

	calculus, <i>n.</i> 1 <i>Math.</i> a particular method of calculation or reasoning (calculus of probabilities) <i>It also infinitesimal calculus</i> the part of mathematics concerned with the integration and differentiation of functions. [Latin = small stone used in reckoning on an abacus] (<i>Oxford Reference Dictionary</i>)
RECKONING THE STONES	Peter Simpson →
	<p>A while ago, wandering along the beach at Okarito in South Westland, I picked up a flattish and irregular stone, roughly oval in shape. In colour it was light grey – greywacke, I suspect, though I'm not an expert in such matters – and made unusual by a narrow and slightly raised band of pure white silica, running diagonally across it and through it, since, if you turn the stone over, it looks identical on the other side. Did I pick this stone up and put it in my pocket because of its striking similarity to one of John Edgar's altered stones? Probably. But then I would have been likely to pocket it anyway, as you do with a curious looking stone, especially from a place you maybe won't go to again: a token, a memento, a relic, a talisman.</p> <p>Was the discovery of such a stone one of the impulses that brought John Edgar's altered stones into being? Certainly, one of the several levels at which Edgar's stones function is as reminders. If you ask him about them there is always a location, an occasion, a story, a provenance, for each one. They come, too, from someone whose familiarity with and understanding of the country is wide and deep. He has driven, walked and prospected over most of it; he knows intimately (to borrow one of his exhibition titles) the <i>'tre of the land'</i>.</p> <p>Looking through one of Edgar's numerous and regularly maintained journals in search of the point at which the altered stones emerged, I came across a passage from which the name Charles Cotton leapt out. Having recently written about Colin McCahon, for whom the discovery of the drawings of the geologist Cotton was decisive (he was given Cotton's <i>Geomorphology</i> as a wedding present in 1943). I was intrigued to see what Edgar had made of him. In an entry for 8 April 1983, Edgar wrote: <i>'Cotton loved New Zealand as I love it and want to feel my way over the surface as I would a woman's body'</i>. And a bit later: <i>'This man Cotton will change my life. He will show me New Zealand'</i>. All Edgar's sculptures, large and small – from the towering layered Transformers to the hand-sized altered stones – have their origin in observed geological fact, mediated in part by Cotton's writing and drawings.</p> <p>While such head-and-heart knowledge of New Zealand's geology, landforms and local conditions is one of the co-ordinates of Edgar's stones, it is far from being the only one. As titles of his recent exhibitions suggest – <i>Diggy</i> (Artis Gallery, 1999), <i>Sum</i> (Artis Gallery, 2001), and now</p>

Calculus (2002), mathematics and abstraction have as much to do with the stones as geology and location.

The word *'calculus'*, from the Latin meaning *'a little stone'*, carries in its semantic history its derivation in the use of stones for counting and computation, as in the widely dispersed device of the abacus. By fashioning his stones in such a way that their contrasting bands resemble the universal signs of mathematics – addition (+), subtraction (–), multiplication (x), the decimal point (or full stop) (.), equation (=), and also the digits from zero to nine – Edgar is able to make his stones in combination resemble and enact in some respects the language of mathematics. As he said in a recent statement:

"Stones have played an important role in the development of mathematics, and I want to explore with my exhibit the mathematical sentence. This equation or matrix is open to manipulation, extending the meaning of the stone symbols, numbers and operators. As in any sentence the grammar is critical to meaning, understanding and calculation of the final answer."

If the nine elements in Stone Equation (2000) – the work to which the above statement applies – resemble a kind of *'sentence'*, then Calculus with its 100 pieces must constitute something in the nature of a mathematical *'treatise'* or *'theorem'*. The important thing to recognise is that the principle behind the exhibition is relational; here the individual pieces do not exist in isolation but as part of a dynamic *'dialogue'*. Their placement, sequence, and arrangement in small or large groupings (which are not fixed and absolute but provisional and alterable), has the effect of making the stones—a byword for muteness—begin to speak by utilising the *'grammar'* of mathematics. You can count on these stones.

'Integration and differentiation of functions' the language of calculus points us in the direction of the aesthetic dimension of these works. It is in the perfect integration of contrasted and strongly differentiated materials and colours – stone and glass, greywacke and jasper, sandstone and limestone, granite and marble, argillite and chrysoprase – that the stones work their magic, creating that aesthetic frisson which we recognise as among the essential experiences of art.

In the Russian Formalist Viktor Shlovsky's 1916 essay, *'Art as Technique'* he described the central effect and purpose of art, revivifying life by undoing the deadening effect of habitualization, through the metaphor of stone:

"And art exists that one may recover the sensation of life; it exists to make one feel things, to make the stone stony. The technique of art is to make objects 'unfamiliar' (ostranenie), to make forms difficult, to increase the difficulty and length of perception because the process of perception is an aesthetic end in itself and must be prolonged."

My Okarito stone sits on a low table as part of a matrix (in the mathematical sense of *'a rectangular array of elements in rows and columns that is treated as a single entity'*) along with eight of Edgar's altered stones. Its raw irregularity among the smooth mortising and immaculate joinery of Edgar's pieces makes it seem the *'odd man out'* and yet closely related, an unpolished 'country cousin' beside the refinement and sophistication of the others.

In this casual juxtaposition I find a clue to the fascination Edgar's altered stones exert. As objects they are both found and manufactured, both mundane and strange, both concrete and abstract, both simple and sophisticated; they belong to both nature and culture. By rendering the utterly familiar unfamiliar, they enhance the sensation of life; they make the stone stony.

Peter Simpson, Associate Professor of English at The University of Auckland, is an art writer and curator.

John's stones arrived just as I was leaving to fly north. I left them unpacked. A prospect to return to. Knowing there was greywacke inside, I'd expected something much weightier, so I was already intrigued.

GREYWACKE ALLUVIUM

Geoff Park →

It was John's somehow sensing that 'greywacke', had meaning to me, I suspect, that was behind his consignment. His missive, 'I'll send you some stones to contemplate', wasn't a New Age incitement. But it was effective, nonetheless.

The flight rose into a southerly sky shedding its rain. The greywacke spell began working immediately the cloud parted over the harbour and the floodplain muddying it. For a brief moment, I could see in one look from Plimmerton to Petone, both the sea's and the river's stoney beaches; my version of Baxter's

*'... abandoned, early world
Of rock and sun, where peeled boys tussle
Awkward in their skins, among
Dazzling friendships of seawater'*

The route north skirted the upriver flatness in which *'greywacke'* entered my consciousness and first fired a sense of the shaping power of landscape. The site too of the pedagogy that had hurried John's other word, the *'Calculus'* of his exhibition, out of any prospect of contemplation. I peered down at the gridded sprawl of roads and houses, and pondered the millions upon millions of stones of John Edgar's regard lying beneath them: packed, ovalised, via a mathematic I have fathomed no more than I have calculus.

Greywacke alluvium. The precious heart of Aotearoa. The crumbly of the most fertility that fed its plains' towering forests of birds and waterways of fish. The pebbly ground that the white settlers who rushed it with axes and flames and swept it into pasture, called the best land for God's Work. An infinity of loose, on-the-move particles from colloidal clay, through silt and grit, to stone and boulder. Rounder and rounder, the more, and the more-energetic the moving. Stones plunged through gorges, rolled down rapids. Ground in the grindstones of floods. Flopped onto plains for a millennium or two, and speeded onto coastal fans of more of the stuff. Gouged away by sudden, tsunamiic seas and dumped onto beaches for us humans – John Edgar not alone – to search among for the perfect form.

Alluvial floodplains were, for many civilisations, the source of their industrialised agriculture and its cities. Not least the one that spread from Europe to these islands in the mid-18th century. Civilisation was long thought to be impossible without river alluvium to fertilise it in the first instance.

Greywacke's alluvium underwrote the persuasive language of Edward Gibbon Wakefield's dream; the *'inexhaustible'* plains country of *'soil so fertile'*, 'space so ample' – *'full two-thirds rich alluvial'* – that his New Zealand Company pledged its settlers in 1839. The very same alluvium that, as late in the piece as 1801, those who came to plunder its wealth said extended from the Hutt I'm flying over to the faraway Hauraki Gulf where I'll return to the ground – where, interestingly, John Edgar sources his stones. The Waikato carried them there before the Taupo Eruption persuaded it's waters towards the Tasman.

It is greywacke's hardness that equips it to survive the mountain to sea passage, and acquire the beautiful forms that qualifies it for John Edgar's art. I first became aware that it was something esteemed watching my grandfather and father picking over riverbeds for the choicest walling-stones to hold up the fragile cut-faces of house excavations from which they'd wheeled barrowloads of *'rip-rap'*, as they called the shattered, and apparently useless kind of greywacke. But learning how greywacke got its hardness had to await the good fortune of being a student of the gold-pro prospector-turned-geologist who first demonstrated the evidence of plate tectonics.

It was Harold Wellman's discovery of just how much New Zealand had split along its Alpine Fault that led to the fault becoming recognised as the boundary between the Australian and Pacific plates. The intense heat and pressure in the plate boundary's canyons is integral to greywacke's genesis. Mineralogists believe it to derive from North Queensland, when it was a Gondwanan landmass of Andean proportions. But it also was land of water and rivers of the magnitude and scale that the Andes simply don't possess. And with a depositional environment approached today only by the deltas of the Orinoco and the Ganges. It was the wads of such deposits sliding into the plate boundary canyons that produced greywacke.

'I'll send you some stones to contemplate', he'd said, anticipating the landscape thoughts they'd provoke.

And it is indeed true that through something as humble as a stone, people can be brought in touch with their larger environment. The carefully placed stone in a Japanese garden like Ryōgen-in might symbolise a certain mountain. But by so honouring the stone, the mountain as a whole is honoured, and in turn, the world at large. The notion of paying respect to a stone, or perceiving in a stone something spiritual beyond its mineral content, is certainly not confined to the Japanese, however. As my ecology progressed to embrace notions of mauri and vitality, I wasn't surprised to learn that many old cultures credit stones with such regard.

John's packet was just where I had left it, and I opened it straight away. A sense of precious object emanated from the layers of wrapping. Each stone had both the instant familiarity of home ground as well as the unfamiliarity of strange, foreign coinage. I held one up to the light, discerning the faraway hills' green through bands of glass perfectly fused to the greywacke. In the last stone out of the packet, blue flashed from a circle of red. Coromandel jasper embedded in the greywacke, familiarity of home ground as well as the unfamiliarity of strange, foreign coinage. I held one up to the light, discerning the faraway hills' green through bands of glass perfectly fused to the greywacke. In the last stone out of the packet, blue flashed from a circle of red. Coromandel jasper embedded in the greywacke,

Smaller and more rounded than the others, it lingered in the palm of my hand, warming as our heat equilibrated. As my finger tips' detected the barely-discernible meeting of jasper and greywacke, I felt a surge of regard for the artist who had achieved it. And what forces of energy have to be human-harnessed to cut greywacke as fine and smooth as that? All contained in the beauty of the water-wearing, mountain-building, sea-canyon-filling energies of time.

I laid the stones down to see them together. But while I'd been away the Christian Calendar had tolled September 11, 2001. And I couldn't get out of my mind that the same human-harnessing of energy which had made them so beautiful, had now made a commercial airliner into a weapon of mass destruction. How careful we are going to have to be.

Geoff Park is an ecologist and writer about landscape. He is currently Concept Leader, Papatūmāhau at Te Papa Tongarewa.

THE COMPANY OF STONES

Dinah Hawken

I Stones are heavy and bard and wholly at our service. I keep wishing to bold one. Here, behind the glass. Once a servant offered me a diamond on a dark red velvet cushion. I accepted that stone and embarked on the bardest human task, learning to be a servant myself, like the first servant, bumble and calm.

2 We know we can count on one and one being bound to make two and two dividing into one and one but what about three? In a deep body of water a stone, unfathomable, is so well beyond our reach. Yet I am counting on you while you are counting on me and we are tripled in the company of stones!

3 However much we love their density don't let be precious about stones. They keep lying on earth as hosts

to each falling and rising nation. It is time, 2001, to bold them, our common sense, our striking lost souls, and to be absorbed by sounding out their long, composed, absolute story.

Then to stand. Pronounce their name.

Calculus includes 100 altered stones made from 1997 to 2001. They vary in size from 50 to 300 mm long, and are made from greywacke, jasper, jade, argillite, marble, limestone, glass (New Zealand), chrysoprase (Australia), lapis lazuli (Afghanistan), granite (Africa), granite, sandstone, (India), marble (Italy).

BIOGRAPHY

John Edgar
1950 born Auckland, New Zealand
1972 B.Sc.(Hons), University of NSW, Sydney
1977 established first jade workshop, Auckland
1979 prospecting in South Island, NZ
1980 traveled with Floating World Workshop in NZ
1982 first sculptures in stone, metal and glass
1985 curated Pakohi
1986 prospecting in Australia and Asia
1987 curated Bone Stone Shell
1990 relocated workshops to Karekare
1992 first sculptures in granite and marble
1994 first badges with chemical patination
1996 curated On Form
1998 traveled in Europe
1999 traveled in USA
2000 designed McLeod's Crossing footbridge
2001 public and private commissions

SELECTED SOLO EXHIBITIONS

1979 Tail of the Dragon, Denis Cohn Gallery, Auckland
1981 Signs of the Comet, Dowse Art Museum, Lower Hutt
1984 Cardinal Points, Janine Land Gallery, Wellington
1989 Land Tokens, Dowse Art Museum
Stone Lines (Survey 1977-1989), National Museum, Wellington & Auckland Museum
1992 Making Ends Meet, Fingers, Auckland
1993 Making Amends, Dowse Art Museum & NZ tour
1994 Light Relief, Fingers, Auckland
1996 Cross Country, Loppell Gallery & NZ tour
1997 Insignia, Dowse Art Museum
1998 Lie of the Land, Auckland Museum & NZ tour
1999 Digit, Artis Gallery, Auckland
2001 Sum, Artis Gallery, Auckland

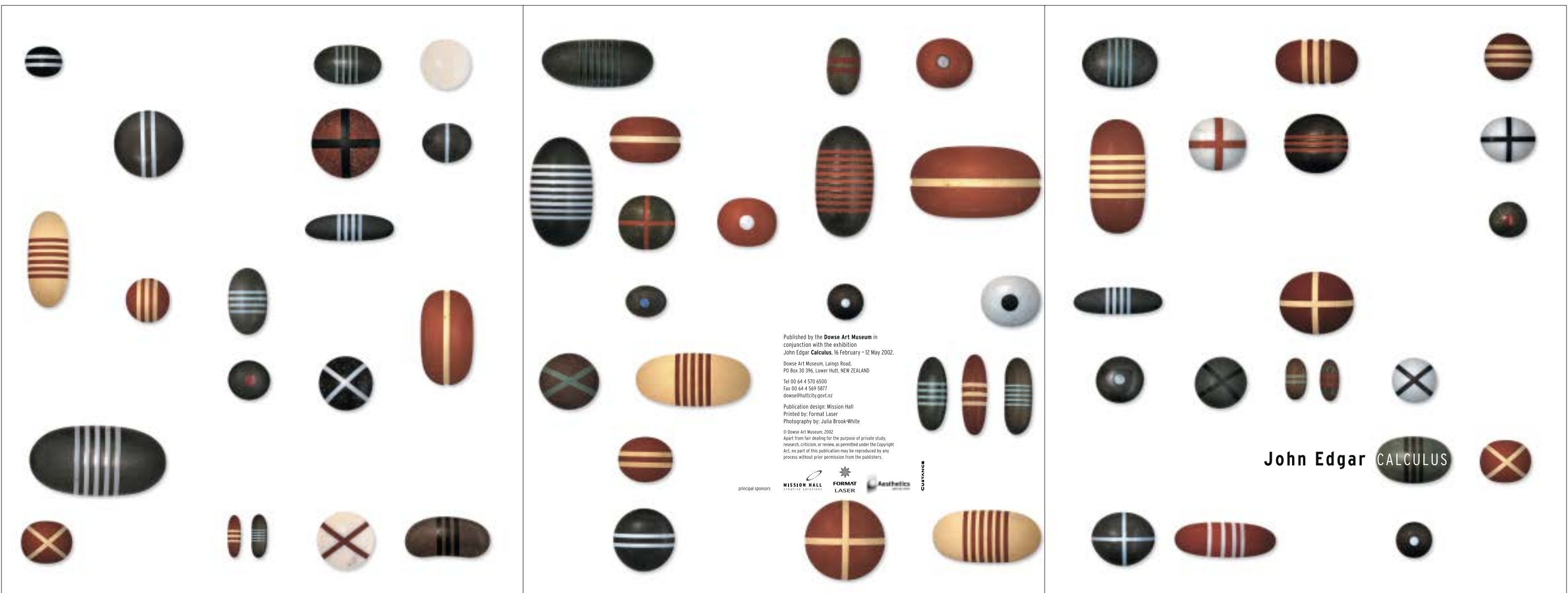
SELECTED GROUP EXHIBITIONS

1982 Small Treasures For Japan, Dowse Art Museum
1984 Kahurangi, USA tour
1985 Treasure From The Land, USA tour
1987 Pakohi, Dowse Art Museum & NZ tour
1987 Jade In The Pacific, Southland Museum & NZ tour
1988 Bone Stone Shell, Australasian & Asian tour
1993 Small Worlds, Auckland Museum
1996 On Form, Loppell Gallery, Auckland
The Same But Different, Dowse Art Museum
1998 Pouamau Jade, Left Bank Gallery, Greymouth
1999 Headhandsheart, COCA, Christchurch
2000 Millennium Medallions, City Gallery, Wellington
2001 4th NZ Jewellery Biennale, Dowse Art Museum & NZ tour

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John Edgar **CALCULUS**