

# Gabo's geometry

A fascination with the principles behind structures led the Russian artist Naum Gabo to produce sculpture that looks as if it owes as much to engineering as to nature.

Martin Kemp

Intuition of the resonances between natural and human structures is as old as the oldest surviving writings on architecture — even older if we take into account Aristotle's fascination with nature's 'constructivists', such as the cell-building bee and geometrically accomplished spider.

A key motif for the early theorists and apologists of abstraction in the first half of this century was an appeal to the mathematical structures underlying natural appearance, as they were being revealed by science — or, in the Russian sculptor Naum Gabo's case, to the principles at work in the structures. Such an appeal was particularly favoured in the circles of British abstractionists, who continued to stand in the native tradition of nature-based art. It was this tradition with which Gabo interacted when he joined the colony of artists in St Ives, England, in 1939.

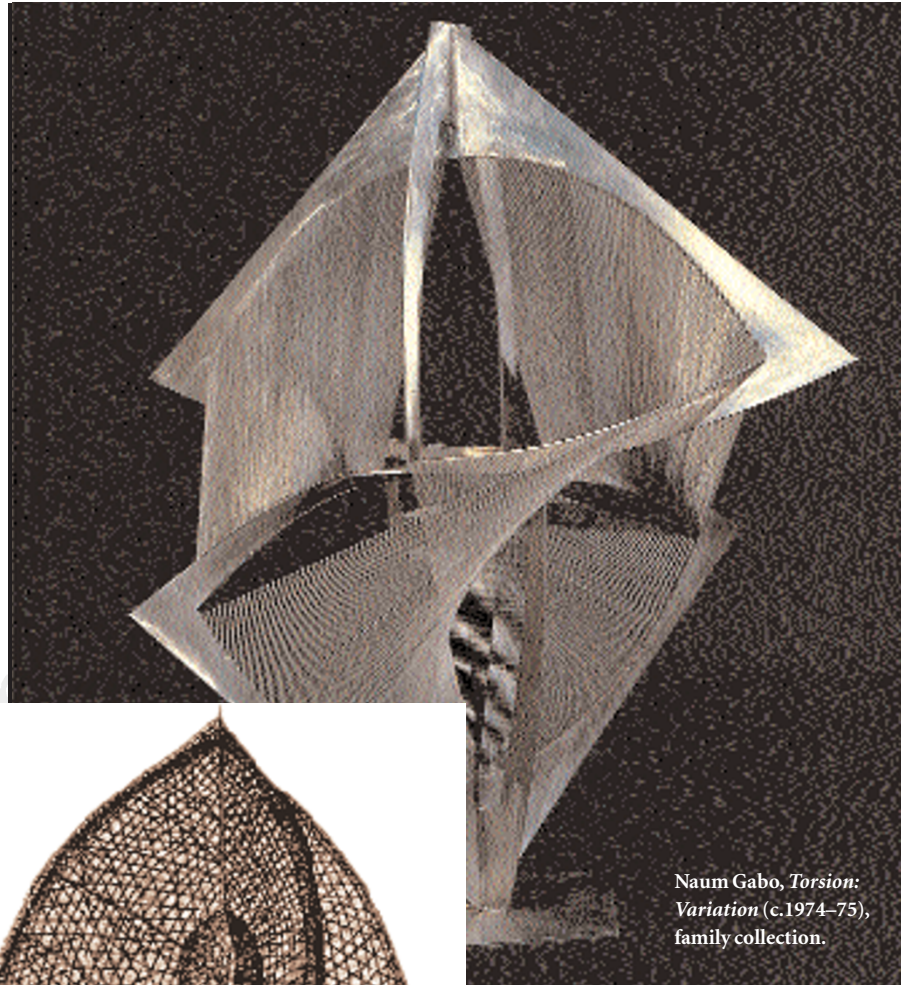
Educated as an engineer, Gabo had already formulated a credo based on nature's structural artifice. In *The Realist Manifesto* which he composed in 1920 with his brother Antoine Pevsner, he explained the principle on which they constructed their sculpture:

"With a plumb line in the hand, with eyes as precise as a ruler, with a spirit as taut as a compass, we build them the same way as the universe builds its own creations, as the engineer his bridges, as the mathematician the formulae of his orbits."

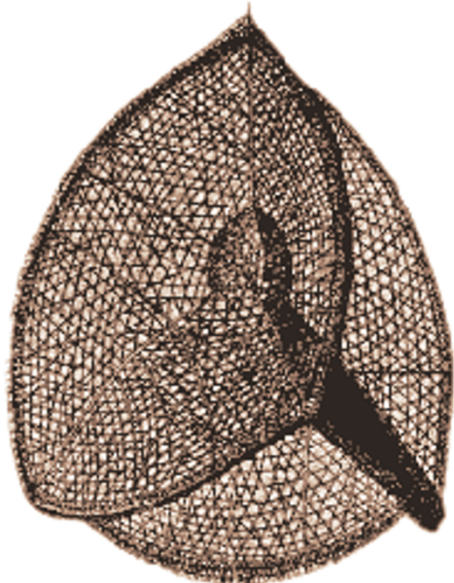
Given such a predilection, he was well placed to benefit from D'Arcy Wentworth Thompson's masterpiece of scientific writing, *On Growth and Form* (1917), to which he was introduced by the critic, Herl Read. In Thompson he could read beguiling analyses of the structural and dynamic geometry of biological morphology in context of physical forces, both internal and external to the organism.

He could read of the microscopic miracles of natural design, such as the Nasselarian skeletons illustrated so beautifully in Ernst Haeckel's publications, not least his two-volume *Kunstformen der Natur* (1899–1904). Thompson drew Gabo's attention to the suggestive analogies between the skeleton of *Callimitra agnesae* and the curved films formed when Joseph Plateau dipped a tetrahedral cage into a soap solution.

A sculpture such as *Torsion: Variation*, tensely constructed from a stainless steel



Naum Gabo, *Torsion: Variation* (c.1974–75), family collection.



Skeleton of *Callimitra agnesae* (above) and its construction in terms of bubbles suspended in wire cages (right), from *On Growth and Form*.

exoskeleton with internal filaments of spring wire, can be seen as directly influenced by Thompson.

And in a broader sense it manifests the artist and scientist sharing an intuitive and intellectual communion with the statics of natural form at a profound level. □

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