

# EASST

## *Review*

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*view of Lausanne, the venue of the 2006 EASST*  
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# On Nanotechnology and Society

by Andrew Jamison

*Aalborg University, Denmark*

As our societies are asked to support nanotechnology in fairly extravagant fashion, it might be expected that more and more people will begin to wonder what precisely is being supported, and why. In Lund, Sweden, near where I live, one of Europe's largest laboratories for nanoscience is currently being built at great expense to the European and Swedish taxpayers. In the United States, programs of nanotechnology are being funded by the federal government, primarily, as is the custom over there, for what is seen as their military potential. And in Brussels, the commission of the European Union is spending sizeable sums of money to fund scientists like yourselves in the hope that nanoscience or nanotechnology – the terms seem to be used fairly interchangeably - will contribute to improving the competitiveness of European corporations in the proverbial global marketplace. But nobody really knows what nanoscience has to offer.

And that is where we – that is, social and human scientists who are concerned with science and technology – might well have a contribution to make. But that contribution depends on which of us you ask. For we speak with different tongues, we provide different kinds of advice, and we attribute different meanings to the science and technology that we are concerned with. There are at least three rather different sorts of social students of science and technology, who roughly correspond to the academic divisions between economics, sociology and history, and we have developed three rather different ways to talk about scientific and technological change (Jamison and Hård 2003). Let me very briefly try to tell you what we have to say in relation to nanotechnology.

On the one hand, there are those who refer to technology primarily as innovations, and tell stories about turning science into marketable products. Their perspective, or approach, is the dominant one. It is the one that the European Commission is sponsoring, most recently in its report, "Converging Technologies – Shaping the Future of European Societies" – which was published last year by a group with the

impressive name, "Foresighting the New Technology Wave" (HLEG 2004). To put it mildly, the group presents a very optimistic view of nanotechnology and its implications for society. The story-line is one of progress, and as the title suggests, convergence. The new advanced technologies – "nano, bio, info" – are linked to all of the other sciences and technologies – "cogno, socio, anthro, philo, geo, eco, urbo, orbo, macro, macro" – in the overall concept of converging technologies, or CTs for short. CTs, it is suggested, have four major characteristics. They form an "invisible technical infrastructure for human action – analogous to the visible infrastructure provided by buildings and cities". They have an "unlimited reach": the experts tell us that "it would appear that nothing can escape the reach of CTs and that the mind, social interactions, communication, and emotional states can all be engineered."

This leads to the third characteristic, "engineering the Mind and the Body" and in the report it is claimed that "humans may be drawn to surrender more and more of their freedom and responsibility to a mechanical world that acts for them." The final characteristic of CTs is their specificity: "research on the interface between nano and biotechnology allows for the targeted delivery of designer pharmaceuticals that are tailored to an individual's genome in order to effect a cure without side effects. More generally, the convergence of enabling technologies and knowledge systems can be geared to address very specific tasks."

The report goes on to discuss each of these characteristics and suggest policies for the European Union in order to maximize the benefits and minimize the costs. The report is based on a rather straightforward cost-benefit analysis, and as the quotations indicate, there can be little question that these particular social and human scientists envision a good many benefits. But to their credit, they also do try to identify costs, particularly to human freedoms as we have known them and tried to defend them in the past. The social challenge of nanotechnology is primarily seen to be an ethical one.

Other social scientists tend to have other ways of talking about the social aspects of nanotechnology, and it can be interesting to contrast the EU report with a study on nanoscience that is currently being conducted by Mikael Johansson, an anthropologist in Sweden. For Johansson, and many other sociologists and anthropologists who approach science and technology from what might be termed a sociological perspective, the interesting questions are not what nanotechnology might mean for society – that is, its transformative potential, as the authors of the EU report put it – but rather what society means for nanotechnology. For Johansson, as for many other sociologists of science and technology, it is the nanoscientists themselves and their perceptions of society that are of interest, and so he has spent time interviewing some of them and spending time with them, in order to understand how they perceive nanotechnology.

As might be expected, the scientists he has interviewed are more concerned with getting funding for their research than in speculating about the future. As has been suggested by other sociologists, scientists in action are perhaps best thought of as strategic actors, who make use of various opportunities and what are often called network connections to pursue their scientific careers. What has been stressed by many of these sociologists is the way in which scientists “enroll” others in their activities.

The scientists interviewed by Johansson did not seem to be all that concerned with either the transformative potential of nanotechnology nor with the eventual social problems that might develop; the social implications of nanoscience were rather a kind of resource to be mobilized in pursuit of a career. As one of Johansson’s interviewed scientists puts it, “to succeed one need both to be a good scientist and to build a broad network. The network is important when seeking funding. Everybody knows everybody in the business and it is important to be considered serious to get funding. One must make a name for oneself inside the network.” (Johansson 2004: 20).

From the sociological, or anthropological point of view, the meaning of nanoscience is constructed by different groups in society to serve their purposes. As such, the social aspects are seen from what might be termed an actor’s perspective. In the case of nanotechnology, however, it is quite difficult to identify the relevant actors, or “actor networks” as they have been referred to in this approach. According to recent findings in the so-called Eurobarometer,

most people in Europe don’t know anything about nanotechnology and they have extremely vague ideas about what it might or might not mean for them (Gaskell et al 2005). Of course, this is likely to change quite rapidly; and there are already signs that at least some interest groups are getting more involved in the public debate. As has been the case with the other advanced technologies that have come along, however, European societies tend to react in a rather polarized manner to new technology. Both nuclear energy and biotechnology have led to widespread political controversies, and, in both cases, the social implications are still being debated.

It has been in large measure in order to learn from the experiences of nuclear energy and biotechnology and avoid some of the social conflicts that occurred that some of us within the field of science and technology studies have tried to develop methods for carrying out what we call technology assessment. The idea came from the US in the 1970s, where there was an Office of Technology Assessment established in the Congress, before it was closed down in 1996. In Europe, technology assessment has been conducted in many countries, and there have been many different approaches, but the general tendency, if we can speak of one, has been to try to involve the general public as widely as possible in the assessment activity. If societies are to make use of science and technology in an effective manner, then it is necessary for as many people in the society to have informed opinions about these matters and become what some of us have started to term scientific citizens.

As far as I know, it is only in the Netherlands, at the Rathenau Institute, that there has been a serious effort to conduct technology assessment in relation to nanotechnology. As with technology assessment projects elsewhere, a range of activities have been conducted, in order to educate the society about the technology in question. The first step, as is common in such exercises, was what might be termed mapping. The technology assessors tried to get an overview of the possible social problems that might come to be associated with nanotechnology. We can call it problem identification.

There was an initial study in which a “dream scenario” was contrasted with a “horror scenario” in relation to a number of societal issues for different fields of nanotechnology. As with all technology assessments the idea is to help society reach some sort of consensus, or agreement, about the social aspects of

technology, and so it is important to first try to locate the potential sources of disagreement. You can think of technology assessment as an early warning system, a way for societies to resolve or at least foresee conflicts before they happen.

The assessment of nanotechnology is now in a second phase, in which focus groups have been conducted, and a discussion has been held in the Parliament. A number of panels are being constituted around specific applications, and they will then produce reports about the implications

of the different applications. Like the so-called consensus conferences that have been carried out in Denmark, the idea with the panels will be to make it easier to involve interested members of the public in the assessment process, and hopefully reach a more socially grounded consensus or agreement about what needs to be done to make appropriate use of nanotechnology.

Let us take a quick look at the map that the Dutch assessors came up with

<b>Societal issues and scenarios for different fields of applications in nanotechnology</b> (adapted from van Est and van Keulen 2004: 75)			
<i>Field of application</i>	<i>Societal issue</i>	<i>Dream scenario</i>	<i>Horror scenario</i>
<i>Nanomaterials / industrial production</i>	health- and environment	sustainability	nanoasbestos
<i>Nanoelectronics</i>	privacy	'smart' products	big brother
<i>Nanotechnology in medical sphere</i>	predictive medicine	early diagnostics	genetic coercion
<i>Military technology</i>	arms race	safe world	new weapons, terrorists
<i>General / innovation</i>	economy	economic growth	structural unemployment

Such an assessment of nanotechnology would be useful throughout Europe, and it could perhaps be something that we could also consider doing within the NaPa project. A first step could be a round of visits to the participating institutions, where we in the advisory committee could present some of the methods and approaches of science and technology studies and technology assessment. Such visits could at the very least serve to initiate discussions about the social aspects of nanotechnology among the participants and with your students, as well.

For, as I see it, the most important social aspect of any technology is educational in the broadest sense. The public needs to be educated, and the promoters, developers, critics and regulators of the technology need to be educated. In a sense, we all need to take on what might be called a hybrid identity, combining knowledge of science and technology with knowledge of the relevant social contexts in which science and technology are put to use.

Technology assessment in its various guises can be considered one aspect of what Mikael Hård

and I, in our new book, *Hubris and Hybrids*, refer to as "cultural appropriation" (Hård and Jamison 2005). Our book is an attempt to place science and technology in a broader cultural perspective. The general point we try to make through our historical examples is that it takes time and a good deal of effort before human societies are able to use science and technology appropriately.

Using science and technology appropriately means, for one thing, that we know how to talk about it and that we have what might be called a collective shared understanding of the relevant science or technology, that is, that we are scientifically literate. But it also means that we have appropriate institutions and cultural forms for making use of the scientific and technological opportunities at our disposal. In the past, appropriation has meant rather fundamental changes in both identity, competence, and the routines of everyday life. As we have started to see with genetic engineering, and as we might expect to see with nanotechnology in the not too

distant future, appropriation means learning to live with new technologies. And that requires changes from all of us, both the producers and the users, both the scientists and the public. We might say that in order to share the benefits, we also need to share the responsibilities.

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*This article is based on a talk prepared for the meeting of the Emerging Nanopatterning Methods (NaPa) project, Lausanne, September 13, 2005*

# Should Users Be Involved in Innovation Processes?

By Jurgen Ganzevles

*University of Twente*

**Review of “User Involvement in Innovation Processes. Strategies and Limitations from a Socio-Technical Perspective”, edited by Harald Rohrer, Profil Verlag München, 2005**

Seven men in their thirties are looking in the lens with a grin. They are standing in line behind each other, some of them looking quite wickedly, some more uneasily. What makes the picture interesting is the knowledge that each man stands in a shower cabin, completely naked. One man exposes himself completely; the other men have taken partial refuge in the shower cabins, with different levels of body coverage. What is it that Harald Rohrer had in mind when deciding to put this picture on the cover of his new edited volume? Should these men be seen as ‘users to be involved’, as discussed in his book? Is it to show their vulnerability in front of the lens of Innovation? Are these people Users that can try to hide in the cabins of Consumption, but always have to show at least part of their preferences, values and beliefs to The Producer?

Rohrer’s edited book is about users of technology. In his introduction, he positions his book in the broad knowledge landscape of Science and Technology Studies (STS). He interweaves an extensive literature review of ‘users’ within STS with a preview of the contributions in the book. In doing so, he introduces the four themes the book is organized around. The first theme mainly deals with the representation and configuration of users in design. Stewart & Williams aim at social learning over the complete lifecycle of technology. Looking beyond STS, Jelsma discusses the “fringes” with engineering approaches and other social sciences, as an “heuristic exercise in the field of energy efficiency in households”. Feng gives an account of more empirically grounded work. He reports that in technical standardization committees and procedures, users are nearly invisible. He pleads for a focus on user representations to make presumed user characteristic, preferences and values visible again.

One user characteristic we all have is explored

further in the next section that carries the title “Overcoming or Reproducing Gender-Technology Relations?” McLaughlin shows that gender in design and use is shaped by the different roles and views different actors have in an organisational context. The meaning of ‘participation’ and how gender is accounted for in participatory design is explored by Balka. Rommes’ chapter discusses the process through which users escape or change gendered meanings in domesticating ICT.

Part three adds dynamics to such practices of design and use. It is the linkage of producers and users in dynamic innovation processes that may transform systems and regimes. Weber integrates concepts from self-organisation and evolutionary theories in a comprehensive conceptual framework to understand such innovation processes. Based on empirical work, he states that users play an important role in the self-organising process of system transformation. The potential roles of users herein are explored by Guy, Evans and Marvin, showing “competing understanding of identity and roles of users underpinning different styles of transport planning”. Their explorations have led them to the conclusion that “radical technological innovation often serves to reinforce existing social relations of power and exclusion.” The section is ended by Aparicio, who shows how promoters use rhetoric as a form of mediation for such public projects.

The fourth and last theme is introduced by Rohrer as the strategies for active user involvement that actors may apply. This part carries the title “Potentials and Ambivalence of User Participation”. In this block, Hennen discusses the political roles and impacts that different forms of technology assessment can have, including “the involvement of the public (...) as an ongoing experiment in re-arranging the relation of science and technology”. The next author, Konrad, shows the “dilemmas of user involvement in highly dynamic innovation processes.” Designers in such processes have to face the fact that not only users, but also scenarios of use and technology itself are malleable entities. She poses the explicit decision

to set one variable fixed as a strategy to get away from the dilemma. “Accordingly, each [of the three strategies] carries specific risks of failure.” Tauritz Bakker reports such a failure. She shows that ideals like accessibility and usability “are not materialized, even when many of the actors involved articulate such ideals and support such design strategies.” Imposing user involvement as one of the external criteria, the earmarking of funds and a reflexive understanding of the design process may be ways to improve chances of materialization of such ideals. Hronszky concludes the edited volume with an investigation of “the problem whether technologies can be better designed through public participation”. His approach is to find “parallelities in participatory approaches in production and public administration”. Besides demonstrating the complexity involved in these approaches, he points out that reflexive processes may even *produce* actors that could be called ‘anti-consumers’, “ready to resist because they are to be neglected or negatively affected (....).” A co-evolutionary context for emancipation and technological innovation may help to reach a sufficient level of consensus from a ‘precautionary’ point of view.

Criss-crossing his division in four themes, Rohracher identifies several issues the book brings up. User participation can make technology ‘better’, in the sense that it can reveal user aspects that can make technology more ‘useful’, ‘usable’ and ‘used’. (I borrow some terms here that Kornelia Konrad coins in her chapter). However, striving for user involvement is always constrained by organisational and other factors. Both theoretically and empirically, authors show that not only designers but also users often have “room for manoeuvre” to increase chances for fruitful interaction. This does not mean that it is an easy task to make this “room for manoeuvre” operational, even when goals for user involvement are relatively clear in a design project.

Nonetheless, editor and authors do not fall into the trap of glorifying the idea of user involvement, just for the sake of it. Right from the start, user involvement is dismantled as something that is only a ‘good’ thing. The book shows that it can easily turn into a ‘bad’ thing when designers, producers or policy makers apply such interactions to enrol users or citizens for figurative purposes, or if other actors force users to participate unwillingly.

In doing so, the book does not only stage designers and users, but also policy makers and citizens. While reading the book, I encountered

quite an ‘interpretative flexibility’ (to paraphrase Bijker) of the notion of ‘user involvement’. On one side of the spectrum, scholars discuss the sometimes implicit representation of users in design processes. On the other side of the spectrum, other scholars use the notion to describe the explicit enrolment of citizens in public discourses about new technological projects. Over the various contributions to the volume, elaborations are made that start from either side. The intriguing thing however is that they hardly meet. What is the relationship between ‘user involvement’ for revealing aspects of technology’s end users, and ‘user involvement’ in decision making processes on the other? Sure, all users are also citizens and all citizens may be users, but how to organize user participation in such a way that the ‘good’ thing (learning about users) can prosper and the ‘bad’ thing (users or citizens being enrolled unwillingly) can be suppressed?

Imre Hronszky’s contribution is the one that comes closest in this respect. Yet, his focus is more on the similarities than on potential differences between participation for policy and participation for product development. His conclusions are not to be criticised, but due to their high-level character, they are difficult to retranslate to a design arena where innovators have to do their daily work.

Thinking this through, I realized that this is not the only thread of inquiry that the book initiates but does not wrap up. The notion of ‘user’ was depicted as problematic in the first two parts of the book, while this is only partially the case in the third part about ‘transforming systems and regimes’. In that section, users are staged as more or less unproblematic entities (Weber), or analysts refrain from confronting the different user configurations they have found in a design context with empirical findings about users in practice (Guy/Evans/Marvin and Aparicio). Furthermore, the book touches upon ‘broader’ societal concerns like democratization, protection of weaker actors and care for the environment, but it does not make clear how to link these to the quest for individual user preferences.

I am not sure whether it is fair to judge this book on the lack of providing more explicit explorations of answers to all these questions. One could see it as quite a virtue that the edited volume has been capable of bringing them to mind in the first place. However, the book has raised expectations *beyond* what is actually discussed in the chapters. “What role do users have to play in technical innovation processes?” is the opening phrase on the back cover. Such a

question turns the empirical question ‘how is user participation performed’ into a normative one: how *should* it be done? And in his introduction, Rohracher states: “is there a potential for a more active and explicit involvement of users in the design and assessment of technologies? Will technologies become socially and environmentally friendlier with user participation?” The book only has been partially capable of answering these questions, because the elements in these questions have not been sufficiently linked together. If the editor or another contributing author would have taken up the different threads of the book, and taken insights one step further, the book could have been of greater value. This could have been done by making pros and cons of user involvement in their different forms more explicit and discussing the linkages more systematically. It remains somewhat unclear where we stand now, both intellectually and from a normative stance. This does not mean several scholars in the edited volume have not touch upon the normative issue in their concluding remarks. To my opinion, however, they hesitate to openly cross no-man’s-land between ‘STS theory’ and ‘what to do’. ‘Keep practice and analyses separated’ still seems to be the guiding principle for good scholarship. What are left are general remarks

about possibilities for intervention for user involvement. As a reader, I felt somewhat burdened with a puzzle which I felt the book should have solved for me, at least partially. Yes, the book has taught me that ‘user involvement’ has its drawbacks. At the same time, however, I still experienced a bias towards ‘user participation’ as something we should still strive for, but authors forgot to tell why that was again. If we agree ‘proper’ user involvement is a mammoth task indeed, this feels a bit like a shortcut.

Where the book does excel is in its broad coverage and exploration of the notion of ‘user involvement in innovation processes’ in all its varieties. In this respect, this edited book has more than fulfilled the promise the subtitle of the book phrases. Authors have provided substantial empirical evidence of ongoing practices of user participation, hereby showing “strategies and limitations from a socio-technical perspective” for “user involvement in innovation processes”. In this respect, the photo on the cover is appropriate. Users, citizens, and designers, policy makers: nobody can hide in the shower cabins anymore. The book has made clear that they all have to meet in front of the lens of Innovation, in all their vulnerability.

## Assembling Things

by Kristian Hvidtfelt Nielsen

*University of Aarhus, Denmark*

**Review of the exhibition *Making Things Public. Atmospheres of Democracy*, curated by Bruno Latour and Peter Weibel, ZKM | Center for Art and Media Karlsruhe, March 20 – August 7, 2005.**

Science and technology studies (STS) are increasingly engaged in stimulating dialogues with other, related areas such as political philosophy, economic sociology, public understanding of science, media and culture studies, and even the arts. This, of course, causes little surprise among STS scholars who, for a long time now, have argued to the effect that

sciences and technologies ought to be considered in closer relation to other realms of public life. Significant, however, is the fact that STS appears to have gained enough momentum to set the agenda in many such dialogues.

The exhibition *Making Things Public*, curated by Bruno Latour and Peter Weibel, and currently showing at the ZKM in Karlsruhe, is a case in point. The exhibition brings together science, politics, and art in order to compare and discuss different types of representation. To this end, the exhibition curators have engaged STS scholars, political scientists, artists, anthropologists, ethnographers, sociologists, philosophers, journalists and others to organize, display, and

realize a broad range of representational activities in contemporary society. The result is, of course, heterogeneous and multiple. It aims to present and enact various public spheres to which the sciences, politics and arts all contribute with hybrid assemblies of objects, facts, people, meanings, interpretations, instruments, controversies, etc.

The key unifying notion is “thing”, a Latourian concept well-known to most STS’ers. Latour draws upon the etymology of the concept to emphasize that, originally, a thing was an assembly in which topics of public interest were debated and negotiated. This meaning is still with us today in many Scandinavian countries where legislative bodies are known as “things” or “tings”, for example the Danish Folketing (literally: the People’s thing). It is also reminiscently present in the Anglo-Saxon languages where the word thing also refers to events, actions, or unspecified circumstances. A thing is an, as yet, undetermined or even underdetermined state of affair. It is confused, complex and complicated, indeed often quite controversial. It usually involves and blends science, engineering, art, politics and other types of representational activities. They come together in ways that depend on the specific thing in question. The thing itself is never neatly resolved or divided up into different and separate categories. Rather, things are constantly being merged, bargained, discussed and then, perhaps, even find a temporary settlement. These are elements of the Dingpolitik that Latour envisages in his introductory essay, “From Realpolitik to Dingpolitik – or How to Make Things Public”.<sup>1</sup> The title of the exhibition, *Making Things Public*, has a double meaning, which mirrors the fact that it is both descriptive and normative. On the one hand, it shows that analogous actions of representation take place in science, technology, politics, economy, art and religion, all of which may or may not play a role in certain things. On the other hand, it also aims to enact new ways of representing or assembling things by establishing in the visitor a new awareness of the omnipresence of things and democracy and by building up new forms of participation such as the parallel web-based database project, “Fair Assembly”, conceived by Steve Dietz.<sup>2</sup> The exhibition itself is divided into 13 thematic areas each of which (re)presents many different things. It is very large and quite complex. I spent four hours there one afternoon in early May, but that was far too little time, I think. I can only recommend going more than once. In the following I will describe a few of the items

shown that I believe might have a special interest to STS scholars.

For example, the exhibition includes things of planning and technology as shown in the section, “Politics of Water”, curated by Wiebe Bijker and Emile Gomart. Under the thematic headline, “Which Assembly for Those Assemblages”, this section contains a number of technical and architectural drawings for the town of Nagele in the Netherlands. Originally conceived as a protest against the widespread nostalgia in contemporary Dutch architecture and urban planning, Nagele is now an icon of modernity and functionalism. The sensibility of the designs for Nagele, however, reminds us that Nagele was never merely just functional and planned, cold. Constructing Nagele involved many passionate architects, engineers, urban planners, civil servants, and others who all assembled around Nagele, the project, to give it life and meaning. The Nagele designs thus exemplify the more general point of the theme that technological projects are modern ways of assembling things in which dreams of modernity, technologies, architectural schemes, aesthetics and passions co-evolve, indeed are co-constructed.

Another thing that involves water is river pollution. Representing this thing at the exhibition, Matthias Gommel, Christelle Gramaglia and Jean-Pierre Le Bourhis have constructed a three-dimensional, multi-media installation, “Riverphonics”, which includes water (and paper) in transparent, watertight Ortlieb bags, live streaming video/audio, 2-channel video installation and a water level-measuring device. At issue here are rivers and the many ways in which we speak about, interfere with and assemble to discuss river and water quality. Rivers sometimes have a hypnotizing, bubbling sound. Rivers as things, however, are noisy, yet nevertheless equally spellbinding, with many different voices taking up many different issues relating to rivers and quality of water. The multifaceted installation is a river parliament in itself that allows, or imposes the visitor to navigate the rivers of today in all their hybridity and polyphony. It is also a reminder to the visitor to be attentive to and to scrutinize carefully the increasing number of speech-apparatuses and techniques of representing that is involved in providing rivers with a voice in contemporary democracies.

Like rivers, science is fluid and noisy. Also, science relies on technical mediation to establish representation. This is clear from the video installation, “Wall of Science”, by Peter Galison, Robb Moss and their students, that, like

“Riverphonics”, also draws upon auditive metaphors to communicate and express science. The “Wall of Science” concept, of course, refers to composer and producer Phil Spector’s music production technique known as Wall of Sound. In the 1960’s Spector became famous for using large orchestras of musicians to create a very distinctive and much fuller sound with an impressive depth. Perhaps less known is that at the heart of the Wall of Sound was a basement room, carefully fitted with microphones and speakers, acting as an echo/reverb chamber. The Wall of Science created by Galison, Moss and Students indicate the ubiquity of science and science communication in contemporary societies as well as science’s impenetrability to the general audience, but also, by implicating Spector’s special basement techniques, hints at the (often hidden and underground) mediation techniques used to make science omnipresent in societal concerns and political matters. Science speaks on behalf of nature, but exactly how are such representational acts brought about? This is the question that Galison and co-workers wants us to reflect upon, but it is also more directly involved in Pablo Jensen’s 3 posters, “Making Electrons Public”, all of which are made to look like scientific posters. These posters are great fun to STS scholars. They concern scientific simulations of particle behavior on defect surfaces, and they are unreservedly framed in the language of the exhibition. Thus, Jensen, physicist/artist, tells us that he wants to understand how nanoparticles assemble on a surface with small defects by asking trustable spokespersons, i.e., atoms and electrons. However, like other spokespersons, atoms and electrons are elusive beings, and, so, Jensen and his team decide to construct more reliable spokespersons, virtual electrons. These virtual entities provide the scientists with the answers they were looking for: the electron density turns out to be a good spokesperson for the complex collective of electrons and shows us that electrons are indeed attracted by the defects on the surfaces. The posters are amusing examples of what would happen if Bruno Latour were to do a scientific poster (and here, perhaps, is an idea for a counter-Sokal showcase), and, yet, it is a little awkward to see science presented in terms and concepts from science studies. Notwithstanding the Sokalian kind of confrontation, maybe these posters are signs of a new, post-Science Wars integration of science and science studies? Besides technology and science, the exhibition

also revolves around markets and politics. Two of the themes are simply called: “The Market Place Is a Parliament, Too” and “Parliaments, Too, Are Complex Technologies”. Together, by way of syllogism, the bold declarations of these themes amount to the conclusion: “Market Places Are Complex Technologies”, which is precisely one of the major concerns of the new market anthropology and economic sociology that takes its inspiration from STS. This conclusion also comes out of the interactive installation “Tasting/Testing/Teasing”, created by Geneviève Teil and Antoine Hennion in collaboration with Frédéric Vergnaud. The installation invites the exhibition visitors to engage in a collective, virtual market experiment concerning public taste. It visualizes the famous invisible hand governing markets by turning our attention to the many techniques used to construct markets by way of assembling people and artifacts. Very much like the virtual electrons discussed above, the virtual public that this installation assemble becomes a constructed spokesperson of taste. Modern (mass) markets, as the syllogism conclusion goes, are constructed by means of representational techniques that frame the masses, their desires and taste. If it is not clear by now, let me say that I think the exhibition is a real treat to STS’ers. I have mentioned only a few of the many things that directly relate to STS. Also worthy of mention are: the section on the famous Opsroom design of cybernetician Stafford Beer, the 2000 US Presidential Election installation, the collection of notebooks in the section “Paper Theories”, where one finds the notebooks of historical figures such as Heinrich von Helmholtz and Wilhelm Ostwald next to those of contemporaries such as Lorraine Daston and Sarah Panteleev, and many, many other things. Go assemble in this great thing yourself, if you get the chance!

## Notes

1. To be published in the exhibition catalogue, due September 2005. Currently available at: <http://www.ensmp.fr/~latour/articles/article/96-DINGPOLITIK2.html>
2. <http://makingthingspublic.zkm.de/fairassembly>

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# From Dragons to Databases

by Aaro Tupasela

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**Report of the 9<sup>th</sup> Ischia Summer School on the History of the Life Sciences: *Gathering Things, Collecting Data, Producing Knowledge: The Use of Collections in Biological and Medical Knowledge Production from Early Modern Natural History to Genome Databases. Ischia, Italy, 28.6 – 5.7.2005***

What do fearsome dragons and sequence databases have in common? The question might seem odd at first, but as the 9<sup>th</sup> Ischia summer school proved, the historical aspects of gathering things, collecting data and producing knowledge has a history that spans five hundred years and brings together activities that appear as disparate and diverse as modern biomedical databases and mineral collections.

The summer school was attended by over 20 students, mainly from Europe and the USA, and was made up of 14 presentations by researchers that were followed by lively discussion. The presentations were divided into four different categories that included the topics of natural history collections, scientific travel collections and museums, population and genetic data collections and databases and resource centers in modern biology. In addition to the set presentations, there was also an excursion to nearby Naples and the Stazione Zoologica Anton Dohrn, where students and faculty alike could choose from several different presentations which ranged from historical collections to the way the station uses modern molecular biology methods to do research on marine ecosystems. The summer school covered almost 500 years of various and varied activities, and there were several common themes that brought the different presentations together.

Although, cabinets of curiosity in the 1500s, where collectors aimed at collecting the most exotic animals and rare oddities of natural history, and modern population databases that comprise of information of thousands of people or animals might seem quite different at first glance, the summer school proved that there are themes which can be traced throughout the centuries that bind such activities. One such

theme relates closely to power and the relationship that are formed between the collections themselves and the knowledge that can be produced from them. Already in the 16th Century, cabinets of curiosity were becoming sites of power, where the collector could become a nexus of influence that served both to enhance the status of the elite who could claim to have visited such cabinets and served as patrons of the sciences, but also increase the influence and status of the collectors themselves who gained fame and notoriety as a result of the expertise that they were able to draw from their collections.

Today, issues of control and authority that revolve around population databases, tissue sample collections and other information databases, are quite similar in that they not only provide an important base for political authority in many countries, such as Iceland for example, but also provide powerful resources for research groups who are competing in the market for the production of scientific knowledge. The balance between secrecy, control and openness are as relevant issues today as they were in the 1500 and 1600s.

The quality of the collections and the metadata that is associated with them, however, can also play an equally important and crucial role in the quality of the knowledge that is produced. Although cabinets of curiosity had an important role to play in the 1500s, the way the collections were organized could not compete with the later systems of classification that were developed by natural historians. Therefore, the power to organize also plays an important role in the importance that collections have. Today, similar debates are abound in biomedicine as to whether or not the information or markers that are being used in epidemiological databases for example are the right ones and whether the knowledge that is being produced has validity or not. Records collected for the Eugenics Record Office in Cold Spring Harbor, for example, provided an interesting case of a large collection of personal and family data that, today, has only historical value in that it clearly demonstrates the way in which a lack of a coherent strategy for collecting

and verifying data can in the end create a mass of data which is useless. It also highlights the sometimes tenuous and controversial relationship between research and social policy.

The ability to organize data was therefore another major theme that ran throughout the 500 years of activities that were covered in the summer school. From the idiosyncratic theaters of nature to microarray databases, the role of standardization has become of increasing importance when data is compared and combined from hundreds and even thousands of different scientists from around the world. Sociologically, processes of standardization have come to play an important role in STS research that looks at the development of technologies. Nevertheless, modern biomedical research is still faced with the challenges of finding common parameters and languages within which to operate and communicate in a manner that is useful and productive. The competition to set standards and dictate the way research is organized and practiced has certainly become an important theme in today's scientific practices.

The organization of collections also raised important themes in relation to the visual aspects of representation of objects and information. An integral part of modern knowledge production is increasingly related to the ways and methods associated with the way objects can be visualized. The question of how to model an object or information is also related not only to important questions of how to organize research practices, but also and more importantly to the

development of theory formation in many sciences. Therefore the tools and methods that are selected have an important bearing on the type of information and knowledge that is produced as a result. The theme of ordering nature and representing it in various, sometimes competing ways, was an important theme which ran throughout the presentations at the summer school.

To bring together 500 years of history dealing with collections and the production of knowledge certainly also raises questions as to changes and differences that have emerged in these practices. Despite the fact that many themes ran throughout the presentations, the scope and volume of data which is being dealt with today is an important example of what has been steadily changing. The incredible pace at which information is being produced set huge challenges in terms of its organization, visualization and representation.

As a whole, the summer school succeeded in bringing forth many of the continuities, as well as discontinuities within such practices and creating an interesting historical perspective to activities today relating to biomedical research and the production of knowledge.

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# Critical approaches to technology

by Lotte Asveld

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Under what conditions can technology be ethically and socially warranted applied? To what extent are human beings subordinate to the directive powers of technology? These questions around sustaining socio-political structures of technology were addressed during the symposium: critical approaches to technology, organized at the Free University by Hans Radder and Han van Diest on June 10, 2005.

Andrew Feenberg is known as an authority in American philosophy of technology. His work was of central importance during the symposium and most other contributors to the day often referred to his critical technology analysis. Feenberg states that technology is increasingly withdrawn from democratic control. This is caused by the illusion of transcendence with which technology is surrounded. This illusion pertains to a lack of awareness about the link between technology and its consequences. Because of the increasing specialisation in society a fissure exists between the design and the application of technology. Designers and managers of technology experience technology usually solely in an abstract, decontextualised manner: during the process of design. What happens to a technology once it is introduced in society and what consequences it yields, remains hidden from their sight. Only specific groups experience the negative effects of technological developments, such as poor people living in disadvantaged areas where the air is severely polluted. Those that actually manage technology usually have the resources to escape its effects. Feenberg argues that the technological underclass should intervene in this unjust situation. In a myriad of ways the illusion of transcendence can and should be broken.

Feenberg does not venture much into what these ways are, but another participant comes forward with a proposal. Bram Bos jr explains a method that connects nicely to the aim of including several groups of people in the development of technology. He reports the case of chicken husbandry in the Netherlands. Both consumer concerns and lack of space put substantial demands on the technological system of chicken husbandry. To assure that the modern chicken-farmer knows how to adequately address all these concerns, the University of Wageningen

organizes meetings with all stakeholders. The aim of these meetings is that the divergent participants reach a 'deep consensus' which transcends mere compromise, and involves a thorough understanding of each others' position. Because of these thorough understanding, new opportunities for fruitful consensus emerge. Seemingly opposed values appear to be compatible at closer examination. This consensus can then form the basis for a new technical design that integrates all relevant concerns. According to Bos, this method proved very useful in the field of chicken husbandry. Hans Radder took up the issue of the political character of artefacts. He stirred up the debate about Winners (in)famous example of the architect Moses who alleged designed bridges in such a way that buses couldn't pass under them to reach the beach. Winner explains this feature of Moses' bridges by reference to his latent racism. Moses supposedly designed the bridges the way he did to prevent black people, who often use buses, to enter his beloved beaches. This example supports Winners' claim that politics have artefacts. Steve Woolgar and others have attacked Winners' claim by stating that there is neither proof of Moses' racism, nor of the fact that the buses could not reach the beach.

Radder says that although this example may be contentious, Winners' claim still holds because artefacts have politics in two different ways. One is contingent and the other is inherent. Contingent is when a technology is used to settle a political issue in a particular community, such as Moses allegedly tried with his bridges. The other is when a technology requires, or is strongly compatible with, a specific political system. Nuclear energy for instance requires a hierarchical political system to adequately manage its safety and distribution. That artefacts have politics in this inherent way remains unchallenged by Woolgars attack. Thus, says Radder, we can still safely maintain that artefacts have politics. This surprised nobody in the audience. The symposium showed that STS requires continuous development of poignant concepts.

## Recent Dissertations

**Koen Vermeir**, *Magical Science or Scientific Magic? Rationality & Irrationality and the Magic & Science debate from a Historical and Philosophical Perspective*, PhD dissertation, University of Leuven (Belgium), May 2005.

At a time when Harry Potter is the best known literary character, the popularity of the pseudo-sciences threatens science and ever more people believe in some sort of magic, a study of the relation between ‘magic’ and ‘science’ seems more than topical indeed. ‘Magic’ and ‘science’ are often said to be two practices which aspire to know and control the world. The relation between both in earlier periods, in alien cultures as well as in contemporary Western society is exceedingly complex. Today, science is often considered as the apex of rationality, while magic is dismissed as something irrational. But is this distinction so easy to make? In former times and in alien cultures both practices intersected and were often indistinguishable. This points to specific historiographical, sociological and philosophical issues, which I examine in my doctoral research.

A controversy was sparked off in the mid 1960s when philosophers reacted to anthropological studies and the historical work of Frances Yates. This ‘magic and science’ debate is still not over yet, and although aspects of it have somewhat wavered in anthropology and philosophy, it currently resurfaces in different guises. The boundaries of ‘the scientific’ are continuously haggled over and today they are prominent for instance in debates attempting at demarcating science from ‘pseudo-science’. Also the Science Wars can be interpreted as an instance of boundary work that serves to demarcate ‘non-science’, ‘pseudo-science’ and the ‘magical’ from ‘science’, or, alternatively, the ‘irrational’ from the ‘rational’. In my dissertation, I discuss some previous and current episodes in the rationality and demarcation debates, and I supplement them with original historical case studies. Of course, the historical material cannot simply be transposed to a current day context; neither can it serve as a proof for a philosophical position. Nevertheless, it can serve as an inspiration for new philosophical reflection. This dissertation can thus be read as an elaborate reflection on issues of demarcation, in which the

traditional philosophical discussion is expanded, historicised and contextualised.

In the first part of my research, I explore instances of ‘applied metaphysics’, i.e. historical studies with a particular epistemological import. By means of this ‘philosophical history’, I investigate previously neglected case-studies which are ‘unreal’ from the viewpoint of twentieth-century science. What counts as ‘wondrous’ depends on the categories and frames of reference at a time. Accordingly, focussing on the role uncommon phenomena played in previous periods will yield insights about the conceptual framework of these periods. It uncovers the epistemic constraints and the conditions of possibility of particular phenomena and practices. Furthermore, the contrast between previous and present conceptual frameworks will also allow us to see our own categories of thought in new ways. In this way, my case-studies inform the ‘historical philosophy’ that I develop in the second part of the dissertation in order to elucidate the relation between magic, pseudo-science and science. I argue that the borders between different practices are ambiguous and controversial, while also diverse mediating and cross-border practices exist.

I start my dissertation with elucidating the overlap between the sciences, philosophy, natural magic and artificial (or mathematical) magic in the late seventeenth century (1660-1710) – at the apex of the so called Scientific Revolution – and I show some of the interactions and boundary work between them. In these case-studies, history of philosophy and history of science almost coincide. After broaching some intricate issues of definition and terminology (of ‘magic’, ‘science’ and related concepts), I describe how the ‘new philosophy’ was invoked to explain occult phenomena, how experimental philosophy tried to deal with the efficacy of the dowsing rod, and how metaphysics and wondrous artefacts were inseparably intertwined. These case-studies question the traditional demarcations between ‘magic’ and ‘science’ as well as the specific ‘scientific rationality’ that is often supposed to have originated in that period.

In the first chapters, I show how theories of the strong powers of the imagination determined the debates about two wondrous divinatory events – prophecy and dowsing – in the south of France.

These powers were considered to be connected to the foremost magical theories, such as word magic and love magic. I introduce the notion of a 'floating concept' to conceptualise one of the ways in which different practices overlap: contexts are never entirely closed and some concepts travel easily between them. In my case studies on divination, I show how the concept of 'imagination' was a crucial and very particular epistemic tool for the understanding of marvellous phenomena. This concept also made communication between medical, magical, experimental, theological and natural philosophical discourses possible. In later chapters, I discuss Athanasius Kircher's (1602-1680) 'magical instruments' and I show that his instruments were 'nodal points' of different practices, like artificial magic, natural philosophy, theology and metaphysics. I show how he used his instruments in what I term an 'analogical demonstration', in order to propound his 'occult' worldview.

All of these case-studies show univocally that no strict boundaries between such practices can be drawn and that many unexpected interactions occurred. In early modern Europe, marvellous instances served as nodal points where different practices intersected. I argue that we are in need of an integrated hermeneutics in order to understand these nodal points. Such a hermeneutics takes into account texts, images as well as artefacts, and pays due attention to contextual factors. My studies also illustrate that, while incommensurabilities and discontinuities in science have always been interpreted as a threat to the rationality of science, the insistence on a mutual communication and the existence of continuities between practices is much more challenging for rationalists and philosophers of science.

The second part of my dissertation consists of essays in 'historical ontology' and deals with historically inspired philosophical issues. It is a kind of philosophy that recognises the importance of and tries to come to grips with the local, concrete and historical structures of being. In particular, I pursue a specific theme – the relation between 'magic' and 'science' and the relation between the 'rational' and the 'irrational' – from a historiographical and philosophical perspective. I adopt historiographical data and methods as well as concepts and insights from the sociology of science in order to develop a particularly interdisciplinary approach to the sciences.

I devote a chapter to current episodes in the Science Wars, which I interpret as a particular

instance of the demarcation problem. I argue that most sociologists of science have been misinterpreted by philosophers and scientists. Instead of looking at such wrong and unimaginative interpretations of their 'social constructivism', I think it is more interesting in this case to see the philosophical challenge of the sociologist's approach as directed against the 'rationality' of science. Instead of reading their arguments as turning science itself into something 'irrational', however, I argue that their analyses rather turn magic and pseudo-science into something 'rational'. Indeed, if the sociologists' 'symmetry principle' is read in reverse, it makes strong claims on how 'magic' and 'science' should be analysed.

In the ensuing chapter, I give a more thorough formalisation of some of the insights already gained. I argue, for instance, that many of the sociologists' ideas should be taken as intuitions about knowledge attributions and that an epistemological theory of knowledge attributions is thus desirable in order to bring about a rapprochement between philosophy and sociology of science.

The last part of the dissertation is about problem of demarcating between 'science' and 'pseudo-science' as we can find it in philosophy of science. In our every-day life, we do in fact make pragmatic distinctions between what is science and what is not, and for many people today, astrology, for instance, is clearly the latter. It turns out, however, that it is not so evident to give a philosophical grounding for these pragmatic distinctions. The practices that one wants to distinguish are not always different in 'kind' and after careful scrutiny it seems impossible to draw a fixed line between science and pseudo-science. Nevertheless, it would be improper to claim a demise of the demarcation problem. Demarcations are crucial for social and political reasons, and cannot be so easily dismissed on philosophical grounds. Demarcations are possible, but are out of necessity pragmatic, local and contextual. Furthermore, I argue that philosophers should, besides elaborating the classical demarcation problem, also think about the demarcation between philosophy and pseudo-science.

Finally, some concluding remarks on the (ir)rationality of 'magic' and 'science'. Using recent accounts of how people today believe in diverse forms of magic, I explain the difference between their attitude and the attitude of early modern scientists towards magic. 'Magic' can be considered to be 'rational' in many contexts, while my conceptualisations nevertheless

preserve some space for ‘irrationality’.

Furthermore, I argue that scientific practices are heterogeneous and ‘impure’. From this, it follows that classical philosophical dichotomies will have to be revised and mitigated. I have shown that social and epistemic issues are interwoven, for instance, and that scientific rationality is as much a matter of the social structure of science as of its purely epistemic characteristics. The sciences make use of objects, concepts and artefacts that function in different contexts, in this way allowing diverse intersections of contexts to occur. This should prompt us to revise simplified models of scientific rationality. There are no clear boundaries in science – meanings overlap and practices can conflict, coexist or cooperate – they cannot be isolated. Neither can philosophy of science be isolated, and its success and rationality will depend crucially on its interaction and collaboration with other practices, like history and sociology of science.

In this dissertation, I provide the historiography of the sciences with new models and conceptual tools, in order to show the philosophical relevance of current historical research. New concepts, focussing on the circulation of knowledge and the interaction between different scientific practices, can help us to transcend the current micro-histories and to again bring the ‘big picture’ and broader concerns to the fore. Hopefully, this offers new perspectives on the integration of history and philosophy of science.

**Tee Rogers-Hayden**, *Commissioning Genetic Modification: the Marginalisation of Dissent in the Royal Commission on Genetic Modification*. PhD thesis, (Human) Geography, University of Waikato, New Zealand, 2004.

New Zealand’s Royal Commission on Genetic Modification (RCGM), held from May 2000 to July 2001, appeared to be a ‘public debate’. It sought the participation of people from a cross-section of society according to its broad terms of reference, and invited input on ‘options’ for the nation. It involved submissions from the public, Māori (indigenous peoples) and special interest groups. While a vocal minority, representing the biotechnology industry, pushed for relaxing existing regulations on Genetic Modification (GM) and promoted the benefits of a GM future for New Zealand; some 9,998 (92%) of the 10,861 public submissions were either strongly against, or tending to be against GM. In addition the overwhelming majority of submissions made by Māori at hui (meetings) voiced concerns

about GM, while the environmental groups and vast numbers of other social movement groups argued against the adoption of genetic modification. Despite this, the RCGM’s findings, which were released on 30 July 2001 in a four-volume 1200 page report, can be summarised as ‘proceed with GM with care’. The recommendations included recommencing GM field trials and planning for releases of genetically modified organisms (GMOs.) (Although no releases of GMOs have yet taken place).

In response to the publics’ expressions against GM the Commissioners clearly stated their intent to ignore them: ‘We wish to stress ... that the terms of reference did not direct us to conduct our inquiry as if it were a referendum.’ The findings left the author, and others, questioning how the Commissioners did come to those conclusions on the basis of what they heard. Was in fact the outcome of the Royal Commission pre-determined? This doctoral thesis engages with these questions by deconstructing the ‘discourse’ of the Royal Commission on Genetic Modification.

In this research a, Faircloughian type, multidimensional discourse analysis model was applied to the RCGM to investigate if it was pre-determined in its findings. The social and historical context of the RCGM, its processes (discursive field), and the consequential narratives in the texts produced by the environmentalists and the bioproponents who made submissions, and the documentation produced by the RCGM, were analysed.

The author argues that modernity formed the first element of the discourse model, the social and historical context of the RCGM. Central to this were ‘Rationality’, reductionist science and law, which is based on the Enlightenment dualism of culture—nature, which appears given and ‘natural’.

The discursive field of the RCGM and the effect of this on the tropes that emerges in the RCGM report were analysed, and it was argued that the hegemony of modernity influenced the processes of the RCGM. The RCGM may have been a rare formal point of contact between the publics, pressure groups, industry and government but the reflexive opportunity to respond to the knowledges of the publics was lost as the inquiry became established along the lines of the Commissions of Inquiry Act of 1908. The publics were separated from those with ‘expertise’ (Interested Persons) and the objections to GM (92% of submissions) were dismissed. Instead the Commission attempted to

turn this political struggle into a rational scientific administrative discourse. The processes of the RCGM can be seen as framing the issue on hand to be one more of technical discovery than of social decision-making. The modernist ideals that saw interest groups separated from publics—presumably separating ‘facts’ from ‘opinions’—continued through the processes of the RCGM. The environmental groups were disadvantaged by the reductionist methodology of the Commission. Restrictive timelines presumed hierarchical organisational structures, limiting member consultation time and creating additional obstacles to participation for groups relying on mainly volunteer labour and small budgets.

The Commission also restricted the environmental groups’ ability to object to GM as they provided a reductionist template for submissions which was based on the presumption that groups could present their arguments in stand alone answers. Environment groups were unable to present holistic arguments. Furthermore, the cross-examination process, which is more suitable for finding technical details than it is for social decision-making, resulted in the bioproponents providing a Queens Council to cross-examine the environmental groups while the environmental groups were unable to afford lawyers (or staff) to read all the submissions, attend all the hearing and provide cross-examination of all the bioproponents. This process was based on a reductionist perspective, in which elements can be viewed in isolation from one another, so the Commissioners viewed material inequity as separate from political equity.

Finally, to analyse the text of the RCGM discourse, and the effect of this on the findings of the RCGM, theories of boundary work were drawn upon. The analysis reveals that the discourse that developed through the dispute over boundaries of terms, between the environmentalists and the bioproponents, can be seen as framing the findings of the RCGM. In the final report the Commissioners recommend proceeding with GM with care, through sustaining Progress and rejecting the precautionary principle. The bioproponents suggest that science is neutral, leading to Progress, and that decision-making on GM should therefore be carried out by scientists. The environmental groups use ‘sustainability’ to challenge the bioproponents’ hegemonic notions.

They propose a sustainable, organic, GM-free society instead of Progress and propose implementing the precautionary principle which

disputes the need for scientific evidence of cause and effect before taking preventative action. The bioproponents can then be seen as co-opting sustainability to mean GM, and rejecting the precautionary principle as being too variable in favour of ‘caution’.

To conclude, Sir Thomas Eichelbaum, the Chair of the Royal Commission on Genetic Modification, when discussing the Commission, shared his vision for the consultation process: ‘We want all New Zealanders to engage in the genetic modification debate and share their views on the issues, so it’s essential we develop the right processes to ensure we’re able to achieve that goal’. From this analysis of the ‘discourse’ of the Royal Commission on Genetic Modification the conclusions reached about the RCGM are in considerable contrast with Eichelbaum’s aim. Instead, modernist rationality can be seen as having shaped the processes of the RCGM, restricting public participation and articulation of opposition to GM, ultimately pre-determining the RCGM in favour of GM.

(Tee Rogers-Hayden’s doctoral research, was funded by a University of Waikato doctoral scholarship, a 2001 New Zealand Federation of Graduate Women Fellowship, a 2002 Claude McCarthy Fellowship, and a Waikato University Geography Department Study Award).

**Rita Struhkamp**, *Dealing with Disability: Inquiries into a Clinical Craft*. PhD thesis, University of Twente, Department of Philosophy, 2004.

The quality of health care is a central topic of debate. Scientists, policy makers and professionals elaborate about possible strategies to improve health care services. It is argued that clinical practice has to improve its services, organisation and results. The suggested solutions cover a wide range, but two positions are particularly important. First, health care services should be more *evidence-based* by systematic investigation of the effectiveness of interventions. Second, it is widely acknowledged that health services should be organised and integrated around the patients’ needs in order to make care more *patient-centred*.

Drawing on ethnographic fieldwork in a Dutch rehabilitation clinic, the author critically discusses these improvement strategies. The qualitative study for this thesis was carried out on a ward for people with extensive physical disabilities, such as spinal cord injury or

advanced multiple sclerosis (MS). The descriptions of day-to-day practice reveal the craftsmanship of clinical rehabilitation and the richness, complexity and losses in rehabilitation treatment and care. In this way, the study offers a perspective on the quality of care from clinical practice itself.

The book presents an ethnographic examination of rehabilitation care, analysed against the background of public debates, research and policy, concerned with the quality of these practices. It explores effectiveness and patient-centredness in four subsequent papers, in which four major topics, *independence*, *patient autonomy*, *goal setting*, and *suffering* are analysed.

Chapter 1 deals with independence, which is one possible outcome of rehabilitation treatment: someone with a severe physical disability seeks to function as independently as possible in day-to-day life. Independence is one of the indicators that provide evidence for the effectiveness of rehabilitation. The chapter examines the ways in which independence is realised in the rehabilitation centre and relates these to the assessment of independence in outcome measures.

The next chapter shifts away from effects and focuses instead on the way patient autonomy - one central ideal in the ethics of health care - is dealt with in rehabilitation care. Unlike liberal ethical theory, this chapter does not seek patient autonomy in situations of self-determined decision-making, but introduces instead a view on patient autonomy as it is *done* rather than respected: a view from the kitchen.

The two issues central to quality discussions about health care, effectiveness and autonomy, which are taken up in chapter 1 and 2, come together in a method of rehabilitation medicine that is explored in chapter 3: goal setting. In the rehabilitation clinic disabled people are encouraged to establish the desired results of their individual rehabilitation programme and to set treatment goals. Despite the general acceptance of goal setting, it is far from straightforward in actual practice: goals are often

adjusted over time or never achieved, people sometimes disagree about goals, and some find it difficult to establish goals for themselves. This chapter argues that the difficulties of goal setting are not necessarily a failure of clinical practice, but result from a set of assumptions.

Chapter 4 concerns an issue that pervades clinical rehabilitation, but that is remarkably absent in public debate: the pain and suffering that tend to come along with chronic illness and disability. The chapter articulates the ways in which suffering is dealt with in clinical rehabilitation and discusses the silence of suffering outside clinical care.

In the conclusions the author elaborates on the question of what ethnographic inquiries into clinical rehabilitation may yield. Such inquiries are important, she argues, because clinical practice differs in a variety of ways from the strategies that seek to improve this practice. The tensions between clinical practice on the one hand and theories, notions, expectations and instruments for improving rehabilitation on the other hand centre around multiplicity and materiality. Multiplicity implies that rehabilitation outcomes are often not straightforward, treatment goals diverge, and therapy approaches come in multiple varieties. In the matter of materiality, rehabilitation practice does not primarily rest on precise assessment, on arguments or on advocating fundamental patient rights. By contrast, the concrete technologies, material design, and professional activities that help to constitute these ambitions are backbones of rehabilitation medicine rather than passive means, subordinate to deliberate decisions, intentional actions, and self-determined goals.

By articulating these frictions, by portraying clinical rehabilitation as a creative craft and by articulating its creativity and richness, the book speaks up for the specificities of clinical practices to strengthen them in times when health care is criticised. At the same time, accounts from clinical practice are put into a broader framework of scientific discussions and of health care policy.

## News from the Association

Dear Members,

This issue of the EASST Review has been held back so as to bring you as soon as possible the call for papers for next year's conference in Lausanne. It promises to be a lively and stimulating event. The theme of "Reviewing Humanness" provides, we hope, an intellectually invigorating way to bring together work across a wide range of STS and to bring out synergies across work in many different areas. Please don't feel excluded, though, if you don't immediately see your work reflected in the theme. The EASST conference is still a great way to present your work and to make connections within the European community of STS scholars.

The work of embedding EASST in the UK system continues. Once my term as president is done I feel I will be well equipped to start a small pan-European business! One of the issues which has particularly concerned me, given that we are in many ways starting the EASST administration from scratch in a new country, is to make some ethical and environmentally responsible choices. The EASST bank account is thus now based with the Co-operative Bank, who operate an ethical policy both in making investments and in vetting

customers. It was interesting on applying for the new account to note that I was required to complete a form confirming that EASST does not manufacture or trade military equipment, extract fossil fuels, manufacture chemicals, involve itself in the nuclear power industry or engage in the fur trade, and sundry other activities. I was able confidently to confirm that we did not engage in any of the suspect activities, although it was often the case that I could think of EASST members who had involved themselves in some kind of analysis of that same activity. Another choice influenced by ethical and environmental considerations has been the printer for the Review. While there is a way to go in terms of making the EASST Review more environmentally friendly, it has at least been possible to find a printer who has achieved ISO 14001, the international standard for Environmental Management Systems. This influences their choice of printing technologies, and also their practices of waste reduction and recycling and energy efficiency.

Best wishes,

Christine Hine

EASST President  
Guildford, October 14, 2005

# Reviewing humanness: bodies, technologies and spaces

## EASST Conference in Lausanne, Switzerland

### August 23-26, 2006

The biennial conference of the European Association for the Study of Science and Technology will be held in Lausanne from 23<sup>rd</sup> to 26<sup>th</sup> August, 2006. All members of the European science, technology and innovation studies community are invited to attend. Contributions are particularly encouraged which address the general conference theme: "Reviewing humanness: bodies, technologies and spaces" What is it to be human today? Human "nature" is made and re-made by ideas and practices assembling bodies, technologies, and spaces. Three processes in particular seem to be transforming the very notion of humanness:

1. it is *reconfigured* by the life sciences, from genetics to neurobiology, with the invention of new forms of human corporeity. Within contemporary philosophy and STS literature, this is associated with conceptual changes, displacing traditional binaries such as human/animal, animal/machine, nature/technology, mind/body towards all kinds of hybrids.
2. it is *reassigned* to and *redistributed* throughout sociotechnical networks and artifacts. In other words, the notion of humanness is rethought; it is considered no longer to be enclosed within the human subject, but instead disseminated in and through human-made objects and technological systems.
3. it is *rescaled* by the increase in transnational connections and the development of a cosmopolitan imaginary. The increase of spatial mobility (international migration, tourism, professional travel, etc.) and information flows, 'stretching' social relations across space, have reterritorialized, and in the best cases broadened, our conceptions of humanness.

The conference organizers invite contributions that address both a general conceptualization of humanness and these three particular processes.

The further aim of this conference is to address the political (in the broad sense of the term) dimension of a reviewed humanness. The re-fabrication of humanness is not only an academic thought-experiment but a daily life experience, and sometimes an object of concern, for society as a whole. The organizers therefore also invite contributions specifically focusing on the politicization of contemporary humanness. Such topics include:

a) issues related to participative forums created by state or supranational organizations to trigger public debate around the anthropological consequences of scientific and technological innovations;

b) initiatives of different segments of civil society (patient organizations, feminist movements, indigenous groups, consumer associations, etc.), including public action and mobilizations, regarding the definition of research agendas, the organization of knowledge production and diffusion, or the political regulation of the three above-mentioned processes;

c) questions regarding participation in the global redefinition of humanness. Are not large sectors of humankind excluded from these changes? Do they mean the same thing regardless of social class, gender and ethnicity?

Threads:

1. Biomedical practices, politics and markets
2. Medicine, healthcare & patients
3. Information and communication technologies
4. Technological artifacts & users
5. Environments, landscapes and resources
6. Spatialities, transnationalism and governance
7. Expertise, governance & publics
8. Normative issues & the production of norms
9. Science, politics & markets
10. Knowledge objects, practices & cultures
11. Science, culture & arts
12. Practices and processes of innovation
13. STS in practice (methods, research networks, computer tools)

Contributions will be welcome from the range of disciplines found within the broad field of science, technology, and society studies. For those whose work does not relate directly to the Conference's theme, there are open paper sessions.

#### **Deadline for abstracts and session proposals: December 16th, 2005**

Abstract submissions should include all contact details, the text of the abstract (300 words), three keywords and the preferred Conference Threads. Please use the ad-hoc template file on the website as the basis for your submission and send it by December 16th, 2005, to [easst2006@unil.ch](mailto: easst2006@unil.ch)

If you plan to propose a session, please send a message to the organisers as soon as possible, and put « session proposal » in the subject of your e-mail. In order to help the preparation of the programme, session proposals will be posted on a page of the Conference's website. Session proposals should include all contact details, the text of the proposed session (600 words max.). Please use the ad-hoc template file on the website

as the basis for your submission and send it by December 16th, 2005, to [easst2006@unil.ch](mailto: easst2006@unil.ch)  
All information can be found on the Conference's website: [www.unil.ch/easst2006](http://www.unil.ch/easst2006)  
Contact : [easst2006@unil.ch](mailto: easst2006@unil.ch), Tel/Fax : +41 21 693 84 77  
Address: EASST 2006, University of Lausanne, IEPI, Bat. Humense, CH-1015 Lausanne, Switzerland

## Conference Announcements and Calls for Papers

*Apothecaries, Art and Architecture: Interpreting Georgian Medicine*, a Joint Symposium in honour of Roy Porter, will be held on Thursday 24 - Friday 25 November 2005. This is a joint venture organised by the Faculty of the History and Philosophy of Medicine and Pharmacy of the Worshipful Society of Apothecaries of London and Dr Johnson's House. It is being held in honour of the late Professor Roy Porter, one of the most prolific and accessible historians of medicine, with support from the Society for the Social History of Medicine. Two full days of presentations will take place at **Apothecaries' Hall** in Blackfriars in the City of **London**, and there will be a reception at Dr Johnson's House on the evening of 24 November. An excellent programme has been put together with nearly 40 speakers from pre-eminent departments in universities, colleges, museums, archives and historical societies from all over the UK and the USA. Full details of the Symposium are available online via the Society of Apothecaries' website: [www.apothecaries.org](http://www.apothecaries.org) where there is a link on the homepage to the Symposium page where the flyer, programme and registration form can be viewed and downloaded.

The International Conference, *Philosophies of Technology: Francis Bacon and his Contemporaries*, is to be held in **Frankfurt am Main**, 7-8 July 2006. It is organized by the Johann Wolfgang Goethe-Universität's Center for Research in Early Modern History, Culture and Science and the Institute of Polytechnics and Work Studies, SFB/FK 435 Research Center: Culture of knowledge and social change, as well as Museo Leonardiano (Vinci). It is a project of

the network Technology as Cultural Heritage / La Storia del Disegno Tecnico del Rinascimento e della Prima Modernità come Patrimonio Comune Europeo. With the support of the Culture 2000 programme of the European Union, Directorate General Education and Culture. Current developments and events call for a widening of our intellectual horizons and especially for including Europe historically and in perspectives into our debates. What is "Europe" and how did it take shape? Which traditions are shared by "Europeans"? Do technology and technical developments belong to what we could consider as a shared European cultural heritage? How do we experience this cultural heritage and and which role do we want to assign to it for a common European future? We would like to invite you to discuss with us some of the problems involved by contributing to a proposed conference on Francis Bacon, his contemporaries, forerunners and followers. Francis Bacon and the Baconian sciences contributed – as is generally accepted - to European sciences and philosophy by successfully suggesting and propagating experiments and controlled observations as fundamental for empiricist research. This was linked to new visions of nature and the world inaugurated by technical innovations and inventions. There are, of course, highly illuminating studies on the technical developments in the Renaissance and in Early Modernity, on the importance of technical models for epistemology and for other theoretical problems such as political theory (clockworks and clockwork metaphors) or theories about the human body (automata). Research has focussed on clockworks, vacuum pumps and automata, but

there is a wealth of other technical models used and experimented with in the Leonardo- and Bacon-inspired philosophical communities that calls for a revision of an assumed clear-cut mechanistic paradigm. In order to do this we would like to focus on two aspects: 1. The impact of technical models for structuring knowledge production in natural philosophy, natural history and the philosophy of history; 2. Technical innovations - as effected or envisioned - call for and make possible new world views. They generate the urge for a revision of traditional assumptions and at the same time they offer explanations. We would like to discuss the following questions: How did technical models serve as explanatory models for the world at large? What were the implications of using them as such? Which technical models (apart from clockworks, vacuum pumps and automata) were debated as explanatory models in Early Modern scientific discourse (thermo- or hydrondynamic models such as oven, distilling apparatuses, mills, looms, paper producing machines, printing machines, mining technology)? What is the impact of technical innovations on the debate about nature, arts and *techne*? What is the role of technical innovations in magical theory and practise? And what is their impact for the new concepts of the history and progress? 2. Technical developments in the Renaissance and Early Modernity. We would like to contextualize the epistemological problems and raise the following questions: Which were the technical inventions? Which regions of nowadays Europe contributed to technical developments? Which economic/ political sectors produced technical innovations ( agriculture, forestry, architecture, textile industry, the military, manufactures, domestic production)? Who was interested in technical developments ? Was there a transfer of innovations throughout “Europe”? How was it effected? Can we observe contacts between European regions and with the peripheries? Which were the effects of colonialism? How and why were technical innovations supported by whom? Was there an articulated resistance to technical innovations? Bacon advocated a scientific ideal inspired by cooperation in the service of the public weal which, however, did not include “the public” as controlling the technical know how. Was this a Baconian idea or does it indicate the general limitations of his times in regard to restrictions regulating the access to and command of technical and scientific knowledge? Please let us have your title, an abstract (max. 30 lines) and bibliographical information (max. 25 lines) by

November 1, 2005, to one of the following email addresses: Dr. Gisela Engel, G.Engel@em.uni-frankfurt.de, Dr. Nicole C. Karafyllis, karafyllis@em.uni-frankfurt.de, or Dr. Claus Zittel, c.zittel@em.uni-frankfurt.de.

A one-day conference on *the History of Altitude Medicine* will be held at the CHSTM and Wellcome Unit, **University of Manchester**, on 5 December 2005. For further information contact: Jorge Lossio (jorge.lossio@stud.man.ac.uk) or Vanessa Heggie (vheggie@yahoo.com). Provisional programme: <http://www.easst.net/node/503>.

The Canadian Society for History and Philosophy of Science (CSHPS) is holding its annual conference as part of the Congress of the Humanities and Social Sciences (CFHSS) at **York University, Toronto**, Ontario, 29-31 May 2006. The program committee invites historians and philosophers of science, as well as scholars from any field whose work relates to history and philosophy of science, to submit abstracts for individual papers or proposals for sessions. Submissions may be in English or French. Individual paper submissions should consist of a title, a brief abstract of 150-250 words, and complete contact information for the author. Session proposals should consist of a session title, titles and brief abstracts for each paper, and complete contact information for the session organizer. Proposals will be accepted by e-mail only. CSHPS offers a book prize (the Richard Hadden Award) for the best student paper presented at the meeting. E-mail address for submissions: [program.cshps@utoronto.ca](mailto:program.cshps@utoronto.ca) (MSWord or rtf attachment preferred). Deadline for submissions: 1 February 2006. For more information about CSHPS, please consult our website: <http://www.yorku.ca/cshps1/>. Information about Congress registration and accommodation can be found (in due course) at the CFHSS website: <http://www.fedcan.ca/>. Please note that the CSHPS meeting overlaps with the meeting dates of a number of other member societies of the CFHSS, which this year includes the Canadian Historical Association, the Canadian Philosophical Association, the Canadian Science and Technology Historical Association, and the Canadian Society for the History and Philosophy of Mathematics. The CSHPS program committee welcomes suggestions for joint sessions with these and other societies.

*Roads and Walls: Concrete Histories*, a Graduate Research Conference, sponsored by the University of California at **Santa Cruz**, Anthropology Department, will take place on March 3, 2006. Abstracts due November 18, 2005. Roads structure both licit and illicit traffic. Roads are the arteries of empire—and flat, open places for ball games. Roads destroy forests, and they guide personal quests. Roads bring us to the crossroads of science and desire; they offer us vantage points to see the rise and fall of kingdoms, colonies, nations, and empires. Roads run into walls. Walls mark the borders of territories; they guard the privacy of property and women's purity; they make safe and secure spaces. Walls cordon off disciplines and diseases; their barriers are essential to human biology and academic analysis. Roads and walls both offer the charisma of powerful objects—but, more than other objects, they take us into the heart of questions that matter in social and cultural theory today. They are both concrete and abstract designs for power, and for everyday life. They show us where geopolitics and family values are mutually formed. They confront us with the intertwined intimacies of industrial and vernacular design. Using the ability of roads and walls to speak to questions that matter, we propose a graduate student conference on the social histories of roads and walls. We are looking for papers in which concrete histories of particular roads and walls open abstract questions of power and knowledge. We seek papers from every disciplinary and sub-disciplinary perspective; however, the papers should address a core audience of anthropologists. The conference will consider how histories of these strategic objects can enrich social and cultural theory—and our knowledge of the world. If social theory in the 1990s was dominated by questions of global integration, the new century has opened to questions of geo-political hegemony and difference. One advantage of these new questions is that they take us back to ancient empires and their hinterlands as well as to emerging models of the future; they require our attention to religion, hierarchy, and embedded custom, as well as market flows. Social histories of roads and walls offer an exemplary model of the new scholarship that we believe is needed. Alert to both the past and the present, both difference and interconnection, and both the abstract and the concrete, roads and walls show us how the architecture of social life forms and reforms us. We seek provocative,

insightful and historically and materially grounded papers that take up these questions for a one-day symposium at the Department of Anthropology, UC Santa Cruz. Senior scholars from across the nation and across the disciplines will comment upon the papers and convene discussions. Although all papers will be considered, graduate students at the dissertation writing stage are especially encouraged to apply. Please send 250-word abstracts by November 18, 2005 to: roadsandwalls@gmail.com.

The next British Society for the *History of Science Postgraduate Conference* will be held at the School of Historical and Critical Studies, **University of Brighton**, UK, from Wednesday 4 - Friday 6 January 2006. We welcome papers from all postgraduates from both the UK and abroad working in History of Science, Technology and Medicine, and also those working in other disciplines whose research touches on any area of HSTM studies. The deadline for applications, including a 400 word abstract, is Wednesday, 4 November. For further enquiries go to: <http://www.bshts.org.uk>, or [www.lateralsciencenetwork.org.uk/bshts\\_conference.php](http://www.lateralsciencenetwork.org.uk/bshts_conference.php). Contact: Fern Elsdon-Baker, F.Elsdon-Baker@brighton.ac.uk.

The COST A20 Conference, *The Impact of the Internet on the Mass Media in Europe*, is to be held in **Delphi, Greece**, 26-28 April 2006. invites proposals for papers to be presented at its concluding conference, to be held in Delphi, Greece, 26-28 April 2006. The internet represents a challenge to many areas of social life, and the mass media are one of the most problematic areas. Over the last few years there have been predictions of the end of the large scale media corporations, the death of media forms like newspapers, and the deluge of online piracy first in music and now increasingly in audio-visual material. Some of these predictions have been demonstrably wrong, and some have been proved only too true. Distinguishing real developments from wishful thinking and doom-mongering is one of the essential roles that scholarly researchers can play in contemporary society. For the last five years, researchers in twenty two European countries have been working together to understand the impact that the internet has on the practices, the content, the business and the audiences for the press, television and radio. In that time they have

carried out numerous detailed projects looking at particular aspects of all the media. The project is now coming to a conclusion, and one of the aims of this conference is to present the work of network to other researchers. However, we want this to be a two-way process, with us learning from the work that has been going on outside of our own grouping, so we are also inviting scholars to present proposals for papers on any aspect of this issue. The Action has evolved into a structure with four specialisms: in the printed press; in television; in radio; and in cross media issues. We invite abstracts from scholars working on any or all of those areas. Proposals can address online and offline aspects of media production, audience behaviour, content, or business. Proposals should take the form of an abstract of not more than 250 words. They should be sent by email to [cost-a20@wb.st](mailto:cost-a20@wb.st) by 1/10/2005. Successful proposers will be notified by 31/10/2005. The deadline for full papers is 28/2/2006.

*Technology and Rethinking European Borders* is the title of the Second Plenary Conference of the *Tensions of Europe Network*, to be held on May 25-28, 2006, at Lappeenranta University of Technology, South Karelian Institute, **Lappeenranta, Finland**. The event will provide an opportunity for graduate students, post-doctoral scholars, and senior researchers who are interested in the history of technology and the making of modern Europe to meet and exchange ideas, and to participate in the further development of the Tensions of Europe Research Program. The aim is to encourage multidisciplinary and multinational research cooperation in the fields related to the Tensions of Europe research agenda (see [www.histech.nl/tensions](http://www.histech.nl/tensions)). Lappeenranta is located in South Karelia, a region on both sides of the Finnish-Russian border. When Finland joined the European Union in 1995, the eastern border of Finland also became the eastern border of the EU. Therefore, it is appropriate to focus on the role of technology in the process of constructing borders within Europe, and between Europe and other territories. Borders are commonly seen as boundaries created between nation-states, but they also reflect many ways in which people, ideas, identities, and things are classified, brought together, and kept separate. In many aspects, borders have played a crucial role in contemporary European history. Tensions about borders have led to many wars, both hot and cold. Similarly, debates about borders

continue to accompany the process of European integration. Following the Tensions of Europe Intellectual Agenda, the conference will focus on the interplay between technical change and transnational European history. Instead of focusing on national histories, the emphasis will be on the networking, migrations, and travels across borders that have shaped, and are shaping, European history. Within Tensions of Europe, four research areas to develop have been identified in the Intellectual Agenda. These will also be central topics at the conference: Networks and infrastructures; Circulation and localisation of knowledge, skills, and people; Cooperation and competition between European nations and the world beyond the European continent, including colonies, the USA, and the USSR; Reworking of consumer goods and artefacts for local, regional, national, European, and global use. The conference will host a range of sessions including invited speakers, invited plenary discussions, and invited workshops to encourage research collaboration within the Tensions of Europe Network. In addition, the organizing committee welcomes proposals that address the overall conference theme in the following two formats: Research sessions with three papers based on original research, and an invited commentator. Because the conference encourages debate, appropriate time for discussion should be allocated to the commentators as well as the members of the audience. The papers will be pre-circulated to all conference participants. Conference participants are expected to have read the papers thus presentations should be brief. Roundtable sessions with an open agenda or one paper to start-off the discussion. The sessions will host no more than six discussants including the organizer and the chair. The organizer is responsible for preparing a dialogue paper to stimulate debate, and if relevant, supplementary material. Ideally, the dialogue paper will be a brief piece that poses a number of historical problems and/or questions related to the conference theme that will be addressed in the debate. While the organizer should propose discussants, the program committee may make additional suggestions. The chair may decide either to limit the conversation to invited roundtable discussants or to allow the audience to ask questions and enter the debate. Research sessions will be allotted a minimum time slot of one and a half hours, and roundtable discussions one hour. Papers and roundtable discussion texts must be submitted to the Organizing Committee Chair by March 1, 2006 because they will be distributed to all conference

participants before the conference on a CD and website. The deadline for session and roundtable proposals is September 30, 2005. The session abstracts (maximum 600 words) should be submitted by the organizers together with the abstracts for the individual presentations (maximum 500 words each). To propose a roundtable, please submit a list of invited participants and an abstract (maximum 600 words). When giving the proposal a digital file name, please include the organizer's last name, and either RS for research session or RT for round table. The abstracts should be sent to the program committee by email to TOE2006@lut.fi. The Organizing Committee will inform the session organizers about their decisions no later than November 15. Tensions of Europe is seeking travel funding for those who have no opportunity to participate otherwise. More information will be available at the conference website [www.lut.fi/eki/TOE2006](http://www.lut.fi/eki/TOE2006) by November 15. The Organizing Committee for the Second Plenary Conference of Tensions of Europe in Finland, Karl-Erik Michelsen, South Karelian Institute (Chair); Lars Heide, Copenhagen Business School; Stefan Kaufmann, Swiss Federal Institute of Technology; Donna Mehos, Eindhoven University of Technology; and Eva Vamos, Hungarian Museum for Science and Technology.

*Medicalisation of Spaces, Spaces of Medicalisation: New Debates in the History of Medicine and Science* is the title of the conference to take place at the **University of Kent, Canterbury** on the 12th of November. The conference aims to address spaces of medicine and science: geographic, physical, imagined or other. Much scholarship has been devoted to how medical and scientific practices were carried out in the past, but seldom is the significance of the actual places where these practices occurred considered. We know little about how the structures were expected to be arranged to facilitate a specific working environment and, indeed, how the working environment influenced medical or scientific practice. There have, nonetheless, always been specific structures, places within structures or geographical locations that were selected as most suitable for particular applications, conducting experiments or practicing medicine, for example. The chosen area for these spaces was most likely originally organised in accordance with local traditions. Though why is it important to know how these areas were arranged? Spaces can be

both physical and imagined, and yet significant to the understanding of the history of medicine and science through time. For example, the physical environment of a hospital could dictate the level/type of care provided, equally the setting itself could influence the actual practice of medicine. Moreover, by following how the chosen setting adapts and develops, something of the social, cultural and philosophical influence upon medicine and science can be discerned. Thus, there are context-specific relationships between built spaces and scientific practices, and those spaces are central in the reproduction of particular skills and bodies of knowledge and the type of knowledge, which emerged. Each medical/scientific philosophy will be a determining factor in, and be determined by, the spatial arrangement. Since there are different philosophical ideas in science and medicine, and equally within the fields within them, it is interesting to consider how these might have influenced the arrangement of spaces and conversely how spaces influenced philosophies of medicine and science. By understanding how different societies in the past visualised their spatial arrangements we can learn something about how they thought and how social and symbolic relations were maintained. Fortunately, information about spatial organisations can be found in the literary, pictorial and archaeological record. Papers addressing the use and significance of space can be considered to learn more about perceptions of medicine and science in the past. We invite papers focusing on □spaces□ in the history of medicine and science to facilitate an interdisciplinary discussion between scholars in diverse fields and we warmly welcome abstracts from postgraduates and scholars working in areas such as Anthropology, Archaeology, History and Sociology, although this is by no means exclusive. By remaining intentionally broad, we aim to facilitate discussions to consider the role, influence and importance of the physical, geographic and bodily settings in which medicine and science has been conducted. Please contact Dr. Patty Baker (P.A.Baker-3@kent.ac.uk) and Tal Bolton (tb40@kent.ac.uk) for further information. Abstracts should either be sent to Patty Baker at the School of European Culture and Languages, Cornwallis NW, University of Kent, Canterbury CT2 7NF or Tal Bolton at the School of History, Rutherford College, University of Kent, Canterbury CT2 7NX.

*Uses of History?* Rethinking technological heritage is a session-track in the forthcoming international conference, *Innovation Pressure: Rethinking Competitiveness, Policy and the Society in a Globalised Economy*, to be held 15-17th March 2006, in **Tampere, Finland** (ProACT research program). The Organizers are Jaakko Suominen and Petri Paju, University of Turku, Finland. Technological history is present as mental and material cultural heritage. This heritage is represented in academic studies of history. It is also represented as more popular stories and anecdotes and as recollecting inventions and development work as well as inventors and innovations. Furthermore, collections in museums of technology, reused industrial estates, restored old apparatuses and technological monuments are part of the heritage. This heritage is significant for our understanding of who we are and where we stand. We do not, however, always agree on what is most important to preserve or to study, how to teach history of technology and how to utilize the heritage, or how to proceed in all these areas. In sum, we have pluralistic and dynamic relations with our technological cultural heritage. The session-track "Uses of History?" raises several questions like the following within technology and innovations: How (studies of) history of technology can be used by other academic scholars, schools, professionals of technology, policymakers or by the public? How can history of technology be represented in museums and in exhibitions? What are the challenges in commercialising history of technology as consumer products and commodities? These are some of many different ways of making use of the technological heritage. The uses of cultural heritage can be analysed with the concept "cultures of history". As a theoretical term, cultures of history covers a variety of ideas, meanings, practices and products of making history present in contemporary culture. The concept refers not only to academic studies of history but also to representations and products dealing with history such as historical digital games, non-fiction as well as fiction books, TV-programmes, web services, historical sites and monuments etc. Also, it includes retrospective interpretations such as autobiography, memoirs and stories on history. Contributions to the session-track can be based on case studies. They can also challenge the whole idea of using history. Presentations can, as well, be more theoretical or general overviews of cultures of history. Abstract deadline for the session is 15th of October 2005. Send queries and abstracts directly to the session

organizers by e-mail: jaakko.suominen@utu.fi or petri.paju@utu.fi. Instructions and more information about the conference can be found <http://www.proact2006.fi/>.

*Crime, Justice and Surveillance: A Two-Day International Conference* is to be held at the Centre for Criminological Research, **University of Sheffield**, 5-6 April 2006. In the last decade, the UK has seen an unprecedented deployment of surveillance technologies in the name of crime control: drug testing, electronic monitoring, DNA testing video monitoring and CCTV. This conference seeks to explore the British experience against developments in Europe and North America from criminological and multi-disciplinary perspectives. See [www.shef.ac.uk/ccr/publicity/conference/06/](http://www.shef.ac.uk/ccr/publicity/conference/06/).

The *International Society for the History of Philosophy of Science* (HOPOS) will hold its sixth international congress in **Paris, France**, in cooperation with the Société de Philosophie des Sciences (SPS) on June 14-18, 2006 at the École normale supérieure, Paris. The conference languages are English and French. The Congress invites contributions to the history of philosophy of science from all time periods and from all scholarly approaches. The International Society for the History of Philosophy of Science (HOPOS) is an international society of scholars with special interest in research on the history of philosophy of science and related topics in the history of natural and social sciences, logic, philosophy, and mathematics. This shared interest includes all historical periods, geographical regions, and diverse methodologies. The activities promote historical work in a variety of ways, including the sponsorship of meetings and conference sessions, the publication of books and special issues of journals, maintaining an e-mail discussion group, and the dissemination of information about libraries, archives and collections, and bibliographic information. For further information, please go to <http://www.umkc.edu/scistud/hopos>. The Société de philosophie des sciences (SPS) was founded in Paris in 2003, following broad consultations among French-speaking philosophers of science and logicians. Its purpose is to promote philosophy of science. While its geographic and linguistic anchoring is French, it aims at an international constituency, hoping to attract colleagues from everywhere. The focal discipline

is philosophy of science, with a privileged connection to other areas in philosophy, but historical and other approaches of science are taken in, and the contribution of the sciences themselves is deemed essential. Finally, although academic research constitutes the core of its activities, the Society hopes to attract professionals from other areas, such as secondary school teachers, journalists and other media specialists, science museum personnel, industrial researchers and engineers, and workers in the medical and legal professions. For further information, please go to <http://www.sps.ens.fr>. Further information will be provided on the HOPOS 2006 conference website, at <http://www.sps.ens.fr/activites/hopos2006/indexh opos.html>.

If you have questions, contact Anastasios Brenner ([anastasios.brenner@wanadoo.fr](mailto:anastasios.brenner@wanadoo.fr)) or Marthe Tournou ([tournou@paris7.jussieu.fr](mailto:tournou@paris7.jussieu.fr)); please refer to "HOPOS 2006" in your mail.

*Locating Engineers: Education, Knowledge, Desire*, the workshop organized by the International Network for Engineering Studies (INES) is to be held at Virginia Tech, **Blacksburg, Virginia, USA**, on September 10-13, 2006. The deadline for manuscript proposals is December 1, 2005. See the INES workshop website: [www.inesworkshop.sts.vt.edu](http://www.inesworkshop.sts.vt.edu). Reform in engineering education has become an object of intense interest and desire in countries throughout the world. What is at stake in the contents of education for engineers, and for whom? This first workshop of the International Network for Engineering Studies (INES), sponsored by the U.S. National Science Foundation and Virginia Tech, will bring together researchers on the history, social and cultural studies, and philosophy of engineering education to address these questions by placing them in wider historical and cultural contexts. How have the social, political, and epistemological issues involved in locating engineers varied across space and time? What have been key struggles in different countries? What have been the implications of outcomes in engineering education for emerging national

identities as well as transnational projects ranging from industrial capitalism to globalization? What have been the implications of engineering education for emerging sciences and technologies? What relations have emerged between what counts as engineering and who counts as engineers? This three-day workshop will employ a unique format of focused discussion around 16-18 previously-drafted papers in order both to bring together researchers working on these topics in different countries and to identify critical issues and opportunities for further research. The workshop will provide travel subsidies and defray local expenses for participants contributing manuscripts. The NSF award includes travel and local expenses for up to four Ph.D. students from other U.S. institutions, including students who are not contributing manuscripts but would otherwise benefit from attending, and with special encouragement to students from underrepresented minorities. Plans for dissemination include a coordinated set of publications in 3-4 journals, web-based video/audio streaming and transcripts to inform scholars not able to participate, and an edited book collection. See the workshop website for more detailed information: [www.inesworkshop.sts.vt.edu](http://www.inesworkshop.sts.vt.edu). The International Network for Engineering Studies was born in August 2004 in Paris, France, and currently has more than 160 members. The organization has three purposes: (a) to advance research in historical, social, cultural, and philosophical studies of engineers and engineering; (b) to build a visible international community of researchers interested in engineering studies; and (c) to draw upon research in engineering studies to contribute to public discussions and debates about engineering education and policy. INES expects to hold a second workshop in Taiwan in Fall 2007 around the topic of engineers and the workplace and a third workshop in Portugal in Fall 2008 (prior to SHOT 2008) around the topic of engineers and technology. INES members also work collaboratively within and between existing professional societies to advance work in engineering studies.

# Opportunities Available

The new Faculty of Business, Public Administration and Technology, and the (Research) Institute of Governance Studies, both at the University of Twente (the Netherlands) have given priority to finding a successor to the chair of Philosophy of Science and Technology, the present incumbent of which, Arie Rip, will retire in June 2006. This priority is related to the mission of the university and the opportunities of bridging the technical and the societal faculties in the university. The entrepreneurial university seeks candidates for the Chair of Foundations of Science, Technology and Society. The Chair of Foundations of Science, Technology and Society in the Faculty of Business, Public Administration and Technology is located in the interdisciplinary capacity group STeHPS, Science, Technology, Health and Policy Studies. STeHPS research is internationally prominent, particularly in science and technology studies and science and technology policy studies and technology assessment. In addition to contributing to the teaching for the Bachelor and Master degree courses in the Faculty of Business, Public Administration and Technology, STeHPS staff teach various courses for the technical Faculties. The profile of the Chair has a focus on meso- and macro-level studies of science, technology and society. In particular, teaching and research in the overlapping areas of new modes of knowledge production, science policy, technology and innovation policy, and technology assessment. As incumbent of the Chair, you will be responsible for research and teaching in these areas, and their further development and renewal. This includes guiding and supervision of staff, as well as PhD students and Master's students. You are expected to contribute to the teaching tasks of STeHPS more generally, and be active in developing new teaching and training modules. Acquisition and supervision of externally funded research projects (grants and contracts) is an important part of the job. You will have a record of excellent research, visible in international scientific publications as well as other scientific activities. You are part of international networks, and able to draw on them to maintain and extend international contacts and collaborations. You will have experience with, and interest in, teaching at introductory and advanced levels. You are able to work at the frontiers of knowledge, lead and guide highly qualified staff

with different disciplinary backgrounds, and bridge the gap between social sciences and technical sciences. You are competent in acquisition, supervision and execution of externally funded research. You have demonstrable management skills. We offer a stimulating environment, with a record of exciting research and innovative teaching. Your salary is € 8,006 (max) per month. For further information about the Chair and about STeHPS, please contact Professor Arie Rip, the present incumbent of the Chair. (a.rip@utwente.nl, tel [+31] 53 489 3345). Applications, together with a CV and list of publications, can be sent to the Dean BBT, Prof. Dr. P.J.J.M. van Loon, University of Twente, PO Box 217, 7500 AE Enschede, referring to vacature # 1618/05/094. The deadline is 17 October 2005.

The Amsterdam School of Communications Research (ASCoR) of the University of Amsterdam has a Ph.D. vacancy in the project entitled, "Scientific Communication and Knowledge-based Innovations." See <http://www2.fmg.uva.nl/ascor/vac1.html>. We envisage focusing on knowledge-based innovations like the introduction of new drugs or the development of vaccines. At the interface between communication studies and STS (science & technology studies) relevant questions can be raised about the codification of communication in different domains. Quality control in science, for example, requires peer review by competent colleagues; the originality of inventions as disclosed in patent applications is controlled by a legal system to the extent that the patents have to be upheld when litigated in court. At the interfaces with the public (e.g., in newspapers) scientific novelty can be absorbed using other symbolically generalized media of communication (e.g., moral concerns, purchasing power). The availability of on-line resources makes it possible to map the relevant knowledge domains in terms of co-occurrences of words and citations. Mappings can show the various contexts of codification over time and/or across contexts at specific moments of time. The networks are constructed in terms of *relations* among words, but the words are *positioned* in the maps. The maps can thus function as representations of semantic fields. These next-order structures can be compared in terms of

their degree of codification. In this project, we would like to extend this approach with a dynamic and evolutionary perspective. During the last few years, we have automated the harvesting of large databases from on-line resources (like on-line editions of journals, newspapers, and patents), the mapping of these domains in terms of representations of semantic fields, the statistical analysis, and the visualization. For example, one can use the vector-space model. Additionally, the knowledge bases of these domains can be traced by using the words and co-words in the references. One can also envisage approaching the theme by using simulations. The dynamics of meaning across domains can be studied in relation to the institutional roles of academia, industry, and government agencies as carriers of these processes of science communication. Representatives of the agencies could be sent questionnaires or interviewed for validation purposes. The purpose is to refine the specification of how meaning is processed and codified, while at the same time developing new methodologies. The Ph.D. student has considerable leeway to further develop the theme in accordance with his/her theoretical interests. There will be close supervision of the candidate by the project leader Dr. Loet Leydesdorff (<http://www.leydesdorff.net/>). Furthermore, the project will be part of the ASCoR research program, and the candidate can therefore participate in ASCoR's Ph.D. training program in Communication Science. The candidate may also participate in classes offered by the Netherlands Graduate School of Science, Technology, and Modern Culture (WTMC). The project duration is for a maximum of 4 years full-time, and the candidate is expected to complete a dissertation within this time limit. The candidate will qualify for a grant from the University of Amsterdam. Currently, this grant is € 1895,- per month. The start of the project is negotiable, but should preferably be no later than January 1, 2006. Candidates for this vacancy should: have a Masters' degree in Science & Technology Studies, Communication Studies or another discipline relevant to the project; be motivated to pursue a Ph.D. and a scientific career; have a good knowledge of statistical techniques, and preferably have some computer programming skills; have a good command of English; be willing to reside in the Netherlands during the relevant period. More information about this vacancy can be obtained from the project leader Dr. Loet Leydesdorff. Email: [loet@leydesdorff.net](mailto:loet@leydesdorff.net). More information about

the ASCoR Ph.D. program can be obtained from the ASCoR website ([www.fmg.uva.nl/ascor](http://www.fmg.uva.nl/ascor)) or the ASCoR secretariate: [ascor-secr@uva.nl](mailto:ascor-secr@uva.nl). The application deadline is *October 15, 2005*. Applications should be accompanied by: a CV; lists of classes attended and grades obtained; a research proposal relating to the project description given above (max. 3,000 words). Application letters can be sent to: Dr. Sandra Zwier, ASCoR Research Manager, Kloveniersburgwal 48, 1012 CX Amsterdam, Netherlands. Applications can also be submitted via an email attachment to the email address: [s.m.zwier@uva.nl](mailto:s.m.zwier@uva.nl).

The Department of Science and Technology Studies, UCL, seeks to appoint a UCL Teacher to co-teach an undergraduate course in science communication. The person will contribute one-half the work for a first-year undergraduate course: HPSC B117 "Introduction to Science Communication". The course takes a social-theoretical and historical approach to science communication, using contemporary and historical examples and case studies. Topics of particular relevance include science activism, the political context for science communication, science fiction, and the history of 'public understanding of science.' The lecturer appointed will work closely with Dr Jane Gregory, the other course tutor. The work consists of five weeks of lectures (5 hours) and tutorials (10 hours), to a prescribed schedule during the spring term 2006. The lecturer will also supervise approximately 12 student projects, mark coursework during the term, and contribute to setting and marking an exam in May/June 2006. The previous syllabus and provisional timetable are published on-line via [www.ucl.ac.uk/sts/bsc](http://www.ucl.ac.uk/sts/bsc). Candidates should have a PhD, or be close to submitting, in a related field; and some experience in a professional science-communication context. They should have at least two years' experience of teaching that involved developing lecture materials and leading tutorials; and show the range of interests and skills necessary to supervise student projects. This position amounts to five percent of a staff post and will be paid pro rated on UCL's Lecturer A scale. Candidates should send a CV, names of two referees who can speak to the candidate's teaching experience, and a brief proposal on how the 2004-2005 syllabus can be implemented or refined. These must be received by 20 October 2005. Send materials to Dr Joe Cain, Department of Science and Technology

Studies, University College London, Gower Street, London, WC1E 6BT, UK, j.cain@ucl.uk.

The Ethox Centre at the Department of Health, **University of Oxford** ([www.ethox.org.uk](http://www.ethox.org.uk)), is seeking a social scientist, skilled in qualitative research methods, to join its innovative multidisciplinary bioethics research team. The person appointed will join the Ethox Centre's rapidly expanding Genetics and Society Research Programme and contribute to the growing range of multidisciplinary research conducted at the Centre. This three-year research position is focussed on the growing number of genetic databases, asking questions about how they can be appropriately managed and regulated. The 'Governance of Genetic Databases' is a multi-disciplinary project funded by the Wellcome Trust's Biomedical Ethics Unit, bringing together legal scholarship, social science and ethics. The social scientist will be expected to use semi-structured interviews to gather data on the views and practices of biomedical scientists and clinicians who use genetic databases. They will work closely with the researcher in law to integrate this empirical research with a legal analysis, in order to develop recommendations for the governance of human genetic databases in England and Wales. This position is an opportunity to become an active member of the Ethox Centre's innovative research team. In addition to conducting high profile multidisciplinary research, staff at the Centre offer education, training and support in bioethics. The Centre has strong national and international research links and enjoys a regular flow of high calibre international researchers. The Centre's Director is Professor Michael Parker. Please direct any informal enquiries about this post to Professor Parker on (01865) 226849 or [michael.parker@ethox.ox.ac.uk](mailto:michael.parker@ethox.ox.ac.uk). Further written information, which will contain details of the application procedure, may be obtained from Stacey Bell (01865) 227091 (24 hour answering machine) or email: [personnel@dphpc.ox.ac.uk](mailto:personnel@dphpc.ox.ac.uk). Please be sure to quote the appropriate reference in all enquiries, "Researcher in Social Sciences (Ref BY05024)." The salary scale is RS1A: £19460 - £24,820 p.a. Closing date for applications is Friday 7th October 2005. Interviews will be held in the week beginning the 17th October 2005.

The Department of Physical Chemistry, **University of Sofia**, has a temporary position

available for 12 months, starting 01/01/2006 for an Early Stage Researcher (up to 4 years of experience). This offer is not valid for permanent residents of Bulgaria. The position's responsibility is scientific research under the Marie Curie Project 'Self-Organisation under Confinement' (MRTN-CT-2004-512331, SOCON). See <http://mc-opportunities.cordis.lu/> Qualifications: Master degree (MSc) in Chemistry, Chemical Engineering or Physics; experience and/or interests in Surface and Colloid Science; adequate knowledge of English language. The focus of the studies will be on the dynamic properties of microscopic foam films from aqueous solutions of surfactants and/or surfactant-polymer mixture. The classical Scheludko micro-interferometric method for dynamic studies of thin liquid films will be employed in principle, together with image analysis and other appropriate experimental techniques. The aim of the studies is the understanding of the links between the characteristics of the surface layers, and the film thinning and stability. Adequate knowledge of English is required. To apply: Application, including a motivation letter, CV with a list of publications, recommendation letters, should be addressed to Prof. Emil Manev, Department of Physical Chemistry, University of Sofia, 1 James Bourchier Blvd, 1164 Sofia, Bulgaria. Contact: Tel. (+359 2) 8161 256; Fax: (+359 2) 9625 438. Deadline: 01/12/2005.

The British Society for the History of Science invites entries for the 2005 Slade Prize. The Slade Prize of 300 is awarded biennially to the writer of an essay (published or unpublished) that makes the best critical study of an episode in the history of science focused on conceptual innovation or scientific methodology. Entry is open to people of any age or nationality. The Prize may be awarded to the writer of one outstanding essay, or may be divided between two or more entrants. The Prize(s) will be presented at a BSHS meeting. Any winning essay(s) not yet placed with a publisher will be considered for publication in the *British Journal for the History of Science* at the discretion of the Editor. The winner of the 2003 prize was, Sandro Caparrini, University of Torino for an essay on 'Early theories of vectors'. There is no age limit. Entry is not limited to BSHS members or UK citizens. Entries should be in English, and should have been published or written in the two years prior to 15 December 2005. Essays should not exceed 10,000 words in length (excluding

footnotes) and must be accompanied by an abstract of 500 words. Entries without an abstract will not be considered. Three copies of the essay and abstract should be sent to arrive not later than 15 December 2005. Essays should not bear any reference to the author, either by name or department. Submissions by email will not be accepted. Entries should be sent to the BSHS Secretary, Dr Sally Horrocks, School of Historical Studies, University of Leicester, Leicester, LE1 7RH. Tel: + 44 116 252 5070 Fax: +44 116 252 5081. Enquiries by email ([smh4@le.ac.uk](mailto:smh4@le.ac.uk)) are welcome. Sally M. Horrocks, School of Historical Studies, University of Leicester, Leicester, LE1 7RH, UK. Tel. 0116 252 5070/ 2803, fax. 0116 252 5081, email [smh4@le.ac.uk](mailto:smh4@le.ac.uk), <http://www.le.ac.uk/history/people/smh4.html>.

There are positions available with the ACTION for Health project: an international and multi-disciplinary study based in Vancouver, Canada, which explores the social aspects of information technology in the health sector within Canada and abroad. Our research is undertaken with the goal of encouraging positive change in health system policy and practices. Visit the ACTION for Health Website: [www.sfu.ca/act4hlth](http://www.sfu.ca/act4hlth). Address further information queries to Alison Robb, ACTION for Health, Simon Fraser University, Great Northern Way Campus, 555 Great Northern Way, Vancouver, BC, Canada V5T 1E2, tel 1.604.268.7308, [actcmns1@sfu.ca](mailto:actcmns1@sfu.ca).

The Max Planck Institute for the History of Science, Berlin announces the position of Head of Junior Research Group for the term from March 1, 2006 to February 28, 2011. The position is ranked at the W2 level in the German system, which roughly corresponds to that of associate professor in U.S. system. The announcement addresses scholars planning a research project in history of science who have completed their Ph.D. no earlier than February 2001. Besides the Institute's research infrastructure, funds for the employment of one research fellow or for the invitation of visiting scholars and for office assistance will be provided. Scholars of all nationalities are welcome to apply; applications from women are especially welcomed. The Max Planck Society is committed to employing more handicapped individuals and especially encourages them to apply. Candidates are requested to submit a curriculum vitae (including list of publications), a research proposal (750 words maximum), and three letters of recommendation by October 15, 2005 to: Max-Planck-Institut für Wissenschaftsgeschichte, Abt. Personal / NWG, Wilhelmstraße 44, 10117 Berlin, Germany. For questions concerning the Max Planck Institute and the role of the junior research groups please contact the research coordinator Mr. Jochen Schneider ([jsr@mpiwg-berlin.mpg.de](mailto:jsr@mpiwg-berlin.mpg.de)).

## News from the Field

*New STS online-Journal launched.* Three German colleagues have launched an open access online journal. The first issue of "Science, Technology & Innovation Studies" appeared in July 2005. The complete issue or single articles can be downloaded free of charge from the STI Studies website at <http://www.sti-studies.de>. In the editorial of the first issue the editors briefly sketch the aim of this journal and invite article submissions.

*Editorial:* It is customary launching new journals by claiming to focus on a new sub-disciplinary domain or to introduce a new approach to the analysis of a familiar field. With this journal we start a less ambitious but nonetheless innovative

enterprise. Science Technology & Innovation Studies (STI Studies) is the first internationally oriented journal for the German speaking STI community and the colleagues working in European or international research and higher education organizations located in this area. It will fill the gap which has evolved after the "Jahrbuch Technik und Gesellschaft" ceased to appear once the tenth volume had been published in 1999. As the working language of STI Studies is English the journal will also help increase the visibility of theoretical discussions and research projects which emerge in the German speaking environment. The journal seeks analytical, theoretical and methodological articles that focus on the creation and use of scientific knowledge

and its relation to society, on the development of technology and its social impact and control, and on innovation in industry and in the public sector. STI Studies is a conventional scholarly journal as regards high quality standards and anonymous peer review. We invite and encourage paper submissions which are addressed to an international audience. Our ambition is to establish a reputation which attracts a worldwide readership. We hope that the – still somewhat unconventional – option to try and reach the readership via a free online journal will turn out to be the best way. STI Studies will be published bi-annually including special issues edited by guest editors. We invite all colleagues to submit manuscripts or proposals for special issues. The success of this journal is contingent on your initiative and support as authors, reviewers and guest-editors. We will be happy to assist and collaborate. Ingo Schulz-Schaeffer, Technical University Berlin; Raymund Werle, Max-Planck-Institute for the Study of Societies, Cologne; Johannes Weyer, University Dortmund.

Contents of STI Studies 1(1) 2005: Peter Wehling, *Social Inequalities Beyond the Modern Nature-Society-Divide? The Cases of Cosmetic Surgery and Predictive Genetic Testin*; Alexander Bogner, *How Experts Draw Boundaries: Dealing with Non-Knowledge and Uncertainty in Prenatal Testing*; Ursula Holtgrewe, *Intellectual Property, Communism and Contextuality: A Non-Essentialist Exploration of German Digital Copyright and the Public Domain*; Ulrich Dolata, *Reflexive Stimulation or Disjointed Incrementalism? Readjustments of National Technology and Innovation Policy*.

The Danish Board of Technology is publishing *The Future of the Patent System*. If you are interested in receiving a copy of the report (free of charge), please send an email to [jas@tekno.dk](mailto:jas@tekno.dk). The objective of the project is to stimulate a broad debate in Europe about the future of the patent system. Existing analyses and debates of the workings of the patent system often take place in a technical language within secluded fields of expertise. The aim of this project is to gather different fields of expertise in an effort to make accessible to lay people some of the discussions and knowledge regarding the patent system. Read more about the project here: [www.tekno.dk/subpage.php3?article=1132&topic=kategori11&language=uk&category=11](http://www.tekno.dk/subpage.php3?article=1132&topic=kategori11&language=uk&category=11). The main website of the Danish Board of Technology

is <http://www.tekno.dk>.

*Science Studies* vol.18, no.1 is out. *Science Studies* is published by the Finnish Society for Science and Technology Studies, a non-profit organisation. For ordering information on *Science Studies* visit our website at <http://pro.tsv.fi/stts/mag/>. The site contains an index of all volumes since 1988. *Science Studies* is also available electronically through EBSCOhost.

The National Maritime Museum in Greenwich, London (UK) is undertaking an important project to enhance access to its archival collections. Over 2 million items, including manuscript letters and journals, prints, drawings, maps, charts and ephemera, record the history of Britain's imperial maritime endeavour over the last 500 years. They offer unique and valuable insights into a range of subject areas, from imperial studies to art history and the history of science and technology. As an academic researcher with an active interest in relevant subjects, the Museum would like to hear your thoughts on how we can develop access to our archival collections to meet your needs. We are very interested in hearing from both people who have used our facilities before, and those who have not. Please follow the link below to find out more about the proposed developments:

<http://www.nmm.ac.uk/briefingnotes>. Once you have read about the proposed developments, please follow the link below to our e-survey which will give you a chance to express your views. The e-survey should only take about 10 minutes to complete and your views will ensure we develop our archive facilities in the best way possible. Survey link: <http://www.nmm.ac.uk/archivesurvey>

Khimiya/Chemistry. Bulgarian Journal of Chemical Education (ISSN 0861-9255) is a peer-reviewed scholarly journal which articles are indexed and abstracted in Chemical Abstracts. This journal is devoted to science/chemistry education, but the papers historically oriented and/or covered the philosophical issues of science/chemistry are much appreciated. The topics covered by the journal are as follow: Education: Theory and Practice; New Approaches; Curriculum Matters; Interdisciplinary; Teaching Efficiency; Teaching Chemical Experiment; Problems; Bulgarian

Educational Tradition; Foreign Educational Tradition; Advanced Chemistry for Teachers; People in Chemistry; History and Philosophy of Chemistry/Science; Chemistry/Science and Society; Book Reviews.

KHIMIYA/CHEMISTRY has two electronic attachments: its web home is at <http://khimiya.org> and a Khimiya E-Mail List at Yahoo, <http://groups.yahoo.com/group/khimiya>

All of you working in areas of genetics and society are invited to enroll in one of the UK's most cutting edge and progressive PhD student networks: The Postgraduate Forum on Genetics and Society. (It's not just for UK postgrads!). See our web-site at: <http://www.pfgs.org/home.htm>. Since its inception in 1998, the Postgraduate Forum on Genetics and Society (or PFGS) has been a free forum run by students for students on a voluntary basis. Not only is the PFGS exciting because of the cooperative links it makes between postgraduate students working in multi and inter-disciplinary fields that intersect with issues of genetics and society (e.g. sociology, psychology, anthropology, science and technology studies, law and philosophy), but it also offers practical support so that you can excel through your doctoral studies. One of the central mechanisms that the PFGS uses in achieving these goals is the two-day annual colloquia held in the UK. Not only do these meetings provide you an opportunity to meet others researching and studying in related areas and working through similar problems, but the colloquia also provide participants the chance to: Rehearse ideas by presenting their work-in-progress; Discuss the research of others in a supportive and constructive environment; Attend research training sessions covering methodologies, policy questions and funding opportunities; and Hear presentations by guest speakers. There are no fees for the annual colloquia as long as you are a member of the PFGS! Accommodation are also SUBSIDIZED (IF NOT FREE), as is travel for those inside the UK, but again, you must be a member of the PFGS. As soon as I found out about the opportunities offered through the PFGS I joined, and we invite you too to join by visiting our web-page at: <http://www.pfgs.org/home.htm>. Registration is simple and free. To join simply contact: [pfgs-admin@nottingham.ac.uk](mailto:pfgs-admin@nottingham.ac.uk) stating which email list(s) you wish to subscribe to (PFGSinfo or PFGSchat) and submit a short (150 words) biography of yourself to [j.j.sung@sussex.ac.uk](mailto:j.j.sung@sussex.ac.uk). More information about this year's colloquia will be soon to come to all

members, and please feel free to forward this to any of your colleagues whom you feel might be interested. For further information, contact Conor M.W. Douglas, tel +44 (0)1904 43 4743, [cd512@york.ac.uk](mailto:cd512@york.ac.uk).

The inaugural issue of Journal of Research Practice (JRP) has been launched in an online open access mode (<http://jrp.icaap.org/>). The journal would focus on the principles and practices of research, as these are evolving in multiple disciplines and professional fields. Fields which have been posing fundamental difficulties to the standard practices of research are of special interest to this journal. JRP seeks to (a) connect research-inclined persons working in different disciplinary, institutional, and practical contexts and (b) through this, extend the practice of research to progressively newer territories. Both these aims are expected to facilitate the wider purposes of promoting research education around the world and innovative forms of research in different socially relevant areas. Supported by a group of institutions: <http://jrp.icaap.org/support.php/iCARE>. Another initiative is the International Consortium for Research Education (iCARE). Kindly visit the basic information about the initiative on the Web, at: <http://www.ximb.ac.in/~dpdash/iCARE.htm>.

The Editorial Board of *Osiris*, a research journal devoted to the history of science and its cultural influences, solicits proposals for Volume 24, to appear in 2009. *Osiris* is a journal of the History of Science Society (USA) published by University of Chicago Press. The *Osiris* Editorial Board will consider proposals for Volume 24 at the HSS annual meeting in November 2005. Proposals for broad themes that integrate issues in the history of science into topics of "mainstream" history are especially encouraged, as are contributors from the historical discipline at large. The Board is also very interested in proposals which assess the "state of the field" in various areas of the history of science. Recent volumes include *Science and Civil Society* (2002), *Science and the City* (2003), *Landscapes of Exposure* (2004), and *Politics and Science in Wartime* (to appear July 2005). Prospective guest editors should submit the following materials for consideration: (1) a proposal of approximately 2000 words describing topic and its relationship to the literature to date including, where appropriate, the literature in mainstream history; (2) a list of 12-15 contributors with the theme,

topic, or title of contribution; and (3) publication c.v. of guest editor(s). Guest editors and their contributors should be prepared to meet to the *Osiris* publication schedule. Guest editors must therefore choose contributors who are able to submit their essays by September 2007. Volume 24 (2009) goes to press--after refereeing, author's revisions, and copy editing--in the fall of 2008. Proposals are reviewed by the *Osiris* Editorial Board. Announcement of the next volume of *Osiris* will be made no later than January 2006. Proposals and all supporting materials should be sent in hard or electronic copy by October 15, 2005 to: osiris@georgetown.edu, or to Kathryn M. Olesko, *Osiris* Editor, BMW Center for German & European Studies, 508 Intercultural Center, Georgetown University, Washington, DC 20057-1022, USA. Preliminary inquiries may be sent to: osiris@georgetown.edu.

The new Journal of Multicultural Discourses (Clevedon) is announced. It is fair to say that existing international scholarly publications on language, discourse and communication have tended to favour the Western world. The philosophies, the concepts, the theories and the methods that are discussed are mostly of Western origin; if and when data from non-Western cultures are analysed, it is usually the Western paradigms that are employed, often without enough attention paid to local, particular contexts, including the concepts, concerns and intellectual traditions of those contexts. As a consequence, ideas, techniques, issues from non-Western communities are marginalised and opportunities for intercultural exchange and genuine scientific innovation missed. In these conditions, the international scholarly discourse remains largely univocal and acultural, though often under the guise of integration, generality and interdisciplinarity. To promote intellectual diversity and to draw attention to marginalized discourse communities, Multilingual Matters, UK, a market-leading publisher in the fields of discourse and cultural studies, has launched a new journal, entitled Journal of Multicultural Discourses (ISSN 1744-7143). Edited by Shi-xu, Professor and Director of the Institute of Discourse and Cultural Studies, Zhejiang University, China, the journal will appear in early 2006. The journal is devoted to scholarship that (1) explores intellectual traditions on language, discourse and communication especially outside dominant paradigms; (2) researches into practices in, as well as concepts about, language and communication in especially

marginalized communities; and/or (3) develops multi-culturalist approaches to language, discourse and communication. More specifically, it publishes articles featuring one or more of the following six types of subject matter: (1) On the form of language studies outside the mainstream: e.g. explorations in the history, philosophy, theory, concepts, methods or principles of the language scholarship of Asia, Africa or Latin America; (2) On cross-fertilisation between culturally different intellectual traditions of language, discourse and communication: e.g. deliberations about how to conduct dialogue between culturally different intellectual traditions and/or how to generate innovative, local-and-global, multicultural approaches to human communication; (3) On problems, issues, concerns of a marginalised discourse community: e.g. study of discourses of domination, prejudice, exclusion, solidarity, co-operation, empowerment or transformation in Asia, Africa, Latin America or minority communities within Western societies; (4) On culturally different versions, accounts and narratives about issues, events or situations of global interest and concern: e.g. critical comparison of culturally varied discourses about terrorism, hegemony, the environment, peace, development or human rights; (5) On the criticism of discourses about one's own culture and about other cultures, groups or communities: e.g. critical study of imperialist or discriminatory discourses about minorities, non-Western cultures or otherwise disadvantaged 'others'; and (6) On the identification, creation or promotion of discourses in favour of cultural harmony and common progress: e.g. description of or proposal for ways of speaking about one's own culture or about other cultures, communities and groups that enhance cultural solidarity and prosperity. The journal features divergent disciplines, ranging from linguistics, discourse studies, communication studies, cultural studies, anthropology, literary criticism, philosophy, religion to pedagogy. The Editor encourages the submission of high quality papers on topics relevant to the interest of the Journal of Multicultural Discourses. Reviews of important, up-to-date, relevant publications and proposals for special issues on relevant topics are also welcome. Manuscripts should be presented according to the 'guidelines for authors' that can be found at [www.multilingual-matters.com](http://www.multilingual-matters.com) and they should be sent to: Professor Shi-xu, Director, Institute of Discourse and Cultural Studies, Zhejiang University, 388 Yuhangtang Road, 310058 Hangzhou, China,

www.shixu.com, Tel: +86(0)571.88206208, Fax:  
+86(0)571.85029729, Email:  
submissions@multilingual-matters.com (with a  
note 'for JMD') and xshi@zju.edu.cn (also for  
preliminary enquiries).

The journal, *the Public Understanding of Science* (<http://pus.sagepub.com>) is inviting papers on "Publics and Science: New Understandings". In the last decade, there has been considerable attention paid to publics and their views on and understandings of science. A major starting point was the challenge to traditional views of "the public", how they came about their understandings, and the social constructions of "science". This debate has been labeled as the deficit model versus a more interactive view of

publics and science. We have made important strides since these early discussions and it is timely that we attempt to synthesize where this field has gone since those early years. The journal is inviting essays and research studies that demonstrate new theoretical directions, policy considerations or practical perspectives that will illustrate how our thinking has evolved in these three domains. A special issue will be devoted to the topic. Questions about potential submissions will be entertained. Please send your manuscripts (6,000 words for research notes, 10,000 words for theoretical essays and empirical studies) in APA style by January 15, 2006 to [pscience@ucalgary.ca](mailto:pscience@ucalgary.ca).

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