

UNIVERSITY OF MANITOBA

ResearchLIFE

SUMMER 2016 | VOLUME 2



THE FINE ART OF RESEARCH

CERAMIC ARTIST EXPLORES
LIFE OF TREES

BACTERIA

Nature's biopesticide

LA VIA ACADÉMICA

Agrarian social movements

GETTING FROM POINT A TO POINT B

Moving MS research forward

MESSAGE

FROM THE VICE-PRESIDENT
(RESEARCH AND INTERNATIONAL)



“In art, there’s rarely a clear split between research and the work necessary to realize the concrete result, and for Nickel, the evolution happens through the doing.”

The quote refers to one of the feature stories in this issue highlighting the work of ceramic artist Grace Nickel. Her work graces the cover of this issue. I wanted to throw a spotlight for this issue on the rich diversity of research, scholarly works and creative activities undertaken at the University of Manitoba. In every issue, I seek to strike a balance in the stories we share about the inspiring and cutting edge research our students and faculty are immersed in.

I’m excited to share some insights into our new federal Minister of Science Kirsty Duncan’s thoughts on science, innovation and the need to increase the engagement of young women in the pursuit of science, technology, engineering and mathematics fields.

Other stories in this issue explore social justice and food sovereignty, using microorganisms to increase crop yields, and the research of the inaugural Waugh Family Chair in Multiple Sclerosis. Female scholars and rising stars, and their significant accomplishments exemplify our institution’s commitment to enhancement of the academy and STEM fields.

—Digvir S. Jayas, PhD, PEng, PAg, FRSC

On the cover:

Grace Nickel, tree-columns from the installation *Arbor Vitae*, 2015, porcelain, up to 240 cm in height. Photo by Michael Zajac. See feature story on page 18.

Acknowledgements for support go to the Canada Council for the Arts, the Winnipeg Arts Council, the University of Manitoba, the Faculty of Architecture’s C.A.S.T. facility at the University of Manitoba, the Pottery Workshop and the Sculpture Factory in Jingdezhen, China.



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ResearchLIFE

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ISSN# 1918-144

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ResearchLIFE is a Member of the University
Research Magazine Association: www.urma.org
umanitoba.ca/research

Publication of this magazine is partially
supported by funding from the Government
of Canada’s Research Support Fund, as is all
research at the University of Manitoba.

TREES FOR THE FOREST



Michael Zajac



BY MARIANNE MAYS WIEBE

Ceramic artist Grace Nickel's latest large-scale work elaborates rich tensions between fabricated and natural worlds, the monumental and the fallen, contemporary experience and ancient metaphors and traditions.

IMAGINE WALKING THROUGH

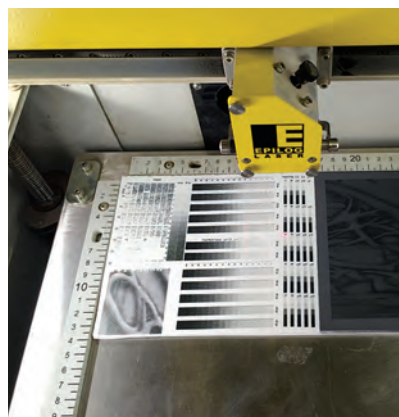
a lush forest with trees all around, enveloped by their green scent, a carpet of moss and mulch underfoot. Look up: many of those tall trees have been alive for much longer than you. "Life-sized" for a tree is definitively unlike human scale, and as you

walk, that difference in scale may also impart a fractional understanding of our human place in relation to the earth and nature's timeworn rhythms, along with our connection to all living—and dying and decaying—things.

The felt experience of trees is something that award-winning ceramic artist and School of Art professor Grace Nickel challenged herself to bring to her latest art installation. Entitled *Arbor Vitae* (Latin for "tree of life") the installation comprises six large porcelain "tree-columns," as she calls them, surrounding a "floor piece" of a fallen tree.



Master Tang making a multi-piece plaster mould from the Host prototype. Sculpture Factory quarter, Jingdezhen, China.



A laser marking test on porcelain tile, for Grace Nickel's *Espalier* tile series. Instead of firing in a kiln, ceramic material is sintered onto porcelain by a laser cutter.



RESEARCH IN THE MAKING

Arbor Vitae is the result of over two years of intensive research by the artist, and draws on techniques and themes Nickel developed over the past decade. Through those past two years of working on the pieces, she spent time in different artists' residencies, including two periods in the southeastern Jiangxi province, China, in the city of Jingdezhen, also known as the "Porcelain Capital" for its pottery production that stretches back almost 2,000 years. There she worked with an Undergraduate Research Awards student (who accompanied her on one of the trips) and a Master mould maker on the process of building special plaster moulds that would allow her to cast the hollow pieces.

She also explored fabric formwork at the U of M's Centre for Architectural Structures and Technology (CAST), and experimented with fabrication technologies at AssentWorks makerspace in Winnipeg.

According to Nickel, the new work advances her investigations of natural forms pitted against artificial construction and surfaces separated from and reintegrated with forms. "The large-scale porcelain sculptures and installations in *Arbor Vitae* negotiate the relationship between the natural and the fabricated, the austere and the embellished, growth and decay, loss and recovery," she says in her artist statement.

Along with more traditional processes such as slip-casting, press moulding and hand-building, new and experimental technologies (fabric-formed model making, vacuum forming, and laser-marking) are integral to creating the three major components that make up the exhibition, she explains.

In art, there's rarely a clear split between research and the work necessary to realize the concrete result, and for Nickel, the evolution happens through doing.

It starts with a vision or intention. That vision may be vague at first, says Nickel. "But then there's a germination period. The making becomes the research. There's always this searching, the evolution, and then it changes and grows as you move to completion."

For Nickel, the "growing" metaphors are both happenstance and deliberate. She's been working with trees as a symbolic subject for years. And the tension between process and the finished work presented to an audience, she adds, is never resolved. The burden is on the finished work to convey all that's gone into it, however; it must "speak" for itself and move beyond the technical.

Nickel's work speaks powerfully and profoundly—drawing on the depth of her research, experimentation and technical expertise.

"You don't want to lose sight of the audience when you are so involved in the technology and challenges of material and process," she says.

"Everything else, all of the research, experimentation and labour, has to stand in service to the intention of the work and what it conveys and communicates."

See more of Grace Nickel's work at gracenickel.ca

Arbor Vitae is also the title of her recent show at Winnipeg's Actual Contemporary Gallery, which ran from January 22 to March 19, 2016, and included the eponymous installation, along with several other pieces such as a large spiral tree-column entitled *Host*, and *Espalier*, a series of five porcelain tiles marked by laser imagery. The exhibition originally showed at the Canadian Clay and Glass Gallery, from January 18 to March 25, 2015.



Fabric model for *Host*, made by Grace Nickel in Jingdezhen.

NICKEL CALLS THE WORK HER MOST AMBITIOUS TO DATE, NOTING THAT IT WAS CREATED "THROUGH RESOURCES OF ALL KINDS, INCLUDING ONES AT THE UNIVERSITY, ALLOWING ME TO MAKE THIS ... [AND TO] PUSH THE LIMITS FURTHER."

The grand scale of Nickel's sculptural pieces—constructed of individual ceramic modules, which when fitted together, reach up to nine feet high—is also highly unusual for ceramics. The hollow forms are difficult to align precisely, due to the considerable shrinkage that occurs during the drying and firing processes, especially with such large works. Each individual module began with careful planning through experimentation in an intricate fabric modelling process and making complex plaster moulds, done in advance of the casting and firing of individual pieces. The fabric-formed modelling process also accounts for the deceptively soft look of the porcelain tree-column's draping effects.

Nickel calls the work her most ambitious to date, noting that it was created "through resources of all kinds, including ones at the university, allowing me to make this ... [and to] push the limits further, in terms of scale and the use of new technologies. With ceramics, it's simply a fact that the bigger the scale, the more challenging [it becomes]."

The hollowed-out, decorated ceramic forms of *Arbor Vitae* reference the antiquity of pottery-vessels as that most ancient and emblematic of arts. Preserving with the lightest touch that traditional embellishment aspect of vessels, through individualized decorative application to each piece, while transforming the vessel into figurative form, feels very contemporary for both the intricate technologies employed and for the way Nickel's tree-shapes echo and intimate the body.



The plaster prototype for *Host* being extracted from its fabric form.

The fallen tree on the ground is particularly haunting. Divided into five equal, hollow segments, *Prone* recalls Nickel's earlier work commemorating the devastation of Halifax's Point Pleasant Park after Hurricane Juan in 2003, which took down 75 per cent of its 80,000 trees. Strikingly, each of the individual two-foot segments evokes a coffin. *Prone* is perhaps the most tender of the components in *Arbor Vitae*, with each section covered by subtle,

"ARBOR VITAE NEGOTIATES THE RELATIONSHIP BETWEEN THE NATURAL AND THE FABRICATED, THE AUSTERE AND THE EMBELLISHED, GROWTH AND DECAY, LOSS AND RECOVERY,"

intricate decoration like a kind of shroud, typically cloth in which a body is enveloped for burial. Each segment's interior is further ornamented by bronzed fungal-like growths, in delicate homage to the inner growth that may accompany physical deterioration.

With all of the metaphorical, historical and methodological complexity inherent to *Arbor Vitae*, perhaps what's most remarkable is its elegance and compression. The tree-columns are reminiscent of ancient Greek and Roman architecture and structures, such as a temple—or temple ruins. That figural solemnity and deceptive simplicity of the tree-columns, both the upright and the prone, convey a powerful, austere presence that elicits wonder and awe, an effect only enhanced by the paradoxical fragility of the porcelain.

TOP: Grace Nickel, *Arbor Vitae*, 2015. Installed at Actual Contemporary Gallery, Winnipeg, MB. Porcelain, 240 x 360 x 525 cm overall.

photo: Michael Zajac

NICKEL'S ARBOR VITAE encompasses a rich religious and mythological tradition drawn from many cultures. The tree represents the sacredness of life and the connectedness of all things, as well as access to realms both earthly and divine, to mortal experience as well as enlightenment or transcendence; the upward movement of life can't be represented without its inverse, death, decline and decay, suggests Nickel. The tree of life, with its trunk mirroring both directions, symbolizes this understanding.

PREVIOUS PAGES (LEFT): Grace Nickel, *Host*, 2015. Installed in the Canadian Clay and Glass Gallery, Waterloo, ON. Jingdezhen porcelain with metal base, 270 x 50 x 50 cm.

(RIGHT): Grace Nickel working in Jingdezhen, China. photos: Michael Zajac