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News and Views
Material witness: The stuff of youth
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There's scarcely any scientist, with the possible exception of geneticists and cosmologists, who feels that his or her discipline gets its fair share of the limelight. But materials scientists have the added disadvantage that their science runs perilously close to engineering—and when was the last time you saw a popular TV programme on engineering?

So it is good news that this year's Christmas Lectures for children at the UK's Royal Institution in London, entitled Smart Stuff, will have a heavy focus on materials. Not only that, but they will show something of the grand sweep and diversity of today's materials science, ranging from photonics to biomedical materials to food science.

The lecturer is Tony Ryan of Sheffield University, who is especially well-situated to explain the importance of polymers in modern science and technology—illustrated in this case with reference to that icon of youthful cool, the training shoe.

If there is an older tradition of communicating science to the public, I do not know of it. The Christmas Lectures at the Royal Institution begun in 1825, and became legendary through the pedagogical genius of Michael Faraday, who delivered them regularly until 1860.

Faraday established the model that Tony Ryan will adopt this Christmas: to illustrate the unfamiliar by means of the familiar. For Faraday, the famous leitmotif was the candle; now mobile phones and ice creams are likely to capture the attention of a young audience more effectively.

The Christmas Lectures have always reflected the Royal Institution's strong tradition in the chemical and practical sciences, with recurring themes such as electricity, light, photography and radio communications. The glittering array of speakers has included John Tyndall, James Dewar, William Bragg, D'Arcy Thompson and the late George Porter. The more recent decades have been delightfully egalitarian, embracing geology, music and mathematics, alongside more familiar topics.

Because the Christmas Lectures are televised, they reach out to more than a few hundred school children: there were 1.5 million viewers last year. And one must suspect that it is not just children who watch. The appeal of the lectures is that, by having to address themselves to a young audience, they are highly visual, participatory and free from earnestness: qualities just as attractive to adults.

This need not mean that fun eclipses any real instruction. There is little, if anything, that we might wish the adult public to understand about science that cannot be readily assimilated by a ten-year-old child. It's just that, to communicate to the latter, we are forced to say what we mean in simple words and short phrases, knowing that attempts to impress will fall on deaf ears. This is a principle that could be usefully employed more widely than in lectures for children. Peter Goodhew of the UK Centre for Materials Education has asked why under-graduate lecture courses or book chapters have to be called 'Metallurgical thermodynamics' or 'Microstructure 1', rather than 'Why reactions work' or 'How far can we bend a beam?' Can anyone see a reason?