

compositions with both a high Curie temperature (and thus increased room-temperature magnetization) and a high martensitic transition temperature. This study clearly shows that there must be a trade-off between these two properties, and moreover, that the Heusler composition does not necessarily provide the optimum combination of properties. The highly ingenious characterization methods developed for this study constitute the most important aspect of the work, and open the way to further combinatorial studies of other alloy systems.

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MATERIAL WITNESS

KEEPING ART ALIVE

Field for the British Isles, by contemporary artist Antony Gormley, which I saw recently, is a wonderful sculpture: accessible, resonant and poignantly beautiful. But it must be a curator's nightmare. All those thousands of little terracotta figures, as brittle as prehistoric pots — how many relocations will they survive?



At least museums and galleries have plenty of experience with terracotta. Gormley, like many modern sculptors, has often been experimental with his materials, throwing up challenges that never faced the conservators of stone and bronze statuary.

Take his early work *Natural Selection* (1981). Here are 24 objects, some natural, some man-made, each encased in lead. There is a pea, a banana, a goose egg, a grenade, a light bulb, a coconut. Lined up in ascending size, they present a study in the evolution of form and the relationship of natural to artificial.

Why lead? “It is the best possible material”, Gormley has said, “It’s the most female metal, the most malleable and the densest.” (Wait till he gets hold of osmium!) But although Gormley also likes lead’s “impenetrability”, his casings proved not quite as impermeable as he’d hoped.

The objects containing fruits and vegetables soon started leaking, forcing Gormley to unsolder the seams and dry the organic contents before resealing them. The goose egg started emitting the unpleasant rotten odour of hydrogen sulphide. The casing was cut apart and the eggshell cleaned.

As the sculpture’s conservators pointed out, Gormley’s prized impenetrability of lead prevented them from using X-rays to study the state of the casings’ contents non-destructively. The coconut was a particular problem: its organic acids were corroding the metal, and the conservators at the Tate Gallery in London were compelled to seek safety advice from the Natural History and Science Museums.

The coconut proved to have produced a thick layer of basic lead carbonate inside its casing. The shell was carefully sawn in half, cleaned and chemically treated. (All concerned were determined that the original objects should not be replaced by new ones.) The pitted lead was filled with polyester resin coloured with graphite. When not on display, the work is now stored in a sealed, desiccated container.

The issues that arise in conserving modern sculptures like this are quite different from those for older works. “No-one knows what an ancient sculpture looked like when first made”, conservator Jackie Heuman points out. Moreover, ageing of old materials, like the patination of bronze, may be aesthetically pleasing, as well as providing a record of the history of the work.

Restoration of modern works is often much more radical. Sometimes they are entirely remade, as was the case for Naum Gabo’s *Linear Construction No. 2*, made from strung nylon threads that slackened when the work was rehung in 1970. Gabo, one of the first to use plastics in his sculpture, accepted such problems as the price of innovation. “The genesis of a sculpture is determined by its material”, he said, adding “there is no limit to the variety of materials suitable for sculpture.”

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