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From engaged citizen to lone hero. Nobel Prize laureates on British television, 1962-2004

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Abstract

Between 1962 and 2004, Nobel prize laureates appear in the British television science programme Horizon in various roles, denoting differing understandings of science in relation to society and culture. The outcome of an interplay of cultural and institutional factors, these representations vary with the broadcasting environment. Notably, the paper establishes that the choice of presenting scientists as heroic characters in strongly determined storylines from the late-1990s onwards, originates in a reaction to institutional imperatives as a means to preserve the existence of the Horizon series. The paper shows that exigencies of the institutional context in which media professionals operate are major factors influencing the representation of science in public.

Keywords:

Nobel Prize; Nobel laureates; Television; British Television; Horizon; Science in Public; politics of science communication; neoliberalism.

Author's biography

Jean-Baptiste Gouyon is a lecturer at UCL Department of Science and Technology Studies. His research focuses on the presentation of science in visual media, mostly film, television and the museum. He is currently writing a monograph on the history of wildlife television in Britain.

Introduction

Expositions of science in public contexts are multiply determined. In many cases, epistemology, non-specialist audiences' understandings, or the politics of science, play no direct role in shaping these expositions. By contrast, the institutional context where the professionals producing these expositions find themselves operating, does. As this paper shows, shifting institutional arrangements at the BBC enable us to explain why televised representation of Nobel laureates evolved from emphasising the deeply socialised nature of scientists and their work in the 1960s, to portraying scientists and science as socially disconnected, in the early decade of the 21st century.

Even though they may not be politically determined, these representations nonetheless have a political dimension. Not least because expositions and discussions of scientific knowledge in front of audiences are necessary steps in the production of such knowledge (Shinn and Withley, 1985). Ideas originating in scientific research then get blended with other cultural and social beliefs to construct agreement over matters of fact (Bucchi, 2008). Conversely, producers of representations of science for mass consumption are more likely to conform to the dominant ideology than to contest it. Narratives about scientists and their works aligned onto dominant ideologies, help cementing prevailing social orders and representations (Curtis, 1994).

Because public presentations of science, whether politically motivated or not, have potential political consequences, analyses tend to focus on the finished products and their potential impact on audiences. This approach, in effect black-boxes the institutional component of the production process. This paper looks at a number of TV programmes between 1962 and 2004, each presenting Nobel laureates to British television audiences in different ways. The analysis focuses on the institutional context of production to understand how it affected these representations, and in turn acted on the public culture of science.

All the programmes discussed here, bar one, are episodes of BBC science programme *Horizon*. They have been identified using an exhaustive internal list of all the episodes broadcast between 1964 and 2008 with their summaries, known in the *Horizon* production unit as 'The *Horizon* Bible'. Episodes were included if their summary made clear that they centred on one or several Nobel laureates presented as such. For instance, the 1992

Molecules with Sunglasses, on the discovery of fullerenes, by notably British chemist Harold Kroto, was repeated in 1996, when Kroto received the Nobel for Chemistry, together with Robert Curl and Richard Smalley. But it is not included in this study as when the film was made, Kroto was not yet a Nobel laureate. Running for more than fifty years, *Horizon* is the BBC's flagship science programme, whose episodes are watched regularly by audiences of more than 2 million. No other television series has been more influential in post-war Britain in its continuous contribution to placing science in British culture (Boon, 2015). It is also an index of broadcasters' and television audiences' relationship with science. As such, we need to pay attention to what is a 'substantial body of work, and to understand its content and form' (Boon, 2015: 87). *The Prizewinners*, the outlier, was produced in 1962, before *Horizon* existed. Yet it can fruitfully be regarded as having been instrumental in developing ideas for this series and as a prefiguration of what some of the early *Horizon* episodes would look like (Boon, 2015).

At this stage, though, a caveat is necessary. Few *Horizon* episodes feature Nobel laureates as Nobel laureates. In some episodes, future laureates appear before they received the award (e.g. *In Search of Konrad Lorenz* [BBC, 1973]). Some laureates also appear on multiple occasions, principally because they are considered good performers (e.g. Richard Feynman). In these cases, the quality of the television performance takes precedence over the epistemic significance of a scientist's work as sanctioned by the Prize. Finally, the vast majority of Nobel laureates never make it to *Horizon*. An interpretation would be that broadcasters do not consider them attractive to audiences of a programme presenting cutting edge science. The Nobel often rewards work a decade old, if not more. It has therefore, from an information media perspective, lost its news value (see Gregory and Miller, 1998: 105). Nonetheless, the small number of programmes featuring Nobel laureates as recipients of the award makes it possible to identify an evolution in the presentation of these highly visible scientists (Goodell, 1977). I discuss these programmes in relation to oral history interviews conducted in 2014-2015 with former *Horizon* editors and producers,¹ and in the light of an emerging historiography of British science television (Boon, 2014, 2015,

¹ The oral history project 'Horizon at 50', was jointly funded and conducted by the Research and Public History department of the Science Museum in London, and the BBC. The unedited film records of the interviews are kept at the library of the Science Museum research centre.

2017; Boon & Gouyon, 2015; Gouyon, 2011b; 2014; 2016; Farry and Kirby, 2012; Jones, 2014).

Contrary to scholarship arguing for a kind of media-determinism and describing the constraints media forms impose on television presentations of science (e.g. Kirby, 2013), this paper takes a historical approach to focus on the institutional context of production, the 'ecology' of television science (Matthews and Cottle, 2012), and to understand how science television programmes came to be how they are. Notably, the study shows that storytelling has not always been conceived of as necessary to television science. But it became pivotal when telling stories appeared as a practical means to preserve television science producers' ability to produce such science programmes as *Horizon*.

The thesis is that as the representation of Nobel laureates evolves, so does the commentary on science associated with it. This evolution depends on the programme makers' institutional needs. Laureates are first presented as profoundly social beings, and science as a very social activity. Nobel laureates end up as socially disconnected story characters, striving in a fantastic scientific sphere, a microcosm with its own norms, rules, and principles. Such evolution is a direct consequence of institutional imperatives within the BBC in relation to the broadcasting of science.

Nobel laureates on British Television

The history of *Horizon*, from its inception in 1964 to the early 2000s, can be divided into four discreet periods (Boon and Gouyon, 2015). The first years, from 1964 to roughly 1969, extend earlier efforts to put science on British television. The guiding idea then was two-fold. Science was conceived of as a potentially beneficial enterprise, and scientists, as responsible members of the social body one could trust to deliver a bright future. Then, throughout the 1970s, in the context, notably, of the rise of the environmental movement, science is recognised as the main driving force of social and cultural changes, but a problematic one. As such it is scrutinised in programmes often adopting a critical stance. During the 1980s and for the first half of the 1990s, science stands as a subordinate to politics in programmes mostly informed by journalistic values, driven by the ideal of a balanced and objective coverage of issues. The general trend is to suggest that properly kept

in check and controlled, science and technology can assist politics driven by the ideology of progress.

But from the mid-1990s onwards, *Horizon* took a narrative turn. Programmes no longer focused on science and technology as objects of investigation, whose relationship with society and politics is to be scrutinised. Instead the series starts displaying a kind of exacerbated “scientism”, whereby science becomes an unquestioned element in programmes structured around very strong storylines. Typically, in these stories, scientific knowledge appears as having a special purchase on truth, as a means to solving puzzles.

The early 1960s: establishing the template for the television presentation of Nobel laureates in The Prizewinners

The Prizewinners, broadcast on 11 December 1962, introduced British television viewers to five Nobel laureates of that year: Max Perutz, John Kendrew, Maurice Wilkins, Francis Crick and James Watson. As Gordon Rattray Taylor noted in an early treatment for the programme, the aim was to develop fully ‘the personalities’ of these scientists. So the programme was a succession of interviews to find out ‘what manner of man’ these laureates were, as Raymond Baxter, the anchor, explained. *The Prizewinners* is one example of these early programmes at the BBC which took science as a component of culture and tried ‘to reveal the mind of the scientist in action in regard to the rest of society’². A forerunner of *Horizon*, *The Prizewinners* belongs in the same intellectual framework as the early episodes of the series (Boon, 2015). Early on it established a template for the presentation of Nobel laureates on television, from which subsequent representations could evolve.

Behind the camera was Charles Lagus, a wildlife cameraman who had made a name for himself as David Attenborough’s sidekick in his early *Zoo Quest* series (1954-58). Filming wild animals’ behaviour, Lagus had developed his capacity for unobtrusive camerawork, providing viewers with the illusion that they were witnessing for themselves animals in the wild, as if the camera were absent (Gouyon, 2011a). After *The Prizewinners* had been broadcast, Philip Daly praised Lagus’ filming:

² Singer, 26 November 1962, quoted in Boon, 2015, p.94.

I thought the quality was quite remarkable, and the great highlight of the programme, the complete relaxation of all the speakers, was in no small way due to you for not fussing them during the shooting.³

Early reflexion on Horizon stressed the need to create for audiences the feeling that they were entering into a conversation with the scientists being interviewed, ‘the sort of conversation which springs up when a scientist and a non-scientific friend get talking over a beer, a coffee or a glass of after dinner brandy’⁴. Lagus’ naturalistic camera-work contributed in foregrounding each interviewee’s personality, providing viewers with this impression of an unmediated encounter. It participated in eliciting the notion that scientists are social beings, individuals one can relate to on the common basis of a shared lived experience. It helped enforce the notion that scientific knowledge results in an encounter between scientists’ character and the social context in which they find themselves, which viewers share with them.

The prime motive for making the programme was journalistic, in response to an event seen as exceptional. In Daly’s words ‘This is the first time that two awards have been made in the same year to one country and certainly the first time that the same Unit [the Medical Research Council Unit for Molecular Biology at Cambridge] ... has received a double honour’.⁵ Crick, Watson and Wilkins received the Prize for Medicine or Physiology for their work on DNA, while Perutz and Kendrew, were awarded the Prize for Chemistry, for their work on haemoglobin and myoglobin. Likewise, news values informed the focus on personalities, as well as the format of the programme—a series of interviews. Exploring the laureates’ tastes in arts, their personal and political beliefs, the interviewer, Stephen Black, probed their views about the impact of science on society. The scientists emerge from these conversations as engaged citizens, socially and politically reflexive. For instance, drawing parallels between the development of the atomic bomb and advances in biology, Wilkins and Kendrew both claimed that biologists could become very dangerous, just like physicists had with the Manhattan project.

³ Philip Daly to Charles Lagus, 12 December 1962, BBC WAC, T14/1645/1.

⁴ G. R. Taylor, ‘Science for all’ (press release), 17 November 1964, T14/3,316/1 (quoted in Boon, 2015, p.114)

⁵ Philip Daly to John Fearon, 5th November 1962, BBC WAC, T14/1645/1.

The Prizewinners falls into the 'national identity and pride frame' (Bucchi, 2012) identified in relation to earlier news coverage of Nobel Prize awards, in Italy. On the eve of transmission, Lord Mountbatten appeared on television to announce the programme in a scripted statement emphasizing that the prizes had been awarded 'to Britain' and that four of the laureates were 'Britons'. The war hero also extended some of his symbolic power onto two of them, Kendrew and Perutz, who 'had served under [him] during the [Second World] War'.⁶ In 1962, the British dominant political elite was keen on incorporating Nobel laureates.

The laureates' elite status is further asserted by their being presented as key historical figures in the making. Based on this assumption, film records of their discourse got endowed with historiographical value. Thus, Philip Daly asked the original footage of the interview with Crick to be archived:

This is the first time that Francis Crick has agreed to appear on television, and it may well be his last. He will go down in history as one of the great scientists of our time – possibly as great as Darwin – and the material is therefore of inestimable archive value.⁷

However, the film records got conferred the status of historical primary sources, because of the significance of the interviewees' work, not their personality. Anonymous before the award, these scientists were expected to remain so. The programme thus instantiates the tension the Nobel prize encapsulates between the recognition of individuals' contributions and the ideal of the suppression of the self, supposedly essential to science. As a television critic noted, these scientists were faceless, anonymous and ordinary, but animated with 'the intellectual passion and arrogance which makes ideas so explosive'.⁸ To some extent, anonymousness is what renders the laureates approachable to viewers and makes Lagus' filming so effective. To insist on their ordinariness is a means to emphasise, by an effect of contrast, the extraordinariness of their work, which carries the promise of transformative progress, as much as it could lead to great catastrophe.

⁶ 'Nobel Prize Programme Script for Lord Mountbatten', BBC WAC, T14/1644/1.

⁷ Philip Daly to John Priestly, 'Off-cuts of "The Prizewinners" (Dr. Francis Crick)', 8th January 1963, BBC WAC, T14/1644/1.

⁸ Dennis Potter, 'Enter the Faceless ones' *Daily Herald*, 12.12.1962, n.p., BBC WAC, T14/1644/1.

Free minds, nonconformists, team-workers, not bound by disciplinary boundaries, each of the interviewees reflected on their qualities, establishing a composite template for the public representation of Nobel Prize laureates on television. First to appear was Francis Crick. The awards were shared, and so the laureates all emphasised the collaborative aspect of their activity, thereby bringing forward the social dimension of scientific work. Thus Crick explains the advantage of collaboration:

the advantage of two is that if for example I had some ideas which as it turned out were quite wrong, Watson would tell me, in no uncertain terms that this was nonsense, and vice versa. ... and in fact it is one of the requirements for collaborations of this sort that you must be perfectly candid, one would almost say *rude* to the person you are working with. It's useless working with a person who is either too junior to yourself or much too senior because then politeness creeps in and this is the end of all real collaboration.

The Nobel laureates emerge from the programme as moving freely from one disciplinary field to another, in the process displacing cognitive boundaries and creating new knowledge. For instance, Maurice Wilkins explains how he started working in physics on 'inanimate things', participated in the Manhattan project, and then felt that he wanted to work 'on things that were living and growing for a change'. Further defining his practice, Wilkins describes it as 'fiddle with a thing, go on fiddling with it, and fiddle, fiddle until everyone else has given up. You have to be very persistent, and you have to know what is worth fiddling on'. When asked, Wilkins agreed that he was an 'obsessional personality'. Similarly, Perutz sketches a self-portrait as quite obstinate, persevering in pursuing his interests despite the many obstacles placed on his way by the rise of Nazism in Germany and then the Second World War. Individual biographical details become general characteristics used to brush the general portrait of the Scientist in post-war Britain.

Persistence and focus on scientific topic does not imply single-mindedness. A key aspect of these interviews is to emphasise these scientists' open-mindedness. Crick elaborates on his thoughts about the distinction between right and wrong, or what it means to be human. Wilkins shares his taste for gardening, sculpture, or ethnographical music. Kendrew's interview starts with discussing his musical tastes from Corelli to jazz, before moving on to reflect on the fact that he started as a chemist and before turning to biological topics. Asked

if he would say that Chemistry was his 'greatest' interest, Kendrew could not agree: 'I don't think I would actually. It's terribly difficult to answer that one, you know. I have such a lot of things I am interested in. It would be very hard to say what would be my *main* interest' (original emphasis). Scientific work emerges from these interviews as a social activity, embedded in culture. This early stereotype of the Nobel laureate was coherent with the principle guiding science broadcasting at the BBC in the early 1960s, that the programmes should bring forth 'the vital fact that any scientific discovery or idea is a personal creation, stamped by the character of the scientist and his age', and thus 'place new developments in science in their total context – personal, social, historical, political'.⁹ Science television producers in the 1960s perceived scientists as full participants in the polity, and presented them as such.

Towards the 1980s and beyond. The rise of "the curious individualist"

In the following decades, some aspects of the template defined in *The Prizewinners* endured, for example persistence, whilst others faded, notably the collaborative dimension of scientific work. Nobel laureates are increasingly presented as successful isolated individuals. This evolution manifests itself most clearly in the 1980s, for in the previous decade, something altogether different can be observed: the disappearance of Nobel Laureates from *Horizon*. In the 1970s, no programme equivalent to *The Prizewinners*, intended to portray Nobel laureates, was produced. In October 1973, a programme about Konrad Lorenz was broadcast, two weeks after it had been announced that Lorenz would share, with Tinbergen and Frisch, the Prize for Physiology or Medicine. But this film made no mention of the award, nor of his fellow laureates. The producer Alec Nisbett's primary intent was to probe Lorenz's association with the Nazi regime.¹⁰ In 1978 another programme, *A Whisper from Space*, on the detection of micro wave cosmic background radiations, featured two Nobel co-laureates. Arno Penzias and Robert Wilson, from the Bells

⁹ Leach, 'Notes on "Horizon" policy', attached to Leach to Daly, 9 January 1964, T14/2,195/1, quoted in Boon, 2015, p. 103.

¹⁰ A. Nisbett, personal communication.

laboratories, as well as their giant horn-antenna built in Holmdel, New Jersey, are key characters in the film. As Peter Jones, the episode's producer, recalls:

And I'm thinking, in particular, ... of a film about The Big Bang, in which the crucial participants, as far as I was concerned, were Penzias and Wilson, who had got the Nobel Prize, just a few months before we started filming, and we did indeed film with them in this wonderful, emblematic device, the horn antenna, with which they discovered the echo of the creation of the universe. (Horizon at 50 Oral History, Jones, 00:21:00)

Yet, at no point the fact that Penzias and Wilson received the 1978 Nobel Prize for Physics for their work is mentioned in the film.

This absence can be interpreted in the light of the self-consciously critical stance towards science adopted in the series during the 1970s, in line with the climate of defiance towards science prevailing in the Sixties (Agar, 2008). *Horizon* producers acknowledged the centrality of science to social change, but therefore critically scrutinised scientists' work as one potential cause of social and human disaster. From this vantage point, an episode broadcast in November 1974 featuring E.F. Schumacher, takes another dimension. Casting Schumacher as an economist, it presented the ideas developed in his 1973 best-seller *Small is Beautiful*. The Nobel for economy had been awarded that year to Friedrich Hayek, by then a British citizen, for his work on neoliberalism. To feature Schumacher as an economist was unusual in the 1970s. The publication of *Small is Beautiful*, which developed an alternative understanding of economy altogether, had turned him into the poster-boy of the economists-loathing world.¹¹ This November 1974 *Horizon* episode, titled *The Other Way*, can be seen as an explicit statement against the politics which Hayek's Nobel Prize validated. To deliberately ignore the Nobel Prize enabled producers to avoid partaking in the celebratory nature of the award and the symbolic social power associated with it, thus preserving their ability to critically engage with science.

Such preventions were abandoned ten years later, as suggest the 1985 film *A Prize Discovery*. Presenting the work on monoclonal antibodies rewarded in 1984 with the Nobel

¹¹ I am grateful to my colleague Tiago Mata, for this insight.

Prize in Physiology or Medicine, it focuses on one of the laureates, Cesar Milstein, born in Argentina but then a British citizen. The film opens with the award ceremony in Stockholm, complete with the laureates' banquet, concert, and close-ups of the King and Queen of Sweden in full regalia. It is then structured around a long interview with Milstein in his laboratory, punctuated with explanations of the science of monoclonal antibodies, and shorter interviews with medical practitioners or industrialists. Milstein's work, allowing to grow human antibodies outside the body in unlimited quantities, emerges as revolutionary for many fields of medical research and treatment, from cancer to the production of various vaccines.

The programme also posits economical profitability as an index of the value of the fundamental research rewarded with a Nobel Prize. The commentary emphasises how Milstein's work formed the basis of 'a new industry worth hundreds of millions of pounds'.¹² 'The market' is presented as arbitrating on the relevance of fundamental research, validating the importance of Milstein's work before the scientific establishment had recognised it. Milstein emerges from the film as a successful economic actor, a contributor through his research work, to national economic growth. The depiction thus seems to embrace the ideology of neoliberalism, dominant in Margaret Thatcher's Britain. The timing of the programme suggests that this characterisation of a Nobel laureate and his work was intended to settle political issues involving the BBC, with nothing to do with science.

In 1984, the BBC was seeking a renewal of its licence fee, but was perceived as intrinsically hostile to the Thatcher government. The prevailing opinion in government circles was that the public service broadcasting model funded by the licence fee should be replaced by a market-based one, whereby the BBC would be funded with revenues from advertising. To advise on the issue, the Peacock committee was established in March 1985 (O'Malley and Jones, 2009). The very positive portrayal of the relationship between scientific research and the economy in *A Prize Discovery* can be interpreted as an attempt at dispelling the perception of a BBC ideologically at odds with the Thatcher government. Here a science programme demonstrates on the contrary the Corporation's sympathy for the market-centred neoliberal ideology. Following this interpretation, this film exemplifies the notion

¹² *Radio Times*, 25 April 1985, p.29

that representations of science on television can serve many purposes, some of them having nothing to do with epistemology or concerns over the public understanding of science.

In *A Prize Discovery*, the critical edge found in earlier programmes is absent. The political concerns Nobel laureates voiced in *The Prizewinners* can't be found here. Instead, scientists and their work are detached from politics. In the interview, Milstein explains how he first came to Britain to study for a second PhD in 1958, then returned to Argentina, leaving the country for good in the 1960s. 'The atmosphere in Argentina wasn't very good and actually it was the beginning of a series of emigration by scientists and by intellectuals, and I was about the earliest ones to leave' (BBC, 1985). The absence of expressions of political commitment characterises scientists as not encumbered by the vagaries of politics. The Nobel laureate emerges as a problem solver, an ingenious method designer, as one able to move the frontiers of his disciplinary field. Above all, Milstein describes himself as a 'Curious individualist'. This self-description tends to dissocialise the practice of science and endorse the idea that scientific knowledge is the outcome of the actions of free-willing, independent individuals. The norms, infrastructures and institutions of the cultural space of science are meant to facilitate the work of those curious individualists whose findings will then be a source of profit for private entrepreneurs. The relevance of research to society appears to be primarily about creating market value. Economics supersedes politics as the cam belt between science and society.

As shows the 2004 *Project Poltergeist* (Sington, 2004), such exaltation of the individual proved fertile ground for the narrative turn taken in the late-1990s. The individualistic framework leads to a solidification of the definition of science, used as an unquestioned given in a strong storyline. *Project Poltergeist* tells the story of Ray Davis, an American physicist who designed the Homestake experiment, to count the neutrinos coming from the Sun, using a tank of perchloroethylene. Begun to verify a theory John Bahcall, another physicist, had put forward in the early 1960s, the first results turned out to be problematic, as Davis only detected one third of the neutrinos Bahcall had predicted. For the next forty years Davis persisted, refining his dispositive yet always getting similar results. Eventually, a Cambridge-based research group conducted an independent experiment that explained Davis' findings, solving the mystery, and Davis received the Nobel Prize in Physics in 2002.

But, this only got revealed at the end of the film, as the climax of a story of a man who never gave up.

Daring, obsessive, a ground-breaker, Nobel laureate Ray Davis shares features with his predecessors featured on television. However, the trend towards individualisation identified in the 1980s becomes stronger, as does the purported isolation of science from society. What prompted producer David Sington to make *Project Poltergeist* was the wish to find out what made Davis' existence worth living: 'the most important thing in the film is about how a life spent at the bottom of a deep hole in the ground with a vat of cleaning fluid could be a life well lived.'¹³ The particularity of Davis' experimental set-up was to be installed down a disaffected mine, where he spent most of his time, alone. The successful quest for truth, whatever the cost, is the answer to Sington's question. The Nobel prize rewards the abnegation and self-sacrifice of he who devoted forty years of his life buried deep underground to uncover hidden truths of nature. In the film, John Bahcall describes Davis' experiment as an attempt to look directly inside the Sun, thereby reinforcing the belief that scientists have special access to nature, reaching where nobody else can. The laureate emerges from the film as a Promethean figure, holding his ground in the face of others' disbelief, eventually achieving success despite solitude. Meanwhile, the other scientists featured in the programme contribute in constructing the idea of science as a singular cultural realm, and of scientists as individuals operating solely by the values and beliefs of this supposedly isolated sphere. Science is here a self-contained institutional framework valuing entrepreneurial freedom and skills. The Nobel laureate epitomises success in such a microcosm.

Whilst in 1962 the Prize Winners appeared as 'ordinary mortals', the 2002 laureate comes out as still mortal but not quite ordinary. The 1962 programme depicted scientists as sharing viewers' everyday lived experience, thereby instituting a community between scientists and non-scientists. By contrast, the 2004 programme is meant to enable viewers to vicariously experience what it is to be a scientist, implicitly characterised as alien to everyday life. In Sington's words:

¹³ Interview with David Sington, 07 March 2017.

What I want when I am making a science film is ... to make the audience think like scientists for the duration of the film. ... So I want the audience to be puzzled, in the same way that scientists are puzzled. ... And that's what I want the audience to think, "I could be a scientist", you know "I could think like a scientist", because we all need to think like scientists.¹⁴

Cognitive estrangement would be necessary to share in the experience of scientists, set as a group distinct from the rest of the population. By contrast with 1960s programmes which asserted the inherently social nature of science, in 2004 the notion of a strong separation between science and the rest of the social body is central. By the same token political engagement, integral to 1960s Nobel laureates' persona, in 2004 is left to non-scientists: 'The social value of what I do, I think, is to, when I am doing science films, I try to help to create a scientifically educated electorate'.¹⁵ Finally, nothing signifies science's separation from the polity better than its reification into a model to run society:

I think that you know, scientific cooperation, internationally, is kind of a model for how we ought to run society. The most successful international collaborations that we have are the international scientific collaborations. So I think that in all sorts of ways, science is a model for human society, and so I want to sort of show that and make people understand.¹⁶

Such depiction of science as a distinct cultural space that can serve as a model to organise the polity, also works to define where the series stands in relation to television in general. As noted above, *Project Poltergeist* is representative of a narrative turn Horizon took in the late-1990s. Typically, episodes in the series became organised along strong story lines, where science, taken as a given, stands as a tool for scientists to solve puzzles. A series of oral history interviews conducted in April 2014 are especially helpful to further probe this narrative turn. They reveal that stories built on an exceptionalist understanding of science enabled Horizon to affirm its own uniqueness within the BBC, at a time when its suppression was a possibility. Covering the period from 1966, to the early 2000s, these oral history

¹⁴ Interview with David Sington, 07 March 2017.

¹⁵ Interview with David Sington, 07 March 2017.

¹⁶ Interview with David Sington, 07 March 2017.

interviews suggest that the narrative turn was the consequence of a drastic shift in the working definition of science on which Horizon is based. This shift itself came from an institutional threat to the programme's status within the BBC.

An oral history of Horizon

Before the mid-nineties, Horizon producers operated with a very broad definition of science. One informant, Edward Goldwyn, active from the mid-seventies to the mid-eighties expressed the understanding of science then prevailing amongst producers: 'I think science is not about answers it's about questions' (Horizon at 50 Oral History, Goldwyn, 00:14:03).¹⁷ Such a loose definition of science as a form of questioning, rather than answering meant that the brief was very wide for Horizon producers. They could make a film about any topic from a scientific perspective, therefore reinforcing this fluid definition of science. In the words of Martin Freeth, active on the programme from 1973 to 1995:

And you kind of thought that you could do almost anything, and your task was to make it engaging, and indeed, entertaining. But the challenge was to find a clever way of doing it. ... So we felt that amazing potential, and when looking for subjects, even early on, and it went on through what I did, *we didn't stick to a rigid boundary for what counted as science*. (HOH, Freeth, 00:09:01 – emphasis added)

Accompanying such a fluid definition of science was a good measure of freedom as to which format the programmes could take.

In the mid-nineties, important changes occurred in the institutional context in which the production of Horizon took place. John Birt, appointed Director General of the BBC in 1994, transformed the management and distribution of material resources within the corporation, making the logic of the marketplace pivotal to its functioning (Born, 2005). As a consequence, the freedom such strands as Horizon, Omnibus, or Antenna enjoyed got questioned. Despite the fact that they occupied most of the BBC schedule, using most of the resources available for a channel's output, channel controllers had little control over them. And so they began evoking their suppression, on the basis of audience research which suggested that the strands had 'blurred their lines' (HOH, Lynch). Viewers could no longer

¹⁷ Henceforth, quotes from the Horizon at 50 Oral History project will be referenced using the acronym HOH.

differentiate between life-style, current affair, culture, or science programmes. The loose definition of science which had driven the production of Horizon for three decades had become a liability.

By the end of the nineties, most of the strands had been axed. To avoid a similar fate for Horizon, successive editors styled it as *The science programme* of the BBC, adopting to this end an essentialist approach to science. This new approach was encapsulated in the tagline for the programme: 'Pure Science, Sheer Drama'. Horizon became a brand, and its identity was science. In contrast with the fluidity that had prevailed earlier, producers had now to conform to an atmosphere, a tempo, a structure that identified Horizon as Science. The series became a stereotype, resting on a stereotypical view of science. In the words of John Lynch who produced his first Horizon in 1980, and became series editor in 1994, until 1997:

And that became, you know, very tightly driven, we did do, and Bettina Lerner lead this, workshops with [Robert] McKee for producers who actually, you know, went there and we followed, we started to use the setup, conflict, resolution, three stage process for Horizon. And that, I think, worked, it really, really worked, nobody had really done this before, every story was chosen if it would fit that, you were trying to have the subject different, the fields of science different and so on, but you're also trying to fit it into a very tight narrative structure. (HOH, Lynch, 01:57:31)

In order to "save" the programme, the ways it was conceived of and produced got transformed. From a fluid one, the definition of science at its heart solidified. As Bettina Lerner, Series Editor at the time, puts it, Horizon was to be about 'good science, hard science, really complex, deep, well told science'¹⁸. Science became an unquestioned narrative device, ascribing to scientific knowledge and scientists the role of conflict solvers. Mapping changes in Horizon's relationship to science over the last five decades through these oral history interviews thus reveals a sort of funnel effect. The generous and generalist view that science is a component of culture and as such needs to be considered in relation to the context of its production, got replaced by a much skimpier one. In this latter view, science is decontextualized and fashioned into a separate sphere. Doing so enables the producers of Horizon to use the strict definition of science they adopt as a tool to define

¹⁸ Personal communication to author.

the social and institutional identity of the programme. How can this work to preserve the existence of Horizon?

As Horizon was coming under attack, some in the academic world were taking issue with the supposedly anti-science relativism thought to originate in constructivist social studies of science. This led to what came to be known as the Science Wars (Segerstråle, 2000). Anti-anti-science warriors championed a definition of "Science" steeped in references to "the scientific method", as the epistemic gold standard, not dissimilar to that found in contemporaneous Horizon episodes. A consequence of the Science Wars was to cast the opposition between the pro-science and the 'anti-science' standpoints as a major political fault line. In order to protect Horizon from disappearance, its makers firmly positioned it on one side of this divide, embracing the exceptionalist definition of science, and turning Horizon into the flagship of the pro-science standpoint at the BBC. They thus pre-emptively equated any attempt at suppressing the programme with an anti-science position. In doing so, though, they brought the programme back into the political arena, as 'Science' became a vehicle for such political values as neoliberal individualism, through the portrayal, for instance, of Nobel laureates.

Conclusion

Between 1962 and 2004, Nobel prize laureates appear in the British television science programme Horizon in various roles, denoting differing understandings of science in relation to society and culture. In the sixties, Nobel laureates are cast as fully engaged citizens. Science is defined as the source of transformative social progress or potential major catastrophes. Society needs to be inclusive of scientists if it is to control its own future. In the neoliberal 1980s, Nobel laureates stand as exemplars of the successful individual entrepreneur, freed from politics but key actors in economic growth. The necessity of political control has disappeared. The market is the arbiter of the value and significance of scientific work. Finally, in the early 2000s, in the wake of the science wars, and as Horizon needed to assert its status as "the Science Strand" on the BBC, individualised Nobel laureates lent themselves well to be heroes in strong narratives based on the positivistic reification of science as a sphere separate from society.

The study presented here highlights the interplay of cultural and institutional factors in shaping the public presentation of science in the media. It shows that these representations are not simply determined by constraints intrinsic to the media forms through which they are conveyed. On the contrary, media forms themselves change, and are adapted to meet other requirements than just attracting audiences, such as fending off unwanted political attention, or adapting to institutional pressure. In the case discussed here, storytelling became perceived as a necessity once it appeared that certain kinds of stories could help maintain the existence of Horizon within a transformed institutional context. But, the representations thus created, resting on a scientific view of science, can be said to contribute in reinforcing such view in the public sphere. And so, debates within the broadcasting institution can be said to have consequences on the public culture of science. As far as studies of the communication of science in public contexts are concerned, this paper thus shows that non-epistemic social factors play an important role in shaping representations of science in the media.

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