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## **Configuring Epistemic Authority: the Significance of Film Style in Documentaries About Science**

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### **Abstract**

Among the many limitations of the deficit model of science communication is its inability to account for the qualities of communication products that arise from creative decisions about form and style. This paper examines two documentaries about the nature of time – Patricio Guzmán’s *Nostalgia for the Light* and the first episode of the BBC’s *Wonders of the Universe* series – in order to consider how film style inflects science with different meanings. The analysis pays particular attention to the ways in which authority is assigned between film author, narrator and depicted subjects and the degree to which different film styles promote epistemological certainty or hesitancy.

## Introduction

In March 2011, the BBC launched a new science documentary series, *Wonders of the Universe*, presented by the Manchester University particle physicist Brian Cox. Cox and the BBC had already enjoyed widespread success with an earlier series, which had led, among other things, to Cox being awarded an OBE<sup>1</sup> in the Queen's Birthday Honours the previous summer. The new series met with mixed reviews, however. For instance, writing a few months after the first broadcast, cosmologist John Peacock noted that the series had drawn a number of complaints about its use of music and dramatic scenery. Arguing that such "artistry" risked obscuring the beauty intrinsic to science itself, Peacock concluded: "Cox's programme could have worked as well, if not better, if it had been more of a serious documentary – if it had included more science" (Peacock 2011).

Peacock's opposition between television "artistry" and programme content betrayed an underlying communication model closely aligned with the much-criticised deficit model, which assumes that the public are both lacking in knowledge about science and passive in their reception of science communication products. Televisual form and style, by Peacock's account, were add-ons (and potential distractions) that could be separated from the purpose of the communication to transfer information about the topic at hand. Brian Cox seemed to share these assumptions when he construed the criticisms of his programmes as accusations of "dumbing down". "I may have been standing on a mountain top", he countered, "but what I was saying was about electroweak symmetry breaking. Some people can't see the content for the style" (Jeffries 2011). He went on to defend the loud soundtrack – against the BBC's decision to remix it with quieter music – but in an interview with the *Guardian* newspaper, he later conceded that there had been problems with the programme's approach "not doing what I thought it should... It was a lot of me walking on my own in landscapes" (Lamont 2014). The deficit model assumption of public ignorance was made explicit, albeit humorously, in this interview when the journalist introduced Cox as "a BBC TV personality making hard science seem half-way intelligible to the majority of us dumbos".

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<sup>1</sup> Officer of the Order of the British Empire.

As these comments reveal, the assumptions of the deficit model are typically accompanied by a model of the communication process in which communication is assumed to consist of the one-way transmission of information from authoritative source (the scientist) to the deficient audience (the public). This transmission model of science communication is arguably even more culturally embedded than is the deficit model; for instance, calls for dialogue between scientists and the public often still focus on information transfer even though the transfer is now conceived as being two-way. As Massimiano Bucchi (2008) has noted, studies of science communication have done much to deconstruct the sets of assumptions about science and the public that feed into the deficit model, but far less has been done to problematise the dominant communication models or the engineering-inspired assumptions on which they are based.

Most significant among these assumptions is the way that transmission models configure communication as a vehicle whose sole contribution is to carry content that exists prior to the communication. Such a conception inherently positions communication as secondary to the generation of meaning and, as the introduction to this special issue argues, encourages a preoccupation with concerns about distortion and accuracy. If communication is a mere vehicle, we are prompted to ask whether it carries its content without breakage and whether that content reaches its destination undamaged, not how the vehicle itself gives meaning to its cargo.

Transmission models fail to acknowledge the communicative act as the process through which meaning is generated. Instead, the act of mediation is expected to be invisible and instances when scientists communicate directly (yet clearly) with the public without any intervention from professional mediators are taken as the ideal communication situation. It is this ideal of invisible mediation that is revealed in Peacock's criticism, and Cox's defence, of the *Wonders* series: the form, the "artistry", of a television programme should go unnoticed. This paper sets out to challenge that assumption. All communication must have a form – even if it is a form that aims to deflect attention from itself – and that form is inextricably implicated in the meanings that accrue to the science it presents.

To problematise the transmission model is not to suggest that information transfer plays no role in science communication. Clearly it does; science documentaries, in particular, tell viewers things they did not previously know. Yet, as Gouyon (2016) has noted in the case of natural history films, the generation of this knowledge does not necessarily reside unproblematically with scientists; in Gouyon's examples, film-makers stake their own claims on the production of scientific knowledge in ways that invert the traditional assumptions of the transmission model and which have implications for how epistemic authority is distributed within such programmes. Similarly, in the case of television science series of the 1950s and 1960s, Boon (2014) finds that production choices about programme format determined where the authority of science was portrayed as residing. Both Gouyon and Boon discuss how such choices were informed in part by established broadcasting conventions, but also by technical constraints which limited the range of programme styles available to programme makers – constraints which have been transformed in today's production context. In what follows, I extend these historical analyses to show how contemporary film style plays a critical role in the construction of epistemic authority.

This takes us well beyond the recognition – common in discussions about how particular genre formats appeal to certain audiences – that style has an affective dimension. Rather, as an integral part of the media text, style is constitutive of meaning. Far from decrying artistry as something that can be dispensed with, as Peacock did, its constitutive role in the communication of science needs to be acknowledged. Thus Bucchi (2013) has argued that the public communication of science is now sufficiently established that it is time to attend to its quality, and by implication its creative constitution. He proposes that we need to consider science communication interventions in terms of their style and taste – correlating to a concern with ethics and aesthetics respectively – in order to fully integrate science communication into the wider culture. We need, in other words, to develop a humanistic, rather than a technocratic, approach to our judgements of science communication.

As it happens, Bucchi's interest in ethics and aesthetics corresponds to the key preoccupations of theorists of documentary film who, over the past three decades, have examined the ways in which film form and authorial style configure the

relationship between a text and the reality to which it refers. Interestingly, the concerns of documentary theorists, and of documentary makers, have mirrored some of the prominent features of debates about science communication. Documentary film has been marked out as distinctive because of its claim to represent reality, a claim that is grounded in the indexical nature of the filmic image and in the scientific provenance of film technology (Winston 1993). Like those who assume a transmission model of science communication, at times documentary makers have claimed for their art an unmediated access to reality. For instance, Donn Pennebaker, one of the pioneers of the Direct Cinema movement that emerged in the US in the early 1960s, insisted on the transparency of the filmic process: “And what is a film?”, he asked. “It’s just a window someone peeps through” (cited in *ibid.*, 43).

Despite appealing to the transparency of the medium, from the start documentary makers also acknowledged film production as a creative act. Most famously, despite identifying documentary with an educational mission, the founder of the British documentary movement, John Grierson, defined the genre as “the creative treatment of actuality” (Grierson 1933, 8). The balance, that Grierson’s definition so succinctly captured, between striving for an objective unmediated record and acknowledging the subjective nature of the film text, shifted with the ideological commitments of the time and with changing technological possibilities. Bill Nichols (1991), in an analysis that helped establish the field of documentary studies, argued that this changing balance gave expression to a succession of different modes of documentary characterised by differing textual representations of the authorial voice and understandings of its relationship to the film’s referent reality. Thus Pennebaker and other adherents of Direct Cinema (the foremost species of what Nichols terms the observational mode) rejected the re-enactments and orchestrating voice-overs of Griersonian expository documentary; the interactive mode responded to the rhetoric of unmediated observation by foregrounding the filmmaker’s intervention; and, in the reflexive mode, the film itself became the documentary subject in full acknowledgement that films construct the reality that they claim to represent.

For Nichols, the changing documentary modes – and the styles and rhetoric that characterise them – trace the shifting emphases between objectivity and subjectivity, with their concomitant appeals to evidence or witnessing, recording or performing.

Nichols' modes have since been refined and amended – not least by Nichols himself – but as loose collections of the rhetorical strategies through which differing stances towards the truthfulness of the documentary project are expressed, they continue to be useful. For instance, Robert Sternberg (2010) has argued that science documentaries have classically drawn on the expository mode. The logic of such films is typically vested in an off-screen narration that orchestrates various talking heads in order to present a series of struggles culminating in a definitive experiment that provides conclusive proof. As Sternberg argues, this construes scientific practice as a detective trail and implies a positivist ideology of science. Similarly, Tim Boon's (2008) detailed account of the early history of science documentary shows that periods of formal experimentation have been followed by the consolidation of film styles that are closely aligned with both the expository mode and a positivist stance towards science.

As will be discussed below, in recent years television practice has reconfigured aspects of the expository mode in order to accommodate a greater emphasis on entertainment culture, in science as well as other areas of factual programming (Campbell 2016). Even a public service broadcaster such as the BBC, which has an explicit remit to educate, must produce entertaining programmes if it is to engage sufficient numbers of viewers. As John Corner (2002) has noted, television documentary often seeks to divert rather than inform. Filmmaker and academic Peter Lee-Wright (2010) goes so far as to claim that: "The single most widespread change in the presentation of British broadcasting in recent years has been the desire of broadcasters not to be seen lecturing their audience for fear of driving away even more than are already migrating to other entertainment sources." Nonetheless, the expository mode's dependence on verbal narration and its deliverance of narrative closure continue to be compatible with some of the demands of entertainment television. The revised form of the television science documentary may therefore have little impact on the implicit positivist ideology that such films convey.

Nichols identifies documentary film as a "discourse of sobriety", along with certain other nonfiction systems (including science) that claim an immediate relationship with the real. These systems, Nichols suggests, are where power exerts itself, yet documentary film has never attained full acceptance as a discourse of sobriety (Nichols 1991, 3-4). Understanding television science documentaries thus entails

understanding how entertainment values and diversionary, rather than informative, strategies reconfigure the relationship between the sobriety of the classical modes of documentary and the sobriety of scientific discourse. When Peacock equated “serious” documentary with “more science”, he was implicitly invoking a hierarchy in which the epistemic authority of science would return documentary to its place within the discourses of sobriety. Yet, as I discuss below, the *Wonders* films drew on rhetorical strategies that *did* prioritise the authority of science; although the films’ informational content was relatively low, through their film style they privileged science as a certain source of knowledge. To focus on the transfer of information is therefore to miss those dimensions of film discourse that assign authority between communicating agent, social actors (including scientists) and viewers, as well as the ways in which this disrupts, or reinforces, existing power relations. In what follows, I examine the formal properties of two documentaries in order to explore how different textual strategies establish hierarchies of knowledge which invest science with meanings that are not captured by the informational content of the films.

I must stress here that my aim is not to compare the relative merits of these two films; as I note below, their production and reception contexts were so different as to render such a comparison meaningless. It is not, therefore, my intention to make a normative claim about best practice in documentary filmmaking. Rather, my purpose is analytical, concerned with how science comes to have meaning in public culture. I juxtapose these two very different films in order to highlight the contrasting meanings that film style can project onto similar content, revealing how this process contributes to the construction of authority in relation to science. By offering a foil against which to consider each film, this method of juxtaposition serves to foreground style, minimising the tendency – encouraged by both the deficit model and some aspects of documentary studies – always to consider documentary representations with respect to a prior reality referenced by the film content.

## **Two films about time**

The two documentaries I will examine are *Destiny*, the first episode of the BBC’s *Wonders of the Universe* series, and Patricio Guzmán’s *Nostalgia for the Light*

(*Nostalgia de la Luz*).<sup>2</sup> These films are chosen not for their representativeness of a corpus or sub-genre, but as illustrations of how documentaries referring to science can adopt very distinct film forms. However, to some extent the two films also stand in as exemplars of the possibilities afforded within the contrasting traditions of cinema and television. Where documentaries made within the cinematic tradition are typically both conceived and received as artistic expressions of an auteur-director, films made for television are more likely to be influenced by format conventions that enable a film to be placed within a programming schedule.<sup>3</sup> As I will discuss below, this has consequences for the extent to which science documentaries invoke conventional representations of science and the degree to which such texts are interpretatively closed.

Both these two films explore how astronomy and physics conceptualise time, as is signalled by the key words of their titles – ‘nostalgia’ inviting a backwards look with its desire for a recovery of the past and ‘destiny’ inviting a forwards look into an already determined future. This focus on time immediately provokes a doubling of the films’ representational claims, akin to the way in which science documentary doubles the genre’s discourse of sobriety through reference to the discourse of science. Indeed, Thomas Austin has suggested that the documentary project might be characterised through its concern with retrieving time: “re/calling the past into the present, and preserving something of the past or present for future contemplation” (Austin 2008, 50). Similarly, as I have discussed elsewhere, modern cosmology attempts to hold all time in the present moment by mapping out the evolution of the universe from its origin in the Big Bang through to its end (Mellor 2016). Documentaries about scientists’ understanding of time are thus embedded in an inherent metaphoricity in which the documentary form gives expression to the documentary subject. This metaphoricity becomes the rationale for *Nostalgia* but is set aside by *Destiny*.

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<sup>2</sup> This analysis uses the version of both films distributed in the UK on DVD. In the case of *Nostalgia*, this includes English subtitles.

<sup>3</sup> Of course, cinematic films may also end up being broadcast on television (as was the case for *Nostalgia*), and television companies sometimes fund films that are initially distributed through cinemas. The distinction, then, is of differing traditions and production processes rather than of different platforms *per se*.



*Nostalgia for the Light* was released in 2010 and distributed to cinemas internationally. It received widespread critical acclaim and won over 20 awards. It is difficult to sum up what the film is about; one critic described it as a “work of wonder and horror, astronomy and atrocity” (Darke 2012). The film is a meditation on the nature of time and memory in which astronomy’s probing of the deep past of the universe becomes a means to discuss Chile’s struggle to confront its more recent past. Indeed, Austin’s suggestion that the aim of documentary is “to enact a search for, and testify to the continuing significance of, the ‘then’ in the ‘now’” neatly sums up the thesis of Guzmán’s film (Austin 2008, 51). The film juxtaposes astronomers who search the night skies at observatories located in the Atacama Desert of Northern Chile with a group of women who search the surrounding desert for the remains of their loved ones, the disappeared political prisoners of the Pinochet regime. *Nostalgia* sits firmly within an oeuvre in which the exiled Chilean director has often mixed expository, interactive and reflexive modes in novel ways in order to confront the politics of memory in Chilean national history (Navarro and Rodriguez 2014; Blaine 2013). With *Nostalgia*, Guzmán takes a more tangential approach to political history, using the Atacama Desert – and the astronomy that takes place there – to reflect on the ways in which the past enters the present. Guzmán’s next film, *Pearl Button* (*El Botón de Nácar*, 2015) continues with this approach, this time moving to the south of the country where he considers the cultural significance of water, the fate of the region’s indigenous peoples and the disposal of the disappeared in the sea.

*Destiny* was the first episode of the *Wonders of the Universe* four-part series, which was co-produced by the BBC and Discovery Channel and broadcast in a number of countries in 2011. As noted above, the series was presented by the British particle physicist Brian Cox, who, by this time, already had a high profile as a television presenter. After appearing in some one-off documentaries, Cox had fronted *Wonders of the Solar System*, broadcast the previous year, and *Wonders of the Universe* would be followed by one more series packaged under the *Wonders* brand and also presented by Cox. The *Destiny* episode discussed the nature of time, particularly in connection to entropy and the future of the universe. It attracted an audience of 3.23 million when first broadcast in the UK, high ratings for a science documentary but slightly lower than the viewing figures for a natural history documentary presented by David Attenborough that was broadcast on the same channel earlier in the week (Price

2011). Despite the criticisms noted at the start of this paper, the series went on to be nominated for a BAFTA<sup>4</sup> award in the specialist factual category.

Whilst strikingly different films in many respects, Guzmán's *Nostalgia* and Cox's *Destiny* present some similar content. Both films feature scientists explaining astronomers' and physicists' understandings of time. The opening sequence of *Nostalgia*, featuring Chilean astronomer Gaspar Galaz, serves to set up the film as a whole and the film returns to Galaz several times throughout the film as he explains that the light that astronomers observe was emitted millions of years ago, meaning that astronomers are effectively observing the past. Later in the film, other astronomers are interviewed. *Destiny* features a scientist in the person of the on-screen presenter, Brian Cox, who explains scientific ideas such as the second law of thermodynamics and the heat death of the universe.

Visually, too, the films have some similarities. Both films give much emphasis to carefully composed landscape shots. Both include astronomical images and scene transitions in which star-like images are overlaid over location shots. They also both include references to ancient American civilisations. *Nostalgia* considers the archaeological remains of the pre-Columbian peoples who once traversed the Atacama desert and in a long sequence at the start of *Destiny*, Cox visits a two and a half thousand year old structure in Peru which functions as a solar calendar. By coincidence, both films also visit – albeit for very different reasons – the remains of mining communities and in both films these become symbols of passing time.

Both films are narrated in the first person – *Nostalgia* through a voice-over commentary by Guzmán himself, in which he begins by reflecting on his own childhood enthusiasm for astronomy, and *Destiny* through Cox's on-screen presence. Both films are also similar for what they omit. Whilst both explain some science, neither film provides extensive explanations that build over the course of the film. The primary function of these films is not to address a knowledge deficit but rather to explore the bounds of what is known (in the case of *Nostalgia*) or to invoke a sense of wonder at what is known (in the case of *Destiny*).

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<sup>4</sup> British Academy of Film and Television Arts.

Despite these similarities, *Nostalgia* and *Destiny* are markedly different films, in no small part because of their placement in the differing traditions of cinematic and television documentaries. In the analysis that follows I focus on how these differences are manifested in the film texts through their differing strategies for assigning authority. I consider how the representation of authorship, the bodily presence of film subjects, and the degree of interpretative closure all contribute to the way in which each film configures scientific authority.

### **Author and narrator: absent presence and present absence**

In Nichols' typology of documentary modes, the expository mode is typified by its use of a disembodied voiceover. It is the voiceover, rather than the visual footage, that stitches the film together into a coherent whole. This expository 'voice-of-God' commentary is didactic in tone, omniscient in its access to knowledge and articulated through a rhetoric of objectivity. Yet the use of a voice-over is not necessarily a marker of a claim to the transparent representation of reality. Films in the interactive mode, in revealing the filmmaker's intervention in the pro-filmic world, have made use of voice-over for precisely the opposite effect: to point to subjectivity. In such films, the voice-over implies not certainty, but doubt (Renov 2004, xxi). These differing epistemological claims are signified through differing representations of the relationship between the voice-over and the film author. When a voiceover is identified as the voice of the film author, the film's claim to be a transparent representation of reality is immediately disrupted (Bruzzi 2000, 163). *Nostalgia* makes this identification; *Destiny*, despite the on-screen presence of Cox, does not.

*Nostalgia* is very much an authored documentary. Guzmán is a well-established auteur-director known for political films that probe Chile's legacy of the Pinochet dictatorship. He returns to these themes in this film and, whilst *Nostalgia* is not a political documentary in the same sense as his earlier work, it is nonetheless a film from a director who is known to take a stance. Certainly, Guzmán himself regards the film as a work that reveals its authorship. In an interview about *Nostalgia*, he talks about the authored documentary lying somewhere between journalism and an essay. It

is, he says, “a form of artistic work, so it’s subjective, a matter of ideas, intuitions, comparisons and the juxtaposition of interesting things” (Darke 2012).

*Nostalgia* makes use of a disembodied voiceover narration. There is no explicit indication of who is speaking, but the metatextual apparatus that advertises this as a film from a known director sets up an identity between narrator and filmmaker, an identification that is reinforced through the voiceover’s use of the first person to relate personal memories. In an analysis of one of Guzmán’s previous films, *Chile, Obstinate Memory*, Juan Carlos Rodriguez (2007) contrasts Guzmán’s use of this “I-voice” with his use of a voice-of-God commentary in one of his earlier films. Although both involve disembodied narrators, Rodriguez suggests that the intimacy of the I-voice, which he notes is as much a recording technique as it is use of the first person, marks the shift from the rationalist rhetoric of Guzmán’s first film to his representation of politics as an affective domain in the later film. Through the first person recounting of a personal past, *Nostalgia* similarly deploys an affective, rather than an epistemic, voiceover. Rather than indicating Guzmán’s participation in the story worlds he depicts – he is neither an astronomer nor one of the people searching in the desert – his use of the first person refers to his emotional relationship to those story worlds. Thus he says of astronomy: “In Chile, astronomy is a passion shared by many. I’m just one enthusiast amongst thousands”; and of the political movement that Pinochet sought to suppress, “I was lucky to be a part of this noble venture which woke us all from our slumber.”

The voiceover of *Nostalgia* deploys the first person only infrequently but it serves to frame the film as a whole. The most significant use is in the opening sequence, where it links images of an antique telescope to Guzmán’s memories of childhood. In a similar scene towards the end of the film, this time showing the inside of a whale skeleton at a museum, the commentary again begins in the first person and again looks back at Guzmán’s childhood. Far from staking an authoritative claim, Guzmán explicitly links these memories to a state of innocence. The few other uses of the first person precede speculative non-factive verbs: “I imagine ...”, “I have always believed ...”, “I wonder ...”; and in the one instance where Guzmán ascribes to himself a more certain state of mind – “I am convinced that memory has a gravitational force” – it is to an idea that functions metaphorically rather than literally.

The voiceover, then, is not used to convey certain facts or persuasive argument, as in the expository documentary, but to signal the film as a subjective representation; it denotes authorship in a way that consistently resists any claim to authority. However, although Guzmán's commentary cues the film's affective register, his voice is calm and matter of fact and, without seeing him, we cannot pick up any other clues to his emotional state. As will be discussed in the next section, it is instead the women in the film who provide its affective centre through their on-screen performance of emotional states.

Despite its clear expression of authorship, *Nostalgia* is not a film about Guzmán and the film does not surrender all claim to truth in place of subjective reflection. The voiceover narration recurs only briefly through the rest of the film and, with one possible brief exception of a figure entering an observatory near the start of the film, Guzmán never appears on screen. Rather, his absent body is visually cued through occasional point-of-view shots showing the ground whilst walking through the desert and in tracking shots following along behind some of the film's interviewees. Such shots create a textual gap that highlights the presence of a person holding the camera – a gap that is simultaneously filled by both implied author (emphasising again the film as an authored discourse) and viewer. In signifying his presence through an absence in this way, Guzmán both reflects the film's theme of the ever-present absence of the past and also subordinates his filmic activity to the reality he depicts. Of course, these point-of-view shots also serve a persuasive function, helping the viewer identify with Guzmán's conceptual point of view by sharing his literal point of view. However, in following, rather than leading, the interviewees, both the authorial and viewing positions again pull back from staking a strong authoritative claim.

Also significant in this respect are *Nostalgia*'s infrequent use of music and the sequences in which there is no speech, the only sound coming from the surrounding environment. Together with the many long takes, these mean that relatively unmediated visuals predominate and set the pace of the film, even at the same time that the adoption of these stylistic markers from the observational mode continue to signify an authorial presence. Key to achieving this balance is the prioritisation of the visual track over the verbal narration. Thus in scene changes, images precede any

accompanying speech and in most cases the speech takes some time to resume. Guzmán, then, is present in his film as the auteur-director signified by his voice, the cues of his absent body and the film's visual style; but his on-screen absence and the withdrawals from any overt narrating activity rhetorically cede control of the film discourse to those who are present on-screen.

Like *Nostalgia*, *Destiny* also seeks to provide an affective discourse. Indeed, Cox opposed the BBC's decision to remix the soundtrack with quieter music on the grounds that he wanted the audience to have an emotional reaction to the film and that the loud music helped prompt the feelings of awe and astonishment that he was striving for (Jeffries 2011). However, despite its emotional register, *Destiny* simultaneously conveys an authoritative voice owing to its very different strategy for the representation of authorship.

Where Guzmán constructs an authorial presence through a bodily absence, Cox inscribes a bodily presence that absents authorship. The conventions of television documentary mean that we understand Cox's role as more akin to that of an actor than the creative agency who produces the film. Cox delivers the words – and viewers may assume he wrote the script and decided on the film content – but he is not identified with the orchestration of all the components of the filmic discourse as Guzmán is. In one brief sequence lasting a few seconds, Cox jokes, seemingly spontaneously, whilst looking just off camera, and we can read in his laugh and his expression the presence of a production team. Elsewhere, however, there are no visual or verbal cues pointing towards authorship.

Instead, the film foregrounds Cox's role as narrator. In the introduction to all the films in the *Wonders of the Universe* series, Cox states: "Our story starts with the beginning of the universe.... In this series, I want to tell that story because ultimately we are part of the universe. So its story is our story." The activity of story *telling* is acknowledged; that of narrative construction is not. Elsewhere, Cox's use of the first person – more frequent than Guzmán's but still not extensive – can also remind us of this narrational role ("I mean...", "I say...").

Cox's narration is both personal and affective. For instance, he shares his reactions to some of the things he sees ("for me, it is surely one of the most fascinating ...", "It really is quite wonderful...") and marks out some statements as a matter of opinion ("I believe it's only by continuing our exploration of the cosmos and the laws of nature that govern it, that we can truly understand ourselves and our place in this universe of wonders"). Yet, for the most part, Cox's narration stresses facticity and certainty, as when he follows the previous comment with, "And that's what we've done in our brief moment on Planet Earth."

Despite giving his personal reactions to the phenomena depicted within the film, Cox does not at any point allude to his extrafilmic life in science. As with *Nostalgia*, the film relies on other texts to make sense of who this narrator is, but in Cox's case, this points to his celebrity and to the topic of the film, physics, rather than to the question of film authorship. However, Cox's identity as a physicist is never mentioned within the film itself and his narration rarely refers directly to physics or astronomy. Cox tells the story of the universe, as he says in the introduction, but he does not tell the story of science. Indeed, unusually for a science documentary, the film makes almost no reference to scientists and no scientist other than Cox appears in the film. Cox refers to science as a discourse system – to "scientific vocabulary" and "scientific explanation" – and he once acknowledges speaking agents within this discourse system ("Something physicists call entropy"). He occasionally refers to the laws of physics and, in briefly discussing the origins of the second law of thermodynamics in nineteenth-century concerns with steam engines, he also attributes a past to science. But neither visually nor verbally are scientists alluded to as acting agents.

This omission of the scientists' story – a strategy which *Destiny* shares with many natural history programmes – creates a distance between Cox's narration and the story he tells. Unlike natural history documentaries, however, Cox is unable to function as an observer of the events that he seeks to narrate. To suture the resulting gap between narration and story, the film therefore makes two substitutions. Firstly, the story of how scientists pieced together the current account of the evolution of the universe is substituted with explanations of the scientific concepts on which scientists draw. Thus the framing story about scientific practice that enables the universe's story to be told is replaced with instructional discourse. Secondly, in order to have a visual track of

more interest than a montage of astronomical images could alone provide, Cox tours the world visiting locations that can stand in as metaphors for cosmic processes. His personal reactions relate to these places and the terrestrial phenomena he witnesses there, not to the cosmic events of his story. Like the natural history presenter, Cox is witness as well as instructor, but his witnessing is of actions entirely removed from the story he narrates. Through these processes of substitution, *Destiny* resorts to a didactic voice despite Cox's use of an emotional register and a first person narration.

As with the classic expository documentary, it is this didactic voice that brings coherence to the film. Despite the dramatic scenery and loud music provoking criticisms from some viewers, structurally these parts of the text are subordinated to the verbal component. One consequence is that scenes emphasise a lack of spatio-temporal continuity – a lack that is common in documentary but minimised in other modes – with rapid cuts shifting from, for instance, a beach to outer space and back within just a few seconds. Scene changes are motivated by the commentary, as are some of the cuts within scenes. For instance, a reference to Jupiter precedes a cut to an image of Jupiter; an image of the sea accompanies a mention of the “sea of photons”. Similarly, although music plays under some of the commentary and persists through much of the film, the music is usually silenced in the scenes in which Cox speaks on screen. Also suggestive of the film's logocentrism is its verbal density, with about twice as many words per hour than *Nostalgia*.

Although speech is often contrasted with the mimetic, unmediated quality of the visual image, here, by replacing action with instruction, the film's logocentrism reinforces a rhetoric of objective knowledge. In an early study of the voiceover in film, Pascal Bonitzer (1986, 324) noted that the disembodied voice, by virtue of inhabiting a space that is distinct from the story world, exerts a power over the images it commands, mediating the image track from a place that is “absolutely other”. Noting that this place is also undetermined, Bonitzer continued: “In this sense [the voiceover] is transcendent; hence incontestable, uncontested and supposedly knowledgeable.” Cox's is not, of course, a disembodied voice. As will be discussed in the next section, his body is ever present. But the recourse to locations that link only metaphorically to the story world, creates the same spatial heterogeneity that Bonitzer highlights. Cox (and the film crew) could have gone elsewhere. The scenic images



express an arbitrariness that implies they are, if not *undetermined*, at least *underdetermined* and as much “an absolute other” to the story space as is found with a disembodied narrator. This dislocation and subordination of the images to Cox’s commentary diminishes their rhetorical power in favour of the epistemic authority of the narration and the scientific ideas it presents.

### **Embodied subjects**

As noted above, Cox is the only scientist who appears in *Destiny*. In fact, with the exception of a couple of brief shots of two girls on a bicycle, no-one else appears in the film and Cox supplies the verbal component of the film in its entirety. In contrast, *Nostalgia* includes interviews with ten people who typically speak for long periods uninterrupted by Guzmán’s narration. In this section I consider the different strategies that the two films apply to their treatment of these on-screen speakers. Where the role of the human subject in *Nostalgia* is to provide testimony about the worlds the film explores, in *Destiny* the human subject co-produces celebrity.

Celebrity studies scholars have argued that one facet of celebrity is that the person becomes a cultural commodity used to sell their own work (Fahy, 2015). This creates a form of co-production in which celebrity marks out the text and the text marks out the celebrity. Cox’s profile in the UK media is such that, having produced his fame, the BBC now uses it to define the programmes Cox appears in. This is particularly true for the *Wonders of the Universe* series where Cox’s screen presence takes the place of any interaction with others. Earlier I noted the limitations of conceiving science communication products as vehicles, but if the vehicle metaphor is to be used, then *Destiny* is a star vehicle in the same way that most Hollywood movies are.

Despite *Destiny* making no assertions about authorship, the visual track of the film does emphatically establish this as Cox’s film. The visuals consist of three elements: landscape shots (some of which feature Cox as a small, distant figure enveloped by the immensity of a wilderness location); animated astronomical images of stars and galaxies; and close ups of Cox, sometimes looking out over the landscape and sometimes talking to camera. These latter shots include extreme close ups in which

Cox's face fills much of the screen. Although the editing is rapid throughout the film, with few shots lasting more than a few seconds, the longer shots are generally of Cox talking to camera. Other sequences are edited to dwell on Cox – tracking around him, looking down on him from aerial shots or up at him from low angle shots, or pulling back from close ups to long shots. Through such means *Destiny* lavishes visual attention on Cox, lingering over his bodily presence.

As a result, Cox commands the places in which he is pictured – looking out across the landscape, standing on top of a mountain or astride a ridge, his face imposed on the scenery beyond through big close ups. As Vincent Campbell (2016, 74-5) has suggested, through such shots the *Wonders* series frequently draws on the 'magisterial gaze' of the Romantic sublime. In *Destiny*, the most extreme examples use low angle shots to look up at Cox as the sun forms a halo around his head – imagery that, together with the film's invocation to 'wonder', is consistent with Chris Rojek's (2012) thesis that religiosity pervades the performance of modern celebrity.

Similarly, diegetic gestures pointing to *this* place or *that* direction, enable Cox to project his commentary onto landscapes whose aesthetic power might otherwise overwhelm the narration. Yet Cox's continual use of hand gestures also supports the pedagogic tone of his instructional discourse, both beating out an emphasis for his speech and providing further visual metaphors to support his words; as, for instance, when he moves one hand to indicate order and then the other to indicate chaos. Whilst he explains, he points to demonstrate the objects he draws comparisons with and to pick out celestial objects on the astronomical images that he shows to camera.

The visual composition of the film thus serves to reinforce Cox's status as a celebrity, at the same time as his on-screen persona performs instructional scenes that legitimise this celebrity. As with other science celebrities, Cox's stardom is dependent on his identity as a scientist despite his stardom being constructed through his role as a TV presenter. His performance of instructional scenes is therefore a necessary part of the co-production of his celebrity. Yet, given the absence of any reference to science as a social plane or to Cox's experiences within that world, his filmic presence, like that of other celebrities, functions as an empty signifier; it refers to its own performance of

knowledge and to the other, star vehicle, texts which have produced the celebrity, rather than pointing to the extrafilmic world of science.

*Nostalgia* is not a star vehicle in this sense. In so far as any fame accrues to those represented within the film, it is to Guzmán through his identity as auteur. The social actors pictured in *Nostalgia* are included precisely because of their lack of intertextual reference. This leaves them able to give witness to particular aspects of the extrafilmic world unencumbered by the circular signification of celebrity.

Despite the importance of Guzmán's commentary in framing the film, the interviews make up the primary linguistic component of this film. Guzmán is heard here too, again signalling his presence in the film discourse. Yet despite these brief reminders of Guzmán's presence, the interviewees speak with minimal interruption, with single takes sometimes lasting for several minutes. Once again, the film's rhetoric points to a ceding of control away from the filmmaker, in this case towards the contributors.

With the exception of the final closing scene, the interviewees are all pictured in the places they inhabit (or once inhabited) in the course of their daily lives: the astronomers and archaeologist in their offices and homes, and the others in their homes and various locations in the desert. Unlike the metaphorical function of place in *Destiny*, here place functions metonymically to lend veracity to the testimony we hear. David Martin-Jones (2013) has suggested that some scenes make a further step of identification between interviewee and landscape. In one scene, Violeta Berríos, one of the women who searches the desert for the remains of loved ones, is filmed in mid-shot sitting in the desert, closely framed by the rock behind her and wearing a shirt that matches the rock tonally. This composition, argues Martin-Jones, in positioning the woman as if she is *of* the landscape, construes her as speaking *for* it. The distance between human subject and surrounding environment that in *Destiny* is expanded to the point of rupture, is here minimised as the memory held in the landscape is recovered for the human present.

This scene and the ones that adjoin it form the emotional centre of the film. By contrast, the earlier scenes are less emotionally wrought. The opening sequence with Guzmán's narration is followed first by a long scene with the astronomer Gaspar

Galaz and then by a shorter scene with the archaeologist Lautaro Núñez. Both include long takes and take place within the diegesis, and both men reflect on how their work excavates the past. Although they offer a personal interpretation, the focus is on explaining the object of their work. However, the following interviews shift into an increasingly intense affective register. For instance, in the scene with Berríos, which occurs about two thirds of the way through the film, Berríos begins to cry as she talks about her persistence in returning to her search. The first five minutes of the interview includes no cuts, allowing Berríos to set the emotional tone of the scene. Equally, the static camera angle and long take minimise the appearance of cinematic intrusion into Berríos's testimony, even at the same time as this borrowing of the conventions of the observational mode of documentary once again points to this as an auteur work.

The increasing use of an affective register as the interviews start to include lay voices might seem to suggest a division between the dispassionate register of the expert voices and the emotion of non-expert voices. However, the comments of Galaz and Núñez also shift to an affective register when they appear later in the film and both men ponder what they would do if one of their close relatives were among the disappeared. Whilst both scientists and non-scientists draw on an affective register, it is worth noting that it is the women in the film who provide its emotional focus.

The final interview of the film consolidates the merging of the professional scientific identity with affective discourse. Valentina Rodríguez is an astronomer whose parents were among the disappeared. Rodríguez speaks about coming to terms with this loss and connects this directly to her professional life: "Astronomy has somehow helped me to give another dimension to the pain, to the absence, to the loss." This sequence includes shots of Rodríguez at home as well as in her office, including a long shot of her sitting on a sofa holding her small, sleeping baby. As with the other interviews, this scene allows Rodríguez to speak uninterrupted, yet it also includes more cut-aways than many of the other interviews, suggesting a higher degree of filmic intervention. In so perfectly articulating the film's justification by asserting a direct connection between experiences of astronomy and trauma, this denouement reminds us once again that, although the film rhetoric defers to the interviewees, this deference is the product of an authorial agent.

*Nostalgia*, then, configures the bodies that it pictures as controlling agents of the scenes in which they appear, even at the same time as it foregrounds the authorship of the film. Rather than constructing these on-screen presences through editing techniques that rhetorically vest control in an absent orchestrating entity, as is the case in *Destiny*, *Nostalgia* strives to cede authority to those who speak. Social actors, visuals and locations, cohere to endow the given testimony with a particularity that attests to both the truth of what is said and the authenticity of the emotions it gives expression to. Scientific discourse, here, becomes a means for making sense of human experiences precisely because, ironically, both transcend rational accounting.

### **The structure of epistemological certainty**

Both *Nostalgia* and *Destiny* are motivated by an overarching thesis: that the human realm and the cosmic realm are intimately connected. However, the two films present this claim through very different narrative structures reflecting the differing degree of epistemological certainty with which each film speaks.

The premise of *Nostalgia* is that the search for the disappeared political prisoners mirrors both astronomers' search of the skies and archaeologists' search for the remains of prehistoric civilisations; all are ways of recognising, and confronting, the past in the present. The interviews serve to highlight the overlap between the worlds of astronomy and political memory – from the political prisoner who talks about the sense of freedom he got from observing the skies as part of an astronomy group in a concentration camp, to the technician at one of the observatories whose mother now helps the former prisoners. Other interviews draw more direct comparisons, as when Galaz compares astronomers' search for the past with that of the women searching for human remains.

It is the juxtaposition of these multiple perspectives – the scientific and the experiential, looking up at the deep past and looking down at the historic past – that provides *Nostalgia* with its structure; the juxtapositions establishing layers of interpretative frames before reaching the film's emotional centre with the women's testimony. This structure simultaneously both humanises science and gives voice to

the traumatic past. Yet the film repeatedly pulls back from making overly assertive claims. The connections proffered work at a metaphorical level rather than a literal one, as Guzmán acknowledges in his narration: “These women’s search never crossed paths with that of the astronomers who were tracking another kind of body: celestial bodies”. Similarly, Galaz stresses the difference between the two searches even as he compares them: “Our search doesn’t disturb our sleep.... But these women must find it hard to sleep after searching through human remains, looking for a past they are unable to find. They’ll not sleep well until they do so. That is the major difference. There’s no comparison. That’s my opinion.”

Science, by this account, is a source of intellectual liberation; yet it is also humble, deferring, as in the above quote, to the greater emotional intensity of human loss. It is also tentative in its knowledge claims. As Galaz explains at the start of the film: “We try to answer two questions, we do so as best we can, and four more arise. That is the nature of science. Some say that we’re not very efficient, that in answering two questions, we trigger four others. But that’s science; it’s never resolved.”

This epistemological hesitancy conforms to what Carl Plantinga has called an open voice. Films of the open voice observe and explore rather than explain. “The open voice”, says Plantinga, “recognises that we must approach some subjects with the humility of one who does not claim to know” (Plantinga 1997). He contrasts this type of film with films of the formal voice. These assert a high degree of epistemic authority and, like classical narratives in fiction, deliver a full sense of closure, posing clear questions and answering all the questions posed. In keeping with Galaz’s comment, *Nostalgia* opens up a space for questioning rather than presenting a trajectory that leads to certain knowledge.

*Destiny*, however, is a film of the formal voice. The posing of questions is explicit. The opening narration common to all films in the series asks: “Why are we here? Where do we come from?” Cox immediately provides an answer to his own question with a precision that leaves no room for alternative responses: “Our story starts with the beginning of the universe. It began 13.7 billion years ago.” The press kit for the series similarly makes clear that the questions posed will be answered in a manner that both discourages further questioning and sidelines alternative ways of knowing:

“For thousands of years humanity has turned to religion and myth for answers to these enduring questions. But in this new series, Brian presents a different set of answers – answers provided by science – and they are more beautiful and more profound than ever imagined” (BBC 2011).

That science supplants other forms of inquiry is also implied in the film itself. In the first scene of *Destiny*, Cox visits a 2500-year-old solar temple in Peru that consists of 13 towers marking the passage of the sun over the course of the year. Cox is clearly genuinely impressed by this structure. It is, he says, “a magnificent achievement”. Yet, at the end of the film, he emphasises “the remarkable progress” of modern science: “Today, the language of curiosity is not sun gods, but science. And we have observatories that are almost infinitely more sophisticated than the 13 towers, that can gaze out deep into the universe.”

In *Nostalgia*, Gaspar Galaz asks a very similar set of questions but concludes on a far more tentative note that leaves room for other ways of knowing: “Where do we come from, where are we and where are we going? Where do we come from? It’s a key question. ... And yet the fundamental questions pondered by man are of a religious origin and motive. That’s my opinion. ... All these questions about our origins, we astronomers try to answer. It’s a never-ending story.” Where *Destiny* offers terminal answers, *Nostalgia* points to an on-going process of inquiry.

Noël Carroll (2007) has argued that it is by providing answers to a set of presiding macro-questions that narratives generate closure. These questions arise out of the network of temporal and causal connections that is essential to narrative. When the questions have been answered – and hence the time ordering of events and the chains of causality that link them has been made apparent – the narrative is complete. The temporal reach of *Destiny* is staked out at the start of the film with the promise that it will take the viewer “from the very first moments in the life of the universe to its eventual end”. The presiding question for the film’s narrative is thus: how will the universe end? After the prologue at the solar temple in Peru, the film explains aspects of the universe’s evolution in chronological order, interwoven with recounted events from the terrestrial past and present tense instructional scenes, before ending with a discussion of the heat death of the universe. This is described as: “an inescapable fact

of the universe, written into the fundamental laws of physics. The entire cosmos will die. Every single one of the 200 billion stars in our galaxy will go out.” In fact, recent observations in cosmology have raised the possibility of alternative scenarios for the end of the universe, but to concede this within *Destiny* would be to fail to answer the presiding question in a definitive manner and thus fail to deliver the closure that is expected of narrative television.

Indeed, *Destiny* presents even the most speculative ideas with certainty. At the end of the film, after celebrating the ability of physicists to predict the end of the universe and the profundity of the photograph of Earth taken by the Voyager 1 space probe, Cox states that the existence of life on Earth endows the present moment with cosmic significance: “we are the cosmos made conscious. Life is the means by which the universe understands itself.” This is a nod to *Cosmos*, Carl Sagan’s landmark 1980 television series, in which Sagan set out a similar claim. What is noteworthy here, however, is the definitive language with which Cox puts forward this claim. In his next, and final, sentence, he acknowledges a personal perspective (“for me, our true significance lies in our ability and our desire to understand and explore this beautiful universe”) but the notion that human consciousness is vested with cosmic significance is asserted emphatically in the context of the achievements of science.

*Nostalgia* presents similar ideas about the connections between humanity and the cosmos. As in *Destiny*, sequences showing star-like lights overlaid on terrestrial scenes render this connection visually and it is also stated explicitly when one astronomer explains how some of the calcium in human bones, like the calcium in the stars, was made shortly after the Big Bang: “We are part of the universe. The calcium in my bones was there from the beginning.” The following montage makes the point visually, as shots of the moon and an asteroid are followed by close ups of bone fragments that are hard to distinguish from the celestial bodies. However, within the juxtapositional structure of *Nostalgia*, the human/cosmic connection can be read with a metaphoricity not available within the closed narrative structure of *Destiny*.

This is not to say that *Nostalgia* lacks all closure. There is a sense of completion but it comes in response to a different presiding question: how can Chile come to terms with its past? The answer is embodied in Valentina Rodríguez, the young astronomer



whose studies have helped her come to terms with the loss of her parents. As she sits with her baby on a sofa, she reflects: “I find it funny when people tell me that it doesn’t show that I’m the daughter of disappeared prisoners. I realise that my children don’t have this defect. ... I am surrounded by people who have no manufacturing defect. I am happy that my son is growing up like this.”

Temporally, then, *Nostalgia* moves from Guzmán’s childhood, through various layers of time, both cosmic and historic, to end in the present with a forwards look to the future. The future that is so conjured is the human future and it is a future that is anticipated rather than described, that opens out possibilities rather than close them down. This is a narrative structure that is couched in the indeterminateness of hope rather than the finality of certitude. The press materials that accompanied the two films makes clear these differing approaches to narrative closure and epistemological certainty. The BBC presented *Destiny* as a search with a successful, and transformative, outcome: “Ultimately, Brian discovers that time is not characterised by repetition but by irreversible change” (BBC 2011). By contrast, the press kit for *Nostalgia* included a statement from the director in which Guzmán emphasised uncertainty: “In the face of the uncertain future, only the past can enlighten us” (New Wave Films 2012).

## **Conclusion**

*Nostalgia for the Light* and *Destiny* are very different films, sitting within different filmic traditions and using a different range of discursive strategies to portray the realities to which they refer. They address different audiences and have different rhetorical aims. Yet the deficit model of the public and the transmission model of communication would fail to capture many of these differences. The films share informational content, explaining such things as the time light takes to travel across the universe and the origins of the chemical elements in stars. Both films also interpellate the viewer as lacking knowledge of this information. It is not, then, the information conveyed or the audience knowledge assumed that accounts for these films’ differences. Rather, it is the way this information is contextualised and the

meanings that accrue to it through differing discursive strategies – that is, different film styles – that makes the films so distinctive.

*Nostalgia* foregrounds its own status as an artistic work through a personal, subjective narration by the auteur-director. *Destiny*'s on-screen narrator appeals to a celebrity value that eclipses authorship and locates authority outside the film discourse. *Nostalgia* distributes epistemic authority among its interviewees, whilst in *Destiny*, Cox channels scientific knowledge as certain fact. The certainty of *Destiny*'s representations establish an epistemic hierarchy that stands in contrast to the hesitant nature of knowing conveyed in *Nostalgia*. Where the juxtaposition of different perspectives in *Nostalgia* signals subjectivity and the lack of clear answers, the narrative closure of *Destiny* signals a finalised body of knowledge to be wondered at but not contributed to. Both films appeal to an affective register, but the open voice of *Nostalgia* invites viewers to reflect on its emotional content whilst the formal voice of *Destiny* directs the viewer's emotions towards a specific response to science.

These differences relate to the different production and distribution contexts of the two films. Guzmán has reported that the juxtapositional structure led to difficulties raising funding for his film because television companies felt it lacked focus (Darke 2012). Indeed, it is hard to imagine such a slow and contemplative film being commissioned for television despite being broadcast on television following its critical success. Conversely, *Destiny* is of a part with celebrity-presented television series that use clear storylines and dramatic devices (many of them borrowed from narrative cinema) to stand out in the crowded schedules.

The point here is not to judge the success of these different strategies in reaching their intended audiences, but to note that they have considerable implications for how science is configured. Is science a certain and authoritative body of facts deserving of our wonder, or is it a mode of inquiry that opens up questions about the world? These very different characterisations of science are rarely spoken out loud. Rather, they are the product of the artistry – the decisions about form as well as content – that shapes all communication products. By reducing the communicative act to the transfer of information, the transmission model of science communication and the deficit model

of the public reduce the creative act to a source of interference, leaving a critical lacuna around the art of the science documentary.

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