

FORMAL CONVENTIONS IN BRITISH SCIENCE TELEVISION, 1955-1965

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Abstract: This essay considers two significant subgenres of British television science coverage in the foundational period 1955-1965, looking in detail at the series Look for natural history and Eye on Research for the sciences more broadly. In each case, I consider the contributors to the programmes, both producers and participants; the origins of the programme; and formal aspects, to consider how the series related to their predecessor and successor programmes. In each case I consider where the authority of the account of science rests in the programmes. In alluding to what came after these two series, I introduce some first thoughts about the role of the scientist-presenter in science television.

Keywords: Science on television, documentary films, popularization, science communication, film techniques.

Resum: Aquest assaig considera dos subgèneres significatius del reportatge de ciència a la televisió britànica en el període fundacional 1955-1965, mirant en detall la sèrie Look, d'història natural, i Eye on Research, de ciències en general. En cada cas, prenc en consideració els col·laboradors dels programes, tant els productors com els participants; els orígens del programa; i aspectes formals, per tal de veure de quina manera les sèries tenien relació amb els seus programes predecessors i successors. En cada cas, considero on rau l'autoritat del relat científic en els programes. En

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al·lusió al que vingué després d'aquestes dues sèries, introduïxo algunes primeres reflexions sobre el paper del científic-presentador en la televisió de ciència.

Paraules clau: *ciència a la televisió, documentals, divulgació, comunicació científica, tècniques cinematogràfiques.*

Introduction

Recent work on the history of science on television is beginning to reveal the key features of the earlier postwar period.² The reasons for looking at the two decades to the mid 1960s are clear because, as the producer Norman Swallow said at the time, 'during those ... twenty years [television] has forged its own techniques, developing its own form of journalism, and learning the best ways of presenting the world to the world'.³ In other words, these decades were formative for the establishment of the conventions of television and, we might add, within the wider range of non-fiction programming, of science television. In forging those techniques, television producers drew to varying extents on existing approaches from film-making and radio (Bell, 1986), which themselves encoded particular approaches to the sciences.⁴ Previously I have considered whether individuals who moved from documentary filmmaking into television acted as vectors for the formal conventions of filmmaking into television style (Boon, 2013). In this essay, I broaden the questions discussed there by presenting and contrasting two aspects, concentrating more on what was presented to the viewer's eyes and ears, and especially on the personalities of science television.

Institutionally, BBC television separated natural history television production (by centralising it at their production facilities in Bristol) from that devoted to the remainder of the sciences, which between 1957 and 1963 became increasingly centralised under what became the outside broadcast features and science department in London. Accordingly, in my first section here I consider the roots of natural history television in the conventions of natural history filmmaking, via the series *Look* (1955-68⁵), where amateur expertise was the order of the day. Second I consider the very different coverage of the sciences in the series *Eye on Research* (1957-62), whose roots and style were very different and where the staple was professional science. The comparison points to the very different cultural placing of natural history and the remainder of the sciences, a tendency that may well have been reinforced in the broader culture by these televisual representations. There remain, however,

2. For example: Boon (2008); Boon & Gouyon (2015); Boon (2014b); Lafollette (2013); Gouyon (2011).

3. Swallow (1966), inside front dust jacket blurb.

4. It would be valuable to explore the relationship between radio conventions and those in television's coverage of science, as several key individuals graduated into factual television from radio. I am grateful to Allan Jones for making this suggestion. Unfortunately it is not possible to include this within the scope of the current paper.

5. The end date is not absolutely clear, although on current evidence it seems that after 1968, issues of *Look* were repeats. This is the implication of Parsons (1982: 263), and also of Peter Scott's BBC contract file WE8/541/1.

some formal similarities between the approaches of the programmes; these are explored by a consideration of the sources of authority in the two forms, and at the end a glance at the programmes that succeeded these two foundational series.

Case One: Natural History Television, Amateur Expertise and Filmmaking

Peter Scott, the ornithologist and television presenter, tells the story in the foreword to PS Crowson's 1981 history of Oxford Scientific Films (OSF) of how he was visited in 1959 by an entomologist with a number of still photographs of parasitic wasps. 'Still photographs are excellent for books. Television, as I pointed out to Gerald Thompson, requires moving pictures' (Crowson, 1981: vi-vii). According to the story, this was the founding moment of OSF, which went on to become one of the most significant players in natural history television. It also conforms with one of the primal stories of natural history cinematography. Wind the film back 51 years and witness a similar encounter: in 1908, the film pioneer Charles Urban was looking for a successor to Francis Martin Duncan, the naturalist who had spent five years making animal and microcinematographic films for him. The story is that Urban was shown a photograph taken by the amateur naturalist Percy Smith of a fly's tongue. The two men met in May 1908 and Urban gave Smith the use of a cine camera. According to the story, on these origins Smith became the doyen of British naturalist-cinematography and a minor celebrity of the 1920s and 1930s (McKernan, 2013: 58; McKernan, 2004).

Peter Scott's authority to write the foreword to Crowson's book derived in part from his renown as the presenter of *Look*, broadcast by the BBC between June 1955 and 1968, which was the first regular natural history programme on British Television. Its established format was to show films made by a range of specialist naturalist-cinematographers, interposed with studio introductions and discussions. The *Radio Times* listing for the first programme on June 14th 1955 gives the tone: 'Introduced by Peter Scott / Heinz Sielmann introduces his own film of foxes in the wild' (Anonymous, 1955a: 21).⁶ Other filmmakers included Walter Higham, Lord Alanbrooke, Bernard Kunicki and HG Hurrell. The producers were also 'happy to see and assess the suitability of material from all possible sources', sometimes running competitions for new footage (Kendall, 1970). *Look* may be seen as a transitional object from established traditions of natural history making towards the forms that overlapped with and superseded it, including *Zoo Quest*, *On Safari* and David Attenborough's later series.⁷

The origins of British natural history filmmaking for paying audiences of the general public lie with the American entrepreneur Charles Urban, and the first programme of such

6. The series under the name *Look* built on the success of *Peter Scott: Woodpeckers*, an earlier Sielmann-based programme with the same format broadcast 15 January 1955.

7. This essay does not *look* at *Look* in relation to the broader development of natural history television as popular science, as that job is well done by Davies (2000), Cottle (2004) and Gouyon (2011).

films at the Alhambra Music Hall, Leicester Square in August 1903 (Boon, 2008: 7-9). One-reel animal films, often concatenated into sequences, became features of Urban's catalogues from this date, and certainly films of plants and animals were part of the swell of popular subjects that converted cinema from a fairground novelty into an established form with its own specialist venues by 1910. But the main point of comparison I wish to draw here is with two series run by H Bruce Woolfe, *Secrets of Nature* (British Instructional Films, 1922-33) and *Secrets of Life* (Gaumont-British Instructional, 1933-45). These erratic but highly popular series did for the cinema and classroom, at least on the surface, exactly what *Look* later did for the television: they provided a platform for skilled cinematographers to show their work and earn some kind of living. Woolfe commissioned Charles Head, Oliver Pike, Captain H A Gilbert and Walter Higham, and most prominently, Percy Smith, to provide footage; of insects, birds, small mammals and plants. Mary Field, a history don, joined British Instructional in 1926 and the next year assumed the editing and production of the series from the supplied footage as well as making films at London Zoo (Powell, 2004). By 1933 there were close on 150 *Secrets of Nature* films, and a similar number of *Secrets of Life* items were made between 1933 and the outbreak of war. Generally the films were about nine minutes in length, and they most often followed the life cycle of whatever plant or animal they featured. Natural history continued to be a popular subject for filmmakers after the War; one example is the series, *The World of Life: A Journal of the Outdoors* (1952 to 1961), which featured a variety of animal and zoo-based stories.

The question arises of the extent to which the team responsible for *Look* was aware of the historical precedents for their practice. There are some obvious indications; one example is the inclusion of occasional historical programmes, including *The Start of it All*, the title of the *Look* edition of 12th December 1958, which told the story of Cherry Kearton, who had started making wildlife films in 1909. We may discuss this question further in three ways: via its producers and contributors by considering television personnel and filmmakers employed for *Look*; via origins, by looking at the Gerald Thompson story again; and via preferences over the form, both of the programme and of the submitted films, by paying attention to the advice given to contributors. These will be seen to help us understand the sources of the authority of the programme.

Desmond Hawkins, who had established his reputation making radio nature programmes from his base at BBC Bristol, was the producer behind the establishment of the series *Look*, as well as the chief proponent of the Natural History Unit. Attenborough credits him with such determination to establish natural history on television, that despite the absence of TV studios in Bristol at the time, he achieved the first *Look* programmes by converting a sound studio by adding an Outside Broadcast Unit (Attenborough, 2003: 60). Hawkins, in this account, exemplifies two separate features of the foundational decades of BBC television: origins in another medium (most often radio and documentary filmmaking are cited, though some journalists started in newspapers); and an ability to 'manoeuvre' with the

attributes of being ‘a wily operator ... skilled in BBC politics’ (Attenborough, 2003: 60). Over the 13 years in which the programmes were made, many BBC producers took a hand in production of the series, including Jeffrey Boswall, Nicholas Crocker and Eileen Molony, all BBC staff.⁸

A decisive link between the prewar films and *Look* is the presence of some of the same filmmakers. Walter Higham, for example, a specialist in filming birds who began experimenting with nature filmmaking in 1917, made films for Woolfe at least as early as 1931, when his contributions *The Short-Eared Owl* and *The Bittern* were put out as *Secrets of Nature* (Field & Smith, 1934: 39-43, 242). He became a frequent contributor to *Look*, for example with his film *The Land of the Flamingo* (9 August 1955) (Anonymous, 1955c: 15; Anonymous, 1955d: 26). *Look*'s 78th episode was devoted to *The Best of Walter Higham* (21 April 1961), featuring footage from 1925 and profiling his long career (see below). A slightly different example is that of the Imperial College zoology lecturer Humphrey Hewer, who featured in the programme on 12 July 1955, showing footage of Atlantic seals (Anonymous, 1955b: 21). Hewer had in 1933 been brought in by Julian Huxley to Gaumont-British Instructional to assist in giving scientific oversight to the biological films the firm began to produce (Hewer, 1946: 16-17). In these examples we have the two poles of natural history filmmaking; the amateur naturalist who worked through the medium of film to convey what he saw, and the professional scientist who became convinced by the teaching potential of film.

Beyond these links of personnel, there are examples of definite genealogy, for example in the longer version of the founding story of OSF sketched above. The proposal to make films came from Eric Skinner, Thompson's technical assistant in the Department of Forestry at Oxford University, who had started there in 1924. Thompson began taking still photographs of insects in 1955, but was finding that they weren't ideal for teaching; ‘I was chatting to Eric on this particular morning, complaining that stills, although they're very nice, did not really give me what I wanted. I wanted to be able to show other people how these insects behaved, and he said, “Well, what we really need is a cine film”’ (Parsons, 1998). Skinner explained to his boss that before the War he had been charged with taking live wood wasps and their parasites to Percy Smith, who at the time was making his *Secrets of Nature* film *War in the Trees* (1931), which was narrated by Thompson's Oxford predecessor, Dr Neil Chrystal.⁹ Crowson recounts: ‘so Thompson borrowed a 35mm film projector ... and on Thursday, February 5th, 1959 [note the stress on ur-moments], showed one of Percy Smith's films. Gerald saw at once that films were the best means for teaching students

8. *Radio Times*, *passim*; BBC Staff Lists (Set kept at BBC Written Archives Centre, Caversham)

9. See Field & Smith (1934: 97-103) for Smith's account. Sequences from this film can be viewed at

<http://www.britishpathe.com/record.php?id=75390>. Thompson is keen to assert that it was a different species of woodwasp; see Parsons (1998).

how insects behave and how their bodies work' (Crowson, 1981: 19). The Departmental librarian, being visited by Bruce Campbell from BBC Bristol, mentioned Thompson's photographs, a comment that led to the visit to Slimbridge that Scott recalled. *Look's* 'appetite for good film [was] almost insatiable', so the BBC – in conjunction with the Council for Nature – ran competitions for suitable films in 1960 and 1962 (Campbell, 1962). Thompson and Skinner entered the film they had been making all year since May 1960, *The Alder Woodwasp and its Insect Enemies*, which won the two top prizes. It was broadcast on *Look* on 19th May 1961 (Crowson, 1981: 19-21; Parsons 1998).¹⁰ OSF personnel contributed very many more films to the BBC over the succeeding years.

The advice sent to competition entrants also shows one of the direct links between *Look* and the older films. These documents combine technical with narrative recommendations, adding up to prescriptions on acceptable form. For example, in 1962 the 'notes on filming' included:

1. Shoot at 24 frames per second.
2. Try and keep in mind the general story the film has to tell, and wherever possible, think in terms of sequences of pictures and how the one sequence has to be linked with the next pictorially. ...

Principally we are looking for (a) Film showing as much as possible of the life history of any one animal in its natural habitat – its behaviour in the widest sense in a number of typical circumstances and its relation to the environment and other animals (Anonymous, 1962).

This emphasis on narrative structure continued; in 1970, for example, the BBC Natural History Unit 'basic guide for cameramen' advised:

To produce the correct sort of coverage it is best to concentrate on completing 'action' of certain behaviour, ie feeding, grooming, leaping, parental care, and so forth. One must try and concentrate on correct sequence building with establishing wide angles, long shots intermediate and intimate close ups, and variation of angle throughout are all important. Equally important is 'allowing' the moving subject to pass clearly out of shot before 'running out' on it (Kendall, 1970).

Such narrative demands about what makes 'good television' are clearly to do with conventions rather than with ideal categories. Early natural history films, such as Duncan's *Cheese Mites* (1903) or Smith's *Birth of a Flower* (1910) did not have such structures, but these were conventions that were well in place by the time that Mary Field and Percy Smith

10. Several clips are available at <http://www.wildfilmhistory.org/>. See also Parsons (1982: 113,114).

published their book *Secrets of Nature* in 1934. Here Field, promoting correct practice on the basis of a much shorter history – perhaps 21 years – laid out the principles of what made a good film in her view; I have selected items from her sophisticated chapter on editing that relate to the foregoing:

A film is essentially a story told in pictures ... Before you can start to tell your story in pictures you must, first of all, have some idea of what your story is to be. ... action should always work in the same direction in two consecutive scenes : if a water flea goes swimming across the film from left to right and goes out of the picture on the right side, in the next scene he must swim in on the left so as to continue his course from left to right. ... The fact that each film deals with one particular life history or one particular aspect of Nature makes it difficult to vary the form of their presentation. Life histories move with depressing regularity from seed to seed or egg to egg. . . (Field & Smith, 1934: 188, 194, 204)

These three aspects – the filmmakers involved, the origins of the programme and the narrative techniques expected of contributors – show the strong continuities between the format of *Look* and the older tradition of nature filmmaking. Continuity is, proverbially, married to change, so it is unsurprising that there are also aspects of *Look* that differ from the older films; these are the marks left by the struggles to create effective forms of non-fiction television that had characterised the previous seven years at least at the BBC (Boon, 2008: 192-203). For example, the programme combined live studio presentation (in its early years from a studio mock-up of Peter Scott's base at Slimbridge) with telecined film inserts, a format developed as part of the BBC Talks and Documentary Departments' techniques in the years when television executives placed a special emphasis on the centrality of liveness to the televisual experience (Boon, 2008: 200, 207, 210-219).

Science television achieves much of its cultural effect by the authority that the people in front of the camera project. The conventions here differ from those in the majority of science documentary films up to the 1950s before they, in their turn, began to be inflected with televisual styles. As Paddy Scannell has argued,

The liveness of broadcasting, its sense of existing in real time – the time of the programme corresponding to the time of its reception – is a pervasive effect of the medium. The talk that goes on in radio and television is recognisably ... intended for and addressed to actual listeners and viewers. (Scannell, 1991: 6)

This intimacy of television, placing the stress on talk that is Scannell's concern, also requires the presence of people on screen doing the talking. The authority they project is a product of different factors within the televisual performance: person, bearing, expertise

and voice, all mediated by the televisual styles and conventions adopted for specific programmes:

The design, layout and lighting of the studio; the age, appearance, sex and dress of participants; the manner and style of how they talk to each other – all these give rise to warrantable inferences about the event there taking place, the character and status of the participants and the relationship of event and participants to viewers. ... the *grain* of the voice gives rise to inferences about the speaker; and changes in voice are an important means of creating [implied meanings]. (Scannell, 1991: 6)

In the case of *Look*, there were significant social factors – class, profession, age and gender – in the establishment of that authority. In the first place, Peter Scott, knighted in 1973, was well-known as the son of Robert Falcon Scott – ‘Scott of the Antarctic’ – and was a privately-educated unsuccessful conservative candidate in the 1945 election, who had famously established The Severn Wildfowl Trust at Slimbridge in 1946 (Walkden, 2004). The implication of the programme, reinforced by the set reproducing Scott’s studio, is very much of the viewer being invited in to overhear a private film show with a well-informed voiceover from Scott, or from a range of other male, middle class, middle-aged presenters. This was at a time before the social revolutions of the 1960s, when such attributes were expected to convey authority and reliability in a way that only later became open to widespread questioning. Although the commentaries are mainly simply descriptive of the action shown, pointing out species, behaviours and details, the encoded expectation is that the speech carries authority because of the person of the speaker. The result is that, whilst the programme’s title ‘Look’ suggests a mode of communication based on showing, the authoritative expert voice achieves a large proportion of the programme’s effect in the more didactic telling mode.¹¹

In the programme on Walter Higham,¹² for example, we see Scott in medium close-up, dressed in jacket and tie, reading links direct to camera, and describing two still photographs of Higham. These continue into voiceover commentary which establishes the range of Higham’s subjects, starting with 1920s films of gull-egg collecting and *The Cuckoo’s Secret* and proceeding to a wide variety of wildlife – mainly bird – cinematography. Scott speaks in descriptive mode: ‘Here’s Walter in the park at Clitheroe [standing, with breadcrumbs in his outstretched hand, with a bird feeding] ... and as he says there’s no magic in this, it’s just

11. Opening of *Look*’s 78th episode *The Best of Walter Higham*, 1961: <http://www.wildfilmhistory.org/film/85/clip/352/Pioneer+of+bird+filming.html>. Descriptive sequence of English garden birds, from *The Best of Walter Higham*, 1961: <http://www.wildfilmhistory.org/film/85/clip/353/Britains+birds.html>

12. *The Best of Walter Higham*. An excerpt is available at <http://www.bbc.co.uk/historyofthebbc/resources/horizon50/before-horizon>

a matter of patience but it's rather nice ... he's got a robin here, now Britain's national bird ... there's a blue-tit ... and a great-tit coming onto his hand. And here's a picture of a cock sparrow building a rather unusual open nest ... and this is another unusual nest, a song thrush's nest on the ground...'

Compared with *Secrets of Nature*, the screen presence of Scott and the other presenters also marked a departure into a new specifically televisual form of unscripted – or lightly scripted – but authoritative mode of verbal address. In *Secrets of Nature/Life* first captions, then (generally scripted) voiceover, had represented the authorial presence. In a sense, going back to a naturalist being visible on screen might seem a return to the 'showman' approach in which Smith had appeared in Charles Urban's *Movie Chats* around 1918-22 'before the camera ... the young man who is often seen poking the insects or handling the microscope' (Urban, 1920). Scott's presence, however, implied the trustworthiness of the gentlemanly man of science, where Smith's presence in a film such as *Percy Smith with Herons* from the Urban series, where he shins-up a tree and wears goggles whilst feeding the infant birds, was playful at the same time as it revealed its natural historical subjects.¹³

War in the Trees, unlike many *Secrets of Nature* films, has a mainly straight factual commentary; *The Strangler* (on the parasitic plant dodder, 1930), by contrast and more typically, takes the consistent facetious line that the plant is 'a born criminal', a tone that is reinforced by the light orchestral music selected for the series from 1930 (Smith & Field, 1934: 226-229). The commentary of *War in the Trees* and Thompson's *The Alder Woodwasp* have many similarities, both in terms of what is conveyed about the life-cycle of the two varieties of wood wasp and their parasites in the films, and in the mode of factual description of footage which both films use. The sequences of egg-laying by the wasps' parasites is very similar.¹⁴ Consistent with the normal style of the series, *War in the Trees* does feature the occasional gag – the parasitic *Rhyssa*, partially grown, is described as looking 'very dignified, rather like a judge' – but this is the exception. In both cases, the authority of the films comes from the way that the male, descriptive, received pronunciation commentary – Thompson's for *The Alder Woodwasp*, and Chrystal to *War in the Trees* – reinforces the precision photography.

In total, *Look* exemplifies the principle I have termed 'the persistence of genres'; that approaches to filmmaking which were the products of particular historical circumstances become embedded as the obvious, proper or correct approach to the subject in question. This is the continuity, still to be found to some extent in the latest natural history television. The principal change between *Secrets of Nature* and *Look* is in presence of the presenter; that too came to persist – paradigmatically in the case of David Attenborough – as part of the common sense of what is perceived to make natural history television effective (Boon, 2008: 3).

13. This film can be seen on the BFI DVD compilation *Secrets of Nature* (released 2010).

14. <http://www.wildfilmhistory.org/film/261/clip/876/Alder+woodwasp+egg+laying.html>

Case Two: *Eye on Research*: a New Account of Science

If *Look* was the first longstanding regular natural history programme, its counterpart in the coverage of other scientific disciplines was *Eye on Research* (1957-1962).¹⁵ Each week this programme reported on a particular field of science by interviewing scientists and technologists in their laboratories. The first, ten part, series included programmes broadcast from the Motor Industry Research Association, the Atomic Energy Research Association, and Manchester University (to meet the new computer, in the company of Professor Freddy Williams). One whole series of ten programmes in 1960, marking the tercentenary of the Royal Society, featured Fellows of the Society, those elite figures of the scientific establishment, including Martin Ryle, Max Perutz, John Kendrew and Nicholas Kurti. It was the use of outside broadcast that was distinctive about *Eye on Research* compared with earlier approaches to making science programmes, either as film documentaries (such as those in the *World is Ours* series) or studio programmes such as *A Question of Science* or *Frontiers of Science* (Boon, 2008: 204-207, 210-211). It was a current affairs approach to science; as Aubrey Singer wrote, introducing the second series:

Nowadays science affects everyone. We cannot ignore the implications of the rapid technological developments. Research paves the way towards tomorrow's new industrial techniques and materials. *Eye on Research* is an effort to keep you abreast of the times, by people who are ahead of their times (Singer, 1958: 6).

The programme took live outside broadcast cameras to various research establishments, just as its sister programme *Your Life in Their Hands* went into hospitals (See Loughlin, 2000). Technically, it explored a niche created by the BBC's extensive purchase of outside broadcast equipment to cover regional sporting fixtures at weekends. The equipment was largely unused on weekdays, and so producers were encouraged to find uses for it. This led to programmes such as *Eye on Research*, which they called 'built OB programmes', that is those that didn't merely televise existing events with a logic of following what was happening anyway, but which used outside venues as studios for programmes constructed using the grammar of television. In discussing this series, we may use similar categories as employed above – contributors (producers and participants); origins; and formal aspects – to consider how this series relates to its predecessor and successor programmes. Here again, we will consider where the authority of the account of science rests in the programmes.

The genealogy of *Eye on Research* was much shorter than that of *Look*. For the ambitious outside broadcaster Aubrey Singer, it was in a direct line of development from *The Restless Sphere*, his breakthrough programme from earlier in 1957, a one-off special to mark the start of the International Geophysical Year, featuring a remarkable and ambitious total of three

15. This account extends that in *Films of Fact* (Boon, 2008: 215-221) and employs different examples.

overseas and two UK live Outside Broadcast feeds. Whilst 'built OBs' were not entirely new in 1957, previous incarnations of the form had been relatively unambitious; a curator tour of the Science Museum's new aeronautics gallery, for example (Boon, 2008: 199). Singer had fixed upon the IGY as the vehicle to pursue his televisual ambitions after James McCloy from the Talks Department had deemed it impossible to turn into television; where the studio-based producer saw difficulty, the outside broadcaster saw the opportunity to establish a new mode of television that would compete with studio-based programming.¹⁶ In that sense, competition between the OB and the Talks departments, which had up to that point been the established home of science broadcasting, determined the dominant televisual form for representing science in the five years from 1957. Accordingly, in the case of *Eye on Research*, it was not a matter of continuing an old convention in a new medium, as we saw with *Look*, but of developing a successful 'production model' of science broadcasting on the basis of the *Restless Sphere* prototype.

The series was produced by a small core team with Singer as series producer; he brought in researcher and writer Gordon Rattray Taylor; and used producers drawn from the relevant departments in the BBC's regional offices, and directors, including Bill Wright and Philip Daly, in addition to the reporter on screen (the experienced current affairs reporter Robert Reid, well known for presenting the current affairs series *Special Enquiry* (Swallow, 1966: 72-7. See also Bell, 1986: 65-80; Corner, 1991: 42-59) in the first series, thereafter Raymond Baxter (Moss, 2010)). Indeed, the approach to science in *Eye on Research*, as might be expected for one conceived as the current affairs of science, meant a stress on the person of the on-screen mediator; the billings in the *Radio Times* consistently featured the name of the reporter prominently. The reporter was to be the viewer's proxy in relation to their subject matter, introducing the subject, questioning scientists, and simplifying and summarising their responses. Taylor had previously been a print journalist; Reid had both press and radio experience. The rest of the team came from television itself. As for the people other than presenters appearing on screen, each programme introduced a selection of scientists or technologists, all of them – unlike the amateur naturalists of *Look* – professional laboratory and university based workers. They are of varying degrees of articulacy and ease in front of the (live) television cameras. The performances vary from confident exposition, lecture-style, or in the manner of a laboratory director conducting a tour, to some performances being halting in delivery, technical expositions that positively require the intermediation of the reporter.

In terms of the programme's formal style, whereas *Look* started with existing naturalists' films and competitions to have more made, *Eye on Research* was intrinsically more journalistic; the planning for each series started with the team making a selection of potential programme themes, often via conversations with élite figures in science, such as David

16. Aubrey Singer oral history recording, BBC Archives by courtesy BBC History and Heritage.

Martin, Secretary of the Royal Society. These discussions led to meetings with scientists on the ground, then selection of a balanced list of subjects for each series, a list that was narrowed down by practical availability of OB Units across the country.¹⁷

Compared with the established natural history film grammar of life-cycle narratives, matched movement and the rest, as an Outside Broadcast, in *Eye on Research* the cuts between shots are the electronic switchings of 'vision mixing' between cameras, rather than the precision cuts of film editing. In some cases, camera movement was used to add to the televisual liveness, introducing a new speaker or new piece of equipment, by panning or tracking the camera in or out. The cuts in *Eye on Research* are often at the spatial and structural level of cutting between the rooms where individual speakers are placed, as much as between, long shots and close-ups, for example. The cuts are generally fewer and more occasional than the more frequent edits of documentaries made in advance on film. Especially in older programmes, the picture sometimes loses synchronisation on a cut before the picture stabilises again – this technical difficulty may also have led to a disinclination to make more cuts within a programme than was strictly necessary. The result reinforces a tendency for sequences of exposition that last for minutes without the fine texture of visual variation which had become normal in film editing, not just in the ways that we have seen recommended for *Look*, but also in other traditions deriving from Russian experiments of the 1920s that emphasised the role of editing in the construction of cinematic meaning (Boon, 2008: 47-49).

To grasp the style of the programme, we may take the example of *The Six Parameters of P.A.T.* (28 Oct 1958) from the second series, produced by Alan Rees, an OB Producer based in Glasgow, from a treatment / script by the usual writer, Gordon Rattray Taylor.¹⁸ The programme is concerned with the parametric artificial talker (P.A.T.), a speech synthesis device developed at Edinburgh University. It starts with the reporter Raymond Baxter in medium close-up, speaking to camera introducing the Edinburgh programme from London. The series titles follow (an oscilloscope showing the waveform of the theme music played on acoustic guitar as the title is superimposed). Next we see two men (Peter Strevens and Tony Anthony from the Edinburgh Phonetics Department¹⁹) in front of the bank of machinery that we infer is the 'Pat' of the title, which is intoning the name of the programme. The next sequence is a halting, half-read, preamble by (Walter) Lawrence, who introduces himself as an engineer interested in the efficient use of telephone cables, on the basis that the limited bandwidth of transatlantic cables could carry more calls if signals representing the basic

17. Singer to Kenneth Adam, «Eye on Research: Planning, Preparations and Policy Considerations», 17 October 1958, T14/1503.

18. *Eye on Research: The Six Parameters of P.A.T.*: <http://vimeo.com/26005634>

19. Strevens is not named in the broadcast, but the details are in the programme file T14/1,496/5.

components of speech were to be conveyed rather than the speech signal itself.²⁰ He explains that he had turned to the expertise of the Edinburgh phonetics department after his first attempt to build a 'PAT' in 1952. A vision cut takes the viewer to the head of department David Abercrombie (1909-1992) in a mock-up of his office (denoted by the bookshelves behind)²¹, who explains – more fluently, but still with notes – his department's academic study of speech in a distinction he draws with Lawrence's interest in practical application. The phonetics lecturer Peter Ladefoged (1925-2006) then delivers a fluent twelve minute lecture demonstration with the assistance of a woman identified only as 'Miss Criper', using several pieces of apparatus in a cramped laboratory, of the selected components of speech: loudness, pitch, the 'noise sounds' of consonants, and three sets of overtones associated with different vowel sounds. In the next sequence, the machine is made to re-create the same parameters, in an explanation presented by an unnamed researcher, and their combined operation to synthesize speech is demonstrated by a moving model made by Alfred Wurmser. In the course of the explanation, 'Mr Anthony', the technician who constructed the machine, is named, and they seek to make PAT 'sing', with mixed results. The programme cuts to Lawrence, who invites viewers to send in their interpretations of six words spoken by the machine. Finally, we cut to Abercrombie, who explains some of the limitations of the machine in reproducing the speech sounds of various languages, and a summary of some of the other work of the department.²² He hands over to Baxter in London, who stresses the interest of the links between fundamental and applied research exemplified by the programme and by several others in the series.

In this particular issue, Baxter as reporter is relatively marginal, and the programme ends up exemplifying the contemporary judgement of Norman Swallow that 'science, more than any other subject-matter, needs the personal communication of the expert, making use of equipment and devices which are familiar to him in his professional life' (Swallow, 1966:148). More often, as in the issues on CERN, *The Particle Hunters* (24 February 1959) or *Smaller than Life?* (30 September 1958), Baxter's introduction and mediation are much more substantial components of the programme's style. It is worth briefly considering the opening sections of one of these examples to show how the series' authority was normally established.

In the CERN programme²³, after an aerial shot and a spoken introduction by Baxter, the titles read – as was usual, though not in the PAT programme – 'Raymond Baxter reports'. His voice, from a control room, continues the exposition, including a cutaway shot of one of the

20. This was a project funded by the Ministry of Supply within the Phonetics Department at Edinburgh University.

21. Alan Rees to N.I.C Glasgow, «Week 44 Eye on Research», 13 Oct 1958, T14/1,496/5.

22. For some historical background on this work, see Ladefoged (1997: 85-91).

23. *Eye on Research* on CERN. An excerpt is available at

<http://www.bbc.co.uk/historyofthebbc/resources/horizon50/before-horizon>

‘atom smashers’, until a vision cut shows him introducing the physicist Ernst Michaelis, who explains his work on analogy with a football match watched from a distance, and with the help of a television set, which is explained to be a kind of particle accelerator. The air of the discussion is semi-formal; Baxter wears a two-piece suit, whilst Michaelis has a V-neck pullover; both wear ties. Here again, it is worth drawing attention to the quality of the speech, which in Baxter’s case is immaculate received pronunciation, and in Michaelis’s case is delivered with a slight Germanic inflection. Baxter’s role is to translate, simplify and restate, performing an air of calmness and unflappability as a foil to his interviewee’s evident nervousness. After Michaelis’s exposition of the accelerator, using a film can cut in two, and an agreement between the two men that it’s ‘like a game of billiards, but an ‘Alice in Wonderland’ game, Baxter recapitulates as the camera tracks-in to medium close up: ‘Right then. In order to look into this “Alice in Wonderland World”, as Dr Michaelis put it, the entry is the beam of accelerated particles. The more detail you wish to see, the greater the energy you have to create, the larger the circle which the particles have to describe in their magnetic field’. In other words, the authoritativeness of an issue of *Eye on Research* was established by a combination of factors: In visual terms, Outside Broadcast technique conveys an immediacy, with its repertoire of cameras moving in small spaces, vision cuts, announced insert films (in the CERN programme, after his recapitulation, Baxter explains ‘last week I flew over to make a piece of film about the proton-synchrotron’; we can take a closer look at it now’). The knowledge and explanatory capabilities of selected scientist-interlocutors gives an impression of important work being interrupted to provide an explanation. Then the reporter’s stock of techniques to link, translate and simplify ties all the other components together.

New Programming in the Sciences

Both *Look* and *Eye on Research* embodied influential approaches to how the sciences should be shown on television, and both became a point of reaction against which later programmes would differentiate themselves.

In formulating how science should be covered after *Eye on Research* was cancelled in 1962, Singer’s success with this series – bolstered by three promotions – ensured that it was he who would be charged with developing the series that succeeded it, which emerged on the new second BBC channel in May 1964 as *Horizon*. As I have argued, the majority of its core production team had worked on *Eye on Research* and they knew that ‘whatever the new programme would be, it could not be a live Outside Broadcast visit to laboratories to speak to scientists at the bench’.²⁴ In *Horizon*, the production team, under Singer, determined to make a programme that was focussed on the culture, ideas and personalities of science. They eschewed topicality and they rejected being didactic. As Gordon Rattray Taylor, its

24. This section draws closely on findings, and reiterates parts of: Boon (2014b: 1–35, 7).

editor in 1965, proposed: *Horizon* ‘will buttonhole rather than lecture’; the programme would say ‘It’s rather interesting that...’ rather than ‘Tonight we are going to tell you about...’ (Taylor, 1964). As a *person-centred* account of science – an élite branch of culture – it was interested in what kinds of people scientists are, and so a fair few of the early programmes were centred on particular scientific personalities, including Buckminster Fuller, Michael Faraday and Peter Medawar, or groups of scientists such as *The Tots and the Quots* dining club convened prewar by the primatologist Solly Zuckerman. The BBC archives show that *Horizon*’s picture of science derived internally in the BBC, from television itself, and not from any explicit non-televisual source. In particular it came from the producers’ determination to emulate another programme, the arts magazine *Monitor*, which had been running since 1958, edited and presented by Huw Wheldon (Wyver, 2007: 27-31). For much of *Horizon*’s first three years, the producers also sought to reproduce the form of *Monitor* as well as its approach to its subject. That meant making it as a magazine programme, and according to the expectations of the day, that entailed having an anchorman to lend unity to the programme by linking the separate items that composed it, also on-screen making the adjustments to individual items necessary in a live programme (Swallow, 1966: 48-50, 62-65). Paul Fox, editor of the current affairs programme *Panorama*, explained one value of anchormen:

the personal contact between the programme and its audience is vital, and I am equally sure that the best way to establish the proper kind of contact is by means of a visible personality, someone who has down the years become something of a family friend, a regular visitor to the sitting room, a man whose words are respected and whose very presence has become ... a guarantee of integrity and common sense. (Quoted in Swallow, 1966: 63)

This is effectively the role played both Peter Scott on *Look* and by Raymond Baxter on *Eye on Research*, especially in his piece to camera at the end of the *PAT* programme, where he goes beyond the particularity of the episode to help the viewer situate what they have seen in terms of the relationship of pure to applied science.²⁵ It is likely that it was this friendly guiding authority of a regular presenter that the producers of *Horizon* sought in their attempts to find a scientist-anchorman. There is no evidence within the detailed archive of the programme’s origins that Baxter was ever considered for this role on *Horizon*; the fact that he was chosen a year later for this role on *Tomorrows World*, a programme envisaged as a topical report rather than a considered look at the culture of science, tells us something about the kind of authority they hoped to lend *Horizon* by having a scientist as

25. This is a boundary within the Edinburgh phonetics department that the programme glosses over, and about which the Head of Department had expressed some concerns - see T14/1,496/5.

anchorman. As I have shown, the *Horizon* producers' attempts to find a scientist capable of filling such a role, including an unsuccessful pilot programme using the theoretical physicist Roger Blin-Stoyle as anchorman, failed, which was one of the determining factors in the style of the programme in its first year, leading producers to experiment with presenter-less programmes united by a single theme, such as 'structure and form', or 'science, toys and magic'. In the absence of a suitable anchorman, these programmes, including the first, 'The World of Buckminster Fuller' (2 May 1964), fell back on the documentary film convention of 'voice of god' narration. In the first programme it was Gordon Davies who provided the guiding voice, with its warm, received pronunciation tones.²⁶ These narrators' voices, in this era almost exclusively *men's* voices, and by definition from unseen speakers, jettisoned the requirements of the embodied on-camera performance of a Baxter, and instead the repertoire of techniques that assert the programme's authority is solely verbal; of reading aloud someone else's script with conviction, of vocal timing, nuance, and appropriate stress.

After a year, the team achieved their ambition of making *Horizon* as a magazine, and so needed a presenter, but despite continued searching for scientist anchormen, they turned to journalists – first the BBC science news science correspondent Colin Riach, then Christopher Chataway, who had previously been on *Panorama* – to fulfil the role. The magazine format lasted for over 18 months until, with a change of editor in 1966, it became a programme envisaged and produced on film, and on a single subject, sometimes including Chataway as presenter, most often as 'voice of god' narrator, sometimes moving between the two modes as if there was no difference for the producers.²⁷

Producers at Bristol, working with BBC2 Controller David Attenborough, also took the opportunity of the arrival of the new channel to create new modes of natural history broadcasting, as Jean-Baptiste Gouyon has shown.²⁸ The first of these programmes, *Life (in the Animal World)*, was designed to build on public appreciation of natural history by 'examining in a serious and critical way new trends and ideas in zoology'²⁹. Like *Horizon* in its 1965-7 form, it was a studio-based magazine programme featuring discussions with experts, in its case on animal behaviour and including generous use of insert films. Its presenter was Desmond Morris, ethologist and curator of mammals at London zoo, a scientist-anchorman, if you like. The two new BBC2 programmes were broadcast fortnightly in alternation, and this was envisaged by Attenborough as providing 'methodological and serious' cover-

26. The term 'received pronunciation' alludes to what was commonly considered to be the 'correct' form of speech, in contrast to regional accents and pronunciations. Martin Stollery shows that this term was already in use in the 1930s; see his helpful discussion: Stollery (2011: 161-167).

27. This is seen, for example in Peter Goodchild's *Horizon, The War of the Boffins* (12 September 1967), where Chataway is heard as narrator long before he appears on camera.

28. My account here rests on Gouyon (2014).

29. Attenborough to Solly Zuckerman, 8 June 1966, TVART3, quoted by Gouyon (2014).

age of the sciences. The implication is clear that *Look*, with its repertoire of naturalist amateur scientists was somehow not quite serious science television. From 1967, *Life* was succeeded by *The World About Us* which, like *Horizon* from this date, was made entirely on film, and in colour, departing from the studio-bound live format of both the earlier series (Boon & Gouyon, 2015).

Conclusions

The examples here of the first regular natural history and science programming on BBC television in the 1950s, and their successors on the new channel BBC2 from 1964 onwards, show the importance of genealogy in the representational forms used in science television. *Look* drew on decades of conventions in natural history filmmaking, whilst the producers of *Eye on Research* were busy reinforcing a new form of television, drawing only on recent precedent. Equally, by the mid 1960s, television had already grown up enough to have established several genealogies of programme-making style, with the successful model of *Monitor* in the arts, for example, being taken up and extended in the coverage of several subjects, including science (Boon, 2014a). The live model of *Eye on Research* may similarly be seen as being resurrected, up to a point, in *Tomorrow's World*.³⁰

Three different formal televisual factors emerged from my analysis of the establishment of *Horizon*: whether to use presenters as opposed to ‘voice of god’ narration; whether to favour live techniques as opposed to making complete documentary programmes on film ahead of broadcast, and whether to favour a diverse magazine programme over a single-subject broadcast.³¹ Television producers in the 1960s – not just in science television, but across all subject domains – were actively experimenting with these components of their new televisual language. As they became fluent, the confidence and authority of television was made concrete. Caught like a fly in amber, particular authoritative articulations of the sciences, different in natural history from the rest of the sciences, also became established. On both sides, the significance of differing modes of performance by those on-screen and off was crucial to the authority conveyed.

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30. *Tomorrow's World*. An excerpt is available at <http://www.bbc.co.uk/archive/tomorrowsworld/8001.shtml>

31. These ‘three factors’ structured the presentation I gave at the 7th European Spring School on History of Science and Popularization: “Science on Television” in 2013, but the material I presented there has now already been published in my *BJHS* article on the origins of *Horizon* (Boon, 2014b).

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