**Remarkable Image**

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*Research Statement*

*Sine Bowl* is the result of research into ways to overcome the limitations of traditional woodturning practice which conventionally enables forms symmetrical about a single axis. Historically, complex geometries were (and indeed are still) a feature of turned objects created using the Holtzapffel turning engines whose provenance extends back to 1793 (see Böckelmann in LeCoff, 1997: p.63). Multi-axis turning is difficult though not impossible on a conventional lathe (see McKay in LeCoff, 1997: p.107). It involves complex jig arrangements and the use of router technology in concert with the lathe. Thus it rather resembles manually controlled rotary four axis milling rather than 3600 turning. While this expands the range of formal possibilities, it does not permit the precise control of non-euclidean geometry for which purpose a three axis (or more) milling machine is preferable.

*Sine bowl* exploits such capabilities and exhibits tri-axial sinoidal geometry, the main concave part of which is a sine curved section rotated through 2670, the terminations of which are rotated either downwards or upwards through 900. The form's resolution exploits the potential of computer aided design and manufacture utilising computer controlled three axis milling which overcomes the limitations of single-axis turning and also enables the utilisation of materials such as cast acrylic, which are otherwise hard to work with. It thus opens new formal possibilities. While invoking Pye's notion of the 'workmanship of certainty' (Pye, 1968: p.20), computer-controlled making still requires considerable hand finishing, for example, where the vertical access of the three-axis milling machine was unable to complete one small area of the form.

**References**

LeCoff A. (1997). *Curator's Focus: Turning in Context*: Philadelphia, USA, Woodturning Center.

Pye D. (1968). *The Nature and Art of Workmanship*, Cambridge University.

**Image Caption**

Richard Hooper. (2008). *Sine Bowl*, Dia. 400mm, H-70mm, Cast Acrylic.