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frontpage illustration:

Thirteen pairs of DNA samples 'unzipped'. Left the evidence sample, middle suspect A, right suspect B. US National Institute of Standards and Technology

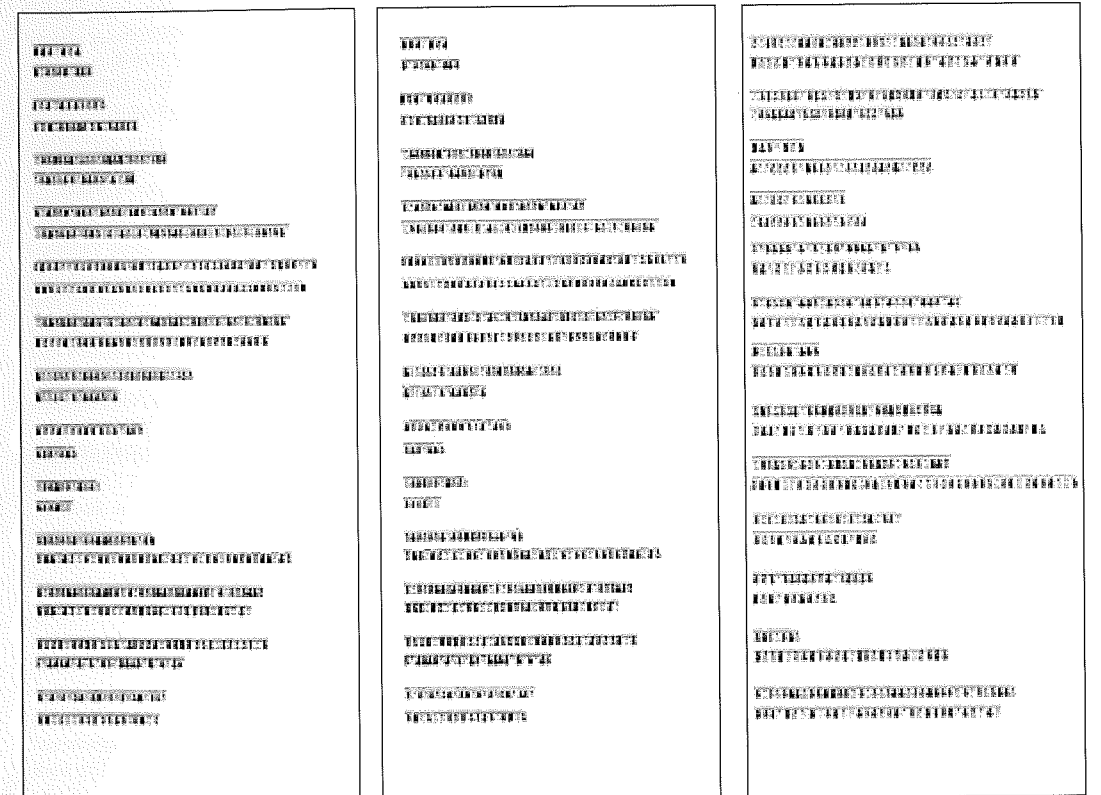
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Does interdisciplinarity really exist?

by Chunglin Kwa

**Review of *Practising Interdisciplinarity*, edited
by Peter Weingart and Nico Stehr, Toronto:
University of Toronto Press, 2000, xvi + 294 pp.**

Does interdisciplinarity really exist? As a
discourse, yes, but hardly or not at all in practice,
according to the authors in this volume of papers.
An outspoken polemical position is taken by Peter
Weingart, the initiator of two conferences out of
which this volume grew, and which were held at
the University of Bielefeld's Center for
Interdisciplinary Research. Weingart takes a
puzzled look at the enormous literature on
interdisciplinarity which, according to him,
mostly proclaims its moral desirability. The few
studies that look at the functioning of
interdisciplinary research, such as the 1985 OECD
study *Interdisciplinarity revisited*, find few
supporting instances which really work. Weingart
passes a similar judgement on the idea of 'Mode 2
knowledge production', proposed by Michael
Gibbons and others, and which gained wide
currency since it was proposed in 1994. The
concept of Mode 2 knowledge focuses on the
institutional side of knowledge production, and
claims to see a tendency away from the
universities and the academic disciplines.
Weingart suggests that Mode 2 knowledge is old
wine in new bottles, and that it falls prey to the
same difficulties threatening the notion of
interdisciplinarity. How is it possible, asks
Weingart? This question can be seen as central to
the book as a whole. How, 'in the face of all
available evidence to the contrary, and very little
reason for hope, [can] the discourse on
interdisciplinarity persist?' (p. 26) Academic
specialization is an ongoing process, and it is
unhindered by the discourse on
interdisciplinarity, perhaps even reinforced by it.
In the many cases where interdisciplinary research
programmes are given priority by science
bureaucrats, 'virtually nothing is known about
their contributions to knowledge and the quality
of life', writes Edward Hackett in his contribution
on the interdisciplinary programs of the US

National Science Foundation (p. 259).

the mapping of disciplines on scientific problems
Let's look, first, at some of the claims of
interdisciplinarity. One involves the idea of maps,
on which the old academic disciplines stand as
solidified nations, while interdisciplinarity is
about crossing borders, trading zones and the
permeability of boundaries. The metaphor of
hybridization evokes a similar phenomenon, that
of the blurring of boundaries between species
(disciplines) with a separate genetic make-up.
Ever since the conception of interdisciplinary,
protagonists have argued that interdisciplinary
research maps better on scientific problems as
they impose themselves than the old disciplines.
Julia Thompson Klein notes in her contribution a
striking resemblance between interdisciplinarity
and postmodernist notions of hybridization of
cultural categories and identities (p. 22).

Two major points can be raised against this
claim of interdisciplinarity. The first is
theoretical/epistemological, the other is of an
empirical nature. The metaphor of maps involves
the idea that interdisciplinary research somehow
better fits with real problems in science. The map
of science should be redrawn, and we should get
rid of the old disciplinary structures. This,
according to Weingart, involves a mistaken realist
presupposition of a real world with real
(interdisciplinary) problems out there. Any new
interdisciplinary structure is as much a social
construction as the old disciplines, along with the
scientific problems that it is supposed to address.
When all is said and done, the only achievement
of the notion of interdisciplinarity is to stress
innovation. Of course, innovation is part and
parcel of science anyway, but interdisciplinarity
would stress it more.

the insurpassable disciplines

The second point against any overstatement with
regard to interdisciplinarity concerns the
continuing importance of the academic disciplines
for the organization of science. Scientific research

fields, so the argument of Stephen Turner goes, will want to control a steady influx of new practitioners, and they do so by controlling the student's market. The very definition of a discipline involves a system of academic learning and teaching, mostly supervised by the university departments, the disciplines' organizational representatives. Nowhere is Turner implying that disciplines are the 'natural' way of organizing knowledge at the universities. Instead, he emphasizes the contingency in their coming into to being, illustrated by the historical case of sociology. But once established, the disciplines are self-perpetuating.

Interdisciplinary endeavours are usually organized in centers and institutes, as Turner notes. But even if an interdisciplinary department would be in existence at a particular university, it would be still different from the disciplinary departments of, for instance, physics and sociology. The point is that most universities have departments of physics and sociology. Turner argues that disciplines 'are cartels that organize markets for the production and employments of students by excluding those job-seekers who are not products of the cartel' (p. 51). Students who enroll in an interdisciplinary department, with no identifiable sister departments at other universities, run a considerable risk when they want to pursue an academic career. A similar point is made by Wilhelm Krull, who remarks that especially in the discipline-oriented specialization at German universities (and for that matter in many European universities), prevents highly talented young researchers who have engaged in an interdisciplinary project from 'getting back into the system' (p. 269). Krull implies a tension between universities on the one hand, and funding organizations on the other hand, a point to which I will come back below.

mission-oriented research

Among the claims of interdisciplinarity is that it is much better geared to the current importance of strategic research or mission-oriented research. Not knowledge for knowledge sake, but knowledge production steered by societal stakeholders, or by the market. Will the imposition of practical 'non-scientific' goals on science lead to a science of a different nature? The idea of Mode 2 knowledge production, with its close interaction between scientific, technological and industrial research in permanently shifting research environments implies just this.

Knowledge is generated *within* its context of application, and this would be increasingly true for university science, too. But, according to Weingart, this is a false argument. No matter to what extent practical problem areas are imposed on science, the social (sub)system of science must and will apply its methods of validation. The world of science is functionally differentiated from the rest of society and, therefore, science will continue to absorb new contexts of knowledge production within its own social structure. This is an *a priori* argument and Weingart knows it, but failing to see evidence of the contrary he warns not to take the rhetoric of interdisciplinarity at face value.

the changing order of knowledge

The only claim of interdisciplinarity that seems to survive Weingart's scrutiny is the idea of the order of knowledge. Both Klein and Weingart in their respective contributions compare the call for interdisciplinarity as it came to the fore at the end of the 1960s with the Unity of Science movement of the 1930s and 1940s, which was influential if not prevalent through the 1960s. The latter view was reductionist. It had physics at the top of the hierarchy of the sciences. Weingart concedes that gone is the hierarchical notion of reductionism in the sciences, and that this makes for a different intellectual relationship between the sciences. It is now much easier to borrow ideas and methods across disciplinary boundaries, even if the disciplinary boundaries themselves would remain intact.

I believe that Weingart hits the nail on the head, but that he makes too little of it. The implications of 'conceptual interdisciplinarity' are more important than he is willing to admit. One important consequence of the reductionist vision was the 'physics envy' of the other sciences. From chemistry to sociology and psychology, sciences tried to mimic physics by adopting among other things its deductive structure. From a conceptual point of view, this view reinforced the sciences' disciplinary structure, as each science had its own first principles which differentiated it from all the other sciences. The relinquishment of this view leaves many sciences undefended, physics in the first place.

To take one example of an interdisciplinary research field, which is mentioned by Weingart, too: climate research. Climate research is huge nowadays, with two major international research programmes currently underway: the World

Climate Research Programme, led by the World Meteorological Organization, and the International Geosphere-Biosphere Programme, under the nominal supervision of the International Council of Scientific Unions, the latter the mouthpiece of 'pure science'. Central to both programmes are the famous and infamous General Circulation Models, which predict global warming. Now physicists of the older reductionist type, Frederick Seitz being a vocal case in point, do not respect the General Circulation Models. They loath them, being much too complex and drawing on too many different areas of scientific knowledge to qualify as first-rate physics. As Myanna Lahsen and Simon Shackley have shown in their work, complex models show up very low in the disciplinary hierarchy of physics.

But this disciplinary hierarchy is becoming increasingly irrelevant to the organization of knowledge production in fields such as climate research, and certainly also to biomedical science, as Hollingworth and Hollingworth emphasize in their contribution to the volume. Physicists of the 'new kind' (meteorologists, oceanographers) may still wield more power than biologists, for example, but the reason for this may be their better access to and control of technologies. Physicists of the 'old kind' are witnessing their once sacrosanct position at the universities steadily eroding. Lahsen dates the symbolic downfall of physics in 1993, when the US Congress decided not to fund the Strong Super Collider. It is also the year of the end of the Cold War, which did so much to give physics its golden age.

The erosion of the disciplines

There is one question that the editors of this volume fail to ask in a systematic way: who is sustaining the discourse of disciplinarity, and what purpose does it promote? Much of the rhetoric on interdisciplinarity came from the ideologically motivated originators of the idea of interdisciplinarity in the 1970s. The Center of Disciplinary Research at the University of Bielefeld (ZiF), which is treated by Sabine Maasen in her contribution to the volume, practices a bottom-up approach, and remains perhaps closest to the 1970s discourse. But nowadays the locus of the discourse of interdisciplinarity has shifted to more powerful bureaucracies.

A number of contributions to the book focus on bigger interdisciplinary endeavours in various

research fields. More so than the ZiF case, they are the result of top-down planning. Reading this volume, one could get the impression that it is the US National Science Foundation, the Volkswagen Stiftung, the German National Science Foundation (DFG), etc., which initiate interdisciplinary research and get hurt sooner or later in confronting the entrenched disciplines at the universities.

Tim Turpin and Sam Garrett-Jones, in their article on Australia's research system, identify yet another actor in the game of interdisciplinarity. Writing about a major reform of the country's higher educational system in 1987, they note that as a result of the reform the university's research environment has changed from local individual autonomy to centralized policy. The university's central boards have assumed more power to be able to compete in a much more market oriented research and educational environment (p. 84). When central university bureaucracies assume more power, it is the departments that suffer. In the Netherlands, a reform of the system of university governance in the 1990s abolished the departments altogether. The departments used to be fairly small. Their staff usually controlled the departments' own educational programs. The departments have now been fused into much bigger units, and at several universities education and research have been uncoupled.

It remains to be seen what this will mean for the disciplinary structure of education, but it is clear that the disciplines have greatly suffered. At my home university, the University of Amsterdam, a severely declining enrollment of chemistry students coincided with the loss of autonomy of the Faculty of Chemistry with its previously almost autonomous departments such as Organic Chemistry and Inorganic Chemistry. The loss of autonomy and the loss of students are two separate phenomena, but together they will leave the chemists vulnerable to any major reform, whether aimed at research or education. More than ever, the notion of interdisciplinarity is a pawn in the game of power at the universities. As such, it has an uncanny degree of 'realness'.

Knowledge in Plural Context: Science, Technology, and Society Studies in Switzerland

by Marc Audetat

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A Report of the Summer School in Lausanne, 11-14 of September 2001

The Summer School «Knowledge in Plural Context» held at the University of Lausanne and the Federal Institute of Technology was the result of a stimulating process of application and invitation. The program of the four-day conference consisted of four types of events: plenary sessions, workshop sessions, roundtables, and social scientific happenings. About 85 participants, most of them doctoral students and post-doc's, were welcomed with a Book of Abstracts. The opening plenary was conceived as an encounter and exchange between Helga Nowotny and Michel Callon. Those two tireless researchers, who never met before, have published books in 2001 about science, decision, and uncertainty, and have developed similar models of democracy with regards to scientific and technological development. Both contributions, supported with a paper and followed by a discussion, have set the thematic perspective of the Summer School. This event was followed by a set of three parallel sessions. The guest speakers turned into discussants in the workshop sessions. One year earlier, they were contacted by the organizers with particular demands: aside from their own talk, these personalities were asked to be discussant in some workshops, and to participate as much as they can throughout the conference. They were chosen not only because of their reputation, but also with regards to the way they work with juniors. This is how Michel Callon, Vololona Rabeharisoa, and Alberto Cambrosio participated the whole week, while Wiebe Bijker, Helga Nowotny, Frank Fischer and Sally Wyatt stayed as many days as possible, all contributing to a warm and stimulating atmosphere of work. After the parallel sessions, everybody was invited to the first social event of the Summer school: the public ceremony of the recently created *Swiss Association for the Studies of Science, Technology, and Society*. Aside of

wine, grapes and cheese, there was a contest with surrealistic questions like "what the letters S.T.S. stand for"; the winners received huge Berlin keys of chocolate.

This intense first day of the conference was the 11th of September. As organizers, we have been very lucky to see all American guests already in Europe, and all participants coming by plane arriving on time. Surprisingly, the world events did not interfere with the unfolding of the conference's program. The people were occupied with the terrorist attack on New York at breakfast and dinner, although everybody was concentrating on the work during the sessions. We have been living in another reality, like within a bubble, for the time of the conference. The morning of the 12th started with Alberto Cambrosio exploring the *Plural Context of Biomedicine*, followed by Vololona Rabeharisoa raising the fascinating issue of *Patient Organizations and the Mobilization of Research*. During the afternoon, six parallel sessions were held, some of which dealt with *Plural Expertise of Risk, The Influence of Research Policy on Knowledge Production, How Subjects and Objects Connect Plural Context*, while the day before we occupied ourselves with *Assessing Radical Technological Change, STS and Normativity*, etc. Then, a special roundtable was organized at night about the development of STS studies and research in Switzerland. The participation of Wiebe Bijker, who lived through a similar process years ago in the Netherlands, and of colleagues from Cornell, encouraged Swiss participants to cope with disciplinary and institutional obstacles to the development of STS research in Switzerland (see below).

The third day started with Wiebe's talk on *Research and Technology for Development*, a new project of the EU with African and Caribbean countries where STS is challenged to contribute, and Sally Wyatt's *Using Personal Knowledge and Autobiographical Methods in STS*. The afternoon was again occupied with the parallel sessions,

including a double one about *Boundaries' Work: Setting and Crossing Boundaries in Science and Technology*, another entitled *Knowledge Society at Stake*. There were many sessions we cannot mention, for instance all those dealing with information technology. At night, a musician introduced the main reception of the Summer School. A text about *Technology and Music* supported his performance. Pierre Audétat took special care in playing a few tunes on piano and sampler together, prior to the discussion.

The last day started with Frank Fischer on *Citizens, Experts, and the Environment* before shifting to the closing theme of the Summer school: *Science and its Publics*. After an introductory talk by Pierre Salot of the Cité des Sciences et de l'Industrie in Paris, a roundtable was held with representatives of Universities, Museums, the Media, the Parliament, and Science policy. The closing event was a general discussion about science in the public sphere in Switzerland; this theme became popular after the particularly hot campaign about genetic engineering in 1998 before a referendum. Most of the participants expressed their satisfaction before leaving Lausanne, congratulating the organizers for the quality of work and the good atmosphere which greatly contributed to the success of the Summer School. The four days were filled with eight key contributions in plenary sessions, fifteen overcrowded workshops (with sixty-two presentations), two plenary roundtables, and two social happenings. About a quarter of the participants were from abroad and many of them afforded themselves their trip up to the Swiss border. Near half of the participants were women. All this has been made possible by a dynamic context and a collective process which might be of interest to the observer.

The landscape of "science, technology and society" studies in Switzerland evolved from almost nothing to a structured and differentiated field of research within a few years. The early 90s witnessed the appearance of the ESST Master's Degree program, which is now located at the edge of the country (the French speaking part). At the same time other actors were trying to encourage this field of study to develop within the social sciences. In the mid-90s, a prestigious academic institution, the ETH of Zurich, decided to refresh its old fashion concept of "humanities for engineers" with a bright new place dedicated to the dialogue between disciplines, philosophy of science, and arts - the Collegium Helveticum.

Demonstrating the seriousness of its project, the ETH appointed Prof. Helga Nowotny to lead the Collegium. In the Swiss Confederation, a country of 7 million inhabitants, composed of 26 member states, with about 10 universities including the Federal Institute of Technology, other scholars and young researchers were working in the STS field although without much contact. In the meantime, a research committee was formed within the Swiss society of sociology to create a virtual, or real, house for STS studies. The research committee made an application to a special priority program dedicated to help the social sciences, and manage to organize the first STS Spring School at the University of Zurich in 1999. The week-long event gathered about a hundred people with various backgrounds and revealed a surprisingly rich interest for this domain. The need for a second event of the kind in a near future was clearly established, and Lausanne, where several small teams of STS researchers are active, was chosen. This was the context and the origin of the Summer school.

The organization of the Summer school benefited from two different processes, a local one, and a national one. Over the course of 2000, the research committee grew and decided to become autonomous; that's why the assembly decided to create a permanent association of academic character to promote STS studies in the country. At the local level, an organizing committee, gathering forces spread out both at the University and the Institute of Technology in Lausanne started with a Call for Participation. To say a word about the funding, it has been an architecture of different sources, tailor-made for fifty participants, though we ended with more than eighty. The CFP, entitled "Knowledge in Plural Context", was designed to cover the spread of the field while still being focused on hybrid forms of knowledge and heterogeneous fora. Apparently, everybody found his or his place within this setting. A separate Call for the sessions used the electronic means of the Association, and circulated information back and forth, allowing a dynamic process of session applications. Many individual applications were received by organizers. The Summer School "Knowledge in Plural Context" greatly helped to assess the potential of STS studies in Switzerland, and gave a thrust to the *Swiss Association for the Studies of Science, Technology, and Society* (<http://www.sts.unige.ch/>).

Genetics and the Interstices of Knowledge

by Helen Busby

University of Nottingham

A report on the Postgraduate Forum for Genetics and Society 5th annual colloquium, University of Nottingham, July 2001

The annual colloquium of the postgraduate forum for genetics and society comprised delegates from a range of disciplines including anthropology, psychology, sociology, law and ethics. Although the forum is based in the UK, the growing number of members from elsewhere in Europe were also represented.

Many of papers presented can be situated within the critical social science literature about the dynamics of relationships between different kinds of expertise. The confronting of specific and apparently novel problems in this field was used too as a vehicle for the working through of debates in and beyond the social sciences about how we as societies and individuals frame and respond to risks. The themes covered can be divided (with the customary arbitrariness) into the following: firstly, governance and regulation; secondly, critiques of concepts in ethics and law; thirdly, representations of genetics- including both the issues of control of representation of science and the representation of views of 'affected' lay individuals by social scientists; and finally, papers concerned primarily with lay action and agency.

regulation and governance

The state response to the body of practices collectively recognised as biotechnology was the subject of five papers. I include here those papers which concern the ways in which law and ethics can be developed or are deployed in this context. Mavis Jones, from the University of East Anglia addressed the gap between the proliferation of policy responses and the mistrust amongst the public(s). Her discussion was based on a discourse analysis of directives from the EU (relating to the use of GMOs), guidelines from the Health and Safety Executive and documents from the UK's Human Genetics Commission. These discourses were found to fall under two main themes: risk

and transparency, each of which was related to a 'grand narrative', of rationality and democracy respectively. For Jones, these apparently newer discourses act as a kind of 'lingua franca' in the debates about innovation; nevertheless, they 'may in fact serve to reproduce traditional approaches to science policy'. Understanding such discursive practices then may be helpful in identifying the strengths and weaknesses of policy regimes in this context.

The impact of different regulatory environments on biotechnology companies was addressed in a paper presented by Filippa Corneliussen from the University of Nottingham: interviews with founders of biotech companies, their management scientists and senior scientists were used as data for a comparative analysis of the regulatory regimes in Scotland and Norway. Very different regulatory regimes were shown to characterise the two nations. In Norway, informal networks between scientists and regulators manage much of the day to day work of compliance. There are serious penalties for not complying with the extensive regulations surrounding biotechnology industries in Norway; however, these have rarely been applied. A more formal and bureaucratic style of regulation exists in Scotland. In both cases, however, those interviewed did not view the raft of regulations as inhibiting their company's formation or development. Thus the commonly held assumption that extensive regulation in this sensitive field impedes the development of science R&D was not supported by Corneliussen's evidence.

Some of the implications of considering genetic information as 'special' were highlighted by James Mittra (University of Warwick) in a paper which analysed the developments which have taken place in relation to genetic testing and insurance in the UK over the last six years. Much of the debate, according to Mittra, takes place around possible future scenarios, whilst current problems are not squarely addressed. Defensive policy making around short term goals characterise the terrain here, with insurance

companies staunchly defending their right to underwrite and the government primarily concerned with allaying fears of genetic discrimination. The argument developed here was that the 'special' attention given to genetic information complicates the debate and frames the way that individuals and groups respond to the issues. This issue was echoed in other papers throughout the symposium, which struggled to consider the ways in which 'genetics' is special - or not- in a range of contexts. Mark Taylor, from the University of Sheffield, explored the implications of this in relation to provisions against discrimination in the Human Rights Act 1998 (HRA). The issue of genetic regulation within the contractual context is still largely unregulated in the UK. A widespread assumption is that the law requires development to tackle potential injustices. However Mittra questioned the extent to which the incorporation of HRA into UK law will support such a development: he believes that whilst the principles of HRA would support the proscribing of unfair genetic discrimination, they would fail to support a blanket ban. This left us with a discussion of the possibility that there could be 'fair' genetic discrimination.

A paper addressing the effectiveness of the UK's Local Research Ethics Committees (LRECs) as quasi regulatory bodies in the context of research was presented by Emma Williamson (University of Bristol), on the perspectives of participants in epidemiological genetic research. The project will draw on interviews with participants in a longitudinal panel who have been intensively researched via their donation of samples and of medical and lifestyle data. Both the genetic research project and the accompanying social science inquiry presented here include children as participants, an issue of particular interest to the (social) researchers. The question of the particular place of social research within the UK's Research Ethics Committee system was discussed. Broadly speaking the approach here was to support the extension of the current system of ethical review to include social research. (This is the practice in many parts of the UK, but perhaps less consistently so than with the experimental or clinical research which these committees were designed to oversee.) In the next section I discuss papers which can be considered as offering a critique of concepts or institutions in bioethics and in law.

critiques of ethics and law

Klaus Hoeyer (University of Copenhagen) drew on fieldwork with those involved in collecting and donating samples for genetic research in Northern Sweden. His observation that donors did not show any particular interest in the information offered in the course of obtaining informed consent for this research led to a discussion about the ritual aspect of such a procedure. There was a challenge here to the way that the social issues around new genetics become reduced to the obtaining of informed consent. The practice of giving blood was analysed in the context of the ethos of the Swedish state health care system. Hoeyer's suggestion that we see the donation of blood less as a conscious expression of meaning and more as a practice brings us to some of the methodological issues about interviews which are discussed below. Oonah Corrigan (Goldsmiths, London) also addressed the processes of obtaining informed consent in the field of drug trials and pharmacogenetics in particular. With research in pharmacogenetics, we have an expansion of the extent and the contexts in which DNA samples may be requested from patients. For Corrigan, the formalised practice of informed consent, and other procedural approaches cannot substitute for research looking at the areas of tension or concern for patients in these trials. Traditionally, these kinds of dilemmas are not situated in an empirical context- although this may be said to be changing- and the bioethics model less regard to the dynamics of doctor/patient or expert/lay relationships than does sociology. This analysis emphasised the way in which particular perspectives in ethics -derived from Kantian universals- have shaped bioethics.

Continuing this critical engagement with core concepts in bioethics was Harald Schmidt's paper about the use of the concept of human dignity, a concept frequently invoked in discussions of bioethics, including those around the assisted reproductive technologies. Schmidt (University of Munster) claimed that such a concept is of very limited use in the case of pre-implantation genetic diagnosis. Indeed, it was suggested that 'human dignity' tends to be used as a way of stopping rational argument, particularly by those opposing scientific developments in this context. In support of this claim, Schmidt reviewed the ways the concept has been deployed in theology, philosophy and in political and legal contexts. Its prominence in the latter context was traced to the aftermath of the Nuremberg trials and the concern

to protect the rights of (born and living) people which is etched into the charters and declarations of that era. With reference to pre-implantation genetic diagnosis, Schmidt challenged the debate about the 'true' moral status of the embryo with a position that that status could and would change over time. He did not argue for or against pre-implantation diagnosis, but that the use of the concept in this context was obfuscating a debate which desirably should take place 'by society as a whole and not a particular society'.

Finally in this section, Anne Wilkinson (University of Leeds) addressed the presumption of liberty, taking the position that such a presumption should be set aside in the case of new reproductive technologies. Beginning with a consideration of the limits of philosophical tools of utilitarian and consequentialist reasoning for this field, where some of the problems are difficult to predict, Wilkinson went on to consider the role of theology and of the law in this context. Following Devlin (1965), Wilkinson suggested that the law could be seen as a boundary marker 'like an inter-country borderline, which meanders according to geographical and historical factors'. It was suggested that the new statutory and advisory committees composed of representatives from the science, the law, religion and 'the laity' were crucial mediators. As though to reiterate the difficulties here though, the following set of papers address the diverse kinds of expertise which are brought to bear on social issues raised by developments in the new genetics.

representations of genetics

Sarah Cassidy (University of Edinburgh) considered the claims about the evolutionary and by implication genetic basis to human behaviour and society in the field of evolutionary psychology. A quantitative survey of coverage of evolutionary psychology in the UK broadsheet press was used to look at the uptake and diffusion of these ideas. In contrast to 'classic' patterns of science coverage, media coverage here was found to stress the political and social implications, and is seen as having a wider relevance. The paper concluded with a comment about the emergence of competing discourses on genetics in the context of a move towards greater inclusiveness in policy processes. The contested nature of these discourses was the subject of Nicola Lindsey's paper. Lindsey (Imperial College, London) unpacked some of the conceptual issues around the use of the term 'gene talk'. In early

formulations the term referred to 'the use of genetic language in secondary and tertiary contexts, apart from the disciplinary practice of genetics' (Howe and Lyne, 1992: 112). This paper underlined the extent to which the term 'gene talk' has been mobilised to support notions about which knowledge (and talk) is legitimate and which is not. Examples of such contests were cited from within science –the critique of sociobiologists by molecular geneticists being one such- and from scientists' challenges to the validity of lay people engaging with the subject of genetics in a particular social context.

In a dramatic paper entitled 'Determined to kill' Jennifer Bostock from King's College London deployed a series of images in which 'abnormal' brain physiology and 'fatally damaged' DNA were said to be represented amongst other 'normal' examples. These aimed to put the audience in a position analogous to that of a jury presented with expert evidence for a claim of 'genetic defense' in a court of law. The paper explored the question of how courts are to interpret the results of genetic research, and the extent to which there is anything uniquely deterministic about such a defense in comparison to for example relying on psychosocial evidence.

Moving to the interstices between lay and medical more specifically, two papers considered the significance of genetic counselling. For Melanie Pearce (University of Nottingham), genetic counselling is a key site for the dissemination of scientific knowledge about genetic disorders. Yet there is a paradox here as the traditional rationale for such counselling involves a stance of non-directiveness. Based on semi-structured interviews with genetic counsellors, Pearce explored the process of this work, and the different expectations brought to the genetic counselling sessions. Georgina Haarhoff from the University of Cambridge drew on interviews with individuals diagnosed with colorectal cancer and with their spouses to explore the impact that a subsequent genetic diagnosis has on the individual: Haarhoff posed the question of whether the genetic diagnosis in itself is associated with a particular orientation towards the experience of having cancer.

Discussions about methodologies were interwoven with the substantive points which I have made above, but two papers in particular addressed methodological issues about interviewing specifically. Caroline Benjamin (University of Liverpool) outlined a model for

research which would enable account to be taken of linked historical events in the experience and referral of women to a breast cancer family history clinic. Life course methodologies were used here to locate individual women's experiences in relation to time, place, and institutional contexts, including for example the NHS. Based on initial interviews, themes relating to 'intergenerational transference' were discussed, and in this context the significance of a particular chronological age with fear of illness was marked. Lotte Huniche from the University of Copenhagen spoke of her conversation with one individual who is 'at risk' of developing Huntington's disease, and whose relatives portray him as not actively speaking of or doing anything about it. The discussion of this persons' life trajectory was used as a way of considering the perspective of those whose voice is not expressed, who are considered passive, and how they may differ from those seen as active. It is the latter group, inevitably perhaps because of their accessibility, who are usually the focus of social research. This presentation fed into a discussion in which the pre-eminence of interviews in this field of research, together with the normative assumption that narrative is process for establishing control, were questioned.

lay action and agency

Sahara Gibbon (UCL) explored the work of a cancer charity, drawing on her fieldwork with the charity which is active in fundraising and lobbying for a particular cancer. The organisation has become a funder of research in its own right, and it was the role of lab tours for supporters (including relatives of those who had died from the illness) which were described in the paper. In addition to their more obvious function of informing supporters, these tours could, in Gibbon's analysis, be considered as memorial events, as the presence of plaques and names on a memorial wall hint. Whilst such memorialising 'could be redemptive for those involved, the tensions between remembering and forgetting are a feature of such practices'.

The ways in which hope is mobilised featured in Carlos Novas' (Goldsmiths) discussion of the way in which patient and lobby groups in the USA intermesh with the work of geneticists and other scientists and practitioners. Taking the example a particular lobby group concerned with a rare metabolic disorder, he described how this group had played a key role in research to the extent of

setting up a tissue bank and becoming a co-applicant for a patent in this context. The ways in which different interests intermesh are shifting, and the notion of a 'political economy of hope' was used by Novas as framework for the analysis of such developments. Sara Skodbo's paper about technological information, identity and food in Norway was concerned with 'the under-researched mechanisms behind everyday appropriation and negotiation of new technologies in industry'. Skodbo, from UCL, drew on her fieldwork in the food industry in Norway to explore how the uptake of technology depends on interactions with local knowledge and notions. In doing so the paper challenged the implicit assumptions in actor network theory and stressed the agency of the individuals involved.

Vajira Dissanayake (University of Nottingham and University of Colombo) presented preliminary results from a survey of attitudes to new reproductive and genetic technologies amongst doctors in Sri Lanka. He moved on to explore the ways in which a Buddhist cultural background may frame the debate associated with such technologies quite differently than it has been framed in Western Europe: a different stance on tissue donations and a profound sympathy towards overcoming reproductive failure was cited as examples of this. Dissanayake described the ways in which genetic predictive tests are commonly taken up by those with illness whilst also consulting a horoscope reader. This was a timely reminder of the pluralism of knowledge about illness: despite the pre-eminence which genetics has gained in recent years, it takes its place within a broader set of social responses to suffering of which orthodox medical practice is but one part.

Delegates were grateful to Filippa Corneliussen for coordinating the colloquium. The 6th annual colloquium of the PFGS is planned to take place in September 2002 at the University of Cambridge. Those interested in attending may contact Georgina Haarhoff at grh25@hermes.ca.ac.uk or refer to the PFGS website www.nottingham.ac.uk/sociology/genetics/pfgs.

References

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Conferences and Calls for Papers

The international *Karl Popper Centenary Congress*, planned to celebrate the 100th anniversary of the birth of Karl Popper (1902-1994) will take place on 3-7 July 2002, in **Vienna**, and will be opened officially under the patronage of the President of Austria Dr Thomas Klestil. Meetings will be held at the campus and in the main building of the University of Vienna, and in the City Hall (Rathaus), which is adjacent to the University main building. The work of the Congress will be arranged in seven sections: Philosophy of the physical sciences; Philosophy of the biological sciences; Philosophy of the social sciences; Moral & political philosophy; Logic & scientific method; Epistemology & metaphysics; and Life & times of Karl Popper. Invited lectures and symposia are planned for all sections. Contributed papers relevant to Popper's work will be invited in all sections (though papers tackling problems appropriate to more than one section will be welcome). Potential contributors are asked to bear in mind that a period of 30 minutes will be allotted to each contributed paper, including discussion. Full details of the form in which abstracts are to be submitted will be provided in the official Call for Papers, which will be circulated late in the summer of 2001 together with registration and hotel booking forms. The deadline for the submission of abstracts will be early in 2002. All abstracts will be refereed. Letters of acceptance will be mailed not later than 1 April 2002. The Congress languages are English and German. For more information, please contact Gerhard Budin at the University of Vienna, Department for Philosophy of Science, Sensengasse 8/10, A-1090 Vienna (fax: +43-1-4277-9476), preferably by e-mail: karlpopper2002.econ@univie.ac.at. The Congress website is at <http://www.univie.ac.at/karlpopper2002>.

A reminder that the interdisciplinary STS conference *Transforming Spaces: The Topological Turn in Technology Studies* is being held at the **Technical University Darmstadt** in Germany on March 22-24, 2002. The conference will problematize the spatial character of the

relationship between technology and human beings. It addresses two interrelated questions: To what extent do machines and media organize society three-dimensionally, thus ordering the spaces in which modern life takes place? And, conversely, to what extent do material and communicative structures open up new mental and physical spaces, thus transforming the boundaries of daily life? See <http://www.ifs.tu-darmstadt.de/gradkoll>. Questions should be addressed to Dirk Verdicchio, gradkoll@ifs.tu-darmstadt.de.

A call for papers for the *7th International Conference on Public Communication of Science and Technology* (PCST) has been posted at www.pcstnetwork.org. The conference will be held on 5-7 December 2002 on the campus of the **University of Cape Town**, on the slopes of Table Mountain, with major environmental and eco-tourism destinations within easy reach. The theme of this conference will be Science Communication in a Diverse World, and aims to provide a forum for leaders in science communication from around the globe to interact, with emphasis on enriching exchanges between developed and developing countries. If you are passionate about engaging the public in science and technology, or in any way involved in the public communication of science, this conference is for you. The deadline for the submission of abstracts is 19 May 2002. More detailed information about how to submit your abstract and the conference themes and paper formats is available at www.pcstnetwork.org. Email marina.joubert@fest.org.za.

The 2002 International Symposium on Technology and Society (ISTAS'02) on *Social Implications of Information and Communication Technology* will be held in **Raleigh, North Carolina, USA** on June 6-8, 2002. The goal of ISTAS'02 is to bring together Information and Communication Technology (ICT) professionals, computer science and engineering educators, teachers and scholars in the humanities and social sciences, policymakers, students, and ICT users

for the purpose of establishing critical dialogue on the social and ethical dimensions of ICT. Plenary Session Speakers will include Dr. Lucy Suchman, Department of Sociology, Lancaster University. The conference has the following streams: Electronic publishing; ICT and democratic processes; Intellectual property rights in the digital era Universal access/Digital divide; Social implications of wireless technology Gender issues in ICT; Equitable access for the disadvantaged and the disabled; Misuse of ICT; National and international ICT policy; Distance education; Web-based resources for teaching ethics in computing Information security and privacy; Free speech and censorship ICT and high-risk systems; and the Social implications of electronic commerce ICT and developing countries. We also welcome papers in additional general areas of interest to the members of SSIT: environmental, health, safety, and peace-related implications of technology; social, economic, and ethical issues involving energy, information, and telecommunications technologies; history of technology; systems analysis in public policy decisions; and research methods for technology-policy analysis. For information contact the Conference Chair (email preferred): Joseph R. Herkert, Division of Multidisciplinary Studies, Box 7107, North Carolina State University Raleigh, North Carolina 27695-7107, USA, tel 1-919-515-7993; Fax: 1-919-515-1828; Email: joe_herkert@ncsu.edu, or visit the web site at <http://social.chass.ncsu.edu/herkert/istas02.html>

Internet Research 3.0: NET / WORK / THEORY, the International and Interdisciplinary Conference of the Association of Internet Researchers (AoIR) will be held October 13-16 2002 at the International Institute of INFONOMICS and **University of Maastricht**, the Netherlands. The web site is <http://www.aoir.org/2002>. Deadline for submissions: February 15, 2002. Submissions: <http://www2.cddc.vt.edu/confman/>. The Internet has become an integral, ubiquitous part of everyday life in many social domains and international contexts. Yet, most of the public attention on cyberspace remains fueled by utopian or dystopian visions, rather than being informed by the growing body of research on the Internet as a complex fact of modern life. Internet Research (IR) 3.0, an international and interdisciplinary conference, will feature a variety of perspectives on Internet research, in order to develop a better

theoretical and pragmatic understanding of the Internet. Building on the previous well-attended international conferences, the IR 3.0 will bring together prominent scholars, researchers, and practitioners from many disciplines, fields and countries for a program of presentations, panel discussions, and informal exchanges. This year's theme is Net/Work/Theory. Contributors are called to reflect on how to theorize what we know about the Internet and on how to apply what we know theoretically in practice. The conference will be held for the first time in Europe, whose intellectual environments have traditionally been a source of social and cultural theory. IR 3.0 will be hosted by the International Institute of Infonomics in the beautiful city of Maastricht in the Netherlands. As the city in which one of the key treaties of the European Union was signed, Maastricht also symbolizes a changing Europe in a changing international setting. The conference will provide opportunities to network, learn from other researchers, hear from leading players in Internet development, and enjoy the "art of fine living" of Maastricht, in the south of the Netherlands. The Association of Internet Researchers invites paper, presentation, and panel proposals from AoIR members and non-members on topics that address social, cultural, political, economic, and aesthetic aspects of the Internet. We welcome interdisciplinary submissions as well as submissions from any discipline. Panel presentations that establish connections across disciplines, institutions, and/or continents are especially encouraged. We also seek presentations that will make creative use of Internet technologies and techniques. SUGGESTED TOPICS: Theoretical and Methodological approaches to Internet Research; Internet Access, Use and Effects; Psychology and the Internet; Individuals, Groups, and Communities; Online Privacy, Surveillance, and Security on the Internet; Internet Policy, Ethics, Law, and Politics; Teaching, Learning and the Internet; The Internet in Writing and Publishing; Ethnicity, Race, Identity, Gender, and Sexuality Online; The Internet in Cultural Contexts; The Internet in History; Digital Arts and Aesthetics; Gaming on the Internet; E-commerce, E-Business, or Value of Digital Content; New Technologies and New Media; and E-Sectors (e-health, e-games, e-entertainment, e-other...) This list is not meant to be exclusive, but to trigger ideas and encourage submissions from a range of disciplines. The organizers will take an active role in generating

and joining the various interests in appropriate formats. Proposals can be of three types - papers, presentations, and panels. Each person is entitled to submit 1 paper, 1 presentation, and/or 1 panel proposal. Proposals for papers: 150-250 word abstract. Creative presentations and Internet-related project demonstrations (including digital arts) are encouraged. The format for these proposals is the same as those for regular papers (150-250 word abstract). Panels will generally include three to four papers or presentations. The session organizer should submit a 250-500 word statement describing the session topic, include abstracts of up to 250 words for each paper or presentation, and indicate that each author is willing to participate in the session. We also invite proposals for pre-conference workshop. These proposals should be submitted as soon as possible (no later than January 15, 2002) so that the workshops can be publicized. Graduate students are highly encouraged to submit proposals. They should note their student status with submission for consideration of a special Student Award. If you intend to be a candidate for the Student Award you must also send a final version of your proposal (final paper) by 15th September 2002. Submission will be accepted from 15th December until 15th February 2002. All proposals should be submitted electronically at: <http://www2.cddc.vt.edu/confman/>. It is preferred that you use HTML to minimally format your paper. Average time allotted for a paper or presentation will be 15 minutes. Average time allotted for a panel will be 1 hour and 30 minutes, including discussion time. If these time constraints are not appropriate for your panel/presentation, please include that in your abstract. Please include any equipment or special considerations that might affect your presentation. If you have questions about the conference, program, or AoIR, please contact: Conference Coordinator: Monica Murero, Infonomics and University of Maastricht, Monica.Murero@infonomics.nl; Program Chair: Klaus Bruhn Jensen, University of Copenhagen: kbj@hum.ku.dk; A(o)IR President: Steve Jones, sjones@uic.edu. More Information about IR 3.0 can be found on the Conference Website: <http://www.aoir.org/2002>. The International Institute of Infonomics is here: <http://www.infonomics.nl>.

Delft University of Technology in the

Netherlands will be hosting a conference on *Engineering Education in Sustainable Development* on October 24th/25th 2002. Sustainable development is a challenge for the engineering community. Delft University of Technology decided in 1998 that all of its engineering graduates, working towards careers as designers, managers or researchers, should be prepared for the challenge of sustainable development and as such, they should leave university able to make sustainable development operational in their designs and daily practices. Teaching engineering students how to incorporate sustainability in their work was not an easy job, as there was a lack of teaching experience and study material. To tackle this lack, we adopted various approaches. As time went by, we discovered a fast growing number of colleagues at other institutions struggling with the same problem. We are now approaching the end of the start up phase of our enterprise at DUT and we want to share our experiences with our international colleagues and learn from them. We welcome papers that: Reflect on the concept of sustainable development and its importance for engineering practices such as design, maintenance, and management Analyse (sustainable) technological innovation practices, and the role engineers play in these projects, to address the question: what knowledge/abilities should the future engineer have? Evaluate existing sustainable technological development courses or curricula Describe how specific sustainable development related challenges, such as providing food, shelter, transport or water for future generations are integrated into engineering education. Analyse the social implications of (sustainable) technological change Analyse and evaluate (interdisciplinary) student project work targeted at sustainability. Address the question whether we need special sustainable development-engineers or rather to integrate sustainable development into existing curricula and courses. Analyse the tension between teaching students the long-term sustainable development view as a global challenge and the, in that perspective apparently trivial, optimisation of minor details of technologies. Analyse organisational and/or political issues related to the introduction of sustainable development in higher education Analyse and/or evaluate activities to teach sustainable development to staff members. Abstracts with a maximum length of 400 words must be submitted before 1 February 2002 to DUT Congress Office, Mekelweg 5, NL 2628 CC

Delft, Tel: +31-15-2788022, Fax: +31-15-2786755, Congressoffice@fd.tudelft.nl. Submission by fax or regular mail is also possible. All abstracts will be refereed by our international scientific panel. The full papers are due 1 August 2002. All further inquiries can be sent to the conference secretariat Dr.ir. K.F. Mulder, Delft University of Technology, Faculty Technology Policy & Management, Jaffalaan 5, NL 2628bx Delft, The Netherlands, k.f.mulder@tbn.tudelft.nl. See also <http://www.odo.tudelft.nl/conference.html>

The International Conference on *Cultural Attitudes Towards Technology and Communication (CATaC'02)* takes place on 12-15 July 2002 at **University of Montreal, Quebec, Canada**. Web site: <http://www.it.murdoch.edu.au/~sudweeks/catac02/>. The Conference theme is: The Net(s) of Power: Language, Culture and Technology. The powers of the Nets can be construed in many ways - political, economic, and social. Power can also be construed in terms of Foucault's "positive power" and Bourdieu's notion of "cultural capital" - decentered forms of power that encourage "voluntary" submission, such as English as a *lingua franca* on the Net. Similarly, Hofstede's category of "power distance" points to the role of status in encouraging technology diffusion, as low-status persons seek to emulate high-status persons. Through these diverse forms of power, the language(s) and media of the Net may reshape the cultural assumptions of its globally-distributed users - thus raising the dangers of "computer-mediated colonisation" ("Disneyfication" - a la Cees Hamelink). This biennial conference series aims to provide an international forum for the presentation and discussion of cutting-edge research on how diverse cultural attitudes shape the implementation and use of information and communication technologies (ICT). "Cultural attitudes" here includes cultural values and communicative preferences that may be embedded in both the content and form of ICT - thus threatening to make ICT less the agent of a promised democratic global village and more an agent of cultural homogenisation and imperialism. The conference series brings together scholars from around the globe who provide diverse perspectives, both in terms of the specific culture(s) they highlight in their presentations and discussions, and in terms of the discipline(s)

through which they approach the conference theme. Original full papers (especially those which connect theoretical frameworks with specific examples of cultural values, practices, etc.) and short papers (e.g. describing current research projects and preliminary results) are invited. Papers should articulate the connections between specific cultural values as well as current and/or possible future communicative practices involving information and communication technologies. We seek papers which, taken together, will help readers, researchers, and practitioners of computer-mediated communication - especially in the service of "electronic democracy" - better understand the role of diverse cultural attitudes as hindering and/or furthering the implementation of global computer communications systems. Topics of particular interest include but are not limited to: Impact of information and communication technologies on local and indigenous languages and cultures; Politics of the electronic global village in democratising or preserving hierarchy; Communicative attitudes and practices in industrialised and industrialising countries; Role of gender in cultural expectations regarding appropriate communicative behaviours; Ethical issues related to information and communication technologies, and the impact on culture and communication behaviours; and Issues of social justice raised by the dual problems of "the digital divide" and "computer-mediated colonisation," including theoretical and practical ways of overcoming these problems. All submissions will be peer reviewed by an international panel of scholars and researchers. There will be the opportunity for selected papers to appear in special issues of journals and a book. Papers in previous conferences have appeared in special issues of a number of journals (Electronic Journal of Communication/La Revue Electronique de Communication, AI and Society Journal, Javnost-The Public, Journal of Computer Mediated Communication, and New Media and Society) and a book, "Culture, Technology, Communication: towards an Intercultural Global Village", edited by Charles Ess with Fay Sudweeks, SUNY Press, New York, 2001. Initial submissions are to be emailed to catac@it.murdoch.edu.au as an attachment (Word, HTML, PDF). Guidelines for submission, including templates, are on the web site. Submission of a paper implies that it has not been

submitted or published elsewhere. At least one author of each accepted paper is expected to present the paper at the conference. Important Dates: Full papers- 15 March 2002; Short papers - 29 March 2002; Notification of acceptance - 5 April 2002; and Final formatted papers - 26 April 2002. The conference co-chairs are Charles Ess, Drury University, USA, ejrec@lib.drury.edu and Fay Sudweeks, Murdoch University, Australia, catac@it.murdoch.edu.au.

ACONIT (Association for a CONservatory of Information Technology), AHTTI (Association of History of Telecommunications and Information Technology) and CHARME (Committee for the History of ARMEments), in collaboration with IMAG (Institute of Applied Mathematics in Grenoble), are organising an international conference on the *History of Computing and Networks* to take place on 18, 19 and 20 November 2002 in **Grenoble, France**. This conference provides an opportunity for meetings and discussions between historians who are studying, and the scientists and engineers who participated in the development of computing and networks. The following subject themes are given as examples of what might be discussed: Preservation and Exhibition of Computing and Telecommunication heritage; Developments of the concepts of teaching and researching in computing; The role of the military in the development of computing; Automation and robotics; Computing in medicine; The impact of computer networks on software systems; The evolution of standards; and The convergence of computing and telecommunications. This conference is the latest in the series of Computer History Conferences held in France in 1988 in Grenoble, 1990 in Paris, 1993 in Sophia-Antipolis, 1995 in Rennes and 1998 in Toulouse. An exhibition tracing the history of computing and networks will complement the conference. Full details can be found on the conference web site at www.aconit.org/colloque2002

ISA Research Committee on Sociology of Science and Technology RC23 invites papers for its sessions at the *XV ISA World Congress*, July 7-13, 2002, in **Brisbane, Australia**. Paper proposals shall be sent as soon as possible to session organizers listed below. Session 1. Knowledge and social change in contemporary societies

Organizer: Karel Mueller, Czech Republic, muellerk@fhs.cuni.cz; Session 2. Ambivalence and agency - civic responses to socio-political issues in modern biosciences Organizer: Egil Kallerud, Norway, egil.kallerud@nifu.no; Session 3. New technologies confronting tensions between commodification and social responsibility Organizer: Marja Hayrinen-Alestalo, Finland, marja.alestalo@helsinki.fi; Session 4. Ambivalent legacies and rising challenges in the human genome era Organizers: Karoliina Snell, Finland, karoliina.snell@helsinki.fi and Michaela Lauren, amlauren@bipond.com; Session 5. Technology in action Organizer: Ilkka Arminen, Finland, ilkka.arminen@helsinki.fi; Session 6. New invisible colleges in S&T: the rise of virtual communities Organizer: Jaime Jimenez, Mexico, jjimen@servidor.unam.mx; Session 7. Environmental movement, communications and networking: theoretical and empirical studies. Joint session of RC23 Sociology of Science and Technology and RC24 Environment and Society Organizers: Jean Guy Vaillancourt, University of Montreal, Canada, vaillje@socio.umontreal.ca and Maarten Mentzel, The Netherlands, m.a.mentzel@planet.nl; Session 8. Collective action and environmental issues: knowledge and ethics in framing environmental policies and practices. Joint session of RC23 Sociology of Science and Technology and RC47 Social Classes and Social Movements Organizers: Louis Guay, Canada, louis.guay@soc.ulaval.ca, Jean-Guy Vaillancourt vaillje@socio.umontreal.ca, Pierre Hamel, Canada; Session 9. The effects of globalization on science and technology Chairs: Marja Hayrinen-Alestalo, marja.alestalo@helsinki.fi and Jaime Jimenez, jjimen@servidor.unam.mx; Session 10. Academia-Industry engagement in the knowledge era Chair: Judith Zubieta, Mexico, zubieta@servidor.unam.mx; Special session 1. Knowledge societies: rising expectations and ambivalent prospects Special integrative session of RC08 Sociology of History, RC14 Sociology of Communication, Knowledge and Culture, RC23 Sociology of Science and Technology Organizers: Maarten A. Mentzel, Netherlands, m.a.mentzel@planet.nl, Marja Hayrinen-Alestalo, marja.alestalo@helsinki.fi, Gaetan Tremblay, Canada, tremblay.gaetan@uqam.ca

News from the Field

Literary and Scientific Cultures of Early Modernity is a new series from Ashgate that provides a forum for groundbreaking work on the relations between literary and scientific discourses in Europe, during a period when both fields were in a crucial moment of historical formation. We welcome proposals that address the many overlaps between modes of imaginative writing typical of the sixteenth and seventeenth centuries- poetics, rhetoric, prose narrative, dramatic production, utopia-and the vocabularies, conceptual models, and intellectual methods of newly emergent "scientific" fields such as medicine, astronomy, astrology, alchemy, psychology, mapping, mathematics, or natural history. In order to reflect the nature of intellectual inquiry during the period, the series is interdisciplinary in orientation and will publish monographs, edited collections, and selected critical editions of primary texts relevant to an understanding of the mutual implication of literary and scientific epistemologies. Proposals should take the form of either 1) a preliminary letter of inquiry, briefly describing the project; or 2) a formal prospectus including: abstract, table of contents, sample chapter, estimate of length, estimate of the number and type of illustrations to be included, and a c.v. Please send a copy of either type of proposal to each of the series editors and to the publisher, at the addresses below: Mary Thomas Crane, Dept of English, Boston College, 140 Commonwealth Avenue, Chestnut Hill, MA 02467, USA; Henry S. Turner, Dept. of English, University of Wisconsin-Madison, 600 N. Park Street, Madison, WI 53706 USA; Erika Gaffney, Editor, Ashgate Publishing Company, 131 Main Street, Burlington, VT 05401-5600, USA, E-mail: egaffney@ashgate.com.

Fitzroy Dearborn's Encyclopedia of 20th-Century Technology, edited by Colin Hempstead, was announced in September 2001 and is scheduled for publication in Spring 2003. As of January 2002, over 140 contributors have signed up. A small number of entries remain unassigned and we are seeking authors for these so that the list of entries can be closed and we can proceed with the writing and review phases. Scientists and

historians of science and technology who are interested in contributing some of the remaining unassigned entries should look at the project web site www.fitzroydearborn.com/london/tech/intro.htm. There's a list of unassigned entries in alphabetical order as well as other useful information about the project. Contributors will receive a copy of the Encyclopedia and a fee for further entries, and will be fully credited in the Encyclopedia. Deadlines will be from 1 April, or by arrangement. Offers to write entries should be emailed to tech@fitzroydearborn.co.uk, or faxed on +44 (0)20 7636 6982 to Dr Colin A Hempstead, 2 Uplands Road, Darlington, County Durham DL3 7SZ UK, tel +44 (0) 1325 483439, email colin.hempstead@ntlworld.com.

Loet Leydessdorf writes that the Science & Society Action Plan of the Commission of the European Communities, Communication to the Commission to the Council, The Eur. Parliament, the Economic and Social Committee and the Committee of the Regions, Brussels, 4 Dec. 2001, at p. 13: Developing the European network of Science Shops. There are in Europe various types of Science Shops close to the citizen in which science is placed at the service of local communities and non-profitmaking associations. Hosted by universities or independent, their common feature is that they answer questions from the public, citizens' associations or NGOs on a wide variety of scientific issues. The first Science Shops were opened in the Netherlands in the 1970s and the idea was then taken up by about 10 other countries throughout the world. There are now over 60 Science Shops in Europe, mainly in the Netherlands, Germany, Austria, the United Kingdom and France.

The diversity and scope of questions is such that the most successful centres are having difficulty in satisfying demand. The Science Shops would gain from getting together, with the aid of the Commission, to pool their resources, their work and their experience. ACTION 21: The networking of Science Shops in the regions of the Union and the candidate countries will be encouraged in particular through the creation of a

permanent inventory and of a structure for the dissemination of work carried out on behalf of citizens and associations (e.g. database), and by the development of promotional tools.

Integrated Assessment: A renewed international journal invites submissions, with the benefits of rapid publications (including electronic web version); Superior peer review from respected researchers in the field; 25 free offprints; No page charges; Broad readership, including the members of The Integrated Assessment Society. The leader reads: There is no one "right" way to represent and analyze the world, therefore diverse methods and approaches to Integrated Assessment are

Opportunities Available

The Minister of Research in France is offering one-year post-doctoral research positions for foreign scholars under 35 years of age. Pending budget approval, the Centre Alexandre Koyré would like to welcome a post-doctoral candidate in the field of history of contemporary science and technology beginning in the Fall of 2002. Applicants have to submit a one page description of their research project (preferably in French) and a curriculum vitae by February 10th. In the project description, the candidate should present the problematic of the project, and its theoretical relevance and methodology, as well as his/her motivation. Further, the candidate must explain how the postdoctoral position will enhance the relationship between the home department and the Centre Alexandre Koyré (one short paragraph). The selected candidate will be notified by May 2002. Located in Paris, the Centre Alexandre Koyré is affiliated with the Museum of Natural History, the École des Hautes Études en Sciences Sociales, and the Conseil national de la recherche scientifique. For further information on the Centre, see:
http://www.ehess.fr/centres/koyre/Centre_A_KOYRE.html. For further information on the postdoctoral position, please contact Amy Dahan (Dahan@damesme.cnrs.fr), adjunct-director of the Centre. You can also have some details from Stéphane Castonguay

needed, ranging from model-based methods to participatory methods. Generally these methods are, in varying degrees, in their relative infancy. The aim of this journal is to support a broad array of approaches and hence nurture the emerging field of Integrated Assessment. The journal will publish high quality papers on methodology and applications of Integrated Assessment, as well as disciplinary contributions to the practice of Integrated Assessment. Please submit your paper to the IA Editorial Office, International Centre for Integrative Studies, Maastricht University, PO Box 616, 6200 MD Maastricht, The Netherlands. Email: IA@icis.unimaas.nl. Internet: <http://www.szp.swets.nl/szp/journals/ia.htm>

(Stephane_Castonguay@uqtr.quebec.ca), who has been postdoctoral researcher during the year 2000-2001.

There are European Commission Research Fellowships in 'New Genetics / New Society? Integrating Science, Society and Policy'. The Science and Technology Studies Unit (SATSU) in the Department of Sociology at the University of York, UK invites applications from high calibre PhD students researching the implications of the new genetics for society and policy. The Fellowships are funded by the Marie Curie Training scheme of the European Commission. Applicants must be registered for a doctoral degree at educational establishments in the European Union (except the UK). A period of study (3-12 months) with SATSU will enable successful candidates to benefit from close supervision by established scholars researching the relationships between molecular biology, society and policy. Fellows will be encouraged to engage with the research field through 3 related routes corresponding to innovative research in the Unit: The Social Context of Human Genetics - relating to the implications of genetics for changing definitions of health, risk and social exclusion; Risk and the Politics of Nonhuman Transgenics and Cloning - Regulation, policy and

its implications for identity and species boundary change; The Social Shaping of Industrial Activity and Innovation in the New Genetics - the social management of larger scale industrial innovation in genetic technologies particularly within the pharmaceutical industry. The Marie Curie Fellowship covers a period of study between 3-12 months - valid between April 2002 and Oct 2005. Please be aware that the timing and duration of Fellowships will reflect the best availability of supervisors, equipment and space to suite Fellows' needs. Successful Candidates will receive a monthly allowance of 1200euros in addition to their existing home funding. The grant covers return travel expenses between the home institution and York. To apply send a covering letter indicating when you would like to come and for how long; a Full Curriculum Vitae; Two references - referees must comment on your ability to undertake research and your English language competence; A 1500 word outline of your research (title, key questions, research methods and conceptual / theoretical orientation); and A description of the activities you wish to undertake during the period of your Fellowship (300 words). Enquires / Applications to: Dr Nik Brown (ngfb1@york.ac.uk), Science & Technology Studies Unit, Dept of Sociology, University of York, York, YO10 5DD, UK. Tel: +44 (0)1904 434741. Fax: +44 (0)1904 433043. See also <http://www.york.ac.uk/org/satsu/MarieCurie/MarieCurieWelcomePage.htm>

The Science, Medicine, and Technology in Culture Program at Pennsylvania State University invites applications for a 2-year postdoctoral NSF Fellowship in residence beginning fall 2002. Field of expertise is open. The postdoc will teach one course per semester: He or she will also co-organize (along with two faculty members) an international workshop on gender and science to be held spring 2004. This workshop will invite scientists to discuss how gender analysis has changed their fields of research. SMTC spans the departments of History, English, Philosophy, Anthropology, Women's Studies and several of PSU's leading departments of life, social, and physical science. For further information, please see our website:
<http://faculty.la.psu.edu/ssps/smtc.html>. Candidates must have completed their Ph.D. by fall 2002. The award carries with it a \$30,000 per

year stipend plus benefits. Interested candidates should send c.v., a brief statement of research and teaching interests (2-3 pages), one dissertation chapter or article, and three letters of recommendation to: Dr. Londa Schiebinger, Edwin E. Sparks Professor, Department of History, 311 Weaver, Penn State University, University Park, PA 16802. Review of applications will begin 1 Feb. 2002 and continue until the position is filled. EOE/AA. Email: LLS10@psu.edu.

The Society for the History of Technology invites nominations for its Dibner Award, established in 1985 to recognize excellence in museums and museum exhibits that interpret the history of technology, industry, and engineering to the general public. Winning exhibits, in addition to being well designed and produced, should raise pertinent historical issues. Artifacts and images should be used in a manner that interests, teaches, and stimulates both the general public and historians. Also, entire institutions, rather than just exhibits, may be considered for this award. The winners will be announced at the Society's Annual Meeting in Toronto, Canada, October 17-20, 2002. The Award consists of a plaque and up to \$1000.00 to cover expenses for a member of the design team to accept the award at the SHOT awards banquet. The Society especially encourages nominations from local and regional historical societies. Anyone, including the institution or individual responsible for its creation, may nominate an exhibit for the Dibner Award. This should be within two years of the exhibit's opening. Nominations should include a nomination form (with names of possible reviewers) and materials that will assist the committee in evaluating the exhibition or museum (exhibit script, related publications, slides or a videotape). All materials sent will be kept by SHOT for archival purposes. The deadline for nominations for the 2002 award is 1 February 2002. Nominations forms can be obtained from the SHOT website and should be sent to the Committee Chair: Maggie Dennis, Project Historian, Lemelson Center for the Study of Invention and Innovation, National Museum of American History, Rm. 1016 Washington, DC 20560-0604. Tel: 1-202-357-2096, Fax: 1-202-357-4517, e-mail: dennism@nmah.si.edu.

The deadline for the Chemical Heritage Foundation Summer Fellowships is approaching. Applications must include a research proposal of no more than 1,000 words that addresses the relevance of resources at CHF to the applicant's research plans. This proposal should also explain how the work advances scholarship and how the outcome might be published. Please include a complete c.v. and arrange for two letters of reference to be sent directly to the Foundation. For more information, please see www.chemheritage.org or email fellowships@chemheritage.org. The Glenn E. and Barbara Hodsdon Ulyot Scholarship has the goal to advance public understanding of the importance of the chemical sciences to the public welfare. The scholar will spend a minimum of two months in residence at CHF during the summer of 2002, conducting research on the heritage of the chemical sciences. Minimum stipend, \$4,500. The American Section of the Societe de Chimie Industrielle, in conjunction with CHF, invites applications for this fellowship. The purpose of the fellowship is to stimulate public understanding of the chemical industries, using both terms in their widest sense. Applications are encouraged from writers, journalists, educators, and historians of science, technology and business. The fellow will spend a minimum of two months in residence at CHF during the summer of 2002. Applicants should specifically show how the project will further public understanding of the chemical industries. Minimum stipend, \$12,000. All applications should be sent to: Fellowship Coordinator, Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106-2702, Fax: 1 215 925 1954.

The Institute for Advanced Studies on Science, Technology and Society (IAS-STs) offers five grants (EUR 1,000.- per month) for fellowships at the IAS-STs in Graz starting 1 October 2002, ending 30 June 2003. The IAS-STs promotes the interdisciplinary investigation of the links and interactions between science, technology and society as well as research on the development and implementation of socially and environmentally sound technologies. The grants of the fellowship programme 2002/2003 are dedicated for projects investigating the following issues:
TECHNOLOGY - GENDER - EDUCATION.

The particular emphasis lies on the analysis of the possibility of involving women in developing, designing and utilising technology and the promotion of girls and women in technology education programmes.

SHAPING OF MODERN BIOTECHNOLOGY.
A further emphasis of the grant scheme comprises issues of the social shaping of modern biotechnology. Researchers dealing with relevant topics e.g. in the fields of public understanding and participation, technology assessment and risk communication are especially encouraged to apply for these grants.

PHILOSOPHY OF TECHNOLOGY. The improved understanding of fundamental aspects of technology, its origins and interaction with man and nature is the main focus of this part of the grant programme. We are particularly interested in research projects dealing with the "agency" of technology.

ECOLOGICAL PRODUCT POLICY. Promoting environmentally friendly design, manufacturing, consumption and use of products represents a further focus of the grant programme. Research projects that contribute to a better understanding of the social and cultural context of products as well as analysis and strategies of an ecological product policy are of particular interest.

The grant application must be submitted together with an application for a fellowship to the IAS-STs. Prof. Arno Bammé, Director of the IAS-STs, decides on the awarding of fellowships and grants in consultation with the Scientific Advisory Board. Please take note of the fact that it is also possible to apply for a fellowship without a grant or to apply for a short-term fellowship (Visiting Fellows). Closing date for applications is 31 March 2002. For application forms and further information: Please visit our website: www.sts.tu-graz.ac.at Institute for Advanced Studies on Science, Technology and Society (IAS-STs)
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(for the record only)
MIT's Program in Science, Technology, and Society invites applications for a tenure-track assistant professorship in the history and/or social

study of biology and the life sciences. Candidates should be able to teach subjects of special interest to undergraduates majoring in biology, pre-med, and bio-engineering. Special consideration will be given those whose research focuses on science in colonial or post-colonial contexts. The candidate should also be able to address contemporary issues in the biological sciences. MIT is an Equal Opportunity and Affirmative Action employer and strongly encourages applications from women and members of minority groups.

Net News

The new edition of the HOPOS Newsletter is now online. This edition features information on HOPOS 2002 in Montréal, an article on history and philosophy resources in Hungary, and reviews of the following books: Lenzer (ed.), *August Comte and Positivism: The Essential Writings* (1997 edition); Holton, *Advancement of Science and Its Burdens* (1998 edition); Rosenberg, *Darwinism in Philosophy, Social Science, and Policy* (2000); Michell, *Measurement in Psychology: A Critical History of a Methodological Concept* (1999). Visit the webpage of HOPOS, the History of Philosophy of Science Working Group, at <http://scistud.umkc.edu/hopos>. On the Newsletter page, you will find the current edition (Volume VI, Number 2) on the right-hand side. You will need Adobe Reader to read and print the Newsletter. The History Of Philosophy Of Science (HOPOS) Working Group is dedicated to the study of historical topics in philosophy of science, from Aristotle to the very recent past. The HOPOS Newsletter is published electronically two to three times a year and features reviews of books on topics related to the history of the philosophy of science.

A virtual conference on Global Ethics and Sustainable Development takes place on February 14-15. See <http://fsw.kub.nl/globus/conference/>.

SCIDEV.NET, the website, covers aspects of

Candidates should submit a letter of application, a complete resume, a brief description of research interests (2-3 pages), and three letters of recommendation to Debbie Meinbresse, Program in Science, Technology, and Society, Massachusetts Institute of Technology, E51-185, 77 Massachusetts Avenue, Cambridge, MA 02139-4307. (Fax: 617-258-8118; E-mail: meinbres@mit.edu). Applications should be received by February 15, 2002.

science and technology relevant to developing countries. The site includes topical news stories and more in-depth information resources called 'dossiers'. The editor may be emailed at nicky.lewis@scidev.net.

In Australia there is the Australian Science Communicators <http://www.asc.asn.au/>. The Australian National University has a graduate program at the Centre for the Public Awareness of Science. Their web pages is in the process of massive up-dates, but you can visit the older site at <http://www.anu.edu.au/scicom>.

<http://murrow.journalism.wisc.edu/dsc/dsc.cgi> is a Directory of Science Communication Courses and Programs in the United States.

The American National Association of Science Writers is at www.nasw.org.

Bioethics is at <http://www.blackwellpublishers.co.uk/asp/journal.asp?ref=0269-9702>. As medical technology continues to develop, the subject of bioethics has an ever increasing practical relevance for all those working in philosophy, medicine, law, sociology, public policy, education and related fields. Bioethics provides a forum for well-argued articles on the ethical questions raised by current

issues such as: international collaborative clinical research in developing countries, organ transplants and xenotransplantation, ageing and the human lifespan, AIDS, the Human Genome Project and its implications, and embryonic stem cell research. These questions are considered on the basis of concrete ethical, legal and policy problems, or in terms of the fundamental concepts, principles and theories used in discussions of such problems. Bioethics also features regular Background Briefings on important current debates in the field. These feature articles provide excellent material for bioethics scholars, teachers and students alike. Subscribers have access to full-text articles. Editor: Ruth Chadwick, Email: r.chadwick@lancaster.ac.uk.

Marko Monteiro invites you to visit his new homepage, Social Studies in (Bio)Technology at <http://sites.uol.com.br/markosy>, associated with his PhD Research in Brazil.

Biology and Philosophy is at <http://www.wkap.nl/jrnltoctoc/0169-3867>. The past decades have witnessed fascinating and controversial advances in the biological sciences. One may think, for instance, of methods for analyzing the basic molecular units of heredity; of proposals and clarifications of the appropriate methods of classifying organisms; of exciting new ideas about the nature of the fossil record and their implications for the elucidation of evolutionary mechanisms; and of ways in which the biological study of behavior has been extended, theoretically and experimentally, and of supposed implications for humankind. To add to these internal issues, the outside world has also seen much debate on biology - in the world of education, for instance. These and other issues have made biology one of the most exhilarating areas of science, and have aroused in biologists and philosophers an awareness that there is a need for meta-theoretical analysis, both about the very nature of biology, as well as about its social implications. Biology and Philosophy is aimed at a broad readership, drawn from both the sciences and the humanities. The journal subscribes to no specific school of biology, nor of philosophy, and publishes work from authors of all persuasions and all disciplines. The editorial board reflects this attitude in its composition and its world-wide

membership. Each issue of Biology and Philosophy carries one or more discussions or comparative reviews, permitting the in-depth study of important works and topics. Subscribers have access to full-text articles. Editor: Kim Sterelny, Email: kluwer@wkap.com

Responsibility under Uncertainty: Science, Technology and Accountability

EASST 2002 Conference, July 31 to August 3, University of York

The organisation of the Conference is well underway, and the deadline for paper proposals has now been passed. The deadline for early registration is approaching: 31st March. The early registration fees are GBP 100 for individuals and GBP 60 for students. Reduced rates for those from Eastern Europe and developing countries are available, please consult the EASST 2002 website: <http://www.york.ac.uk/org/satsu/easst2002/>

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