

*Michael J. Davis with Esther Mecredy and Alessandro Melis*

# **MATERIAL OPENINGS: ARK AND THE MATERIALITY OF THE VESSEL**

# 05

Online versions of this article can be found at:  
<https://drawingon.org/Issue-02-05-Material-Openings>  
<https://doi.org/10.2218/12xgn712>

## ABSTRACT

*If an installation is charged with immersing an audience simultaneously in the alternative worlds to which it gestures, what role might the materiality of the installation play in the transposition of time and space implicit in such an immersion? The vehicle for an investigation into this affective materiality is a reflective case study of 'the Vessel' and its making.*

*Presented, originally, as part of a PhD by Project at RMIT, Melbourne, The Vessel allowed the telling of a story of my architectural practice, Ark. Having been exposed to the Dutch Rationalism of the late 1990's and early 2000's, and subsequently immersed in the formalism of the AADRRL, Ark was eventually returned to New Zealand and the particular lineage of modernist tectonics from which it stems. Through the apparatus of The Vessel. The research showed how Ark brought these different approaches to architectural making together to the effect of creating new architectural works.*

*The article focuses on The Vessel itself through the lens of materiality. Doing so relocates The Vessel to new territory where it can open new, alternative design research opportunities.*

## BIOGRAPHY

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*Alessandro Melis is a senior lecturer in Portsmouth School of Architecture. He is leader of the programme on environmental policies of the Research Cluster for Sustainable Cities and the founder and director of the CCI Media Hub. In 1996 he founded Heliopolis 21, an architecture firm based in Italy and Germany (Berlin).*

Michael J. Davis with Esther Mecredy and Alessandro Melis

# MATERIAL OPENINGS: ARK AND THE MATERIALITY OF THE VESSEL

An installation is charged with the weighty burden of immersing an audience in the multiple alternative worlds to which it gestures. This paper explores what role the materiality of the installation might play in the transposition of time and space implicit in such an immersion. A series of collegial probes have drawn this question to the surface, probes into the material condition of *The Vessel*, an installation presented, originally, as part of a PhD by Project at RMIT, Melbourne. It is presented here as the focus of a reflective case study through which I will pursue this transitional effect, ascribed or attributed here to material.

This article unpacks *The Vessel* in reverse order. It briefly situates the installation in relation to design research discourse and its initial institutional context, prior to resituating it in relation to vessels of the Pacific and timbers of New Zealand. This is followed by a description of the Vessel and its parts, its material constituents, making and design. A series of accounts ensue that describe different experiences encountered through the artefact and its making. They are offered as examples of the realms *The Vessel* opens up and thus demonstrate the significance of the installation's materiality.

This issue of *Drawing On* has enabled a re-contextualisation of *The Vessel*, a journey away from its institutional origins into less determined territory. The means of this transposition is the attention to the materiality of *The Vessel*, which unfolds through the narrative that follows. With this unfolding the tone of the paper moves from description, through the first person, to finish with some intimate insights. This tonal change is a

direct reflection of how 'material' the issue of materiality is to my practice, Ark, and to me personally. It also reflects the gradual manner in which this condition has been revealed through the production of this text.

## SITUATING THE INSTALLATION

The question of what constitutes 'design research' is highly contested.<sup>1</sup> Murray Fraser's *Design Research in Architecture: An Overview* brings together a range of academic authors whose essays represent various positions on the topic that collectively reflect an effort to legitimise 'practice-based' modes of enquiry and to give the field some shape. Included in Fraser's overview is an essay from Leon van Schaik and Richard Blythe in which they outline RMIT's PhD by Project programme. The text is complemented by a series of ideograms, including Blythe's illustration of the notion of a 'theatre of practice', an idea which is palpable when undertaking the degree.<sup>2</sup>

The PhD by Project at RMIT grew from the school's Master of Architecture by Project programme. At the invitation and under the supervision of Leon van Schaik, then burgeoning local Melbourne architect John Wardle completed the Masters programme in 2001. His final exhibition consisted of an extraordinary cabinet set against a backdrop of drawings and images of his work.<sup>3</sup> Van Schaik writes of Wardle's presentation in relation to the cabinet: "The expression of his discoveries about his work was presented, not as a closely argued, linear textual statement, but as a performance in which this wondrous



01:  
*The Vessel* as a performative apparatus; image of the installation and presentation of *The Vessel* at the RMIT Design Hub, Melbourne, October 2014.

object unfolded, stretched, wiggled and concertinaed as it supported Wardle's exegesis."<sup>4</sup>

As a PhD candidate at RMIT some ten years later, it seemed to me that if Wardle didn't set the standard in terms of the quality of theatre desired of an installation and final presentation, then he cemented it. As I shifted through presentations searching for a sense of how I would present my own work, I kept returning to Wardle's piece. While his Russian doll drawer finally revealed a pencil, the generating move behind my *Vessel* was that it would be locked together with my Grandfather's hammer, which would be concealed within.<sup>5</sup>

My PhD reflected on work carried out through Ark, my architectural practice, and addressed how different approaches to architectural composition might be brought together with the effect of creating new architectural works. The installation that served as a closing for this period of research consisted of four compositional parts: a carpet that defined the space of operation; the dissertation set on a black plinth that provided a point of fixity from which to operate; the compositional taxonomy around which the research gelled; and, the main point of focus, *The Vessel* and its contents.

Almost three years on from completion, through the passage of time and a range of audiences, *The Vessel* has been taken to be an installation complete in itself, but one that remains seemingly bound to its institutional origins.<sup>6</sup> Its stasis has been perceived to limit its relevance and capacity to do further 'work'. This text leaves behind the lens of composition and replaces it with considerations of the quality of material and the specific contexts in which it is worked. This shift will enable the artefact to leave behind its institutional origins and offer up a description of material practices that I hope will contribute to the broader discussion of how making-with-material might be understood as a design-research practice. It is not my intention here to engage with this discussion, but rather to proffer a description of making as an opening to and through material.

## VESSELS

Oral and written accounts of the Pacific (local, global, historical, and contemporary) abound with stories of sea-going vessels. These vessels remain essential to

those from the Pacific (Islanders), if not as a means to provide for ourselves, then as an essential element of our various cultural conditions and identities.<sup>7</sup> The opportunities and risks associated with travelling over the sea are ever present, as is an awareness of the threats to the world they allow us to navigate—global warming, pollution, species depletion. Here, timber as a material (and the tectonic cultures that ensue from this material) is inseparable from the watercraft attached to sailing.<sup>8</sup> To Maori of Aotearoa-New Zealand, the term 'waka' denotes a vehicle or vessel of some sort—from a water trough, to a car, to a political party, to (more historically and typically) canoes often hollowed from the trunks of totara trees.<sup>9</sup> 'Waka huia' are another type of vessel: intricately carved, timber containers charged with holding and celebrating one's most precious possessions.

In 1994, as I neared the end of an undergraduate degree in architecture at the University of Auckland's School of Architecture, I made my own Waka Huia. It was empty but for the cuts articulating the interior surfaces that record the matrilineal line, extending from Samoa, through which I find myself in New Zealand. It records a story of displacement, dispossession, and loss of identity, but ultimately, makes a claim to self-knowledge and thus restoration within the relocatable point of the Waka Huia itself. As an artefact it internalises this drama; without a narrator to tell the story it would appear to be merely a well-considered timber box—a generic, mute, blank canvas. Twenty years later, my Waka Huia became a prototype for *The Vessel*.

## THE VESSEL

*The Vessel* consists of seven discrete parts that can be separated out or stacked in various configurations. The initial pattern of stacking belies the elegance of the individual parts that define an awkward, top heavy compositional whole. It is an accurate reflection of a personal practice assembled from a range of approaches encountered over time, including Auckland's local strand of Modernist-timber-tectonics, the making practices of the Pacific, through Dutch Rationalism, to the formalism of the Architectural Association's Design Research Laboratory. With the exception of a 3D printed component, all the parts are made from indigenous New Zealand timbers, mostly retrieved from the house demolished to make way for the Langs Bach, a project brought to me

by my wife and designed for her two cousins and their families. The property, inherited from their parents, had been in the family for four generations, and the dilapidated house that stood on the site dated from the late 1940s. We took it down carefully.

*(7 January 2012)*

*I have salvaged a lot of material from the old house.  
I have de-nailed and transported 600 metres of rimu match-lining and 100 metres of kauri weatherboards.  
Why? I don't know what I will use it for ... it feels like treasure.  
My wrist has jammed up.  
The builders are laughing at me.*

*(20 January 2012)*

*More timber is coming back.  
I am spending hours at a time, bent over, under our house, in the dark, in the dirt, kicking cat shit out of the way, stacking salvaged finishing timber on palettes—four of them, hip high. The framing is being turned into flooring, the weatherboards will go on the ceiling. The builders are keen but wincing at the cost to me—still shaking their heads but not laughing anymore.  
I'm still carrying the front end of this project on my own. I'm running around faster in tighter circles. Where is the momentum?  
I can hear the kids above. Vanessa puts on the record she brought me for Christmas.  
My back hurts.<sup>10</sup>*

I was the architect, then the main contractor for the Langs project. I was involved in the demolition of the old house; I recycled the timber; I made the six interior doors that slide between the two living spaces; and I recycled the old mirrors so that the grandchildren could look into them the same way their grandparents did. This begs the question: why bother? The answer, simply, is “because it feels like treasure;” it was treasured. A subsequent question: why, in demolition, does it still feel so?

The bulk of the rimu framing and the weatherboards were processed and returned to site to be reinvested in the new house. The remainder, including the offcuts and cast-offs, I stored under my house: 200 metres of 11 inch by ¾ inch kauri weatherboards; assorted rimu framing; 600 metres of rimu match-lining taken from kitchen and laundry spaces in a range of pastel colours that had gathered over 30 years; and another 300 metres of ¾ inch rimu

in varying widths was extracted from skirting boards and ceiling battens. These materials would become *The Vessel*.

From bottom to top: piece one consists of face laminated kauri. The mass it forms was excavated for a sliding drawer that would contain my Waka Huia. The ¾ inch timber came down to 12 millimetre slips once the paint was removed and deviations were resolved through successive passes through a thicknesser and then an 80 grit sander. As it was being laminated, we laughed about the idea that we were reassembling the tree the timber had come from, and then felt the loss that the timber represented; the joke wasn't funny any longer.

Piece two is of totara. It comes from an old wharf post that caught my eye at the timber recyclers. Salts still issue from it. The long teeth cage or cradle part three, which is of ABS plastic.

Piece four has teeth extending downward, cut from rimu framing. The vertical faces are from rimu match-lining. The back of each strip has been sanded to bring it from ½ inch thick to around 10 millimetres before being edge-laminated. The pastel green was the last layer of paint applied to it when it lined the laundry walls of the old house. Horizontal surfaces are from edge-laminated rimu taken from skirtings and battens. They were sanded back to remove the old varnish and to yield material of around 16 millimetres thick. These horizontal rimu surfaces have nail punctures in them, but they are concealed as long as the pieces are stacked. The material was selected to ensure that all of the exposed (vertical) surfaces are free from blemishes. There is nothing like a nail hole to distract from the surface quality of *The Vessel* when it is fully assembled, no irregularities other than those present in the grain of the timber or the peeling paint. The surfaces of *The Vessel* are perfect in their ‘character-filled’ old-ness.

Piece five has rimu surfaces similar to those of piece four. Pieces six and seven are from edge-laminated kauri. Long strips wrap the kauri pieces providing a different sort of tectonic to the painted rimu, where the vertical and horizontal surfaces are expressed discretely. All of the exposed grain surfaces of *The Vessel* were finished with 120 grit then 240 grit sandpaper before being coated in hardwax oil and polished.





02;03;04:  
The old house at Langs Beach; Timber being removed and sorted during  
demolition; Langs Bach, Northland.



05;06:  
*The Vessel*: parts 1-7; *The Vessel* as an architectural repository.





With the exception of pieces three and four, all parts possess 'feet'—20mm x 20mm x 30mm long timber plugs—set in from each of their four corners. The corresponding top surfaces of the piece beneath are mortised to receive the feet of the piece above and so render the stack stable. The feet also hold the pieces apart.

## MAKING

*The Vessel* was designed and made over nine weeks by University of Auckland, School of Architecture and Planning woodwork technician Kenny Murgitroyd and I. Significant contributions were also made by furniture maker David White and graduate student Ricky Wong. When the task of making part two and the teeth of part four proved beyond our expertise and equipment, I made a desperate call to David. He described the task of cutting and fitting the teeth to effect eight simultaneous points of contact between the two parts as "precision engineering with crotchety old sticks" as he grumpily thrust the completed work toward me.

Ricky encountered a similar problem with an entirely different material. He made part three, the ABS plastic voronoi, by gluing together separate 3D printed sections extracted from a digital model. The accuracy of the digital Rhinoceros model didn't translate through the printing process into the physical output. He spent a week sanding the extremities of the pieces to resolve discrepancies of up to 7 millimetres. The story of this situation remains a resource, a way to dispel misperceptions amongst groups of new students, older generations, and non-makers, of the accuracy and ease of the digital.

Binding Kenny, David and I together was as an appreciation of the preciousness of the indigenous New Zealand timbers we were handling. It is that 'appreciation'—what it demands in terms of an investment of time and effort; what it yields in terms of expertise and its wider impacts—this paper seeks to understand. In one respect, for me, it is connected to the stories I absorbed as a child in Aotearoa—New Zealand of the making of buildings and boats.<sup>11</sup> These stories celebrated the strength and beauty of kauri and the durability of totara especially. But the depth of our concerns comes from working with them.

## DESIGN

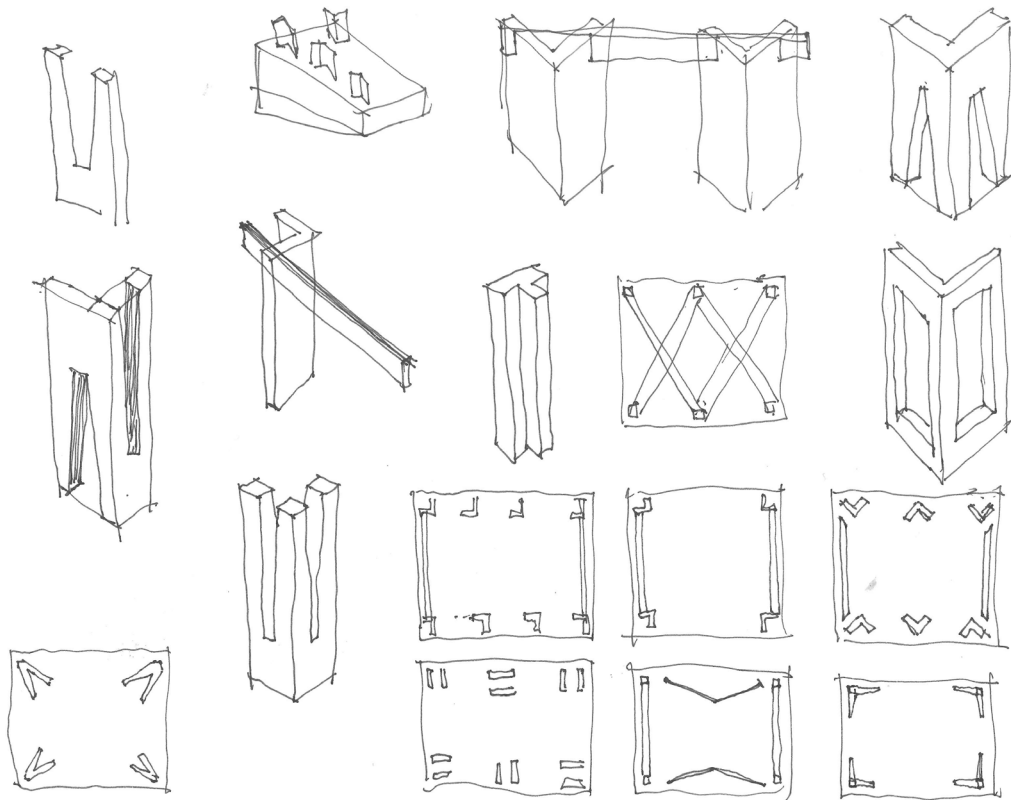
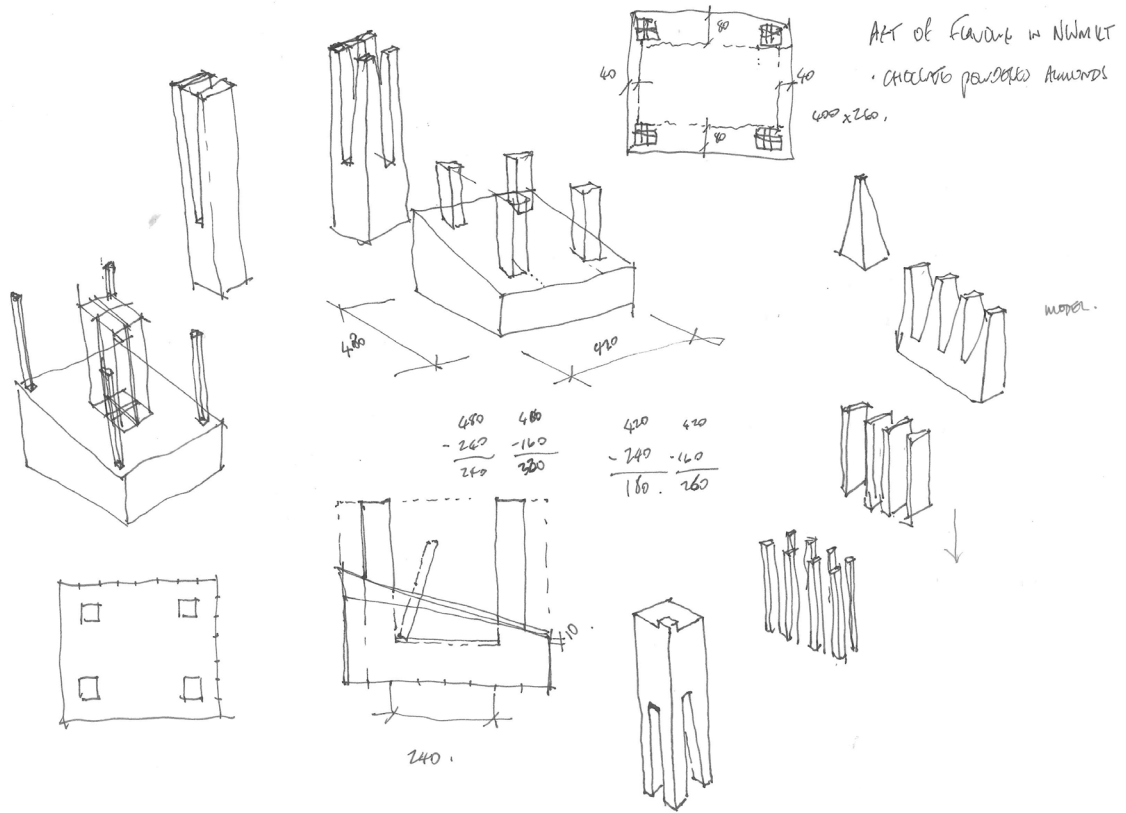
The 'design process' was not separate from the processes involved in making. Initial drawings described design intentions rather than pre-determined ends. Drawings were changed as we encountered material constraints, such as the availability of a particular colour of painted timber amongst our stock pile of recycled material. When we did pursue design intent, in spite of problems encountered, it was related to a diagonal that came to be understood as the key to the composition. While the idea of a stacked volume connects directly to my earlier Waka Huia, this diagonal can readily be traced back to an unbuilt project for an accommodation unit made from a skewed volume that was to be repeated and rotated as it was stacked to create a twisted whole, but the diagonal might have a deeper root which informed both designs.

Eventually, with the realisation that such a skewed form would compete with both the recycled timber I had set aside and the work it was to contain, *The Vessel* was straightened. Nevertheless the diagonal remained important, not so much as a formal determinant but as the location of architectural investment. Time, material and labour went into developing the diagonal line, to coming to terms with what it might do and what it might mean in the story to be told. The diagonal in the AutoCad elevations went from being the point where my Grandfather's hammer would secretly lock the whole together, to being a spatial interface between the parametric and the tectonic. It is the moment that sets off the stacked composition as a dynamic yet perceivably awkward whole, but it also makes material the question of its own importance; it is a tectonic point of entry into *The Vessel*.

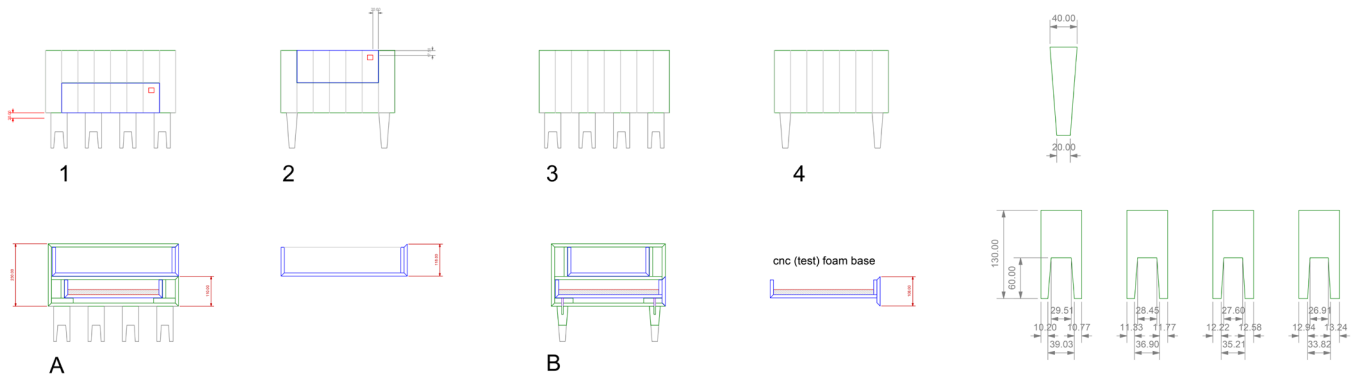
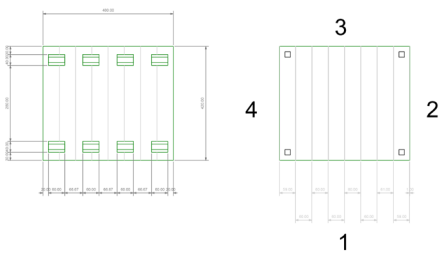
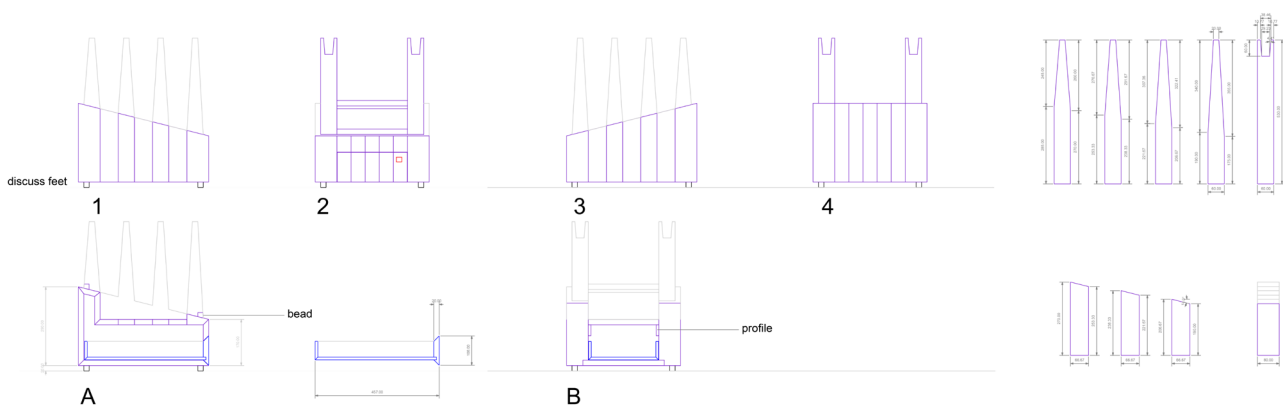
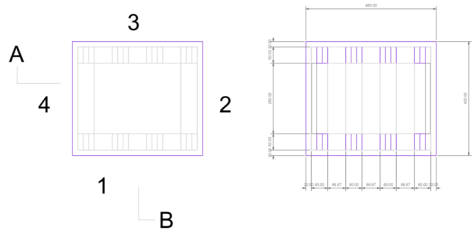
## MATERIALS AND MATERIALITY

Questions remain as to why so much effort was expended to cooperate with the material, to recycle and recast these timbers that proved so difficult. What is it in these materials that incites such obsessive behaviour? How is it experienced? Answers lie in *The Vessel* and in the material practices (and places) that formed it.

Langs Beach is a coastal holiday subdivision. The nearest town to Langs is Waipu, 11km away. Waipu was settled (colonised) in the 1850's by Presbyterians from the Scottish Highlands.<sup>12</sup> While issues of the sale or appropriation of



07: Sketches for Part 2 of The Vessel.



08: Construction drawings for Part 2 and Part 4 of *The Vessel*.

land, of deforestation as a colonial practice, and of milling and the usage of particular timber species lie beyond the scope of this paper, Waipu Museum suggests that those who came to farm the area were accustomed to clearing forests for the purpose.<sup>13</sup> The timber extracted from the original house offered clues as to its origins. One length of timber found was a 9.6 metre long kauri weatherboard. Given limited transport infrastructure in the region in the 1940's, and thus the difficulty of carting material of this sort of dimension to site without simply cutting it down to something shorter, it is reasonable to assume that the tree came from the immediate area. It is highly unlikely to have come from any further away than Waipu; the timber we salvaged from the house was probably grown there. The dimensions also suggest the tree was over 300 years old; it was of the place, as are the aspects of the Langs Bach we made from it.

While concerns for the relationship of material to place might hold for the Langs Bach (as they do, for example, with the recycled mirrors) these relationships are severed with the making of *The Vessel*. In removing the material from the site, the immediacy of such connections are lost on *The Vessel's* various audiences, and yet through the materiality of the artefact it retains a sense that it has stories to tell. *The Vessel* requires the same sort of narration as the Waka Huia. Through the demounting, denailing, sorting and stacking of the timber. Through passing it through the thicknesser and then the sander, removing layers of paint and grime with each pass, trying to keep as much of the timber as I could, I became involved with the timber, effectively remaking the material I was to work with. The timber came to demand to be used in ways that would challenge the norms established through its previous use (and neglect). The match-lining, for example was never considered for reinstatement as match-lining. In *The Vessel* we looked for short lengths and sorted the pastel green from the other colours. As a result, parts four and five recall confectionary well before any sense of 'kitchen'. In the new Bach we looked for the long strips. They became the surface for the six sliding doors – striped paint on one side, CNC relief on the other. In both situations the material was given new life by being used in unusual ways.

Issuing from the materials of *The Vessel* is an appreciable sense of them finding new purpose over time. As a species kauri is kind on the eye, with straight long and speckled cross grains, but in *The Vessel* strips of this kauri, set

side by side, also present differences between heart and sap wood, between those pieces that have and haven't absorbed water or the oil base from the paint that covered it. It is exceptional, its beauty having intensified through its history. Of course, this incarnation of the material as building fabric is only its most recent form. As a tree it occupied space in the Langs area well before Pakeha, and for me, long before my forebears in Samoa met missionaries and the builders of churches they were to marry that would set my family line in motion. *The Vessel*, as a celebration of materiality, begs consideration within this sort of timeframe.

These observations might be shuffling around the edges of the subject. What I am building toward is a point where I ask the reader to enter into a speculation with me (or perhaps I have said sufficient to make this a more substantive claim): our material practices—working-with-tools-with-materials—create the potential to connect us to worlds and times beyond the immediate, and the made artefact embodies those realms. The key to unlocking that potential and forming those connections, I would contend, is making with a purpose beyond the artefact itself. That purpose emerges over time through and with the making.<sup>14</sup> With *The Vessel*—with the length of time I was exposed to the materials that formed it, and its proximity to me (it lived with me, cared for, under my house!)—that period was heavily protracted, and highly fruitful.

## CONCLUSION

The reason behind my undertaking a PhD by Project was to bring attention to the particular characteristics of my doing as a practitioner and, through the subsequent focus on those characteristics, to become better at what I do. Presentations of work by other PhD by Project candidates suggests this sort of motivation is common. The roots of such characteristics are deep-seated and in many cases, including my own, highly personal. However, the work must attend to the expectation of the institution and the demands of a particular thematic format (either self-imposed, institutionally imposed or imposed by the work) and thus becomes heavily curated. Aspects of an inquiry beyond these curatorial frameworks are ignored, suppressed, curtailed or fall outwith the necessary framing afforded by a thesis.



The story unpacked through *The Vessel* at RMIT was one of the strange relationship created in my practice between the formalism of the AADRL and the context of timber tectonics within which Ark operates in Auckland. Materials were addressed at a certain level as means to tell the story of this relationship, a relationship that was demonstrated to be definitive of Ark as a practice. However, the conclusion of the dissertation expressed a weariness of these sorts of definitions. They run the risk of fixing characteristics, the very things the attention brought through the research would seek to set in evolutionary motion.<sup>15</sup>

This issue of *Drawing On*, through the call and review processes, has drawn attention to the materiality of *The Vessel* and thus the material concerns of Ark. The ensuing focus has shown how essential my concerns for materials and material practices are at a personal level, and how they present themselves through the installation of *The Vessel*. Exposing the personal aspects of practice in this way perhaps tests the institutional tolerance for such accounts, but it also has the welcome effect of navigating *The Vessel* away from the work conducted through the PhD. *The Vessel* begins to open up.

It is telling that part three of *The Vessel*, the ABS print, is not attended to at any length in this text. It is not that it is of no interest, nor that ABS doesn't have a quality that is worthy of examination, but it is a quality that resonates in a different way to the other material practices this paper explores. Making this component was principally a formal exercise. Its physical presence compared to that of the total amount of timber comprising *The Vessel* is perhaps indicative of the relative importance of form to material to Ark as a practice. This acknowledgement, in itself, allows the installation to move on from the institutional context within which it has been bound for three years, to uncover new design research territory.

## EPILOGUE

*The Vessel* was made from the left-overs of the materials reinvested in the Langs Beach. While it is thus related to Langs Beach as a place, that connection, although important as an installation, intensifies and embodies these and broader situational concerns of Ark as a practice. It honours the projects, places and people it (and I) come from. In doing so, it not only gestures toward, but

through a focus on its materiality, opens up the different worlds to which it relates. My time spent working on the *Vessel* coincided with working day to day with my Father on the Langs Bach, exposed to the full range of emotions that such an experience might entail. It also encompassed the death of his Father. My purpose, as it emerged, in working the material of the Langs Bach was multi-faceted: it was to prove to the builders and my Dad the importance of the timber and the sense of our work in salvaging it; and it was to honour the material and the people and practices that I come from embodied by that material.

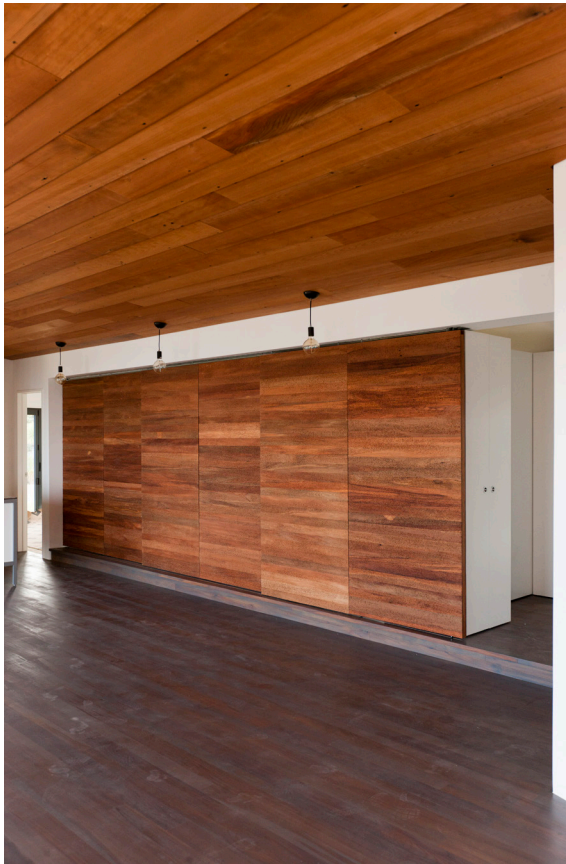
I feel no connection to the 'Settlers' in the Waipu area. I'm not from farming stock and find deforestation abhorrent and, through the narrow perspective of 'material economies', terribly wasteful. I have some empathy with the millers, something I realised by the attention I gave to the patterns left by the saw blade in the rough side of the weatherboards. The care for the material shown in the *Vessel* does encompass a sense of loss, and yet I am grateful for the opportunity to work with the material that was deemed to be worth 'harvesting'. The circularity of assembling the surfaces of the *Vessel*, of testing and adjusting and testing before we glued and clamped them wasn't nostalgia, nor about exorcizing guilt, but about drawing forward what the material had to offer.

I am from builders, generations of them, on both my Mother's and Father's sides. As we were taking down the original house I was aware of the effort and expertise invested in its construction. Just the idea of using bent, twisted rimu for framing timber and the difficulty of finishing surfaces over it is staggering. Yet, it was common practice once the (contrastingly straight) kauri became economically unviable for the same task (it having been ruthlessly removed from the landscape) and prior to stocks of 'exotic' *pinus radiata* coming on line.

My paternal Grandfather, John Patrick Davis, was many things including a builder, educated largely by immigrant British craftsmen, in the joinery workshop of what is now Fletcher Construction. He was also a collector of materials. After his death, my brother and I were charged with the daunting task of clearing out the sub-floor space of his house. As we went, I began to set certain things aside including kauri-framed teller windows and a hearth surround he had 'salvaged' from the old ANZ Bank on Fort Street, Auckland. My brother quipped "Who's going to clean that out from under your house when you go?" The

tail of the joke dropped away quickly as the reality of the idea sunk in. It will be my kids and theirs.

I also inherited my Grandfather's tools. At the outset of the Vessel project, I had a feeling that his hammer was important. At the outset of the design, its proximity to the diagonal and its role, secretly locking the whole together, underlines the consideration it was given. It wasn't included as some sort of gimmick but because he was present in my mind and hands as the Vessel was being made. He is embedded in the Vessel as is my gratitude to him.<sup>1</sup>



09:  
Doors for Langs Bach with CNC relief set into re-used rimu match-lining.

## NOTES

- 1 Shane Murray "Design Research: translating theory in to practice" in Fraser, Murray (ed). 2013. *Design Research in Architecture*. Burlington: Ashgate, pp.95-116.
- 2 L. Van Schaik & R. Blyth, "What if Design Practice Matters?" in Fraser, Murray (ed). 2013. *Design Research in Architecture*. Burlington: Ashgate, pp.53-68.
- 3 J. Wardle "Cut threads and frayed ends: the character of enclosure." (MArch diss., RMIT University, Melbourne, 2001)
- 4 L. Van Schaik, "Essay on some works of John Wardle Architects" in van Schaik, L., Carter, P., McAuliffe, C., Hutson, A., and Jackson, D. (eds). 2008. Volume: John Wardle architects, United Kingdom: Thames & Hudson, p.18.
- 5 The final submission for the PhD consisted of a bound document in two volumes and a video recording of the installation in which Ark's work was exhibited and presented to examiners. The presentation took around 55 minutes and a recording can be viewed at <https://practice-research.com/portfolio-item/ark-pursuing-qualities-of-relation-through-a-provisional-compositional-taxonomy-by-michael-davis/> (accessed 17th December, 2017).
- 6 See for instance the New Zealand Timber Design Awards, 2017: <http://www.nzwood.co.nz/category/timber-design-awards/nzwood-resene-timber-design-awards-2017/> (accessed 17th December, 2017).
- 7 I am of Samoan decent.
- 8 See for instance Walsh, J. (ed). 2014. 'Last, loneliest, loveliest: 14th international architecture exhibition La Biennale di Venezia New Zealand Institute of Architects', issuing body; International Architecture Exhibition (14th : 2014 : Venice, Italy). Auckland, New Zealand: New Zealand Institute of Architects.
- 9 <http://maoridictionary.co.nz/search?&keywords=waka> (accessed 1st August, 2017).
- 10 Excerpts from my project sketch book dated as shown.
- 11 New Zealand is increasingly referred to locally and formally as Aotearoa New Zealand.
- 12 <http://www.breambay.co.nz/maori-history-bream-bay/> (accessed 1st August, 2017).
- 13 See <https://www.waipumuseum.com/html/museum.html> (accessed 17th December, 2017).
- 14 See Davis, M. J. 2013. 'Pursuing a sense of the emergent through craft practices in architectural design' in *craft + design enquiry – A World In Making: Cities Craft Design*, Vol.5, pp.49–71.
- 15 See the conclusion to Davis, M. "Ark: Pursuing qualities of relation through a provisional compositional taxonomy" (PhD. RMIT University, Melbourne, 2015).
- 16 My PhD offers speculation as to how these connections are made through the notion of an 'ecology' of design. The case is made by relating ideas from John Dewey, Donald Schön, Peter Downton and Gregory Bateson.

## FIGURES

- 01 *The Vessel* as a performative apparatus. Photograph: V. Ceelen.
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ISSN: 2059-9978

URL: <https://drawingon.org/Issue-02-05-Material-Openings>

DOI: <https://doi.org/10.2218/12xgn712>