



p. 4 Face to face

Two views on science journalism

p. 2 The report

Science in the classroom



CER attracts interest from far and wide

On Monday, 14 November 2005, more than 2 500 participants descended on Brussels' Heysel Expo for the first day of the Communicating European Research (CER) 2005 Conference. They came from all over Europe and farther afield to debate one central theme: adding colour and movement to a field that too often looks 'black-and-white'.

In his opening speech, European Union Research Commissioner Janez Potočnik said: "We need science and technology to solve many of the problems we face today. Clearly, research is a critical element, but we must look more closely at the way we communicate research and work to improve its image among the public.

"This has now become more than a priority, he continued. Research communication must be more dynamic and engaging. So let's come away from here with a sense of community and resolution, to make science the 'coolest' subject in our schools and the hottest topic around our dinner tables."

Science: a source of economic power

For the EU, excellence in research remains key to achieving the stated goal of becoming the world's most dynamic and competitive knowledge-based economy, known as the Lisbon Strategy. Serving as master of ceremonies, former European Research Commissioner and current MEP Philippe Busquin said, "We have set the goal of investing 3% of European GDP in research, but to achieve this we must get public opinion on our side, and we will also need some 600 000 new scientists and researchers."

EU Commissioner for Information Society and Media, Viviane Reding, called on scientists to come down out of their "ivory towers", saying, "It's not enough to sit around making declarations. We must find new ways to transform the political momentum for research and technology into action."

Communicating excellence

"European research is outstanding," said keynote speaker Wolfgang Heckl, Director-General of the Deutsches Museum Munich and winner of the 2004 Descartes Prize for Science Communication. An expert on all questions of science communication, Heckl evoked the power of science museums in recruiting fresh young minds. "Visits provide memorable experiences with effects lasting for years, even over one's entire life, often influencing career choices."

Alan Leshner, CEO of the American Association for the Advancement of Science referred to the recent debate in the US over whether 'intelligent design' should be presented as an alternative to evolutionary theory in science classrooms. "People have the feeling today that science is encroaching on their personal beliefs and values. In areas such as cloning and stem cell research, sex and the genetics of behaviour, there is a growing divide between what we are doing and what the public feels is appropriate," he explained.

"Whining, the traditional approach of the misunderstood researcher, is not an option," he said. "We need to stop trying to bring the public to us and go to them instead. So go to your churches, to your schools and clubs and engage on an equal basis with the public."

Donghong Cheng, Head of Science Communication of the Chinese Association for Science and Technology (CAST), rounded off the opening session. "Most people in China have a positive view of science and technology", she said, "but we face difficulties related to the size and variety of our population."

Describing an ambitious programme of educational and training activities, Cheng underlined the importance of government support. "Our parliament has passed a law on the popularisation of science and technology, empowering CAST to carry out a range of activities. This has sent an important message to the public and other government agencies, that the state supports science at the highest level." ■



Donghong Cheng, Alan Leshner, Viviane Reding, Janez Potočnik, and Philippe Busquin (from left to right and top-down) during the opening session



■ p. 3 The preview

From Frankenstein to Frankenfood

■ p. 5 The story

Scientific hoax in Chile

■ p. 6 The exhibition

Visiting the Directorate-General Joint Research Centre

■ p. 7 Media corner

Writing for the press: Theory and practice

Lifting the shadow of scientific illiteracy

Science education is out of step with society, according to experts on yesterday's 'Science at school' panel, co-organised by EIROforum (see below). Unless something is done about it, the shadow of scientific illiteracy could spread, jeopardising Europe's Lisbon ambition of becoming the world's knowledge powerhouse.

Europe is short on researchers, and little on the horizon suggests this will change. Surveys confirm that most young people respect science as a force for good, but remain broadly sceptical about scientists themselves and, for the most part, see no future in joining their ranks.

It all sounds quite dire. But news from the 'Science at school – lost cause or real winner?' session was not all bad. According to Robin Millar of the University of York, science education is trying to be everything for everyone. In

the UK, they are testing a scheme called '21st Century Science', which splits the typical science curriculum into two streams.

The first teaches 'science for citizens' with emphasis on basic literacy skills for everyone, such as being able to read and understand a newspaper story about car fumes and asthma. The second kick-starts a scientific career by delving into scientific method and application. The pilot scheme is reporting very positive results.

"[It is] clearly having an effect," wrote one school. "Pupils are dis-

cussing issues from experience and from newspapers... both in and out of lessons." Another school commented that science could be more appealing if it had more real-world applications.

Science class of 2012

Russ Hodge of the European Molecular Biology Laboratory (EMBL), an EIROforum participant, showed how to animate an audience with his vision of 'Science 2012: history and future of life on Earth'. "Is anyone out there not interested in a subject like this?" he challenged. Silence.

So, how can popular newspapers dedicate eight pages to football and virtually nothing to science? It is a sad indictment not only of the state of scientific illiteracy but also of a society that would rather hear about footballers' wives, he mused.

EIROforum, he said, is very committed to the EU's programmes for promoting science communication and, in particular, its efforts to involve all stakeholders in the youth and science debate.

Answers to the problems facing science education today are out there. Helping science teachers to be more like scientists – and vice versa – is one solution. Another is for international research or-

ganisations like EMBL to expand training programmes for budding young scientists, he suggested.

The European Southern Observatory's Claus Madsen (see box) favoured a pan-European partnership for science education to foster dialogue and incubate 'best practices' across borders and, indeed, from one research Framework Programme to another. ■



The stage is set for science at school

At its meeting at CERN, near Geneva, Switzerland on 21 to 25 November, EIROforum will be presenting the very best in European science teaching to some of Europe's top science teachers – and showing them some new tricks to inspire the next generation of science students.

The EIROforum 'Science on Stage Festival' will bring together around 500 science educators from all over Europe to reveal just how fascinating and entertaining science can be. A key element of this concept is to give teachers an up-to-date 'insider's view' of what is happening in the 'big' science that the EIROforum members undertake.

"At the festival, teachers will have the chance to view things from a new perspective – to be entertained and enchanted by science," said Rolf Landau, Head of Education at CERN and Chairman of the event. The festival in-

cludes both presentations and a fairground-like exhibition where delegates can share best practice and show each other their most successful "teaching tricks".

The various presentations and workshops will inform the teachers about new and diverse career opportunities for their pupils and create a truly European atmosphere where bright young people can meet and interact.

Flying theatre

Workshop themes as varied as 'flying on stage', 'the theatre of science' or 'stem cell research' and 'gamma-ray bursts' will give

the educators the chance to discuss and debate some of the most challenging issues facing science, and to take the latest news and results back to their lessons.

"Science is fun!" insisted event coordinator Helen Wilson from the European Space Agency, "as this week-long event will prove by presenting innovative methods of teaching science and demonstrations." These will include weighing the Earth using a straw, a paperclip and a piece of thread, and showing how a juggling act can help explain mathematics!

Travelling show

The festival is designed to be inspirational and will be rounded off by presentation of the European Science Teaching Awards – celebrating the very best science teachers and methodologies. The occasion sees the culmination of a two-year EIROforum programme that has taken place in virtually every European country. The delegates to 'Science on Stage' were selected from the projects presented at these events.

Highlights of the festival will feature in a new *Science in School* journal to be launched by EIROforum in 2006, which will be dedicated to promoting the best teaching materials and practices in Europe. ■



Serving European science

EIROforum is a collaboration between seven leading European intergovernmental scientific research organisations working to support the European Research Area (ERA) by focusing on a number of shared generic issues.

Claus Madsen, head of public affairs at the European Southern Observatory (ESO) and a member of EIROforum, listed three main areas for the group's work. "EIROforum focuses on outreach and education, human resources and human resources management and also on some specific technology transfer issues. For example, we have a working group that feeds into the development of GRID, the distributed IT system. The forum is also a useful platform for interacting with the European Commission on issues to improve the general environment for science in Europe. In April, the group published an important joint science policy communication 'Towards a Europe of Knowledge and Innovation'."

Education, education

However, science teaching and motivating teachers is a very important part of EIROforum's activities. And the group has launched a number of initiatives in this area.

"The 'Science on Stage' festival and programme is very important to EIROforum," said Madsen. "This is a dedicated initiative for teachers – looking to promote innovative science teaching in the formal education system. We have found that it is not difficult to motivate children, providing the teachers are given the right resources. The main issue is to inspire the core of science teachers in Europe to believe that they can be part of the solution."

At the festival, science teachers come together and can discuss and debate the very best ways to teach. "It covers everything," he explained. "How to teach, what to teach. The pros and cons of teaching the history of science, the philosophy of science, science versus non-science, and so on. And it also gives teachers the opportunity to keep right up to date with the latest research results."

But the support to teachers does not end with the event. "The organisation continues to work with teachers after such events via its national partners, because the follow-up work at national level is vital," he concluded.

Combating monsters through knowledge

Genetically modified organisms (GMOs) have been described by critics as 'Frankenfood'. But this description overlooks the huge benefits that GM technology can deliver, if handled responsibly.

To the popular mind, Victor Frankenstein is the prototypical 'mad scientist' whose limitless ambition leads him to create an evil monster. But readers of the original novel by Mary Shelley will be quick to point out that he was not the insane meddler portrayed in an entire genre of horror films, but was a complex and tragic figure whose drive and scientific curiosity caused him to go too far.

Frankenstein originally intended his creature to be beautiful, but discovers that he has created what he calls a 'fiend'. Although the nameless creature looks monstrous, he is not the pure evil his creator believes him to be and, at first, secretly protects and watches over a poor farmer's family, and pines for a female companion.

One reason why Shelley's masterpiece – which some call the world's first science fiction novel – has proved so enduringly popular is that it captures the essence of the dilemma facing modern humanity as it traverses one knowledge frontier after another, and ventures into the great scientific unknown.

From Frankenstein to Frankenfood

New sciences and technologies have a tendency to trigger apprehension. For instance, computers are now widely accepted as being benign but, turn back the clock just two decades and you will find plenty of

hostility towards them. In recent years, several 'frontier' sciences, such as the nano- and bio-sciences, have stirred up controversy and major public debate.

One area of particularly heated debate in Europe has been genetically modified organisms (GMOs). Although more and more Europeans are growing to accept this area of biotechnology,

opposition is still strong. The harshest critics portray crops produced using GM technology as some kind of malignant 'Frankenfood' of the horror-film variety.

But, as years of impartial scientific evidence have shown, GM foods are safe for both human consumption and the environment. Partly thanks to the environmental and health concerns of Europeans and a mature European awareness of responsible risk-taking (reflected in the so-called 'precautionary principle'), the EU has a commendable array of regulations to ensure that this field delivers mainly benefits.

Despite this cautious approach, GMOs remain an emotive issue in Europe. Not enough EU research is currently being carried out which can deliver concrete benefits, such as specialised food products for diabetics and drought-resistant crops, to citizens in Europe and beyond.

Common ground through communication

GMOs have been one key focus of EU-backed communication endeavours aimed at bridging the gap between science and society by promoting objective, evidence-based debate. Although these efforts have scored some significant successes in helping the various stakeholders find common ground, the issue has not yet been entirely put out to graze.

The 'Beyond Frankenfood – communicating science-based debates with stakeholders' session today explores how the internet can be used as a platform for more balanced and fact-based communication.

Willy De Backer, the editor-in-chief of the independent European information service EurActiv, will chair the session. Speakers will include Jacques de Selliers, general manager of the GreenFacts Foundation, Giles Watson, toxic policies officer at the World Wide Fund for Nature, Colin Humphris of CEFIC, the European Chemical Industry Council, and former UK Environment Minister Michael Meacher. ■



Beyond 'Frankenfood': communicating science-based debates with stakeholders

- *Where:* Auditorium 500
- *Who:* in conjunction with EurActiv
- *When:* Tuesday, 11.15

Prospects, perils and good practice

As the public's thirst for scientific knowledge grows, will science have to step down from its lofty perches to address this growing audience? This session will look at how science, which traditionally has given a low priority to communicating to any audience other than a home-grown one, has had to come out of isolation.

The prospects for science communication across Europe are good for Europe, or so it would seem. One needs look no further than CER as an example of the successful promotion and exchange of scientific information which goes beyond the 'normal' scientific audience. And while science seems to be more respected in countries like the USA than in Europe, there are still plenty of examples of good

practice throughout Europe.

One such example is the Euroscience Open Forum (ESOF), launched in 2004 in Stockholm and planned again for 2006 in Munich. ESOF brings together scientists, journalists and experts in politics, industry and research, as well as (crucially) the general public in sessions which will showcase European achievements right across the scientific

spectrum. The 2006 ESOF event expects to attract up to 5 000 participants in some 100 events which testify to the increased flow of communication between science and society.

On the other hand ...

But what about the potential perils of the increased level of science communication? Alan Leshner of the American Association for the Advancement of Science (AAAS), speaking on the first day of the CER, pointed out an apparent and growing tension in the relationship between science and society. It might be that – by communicating more – we create an expectation in the

public which is sometimes not matched by the speed of technical progress.

In our haste to include the layman in the science communication equation, might we be giving this new audience the wrong idea about science? And what about the impact of the media's constant craving for newsworthy stories? Can this sway the way science is presented?

These issues, which are clearly at the heart of the need to build a knowledge society – the 'Holy Grail' of politicians, policymakers and scientists in Europe – will be discussed by an experienced panel of experts from both Europe and the USA.

'Prospects and Perils' has been organised by Euroscience, a pan-European organisation, founded in 1997, which provides an open forum for debate on science and technology and aims to strengthen the links between science and society. Euroscience currently has 2 100 members in 40 European countries, representing all scientific disciplines. ■

Prospects and perils of science communication

- *Where:* Auditorium 2000
- *Who:* in conjunction with Euroscience
- *When:* Tuesday, 11.15

Communicating the passion for scientific discovery

Do journalists and scientists use the same method when communicating science and scientific discoveries? THE EXCERPT asked a radio journalist who is familiar with broadcasting to a general audience and a journalist working on a 'scientific' magazine how they approached their work.



Laura Durnford

"I like the fact that science is an international endeavour, regardless of where it takes place and I want to reflect this."

Declan Butler

"We can follow stories over time so I keep in contact with my sources to see how they develop and report on this."

Where do you work?

■ Laura Durnford: I work for *The Research File*, Radio Netherlands' English language science programme that goes out every Monday¹. This is one of a number of science programmes produced by Radio Netherlands. Recently we have covered global obesity, automatically controlled trucks, how glaciers and volcanoes interact, and the future of air traffic control.

□ Declan Butler²: I work for *Nature* which is the biggest-selling scientific publication in the world: I'm a senior reporter. My main interest is the interface between science and society, but I cover everything – avian flu, malaria in developing countries, AIDS, information technology...

What is your audience and how does this affect your approach?

■ LD: We aim to stimulate enthusiasm for science among an international lay audience and to give them a better understanding of the subject. Our format means that we can produce 'themed' programmes, or half-hour specials. We try to add a certain something that other science programmes don't have. Our two-part special on 'Icelandic geology', which won an award at the New York Festivals, is a good example of our approach. We put Icelandic geology in context, talked to local people, and even included music and poetry.

□ DB: I suppose our biggest audience is scientists, although we are also read by policy-makers, investment bankers, patent lawyers, people in industry, and the general public. We now have a large on-line audience and so are able to reach a wider group of people. Our current editor puts a great stress on readability, without compromising on quality, so our approach is to write about topics that we expect the general public will find interesting and challenging.

How do you choose the stories you cover?

■ LD: As we have both a Dutch and an international audience, one requirement is to bring in the Dutch angle on science, although as a global broadcaster we try to balance the topics covered. As the Dutch word for 'science' has a wider meaning we can take a broad approach to what we include.

□ DB: We choose stories which have an investigative element and which we can cover in depth. We can follow stories over time so I keep in contact with my sources to see how they develop and report on this.

What are your sources?

■ LD: We get our stories from Dutch and international research associations, newspapers, word of mouth, and from our colleagues in the other language services.

□ DB: I have a huge database of scientists, policy-makers, people in international agencies, etc. But I also carry out a huge information-gathering exercise, and use the press as well. Web blogs can be a well-informed source for topics – they should be used more as it is a way of keeping up to date on stories.

What makes a good story?

■ LD: We try to concentrate on brand new or ongoing research, and to bring in the human aspect. As we go out weekly, we tend not to cover 'breaking news' stories, and when we put our programme together we have to think about how well the items fit together.

□ DB: For me it is a good science story coupled with investigative journalism – for example, after the Pakistan earthquake, high-resolution satellite images were needed for relief operations, but I found out that Pakistan had put pressure on the UN to ban these for security purposes. On the day we published the story, the images became available.

What language do you use to 'talk science'?

■ LD: As a radio programme, we allow scientists to explain their findings themselves so their enthusiasm and passion comes through. We covered a story on 'Bose-Einstein condensates' – it was very technical but the scientists were so enthusiastic that the audience understood it.

□ DB: Our sub-editors insist that we use 'ordinary' English as much as possible. We try to explain scientific terms as concisely and clearly as we can, but we don't go in for vulgarising science.

How do you check your stories for scientific accuracy?

■ LD: Obviously, accuracy is important. We check with other scientific sources but it is not always possible to check everything, so we approach our stories with caution. We like to balance our approach, so we will include a 'response piece' to a story in the following week's programme.

DB: It is very important for us to be accurate as there are so many viewpoints and sources. We, too, cross-check all of our stories with as many scientific sources as possible.

How much scientific data do you include?

■ LD: Our aim is to explain 'how something works'. We also have a website to complement the programme so that we can go into more details to explain the key research findings. Here we will include images that add interest but, for example, don't include graphs – we can always refer people to the original source.

□ DB: We concentrate on the issues in the stories and analyse any scientific data before we put it in the article so we do some of the work for the reader. We use

illustrations and graphs as these can be as important as the story itself. I work with our graphics department to choose the illustrations which best complement the story – I have great respect for their work.

What is the most interesting story you have covered this year?

■ LD: We looked at the scientific techniques being used to identify missing persons in Bosnia. This coincided with the tenth anniversary of the fall of Srebrenica. We interviewed scientists, researchers, family members and visited mass graves. I think it was one of the most moving experiences I have had in recording science programmes.

□ DB: Earlier this year I wrote a fictional story about a pandemic. I contacted 50 scientists to discover how a pandemic would be followed through from the moment it was announced. It was a sustained piece of journalism based on strict science, where we used fiction to bring what needs to be done into stark relief.

What are the ups and downs of your job?

■ LD: I like the fact that science is an international endeavour, regardless of where it takes place, and I want to reflect this.

□ DB: Needing to keep up with so many stories can destroy your social life (said with a smile)! ■

¹ <http://www2.mw.nl/rnw/en/radioprogrammes/researchfile>

² Declan Butler was recently made a Chevalier of the National Order of Merit in France.

Arturito, the wonder robot

In September 2005, Arturito, aka TR-Araña, was headline news again in Santiago de Chile. This wonder robot's owners claimed it had located fabulous lost treasure: some 800 tonnes of gold and jewels buried on an island in the Juan Fernandez archipelago in the Pacific Ocean. And this top story in Chile was rapidly retold in many international media.

The story became a national issue when a highly public fight over ownership of the booty – estimated to be worth 10 billion dollars – broke out between Wagner Tecnológicas, inventor and owner of TR-Araña, the government and local authorities. Wagner claimed 50% of the total, in return for revealing the treasure's location to the government.

Surprisingly, at that stage hardly anyone questioned the authenticity of the discovery. After all, it was not Arturito's first success. Some months before, it had been praised by the media for helping to find the body of a missing businessman, as well as a major weapons cache.

"There is a lot to be ashamed about with that story," comments Nicolás Luco, a science journalist at *El Mercurio*, one of Chile's major daily newspapers. "The tale of the Juan Fernandez treasure was the last episode in a long saga which started with the discovery of the body of Francisco Yuraszcek, a businessman reported missing months be-

fore. The lack of criticism from the media contributed to the deception. We have to recognise that, since their first appearance in the media, the people from Wagner Tecnológicas have proven to be excellent communicators, using jargon to mislead their audience and fancy words to stir public passions for their robot."

On reflection

But what was so special about Arturito? According to its creator, Manuel Salinas, up to then a completely unknown scientist, TR-Araña is based on a groundbreaking technology that could help Chile become one of the world's most advanced nations. In brief, the robot emits gamma rays which are reflected by whatever matter it is programmed to search for. The reflections are received and processed by the robot. It can be programmed to detect any matter within a range of 1 kilometre on the surface, or 50 metres underground.

Chilean scientists were amazed. In a letter published in *El Mercurio* on 4 October 2005 – following



The Juan Fernandez archipelago, where the robot Arturito allegedly located 800 tonnes of gold.

an interview given to *La Nación* – Leopoldo Soto, chairman of the Chilean Society of Physics questioned Wagner Tecnológicas' technical explanations, suggesting they were incomplete and confusing. "Those pseudo explanations do not allow us to make a professional evaluation of their results. Nevertheless, my experience as a researcher in experimental physics makes me think it is not possible to build a device such as they have described [...] At least, it is not pos-

sible with the physics we know today. They would have to have discovered a new physics," he concluded, "[...] and if that is the case I would like them to show it to us."

Under wraps

Soto's intervention highlights one of the key elements of Wagner's communication strategy: the reluctance of Arturito's inventors to show their wonder robot to people who could unmask it. Indeed, while Arturito

was exhibited to the media, nobody was allowed to open the box to see what was inside: either actually or theoretically – not even when Manuel Salinas was invited to the prestigious Santa María University, in Valparaíso, in October 2005. The inventor came ... alone. And he got lost in what was described by scientists at the event as a bunch of "wild imaginings that insulted their intelligence".

Criticism from the scientific community has made some headway. However, they had a lot of ground to make up. The legend of Arturito had successfully taken root in Chilean society, and neither the scientific community nor the scientific press could prevent it. "Somehow, we have been overwhelmed," commented Nicolás Luco. "Arturito's alleged wonders were spread by journalists more used to covering criminal cases or general news. They have faster turnarounds than we do and usually have easier access to the front pages. It is about the way the media are organised. It is something we have to struggle against." ■

Trickier than counting sheep

The underlying purpose of medical science is the noble pursuit of preserving life and promoting good health. But it raises a plethora of complex scientific, ethical and social issues that are confusing and sometimes difficult to reconcile.

Dolly the Sheep was the first mammal to be successfully cloned. "It has been eight years since Dolly first hit the headlines and the world just hasn't been the same," observed Françoise Shenfield of the European Society of Human Reproduction and Embryology, during the 'Communicating difficult issues in medical research' session.

Although the attention Dolly received during her short life had the welcome effect of cementing international opposition to the idea of human cloning, it also hurt the cause of the valuable related field of therapeutic cloning which promises to lead to effective treatments for such serious medical challenges as cancer, diabetes and Alzheimer's disease.

Therapeutic cloning revolves around the use of adult and embryonic stem cells. Known as the body's master cells, they can grow into almost any of the 200 different types of tissue in the human body.



"The embryo is our beginning, which makes this an emotional issue," Ms Shenfield said. "But the embryo is not a foetus and it will never become one unless it is reintroduced into the womb." She explained that such young embryos do not meet the legal definition of life and that most of those used in current research are 'spares' left over from fertility treatment, which are used only with the donors' consent.

Never assume

Another example of a complex medical research issue is that of animal experimentation. Mark Matfield of the European Biomedical Research Association recounted his long experience at the UK's Research Defence Council.

For a decade, the RDC based its communication strategy on the assumption that the pub-

lic was opposed to animal experimentation and found it unnecessary, making it the task of the scientific community to inform citizens of the necessity of such inquiry. "This is the classical deficit model of communication," he pointed out.

Deciding not to take anything for granted, they commissioned several surveys to discover what the public really believed and why. "We found that the public had a much more sophisticated view."

There was a conditional acceptance of animal experimentation, if the suffering of the animals was minimised, if it served a serious medical purpose, and if alternatives were used where possible. The issue then became one of focusing on the conditionality, rather than on the actual necessity, of animal experimentation.

"It is a huge mistake to assume what the public think," he concluded. ■

Local hero

As the impact and spread of science and technology continues at a pace, reaching the local public and press is an even greater challenge.

Conveying science at the local level in Europe is a double challenge, according to Ulla Engelmann, head of public relations at the EU's Joint Research Centre (JRC) in Ispra, Italy, during the debate on local media matters.

"The results of science are diffused across society far more rapidly now than before, which means their impact is international rather than local," said Ms Engelmann. "It's a contradiction we face today."

And language is another concern. "Organisations operating internationally hit local language barriers immediately. Most EU press releases are issued in French, English or German, which is not so useful for our press operations in Italy. When we translate texts into the local language, press coverage is much higher."

Spotlight on the JRC... at your service

Eloquently illustrating the diversity and wide-ranging impact of the research carried out by the Commission's Joint Research Centre, the JRC exhibition area (Block R2) gives an insight into just some of the many research areas supported – from building the hydrogen economy to food safety testing, and putting computer game techniques to work for the protection of the environment.

The JRC's mission is to provide independent and impartial support for the advancement of European science. The research conducted at the JRC's seven research institutes is demand-driven, based on the needs of society and industry, and its results feed directly into the European policy-making process. The JRC exhibition area gives a taste of what is being done.

The search for alternative, cleaner sources of energy has become urgent and the potential of hydrogen as a future energy resource, with little or no environmental impact, is great. The hydrogen production model at the stand of the JRC's Institute for Energy (IE) provides a working illustration of the hydrogen production process – from sunlight and plain water to hydrogen-powered car.

Darren McGarry of the IE points out that their role is not to develop new technology but to support the development process and to provide input to European policy-makers. Working in close collaboration with European partners in industry and research, the Institute provides key support in the areas of harmonisation, testing and validation. In particular, the IE's new

state-of-the-art fuel cell testing facility allows comprehensive testing and performance evaluation of PEM (proton exchange membrane) fuel cells in a wide range of operating conditions.

What's cooking?

Another key role of the JRC is to act as a point of reference for European scientists, through the provision of reliable and validated reference materials and testing procedures. One major area of application here is in food safety. The Institute for Reference Materials and Measurements (IRMM), for example, played a key role in the BSE/TSE crisis and supports food safety and quality in many other sectors. Visit the IRMM 'kitchen' to discover more about what is really in the food we eat ... or if GMOs are more your concern, talk to the Institute for Health and Consumer Protection (IHCP) about how they are helping to advance techniques for detecting and measuring GMOs in food stuffs and animal feed.

Visualising climate change

We all know that climate change poses a serious threat to our environment and that our personal choices can make a difference, in particular with regard to the production of greenhouse gases.



Energy from water: The IE's hydrogen production model provides a working illustration of the entire process – from sunlight and plain water to hydrogen-powered car.

Being able to visualise the impact of climate change and our influence on it can, however, play an important role in really getting the message across.

The Institute for the Protection and Safety of the Citizen (IPSC) has developed new tools aimed at enhancing consumer awareness of the impact of the everyday choices they make. Take a look at the V-GAS computer game and see how well you do in the environmental stakes – are you a really 'green' consumer or an environmental disaster area?

You may also want to look at the 'Soil Atlas' developed by the Institute for Environment and Sustainability (IES). The 2000 Atlas on display gives a global picture of where we are in terms of deforestation and desertification. The 2005 model will allow scientists to really 'see' the trends we are following in these and other areas worldwide. ■



A box with gloves, the new fashion? – An insight into the work of the JRC's Institute for Transuranium Elements (ITU) in Karlsruhe, Germany

Atlas carried the world. So does the soil – A chance to see the first-ever 'Soil Atlas of Europe' produced by the JRC's Institute for Environment and Sustainability (IES), which will provide an important tool for assessing the state of the global environment, in particular with regard to desertification and rain forest destruction.

Baby, you can drive my (hydrogen) car – The JRC's Institute for Energy (IE) is providing important support to the drive towards a hydrogen economy. Have a look at the model on show which provides a very clear illustration of the simplicity of the hydrogen production principle and its implications for the environment.

Understanding your impact on climate change – An introduction to the V-GAS computer interface, developed by the Institute for the Protection and Safety of the Citizen (IPSC), which helps to illustrate the impact of our personal choices on the environment.

Food for thought – Detecting and measuring GMOs in the food we eat. The role of the Institute for Health and Consumer Protection (IHCP).

Invest in research – Providing a picture of European R&D investment: the role of the Institute for Prospective Technological Studies (IPTS).

What was in your breakfast this morning? – Food safety is a high-profile issue. Find out how the Institute for Reference Materials and Measurements (IRMM) is supporting testing and the production of reference materials.

Once upon a time there was a science story

Are you a scientist with something important to say, but with no one listening? In a packed training room on the first day of CER, Lars-Peter Linke took his audience through their paces and – in just 90 minutes – laid bare the secret of successful writing techniques for scientists who want to catch the attention of journalists and the public alike.



Successful science writing is a useful weapon in any scientist's armoury. In today's information age, it may just be the most crucial weapon, where communicating research and science successfully sometimes seems as important as the science itself.

But just what does it take to grab the attention of journalists and editors who may very well be flooded with press releases, news and other information?

This is the question the audience of scientists asked, and Lars-Peter Linke a journalist and trainer with over 22 years' experience in the field, was ready and willing to provide the answer to, plus a whole lot more.

The session was entertaining, fast-paced, informative and interactive and forced the audience, made up predominantly of scientists, to think carefully about the how to present their information in order to attract the attention of journalists. The secret, according to Linke, is simple: "the biggest mistake scientists make when they write about their subject is forgetting to tell a story".

Participants were asked to think of journalists as friends who want to tell a story. The trick is giving them the "stuff", as he put it, to allow them to write it in a way they want it to be written.

Tools of the trade

During the session, Linke took the audience through the basics of journalism and encouraged them – as scientists – to view press releases as a tool to grab the attention of journalists, and to think carefully about what journalists need, rather than thinking only about what they want to give them. "A scientist must have their audience in mind, just like any other writer," Linke explained.

He defined what really makes a story. Good science stories need to have a new angle, or must have the potential to make a difference. Then he set out the factors determining how and when topics get in the news. Scientists as writers have to think about this element just as much as how they are going to communicate the results of a complex survey or piece of research. No one wants to read about global warming and blistering hot summers during the middle of a freezing winter.

We were told that technical knowledge is not the goal. The aim in trying to get the story over to journalists is to help them realise what the content is really about, in a newsy way. To help the scientists understand this, the session contained three exercises in which groups had to take an overly-wordy headline and make it into something a journalist would want to read.

The press release dissected

The session continued with a practical, technical examination of the structure of a press release. Linke laid out the basics and identified the crucial elements which made up each of them (the lead, second paragraph and so on). Anyone who has ever studied journalism would be familiar with the concept of the 'the who, why, where and when' of a story, which is just as relevant to a science story as to any other.

Participants were urged to use the tried and trusted journalistic formula of the inverted pyramid, a simple device which reminds writers to get all their crucial information in the earliest part of their story. Journalists, after all, have a notoriously short attention span.

So if you have ever failed to grab your audience's attention with your writing, it is not too late as the session will be rerun today. But remember to take a pencil, some paper and be prepared to think like a journalist. And if you really want to know more about what the seven deadly sins of writing for the media and the public are, you will just have to go along and find out.

'Writing for the media and the public' will be held today in room G4. Lars-Peter Linke is a trainer working for COGNOS AG, Germany. ■



A good press

To highlight the importance of press coverage at the conference, several briefings are being organised each day to enhance the communication of major European Commission projects in a variety of sectors. Below are just two examples of research projects presented to the press on Monday.

Fishbase rules the waves!

CER's opening day saw the presentation of 'Fishbase', a database that records the levels of the world's fish stocks. "Our aim was to improve coastal zone management in developing countries by giving managers more information," explained Dr Rainer Froese. Fishbase now contains information on 29 000 commercial fish types, 40 100 pictures and is visited by 1 million visitors every month, coming from universities, governments, business,



NGOs and interested individuals. Along with the common and scientific names of the fish, there is a glossary, information about the family, country, life history, etc. of the species, plus more general information on the ecosystem and biodiversity. Fishbase has also produced a flexible 'fish-ruler' to build consumer awareness about fish stocks. The tool indicates the actual size that fish should be when they reproduce – for example, turbot should be over 55cm and sole over 33cm. Consumers are asked to measure each fish to ensure that they are not buying fish that have not reached adulthood. The idea is that the ruler could be used to put pressure on the fishing industry to stop catching 'baby fish' and thus help to sustain fish stocks on a global scale.

RAPHAEL a renaissance for nuclear?

Hydrogen production could be a major role for a new generation of nuclear reactors, according to Dominique Hittner of the French nuclear company AREVA. The RAPHAEL (ReActor for Process heat, Hydrogen and Electricity generation) project will look at the development of Very High Temperature Reactors (VHTR). Part of the Sixth Framework Programme, this four-year Integrated Project has ambitious technical objectives and is considered to be of high value for education and communication. It will be financed by the European Commission along with over 30 participating companies, R&D organisations, and universities from various European countries.

The VHTR design is inherently safe, proliferation resistant and has a modular design that makes smaller nuclear power plants possible. "The smaller size is an advantage," explained Hittner. "Especially if you are looking to couple the reactor with chemical plants or hydrogen production facilities."



in brief



the creation of a proactive R&D media service. More info at <http://www.communicate-initiative.org>

Dial a language

So you've just flown into Beijing, got into a taxi and need to find a pharmacy fast. Unfortunately, you don't speak a word of Chinese. What do you do? Soon a solution will be at your (mobile) fingertips. Supported by Greece's national research institute, Lingua Mobila is a soon-to-be-commercialised telecom service to help rescue the linguistically stranded. Designed by the Greek ICT consulting firm of Scientific Engineering Services (SES) of Thessalonica, it works as follows. A GSM user simply dials up Lingua Mobila on his GSM and then types in a sentence on the handset's screen, choosing a target language from among 30 of the world's most spoken tongues. Lingua automatically translates the words and then broadcasts them back through the GSM's speaker in the local language. The service "will probably be free, but linked to sponsored advertising," said Yiannis Hatzopoulos, a computer engineer with SES.

TEAM work

Marble and limestone are beautiful building materials which clad a large number of Europe's older skyscrapers – and

some newer ones, too. However, fluctuations in temperature, weather conditions and pollution levels are causing many of the panels to buckle and bend, or 'bow' in the professional parlance. If too much warping occurs the panels risk peeling off the building, causing an obvious health risk! The FP5 project TEAM – for Testing and Assessment of Marble and Limestone – has spent the past five years researching how quarry operators and construction companies should choose, cut, produce and use these materials without risk of deterioration. The TEAM crew of 16 research partners in nine European countries has also produced new test methods for assessing damaged natural stone, as well as repair systems and a set of preventive actions to reduce maintenance costs for existing panels.

A global science class

It is important to distinguish between "science at school" and "school science", said Fernand Wagner of the European Association for Astronomy Education. Speaking during yesterday's session 'Science at school – lost cause or real winner', he pointed out the value of shedding traditional views of how science should be taught. He offered the example of the Venus Transit 2004, which became a global outdoor astronomy lesson for millions of people – young and old – worldwide. Taking children out of the stifling learning environment of many classrooms is like a breath of fresh air, he suggested. Wagner would like to see more activities like VT-2004, and floated the idea of a European Astronomy Day in 2007.

Recipe for success

Pick up a can of beans and you will see the ingredients on the label, of course, but what about the content's nutritional value. How much fibre does it contain? Or vitamins? Or anti-oxidants. The diet of Europeans is growing increasingly international, alongside an ever-expanding range of edibles in the market place. But the nutritional labelling of these foodstuffs is sorely lacking. Worse, there is no agreement from one country to the next what nutritional data should be listed on a label. The FP6 Network of Excellence project EuroFIR aims to correct this. "We're trying to develop a comprehensive EU-wide database on food composition," said Claire Williamson, a nutrition scientist with the British Nutrition Foundation, one of EuroFIR's participating institutes. "Food composition databases exist at the national level but they're not linked or standardised." Williamson said there are "lots of gaps in informing the consumer about regional ethnic foods in Europe: things that are served only in one part of the continent. Conversely, there are many local or ethnic foods that have gone mainstream, such as curried foods in England. But do any of us really know what we're ingesting when we plough through a plate of curried chicken?" she asked. "There are bio-active compounds such as flavanoids and lycopene, which are anti-oxidants, in many foods but today's labelling often doesn't account for them." Launched in January

2005, EuroFIR ties together some 40 nutritional groups across Europe and will assess its first-year results early next year. "One of the hardest tasks we'll face in creating a pan-European database will be to update it," said Williamson. "There are so many new foods coming on to the shelf each year!"

Science dialogues in RTD info

Special issue on science communication Downloadable at www.europa.eu.int/comm/research/rtdinfo/index_en.html



Tuesday November 15

8:00 registration welcome coffee															
Auditorium 2000		Auditorium 500		room D	room E	room F	room G	room H							
A3	Science in the street, science on the beaches - pulling crowds for research with public events in conjunction with EUSCEA	B3	Science journalism in Europe: luxury or necessity? in conjunction with EUSJA	D3	Practical tips for Press officers	E3	Communicating EU food & health research	F3	Communicate internationally with NIS partners	G3	Media skills for project managers	H3	Communicating in a crisis	room C	
				D4	Communicate to the public: science festivals & science weeks	E4	Europe in space: taking off without the public?	F4	Advancing European protocols for science communication	G4	Writing for the media and the public	H4	Developing an external communication strategy	C5	Press Briefing
A4	Prospects and perils of science communication: the researcher's experience in conjunction with Euroscience	B4	Beyond 'Frankenfood': communicating science-based debates with stakeholders in conjunction with Euractiv	D5	Survival of the best - How to maximize your media impact	F5	How to communicate an interdisciplinary project?							C6	Press Briefing
														C7	Press Briefing
13:00 lunch															
				D6	Getting your research results into the press	E5	Communicating environmental research	F6	Science communication: new frontiers & models	G5	Training scientists in communication skills - Module II in conjunction with PCST	H5	Communiquer pour les scientifiques: de la théorie à la pratique	C8	Press Briefing
A5	Science centres - privileged fora for communicating European research in conjunction with ECSITE	B5	I heard it on the radio - handson solutions for science & the spoken word in conjunction with SCIRAB											C9	Press Briefing
														C10	Press Briefing
16:00 Closing Session															
Award of the Communication Prizes															
Moving towards the 7th Framework Programme 2007 - 2003															
Achilleas Mitsos, Director General, Research DG, European Commission															
17:30 End															

THE EXCERPT is the journal of the Communicating European Research 2005 International Conference. It is published by the Information and Communication Unit of the European Commission's Research DG. Editor in Chief: Michel Claessens Tel: +32 (0) 475 73 49 98 E-mail: Michel.Claessens@cec.eu.int

Neither the European Commission, nor any person acting on its behalf, may be held responsible for the use to which information contained in this publication may be put, or for any errors, which, despite careful preparation and checking, may appear. © European Commission 2005 - non-commercial reproduction authorised, subject to acknowledgement of source.

Published by the Directorate-General for Research



European Commission