

Bill Bryson 2011 prize winners



The winners (clockwise): Laura Hedges, Laura Highfield, Evelyn Henderson, Kathryn Hughes and Lir Afiq were presented with their prizes by Bill Bryson.

The RSC received nearly 400 informative and creative entries to the 2011 competition from both primary and secondary school students.

For the first time in 2011 we welcomed entries from international schools to mark the International Year of Chemistry.

The winners each received prizes of £500 for their schools plus £100 for themselves.

Hundreds of entries from around the world were received. The judging panel included Bill Bryson, the President of the RSC and three members of RSC staff.

The UK prize winners were presented with a certificate and prize money by Bill Bryson at a ceremony at the House of Commons, in the Speaker's House State Rooms.

Bill Bryson said at the event: "It is so inspiring for me as one of the judges to be presented with these entries every year because they are so full of enthusiasm and excitement, and that's something that can't be faked – you can really feel the sincerity.

"There are so many exciting, novel ways to convey the wonder of science. The prize gives kids a chance to shine in a way they wouldn't otherwise, and to really express themselves and experiment with what they can do."

You can see this year's winning entries and find out how to take part in the 2012 competition, which has the theme 'Chemistry and Sport' on the website: www.rsc.org/billbrysonprize

Welcome
to issue 62



Hello and welcome to the November issue of ChemNet News.

There's not much point in discovering a new drug or innovative material which can improve people's quality of life if you don't tell anyone about it. For that reason, good communication is vital in all scientific careers. The things scientists find out are often very complicated, but the results are often equally important. If we are to make use of scientific discoveries, it's essential that they are communicated clearly so that the public and the government can understand them.

In this issue we celebrate the achievements of several talented young writers through the Bill Bryson prize.

Some of these winners may even go on to follow in the footsteps of science correspondent Mike Brown, who is profiled in this month's pages.



Robert Bowles – Editor

Dates for your diary

ChemNet Events:

► **The Bigger Bang Show**
Norwich Theatre Royal
07 November 2011
13:00-19:00
Norwich

► **ChemNet Pizza and Quiz Night**
16 November 2011
18:00-20:00

University of Bradford
Richmond Building, Bradford
West Yorkshire

► **RSC Alternative Careers in Chemistry Talk**

16 November 2011
12:00-13:30
Newcastle University, Lecture Theatre 3, Chemistry Department, Bedson Building
Newcastle-upon-Tyne

► **Watts New with Clean Energy? Batteries Included**

23 November 2011
18:30-21:00
Royal Society of Chemistry
Burlington House, Piccadilly
London



► **Frank Ellis Memorial Lecture What's in My Stuff?**

30 November 2011
18:00-19:00
A science and art based approach to raising the public's awareness of the use of the elements in consumer technology.
Royal Society of Chemistry
Burlington House, Piccadilly
London



To book a place on a ChemNet event:
E: events@rsc.org
T: 01223 432340
or book online and find more info about all the events at:
www.rsc.org/chemnet
<http://my.rsc.org/chemnet>

The importance of science communication

Professor David Nutt famously compared the risks of 3,4-methylenedioxymethamphetamine (ecstasy) to horse riding.

He said that based on the cost to society, horse riding should be banned, because it causes more annual deaths – from falls and accidents – than the Class A drug does.

Professor Nutt's comments proved controversial, but the ideas he raised are important. The thing is, every day all of us have to make decisions based on data. That might be governments deciding how to classify a drug or implement a social policy. Or it could be you or I, deciding whether to take a particular medicine or how much exercise we do.

The more data we have, the more informed our decisions will be. Unfortunately, the amount of research going on into important questions like global warming is so big, that it's difficult for an ordinary person to grasp all the complexities of the subject.

Governments employ full-time researchers who analyse data on their behalf. But for most of us, a team of researchers sifting evidence for us is not a realistic

option. Instead, what society needs, is professional science communicators; people who look at complex scientific data and arguments, analyse the evidence and distil the information into broadcasts or easily understandable memos.

So who does this? Services like the BBC through documentaries and news, newspapers and blogs are the eventual sources. But ultimately it is the responsibility of scientists to communicate their work. If they don't tell people effectively, and in language that they can understand what they're up to, how will anyone know?

It's therefore important that as well as learning facts and techniques, chemistry students also have a broad understanding of how science affects society, and be able to talk about what chemistry can tell us about the world. Then, when they make discoveries in their future careers, they'll be able to tell the world about it effectively.

Josh Howgego



Careers: A day in the life of Mike Brown

Mike is a science correspondent for the Royal Society of Chemistry's *Chemistry World* magazine where he has been a writer and editor since April 2010. He tells Josh Howgego about his daily work.



April 2010 – present Science correspondent at *Chemistry World* magazine and editor of *Chemistry World China*.

2008 – 2010 Publishing editor for selected RSC academic journals.

2007 – 2008 RSC graduate scheme; assistant editor for the academic journal *Chemical Communications*.

2006 – 2007 Mobile chemist at Veolia Environmental services

2003 – 2006 PhD in inorganic chemistry, University of Southampton.

1999 – 2002 BSc in Chemistry, University of Southampton.

1997 – 1999 A-levels in Maths, Chemistry and History.

“A typical day for Mike often starts with reading the newspapers, as well as consulting specialised news channels to stay informed about what’s happening in the world of chemical research”

The big picture

With a PhD already under his belt and experience as an editor who has overseen the publication of hundreds of scientific articles, Mike Brown has an excellent overall knowledge of the cutting edge research going on throughout the chemical sciences. It's his job to understand the research that's going on in chemistry right now and communicate it clearly and effectively to others.

Mike writes for and edits the magazine *Chemistry World*, which is published by the Royal Society of Chemistry. The magazine is read by approximately 49 000 people; mostly professional chemists working in the UK. Many of these chemists focus in lots of detail on a small area of science, so it's important that they can get a summary of other developments in the wider discipline from people like Mike.

Critical thinking

One of the most important aspects of Mike's job is the ability to critically review new pieces of scientific research and select which ones have the most appeal to the readers. This requires attention to detail and an eye for a good story. Secondly, he needs to be able to distil the information contained in a long academic paper and craft it into a concise, easy to read story.

A typical day for Mike often starts with reading the newspapers, as well as consulting specialised news channels to stay informed about what's happening in the world of chemical research. He will then meet with the rest of the *Chemistry World* team to decide what stories the magazine will cover from that day's news.

The rest of the day can vary dramatically depending on what stories Mike is working on. He will often have to interview scientists and/or public policy figures in order to properly understand the background to a story and to source quotes for articles. Mike has even interviewed people like Roger Tsien, winner of the 2008 Nobel prize in chemistry, so he has grown used to meeting very important people.

As well as covering news stories, Mike researches and writes feature articles which explain the background to topical issues and delves into some of their detail, investigating a range of views. This involves lots of reading and talking to people from a range of backgrounds to get a wide perspective on an issue. For Mike, each day is different, and with each new story he finds out something new; “that's the best thing about it”, he says.

A social network

Although Mike's work isn't all fun and games, there is a truly conversational aspect to it – after all, it's all about communicating science. As part of that, Mike gets to travel to international scientific meetings where the greatest minds in science get together to discuss progress in chemistry. Mike's job is to get into the thick of this debate; to network, to talk to the people with the big ideas and listen to the speakers, then to report back for the magazine.

Chemistry on the web

► **The Parliamentary Office of Science and Technology (POST)** is responsible for providing scientific advice to government. Most politicians aren't scientists, so their briefings are often great for armchair scientists too: <http://bit.ly/al7tzi>

► **Not exactly rocket science** is an award-winning blog about life-sciences: <http://bit.ly/bEWQtk>

► Here's an interesting collection of stories of how top science writers began their careers: <http://bit.ly/9YiaPs>

► It's even possible to do degrees in pure science communication. The British Science Association has a list of courses here: <http://bit.ly/ouwJLY>



Win stuff

We have two Molymod chemistry kits to give away. To get your hands on one, just answer this simple question: *What sort of bonds hold DNA base pairs together?* Email your answer to chemnet@rsc.org by 14 November.



Did you know?

You have to pay to read the articles in most scientific journals – you buy them as you would a magazine. But so-called ‘open access’ journals require the author to pay for their work to be published. Then anyone can read it for free; useful for scientists in developing countries who don’t have much money to spare to read about current research.



Cutting-edge Chemistry

The peer review system

The peer review process is used to ensure the quality of published scientific research remains high. But there are some problems with the system...

When reading about a new piece of research, how can you be sure that the work being described is accurate, reasonable and fair? It can be quite difficult, especially when different scientists interpret the same data in different ways.

The answer – at least partly – is the peer review system. Before a scientific journal publishes a report of new research they show the paper to a panel of scientists who are experts in the area being described – these people are known as ‘peers’. The peers’ job is to critically evaluate the work, spot mistakes or unjustified conclusions and make recommendations on whether the work should or should not be published. In theory this should stop inaccurate science from being published.

In practice the system almost always works well, but occasionally there are cases where authors deliberately fake data or misrepresent results in order to support a preconceived conclusion. The trouble is, as the research is new, it is usually impossible for the expert reviewers to know what the results should be without repeating the experiments themselves.

There are other criticisms too. Despite the fact that the review process is supposed to be anonymous, if a field of research is small, sometimes reviewers know whose work they are looking at. They may then make subjective decisions on whether to recommend publication,

thinking “I’ll give your work good reviews, so you’ll do the same for me”. Reviewers are not generally paid for their work, so it can sometimes be slapdash. Some reviewers are too busy to be involved, so may ask their less experienced colleagues or students to do their reviews.

The government has recently been discussing the problems associated with peer review and how to deal with them. A Science and Technology Select Committee report says that although instances of data falsification are very rare, they are so serious that we should form a small, specific workforce to police the subject.

It may sound strange, but the report also suggests that in the future, social media technologies could be used to help identify fraud. Articles published online could have comment threads open on them where scientists can share their views on the article.

The most important thing is that as scientists, we are aware of how the system works and are capable of a healthy scepticism. Do these results seem reasonable? Does the author have any evidence to back up these conclusions? We should ask ourselves these questions. Critical thinking like this should allow us to get the most out of peer review – a very good, but not quite perfect system.

Find more information on the policing body for research here: <http://bit.ly/rjrX1m>

Josh Howgego