

Anabela Carvalho

Techno-scientific control or apocalypse? Media visions of Man's relationship with nature

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Abstract

At a time when humanity's possibility of knowing and intervening upon the world is greater than ever, the public face of science, as constructed by the media, is a sort of collective mirror. By looking into it, we should be able to (re)discover our vision of the future and (re)make our choices. This paper focuses on media representations of science, technology and the environment and assesses how Man's relation with nature is constructed. Empirical data consists of reports from BBC online, one of the world's most popular information websites, over the course of several years.

I argue that there is a dual picture of our relation with nature in the media. On the one hand, an image of unrelenting scientific progress associated to the idea of conquest and control is put forward by news on genetics research, biological engineering, astrophysics and space exploration. Our capacity to understand and manipulate the body is regularly highlighted in the media. Also, the human possibility of observing and acting upon life is stretched to other species, with animals often being the protagonists of technical experiments, such as when genetic crossing yields a new type of fish. Moreover Planet Earth is no longer the limit as reports on astronomy and space exploration enhance an image of visibility and dominion at the universe level: we can examine other worlds in detail and send probes to other planets.

On the other hand, there is an image of imminent environmental tragedy, possibly of cataclysmic proportions. The threats of biodiversity depletion and climate change, for example, with associated sea-level rise, widespread disease and the possibility of mass extinction of species, are often brought into sight as the possibilities of detecting and modelling them become more sophisticated.

In short, science, technology and 'progress' appear to be leading to a near-omniscient humankind but also imperilling its mere survival. Such strong sense of awareness of our damaging impact on nature, coupled with the immense knowledge and manipulation skills mentioned above, appear profoundly contradictory and call for reconciliation.

1. Introduction

Advances in scientific research have sped up enormously in the last couple of decades. Biotechnology, astronomy, informatics and nanotechnology are some of the areas experiencing fast breakthrough developments that not only vastly increment human knowledge but can also have significant social impacts. At the same time, human-generated risks have become defining characteristics of modern society (Beck, 1992), suggesting that consequences of science and technology are far from predictable or manageable. With a population of nearly 7 billion and a rapidly increasing use of resources and generation of unwanted externalities, we stand at a key moment to think the *politics of the future*. What are the options ahead? What can they bring? Who is going to choose a given future?

'Sociotechnical imaginaries' (Macnaghten, Kearnes and Wynne, 2005; McGrail, 2010) are constructed and circulated in multiple spaces but the media – both old and new – occupy a central position in this process. The media disseminate both information and value preferences, and play an important role in public understanding and acceptance (or contestation) of scientific research and investment in given technologies. Similarly, social representations of environmental risks and engagement with such issues depend largely on the media.

This paper will examine images of Man's relationship with nature that are constructed by science and environment reporting in BBC News online. Based on a random selection of news pieces, it will identify the meta-narratives that run through multiple stories, covering a wide variety of themes.

The questions that I intend to address are the following:

What images do science and environment news construct of human possibility in relation to the world/nature?

What (alternative) futures are people presented with?

What kinds of subjectivity does science and environment reporting construct?

What implications does this have for citizenship?

I am going to argue that there are two dominant narratives that are profoundly incompatible and that have contradictory implications for people's environmental subjectivity and citizenship. These are a narrative of control & progress and a narrative of estrangement & apocalypse. I have tried to encapsulate the tension between the two in the title of the paper.

Prior to examining those two narratives, I will make a brief characterization of BBC News online, the news medium that is the object of this research, and present the analytical outlook adopted here. The paper finishes with a section where findings are discussed and set in the context of various strands of literature.

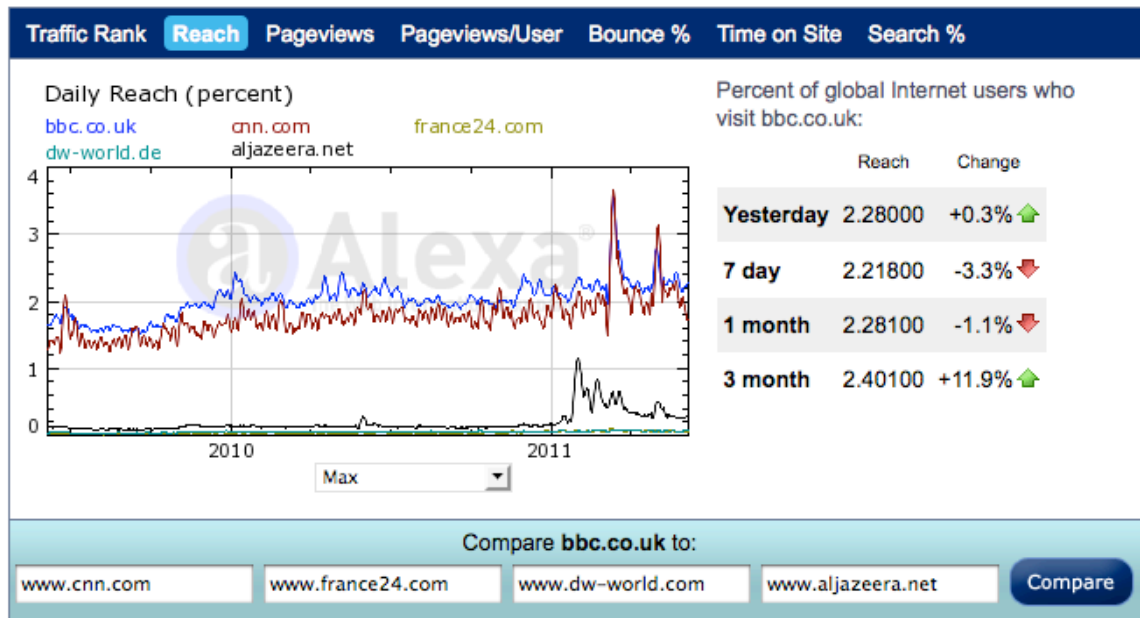
2. The medium

Founded in 1997, BBC News online is one of the most popular news websites in the world. In early June 2011, the web analytics website Alexa positioned BBC in the 38th position in its Global Rank of websites¹. For comparison, CNN was positioned 46th. In the previous three months, BBC was accessed by 2,4% of global Internet users while CNN was accessed by 2,2%. The following table provides further comparison with other global news providers.

Table 1. Ranking and reach of global news websites according to Alexa (2011).

Website	Global Rank position	Reach ²
BBC www.bbc.co.uk	38	2,4
CNN www.cnn.com	46	2,2
Aljazeera www.aljazeera.net	350	0,3
Deutsche Welle www.dw-world.de	2312	0,06
France 24 www.france24.com	2 642	0,06

Fig. 1. Alexa's comparison of the reach of several global news providers.

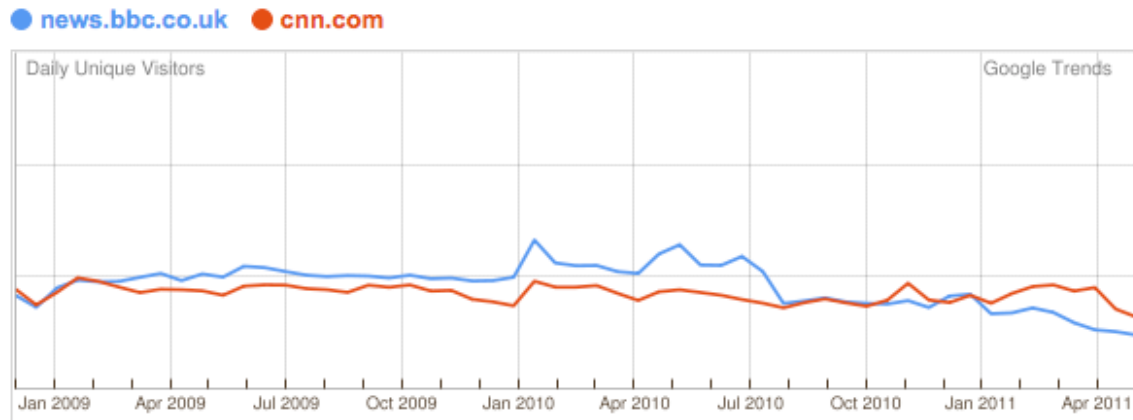


¹ 'The rank is calculated using a combination of average daily visitors to bbc.co.uk and pageviews on bbc.co.uk over the past 3 months. The site with the highest combination of visitors and pageviews is ranked #1.' (Alexa, 2011)

² Percentage of global Internet users who visit a given site.

Unfortunately data available through Alexa is for the whole of BBC and not just its news website (news.bbc.co.uk). Although it does not provide numeric information, Google Trends' (2011) comparison of (specifically) BBC News with CNN suggests that the global use of the former website is just slightly lower than of the BBC's as a whole.

Fig. 1. Google Trends' comparison of visits to BBC News online and CNN.



It is clear that BBC News online has a significant world audience. As many science and environment issues matter beyond national borders, this is a relevant aspect to consider. The choice of the BBC was also based on the fact that it is not a medium specialized in science and environment news as the purpose of this study was to understand the pictures that a general audience is offered (rather than an audience with a specific interest in science and environment). The object of this paper are the stories appearing in the section on Science and Environment of the BBC News website (many of which often feature in the front page of the website). The fact that BBC News online adjoins science and environment issues in one section is relatively unique but rather interesting in terms of communication research. Obviously, most scientific developments have at least a potential – if not a very real – environmental impact; environmental issues, in turn, draw heavily on scientific research for diagnosis and responses. Hence, it makes sense to look at media representations of these issues in conjunction. Most communication research, however, has focused on either images of science or images of the environment in the media which leaves this study without significant precedents.

3. Research process and analytical outlook

The research presented here started out from a casual empirical basis. As a regular reader of the BBC News website, I often come across science and environment news in the front page; I also read the website's science and environment section relatively frequently. With time, my mental

map of these news got divided into two main regions: a space of discovery, invention and ingenuity, and a space of tragedy, loss and incapacity. I started collecting news pieces that illustrated these two types in a random fashion since 2004 and continued doing so until the present adding up to 102 pieces. This is not an exhaustive collection of articles nor a statistically representative sample but sheds light into the different ways science and environment news are approached in BBC News online.

The research process was inductive: starting out from the data I attempted to identify relevant questions, defined an analytical approach, and looked at the data again through those lenses in attempting to produce some abstractions. In doing this, I started from the position of a reader of this news medium and followed a path that is close to the grounded theory advanced by Glaser and Strauss (1967), although much simplified. The findings of this study can be linked to three main strands of theory, which will be briefly evoked further on in the paper: media studies' theories on mediations of nature and science; theories from science and technology studies; and social theories on nature and science.

The analytical outlook adopted here was developed in close dialogue with potential analytical tools. Frame analysis is the suggested approach in this workshop. My incursions into the data that I gathered led to a continuous reflection on the relevance and productivity of frames as conceptual tools: What do frames show? What do they hide? Is frame analysis applicable to all kinds of media material? Do frames require theme consistency in the material? These questions deserve of course ample discussion but the core conclusion is that I am not satisfied with many of the frame analyses that I have seen. I find that they often resemble content analyses and obscure many aspects of media discourse under a quantitative summary of frame distribution.

While some researchers have introduced the notion of 'critical frame analysis' (e.g. Verloo and Lombardo, 2007), complexifying and enriching the analysis of texts by considering the inclusion and exclusion of different voices in a text, it still did not offer the most analytical potential for this research. Studies of the mediation of science and technology have called attention to the role of metaphors, which act as powerful framing devices or ways of creating a perspective to analyse reality (e.g. Christidou, Dimopoulos and Koulaidis, 2004). This is a useful contribution for this study and further analysis will be conducted on metaphors as framing devices in the data that this paper is based on.

Although retaining the notion of framing, this study gives preference to the concept of narrative. Narrative analysis emphasizes action, characters in a plot, setting (space and time) and outcome of a story. It also looks at the way the story is narrated (or the 'discourse'). These aspects will be considered in the analysis of the data in an interpretive manner in view of the research questions enunciated above. Narrative analysis is particularly fitting to address the two first questions but also contributes to readings towards the last two.

In order to gain insight into the quantitative distribution of the two narrative categories that emerged from the data (control & progress and estrangement & apocalypse), all the news stories appearing in the science and environment section of BBC were analysed in ten randomly selected days between 7 April 2011 and 8 June 2011. Excluding opinion pieces, analysis and other types of articles, this amounted to a total of 256 stories. All the articles were categorized into one of three alternatives: control & progress; estrangement & apocalypse; and other. The third category housed all the stories that did not fit into one of the two former narratives. For many stories this categorization was not obvious or clear-cut, especially as most reports on scientific advances can be interpreted as part of a narrative of control & progress. However, as this paper has a specific concern with images of the future, I limited categorization as control & progress or estrangement & apocalypse to stories that covered topics with implications for the future.

Analysis of the news articles resulted into the following distribution:

Control & progress: 31%

Estrangement & apocalypse: 14%

Other: 55%

While they are not the majority of news reports, the stories that fit into these two narratives correspond to nearly half of the total, and therefore a very significant proportion of science and environment news.

Let us look at the main characteristics of each of the two narratives.

4. A narrative of control & progress

What are the traits of Man and nature, the two main characters in stories about science, technology and the environment? What is the plot about? What is the outcome? What is the setting of the stories?

A large set of news reports depicts science and technology as omniscient and, by extension, Man as omniscient. It appears that we have a complete vision of nature at the micro-level of molecules (BBC News, 2006a) and at the macro-level of the universe (Whitehouse, 2004c). 'Unmanned Aerial Vehicles' or 'Eternal planes' constantly patrol the skies, stream back data and 'watch over us' (Twist, 2005).

Man is depicted as having the power of total vigilance of nature. In one news piece readers are told that science is to 'tag' or 'barcode' all life on Earth (Amos, 2005b); in another one that '[s]cientists have completed the most sensitive and comprehensive search of our galactic neighbourhood.' (Whitehouse, 2004c) The image of Bentham's Panopticon (Foucault, 1975) is extended to the cosmological scale.

Science and technology enable us to constantly survey all beings and all things from coral in the Great Barrier Reef (Krausman, 2006) to what goes on below the ice in Jupiter's moon Europa

(Rincon, 2004). Everything is tamed and disciplined. A grid of total control has been imposed on the universe.

Scientists – and, by extension, humans – are like gods. We have the power of (re)creation. We can create and recreate at our will, manipulate and perfect nature to our taste. ‘Artificial life’ is within close range (Pease, 2004). We can recombine species (Whitehouse, 2004a) and create new ones (BBC News, 2006b). We can create new forms of matter (Whitehouse, 2004b).

In science news, nature is often shown as a hybrid, the result of a fusion between organism and machine, where animal bodies have been merged with technological devices. For instance, by transporting cameras, animals become media (BBC News, 2004a). They gather and disseminate images, and extend the human sense of vision. A range of species is now technologized (BBC News, 2006b; Morelle, 2008). Animals may be made to serve military purposes, as the ‘Pentagon plans a cyber-insect army’ (Kitchener, 2006) and to ‘turn sharks into stealth spies’ (BBC News, 2006d). These images of nature, science and technology suggest that there is nothing we can call nature anymore. There is ‘nothing but us’.

In the narrative of scientific and technological control of Man over nature, nature has become replicable. We can devise machines to produce new body parts through ‘three-dimensional printing’ (Palmer and Danzico, 2011). An artificial brain is within reach (Fildes, 2009) and full ‘humans version 2.0’ may not be far away (van der Pool, 2005). We make copies of the entire planet Earth (BBC News, 2004c) or even of other planets (Ward, 2004). We have acquired such a degree of power that we can make a second nature, one that is more perfect and more reliable than the ‘real’ nature.

The universal outcome of these stories is a happy one. News reports tell us of the possibilities for curing diseases and bringing extinct species back to life. These stories are set in top-ranking university labs and other high-tech research facilities. This is itself a space of rigorous control, or so is the image that is conveyed. While inscribed in the present, these stories have a strong future-orientation. Some news pieces report on achievements that have already been completed; others report on work in progress and initial findings. In both cases, this is mainly a story about promises and potentials that will materialize (or so we are told) in a time to come.

5. A narrative of estrangement & apocalypse

The second dominant narrative is a narrative of estrangement & apocalypse. Here we have science and environment stories that tell of the devastating impact of human activities on nature. We are told of new scientific reports or scientific models that point to an immense scale of destruction of nature (Kirby, 2004; Morgan, 2009). In these stories, the agents of causation are

not scientists but 'humans', 'mankind' or the 'world' (Black, 2007; Kirby, 2003; Shukman, 2006). Our actions are not only leading to the extinction of other species (Amos, 2005a; Kirby, 2003; 2004a). We are also imperilling our own survival, getting us closer to 'Doomsday' (BBC News, 2004b; Bentley, 2007). There is a profound fatalism in these stories, a sense of self-inflicted but inevitable tragedy. We are aware that we are heading for apocalypse. We are aware that it is our fault but we still continue heading to collective suicide.

Scientists here appear powerless to control and solve problems. In a crucial turn in their normal roles, they increasingly take openly political stances, make public comparisons of global warming with terrorism or directly address the United Nations or world governments (BBC News, 2004b; BBC News, 2009).

6. Discussion

Christidou, Dimopoulos and Koulaidis (2004) found that metaphors of science and technology in Greek print media could be grouped in four superordinate categories: science and technology as a construct; a supernatural process; an activity extending the frontiers of knowledge; a dipole of promise and/or scare. Their study examined the ways in which scientific activity itself is depicted in the media. The goal of this study is not so much to analyse images of science and scientific processes but what those images say of human ability and ingenuity, as well as of human fate. In other words, this is about the teleology of science, technology and, more widely, human action upon the world.

As shown above, Man appears associated with various fantastic powers in the narrative of control & progress found in the BBC News website. *Omniscience* is one of such powers, i.e. complete vision and complete dominance of nature. Man is also capable of total *vigilance* of nature. Science awards humans with the powers of *creation* (or re-creation): complete manipulation of the real involving the ability to perfect and indeed to create artificial life and new forms of matter. In this narrative, nature is characterized by *hybridity* and *replicability*. Nature has become techno-nature and become subjected to reproduction by humans. The randomness of natural nature has given way to the certainty of techno-nature.

In the narrative of estrangement & apocalypse, there is *awareness* of the damage inflicted on nature and of the enormous risks for humans, but *powerlessness* to stop what appears to be a self-inflicted tragedy. Fatalism contrasts with the seemingly full control of the first narrative.

The title of this workshop is 'normalizing catastrophe'. The analysis presented here certainly suggests that catastrophe is a major theme in science and environment news. However, as indicated above, it corresponds to less than half of the stories that put the emphasis on control & progress.

Different views of science's social image also emerge from the literature. In her classic studies of news coverage of science, Nelkin (1987, 1991) argued that the media build an 'image of science as a solution to intractable dilemmas, a means of certainty in an uncertain world, a source of legitimacy, an institution we can trust' (1991: x). The 'ideal of a pure science that is the key to progress and the solution to social problems' (ibid.: xii), Nelkin notes, often underpins news reports. The stereotype of the lab scientist in a white coat who can provide answers to all problems encapsulates this image of science. Others, however, have a mixed view of social images of science and technology. McGrail (2010: 23) notes that '[i]maged nanotechnology futures are polarised between utopian dreams and apocalyptic nightmares.' Christidou, Dimopoulos and Koulaidis (2004) also emphasize the duality of promise and threat in media depictions of science and technology. Contrasting the most with Nelkin's claims, Foust and Murphy (2009) have shown the pervasiveness of an apocalyptic rhetoric in news reports of climate change. Of course climate change is not just about science but the key thing here is that it is also about science; it is (also) about how science and technology brought us here and how they can help address the problem.

As Giddens (1999) has noted, modern societies, unlike earlier forms, are heavily oriented to the future. Both narratives discussed in this paper have a strong future-orientation. They involve promises and/or threats and create expectations about the future that are likely to influence decisions and actions. McGrail (2010: 25) argues that 'expectations can play decisive roles in establishment of new technological fields – such as nanotechnology – at three levels: the *macro* (e.g. creation of government policy), *meso* (e.g. in innovation networks and industry sectors), and *micro* (e.g. in research groups).' In a study of mediations of biotechnology in Finland, Väliverronen (2004: 374) points out that there may be 'a conscious exercise of creating an image', suggesting that there is a strategic management of science communication. 'Researchers', he notes, 'and especially the institutions funding their work, have also learned how to use this rhetoric of promise. Promises and forecasts concerning the future may help to give research more visibility, which is useful for purposes of gaining public approval and attracting more funding.' (ibid.). This may also serve the media well: 'The rhetoric of the future also supports journalistic ideals: it satisfies the requirements for speed and novelty value and helps to arouse the audience's interest.' (ibid.)

Different forms of representing the pace – and the powers – of science can have important implications for public understanding:

'If an historical perspective were used instead of the rhetoric of the future, genetic engineering innovations would probably appear less revolutionary and less promising, and the threats involved in applications of these discoveries would probably seem less unusual and frightening (Ideland, 2002). Technology would appear to be making slower headway, if journalists pointed out that the development of new therapies, drugs, or foodstuffs is often a

slow process, dependent on technological innovation, the market situation, and social developments.' (ibid.)

Christidou, Dimopoulos and Koulaidis (2004: 358) add a reflection on consequences for citizen subjectivity:

Science and technology (S&T) are represented 'as extending the volume of certified knowledge, constructing skillfully admirable things, handling supernatural powers, being capable of saving or destroying the entire humankind, and changing in an overwhelmingly rapid rate. Therefore, metaphors in the press and popular scientific magazines produce a paradox. On the one hand, they are employed in an attempt to juxtapose technoscientific endeavor with everyday life activities and entities, and consequently bring it conceptually closer to non-experts; on the other hand their use could contribute to enlarge the psychological gap between S&T and the ordinary man.'

This last quote is particularly helpful to answer some of the research questions of this paper. In the narrative of control & progress, which is equivalent to a god-like relation with nature, everything that is possible is desirable. Unrelenting scientific progress is thus given ethical and political legitimacy. But while this kind of narrative attempts to promote public trust in science and technology it does in fact only reinforce the authority of science and widens the gap between experts and laypersons. Experts are the ones who have the power, who make the decisions, who run techno-nature. Citizens are actually disengaged from the politics of techno-nature in this narrative. Science reporting does not make a positive contribution to their political consciousness. The narrative of estrangement & apocalypse constructs a different subjectivity. Here every common individual is given responsibility and is expected to take up this cause actively. But these are the same citizens that have for long been told that science and technology are almighty in managing nature, and that have long divorced from nature in the midst of these two extreme and conflicting narratives. Science is here often politicized by scientists and others who need to engage citizens in the protection of the environment. However, studies of public perception of climate change, for example, show that people feel powerless to address it and expect scientists to come up with a solution. The consequence may therefore be public apathy and anxiety, and alienation from the problems.

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