This document contains the text that was accepted for publication as:
Meyer, Gitte (2006): Journalism and science: How to erode the idea of knowledge. *Journal of Agricultural and Environmental Ethics* 19 (3): 239-252. DOI: 10.1007/s10806-005-6163-1
Please use the published version if you wish to quote the article.

Journalism and science: How to erode the idea of knowledge

Abstract: This paper discusses aspects of the relationship between the scientific community and the public at large. Inspired by the European public debate on genetically modified crops and food, ethical challenges to the scientific community are highlighted. This is done by a discussion of changes that are likely to occur to journalistic attitudes – mirroring changing attitudes in the wider society – towards science and scientific researchers.

Two journalistic conventions – those of science transmission and of investigative journalism – are presented and discussed in relation to the present drive towards commercialisation within the world of science: how are journalists from these different schools of thought likely to respond to the trend of commercialisation?

Likely journalistic reactions could, while maintaining the authority of the scientific method, be expected to undermine public trust in scientists. In the long term this may lead to an erosion of the idea of knowledge as something that cannot simply be reduced to the outcome of negotiation between stakeholders.

It is argued that science is likely to be depicted as a fallen angel. This may be countered, it is posited, by science turning human, by recognizing its membership of society, and by recognizing that such membership entails more than just commercial relations. To rethink its relationship with the public at large – and, in particular, to rethink the ideal of disinterested science – is an ethical challenge facing the scientific community.

Keywords: Science journalism. Commercialisation. Trust. Authority. Disinterestedness. Public sphere.

Are scientific researchers to be trusted? Are they committed to producing knowledge as a common good? The European public debate on genetically modified crops and food is a striking example of erosion of public trust in scientific researchers. Rather than being depicted as the producers of reliable knowledge, untainted by power relations, scientific researchers have been presented to the public as being guided by vested interests. A question has been posed as a subtext: Is a scientific researcher just another power-broker to be treated on par with any other power-broker?

For several centuries the relationship between science and society at large has been based on a contract providing science with a high degree of autonomy. In return, science provided society at large with a steady flow of reliable knowledge – to be trusted exactly because it was produced by autonomous scientists who were eager to protect their autonomy. Correspondingly, the task of journalists in relation to science has been seen as one of disseminating the results of scientific research to the public. Over the past decades it has become almost commonplace that this contract is disintegrating (Gibbons, 2001). The main reason for the breakdown is that one of the basic ideas behind the contract has proven to be out of touch with reality. This was the idea that science was somehow situated outside society. Today, the claim that science is a social phenomenon and is part of society is hardly controversial. There are, however, few signs of a new contract being established or, indeed, of the journalistic task towards science being re-defined.

This paper is prompted by the concern that 'science gone societal'[1] may acquire an image – and perhaps an identity – as little more than a tool to be employed by vested interests. The paper strives to contribute to the discussion of the future role of science in society, assuming that there is a need for the contract to be rewritten, and that such a rewriting must rethink – rather than simply dispose of – traditional, scientific ideals. The topic is very broad, so I will focus on just one aspect:

[1] Although it may sound awkward to quite a few English ears I prefer in the present article the term 'societal' to the broader, vaguer and more commonly used term 'social'. I have chosen to do so in order to indicate that I am referring specifically to public and political life.

the present drive towards commercialisation within science, which is particularly conspicuous in the biotech sector. Some consequences of this tendency will be explored by means of a discussion of likely journalistic reactions to the commercialisation of science. This leads on to a discussion of present challenges to the scientific community regarding its relationship with the public at large.

A scientific ethos, neatly captured by the sociologist Robert K. Merton more than half a century ago (Merton, 1968 [1949]: 607-613) has been central to the old contract between science and society. Two of Merton's keywords are also central to our discussion. These are the ideal of 'communism', of common ownership of knowledge, of knowledge as a common good; and the ideal of 'disinterestedness', of disinterested scientific research – the vaguest of the scientific norms and ideals described by Merton.

The scientific ethos has been central to the contract between science and society by assuring the public at large that the scientific community actually *was* a community, equipped with norms and ideals, with routines for maintaining the norms, and committed to striving for the ideals. Thus, the scientific ethos may be seen as a set of promises from science to society. In this interpretation there can be little doubt that the present drive towards the commercialisation of scientific research, even within public institutions, amounts to a rather serious offence – a breach of promise. How are journalists likely to react to this? What long-term consequences are likely to occur? What sort of ethical challenge does this represent to the scientific community? These are the questions highlighted below.

The convention of science transmission

There is a convention of journalism in relation to science as nothing more than science information written by journalists. Thus, the journalist is expected to do no more than to transport scientific knowledge from scientists to the public sphere This convention of science transmission – linked to the old contract between science and society – is particularly strong within the genre of journalism known as 'science journalism'. The convention defines the task of the (science) journalist as simply being to make scientific knowledge accessible, so helping scientists to get "functional information into the public domain" (Friedman et al., 1986: xii). The public is being defined as consumers of scientific information (Friedman *et al.*, 1986: xvii). The journalist is defined as being a carrier, a disseminator.

The science journalist is expected to identify with science and scientists. This is rather odd, because, as a rule, identification with the public at large is a strong ideal within journalism. In this respect science journalists differ from other journalists.

However, journalism in general does also subscribe to the convention that journalists should consider scientific knowledge as a cargo to be transported and not to be interfered with. This is not only the founding principle of science journalism but it also informs the attitude of journalists at large towards science. Thus, there is a long and influential tradition of journalism taking conclusions from scientific research and statements from scientific experts to the public sphere without exposing those conclusions and statements to independent, journalistic scrutiny and questioning.

Why is this so? J. Herbert Altschull, an American historian with a background in journalism, refers to science (and growth) as "sacred values, quite untouchable" within American culture and American journalism (Altschull, 1990: 205). To many journalists all over the world, American journalism constitutes – today and historically – the epitome of their profession. Thus, in so far as a questioning attitude towards science is taboo within American journalism, a similar taboo is likely to be at work among journalists around the world.

The conviction that science is sacred does not only affect the way in which journalists write about science. More importantly, that conviction also serves as the basis for a journalistic belief in

science as the great idol – demonstrating how to depict reality, telling how it really is, sorting true from false, getting the facts right, etc.

It is outside the scope of this paper to discuss whether science actually *is* a suitable model for journalism. It is within the scope of the paper to point to the fact that journalism shares important ideals with science. First and foremost, journalism shares the norm of objectivity with science (Altschull, 1990: 297). It is the assumed objectivity of scientific methods that convinces journalists to accept science as an authority, not to be questioned. This implies that while *identification* with science and scientists is *particular* to science journalists, *subservience* towards science – or what has been labelled as scientific - is a much more *widespread* trait of journalism.

A recent series of qualitative interviews with journalists from Danish national broadsheet newspapers[2] confirms that an attitude of subservience towards science is alive and thriving. One example is the answer given by a journalist, covering the environment at a major Danish broadsheet, to a question of when and why he referred to science and researchers. The journalist answered that he did so "as often as possible", and he explained: "documentation is one of the most important aspects of journalism. You should be able to document your claims. In that respect researchers do an enormous work. They do all the basic work." The trust in scientific researchers and their documentation is huge. When working with scientific sources journalists tend to rely in a rather straightforward manner on the information that they are presented with as scientific facts

Another example is provided by a journalist covering fashion and lifestyle at another major broadsheet in Denmark. She explained that she refrained from asking questions about the research behind, for instance, products marketed as capable of combating the ageing of the skin. To her it was a guarantee in itself that the products had been based on scientific research. She described it as her task "to inform the readers that they [the producers] are actually doing research, that they are not just postulating something – that it actually works".

The old contract between science and society is breaking down, but the convention of science transmission – a by-product of the contract – is still going strong. Some journalists are, however, disturbed by present trends within science. An example of this was highlighted in an interview with the science journalist and editor Cornelia Dean of the New York Times. After being away from the paper between 1993 and 1997, she describes how she found the world of science had changed upon her return:

"It used to seem to me that if you asked a scientist about his or her research, about the findings or whatever, they would answer your question honestly. They might not be correct. I mean, they might be pursuing a blind alley or they might be mistaken, or they might not have answered the questions correctly, but they would tell you what they believed in a straightforward way, and they really made a point of not over-hyping their work, of not making more of it than it was, even though the scientific rivalries are very intense, etc. Still, it seemed to me that in general people played it relatively straight. And now it's much more likely, that somebody's got a company that they're running out of their lab, that they're making some product that they're going to sell, that they're looking for venture capital, that they have a deal with a pharmaceutical company, that they somehow or other – you know, there's a much shorter line between their work and their bank account than there used to be." (Jones, 2003)

Cornelia Dean appears to be working, still, within the convention of science transmission, but she is disturbed by the conspicuous presence of vested interests in science. They do not fit into the scheme of disinterested science. With other journalists, less directly committed to science, the

[2] The series of interviews formed part of my Ph.D. dissertation (2004) on journalism and science. The interviews were conducted, written, and checked by the sources (intersubjective validation) in Danish. Occasioned by the present paper the quotations have been translated into English. The dissertation only exists in Danish, but an abridged version – *Public reason? Science, journalism and society* – has been translated into English, and can be obtained from the author.

changes she describes might easily inspire a more radical reaction. Humility might turn into hostility. The popular image of science serving the common good might crack. The distance from being acknowledged as an other-worldly authority to being denigrated as a fallen angel might prove short.

The commercialisation of science

There is more than one reason why a biotechnology issue – the European debate on genetically modified crops and food – springs to mind in connection with discussions about cracks in the popular image of autonomous science.

Firstly, ties between the academic world of science and technology on the one hand, and the world of industry and commerce on the other are particularly strong within bioscience and biotechnology.

Secondly, the biotechnological developments that have taken place in recent decades have coincided with a marked change in the political and cultural climate of Western Europe. To a large degree the social welfare thinking formerly associated with the state and public institutions, and with ideals of collectivity and solidarity, has been replaced by social welfare thinking connected to the market-place and to ideals of competition. The latter view of how to further social welfare appears to have gained the upper hand – and has also been the object of bitter opposition – while at the same time modern bioscience has developed its present, technological tools of, for example, genetic modification and somatic cloning.

The abovementioned change in cultural and political climate has, so to speak, provided the context of the adolescence of today's modern biotechnology. This particular field of scientific research has evolved in a climate that has been marked by an increased belief in the benefits of market forces, and it is indeed worthwhile pondering whether this may have resulted in an orientation towards the market-place to have become much more straightforward in this area of science than in science at large.

Thirdly, the development of bioscience has not only been *informed by* political changes, but it has also been *the cause of* political decisions with far-reaching consequences. A striking example is the EU Directive[3] – subject of vivid discussions for over a decade – which has facilitated the patenting of genes, animals and plants, thereby strengthening the ties between science and the market-place, and extending the scope of private property rights.

It appears to be a reasonable assumption that many citizens have taken modern bioscience and technology to be part and parcel, for good or for bad, of the changes that have occurred in the political and cultural climate of many Western European countries. Thus, biotechnology may have come to symbolize political convictions and practices that go far beyond the actual techniques of bioscientists. There is no reason to perceive such mental connections to be outbreaks of irrationality, if one acknowledges that modern bioscience has indeed shaped and been shaped by the social context in which it has been nurtured. Moreover, there are good practical reasons to take the symbolic associations into account. One good reason is that those associations are bound to make for conflicts that will be unintelligible to everybody unless the political aspects of biotechnology are taken seriously and are subjected to actual political discussion.

The development of bioscience during the last decades, cannot be neatly separated from other social changes and discussions that have taken place in the same period. This includes discussions on journalism and on journalism's relations to science. Conflicts about biotechnology have triggered academic discussions in the field of 'science communication' (according to prevailing conventions no distinction is made between 'science journalism' and 'science communication') about

[3] European Communities (1998). Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions. Official Journal of the European Communities 41 (L 213): 13-21.

how to communicate uncertainty[4], and direct references are made to "environmental and health disputes" (Friedman *et al.*, 1999: ix). However, regarding science journalism, there are, all in all, only signs of attempts to make minor adjustments to the convention of science transmission. The idea of science as an autonomous problem-solver prevails. Moreover, the orientation towards the market-place and the competition for research funding have contributed to the growth of PR-like enterprises of science transmission, which are likely to annoy other journalists, who are working within the framework of the convention of investigative journalism.

The convention of investigative journalism

The commercialisation of science is likely to prompt investigative journalists – held in high esteem within the profession as representatives of high quality journalism – into regarding scientists as mere power-brokers, viewed from the perspective of a perceived dichotomy of 'power versus the people'.

The convention of investigative journalism and the convention of science transmission differ from one another identification-wise. The latter convention expects the science journalist to identify with science and scientists, while the investigative journalists identify strongly in their alignment with the public, or rather with 'the people'. This difference becomes significant if doubts are raised about whether science is serving the common good.

The identification with the public is not peculiar to investigative journalists. In the early 1970's the Nixon administration took to using the term of 'the media' when criticising journalism. The term 'the press' was not well suited to this purpose, as it carried connotations of representing "the voice of the people" (Schudson, 1995: 156). Thus, neither in this nor in other respects does investigative journalism actually deviate from journalistic norms and ideals in general. Rather, investigative journalism should be seen as a strong expression of those norms and ideals. Accordingly, the commitment to 'the people' is particularly strong within the convention of investigative journalism. So is the ideal of the journalist as a watchdog, disclosing abuse of power, guarding 'the people' against 'the powerful', ensuring that justice is done. In the words of Altschull: "Devotion to an innate sense of morality and suspicion of the powerful are integral elements of the attitudes of American journalists". And: "Crusading has by no means disappeared, but the modern investigative journalist has been devoted more to tracking down wrongdoers than to promoting causes" (Altschull, 1990: 92, 313). And in the words of the British-Australian investigative journalist John Pilger, referring to a group of journalistic colleagues: "Their scepticism was reserved for the powerful. They were 'investigative journalists', but that, after all, is what all journalists should be." (Pilger, 1999: 535)

The convention also appears in the aforementioned series of interviews with Danish journalists. Asked to define journalism, one of the journalists, working at a minor Danish national broadsheet, answered: "[J]ournalism is about nailing some crooks".

Thus, there is a highly combative quality to the convention of investigative journalism. At the same time, however, investigative journalists also – as a rule – subscribe to the ideal of objectivity, so central to the prevailing idea of what it means to be a professional journalist.

At first glance these two characteristics appear to be at odds. To be combative is to be part of what is going on. To be objective is to be separated from things.[5] How then, does the investigative journalist try to do both things at the same time?

[4] Examples from biotechnology are quite prominent in *Communicating Uncertainty. Media Coverage of New and Controversial Science*, by Friedman et al., 1999.

[5] This definition of the ideal of objectivity should not be seen as an attempt to contribute to current discussions about how that ideal ought to be interpreted. Rather, it is an attempt – inspired by Theodore Porter's important book *Trust in Numbers. The Pursuit of Objectivity in Science and Public Life* – to catch the essence of the historical roots of the ideal

The solution seems to lie in the choice of conditions that must be fulfilled in order for something to be taken to be objective. As a group journalists tend to interprete the ideal of objectivity as, first and foremost, a ban on personal judgement: to be objective is to abstain from being present as a person. Moreover, it is to abstain from reflection, because reflection is a symptom of personal judgement, to be distrusted. In this interpretation, the ideal of objectivity subjects journalistic practice to rather severe restrictions. It is hardly possible to question anything not strictly factual without exercising reflection and personal judgement. In order to be objective and impersonal, therefore, journalists must stay on the surface of things. It is considered unprofessional for journalists to question basic assumptions and ideas.

Altschull is very clear about this: "Individual political leaders and individual actions may be and often are challenged, but not systems, institutions, or even ideas. To do so is unprofessional."(Altschull, 1990: 313) The existence of this norm helps explain the observation made by Schudson (1995: 6): "Certainly, the press more often follows than leads; it reinforces more than it challenges conventional wisdom."

Having translated the ideal of objectivity into the proscription that journalists should not question systems, institutions, and ideas, there is still room left to be combative within the framework of conventional wisdom. It is possible to map courses of events in details – who did what to whom when? – and to pin-point individual wrongdoers in the process. In relation to science, therefore, the convention of investigative journalism leaves room for journalistic investigation of cases, one by one, of corruption and degradation, and of scientists who have surrendered to vested interests. But it is hardly an option to ask questions about how the present trend of commercialisation is affecting the system, the institution, and the idea of science. There is little room for stimulating and feeding into a principled discussion on how to rethink traditional, scientific norms and ideals in order to transform them into a new situation.

In the scheme of 'people' (good) versus 'power' (bad), scientists who are related to big money, to large companies, are likely to be taken to represent 'power'. When journalists are able to disclose cases of corruption and abuse – and there will of course be abuses to disclose – investigative journalists are likely to target individual scientists or groups of scientists as wrongdoers. They are, however, unlikely to ask basic questions about what is happening to the relationship between science and society. Thus, they are likely to inspire indignation, but they are unlikely, on their own accord, to inspire a principled public debate parallel with it. The aversion to reflection is an obstacle to this, as is the related tendency to stick to conventions. Among these is the norm – forming part of the old contract between science and society – that discussions on questions of knowledge should be contained within the scientific community, rather than being taken to the public sphere.

To the public eye, scientists appearing in journalistic reports as being in the pocket of big money will appear as representatives of science at large. Without any direct interpretation being offered, a conclusion offers itself between the lines: scientists are just like all other power-brokers. And science is just another means to further vested interests.

The end of truth?

Public representations of scientists as powerful are not likely – not directly at least – to undermine the *authority* of science, linked to the scientific *method*. On the contrary, they are likely, in the short term, to provide science with a more powerful image than ever. However, representations of scientists as intimately related to vested interests do provide reasons for distrust in the *motives* of scientists and for questioning their disinterestedness and their commitment to the idea of knowledge as a common good. It is a threat to the general *trust* in scientists, linked to the scientific *ethos*.

The net result to be feared for is that science may survive as a method cut loose, not only from its origins in an assumption of knowledge being produced in a no-mans land outside society, but also from its moorings in an ethos, ensuring the public at large of the trustworthiness of scientists.

The modern concept of knowledge is a fragile one. It was founded by early generations of scientists so as to protect it from being 'contaminated' by any social aspect, in order to escape, in particular, aspects of coercion and social interests: "Human coercion was to have no visible place in the experimental form of life", note the historians Steven Shapin and Simon Schaffer in their history of the early days of the British Royal Society in the mid-seventeenth century (Shapin and Shaffer, 1985: 78). The Society renounced in its charter any claim that it would "meddle with politicks, rhetoric, divinity". (Nowotny *et al.*, 2001: 63)

Supposed to fulfil these criteria, scientific knowledge, the product of scientific research, has been kept sacred. It has been regarded as a common good, and it has won an enormously important position in the societies of today. Paradoxically, the scientific aversion towards anything social seems to have been supportive of this development, but the growing recognition of science as a social phenomenon and as a societal actor now presents science with a problem: Science runs the risk of being engulfed by the very assumptions about society – bleak as those assumptions are – that science was developed to escape. 'Science gone societal' may end up being *perceived* as – and actually *becoming* – the kind of player it has assumed to dominate societal life. A boomerang effect is to be expected. Prejudices about the social sphere and about political life may return to and affect 'science gone societal". The risk to science is that it allows itself to be reduced to a mere player in power relations.

Journalism is, as discussed above, likely to push such an unhappy course of events ahead. Identifying journalism as the cause of events would, however, be mistaken. Rather, journalism mirrors and reinforces trends that are present in wider society. By extending present trends one may visualise future journalism in relation to science as divided into two opposing camps; camps, that is, that are also present in society at large.

The first camp is characterised by being completely blind (or indifferent) to aspects of power relations and vested interests within the world of science. Journalism belonging to this camp is an offspring of the convention of science transmission. It acts naïvely as a marketing agent for science and scientists, assuming science to be the epitome of reason.

The second camp is characterised by such a strong focus on, exactly, the power relations and vested interests that no other aspects of societal life actually appear to be real. Journalism belonging to this second camp is so committed to the perceived dichotomy of 'power versus the people' that it is likely – prompted by the realization that science is not above conflicts of interests – to ignore other perspectives on questions of knowledge.

The two camps tend to reinforce each other. PR exercises provide evidence that vested interests are, indeed, at play and ought to be disclosed to 'the people'. And stories about corrupt scientists, who are only in it for the money, are likely to reinforce attempts to defend 'the cause of science'.

Neither of these camps is likely to facilitate a reasonable, public discussion of questions of knowledge in the context of society, where reason must be pursued on the condition that disagreement and conflict – relating to social interests and to morality – do exist. The two opposing camps actually share a common assumption, that 'reason' and 'power' are mutually exclusive: either there is pure reason, or there is pure power. Thus, the camps appear to be repeating those very assumptions about society upon which modern science was founded in the first place. Moreover, they also seem to be sharing an unfortunate disinclination towards critical reflection on those fundamental assumptions.

At the outset of modern science the assumptions apparently worked to establish a belief in the possibility of worldly reason and non-religious truth. Today, however, they may very well work the other way around, serving to erode not only the idea of 'pure' knowledge but any idea of knowledge that cannot simply be reduced to the outcome of negotiations between stakeholders.

Rethinking assumptions about society and politics

In recent decades a host of sociological accounts of science have highlighted the social aspects of science[6]. It has been argued again and again that science is indeed a social phenomenon and that the idea of science as belonging to a sphere of its own, outside society, is no more than illusion. Such accounts have contributed to some rethinking of science. They have led to repeated declarations that appear, at first glance, to be very radical – exposing conventional wisdom as mere myth. After closer examination, however, a certain shallowness discloses itself: science is declared to be a social phenomenon, but assumptions about society are, as rule, not subjected to fundamental, critical reflection. Ethical and normative reflection on action, in particular, appears to be separated from other – seemingly merely descriptive – varieties of scrutiny.

In her book on the fate of knowledge the philosopher Helen Longino (2002: 68) offers an example of critique of what appears to be the overall conclusion from the sociological accounts: "[T]he social is equated not just with bias, but with what deflects from truth". The historian Theodore Porter offers another example of critique. Referring to fights between philosophical and sociological camps about the nature of scientific knowledge, he comments: "The claim that science is socially constructed has too often been read as an attack on its validity or truth" (Porter, 1995, p. 11).

Longino (2002: 122-129), concerned with the fate of knowledge, makes the case that the idea of the social as corrupting knowledge should be revised. She sees no reason why knowledge should cease to be knowledge just because its social aspects cannot be denied; but there *is* a reason if societal and political life are perceived as fundamentally suspicious. The political philosopher Stephen Macedo (1990: 112-113) refers to "the prevailing 'interest group' model of democracy, in which groups seek to advance their narrow goals at the expense of others", and he argues that "Politics is not a kind of game in which players compete to advance their interests". The 'interest group' model of politics has long roots in history. Schudson (1978: 48) notes that a corresponding idea of politics gained momentum in the USA in the first decades of the nineteenth century: "[T]he old politics had focused on *what was right*; the new politics centered on *who was rightful*, who could amass the most units of private interest, rather than who could define the general interest".

There just may be other aspects of society, of the political and the public sphere than aspects of power play and the advancement of private interests. No laws of nature separate reason and decency from politics. Recognizing this might help the scientific community in coming to terms with the human and societal aspects of science and scientific knowledge. It might further a discussion of ethical challenges facing science as part of human society – encompassing not only the market-place and various stakeholders, but also the public and political life where common questions of knowledge, ethics and social interests are intertwined, and must be dealt with in a reasonable way.

Rethinking the ideal of disinterested science

In relation to the commercialisation of science the challenge is, in the first place, one of rethinking the ideal of disinterested science. What should it be taken to mean for scientists to be disinterested *within* society? How can such disinterestedness be safeguarded? The ideal of disinterestedness – as

[6] Jasanoff and Wynne have provided a useful overview.

well as related ideals about autonomy and independence – is ambiguous. There is certainly room for interpretation. It may be taken to indicate that science and scientists belong to a world of their own: they are disinterested, autonomous and independent by not being part of things, and by being disconnected from society at large. And it may even be taken to mean that scientists do not care, as scientists, about society. There is, on the other hand, no reason why the ideal should become obsolete to science as part of society. On the contrary, the ideal can work as a guiding principle prescribing that scientists should take care not to let themselves become the servants of particular stakeholders.

Although it may seem, on the surface, that the former interpretation has been dominant for centuries; in practice, the latter interpretation has probably been of huge importance to the widespread trust in science and scientists: they have been seen, as a group, to care about not being hijacked by vested interests.

During the European public debate on genetically modified crops and food, however, doubts were raised exactly about that interpretation of scientific disinterestedness. Thus, it can be seen as a lesson to be learnt from the debate that scientists as well as ethicists must now face up to questions about how to put a principle of disinterestedness into practice in today's society; and they must take their concerns and reflections to the public sphere, to the political discussion at large.

Journalists are unlikely to inspire such discussions on their own accord. By subjecting itself to a scientific ideal of objectivity, mainstream journalism has, paradoxically, prevented itself from asking fundamental questions about science, thereby from contributing to the complicated task of integrating science into society. Journalists are, however, likely to report such discussions. Thus, the initiative must come from within the scientific community. Being seen to care and actively showing itself to be part of society and, indeed, to be human, scientists may escape the image of the fallen angel, and some kind of belief in worldly reason and non-religious truth may be maintained.

References

Altschull, J. H. (1990), *From Milton to McLuhan. The Ideas Behind American Journalism*, New York and London: Longman.

Friedman, S. M., S. Dunwoody, and C. L. Rogers (eds.) (1986), *Scientists and Journalists. Reporting Science as News*, New York and London: The Free Press.

Friedman, S. M., S. Dunwoody, and C. L. Rogers, (eds.) (1999), *Communicating Uncertainty. Media Coverage of New and Controversial Science*, Mahwah, NJ and London, UK: Lawrence Erlbaum Associates, Publishers.

Gibbons, M. (2001), Science's new social contract with society. *Nature*, 402 (supp), pp. C81-C84.

Jasanoff, S, and B. Wynne, Science and decisionmaking. In: Rayner, S. & Malone, E. L. (eds.): *Human choice and climate change: the societal framework*. Colombus: Battelle Press, 1998. pp. 1-87.

Jones, A. (2003), Covering Science and Technology. An Interview with Cornelia Dean. November 22, 2002, *The Harvard International Journal of Press/Politics*, 8 (2), pp. 3-11.

Longino, H.E. (2002), *The Fate of Knowledge*, Princeton, NJ and Oxford, UK: Princeton University Press.

Macedo, S. (1990), *Liberal Virtues. Citizenship, Virtue, and Community in Liberal Constitutionalism*, Oxford: Clarendon Press.

Merton, R.K. (1968), *Social Theory and Social Structure*, New York: The Free Press.

Nowotny, H., P. Scott, and M. Gibbons (2001), *Re-Thinking Science. Knowledge and the Public in an Age of Uncertainty*. Cambridge and Malden: Polity.

Pilger, J. (1999), *Hidden Agendas*, London, Sydney, Auckland and Parktown: Vintage.

Porter, T. (1995), *Trust in Numbers. The Pursuit of Objectivity in Science and Public Life*, Princeton, NJ: Princeton University Press.
Schudson, M. (1978), *Discovering the News. A Social History of American Newspapers*. USA: Basic Books.
Schudson, M. (1995), *The Power of News*, Cambridge, MA and London, UK: Harvard University Press.
Shapin, S. and S. Schaffer (1985), *Leviathan and the Air-Pump. Hobbes, Boyle, and the Experimental Life*. Princeton, NJ: Princeton University Press.