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From authority to authenticity: the changing governance of biotechnology

NIK BROWN[a] & MIKE MICHAEL[b]

Abstract *In this paper, we suggest that the basis on which risk is publicly managed is presently in a process of transition from the demonstration of expert authority to that of public authenticity. That is, in today's contexts of contested trust, the achievement of an authentic persona has become an increasingly important representational objective for both institutions and individuals involved in risk management. The paper draws empirically on a recent controversy in biotechnology, xenotransplantation, the transplantation of tissues from animals to humans. Drawing on this case, we consider not only how risk is assessed (in the loose sense of weighing up, formally or informally, the risks and benefits associated with a particular development), but also how the riskiness of risk assessment is itself contained. That is to say, we explore how various actors engage not only, in one way or another, with the 'calculation of risks' associated with xenotransplantation, but also with the risks entailed in calculating risks, or what we might call 'meta-risk'. This meta-risk can be seen as an index of the erosion of scientific authority in the context of 'world risk society'. We suggest that one means of waylaying such meta-risk is the demonstration of 'transparency' in the process of rendering risk assessments. However, 'transparency' is itself highly problematic, not least because the criteria that make a decision-making process (such as risk assessment) 'transparent' are always open to query. Indeed, far from being a solution to the crisis in trust, it is very likely that we will see an additional crisis in transparency. We therefore examine our data in terms of the means by which the assessment of risk is 'anchored' and the need for further interrogation obviated. We suggest that the problems of 'meta-risk' and transparency are rhetorically waylaid by representations of authenticity, crucially signed by what we shall call the 'performance of suffering'. Drawing on recent work in the sociology of institutions and emotions, we suggest that there are emerging conventions by which 'suffering' evokes 'authenticity' in the effort to reach a decision (or assess a risk) and that this 'authenticity' is replacing 'authority' as the means by which a decision (or risk assessment) is rhetorically warranted.*

Key words: risk, transparency, governance, biotechnology

Introduction

This paper addresses key changes in the contemporary negotiation of scientific risk, using the controversy surrounding transpecies transplantation (xenotransplantation) as an illustration. In particular, we are interested in analysing the ways in which various actors involved in the

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controversies surrounding this biomedical innovation articulate their understandings of risk. Inevitably, given the still 'in process' character of xenotransplantation (as with any cutting-edge science-in-process—cf. Collins, 1985), to articulate one's understanding of risk is to engage with the means by which such risks are identified, calculated and judged in the context of benefits. That is to say, part and parcel of identifying risk is making judgements about who to trust and whose account is credible or suspect. It is, in other words, a case of assessing who has a legitimate voice.

We have moved within the space of a paragraph from an analysis of *how relevant actors assess the risks* of xenotransplantation to an analysis of *how actors assess who is relevant to their assessment of risk*. But such a move raises other questions for participants. In a nutshell, the issue relates to whether one wants to appear 'partisan' with a concomitant rejection of certain voices. Such a move entails the further 'rhetorical' risk of appearing to be dismissive of others—of displaying too much inflexibility. If one wants to be more inclusive, then what are the criteria by which voices are invited into the process of risk assessment? As we shall argue below, there is a 'pressure'—partly derived from what has been called the audit society (Power, 1999)—to make such criteria, and the form and process of deliberation (which might entail consultation or participation), 'transparent'. This shift of focus from risk assessment to the risky process by which 'risk assessors' are selected, gathered and consulted reflects what we shall call 'meta-risk'. As such the term 'meta-risk' is meant to connote the social and political risks that are incurred when decisions are made about how to go about assessing technical risks.

In what follows, we present some evidence of actors' engagement with 'meta-risk'. Indeed, we wish to argue that this is what necessarily happens if we are to take Beck's (1992, 2000) arguments about world risk society seriously. We thus regard our case study of xenotransplantation as an exemplification of broader meta-risk processes that increasingly characterise any contemporary assessment of risk.

Clearly, in seeking to resolve the problems of trust and credibility, transparency has become ever more central to the revalidation of otherwise increasingly circumspect professions, institutions and commercial organisations. However, far from endorsing transparency as a normative good, we will argue that transparency is itself subject to inherent limitations. While it might have once worked de facto, insofar as participants (that is, lay and professional risk assessors) and observers (that is, broader lay and expert constituencies) were persuaded to subscribe to the transparency of a given consultative event (not least because of the authority of the event and its organisers), increasingly such efforts are dogged by the scepticism of participants and observers. The logical grounds for such scepticism is that transparency is always compromised, and is therefore *de jure* unattainable. It is a sociological commonplace that rules (and norms)—in this case for decision-making and consultative processes—cannot specify the context and moment of their own application. For this, other rules are required (and so on ad infinitum). Our argument is that there are constitutive problems associated with the performance of transparency. Individuals must persuade us that they have engaged with the debate and have listened to and digested other points of view. Institutions likewise must perform this transparency, that is, demonstrate that the processes of deliberation which they oversee are indeed transparent. However, logically, this is impossible. Socially, transparency is becoming more and more difficult in light of the chronic ambivalence towards expertise and authority that characterises risk society. Such *performative problems of transparency* require a rather different tactic.

Let us explain. In light of this general shift away from the valuation of expert authority, it would seem that transparency might confer authority. And yet, as we have argued, transparency is contestable and thus needs to be performed persuasively if it is to be accepted. Our suggestion is that such transparency entails a movement from authority to 'authenticity',

and in particular, authenticity signified by suffering, pain, agony and the like. That is to say, social conventions that structure the performance of suffering and pain are drawn upon in order to help establish openness and transparency in the determination of risks: this discursive and practical repertoire of feelings, emotions and affect serves to signal authenticity or genuineness which in turn serves to establish transparency and openness. So, if, as seems to be the case, transparency and openness are a sort of higher value, or a cultural benchmark of good decision-making procedure, given the inherent logical and historically contingent difficulties of demonstrating transparency and openness, then the performance of suffering can substitute for a demonstration of transparency. This is because such suffering is grounded in the stresses, dilemmas and tensions that emerge when a person or institution attempts to incorporate—give full voice to—the disparate, contradictory, antagonistic positions that contribute to the argument or controversy or risk assessment. In other words, the encompassing of these contrasting viewpoints leads to pain: crucially, the 'experience' and performance of sufficient pain conveys the impression that one has encompassed as much contradiction as is possible—one has been open and transparent enough. We can put this signification in the form of a statement: 'As a decision-maker, I have dealt with such disparate positions that it has caused me great pain and suffering. What more can you expect me to do? I have incorporated as many different viewpoints as is bearable. Is that not inclusive, open and transparent enough?' In sum, the vehicle for authenticity or genuineness is signalled by the agonistic difficulties of 'making tough decisions', of being seen painfully to ponder over antagonistic positions, agonising over one course or another. Emotional suffering is the 'ultimate' (in this present cultural context) marker of reality and truth. If someone is in pain, there is no doubt that they are being authentic. There is thus a shift from the performance of transparency to the performance of authentic pain with which to accomplish what transparency alone cannot.

Obviously enough, this move entails a shift of emphasis from those who represent the range of positions to the 'experience' of incorporating those experiences—a move from the 'objective' to the 'subjective', as it were (cf. Mestrovic, 1996). Beyond the realms of scientific rhetoric, such key changes have likewise not gone unnoticed in the context of popular political discourse either. As BBC Radio 4's *Analysis* programme recently observed, 'much has been said about the break with stiff-upper-lip stoicism. Bill Clinton, Tony Blair and Michael Portillo are all graduates of this emotional academy, lip-tremblers to a man' (BBC Radio 4, *Analysis*, 19 July 2001).

In what follows, we will first provide some background with which to make sense of this transition from the authoritative to the authentic. Our account begins by documenting how it is that transparency has come to dominate the rhetorical agenda of current science policy, before drawing attention to some of transparency's crucial limitations. The recourse to emotional discourse, we suggest, is an attempt to resolve these limitations. A brief discussion of literatures in the sociology and anthropology of emotion will help make meaningful sense of this appeal to affective language and portrayal. Next, we want to illustrate some of these features in a discussion based on an ongoing case within biotechnology, the recent attempts to innovate and regulate the use of animals as a source of tissues for human transplantation. Finally, we offer some broader reflections on the future direction of 'authentic' public discourse and the implications for debate on the governability of risk.

From authority to authenticity

Any number of recent accounts point to a mounting crisis in the authoritative position of science. In the UK alone, an all too familiar miscellany of contemporary events signifies a

fragmentation of knowledge and the apparent difficulties of shoring up traditional knowledge institutions. The now legendary BSE saga set the scene for subsequent public scepticism over the management of Foot and Mouth disease. The advent of GM foods and field trials met with possibly the most fierce consumer hostility to agro-industrial innovation witnessed to date. More recently, the MMR debate poignantly illustrates the readiness of publics to find hidden motives behind assurances of safety and efficacy. The UK House of Lords (2000) Select Committee on Science and Technology has been keen to point out that the 'crisis in public confidence' has been as unnerving for science as it has been for non-science: '… public unease, mistrust and occasional outright hostility are breeding a climate of deep anxiety among scientists themselves' (House of Lords, 2000). The report itself signalled something of an institutional turning point, echoed widely elsewhere, that new alternatives to expert authority need to be found. The remedy has been to extend the arm of democratisation, to begin the task of measuring the governance of science against that of other organisational and institutional formations. Numerous democratic innovations have been instrumental in signalling a new institutional body language for science, including consensus conferences, public participation exercises, science shops and, most notably, the language and rhetoric of transparency.

In this shift towards openness and a new more welcoming body language, scientific institutions are partly drawing on the developments in the sub-discipline of public understanding of science (see Irwin and Michael, in press, for a recent review; Wynne, 1995; Irwin, 1995; Irwin and Wynne, 1996). Once, decision making was the privilege of experts, and any public involvement required that publics be educated in matters scientific. Nowadays there is an emphasis upon, on the one hand usefulness of the public's own knowledges and, on the other, the development of techniques by which these knowledges can be incorporated into the decision-making process. There is even, albeit to a somewhat lesser extent, an acknowledgement of the contingency of scientific knowledge itself. However, as we have seen, such cultural developments and institutional innovations are deeply ambivalent. Moreover, as Michael and Brown (2000) argue, these attempts at democratisation entail unexamined models of the citizen (and, indeed, of democracy). The turn to transparency, rather than being reified as another instantiation of democratisation, is here problematised, historically situated in the context of a number of changes. The citizen that is presupposed in the context of meta-risk and transparency is not one we would recognise from typical accounts of modernity. Transparency, as we hinted at above and illustrate below, belongs to the post-modern, for want of a better term (see below).

The 'transparency turn' has been as evident within the commercial cultures of biotechnology as it has been within regulatory public administration. There has been a radical shift in commercial biotechnology towards the language and rhetoric of candid openness, especially amongst those organisations most affected by the British GM debate (Doubleday, 2002). Following its disastrous consumer-relations period in the late 1990s, Monsanto is currently seeking to project itself as a contrite listener rather than a tenacious evangelist of the biotech dream. Democratisation is the prime vehicle for their reauthorisation in the public sphere, with Hendrik Verfaillie (CEO) restyling Monsanto as, in his words, 'a good corporate citizen'. Verfaillie describes Monsanto's chequered history as a problem of corporate misjudgement, a failure to acknowledge the prevalent desire for uncensored access to information:

> The shift that started 40 years ago is approaching maturity. It is a movement from a 'trust me' society to a 'show me' society. We don't trust government … and thus government rulemaking and regulation is suspect. We don't trust companies … or

> the new technologies they introduce into the market place. We were still in the 'trust me' mode when the expectation was 'show me'. (In Vidal, 2000)

Transparency is part of a powerful repertoire of signification on which the authority of both politics and science is itself based. It has its roots in the whole spectacle of political parliamentary display, on the one hand, and experimental display in science on the other. As Doubleday (2002) puts it:

> Seeing is believing … It is through the performance of public spectacle that political facts are created, and it is the causal relation between political agent and political fact that allows the agent to be held to account. (Doubleday, 2002: p. 8)

The metaphor of transparency, according to the political analyst J.M. Balkin (1999), encompasses at least three distinct political virtues. Informational transparency refers to the disclosure of information on which decisions are based. Participatory transparency denotes the democratic ability to take part in political process, embracing the representative electoral process in addition to various consultative apparatuses. Accountability transparency encompasses the expectation that decision makers will be held accountable and subject to punitive measures. In the context of recent science policy and communication practice, transparency has become central to the reinvention of knowledge relationships between 'lay' and 'expert' constituencies.

And yet transparency as a democratic value, like justice and representativeness, is always dependent on the contexts in which it is evoked and practised. Transparency is always conditional and will vary according to the form of disclosure desired, the means by which disclosure is achieved and any number of other limiting conditions. The result is that transparency, an ideal virtue, is often seen as potentially corruptible, vulnerable to being perverted by one influence or another. Transparency rests on some notion of 'ideal speech' (Habermas, 1980) in which democracy's values operate without restriction.

The problem with this view of transparency is that it presumes that there is a real transparency against which these distortions can be measured or compared. It rests on the idealistic notion that absolute transparency is possible, and thus enables shortcomings to be identified and rectified or censured.

A recent special issue of the journal *Cultural Values* nicely illustrates this tension between these realist and constructivist versions of transparency. Cotterell's (1999) contribution to the volume critiques what we might call realist or naïve accounts of transparency, accounts which seek to identify those forces that ultimately debase or dishonour transparency. In particular, he takes issue with Balkin's paper entitled 'How mass media simulate political transparency'. 'The idea of a simulated transparency', argues Cotterell, 'suggests that we can recognise what a real, non-simulated transparency would be … that we know what true or substantive political issues are as opposed to manufactured political realities' (Cotterell, 1999: p. 415). The naïve viewpoint of authentic disclosure is evocative of the now largely extinct debates about false ideology and the realist assumption that there is an authentic version of things to be recovered once we have stripped away any misrepresentation.

The communication of knowledge and concepts of transparency need to be understood non-judgementally and without any prejudgements of inherent goodness. This is an absolutely necessary conceptual move if we are to regard transparency as a practice that will always operate differently in various contexts, rather than as an attainable ideal betrayed by reality. Believing that a state of absolute transparency has been attained creates the illusion that there is simply nothing more to know and that all relevant information is available. Clearly this is, at best, a naïve position to assume.

Indeed, as noted above, transparency is subject to the same logical difficulties as experimentation and evidence. When is it possible to state that one is in possession of unequivocal findings or incontrovertible experimental evidence? The contingent character of any claim, its dependence on a body of supporting 'facts' that are always contestable, means that adversaries can always insist that supporting evidence remains insufficient to prove the claim. It is possible for combatants in a debate to continually query a claim, requesting further supporting evidence indefinitely, ad infinitum. This 'experimenters' regress' (Collins, 1985), holds equally true for transparency:

> there is always more to know on any matter ... knowledge is always incomplete, always to be questioned, broadened and extended, enriched and refined, supplemented and controverted ... the transparency process is potentially unending because there are always new accounts or revelations that can be sought, another side of the story to tell ... (Cotterell, 1999: p. 419)

Any act of transparency, as well as claim making, is always dependent on a community of relationships, together with the underlying characteristics of that community. The irony is that transparency will probably be seen as satisfactory only in those contexts where relationships are already stable, and where there is little reason to doubt one another's intentions. We might envisage this state of affairs as a political version of normal science (Kuhn, 1962). Where this is not the case, transparency will always be subject to the problems of infinite regress, its practitioners always liable to be challenged as insufficiently sincere or untrustworthy. Again, this conjures up a politics of 'post-normal' science where knowledge is subject to ceaseless scepticism (Funtowicz and Ravetz, 1999).

Transparency, it seems, is unlikely to be the panacea to the 'crisis in public trust' diagnosed by the House of Lords Select Committee and numerous others. If anything, we may well see a crisis in transparency exacerbate that of public trust. If this is the case, and we suggest that it is, then what becomes of transparency, a patently indispensable aspect of the political apparatus? How is transparency likely to be reconstituted such that it continues to fulfil its role within the democratic ideal?

Our suggestion here is that openness alone is an insufficiently convincing vehicle with which to persuade audiences of good and honourable intentions. Something more is needed to shore-up the limitations of transparency, and this inadequacy in transparency explains the increasing recourse to the 'emotional academy' of political persuasiveness. The shift from authority to authenticity is grounded in a political rhetorical culture that has increasingly come to depend on agonistic demonstrations of personal genuineness. Take for instance, another recent statement by the Chief Executive of Monsanto, hinting at the 'painful' distresses of political acclimatisation:

> Even our friends told us we could be arrogant and insensitive ... We were blinded by our enthusiasm. ... We missed the fact that this technology raises major issues for people—of ethics, of choice, of trust, even of democracy and globalisation. When we tried to explain the benefits, the science and the safety, we did not understand that our tone—our very approach—was arrogant. (In Vidal, 2000)

The rhetorical potency of pained emotional display is, we might argue, steeped in a series of broader cultural conditions. Firstly, modern Western culture is characterised by a predilection to view emotions as inherently genuine, naturally occurring precognitive forces over which the individual has little rational control. Indeed, this convention assumes that emotions are caused by external stimuli which impact upon the individual and trigger the given

emotional response. In this respect, then, emotions have been 'granted ultimate facticity by being located in the natural body' and therefore 'least subject to control, least constructed or learnt (hence most universal)' (Lutz and Abu-Lughod, 1990: p. 1). This broad cultural convention has, in recent years, been subjected to close analytic scrutiny by anthropologists and sociologists (see, for example, Harre, 1986; Thoits, 1989; Williams, 1998). In this largely social constructionist perspective on emotions, they are viewed as the upshot of particular conventions which serve as their warrant: emotional displays are permissible and comprehensible because they are manifested in a context whose local social rules require their manifestation. Even pain, that ostensibly most basic of corporeal responses, is rendered knowable through social categories such as narratives (cf. Bendelow and Williams, 1998). Secondly, modern Western culture seems to operate with *particular* rules that increasingly orient around an ethos of testimony and authenticity that is perhaps best encapsulated in the rise of public confessional culture in which individual struggles and failures are displayed and witnessed. Nikolas Rose (1996, 1999), drawing on Foucault, has attached contemporary emotional display to what he terms the 'psy-complex' (those human scientific disciplines of psychiatry, psychology, psychotherapy and the like). Out of the psy-complex have developed new means of governing the self, normative prescriptions and regimes which police testimony itself. Together, these serve as the context in which the performance of pain amounts to a public confessional of struggles between different points of view that cause one pain. Such performed pain evokes the idea that *sufficient* numbers of disparate viewpoints have been encompassed. Sufficiency of difference (of viewpoints) thus rests not on some absolute transparency (which is impossible and implausible), but on *demonstrable pain*. The implication is that *all possible perspectives have been accommodated, all that can be borne has been borne*. In sum, the combination of the *facticity of emotions* and the *spectacle of their display* produces a particularly potent rhetoric.[1]

In what follows, we want to ground this broader commentary in a particular empirical context, offering a means of observing how the shift from the authoritative to the authentic has manifested itself in a specific context. The xenotransplantation case, like numerous others in biotechnology, harbours acute tensions about the disclosure of information, defining who should and who should not be privy to information of one kind or another. Clearly, in the brief opportunity we have here, it would be impossible to comprehensively cover all aspects of display and disclosure in a case as wide ranging as research into transpecies transplantation. As such, what we propose to do is focus on a single example, the making of a television documentary, the result of cooperation between a major media production company and a large pharmaceutical PLC. We will be drawing principally on a number of interviews with individuals involved in the making of the series, and a larger pool of key respondents from other constituencies including research, regulation and advocacy (patient advocacy and animal welfare). In addition to preserving the anonymity of respondents, as one would expect, we have also elected not to disclose the identities of the firms or the title of the documentary. Instead, we will refer to the TV company as Clarion Media and the pharmaceutical company as BioTran PLC. In a paper addressing the limitations of transparency we expect that the irony of this move is probably not lost on our reader. However, since our

1. It is useful to distinguish between two levels on which this pain can be performed. Firstly, *individual agony* refers to the way people talk about the struggles they have gone through in encompassing the multitude of competing issues in reaching a certain decision about risk. Secondly, *institutional agonism* refers to the way spokespeople talk about the struggles that their institutions have had to go through to accommodate competing points of view in reaching a risk assessment or decision (or policy recommendations). The latter are likely to relate to regulatory bodies, but also biotechnological firms; the former are likely to relate to individual scientists, activists or patients. More usually, demonstrations such as these run parallel with one another, as Verfaillie's statements about Monsanto above illustrate.

observations here are more general than specific, additional confidentiality measures are justifiable.

A case study in authenticity

By way of background, xenotransplantation is commonly defined as the use of live non-human tissues and cells in human transplantation procedures. Numerous trial studies in the 1970s and 1980s, particularly the infamous 1984 baby Fae episode, had effectively undermined any expectation that the approach would eventually prove therapeutically useful. However, the arrival of mammalian transgenic techniques in the mid to late 1980s, coupled with nuclear transfer cloning much more recently, inspired large-scale commercial investment by several international pharma companies. The overwhelming focus of research and development was directed at overcoming immuno-rejection processes between unrelated species. However, virologists' concerns in the mid-1990s, that the approach might become a vehicle for potentially catastrophic transpecies disease incidents, has been responsible for subsequently far tighter regulation and the consolidation of international governance structures.

Needless to say, the innovation history of xenotransplantation has been played out against numerous recent risk crises, characterised by public disaffection with commercial biotechnological innovation, together with regulatory institutional instability. The apparent problems of trust alluded to above have a special valency within xenotransplantation. The questions of cross-species disease transmission directly brings to mind BSE and even debates about the aetiological origins of HIV. The use of transgenic animals has animated pervasive anxieties about animal welfare and cruelty, particularly in Northern Europe. This is especially the case in xenotransplantation because of the field's intensive dependence on experimental primates, the nearest evolutionary models for human immunology. Additionally, many of the procedures licensed in the UK have been graded as the most severe permissible by law and therefore have been amongst the most contentious. These and other factors have led to significant restructuring of the xenotransplantation research community, including the relocation of a sizeable European player to the USA under a new commercial name, and the scaling down of large pharmaceutical investment.

All of which has made for a sometimes difficult political and practical terrain within which the field has had to operate, bringing with it strained relationships between industry, regulation, animal welfare, patient advocacy and various wider public formations and sensibilities. At the heart of many of these tensions are the problems of communication and access to information between parties who may have good cause to be suspicious of one another.

The motivation towards transparency, by industry and others, largely reflects the prevailing sense that new relationships of openness must to be forged in order to allay potentially costly mistrust. What follows is an account of the way a relationship develops, within the transparency climate, between a large pharmaceutical corporation and a leading European television production company. The following story begins with an interview extract in which a respondent from Clarion Media recounts how s/he persuaded BioTran PLC of the necessity for a TV documentary, using Monsanto's difficulties as leverage:

> CM1: Well we convinced them the only way to diffuse their critics was to be completely open … we warned them about what had happened with Monsanto … [how it] got caught with ads that contained sort of half truths and misinformation and stuff like that. And we said you've got to allow us, and trust us to make a balanced programme out of this.

Access for Clarion, however, was far from straightforward, especially since BioTran had been besieged with similar requests from other companies, all competing to overcome their customary disinclination to become involved in documentary making. Clarion's eventual success in gaining access is attributable to a number of factors, not least a long-standing friendship between the producer and BioTran's public relations advisor, in addition to the general climate of 'transparency-as-good':

> CM1: we've known each other for most of our adult lives … he said 'God I've just done this media training with this amazing company … they think they're going to be doing this in five years', and I said 'that would be incredible because it would be like Christian Barnard filmed from the beginning'. That started the idea going … I got pestered until he took me to [BioTran]. … he's also written on the media … he's about smoothing the interface … their fears and what's right to know …
>
> They knew that they were facing a GM food disaster if they didn't get the public into this in the right manner. Not that they wanted to manipulate anything; they actually wanted the whole story put out rather than just the sort of partial narrow viewpoint, that kind of stuff. They didn't want us to cherry pick the film … it was very often in the papers, but never properly visualised. All you would ever see is you know, column after column of print with a couple of pigs standing in the hay.

Eventually, the key motifs of transparency and openness served to mediate the developing relationship between the two parties. Over a 24-month period, filming for the documentaries proceeded with apparently unprecedented access to already embattled animal research laboratories and interviews with key members of staff:

> CM1: You should watch those programmes frame by frame and you'll get an idea …we have footage from [the animal laboratory] of animals that have had heart swaps and stuff like that … you couldn't have got that out of them without a lot of very careful negotiation, and they take a big risk with it. But I think it's partly because [BioTran] just felt right from the beginning, that if they didn't show everything, they couldn't win. It must have made them very, you know, keen on letting the public in to the whole thing; and we were just providing the means for that.

Clearly then, both BioTran and the Clarion producers were convinced that their joint efforts constituted an unparalleled gesture of openness, providing exclusive access into the inner recesses of experimental space, an animal research laboratory. For example, they filmed the live birth by hysterectomy of pathogen free piglets and numerous other normally sequestered events within the laboratory. The programme itself opens with scenes of pig embryo brains being dissected in order to derive neural cells for transplants. Instead of the much-criticised 'front stage' façade of pharmaceutical public relations, these collaborators were committed to the idea that they were offering viewers an unmediated opportunity to 'see for themselves'. Needless to say, such portrayals are rarely, if ever, unconstrained by editorial discretion, viewer preferences, styles of display and much else besides. Any experienced production team would freely admit to the paradox of, on the one hand, being committed to realist portrayal, whilst also being aware of the constructedness of their representation. Clarion is no exception to this.

Towards the completion of the programme, BioTran's public relations fortunes changed. An animal advocacy organisation had come into possession of leaked documents containing detailed experimental notes on the company's preclinical trial animals. For a brief period, prior to a High Court injunction (issued to protect commercial confidentiality and the

personal security of researchers), the documents circulated widely amongst the press, regulatory bodies and other parties, including Clarion. The report's description of BioTran's experimental primates quickly became a focus of particular concern:

> CM1: We had very limited information on what had gone on at [the lab], because all we had to go on was their published material of the longest [primate] survivor. The 39-day survivor. We knew that there have been 450 primates used at [the lab], and we knew they'd only published results of this one primate who'd survived 39 days … you can assume that the rest is a story of failure. But it was the detail of that failure … that we didn't possess, and no one possessed at that time. You know the argument about what they published in the journal … about the cohort they selected … they were either looking for the best or the worst representation of it. BioTran were obviously looking for the best and [the animal welfare group] had seen the worst … I'm sure this goes on across all the disciplines, researchers have a bias to find a result …
>
> If I stand back as a programme maker, I think the programme's improved by having the [leaked report] in, along with this information, because it meant it was in the public domain. And as I explained to them, if I don't put it in the programme. What does that say about the programme? … that we've pulled the punch?

Evidently the collaborative foray into the world of open transparency by Clarion and BioTran had its limitations. Openness is always context dependent on whether or not disclosure will be damaging or supporting, whether it is safe or not to reveal information, and what form the disclosure should take, what should be left in and what should be left out. The difficulties in which BioTran had found itself are not exceptional but normal, perhaps even inherent within the logic of transparency. In a sense, they were experiencing a micro-version of what we described above as a looming 'crisis in transparency', riding on the back of a crisis in trust alluded to by the House of Lords report. Crises require resolution. Acts of transparency need to appeal to an audience's sense of belief in the authenticity of disclosure, that the story is real and genuine. In a context where facts are open to question in the way that they are here, few routes remain open except to shift the basis on which relationships are established. In this and many other cases, this means substituting an argument based on constantly disputable factual credibility for one based on emotional authenticity, as a means of conveying genuineness.

This shift surfaces constantly in the making of Clarion's documentary, particularly in terms of the editorial juxtaposition of risk against stories of human interest. These are highly charged accounts of the suffering of transplant patients, interweaved throughout the documentary. The juxtaposition is the result of a shared conviction by both companies that this format of editorial framing would successfully articulate the sincerity of BioTran's intentions:

> CM1: The animal experiments are inter-cut with the human transplant [patients]. … that's actually more challenging to the ordinary viewer, than words can ever be. Because they sit there thinking 'how would I feel if I was in his position?' … They [BioTran] wanted to be reassured that they would get a broad look at this whole issue … they recognised that they had to do something to win over people's hearts and minds.
>
> … this is an argument they feel they can win with the public. That's why they're doing this … because it's about human lives and giving people extraordinary

> remission who are terribly ill who will go back to work. They get a heart transplant; they'll go back to work; become a father and, one of the people we featured in the film has three kids and holds down a job and is even in the transplant Olympics post his transplant …they [BioTran] want people to see and understand …

Clearly, the fusion of science stories with the genre of personal interest is a familiar motif in popular accounts of medical innovation. It is, we might suggest, an instance of institutional agonism where medico-industrial and media agency become intertwined within accounts that vacillate between personal suffering and various hazards or costs (disease transmission, animal suffering, etc.). By 'institutional' we are referring to wider prevalent habits and routines operating organisationally, even culturally, but always performed by individuals. The personal-interest documentary is a genre, an institutionally repetitious discursive routine or formula that pervades the public portrayal of science and medicine, but one grounded in decisions and mutual enrolment:

> CM1: We talked to the scientists about what they hope to achieve … they're possibly the most regulated arm of scientific research going on in the planet. They're not bad … they're doing everything within the rules, and they want to say so. And you juxtapose that with the human need. And of course some of the opponents, as it were … they said to us 'will this be an investigation?' I said, 'no … you tell people openly what you're doing'. An investigation implies something's going wrong, or that you're trying to get away with something in secret. I said 'if you create that atmosphere, you won't get the kind of result that's fair to all concerned'.

Briefly, then, the resulting documentary portrays the painful difficulties faced by BioTran in its endeavours to steer a way between conflicting considerations and opposing viewpoints. It simultaneously fulfils a biotechnology company's requirement to signify openness to the public and a media company's requirement to fulfil the stylistic conventions of documentary making, through unprecedented access to exclusive material and otherwise unavailable secrets. However, given the limitations of transparency, one illustration of which is the leaked report to an animal advocacy organisation, gestures of openness need to be fortified, in this case by candid accounts of authentic suffering. These include the strains of decision making itself, the anguish of conducting distressing animal procedures, the suffering of patients, and so on. See, for example, the following statement of a BioTran Executive:

> BT1: … we have to be frank about this. We are exploiting these pigs. But I believe it's far more justifiable to exploit these pigs in order to save people's lives than for the production of food. I think there are a lot of people who will be watching this programme who will sort of have an uneasy feeling that, well, it's not natural. … I think it's essential that we take the public with us at every step because, after all, if they reject it, then xenotransplantation will never be a success.

We would also add that the shift from authority to authenticity illustrated here is not likely to pertain exclusively to biotechnology firms and media companies. Rather, agonistic performance will also pervade the communication practices of animal welfare NGOs, patient advocacy groups, regulators and many others. On the one hand, the Clarion documentary is interjected with key members of BiotTran agonising over the disparate viewpoints and decisions to be taken. On the other hand, animal welfare and rights advocates often preface their arguments with comments to the effect that they are themselves sufferers, who nevertheless struggle with the dependence of medical innovation on animal procedures which they object to.

Conclusion—the contested context of authenticity

The governance of science, together with the communication practices of the governed, are currently undergoing change. These changes are first and foremost linked to various contestations (a putative crisis in trust), which in turn have prompted a range of responses associated with democratisation, particularly the belief that gestures of transparency will enable external sceptics ('the public') to see for themselves the things being done on their behalf. Our suggestion here is that the basis of this emerging governance regime harbours inherent limitations, ultimately meaning that transparency is unlikely to satisfactorily resolve problems of trust. In other words, as we have suggested, the attempt to manage risks by opening up the institutional forms in which they are discussed, also opens up the possibility of new risks—meta-risks—such as the accusation of incomplete or biased openness.

Of course, this analysis remains open to further scrutiny through continuing critical scholarship directed at emerging cultures of risk governance. Nevertheless, it seems that those in industry, regulation and elsewhere now find themselves having to articulate with other cultural repertoires in order to establish credible and open decision making, repertoires that are evocative of authenticity. We have linked this to the performance of emotional agonism, institutionally and individually. Authenticity is, we suggest, a by-product of the failure of institutional authority and indicates difficulties within the logic of transparency.

This is one amongst a number of twists and turns in the foundations of discussions about risk, nature and technology. Modernity counterposed the emotions against rational thought, intuition against explicit evidence, subjectivity against objectivity. What we are seeing in contemporary debates about biotechnology is evidence of a shift in the modern epistemological picture. The language of rationalistic authority is being supplemented (at the very least), it seems, with a language drawn from the naturalistic repertoire of emotions. In our previous comments on the spectacle of emotion substituting for the 'depth' of real transparency, we were, of course, making tacit reference to the contrast between modernity and postmodernity. The latter is characterised by the focus upon surface—meaning becomes derived from what is felt and what is felt is increasingly a matter of what is engaging, exciting, spectacular (see, for example, Lash and Urry, 1987). Nussbaum (2001) goes as far as to describe this as an 'upheaval of thought' and a valorisation of instinctive emotion in all areas of governmentality. The detachment of distanced reasoning no longer signifies objectivity but disconnected secrecy instead. The capabilities of rationality are proving to be ineffective at popular persuasion in the way they once were. Nussbaum describes these subtle changes as an 'intelligent responses to the perception of value' (Nussbaum, 2001: p. x). We would prefer to be more neutral or at least more cautious about uniformly celebrating the emotional. After all, the actions warranted by emotion are not always benign, nor are the regimes of governmentality with which they are associated. And yet Nussbaum's observation correctly diagnoses the rising significance of the affective in the public sphere. Within the contemporary climate, the language of rationality must therefore embody and register its modernistic opposite if credibility is to be successfully sustained.

However, authenticity does not necessarily guarantee good public relations even when backed up by forceful emotional portrayal. Mestrovic, for instance, draws attention to a contemporary 'postemotional' milieu which paradoxically valorises emotion whilst also recognising the emotions as artifice. The emotions are motivated productions borrowed to achieve instrumental goals (to entertain, to secure charity funding, to increase viewer ratings, etc). These 'quasi-emotions' have 'become the basis for wide-spread manipulation by self, others, and the cultural industry as a whole' (Mestrovic, 1996: p. xi). As a consequence, the persuasiveness of agonistic portrayal risks being undermined as 'a new hybrid of

intellectualised, mechanical, mass produced emotions appear on the world scene' (Mestrovic, 1996: p. 26).

Nevertheless, the move to authenticity is manifest in any number of perspectives on risk and draws together an unlikely alliance of 'emotional literati'. The UK's Prince of Wales now advocates the merits of an intuitive and emotional disposition to nature as the foundation for defending traditional farming methods over biotechnology. We have already noted above how the biotech industry has begun to restructure its public body language in order to reclaim emotional territory, a territory lost during the GM crisis of the late 1990s. In management and personnel training, there is now a commonplace emphasis on 'emotional intelligence'. The upshot of these empirical observations, and those documented from our xenotransplantation case study, is that the focus of risk assessment and management needs to shift toward what we have called 'meta-risk'. In advocating and implementing the need to reconfigure the body language of scientific institutions, in designing new techniques of consultation and participation, the critical analysts and practitioners of, in the words of the House of Lords, 'Science and Society', need to become attuned to the problematic of 'meta-risk'. As we have framed it here, this will necessitate an attention to a nexus of issues that includes: the impossibility and implausibility of transparency, the shift from authority to authenticity, the rhetorical potency of emotion and suffering. If this opens up the terms of democratic debate then that is a good thing, not least because it begins the task of making more explicit sense of the underlying peculiarities of contemporary democratic culture.

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References

BALKIN, J.M. (1999) How mass media simulate political transparency, *Cultural Values*, 3, pp. 393–413.

BBC RADIO 4 (2001) *Analysis: Hearts and Minds*, Broadcast 19 July 2001.

BECK, U. (1992) *The Risk Society* (London, Sage).

BECK, U. (2000) Risk society revisited: theory, politics and research programmes, in: B. ADAM, U. BECK and J. VAN LOON (Eds) *The Risk Society and Beyond* (London, Sage).

BENDELOW, G. and WILLIAMS, S.J. (Eds) (1998) *Emotions in Social Life: Critical Themes and Contemprary Issues* (London, Routledge).

COLLINS, H.M. (1985) *Changing Order* (London, Sage).

COTTERELL, R. (1999) Transparency, mass media, ideology and community, *Cultural Values*, 3(4), pp. 414–426.

DOUBLEDAY, R. (2002) Openness and transparency: construction and contestation of corporate identities in the crisis over GM foods, Workshop presentation at the Department of Geography, University College London, Monday 18 March 2002.

FUNTOWICZ, S. and RAVETZ, J. (1999) Editorial: post-normal science—an insight now maturing, *Futures*, 31, pp. 641–646.

HABERMAS, J. (1980) Discourse Ethics: Notes on Philosophical Justification. Moral Consciousness and Communicative Action (trans. L. CHRISTIAN and SHIERRY W. NICHOLSON (Cambridge, MIT Press).

HARRE, R. (Ed.) (1986) The Social Construction of Emotions (Oxford, Blackwell).

HOUSE OF LORDS (2000) *Science and Society*, Select Committee on Science and Technology, Third Report, HL 38, Feb 2000.

IRWIN, A. (1995) *Citizen Science* (London, Routledge).

IRWIN, A. and MICHAEL, M. (in press) *Science, Social Theory and Public Knowledge* (Buckingham, Open University Press).

IRWIN, A. and WYNNE, B. (Eds) (1996) *Misunderstanding Science?* (Cambridge, Cambridge University Press).
KUHN, T.S. (1962) *The Structure of the Scientific Revolutions* (Chicago, University of Chicago Press).
LASH, S. and URRY, J. (1987) *The End of Organised Capitalism* (London, Sage).
LUTZ, C.A. and ABU-LUGHOD, L. (Eds) (1990) *Language and the Politics of Emotion* (Cambridge, Cambridge University Press).
MESTROVIC, S.G. (1996) *Postemotional Society* (London, Sage).
MICHAEL, M. and BROWN, N. (2000) From the representation of publics to the performance of 'lay political science', *Social Epistemology*, 14, pp. 3–19.
NUSSBAUM, M.C. (2001) *Upheavals of Thought: the Intelligence of Emotions* (Cambridge, Cambridge University Press).
POWER, M. (1999) *The Audit Society* (Oxford, Oxford University Press).
ROSE, N. (1996) *Inventing Our Selves: Psychology, Power and Personhood* (Cambridge, Cambridge University Press).
ROSE, N. (1999) *Powers of Freedom* (Cambridge, Cambridge University Press).
THOITS, P.A. (1989) The sociology of emotions, *Annual Review of Sociology*, 15, pp. 317–342.
VIDAL, J. (2000) GM foods company decides to turn over a new leaf, *The Age*, 2 December.
WILLIAMS, S.J. (1998) Modernity and the emotions: corporeal reflections on the (ir)rational, *Sociology*, 32, pp. 747–769.
WYNNE, B.E. (1995) The public understanding of science, in: S. JASANOFF, G.E. MARKLE, J.C. PETERSON and T. PINCH (Eds) *Handbook of Science and Technology Studies*, pp. 361–388 (Thousand Oaks, CA, Sage).