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News and Views Material witness: Secular science PHILIP BALL

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The extent to which materials technology has become secularized is evident from the fact that most materials scientists will wonder what such a statement could possibly mean. What could be more materialistic than materials?

But it wasn't always so. Once Thomas Aquinas reconciled aristotelian 'science' with Christian theology in the thirteenth century, it was hard to debate matters of elemental composition in the Western world without treading on theological territory. Arguments about the constitution of the sacramental wafer in the Christian Mass hindered a unified Reformation in the Germanic countries. Theological scholastics debated the nature of Christ's flesh in pedantic detail.

Gold was valued before the Enlightenment not just for its beauty but because it was deemed to embody a divine purity. That's why alchemy was as much a spiritual as a metallurgical enterprise (at least for those who took it seriously). The naming of the first distilled alcohols and other volatile organic compounds as 'spirits' was more than an idle metaphor. The alchemists of Eastern Asia, meanwhile, sought gold because of its supposed life-lengthening properties: because it was so 'incorruptible', it could make the human body so too.

I was moved to ponder on these roots of the chemical and material sciences by the news that some families have had the cremated remains of their loved ones transformed into diamond crystals by a Chicago company called LifeGem. Who is to judge whether this is macabre or touching, or simply exploitative? What is, perhaps, more illuminating is that the enterprise was connected to a project by the British artist Marc Quinn.

Quinn had some of his carbonized hair transformed at high temperature and pressure into a diamond and mounted in a work called *Now I'm Perfect*. It would of course be unwise to assume that such an action acquires profundity simply by being conducted by an artist, but Quinn's work does show how advances in materials technology can resonate in society in a non-materialistic way.

Diamond as a symbol of perfection — here, indeed, of personal perfection — collides with the notion of graphite, soot and ashes as messy stuff, which is no doubt one reason why, when researchers at General Electric first performed the high-pressure transformation of graphitic carbon into diamond in 1955, some gem merchants called it 'unnatural.'

So although a diamond made from cremated ashes is in one sense not so different from the lock of hair treasured as a memento in Victorian times, in another way it is something more. The material is regarded as somehow sanctified and 'purified' by squeezing, as though GE's process is performing the role of a priestly blessing, making a body more 'perfect' in death than in life. Yet of course it is diamond's very perfection that makes it hard and lifeless, cold even to the touch.

Materials, then, have not altogether lost their symbolic virtues. But would LifeGem's clients feel differently if they knew that the original GE team demonstrated their technique's versatility by making diamond from roofing tar, bits of moth and peanut butter?