

12 ART, SCIENCE AND THE PUBLIC

Over the past hundred years or so, science has become isolated from the arts – physically, as it has become almost totally confined to the laboratory, and intellectually, with its emphasis on scientific methodology, concepts of validity and the search for single, clear answers. What, then, is to be gained by reintroducing these estranged partners? As **Stephen Webster** argues here, the experience of the last decade suggests that science–art interactions have reached a critical mass. But the chief impact has been on the creation of new art and its ability to stimulate new thinking in audiences, rather than shifting science from its current ways of working.

Artists, working alongside scientists, can provide an extra dimension to the public engagement of science. But why might artists find something of value in science, and why, in turn, are some scientists attracted by the chance of working with an artist? My first answers come from a look at two living artists whose work makes plentiful reference to scientific concepts, Marc Quinn and Marilène Oliver. Then I consider the influence of funding organisations that have encouraged artists and scientists to work together. Finally, I suggest why the differing attitudes of scientists and artists to the concept of audience might partly explain the potency of art–science collaborations in public engagement projects.

Marc Quinn is an artist whose work, literally, incorporates science. In the bust ‘Self’, Quinn modelled his head from eight pints of his own blood, and kept the sculpture exhibitable by displaying it frozen inside a transparent case. Later, commissioned by the Wellcome Trust, he made a portrait of the genome scientist and Nobel Laureate Sir John Sulston by culturing fragments of the scientist’s DNA in bacteria on an agar plate and placing it in the centre of an elegant picture frame. The work was hung, to great fanfare, in the National Portrait Gallery, and described by Quinn as “the most realistic portrait in the building”.

Perhaps even more striking were the sculptures Quinn exhibited in London’s White Cube gallery in March 2005, in his show *Chemical Life Support*. In a large and plain space, a few naked figures, apparently of marble or alabaster, reclined in classical but relaxed pose directly on a cold-looking floor. The surprise was in finding that the figures were in fact made of wax, impregnated with the very medicines that, in real life, were keeping Quinn’s subjects alive. Thus ‘Silvia Petretti’ is the sculptural form of a woman with HIV/AIDS, moulded from an amalgam of wax and quantities of antiretroviral drugs. Another of the sculptures, ‘Innoscence’, shows Quinn’s son Lucas, lying contentedly on the floor of the gallery, the embodiment of health and happiness and babyhood. Yet for a while, early in the child’s life, a milk allergy made Lucas dependent on artificial milk. And so the milky form of Lucas, chubby on the floor of the White Cube, turns out to be literally composed of a long list of amino acids.

Marilène Oliver is another artist who makes direct use of the products of science. Her artworks are also sculptural, and many are constructed from magnetic resonance imaging (MRI) scans. Such medical technology is usually pressed into giving clinical information on a particular organ or part of the body. In Oliver’s work, however, a research MRI unit at Nottingham University has let the artist scan the whole bodies of herself and her family. The several dozen sections derived from the body are then individually printed on transparent acrylic plates, stacked in the right order, and spaced to produce the correct height. Very vividly the figure, the original person, so to speak, re-emerges from the medical data. A few dozen monochrome medical images have been put into another context, and become unmistakably human. The shadows and shapes are no longer evidence or reminder of tumours and other forms of bad news made visible by science, but show instead the sturdiness and vitality – even the spirit – of human lives.

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Like all good art, each of these works bears multiple interpretations. In *Chemical Life Support* we are jolted into realising the intimacy of the relationship between pharmacology and our bodies. For some people this is an optimistic vision. For others it is a cause for pessimism. As for Marilène Oliver’s sculptures, it is hard not to be moved by these life-like bodies re-emerging from a pile of two-dimensional medical scans. In both these artists, in other words, scientific and moral ideas are brought together and debated. It is relevant too that in both cases the work is usually shown (and sold) as art. Science, and scientists, were involved along the way, but there is no confusion about the finished work. It is art, made by artists, exhibited in galleries and public spaces.

WHEN WORLDS COLLIDE

Science and art have moved beyond mutual misapprehension, finding both common ground and virgin territory to explore.

Unveiled in the National Portrait Gallery in 2001, Marc Quinn’s portrait of Sir John Sulston is the remarkable product of a meeting of quite different minds: one of the UK’s leading artists and a geneticist Nobel Laureate.

A key player in the Human Genome Project, Sir John provided his own DNA for the piece. Following both genetic and artistic modification, the mirror-framed portrait was complete: a series of translucent dots containing around a million pieces of genetic information, frozen for all time in bacterial colonies. →

‘A GENOMIC PORTRAIT: SIR JOHN SULSTON’

Funding

£40 000 (2002, special commission by the Wellcome Trust, in conjunction with the National Portrait Gallery)

Artist

Marc Quinn

More details

www.marcquinn.com
www.npg.org.uk

Left: Marc Quinn, the genomic portrait, Sir John Sulston (L–R).



The dislocated and shifting work we sometimes call ‘sciart’ is much less definite about its situation. This is indicated by the range of contemporary institutions that have come together, in the last ten years, to fund a proliferation of art–science collaborations. In that institutional effort the Wellcome Trust deserves special mention. After success in 1996 with a pilot scheme, the Trust in 1999 set up the Sciart Consortium, a partnership that comprised also the Calouste Gulbenkian Foundation, the National Endowment for Science, Technology and the Arts (NESTA), the British Council and the Arts Council of England. What would happen, the Trust had wondered, if a funding stream were established that “encouraged and enabled artists and scientists to work together on projects that grew out of genuinely reciprocal processes of inspiration”?

Although there is a long history of earlier connections between science and art, it does seem safe to suggest that the initiatives of the last decade bear particular scrutiny as an emerging tradition.

Ten years later, this experimental activity has become a regular part of the cultural scene. While the consortium dissolved quite soon after its inception, the partners have each carried on funding art–science collaborations. The Trust itself has awarded scores of grants totalling several million pounds, and embedded the scheme in its huge public engagement programme. Meanwhile NESTA’s website shows a continuing profusion of art–science enterprises. The Gulbenkian Foundation has been consistent in funding arts residencies in science institutions (for example at University College London’s Institute of Child Health, and at the National Institute for Medical Research). We even have the model of ‘scientist-in-residence’, as shown by the Institute of Contemporary Arts.

Although there is a long history of earlier connections between science and art, it does seem safe to suggest that the initiatives of the last decade bear particular scrutiny as an emerging tradition. I have mentioned the consistent involvement of a number of charities. Also notable is the way the established research councils have now joined in. The Arts and Humanities Research Council has worked with Arts Council England (ACE) to set up two rounds of ‘art–science fellowships’: the most recent awards were announced in September 2005. In the sciences the Engineering and Physical Sciences Research Council has a well-funded scheme that sets up ‘research networks’, each of which comprises groups of artists and scientists prepared to sit down together and develop a research agenda that relies on the most diverse sets of skills and methods of working.

Plainly, these initiatives assume there is something to be gained in encouraging artists and scientists to work together. But where should we look for this value? As I pointed out above, it doesn’t seem as though the work of a Marilène Oliver or a Marc Quinn should be described as anything other than art. Their artifacts

are not a hybrid creature of art and science. Yet the institutional flyers and websites that seek to fix up the scientist with the artist sometimes suggest interesting art might not be the only outcome. For example, when ACE announced the new art–science fellowships in 2003, the press release described how they would “contribute to the store of knowledge within science and art and explore how art can contribute to science, and science to art in terms of different ways of working and thinking”. Statements like this, referring enticingly to art–science partnerships as promoting novel ways of thinking, working or asking questions, suggest that the primary value of such partnerships lies in a process – the way they work – rather than in an end product. But how does this novel process, this unusual way of working, fashion its impact on science?

For those interested in public engagement with science, questions about the way science works are important. For if science is as rigidly prescribed as is sometimes suggested, following strict methodological rules that, properly adhered to, inevitably bring scientific truth into view, then surely ‘dialogue’ with non-scientists can only be of limited value. Like a patient but unyielding parent, science might listen to the noisy protests, but carries on regardless.

The scientists involved in such projects invariably express their satisfaction at the manner in which collaboration with an artist has given them an audience that differs vastly from the normal specialist arena of laboratory and scientific conference.

This is where the visions of the art–science collaboration, and the anxieties of the dialogue between science and society, begin to show a relation to each other. A look at the Wellcome Trust’s lists of science–art projects shows that in many cases the work involves not simply ‘a new way of working’ but, at some stage, an explicit involvement with an audience. Films, installations, theatre productions and exhibitions pepper the collaborative work of artists and scientists. This of course is no surprise: each of the Trust’s calls for proposals in the area has mentioned the goal of public engagement. Yet there is something deeper going on too. For the scientists involved in such projects invariably express their satisfaction at the manner in which collaboration with an artist has given them an audience that differs vastly from the normal specialist arena of laboratory and scientific conference.

These tentative relations between science and art might bear a number of interpretations. There are artists, alive to the astonishing conceptual implications of modern science, who react to the science through their artistic output. Then there are actual partnerships between artists and scientists where much emphasis is on how the relationship works, what insights and changes occur along the way. It is here that questions might be asked about the ways in which scientific



→ The partnership between Quinn and Sulston is evidence of a new spirit of collaboration between scientists and artists. With the disciplines having come to occupy such distinct niches in life, it was not obvious that encouraging the two to work together would be fruitful or even possible.

One of the earliest examples of this new wave of interdisciplinary exploration – the ‘Primitive Streak’ collaboration between Helen Storey and her sister Kate, a developmental biologist – showed just how stimulating this mixing could be.

The 27 extraordinary dresses created during their project take the viewer on a startling visual journey through the first 1000 hours of human life, from fertilisation to a recognisably human form.

‘PRIMITIVE STREAK’

Funding

£25 000 (1997, Sciart award) – Primitive Streak: A fashion collection chronicling human embryonic development

Project lead

Professor Helen Storey and Dr Kate Storey

The exhibition has toured in seven countries since 1997, seen now by more than 3 million visitors.

Apart from winning several awards, ‘Primitive Streak’s’ breathtaking originality has led to it being adopted as a blueprint for Arts Council England’s Creative →

Left: Fashion meets embryology: dresses from ‘Primitive Streak’.

knowledge – or shall we say ‘the scientist’s life’ – might be influenced by the arts. Finally, and most relevantly for the urgent priorities of public engagement, we see that scientists value the way an art–science collaboration brings into the offing a new and wider audience.

In 1969, the philosopher Thomas Kuhn wrote a brief reflection entitled ‘Comment on the Relations of Science and Art’.¹ Here Kuhn declared himself the victim of an irony. His own work on scientific revolutions, essentially an examination of the social conventions of science and their translation into knowledge, found patterns that could be interpreted as similar to those within the arts. Kuhn had seen that art historians speak of competing schools of thought, of incomprehension and hostility between such schools, and sudden shifts of the status quo. Famously, Kuhn brought all this into his analysis of the advancement of science: we remember his paradigms, his gestalt shifts, his talk of ‘incommensurability’. Yet he was adamant that, in spite of what he might have implied, science and art were highly distinct enterprises. To a lay observer, the differences between art and science were obvious. A child of six would tell you so. Only the meddling attentions of a philosopher of science could make the boundary seem weak. And so, as though to make amends, Kuhn set out to find the reliable foundation to rebuild the wall and make it strong. And among the tools Kuhn contemplates is the concept of audience.

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Kuhn argues that science has no need of an audience, at least not the kind made up of members of the public. “Scientists who attempt to find a wider audience for professional work are condemned by their peers”, writes Kuhn. Perhaps the position has changed since 1969. Or perhaps not. But the overall argument remains interesting: that artists seek an audience, depend on it and, often, learn from it. Science – this is Kuhn’s point – is by its very nature uncomprehending of the idea that the views and responses of an audience are of any relevance. It is the argument that science lives by the opinion of close scientific colleagues, not on the approval of outsiders. One suspects that Kuhn might look at today’s conferences on public engagement and, while approving of the general sentiment – he was after all a great educationalist – doubt the validity of the concept of ‘dialogue’. His point would be not that democracy has no place in science, but simply that, when it comes to decisions and directions in science, the voters must always be scientists.

Must it be like this? Is science so defended and sure of its goals that no audience, no form of artistic practice, can reach in and pull at the levers? We know the answer here is in part political, a matter of how the concept of public engagement is allowed to map onto debates about democracy and the open society. But while those discussions smoulder on, we can meanwhile see in the Wellcome Trust’s science–art initiatives some signs that artistic practice can indeed find expression in scientific work, both technically and conceptually.

Better to think of these projects as prising open science, and, perhaps unexpectedly, finding space to work.

In Project Façade for example, the sculptor and casting expert Paddy Hartley is working with materials scientist Ian Thompson on shaping the bioglass implants used by dentists at Guy’s Hospital; these are artistic skills brought to bear on behalf of biomedicine. Another project, Fluent Heart, put together the heart imaging specialist Philip Kilner, the choreographer Wayne McGregor and the composer Sir John Tavener, and had as its main product the dance work *Amu*, premiered at Sadler’s Wells Theatre in September 2005. When we look at Kilner’s role, something remarkable emerges: he himself had an arts training, at Emerson College in Sussex, in addition to his years at medical school. Now working at the Royal Brompton Hospital in London, Kilner reports that this deep immersion in the arts, especially in sculpture, profoundly shapes the way he comes to understand the heart’s swirling vortices and rhythms.

We should not squeeze these intriguing projects into crude formulations that speak of ‘art influencing science’. The process is more subtle and more interesting. Better to think of these projects as prising open science, and, perhaps unexpectedly, finding space to work. No doubt the form of that work, and its final impression on the scientists involved, varies greatly. The impact is unpredictable, but real. When we consider as well the way these projects often gain such public interest, we can conclude the place of art in science is now secure.

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Reference

- 1 Kuhn T. Comment on the relations of science and art. In T Kuhn. *The Essential Tension: Selected studies in scientific tradition and change*. Chicago: Chicago University Press; 1977.

→ Partnerships Initiative. This supports long-term partnerships between schools and cultural and creative organisations.

The relationship between science and art remains complex and nuanced. What projects such as ‘Primitive Streak’ illustrate is that constructive dialogue is possible, and that the outputs can both have high intrinsic value and appeal to broader audiences.

For Helen Storey, the project was life-changing. She received further Wellcome Trust Sciart funding for ‘Mental’, a stunning interactive exploration of how the creative process impacts on the mind (in collaboration with Professor John McLachlan and others), and she has developed a career at the intersection of art, science and new technologies.

Sciart collaborations

Collaborations between scientists and artists are supported through Sciart grants, part of the Wellcome Trust’s Engaging Science programme. Projects should aim to stimulate fresh thinking and debate in both disciplines. Innovation and experimentation are crucial, but projects should also be accessible to diverse audiences and engage the public in the social, ethical and cultural issues surrounding biomedical science.

www.wellcome.ac.uk/sciart

Right: One of the dresses from the ‘Primitive Streak’ project. *Helen Storey Foundation*

