

"iCHSTM has been an incredible experience! The presentations covered the entire chronological, geographical and thematic range of our field. Our social media team blogged, tweeted and streamed iCHSTM to audiences worldwide. And adding an opera première, comedy nights and a HSTM-themed beer festival to the more usual social programme of receptions, walks and visits has wowed the delegates! The feedback has been wonderfully positive and appreciative. iCHSTM has set not only a new benchmark for the history of science, technology and medicine, but we hope it has also demonstrated new approaches to inspire international conferences across all academic disciplines."

Jeff Hughes
Chair, Local Organising Committee



SOUVENIR SPECIAL

The Congress in Cottonopolis

James Sumner and Alex Hall on a once-in-a-generation event

How do you sum up the biggest meeting in the history of your field? The week-long 24th International Congress of History of Science, Technology and Medicine, held in July at the University of Manchester, hosted over 1750 researchers from around the world. Foyers and corridors buzzed with caffeine-fuelled discussion; banners flew, news crews filmed, publishers hunted authors, authors hunted readers, and local organisers darted about with impressive bundles of equipment whose purpose was obscure even to fellow organisers. Evening activities ranged from grand civic receptions to club music, raucous comedy, and impromptu curry expeditions. This was the first Congress with medicine in its title, the first with a Twitter hashtag, certainly the first

to feature purpose-brewed beer and a post-punk bass guitar legend. It was not an easy beast to keep track of.

The four-yearly Congress series, convened by the International Union of History and Philosophy of Science Division of History of Science and Technology (DHST), has the widest global reach of any regular meeting in the field. Organisation, however, is largely delegated to the host country, represented here by the BSHS itself, and the local organisers were keen to present a flavour of the typical BSHS Annual Meeting – suitably adapted to a more than tenfold increase in scale. What follows cannot be anything like a thorough survey of the results. All we can do is to highlight some of the things which made iCHSTM

2013 special, and some trends and tendencies illustrating the current state of the field, and the opportunities and challenges ahead.

A good starting point is the theme announced for the Congress: 'Knowledge at work'. Though broadly inclusive, this title shaped the meeting's content in interesting ways, most importantly by encouraging a focus on *who might find particular kinds of knowledge useful, and why* – not only in explaining historical episodes, but in defining a present-day role for the discipline itself.

Jeff Hughes and James Sumner are congratulated on the event's success at the Conference dinner. All photos courtesy of iCHSTM unless otherwise stated.





Above: Organisers and delegates prepare to hear Hasok Chang's BSHS Presidential Address, following the Opening Ceremony. Right: Hasok Chang with some of the iCHSTM volunteers.

The content-context controversy

Hasok Chang set the tone in the opening plenary with his BSHS Presidential Address, provocatively titled 'Putting the science back into the history of science'. The profession, he argued, has bred a generation of 'impatient contextualists', so thoroughly wrapped up in cultural contexts, geographies and communication techniques that they have turned away from actual scientific theory and results. Their opponents, the 'disgruntled internalists' – often with backgrounds and audiences in professional science – retort that if scientific knowledge is going to be treated as just another social or cultural phenomenon, there is little point in having a discipline called 'history of science' at all. The result, said Chang, is an unhelpful picket-fence dispute with some very odd side-effects, such as the notion that the cultural and intellectual dimensions must be somehow opposed to each other.

Chang's proposed resolution began with his definition of what the history of science is useful for: to describe, understand, and overcome the past. To work productively as a distinct discipline, it must shrug off the contextualists' taboo against judging the value of past scientific claims. But this should not mean a return to old-fashioned whiggishness, which judges by the standards of current scientific orthodoxy: historians can, and should, define their own standards. A researcher who explores the records and apparatus of a past scientist in detail, explained Chang, will often come across findings unknown to current science – sidelined, not disproved – which may be reproduced or approximated using modern equipment. Chang gave the example of his own replication experiments in chemistry, strikingly demonstrated with video of a gold wire dissolving in salt water under low

voltages: 'this phenomenon', he pointed out, 'surprised every chemist that I've shown it to'.

Such investigations, he said, give the historian grounds to act as a critic of current science – and scientists, like all professionals, needs a measure of independent scrutiny. (This does not, however, mean that the historian is 'anti-science', any more than a film critic is anti-film.) A history of science which pays attention to content, Chang concluded, should be useful not only to historians but to research scientists, policymakers, science educators and the people they educate.

This manifesto inevitably provoked much debate, with most of the immediate reaction coming from professionals concerned to defend contextual history. Some asked why the agenda for engagement with non-

historians should be limited to those who are scientifically trained, when many policymakers and most of the wider public are not. Others suggested Chang's strictures had unwittingly called into being a third category – the 'disgruntled contextualist'.

The medium for this debate itself displayed important developments in historians' options for putting their knowledge to work. Where once the controversy would have waited for questions or coffee, Twitter users in the audience began to circulate comments and challenges during the talk itself. A complete recording of the address went online during the Congress and is archived at the iCHSTM Blog's Video page (ichstm2013.com/blog/video/), making possible a wider-ranging discussion on Michael Bycroft's Double Refraction blog (tinyurl.com/q2zsdhx) featuring contributors who had not been able to attend the Congress itself. The opportunities of online social media formed another important Congress focus, to which we will return below.

Worlds of work

Inspired responses to 'Knowledge at work' were also in evidence among the Congress's 115 symposia (organised groups of paper sessions: see ichstm2013.com/programme/ for full details of organisers and abstracts). How, for instance, did colonial governments put scientific authority to work? What tools have chemists used to visualise and communicate processes? How do medical schools respond to, and influence, changes in the content of medical practice? How and why do visual artists now often find themselves working in laboratories and museums? How did the mathematics of ancient China serve astronomy, surveying, and state construction projects? What conceptual work lay behind



Delegates hunt for bargains at the second-hand book stall.

familiar categories like 'modern physics'? How does a newly defined platform for scientific activity, such as 'systems biology', make new kinds of work possible?

Historically, the backbone of the Congress programme has come from the discipline-specific Commissions of the DHST. Commission-organised symposia, often stretching over a day or more, remained prominent: for example, the Meteorology Commission symposium on knowledge production in climate science moved chronologically from the tensions of 19th-century imperial projects to the Intergovernmental Panel on Climate Change, generating much debate about the politics and diplomacy of international science. It was notable, however, that a majority of symposia at Manchester came from groups outside the DHST structure. Particularly visible were the collaborative projects which are a growing feature of life in the academic humanities, from the 18th-century Board of Longitude Project to the Earth Under Surveillance initiative on Cold War monitoring and geophysics. (Large international projects, it seems, are the favoured tool for investigating the histories of large international projects).

Many organisers took the opportunity to work across disciplinary or other boundaries. One symposium focused on fossils at the crossroads of the lab and field regimes; another used the case of bioinformatics to explore what happens when specialists in one scientific field put to work the conventions and practices of another. Sessions convened by the International Association for Science and Cultural Diversity looked at research organisation in national contexts to examine how knowledge works across cultural boundaries – or doesn't. Encounters between non-western traditions and clinical medicine illustrated processes of institutionalisation, marginalisation and exchange, while the category of 'women's work' prompted assessment of opportunities for scientific activity in a gendered world. Among the most interesting contributions methodologically was a symposium on 'Sonic skills' from the International Committee for the History of Technology (ICOHTEC). Through case studies of stethoscopes, ornithological recordings and audio data reporting (as in the famous Geiger counter click), the authors affirmed that studies of scientific observation should take sound as seriously as sight.

Others addressed how historians themselves work. Case studies included approaches to the quantitative study of ancient astronomical data, a project at the Smithsonian to retrieve and archive early sound recordings, and online initiatives such as Inventing Europe, the BT e-Archives of telecommunications history, and the Global Hibakusha Project. 'History of science and the ecology of knowledge', organised by the DHST Bibli-



"Volunteering was a great experience: we got to see the papers we really wanted to, but got to meet everyone else too! I met some people whilst volunteering whose papers I wouldn't have normally gone to, sparking my interest in new fields. Overall, volunteering at the Congress made the

event special... I'd like to thank the team of 30 volunteers, who walked over 300 miles during the Congress, for all their hard work and integral role in making the event a huge success: it couldn't have happened without them!"

Stuart Butler, Volunteer Co-ordinator

ography and Documentation Commission, strikingly illustrated the thematic breadth permitted by the scale of the Congress, bringing together papers on the World History of Science Online database, crowd-sourcing digitisation, the use of counterfactual history in teaching, the consequences of the Open Access agenda for public history, usage of the *Isis* Current Bibliography, online provision of primary sources, and the awkwardness of transferring the cataloguing control mechanisms of library science to the open internet.

Work as understood by historical actors was also a popular focus, from the 'Great Work'

of alchemists to the role of the new 'human sciences' in the 20th-century workplace. One symposium on early-modern experimental philosophy, organised by Sophie Weeks and Fokko Jan Dijksterhuis, was framed by its subjects' invocations of 'work' in no less than three distinct senses: the emphasis that the new knowledge must involve manual activity; the utilitarian definition of research which made the production of 'works' its goal; and the profound combination of effort needed to bring contemplative and operative pursuits together.



Delegates take advantage of the rare Manchester sunshine during a coffee break.



The Manchester dimension

Work in yet another sense resonated with the Congress's location in the iconic 'metropolis of manufactures'. The intertwining of ideas and industry has long been a core theme in the self-presentation of the city – whose official motto, *Concilio et labore*, is not a million miles from 'Knowledge at work' – and of the University of Manchester, whose roots lie in the local Mechanics' Institute and in Owens College, the 19th-century 'University of the Busy'. This heritage was carefully reflected in the excursions programme. Highlights included Quarry Bank, a superbly preserved cotton mill and settlement of workers' housing, whose presentation accompanies the technology with explorations of the daily lives of the site's inhabitants, from the mill-owning Greg family to the child 'apprentices' who laboured at the machines – a story seen internationally this summer via the high-profile TV drama, *The Mill*.

Many sites on the University of Manchester campus and its satellites also opened their doors to Congress-goers. Two astronomy sites were particularly popular: Jodrell Bank, home to the famous Lovell radio telescope, and the extraordinary Godlee Observatory, with its spiral staircase and papier-mâché dome, preserved atop the city's former Technical College in something like its original Edwardian splendour. The older University buildings close to the main Congress venue were the focus for guided tours conducted by local colleagues, from Ernest Rutherford's atomic research laboratories to an anonymous-looking psychology seminar room inhabited, sixty years ago, by Alan Turing.

The local organisers were also careful not to neglect the life of the city beyond its industrial peak. Around 1990, Manchester (or rather, 'Madchester') became famous to a new international audience for the rave/house culture fuelled by digital music technology and recreational drugs: a special session brought together analysis from social historians with witness perspectives. The presence of two fully-paid-up legends of Manchester music – Joy Division/New Order bassist Peter Hook, and Hacienda DJ Dave Haslam – made for a candid, energetic and provocative debate.

Science in public and public science

Another strong motif was study of 'public' or 'popular' science, in various senses. Carol Morris's work on amateur meteorology revealed a remarkable gender dimension, with 96% of participants male ("Well," as one interviewee observed, "weather is not a girl thing, is it?") – and yet further investigation revealed that women, mostly the partners of the identified observers, often deputised and thus performed exactly the same observation processes, serving as 'invisible technicians'. Morris's findings sat neatly in a chronologi-

cally wide-ranging session covering the social and spatial connections between family life and laboratory working in early 20th-century Sweden, the literal kitchen-sink science of the *forschende Hausfrau* Agnes Pockels, and the effects of radioisotopes on garden roses.

One symposium took its lead from Jan Golinski's classic *Science as Public Culture*, adapting Golinski's analysis of the 19th-century 'elite'/'popular' distinction to 20th-century cases. Jim Endersby, in a paper inspired by the mutation theory of Hugo de Vries, looked at coverage of evolutionist and anti-evolutionist ideas in mass-market newspapers, pointing out that popular interest does not necessarily reflect popular support. Katherine Pandora introduced us to the 'intimate scientist', the benign flipside of the Frankenstein trope: in popular portrayals of mid-20th century life scientists, reclusive habits could be equated with professional dedication and a humanising focus on the home. Rebecca Onion tracked the presence of ecological and environmental concern in children's media, from optimistic 1930s accounts of technological production – in which the only moral failing is incuriosity – to the pessimism of the 1970s and beyond.

Museum professionals were well represented at the Congress, and many papers were concerned with how academics in universities and museums professionals can engage with each other in bringing their work to a wider audience, as well as in research and teaching. A full-day symposium covered the development of public history programmes, the practicalities of institutional distinctions between universities and museums, the opportunities of new technology, and wider questions about material culture. Ludmilla Jordanova, giving the keynote address in this symposium, brought all these themes to a focus, arguing that museum presentations oriented to adult audiences need credible historical research to underlie them, and that academic researchers need a good grasp of museum practice. The links need to be addressed at the practical level: would working towards an expectation that all HSTM graduate students serve a placement in a science museum be a step in the right direction?

Online innovations

One literal way to make research more accessible is to put it online where people can see it. In the weeks leading up to the Congress, the blog (ichstm2013.com/blog/) featured paper presenters introducing their work, helping to stoke enthusiasm and prompting discussion; several of the corresponding papers were then audio recorded at the Congress and archived on the blog. The main initial aim was to engage both professionals unable to attend the Congress and wider audiences, but the project has been appreciated by many who at-



Clockwise from top left: tweet-up; Jodrell Bank; iCHSTM banner; the BSHS stall; tweet-up; the Women in Science Research Network launch; the special session on social media and public engagement; representatives introduce the Learned Societies; 'Madchester' session; Sopwith's 1839 Cross Fell to Hownes Gill geological section.



Quotations of the Congress

"Many of us in the philosophy of science have been working very hard to move beyond the kind of philosophising that puts historians off. I assure you that it is safe to work with us again."

Hasok Chang, in his plenary address

"ISBN 184... 893... 423... 8!"

James Sumner, seizing an opportunity to promote his new monograph and carrying it very slightly too far

"As adorable as it is – and it certainly is – Canada can, and will, kill you."

Jessica van Horssen, putting the town of Asbestos, Quebec on the map at Bright Club

"What would Simon Cowell have said to Ian Curtis?"

Peter Hook, posing the great unanswerable at the Manchester culture session

"My guess is that academic journals, as we know them, will cease to exist in some non-huge number of years from now."

Nathaniel Comfort, by video link at the social media session

"Hello, baby. Shall I show you the fourth dimension?"

Chiara Ambrosio at Bright Club, demystifying Picasso's chat-up lines

"I take on a case-by-case basis who I will disagree with."

Alice Bell, again by video link, on rationing investment in online ructions

"PACK IT IN!"

Peter Hook, again, commanding Manchester luminaries Dave Haslam and John Pickstone to stop bickering

tended: with a seven-day programme of up to 23 parallel tracks, everyone missed things they wanted to catch. Some participants, meanwhile, offered coverage on their own blogs. Jussi-Pekka Hakkarainen's day-by-day survey (tinyurl.com/oty2djk) is particularly interesting, showing how a focus on one area (library digitisation) can lead to fruitful connections across the wider programme.

More immediate reportage came via Twitter. With several participants livetweeting sessions throughout, the stream of messages under the #ichstm hashtag (<https://twitter.com/search?q=%23ichstm>) was frenetic, notably surpassing #royalbaby in the Manchester region on 22 July; on average, followers could gain a reasonable sense of what was going on in two or three sessions parallel to their own. Yet, as Thomas Söderqvist (a remote participant via Twitter) commented, this actually equated to no more than 10% of the overall meeting; the question of how to capture the "deep conference" beyond needs further work. The stream also provided the usual chatty blend of instructive queries ("Am I the only scientist here?" Answer: far from it, though the distribution varied by session), moans (poor wifi in the Roscoe Building, fellow delegates' noisy typing), manifestos ('Disgruntled Contextualist' T-shirts seriously proposed at one stage) and entertaining distractions (the iCHSTM acronym game: In Conference, Hearing Some Terrific Messages; I Can't Handle Single-mindedly Technical Metanarratives; InComunicado, Having Some Timeout Myself).

Where all this might be leading was the subject of a special session on social media and public engagement, organised by Rebekah Higgitt with contributions from Vanessa Heggie, her collaborator on the online *Guardian's* 'H-word' history of science blog. Appropriately,

the session was run as a live video link-up with a parallel session at the Science in Public Conference in Nottingham, featuring Alice Bell and colleagues; and with two bloggers in the US, Nathaniel Comfort and Darin Hayton. If the discussion was sometimes challenging for the newcomer (offhand references to 'astro-turfing' and a suspected 'big pharma shill'), it also had enlightening things to say about the historian's public role.

Most audiences, said Hayton, tend to perceive a split between museums, with their obvious engagement agendas, and 'institutions of higher learning', whose researchers work more privately: blogging and Twitter both offer spaces to break down the division through contact with publics, journalists and policymakers. There was a healthy focus on the practicalities of keeping a successful blog, such as the need to find familiar popular hooks to hang historical points on whilst avoiding presentism – an interesting reflexive case here being the parallels between online forums and the 18th-century coffee house. All the contributors, however, were careful to address limitations. Hayton confessed to turning off comments on his blog because of the volume of 'half-baked' responses; Bell spoke of the practical need to ration time devoted to debate; Heggie, of strategic Twitter unfollowing to keep blood pressure at a safe level.

An astute member of the Nottingham audience noted that the video feeds of the US participants (in separate locations) showed both posed almost identically with shelves of



Professor Salt (Iwan Rhys Morus), Miss Stanley (Aileen Fyfe) and Mr Wells (Katy Price) present the Victorian Science Spectacular at the atmospheric Portico Library. Photo courtesy of Karen Merikangas Darling.

books in the background. Was this a conscious or unconscious evocation of a traditional academic status signifier, with implications for the dynamics of engagement? No, the pair protested: it was simply that they were connecting from their offices, and offices contain books because books are still useful. The continuing importance of older modes of communication was likewise affirmed in the Congress's wider public engagement efforts.

Publics and the pub

One of the most important innovations was a public programme – open to delegates, but promoted to wider audiences – at a variety of Manchester venues (ichstm2013.com/public/). Inspired by the science festival movement, the organisers arranged a mix of performances, discussions and informal talks, with a strong headline event in the British premiere of Oopera Skaala's Turing Machine Opera, presented at Manchester Metropolitan University. The programme drew strongly on work by the BSHS Outreach and Education Committee: this year's Dingle Prizewinner, David Wright (see interview on p.19), spoke on his book *Downs: the history of a disability*, and there was another chance to catch 'The Tables Turned', the Strolling Players' performance/debate on Victorian spiritualism and scientific identity.

Further Victoriana was on offer elsewhere. Every public historian knows the power of period costume to draw and hold a family audience; science communicators traditionally assign a similar role to whizzes and flashes and bangs. 'Victorian Science Spectacular' cunningly combined the best of both devices. Bringing together the research of BSHS stalwarts Aileen Fyfe, Iwan Morus and Katy Price with showmanship expertise from Tim Cockerill (gloriously listed in the programme as a 'Freelance zoologist and circus performer'), the show featured a sparking induction coil, magic lantern, phonograph, and other apparatus created to impress public audiences of an earlier generation.

One successful decision was to run both the Victorian events twice, with a Congress-only performance on campus serving as a rehearsal for a city-centre public production in the evening. The organisers arranged venues – the University's wooden-benched Pear Lecture Theatre, and the glass-domed reading room of the city's 1806 Portico Library – which, if not exactly in period, added strongly to the ambience. Several of the participants suffered nobly for their art, maintaining their bonnets and neckerchiefs as temperatures rose at times to distinctly un-Mancunian levels.

The definitive effort to make the Congress public, however, was the establishment of a Congress pub. The Jabez Clegg Beer Hall kindly hosted events including an evening of folk songs reflecting the upheavals of



Chiara Ambrosio performs academic stand-up at Bright Club.

industrial change and a history-of-science edition of the inimitable Bright Club, in which academics perform stand-up comedy based on their work: sets ranged from the winningly

misanthropic (Jessica van Horssen on the happy-go-lucky career of Canadian asbestos marketing) to the agreeably filthy (Chiara Ambrosio on Picasso's multi-dimensional

A view from under the organiser's desk

Registration has just opened, I've been on site for ten minutes, and I'm already hiding under a table. The reason is not, as you might expect, blind panic, nor the urgent need to dodge scholarly opponents or creditors. Rather, I am fiddling desperately with the VGA connection from our cunningly concealed projection laptop, in hope that this will fix the nauseating acid yellow tint that's somehow infected all the information plasma display screens. Eight inches away, on the other side of the tablecloth, my superb colleagues are advising newcomers: I can practically hear the smiles they will be dispensing for the rest of the day. Everything is proceeding as smoothly as a swan on the water, which means there's a lot of frantic paddling going on below the surface.

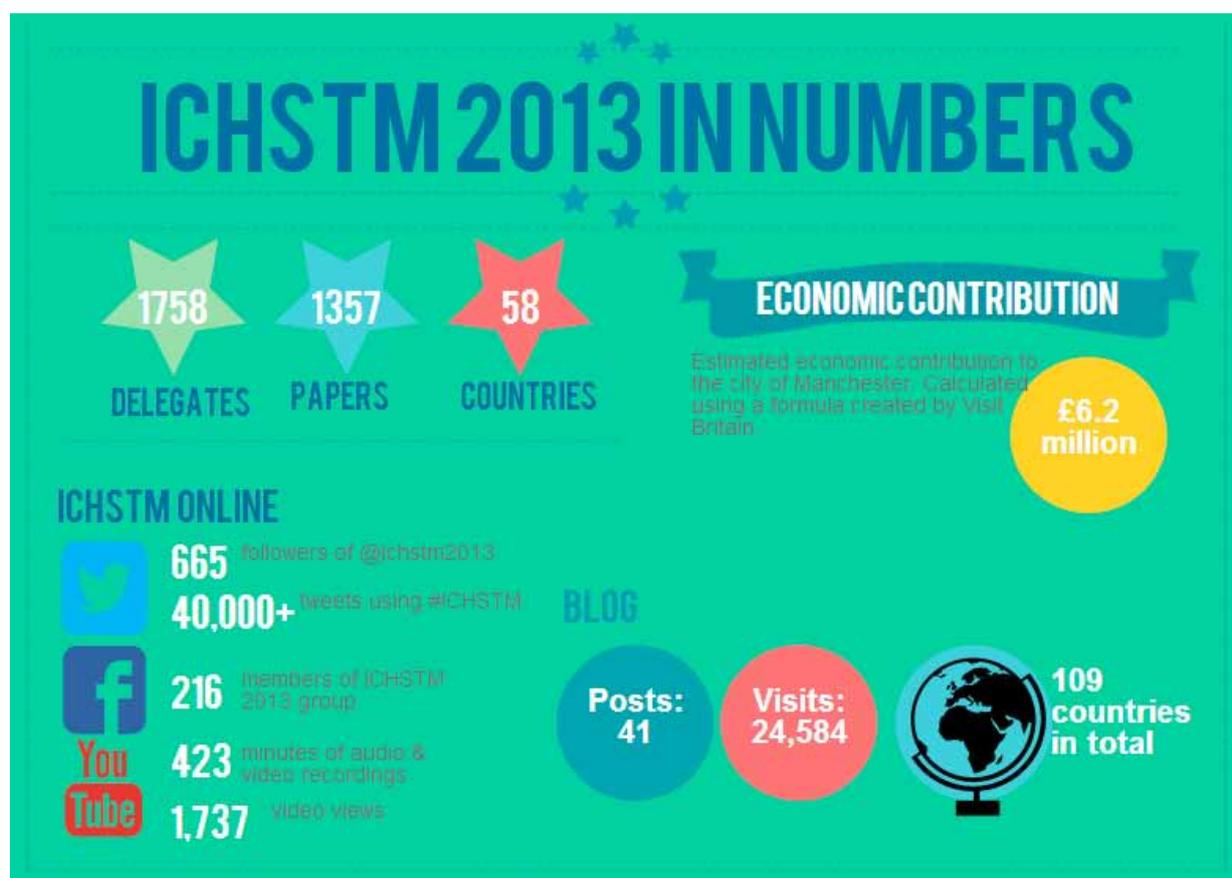
As the person with overall responsibility for compiling and checking the electronic programme, I could, in theory, expect no surprises from the Congress. There comes a point in any sufficiently large organisational endeavour, however, where the project passes beyond the ken of any individual mortal. For me, it became clear this point had been reached when I stumbled (literally) across an enormous, Congress-logo-shaped laser beam projection. Granted, the essence of organisation is delegation, and I

hadn't specifically asked for a veto on laser procurement. I had not exactly anticipated the need. Result: one laser, staring me in the face (mercifully *not* literally, though it was a close-run thing). The Congress was as much a festival as a conference, and that atmosphere still hasn't entirely gone away.

Assembling the discipline's largest-ever meeting, within a small group with little prior experience, was draining, confusing, and very nearly unmanageable. It was also exhilarating, spectacular, and not an experience I would have missed at any price. Personal highlights included the utter brilliance of the volunteers, the diversity of the special sessions, the wit of the Twitter feed, the glorious weather (rumours of cloud seeding are firmly denied), and, purely selfishly, the very first copies of my book turning up a few hours before I was due to give a talk plugging it.

iCHSTM 2013 was massive, manifold, and markedly Mancunian: there will never be another meeting quite like it, although we hope its messages will be taken up by others. Particularly if they can get their plasma screens to work.

James Sumner
Co-chair, Local Organising Committee



approach to mathematical cuckoldry). Also on the bill was a hands-on demonstration of 19th-century beer adulteration from local organiser James Sumner, one of the few historians who finds it inconvenient *not* to present in a pub. Completing the effect, the efforts of iCHSTM volunteer fixer supremo Sam Robinson ensured that the bar was stocked with a

variety of appropriately themed cask beers (tinyurl.com/qdkyny4), including a specially commissioned commemorative dark beer, inevitably christened Roy Porter.

Video footage of the Victorian Science Spectacular and all the Bright Club performances may be found at ichstm2013.com/blog/video/.

Looking to the future

Despite the high visibility of the locally organised events, the Congress also has an important role as a venue for the work of the DHST and its constituent Commissions. One important contribution was a DHST-organised plenary session on the final morning, featuring, in place of the usual senior-figure keynote, short presentations by four junior scholars – Michitake Aso, Fabian Krämer, Don Leggett and Marc Oliveras – who have recently produced prizewinning work. To those reading for glimpses of where the field may be headed in years to come, it was particularly notable that Leggett outed himself as a proud Disgruntled Contextualist...

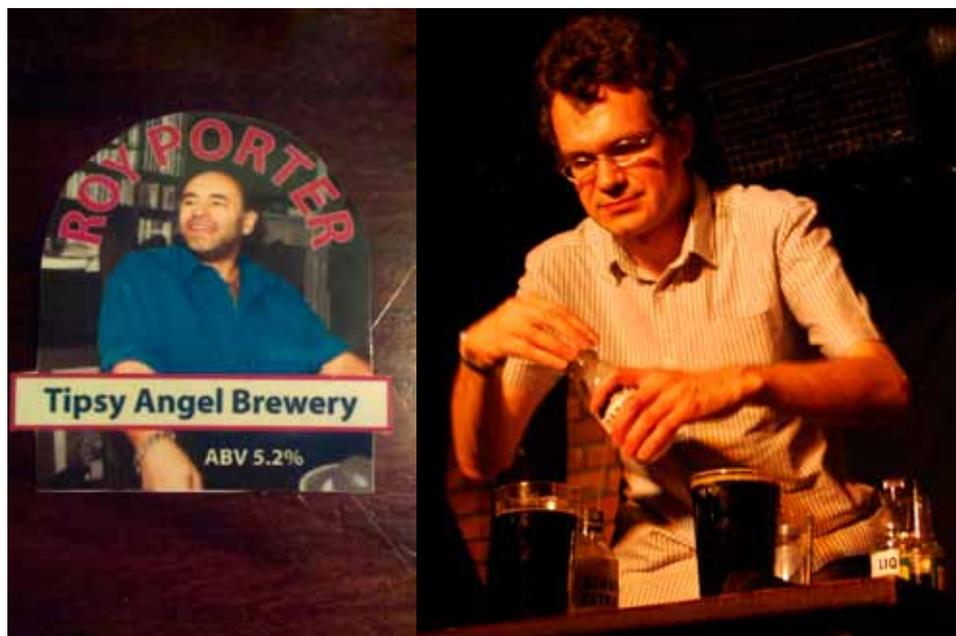
By this point, news had come through on the decisions voted at the DHST General Assembly, including the location of the next Congress in 2017. A closely fought contest between Buenos Aries and Rio de Janeiro ended in victory for Rio, which will thus follow the 2014 World Cup Final and the 2016 Summer Olympics and Paralympics with another four-yearly event which – in our field, at least – draws the attention of the world. Will the public turn continue? Will the content-context controversy persist? Will the 'deep conference' get online? We look forward to finding out.

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Left: The specially commissioned Roy Porter beer. Photo courtesy of Laura Kelly;
Right: James Sumner's hands-on demonstration of 19th-C beer adulteration.