

nature structural & molecular biology

London's hottest new attraction is... scientists at work

Scientists engaging with the public on a more direct level is bound to benefit both.

How does it feel to have 2,500 pairs of eyes watch you work? Imagine the crowd staring intensely at you as you set up a PCR, admiring your smooth pipetting action and wondering what on earth is so fascinating about the DNA sequence you have in front of you. Hold on, they don't have to just wonder, they can buzz on the intercom to ask you what you're doing. That is the daily experience of hundreds of scientists who work at the Natural History Museum in London. It probably takes some getting used to. Opened on 15 September, the £78 million (US\$128 million) Darwin Centre is pulling in the crowds. It's free, but due to demand you have to book a ticket in advance. It's the United Kingdom's latest—and perhaps bravest—approach to communicating science.

On display are 22 million zoological specimens, although the 220 living human specimens may well prove to be the most interesting. Housed inside a huge cocoon structure, visitors can watch scientists carrying out research. As well as being able to interrogate scientists as they work through the intercom system, various videos and interactive exhibits help to make sense of it all and explain why collections of insects and plants can help fight malaria and understand biodiversity. A good explanation of the peer review process for publishing papers is included too.

Researchers in the Darwin Centre are on show as they prepare specimens for analysis, sequence DNA and compare and classify species. Scientists also take turns to give daily talks on their work in the new Attenborough studio. The scientists at the Natural History Museum are expected to spend around one-fifth of their time on activities that benefit the museum's aims, such as public communication, and researchers are expected to answer the intercoms and explain their work.

The Darwin Centre is a fascinating exhibit, but it follows a long trend of efforts to demystify science. This phase of science communication began in the late 1980s with the well-meaning, but sometimes high-handed, approach of trying to teach the public what scientists thought they should know. But through trial and error a more informal and more equal way of talking about science began to dominate, particularly through the *Café Scientifique* movement.

Café Scientifique, which uses a highly successful model for making science interesting and accessible to the general public, began in Leeds, UK, in 1998, and has since spread around the world. There are more than 180 venues, with 30 in the United States and Canada and others based in Japan, Argentina, South Korea, Bangladesh and Kenya. The idea is that for the price of a drink anyone interested in science can listen to a short talk by an academic scientist, or perhaps a science writer, and ask questions in a relaxed and mostly friendly (depending on the topic!) atmosphere.

The organizer—a scientist or a member of the public—finds a suitable venue, usually a café or a bar with a spare room, chooses a subject and

invites one or more speakers. Topics that tend to draw the crowds are those that are either applicable to everyday life or controversial, although esoteric questions of infinity and dark matter do attract a sizeable audience too.

Scientists are encouraged to throw away their Powerpoint slides, although visual props are welcome. This can have a frightening but liberating effect on speakers and also changes the dynamics of the situation. Instead of the speaker lecturing to the audience, a more informal environment results, making everyone more equal.

Café Scientifique does not set out to promote science, and perhaps that is, in many ways, the secret of its success. Its informal approach encourages everyone—scientist and public—to be open-minded. But to be open to questioning by non-experts is a challenge, despite evidence suggesting that discussion and engagement seems to be garnering support for science.

In the tough times ahead, with budget cuts expected worldwide, science will need all the support it can get. Although scientists may view their work as pure and value-free—and ethics as a peripheral issue that should not disrupt intellectual pursuits—this is not necessarily the perception of the public. Without constructive engagement with the public over subjects such as cloning and the use of embryonic stem cells, scientists risk ceding control to special interest groups with political agendas.

In the UK, scientists successfully lobbied the government and presented a persuasive case to the public for the production of interspecies embryos, or, specifically, cytoplasmic hybrids, for human stem cell research. The Human Fertilisation and Embryology Authority (HFEA), which licenses and monitors UK fertility clinics and all UK research involving human embryos, undertook a year-long exercise to ascertain the public's view on interspecies embryos. Public meetings were held with panelists for and against the proposal.

Professor Lyle Armstrong of Newcastle University spoke openly about why he wanted to undertake this research and—refreshingly—acknowledged audience concerns. Before the event, most were against the creation of hybrids, but a vote at the end confirmed that the majority was persuaded that the research should be made legal. Success was not achieved by belittling the audience's concerns or by asserting the superior nature of science, but by listening and acknowledging concerns. Thankfully, Armstrong's careful and thoughtful approach was not overshadowed by a very distinguished UK scientist in the audience, who dismissed a member of the public because they had 'only' a bachelor's degree in biology. The scientist in question obviously missed the point—that the HFEA was consulting the public.

Engagement and listening to the public do pay off, and now is the time to prove that not only do we value the intellectual pursuit of science, but we understand its implications for society. ■