture. One form of architecture, produced from an interior, which by inference is mine. This is my architecture, a singular and personal practice of architecture; one that is driven by interests ranging from ‘small things’ and architectural discourses to the celebration of humanity’s ability to dream, invent and make tools. Through my research, making has been used as a tool for inquiry; the acts of making as both manifesting knowledge and seeking
new understandings - knowing and doing, knowing through doing, moments of realisation and actualisation. Consequentially, the thirty six artefacts produced, act in themselves as different kinds of tools to facilitate other-makings of spatial discourses.

What had its genesis in my innate – and unquestioned – need to make, developed into a very personal practice of constructing small, scaleless architecture, sited nowhere else other than on my desk at home. At that time I did not realise the significance, the small size of my domestic workspace would have in influencing the trajectory of my research. This personal practice has been brought into the public realm through the exhibition and publication of outcomes, and professionally through my teaching. I am acutely aware of the esoteric nature of my research, however, I am also empowered in the knowledge that the making of architecture, is as much through the development and annunciation of its discourses, as it is about making normal sized buildings; ‘it’ is the sum total of all its countless discourses and manifestations. I do not view my practice to be located anywhere other than in the discipline of architecture. It may be roaming in the freedom of an outer orbit, susceptible to the pull from other disciplines such as jewellery and sculpture, but always safe in the knowledge of architecture’s gravitas to draw it back to a centre. The research has been conducted through an iterative process of making, thinking and articulating, which has given me the opportunity to
interrogate outcomes and to subsequently speculate on their potential to generate discourses and new work. By hand-making, very small, enigmatically scaled artefacts, in the image of architecture, I have endeavoured to develop, and articulate another mode of architectural practice.

Since humankind developed the ability to make tools – Homo faber, or Man the maker - some of these tools have been put to use for inquiry into the unknown, and examination of the known; from gigantic telescopes to penetrate the vastness of outer space to the largest machine ever built - CERN’s Large Hadron Collider - made to examine the smallest known particles, and in the doing, perhaps discover there are still smaller particles. And sometimes, these endeavours are for the altruistic purposes of developing knowledge, as and in testament to, humanity’s capacity to think and dream; ‘(t)he capacity to imagine, to liberate oneself from the limits of matter, place and time, must be regarded as the most human of all qualities.’ Through an inversion of the scale of operation and the actuality of its output, I have made very small tools to examine some large issues of architecture, space, occupation and the role making-by-hand may have in the design and making of space in the early twenty-first century. These small architectures may be analogous to Bachelard’s botanist seeing the world though his magnifying glass. ‘Here the man with the magnifying glass is not an old man still trying to read his newspaper, in spite of eyes that are weary of looking. The man with the magnifying glass takes the world as though it were quite new to him. (   ) The man with the magnifying glass, quite simply, bares the every-day world. He is a fresh eye before a new object. The botanist’s magnifying glass is youth recaptured. It gives back the enlarging gaze of a child.’

Before discussing in more detail the products of my research-through-making, and the contribution this research makes to spatial discourses, I wish to very briefly mention some of the designers/architects/artists whose work has provided different inspirations which have exerted varying degrees of influence over mine. I cite these references in the hope the combined reading of each provide the makings of a
context within which to locate both my making, and the output of this research. I make no pretence to providing a comprehensive account as I am aware the influences are innumerable; or to attaching any degree of importance to the order in which these influences are presented.

Giovanni Piranesi’s series of etched imaginary views of Carceri Prisons are powerful depictions of vast, layered spaces and huge, illogical structures; pictorial, projective space. Charles Moore’s whimsical drawings of imaginary cities; strangely similar to resonances stirred by the aching beauty in the faded glory of the Alhambra’s muquarnas – stalactite – domes; their wonderful capacity to spark extraordinary imaginings of mythical cities. Richard Meier’s altruistic collages, made from pieces of paper collected from around the world. Douglas Darden’s book ‘Condemned Building’; his synthesis of electronic and hand-drawn images with scale models to communicate rhetorical projects executed through his ‘dis/continuous genealogies’ design methodology, resulting in original forms with complex interior spaces. Russian ‘paper architects’, Alexander Brodsky and Ilya Utkin’s inspired book of etchings revealing ways of opening-up architecture to expose the interior, and the many possibilities for its occupation. ‘Paper architects’ to whom this younger generation of architects owe their heritage, such as Archigram with their utopian fervour and visions of a technocratic future, one in which architecture could change the world for the better; and their counterpoint Superstudio, who fore-saw a global ‘Anti-Design’ culture freed from superfluous objects – both groups’ manipulation of a variety of media in their moves from traditional architectural representation through drawings and models, to include montages, sketches, collages and storyboards. Some of Lebbeus Woods’s provocations – especially his discourses on architecture and healing – more so his extraordinary draughtsmanship, and use of drawing(s) as mechanisms for generating, and narrating architectural discourses. From a different perspective but still allied with drawing(s), the design methodology of the Austrian architecture practice Coop Himmelblau; their reliance upon the primacy and potency of the ‘initial gesture’ to generate designs.
Daniel Libeskind\textsuperscript{11} provides a useful bridge between the zones of drawings and artefacts. His exquisite early drawings elevate the use of straight edge and pen drafting into profound explorations, and descriptions of pictorial, architectural space; the meticulous crafting of his allegorical ‘Three Lessons in Architecture’ machines. Artist/Architect Shin Egishira’s\textsuperscript{12} conceptual mechanisms and installations which provoke and facilitate ways of seeing the world differently. My encounter – as an eighteen year old – with a retrospective exhibition of Joseph Cornell’s\textsuperscript{13} work in the Guggenheim Museum in New York, embedded an indelible interest in small containers. Marcel Duchamp\textsuperscript{14}, in particular his portable museum project, ‘Box in a Valise’, a series of small briefcases containing sixty-eight miniature Duchamp replicas; subverting the idea of the museum, the multiple and the comparative value of the work of art. Alexander Calder’s\textsuperscript{15} portable miniature circus ‘Cirque Calder’, designed to fit into a suitcase; his mobiles are a continuing fascination – the inspiration for a number of wire mobiles built over the years for my daughters and grandsons.

Carlo Scarpa’s\textsuperscript{16} devotion to material and detail; and in Louis Khan\textsuperscript{17}, the primacy of form, space and light – Balsawood. What do you want to be? And Cuttlefishshell? Walter Pichler\textsuperscript{18}, the Austrian architect, sculptor and artist’s synthesis of his practices into producing meaningful and evocative work, but more importantly, his ethics of practice. I have recently come across the work of Japanese academic and architect Terunobu Fujimori\textsuperscript{19} whose practice, making and architecture bear many similarities to that of Pichler’s. Not forgetting lessons learnt from Andy Goldsworthy, an exemplar of respect for, and empathy with, the natural and order and collaborations with materials.

Through my research, I have aspired to make architectural artefacts which are not models of some other reality; they do not substitute for something which is not present, and are not scaled representations of something else. They do not pretend to predict or illustrate any futures. They are made at actual size, full-scale, one is equal to one, neither larger nor smaller, and are exactly the size they need to be.
My aspiration has been for the small architectures to act as tools/mechanisms for the generation of spatial and design discourses. These discourses have evolved and I imagine will continue to evolve beyond the duration of this research. They are as organic in evolution as was at times the making, through its embrace of chance and serendipitous encounters.

In light of the above, the following exegetical account of my research has been structured to provide a proper accounting of my undertaking. The next three chapters – ‘small’, ‘architectural models’ and ‘hands/making’ – provide brief accounts of the nature and diversity of small objects and smallness, architectural models, and my making techniques. Thereafter follows an account of the making, which has been divided into three sections – the initial group of five artefacts, a second group of five and the remaining twenty-six artefacts. The next chapter – ‘application/dissemination’ – further articulates my practice and the relevance and application of the research; followed by – ‘materials’ – an account of the materials I have worked with and the significance of their organic origins. ‘Images,’ addresses the documentary value of graphic images and the essential role this plays in the research. In conclusion, ‘review’ provides an account of some of the discourses provoked through the research.

3. I have vivid recollection of the conversation with Peter King when he reminded me “even the words we use come from somebody else”.
small

a small lexicon

atomic - baby - bantam - bitty - cramped
diminutive - dot - electron - extremely small
filament - flash - hardly visible - humble - immature
inadequate - inconsequential - paltry - inconsiderable - petite
infinitesimal - insignificant - instant - insufficient - jiffy
less - limited - little - littler - littlest
meager - micro - microscopic - miniature - mini
minimal - miniscule - minute - mo - modest
molecular - moment - nano - negligible - niggling
nugatory - neutrino - neutron - petty - picayune
piddling - pint-sized - pocket-sized - point - positron
proton - puny - quark - runty - scanty
second - secondary - sec - short - shrimp
slight - sliver - small - small-scale - smaller
smallest - smallish - splinter - stunted - teeny
teeny - teeny weeny - teensy weensy - toy - tick
tiny - trivial - twig - undersized
unimportant - unpretentious - quantum
very small - wee - young
Giacometti’s tiny 1950’s bronze figures stand in stark contrast to the ethic and aesthetic of their time: the post-war boom, the birth of the baby boomers, large gas guzzling cars and huge ocean liners. Yet they are portentous of one of the defining characteristics of the late twentieth century, the desire and the ability to make things smaller, from making the world a smaller place through global communications and space exploration to being able to manipulate individual atoms. Over a very short span of time transistors became integrated circuits which became smaller silicon chips which are now being challenged by the promises of nano-technologies. One may speculate this desire for smallness/miniaturization is motivated by childhood nostalgia and its associations with small toys and the sense of control and authorship the child has over these – even to them - diminutive objects. To Susan Stewart ‘the miniature, linked to nostalgic versions of childhood and history, presents a diminutive, and thereby manipulable, version of experience, a version which is domesticated and protected from contamination.’

The achievements of the late twentieth century have already been eclipsed by the first decade of the twenty first century. Bulky Walkman players have been replaced with palm-sized iPods and smaller MP3 players – even the nomenclature has been made ‘smaller’. These are currently being replaced by the iPhone and its equivalents which have combined phone, camera, music player, personal organizer, calculator and access to the world via internet access - all through one small device. In the mid 1990’s Domus Academy professor Ezio Manzini initiated his discourse on dematerialization describing the transformation of value from tangible assets to access and control of digital information, the ultimate extrapolation of
smallness down to nothing: our witness of the near collapse of the global economic markets is testimony to this. Bachelard is pertinent to any discussion concerning desire, smallness or miniaturization informing us ‘the cleverer I am at miniaturising the world, the better I possess it. But in doing this, it must be understood that values become condensed and enriched in miniature. Platonic dialectics of large and small do not suffice for us to become cognisant of the dynamic virtues of miniature thinking. One must go beyond logic to experience what is large in what is small.’

Part of my research has been a parallel search for the correct nomenclature for these small outcomes of my making. Names bear the full import of their meaning. ‘Models’ and ‘miniatures’ are both misleading, and yet useful words to describe or contextualise these objects, each word providing different layers of meaning. Whilst both words are suitable descriptors, it is more useful to use the words ‘small’ and ‘smallness’, as these words encompass the qualities and affects of both, and embrace the focus of my interests in making very small objects. Size and scale play central parts in this discussion; size being quantitative and concerned with measurement – the small sizes of the artefacts – whereas scale is qualitative and relative, relying on comparisons with something else.

miniature

‘Although we cannot miniaturize what has not had material being in the first place, there are no miniatures in nature. The miniature assumes an anthropocentric context from the outset.’

The word ‘Miniature’ has many varied meanings ranging from a smaller than usual copy or re-production of something with the implications of the prior existence of ‘an original’, to ‘the art or action, originally that of a medieval illuminator, of painting portraits on a small scale and with minute finish, usually on ivory or vellum; a portrait of this kind’. The word has its derivation in part from the early eighteenth century Italian miniature, via medieval Latin from Latin miniare ‘rubricate,
illuminate’, from minium ‘red-lead, vermilion’ which was used to mark particular words in manuscripts. As miniatures may be manifest as either small copies or originals, the latter interpretation is more useful to this discussion for its allusion to ‘miniatures’ being the original artefacts – neither reproductions of, nor substitutes for, other things – they have presence and integrity of their own. Bachelard reminds us ‘we should lose all sense of real values if we interpreted miniatures from the standpoint of the simple relativism of large and small. A bit of moss may well be a pine, but a pine will never be a bit of moss. The imagination does not function with the same conviction in both directions.’ My interests are stirred by this uncanny ability the miniature object has to propel us beyond our everyday existence into expansive imaginings which are upwards and outwards and vast in scale to the smallness of that which evoked them; it is a rare occasion to experience the inverse. Susan Stewart speculates this may be because the ‘reduction in scale which the miniature presents skews the time and space relations of the everyday lifeworld, and as an object consumed, the miniature finds its “use value” transformed into the infinite time of reverie. This capacity of the miniature to create an “other” time, a type of transcendent time which negates change and the flux of lived reality’.

All civilizations have well documented histories of their rich heritages of hand making at a small scales. As the focus of my research through project work is upon smallness and making in the image of architecture, emphasis has been placed on making project work, it is however necessary to briefly locate these small artefacts I have made within some of the countless manifestations of making at miniature scales.

“When portraying an entire building, it may amaze, but its presence is remote from any sense of possession: it is not held within us. Reducing the scale has the unaccountable effect of concentrating and intensifying the model’s significance. By the same count it also increases its value. “Jewel-like” is a term commonly applied to models of fine craftsmanship and miniature elegance, it is not an idle choice of word.”
Jewellery is one of the most ancient manifestations of mankind’s fascination with making and possessing very small things. Originally made to the intimate scales of the human body and by virtue of their smallness and portability they acquired value in being made from precious materials, such as gem-stones and metals. These small artefacts enjoy a special relationship with people through a combination of their preciousness, smallness and their sometimes-intimate direct contact with human skin; they are imbued with attractive allure. In many cases, unlike with our most intimate apparel which is discarded to bathe or sleep at night, some jewellery remains attached to or wrapped around bodies. Above all jewellery has the power to capture memories and fire imaginations and similar to the manner in which architectural models may be spoken of as machines for generating illusions, telling stories and making metaphors, so may jewellery act as machines for carrying legends and personal mythologies. A silver ring – composed of ten small solid buildings – made by London-based jewellery designer Vicki Ambery-Smith, has been described as ‘a more personal interpretation of the character of a building, some pieces seem to have no direct referent but are highly suggestive of certain locations or eras, appearing as tiny stage sets, on to which the viewer can project their own dramas and personal narratives of place. In this way she plays with the power of architecture to inspire fantasy, trigger memory and evoke sensations.’ In Robert Baines, Living Treasure Master of Australian Craft we see jewellery elevated to the highest level. GOLD RINGS a very sweet tune…2007 is an eloquent demonstration of the agility of his intellect and the mastery of his craft by balancing ancient Etruscan fabrication techniques against skeletal architectural constructions which capture and make space.

It would be remiss not to reference the extra-ordinary artefacts manufactured in Peter Carl Faberge’s many studios in Russia from late nineteenth century up until the Russian Revolution in 1918. Faberge’s objects are not only an extraordinary and extravagant display of the virtuosity of their handcrafting they are also historical time capsules; they hover between being perceived for what they are, the exquisite expressions of the human craft at its highest, and what they represent,
the material manifestations of an isolated, ostentatious and imploding culture.

More pertinent to this research are the collection of Faberge Imperial Eggs, whose extravagance extends to the extremes of incorporating surprises of equal wonder and splendour hidden within concealed but accessible interiors; interiors within interiors.

Possibly one of the most common associations people would make with miniature is its relationship to painting. This is affirmed by the New Shorter Oxford English Dictionary 2003 including 'the art or action, originally that of a medieval illuminator' as part of its definition of miniature. If not for the dedicated labour of medieval monastic traditions much of classical Greek and Roman literature would be lost to civilization. It is not insignificant Bachelard (with his love for literature) should choose to evoke the solitary, dedicated patience of the medieval illuminator at work 'All small things must evolve slowly, and certainly a long period of leisure, in a quiet room, was needed to miniaturize the world. Also one must love space to describe it so minutely as though there were world molecules to enclose an entire spectacle in a molecule of drawing. In this feat there is an important dialectics of the intuition – which always sees big – and work, which is hostile to flights of fancy.'

Parallel the western miniature painting traditions are those most notably from India and Persia. Indian miniature painting enjoys a tradition dating back to the eleventh century, reaching its zenith during the Mughal occupation from the sixteenth to nineteenth centuries. A contemporary miniature painting practice is still maintained on the predominantly Hindu island of Bali where the most wonderful miniatures, depicting the Hindu epics of the Ramayana and Mahabharata are painted. Considering most of the output is directed towards a tourist market, one can only marvel at the quality of craft and dexterity of hands to paint with such clarity of detail at such small sizes. For there to still be such a prevalence of these miniature painting skills amongst the population attests to how deeply embedded in these cultures these traditions are.
To mine and many generations ‘match box size’ has many associations, foremost of which would most probably be HO scale Matchbox miniature motor vehicles and – through scalar association – miniaturized toy train sets and the like. However in the early twenty first century ‘match box size’ appears to be a colloquial anachronism given the technological advances that have taken place since 1844 when a Swedish chemist Gustav Erik Pasch invented phosphorous matches. The use of matches is now in terminal decline, matches being rendered technically obsolete through the invention of disposable lighters. For many decades matches were an absolute necessity for everyone, regardless of age, gender, social status or education, this may still be the case for many in various parts of the world. These small ‘essentials’ spawned huge industries throughout the world, which took no time in capitalising on the small surfaces these little boxes presented by transforming them into miniaturized advertising mediums. The universal restrictions of small surface areas has necessitated bold design responses and brief, succinct messages. And in a similar fashion to the manner through which Faberge eggs manifest their culture and place of manufacture in historical time, so to do matchboxes: ‘marking’ cultural and geographic diversity of origins through the
subtleties and variations in their design and artwork. I have a particular attachment to and interest in Indian matchboxes having accumulated a small collection of indiscriminately discarded matchboxes, picking them up directly from the ground. From these I have made a menagerie of small ‘animated’ animals, collectively titled ‘global warming/warning’ in homage to the loss of local Indian identity and regional difference. Matchboxes are a victim of rapid industrialization as manufacturers’ desires for ease of production have led to the elimination of difference in favour of uniformity. In step with India’s spectacular emergence as an industrialized, global economic power, matchboxes made from ‘matchbox’ wood with individually printed and pasted labels and strike plates are disappearing to be replaced with anonymous yet ubiquitous boxes made from directly printed cardboard. Ironically concurrent with the demise of the matchbox industry is the expansion of a new global audience of matchbox enthusiasts composed of collectors, artists and publishers. And as are the machinations of capital and free economies, the value of these diminishing resources are increasing with the passage of time, in proportion to the expansion in the number of consumers.

My account has no aspiration for being an exhaustive survey of smallness. I have
specifically chosen not to elaborate on a number of categories, to name but a few: Japanese netsuke, postage stamps, postcards, miniature portraiture, miniature soldiers, toys. My endeavour has been to ‘sketch’ a particular portion of the rich historical and cultural spectrums of making small things, and some of the material manifestations of smallness, all of which constitute part of the context in which my research is located. As a means of concluding this section, I wish to briefly discuss the work of Charles Simonds and Willard Wiggins, the former being an early personal influence, exclusion of the latter would make this text that much poorer.

Willard Wiggins is a self taught dyslexic whose work lies at the extreme edge of smallness: sizes bordering on incredulity. He is cited not for the content of his work, but rather for the fact of his miraculous ability to manipulate material to such fine levels of detail at such microscopic sizes. Made under a microscope to be viewed through microscopes Wiggins work is made to literally fit within the eye of a needle or upon a pin head. Using hair plucked from a dead fly to paint with, he describes his practice ‘I work underneath a microscope, breathing very gently and just before my heart beat stops I start to make a move so I’ve got one and a half seconds to carve. Some times I slip into little trances without knowing because I’ve taught myself to drop my heart rate and breathing down so low. Sometimes if I’m not careful I can inhale my own work. You have to be like a dead man working.’15 These words recall a conversation between Lawrence Wexler and micro-miniature artist Hagop Sandaldjian’s son. ‘He would wait up until late at night,” Levon said, “when we kids were in bed and the rumble from the nearby highway had subsided. Then he would hunch over his microscope and time his applications between heartbeats - he was working at such an infinitesimal scale that he could recognize the stirrings of his own pulse in the shudder of the instruments he was using.’16

In the 1970’s New York-born artist Charles Simonds began a series of very small
works located directly in and on the surfaces of dilapidated buildings in the boroughs of New York. They subsequently found their way around America and throughout the world with Simonds, to Paris, Genoa, Berlin, London and, more recently, Guilin and Shanghai. Working in clay, he meticulously modelled tiny dwellings out of tinier individual blocks of clay, locating these constructions in the cracks in walls, within door thresholds or on window sills, and as they were fashioned from unfired clay they were subject to the erosive forces of nature, or they lasted until the buildings collapsed or were demolished. Their ephemeral existence reinforced the fact of them being neither models nor maquettes for anything else;
they had fleeting life of their own which John Neff describes as 'never precisely reconstructions of Hopi pueblos and kivas, pre-Columbian terraces, Egyptian mastabas, Greek tholos tombs or Iron Age brochs. Rather, his buildings and sites are evocative of all of these and more'18. A great deal of the charm and mystique disappears from the work once Simonds imposes his unnecessary mythology of the absent 'Little People' responsible for constructing these architectures, the mythology becomes increasingly implausible as the work moves from its ephemeral existence into galleries and collections and large public installations; it would have been preferable to acknowledge and respect the ability of each individual to bring their respective imaginations to bear in 'filling in the gaps'. At the time Simonds began making his public sculpture he was sharing accommodation with Gordon Matta Clarke19, another artist intent on transforming the public's relationship to art by contesting public access to, and ownership of public art.
micro-architecture

For a brief time the term ‘micro-architecture’ was useful, until a Google search for the words ‘micro-architecture’ delivered over twenty million search results directed towards the burgeoning area in computer engineering concerned with microprocessor design. With respect to architecture, it is a term used by Francois Bucher to describe containers built in the image of small architectures to house religious reliquaries. Bucher speculates that for the medieval churchgoer ‘sacred objects offered an infinitely more valid transcendental experience and vicarious identification with Heavenly Jerusalem than the cathedrals whose structural arrogance only a few could appreciate and even fewer could comprehend.’20 His contention is the containers built to house these reliquaries became the test beds for the development of the extraordinary extravagances of Gothic architecture and, eventually, the trend-setting morphology realized in small objects became so sophisticated that it could no longer be duplicated in buildings which themselves, in a strange reversal of reference, became mere shelters for micro-architecture.21
architectural models

‘Of course, models are usually smaller than buildings they represent, so when can we speak of them as miniatures? It helps if the forms are as small as or smaller than our fingertips, the tactile boundary between us and tininess.’

There is inevitability to the architectures I have made being incorrectly viewed and referred to as small architectural models, apart from correctly being called small, I contest they may well be in the image of architectural models but they are architectures in themselves, at the scale of architectural models, they are ‘architectural’ minus ‘model’. For need of clarification and to better locate and position the outcomes of this research, it is necessary to briefly discuss physical architectural models in particular.

To most of the world, the model in the image of architecture has its manifestation as the literal re-presentation of existing realities, best exemplified by the high popularity of commercially produced architectural-miniature models. Their popularity has spawned an industry to satisfy the demand for exactly scaled and finely detailed replica reproductions of existing buildings whose already loaded spatial histories are expanded by each and every new acquisition of collectors linked through the internet’s global embrace. For the purpose of maintaining relevance, this discussion...
is restricted to physical architectural models produced by students in schools of design and throughout the design professions and their allied industries. In Australia the use of these normally small sized and usually scaled objects is pervasive and in most cases their use and making still follow the same traditions and practices pre-dating international modernism going back to the Bauhaus.

Albert Smith positions architectural models 'in the marginal area between lifelessness and the uncanny, the visible and the invisible, the architectural model appears to offer architects an understandable way in which to develop and define their concepts.' Implicit in this development and inherent in its definition is the need for the communication of varied kinds of information between differing agencies: varying in size and complexity, from direct one on one interpersonal conversation to anonymous communication with the public at large. In the first instance this communication is between the invisible ideas of the designer's imagination and the tangible physics of reality. To this end Smith describes the architectural scale model as '.....a machine for imagining, for developing the free associations needed to develop new ideas.' Peter Downton reinforces the utilitarian value of the architectural model by his contention '.....that they are used by architects as if they have the functions of machines for speculating, for generating and refining concepts, for exploring, generating illusions, telling stories and, above all, making metaphors.'
In Domenico Cresti di Passignano’s 1619 painting titled ‘Michelangelo Presents to Pope Paul IV the Model for the Completion of the Fabric and Cupola of St. Peter’s’ there is clear evidence of the importance placed on the scaled architectural model. Michelangelo’s 1:30 scaled timber model is accorded pride of place as the central focus of the setting, with the composition reinforced through both Michelangelo – unmistakably dressed in black as would any good artist be – and the Pope both pointing towards the model with their right arms and index fingers extended towards the centre of attraction, a machine ‘for exploring, generating illusions, telling stories and, above all, making metaphors.’ And similar to the manner in which, in the early twenty-first century, UN Studio construct models large enough to allow people physical access within the spaces of their proposed projects, these renaissance models were built to sizes large enough to allow access for a head to be poked through a hole in the floor, or they would be constructed in sections, which when moved apart revealed the detail of the interior. In effect an attempt to bring time forward, to give the viewer an experience of what the future space may be.

Architectural models have predominantly been used as enabling tools, to give form to and communicate imagined futures. Acting as real-time substitutes for future propositions; they attempt to make futures tangible. Throughout the spectrum of architectural model types – which include ideas models, rough sketch models, development models, detail models, full-scale prototype models, presentation models and trophy models – the object/model is itself always a referent to some other thing: whether that thing is the thought in the designer’s mind or the completed project.

Other than for the occasional and rapidly diminishing designer-maker, the design industry is predominantly services orientated and segregated from the lines of production, so it is highly likely the act of making an architectural model will be the only time many architects/designers actually make three dimensional spaces. This
may well be one of the reasons for the perpetuation of traditional hand modeling practices within design offices, despite the digital revolution replacing drawing-boards and drafting machines with computer keyboards and monitors.

"For the space of the model lies on the border between representation and actuality....The model is always a model of. The desire of the model is to act as a simulacrum of another object, as a surrogate which allows for imaginative occupation."12
hands/making

hands

‘Architecture is also a product of the knowing hand. The hand grasps the physicality and materiality of thought and turns it into a concrete image. In the arduous processes of designing, the hand often takes a lead in the probing for vision, a vague inking that it eventually turns into a sketch, a materialisation of an idea.’

My research has actively engaged with designing by making with the focus on making by hand. Part of the discourse emanating from this aspect of the research concerns the role played by, and relevance of, making-by-hand in the early twenty-first century; a period in the evolution of civilisation characterised by industrialisation and the prevalence of machine-made goods and ‘synthetic’ environments.

According to Susan Stewart

‘(w)e cannot separate the function of the miniature from a nostalgia for pre-industrial labour, a nostalgia for craft….. Whereas industrial labour is marked by the prevalence of repetition over skill and part over whole, the miniature object represents an antithetical mode of production: production by the hand, a production that is unique and authentic.’

It is these qualities of uniqueness and authenticity of production which interest me: uniqueness through the knowledge of no one human acting or producing
in exactly the same way or manner as the next, and authenticity, by the fact of the making coming from human hands and not from insentient machines. The wonderful irony in the unstoppable flow of progress towards an entirely manufactured and synthetic global environment, rests in the escalating value humanity places on diminishing resources; and as manual skills and labour become more antiquated, so to will their value be apprehended and appreciated for the scarce and treasured resources they are. ‘The tradition of craftsmanship is clearly gaining increasing value and appreciation in today’s reality of the technological world, mechanical production, and the regrettable loss of the touch of the human hand in our mechanically mass-produced products and environments.’

Both Paz4 and Sennett5 remind us of the commonly overlooked fact of the normal existence of two hands, a pair of hands, similar to each other but opposite, and not the singular hand. In being opposite to each other there is a need for exquisite co-operation and co-ordination between the two, and as do the fingers work co-operatively to compensate for their individual inadequacies, so to do the hands; whilst one hand grips, the other works. So easily said, yet so dense in meaning. For me to make with only one hand is almost unimaginable. Special grips, vices and clamps can be nothing other than poor onomatopoeic substitutes. In this context it
is worth pondering the enigma of making drawings with only one hand. The actual sizes of these architectures have been determined by the immediate relationship between my hands, eyes and the materials ‘at hand’. They consequently bear a direct relationship in size to that of my hands; the size of one thumb, the breadth of my palm, a comfortable fit against the length of my thumb and three index fingers, the diameter formed from joining my thumb and forefinger and so on. In this context the work bears the direct handprint of its maker, and in so doing reveals through this human imprint, the unseen time and devoted attention invested in its making. That investment in time manifests a return by revealing the hand of its making, and in so doing the artefact can only but-be imbued with a residual energy as a consequence of this prolonged, intimate contact between the skin of the maker’s hands, and the surfaces that give form to their making. One may well consider the time of making, the time of “conversion into something”\(^6\). However inextricable this communion between time and praxis may be, it is not reason enough to assure poiesis/creative production; to quote James Corner ‘an important connotation of poiesis is that only through the sentient perception of tactile and creative activity – the actual work of making – can discovery and revelation occur, the longed for moment of disclosure.’\(^7\)

**techniques**

At all times my making has been directed towards the articulation of both space and its enclosing or defining forms, each being dependant on the other. Of most interest are the edges at which these two opposites meet, and in their meeting, shape their coming into being. If we postulate form as defined by its extremities, i.e. the limits of its edges, it follows that the shape of this edge signals visual clues necessary in understanding the nature of its form. I am interested in the shaping of these edges, and the relationships between edges made with directed intention, and those edges that emerge as a consequence of the method of their making; in my own making, this is exemplified through the techniques of working materials to their points of imminent and sometimes actual destruction, thereby producing
edge conditions that emerge through forces beyond my immediate control. In most instances, time is the determining factor of the quality of fabrication; time provides the resistance against which how far work – at all levels from conception to completion – may be taken. When to stop is equally as perplexing as the inverse case of the painter confronted by a blank canvas: where to begin? Richard Sennett’s discussion of the hand’s ability to grip may be analogous to this idea of resistance, ‘there is however, a problem about grips, especially important to people who develop an advanced hand technique. This is how to let go?’ When is it time to forgo one’s investment in the object and walk away, when do you stop and relinquish claim? With my making, resistance is at times literally the ultimate moment of material rupture, that point of intractable destruction, the precise moment it breaks. This is a moment of pure resistance, an explicit moment, and one which signals completion through an abrupt enforced ending to whatever actions are at hand. It is only through these explosive moments that body actions and material limitations are exposed, apprehended and captured by memory, with the knowledge gained through this knowing used to inform and refine future making. Through my research I am now able to answer a question I posed, some years ago; ‘how fine can a splinter of timber be pared back until the bonding forces of its fibres are exhausted with the resulting disintegration of its material integrity? As fine as the spirit is willing – if Willard Wiggins is anything to go by – and perhaps a little smaller than as small as I have achieved thus far. My making has also been shaped from a conceptual premise of redeeming architecture at the point of destruction or disintegration, through intimate concern for its interiority, evidence of which, is manifest in the architectures I have made – through at times, literally working materials to almost and actual destruction.
carving - releasing

Two opposing methods are explored in the shaping and hence articulation of space: carving space and enclosing space. The process of removal to produce interior space engages with an abiding idea that one of the most fundamental principles of architecture is the making of space for human occupation; solid form simply cannot satisfy this. In carving space, one works with a given solid by progressively removing material from the original to reveal an enclosing form containing space, the process of removal being able to take place from within and from without the original mass, ie the eventual form may emerge as a result of carving a form from a solid and then removing the interior mass to expose the object’s void space. Or conversely a void may be carved from a solid and then the material removed from the outside in towards the void. In both cases the process of removal is continuous until the separation between interior and exterior space is abruptly defined through the failure of the material, which to my eye, produce openings which have a sense of 'rightness'. A defining characteristic of the forms that eventually evolve from this process is the continuity of their surfaces; form is privileged over space.

assembling - capturing

In contrast, capturing and enclosing space requires points in space to be joined together through incrementally assembling handmade component parts, or those bits ‘found’ in the workings on my desk. Through the nature of its assemblage – this is a process of accretion – the form slowly emerges in response to gravitational and compositional demands; the inference being there are no preconceptions regarding the form that is to evolve, other than a knowledge something will emerge through careful engagement and refined sensibilities. Perhaps the most perplexing aspect of making through assemblage is in achieving that point of resistance which signals completion, and unlike making through reduction with its companion moments of rupture, assemblage may proceed unabated.
doodles

My designing and making through assemblage may have its genesis in, and be analogous to, my passion for doodling with pen on paper. This type of drawing has no embedded narrative and serves no purpose other than to satisfy an innate craving to put pen to paper in what begin as instinctual gestures. Forty years of doodling experience has taught me that my best doodles are made through a response to something that happens to already be there, whether a smudge, crease, or tear in the surface of the paper; a sense of immediacy and lack of contrived actions produce the most unexpected outcomes. It is, and therefore it has potential, and as such invites a response which may lead to an interaction that once again may, or may not elicit another response and so on and so forth until eyes, hands and intellect are satisfied; satisfaction being one of the most enriching forms of resistance as without resistance there can be no end to an unfolding project. In many cases my making may be analogous to three-dimensional doodling which is governed by a sense of composition, whether achieved through symmetrical or asymmetrical balance. Rhythm is achieved through the repeated use of particular elements which are not necessarily exactly the same in size or shape, and through contrasts achieved by the juxtaposition of different and at times opposing materials for example: transparency against opaqueness; robustness against flimsiness. Scalar shifts between elements and the use of differing areas of density, are used to induce not only contrast, but to enhance a sense of interest. Sometimes a conscious effort is made to obscure the clarity of detail in order to produce textured surfaces, with the hope of affecting haptic viewing.
serendipity

I would like to augment the above by addressing the idea of, and delight in serendipity, that “making of happy and unexpected discoveries by accident”. Serendipitous moments have been, and continue to provide, a strong influence both in the conceptualization and making of this work, whether through actions of my pets, gifts from others, unexpected conversations and references or destruction and breakage. For me, the serendipitous moment is possibly the most cherished of moments and also by far the most illusive. ‘It’ appears without announcement, agenda-less, yet charged with latency. The moment is heightened through the fact of its being, and the fact of the impossibility of attempting the orchestration of its coming into being. These moments cannot occur unless there is an intense personal engagement with the process/material in hand. It is through experience that one’s senses become heightened to facilitate clarity of vision to enable a virtual self-extraction from the task at hand, in order to arrest and acknowledge the significance of that which has transpired. This requires acute perception and a heightened awareness of ‘the order of things’ to be able to apprehend and identify those subtle shifts (sometimes dramatic changes) which may have occurred to offer further opportunities and possibilities.

tools

All my tools are small hand-held and manually operated, apart from an electric Dremmel and its assortment of sanding and drilling attachments. These tools include Stanley knives and cutting blades, scalpel knives and blades of varying sizes and shapes, various sized and shaped tweezers, small pliers, small scissors, assorted dentists’ tools with elaborately curved and subtly shaped tiny heads, eg scrapers and prickers, steel straight edges, plastic right angle triangles, solder-iron clamps and stands, sandpapers of varying grades, masking tape, pva and ‘super’ glues and most importantly a number 7 OptiVisor jeweller’s optical headset.
Juhani Pallasmaa describes the tool as "an extension and specialisation of the hand that alters the hand's natural powers and capacities." Whilst the usefulness of tools may be extrapolated from this comment, tools also act as impediments in the desired seamless and instantaneous resonant flow of information between all three active sentient participants in the drama of fabrication, hands, eyes and brain. Ashley Montagu describes touch as being 'the parent of our eyes, ears, nose, and mouth. It is the sense which became differentiated into the others'. This primacy of touch is manifest even at the smallest sizes to which I have begun to work, where more information can be passed and processed by 'feeling it' instead of being able to see it, a phenomenon I still find thrilling and astonishing. Richard Sennett says of touch '(it) delivers invasive, 'unbounded' data, whereas the eye supplies images that are contained in a frame. If you touch a hot stove, your whole body goes into sudden trauma, whereas painful sight can be instantly diminished by shutting your eyes.' The introduction of a mediating device between human touch and the material being worked with adds physical and cognitive distance between the two, distance which aggravates seamless, real-time communication. Making would still be possible without most of these tools, it would take longer and produce far more crude constructions and contain far less detail, reasons enough to cherish tools and celebrate our evolutionary dexterity.

"To feel is first of all to be aware of something or someone not ourselves. And above all else: to feel with someone. To be able to feel itself, the body searches for another body. We feel through others. The physical, bodily ties that bind us are no less strong than the legal, economic and religious ties that unite us. The handmade object is a sign that expresses human society in a way all its own: not as work (technology), not as symbol (art, religion), but as a mutually shared physical life."
On the audio cd 'Here Is What Is' Brian Eno, in response to Daniel Lanois’s comment regarding the film he is making – ‘that’s beautiful in itself, about beauty, about the source of the art rather than everything that surrounds the art’ – says he is sure people would be interested and find value in ‘how beautiful things grow out of shit………things come out of nothing, things evolve out of nothing, the tiniest seed in the right situation turns into the most beautiful forest and then the most promising seed in the wrong situation turns into nothing.’ In this simple articulation, Eno captures the essence of that which has propelled the making trajectory of this body of work. I would add from nothing comes nothing; implicit in Eno’s comments are the countless hours of application and dedication required to produce this forest from a seed.

Subsequent to the conclusion of my postgraduate studies I decided to satisfy my urge ‘to do’ by making something from the familiar materials I had at hand, something which was more tangible than the paper drawings I produced for examination. I had gained a great deal of satisfaction from re-producing the key drawing at full size, by etching its various layers into the surfaces of three sheets of glass. My postgraduate research uncovered for me the nature and potency of the artefact, and the value of the thing in itself, rather than a representation
or substitution for something else. But back to Brian Eno, what began as a means of satisfying my urge ‘to do,’ initially produced a small object, which may be described as a small model of a building: nothing much, if not just short of being the substance from which he claims beautiful things grow out of. This enigmatic small object is probably the genesis of my research which has spawned thirty six small architectures, each benefiting from its predecessor through the incremental growth in my manual skills, the discovery of new materials, and the growth in my knowledge and ability to intellectualise and articulate the research.

There are three distinct parts to this collection, comprising the main body of work produced through the duration of the research and two smaller preceding groups made outside this candidature. Up until the writing of this document none of the architectures have been individually identified as anything other than ‘untitled’. They have remained free from prescriptive narrative, desiring to remain material instead of metaphysical. For ease of discussion it is necessary to move on and name each of the architectures, in the hope of achieving a sense of closure through the implicit formality of nomenclature. The first group of five architectures has been allocated the numerals 1 to 5, followed by the next group of five, numbered 6 to 10, with the remaining group of eighteen architectures and eight plinths accorded names corresponding to the numerical order in which they were made.

2 M Design (Urban Design) at RMIT
3 Peter King 28 April 2003 “(the work) push desire to the brink of meta-physical meaning.”
Whilst this, and the second group of work, was not completed during the duration of this candidature, they have been included to provide a full record of making.

Maybe the simple fact of the limited amount of space I was working in, had an influence in affecting my decision to make at a small size, or perhaps it is due to the small sizes of the material debris which cluttered my workspace at that time of deciding to do something, there again it may be an ironic consequence of having – at that particular time – developed an acute affinity with the large scales at which urban design operates, and hence developed an appreciation for, and affiliation with, the very small sizes at which architecture is manifest on these maps. Whatever the reasons may be, they are of less interest than the development of this particular practice and its material manifestations.

What began as idle play – with a small block of balsa wood, a cutting knife, some sandpaper and because I am an architect, an idea of making architecture not readily in the image of architecture – soon evolved into a compositional exercise of achieving a balance between horizontal and vertical elements. Number 1 was completed with the addition of a few steel pin legs (because the material was
there) and tensioned cotton suspension cables. Not satisfied with the ‘spindly’
nature of number 1, and guided by an elusive, fuzzy mental image of a citiescape -
inspired by drawings I had made of ‘the city of discarded bits’ - I made a robust
composition from a number of carved balsa wood pieces with triangular shaped
bases tapering to points. In the attempt to enliven the composition through
contrast, two pieces of thin lead sheet were fashioned into tapering planes with
curved tips and attached to two of the balsa wood apexes, in a similar fashion to
the manner in which I would play with the folded, laminated silver foil paper used
as lining in cigarette boxes. A thin metal rod knits the composition together, whilst
providing a visual dynamic by piercing through the balsa wood elements and
emerging on either side as thin projections, cantilevered into space.

I realised part of my dissatisfaction with these two small objects rested in their
object-likeness. Through their solidity and impermeability they remained inert,
removed and inaccessible to me. They had no insides, no interior spaces, nowhere
where people may be, no intrigue, no soul. 3 was fashioned by carving two curved
and tapered balsa wood halves, which are held together by friction generated
through their penetration by two sharpened balsa wood pegs. The two curved
blades enclose a large internal space, occupied by a vertical tower supporting a
number of projecting horizontal planes; the architecture has been given space for
heart and soul.

Intrigued by the curved elongated triangular shapes I had carved from balsa wood,
I decided to fashion a similar form from a piece of sheet lead, which I had beaten
to an easily pliable thickness. Lead may be an easy material to work with; however
its appealing heaviness engenders problems when attempting to secure elements
in a vertical position. To help stabilise the curve and prevent number 4 from falling
over, an armature made from carved timber columns and vertical planes, was
fixed back to the inside surface of the lead, using small horizontal timber planes. A
few of the thin columns have been exaggerated in length to fly past the top edges
of the curve, one capped with a small leaden arrowhead shape.
Number 5 marks the appearance of what has become one of this research’s archetypal forms. Number 5 was carved from a triangular length of balsawood (rectangular block split in half on the diagonal along its length) which was shaped into a smooth, shallow curved surface at ‘the back’, with a concave voided ‘front’, diminishing in width to a pointed but rounded apex. A large horizontal slab of balsawood spanning the width of the front opening, and its supporting vertical wall has been carved from the balsawood. With the experience gained from making number 4, occupying this void seemed to be a seamless process, there was no reason to question what had ‘worked’ before, why should it not work now? Similarly the heights of a few of the vertical columns have been exaggerated to visually thrust beyond the balsa wood’s profile.

By penetrating beneath the surfaces of the solid forms, and by making and revealing the space of their interiors, these mute objects have been encoded with different meaning. They now attract a different type of attention, what may have been a view from afar has been transformed into an engagement with the inside and the outside; being in and looking at.
6

Number 6 is the final incarnation of number 4; 4 is now a resurrected memory, kept alive through text and a single image. Number 6 has provided the ‘home’ number 4 originally lacked, and had since been seeking, 6 has an interior within an interior. If number 5 can be seen as an archetypal form, then number 6 offers up a refinement of the external carved balsawood form, by elongating the body from the base to almost two thirds of its full height, before unevenly tapering inwards to culminate in a rounded crown; the outcome of which is to my eye, a more slender and elegant looking form. The balsawood has been carefully worked to ensure continuity to the enclosing surface which, apart from a small rupture in the surface on the upper right hand side, has maintained its integrity and remained intact. By removing almost half of the balsawood surface, an asymmetric opening has been crafted, defined by the unbroken, sweeping curved line of its edge. In shaping the large opening, a greater sense of enclosure has been achieved by keeping the opening lower than full height, and by doing so, maintaining the surface from above the opening’s apex, to the ‘tip’ of the rounded crown. Minor bending adjustments were made to number 4’s curved lead sheet to enable a close and comfortable fit within 6’s curved interior space. The scalar perceptions of number 6 fluctuate between readings of it being at a domestic scale and a rather large building.
Number 7 emerged from a larger block of balsawood, cut length wise on the diagonal to give a broader face from which to carve out an opening, and approximately equal in length to the width of the palm of my hand. Consequently the plan form is an uneven sided right angle triangle with two solid sides meeting in a rounded corner, the missing diagonal side forming the space of its ‘opening’. The balsawood has been worked to subvert the right angle by producing one smooth continuous surface, which subtly tapers in width towards its gently domed crown. Exuberant sanding destroyed the top left half of the ‘opening’ and its intended symmetry, yet it simultaneously engendered the ‘opening’ with a more interesting enigmatic quality. A partially eroded foreign looking ‘sculptural’ appendage appears to be incongruously lodged a little behind the upper right hand side of the opening. Within the form, part of the balsawood has been retained to form a thick humped slab, spanning the breadth of the opening at about three storeys high above ground level, and set back slightly from the opening. On axis, just below the apex, another large bulbous portion of balsawood has been retained and shaped into smooth curved sides with a flat face; its mass establishing a dialogue with the empty contained space within the empty ‘sculptural’ extension. With the interior void confined to the shallow embrace of its enfolding edges, occupying this relatively narrow space soon transformed into an escape from its confines by treating the enfolding balsawood surfaces as a backdrop against which the drama of the intervention takes place. The intervention was incrementally built up following no specific logic other than to work from the back wall outwards, using finely carved and sanded timber columns and different sized and shaped vertical and horizontal planar elements.
Inspired by the countless number of circular brick chimney stacks dotted across Melbourne and its inner suburbs, I decided to make architecture more in the image of a tower, than the tall buildings I had been making. Number 8’s tapering tubular form was first carved from balsa wood and then hollowed out leaving a continuous, thin, wood-skinned container. Carving was made easier having clear access to the interior material from two opposite and unrestricted ends. Through its ragged top-edge profile and the ruptures scattered across its surface, doubt is cast whether the tower is in the process of coming into being or whether it is crumbling and about to collapse. By optimising the void space made by a large fracture at the tower’s base, an entrance has been elaborated with a projecting dynamically pointed canopy. A dense cluster of individually carved and sanded timber columns, some more elaborately detailed and articulated than the others, explode out from the top of the tower. This cluster is joined together and in-filled with different sized and shaped, horizontal and vertical timber planar elements. Number 8 is undoubtedly a very tall tower.

Number 9 borrows from, and elaborates upon, the lessons learnt from making numbers 5 and 7. The form has been carved from balsa wood to produce a triangular shaped base with rounded corners, which tapers unevenly upwards to end in a rounded crown. On the left side of the apex half of the edge of a hollow chimney-like elongation has been eroded away to connect with another gaping hole in the balsa’s dome-like surface. A large balsa wood arch has been carved out at the base together with a deep vertical niche on the right hand side which becomes part of a thick upper level slab connecting back to the balsa wood’s interior surface. Another carved central vertical pier rises from the slab parallel to the edge of the niche terminating at its junction with the over-head slab.

A formation of very long and pointed finely carved and highly polished columns,
spill out from the interior to randomly occupy the balsawood form's anterior space; the exterior becoming the interior, the interior becoming the exterior. These columns have been horizontally connected one to another, and back to the balsawood form with smaller carved timber beams. Whimsically shaped small hollow containers – interiors within interiors – carved from cuttlefish bone and timber, have been randomly located and connected to the columns, which also support a few scattered cuttlefish shell and timber floor-plates.

There is something to be said in favour of iterative processes. By the time one is around to the third iteration, skills have moved past a developmental stage and are now being honed to finer level of craft, which is in turn, an empowering of the maker to better articulate intent. This has been manifest in 9, where a higher level of craft has delivered a more crisp appearance; the points are longer and sharper, the towering columns more refined in their embellishments. There is military regimentation in the near perfect, ninety degree vertical alignment of the carved columns; the composition has a sense of tight control. Unfortunately, stiff formality is the usual companion to pointy crispness, and in 9's case this may prove to be the case.

10

Number 10 is carved from a single block of balsawood and comprises both tower and plinth, making it unique amongst all the architectures in the collection, as all are singular entities, and are, in ninety five percent of the cases, vertical constructions. 10's tower is a complex twisting form, beginning from a flat surface forming the interface between tower and plinth, it transforms into a distorted, round shape, terminating in a flat and even edge. A forest of finely carved, pointed and polished columns bursts from the apex, to act as support for a scattering of the remains of cuttlefish-shell floor-plates and cuttlefish-bone enclosures – the remains of what may have once been a magnificent existence. This decrepit appearance is reinforced by the severe damage inflicted to the body of the tower, where large sections of wall have cracked, and caved in towards the central void, and at the
base, narrow jagged cracks separate the undulating roof surfaces. 10 is in a state of decay, its interiors almost vacant and its structure slowly crumbling.

At ground level, the accommodation is extended beneath a series of double-curved intersecting planes. Finely crafted pointed, timber columns and beams support the infill cuttlefish-shell slabs; their lengths have been exaggerated to add visual dynamic tension by projecting up, and out beyond the enclosing balsa wood surfaces.

At the completion of 10 I decided not to make another of these towers, as their small diameters and elongated bodies limits both physical and visual access to their interiors. I also surrendered to the difficulties of making more of the city than an individual building – of constructing a physical context for the architecture – and took the decision to make the architecture the site in itself.

All five architectures are encased in glass, and are located on their individual, cast plaster of Paris plinths, some of which contain exposed archaeological excavations, located deep below their surfaces.
eleven was carved from a solid block of balsawood; the resulting form emerged in response to a desire to carve a form similar in shape to 6; more simple, closer to ‘the archetypal form’. The continuous enclosing/exposing balsawood surface was worked - carved and sanded - to produce a crescent shaped enveloping surface, narrow at the base, swelling to its full diameter at approximately one third its full height, then parabolically diminishing in size towards the apex, which is a smooth rounded surface with no ending nor beginning. This diminished surface area almost fully exposes the interior space.

Unlike 8, the interior surface is less articulated however three slim, diminishing buttresses provide structural strength to the thin balsawood shell, whilst also demarcating a series of vertical spaces within the enclosure. Apart from the expansive opening in the front a few other interior/exterior connections have been made through the inadvertent rupturing of the surfaces being worked on; irrespective of working from within, or from the outside in. These serendipitous catastrophes provided unexpected openings and the opportunity to explore ways of dealing with these interior/exterior connections.

A fascination with the material possibilities of cuttlefish-bone is explored; this plays
materials: balsa wood, pine, bamboo, red gum, jarrah, cuttlefish shell, cuttlefish bone, crab claw, thorn tree thorn, clear nail varnish, pva glue

height: 80 mm
base length: 48 mm
base width: 32 mm
aprox. middle: 58 mm - diminishing
a major role in the making and ordering of its interiors. The internal cuttlefish-bone, unlike its solid, hard outer shell is made up of countless calcareous layers of fragile, yet workable surfaces. This type of structure has the potential to produce highly complex curvaceous forms, described through the simple repetition of layering many varying/yet similar planes, of exactly the same thicknesses, one upon the next. This has many associations with the way in which architectural/landscape architecture site-contour models are made, or the manner in which complex curvaceous forms are made/imaged in the virtual environment, through a digital construction of many layered ‘three-dimensional’ layers/sections, to produce any desired form.

My interest in challenging the material’s structural limits resulted in working down to the limits of the thickness of a single plane; however the manageable tolerances of working with cantilever-effects become almost minimal. In order to maintain the appearance of structural integrity beyond this point, it is necessary to strengthen the surface through an application of a continuous, yet transparent membrane; easily done through the application of a continuous layer of pva glue or by using transparent nail polish. The material’s lack of tensile strength demands utmost caution in handling. There are moments of exquisite anguish, when through the slightest happenstance the inevitable re-arrangement of what I had been working with takes place. Fragility gives way to instant crumble; the moment passes with one unable to exercise the slightest control over events and the way things turn out. As the consequence of a few of these moments of rupture, the ‘finished’ size of the prominent vertical cuttlefish-bone plane ended up three-quarters its intended size.

eleven offers an explicit example of the profound influence simple tools have in the complex acts of making. The purchase of two small soldering clamps provided a third and fourth thumb and forefinger. The fact of a small device with the ability to hold something in almost exactly the same place, for an extended period of time, opened up a world of new possibilities. Banished forever were those long, and most times, tedious moments wasted waiting for the glue to dry. The clamps
provided a necessary enabling mechanism with which to physically locate, and hold in place one complex surface relative to another; these vertical surfaces are also made from cuttlefish-bone. Individual triangulated lattices made of fine timber members make the junction between cuttlefish-bone planes and the balsa wood surface of the enveloping form.

A rhythmic relationship has been fabricated by juxtaposing the white, vertically positioned crab claw shell against the white, planar qualities of the cuttlefish-bone. Both claw and bone have similar qualities of diminishing form made possible through repetition; diminishing spherical shapes in the case of the claw and diminishing planes in the cuttlefish-bone.

A means of assessing a relative human scale of the artefact is provided through the introduction of horizontal planes. These vary in size and are randomly shaped. They occupy a small portion of the interior space and are mainly located in the lower half of the void space. An inevitable visual scaling device is provided through the introduction of a horizontal plane and its associations with the possibilities of it being a platform for occupation; ours is a species most content, and at home, on a flat, horizontal surface. With a datum established at the perceived ground plane, it is possible to imagine human scale relative to the location of a horizontal plane. We predominantly measure ourselves relative to the vertical, yet our performative arena is almost entirely horizontal, held captive by unforgiving gravity.

The cuttlefish, possesses a degenerate internal shell composed of lime, which is popularly called cuttlebone. Within the narrow spaces between the thin septa of the shell are fluid and gas (mostly nitrogen), which give the organism buoyancy. 
http://encyclopedia2.thefreedictionary.com/Cuttlefish+bone
twelve was also carved from a block of balsawood, but unlike eleven, the manifest form has a more coherent and continuous balsawood surface. Beginning from an almost circular base the form is pinched in at the base, swells sharply then gradually enlarges to its greatest diameter at approximately one third its full height; gradually diminishing from there towards a smooth and curved apex. Over exuberant sanding resulted in the unexpected separation of the apex from its shaft; a moment of pure resistance, the sanding abruptly ended. This provided the impetus for the first moves to re-occupy the void, which involved re-instating the integrity of the void space by re-connecting the apex to its shaft, whilst simultaneously maintaining the continuous gap created by the missing material, and maintaining the integrity of the smooth curved profile of the artefact. Ultimately twelve conceals more than it reveals.

A singular perforated form is held in place by stiff triangulated slivers of wood, finely sanded to achieve very thin members. Half of the void in the apex is entangled with a maze of these thin finely worked pieces with pointed ends. An attempt has been made to present many layers of visual data in the hope of establishing visual ambiguities; the entangled maze of support – which is almost totally confined to the interior space, with minimal projections past the balsawood surface – may be
materials: balsa wood, wood boer infested floorboard, bamboo, red gum, jarrah, thorn bee thorn, pva glue

height: 113 mm
base length: 50 mm
base width: 42 mm
approx. middle: 56 mm - diminishing
understood as providing the armature for the construction of a work in progress, or in another mind there may be an imagining of this architecture in a state of decay, held in place through the virtue of its elaborate scaffolding. It is hoped these visual ambiguities may invoke enough tension to open a space of dialogue between the artefact and its viewers. The image I held in my mind of what this intervention might be, was inspired by a Brodsky and Utkins architectural drawing; an idea about an extreme exaggeration of the number of structural elements required to do the job. Doing the job of what, became interesting. Are they holding up the space during construction, keeping it in place because of its precarious state or simply filling the void, the stage for something to come? On very close inspection, under the skin of the right hand side of the form’s apex, a density of finely carved members is visible. (Perhaps thirteen is more successful in approaching the levels of ordered density contained in Brodsky’s and Utkins’s drawings.)

twelve is autobiographical; through the incorporation of large, slightly curved and very pointed thorns collected from my place of birth in Estcourt, South Africa, and a shard of wood borer infested floorboards, removed from my home in Northcote; connections are established between continents. At a subliminal level, there is a strong resemblance in twelve’s curved form to some of the wattle and daub structures constructed by many of the indigenous people in southern Africa. The solid shard of perforated floorboard has been worked to remove an immediate visual recognition of the material, in this instance the shape of floorboard has been manipulated to form a rounded shape with diminishing edges and sharp curved ‘pinnacles’. Intricate labyrinths of spaces have been carved throughout this solid. Two different methods of space making, processes of removal, and additive infill, held in tension within the embrace of its balsawood surfaces.

As with eleven, twelve is forever encased in a sheath of glass, entombed on its plaster plinth. One area of the face of the plaster plinth has been excavated to expose another perforated timber shard, together with a number of long thin timbers, deeply embedded into the plaster. More and different signs of
construction, space making and inhabitation: this excavated one, burdened by the oppressive weight of compression exerted by the solidity of its surrounds – a totally interior environment. Hopefully, twelve as an artefact, offers some dialogues of space making and inhabitation that may be provoked by its visual and material abstractions of their commonly understood identities. It may also provide other provocations through its enigmatic scale.
thirteen was also carved from the same block of 50 x 50 mm balsawood which yielded both eleven and twelve. I decided to exercise a restraining hand and reductive eye in order to produce a more refined form, one more slender and hopefully more elegant in shape. To this end great care was taken to ensure the integrity of the continuity of surface area over the whole form. Particular care was taken with the balsawood thickness forming the apex to crown area over the large elliptical front opening. This area has always proved difficult to work with, especially in reducing the material thickness of its two-way curved surface; it is prone to fracturing without warning, and hence the dimension of this area is very limited in most of the carved artefacts. Part of thirteen's visual elegance may be attributed to it appearing to be an unblemished and complete form. Up until this point, the mode of making had been predicated on working the material to the limits of its material integrity by allowing the moment of material rupture to dictate completion.

thirteen has the most slender proportions of base to height. Starting from a small, approximately circular base, the diameter gradually swells to its full dimension at a point approximately two thirds of its full height. Apart from the large front opening, there is a single oculus-like penetration of the balsawood thickness on the rear of
materials: balsa wood, wood borer infested floorboard, pine, bamboo, red gum, jarrah, pva glue

height: 116 mm
base length: 42 mm
base width: 42 mm
approx. 2/3 height: 54 mm - diminishing
the form. In places within the void the balsawood skin has been left thickened, and expressed as a series of feather-edged buttresses which also give the shell greater structural integrity.

The form is smooth and immediately legible, the interior interventions are completely contained within the void with nothing projecting beyond the balsawood surface, making the artefact easy to handle, and a comfortable fit in the cupped palm of a hand.

The void space has been occupied by a composition of three polished, perforated timber shards, held together vertically by a dense and intricate construction of triangulated scaffolding, made from long thin polished slivers of timber. All attention has been focused on locating these long and pointed solid shards in vertical positions - perpendicular to the ground - within the void relative to one another, and to the vertical thrust of the encompassing surfaces of the form.

The necessity of providing a structural armature to hold the shards in place, also offered a mechanism to address the vertical visual bias of the composition. An attempt was made to develop a hazy visual field about the verticals, by completely exaggerating the number of members necessary to hold the shards in place. This was complemented by the necessity for diagonal bracing or triangulation, which added another layer to the visual density of the interior intervention. Unlike the intervention in twelve - in which the pointed timber slivers differed in lengths - this structural armature has been predominantly made from uniformly sized, smaller members with a few longer members.
Up until this point I had been working from a natural assumption of the need for the architectural artefact to have its companion plinth-place-maker, an emphatic block of white solidity providing a stable connection with the earth, whilst establishing a specific elevated place upon which to locate the artefact. At a fundamental level these plinths provided the actual physical and spatial contexts in which the artefacts exist. And in many cases the embedded archaeological sites located in the plinths reinforce this connection through their strong material resemblances and formal associations with the artefacts sited above them.

This group of plaster of Paris castings are the conclusion of a certain phase in my ongoing dialectic concerning the plinth and the architectural artefact. It took a few years to realise neither of the two bore any dependence on the other for the necessity of their being. With the presence of the architectural artefact removed the plinth itself became the site of investigation – and at a later stage, vice versa.

The plinths’ form has been derived from the geometry of a platonic solid cube and is based on a simple 1:4 vertical extrapolation of a cube, with dimensions 110mm x 110mm x 110mm. Six of the same cast blocks of plaster Paris, the same repetitive process of making, the same ideas, form, dimensions and materials produced.

**Materials:** plaster of Paris, pine, bamboo, meranti veneer, toothpicks

**Dimensions:**
- Height: 480 mm
- Base length: 110 mm
- Base width: 110 mm

**Additional Details:**
- Height, including glass and base: 635 mm
- Plaster height: 470 mm
- Plaster base: 110 mm x 110 mm
- Timber base: 120 mm x 120 mm
six completely different outcomes. Though the differences in the thickness of the void spaces and the irregularity of lines defining the edges of the solids may be very subtle for the eye, they are none the less enough to imbue each artefact with its own unique appearance. Out of the six, four have spent varying lengths of time outdoors. They are consequently markedly different from one another in the colourations and textures of their weathered surfaces.

Using the plinth as the actual site of investigation, its solid mass has been interrupted by a dark void, held into being by hundreds of thin finely carved timbers in a state of extreme compression from the load of the mass pushing down from above. Through a contrast in their scales a tension is established between the massive solidity of the plaster and the thin dark slices of space. Several serendipitous events have ensured a fine tuning of the visual metaphors signalling compression, with a number of the fine timbers actually buckling under twisting loads, instead of direct compression; their bent forms in stark contrast to the vertical thrust surrounding them. However to achieve the appearance of the impossible, clear plastic Perspex rods have been cast into the plaster to provide sufficient structural strength to carry the imposed loads.

Four of these pieces have been exposed to sun, wind, rain, animals and insects for prolonged periods of time. They have been partially buried in the earth to allow uncontrolled natural erosive processes to take place. All surfaces have been stained and discoloured with many surfaces eroded to varying degrees. As a result, a record of their history is now etched into their surfaces and embedded within their slices of dark space.

Irrespective of the perceived impossibility of such fine members holding up the load of so disproportionate a mass, the objects maintain a aloof silences.
twenty-twenty one

Both were cast from the same mould previously used, but instead were inverted, the slices of dark space now occupying positions closer to the ground and bearing the load of the greater length of the shaft. The number of timber members used to ‘withstand’ the enormity of the force of the load, has been reduced to a minimum with the effect these spaces appear to be lighter and less ominous, perhaps due to their relative visual permeability; in places one is able to see through entire spaces to the other side.

The devastated and dilapidated state of the timber structures within the void, bear testament to the fragility of human inspired construction against the destructive effects of tremendous natural forces. Both spaces have at some time in their histories, been the stages upon which the enactment of flourishing insect life has taken place; all that remains are the detritus of what was once a thriving community. On their surfaces both pieces carry the deeply ingrained traces of their burial in the earth, each differently stained and coloured.

Unlike the previous castings, twenty and twenty one have been entombed in sheaths of glass. They are held frozen in time, elevated up upon their self contained plinths; they encapsulate the conclusion of my use of plaster of Paris and the process of casting.
twenty two

There is a mature large leaved plant growing in our neighbour’s front yard forming part of the boundary between the two properties. In the aftermath of rare seasons of good rain this plant produces flowers and fruit and as part of these elaborate processes discards a thick layer of leaf (pod) which has provided protective cover for the developing flower buds. Some of these discarded pieces had familiar shapes and provided spaces similar to those in the carved pieces I had been working with. The resonance between the two is reinforced through their mutual engagement with ideas of enclosure, accommodation, protection, interior/exterior and skin.

twenty two is distinguished from the remainder of the work by being the first work to make a found object its starting point. Not any found object, but an object sourced from nature, an object completely free of the signs of having been formed by human thought or hands. I have used the end portions of these dry pod-like forms, keeping their original exuberantly curved edge profiles intact. Apart from sanding their surfaces and trimming the horizontal edges – to attain vertical alignments – their finished state is almost exactly the same as the state they were in when found. With twenty two, a pod has been re-imagined by cutting off the part once connecting it to its host plant, and re-locating this piece, in an inverted position.

materials: pine, bamboo, red gum, jamah, meranti veneer, sea weed pod, elephant-ear pod, gold leaf, nylon thread, pva glue

height; 150 mm
full height, including glass and base; 347 mm
base length; 115 mm
base width; 65 mm, maximum width @ 1/3 height; 125 mm – diminishing
timber base; 150 mm x 150 mm x 172 mm
within the space made by the sweeping curls of the pod’s inner surfaces. Ideas of tension, and the visual/material manifestation of this, are explored in reclaiming the space as a site for the construction of design and spatial dialogues. The resulting re-occupation of this space produces the space for dialogues between the curvaceous enclosing skin and the profusion of very pointed thin slivers of timber, creating their own pointed spots of visual intensity where they meet in the void space. Another visual tension is established between the seemingly large and heavy mass precariously suspended within the void space, its mass and flaring surfaces projecting a forward horizontal thrust in contrast to the vertical sweep of the form’s surrounding surfaces.

An intricate highly exaggerated array of structure is constructed to hold the large mass in place, whilst simultaneously maintaining the vertical stability of the composition. Twenty two signals a significant shift in the skill of making, a shift from the predominant alignment of structural members relative to each other according to a linear Cartesian system, to the ability to locate a point in space and connect to it with a structurally stable system predicated on structural triangulation.

Ideas of decoration are played with by covering the lower interior surfaces of the pod with small projecting planes of timber. The space is charged with thickness through the visual texture generated by this multitude of coloured planar areas, complimented by the shadows cast by each one.

There have been no changes made to the pod’s physical appearance. The changes that have been made are those regarding the perceptions one may have about its visual transformation. Its appearances have been transformed through the change in scalar relationships between the existing form and the small pieces used in constructing the intervention.

These abandoned space-making shells opportunistically provided actual sites
through which to explore the redemption of architectures in states of degradation, through the rejuvenation of their interior spaces; the possibilities of providing new life to that which has been cast aside. The pods have been given extended lives through the time and the energies of engagement poured into them; their status as useless and not wanted has been transformed into space-making mechanisms sparked and fuelled by the power of the imagination.
Whereas twenty two relies upon the use of a single natural organic form for its making, twenty three is composed of a fabricated artefact joined together with one of the pods; the artefact intentionally carved from balsa wood and polished by hand, the other a circumstantial organic remnant, the by-product of natural processes. Bringing these two forms together is made conceptually possible through their formal qualities and their capacities to evoke intellectual associations with architecture, interior space and inhabitation. The bringing together of these forms is made through the embrace of one with the other, a comfortable manifestation of both forms and their void spaces within the same space.

Their actual physical co-joining is made by the insertion of a three dimensional grid structure – crafted from finely carved and polished lengths of timber – attached to the balsa wood’s exterior surface and the pod’s inner surface. To the right side of the balsa wood’s large opening the edges of both material surfaces have been connected to each other. This connecting system is a refinement of a technique in making glued structural connections between points on one surface with points on another. These surface points have been articulated by gluing tiny, projecting carved pieces of timber onto the selected points, thus defining the
materials: balsa wood, bamboo, red gum, jarrah, seaweed stem, elephant ear pod, nylon thread, pva glue

height: 132 mm
full height, including glass and base: 347 mm
base length: 88 mm
base width: 49 mm, maximum width 58 mm @ 1/2 height - diminishing
timber base: 150 mm x 150 mm x 172 mm
extent of their glue-able surfaces by their raised locations. Glued connections have then been used to fix a system of rigid finely carved timbers between these points, complimented by fine bamboo shards and nylon cotton used for diagonal connections.

Belying its sparse surface appearance twenty three contains intricate detail, some of which at first glance is unrecognisable apart from being a smudge of visual activity. On very close inspection different shaped surfaces have received different modes of treatment, the ragged natural edge stitched back with a fine matrix of elements whilst the smooth curve of the balsawood surface is followed by a continuous curving carved seaweed stem. At approximately midway full height it is sliced through by the detail of what was previously a smudge of visual activity and now proves to be very fine shards of bamboo used to make the actual physical connection between openings in both material surfaces. The geometry of their fabricated relationships is made visible through the nature of the systematic mode of connection/construction between identified points; a complex distorted void space describing the transformation of the shape on one surface into the shape of another on a different surface. Similar connections have been made between two other pairs of dissimilarly shaped and sized openings.

twenty three’s carved balsawood form is a refinement in the shape of the carved form previously epitomized by thirteen’s shape. The form flares rapidly for a small height from its almost two thirds of a circle shaped plan, then rises gradually and gently to one third its full height from where the diameter swells to its largest size at approximately half its full height. From here to its culmination at the apex in a smooth rounded crown, the diameter constantly diminishes whilst maintaining its overall shape. A larger than anticipated opening has been made through the inadvertent removal of too much material over the left hand side of the crown area. Serendipitously the pod’s shape provided a matching area, which through their co-joining describes the limits of a larger void space described by the edges of both materials. Two vertical projecting buttresses remain from carving out the
void, the largest with an arching overhead crown located on the central axis of the symmetrically curved form.

twenty three projects a certainty in its scalar coherency which makes it possible to easily form an imagined body relationship to the scale of the architecture. This is unlike twenty two which has the ability to slip between being imagined as a small two volume architecture, or one large enough to accommodate a crowd. Through the use of an easily identifiable grid-like structure, this imagined architecture will more than likely be either twelve/thirteen stories high, or twenty six or thirty nine, but seldom will it be imagined as a single storey structure; the grid demarcating the height of its architecture in one thirteenth increments.

twenty three is also held captive within an enclosing space of glass, its natural decay arrested through its hermetic entombment.
twenty four

twenty four is the first of a small group of four artefacts whose fundamental making processes differ from the others in the collection of artefacts. I had been thinking about how to make architectural space in a way that was fundamentally different from the way I had been working. Up to this point space was made either through processes of removing material from solid blocks of balsa wood, until the architectural form made from the remaining material reached a desired shape containing interior space or by working into the spaces of found organic objects; both processes predicated on the need for an immediate existing architectural form. What if in this instance my processes of making where inverted and instead of intervening with/within a continuous whole form, that form was literally removed and space was made through additive processes which would involve the assemblage of materials/surfaces?

This was a seminal moment in my production of spaces. Up until this point I had been guided in my making both through the material’s properties and their resonances with my hands/tools, and a very fuzzy image of the form I intended to produce. Naturally this image would be influenced by the size and shape of the balsa wood block and an imagining of a form that could possibly emerge from the material given its dimensions. In attempting to make another of these artefacts...

materials: red gum, jarrah, seaweed stem, seaweed pod, cuttlefish shell, sea-urchin spine, pva glue
height: 92 mm
base length: 40 mm
base width: 35 mm
maximum diameter 74 mm at 2/3 full height
small architectures through constructing spaces from the assemblage of material surfaces, that very fuzzy mental image was reduced to a blur, as there were too many possibilities to imagine the singularity of any form that would emerge from these actions. More significantly it was impossible to prefigure what size the completed artefact would end up being.

There is not a single memorable moment where a decision was made to work exclusively with cuttlefish; this emerged as a natural consequence of my interest in the material properties and aesthetic qualities of the shell and bone, with which I had begun to work with greater confidence. If the size were small enough, it would be possible to find a single piece of a shell to do work within, but at that time I was neither thinking of, nor capable of actually working with such small sizes. Cuttlefish shell and bone’s brittle properties imbue it with the potential to fail catastrophically without forewarning, making it unpredictable to work with; yet the material is simultaneously capable of producing exquisitely shaped curved planes from these moments of destruction; destruction, the genesis of form. In many ways the shell’s material properties are the converse of those of balsa wood.

Vertical planes of shell have been used to capture space and define a form whose shape has vague resonances with the forms I had been working with – of whose shapes have direct correlations with the size of my hand and their fit therein. In each case throughout the duration of their makings, they had been touched and held fast by hand and known through the direct contact between skin and wood. However by making through addition and assemblage, these intense and intimate hand/material relationships were disrupted and replaced by the use of inert and unthinking metal clamps. twenty four was not easy to work with and remains cold to the touch, and very awkward to handle. By virtue of the tiny amounts of glue used to connect the very small surface areas of contact between lines and points on planes, the structure is very fragile with a low compression threshold. An exaggerated system of cross-bracing – made from slivers of timbers – has been made in the effort to provide as much rigidity to the structure as possible. The
nature of the thin edged and complexly curved shell determined the method of making, which involved treating the curved vertical elements as discreet and separated overlapping surfaces, connected together by a network of finely shaped timbers. This process is repeated from bottom to top and from outside to inside to produce a collection of layered spaces, encircling and defining a large exposed void. An examination of twenty four’s form and plan reveals an underlying spiral structure with strong associations to some forms found in nature.

Upon reflection it is clear these processes are a direct description of those used to construct our physically habitable architectural spaces. Not since humans were living in caves, and excluding those living in tents, have we – the majority of people living on this planet – inhabited spaces formed from continuous material surfaces. In the norm, the production of architectural space is predicated on the assembly of parts; the joining together of materials/surfaces in an accumulative process to ultimately produce completed forms and their spaces. One may argue the idea of completion has the implication architecture reaches a stage of stasis upon the completion of its construction, but this would deny the reality of the time, energy, and extra materials required for the maintenance of its material condition over the duration of the architecture’s life-span.

Of all the artefacts, twenty four has the most chequered history, one encompassing unknown travel and surviving episodes of near catastrophic destruction. Half of twenty five and a complete twenty four – cushioned in the safety of their container – were left behind on a ticketing machine at the local railway station whilst en route to the city. After more than a week they were returned by a reward seeking stranger, still resplendent in their box with the rough life they had lead on the road writ large across their re-arranged surfaces. Twenty four was restored and twenty five completed.

In an attempt to move the visual recognition of cuttlefish shell beyond associations with seaside shell souvenirs, the shell’s visual appearance has been altered by
scraping away the soft bone from the hard surface of the shell, leaving behind thin regular lines of bone, running across the surface in varying thicknesses. Approximately five years later, the majority of these surfaces had either developed cracks, or sheared in failure as a consequence of their surface tensions being disrupted by scraping away the soft bone. During its second rehabilitation to arrest this cracking, part of twenty-four was crushed beneath a fallen table lamp, instantly transforming what began as acts of preservation, into those of salvation. Acknowledging the impossibility of re-creation, the opportunity was exploited to add a further layer of finer detail, to contrast with and interrupt the broad expanses of shell surfaces. The cracks have been camouflaged by an exaggerated use of sea-urchin spines projecting out at ninety degrees from the curved surfaces, providing the additional structure and strength required for stability. In this instance decoration is constructed and is a material part of the structure. This is dissimilar to its use in twenty-two, where material has been applied to a surface for the decorative purpose of providing texture and a scalar shift in the materials composition. What was twenty-four continues to have a presence through the use of its image on the cover of the first book published in the Homo Faber series.
For some time into the research I was perplexed by the nomenclature being used to discuss the artefacts I was making. I was uncomfortable with the use of the word miniature, as the word contains too many associations with the idea of there being a larger sized meta object upon which the smaller sized version is based, and to which it owed its existence. This work is not about representation; its contestation is the small artefacts are at their exact full size and are in themselves the architecture. I decided to work with the verb miniaturize and miniaturized the area I was working within, in an attempt to produce similar enigmatically scaled artefacts, but at much smaller sizes; what if I compressed that space down to smaller dimensions?

With twenty four recently completed and emboldened by my familiarity with the making process, I decided to test this proposition and work with smaller sizes at a smaller scale. Hence twenty five is approximately half the height of twenty four with a footprint three quarters of its size. A limited palette of materials has been worked with based around the main use of the young cuttlefish shell, chosen for its distinctly pink colour, and the small dimensions of the diameters of its curved surfaces. By playing around with the material it was possible to cut a continuous line, tracing a curved shape on the surface of the front edge of the shell, yielding a boomerang shaped surface with very complex geometries of multiple curvatures. This was a

- **materials**: bamboo, red gum, jarrah, seaweed stem, pink cuttlefish shell, pva glue
- **height**: 37 mm
- **base length**: 21 mm
- **base width**: 20 mm
- **maximum diameter**: 37 mm at 1/2 full height
completely new form although it fit comfortably within the range of curved shapes I had been working with; consequently these sweeping boomerang curved shapes have a significant influence in shaping the overall form. There are resonances between the profile of twenty five and the general shape of the other artefacts, through its oval shaped plan and vertical rounded form, rising and swelling to its maximum diameter then diminishing in diameter towards the apex.

twenty five continues my exploration into making by/through addition, and speculates within a scenario where the hegemony of a ‘pre-existing’ architectural form has been eliminated. What if the interior were made first and the exterior form were to follow as a natural consequence? Could an interior pre-figure its exterior? Answers were forthcoming almost from the immediate start of my making. Neither of the two, interior or exterior is exclusive of each other. They exist through the existence of one another and come into being as a negotiation between each other, with the implications of the need for two identities. One cannot be without the other, as manifest through the simple act of making the most fundamental physical space; there is no interior without an exterior condition.

Perhaps the formal differences between twenty five and twenty four are due to this distinctly interior thinking. In twenty five, by beginning from the inside and working to the outside, a self contained inward spiral has been produced, in contrast to twenty four which manifests as a spiral opening outwards, one captured moment in its evolution of form. Another difference is in the treatment of the vertical planes as individual elements and not as part of a systematically layered envelope. These are attached to a vertical armature of fine columns by a network of finely carved slivers of timber and bamboo. This supporting skeletal structure is far more pronounced than before. It becomes an element in itself, separated from the main body of the enclosing surfaces. The artefact has a tendency to appear to hover above the ground due to its mass being elevated above the ground plane, with the actual connections to the ground made as points through many fine columns.
A similar method of making has been used which is reliant upon a jointing system consisting of small projecting pieces of seaweed stem, glued to the surfaces of the shell and forming the point of contact for the timber members which hold the planes together. Seaweed stem – unlike other timbers – does not have a grain structure. By virtue of its cellular structure it is able to be pared down and sanded to relatively long thin slivers before losing its structural integrity. For a time this made for a wonderful new material discovery, until the discovery of the material’s ability to take up moisture and warp, thereby destroying its straight and rigid appearances. At all times, irrespective of the size of the linear element being worked with, an attempt is made to produce members with rounded diameters and tapering pointed ends instead of flat edges which have the connotations of being plank-like materials.

twenty five is elusive to touch, it projects its fragility from behind an invisible encircling web of triangulated cross bracing, which is surprisingly resilient for something that on first appearances does not seem to be there.
twenty six

An enormous generalization is made when talking of hands, as we acknowledge the existence of two through the use of the plural, but either ignore or take for granted the co-existence and co-dependence of the ten digits making up the fingers and the two palms which comprise those two hands. Working at very small scales involves using the most sensitive aspects of all of these parts of the body, in both intuitive and disciplined ways. Instead of the relationship between maker and object being through the size of my hand, a new relationship is established between the object and the size of my thumb. As the dimensions of the material diminish, so does the relative difference in strength between material and maker. Making actions become governed more by an imposed discipline not to destroy the material, rather than follow a natural urge to take hold of and grasp the material, whether through the mediation of tools or direct contact between skin and material.

twenty six is a return to my comfort zone to pursue smallness through methods of making more familiar to me. The processes of carving a large void space from a solid form shaped out of block of balsa wood, involve the most intimate relationships of pressure between skin and material. The material needs to be restrained through embrace in order to be worked with, too firm a grasp and

materials: balsa wood, bamboo, red gum, jarrah, seaweed stem, seaweed pod, cuttlefish shell, sea urchin spine, pva glue

height: 37 mm
base length: 21 mm
base width: 20 mm
maximum diameter 37 mm at 1/2 full height
the material can be crushed; the structural limits of its thicknesses need to be felt before being seen to disintegrate. Touch becomes the paramount mechanism of negotiation between maker and material.

Care was taken to carve out a familiar – but smaller form – with as much precision as possible in order to maintain the integrity of the form. Consequently the form has a smooth and continuous curved surface, and apart from the large asymmetrical front opening there are no blemishes or penetrations through the enclosing surface. For the first time the opening’s edges have not been treated as random and ragged, but have been sanded to form two smooth curved lines which meet left off centre at the apex. Twenty six rises smoothly and sedately from an almost circular plan swelling to its maximum diameter at approximately two thirds of its full height, where it then more rapidly diminishes to a smooth curved apex. Almost half the body has been removed leaving a little more than a semi circular plan form with a reinforcing buttress, located on the central axis, projecting into the void space. The finished artefact has an inherent visual dynamic due to its slight tilt backwards; this is balanced by the opposite and outward thrust of two horizontal boomerang shaped planes encircling the front elevation.

Twenty six has not been endowed with the most elegant proportions from this attempt to translate the form into a smaller size. Its rear elevations lack slender elegance; however these ‘mute’ and ‘squat’ visual characteristics contrast sharply with those of the front elevations, whose visual activity is generated by the energy of its interior resuscitation. The top half of the interior void is covered with segments cut from a seaweed pod, stitched together with small sections of sea-urchin spine. This screening device has been fixed away from the balsa-wood surface to produce dark space between it and the balsa, thereby enhancing an impression of deeper spaces within the void. With this device as a backdrop, the interior has been occupied by a collection of different sized spaces loosely organised in a spiralling composition, with its greatest density of material seemingly suspended in
the air. The composition is dominated by relatively large continuous boomerang shaped planes that have been used as both horizontal and vertical elements. In the vertical, a single complex curved shape traces the outline of what would have been the limits of the balsa-wood’s intact surface, whilst two horizontal bands wrap around and are connected to the surfaces extending from the edges of the openings. At ground level a third curved plane is set back behind a colonnade of fine timbers; with its upward inclined aspect, a visual spiral movement is established from the ground up through the continuous bands, and into the multitude of differently sized horizontal planes clustered within the top portion of the void.

This is the first time red coloured sea-urchin spine has been used as a construction material. I was given a few sea-urchin shells which lay around in a box in their different states of damage. After many months I decided to examine and play with the material to test its suitability for my making. On the base of the box I discovered large numbers of small calcareous tube like spines which had fallen from the surfaces of the shells. As the spines are attached to their bases on the shell with ball and socket joints, they have distinctive top and bottom profiles which serendipitously have strong associations with column bases and capitals. The spines are found in many different sizes and thicknesses with colours ranging from deep red through to transparent and black. They are brittle but can be carefully cut with a scalpel knife to produce regular shaped tubes, or rounded solids with flat bases, or columns with expressed capitals and bases. Their bright red colour contrasts with the muted tones of the balsa-wood adding a further layer of scattered visual activity to the overall composition.

For the diminutive architectural artefact to have any credibility, it is necessary to reduce material thicknesses to sizes which are compatible with the sizes of its spaces and form. It was necessary to resort to an extreme act of destruction to produce lengths of very thin, evenly dimensioned material which could be used
as elements appearing to be in tension. Bamboo shards as fine as human hair were a serendipitous discovery made by bending lengths of bamboo back onto themselves past their points of sudden explosive ruptures, to yield arrays of shards with multitudes of differing thicknesses.

Whilst the size of the artefact has diminished it still retains its enigmatic scale. From the rear twenty six appears to have a humble domestic scale which is in stark contrast to its front elevation, which projects an image of a very large urban architecture, one made up of both contained architectural space and the permeable penetrating external urban space.
twenty seven

twenty seven is part of a conversation concerning the use of design as a redemptive tool and demonstrates how through making directed by design thinking, new life force can be transferred over precious time and direct physical engagement, to transform mute and inert material, into artefacts with the capacity to be interpreted as forms of architecture. What was once confined to waste and abandonment has been given new life through this focus of attention and through its re-contextualisation.

A decision was made to work with a damaged shell with almost one quarter of its surface missing, leaving a large gaping hole with jagged edges. My decision was supported by the startling differences between the appearances of a whole urchin and one whose interior had been exposed. Once the robust firmness of its continuous excluding surface is ruptured, the shell’s fragility is laid bare through the exposure of the thinness of its wall. That which had previously been viewed as a singular stable solid, transforms into a fluctuating negotiation between the excluding convexity of its outer surfaces and the including concavity of its interior surfaces; what was previously an exclusion of space becomes the making of space, captured by the embrace of curvature. Rather than attempting to repair the shell I decided to take what remained of it apart, with the intention of re-assembling the components into a form...
resembling that of an unfolded shell with continuous linear curved surfaces.

It may be part misnomer to talk of making twenty seven, as its component parts were there to begin with. This was more a case of re-assembling the bits and then complimenting the whole with the addition of an architectural frame of reference, through an attached external skeletal structure. The shell was re-constructed through a systematic process of progressively positioning one surface relative to the other, using small seaweed and sea-urchin spine pins as the actual means of connection. By using pins the surface areas of connection are reduced to more controllable points of contact. In contrast to the alignment of continuous edges, points of contact enable the adjustment of each panel – relative to the alignment of up to four surrounding panels – whilst simultaneously negotiating curvature in both horizontal and vertical planes. Each pin was custom cut to size to fit its particular position and glued in place at the angle required to maintain the smoothness of the form’s overall curvatures. In some areas the jointing has been exaggerated and elaborated as a decorative motif, adding a contrast in colour and a finer scaled, line detail in contrast to the panels’ planar qualities.

Part of my effort to shift the shell’s visual reading from that of sea-urchin shell to one of architectural artefact, involved unfolding its form and re-assembling its surface, not as a continuous whole, but as many individual surfaces connected to each other, yet separated by a grid of void spaces. An exoskeleton made from finely carved and sanded timbers has been attached to the outside surfaces; in the hope the introduction of objects with the ability to evoke architectural imaginings – simply through their recognisable organisational structures and their arrangements relative to each other – might facilitate a shift in the normal perception of what the sea-urchin shell may be. This network of timbers is attached to projecting red sea-urchin spine posts, fixed to the external shell surfaces in a regular diagonal pattern. A series of visual hierarchies have been established through the use of different thicknesses of timbers, ranging in size from angled columns in compression nearer to the ground, and thin cables in tension across the uppermost surfaces.
mechanism has been provided to prevent the artefact from toppling over, through the extension of the skeletal structure across and down the artefact’s surface to connect with the ground, thereby providing firm triangulated contact between the curved surfaces and the ground plane.

twenty seven managed to retain the original sea-urchin’s enigmatic qualities of flickering between being perceived as surface excluding space, or as space captured by surface, depending upon from which side it is viewed. From the rear the artefact appears as a solid complete form with its porous barrier providing hints of an interior within, in contrast to the front, which is completely open, revealing the solid to be made of space captured within the embrace of thin curved planes. These contrasts are heightened through the differences in colour between the white of the interior and the muted greys of the exterior.

At the time of writing twenty seven enjoys many varied existences, some of which include it as virtual digital images or actual glossy images in publications, or as colour slide images, or as immaterial memories, or as it actually physically exists – the salvaged, shattered remains of what it once was. Unlike twenty four which suffered some compression and the loss of the tops of some of its vertical planes, twenty seven has suffered near catastrophic destruction and lies in a box, an accumulation of many pieces. In some future it will enjoy a phoenix like incarnation and rise again as a similar, yet other hunching form, an echo of its previous existence.
On impulse I had bought a sheaf of silver leaf from a vendor in Hyderabad, India having watched his workers relentlessly pounding the silver leaf between short lengths of leather into small rectangles of extreme thinness, thin enough to eat. Apart from a small square gold-leafed timber frame incorporated within twenty two’s interior all of the materials used in making the artefacts had been left in their natural state as finished. Whilst a great deal of effort has been invested into shifting normal visual and intellectual perceptions of some of the materials, no attempts have been made to disguise their materiality other than from cutting, sanding and polishing their edges and surfaces; they have been presented as, and what, they are. twenty eight offered the opportunity to satisfy a long-held desire to put the silver leaf to use and by doing so contest the primacy of natural surfaces through the employment of decorative techniques: honest expression confronted by vulgar cosmetics, silver, pink and bright red, my homage to India. Both the inside and outside balsa wood surfaces have been covered with a number of layers of silver leaf, giving the illusion of a material more strongly associated with beaten and polished silver hollowware, than carved balsa wood, and through its mottled patina projects a visual register of its ageing.
materials: balsa wood, pine, red gum, pink cuttlefish shell, sea urchin spine, cat hair, silver leaf, pva glue

height: 48 mm
base length: 23 mm
base width: 19 mm
maximum diameter 30 mm at 1/2 full height
twenty eight may be undistinguished having also been carved from a block of balsa wood in a similar manner to all the others, if not for its subtle innovations in form through the simple introduction of two dissimilar continuous straight lines merging from the same point. For the first time the smooth continuity of the form’s carved curved surface has been disrupted with the introduction of a continuous sharp edge, which comes about through the abrupt junction of two different continuous curved surfaces merging to become a single form. This edge/line originates at the bottom right hand side of the large opening, then climbs in a steady arc to its apex on the left hand side where it curves down and back towards itself, and at approximately one third its height curves away to the right to meet with the ground. Making the second line was pre-determined and controlled to ensure the integrity of the edge of the large opening would be maintained, to produce a smooth continuous curved line describing its almost symmetrical shape. Up until this point the actual edge profiles of all other openings had been made or more appropriately, appeared as the consequences of random, controlled destruction through making.

From a small diameter circular plan the profile increases sharply and as a result the area of contact between the artefact and the ground is thrown into shadow, projecting the small illusion of a fuzzy zone of contact between vertical and horizontal. Apart from the large frontal opening, the form’s surface integrity has been kept intact other than for two dissimilarly shaped ruptures in the surface in areas, which by now have become known to be points of weakness. Almost each of the carved pieces has an aperture in the front right hand side of their apex and a larger aperture in the top half of their back elevation – perhaps due to the inherent sub-conscious manner in which these forms are being held and handled.

Thankfully the completion of twenty eight signals a pause in my interest in making boomerang shaped pieces from pink cuttlefish shell. A number of these shapes have been joined together to form a continuous spiral, beginning at an elevated position near the bottom right hand side of the opening, then rising up inside the
void against the sides of its surfaces in an anti clockwise spiral of four complete revolutions, before finishing in an abrupt ruin at approximately half the full height of the artefact. Most of the void space has been left empty apart from the insertion of two vertical planes made from cuttlefish shell, joined along one edge and held apart at the front by horizontal rods of red sea-urchin spine; the top of the right hand plane curling back sharply as if peeling away from the other. twenty eight’s fourth innovation is the inclusion of cats’ hair as a material for making tensile connections between points. My cats’ hair provides the thinnest, straightest and most consistently sized diameter tube-like self-supporting material which is remarkably strong for its size. Five hairs connect from a point on the tower to five tiny red dots made from sea-urchin spines fixed to the outer edge of the projecting top spiral.

As the silver leaf is thin enough for the grain to be seen in the balsawood underneath, there are times when the palimpsest generated by the combination of the two surfaces induces momentary oscillations in comprehension due to doubts over the true nature of the material being viewed. Ultimately twenty eight does have some of the enigmatic qualities I have been trying to evoke through the work although it also has an appearance of incompletion; it lacks a density in finer grained detail and as such has to rely on readings of its overall form, large opening and four rings, there is not much else there to capture and hold the eye’s attention. However when twenty eight is viewed through a different lens of experimentation and is seen as a testing ground for new ideas the artefact earns a different modicum of respect for having served and fulfilled its experimental purpose.
twenty nine

It is sheer coincidence yet I am intrigued, the average height of twenty nine and the preceding six artefacts is 113 mm – excluding twenty five, twenty six, twenty seven and twenty eight which were all consciously made at smaller sizes – the measurement across the palm of my left hand including my thumb is 113 mm. At no time have I ever pre-determined the actual height of any of the finished artefacts; that has been an organic process determined by many variables such as the size of the material you begin with and always the factors of time. It is no great wonder my hand should be comfortable with sizes similar to itself but there is slight pause for thought in the similar measurement of my right hand being 115 mm, so why is the mean height not 115 mm or better still 114 mm? These are the palm, thumb and fingers who are normally the passive partner to my pro-active right hand; they are the receivers and holders, the stabilizing part in the partnership, enabling the other member to progress/make the job.

twenty nine is a manifestation of the knowledge gained from making twenty eight, the mode of making and formal aspects remain the same, the size of operation has been more than doubled. There is far more tangible surface area to make contact between skin and material; hence pressures are distributed more evenly over surfaces thereby minimizing catastrophic failures through over-loading.
materials: balsa wood, pine, bamboo, red gum, jarrah, seaweed stem, seaweed pod, cuttlefish shell, crab claw, fish bone, cat hair, pva glue

height: 110 mm
base length: 51 mm
base width: 47 mm
maximum diameter 60 mm at 1/2 full height
certain points. From the outset it was decided the form would be big enough to be easily and comfortably handled without the fear of inadvertently crushing the object, therapeutic reprise from the tensions of making at very small sizes. As a consequence of its relatively large size it was easier to work, resulting in many places where the balsa wood skin has been worked to the thickness of paper or has lost its structural integrity and is being held together with thick enough films of transparent glue applied to the inside surfaces - out of sight - whilst on the external surface these material failure striaations blend well with the natural grain of the balsawood. With strong enough and correctly positioned lighting these paper thin surfaces develop a translucent luminosity.

In keeping with my desire for there to be ease in handling the artefact the external surface has been kept almost clear of protrusions and protuberances. twenty nine has a clean exterior surface which is similar to twenty eight and is distinguished through the existence of a single edge/ridge line originating half way up the right hand side of the opening, then arcing up and over to its slightly left off centre apex, from where it curves back down in a sweeping arc to run parallel with the opening then at a third of its height from the ground curves smoothly inward to meet the ground. The introduction of this very simple edge line has had profound effects on the form's surface geometries which are much more complex and sophisticated than its smaller prototype's. Unlike the previous carved surfaces whose uniformity of curvature excluded distinct elevations, twenty nine takes on very different appearances when viewed from different sides/positions. From the front the form is tall and pointed and appears to spiral upwards in a clockwise motion, from the left and right its sides are almost parallel, and from the rear one sweeping arc is balanced by a hesitant wavering curved profile.

There may be some uniformity in, but no prescribed logic to, the manner in which the form rises from its squashed circular plan form. Instead of being guided by calculated logic, very intimate yet mute conversations between hands, palms, thumbs, fingers and materials are at the essence of this making. At times these
conversations become heated and produce unwanted results – as in the case of the right hand edge of the opening which disappeared through exuberant sanding and extreme thinness. Its disintegration was arrested by one of the two thickened vertical buttresses built in to the inside wall surface. There are five additional different sized blocks of balsa wood left in the wall thickness projecting into the void space, stacked one above the other with space between each.

With very few external protrusions most of the energy of occupation is contained within the confines of the balsawood interior. Under the surface of the balsawood spilling down from the top right hand side of the form, a lattice of fish bones and finely worked timbers climbs up the inside surface providing structural support – to prevent the surface from falling down, maybe a work in progress? On the opposite left hand side in contrast to this web of thin lines, an avalanche of planar activity cascades down the enfolding surface, spilling out beyond its edge as an extension of the balsawood’s surface and its circular plan form’s geometry. A cantilevered horizontal plane, with an upward curl to its outer end, hangs held in tension between the two by a series of cat hair cables anchored to seaweed posts. Set back within the void a large spherical seaweed pod (spatial container) held in place between two projecting blocks of balsawood, provides another focal point and hopefully draws the eye deeper into the space toward a second perfectly smooth, shell dome supported on a corkscrew column and then out to beyond through the large opening in the rear wall. Part of the struggle with twenty nine was in maintaining the desired density/intensity in its detail relative to its considerably increased size. Visually this has been assisted by varying the size, shape and scale of the objects inserted into the void.

It is ironic that an artefact specifically made on the premise of being able to be handled should, through the combination of its subtly diminishing form and its highly polished, silky smooth untreated balsawood surface, be as slippery as an eel and very tricky to handle.
What began as an attempt to test the limits of the visual coherency of these carved forms through the removal of as much material/surface area from the balsa wood form as possible, without losing its inherent qualities of form and shape, transformed over a protracted length of time into a dialogue between its interior and exterior. thirty’s first incarnation ended as a failure, the form that emerged from a process of careful surface diminishment appeared to be exactly just that, calculated, laboured and hollow. Too much had been removed, with more than one major breach of the wall/floor interface, elements are so disconnected from their adjoining surfaces the form loses its visual coherency. Without enough material restraint the idea – as used in this project – of ‘the void space’ as contained space, evaporated into the surrounds to become void. thirty was put aside for another day.

thirty and twenty eight share similar points of origin as both had their genesis as relatively quick experiments to see what would come of a thing, thinking through doing. Apart from it being sensible to make the artefact at a smaller size – consistent with the idea of surface/material diminishment – it was also in keeping with a decision to pursue making at smaller sizes, at a miniature scale relative to its predecessors, my little finger and thumb in comparison to my palm. Both artefacts...
had their periods of gestation but in this case it was a considerably longer period of
time. Of all the artefacts, thirty has the most diminished palette of materials which
have been reduced to four, balsa wood, sea urchin spines, red gum and cat hair.

By the time work resumed on thirty, red sea-urchin spines had become a more
familiar material to me, its increasing versatility made them a much favoured
choice of material. One of the first decisions made was to overly exaggerate
the insipid initial sea-urchin spines’ insertion, which lacked a large enough body
presence to deal with the awkwardness and emptiness of the form. This was
done by stretching my precious supply of spines by exponentially increasing the
number of spines and finely sanded slivers of red gum timbers inserted into the
void space. Following an organic pattern of growth, the number of spines used
multiplied to a stage where their density was enough to signal the emergence of
an other architecture, one of repetitive, orthogonal regularity and transparency.
Acknowledging these signals, the spines were liberated from their initial
confinement within the balsawood’s interior to spread up, but not quite over the
shell’s outside apex. At the diagonally opposite position on the balsawood’s almost
circular plan, the density of spines presses through an invisible barrier to visually
reinforce the dynamic of this interior architecture penetrating through and out
from its confines, a liberation of the interior. In doing so a dialogue is established
between the perceived growth and dynamic of the grided interior and the inertia
of the architectural form.

After attaining only mild success in the previous use of cat hair, in this instance
the application is successful, the individual hairs maintaining perfectly straight
alignments between points of attachment. Apart from its use as a signalling device
to indicate architectural elements, the almost invisible hair has been used as a
visual device to literally connect different areas together, in the hope of leading
the eyes across the artefact’s surfaces. A cloud of horizontally placed hairs are
incorporated into the spine-grid visually reinforcing the apparent thrust of the path
of the grid’s growth.
One of the central curiosities propelling this research is my fascination with the qualities which empower small artefacts to capture and arrest observers' attention. Very small objects cannot be known through a quick cursory glance from afar and if due to their material fragility their knowing cannot be aided through the sensitivities of touch, then demands are made to focus, to slow down and concentrate and enter into an intense ocular engagement made intimate through the protracted length of encounter and the very close physical proximities required to see clearly. As a response I set myself the challenge of making the smallest architecture I could.

The idea of carving smaller than twenty six was rejected due to the difficulties of maintaining a firm grip on an insubstantial amount of balsa wood without destroying its small fragile form, in attempts to keep it in a fixed position to withstand the relatively substantial thrusting forces of a carving blade; the penalty for forgetting not to hold too tight is catastrophic failure through abrupt compression. To make smaller required literally that, starting from the very smallest which is almost nothing other than an idea and materials at hand, and then through design thinking establish architectural relationships between small, piece by piece until over time the artefact emerges into a unified composition made from an accretion of parts.

**materials:** jarrah, cuttlefish shell, sea urchin spine, fish bone, crab claw, cat hair, pva glue

- height: 29 mm
- base length: 38 mm
- base width: 15 mm
- maximum diameter 20 mm

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Once pieces become very small the problems of working with their diminished material strengths are magnified by the scalar differences between tiny pieces and the enormous curvatures of the skin surfaces at the tips of my fingers. Consequently tools are needed as mediating devices between hand and material resulting in a loss of the freedom of unrestricted movement in working with the material. Because of their diminished material strengths, making physical alterations to the material is limited to small amounts of sanding and very rare cutting. As a result making becomes a process for looking for the correct piece of material from amongst an array of pieces generated during making. Invariably this making involves surrendering control over production and destroying the material at hand, rather than cutting or shaping larger pieces to form smaller ones, thereby accepting the chance outcomes of these destructive/productive acts.

thirty one began from the detail of its insides growing outwards. True to the characteristics of these assemblages it touches the ground lightly yet firmly through nineteen points of contact. At the base, two parallel doubled curved crab claw walls arch up from the ground and support an upward arching horizontal plane touching the ground at one end, suspended, thrusting into the air at the other. At this upper elevation on one side a forest of sea-urchin spine columns carry the curved soffit of a large floor above, which is supported on the other side by a triangulated skeletal structure, rising from the ground on three triangulated legs and evolving into a structural mast supporting a vertical curved pink shear wall. On its opposite side this wall provides structural support for a cascade of cantilevered horizontal planes; their random shapes and curvilinear aesthetic in contrast to the linear triangulated geometry of the mast. From either side of the central body, long narrow and unevenly shaped horizontal floors with irregular pointed endings – supported on the globular top portion of sea-urchin-spine columns – cantilever out into space. The composition’s visual dynamic has been enhanced by giving this horizontal band the shape of an arrowhead thrusting through from one side to the next, flaring out in opposite directions at its top and bottom planes on one side, and subtly compressing and angling to a point at the other.
Again thin streaks of almost invisible cat hair have been used to physically and visually make connections between, and bind together both longitudinal sides of the composition; and of course to act as cables in tension providing additional structural strength by tensioning the structure. More hair has been included as vertical mullions covering one face of the tail end of the arrow, their thin white vertical striations demanding a second look to confirm that the shimmer one initially saw, was indeed material substance. On the same elevation another contrast in scale is made between the large vertical planar surfaces and a continuation of red dots randomly scattered across the surfaces of fish bone mullions; these are a redeemed failure as the mullions initially disappeared from sight due to their transparency, they act now as a beguilingly invisible surface against which the dots seemingly hover.
It is ironic I should be bothered by the references of the carved artefacts to ‘egg-like’ forms given my desire to work with thicknesses “as thin as egg-shells”. The egg critique is indisputable given both are shell structures and both share strong visual associations of form through their swollen rounded shapes which diminish towards apexes terminating in smooth, continuous convex surfaces. None the less the comments proved irksome so I decided to carve a form whose lineage could be easily recognizable, yet whose appearance did not resemble that of an egg nor connote egg. But as would be the nature of carving from one solid block there could be no denying the need for a shell structure.

Most of the carved curved forms have had a semblance of vertical symmetry to them, not so thirty two who is distinctly off-centred and vertically asymmetrical in all elevations. Thirty two emerges at its base from a circular plan pinched in on two sides, with one continuous third of the circle still materially intact leaving four different sized openings, one far larger than the others. From plan the form rises unevenly swelling to its maximum diameter at a height slightly below its ‘shoulders’, then diminishes inwards to form the curved edges of its flattened crown. Unlike the rounded apexes of all the other carved forms, the crown has been levelled at an angle to produce high right and low left ‘shoulders’ – when viewed from the
materials: balsa wood, pine, bamboo, red gum, jarrah, seaweed pod, cuttlefish shell, sea-urchin spine, cactus spine, PVA glue

height: 62 mm
base length: 28.5 mm
base width: 27.5 mm
maximum diameter: 44 mm
front–formed as an angled, slight hump spreading down and outwards from its high point at its centre to the edges. All that remains of what may have been a tall rounded tower, emerges slightly left-off-centre as an eroded cylindrical extrusion in a state of collapse, a dim memory of itself. A different flatter vertical plane – running full height with two continuous vertical edge lines – has been introduced by sanding down the side to the left of the major opening, which splits the solidity of the form into one surface with a continuous edge composed of two different sides, left and right. One taught, almost vertical, the other swelling and curving out before contracting to its pinched neck, as if drawing back the surface to reveal a confined and concealed interior.

Given my acceptance of the spectre of serendipity as my partner in making, it still came as a great surprise when my small poodle proudly presented me with a one hundred and thirty millimetre long cactus. Instant joy replaced horror at my realization of the extraordinary gift I had received, an abundant supply of straight differently sized, coloured and very thin, pointed rods. To manually reproduce an equivalent quantity of quality material would take years of intense labour, hence thirty two contains an exuberant first time use of a large number of cactus spines, radiating within and tentatively penetrating out from the balsawood skin. Suspended at half-full height and set back within the void, an empty and slightly damaged cone – cut from a seaweed-pod – forms a central focus surrounded by layers of curved planes – also cut from seaweed-pods – fixed parallel to each other and to the angled surface of the cone; whose diminishing interior punches through the rear wall, thereby extending the interior out beyond the form’s surface limits whilst carefully bringing the outside in through its oculus. The layered curved surfaces are pierced through and held together by angled and continuous cactus spine columns, radiating from a point at the centre of the base of the cone. At the lower and upper levels of the void the use of curved cuttlefish shell plates have been substituted for the seaweed-pod surfaces. Hopefully the inferences of the void having at one stage been completely filled by this onion-skin-layering of space have been strengthened by building in another fragment of the layered spaces,
‘floating’ in the right hand side of the void.

Acting as a counterfoil against which to balance the abstraction of the occupation of the interior architectural space, an easily recognized archetypal structure has been built in a position under the apex of the front opening, projecting out into space away from the form, supported by a recognizable triangulated and braced structure. Depending from which elevation the projection is viewed, the scale at which it is perceived varies as do the scales of all elements relative to it. From the front the scale is enigmatic, this could be an enormous building. From both side elevations the projection works in concert with the large ‘circular’ openings – located below the form’s shoulder line – to reduce the apparent scale to that of a medium sized building.

Although an attempt has been made to facilitate the ease of handling the form – by maintaining control over the number and length of projections from the form – thirty two is another of those artefacts whose apparently bare – and therefore should-be-easy-to-handle surfaces – are capable of rendering startling surprises through their very small and fragile details. The unexpected piercing sound of a crinkle! or crackle! made by the friction of skin against something invisible, taught, and terribly fragile is normally the signal something will most probably be broken before the source of the sound is determined – the sound may come first but it is nearly always too late.
thirty three

thirty three takes its queue from thirty two, discarding the shackles of ‘egg-like’ comparisons through the elongation of the ‘normal’ circular plan form into a narrow oval shape, ironically same in shape to the profile of an egg. The form rises smoothly from plan, swelling gradually in ‘length’ and ‘width’ to around two thirds its full height then diminishes more rapidly in both directions culminating in a more pointed edge. In what is a first for the carved architectures, the idea of reduction is extended beyond the act of removing solid to make void to also include the removal of the material shaping the architecture. At the apex a large secondary void space has been produced by carefully cutting away and shaping both front and rear surfaces into similar catenary-shaped edge profiles. On the rear elevation an additional smooth and curved surface has been carved defined by its larger catenary-shaped edge. Almost one third of the form’s balsawood skin has been removed, leaving the interior void space highly exposed through the large missing sections of the front elevation and apex.

Subsequent to the removal of its interior balsawood I was struck by the idea of emptiness and the vast potential inherent in void space. Contrary to the idea of void space being empty, this space is in effect charged with the potential of its futures and as such becomes a site for engagement and the opportunity for

materials: balsa wood, sea-urchin spine, butterfly wing, cat hair pva glue

height: 69 mm
base length: 31 mm
base width: 16 mm
maximum diameter: 43 mm
new manufactured interventions. However this potential is immediately dissipated once any actions are taken to materially occupy this space. Material occupation determines specific conditions within the void and introduces further parameters within which to work which impose limitations on any future engagement with, or intervention within the space, and in doing so defuses the potential of the void.

I decided to intervene in the least intrusive manner in an attempt to maintain the charged nature of this void interior space. My concern now became how best to fill interior space whilst maintaining the characteristics of emptiness and without limiting its potential for future occupations. Perhaps the void could be kept intact by maintaining the volumetric integrity of the space and by only engaging with the surfaces without altering its form. To achieve this status quo I decided to employ the techniques of decoration - the most ancient of all artistic practices, pre-historic decorations on the surfaces of caves testament to its practice long before the invention of constructed architecture.
Having come into the possession of a small container of extraordinarily patterned and brilliantly coloured butterfly wings, I was eager to play with the material and decided to appliqué the wings onto the enclosing surfaces of the void space, to my mind an appropriate strategy given the cavernous appearances of this void. The choice of which wings to use was influenced by their patterning and not so much by their colourations, with simple dot and circular patterns selected for their simplicity and recognition as universal symbols. No visual discordances are established in the relationship between surface and decoration, as the butterfly wings’ different shades of brown are an appropriate fit against the light shades of brown of the balsawood. A contrasting approach was adopted with the decoration of the external surface of the object, where colour is used on the rear elevation to highlight the semi-circular concaved shaped area at the top of the form in the hope of subverting its visual apprehension. An idea for undermining the concavity of the surface was tested by covering it with strips of iridescent coloured butterfly wings, hoping the conjunction of vivid magical colouring and regular striped patterning, would engender an appearance of the surface lifting. It is questionable whether this idea has been entirely successful in its execution; however the affective qualities of iridescence add further dimensions of surprise and delight when encountering the object.

That thirty three’s form should evoke strong anthropomorphic qualities is of no pre-planned outcome, it is a physical manifestation of intentional actions made by and through the hands, guided by unconscious directions. Perhaps on the part of the maker there is nothing more to it than the size and shape of the original block of balsa wood and a search for a comfortable tactile relationship between the hands and material, and from the observers’ perspective, the fertility of their imaginations and desires to make sense of the world through associations. I began to apprehend the final form as a headless human torso; possibly due to its smoothly curved symmetrical form, its tapering shape from ‘shoulders to waist’ and the image of shoulder blades, marked by the edges of the concave semi-circular excavation at
through the intimacy of decorating the interior and exterior surfaces, these
total body associations were reinforced for me as they evoked associations with
tattooing the human body. With the aim of ameliorating this uncomfortable image
of a stiff and emptied medical cadaver, I decided to stitch the two edges of the
opposing surfaces together along the length of its continuous vertical opening;
a redemptive gesture of healing, intended to secure the form and its interior by
intimating the holding together and making whole of its ruptured surface.

White coloured cat hair is used to span the gap between surfaces with the hope
their slightness, stiffness and straightness would elicit visual readings of tension. It was
never my intention to produce an overt medical reading of stitching but to work
with the verb stitch, describing the actions of joining together. In keeping with the
scale of the object individual hairs were cut short, necessitating joining the hairs
together to cross the breadth of the opening, whilst simultaneously providing a
degree of structural stability to the hairs and joints during fabrication. Despite the
fact of their relative stiffness it is no easy task to keep the end of a very fine piece of
hair stationery, in the exact spot in space for long enough to join another piece to it
at exactly the correct spot.

Small pieces of red sea-urchin spine were used to locate and articulate the points
of connection between the hairs and the balsa wood surface, with more of the
domed ends of the spines used to highlight the points of connection between
the hairs, their numbers and random suspension in mid air adding a shimmering
dynamic across the face of the void hovering behind.

1 Annabel Buxton, one of my thesis/major project students.
At times it appears my animals are colluding in my making, at first an unsolicited gift of a de-potted cactus from the dog and courtesy of the cat, the occasional seasonal offerings of large green cicadae. I was at first seduced by the elegance and beauty of their large transparent wings as I have long searched for a transparent sheet material with sufficient material strength to use as another building material. On closer examination these wings proved more wonderful than imagined, their at times rippled transparent membranes held in place by continuous tubular green frames, which are strong enough to provide considerable structural support through their rigidity and the ease with which they can be handled, cut and glued.

Inspired by these wings I chose to make another tower and to work at the scale of the wings’ sizes, deciding to use the wings as whole and not as smaller fragments. The wings are both central to the structure of the composition and the determinant of its size. Having selected an appropriate wing to work with I determined to undermine its visual reading/understanding of insect wing, to try and engender an image closer to that of an architectural element. The wing was transformed with the addition of a skeletal truss-like structure – made from cactus spikes fixed to one face of the wing – on top of which were overlaid pieces of iridescently coloured materials: cuttlefish shell, sea-urchin spine, cactus spine, cicada wing, butterfly wing, pva glue

- height: 39 mm
- base length: 28 mm
- base width: 15 mm
- maximum diameter: 28 mm
butterfly wings, selected for their uncanny ability to surprise and provoke wonder through their changes in colour and its visual intensity, depending from which angle they are viewed. From one angle they appear as a dull surface behind the transparency of the wing then as one changes position, this suddenly bursts into an electric blue of startling intensity for so small a patch of colour.

A series of small flat differently sized cuttlefish-shell horizontal planes were fixed across the surface of one side of the wing, on the opposite side at approximately one third full height above ground, two differently shaped planes cantilevered into space with the additional support from the extension of the wing’s internal skeletal structure, into external triangulated cactus-spine bracing. With the wing established as the prime compositional element it now needed to be held in a vertical position. This required the use of a smaller section of wing fixed vertically at an angle to the main element, which together with a column made from stacked sea-urchin spine - reaching from the ground to connect with the projecting planes and the edge of the wing - provided the third and stabilising ground/structure contact point. As a response to the curvature of the base of the wings I decided to complete a tripartite composition by introducing a third, but angled wing, to form the base of the tower and define what I imagined to be a relatively enormous civic space. In contrast to the main wing element this structure is completely transparent providing a view into its structural space made of double layered cactus-spine trusses.

Once the object could stand upright on its own other smaller wings and more cuttlefish shell planes were attached at various points, together with a number of longer, vertically positioned red cactus-spine columns to support these planes and visually reinforce the verticality of the artefact, whilst complementing the very subtle vertical green stripes in the cicada wings. Gradually the composition was built up in this manner to a point where it reached a desired density of detail and interest; that decisive moment/point being determined by thinking eyes and a brain with the accumulation of more than thirty five years of design experience and
perhaps more significantly, more than forty years of doodling experience. And in a similar manner to my doodles, I decided the iridescent colour needed to appear in other areas of the composition which resulted in the insertion into the top of the tower of a pre-fabricated rectilinear container, bound by horizontal cactus-spikes, clad in part with butterfly wing.

Central to my thinking throughout the making of thirty four were ideas of lightness, the wings' transparency and their inherent fragile characteristics providing an immediate sense of lightness. This metaphor was complimented by the combination of the wings with iridescent coloured butterfly wings. As one apprehends the iridescent colouring of the butterfly wings, for a nano-second the effect of shimmer and sparkle have the propensity to project itself through light to beyond the surface of its being, lightness manifest through this visual radiation and its sense of upliftment. Perhaps the idea of lightness is best manifest through the diminutive size of the object and its negligible weight. Likewise thirty four touches the ground very lightly, its enormous structure limited to a minimal eight points of contact with the ground, the curvature of the wings effectively limiting contact to a single point between wing surface and ground.

thirty four does not hover between perceived scales, in combination with its material fragility its diminutive size makes it nothing other than an imagined enormous architecture.
My journey into the digital void has been one filled with anxiety, uncertainty and a good measure of cynicism towards the virtues of this virtual environment. My digital skills have been acquired incrementally through the circumstances of necessity; I am relatively aware of the potential of the digital but at best I am a novice in terms of having the ability to manipulate, let alone author anything in so called 3D space. As my concerns and my constructed discourse have only been focused upon manual making; the digital has been of little or no interest to me.

A design studio titled ‘Thrashing the machines’ – conducted as part of the Australian Research Council funded grant ‘Homo Faber’ – presented an opportunity to explore a possible nexus between hand made and digitally produced practices. With nothing much more than a hunch and making use of the opportunity when it presented itself, I took the plunge. Having access to the RMIT Spatial Information Architecture Laboratory equipment and with assistance from their staff, an initial surface scan was made of thirty three; chosen for its size and empty simplicity as I imagined there would be limitations to the size and amount of detail which would register under the scan. Earlier efforts to scan the same object using a smaller hand-held scanner were unsuccessful in producing a coherent digital model, however the deficiencies in the completeness of the scanned...
materials: cuttlefish shell, prawn feeler, cactus spine, cicada wing, 3D plaster-print, pva glue

height: 48 mm
base length: 28.5 mm
base width: 27.5 mm
maximum diameter 44 mm
images generated some alluring images; imperfections were magnified and misinterpreted producing unexpected surfaces. A second scan was completed within the hour using a high resolution fixed-arm scanner; scanning being deemed complete once an accurate ‘three dimensional’ digital model, with a surface composed of continuous triangulations, had been constructed within the monitor.

Our first digital intervention was to use software to remove blemishes from the surfaces, smooth over areas where the surface triangulation had been exaggerated and fill in some of the holes on the surface. This was a chance to reverse time and put back ‘material’ removed through previously made mistakes, an opportunity to realise a new near perfect form with an un-punctured continuous surface, the promise of constructing a form similar to but different from the original.

One informed by its inheritance of laborious craft crossed with virtual ‘magic’, a realm in which a new original could be made in the image of its original without the blemishes.

With assistance the virtual model was manipulated using 3D MAX software. Within a very short time the original model disappeared to be replaced with an instant result, generated by selecting an action to be performed from a plethora of functions options. One is left neutralised when confronted by the overwhelming array of choices. ‘Bend, Bevel, Displace, Extrude, Fillet/Chamfer, Flex, Melt, Mesh Smooth, Mirror, Morph, Projection, Push, Relax, Ripple, Shell, Skew, Skin, Skin Morph, Skin Wrap, Slice, Smooth, Spherify, Squeeze, Stretch, Subdivide, Substitute, Surface Deform, Taper, Tessellate, Trim/Extend, Turbo Smooth, Twist, Unwrap, Wave’.

We plunged in pushing and pulling and twisting and melting and softening until we were satisfied with three different forms. These were sent through for printing at different scales after some of the digital models received modifications to their wall thicknesses. Immediately disaster struck, the most modified/distorted print broke as it was excavated from its powder bed, a victim of its severe virtual distortions which produced areas of unacceptable thinness. The second broke being picked up
after receiving a second spray of water which was meant to enable the material hardening process. Left with two half-sized replicas, two full size copies and a single distorted piece I chose to work with one of the half-sized replicas.

There are limitations to the 3D plaster-printing process. It is expensive, time consuming, the size of the output is limited to the size of the powder trays, the machines are delicate and require constant vigilance and there is a limit to the thinness to which the material can be printed. It is a fallacy to believe the machines run with constant accuracy and smoothness without constant human vigilance. This aside we now have the ability to make accurate three dimensional forms in as many numbers as desired, each almost an exactness of the other and to nearly any scale we wish. The print material proved resilient enough to withstand a good sanding, allowing the edges to be sanded to a fine thickness and hopefully providing the illusion of a thinner and hence more fragile enclosure. Sometimes breakages are successfully mended with the use of pva glue but most pleasing of all has been the manner in which the hand crafted nature of the original’s appearance has been translated into a synthetic material, which is in turn able to project some of the characteristics of the original. If the original object had its genesis as a digital model, it would be actualised as a pristine and perfect geometric representation of its parent’s digital code, it would be void of any of the blemishes and imperfections which give the hand made its unique individual identity. It is hoped in this instance the fabrication of a digitised hand made artefact has managed to capture and reflect those essences of its origins.

What is more pertinent to this discourse is the manner in which this half-sized replica of thirty three has been redeemed from an existence of being a not-so-spectacular-not-very-interesting-white-plaster-reproduction of thirty three, into the one and only thirty five, a unique architecture in itself. It would be fair to say the general aesthetic of these 3D printed models is that of a dull and lifeless appearance of a synthetic, neutral white colour material. To subvert this generalisation a great deal of small detail was added in the hope it would –
by virtue of its smallness - demand closer scrutiny thereby distracting from the
dominance of the synthetic material. Judging from the final appearance of the
completed architecture perhaps this intention has not been fully satisfied, without
having built a great deal more detail into the architecture, the plaster-print's stark
monolithic form still dominates.

It was hoped to further undermine the significance of the plaster-print by
developing a different construction typology at the ground level and elevating
the plaster-print enclosure above the ground plane, signalling its appearance as a
component part of the composition and not the whole composition in itself. thirty
five touches the ground lightly on a number of varying sized and angled cactus-
spine columns attached to the full length of its external perimeter, with four vertical
overlapping planes developed by spanning very fine cactus-spine rods horizontally
between columns, from ground up to the level of the plaster-print, forming an
angled skirt-like profile to the base. Two irregular shaped horizontal cuttlefish planes
form the arms of a v-shaped projection out from the front elevation, their meeting
point penetrating into the layered spaces occupying the void.

Mindful of my predilection to work first into the left hand side of the voids, I decided
to do the opposite and turned my attention to the right hand side. From the outside
a series of staggered layers ascends the right flank, moving into and fully occupying
the space of the void with smaller more densely layered horizontal planes.
Projecting into the void space from the centre of the rear wall, a vertical cuttlefish-
shell plane - running full height - clinically divides the space in two leaving the left
hand side of the void completely vacant and still, a stark contrast to the packed
density of the other half.

As a means of integrating the plaster-print component into the composition, a
portion of the rounded top of a transparent cicada wing was used to complete
the tri-partite composition, terminating the body with a distinctly defined top.
Resembling an inverted version of the catenary shaped curvature of the façades'
edge profiles, the cicada wing canopy takes full occupation of the secondary void space in the facades’ hollow. Sandwiched between triangulated cactus-spine trusses the wing has been fixed to a cactus-spine structure radiating from the top of the vertical plane – which divides the void in two – and then back down the right hand face of the front elevation, where it acts as the connecting support for a smaller similarly trussed transparent wing. Attached to the rear elevation a cactus-spine scaffold climbs from up the ground to tentatively connect with the canopy’s cactus-spine structure with additional structural support provided by sturdier multi-coloured prawn-feeler columns.

A frisson has been established between the synthetic and the organic, through the juxtaposition of the continuous textured surfaces of synthetic plaster print with the smooth fragility of the organic materials, aided by their contrasts in colour and transparencies. But whether a harmonious dialogue has been established between these opposites is questionable. The sheer size and clarity of the plaster-print’s image still overwhelms the delicate fragility of its redeeming infill. Whilst there may be merit in the conceptual basis for only occupying one half of the void space, the completed architecture would have benefited from the additional visual weight this infill may have generated. Perhaps this additional detail may have ameliorated this opposition and established more of a dialogue between the two.

1 Allison Fairley and Brad Marmion
Dissatisfied with thirty five I chose another replica of thirty three from what limited remains there were of the original 3D plaster-prints. On first appearances thirty six is a full size replication of its original form. Whilst in all aspects it is true in dimension to its original, thirty six has exploited the potential of its virtual genesis and undergone the virtual world’s equivalent of cosmetic surgery. Two ragged holes - one on the front elevation’s upper right hand side and the other at the top of the extending left shoulder - have been shaped into perfect circular penetrations. On the back and side elevations the central large gaping aperture and the flanking vertical strips of openings have been surgically grafted over, to leave a perfectly complete surface save for its two precise circular penetrations. In one step better than Botox therapy, the entire skin has been given the exact same thickness, neither a millimetre of need nor excess excepting at the edges – which count the most when appraising the thickness of an object – where that thickness becomes a limiting structural factor, rendering working the edge an impossibility. However the abiding features of the bumps, blemishes and imperfections in the original have been retained giving the surfaces an imperfect and ruffled appearance. The curved edge profile of the back elevation has been exaggerated by extending the edge lip profile forward and over into the void space. Both flanking shoulder elongations have been slightly extended to form an edge profile of almost two thirds of a circle.
Materials: cuttlefish shell, cuttlefish bone, sea-urchin spine, prawn feeler, butterfly wing, 3D plaster print, PVA glue

Height: 69 mm
Base length: 31 mm
Base width: 16 mm
Maximum diameter: 43 mm
That thickness was not enough to prevent the collapse of the left shoulder as it buckled under an unconscious pressure during handling, then sheared away completely from the body. Once the two pieces had been connected together, a few layers of clear drying pva glue were applied to the whole of the inside surface to provide additional structural support. Butterfly wings were initially used to conceal the mess made through connecting the two parts together and following the success of this application, it was decided to continue the application across the entire interior surface. In some areas the stark white plaster surface has been left exposed to establish a conceptual connection between the interior and the exterior and a visual resonance between these surfaces through their mutual colour and texture.

Without consciously deciding not to, it appears I am always inclined to make the first insertions into the left-hand side of the void which was exactly the case in this instance. This space has been packed with a dense conglomeration of different sized and shaped horizontal planes, supported and separated from each by narrow vertical cuttlefish shell and bone shear walls of differing heights fixed perpendicular to the back wall. Because of the difficulties of working with its fragile brittleness, cuttlefish-bone has not been used since its incorporation in eleven. In thirty six the bones’ exquisite, perfectly layered structures have been used to accentuate the vertical layering of the space.

On the blank rear elevation parallel rows of projecting black sea-urchin spine have been attached along the full length of the vertical jointing scar-line, serving no other purpose than to provide visual relief from the imperfect scar of restoration. thirty six’s contribution to the expanding palette of materials is in the guise of prawn-feelers, whose long thin tubular structures, with their wonderful bands of alternating colours, make for elegant columns, and if carefully selected their natural curvatures can be choreographed to induce an upwards sweeping visual dynamic. This dynamic has been reinforced through similar slight curvatures to the edge profiles forming the vertical planar divisions supporting the horizontal planes.
Frustrated by my struggle to inject interest and energy into the interior interventions I was making, I made the very conscious decision not to be restricted by architectural realities and to abandon reason and control and suppress the urge to make in the image of what would normally be thought of as architecture, and to make spaces as if doodling in three dimensions; a reference to my practice of making doodle drawings, the only form of drawing I do on a daily basis which over many years of practice has been cultivated into an expertise. I do not wish to talk in terms of acting in a sculptural manner, as that directs the discourse in a tangential direction towards small sculpture.
From a point located slightly below the centre of the void, five complexly curved cuttlefish-shell planes radiate outwards in increasing arcs, to capture and define much larger sized and contrasting spaces to the horizontally layered spaces. Revelling in the prawn-feelers’ beauty and versatility, a continuous orange and white banded arc has been constructed beginning from an anchor point located slightly past the left hand side of the opening. Sweeping up past and between the supporting columns, it disappears behind a suspended curved vertical plane only to reappear as a thinner arc, continuing the lower arc’s trajectory across and in between the projecting structures occupying the rear left-hand side of the void.

thirty six manages to project similar enigmatic scalar qualities to thirty two by virtue of the differences in the composition of its elevations, a very large and highly active front elevation in contrast to its almost blank and still rear elevation. Perhaps thirty six signals the beginning of a new path of discovery as a result of this more satisfactory glimpse into what the potentials of meaningful dialogues between the actualities of hand making and the promises of the digital environments may deliver.
twenty three
silhouettes approximate actual size

thirteen
twelve 9
twenty nine

twenty four

silhouettes approximate actual size
7
eleven
silhouettes approximate actual size
silhouettes approximate actual size
twenty seven  twenty five  2
silhouettes approximate actual size
thirty four  twenty six  thirty one
application/dissemination

At the commencement of my research I asked two straightforward questions of what it was I was doing and what greater value did it have besides satisfying me? My research may bear criticism of being highly esoteric and, balancing at the edge of conventional architectural discourse, it being of negligible use value to the community at large. To pre-empt the inevitable – yet necessary¹ - question of ‘so what?’, there is a position to be put regarding the use value of the knowledge generated through and by the research, there are deeper layers. This research has been of great personal and professional value as both my making and teaching practices have developed in parallel with the research, each informing the other. My fortune in having a teaching practice has enabled the development of the research and its dissemination to a growing student-body, my peers and colleagues, the broader national and international academic communities and the general public at large through my design studio teaching, local and international lectures, local exhibitions and local and international publishing². I sought an answer to what if any spatial discourses were generated through the miniature – pre the complexities of ‘thing’, ‘object’, ‘artefact’, ‘maquette’ and ‘model’. At this stage of writing I am more aware of the countless discourses evoked by the actions and products of my making, of which the writing here contributes another account. I have provided the following short account of five design studios which were driven by the research and in turn nourished and influenced the research.
‘Poeisis’ was a design studio offered to Interior Design students in semester 2, 2001 tutored by myself and Karen Hamilton, an interior designer and jeweller. My intention was to run a design studio whose entire output would consist of small palm-size models made using jewellery fabrication techniques, from materials the students would not normally use or be familiar with and to this end Karen provided invaluable support. The decision to work at small sizes was driven by my research interests; however there was a pragmatic aspect in making the decision as there is a greater chance of achieving high standards of craft, completion and finish when working with little things. From the outset only the highest levels of craft were acceptable. Through their making students were asked to investigate the nature of models in the context of a paperless studio, where the naked artefact, isolated – yet bound to the context within which it was presented – was expected to be self-revealing and self-explanatory. Central to our investigation was the search for the characteristics which may define interior models, as opposed to architectural models, models which privilege the communication of space or the simulation of the occupation of space over the view of external appearance; from within not from without. Students made a model in response to each of four briefs titled, ‘object’, ‘interior’, ‘architecture’, ‘pavilion’.
hands-on

In July 2006 I assisted Karen Hamilton with her design studio ‘Hands on’. Once again an emphasis was placed on the notion of design by making and consequent to Karen’s jeweller practice, focus was directed towards high levels of craft to support the integrity of the artefacts produced; a great deal of emphasis went into making clear the distinctions between a model representing something and an artefact being the thing in itself. Consequently the studio developed into explorations of the interiors of hand made small objects no larger than palm size. Working from the premise of these small objects being sites in themselves, and not representations or metaphors of other things, the concerns slowly transformed into using these small artefacts as tools for investigating design possibilities. Their final project required the design of a multi-purpose transformable pavilion based on hinged, swivelling and sliding mechanisms, all of which actions were required to be demonstrated through their final models.

manual ideas

‘Manual Ideas’ design studio – semester 1, 2007 – was conceived by Peter Downton and I as a laboratory in which a part of the research for the ARC sponsored Homo Faber I grant could be carried out. Karen Hamilton once again tutored technical studies. We were interested in investigating the physical modelling of ideas in themselves and not designs which may possibly emanate from the ideas, and the ways in which the idea itself could be enriched through its exploration in three dimensions, in the hope of exploiting both calculated and intuitive communication between the hands, eyes and brains. The studio commenced with students modelling an idea in physical form selected from a list of words, progressing to modelling two of these ideas juxtaposed against each other, then modelling three differently programmed spaces concentrating on their individual spatial narratives, relationships and connections. Project four required modelling the relations
opposite _ kate jackson

above _ katie collins
between the spaces housing three activities – one each for a single person, a group of five people and a group of twenty – and between the spaces and the site. In their final project students were required to formulate their ideas of home and then communicate those ideas of home which could be comprehended and understood by others. The students’ artefacts were exhibited as part of the ‘Homo Faber: modelling ideas’ exhibition held at the Museum of Victoria in August 2007, and are included in both the catalogue and book titled Homo Faber: modelling ideas.

dome, lobby, lane

In semester 2, 2007 Peter Downton and I offered the ‘Dome, Lobby, Lane ‘design studio assisted by Kim Wearne, an interior designer and jewellery undergraduate student. Encouraged by the quality of artefacts produced in the previous design studio, we modified the same design-by-making strategy to focus on taking the ideas further into making modelled spatial designs. At the commencement of the studio each student was allocated a city block and asked to identify and map the ‘significant’ public spaces within their block. These spaces were then modelled as solids and correctly positioned on their sites which were assembled together to present a unique modelled view of all the public spaces within an area bounded by Swanston, Latrobe, Spring and Flinders streets. This part of the city was redistributed with each student required to interpret afresh their new piece of fictional city and construct a narrative to contextualise their city block, from which they were to model their interpretation of the interior space of one of the solids located within their blocks. Two scale models were made at progressively larger sizes for the purpose of better defining the proposed construction technologies of the respective designs. Their final project required students to design portable and transformable kiosks which could be ‘a confessional for dreams and aspirations, a memorial to the loss of respect in this world and a place to sell and enjoy a cup of coffee’. Each kiosk had to demonstrate it could be all four spaces at different moments in time, with the added requirement for their
models to have the material capability to demonstrate the transformations required to satisfy the brief.

thrashing the machines

Thrashing ‘The Machines’ was an inter-disciplinary design studio offered to architecture, interior design and landscape architecture students in semester 1, 2008 – by Peter Downton, Alison Fairley and myself with the assistance of Julette Peers – as another design studio funded through the ARC Homo Faber grant. The design studio was premised on an exploration of the potential of digital modelling to advance design outcomes through virtual and physical modelling using Rhinoceros, Photoshop and 3D Max software, using digital laser and paper cutting and three dimensional printing technologies for the production of three dimensional models. This involved students using alternate manual and digital techniques which, towards the end of the studio, gave way to the singular use of digital means to both generate designs and produce three dimensional models and digitally rendered images of their outcomes. Towards this end a series of four projects were set ranging in scope from the initial requirement for each student to manually make a self-portrait, to a project contrasting analogue design and making with the imagined freedoms offered by working in the digital environment. Students were asked to virtually model the junction of two dissimilar materials and then, to their dismay, they were asked to hand make the products of their virtual freedoms. For the final project students were required to work in teams – comprised of students from differing disciplines – with an imposed caveat for all work to be done through digital means. Students’ models were included in the ‘Homo Faber: modelling identity and the post digital’ exhibition held at the Museum of Victoria in August 2008. They are also included in the catalogue and the forthcoming book titled Homo Faber: modelling identity and the post digital.

As previously stated the flow of knowledge has in no circumstances been even or uni-directional and, as is the nature of dialogues, I have been able to receive
equal to what I have attempted to impart. In 2005 a team comprising Professor Mark Burry, Professor Peter Downton, Professor Michael Ostwald and myself was successful in receiving an ARC Discovery grant to research what is gained in the process of making by hand, and demonstrate what might be lost in the creative process through an uncritical shift toward the take-up of new, predominantly digital technology. Titled ‘Spatial Knowledge and the Built Environment: The Design Implications of Making, Processing and Digitally Prototyping Architectural Models’, the research had as its premise the ‘extraordinary speed and accuracy of the rapid prototyping and screen-based - or virtual reality three-dimensional representational techniques - implicitly assumes that speed is to be valued over critical reflection and that modern techniques are necessarily superior to traditional ones. This assumption is evidenced by the removal of drawing boards from schools of architecture and practice workspaces. However, there seems to be as much potential for gain as there is for loss as a result of this change.’

Whilst my research has been made more available to the general and invited public through three major public exhibitions in the Museum of Victoria, three exhibition catalogues, two books – with the third forthcoming – it has been these events which have forced me to produce tangible research outcomes in accordance with strictly unavoidable deadlines. But of far greater importance are the conversations engendered through the activities associated with the grant, whether through the formalities of lectures and seminars, intimate one-on-one bar conversations or e-mail exchanges. These interchanges and exchanges have provided fertile grounds for new research and ideas, evidence of which is demonstrated in thirty-five and thirty-six’s testing of the convergence of analogue and digital technologies as a first step in the search/research to establish dialogues between the two.

1 'yet necessary' refers to the necessity for questions and questioning, the agency through which change is facilitated, the need to upset equilibrium in order to advance
2 please refer to appendix A
3 ARC Discovery Grant Homo Faber: Spatial Knowledge and the Built Environment: The Design Implications of Making, Processing and Digitally Prototyping Architectural Models Chief investigators Prof Mark Burry, Prof Peter Downton, Prof Michael Ostwald, A/Prof Andrea Mina
4 ibid. The research was conducted between 2006 and 2008, with the third publication scheduled for 2009.
above _ aaron wooster project 4
opposite _ nicholas visser and zhipeng cai project 4
below _ vaughan howrad and peter wilson project 4
Charles and Ray Eames’ film ‘Power of Ten’ is a dramatic depiction of the comparison of relative scales of the universe making clear certain similarities between polar opposite scales, and in doing so lending weight to one of the most clichéd aspects of working with small bits of nature, that being the fact of the complexity and diversity of its detail when revealed through closer examination.

A wonderful advantage of working at very small sizes is the fact of it requiring very small amounts of material to fabricate these objects. Sourcing materials is also made much easier as there has always been an abundance of supply in the discovery of a new source, simply put, a little goes a very long way. Apart from the deliberate purchase of a never diminishing 50 x 50 mm length of balsa wood, a sheaf each of silver and gold leaf, synthetic glues and payment for digital 3D printing, all materials have either been gifts from friends and pets or picked-up/scavenged by myself. It was with a sense of loss in the pleasures and romances associated with ideas of chance and happenstance that I realised through the research these discoveries are no longer by chance or of their own making. My practice has been enriched through the research which has naturally permeated through and into my everyday life, making me acutely aware of the potential inherent in the things I may encounter or be directed towards or be given; it is a never ending cycle of constantly being on the look-out for the next thing.
By making at such small sizes I have been able to re-contextualise certain materials and exploit others which would not normally be considered for use in making architectural artefacts. To date I have worked with lead, balsawood, jarrah, pine, oregon pine, red gum, mountain ash, merbau, meranti, palm, plum, wood-borer infested floorboard, bamboo, kelp (sea weed) stalk and pods, sea-urchin shell and spines, cuttlefish bone and shell, fish bones, prawn feelers, crab claws, cactus spines, thorn-tree thorns, elephant-ear pods, butterfly wings, cicada wings, cat hair, nylon thread, gold and silver leaf, plaster of Paris, and 3D plaster prints. My interests have been focussed on using organic materials, materials which at some stage in their existence contained life forces or became the channels through which some of these forces had been directed. Maybe it is as a result of this sharing of common purpose that humans have a natural resonance with organic materials, whereas synthetic materials appear to be cold and sterile, they have no pulse. There is an extraordinary diversity of form available to be transformed from its original – and in most cases discarded state – into something imbued with enough ‘energy’ to spark the imagination, that which is at the very core of our being. It would take a lifetime to develop the skills to be able to emulate billions of years of evolution, and even in this writing it is ludicrous to harbour the thought, consequently I have sought out ‘that which cannot be emulated’ and used ‘it’ in ‘its’ limitless manifestations to fabricate these artefacts.
Another of organic materials’ attributes are the wonderful diversities that can be found within the same material, be it through size, shape, form, colour or texture, none of which would be of value were it not for the interactions between practiced eyes and an informed brain. In many instances it is less than likely one would be able to identify the true nature of some of the materials used. Unless told so it is almost a certainty the prawn feelers would never be identified as being such, yet the revelation of their true identity engenders a completely different relationship between viewer and material, one enriched by one’s own associations with this material under normal conditions and the disparity in use of this as a ‘credible’ building material for a very large building. There is little chance I would ever be able to make anything as perfectly elegant as these striped prawn feelers or as geometrically intricate and detailed as a small section of a sea-urchin shell or as elegant and strong as a cicada’s wing. Ironically on many occasions great effort has been put into imbuing materials with tensions of ambiguity, in which a dynamic is established between comprehending the material as one thing and then encountering flickering doubts over one’s certainty regarding the nature of the material. In many cases the ‘balsawood-ness’ of balsawood has been subverted through hours of concentrated sanding, and final polishing through the fiction generated between fingertip skin and balsawood, relying on the skin’s natural oils to act as a polish. Cuttlefish shell may be remarkable for its diverse manifestations; it has earned a new respect after spitefully cracking in retribution for the cosmetic scraping done to some surfaces to engender them an appearance other than as sea shells.

Most of the difficulties I have encountered with materials have been associated with the problems of reducing the material to a ‘correct’ size relative to the other materials being used whilst being limited by the materials’ natural properties. Jarrah has proved to be the most resilient of timbers and the most rewarding in terms of being able to provide a fine diameter and long length. Seaweed-stem (Kelp) was considered a miracle material because its cellular structure enabled it to be whittled down to form relatively long, thin and straight rods until the self same
cellular structure exercised another of its properties by expanding and contracting according to the relative temperature and humidity in the air, rendering beautiful, ram-rod stiff columns into Daliesque parodies. Bamboo shards as fine as human hair were a serendipitous discovery made by bending a length of bamboo back onto itself to the point of its sudden explosive rupture, thereby expelling impossibly thin and straight, almost invisible wisps of material. Surprisingly one of my cat’s hairs has provided the thinnest and straightest self-supporting material to date.

But most intriguing is the dialogue established between manufactured glue and the organic parts it connects to bring all together to form a ‘whole’, order established through synthetic means. And yet this, the only critical and most important material in the whole palette of materials, the one element without which very different outcomes would be achieved, attempts to remain as inconspicuous as possible, preferably invisible; the maker’s skill tested and measured by their ability to make the appearances of order look effortless. Fortunately the small sizes of the pieces and their negligible weights demand equally small amounts of glue, which when it dries is clear and almost invisible.
images

Through the duration of my research I have relied almost solely on directly making, without the use of any drawing or drawings. Drawing is another form of making and as such I have neither been able, nor had the desire to make through drawing. None of the artefacts were prefigured, all were directly realised without the use of drawings, which are in essence graphic models of a desired or predicted future. However, through the research I have developed a different respect for the role and use of photographic images. I initially railed against the image in favour of the actuality of the artefact itself; arguing scale and materiality is only truly comprehended through actual one-on-one encounters. My disquiet was fuelled by the ease in which countless numbers of electronic images may be produced, and manipulated at will, using the plethora of software packages available, which raises an issue of the image’s credulity and to my estimate ultimately results in the image’s loss of credibility.

For the positive, the photographic image does provide different lenses through which these small architectures may be seen afresh. I have pleasure in my knowledge of areas where much of the detail has been obscured, or instances where the physical dimensions of pieces become so small, they seem to disappear if the lighting conditions are not correct. My pleasure and its poetic aside, these are not ideal conditions. Some of these visual legibility issues may be alleviated
through the capacity of photographic images to be enlarged to sizes which are easily read and comprehended; through the photographic image we are able to penetrate the smallness of the artefacts and gain access to their detail, 'secrets' and interiority.

Manipulated images are also the manufacturers of other realities. By investing in time and the pedantry of digital logic new fancies may be generated/constructed ad nauseam. Ironically the only time these artefacts come together to form any sense of community is in images and the public exhibition of some of the artefacts – although even in exhibition they are isolated one from the other by their individual glass encasements. Apart from 14 to 21 – which were conceptualised as a series – all have been thought of as singular, entities unto themselves.

Bachelard informs us 'the gentle warmth of enclosed regions is the first indication of intimacy.'¹ From 'enclosed regions', we may infer a move from outside to inside with a consequent differentiation from light to dark. The image demonstrates its true potency through its ability to creatively accommodate these gradations of light. It is these gradations of light to which Juhani Pallasmaa refers, when he talks of 'the imagination and daydreams (being) stimulated by dim light and shadows.'² One may speculate we formulate associations with occupation by introducing shadow into the images: gradations from light to dark, outside to inside, seen to unseen - that which remains unseen, resides in darkness.

Most importantly it is through images these artefacts will ultimately endure. As a result of their structural and material fragility the artefacts are highly susceptible to damage – as has been the case in a number of instances, with one case of catastrophic destruction – the likelihood of their longevity cannot be assured. More emphatically, their organic materiality has a fate condemned to dust through natural decay. And, as does twentyseven continue to have many presences through its published images, so to will the others enjoy greater longevity through images made in their likeness.

With the pleasure of retrospect, a pleasure only made possible by its temporal location, a number of observations may be made concerning some of the qualities apparent in the oeuvre. As in the case of the materiality of handcrafted jewellery these artefacts are what they are, they are made to appear in a form that is their essence; they may be very small in size but they are their intended actual sizes, full-scale, one is equal to one, neither larger nor smaller, exactly the sizes they are. Similar to jewellery they are made to the most intimate scales of the human body. But unlike jewellery these artefacts deny immediate contact with the human body as their seeming and actual fragility denies unsupervised handling; they remain enticing and illusive – illusive through illusions and allusions – being touched only by the brain, felt through the eye and caressed by human intellect.

A conscious attempt has been made to avoid constructing specific narratives in favour of those brought to the artefacts by their audience. If they are to have life, those lives and their stories are momentary illusions entirely dependent on the observers' own perceptions, imaginations and mental projections. Through their naming they remain untitled, freed from the prescriptive narrative of nomenclature yet each now clearly identifiable through the anonymity of their unique numbers.
Ideas and expressions of tensions are inherent within all aspects of the research, from the initial making to the architectures themselves and through and into the verbalisation of the research. From the outset there is a certain tension inherent in their naming, a tension between identification and identity; ‘twenty two’ assists in identifying the place in which the twenty second artefact is located relative to those in the series, based on the sequence in which they were made, it neither assists nor directs us any further. The research engages with these ideas of tension through the literal material and body tensions experienced in their making and through the instinctive bodily tensions we experience during initial encounters and subsequent engagements with very small objects. These tensions are further engendered through hoped for dynamic fluctuations in apprehension that may occur as a result of juxtaposing opposing ideas within the same composition or frame. There is a fine balance between establishing a space of tension as distinct from establishing a space of oppositions; to engineer an equilibrium of material resonances within the same space requires the provision of a democratic space of engagement, a space able to accommodate the simultaneous material co-existence of not one, but many material voices, in a form that is neither excessive nor lacking, thereby facilitating dialogue over hegemony.
By virtue of many of these architectures having their genesis in acts of destruction, or assemblage from accumulated remnants, tensions have been established between the ideas of destruction and construction; opposite yet complementary poles in the ideas of becoming; the architectures reveal dialogues between material destruction through erasure and material composition, construction, re-construction and redemption. In many of the architectures this dialogue is complemented by imagined conversations concerning the state of completion or destruction of the artefacts. Allied to these dialogues is (that of) erosion and revelation, diminution of the abiding architectural form by an erosion of its solidity of form and surface to reveal interior space, space for occupation; architectural hegemony challenged by its essential other.

The development of dialogues between the interior and exterior in concert with smallness have been central to the research, as without their ‘inner-ness’ these architectures would be viewed with diminished interest. Through their abilities to define and make space, through their capacity to contain and accommodate more than their own presences they are charged with higher orders of being than their mute solid cousins who are cast as their silhouettes. Simply put there is no interior without an exterior, there are no interior conditions without context, architecture cannot exist without solid and void.

At a more subtle level there is the dialogue between perfection and imperfection, between the perception of highly polished, smooth surfaces and miraculously perfect junctions and the actual realities of their relative crudeness in making and finish, which is - thankfully - obscured through their smallness. Different tensions have been established by weaving together ideas of fragility and durability. Due to their small sizes - and the even smaller sizes of their component parts - and that they are all made out of organic perishable materials, they will do just that, perish. These are architectures prone to immediate catastrophic destruction through the misguided flick of a finger. Perhaps the amount of time spent looking for the countless tiny pieces lost whilst making should be the agency against which fragility
is calibrated. At a particular moment one may be confidently holding a piece with tweezers, then ‘click!’, too much pressure, the piece has gone, disappeared into thin air, propelled too far away to be found, lost or crushed and broken; not forgetting the additional time to replace the piece. In the majority of cases tiny sharp bits project out from the ‘main bodies’ and as is to be expected they are often invisible and are invariably located in the wrong places, exactly where you choose to take hold.

Their eminent fragility naturally presents issues of durability on the presumption of their value and worth. I confess to having never accepted responsibility for their longevity or their material and structural coherence, as their entire coming together is made possible through the use of synthetic glue with an unknown lifespan. Octavio Paz talks of the thing ‘that is handmade has no desire to last thousands upon thousands of years, nor is it possessed by a frantic drive to die an early death. It follows the appointed round of days, it drifts with us as the current carries us along together, it wears away little by little, it neither seeks death nor denies it: it accepts it.’

I have a sense of joy in thinking of their inevitable and slow, incrementally small disintegration. As a consequence of their fragility and in the effort to facilitate their durability, they have been isolated from the world at large and encased behind and within transparent glass containers, eliciting other connections to dialogues of museology and archaeology. Susan Stewart discusses these issues of fragility and material destruction whilst adding a further layer to the interior/exterior dialogue in her discussion of glass encasements. ‘Yet, of course, the function of the enclosed space is always to create a tension or dialectic between inside and outside, between private and public property, between the space of the subject and the space of the social. Trespass, contamination and the erasure of materiality are the threats presented to the enclosed world.’

These glass encasements attract other speculations. I have worked through the initial tensions engendered between the artefact and its necessary base, tensions concerned with their competing attentions up to the point of abolishing
the architectures in favour of the plinths. Those tensions have subsequently been transformed into dialogues between artefact and frame; dialogues between architecture/artefact and the frames through which they may be viewed. In its most literal sense this engages with how the little architectures are physically located on their bases for presentation to the world at large. Initially conceived as a utilitarian device in the service of durability, the glass encasement has developed into being understood as an integral and indispensable part of the base, which together with their respective architectures comprises the artefact. But figuratively speaking what these architectures are based on is more complex. Stewart elaborates on the significance of these encasements by glass: ‘in the case with all models, it is absolutely necessary that Lilliput be an island. The miniature world remains perfect and uncontaminated by the grotesque so long as its absolute boundaries are maintained ( ). The glass eliminates contagion, indeed of lived experience, at the same time that it maximises the possibilities of transcendent vision.’

Her ‘transcendent vision’ may be the many frames through which these architectures can be viewed and dialogues established, be they through the frames of architecture or interior, modelling or machines, crafting or sculpture.

encounters

By virtue of their small scale, encounters with small objects place conscious demands on the relatively gargantuan-scaled human body in its negotiation of the actual and conceptual spaces between it and very small objects. At the conceptual level, Bachelard informs us ‘(v)alues become engulfed in miniature, and miniature causes men to dream.’¹ In order to deal with these ‘intensifications’, encounters with miniatures require the observer to slow time down, to exclude external distractions and focus attention on minutiae; this amidst the normal scale and complexity of everyday life. Susan Stewart speculates ‘(i)n its tableau-like form, the miniature is a world of arrested time; its stillness emphasises the activity that is outside its borders. And this affect is reciprocal; for once we attend to the miniature world, the outside world stops and is lost to us.’²

Our bodies are subject to unusual stresses as they tense to maintain equilibrium whilst hunching and straining forward, guided by vision and innate senses of proximity, incrementally testing the limits of how close to approach at such a small scale. Tensed eye muscles are accompanied by an instinctual forwards movement of the head as they are forced to limit their field of vision in their attempts to adjust focus at such unusually close proximity. Ralph Rugoff offers this description of the ability of ‘tiny artworks’ to ‘force us to draw closer in order to scrutinize them, and this forward movement parallels a mental process: the more closely we examine
minute details, the less we notice the gulf in size that separates us ( ) This charges our experience of the object, imbuing it with an almost hallucinatory acuity. A conscious effort must be made to control the eye’s random scanning of the tiny artefact, to allow the minutiae of material and composition to be apprehended, before they can be pieced together to form a cogent understanding of the whole. The expenditure of energy through this craning forward is intensified by the unfamiliar demands placed on the body’s muscles, demands which are exacerbated by controlling movements measured in fractions of a millimetre. The miniature demands a commitment from its observer in the form of an investment of probably the most precious ‘life-commodity’ of all, their time.

Christine McCarthy writes of interiority being ‘an imaging of closeness and the making of relationships. It draws its strength with decreases of distance, lukewarm at infinity.’ This approach to the miniature, at the exclusion of most of what else is around, is the formation of an intimate relationship between observer and miniature; a relationship based on negotiation: negotiation between big and small, fragility and durability, detail and obscurity, interior and exterior. To Susan Stewart ‘speech unfolds in time, the miniature unfolds in space. The observer is offered a transcendent and simultaneous view of the miniature, yet is trapped outside the possibility of a lived reality of the miniature.’

One of architecture’s most fundamental characteristics is its capacity to provide for and accept human occupation. If we accept we can and may be projected into extraordinary mental spaces albeit for infinitesimally small moments of time – and in doing so emulate at the gigantic human scale, quantum mechanics’ claim to virtual occupation of two spaces in the same moment of time – then the work may be viewed in the context of a very particular type of architecture. This is architecture at full scale but at a very small and enigmatic size. Through its form and by the images it may evoke or project, the work may act as catalyst and facilitator for momentary flights of fancy driven by personal narratives in the hope for those split-second moments of occupation.
To physically encounter the diminutive is in itself an experience of disjuncture. It is these immeasurable moments of virtual occupation that are the central concerns of this work. Central to my research is the notion we as cultures cherish within us an innate common architectural imagining capable of being triggered through associations and experience. It is through their overt architectural image and their strong assertion of interiority – and hence inhabitation – that there is aspiration in the making for the architectures to act as catalysts for projections into this common architectural imagining, and to simultaneously provoke occupations of those virtual spaces. These highly personal and infinitesimal spaces of imaginative flight may be analogous to Bachelard’s literary daydreams. ‘Daydreams of this sort are invitations to verticity, pauses in the narrative during which the reader is invited to dream. They are very pure, since they have no use.’

Ultimately the products of my making must stand in isolation and be appreciated, and if need be, judged in themselves for what they are; whereas my research outcomes should be assessed as a combination of the making, writing and its articulation through exhibition and public presentation.

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1 Bachelard, Gaston. The Poetics of Space, Beacon Press, Boston 1969. pg. 152
3 At the Threshold of the Visible, Miniscule and Small-Scale Art, 1964-1996. Independent Curators Incorporated, NY. pg 14
4 McCarthy, Christine. Toward a Definition of Interiority in Space and Culture vol. no. 2, May 2005 pg 114
6 Bachelard, Gaston. The Poetics of Space, Beacon Press, Boston 1969. pg. 162
appendix a

exhibitions

Homo Faber: Modeling, Identity and the Post Digital
ARC Discovery Grant; curated group exhibition, Melbourne Museum, Fitzroy Gardens, Melbourne. August 2008

Homo Faber: Modeling Ideas
ARC Discovery Grant; curated group exhibition, Melbourne Museum, Fitzroy Gardens, Melbourne. August 2007

Strangely Familiar
University of South Australia Gallery, Adelaide. University of South Australia and RMIT Interior Design collaborative staff exhibition. May 2007

Homo Faber: Modeling Architecture
ARC Discovery Grant; curated group exhibition, Melbourne Museum, Fitzroy Gardens, Melbourne. June 2006

im\ material
First Site gallery, Basement 344, Swanston Street, Melbourne. Group exhibition as part of Sensoria Festival of Design. July 2004

Inherited Futures
Storey Hall, RMIT, Swanston Street, Melbourne. J MGA Conference group exhibition. January 2004

On the Premises
Goya Gallery, Southbank, Melbourne. University of South Australia and RMIT Interior Design collaborative staff exhibition. October 2002

PhD Review
FCE Gallery, Building 8, RMIT. Joint exhibition Interior Design PhD reviews. September 2002

PhD Review
FCE Gallery, Building 8, RMIT. Joint exhibition Interior Design PhD reviews. December 2001

Spacecraft: 07/01
publications

books
Homo Faber: Modelling, Identity and the Post Digital
(forthcoming)

Homo Faber: Modelling Ideas.

Homo Faber: Modelling Architecture.

refereed:
Manual Modeling, a Pedagogical Tool
(publication forthcoming)

Miniatures, Poiesis and a Few Acts of Redemption
‘Inherited Futures: Technology to Trap Ideas’ – 11th Biennia l J MGA Conference proceedings, RMIT University Press, 2005

other:
Thrashing the Machines
Homo Faber: Modeling Architecture, ARC Discovery Grant catalogue essays, RMIT, Melbourne, August 2008

Into the Heart of Darkness
Homo Faber: Modeling Architecture, ARC Discovery Grant catalogue essays, RMIT, Melbourne, August 2008

Modeling Ideas Through Manual Means
Homo Faber: Modeling Architecture, ARC Discovery Grant catalogue essays, RMIT, Melbourne, August 2007

Giving Form to Ideas
Homo Faber: Modeling Architecture, ARC Discovery Grant catalogue essays, RMIT, Melbourne, August 2007

Why Are Cuttlefish Ticked Pink?
RMIT Sensoria Conference proceedings, RMIT University Press, November 2006

Modeling Architecture
Homo Faber: Modeling Architecture, ARC Discovery Grant catalogue essays, RMIT, Melbourne, June 2006

Miniature
Homo Faber: Modeling Architecture, ARC Discovery Grant catalogue essays, RMIT, Melbourne,
### Appendix B

#### Materials & Dimensions

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maximum diameter  | 74 | 37 | 27 | 30 | 60 | 27 | 20 | 44 | 43 | 28 | 43 |
length             | 40 | 34 | 21 | 23 | 51 | 21 | 38 | 28 | 31 | 28 | 31 |
width              | 35 | 31 | 20 | 19 | 47 | 18 | 15 | 27 | 16 | 15 | 16 |
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my grateful thanks to peter downton for his support, conversations and dog stories