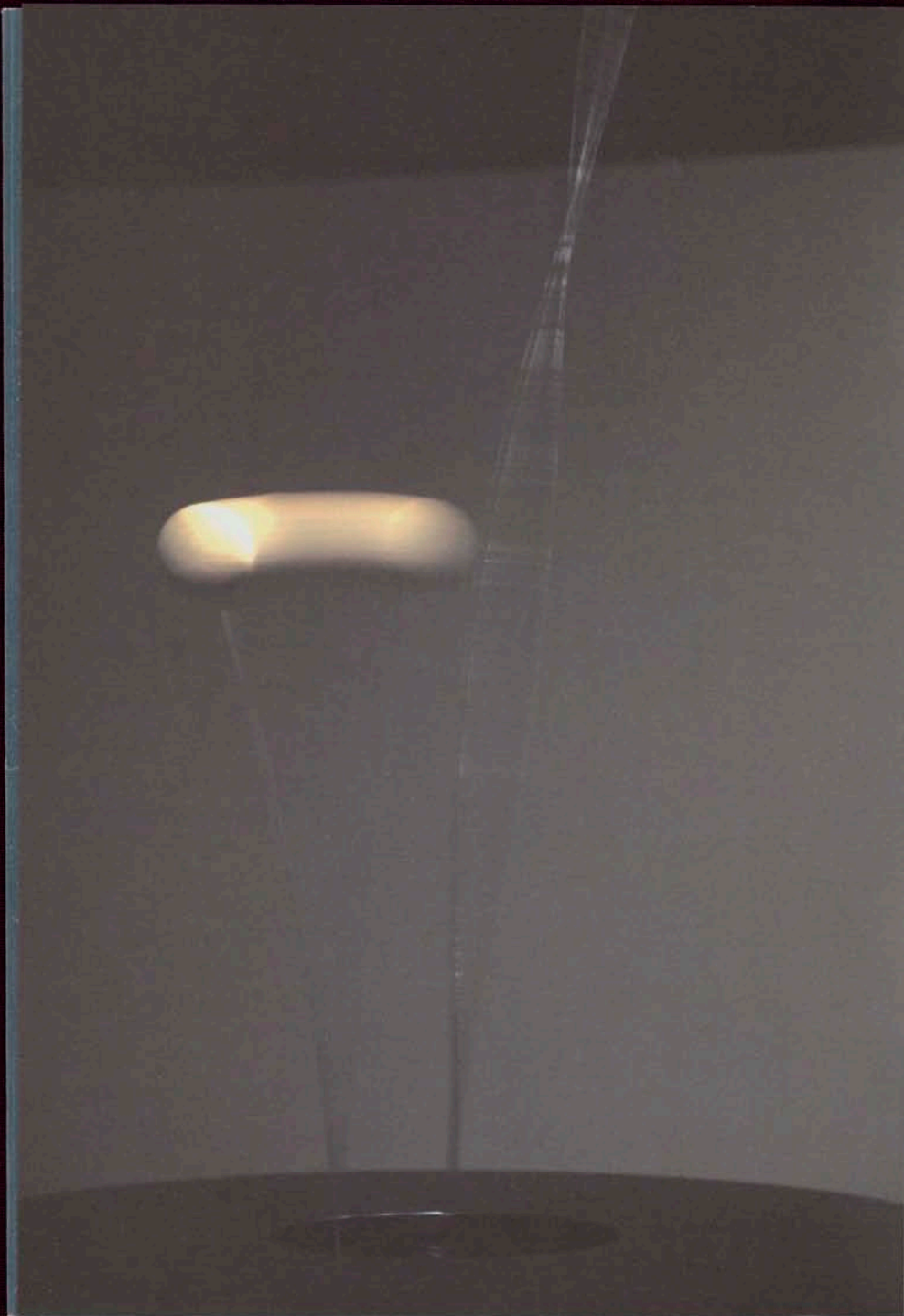


Double harmonic
Len Lye & Tony Nicholls



Harmonic convergence: Len Lye & Tony Nicholls

Tyler Cann

Waves of energy run through a medium (a piano wire, a strip of metal, a length of string), reach the end, and reflect back to the other side. At the right frequency, these waves meet their echoes, become superimposed and form a standing wave or 'harmonic'. At twice their speed they form a double harmonic. It is a basic physical phenomenon, one fundamental to architectural engineering, musical instruments, and – working 50 years apart from one another – kinetic sculptures by Len Lye and Tony Nicholls. Together in *Double harmonic* their works explore – in different ways – the sculptural and perceptual space where sound and movement converge.

As early as the 1910s, while looking at the clouds rolling across Wellington harbour, Len Lye came upon the idea to compose movement as visual art, just as one would compose music. After developing this idea in film, Lye began to set stainless steel into motors and “vibrating the shackles off its resonances.”¹ Such was the sound emitted by Lye’s sculptures that he once suggested to his readers that “you might think of them ... as being musical instruments rather than visual kinetic works of art.”² Nicholls’ works, which use audio speakers as their motors, translate, or rather amplify sounds into vibratory, hallucinatory movement. Traversing music and movement, almost like two waves travelling in opposite directions, the works by Lye and Nicholls form their own kind of harmonic. Both remind us that the boundaries between sound and motion are as porous in art as they are in life.

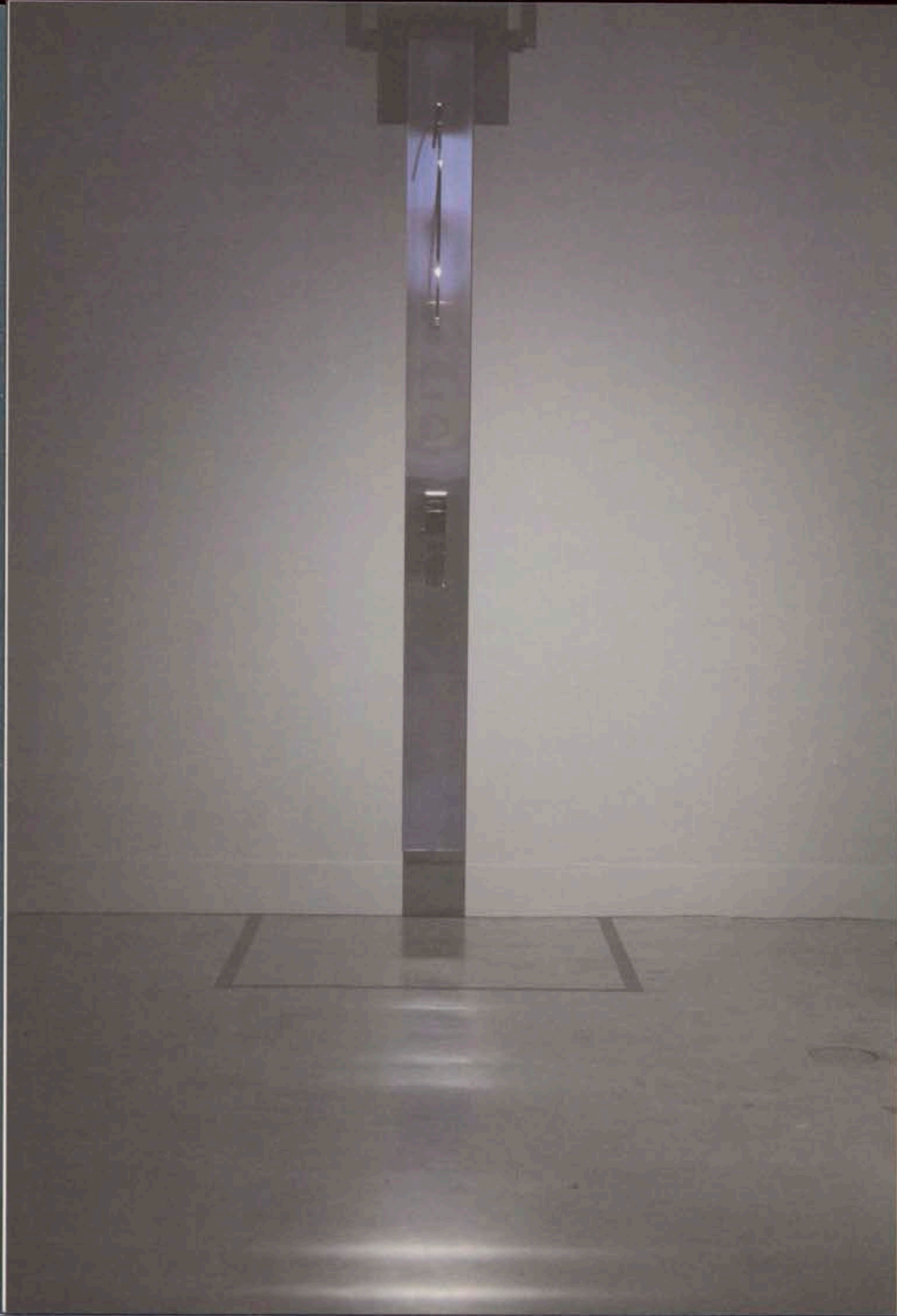
Len Lye *Blade* 1959–1976 (detail)

The art historical touchstone of the harmonic form is Naum Gabo's 1919-1920 *Kinetic construction*, a metal rod 62cm long that was electrically vibrated into a standing wave. On the occasion of their 1920 joint exhibition on Tverskoy Boulevard in Moscow, Gabo and his brother Anton Pevsner famously wrote that, "We affirm in these arts a new element, the kinetic rhythms as the basic forms of our perception of real time."³ With *Kinetic construction*, this statement is often considered to have inaugurated a new medium of kinetic sculpture, however, Gabo's work was not actually in the show, and was never exhibited as a work of art in his lifetime. Rather, the artist seems to have originally regarded it as a demonstration of physical movement for his students, and that its "kinetic rhythms" were best conveyed by abstract, stationary sculpture.

Some 40 years later, in the penthouse auditorium of the Museum of Modern Art in New York, Len Lye's sculpture *Harmonic 1960* (p. 5) vibrated in its shackles. It was the first public demonstration of the artist's new "tangible motion sculptures" in the United States, and lacking electronic or mechanical programmers for them, Lye controlled their movements himself to live music by Pierre Boulez, Miles Davis, as well as African and West Indian percussion. *Harmonic* shook to the percussive rhythms of Trinidad. New York Times critic John Canaday described it by saying that when this ordinary four-foot nickel rod begins to vibrate, "It becomes for the eye a transparent shimmering lozenge struck through with lights that glitter, weave and waver within and around the core."⁴ Noting whispers of "Gabo" in the audience, Canaday observed that many of Lye's works also generated their own sounds, and that they thus held potential for "an art of light and sound integrated into a whole without parallel in the history of art."⁵ Just as Lye worked with sound editors and composers like Jack Ellitt, Ernst Meyer and Henry Brant on his films, he also wanted a musical accompaniment to his earliest "tangibles". As well as swaying and shaking to another sound form, Lye began to calibrate his works so that they would generate their own musical accompaniment simultaneous with a visual effect.

Lye's concern with the auditory side of his work suggests that if Gabo's original understanding of the kinetic was largely conceptual, Lye's interest in the "perception of real time" was kinaesthetic. That is, Lye wanted to involve the





body in motion and space, and to address its different sensory modes at once, forcefully. Whether on film or in three dimensions, Lye's multi-sensory work was intended to pluck a fundamental sensory chord, creating a synaesthetic jolt that might awaken a new consciousness of the body and its role in the formation of one's individual identity. The artist went so far as to claim that the resonance of his work *Blade* 1959-1976 (p. 2) had its own "genetic music", saying, "It gives forth such sound so extremely such ... the very such of it sticks inside my balancing ear to the sounds of the bones in my body resonating back and forth to my skull to all the skulls of my sires and dames from boney (not bonny that's haggis) Ireland."⁶ The musicality of *Blade*, with its percussive, even convulsive hammering was such that Lye considered adding four or more moving strikers alongside the oscillating steel band. To his work *Storm king* 1964 (p. 6), an inverted version of *Blade*, Lye added steel appendages, creating overtones as well as secondary visual harmonics.

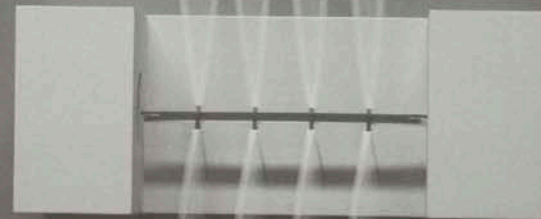
If Lye's dream was to compose motion with the same precision as a musical composer, a half-century later Tony Nicholls has contrived, in a way, to give music back its motion. Affixing painstakingly hand-crafted mechanisms to speaker cones, Nicholls transfers their vibrations to such materials as polystyrene, piano wire and string. Sharing Lye's fascination with oscillation and standing waves, Nicholls' works extend, and perhaps reverse their relationship between sound and motion. While Lye's works create sound as an effect of their movement, Nicholls' sculptures can be understood to create movement as an effect of their sound.

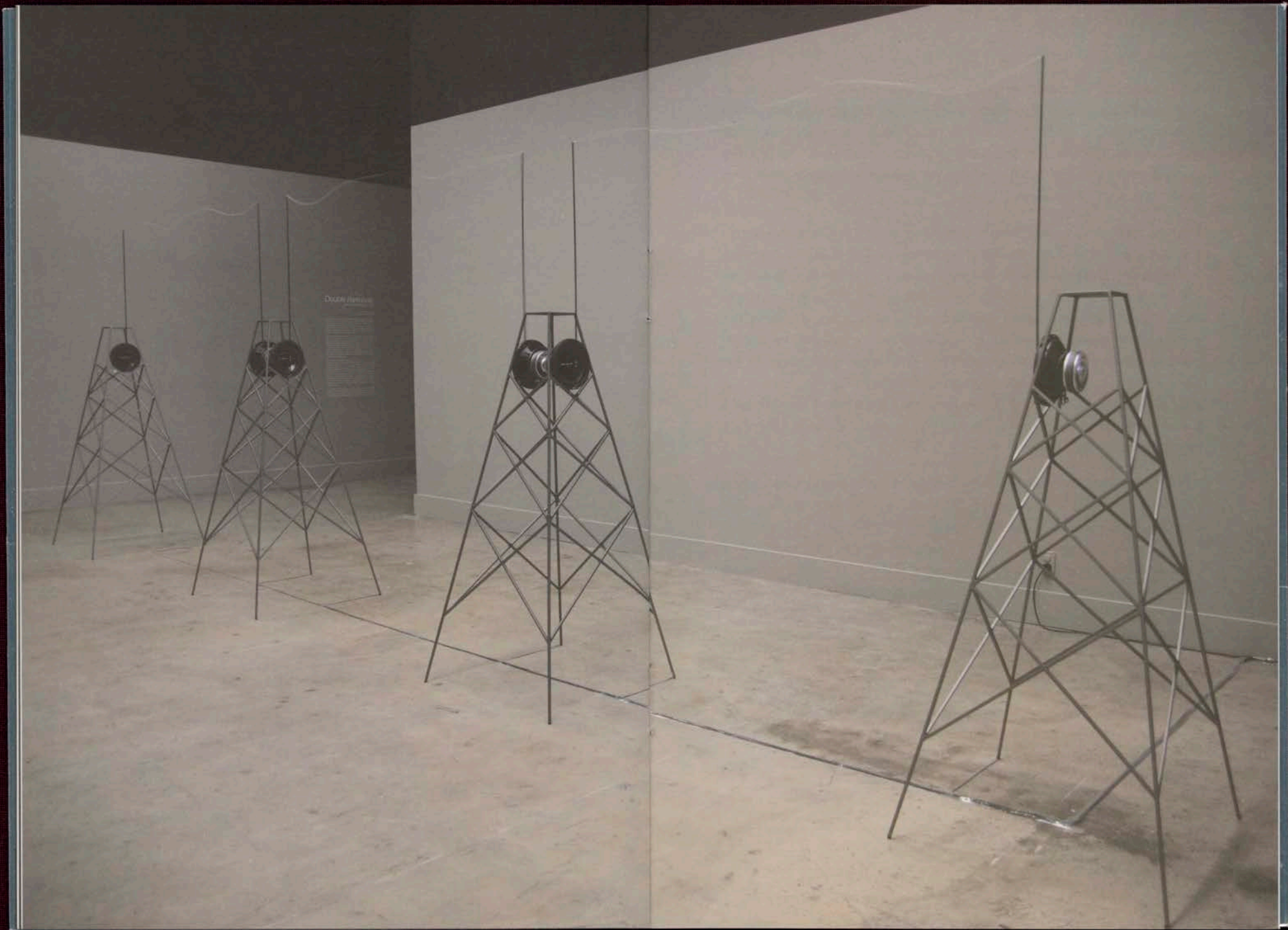
Although Nicholls, like many people growing up in New Plymouth, would have seen the occasional work by Len Lye, their relationship cannot be reduced to such a passive concept as "influence". Like contemporary artists Carsten Nicolai and Stephen Vitiello, who also work with speakers and audiovisual convergence, Nicholls' approach to the sculptural comes through the auditory. Indeed, two of his first "sculptural" works were guitars hand-made from wood he salvaged from old dressers, boats and various other cast offs. Before incorporating speakers into sculptural works, Nicholls used them to vibrate sheets of wood and polystyrene covered with glitter or sand. As these materials

arranged themselves into startling geometric patterns at certain frequencies (a phenomenon originally discovered by Ernst Chladni in 1789), Nicholls fixed them with clear paint. From these traces of a self-organising system, the artist soon shifted the 'tense' of his work, and let the patterns created by the vibration of raw materials emerge in front of the spectator.

If Nicholls' work begins in some sense with sound, it is perhaps a twist of irony that the sound frequencies he employs are often so low as to be inaudible. With works like *In phase* 2006 and *Two phase* 2006 (p.14), it is the unheard sounds that manifest themselves visually. Using computer software to generate sound frequencies allows Nicholls a high level of compositional control. However, Nicholls often avoids such control with the use of monotonies and structured chance. *In phase*, for example, echoes minimalist composer Steve Reich's use of musical phases, where a single motif is played at two different tempos to create a repeated shift between order and chaos. With left and right speakers set at slightly different, monotone frequencies, *In phase's* upper and lower polystyrene reeds shift slowly in and out of sync. The ability to visually comprehend the work seems to ebb and flow along with the order and dissolution inherent in its compositional structure. Structured chance appears in Nicholls' work partly in the form of a recording. The soundtrack (the artist's preferred term for the audio element of his work?) of several sculptures, such as *Rotary* (p.14), is layered with staccato chirps. This sound, which is often employed to activate polystyrene strips using a speaker, is a recording of polystyrene cubes bouncing on a speaker moving at 19Hz. Playing between the monotone frequency and the relatively undetermined sounds, it is appropriate that for this self-referential loop Nicholls chose a frequency at the very threshold of human auditory perception.

Oscillating between order and chaos, audible and inaudible, Nicholls demonstrates a fascination with the play of presence and absence. That the amplifiers and speakers are often hidden from view inside the (somewhat 'minimalist') bases is only the most prosaic expression of the play of visibility in his work. Nicholls himself describes them with reference to Heidegger's use of the Pre-Socratic term *aletheia*, or unconcealment. For Heidegger it





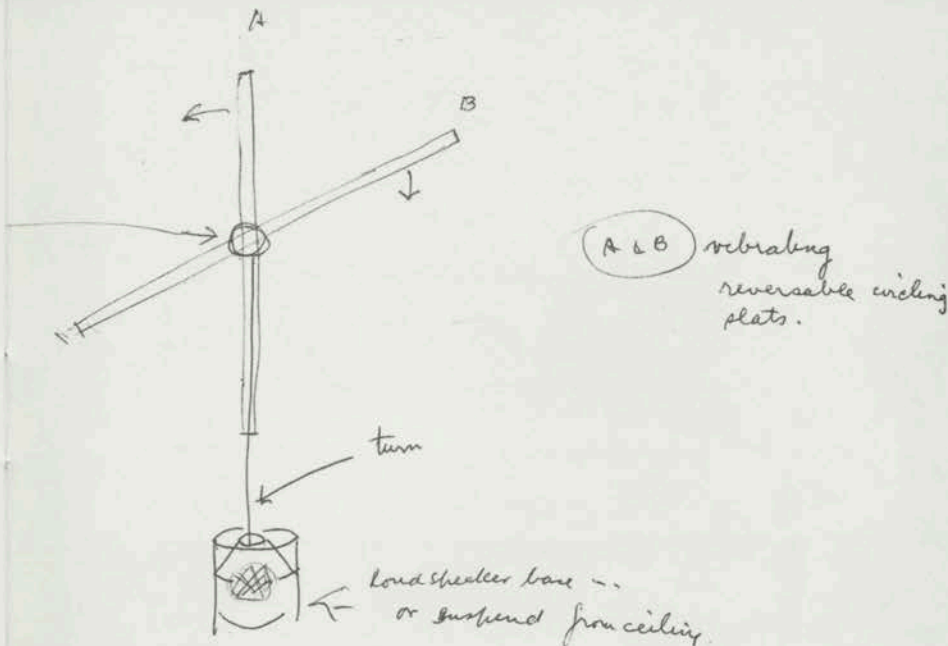
was through this process of revealing that all beings manifest themselves as such, and he used the term to orient metaphysics to that ineffable cusp of the present moment in which things, and humans, continually unfold themselves into existence. The silence of Nicholls' works (as in John Cage's) is full and fully present. Its visibility reflects the emergence and transmission of something beyond the limits of perception.

Nicholls' work *Towers* 2006 (p.10-11), created for this exhibition, adds another, symbolic dimension to this theme of transmission. The eponymous towers – reminiscent of high-voltage transmission towers – broadcast a soundtrack that is transformed into a shifting composition in the string that connects them. Like Nicholls' other works, *Towers* traverses the visible and invisible, the digital and the analogue. The shifting, weightless mass created by the strings' standing waves comes to look like a kind of mechanical oscilloscope. In the same way that Lye's pieces reflect light around the room and charge the space around them, the soundtrack of *Towers* becomes more nuanced as one moves between the speakers, revealing another way in which the work shapes or defines space through sound.

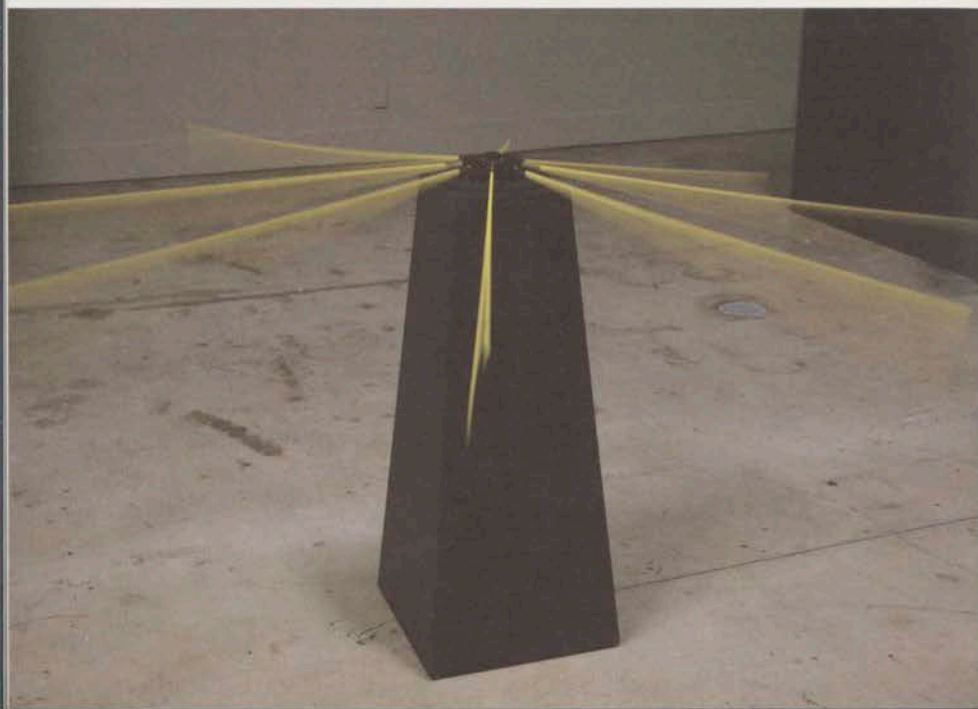
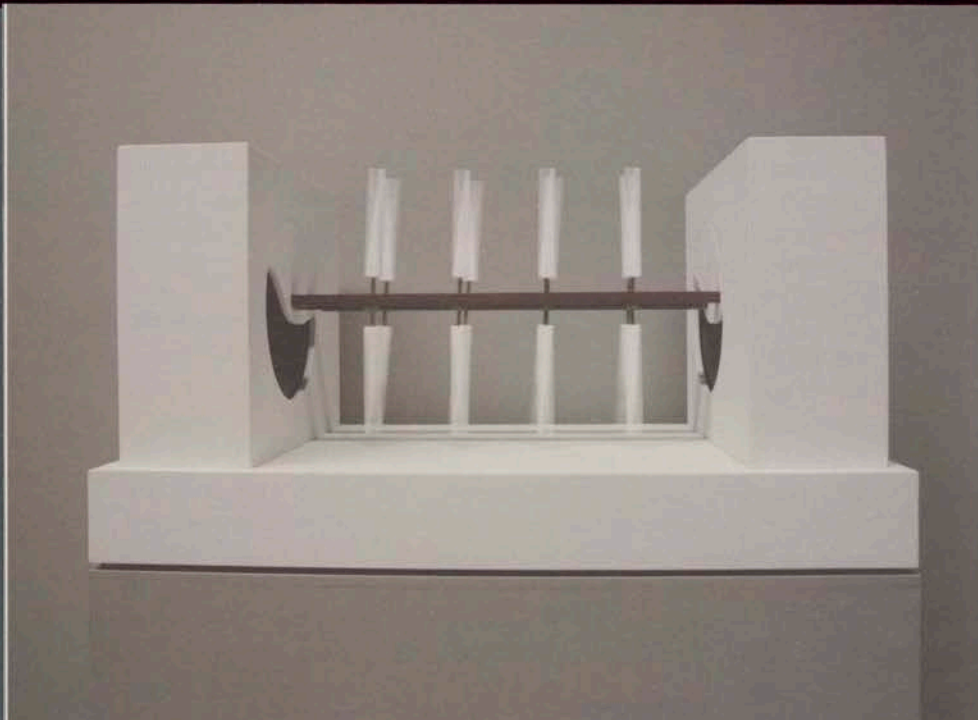
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It is a measure of their similar concerns that Lye imagined a work vibrated by a speaker in the 1960s. A single sketch (p.9) shows a loudspeaker in this work's base activating a pair of "vibrating reversible circling slats". For the most part, Lye's work, with its steel bands and rods struggling with their own mass against a motor force, allows a more direct identification with the body and its impulses than Nicholls' delicate and weightless pieces. But the chattering vibrations of *Towers*, with its exposed pulsating speakers, remind us that all sound is a mechanical vibration, travelling through the air to 'touch' the mechanisms within the ear and move them to a corresponding beat.

Set amongst each other in the gallery space, and activated at various intervals, Nicholls' and Lye's works vie for attention, generating their own shifting, aleatory musical composition, a conversation unfolding across the century and within each moment of the show.



1. Len Lye, "My Glimpse of the Genetic Music in Resonance" Undated, unpublished manuscript, p. 8. Len Lye Foundation Archives, Govett-Brewster Art Gallery.
2. Ibid.
3. *Naum Gabo: Sixty Years of Constructivism*. London: Lund Humphries, 1957 and *Force Fields: Phases of the Kinetic*. MACBA, Barcelona and Hayward Gallery, London, April – September 2000, p. 228.
4. John Canaday, "Sculptures Spin in Recital at Museum: Len Lye Presents Works of 'Tangible Motion' Set to Music", *New York Times*, 6 April 1961.
5. Ibid.
6. Len Lye, "My Glimpse of the Genetic Music in Resonance" Undated, unpublished manuscript, p. 3. Len Lye Foundation Archives, Govett-Brewster Art Gallery.
7. Conversation with the artist, 22 July 2006.



Len Lye

Blade 1959 - 1976

Len Lye Foundation modified version
Steel and cork hammer on Formica and
wood base, with motor
Len Lye Foundation Collection, Govett-
Brewster Art Gallery

Grass 1961

Len Lye Foundation modified mechanism
Stainless steel on wood base with motor
Len Lye Foundation Collection, Govett-
Brewster Art Gallery

Storm king 1964

Motorised stainless steel
Len Lye Foundation Collection, Govett-
Brewster Art Gallery

Tony Nicholls

Rotary 2005

Computer-generated and recorded sound,
balsa wood, audio equipment.
Courtesy the artist

Towers 2006

Computer-generated and recorded sound,
audio equipment, string and mixed media
Govett-Brewster Art Gallery collection

Two poles 2006

Computer-generated sound frequencies,
audio equipment, polystyrene
Courtesy the artist

Wire one 2005

Computer-generated and recorded sound,
audio equipment, piano wire
Courtesy the artist

Two phase 2006

Computer-generated sound, audio
equipment and polystyrene
Courtesy the artist

In phase 2006

Computer-generated and recorded sound,
audio equipment and polystyrene
Courtesy the artist

Above: Tony Nicholls *Two phase* 2006

Below: Tony Nicholls *Rotary* 2006

Acknowledgments

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