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News and Views

Material witness: A matter of taste

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Do materials have a personality? Mike Ashby and Kara Johnson ask this question in the December issue of *Materials Today*, and their answer is: of course they do. Metals are 'cold, clean, precise': strong and reliable, but impersonal. Wood is warm, soft and associated with good craftsmanship. Plastics are cheap, fun, gauche, synthetic, chameleon-like.

Well, this much seems obvious. Designers have long used their choice of materials to say something about their products, from the filigree of Celtic goldsmiths to the wooden furniture of the Arts and Crafts movement and the insouciant plastics of the Pop Art style. What is curious is that these associations transcend instances of contradictory materials usage: wood appears in most uncraftsman-like contexts such as cheap packaging, whereas plastics house expensive, high-tech electronic products and feature in cutting-edge biomedicine.

Ashby has been a pioneer in the business of materials selection: how to choose materials in engineering so that they represent the best compromise between potentially conflicting criteria such as strength, lightness and cost. For an engineer, that is often where the story starts and ends: aesthetics rarely enter the equation. Or if they do, the aesthetic of the engineer often expresses itself in the intrinsic quality of the design: a well-built bridge is automatically beautiful, as Brunel believed.

However, because not everyone shares that belief, products that are designed to be sold – that is to say, to capture a consumer market – have to acknowledge a wider vision of aesthetic appeal. Part of that appeal is purely functional: how well does the product work, and for how long? Much of it, however, is bound up with the 'personality' of the material components and their manner of processing and assembly. What is their shape, colour, texture, their cultural associations? Then it becomes harder to unravel cause and effect. Did the flat, economical contours of Bauhaus design precede a material in which they could be economically realised, or did the use of moulded plywood help to determine that aesthetic?

I'm not sure we recognize how deeply ingrained materials' personalities are in our cultural preferences. Plastics can mimic the appearance of other materials so closely as to be sometimes all but indistinguishable, and yet (as Ashby and Johnson point out), many people would balk at being buried in an imitation-wood plastic coffin, even if it were biodegradable. It would feel like being thrown away in disposable plastic packaging. These non-material connotations of materials are reminiscent of how painters once insisted on using precious ultramarine for religious iconography.

What this means is that anyone who is going to use materials science in industrial design, from computers to construction machinery (for even that has to be sold in a competitive market), could surely benefit from instruction in the role and history of materials in art and culture. That is why initiatives like the one developed by Mark Miodownik at King's College London to bring engineers into contact with the arts (see www.eee.kcl.ac.uk/mecheng/mam/engart.html) are well worth encouraging.