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Beautiful kit

One of the wonderful things about being a scientist, apart from carte blanche access to stationary cupboards, is that every now and again you get the chance to design or buy a new piece of kit. Few moments of lightheadedness can compare with the moment when the funding comes in and nothing now stands between you and some shiny, marvelous machine, which you can install in your laboratory. These machines, like a newborn, can do no wrong. They are temporarily the toast of the department and are shown with pride to any hapless members of the public who happen to wander in.

We can all probably date our first exposure to science laboratories by the type of machine that we were ushered in front of, while a demonstrator praised its sheer brilliance. My initiation was in the days when scanning electron microscopes with energy dispersive X-ray analysis were the latest thing. At open days, I would be ushered into a dark room, lit only by the green flicker of a slow scan monitor, and asked to witness the X-ray signature of some unlucky everyday object that now found itself bombarded with electrons.

"Brass, 70-30, you can see from the analysis," the proud demonstrator would say, pointing at the superposition of some red lines over some white fuzzy lines, while an old door knob waited patiently in the vacuum chamber. With the perception of a schoolboy, I knew these scientists talked about their machines even when they went home. 'Sad', I thought at the time. But now, I am one of these fanatics. Now these instruments are like my family, I worry about them and when I hear of a malfunction, it inflicts anxiety and sleepless nights.

It is odd, then, that despite the high status of scientific instruments in a science laboratory, the aesthetics of the instrument design appears to have been in constant decline since the 19th century. A trip to the sublime, recently opened, *Enlightenment* exhibition at the British Museum in London (www.thebritishmuseum.ac.uk/enlightenment/), illustrates how far standards have fallen. The 19th century was the aesthetic peak of precision instruments. The astrolabes, microscopes, telescopes, and armillary spheres from this period are all staggeringly beautiful objects. The instrument makers festooned these objects with decoration and embellishment, so much so that they could grace your hand as precious jewelry. Without doubt, these instruments celebrated the marvelous nature of the new science.

It is true that these instruments were expensive and handmade for rich or well-funded patrons. Science was not established, and may even have needed to establish credibility by associating the value invested in the instruments with the value invested in the methodology. Though the politics and economics of science have changed much in the intervening centuries, this does not entirely mitigate the extraordinary ugliness of some modern scientific instruments.

Sometimes, while wandering around microscope exhibitions, I wonder whether manufacturers are secretly having a bet as to who can produce the ugliest equipment. What is more, if you happen to mention the aesthetic drawbacks of a particular instrument to the sales team, you get the stare. The 'you can't be a proper scientist if you care about anything other than the maximum resolution of this machine' stare. Typically delivered over your left shoulder.

This is all very unfortunate and has led to a state of affairs where huge numbers of scientists spend most of their waking lives working lovingly with some of the ugliest machines known to man. What appear to be gigantic lumps of cheese with vacuum tubes sticking out turn out to be high-resolution microscopes. Enormous blocks of ice cream turn out to be state-of-the-art magnetic resonance imaging machines. Even one of the wonders of modern technology, rapid-prototyping machines, look like lumps of blancmange.

It seems obvious that equipment design has become a demonstration of the ultimate victory of functionality over form. A declaration of the superfluousness of aesthetics to science. Something must be done about it; if not for the sake of uniting truth and beauty, then at least to stop science laboratories looking like giant dessert trolleys!

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