Emanuel
Jannasch

Virtual Exhibit Report

The Geometry of Aspiration *John Macnab's Sculpture*

Readers of *NNJ* will enjoy the recent work of Canadian sculptor John Macnab (<http://www.johnmacnab.ca/>). Macnab's approach to mathematics and form is rooted in the traditions of morphology and of mystical geometry, yet his pieces are profoundly original. This sculptural work connects to architectural theory and practice on three levels. Immediately apparent are the thematic parallels with the twisted columns and helical spires of architectural history. Then, it seems, these pieces are specifically architectural sculpture. That is to say, the way in which they engage space and work with the viewer's attention can enrich the beholder's experience of the room, the garden, or the building complex in which they are placed. Finally, it should not be ruled out that in their motivation and expression, the most commanding of these pieces might take their place among obelisks, fountains, and towers as works of architecture proper.

The site itself is graphically clean and elegant, although some users have mentioned minor browser glitches. Visitors should use the largest possible browser window, and, in navigating the site, utilize the "back" or "home" button within the page. (Using the browser's button will remove you from Macnab's studio and deposit you at your previous site.) For most visitors the site will be trouble-free and the *NNJ* reader in particular should look forward to the excursion. Many themes are wound into this work.

Order and Eccentricity

The home page shows Macnab in his studio surrounded by several of the recent works. Preliminary studies include fabric-covered lattices, but most of the pieces have been turned on a remarkable lathe of his own contrivance, which is just visible at the left of the photo. Some of the columns are standing vertical; some appear to be dancing or even teetering; others are suspended or lying prone. There is a strange balance of rectitude and drunkenness. One is reminded of the Dionysian columns brought to the shrine of St. Peter by Constantine: it seems the question of spirals and of spirits is somehow intertwined.

Machine and Organism

The “info” page includes a birds-eye view of the lathe that clearly shows how the flutes are cut, the place of the vertical leadscrew, and the active participation of the operator. What remains obscure is the planetary gearing of the chuck. Essentially, the workpiece is fixed to a planet gear that revolves around a central sun. The “annual” motion of the chuck describes the form of the principal cone; the “daily” motion of the chuck describes the fluting, while the apex of the cone is defined by a fixed headstock. A handful of change gears together with a few other simple mechanical devices control the relative motions of sun, planet and leadscrew, and it is by reconfiguring these mechanical linkages that Macnab obtains such extraordinary variations of geometry. (John has put three film clips on his site which demonstrate these dynamics, which may be reached via the “movies” button.) The manner in which these pieces are generated imparts both certainty and mystery to the emergent form. Each cone records the unfolding of simple processes programmed into the machine, much as seashells and animal horns emerge from the growth surface of the parent animal. Paul Valéry observed how the seashell hovers between the animate and inanimate worlds: it seems Macnab’s pieces inhabit this same realm.

Mathematics and Material

Although they obey simple mechanical mathematics, these pieces cannot be considered mathematical models. They are not conceived in the abstract and then approximated in some nondescript material or in CAD space. They emerge from conditions orchestrated by a mind, but the emerging results have at times surprised Macnab as much as anyone. They are made of real material with grain and character, and in the surface texture of these pieces we can read Macnab's struggle with gravity, with the character of wood, with the geometry of the cutting tooth, with friction, vibration, and entropy. Mathematics will only ever approximate the empirical results.

Corkscrew and Flute

Entering the images page we can study the most important pieces close up. Many of them are compound spirals, in which a conical corkscrew body is given helical/spiral flutes. There is great variation between these pieces: some are tightly wound vortices; others are more gentle flamelike forms. The geometric eye will also detect that the relationship between the fluting spiral and the body spiral varies in terms of steepness, handedness, and point of convergence. Do such compound conic spirals have counterparts in architecture, or for that matter in any realm of human endeavor?

Ramp, Slope, and Pitch

Collectively these pieces raise an interesting question concerning the geometry of helical spires. The Conical Spiral Column #0 (red on green image, centre of page) illustrates a simple case, where the spiral flutes ascend the cone at a constant rotational pitch. In other words, with every 360° turn the flutes rise an equal vertical increment. As each turn of the cone gets smaller and shorter, the flutes become ever steeper, until, at circumference zero, the flutes would become vertical: congruent with each other and with the axis of the cone. An architectural example of this pattern is the four dragons' tails of Copenhagen's stock exchange spire, which also steepen to verticality as they reach their apex, though not with the same mathematical precision.

In some of Macnab's later pieces the principal helix shows a varying rotational pitch. In some, the rotational pitch increases as the spiral rises. This seems to lend a flame-like quality to the work, especially where the fluting reinforces this ascension. (HOK's RLDS Church in Independence, Missouri seems to embody an increasing vertical pitch of this sort.) In other columns the rotational pitch decreases, so that the windings of the flutes stack ever more densely upon themselves as they climb. Many of the better-known helical spirals in architecture exhibit this reduction of pitch. This is because they are conceived as spiral ramps. If the climbing angle of the ramp is to remain constant, it will climb less vertical distance with every decreasing orbit of the cone. The spire of the Stock Exchange in Copenhagen, the great Minaret at Samarra, and most of Tatlin's towers all follow this geometry.

Knowledge and Mystery

Macnab's work shows a remarkable level of technical and manual ability, and the desire to challenge that expertise and to build upon it. However, if we go to the brief artist's statement under "about John," we are reminded that what impels him is not only the achievement of knowledge but also his sheer delight in the unknown. In the art and illustration of mysticism, the spiral has been emblematic of this sort of quest, reaching from the finite to the infinite, from knowledge to the unknowable, from the material to the spiritual. In its foolish aspect, this gives us

the tower of Babel. In its positive aspect it gives us initiatory and transcendent spirals. This is what unites the Macnab's work with, for example, Borromini's emblem of wisdom at the Sapienza.

Ignorance is a treasure of infinite price that most men squander, when they should treasure its least fragments...

Paul Valery, introducing *Man and the Seashell*

About the Reviewer

Emanuel Jannasch studied architecture at Cornell and the Technical University of Nova Scotia, eventually earning an M.Arch from Dalhousie University. For many years he made his living as a carpenter, and he first met Macnab when they both rented workshop space in a waterfront warehouse. He now divides his time between practice and teaching of design, in film as well as in architecture. Inspired by the likes of Gregory Bateson, Joseph Woodger and the Cambridge, U.S.A. circle of Philomorphs, his own research and curatorial work focuses on the morphology of artefact.