

UNIVERSITY OF CALIFORNIA

Los Angeles

“Special Sound”: Electronic Music in Britain and the Creation of the BBC’s

Radiophonic Workshop

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Musicology

by

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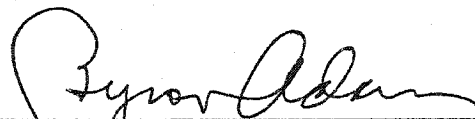
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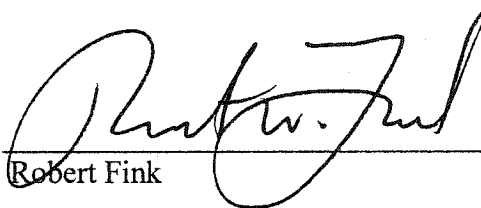
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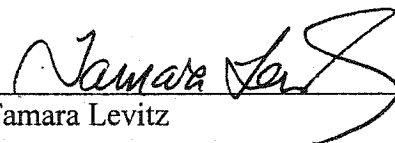
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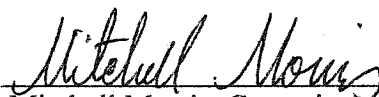
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**Dedicated to Scott Evans for his continual love and support,
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ABSTRACT OF THE DISSERTATION

“Special Sound”: Electronic Music in Britain and the Creation of the BBC’s Radiophonic Workshop

by

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The BBC’s Radiophonic Workshop was the principle producer of electronic music in Britain throughout the late 1950s and 1960s and shaped a generation’s perception of this new form of music. Originally inspired by the development of *musique concrète* and *Elektronische Musik* on the continent, artists at the BBC sought to adapt these techniques for their own productions. The original reason for the Workshop’s creation, however, arose from the need within the BBC’s Drama Department to accompany Theatre of the Absurd and other avant-garde radio plays rather than from within the Music Department. Using methods derived from microhistory, cultural theory, film music theory, the work of sound theorist Michel Chion, and traditional music analysis, this dissertation tells a history of the Radiophonic Workshop’s creation, the battles from within the BBC between the Music and Drama Departments, and discusses a selection of works composed at the Workshop from the years 1956-1967. Through a complex mix of circumstances and

technology, of Continental contemporary musical techniques and developments in French and English radio/dramatic styles, emerged a unique centralized sound-house, Britain's contribution to the world of electronic music.

Chapter One: Topics, Methods and Starting Places

The British Broadcasting Corporation's (BBC's) Radiophonic Workshop was the principle producer of electronic music in Britain throughout the 1960s. Tens of millions of people listened to and absorbed the sounds produced there every week on radio and television, whether as signature tunes, sound effects, or incidental music. The sound effects mostly represented the otherworldly, as epitomized by Brian Hodgson's work for *Doctor Who*, while dissonant, abstract textures became the norm for the Workshop's incidental music projects, and their trademark in the '60s was the joyous, rhythmic and relentlessly tonal signature tune and interval signal. The Radiophonic Workshop's virtual monopoly on electronic sound production shaped a generation's perception of the nature of electronic music in the United Kingdom. These influential works of electronic music bear little resemblance, however, to the works that emerged from the Workshop in its earlier years, an organization created in 1958 out of the necessities of the BBC's Drama Department rather than the Music Department. Through a complex mix of circumstances and technology, of Continental contemporary musical techniques and developments in French and English radio/dramatic styles, emerged a unique centralized sound-house, Britain's contribution to the world of electronic music.

Since the history of the Radiophonic Workshop has never been given more than cursory scholarly attention, the bulk of this dissertation will be devoted to an investigation of its founding and influence, as well as to an exploration of the culture (both internal and external) that made it happen. The structure will be roughly chronological, with each of the next four chapters given over to an important shift in the Workshop's techniques. Structurally, this dissertation takes as its analytical approach the relatively new historical method of the microhistory. Developed in the late 1970s among Italian historians, microhistory is "an attempt to clarify all the complex density and the thick network of connections and relations that lie tangled together in facts, real situations, events, ideas, images, men, and social groups of the past" using extreme detail and descriptive contextual storytelling.¹ Based on anthropologist Clifford Geertz's notion of "thick description," my picture of the Workshop and its creation is told from many angles; the prehistory of artistic genres, the political situation of the BBC, the material realities of the austere Britain immediately following the Second World War, strongly held individual beliefs of

¹ Vincenzo Ferrone and Massimo Firpo, "Galileo tra inquisitori e micro-storici," *Rivista storica italiana* 97 (1985): 177-238. Abbreviated and translated as "From Inquisitors to Microhistorians: A Critique of Pietro Redondi's *Galileo eretico*," *Journal of Modern History* 58 (1986): 485-524. Quoted in Edward Muir, "Introduction: Observing Trifles," in *Microhistory and the Lost Peoples of Europe*, ed. Edward Muir and Guido Ruggiero, tr. Eren Branch (Baltimore: Johns Hopkins University Press, 1991), xxiii. A few examples of successful microhistories are Harold Samuel Stone's *St. Augustine's Bones: A Microhistory* (Amherst and Boston: University of Massachusetts Press, 2002) and Florike Egmond and Peter Mason, *The Mammoth and the Mouse: Microhistory and Morphology* (Baltimore: The John Hopkins University Press, 1997).

Workshop contributors, and the critical reception of early works.² I combine all of these things to construct one version of how the Radiophonic Workshop emerged as Britain's only major electronic music studio in the 1950s and early 1960s, and also how that studio as it existed was essentially the only studio these set of circumstances could have produced.

Microhistory – overlapping chronological times, going back, repeating various events from different perspectives, dwelling on personalities and their positions – allows the tracing of different journeys to the same point. Each chapter follows a different path: Chapter two traces the developments of *musique concrète* and *Elektronische Musik* and their reception in England. Returning to the beginning of radio in Britain, I examine how radio drama exploited the idea of the “creatively used sound” in early dramatic productions, specifically how the sound effect evolved into an art form of its own. Chapter three explores how elements of radio comedy and science fiction contributed to the further expansion of the possibilities of the sound effect and offers a method of analysis building on Michel Chion's notion of the *acousmètre*. Chapter four uses detailed description to uncover the look and feel of the actual spatial location of the Workshop in its early years, as well as the political

² Clifford Geertz, “Thick Description: Toward an Interpretive Theory of Culture,” in *The Interpretation of Cultures* (New York: Basic Books, 1973), 3-31.

environment into which it emerged. Finally, chapter five combines different methods of analysis in an attempt to understand the music that emerged from the Workshop during its first ten years.

I am also drawing heavily on Howard Becker's *Art Worlds*.³ In his groundbreaking study, Becker showed how the traditional model for the creation of art, (i.e., the great artist producing masterpieces in isolation, in fact fails to account for the actual process of art's genesis) is a fallacy, a romantic myth; in fact, art couldn't exist, could not be created, if it weren't for the many people who contributed to the environment that made that work possible. Art is created by combined effort, the circumstances and individuals each deserving a share of the credit. My study doesn't claim that the final creative product springs forth like Minerva from the brain of Jove, but rather suggests that within the cloistered political world of the BBC, conclusions were reached and important policies were made that contributed to the Workshop's output.

This dissertation is both an attempt to come to terms with the methods of creation and reasons for the Workshop's compositions, using analysis of specific works from representative eras in the Workshop's early history. The analysis is grounded in cultural theory, history, technology, and the more traditional tools of music theory and musicology.

³ Harold Becker, *Art Worlds* (Berkeley: University of California Press, 1982).

Furthermore, given the micronarrative framework, I discuss in some detail the actual equipment used in the Workshop, including tape recorders, oscillators, organs, and filters. Since so much of the structure of the Workshop's works is determined by the materiality of the music's production apparatus, this kind of detail is absolutely necessary for any serious investigation of this topic. As a corollary to descriptions of technological advances, I describe the methods of composition, many of which were discarded as new more efficient technologies have been made available. Composers have largely abandoned the creation of tape music, which has been replaced by digital sampling. There are many kinds of timbral effects suggested by the tape medium that, although possible, are not as easily recreated on digital equipment.

My dissertation faces one rather important obstacle. Most American and British scholarship on electronic music has traditionally embraced the monolithic aesthetic of high modernism, unfortunately so, in my view; indeed, much of the electronic music to come out of the academic/government funded studios of the 1950s and 1960s, as it emerged as a distinct field within the larger project of postwar art music, risk comparison with Milton Babbitt's legendary disregard for the audience, invoking the world of electronics as a natural *scientific* extension

of the traditionally scored works based on identical philosophies.⁴ As music, with occasional exception, it has little patience for a human interpreter, centered instead on its own internal integrity. The literature on this music tends to concentrate on these seemingly autonomous self-validating characteristics, ignoring the larger questions of cultural influence, technological limitations and imperatives and political biases.

The Workshop seems to have operated under a different premise; for composers there, it was precisely the unusual electronic sounds that are the focus of the works, rather than the form into which these new sounds are fit. The novelty of making music *electronically* provided this group of British composers with aesthetic satisfaction.

One illuminating way of examining the Workshop's output is by using the tools of film music scholarship: the traditions from which the Workshop's harmonic and tonal techniques were derived ultimately have less to do with the meaning of the sonic end product than do the techniques inherited from standard film and radio music practice. Claudia Gorbman's reversal of the priorities of film scholarship away from the purely visual to an open acknowledgement of the power of music (or

⁴ Indeed, as Luciano Berio himself acknowledged when he said, "I'm not interested in the computer as a musical instrument, but rather as a processor of sound." Barry Schrader, *Introduction to Electro-Acoustic Music* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1982), 182.

sound effect) serves a useful function in explaining the demand for the Workshop's services.⁵

Why electronic music was needed at this particular time and place – and not more traditional orchestral or popular scores – is a cultural question that will be explored. It seems related to the rapid standardization of electronic sound into representations of “science fiction” or “the unknown” (already present in the 1956 film *Forbidden Planet*). This stereotyping betrays an underlying unexplored semiotics that will be at the center of my discussion of Radiophonic music as film music.

Another important aspect of this discussion concerns the role of the signature tune. Although title music works slightly differently in film than it does in television or radio, in all three it functions as a border, isolating and surrounding the program within, and attempting to define its character. Christine Geraghty speaks of the role of the signature tune as alerting “us to the fact that the serial is about to begin. It does not disappear ‘until the autumn’ or ‘until the next series’.”⁶ As such, Geraghty effectively assigns the signature tune the role of both sonic signifier and programmatic delineator. This description doesn't really address the contradictory nature of the signature tune, however, as something that

⁵ Claudia Gorbman, *Unheard Melodies: Narrative Film Music* (London: BFI Publishing, 1987).

⁶ Christine Geraghty, “The Continuous Serial: A Definition,” in Richard Dyer et al., *Coronation Street* (London: British Film Institute, 1981), 10.

must serve to define a program sonically, while at the same time existing in a space *outside* the boundaries of a program itself, in much the same way that the music (and the visuals) of the opening and closing sequence of a film may occur outside its narrative world while at the same time representing that world.

Inside the film, television or radio program, Radiophonic music often functions in the same way as do traditional film scores: to lend atmosphere to a production and to comment on what is occurring at a given moment. It most often uses the standard semiotic tropes of filmic musical language: faster tempos indicate action-oriented scenes, and dissonance tension, while low frequencies often signal danger, etc. It is in the particular tonal language and semiotics of the newer electronic medium that significance is found.

Alongside my discussion of the influence of film music on the Workshop there must be an acknowledgement of the part played by traditional British music in the Workshop's output. What makes the Radiophonic Workshop unique as an institution in the early history of electronic music was its application of electronic techniques to musical styles often considered banal (simple song structure, basic I-IV-V-I harmonic progressions, etc). In the 1950s and early 1960s one important influence on the Workshop's artisans was the British music hall. Several melodies were drawn from that repertoire, or from its style. For example,

the standard “Get Out And Get Under,” arranged by Delia Derbyshire in 1963 as a tape piece, uses no harmonic novelties; only the fact that it has been assembled from bits of tape renders it experimental. (This sort of electronically generated tonal music can still be heard on BBC Television to this day.) In this regard, this peculiarly British kind of music is comparable to the work done by Raymond Scott, or Kenneth Gaburo (at the University of Illinois in the early 1960s).

Such a direction evinces an affinity for that branch of the BBC’s broadcasting on the opposite end of the hierarchical spectrum from the “high art”-mandated Third Programme, that of the Light Programme. Since the end of the Second World War, the Light Programme had been the vehicle for popular band leaders such as Geoff Love and Ted Heath, and of singers like Gracie Fields and especially Vera Lynn, and more provincial (but equally famous) performers like Stanley Holloway and George Formby, who represented a singular kind of Britishness. Another part of the Light Programme’s broadcast program included classical music selected for easy consumption (its most popular time slot being during the lunch hour). An examination of the agenda behind such broadcasting as it was adopted by the Workshop, will help form a more rounded understanding of the latter’s overall philosophy.

The final topic I will integrate into my discussion of the various eras of the early Workshop is the somewhat elusive concept of a “synthesized

tune.” What are the implications of performing standard music through an electronic media? Why bother? What kind of progressiveness is such an action meant to represent? A general sort of “forward-looking” thought representing a Darwinian sense of technological evolution? An electronically realized melody can evoke a feeling of excess (as in the camp overindulgence of *The Goon Show* sound effects, where the borders containing traditional sounds burst into an unreal electronic absurdity), a kind of exotic decadence (as in Derbyshire’s *Blue Veils and Golden Sands*), scientific perfection, and the hope of the future (as in the music written for the BBC stand at the 1962 Ideal Home Exhibition), fear of the future (as in *Quatermass and the Pit*), and the mysteriousness of the unknown (the *Doctor Who* theme.) In all of these cases, the electronic represents in some fashion the unreal, the unusual.

Building on Michel Chion’s notion of the *acousmatic* serves to help in an explanation of this phenomenon. He defines the acousmatic sound in film as an off-screen sound, one in which we are left unaware of its source.⁷ Taking this idea a step further and applying it to the unknowable technology of science fiction, I compare the sound effects and “unearthly” music of the Workshop’s music to Chion’s acousmatic; describing sounds that create fear out of their very unknowableness. After the initial

⁷ Michel Chion, *The Voice in Cinema*. ed. and trans. Claudia Gorbman (New York: Columbia University Press, 1999).

experimental works for radio, the compositions of the Workshop pass very quickly from the “novelty” phase, where the mere presence of an electronic noise is enough to evoke ideas of excess, to a more rich and nuanced use of technology. This use necessitates a deeper reading which would include aspects of how the technology (or the idea of technology) itself is being read in this particular society.

In chapter one, I trace the development of electronic music through the late 1940s and into the 1950s in its two initial centers of production, Paris and Cologne. Pierre Schaeffer, who pioneered *musique concrète* in 1948, created an instrument for manipulating tape speed called a “phonogène.” Together with Pierre Henry, he created music based on preexisting sounds. In Cologne, an electronic music studio was established in 1951 under the direction of Herbert Eimert, where Stockhausen realized his early electronic works. Here the early emphasis was on synthesizing sounds electronically and manipulating them with tape rather than using preexisting sound. Other electronic studios opened in Milan (1955), under the direction of Berio, and Brussels (1958).

From this point, I discuss Britain’s reaction to the experiments of *musique concrète*. As Jennifer Doctor revealed in her study, *The BBC and Ultra-Modern Music, 1922-1936*, the BBC broadcast a great deal of contemporary music in its early years; yet it did not broadcast the experimental electronic music coming out of these two continental

centers. Within the BBC, however, a fascination for this music developed among a group of higher-up employees, including producers John Gibson, Douglas Cleverdon, Donald McWhinnie, and Michael Bakewell; writer/producer Frederick Bradnum and playwright Giles Cooper; studio managers Daphne Oram, Desmond Briscoe and Norman Bain. (Oram in particular pursued electronic music and tape techniques “after hours”, and repeatedly tried to convince the BBC to take the field more seriously.)

A persistent conservatism, partly arising from within the BBC Music Department, and partly from the legacy of John Reith’s mandate of basic national musical education, is inherent in the history of British music throughout the century. A sideways look, however, at the practices of BBC radio drama through the century, especially the influence of producers Lance Sieveking and Val Gielgud, provides a background for the projects that would emerge later in the decade. An example of the level of abstraction in sound effects that had emerged by the 1950s can be demonstrated in Giles Cooper’s *Mathry Beacon*, produced by McWhinnie in 1956, which contains the stage direction “The sound made by the Deflector is a high, rhythmic humming. While musical in its effect it must not appear to be instrumental in origin.”⁸ This second sentence could be applied unchanged to nearly all the music created at the Workshop in its

⁸ Giles Cooper, “Mathry Beacon,” in *Giles Cooper: Six Plays for Radio* (Letchworth, Hertfordshire: BBC Books, 1966), 14.

first decade, and indicates the kind of sounds radio producers sought for certain programs.

The third chapter continues the discussion of radio genres at the BBC, including comedy and science fiction. I describe in greater detail the internal structure of the Corporation, and examine the specific roles of individual directors and producers, in particular the efforts of producer Donald McWhinnie. His visits to Paris and to the *Club d'Essai* were inspirational, and led him to advocate the creation of a similar department within the BBC. The actual radio works created by the team listed above for the BBC were mostly written for the Third Programme and included Samuel Beckett, Jean Cocteau, and the “Radiophonic Poems” of Giles Cooper, in particular *The Disagreeable Oyster* and *Under the Loofah Tree*. Other important milestones in radio for the Workshop were *The Ocean* and especially *Private Dreams and Public Nightmares* (October 1957). The Third Programme commissioned *All That Fall* after Donald McWhinnie approached Samuel Beckett during a trip to Paris. McWhinnie was encouraged by Beckett’s enthusiasm for sonic experimentation, and with the help of Desmond Briscoe, he created a soundtrack to the play that consisted of *musique concrète*, the first example on British radio.

Shortly after this, Cooper’s humorous *The Disagreeable Oyster* was produced. These two accessible “radiophonic plays” established radiophonic sound as and what it was capable of. Here at the beginning

of *musique concrète*/electronic music in Britain, one finds both serious and light uses of this new form. Sound collage is being used here as often for its novelty value as for the expression of anything more profound. A third program, McWhinnie's twelve-minute *Private Dreams and Public Nightmares*, with a script that saw a poem on one side of the page and radiophonic instructions on the other, was a collaboration between Briscoe, Bain, McWhinnie, and Daphne Oram, and it received unprecedented attention from the press. It was technologically much more intricate and advanced than earlier works and was the final impetus the Corporation needed to initiate a new department, located in Room 13, Maida Vale.

Chapter four moves back into the details of the Workshop's formation, outlining the events of the years 1956-1958 within the BBC, as well as examining the instruments obtained for the Workshop. Unlike the French and German models upon which the Workshop had been based, one of the main struggles faced by the organizers was the acquisition of equipment, since the department was given very little money (the result of a persistent idea that what the Workshop produced was not, in fact, "music"). Most of what they did have had been discarded by other departments, the obsolete waste of more affluent branches of the BBC. The composers were forced to use their ingenuity to come up with ways of creating new sounds from this barely functional equipment. The most

important pieces of technology were still the tape recording machines with which they could cut and paste. The Music Department of the BBC presented the organizers of the Workshop with their largest obstacles, challenging the creation of electronic music on practical, financial and philosophical grounds. Using documents from the BBC Written Archive Centre, I outline this debate, the arguments both for and against.

Having dealt with the establishment of the Workshop as a discrete department within the BBC, chapter five deals with a selection of works from the years 1958-1963, emphasizing the practical move from more esoteric works to functional signature tunes. The hiring of a permanent group of sound engineers/composers occupied all of 1959, the most relevant of whom were Maddalena Fagandini, Dick Mills, and Phil Young. Shortly after this, a new group trained primarily as musicians joined the Workshop; Brian Hodgson, Delia Derbyshire, and John Baker. The first few years of the Workshop's operation saw the balance of works shift from predominantly radio to an overwhelming investment in television and with it a change in the kind of music required. The emphasis was no longer on abstract, impressionistic works of "art," but rather more practical tune-based songs utilizing the techniques of tape music (cutting, reversing, speed changing). As if to highlight this change of emphasis, in 1960 the Radiophonic Workshop released a pop single entitled "Time Beat" (composed by Maddalena Fagandini, under the pseudonym Ray Cathode),

a tune based on an interval signal. This was followed by hundreds of commissions for television and radio signature tunes, often recreating electronically the traditionally scored themes of existing programs, such as the famous Eric Coates Television March (familiar to viewers for over 20 years), replaced in 1960 to celebrate the opening of the new BBC Television Centre.

As becomes quickly apparent, the gradual shift towards science fiction projects reflects a growing perception that electronic music was more suited to the alien and unknown than traditional subjects. The *Doctor Who* theme, in fact, became something of a millstone for the Workshop for many years. There is an inherent conflict here between the use of the Workshop to replace traditional tunes by producers of any sort of program, and the idea that science fiction is the most acceptable use of electronic music; but the resolution is more complex than observing a simple shift towards science fiction. The evolving uses of the department and its inability to give a label to its output is represented well in the official description of the Workshop in the *BBC Handbook* for 1966 (the official annual public description of the BBC's services), which noted,

The BBC Radiophonic Workshop, established in 1958 to provide original sound treatment for Third Programme Drama, now provides a creative service for radio, television, regional, and external broadcasting. The unit produces an output varying from science fiction voices or signature tunes to complete background scores of electronic music.⁹

⁹ *BBC Handbook 1966* (London: Cox & Wyman, Ltd., 1966), 203.

That the Workshop hadn't been acknowledged as a separate department within the BBC until 1966 demonstrates a lack of understanding of its function. The earliest mention of the Workshop in the *Handbook of 1959* serves mainly to demonstrate how innovative the work of the more highbrow Third Programme radio plays and literature readings had been, and mentions nothing about equally innovative (but markedly more lowbrow) television work of that year, such as the *Quatermass and the Pit* score:

Special interest has been awakened by...two recent developments. First is the very carefully selected 'readings' – usually with specially composed music, from works which seem almost to have been intended for such a purpose; for example...Beckett's *Molloy*. This highly developed and concentrated exploitation of the human voice in conjunction with special effects, musical or surrealistic or created especially for the occasion by 'radiophonic' devices, leads imperceptibly to the other innovation – the writing of 'radiophonic' scripts in which the human voice and all the other sound elements are 'treated' and distorted, where necessary, to produce sounds never before experienced by the human ear.¹⁰

By the end of the 1960s, the techniques of tape music had been superseded by synthesizers in the major electronic studios of the world, and the Radiophonic Workshop was no exception. Following a trend that had been slowly evolving, the synthesizer, with the self-imposed limitations of a "piano" keyboard interface (used by most "popular" electronic musicians) merely encouraged the direction Workshop

¹⁰ *BBC Handbook 1959* (London: Waterlow & Sons Ltd., 1958), 90-91.

composers had been moving in for years. But with the relative simplicity that came with voltage controlled sound production, new styles too difficult to create using tape techniques rose to prominence including progressive rock and realizations of selected pieces of “classical” music. This final shift marks a convenient place to end this study; with the availability of cheap synthesizers, the Workshop lost the monopolistic control it had over electronic music production in Britain, and it found itself competing with other electronic musicians for an audience.

This study seeks to offer an example of a forgotten kind of twentieth-century music. It is hoped that through the telling, I can trigger a musical memory that acknowledges, while ignored by academics, this music and the aesthetics that surrounds much of contemporary electronic music are one and the same – traceable from the same roots. This musical heritage is beginning to be recognized by some electronic musicians; the dance group Orbital demonstrates their indebtedness to the Workshop in their live shows with performances of the *Doctor Who* theme; the groups The Boards of Canada and Plone deliberately try and recreate the sounds of the early Workshop in their songs; finally, the kinds of static electronic textures invented at the Workshop for television and radio incidental music continue as a ubiquitous film technique today. The world has become comfortable with Radiophonic sound, absorbing its sound scheme, without knowing from whence it came.

Chapter Two: Electronic Music and the Development of the Sound Effect in Drama

The long evolution and development of electronic music throughout the twentieth century is a story involving innovative individuals of many nations. Not until after the Second World War does the narrative created by music historians usually begin. This narrative predictably finds itself poised uneasily between two centers of the post-war musical avant-garde; Paris and Cologne. Historians' tendency to describe the origins of electronic music as the exclusive domain of these two locations is borne out in those few pieces that have made it into the tentative canon of post-war musical works (or, in the case of Parisian *musique concrète*, perhaps only Pierre Schaeffer and Pierre Henry's *Symphonie pour un homme seul*.) This is not to devalue the innovations created through the musical experimentation at Paris and Cologne (as well as those of the Columbia-Princeton studio); these innovations were invaluable. On the contrary, the BBC Radiophonic Workshop depended on this "ground work" to establish its initial techniques of production. This institutional bias is introduced straightaway to offer the possibility that other factors could have had an equal or greater influence on the development of electronic music as it would evolve in England specifically, and as it has influenced the culture we live in today, factors not

necessarily originating from within the sanctioned musical establishment. My project in this chapter shall be to explore several potential paths that enabled the development of a climate conducive to the use and relative acceptance of electronic sound/music by audiences in mainstream British radio and television. Several of these paths were dead ends (such as audience's rejection of European and American models of electronic music), and require me to retrace my steps to radio drama, the only viable medium willing to embrace electronic music's sound in Britain.

Bearing this in mind, a history of the Radiophonic Workshop must acknowledge the importance of those innovations brought about in Cologne and Paris and other centers of high-modernist electronic music. It is necessary, then, to outline this history again, with a heavy emphasis on those how this music was perceived in Britain. By telling the story of these two very different studios (Paris and Cologne), and their public philosophical differences on the uses and functions of technology in a post-Hiroshima atomic world, and the importance of maintaining links with a cultural and musical past, that a clearer picture will emerge as to why the British chose to ally themselves more with the French school of *musique concrète* while at the same retaining sonic links to the ultimately more artistically valued and sanctioned Austrian/German school of *Elektronische Musik*.

This discussion also problematizes the apparently simple binarism between these two schools of composition, revealing a much more complex situation and set of beliefs (and in fact, most scholars agree the true dispute lasted only a short while). It is hardly possible to reduce the differences between *musique concrète* and *Elektronische Musik* as they evolved in their earliest incarnations, but to demonstrate rather the ways in which they shared many of the same fundamental modernist assumptions, and through this similarity exerted a profound influence on the early years of the Radiophonic Workshop (although for very different ends).

Electronic Music in France: Musique Concrète

The idea that music could be created from sound sources outside of traditional musical “instruments,” and could in fact be constructed from various classes of “noises,” dates from at least the Italian Futurist movement of the early part of the last century, the history of which has been often recounted.¹ For the purposes of this dissertation, however, discussion of the application of nontraditional sound sources will begin with the innovations of Pierre Schaeffer (1910-1995), who virtually created *musique concrète*. It was after his initial attempts to manipulate sounds recorded from his

¹ See Luigi Russolo, *Arte dei rumori*, tr. Barclay Brown, *The Art of Noises* (New York: Pendragon Press, 1986). See also Rodney J. Payton, “The Music of Futurism: Concerts and Polemics,” *The Musical Quarterly* 62, no. 1 (January 1976): 25-45. Also Tristram Cary, introduction to *Dictionary of Musical Technology* (New York: Greenwood Press, 1992).

environment by rerecording them in a controlled way onto shellac discs that he realized the potential of a music composed by the alteration of previously existing sound materials. With the development and availability of magnetic tape – much easier to cut, edit and manipulate – after the war, Schaeffer created a body of work posited on the principles of *musique concrète*. An entire generation of French composers was influenced by it, including his greatest ally and collaborator, Pierre Henry (b. 1927)²

After training at the Paris Polytechnic, Schaeffer's career began as an electronic engineer at the *Radiodiffusion Télévision Française* (RTF), in the 1930s.³ During this time, the organization was under the control of German occupying forces in 1942. He persuaded the corporation to establish a center for research into the science of musical acoustics, called initially the *Studio d'Essai* (after 1946, the *Club d'Essai*), with himself as director. He was engaged primarily in studying how recording technology can isolate individual sound events. In 1948 Schaeffer recorded the first *Études* (or “studies”) based on this research. These initial recordings explored the inherent components of sounds, including such elements as attack and

² As Tim Taylor has shown, Henry has in many people's ears replaced Schaeffer himself as the primary figure behind the strength of *musique concrète*, primarily because Schaeffer stopped composing in the early 1960s, and because Henry embraced the pop music world, who, through his visibility, was able to directly influence a larger number of people. Tim Taylor, *Strange Sounds: Music, Technology & Culture* (New York: Routledge, 2001), 60.

³ Peter Manning, “Paris and *Musique Concrète*”, *Electronic and Computer Music*, 2nd ed. (Oxford: Clarendon Press, 1993), 19-25.

decay, and what happens to such sonorities when various aspects are modified.

His first piece using the newfound techniques, *Étude aux chemins de fer*, manipulated the various sounds of six steam trains in a way that left the core of their sounds intact, looping (repeating) them to emphasize the repetitive percussiveness of the train's operating mechanics. This process left the origin of the sound intelligible, and the novelty of the work lies in the listener's recognition of how the familiar sound of a train has been altered, and the submission of the sounds to larger issues of classical form. His next several *Études* attempted to disguise the origin of the sound sources more thoroughly, mostly by slowing and speeding up playback, to eliminate the associative quality of the music. The creation of a new and viable art form became one of the chief struggles over the next decade (and ultimately, the ostensible foundation of the feud between the different French and German electronic music camps). The *Études* were unveiled in the first broadcast of *musique concrète* on the RTF, in a program entitled *Concert à bruits*, on October 5, 1948. In the spring of 1949, he convinced the RTF to fund the hiring of Pierre Henry as co-researcher and Jacques Poullin as studio technician.

By this point, Schaeffer had formalized his ideas enough to identify what he perceived as the two approaches to the creation of *musique concrète*. The first option started with a concept of the eventual sound

structures desired, and then in the studio attempt to construct the sound with the available resources (and accept the inevitable compromises as they arise). The second option started with the sound sources selected beforehand (often the sound of a traditional instrument, like a piano or violin) with which the composer might experiment. The assembly of the accumulated sound into some system then would complete the composition.⁴ As Peter Manning points out, most composers of concrete music worked with a combination of the two options. Schaeffer defined *musique concrète* as a kind of *bricolage*, a music that makes do with whatever is at hand, or the music, in his words, that creates “new uses for things originally meant for something else,” and both of these methods are enveloped into this description.⁵ It is also inherent in this definition that whatever sounds one begins with will inevitably lead back to the original. One has only to retrace one’s steps to recover the original sounds. The sound source will always be present, if substantially (often drastically) altered.

The ability to create “new uses” of old sounds, and the realization that such a thing is possible using modern recording technology, was particularly useful to the earliest Workshop composers. The habit of creating new uses for sounds marked their new compositions as separate from the works of

⁴ Ibid., 23.

⁵ Pierre Schaeffer and Tim Hodgkinson, “Interview,” *Recommended Records Quarterly Magazine* 2 (1): 4-9. <http://www.cicv.fr/association/chaeffer_interview.html and http://www.elemental.org/ele_ment/said&did/schaeffer.interview.html> (10 December 2002).

similar radio sound artists working contemporaneously in London. Ludwig Koch's BBC radio broadcasts, *Music of the Sea*, and *Paris*, from 1951 and 1952 respectively, were billed as "sound pictures without words" in the *Radio Times*.⁶ These were carefully, logically, and artistically modeled sound sculptures. They used the latest in outside broadcast technology and recording equipment, including high tech microphones and newly available tape recorders, but were in fact the opposite of "new uses of old sounds"; rather they attempted to capture as realistically, evocatively and authentically as possible the subject or theme of the broadcast. Koch's sound pictures were an intermittent but regular feature of the BBC's radio broadcasts of the late 40s and 50s, and are the epitome of a certain kind of broadcasting conceived of at radio's inception as one of its most valuable assets: the ability to play "live" sounds from often exotic locations. Koch's programs take this idea to a new level of sonic "impressionism" and, with few words of explanation and no hint of plot, present a collection of representative sounds which together illustrate his theme. The musicality of such a technique did not go unnoticed in the press, and a 1951 article from the *Radio Times* bears quoting at length:

One quickly senses the musician in this fanatical lover of sounds. . . In his youth, in his native city of Frankfurt, he enjoyed the acquaintance of Clara Schumann and Brahms, and it was here that he made his first recording—at the tender age

⁶ The *Radio Times* is the BBC's weekly schedule of programs, including descriptions, interviews, articles and letters pertaining to its broadcasting.

of eight—with a novel machine that his father brought back as a present from Leipzig Fair. On a wax cylinder Ludwig recorded a bird singing in a cage. The year was 1889, and the recording still exists—the earliest example of recorded bird-song. By 1902 he had succeeded in recording a bird under natural conditions in the open air; but it was not until about 30 years later that technical advances in recording equipment made possible a systematic collection of the sounds of wild life, and the hobby of Ludwig's youth became the ruling passion of his manhood, became, indeed, his life-work. When the Nazis came to power, Ludwig Koch sought asylum in this country with a few recordings that he had taken to illustrate some lectures in Switzerland. The bulk of his collection was deliberately destroyed after his refusal to return to Hitler [sic] Germany, and he set to work to build up again the unrivalled collection which a few years ago was acquired by the BBC. . . . The voices of the natural world are of infinite variety, and from them LK has made a 'symphony' of inexhaustible interest. [Concerning "Music of the Sea"]. . . Koch hopes that if people sit and listen quietly, as they would sit and look at a painting, his sounds will stimulate the imagination in the same way as a painter's colours. . . His *pièce de resistance* is a recording of waves breaking in a cave; the microphone was set up where the waves could break over it every so often and submerge it.

However effective and new Koch's sound portraits were as radio, they still were intended to be realistic representations of their subject, so that if their subject was obscured in the final broadcast, then the work would have been deemed a failure. This fundamental difference marks out the sound works of Schaeffer and his coworker's as profoundly new.

In order to create these new sounds, Schaeffer was constantly running up against the inadequacies of his equipment. It is vital (and shocking) to remember that until 1951 at the earliest, all *musique concrète*

in Paris was being written and performed on turntables alone – that is, without tape recording. This limited the kinds of effects that could be performed to the playing of sounds at different speeds, in reverse, and simultaneously, a limitation Schaeffer conceded in 1949, and precluded the possibility of creating anything really new (or to at least create any new sound that didn't create an associative element of the original sound).⁷ In spite of these misgivings, he collaborated with Henry on their most influential work, the *Symphonie pour un homme seul*, premiering it at the first public concert of *musique concrète* in the hall of the *Ecole Normale de Musique*, Paris on March 18, 1950 (again, realized live on turntables!) The primary difficulty of the "problem of association" was mitigated by highlighting the very aspect of the genre considered its greatest flaw. They reduced the sound sources of the composition to the sounds of people, with human sounds divided into two classes; vocalized sounds (such as humming or shouting) and sounds made by humans (like footsteps, or, stretching the limits of their self-imposed framework, humanly-played musical instruments). By acknowledging the source of the sounds, the pressure to obscure their origins is removed, and the novelty comes from the observation of how the recognizable noises are manipulated. The work is

⁷ Schaeffer quoted in Manning, "Paris and *Musique Concrete*," 24.

organized in eleven short movements, and continues the emphasis on rhythmic loops and repeating patterns present in Schaeffer's earlier music.

In 1951, the RTF provided Schaeffer and his co-workers with the world's first custom-built *musique concrète* studio, and they adopted the name "*Groupe de Musique Concrète, Club d'Essai*." It was this studio that led to the shift from shellac discs to tape-centered composition, allowing for much more flexibility. Among the equipment in this initial studio (mostly constructed by Poullin and Schaeffer) were a five (or three) track recorder and three specially modified tape recorders.⁸ The Morphophone was a tape machine with 12 consecutive playback heads in a row, which when playing a pre-recorded tape produced a sort of "pulsed" echo as the sound passed each of the heads. The other two adapted machines were called Phonogènes and were designed to play pre-recorded tape loops. One had a variable speed dial, so the pitch could be raised or lowered with the turning of a knob. The other had a 12-note keyboard attached to it which adjusted the tape speed to accord with a traditional 12-note scale (much as the Mellotron would do twenty years later). These were also known as the chromatic and continuous Phonogènes.⁹ The main reason I want to specify in such detail the physical technical equipment available to the early French composer after this studio

⁸ Whether or not the machine was a three or five track recorder seems to be unclear. Manning claims five, Palombini, three. Carlos Palombini, "Pierre Schaeffer, 1953: Towards An Experimental Music," *Electronic Musicological Review* 3 (October 1998): 1.

⁹ *Ibid.*, 1.

opened is to place it in such sharp contrast to the incredible austerity of the early British studios, both at the BBC and in independent studios such as the ones established by composer and instrument inventor Tristram Cary.¹⁰ And, of course, Schaeffer determined his compositional options based on the available resources he had at his disposal.

In 1951, a dispute developed between Schaeffer and *Elektronische Musik* scene emerging in Cologne under the leadership of composer Herbert Eimert. A broadcast of Schaeffer's and Henry's *Symphonie* on radio stations throughout Germany and Austria that year was denigrated by musicians there. But perhaps the greatest catalyst for animosity happened at the Darmstadt Summer Institute the same year during a session on "Sound Technology and Music." The new German field of *Elektronische Musik* was just starting to produce music based on the theories they propounded, and they were able to publicly disagree with the *concrète* camp for the first time. They were prepared ideologically to meet what they perceived as the opposing philosophy on their own terms.

Electronic Music in Germany: Elektronische Musik

Before exploring this controversy in more detail, it is necessary to provide a little bit of background into the development of *Elektronische Musik*. Since hearing a demonstration of Bell Lab's Vocoder in 1948, Dr.

¹⁰ Although Cary assures me that Schaeffer constantly lamented the inadequacy of materials available to his Parisian composers. He claimed that the only equipment he had (especially at the beginning) was whatever leftover junk the RTF no longer needed.

Werner Meyer-Eppler, a professor of phonetics at Bonn University had, become more and more interested in electronic sound production. A year later he teamed up with Robert Beyer of the *Westdeutscher Rundfunk* (WDR) and in 1950 they presented their findings at the Darmstadt summer institute in a paper titled "The Sound World of Electronic Music." At this presentation they met the composer Herbert Eimert. In Cologne, an electronic music studio was established at the WDR in 1951 under the direction of Herbert Eimert. Here the emphasis was on synthesizing sounds electronically and manipulating them with tape, rather than on using preexisting sound. Composers in this studio rejected traditional instruments as source material and pre-recorded sounds as viable musical elements. The first demonstrations of "*elektronische*" techniques took place here in 1953, followed by a radio broadcast on Cologne radio of a "live" concert, of what was billed as "the first truly electronic compositions anywhere" (in spite of earlier demonstrations) on October 19, 1954 with pieces by Eimert, Henri Pousseur, Stockhausen, Karel Goeyvaerts, and Paul Grelinger.

The early Cologne studio was a little better off than its Parisian counterpart, and, as befits its emphasis, was stocked with more sound-generating equipment, containing as its primary sound sources sine-tone generators, a white sound generator and, at some point in the mid-Fifties, a square wave generator. The sound modifiers available would have included filters (which cut out bands of frequencies from a signal), ring modulators, a

dynamic suppressor, and, like the Parisians, variable speed tape recorders (although not necessarily as complex as those at the RTF).

Like Schaeffer and other French *concrète*-ists, the first composers of *Elektronische Musik* were anxious to explain themselves and their music, and in 1955 published the first issue of the contemporary music journal *Die Reihe*, (published simultaneously in English as “The Row”) edited by Karlheinz Stockhausen and Eimert. They devoted their inaugural issue to the composition of and philosophy behind their new electronic art form. Introducing his audience to his subject matter, Eimert, in the opening essay “What is Electronic Music?,” highlighted the main thrust of his philosophy: electronic music was to be merely a means to a compositional end; it wasn’t important that the sound was electronic, rather that the nature of the sonic production was more flexibly manipulated by the composer:

Here we touch on a most widespread misconception: namely, the idea that one can make music “traditionally” with electronic means. Of course one “can”; but electronic concert instruments will always remain a synthetic substitute. The fact that practically no music which can be taken seriously, artistically, has been written for electronic concert instruments is due precisely to the fact that its use as either soloist or ensemble instrument does not transcend the old means of performance. New ways of generating sound stipulate new compositional ideas.¹¹

¹¹ Herbert Eimert, “What is Electronic Music?” *Die Reihe* 1 (1955) English Edition, Theodore Presser Co, 1958: 1-2.

But for Eimert, “traditional” meant in one sense “tonal.” His belief that electronic music was an extension of serial music rather than a completely new kind of music is made plain when he writes, “This electronic music is not ‘another’ music, but is serial music.” On the one hand, he contradicts his assessment of electronic music providing “new compositional ideas.” On the other, he reaffirms his faith in a new *totalized* kind of serialism; one that for the first time would include aspects of sound production never considered before in the serial paradigm.¹² Eimert saw in electronic composition a completely new way of “composing sound” and was joined by Stockhausen in this belief. Stockhausen’s disenchantment with traditional instruments was articulated in his statement that “any attempt to subordinate the different structures of the different instrumental tones to a general rational principle of proportions is bound to fail.”¹³ Inherent in such comments is the root of the feud between the two studios. The Germans believed that by using pre-existing sounds, or “found sounds,” always retaining some hint of associative baggage, it was impossible to create something totally new. In the essay “The Third Stage: Some Observations on the Aesthetics of Electronic Music,” sort of a manifesto of purpose of the principles behind *Elektronische Musik*, H.H. Stuckenschmidt noted that

¹² Ibid., 9.

¹³ Stockhausen quoted in Seppo Heikinheimo, *The Electronic Music of Karlheinz Stockhausen: Studies on the Esthetical and Formal Problems of its First Phase*, trans. Brad Absetz (Helsinki: Suomen Musiikkiteollisuus, 1972), 14.

Eimert “disassociated himself from the ‘fashionable and surrealist’ *Musique Concrète* produced at the *Club d’Essai* in Paris. . . He is opposed to the idea of composition and interpretation by association and reference.”¹⁴ (Of course, Schaeffer was also opposed to this concept, and struggled to overcome the problem.) Stuckenschmidt goes on to acknowledge, though, that faced with no frame of reference in which to place musical sounds, audiences invariably will come up with associations of their own, calling into question the ultimate validity of the premises upon which the Cologne school is based. He notes:

Aesthetic understanding of the new art is not facilitated by this attitude. It cannot be denied that this associative effect, which the initiator denies as being of any relevance, has been the principal reaction of the majority of listeners faced for the first time with electronic music. There appears to be a considerable discrepancy between postulation and reception, a discrepancy which must be of the very nature of the new art form.¹⁵

In such a brief summary of the “two opposing camps” of electronic music, it is difficult not to give the simplistic and often-repeated sense of, as Palombino noted accurately (and derisively), “a dichotomy of equipment (synthesizers and tape recorders), material (electronic and recorded sounds), method (total serialism and collage) or temperament (rationality

¹⁴ Hans Heinz Stuckenschmidt, “The Third Stage,” *Die Reihe* 1 (1955) English Edition, Theodore Presser Co, 1958: 11.

¹⁵ *Ibid.*, 11.

and intuitiveness).”¹⁶ This reduces the complexity of these studio’s outputs, ignoring those works that do not fit within this dichotomy. In a historical interpretation that ultimately favors German techniques (such as many of the most popular American and British textbooks used to teach undergraduates), it is invariably Stockhausen who, after learning the Parisian techniques with Schaeffer before moving on to electronic sound, is credited with the “converging” of the two styles into what would become electro-acoustic music with his 1956 work, *Gesang der Jünglinge*. This interpretation ignores French works which essentially do the same thing by taking advantage of the developments in electronics at Cologne (Henry’s 1956 *Haut voltage*, for example). It also downplays Schaeffer’s sympathy for serial composition. His disapproval was mostly directed at those using the method, and their stubbornness in limiting themselves to such a small number of notes, rather than at the principles behind the method.

But one aspect of the philosophical foundation of electronic music both “sides” agreed on, and ultimately positioned themselves against. This principle was the suitability of electronic music for television, film or radio. They considered this use an insult to the music, and said so in colorful, condescending language. They felt that such a use would reduce the importance of the music, which would become the servant of the words or

¹⁶ Carlos Palombini, “Ideas for a Musicology of Electroacoustic Musics: Notes to a Reading of Landy,” *Electronic Musicological Review* 6 (March 2001): 2.

images it was meant to “support.” Stuckenschmidt dismissed this usage outright in his manifesto, declaring that “as spokesman for the group, Eimert has disassociated himself from. . .any incidental manipulations or distortions haphazardly put together for radio, film or theatre music.¹⁷ Eimert believed any musical composition would be inherently compromised by its collaboration with other arts.

The basis for the disagreement between the two sides, as I have said, was that Parisian *musique concrète* was thought to convey the original character of its base sounds too greatly, but both sides agreed that to highlight or accent this “flaw” was a fundamental error of aesthetic judgement. They both knew that film and radio would latch onto this supposed flaw as an advantage. The musical culture from which both *musique concrète* and *Elektronische Musik* grew was inextricably bound up in 19th-century romantic ideas of musical autonomy and that each musical work (or art work in general) should be functional – that is, oriented towards an internal integrity. Audiences (and composers) by the middle of the 20th century had been carefully indoctrinated to hear the value in music as residing primarily in its foundational structures, its tonal/atonal building blocks, and listened for these organizing principles, with what Adorno called “structural listening.” The music was meant to have developed along a

¹⁷ Stuckenschmidt, “*Third Stage*,” 11.

purely artistic path from the end of the 18th century towards greater and greater dissonance until the needs of composers could only be met by the creation of artificial sounds.

The irony of this connection was that it was exactly the kinds of sounds produced by this supposed detachment from the outside world, from culturally contingent concerns, that appealed most to film and radio producers. The outlandish dissonant language of electronic music, as inherited from Schoenbergian expressionism, was, as Susan McClary noted, “one derived ultimately from a condensation of traditional signs of madness, rage, suffering.”¹⁸ If one were to add to this list signs of paranoia, alienation and fear of the unknown, it is a short leap to those same sounds representing the unknown itself, space, aliens. This music, supposedly free from any kind of signification, in fact contains a rich vocabulary of stereotyped associations, ready to be drawn upon at will. Perhaps Eimert did on some level recognize this when he wrote:

Vague and ‘atmospheric’ effects can be obtained by cutting and assembling tapes. To demonstrate this, it takes two or three hours to construct a minute of good atmosphere music, often three or four weeks for a minute of real music. In connection with incidental music for film or radio, it is worth mentioning that no composer who intends himself to be taken seriously would have ever let himself in for electronic music if its entire resources consisted of vague experiments with noise and if all that could be produced were tapes of atmospheric sound.¹⁹

¹⁸ Susan McClary, *Conventional Wisdom: The Content of Musical Form* (Berkeley: University of California Press, 2000), 136.

¹⁹ Eimert, “What is Electronic Music,” 4.

Indeed, if that *were* all electronic music writers for film and radio were required to compose, their days would have been numbered. Luckily, the observation that electronic music was suitable for a specific kind of dramatic situation was noticed early on by a group of British enthusiasts, who followed in the footsteps of French radio drama and German *Hörspiele* producers.

British Reaction to Musique Concrète

Both the experiments of *musique concrète* and *Elektronische Musik* and the battles between them did not go completely unnoticed in Britain, although the audience was much smaller than might be imagined, and was hesitant to provide sympathy to either side at first. British musical culture after the Second World War, while mostly endorsing the ideas of musical autonomy and musical progress – and certain of its own domestic musical inferiority – nevertheless wasn't nearly as invested in relegating the meaning and value of musical works solely to their internal structure as at the continental centers of electronic music production such as in Paris and Cologne.²⁰ As I will show later in the chapter, the British attitude toward

²⁰ Or, for that matter, of the music of the studio run by Ussachevsky and Luening at Columbia/Princeton, or the Radio Audizioni Italiane (RAI) in Milan, established in 1955 by Berio and Maderna or the studio Nippon Horo Kyokai (NHK), established in 1954. These five studios were considered the centers of “serious” electronic musical production.

contemporary music had been traditionally suspicious during most of the twentieth century, and the cultural and musical environment into which electronic music entered in Britain was hostile at best.

The first mention of *musique concrète* in the mainstream British press was by the critic John Amis in 1951; Amis had attended a contemporary arts festival on the continent. In his review for the journal *Tempo*, Amis remarked on the newest sounds heard there, singling out the music of composer Oliver Messiaen (a common sacrificial lamb in the British press, whose perceived enthusiasm for compositional novelty demonstrated the excesses of the *avant-garde* and *musique concrète*):

What sort of music are they writing? Well, prettiness is out; politics seem to be out too. . . Of the recent French composers, Messiaen was universally disliked and so was the latest French craze, "*musique concrète*." *Musique concrète* was invented by a radio engineer and it is possible only in recordings. The sounds are concrete as opposed to abstract sounds: coughs, casserole lids twirled onto a resonant slab, train noises and certain freak musical noises such as the sounds of a piano recorded after being struck. . . The painters at Salzburg were angry with the musicians for not recognizing the genius of this art form of the future!²¹

Note here that the only group to appreciate the significance of the new music were visual artists, the implication being that they were "in on the joke" along with the *concrète*-ists, a common trope in the mainstream British press. The first concert of Schaeffer's and Henry's new music was broadcast in Britain on February 5, 1954, well after the debates between the

²¹ John Amis, *Tempo*, (Winter 1950-51), quoted in Peter S. Hansen, *An Introduction to Twentieth Century Music*, 4th ed. (Boston: Allyn and Bacon, Inc., 1978), 332.

two sides had begun on the continent, and garnered an immediate reaction from the public. The first letter published in the *Radio Times* discussing *musique concrète* displays a rare enthusiasm for the genre, and highlights immediately as an asset what many prominent figures in the musical world perceived as the greatest threat to the musical establishment: *musique concrète*'s ability to be understood by those without a class-betraying musical education:

On hearing the recent broadcast of Pierre Schaeffer's "*Symphonie pour un homme seul*" I experienced a sense of living through the very beginning of a new era in music—thus might 'stout Cortez' have felt on first seeing the Pacific Ocean. At last we have music which can be listened to and appreciated by *everyone*. Let us hear more of this brilliant pioneer and his '*musique concrète*.'²²

It took the BBC Music Department controllers about six months to realize the importance of the new artform, and a serious discussion of the music began later that summer. By July of that year, Concrete Music, as it was frequently called in Britain, had begun to enter into the collective consciousness of the musical establishment with performances of electronic music at continental contemporary music festivals increasing steadily, and English critics began to take note of the new developments. The general reaction seemed to be cynical skepticism mixed with faint faith in the music's future. It certainly captured the attention of the public, however,

²² J. F. Coates, *Radio Times*, 26 February 1954: 33.

and the subject was widely discussed and debated in the media. The complex reaction from an anonymous music critic in *The Times* in July exemplifies the kind of interested confusion expressed by many. He provides readers with a brief summary of the history of *musique concrète*, including its main players, and the influence of the Futurists on its development. His discussion in a review entitled “*Musique Concrète – Noise, Sound or Music?*” is reserved in its judgment, perhaps anticipating the likely reaction from audiences:

In February of this year, M. Goldbeck, the French music critic, introduced in the BBC’s Third Programme the first broadcast in this country of a new type of sound fabrication called *musique concrète*. At this year’s Aldeburgh Festival a morning session was devoted to this subject, at which M. Tony Mayer, Cultural Attaché of the French Embassy in London, discussed the technique and demonstrated examples of it.

This form of *musique experimentale* has attracted considerable attention on the Continent, particularly in Paris, its birthplace, where a special programme of these works was given at the *Theatre des Champs-Elysees* in honour of the 600 delegates from two countries attending an International Sound Recording Congress. At this concert the first public performance was heard of M. Henri’s *Le Voile d’Orphee*, “a dramatic and symphonic suite.” . . . As well as the experiments of the younger composers, musicians as distinguished as Olivier Messiaen and Darius Milhaud are writing for this medium for which a symbolic notation has been devised. To the orthodox musician and listener the sounds produced by this method are perhaps unacceptable as music, but there can be no doubt that even in its present stage *musique concrète* can be exciting and evocative. It is certainly a serious attempt to create “new sound.”²³

²³ “Musique Concrete – Noise, Sound or Music?” *The Times* (London), 1 July 1954: 5.

This review, for all its qualification, still posits *musique concrète* as essentially musical. An unnamed critic in the same newspaper commented much more disparagingly a week later in a review named “*Musique Concrète – Tyranny Over Sound*,” where the commentator highlights the relationship between concrete music and science, something that will be a common trope for critics of the genre:

The term has been bandied about for some time; *Musique concrète* is an OK topic for 1954. In Paris the *Radio-diffusion Française* has constructed a laboratory for the making of this new music, and the radio at Cologne has done further pioneering research; Darius Milhaud has been converted, and promises a concrete composition for the Venice Festival this summer; other musicians have proclaimed their interest in the medium, though until now the concrete composers have been scientists. . . Most of us in London had only read about it...now we have heard some. . . *Le voile d’Orphee*, by Pierre Henry, which lasts 14 minutes and seems as long as the last act of *Die Meistersinger*....It is capable of illustration, as some accompaniments to films showed (but not more satisfyingly so than a percussion band), but can thoughts be expressed constructively by this means? For the interpreter it is out of bounds, and he out of a job, since the tape machine is tyrant here. Is it music? And to that question, comes an answer from the past: “It is, on the contrary, a distortion, a perversion of basic musical laws, a style contrary to the nature of human hearing and feeling. One could say. . .there is music in it, but it is not music.” Hanslick was wrong about Wagner. If that quotation is to be proved misapplied, the musician must apply his own genius to what, in scientist’s hands, is still an amusing toy.²⁴

²⁴ “Musique Concrete – Tyranny Over Sound,” *The Times* (London), 12 July 1954: 4.

Implicit in this review is the assertion that concrete music is somehow a faddish farce foisted on the world by an *avant-garde* isolated from the interests of its audience. The writer's hypothetical audience insists that music be "interpreted" and "meaningful." It has to "express thoughts." As the genre stands, it is little more than an "amusing toy," an example of the perceived danger inherent in the mixture of the rational (and detached) sciences with the transcendent arts. The critic mentions repeatedly the mechanical nature of the music's composition, dismissing Henry as a scientist rather than a composer. This opinion had been much more sarcastically articulated in a letter to the *Radio Times* immediately after the first broadcast in Britain of Schaeffer and Henry's *Symphonie*:

I listened with interest to M. Goldbeck's talk on '*Musique Concrète*' and, being rather advanced in years, I feel I must reserve one of my few remaining evenings to find out what the future has in store for music lovers when I am probably, alas, no more.

I can assure you that M. Schaeffer's symphony has given me a new lease of life. I cannot die without having heard the record of his charming work played in reverse—I feel the experience would be most enlightening. Could this be arranged?

If you could also find it in your heart to publish a circuit diagram it would enable me, and doubtless many others, to permute the score.²⁵

The belief that the audience was somehow the subject of an *avant-garde* joke was expressed again and again in the popular press, as evidenced by

²⁵ *Radio Times*, 5 March 1954: 33.

this comment following a discussion by Philip Laird on computers and music: “First the performer is replaced by a machine, then the possibility of an electronic composer arises. May I beg the *avant-garde* of music to press ardently for their final perfection—the electronic audience?”²⁶

The fear represented by these letters, that “even the arts” were being taken over by technology, reflected a general feeling that the rapid developments in “High Technology” were moving beyond the ability of ordinary people to understand; what was once comprehensible was now practically mystical. In the words of Christine Geraghty, “By the 1950s, science had become abstract, had passed into the realm of pure mathematics, so that. . .for the layman, all contact with ‘reality’ was lost.”²⁷ Many people trusted in science, and optimism for what it could do to make people’s lives better was visible everywhere as a marker of progress. But there was an innate reaction against this tendency in music, which was viewed as somehow “transcendent” and it should somehow be immune to the influences of the culture at large. Musical culture – or at least “high brow” musical culture – in Britain thrived on *past* works and old glories that created a nostalgia for a supposed golden past. But, as Eric Hobsbawm has noted, the inexorable force of technology acted on the arts with a force

²⁶ “Points from the Post,” *Radio Times*, 15 June 1961: 59

²⁷ Christine Geraghty, *British Cinema in the Fifties: Gender, Genre and the “New Look”* (London: Routledge, 2000), 28.

equally strong and, “as might have been expected in an era of extraordinary techno-scientific revolution [the exogenous forces acting on the arts] were predominantly technological.”²⁸ The abstraction of technology in culture at large, and the alienation most people felt when confronted by it (especially since the majority of Britons still lived in a world controlled by rationing and poverty, and had very little contact with this new technology) meant that this music could most easily be understood as a kind of “science fiction,” and a manifestation and example of the kinds of inhuman, impersonal, unfeeling thought that had, only a few years before, created and used the atomic bomb. One prominent concert of John Cage’s music (and which included a performance of Schaeffer and Henry’s *Symphonie*) was dismissed in terms that established that the only thing worse than aleatoric music was the concrete variety of it. *The Times* as described Cage’s music as, “bloodless, almost as inhuman as the symphonic concrete music that followed it in the programme.”²⁹ The science fiction analogy is carried to the extreme in a review from *The Times* that seems to (for all its supposed acknowledgment of the genre’s “newfound legitimacy”) view electronic music with the same disdain widely felt towards sci-fi pulp fiction:

Science fiction, once relegated to the pages of 2d. magazines for boys, has become a reputable genre of literature, and now

²⁸ Eric Hobsbawm, *The Age of Extremes: A History of the World, 1914-1991* (New York: Vintage, 1996), 265, 264, 501, quoted in Tim Taylor, *Strange Sounds*, 44.

²⁹ *The Times* (London), 10 November 1954, 4.

the composers are at it too. The new piano music which Mr. David Tudor played in his recital at the International Music Association Club on Monday night made Boulez's piano sonata sound tuneful and old-fashioned. Mr. Tudor prefaced each half of his recital with some short account of the methods of each composer in the programme. Henri Pousseur and Karlheinz Stockhausen have both stepped off from the resources of electronic music, in which tones can be measured, and they apparently measure the ingredients of their music, the pitches and names of notes, the morphology of touch and phrasing, and so on. Pousseur optimistically calls one of his pieces an Impromptu (this is a form of lifemanship). Stockhausen has a disciple called Bo Nillson who lives in the Arctic Circle and has learnt modern musical techniques by correspondence course, it is said; he constructs his music by the theory of groups. ..Much of the rest sounded alike, though Stockhausen's intellect could command particular respect, for all the long-windedness of his music.³⁰

Of course, not all reviewers were so dismissive, and some were willing, like this next critic for the *Radio Times*, to approach this new music with an open mind (while at the same time admitting she wasn't quite sure what to make of the sounds):

A similar programme launched this year's I.S.C.M. festival in Zurich. No artists were visible, but several loudspeakers were ranged round the hall; hearing sounds like wireless oscillations emerging from them, this writer (who arrived late) could not understand why the necessary tuning-in had not been done before the audience assembled. In time the truth slowly dawned—the concert had in fact started, and, strange to say, after another twenty minutes or so some of the fantastic sounds which rolled round the hall even began to exert a peculiar fascination of their own—particularly in the “Notturmo” by the Italian composer, Maderna. So on no

³⁰ “Music of the Future – Science Fiction for the Piano,” *The Times* (London), 19 December 1956: 2.

account miss Friday's experience, for as Jean Cocteau has warned us, this may well be the music of tomorrow.³¹

The predominantly hostile attitude towards electronic music in the 50s and 60s within the musical community in England does not emerge out of a vacuum; rather such reactions are a reflection of prevalent attitudes towards contemporary music that had existed since at least the beginning of the century. In the next section I will explain how the policies and programming of the BBC had a great deal to do with the attitudes of British audiences, and the development of a national temperament which viewed (non-tonal) contemporary music with a certain amount of impatience.

Background and History of the BBC and the Third Programme

Before this story can be told, I will begin by looking more closely at the structure of the BBC, and how the internal organization of the BBC throughout its many structural changes served to polarize music and drama into distinct camps. The tendency within the BBC to label and isolate various kinds of music and to a lesser extent drama into categories of "difficulty" would to a certain extent also affect how experimental techniques were developed.

³¹ Joan Chissell, "A Season of Modern Composers," *Radio Times*, 11 October 1957: 6.

The British Broadcasting Corporation started life as the British Broadcasting Company from 1922-1926. It was incorporated in 1927 as a monopoly with exclusive rights to broadcast free from commercial concerns. In considering the issue of advertising, the leaders in government and from within the BBC were concerned by what they perceived in America (which had proceeded upon a track of free market/sponsor based radio broadcasting) as a lack of standards in broadcasting stemming from a need to satisfy sponsors. From its very beginning, the BBC controlled most of the professional music making in Great Britain. As the largest producer and distributor of music in the United Kingdom, as well as employer of musicians, the problem of how to satisfy all types of music lover from within one centralized location was continuous. Historians Paddy Scannell and David Cardiff accurately describe two conflicting policies at work within the organization working at odds with each other: On the one hand, the BBC vowed to maintain a high standard of excellence for the performance of what was deemed "great music." On the other, the Corporation carried with it the mandate of its first director general, John Reith, who believed above all else in the cultural education of the population at large.³² This "democratizing of music" manifested itself through an aggressive music appreciation campaign. In practical terms, a permanent dichotomy was

³² Paddy Scannell and David Cardiff, *A Social History of British Broadcasting: Volume One 1922-1939, Serving the Nation* (Oxford: Basil Blackwell, 1991), 194.

created between the administration, which sought to preserve the performance of the “great” standards of the classical repertoire; i.e. Beethoven, Brahms, Schubert, etc., and the Music Department, having by the mid-thirties become more interested in exposing the audience, most of whom were not experts or experienced music listeners, to more challenging works by modernist composers, such as Schoenberg, Stravinsky and Bartok. Ultimately the two set of beliefs came to a head in the Five Year Plan of 1934 which determined that the Music Department should more enthusiastically fulfill its obligation to provide performances of “the classics,” while at the same time establishing a chamber music ensemble for the performance of more modern and “difficult” works (to a vastly smaller audience). This compromise provided only a temporary solution to the problem. It must be remembered that in the eyes of the administration, as opposed to the Music Department, it was important to program edifying classical works, the “high culture” standard pieces of the canon, up against the vastly more popular (and lowbrow) dance bands of the day. The battle was for the limited broadcasting time available to the two services, the nationwide Home and provincial Regional. The urge to program more difficult, less accessible, music during limited broadcast time allotted to classical music was outweighed by this practical “improving” mandate.

As early as 1924, there had been talk of creating a separate network outside the main broadcast that would offer “highbrow education and better

class material.”³³ Although dropped, the notion was revived again in 1930, when J.C. Stobart, the Director of Education Department at the BBC, recommended the creation alongside the basic Home and Regional broadcasts of what he called the “Minerva Programme” which would cater to an older audience, featuring gardening tips, nature programs and religion. Alongside this, Stobart envisioned the “Venus Programme” as the home of more *avant-garde* music, such as that of Bartok and Schoenberg. One of the original intentions of the new service was that it would be “offering rather than imposing culture.” The issue wasn’t pursued at the time, but arose again during the later part of the Second World War, when the BBC seriously began considering how to deal with the growing demand for “cultural programming.” Ultimately, the decision was made to divide radio broadcasts into three distinct networks with very different political, social, class, and regional agendas polarized around musical and cultural (class) difference; the Home Service, the Light Programme, and the Third Programme.

The Third Programme was the station dedicated to the intellectual “elite”; an important distinction was placed between it and “educational” programming. The “Third”, as it was called, was intended not as programming for education, but rather as programming for the educated. As

³³ Asa Briggs, *The Golden Age of Wireless*, vol. 2 of *The History of Broadcasting in the United Kingdom* (Oxford: Oxford University Press, 1965), 27.

Humphrey Carpenter has shown, throughout the 20th century, Britain's cultural and, in particular, musical, inferiority complex led it to look toward continental Europe for inspiration. In the first few years of the Third Programme's musical broadcasts, the vast majority of program's used visiting musicians from the continent; Domestic musicians and composers simply didn't have the ability, as is evinced by the continuous internal notes at the Third Programme.

Things began well for contemporary music on the Third Programme, especially for twelve-tone music. On Dec 14, 1946, pianist Peter Stadlen led a discussion/live performance called *Schoenberg and the Twelve-Note Scale*. During the first few years, the Third broadcast concerts of music by Hindemith, Dallapiccola, Wellesz, Gerhard, Poulenc, Stravinsky, Bartok, Gershwin, and Berg in addition to a talks series called *Contemporary Music and the Listener*.³⁴ This promotion of contemporary music did not survive long, however, with the Third left open to the charge that, while the Third's budget came from everyone with a license, its programming consisted of material that was of interest only to a tiny unrepresentative section of the public – and, most unforgivably, the portion that would have been most able to pay for that sort of entertainment themselves anyway. Contemporary music promotion, in the minds of critics, exemplified the worst example of

³⁴ Humphrey Carpenter, *The Envy of the World: Fifty Years of the BBC Third Programme and Radio 3, 1946- 1996*. (London: Weidenfeld and Nicolson, 1996), 37.

this elitist thinking. In May 1948, then-controller of the Third Programme Harman Grisewood requested that what he perceived to be the “creeping in” of contemporary music be curtailed in favor of more accessible works (such as Vaughan Williams’ Symphony No. 6, which received four broadcasts between May and December).³⁵ Matyas Seiber’s Second String Quartet, intended for broadcast in March 1949, was rejected by the controller, noting, “Quite frankly, we are able to broadcast only a very little of music so radical as this. The audience to whom it would appeal is, as you know, extremely small.”³⁶ By the early 1950s, serial music and other more “challenging” works for all intents and purposes vanished from the radio, replaced by contemporary music that was perceived to be more “listener friendly.” Relatively tonal composers such as William Walton, Edmund Rubbra, Arnold Bax, Benjamin Britten were prominent, but works by other domestic composers, like Humphrey Searle, Elisabeth Lutyens, and Elizabeth Maconchy, proponents of twelve-tone technique, experienced near exclusion. Searle noted in a letter to the Composer’s Guild of Great Britain that the amount of modern music programmed “in relation to music of other countries and older music remains very small.”³⁷ The situation grew even worse during the 1950s, and Alan Frank of the *Musical Times* in February

³⁵ Ibid., 81.

³⁶ Ibid., 94-95.

³⁷ Ibid., 99.

1954 observed that the Third's broadcasts "contain much that is safe and perhaps rather dull, and seldom anything really advanced or experimental."³⁸ The opinion that the Third played only unchallenging music calculated to satisfy in the most cynical terms an uncomplicated idea of what "culture" ought to be emerged in articles written around its tenth anniversary. In particular, the perception that too much pre-classical music was being performed for an uninterested audience galvanized critics. One of the Third's most outspoken supporters at its inception, Edward Sackville-West, wrote of:

A sameness in the mere aspect of the weekly programmes that implies a failure to *evolve* on the part of the Third as a whole...I should instance the tendency to fall back again and again on certain kinds of programme that have been successful in the past but to which the law of diminishing returns quickly applies. For example, several complete performances of a routine symphony by different orchestras and conductors, spread over a week and masquerading as 'Interpretations', serves no useful purpose...Similarly, it is hard to resist the conclusion that, where music is concerned, the planners succumb with too great alacrity to the lure of *musica antiqua*.³⁹

Listeners in the 1950s frequently commented on the preponderance of music on the Third by "unknown" Medieval, Renaissance and Baroque composers. It appears that in order to satisfy those listeners who craved new music, the programmers were reaching back in time to find music that

³⁸ Ibid., 125.

³⁹ Ibid., 125.

could, in one sense, be considered “new,” while at the same time not too aesthetically challenging. The mainstream need for continual novelty was combining with the highbrow need for edification, finding a solution in the emergence of the early music movement. As Lawrence Dreyfus has shown, in the 1950s, the listening public turned from the *avant-garde*’s rejection of tonality, and all the soul-destroying pain of modernism, to a perceived early music that “redressed the imbalance by repressing the nightmarish present and mounting a grand restoration of the glorious past.”⁴⁰ In other words, early music could work effectively as a substitute for modern music because, first, it promised a near-infinite number of “new” and unknown works at the disposal of programmers, with unusual combinations of unknown instruments performing in unfamiliar forms, and second, it contained none of the disturbing dissonance and perceived “unfriendliness” of contemporary music. In their programming, music planners do seem to be reacting to very real perception that their programming contained too much contemporary music. In fact, to the hostile audience apparent from the letters in the press, *any* contemporary music was received with a fair degree of ambivalence. In a typical letter from 1953 to the *Radio Times* after a concert of modern music, one listener commented:

Under the mistaken idea that the art of music must progress or
perish those bemused people who call themselves

⁴⁰ Laurence Dreyfus, “Early Music Defended against its Devotees: A Theory of Historical Performance in the Twentieth Century,” *Musical Quarterly* 69, no. 3: 305.

contemporary composers are surging with Schubertian industry minus the divine fire; bringing forth an amazing mass of cacophonous rubbish, with neither character, sensibility, nor form, and with all of which the average listener is heartily sick.⁴¹

This letter might well have been referring to Messiaen, who received a fair amount of abuse from critics and the public alike in the early 1950s, especially when he was perceived to be writing in a more “modern” style, as this review demonstrates:

This French Catholic mystic flabbergasted most of us with his *Turangalila Symphony*, broadcast last June in the Third: some thought it the work of a visionary, others that of a charlatan...we may be sure of a fine performance of *L'Ascension*: a more ‘normal’ manifestation of Messiaen’s art, it will perhaps allow us to form a more balanced opinion of his status as a composer.⁴²

Again, listeners of the Third Programme throughout the 50s and 60s resented that they were essentially paying for music they didn’t like, and one gets the feeling these letters are not from casual listeners, but rather from music lovers who feel that contemporary music is taking up valuable air time, as these two comments demonstrate:

Why should listeners be compelled to pay for unending doses of Schoenberg and his imitators, whose works cannot command a live audience anywhere in the world and to which not one person in ten thousand listens on the radio?⁴³

⁴¹ J.C.Herd, *Radio Times*, 3 July 1953: 29.

⁴² Deryck Cooke, “Autumn Symphony Concerts,” *Radio Times*, 25 September 1953: 27.

⁴³ G.H. Bosworth, “Points from the Post,” *Radio Times*, 10 August 1961: 59.

I have just endured Gerhard's Symphony No. 1 played by the BBC Scottish Orchestra. A month ago the same orchestra played a piano concerto by Iain Hamilton which nearly drove me up the wall. Does anyone really enjoy this so-called modern music? I meet most of the members of Sheffield's musical societies, and so far I have not met one who does enjoy it.⁴⁴

A disastrous series of concerts and lectures after Schoenberg's death in 1951 were largely seen as undermined by the Music Department's dislike of the composer (and demonstrating the general perception throughout the musical world of the outré nature of Schoenberg's music at the time, following the rise of Webern). Malcolm Sargent, conductor of the BBC Symphony Orchestra cancelled his performance of Schoenberg's *Five Orchestral Pieces*, and a substitute conductor had to be called in on short notice. Their timidity to program Schoenberg's later works, and Michael Tippett's talks skirting the more difficult issues of his music led *The Spectator* to remark that:

The works of the twelve-note period – the really controversial ones by which Schoenberg stands or falls – are inadequately represented in comparison with those of the earlier years. . . In Tippett's introductory talk we heard about Schoenberg's domestic affairs. . . his quarrel with Thomas Mann. . . and his obsession with numbers. All this is fascinating, but it has little to do with music.⁴⁵

The Music Department's unfamiliarity with contemporary music can be perhaps best exemplified by the dismissal of a 1954 proposed talk on the

⁴⁴ G.A. Currie, "Points from the Post," *Radio Times*, 27 July 1961: 59.

⁴⁵ Humphrey, *Envy of the World*, 118.

music of Luigi Dallapiccola, Elliott Carter and Pierre Boulez by Producer of Music Talks Roger Fiske on the grounds that “We have no recordings at all of Elliott Carter...We only have one work by Dallapiccola, and I don’t think anything by Boulez.”⁴⁶

There *was* a small public for this music, however, and their voices weren’t entirely unheard. By the end of the 50s, and into the 60s, this audience seemed to react to the paucity of contemporary music on the Third, and the general reaction it seemed to garner from the public. One listener, with the clever pseudonym, “D. Reihe,” wrote to the *Radio Times* that “I am heartily tired of seeing so many letters from people without the patience or intellectual capacity to appreciate modern music. I suggest we might have one week every year during which, in the Third Programme at least, all tonal music was completely banned.”⁴⁷ This suggestion was not taken up, but the opinion was not alone:

I had thought that we had now reached in our musically backward country a point where even those who do not regard atonality as inevitable and dodecaphony as logical are at least willing to admit that it is a legitimate genre.⁴⁸

⁴⁶ Ibid., 125.

⁴⁷ “Points from the Post,” *Radio Times*, 17 May 1962: 28.

⁴⁸ R.D. Stanford, “Points from the Post,” *Radio Times*, 10 August 1961: 59.

Radio Drama and Its Development at the BBC before the Second World War

If the BBC was notoriously hesitant to play avant-garde music, the opposite had been traditionally true of its dramatic productions. The Third Programme was exceedingly confident in its dramatic and poetic broadcasts, and during its first ten years commissioned some of the most important radio plays ever to emerge from that genre, including Dylan Thomas's *Under Milk Wood* and Samuel Beckett's *All That Fall*. It is from within this system that the first use of electronic sound in Britain took place as part of an effort to incorporate what had been purely musical ideas into established dramatic movements. It is understandable that in a musical situation as unsympathetic to Continental developments in contemporary music as the one that had evolved in the musical culture of England throughout the first part of the century, the primary source of electronic music and *musique concrète* would come from outside the musical establishment.

The robust state of radio drama in England can be attributed to a continual support from the theatrical establishment, and a general feeling of support for risk-taking. Some producers have seen the strength in experimentation in drama as originating in the monopoly power of the BBC; not having to satisfy advertisers led to greater experimentation. Radio pioneer Tyrone Guthrie noted that:

Radio offered a more promising field than the cinema, because, in Great Britain at all events, it is free from the anxieties of commercial competition. As a result of this the BBC has subordinated the question of Popular Appeal to Principle of Moral Philosophy; but has, none the less, been moderately adventurous and quite encouraging to technical experiment.⁴⁹

Radio drama, a uniquely 20th century art form, had since its British inception embraced experimental techniques with greater alacrity than the musical community. Ironically – but perhaps understandably – these developments also took place at the BBC, and can be traced to the earliest days of the Corporation. The way the Third Programme encouraged both the technical innovations made possible by tape recording as well as the fundamentally different and original drama emerging from France after the war (as exemplified by Jean Paul Sartre, Samuel Beckett, Jean Anouilh and others) is in absolute opposition to the parallel situation in music at the BBC. This postwar development in Drama was far from new; the successful struggle to develop experimental theater through the use of radical techniques at the BBC before the Second World War would determine its importance and influence on later developments. For example, the battles between the experimental producer Lance Sieveking and his nemesis Val Gielgud, Head of Drama until 1963, and equally interested in the creation of a kind of “pure radio,” encouraged a productive relationship whose impact

⁴⁹ Tyrone Guthrie, *Squirrel's Cage and Two Other Microphone Plays* (London: Cobden-Sanderson, 1931), 7.

would be felt in the early years of the Radiophonic Workshop. Also, through this relationship with the help of other important innovators, emerged a new kind of broadcasting, Features, a sort of cross between documentary reporting and dramatic storytelling, which in the decade before the Second World War embraced revolutionary radio sound techniques.

The first examples of radio drama broadcast by the BBC in the early 1920s were unexceptional, and consisted mostly of traditional thrillers, adaptations of Shakespeare and light comedies. The most important influence on early radio drama was the theater, with the majority of productions derived from works that had initially been successful on the stage, what Productions Director R.E. Jeffrey called a “bastard cultivation from the stage.”⁵⁰ There was little conception of the “special problems” of radio drama in the first productions. Sound effects for early productions faced the problem that what worked on the stage didn’t necessarily work as well over primitive microphones. The need for specially written plays that could cater to the special qualities of radio was acknowledged in a letter of 1926 from the first Director-General, John Reith, to Station Directors, where he stated that “It seems to me that in many of our productions there is too much striving for theatre effect and too little attempt at discovering

⁵⁰ R.E. Jeffrey, introduction to *Radio Drama and How To Write It*, by Gordon Lea, (London: George Allen & Unwin Ltd.), 12.

the actual radio effect when the play is received in distant homes.”⁵¹

Experimentation had begun a few years earlier, when in October, 1924, R. E. Jeffrey was given £50 ‘for experimental purposes in connection with the production of sound effects,’ and the next month was allowed the additional services of A. Whitman as “effects man.”⁵² In May 1927, the first use of especially composed music for a radio play was broadcast, Victor Hely-Hutchinson’s score for the Karel Capek’s science fiction play *R.U.R.*

It was a piece of equipment, the Dramatic-control Panel, employed first in 1928, however, that was to have the greatest impact on experimentation in radio.⁵³ The broadcasts it produced showed audiences for the first time the potential of radio as a unique medium. The Dramatic-control Panel enabled radio producers to separate and control different groups of actors and noises and was ostensibly created to help give producers greater control over certain balance problems apparent when crowd noises were required in combination with smaller groups of actors.⁵⁴

⁵¹ Memorandum from Reith to Station Directors, 20 Dec. 1926, quotations in Asa Briggs, *The Birth of Broadcasting*, vol. 1 of *The History of Broadcasting in the United Kingdom* (Oxford: Oxford University Press, 1961), 282.

⁵² Minutes of the Control Board, 14 Oct. 1924. Briggs, *Birth of Broadcasting*, vol. 1, 201.

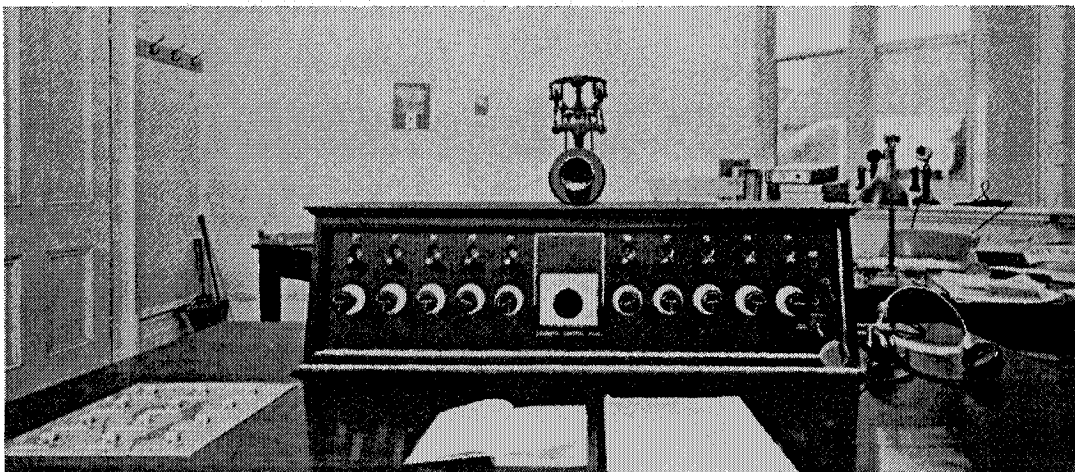
⁵³ This piece of equipment is alternatively punctuated “Dramatic-control Panel” and “Dramatic Control-Panel” by Val Gielgud and Lance Sieveking respectively.

⁵⁴ The use of the terminology “producer” where in America one would use “director” follows the BBC’s idiosyncratic nomenclature. This usage continued into the 1960s, and only applies to radio production. The person in charge of a television production is referred to at the BBC as a “director.”

With the Dramatic-control Panel, the crowds and principals could be linked to separate microphones, enabling the producer to adjust individual microphone volume levels. It soon became apparent to a couple of open-minded producers that it could be used more creatively, and that in fact the Dramatic-control Panel could allow vast and varied configurations of performers in a seemingly unlimited spectrum of performance spaces and situations. Among the most influential producers who took advantage of this opportunity were Mary Hope Allen, Archie Harding, and Lance Sieveking.

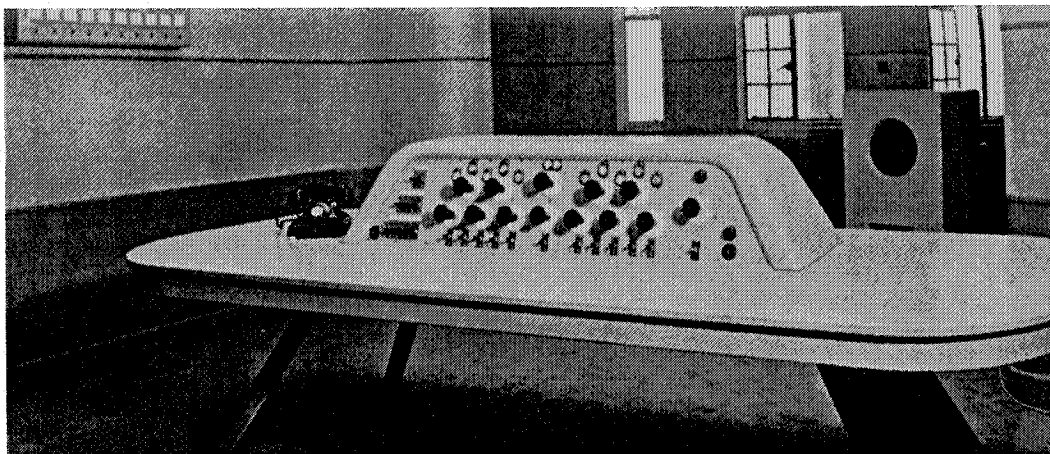
Figure One shows a photo of the original Dramatic-control panel from the BBC's Savoy Hill studios and Figure Two, the newer Dramatic-control panel, designed by the modernist architect Wells Coates, from which Sieveking produced most of his programs in the late 1920s and 1930s.

Figure One:⁵⁵



⁵⁵ Reprinted from Lance Sieveking, *The Stuff of Radio* (London: Cassell and Company Ltd., 1934, 102.

Figure Two;⁵⁶



Sieveking's legendary productions of the 1920s have not survived in recorded form, but in his book, *The Stuff of Radio* he details his production methods (in an appendix labeled "too purely Radio to be printed for reading.") Among his more adventurous productions, his two *Kaleidoscopes* from the late twenties, *The Pursuit of Pleasure* from 1931, and *The End of Savoy Hill*, were his most famous and most widely commented upon, and they were only possible because of technical equipment. His "scores" indicate the difficulty for the player of the Dramatic control-Panel. In this excerpt from *Kaleidoscope II*, Sieveking would have been responsible for controlling the output of all eight available studios and mixing them live:

⁵⁶ Reprinted from Sieveking, *Stuff of Radio*, 102.

Example 1: (*Kaleidoscope II*)

SYLVIA: It's this horrible war! I'm bored to tears. My poor Philip is out in some place called Salonika—I get long letters—very seldom. That's all. But what about you?

BRUNO: *Me?* Oh, I'm not the kind that goes to places called Salonika—you know, Sylvia. I shall be in town for about a month. You're looking lovelier than ever!

SYLVIA: You think so, eh?

BRUNO: *I should say!* Look! There's a place called the Four Hundred. One of these new night clubs. What about us going along to-night?

(FADE UP Jazz band playing hot tune very gradually. First Kaleidoscope. Bring up all studios and mix 'em good.)

ORCHESTRA (1): "Symphony" in C Minor. Op. 67, Beethoven.

CHORUS (4): "Who is Sylvia, what is she?"

QUINTET (7): "The Merry Widow."

DANCE BAND (8): Hot Dirt.

EFFECTS: Machine-gun rat-tat-tat-tat-tat.

SPEECH (2): *Miss Holt*: "I have decided to make you a prefect! have decided to make you a prefect! (*Ad infinitum.*)"

GRAMOPHONE (5): "The Wedding March" on organ.

(FADE UP Orchestra to maximum. Flick all studios off, except Orchestra and Jazz. FADE DOWN Orchestra. Flick No. 5. Flash in laughter.)

SYLVIA: Oh, I don't know!

GOOD INFLUENCES (*Siegfried Sassoon*):

Does it matter—losing your legs?
For people will always be kind,
And you need not show that you mind
When others come in after hunting
To gobble their muffins and eggs.
Do they matter?—those dreams from the pit?
You can drink and forget and be glad.
And people won't say that you're mad;
For they'll know that you've fought for your country
And no one will worry a bit.

(UP Jazz a little. Wave it among above.)

BRUNO: There's a place called the Four Hundred. One of those new night clubs. What about us going along?

SYLVIA: Oh—I don't know—I don't know.

His virtuosic combinations of forces embody a kind of jazz-age modernity, a *bricolage*, similar in style to contemporary Hollywood's representation of "city life" in such films as *This Modern World*, and *42nd Street*, or Eisenstein's collage technique. Cultural theorist Andreas Huyssen sees in collage the epitome of a kind of modernist art specifically designed as what he called "an invasion of the very fabric of the art object by technology."⁵⁷ More than representing the "rough and tumble" urban life, the intentional use of music, sound effects and dialog together inextricably combined creates the effect of defamiliarization; by combining jazz with Beethoven, the Wedding March with machine guns, each of these things takes on a new significance, becomes symbolic, stands in for some other thing. His revolutionary use of music (as well as sound effects) as an integral part of storytelling was recognized in the press at the time, with critic for the *Morning Post* writing, "One of the most interesting things about it is the importance in its framework of music, which is not merely used as an accompaniment, but is part of the very essence of the play, being as necessary as the voices." The review for *The Bookman* noted, "its chief feature is the kaleidoscopic use of multiple studios, music and poetry being employed as protagonists, and the general effect being very similar to the

⁵⁷ Andreas Huyssen, *After the Great Divide: Modernism, Mass Culture, Postmodernism* (Bloomington: Indiana University Press, 1986), 9.

stage expressionist plays fathered by Georg Kaiser and Ernst Toller..."⁵⁸ In this it is operating like *musique concrète*; taking a sound and placing it in an unexpected situation, causing one to wonder at its meaning both as a single sound and in the context of the larger work as well. Sieveking went one step further a year later in his production of a year later, *The Pursuit of Pleasure*, with all the various elements finally combining into one discordant sound sculpture each controlled by a single individual at the Dramatic-control Panel:

Example 2: (*The Pursuit of Pleasure*)

JOHN: All talking! All dancing! All singing! The Hit of the Century!
Girls! Girls! Girls!

GEORGE (*laughing*): Or a Night Club—for later in the evening. "Oh for a Night in Bohemia!" Johnny, remember?

(*The Orchestra FADES UP, playing "Oh for a Night!" FADE it OUT.*)

JOHN: We could go for a Night Flight over London,
(*effects: aeroplane engine*)

or go Ice-skating

(*G: "Skaters' Waltz*)

or to the Military Tournament at Olympia

(*G: "Military March" on gramophone and horses' hoofs in Effects*)

or to a Boxing Match at the Albert Hall

(*4G: a great cheer and a shout of "Go it, Nick"*)

or to a Prom. at the Queen's Hall

(*I: Orchestra—Overture "Don Juan"—Mozart*)

or to any of the twenty Leg-shows

(*Extract from latest show—vocal*)

or to a Straight Play

(*Passage from current play—Noel Coward instantly recognisable*)

a Dirt Track

(*Columbia race crowd record. Roar up of motor-bikes from 2E*)

Greyhound Racing

⁵⁸ Sieveking, *Stuff of Radio*, 31.

(2E—Greyhound Effects and shouts of “They’re off,” etc.)
a Silent Film, a Talkie. The Enormity! The Grandiose!
(Talkie of American accent projection in Effects and 4: through
megaphone)

The Plazatoro! The Ritz-Carlton! The Eldorado! A Revue, a Night
Club

(G: Jack Payne in his latest number)

Madame Tussauds, the Club—

(FADE these regularly over each other, starting very small and
letting each addition add naturally to the volume. Let Kaleidoscope
continue for a short time.)

JOHN: Oh! Stop! Stop! Stop!

(Cut off sounds with a snap. Perhaps best to have them all on one
side of centre.)

JOHN: Oh. Isn't it frightful? I wish we were living in Great-Grand-
father's time! He must have had a simple job compared with to-day.

Throughout the twenties and thirties, in acknowledging the newness of their art form and its unique qualities, and borrowing heavily from film (the techniques of juxtaposition, fades and swells, superimposition, montage and distance), the more experimental radio producers began pushing the limits of what audiences accepted, and in the process discovered new ways to tell stories; indeed, new kinds of stories to tell. As Rudolf Arnheim, a German writing about his own country's radio innovators, noted at the time:

Here there is really something quite individual. With the expressive means of pure sound: acoustic relationship between expression of speech and music, annihilation of softer sounds by louder ones, translation of mood and character into dynamics of sound—by such means spiritual experiences are embodied in a new material taken from it and yet possessing its own laws; but the laws of the sound-world only becomes effective and recognizable when one is aware of this sound-

world quite alone, without any recollection of the 'missing' corporeal world.⁵⁹

This ethereal sound-world could be as abstract as the internal thoughts of its protagonist required, and in this next step of storytelling, sound-dramatists were dealing with the same conceptual issues contemporary composers were facing, and would continue to face a generation later when confronted with the question of musical storytelling without the benefit of tonality. Since radio drama was no longer forced to be primarily concerned with recreating 'corporeal' worlds, techniques evolved that made it possible to represent a more abstract world. One of the greatest benefits of the Dramatic-control Panel was that it allowed a much more flexible use of sound effects in productions, since entirely separate studios could be reserved for their imposition, either live or through banks of phonograph players. Sieveking, more than any other producer, considered the manipulation of these controls a "performance" as much so as when a musician wields his or her instrument. Sieveking objected to Gielgud's dismissal of the importance of this operator, noting: "I protest against Mr. Gielgud's contemptuous opening sentence at the part of his book in which he deals with the Dramatic Control-Panel...He thinks the instrument should be 'operated', I that it

⁵⁹ Rudolf Arnheim, *Radio*, trans. by Margaret Ludwig and Herbert Read (London: Faber and Faber Ltd., 1936), 194.

should be 'played'.⁶⁰ Sieveking also (unfairly) attacks Tyrone Guthrie, himself a pioneering writer and producer of radio, for not taking seriously the role of the controller:

He [Guthrie] says that *by twirling knobs* the volume from each studio is increased or reduced. And leaves it at that. It is like saying that by striking a note on a piano, one causes a felt-covered hammer to come in contact with a piece of wire stretched between two metal pegs (and add that this is what Schnabel does, and what Chopin did). . . It is a very flexible musical instrument.⁶¹

Although Gielgud was hardly an "enemy" of progressive radio, he nevertheless positioned himself firmly against the use of sound effects in all but the most obvious situations.⁶² Gielgud's articulated his position thus: "their significance to the radio play is little greater than that of the thunder sheet or the coconut shell to the stage play."⁶³

⁶⁰Sieveking, *The Stuff of Radio*, 58. Sieveking's animosity towards Gielgud is often barely under the surface, and in one entertaining passage in *The Stuff of Radio* writes, "Mr. Val Gielgud says in his book...a great many things with which I disagree violently. But that is only natural, for in life I disagree with him on almost every subject, even about the desirability of being alive at all." Sieveking, *Stuff of Radio*, 56.

⁶¹ *Ibid.*, 52-53.

⁶² Gielgud was certainly not a conservative producer if by that I mean not interested in trying new techniques: he was a studio manager for Sieveking's first *Kaleidoscope* as well as one of the most important figures in wartime feature broadcasting, and later acknowledged the importance of these early productions. He is one of the only people to recognize the connection between these early productions and the later Theatre of the Absurd movement, an association he, consistent to the end, considers "a doubtful blessing." Val Gielgud, *Years in Mirror* (London: Bodley Head, 1965), 51.

⁶³ Val Gielgud, *British Radio Drama: 1922-1956* (London: George G. Harrap & Co. Ltd., 1957), 90.

As noted above, Sieveking believed, "The author and producer ought to use Sound Effects as bricks with which to build, treating them as of equal value with speech and music."⁶⁴ In this, he was referring to what ought to be, rather than the situation in effect at the time he wrote this prescient passage. Radio sound effects in the twenties for radio were mostly of the kind first standardized on the stage, and were essentially literal. Filson Young wrote that:

They [effects and sounds other than the human voice] have been used most successfully hitherto in connection with narratives and dramatized readings, and in descriptive monologues, as illustrations and images in mental retrospect. . . But their use in drama pure and simple has never yet, I think, been successfully related to the more subtle form of art.⁶⁵

Sieveking, who believed sound effects were not only equal to music and speech in importance, but in many ways could operate as either, responded to this statement of Young's, saying:

It is perfectly true that they have been used with signal success in such descriptive monologues as *The Road to the West*. . . The sounds, other than his voice, which were used as illustrations and images in mental retrospect, *were* so used in this context in a way that enhanced, evoked, and conveyed all manner of interests, emotions, and scenes, which without them would not have 'come through'. True. . . [but] the answer, if Mr. Young will forgive me, is that it all depends on how you use them. Both the wax record of a sound and the

⁶⁴ Sieveking, *Stuff of Radio*, 64-65.

⁶⁵ Filson Young, *Shall I Listen: Studies in the Adventure and Technique of Broadcasting* (London: Constable and Co., LTD., 1933), 145-146.

reproduction of that sound by hand can be used in as infinite a number of ways as a piece of music can be played.⁶⁶

Sieveking identified six different primary genres of sound effect. Of these, two are of particular interest to this investigation. What Sieveking calls the *Symbolic, Evocative Effect*, defined as “a record of abstract rhythm of a churning and insistent nature, definitely not classifiable under the usual heading of “music,” used to express confusion in a character’s mind,” became one of the principle and earliest uses for *musique concrète* in radio drama in the late 1950s. In its non-electronic form, will be prominent in the works immediately preceding the concrete works (as in Giles Cooper’s *Mathry Beacon*). The second genre is the *Impressionistic Effect*, defined as “a quick and comic fanfare used to mark the exits and entrances of a character in a dream; or the use of artificial echo or a voice, to indicate that the speaker is dead; or choral shouting of repeated phrases to startle the listener and mark in his mind the crisis in the character’s mind.” This genre, which appears straightforward (albeit ubiquitous) in comic programs like *ITMA* (It’s That Man Again) will be amplified and distorted, perfected, many would say, to absurd effect in the *The Goon Show* by the late fifties. Sieveking presaged all of these later uses, however, in Tyrone Guthrie’s dramatization of Aldous Huxley’s *Antic Hay*, when he used a recording of the Charleston played at gradually increasing speed by having the turntable

⁶⁶ Sieveking, *Stuff of Radio*, 60-61.

manually sped up using a finger on the record, a technique used extensively by later *concrète* composers (and a staple of *The Goon Show's* repertoire of sound effects, as discussed more fully in chapter three).⁶⁷

Productions like Sieveking's and equally revolutionary broadcasts by Archie Harding and Mary Hope Allen thrived on an environment that was conducive to experimentation. As part of the BBC's Research Section, established in 1928 (in the absence of a true "experimental laboratory") these producers had more or less free reign to experiment with new techniques and technology, essentially "belonging" to each department equally. The Research Section, founded on encouragement from Val Goldsmith, the Director General's assistant, consisted of Sieveking, Harding, Allen, and E.J. King-Bull, each of whom was committed to making radio that defied categorization, that moved it as an art further from its stage roots, and closer to something they referred to as "pure radio." Lauded critically as an inspiration for radio stations elsewhere in the world, it facilitated creative production as no other internal organization would, and its broadcasts inspired Filson Young to write:

It is now for the world of art to use and develop this new technique and produce a new art from it. That is where we want a new set of visionaries who will believe in the unattainable and strive for the impossible. There is a small nucleus of them already, and it is obvious that the first

⁶⁷ Lance Sieveking, in addition to his many radio innovations also produced the first broadcast television play, on July 14th, 1930, Luigi Pirandello's *Man with a Flower in his Mouth*.

direction in which we should look for development in the art of the microphone is in the field of what are called "Productions" — *i.e.* radio-dramatic activities. . .we have heard some very queer experiments of this kind; some have contained thrills, and others may have seemed merely eccentric extravagance. The point is that they were experiments, and that they were and are leading somewhere.⁶⁸

During its brief existence, the Research Section faced constant attacks from within the BBC for its apparent mandate to think, rather than to do. Colleagues perceived and resented their being somehow above the everyday pressures of ordinary producers, while at the same time entitled to the use of "public" equipment. The primary problem seems to have been that the Research Section was an experimental studio without a studio, an "untidy" situation, as Gielgud puts it. They were also responsible for producing plays that were less popular than more traditional plays. These plays often had little or no plot and required the audience to accept techniques considered radical at the time, such as Joycean stream of consciousness narratives. The situation was remarkably similar to the one facing the Music Department. Although the BBC was not obliged to base all its decisions on audience figures, it was a concern nevertheless that their broadcasts were appealing to an elitist "highbrow" audience. Gielgud was not sympathetic to the kind of work they were doing and cynically observed that, "A play labeled 'experimental' might as well have been labeled

⁶⁸ Young, *Shall I Listen*, 5-6.

'poison'."⁶⁹ A combination of unpopularity within the BBC, low ratings, and a lack of equipment for its exclusive use, led to its dissolution upon the retirement of its coordinating head, R.E. Jeffrey, in the early 1930s. The administration told Gielgud in confidence that he had to "take the Research Section under [his] wing, or it must be disbanded."⁷⁰ Gielgud's solution, an ingenious one, was to create a completely new department, outside of Drama, and responsible for creating programs that didn't fit into that category; those programs that had arisen because of the kind of innovations brought about by the Research Section. He created an experimental department with a regular stream of commissions, and with all the bureaucratic and administrative backing the higher echelons of the BBC had felt were necessary but absent in the Research Section. This new department, "Features" (first the Features Section of Productions, then Features Department), continued the experimentation started under the Research Section. Defined technically as "a story without a plot," features became integral to the war effort, developing a kind of propaganda that depicted the British Government's perspective without the more overt devices of drama or melodrama. D.G. Bridson's *March of the '45*, first broadcast in 1936, exemplified the continuation of Sieveking's multi-studio methods within the new, more focused Features Section. Its author

⁶⁹ Gielgud, *British Radio Drama*, 68.

⁷⁰ Gielgud, *Years in a Mirror*, 67-68.

described the production as “radio with all the stops out—crowds, pipes, orchestra, choir and gunfire adding their quota to the whole effect.”⁷¹ The outrageous, decadent productions of the twenties, which seemed to revel in their excess, stand in contrast to the socialist depression-era features of the thirties, although nothing but the subject matter had changed. These grittier productions resemble the films of the contemporary documentary movement, representing industrial progress and rural hardiness with titles like *Steel* and *Cotton People*.⁷²

With the start of World War Two, the continuing innovation that had marked the previous 20 years came to a near standstill because the addition of the Services Radio Programme consumed a hefty portion of the yearly budget. Austerity was the watchword of the day; and experiments like Sieveking’s had gone out of fashion during the depression of the Thirties. Add to this the onset of war and such extravagance became impossible. Finally, with the decamping of the Drama and Features Departments out of Broadcasting House in London (for fear of bombing) to Manchester and other points North, producers lost the stability of fully equipped studios, and even reliable broadcasting equipment. Gielgud remembers that during

⁷¹ D.G. Bridson, *Prospero and Ariel: The Rise and Fall of Radio: A Personal Recollection* (London: Gollancz, 1971), 60.

⁷² A parody of these large studio productions was written by Irish playwright Denis Johnston, *Multiple Studio Blues*, and capitalized on the standardized clichés of the Features production.

the war, the Dramatic-control Panel, “with all the opportunities for misuse afforded by that fascinating invention – were replaced by non-compensating mixing units working under conditions only to be comprehensively categorized as ‘lash-up’.”⁷³

This doesn’t mean that during the later Thirties and into the war years, radio was exclusively the domain of light music and news. In 1937, the “original radio piece” found a new home on the “Experimental Hour.” This was modeled after the Theatre Workshop at the Columbia Broadcast Service in the United States. This program ended with the war, but because of Features Department’s involvement with the war effort, and the development of new mobile recording equipment (though in England, not yet tape recording), dialog, sound and music could be combined as never before. Other successful Feature’s productions included Edward Sackville-West’s poetical narrative *The Rescue* with music by Benjamin Britten, which challenged listener’s conceptions of how music, sound effects, spoken word and music *as sound effect* can interact in a radio broadcast.

The development of the radio drama and feature into unique and successful genres was to have profound effect on the way post-war radio broadcasting took shape. With the split into three distinct programmes, there was more room in the schedules for the kind of programming considered too ‘high-brow’ in earlier years. Comedy series adapted many of

⁷³ Gielgud, *British Radio Drama*, 84.

the sound effects developed for radio drama, first in wartime favorites like *ITMA*, and after the war, *The Goon Show*. The emergence and popularity of a revolutionary new *avant-garde* continental theatre in the mid-fifties, the Theatre of the Absurd, which adopted and abstracted the same techniques, combined the art of the sound effect with the newly emerging electronic music techniques from Paris and Cologne, ultimately leading to the founding of the Radiophonic Workshop.

Chapter Three

Absurd Sound: “Like Music I’ve Never Heard Before”

Although, as shown in chapter two, the origins of the Radiophonic Workshop are to be found in the incorporation of Continental electronic techniques into an already-experimental corporate radio drama culture, they were not the only factors that exerted an influence on its development. The production techniques used in comedy and science fiction encouraged a similar experimentation in sound design, with significant shifts in emphasis. Dramatic productions later took into account these innovations. After around 1950, when the Third Programme had settled into its role as “cultural provider” for Britain, producers Douglas Cleverdon and Donald McWhinnie (from Drama Department and Features, respectively) took up the mantle left by Lance Sieveking. Eventually, they pushed sound design to the limits of traditional sound production and through the influence, especially, of French *musique concrète*, began using electronic and tape manipulation techniques. The success of several initial experiments led in 1956 to the formation of an exploratory committee to discuss the necessity and viability of a British radiophonic studio. This led to the eventual establishment in 1958 of the Radiophonic Workshop.

This chapter will continue a discussion of radio drama and the influence of comedy and science fiction on its production, maintaining a continuity with what has come before. There is a distinct difference noticeable in productions after the war, a new kind of creative energy, mostly the result of a team of particularly invested individuals, including Douglas Cleverdon and Donald McWhinnie, and authors “involved” in the Theatre of the Absurd movement – in particular, Giles Cooper, Samuel Beckett and Eugene Ionesco, and the composers Andre Almuro, Humphrey Searle, Tristram Cary and Daphne Oram. The influence of this new theatrical movement gave these artists a new willingness to invest their productions with an anti-realist aesthetic that embraced sound techniques geared towards the odd, surreal, and distorted. This sound world borrowed and expanded upon from comedy and science fiction exists as a “bridge between poetry or music and reality.” By alienating its audience from a familiar reality, the works combine electronics and words in a way unique to Britain. This chapter will introduce these works, as well as the figures who led the charge to found a separate department within the Corporation specifically for the creation of electronic and concrete sound effects. It will trace the initial process that led to this department’s foundation, as well as discuss some of the more important BBC productions that represent the direct predecessors of the Workshop’s first productions.

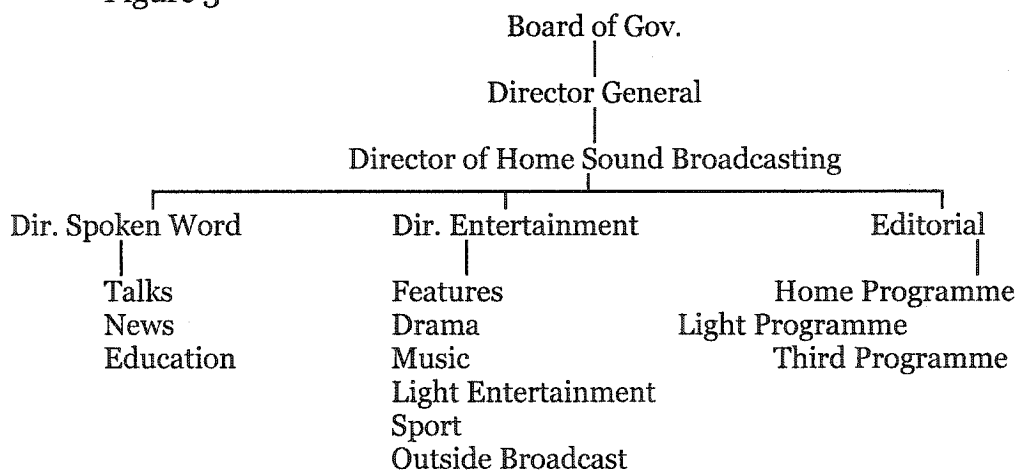
Post-War BBC Organization

Before entering into a more thorough discussion of how drama, science fiction and comedy eventually combined sonic techniques, it is necessary to elaborate more specifically on the reorganization of the BBC immediately after WWII. The shakeup was largely due to the profound success of its broadcasts during the war, success that led to what playwright Giles Cooper called “radio’s rather arrogant feeling that it had won the War.”¹ The BBC is notorious for constantly changing both its Byzantine internal structure and the individual titles of positions; however, since those individuals and their individual idiosyncrasies combined with their location within the BBC bureaucracies are responsible for the decisions and changes made, it is important to describe how productions were conceived and ultimately distributed within its own boundaries. The specific personalities involved had a fundamental impact on the kinds of works produced. And although the internal structure of the BBC was convoluted and obscure, the personnel consisted for the most part in a small number of regular employees and contributors existing in a relatively closed system. This insularity helped cultivate a feeling of community and comradeship, and, while perhaps appearing exclusive, nevertheless encouraged risk-taking.

¹ Giles Cooper, “Radio Writing,” *Plays and Players* (Dec. 1965): 10-11. Quoted in Clas Zilliacus, *Beckett and Broadcasting* (Abo: Abo Akademi, 1975), 12.

The head of the BBC is the parliamentarily appointed Board of Governors, that has little impact on programming decisions. Directly below them, and the person bestowed with primary pragmatic responsibility is the Director-General, (originating with the venerable John Reith). Below this post is the Director of Home Sound Broadcasting, who oversees the output of the various subdivisions below him. These can be divided into two main groups: supply and editorial. The supply departments actually created the programs and were broken into two main sections, headed by a Director of the Spoken Word and a Director of Entertainment. The Spoken Word department was divided into Talks, News and Education, while the Entertainment department consisted of Features, Drama, Music, Light Entertainment, Sport and Outside Broadcast. The editorial group, also under the Director of Home Sound Broadcasting, contained within it the three programmes: Home, Light and Third. (See Figure 3)

Figure 3



Since the Third Programme demonstrated the most interest in using electronic/concrete sound, its internal structure and methods of acquiring programs requires a more detailed discussion. Note that the editorial departments (of which the Third is a part) do not actually produce programs. The supply departments produce programs and then offer them to the editorial departments. These departments then arrange their schedules according to the material with which they are presented. The editorial branches were empowered to commission works, and frequently did so. The highest administrative position within the Third was the Controller, and during the Programme's existence (1946-1970) there were only four, two of whom concern us here: John Morris (1952-1958) and P.H. Newby (1958-1970). John Morris was by some accounts more concerned with paperwork and office administration than with creating a "thematically unified programme."² His appointment to the position at the age of 57 (only three years away from traditional BBC retirement) was viewed initially by several prominent producers as an attempt by the higher echelons of

² Humphrey Carpenter, *Envy of the World: Fifty Years of the BBC Third Programme and Radio 3, 1946-1996*. (London: Weidenfeld and Nicolson, 1996), 133. This comment was made by Christopher Holme, who had been acting Controller for the six months prior to Morris's appointment, and apparently represented a viewpoint often expressed.

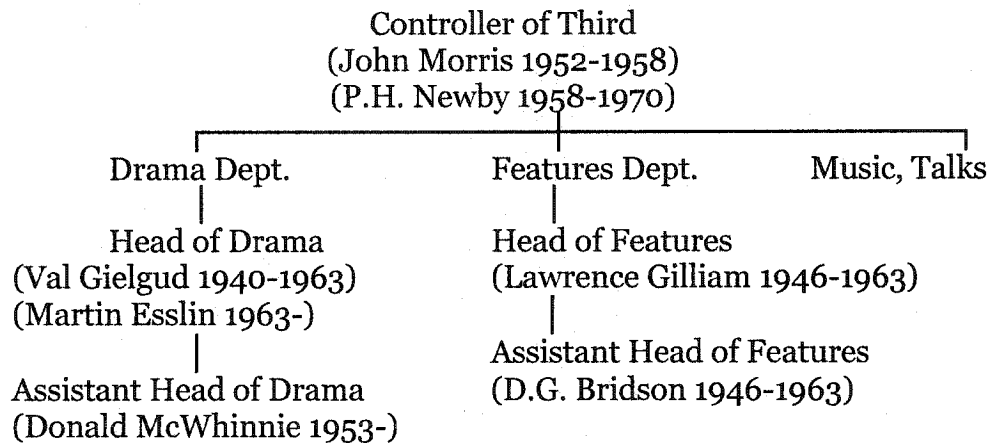
administration to phase the ratings-challenged Programme out.³ Morris's tendency to defer decisions to a newly-created Third Programme Committee (at which representatives of the various supply departments met to discuss and arrange programming options) was seen as a weakness of character by his colleagues, and his successor, P.H. Newby, believed it was Morris's passionless attitude toward the Programme that enabled the administration to cut the Third's broadcast hours in 1957 by two hours a day. While I would hesitate to refute all of these charges, (and as I have shown in chapter two, experimental music suffered greatly under his Controllership) he was nevertheless responsible for expanding the popularity of the Programme, reducing the number of esoteric talks and broadening the appeal of its offerings in general. Not surprisingly, it was during his tenure that the new wave of British playwrights first saw their works broadcast.

The output of the Third Programme consisted of about 50% music and 50% a combination of Talks, Features and Drama. Of these, the two departments that will concern us in this discussion are Drama and Features. The Drama Department was run by the Head of Drama (until 1963, Val Gielgud, and after, Martin Esslin). Under the Head was the Assistant Head (after 1953, Donald McWhinnie), and below him were the various producers responsible for the production of individual programs. Features Department

³ Kate Whitehead, *The Third Programme: A Literary History* (New York: Oxford University Press, 1989), 28.

(created in 1946 after the overwhelming success of wartime radio Features)
 was run from its inception to its phase-out in 1963 by Lawrence Gilliam.
 Below him was the Assistant Head of Features, from 1946 to 1963, D.G.
 Bridson, and under him the individual Features producers.

Figure 4. Basic Third Programme Structure



Each of the three Programmes (Home, Light, and Third) had a similar and separate internal structure, and all required the same supply departments to produce their material. This distribution of responsibilities tended to fix particular producers into slots aimed at particular programs. For example, a producer with a knack for making musical programmes for Light would most likely find the majority of his work in that area, and would not move from *avant-garde* theater pieces one week to music hall revues the next, although there was always the possibility that a producer could be called upon to work in an area with which they were not as familiar. This

would be important for the way technological ideas were passed from one area to another, and leads nicely into a discussion of the influence of “Light” comedy and children’s science fiction on the more serious Third.

Post-War Comedy

Returning to the subject of radio drama, I want to drop into the mix radio comedy’s influence on the use of electronic sound in dramatic productions. Radio drama has rarely, if ever, been the subject of extensive theorizing and scholarly attention, but if there has been little notice of this topic, the academic work done on radio comedy in Britain has been even more sparse. The ephemeral, topical nature of comedy and variety programming has made it particularly vulnerable to scholarly neglect, but, as one would imagine, in a genre so often dependant on the selection of the right sound for the right gag, it was an important source of inspiration for the Workshop’s early composers.

Radio comedy’s sound effects, relied upon for slapstick humor and present from its inception, rapidly evolved, in the right hands, into more sophisticated, conceptual effects; sound as stimulus for the imagination, sound as representing the fantastic extreme, and sound as the realization of the impossible event. As early as 1938, with the debut of *Bandwaggon*, starring the duo Arthur Askey and Dickie Murdoch, radio comedy was

exploiting the “radio-ness” of the medium to create humor. This program is often considered the first radio comedy that took advantage of the humorous possibilities of sound instead of simply broadcasting straight performances of music hall routines which had proved successful up to that point. *Bandwaggon* was notorious for putting characters in situations that would have been impossible to realize in any medium outside of radio, with the benefit of sound effects (and over the top acting). For example, in one famous sketch, Arthur Askey is heard to emerge from a theater floor playing the cinema organ. The organ doesn't stop rising, but instead continues on until it breaks through the ceiling, with a resounding crash. Once producers and writers realized the potential of radio for creating a boundary-free environment for their characters to inhabit, the possibilities were limited only by the imagination of the listener and the ingenuity of the sound engineer.

ITMA (short for “It's That Man Again,” a banner headline used by the newspaper *The Daily Express* whenever Hitler made another territorial claim) debuted a year after *Bandwaggon*, and did even more to popularize the widespread use of creative sound effects for radio comedy. Tommy Handley played a straight man to a variety of outrageous characters, and while he stayed put, the others would come to him, often at a dizzying pace. Like *Bandwaggon*, *ITMA* used rapid-fire jokes (and dreadful puns), and a

slamming door, often considered one of the show's characters in its own right, accompanying a character's entrance and exit. This door monotonously opening and closing quickly became the signature of the program; a physical space was defined that existed only in the listener's mind, with the almost surreal door acting as a closing off of character's participation, in effect creating brief sonic segue-ways between characters.

Obviously influenced by *ITMA* and other rapidly moving sketch comedy programs was *The Goon Show*. More than any other comedy, the Goons exploited sound effects in a way that depicted impossible scenarios and ridiculous situations. To this was added a surreality unheard of in radio comedy to date, as the following often quoted example demonstrates:

Bloodnok: Eccles, stand on my shoulders and pull me up.

Eccles: I'd like to see them do this on television.⁴

Storylines and sequences now didn't have to connect in any logical or rational progression; rather something as simple as a random sound effect could join scenes, or entire sequences could exist which were nothing but a collection of sound effects. Started in 1951 with Spike Milligan, Harry Secombe, Peter Sellers, and, in the first two series, Michael Bentine, by 1953 the remaining trio had evolved into *The Goon Show*, with an established set of recurring characters as the loose framework for each week's Light

⁴ Francis Gray, "The Nature of Radio Drama," in *Radio Drama* (New York: Longman Group Limited, 1981), 58.

Programme entertainment. It ran continuously for ten series until 1959. From the beginning, they made full use of the range of traditional sound effects (car sounds, explosions, crowd noises, etc.) but not until the fourth or fifth series did they really begin to move outside the traditional boundaries of what had been done before. As the show's style evolved they began to alter and distort the traditional effects, becoming more willing to push audience's abilities to understand what it was (if anything) these distortions were meant to represent (and this on the supposedly "easy" Light Programme!)

One of the earliest and most basic tricks used on the *Goon Show* was the sped-up/slowed down turntable or tape. In "The Kippered Herring Gang," episode 19 of series four, after a reference to Scotland Yard, a chorus of bagpipes is heard to gradually speed up until they are stopped by Peter Seller's character, Major Bloodnok. In what was already established by this time as a running gag, Bloodnok has a notoriously sour stomach (represented throughout the run of the program by a series of more and more outrageous sound effects), and calls the pipers to halt with an "ooohhhh! That's enough lads! Oooh! The wind in the pipes, oh dear!!!" The effect, either tape or disc, would have been inserted by what was known as a "grams operator" – the turntable being known as a "gram," short for gramophone. In episode two of series five's "The Lost Gold Mine", Harry

Secombe's maniacal laugh is heard to speed up, and in Episode 26 of Series 5's "Confessions of A Secret Senna Pod Drinker", a random brief sequence of Hawaiian music is introduced and sped up to a fever pitch before dropping out, purely as a way to divide two scenes.

Probably the most virtuosic use of sound effects (and the most surreal) in the early *Goon Show* episodes occurs in Episode 12 of Series 6's "The Terrible Revenge of Fu Manchu," broadcast December 6th 1955. The episode contains literally hundreds of effects during its thirty minute running time, but some highlights include a sped up funeral march, backwards sped up speech, and variable speed-adjusted horse clip-clops. The episode opens with a subtle acknowledgement to the debt a complex program like this owes to mechanical reproduction – often with three grams operators armed with five or six turntables each, ready to insert the correct sound effect at the precise moment. It also draws attention to the previously unproblematized traditional presence of sound effects and grams to begin with. Wallace Greenslade, the announcer, begins, "This is the BBC Light Programme. Now here is a record. [Insert grams recording, "This is the BBC Light Programme"] Thank you." The audible pop and crackle of the grams sound effect recording, so often unintentionally apparent, here is highlighted as the gag. As the sound effects become further and further from

“realistic” versions of themselves, radio moves into territory traditionally associated more with science fiction, the subject of the next section.⁵

Science Fiction Radio After the War

The first program I have been able to trace on British radio that utilized electronic sound effects was *Journey Into Space: A Tale of the Future*, an 18-part science fiction serial for children first broadcast on the Light Programme from September 21st 1953 through January 19th 1954. Written by Charles Chilton, the series depicted space captain Jet Morgan and his crew in their various attempts to explore space in the “futuristic” year 1965. The original series spawned two further serials, *Red Planet Mars* and *The World in Peril* in 1954 and 1956. Although the first *Journey Into Space* serial only exists in a version recorded in 1958 for the BBC’s overseas transcription service (and renamed *Operation Luna*), the sound effects throughout all three serials were produced in the same way.

The two primary sound effects for the program highlight a fundamental difference between traditional sounds and electronic effects

⁵ This is by no means an exhaustive list of *Goon Show* effects. Such a project is beyond the scope of this work, but would make for an interesting study. I would like to offer a few other highlights from the early years (I will return to my discussion of *The Goon Show*’s later years as they begin to take advantage of the Radiophonic Workshop’s facilities.) There are sped up effects to be found in the following episodes of Series 5: “The Affair of the Lone Banana”, “The China Sky”, “The Sinking of Westminster”, “The Phantom Headshaver”, and “The Whistling Spy Enigma”. Series Six is filled with more elaborate effects, but most still involve manipulating the speed of either tape or gram. Highlights include the episodes entitled “The Choking Horror” and “The House of Teeth”.

used for the first time in a science fiction setting. This potential duality would become a vital aspect of their interest to later surrealist and Theatre of the Absurd directors, expanding the scope of sonic experimentation beyond the realm of science fiction in radio, television and film. To get to the heart of this duality, Michel Chion's work with film sound will help explicate the terms of the discussion.

When a character in a film picks up a violin, and begins to play it in front of a camera, we the audience members understand both what the sound is and where it is coming from. We see the source of the sound and recognize the sound itself as belonging to that object. There is synchronization between the image and the soundtrack. What happens if the violinist walks off camera *before* they begin playing? How does the audience know the sound is meant to be diageitic (sound that both the characters in a film and the audience can hear) or nondiageitic (sound only the audience is meant to hear, like a film score)? Why should an audience believe that a sound is emerging from a source invisible to them? Michel Chion has labeled this, a sound one hears without seeing the originating cause, *acousmatic*, and the object, the source of the sound, becomes an *acousmêtre*, a specter-like phenomenon that evokes an inherently mysterious unknowableness. The acousmêtre is a staple of the horror film, as, for example, the all-knowing, all-seeing killer's voice on the telephone; or

as a voice echoing out in a dark seemingly empty theater, calling to his frightened victim, who frantically looks around in search of the invisible voice; or the humanoid robot in science fiction, with the voice emerging from a motionless metal face.

The same acousmatic situation is present when a transistor radio is shown in a film, and music is meant to be playing from it. This however requires a slight bit more effort on the audience's part, though, since a radio has no characteristic specific *sound* associated with it. If the sound is music, is there any way for an audience to know that just because a radio is shown on screen, the music is meant to be emerging from it, diagetically? Filmmakers have developed certain stereotyped conventions for identifying when a sound is meant to be coming from a radio that involve timbre; filters, reduced volume levels, trying to reproduce in an exaggerated way the high and low frequency clipping present in a small radio with a cheap speaker, but this is a kind of cheating, an attempt to create a sound for an object which for all intents and purposes has no set sound. Although we recognize the object as a radio, the audience must accept on faith that the sound is emerging from this object.⁶

⁶ This is referring of course, to a standard deployment of the radio in film. Many examples could demonstrate exceptions that prove the rule, as Lydia Goehr and Claudia Gorbman have both shown with Stanley Kubrick's *Eyes Wide Shut*. Both *The Sopranos* and *Twin Peaks* also reveled in breaking the boundaries between diagetetic and nondiagetetic music as, at first seeming to emerge from a radio, is revealed to exist in a nondiagetetic plane, or vice versa.

Science fiction film and television presents a different kind of problem, but one for which Chion's concept of acousmatic sound will be useful, albeit in a more limited sense. When, in a science fiction film, the audience is shown a piece of "advanced technology" making noise, it makes the assumption that the artificial noise is emerging from the piece of fictional machinery. This is a kind of *synchresis*, Chion's term for a sound with both a visual and auditory component.⁷ Synchresis does not rely on an absolutely literal representation of a sound, rather it is the combination of synthesis and synchronization that tends to make the listener believe an image and sound are related. Again, the sound and image don't necessarily have to be exact analogues: Chion uses the example of an axe chopping a log at the precise moment the visuals show a baseball player hitting the ball. It is "the forging of an immediate and necessary relationship between something one sees and something one hears at the same time."⁸ But in the case of science fiction technology, is this really what is going on? I would argue that it is rather more a specific kind of acousmatic sound, since the audience has no idea *what* kind of sound that particular piece of equipment should make, and, like the radio, has no characteristic sound associated with it. This problem is different again from the acousmètre of the robot in

⁷ Michel Chion, *Audio-Vision: Sound on Screen*, trans. Claudia Gorbman (New York: Columbia University Press, 1994), 63.

⁸ *Ibid.*, 224.

science fiction, who embodies mystery, wonder and fear through the presence of a voice without the image of a *human* face. In the case of a ray gun, or space ship, the sounds are in large part of the imaginary – combining as they do expectation of traditional sounds associated with the generic “type” of equipment, and an ignorance of the specific object – and therefore impossible to truly understand in the sonic literalness of their representation. Chion’s terms as they stand do not account for this eventuality. For the purposes of this study, where the distinction between these two elements is essential, a more subtle way of discussing fabricated sounds is necessary, and I will call these created noises, sounds that exist as representations of a fictional technology “synchretic acousmètre” since they embody elements of both terms at the same time.

How does one transfer the concepts of synchretic and acousmatic sound to broadcast radio, where there is ostensibly no visual component? I would argue that the conventional nature of most sound effects renders them, in radio, *virtually* synchretic in that an audience’s assumptions of the source of sounds are generally proved correct. If a character in a radio play announces, “Hark! A horse approaches!” followed by the galloping of hooves (be they real horses, coconut shells, or a more stylized representation of hooves), getting louder, they do not need a visual picture of a horse to believe that a character has just ridden up on a horse. Here synchretic sound

is combining synthesis – the actual sound effect – with the synchronization (a function of the dialogue, other sound effects, and context). Both of these elements are essential for a pure synchretic sound, and for this study, I will refer to instances of synchresis in radio as “virtual synchresis,” to indicate those moments when radio simulates such simultaneities. Likewise, although technically all sounds in radio are acousmatic, those particular moments that simulate the filmic technique of the acousmètre in radio will be referred to as “virtual acousmatic.” As Chion has demonstrated, there can be degrees of synchresis, as embodied for example by badly dubbed films: one learns the customs and codes of the filmic conventions at an early age, and the viewer will be the judge of whether or not both synthesis and synchronization have been totally successful. A sound can only become acousmatic when it loses that safety net of both synthesis and synchronization, a phenomenon familiar in science fiction, and as we have shown, can often venture into the territory of the synchretic acousmatic.

One potential problem with this reading of the original term synchretic is that Chion originally intended for synchretic sound to refer exclusively to an instantaneous coincidence of sound and image (as in his example of the chopping axe) rather than a continuously occurring sound. While I would like to acknowledge my expansion and (perhaps) exaggeration of his definition to now include sounds that are not limited to a

specific discrete sound, I think it is a potentially useful term to describe a sonic event that is obviously meant to emerge from an object in visual – or contextual – synchronization.

Returning then to the subject of *Journey Into Space*, and its two electronic sound effects: The first sound, a rising electronic sine tone, is initially heard over the announcer's voice, bellowing "Journey! Into! Space!" One is immediately led to believe the rising tone is meant to be some element of a rocket launching, since to the sound has been added a traditional rocket blast. Our suspicions are confirmed later in the broadcast when the same combined sound effect is heard at Jet's rocket launch. The inclusion of the sine wave is then obviously meant to imply some sort of "advance" on contemporary rocket technology, that extra boost that will enable Jet and his crew to travel to the Moon and beyond. The ability to combine the syncretic nature of a rocket launch with the mysterious acousmatic "unknowableness" of the futuristic technology renders the rocket a virtual syncretic acousmètre.

The second sound effect is much more enigmatic. Heard after the rocket has been launched into space, and after the crew has lost contact with Earth, it is a more musical, more "alien" sound. It has no connection to any traditional sound, although it appears to be constructed of the same basic sine wave, with echo added. Over the ship's radio, the crew of Jet's ship

hears this mysterious sound, electronic, with echo. "Hey, listen, what's that?" a character asks. "Don't know! Gives you the creeps, don't it?" "Haven't you any idea what it is?" "Sounds like music, but like music I've never heard before." This virtual acousmatic sound works to create suspense and fear precisely because the audience has no way of connecting this bizarre sound with any earthly one. In addition, it is not obviously attached to anything. The source of the sound is completely obscured, and exists "outside the frame," while at the same time obviously meant to imply some kind of "alien menace." Both sounds were created by using recordings of oscillator tones passed through the National Physical Laboratory's reverberation chamber, and in 1953, the BBC's audience would have had limited contact with this kind of electronic sound, making the impression all the more mysterious. The ineffable quality of music is being drawn upon here to add to the enigmatic nature of the sound.

Developments in Drama and Features After the War

Comedy and science fiction exerted a profound influence on the way radio drama evolved in the post war years. But they acted in conjunction with other equally profound elements to create a new kind of dramatic work. Beginning in the early 1950s, change began within radio drama. As audiences grew more sophisticated as listeners, they (as well as producers)

grew tired of the relentless barrage of “realistic” sound effects, and that perhaps a more selective use of sound effects, effects that were immediately relevant to the drama, suited drama better. This letter from 1953 is typical of audience responses:

Surely one of the curses of the age is noise. The other night in *The Lady Vanishes* the background effects were almost continuous and so loud that it was almost impossible to hear the words. Must realism be carried so far and can nothing be left to the imagination?⁹

In his influential (and still unsurpassed) guide to the philosophy and production of radio drama, Donald McWhinnie noted the oftentimes unsuitability of “realistic” sound effects for radio, and the role that the well-placed effect can have in furthering a story. He noted that, “in radio, as in poetry we attain definition by concentrated intuitive short cuts, not by a mass of elaboration and detail.”¹⁰ Famed poet and playwright Louis MacNiece’s 1952 play, *One Eye Wild*, was hailed as a play that reflected the new spirit of the day for its concision and preciseness, and was reviewed thus: “*One Eye Wild* is equally experimental [as his earlier *The Careerist* and *The Queen of Air and Darkness*] but much less pretentious; the action

⁹ Colin Richardson, “Points from the Post,” *Radio Times* 25 September 1953: 27.

¹⁰ Donald McWhinnie, *The Art of Radio* (London: Faber and Faber, 1959), 51.

is confined to one day, there is no special music (though lots of significant effects).”¹¹

The combination of the state-sanctioned “difficult” Third Programme and the emergence of television as a polarizing factor in audience attentions has been cited by Hardwick as another reason for the burst of creative energy within radio drama in the 1950s.¹² Plays that explored more controversial ideas or less accessible storytelling techniques had an outlet. Cleverdon and McWhinnie, with their interest in the burgeoning Theatre of the Absurd movement, evinced an especially strong effect on the kinds of productions being made. Just as the pressure was growing to remove the gratuitous use of realistic sound effects, there was a strong and growing desire for sound effects that were much less literal than had been the vogue in the past. Even productions that weren’t directly related to Theatre of the Absurd began to feel its influence. Drama Script Editor noted in 1958 that “we now receive much more essentially radio material than the sort of scripts that are written with no particular medium in mind.”¹³ Alongside this was a willingness to expand the role of the sound effect, and let them act in some respects as music. Following McWhinnie’s idea that sound effect can

¹¹ Louis MacNeice, “Portrait of a Would-Be Hero,” *Radio Times*, 7 November 1952: 6.

¹² Michael Hardwick, “More Radio writers than ever before and more scope for them,” *Ariel*, 3:10 (Oct., 1958): 14-15.

¹³ Hardwick, *Ariel*, 14.

act as storyteller, these new, more abstract sound effects worked in combination with dialogue to forge an atmospheric texture.

Rayner Heppenstall's Features production, *Dear Sensibility*, from January 1952 demonstrates this attitude well. This work, which was an impressionistic sketch based on Laurence Sterne's autobiographical memoir, *A Sentimental Journey*, concerned itself with the minute details of Sterne's trip through France and Italy. Heppenstall described his method as:

In fact the "stream of consciousness" or "interior monologue" of Joyce, Dorothy Richardson, Virginia Woolf—a narrative method which quickly exhausted itself in the novel but which, I would claim, is of the very essence of radio, little as it has been copied so far. It is a method which demands self-abnegation from the rest of the cast, whose lines are so many sound effects. A programme of this kind is essentially a concerto for solo voice and sound effects.¹⁴

Here the voices, the dialogue itself, have been reduced to their sonic components to act as effect and background to the main speaker.

A key figure in this new movement was author and adapter Giles Cooper. Cooper's style served as a more accessible link to the perceived heavy-handed approach of theatrical Theatre of the Absurd authors, like Samuel Beckett, and his adaptations of contemporary fiction contained within them opportunities for ambitious producers to utilize progressive sound ideas. In March 1955, Archie Campbell produced Cooper's adaptation

¹⁴ Rayner Heppenstall, "In the Steps of Laurence Sterne," *Radio Times*, 18 January 18 1952: 8.

of *Lord of the Flies*, and strongly believed in the power of evocative sound effects serving as music, writing in a memo to McWhinnie (Assistant Head of Drama) that “My intention was not to use music as such but rather to introduce various rhythmic sound effects, composed in musical terms and arranged for a small section of wind and percussion instruments.”¹⁵ He offered as possible examples a brush on the drums to represent the Desert Island Theme.

The first of Cooper’s plays that called for the use of sound effects as an integral force, indeed, motivating force behind the drama was *Mathry Beacon*, produced by McWhinnie in 1956. To describe the plot briefly, a military outfit during World War II, consisting of four men and two women, is stationed to guard a mysterious new anti-German weapon known as The Deflector. The crew have no idea how the machine works or even if it works at all (which it doesn’t). Years pass, the war ends, a new war starts, they have children, and still they guard the useless Deflector until, twenty years later, one of the crew smashes it and its sound stops. They realize they have lived most of their lives under the hypnotic authority of the Deflector, which ultimately served no purpose at all.

The Deflector itself is never described. The script contains the stage indication “The sound made by the Deflector is a high, rhythmic humming.

¹⁵ BBC Written Archives Centre (WAC) Rcont 2 – Cooper, Giles, Scriptwriter, file 2b, 1955-56.

While musical in its effect it must not appear to be instrumental in origin.”¹⁶ Like the “alien” sound in the *Journey into Space* plays, the Deflector is described musically, to act in the same enigmatic way as electronic sounds were seen to behave. The Deflector was to be a constant presence in the play, a character watching over the others in a gradually overpowering way. Technology is also meant to be a metaphor for the stifling status quo, a constant theme in Cooper’s writing. Pieces of machinery frequently stand in for middle-class capitalistic security, accompanied by all kinds of culturally determined baggage: masculinity, sexuality, industry, the expectation to “work hard.” Here, in *Mathry Beacon*, the direct possibility of a technological, electronic solution to the requirements of drama is immediately apparent. The reason this kind of solution wasn’t immediately seized upon was that by 1956, there still didn’t exist a thorough understanding in England of exactly what the French and German electronic and concrete experimenters had been working on, or similar radio drama productions in those countries.

It had only been a year since the first electronic music had been written for an English Feature, and the first broadcast of *musique concrète*. As shown in the previous chapter, the musical community generally reacted with hostility to such efforts, and the few broadcasts that had been aired had

¹⁶ Giles Cooper, *Mathry Beacon*, in *Giles Cooper: Six Plays for Radio*. (Letchworth, Hertfordshire: BBC Books, 1966), 14.

been largely dismissed as novelties. This attitude was to change, however, if not among musicians and the Music Department, then among the producers and writers of radio drama. In March, 1955, a critic for *The Score* wrote:

When is the BBC going to give us a fully equipped studio for electronic music? It is perhaps too much to expect the Music Department to be interested. But if producers of radio plays and sound engineers only knew what fascinating never dreamed of noises they could also get from it, they might easily start a lively campaign in favour of its creation.¹⁷

This seems to capture the spirit of the critical and creative mood of the time. 1955 was a watershed year for the BBC and electronic sound. The month of June saw two significant electronic/*concrète* broadcasts on the Third Programme, both organized by Douglas Cleverdon from European originals. On June 7th, the opera *Nadja Etoilée*, with traditional music composed by Maurice Jarre, and *musique concrète* by Parisian concretist André Almuero, was broadcast. This was the start of a collaboration between Almuero and Cleverdon, (and for Almuero, the beginning of a personal campaign to encourage the use of *musique concrète* in England) but for the broadcast of this initial work, originally recorded at the RTF in 1954, Cleverdon only wrote a brief introduction outlining the methods used by Almuero. "It cannot," he wrote, "strictly be described as "musique concrete"

¹⁷ "Electronic Music," *The Score* (March 1955).

[sic] in as much as it is not derived from non-musical sounds, but takes as its basic material music performed by an orchestra.”¹⁸

Cleverdon also wrote an introduction for the June 29th broadcast of Henk Badings’ 1954 Italia Prize winning radiophonic opera *Orestes*. In trying to prepare the audience for what they were about to hear, he adapted Badings’ own notes to his opera: “Listeners may like to know that the preparation of the opera involved a number of technical devices, including the use of frequency filters, the superimposition of recordings both of voices and of percussion, the montage of fragmentary extracts from earlier scenes, and the raising of the vocal pitch of the chorus of the Furies by doubling the speed of tape recordings.”¹⁹ This exposure to the techniques of *musique concrète* for Cleverdon was to have a profound effect and influence on him. It is not insignificant that Cleverdon was attached to the Features Department rather than Music. Because of it, he was able to escape the ideological baggage attached to the tradition of avant-garde music in Britain.

Orestes received a positive response from the press, with the independent music critic for the *Radio Times* calling it a “highly successful experiment”, but (seemingly because he liked it) insisting upon a distinction

¹⁸ WAC R97/34/1.

¹⁹ Ibid.

between this work and *musique concrète*, which he notes “is an assemblage of noises, bearing no relation apart from its rhythm to music, as we normally understand the term.” On the other hand, it was generous praise for a British music critic of the time to acknowledge that “Henk Badings uses these devices for genuinely musical ends.”²⁰

One of the biggest stumbling blocks for composers interested in tape techniques was quite simply the lack of available tape. Magnetic tape wasn't immediately available in England in a practical and durable format until the early 1950s. Although the technical knowledge existed, material supplies necessary to produce tape music were lacking in the years immediately after the war. A *Radio Times* article from 1951 explained the promise of the new technology and its applicability to broadcasting:

A special section of the BBC Research Department is devoted entirely to the study of the various aspects of recording and reproduction. It was this section that designed the BBC Type D disc recorder—universally admitted to be one of the best in the world—to meet the special requirements of the BBC. . . Most of the recording cars are large saloons fitted with battery-operated single turntables disc-recording equipment, though a few now carry, experimentally, the latest type of electro-magnetic tape recorders. . . A tiny portable tape recorder, little bigger than a lady's handbag, is now coming into use, with surprisingly good results. When perfected, the midget recorder may well revolutionize mobile recording work.

Tape Is Used Over and Over Again – Great improvements have recently been made in recording on long lengths of magnetically sensitized tape. The recording is made by varying

²⁰ “Radiophony and Melodrama,” *Radio Times*, 7 July 1955: 39.

magnetisation of the tape along its length in sympathy with the variations in the sound of the programme. One great advantage of such a system is that relatively little wear takes place on reproduction. Another is that the same tape can be used over and over again, previous recordings being automatically erased as a new one is made. The changes made in the magnetic state of the tape are not visible to the eye so that a tape that has been recorded upon looks exactly the same as one that has no programme on it. No wonder I claim that there's magic in recording!²¹

As I noted in chapter two, invoking “magic” to explain how tape recorders work is a common trope at the beginning of its history, as if technology was somehow beyond the ability of the layperson to understand. The difference between a phonograph record, where the grooves are clearly visible, and the matte surface of magnetic tape, unreadable and mysterious, is used as a further example of how science and the inapproachably brilliant scientist are improving the lives and world of the common people under him.

The first original electronic music composed for a play or feature was Tristram Cary's *The Japanese Fishermen*, broadcast on October 5, 1955.²² Cary is important in the history of British electronic music not only because he was one of the first Britons to compose using the cut and paste techniques of *musique concrète*, often in combination with traditional

²¹ Percival J. Guy, “There's Magic in Recording,” *Radio Times*, 30 November 1951: 6.

²² If one doesn't count the “musical” effects used in *Journey into Space*, discussed above.

instruments, but because with no institutional support he built up his own studio far from the centers of Paris, Cologne and Milan. If he has been forgotten (or, indeed, neglected from the start) it is because his music was mostly for radio, television and film, all traditionally disparaged genres (although he has had quite a prolific career as a concert composer as well). Cary was born in 1925, and while serving in the Royal Navy during the War, specialized in Radar, receiving an education in electronics. This education, combined with his compositional experience – he had been composing since he was fourteen – led to the possibility of “realizing music as a recording rather than a performance,” using the technology of magnetic tape and turntables (much the same realization Schaeffer had made at roughly the same time.)²³ Without the resources of Schaeffer, though, and without access to contemporary writings on the subject, he was only able to theorize his ideas.²⁴

After the War, Cary continued his interrupted collegiate education, and studied composition in London, incorporating the electronic techniques

²³ Tristram Cary, introduction to *Dictionary of Musical Technology* (New York: Greenwood Press, 1987), xv.

²⁴ Which he did by dividing his “new aesthetic” into seven main features: 1. Any sound became available for use as music using recording. 2. Using oscillators, quite new sounds would be available. 3. One was not limited to standard, fixed tuning. 4. By editing and changing speed and direction change, it was possible to use only parts of sounds, and combine sounds in unique ways. 5. Using ‘montage’, an orchestra of any size could be created. 6. Elaborate cross-rhythms became possible outside of real-time. 7. Timbre could be altered using manipulation of sound.

he had experimented with since the War using a lathe purchased in 1946 for £50. He bought his first tape recorder in 1952. Cary made his practical living composing traditional incidental scores for the BBC, (including in 1954 *The Saint and the Sinner*, *The Trickster of Seville* and *Belshazzar's Feast*, all produced by Frederick Bradnum) which brought him to the attention of Terence Tiller, who produced *The Japanese Fishermen* for Features Department to broadcast on the Third. The music was created on Cary's equipment in his Earl's Court studio, and used oscillators recorded onto 78rpm discs, since, again, tape was still quite difficult to come by, and Cary had perfected, like Schaeffer, his techniques on shellac discs. The sounds he created were used in combination with traditional percussion instruments.²⁵

Douglas Cleverdon's first experience with the actual making of *musique concrète* was in December 1955. *Night Thoughts*, a "radiophonic poem" by David Gascoyne, with music (both concrete and traditional) by Humphrey Searle, portrayed London by night. Cleverdon and Searle worked together, composer Searle learning as he went as well, unfamiliar with the techniques of *musique concrète*. Searle recalls:

To accompany the long dream sequence in the centre of the feature, we asked the famous percussionist James Blades to record all possible kinds of percussion sounds. We then played these backwards at various speeds; we could only make the speed either twice or four times as fast or slow; the BBC had

²⁵ Although, because of concerns that he would be seen as taking jobs from unemployed musicians, he was credited as "deviser of Special Effects" rather than composer.

no variable speed controls in those days. In spite of these technical handicaps we produced some very interesting sounds and were later congratulated by a French composer of electronic music on what we had been able to achieve with such meagre resources.²⁶

Cleverdon produced Henry Reed's next popular Hilda Tablet ("Lady Composeress") satirical play, *A Hedge, Backwards*, broadcast Feb 29, 1956. The third play in the Hilda Tablet series, Mary O'Farrell starred as a sort-of domineering amalgamation of Elisabeth Lutyens, Ethyl Smyth and Benjamin Britten (both Lutyens and Britten thought Reed was poking fun at them in Tablet, and were furious). Always desperate to try new compositional things, and usually failing dramatically, Tablet attempts her own special brand of *musique concrète* for her new production of *Anthony and Cleopatra*, as she explains to her biographer, Herbert Reeve in Example 3:

Example 3:

Hilda: I may say the music is going to be a pretty sharp smack on the you-know-what for the Consolidated Instrumentalists' so-called Union.

Reeve: How have you managed that?

Hilda: Conkers.

Reeve: C...conkers, Hilda?

Hilda: *Musique concrète*. Concrete music. You know about it?

Reeve: No.

Hilda: You tape it.

Reeve: Tape it?

²⁶ Humphrey Searle, *Quadrille with a Raven: Memoirs by Humphrey Searle*. <<http://www.musicweb.uk.net/searle/break.htm>> (21 March 2003).

Hilda: And dub it to disc after. (*instructively*) Of course, most of the johnnies who do it rely on pure sound, amplified and speeded up and reversed and so on. Needless to say, I have my own little line on the thing. For one thing, I think the discerning listener could probably tell you almost at once that my *musique concrète* is very much louder than anybody else's.

Reeve: Is it really?

Hilda: Oh, yes, quite a bit. Also, for fair measure I clamp a few simple little haunting tunes of my own, repeated, over and over. That's why my own brand is called *musique concrète renforcée*; reinforced concrete music.²⁷

To realize this *musique concrète renforcée*, Cleverdon used his knowledge and experience of radiophonic techniques to collaborate with composer Donald Swann to create "some examples...based on comb and paper, Marjorie Westbury's zip fastener, etc."²⁸ This very "Third" kind of humor counts on the audience's familiarity with at least the ideas behind *musique concrète*, an example of its growing presence on the Third, the techniques being used for the first time in comedy there. The influence of the *Goon Show*, and the earlier sound effects gags are to be found in abundance here, used for an ostensibly more high-brow programme, but with undeniably low-brow results!

In November 1956, Donald McWhinnie traveled to Paris to meet personally the composers behind *musique concrète*, and submitted a report

²⁷ Henry Reed, *A Hedge Backwards in Hilda Tablet and Others: Four Pieces for Radio* (London: British Broadcasting Corporation, 1971), 130-1.

²⁸ Humphrey, *Envy of the World*, 159.

to Brian George, Head of Central Programme Operations, upon his return.

In it he notes the necessity of:

obtaining facilities for private experiment and for making recordings which may never be broadcast. Clearly the exact requirements would have to be worked out in detail with a technical expert and in consultation with the Club d'Essai: I should say that the basic essentials would be a room containing two or three tape reproduction machines, turntables for slow speed of 78s, a tape-recorder, facilities for echo, filters, etc., and a small studio with two or three microphone points, an old piano, various percussion instruments and space for two or three actors.²⁹

George, whose job it was to ensure that the BBC kept up-to-date with the latest technological innovations, was curious enough about the kinds of works producers like Cleverdon and McWhinnie had been making to form the Electro-Phonic Effects Committee (EEC) to set up the proposed unit. George commissioned a report to hash out possible options for staffing and technical facilities should the BBC decide to explore further the new techniques.³⁰ Producers Donald McWhinnie and Douglas Cleverdon, T.H. Eckersley, the Assistant Head of Central Programme Operations (Recording), along with composers Daphne Oram (also a Studio Manager with Music Department) and Andre Almuro assembled the document giving a historical outline of both *musique concrète* and *Elektronische Musik*. In

²⁹ Desmond Briscoe and Roy Curtis-Bramwell, *The BBC Radiophonic Workshop: The First 25 Years* (London: BBC, 1983), 27-28.

³⁰ WAC R97/11/1 – Radiophonic Workshop General (1953-73) File 1

this five-page document, the works of the French and German studios were contrasted with the demand the BBC would have for such a studio:

Cologne and Paris have developed this medium primarily as an art form, but in this country there is a demand by Features Department for the use of Musique Concrete [sic]. . Undoubtedly, Radiophonic Music is in a primitive and elementary form and it therefore seems prudent to commence our work from the first principles, and in doing so it is probably that we will develop a facet of the technique that has been overlooked by the workers on the Continent.³¹

In this description of the potential duties of staff in the studio, there is a remarkable similarity to the fears first voiced about the staff of Research Division in the 20s and 30s, “Whilst a free hand must be given to those working in the section, it will be necessary to exercise a strict, but understanding control over their work. Self-discipline is most important as their work will be erratic and will not follow a normal shift pattern.”³²

Cleverdon and Searle’s production of *Night Thoughts*, from December of the previous year, is said to have been “restricted owing to the limitation both in the numbers and the performance of our existing tape machines,” and the document concludes by suggesting that “once basic techniques are mastered, discussions should commence with Features and Drama Departments,” offering a tentative shopping list for the basic

³¹ WAC R97/7/1 – Report on *Musique Concrète* and Electronic Music, dated November 1956, 3.

³² *Ibid.*, 3.

equipment necessary for setting up a studio. Basing their list on Continental models, they included as many pieces of equipment as possible, knowing they wouldn't get everything they asked for. These included:

1. Two standard 7 1/2" or 15" speed tape machines
2. Three specially designed tape machines, capable of running at variable speeds (up to 30" per second). They must be capable of reproducing when winding back. Erase heads must be able to be disconnected, and must be controllable.
3. One specially designed tape machine for reproduction
4. A conventional mixing unit
5. Adjustable audio frequency generators [oscillators], some with square wave and warble facilities.
6. Variable filters. The writer understands that a comparatively cheap device is available on the Continent.
7. A disk reproduction desk – multi speed
8. One disk recording machine to enable sequences to be transferred from tape to disk for studio work.

George commented on this optimistic list, noting that “you perhaps set your sights a little bit too high in terms of staff and technical facilities, bearing in mind the present financial stringency.”³³

The subsequent meetings of the EEC and the eventual opening of the Radiophonic Workshop is the subject of the following chapter. I want to spend the rest of this chapter, however, describing those works that were produced during this tumultuous time; pieces that were commissioned and produced using concrete and electronic techniques before a permanent home for them existed. Table 1 summarizes those major works produced

³³ WAC R97/11/1 Nov 12, 1956.

and broadcast between November 1956 and April 1958, when the Workshop officially opened its doors:³⁴

³⁴ To this list can be added several productions of which little is known other than that they contain some degree of radiophonic sound: The signature tune for the program, *Tuesday Tune Time, Music in All Directions* (mentioned in the minutes of the meeting of the Radiophonic Effects Committee meeting, April 4, 1957); *Prometheus Unbound* – “several Radiophonic Effects employed”, broadcast March 25, 1957 (also mentioned at April 4th meeting), and described in an undated list from around 1958: “Translation by Rex Warner, adapted by Helen Wood and produced by Val Gielgud. Includes Radiophonic effects devised by Daphne Oram and Madeau Stewart” (WAC R97/7/1 Radiophonic Effects and Electronic Music (1956-63)); three productions not mentioned in later sources referred to in an undated document, likely from 1958-59 (WAC R97/1/7 “Complete Programmes (BBC)) are *The Quintaphone*, (28:52) “with text and *musique concrète* by Jeremy Sandford, produced by David Thompson. Effects limited to those that can be obtained with a single tape machine – doubling and halving of speed, reversal and loops of tape”, *The Unexpected Country* (28.38) – produced by Sasha Moorsom. “This contains obsessive background sounds of the type most easily produced by tape loops. These ‘montages’ are by Roberto Gerhard.” and *Death of Grass* (84:40) – produced by Donald McWhinnie “Story by John Christopher, adapted by Stephen Grenfell. Existing recordings of French *Musique Concrète* have here been successfully applied to a science fiction story. These are mostly used in the first thirty minutes of the programme.” These are mentioned in a letter dated February 25th 1958 from R.V.A. George to McWhinnie in his capacity as Assistant Director of Sound Drama. George, in a letter to McWhinnie dated February 25th 1958 also mentions that “a small amount of work has also been undertaken for Features, Light Music and Television Drama; *Heartbreak House* (January 26th, 1958), a television program with effects by Daphne Oram (a television program noted in a letter dated February 10, 1958 from M.R.G Gerrard to the Assistant Head Controller of Programme Operations). *Heartbreak House*’s reception was influenced by the broadcast immediately preceding it; a news program, *Monitor*, where director Peter Brook demonstrated the techniques of *musique concrète*: None of these productions would be mentioned in later Workshop documentation; finally, I have discovered an undated note handwritten by Daphne Oram while working on Gibson’s *A Winter Journey* (December 1957) listing radiophonic projects to date. Some are familiar, while for some nothing more is known and were never mentioned again: “1. Light Music Signature Tune 2. Attempt to provide TV News Signature Tune 3. Prometheus 4. Kraken Wakes (experimental – not broadcast) 5. The Cocktail 6. Private Dreams and Public Nightmares 7. The River Man 8. Metamorphosis 9. The Hungry Spider. Numbers 5, 7, 9 contain only minor Radiophonic treatment.” (WAC R97/7/1 Radiophonic Effects and Electronic Music (1956-63)).

Table 1:

Date	Title of Work	Producer	Sound Designer/ Composer/ Engineer
1/11/57	<i>All That Fall</i>	Donald McWhinnie	Desmond Briscoe, Norman Bain
3/18/57	<i>Opium</i>	Douglas Cleverdon	André Almuro
8/15/57	<i>The Disagreeable Oyster</i>	Donald McWhinnie	Desmond Briscoe, Norman Bain
10/7/57	<i>Private Dreams and Public Nightmares</i>	Donald McWhinnie	Desmond Briscoe, Norman Bain, Daphne Oram
10/27/57	<i>Metamorphosis</i>	Michael Bakewell	Franz Reizenstein, Desmond Briscoe, Norman Bain, Daphne Oram
2/24/58	<i>A Winter Journey</i>	John Gibson	Desmond Briscoe, Norman Bain, Daphne Oram
3/2/58	<i>Amphitryon 38</i>	Harold Clayton	Daphne Oram, Norman Bain

Each of these works contributed something to the ongoing development of electronic sound in radio – and with *Amphitryon 38*, the first use in television. As each project attempted more and more ambitious sound and musical effects, there began to evolve an aesthetic unique to the BBC, one that involved a distinctive combination of words and sound. I will be concentrating on the first four of these works in greater depth, since these were to be the most influential and widely-discussed. By the time of Michael Bakewell's production of *Metamorphosis*, the debate over whether or not

the application of electronic sound to radio drama had ended. Critical evaluations became much more centered on individual uses of such effects.

All That Fall

Beckett's first English language radio play *All that Fall*, which premiered on Jan 17, 1957 on the Third Programme, was considered by the founders of the Workshop as the real starting place for the use of electronic effects in drama. It was produced by Donald McWhinnie, and contained sounds previously unheard on British radio in a domestic production, thus bringing to the attention of the wider public the potential for tape effects in drama. McWhinnie believed that, in the face of television, and reviving a thread of earlier producers, "if Sound Drama is ultimately to survive it must be on its own terms—that is to say with specially scripted work which makes full use of radio's unique flexibility, intimacy, and capacity for imaginative and evocative story-telling."³⁵

Beckett's original radio work continued the trajectory of his earlier plays, such as *Waiting for Godot* (1952), which had explored issues of isolation and existential Angst against a backdrop of a world in half-focus. Martin Esslin, in his essential book *The Theatre of the Absurd*, described Beckett's works as articulating the same concerns as a number of other

³⁵ Donald McWhinnie, "A Season of New Radio Plays," *Radio Times*, 26 March 1954: 8.

contemporary writers. Included in this loose group are authors as different in style as Eugène Ionesco, Arthur Adamov, Jean Genet and Harold Pinter, all of whom are united in the idea of “a world deprived of a generally accepted integrating principle, which has become disjointed, purposeless – absurd.”³⁶ Having their basis in 19th-century nonsense poetry, music hall traditions, and early 20th-century surrealism, Theatre of the Absurd plays, according to Esslin, “express [the] sense of the senselessness of the human condition and the inadequacy of the rational approach by the open abandonment of rational devices and discursive thought.” Although not part of any organized “movement”, the authors nevertheless make manifest in their works the principle idea that grounds them as a basic assumption. In other words, the disjointed senselessness and irrationality of the universe is itself manifested in the plays through senselessness and irrationality.

All That Fall, as Beckett’s first radio play, forces him to come to terms with the supposed limitations of the medium, and deal with the tradition in radio drama for the primacy of language. One of the foundational tenets of Absurdist theater is the devaluation of language and Beckett returns self-consciously to the subject of language and speech in this play. The central character, Mrs. Rooney, repeatedly draws attention to her own use of language:

³⁶ Martin Esslin, *Theatre of the Absurd*, 3rd Ed. (New York: Penguin Books, 1980), 399.

Mrs. Rooney: Do you find anything...bizarre about my way of speaking? (*Pause.*) I do not mean the voice. (*Pause.*) No, I mean the words. (*Pause. More to herself.*) I use none but the simplest words, I hope, and yet I sometimes find my way of speaking very...bizarre.

Reducing the sensorial spectrum to pure sound, Beckett is able to move beyond language – indeed, revel in the “bizarre”-ness of it – to explore the way other kinds of sound impact the total experience of the play. As Esslin notes, “the Theatre of the Absurd has regained the freedom of using language as merely one – sometimes dominant, sometimes submerged – component of its multidimensional imagery.”³⁷ Language can be just another sound effect, one element in the larger sound picture that combine to convey the impression of “a universe freed from the shackles of logic.”³⁸ Keeping this in mind, it is interesting to note that from the beginning, Beckett and McWhinnie were convinced they did not want “realistic” sound effects. Instead, they were after sounds that could create, through acousmètre, a dreamlike feeling never too far from nightmare.

The story of how Beckett’s play came to be written for the BBC has been recounted expertly by both Clas Zilliacus and Martin Esslin, and I

³⁷ Ibid., 406.

³⁸ Ibid., 343.

won't repeat in detail the process here.³⁹ Suffice it to say, Beckett had been approached in June 1956 by John Morris, the Controller of the Third, in Paris, who offered Beckett the opportunity of contributing something without the pressure of a definite commission. Beckett responded by submitting the manuscript for *All That Fall* on September 26 the same year to Morris, and after revisions in collaboration with producer Donald McWhinnie, submitted the final version on October 15th. McWhinnie met several times with Beckett in Paris to discuss the production, and was encouraged by Beckett's enthusiasm for sonic experimentation. As McWhinnie noted in an article written for the BBC staff magazine, *Ariel*, "Beckett may have had no technical expertise, but he did have...an imaginative awareness of sounds and silence."⁴⁰ Realizing the scope of the effects required, McWhinnie recruited Desmond Briscoe, a drama studio manager experienced in sound effects, to help him devise the unique sounds they would be looking for.

Desmond Briscoe was a percussionist in a dance band before he joined the BBC in the late 1930s as a Programme Engineer. His job was to supervise and control the inserting of sound effects in drama and features as well as control the balance of instruments in musical performances. He

³⁹ Clas Zilliacus, *Beckett and Broadcasting* (Abo: Abo Akademi, 1976) and Martin Esslin, "Samuel Beckett and the Art of Broadcasting," *Encounter* (Sept 1975): 38-46.

⁴⁰ Donald McWhinnie, "Writing for Radio (I)," *Ariel* 2 (July 1957): 7.

joined Features Department in 1941, working as engineer with such producers and writers as D.G. Bridson, Louis MacNeice, Lawrence Gilliam and Joan Littlewood. He was sent to India during the war, and returned to London in 1947 to Broadcasting House, where he continued producing sound effects for radio drama and features. Although he had never been to Paris specifically to hear *musique concrète* (as had McWhinnie), he had heard recordings of the works of Schaeffer and Stockhausen⁴¹, and was fascinated by them. He recalls:

The BBC had a very large library of natural sounds, but some of the discs were distinctly odd in that they played from the middle outwards rather than the other way around. If you put the pick-up on the usual starting position it just fell off. When I was doing sound effects on grams I might well have six or eight turntables to operate at one time. Some records would spiral inwards and some outwards, and the trick was to remember which! Naturally I began to understand how to mix sounds together in order to create a complex sound picture – and this was, I suppose, where my understanding of the techniques and possibilities offered by tape arose.⁴²

He had worked closely with McWhinnie on a number of productions, and McWhinnie approached Briscoe with the script for *All That Fall*, explaining what he and Beckett had in mind. Briscoe, in turn, recruited engineer Norman Bain to act as his assistant and grams operator on the play. It was to be recorded in the Piccadilly Two studio, a popular location

⁴¹ Desmond Briscoe, interview by the author, London, 25 March, 2002.

⁴² Briscoe and Curtis-Bramwell, *BBC Radiophonic Workshop*, 16-17.

for experimental programs before the Workshop was available, since it contained its own control booth for the importation and playback of effects.

Beckett's play concerns the journey of the elderly Maddy (Ma) Rooney, to the train station to meet her blind husband, Dan, who has arrived late due to an unexplained delay. Most of the play's dialogue is delivered by Mrs. Rooney alone, and those she does meet with during the course of her long walk are presented as though in a dream. By the end of the play, it is revealed that the delay was the result of the death of a child who fell out of the train carriage. Her dialogue, however, foreshadows this revelation throughout, and the inevitability of the discovery is echoed in the passivity and non-emotion of Ma Rooney at the play's conclusion as she continues on her weary journey.

The primary issue for the production team concerning the sound effects was the question of their realism. The principle effects required were the sounds of approaching people and vehicles, the train station, the rain, and the sound of Ma and Dan Rooney's footsteps. It is never clear if what the audience hears is in fact "reality" or reality heard through the filter of Ma's mind, and from the first line of the play:

Rural sounds. Sheep, bird, cow, cock, severally, then together.

Silence.

McWhinnie skews the listener's perception by recreating the animal's sounds with human actors imitating the sound of animals. What this does is let the listener know right away not to necessarily trust at face value any of the sounds they are about to hear. Everything, like Ma, is just slightly "off." McWhinnie acknowledges that this decision to skew sound into the direction of surreality (as Esslin had intimated) is, in fact, a mirror of the philosophical tenets of the play itself: "It is a stylized form of scene-setting, containing within itself a pointer to the convention of the play: a mixture of realism and poetry, frustration and farce."⁴³ Briscoe acknowledges that tape effects, although important to the production, were actually only used a few times here, with most of the effects coming from simple treatments of standard sound effects, or specially made recordings Briscoe created himself using an echo chamber. He recalls, "I was responsible for making, personally, many of the sounds, and for the sound treatment and mixing of the whole production; many of the sounds were, in fact, made in the studio with the actors, and it was virtually a one-take session."⁴⁴

As each new character approaches Ma, their arrival is signaled by a sound effect that has been treated to distort or echo it. The sound gradually comes into focus the closer they get, losing the treatment, until at their

⁴³ McWhinnie, *Art of Radio*, 133.

⁴⁴ Zilliacus, *Beckett and Broadcasting*, 73.

arrival next to Ma the sound is natural and realistic. For example, a few minutes into the play, Ma Rooney's reverie is interrupted by Mr. Tyler on his bicycle, the stage directions indicate: *Tyler coming up behind her on his bicycle, on his way to the station. Squeak of brakes. He slows down and rides abreast of her.* The requirements for the effect were twofold: Briscoe and McWhinnie had to both realize the desired effect; that of a blurred object slowly coming into focus, and devise an effect that could be played live into the studio as the actors delivered their lines. As McWhinnie noted, "It is often more rewarding to use real sounds unrealistically – that is to say, distorted, with some of its original characteristics removed, in order to convey a special kind of auditory effect which cannot be achieved so easily by musical means."⁴⁵ In this case, Briscoe used a recording of a bicycle bell and treated it with a thick echo. This echo is gradually removed as the volume is raised, to indicate its closer position to Ma Rooney. This is also done with an approaching car later in the play, and an approaching horse cart.

Probably the most extended effect in the play was the arrival of the up-mail and down trains, as Ma Rooney waits for her husband's arrival. The stage directions are thus:

⁴⁵ McWhinnie, *Art of Radio*, 82.

Immediately exaggerated station sounds. Falling signals. Bells. Whistles. Crescendo of train whistle approaching. Sound of train rushing through station.
Mrs. Rooney: (above rush of train). The up mail! The up mail! (The up mail recedes, the down train approaches, enters the station, pulls up with great hissing of steam and clashing of couplings. Noise of passengers descending, doors banging, Mr. Barrel shouting "Boghill! Boghill!, etc. Piercingly.) Dan!...Are you all right?...Where is he?...Dan!...Did you see my husband?...Dan!...(Noise of station emptying. Guard's whistle. Train departing, receding. Silence.)[...]

McWhinnie wrote of this scene: "in production it is impossible to exaggerate this moment. The sound-complex in its grotesque fantasy must fulfill the wildest expectations and fears of the people who have been biting their nails on the platform; we should hear it as the nightmare realization of their own heightened anxiety."⁴⁶ The answer Briscoe arrived at was to treat the sound of the up-mail train as it arrives by replaying the recorded sound of a train, and the accompanying whistles, back on itself, creating what is known as a "flutter-echo" effect, and this in turn is recorded, resulting in a blurry, confusing, echo-like sound. As the train is meant to be coming closer, the volume is both brought up on the main playback head while at the same time reducing the signal to the recording head, gradually resulting in a simple untreated sound effect. Briscoe recalls the process: "We had heard the sound before on records of *musique concrète* – it wasn't our invention –

⁴⁶ McWhinnie, *Art of Radio*, 146-7.

but it was the first time that we had used it on radio drama. It was particularly good for suggesting that slightly 'fantasy feeling' of things happening in a larger-than-life way."⁴⁷ As the down train arrives and the passengers depart, human voices that had been sped up (ala the *Goon Show*) are heard, opening and closing doors, creating a cacophonous rattle of slamming doors and muttering distorted high-pitched voices. As the train departs, both the technique of flutter-echo and frequency/speed acceleration are used as it fades into the distance, gradually rising in pitch, moving faster and faster, and getting quieter and quieter until it finally disappears altogether.

One of the biggest challenges for the production team was the sound of the rain. Again, McWhinnie wanted a stylized sound to replace a realistic one, and Briscoe came up with quite a unique solution, and one that highlights the interest experimental techniques were garnering among the more ambitious young producers within the BBC:

I got various people who happened to be around for one reason or another, and when we started doing these sorts of things, when we were working in the studio all sorts of people used to turn up just to watch and listen to see what we were doing, and on this particular occasion, amongst the others, there was John Gibson and Michael Bakewell [producers who would be among the first to use radiophonic techniques after this production] amongst this group of people I had all standing around the microphone all going

⁴⁷ Briscoe and Curtis-Bramwell, *BBC Radiophonic Workshop*, 18.

“tsts tst tsstttst tsts” with their lips and this was the rain, of course.⁴⁸

Briscoe ran the sound through an equalizer, removing all bass frequencies, and played back the treble-heavy sound into the studio live at the production. The result sounds more like light tapping on a drum head, with very little reverberation, each iteration specifically distinct but somehow slightly distorted.

Again, I think Chion’s terms are useful for describing exactly why these sounds are such “nightmare realizations.” Although we as listeners can recognize the source of the sound (e.g. “rain”, “bicycle”, “train”, “people”), these elements don’t sound the way they are meant to sound. They have been rendered virtual acousmètre by the nature of the change they have undergone. And it is precisely the mystery of the cause of the change that results in our tension, our feeling of bewilderment. The sounds lack the proper synthesis in the necessary combination of synthesis and synchronization to achieve synchresis; it doesn’t contain the expected elements of the anticipated sounds, instead we are offered a replacement, an alternate that doesn’t exist in any real world. The world is possibly the world inside Maddy’s head, and the sound effects are an example of “internal sound”, (e.g., digetic sound that corresponds to the physical and/or mental

⁴⁸ Desmond Briscoe, interview with author, London, 25 March 2002.

interior of a character).⁴⁹ This new version of a familiar sound exists only to upset the listener's expectations and results in the questioning of all aspects of the narrative. The inclusion of virtual acousmatic sound here, which previously we have discussed only with respect to science fiction, is a strong foreshadowing of most early radiophonic productions' use of electronic and tape sounds. That is, not, as one might expect, for science fiction, but rather for those projects that are trying to achieve a detached, dreamlike, alienated, mysterious feel. McWhinnie realized why radio was the perfect medium for exploring these particular aspects of human psychology when he wrote, "For the world of visual detail which the listener creates is a world of limitless dimension; the images may be vivid, but they have no specific proportions; they exist in a world which is largely dream...It is a bridge between poetry or music and reality."⁵⁰ And again, we find that radio encourages these feelings, and these effects tend toward the ineffably "musical." Already such primitive effects were being described in terms of music, as the reviews for the production show.

Reviews were almost unanimously positive for this first production; most critics compared the work in scope and impact to Douglas Cleverdon's original January 1954 production of Dylan Thomas's *Under Milk Wood*,

⁴⁹ The term is, again, Chion's.

⁵⁰ McWhinnie, *Art of Radio*, 37.

(although this was likely the only other radio production conceived on such an ambitious scale they could think of). The effects were almost always singled out as being of particular interest, and again, usually as having greatly added to the production. The Manchester Guardian noted that “McWhinnie’s production had many brilliantly judged sound effects, some of them quite new even to one who has been hearing radio dramas for many years, and all of them removed in a slight degree, from ordinary ‘illustration’ to a more remote plane.”⁵¹ Philip Hope Wallace, writing for *Time and Tide* wrote that “McWhinnie’s production of *All That Fall* was in any case a miraculous web of sound effects...Like a dull bad dream recounted to you by some forcible bore in a Dublin pub, [it] had a tiresome way of penetrating one’s aural imagination all next day. This was a feather in the cap of sound radio drama...”⁵² Paul Ferris for the Observer noted that it “used sound effects in a most painstaking and brilliant fashion...What made Donald McWhinnie’s production especially praiseworthy was his parallel use of effects: semi-realistic, always perfectly clear but not quite normal...It all sounds a bit arty, but the effect was completely uncontrived.”⁵³ Finally, Harold Hobson’s review in *The Times* was the first to note the similarity in

⁵¹ *Manchester Guardian*, 15 Jan 1957.

⁵² Philip Hope Wallace, *Time and Tide*, 19 Jan 1957.

⁵³ Paul Ferris, *The Observer*, 20 Jan 1957.

tone to the works of other authors, like Adamov and Ionesco, and observed again the musical quality of the language and effects: "Beckett...aspires...to the condition of music. He makes no precise statements. [His plays] are not exercises in thought, and have a closer resemblance to Mozart than to Ibsen."⁵⁴ It is clear that this play hit a chord with audiences eager to explore the darker and more bizarre areas of the human psyche, who weren't put off by the use of electronic sounds and tape treatment as a way of manifesting that worldview. This reaction bears comparison with the opposite way such sounds were receiving by the intellectual community when used in a purely musical setting.

The Disagreeable Oyster

With the overwhelmingly positive response to *All That Fall*, radiophonic productions received a push, although the internal publicity derived from George's electrophonic committee certainly must have helped as well. Giles Cooper's next script after *Mathry Beacon*, *The Disagreeable Oyster*, completed on August 25th, 1956, was originally intended for the Home Service, but its plot seemed too fantastic, too convoluted, and too divorced from reality for Home – and this difficulty in placement was the reason it ended up broadcast after *Opium*. The plot concerns a man who spends a surreal weekend away from his wife, caught between two versions

⁵⁴ Harold Hobson, *The Times* (London), 20 Jan 1957.

of himself (Bundy and Bundy Minor). The two sides of his personality debate and battle over how he should behave. While, on the one hand, he feels “expected” to pursue the opposite sex, get drunk in the pub and generally run wild, the other side, the voice of his conscience, continually reminds him – in increasingly absurd situations – of his domestic obligations: his wife, his job. Every attempt he makes to enjoy the supposed “liberatory” aspects of being ostensibly single for the weekend is thwarted by his inexperience and timidity.

Technology, so prevalent as a ubiquitous specter in *Mathry Beacon*, again takes center stage as a lobotomizing influence upon Bundy and his alter ego. Bundy begins the play surrounded by comforting symbols of technology, industry, and efficiency: for example, at his work, all views are blocked outside of the window except for an air shaft and a mercantile bank. His boss, the aptly named Mr. Gunn, lords over his employees at Craddock’s Calculators Ltd. During the course of the play Bundy is sent as technical repairman of the V.V.X. machine to C.C.W. works in “the north.” His internal voice betrays an internal paranoia: “I haven’t slept away from home for 22 years but I couldn’t tell him that.” And again, while on the train, he betrays his insecurities about being away from the safety of his home by noting, “they can’t fool me because all the houses look like mine, oh no, these are northerly suburbs, Eskimo land...”

Once in “the north” he is confronted by a sonically distorted soundworld, where the manipulation of sound is used to refashion his environment into a threatening “feminized” place. The idea that the technological sound can represent the exotic and therefore feminine has been discussed in the context of space-age “exotic” records exactly contemporaneous with this play by Timothy Taylor in his book, *Strange Sounds*. In these records with titles like “Music for Heavenly Bodies” and “Music from the Moon,” women are represented as belonging to the ideological complex space/unknown/technology with the Theremin or other electronic sounds evoking the idea of the “exotic” or unusual against a backdrop of masculine rationality. The association of women with this complex is apparent in cover art, where in one memorable example three scantily-clad women “aliens” with antennae flirt with two men in spacesuits, as well as in the liner notes, where, for example, “Heavenly bodies, whether it be the type that whirl about us in space, or those that have the glitter of Monroe, Mansfield or Bardot, have always had a magnetic attraction for man.”⁵⁵ Here the exotic is erotic, and women are reduced to an unknown but desirable phenomenon. This differs from the exotic *dangerous* women of Cooper’s play, but the same signifiers apply.

⁵⁵ Tim Taylor, *Strange Sounds* (New York: Routledge, 2001), 89.

In *The Disagreeable Oyster*, one of our hero's first encounters after he arrives north is with a feminine man named Peregrin who instantly demands to be his friend. Peregrin tells him, "Do you know there isn't a poetry reading circle for thirty three miles in any direction, nor an art-gallery, nor a string-quartet, nor even an Espresso [sic] bar. We're a desert, Mervyn, and I'm a camel." Bundy runs away with his footsteps sped up *ala* the Goon Show. He goes through a series of progressively more and more harrowing demasculinizing events, with more and more treated sounds piled on, until he is literally stripped naked and left in the street by a crowd of shrieking women, voices sped up and distorted. Distancing this Orphean horror from the silliness of the Goon Show, sound designer Desmond Briscoe insists "we used them [altered voices] because they seemed appropriate, certainly not because the Goons had used them."⁵⁶

The unconventional nature of the play sparked an internal debate over its suitability almost from the day it was submitted, especially concerning its appropriateness for the Third Programme. In her report on the play, Assistant Script Editor Drama (Sound), Mollie Greenhalgh wrote:

It is ingenious, imaginative, highly original, needless to say. But its fantasy seems to me so divorced from humanity that the possibilities of humour are at times lost in the strained attempt at nightmare. . .SO much depends on production with this script. . .One admires and appreciates his technical

⁵⁶ Briscoe and Curtis-Bramwell, *BBC Radiophonic Workshop*, 19.

ingenuity, but this particular piece is going to be connoisseur's meat; the average listener will hate it.⁵⁷

By September 19, it was decided that the production would probably be on the Third Programme, owing to the difficulty of the subject, and the abstract nature of the storytelling, a plan that hit another snag when the script was rejected by the Third as being too low-brow! Cooper himself acknowledged the ambiguity of the piece in a letter to Barbara Bray, commissioning editor for Drama Department in a letter saying, "I don't know that one really ought to call it a play. It's more like a piece of music."⁵⁸ This aspect was noted and latched onto by Bray, who wrote to Cooper on December 19, 1956 (a week after George's Electrophonic Effects Committee met for the first time), wondering:

whether you are at all interested in the sort of technique that the French have been using for some time? We have here an album of RTF recordings which involve musique concrete and allied effects, which I and many others found very exciting, and indeed inspiring. I wonder whether you could come in one day and listen to them, and go away inspired and do likewise?⁵⁹

Bray agreed with Cooper's assessment of the work, that it was more music than play, or at least a unique combination of the two, the relationship of which was similar to that of sound and music in *musique*

⁵⁷ WAC RCont 1 – Cooper, Giles, Scriptwriter, file 2b, 1955-56.

⁵⁸ *Ibid.*, Aug 25, 1956

⁵⁹ *Ibid.*

concrète. Due to the experimental nature of the play, its producer, McWhinnie hoped that some of the production costs could be met by the BBC's small Experimental Fund. He, in his capacity both as producer and as Assistant Head of Drama, wrote to the Controller of Sound Entertainment, Michael Standing, asking if this money could be made available for the production, noting that "It would be a great pity if such an amusing and enterprising attempt at radio writing could not be given a chance to prove itself in performance."⁶⁰ Val Gielgud, voicing his agreement with McWhinnie, added at the bottom of the memo, "I hope you may feel inclined and able to agree to this." Standing's main objection to providing the funds seems to have been the lack of support from either Home or Third, but shortly after the approval of the Third's director on December 14th, the money (£320) was offered to the production.

Rehearsals and recording for McWhinnie's production of *The Disagreeable Oyster* occurred in the Piccadilly 2 studios, the same as those used for *All That Fall*, for the same reason; it was easier to import pre-recorded sound effects into the studio because of the attached control room. Cooper had followed Bray's advice, and embraced the use of concrete effects in his play wholeheartedly. In many ways, the possibilities concrete effects opened up to Cooper matched perfectly his peculiar perspective, or, in the

⁶⁰ Ibid.

words of drama historian Frances Gray, “The technical demands he made reflected his special vision of a reality that shifts and changes, yet is never divorced from an everyday *Gestalt*.”⁶¹

In the production script, the potential effects were written in, both typed and handwritten, next to the dialogue, as in this example:

Alice: (Distort) Did you remember to get a wrapped loaf?”

[handwritten] “Speeded”

This slight advance – the incorporation of recently successful techniques as an essential part of the scriptwriting – led to a production that continued the evolution towards works that used electronic effects in a more integrated fashion. There were very few reviews of the program, but what little was said was generally positive, with the anonymous reviewer in the *Radio Times* comparing the show to the Goons:

“Sound effects and production of a type more readily associated with the *Goon Show* than with drama productions are among the vital ingredients of Giles Cooper’s play, *The Disagreeable Oyster*”⁶²

Opium

Douglas Cleverdon’s first real collaboration with Andre Almuro (as opposed to the opera *Nadja Etoilee*, which was a direct rebroadcast) was

⁶¹ Frances Gray, “Giles Cooper: The Medium as Moralist,” in *British Radio Drama*, ed. John Drakakis (Cambridge: Cambridge University Press, 1981): 140.

⁶² *Radio Times*, 9 August 1957: 5

Opium: An Essay in Musique Concrète, recorded on February 20th, 1957, and broadcast first on the Third Programme on March 18th. It used as its raw material an RTF production, by Almuro, adapted by Cleverdon. To do this, Cleverdon and Almuro worked closely to combine the pre-composed *musique concrète* with electronic treatment of the voices. The 30-minute Feature was based on Jean Cocteau's journal which describes, poetically, the effects of opium, and, as Cleverdon described, "can fairly be called an essay in experimental radio, utilizing the techniques of modern broadcasting to weld together the sound patterns, both musical and nonmusical, which have come to be known as *musique concrète*, and to evoke the mood of Cocteau's brilliant writing."⁶³ In reality, Cleverdon's contribution was to help create the vocal effects and processing, rather than contribute in a significant way to the concrete elements. This was, however, no small feat, and with each speech treated in a unique way, combined at the mixing board by sound engineers, it was reminiscent of Lance Sieveking's virtuoso mastery of the Dramatic Control-Panel. The original production script for *Opium*, which appears initially to be a simple dialogue between two voices, is covered with treatment and equalization directions. The Piccadilly 2 studio again came in handy for the realization of these complex engineering requirements which vitally included the pre-recording of each speech for treatment before

⁶³ *Radio Times*, 15 March 1957: 4.

superimposition onto the concrete music. This was such a revolutionary idea that the studio operations manager, M.R.G. Garrard, wrote to the Central Engineering Department, in a tone not unlike The Outer Limits' "do not adjust your television" introduction to warn them that "the programme contains a number of speeches that are deliberately distorted with various top and bottom outs of the frequency characteristic."⁶⁴ The treatment notes are indicated next to each speech, for example:

- Voice 2: {close and metallic – C 12 and 12 top [equalization indications]} I surrendered to the drug a second time...
{to C 12 normal – very close and quiet} I intoxicated myself with care, never taking more than ten pipes...
{distort -16 Bass and +16 Treble} After five pipes, an idea would change its shape...
- Voice 1: {Off and Echo straight} Under a wide blue sky, standing on a ball as the Hindoo world rests on an elephant and the backs of tortoises...
- Voice 2: {C 12 very close and echo} Opium must make us visible, a little, to the invisible; perhaps it turns us into ghosts {Bass -4, Treble +12} which make the unseen phantoms tremble.⁶⁵

Although Almuro was impressed by Cleverdon's ability to arrange the necessary recording equipment to be used and brought to the Piccadilly 2 studio, they were still forced to take the tape of the English dialogue to the RTF to superimpose it, since they had no way of doing this with the available technology.

⁶⁴ WAC R97/7/1 Radiophonic Effects and Electronic Music (1956-63) letter dated February 26, 1957.

⁶⁵ WAC R97/34/1 – *Opium*, 2-5.

The program was not well received by the press, who had not yet experienced treated voices outside of radio comedy, and to whom such processes still had the ring of the *Goon Show*. One can imply, by the tone of the reviewer for the *Sunday Times*, that, at least for this critic, the idea of *musique concrète* acting as a symbolic representation of a mental state (in this case, under the influence of opium) was a suspect proposition:

Shaky Goon voices began to whisper "Opium...Opium..." over and over again as if they were calling a dog. Another lady, masticating the vocables, struck up a monologue against a background of persistent humming, as if she were sitting in a beehive (perhaps she was). Then everyone ran down into that private Underground the BBC has, and began to echo. Hums, whines, buzzes and psalmody ensued – and if all this was meant to suggest the effects of opium I would say to anyone thinking of trying a pipe "Don't touch it, Jack, you're better without it."⁶⁶

His literal interpretation, based on a "realistic" origin for the sounds, and taking into account his attempt at humor, is either an indication of the failure of the production or his own inexperience with the concept. Perhaps the audience needed a bit more guidance, or at least some kind of explanation as to what they were about to hear. It was probably a mistake to broadcast *Opium* without any kind of preface, or explanatory material to help audiences along.

Private Dreams and Public Nightmares

⁶⁶ Robert Robinson, *Sunday Times* (London), 24 March 1957.

The unsympathetic reception a work like *Opium* received parallels the initial problem McWhinnie faced in finding a Programme for *The Disagreeable Oyster*: There was as yet no distinct “genre” in which to place a work that was, in Cooper’s words “more music than play.” McWhinnie elaborated on this new hybrid genre - one that combined traditional dramatic dialogue with manufactured sound effects specially created – in his next production. For the first time the “tenets” of this new genre were defined and outlined before the broadcast, so that audiences would be aware of what they were listening to ahead of time. This program, broadcast October 7, 1957, *Private Dreams and Public Nightmares*, was subtitled a “Radiophonic Poem” and began with a five minute introduction by McWhinnie. He described both how the sonic effects were achieved, and what the aesthetic effect was meant to be. In this introduction he had to convey both the complexity of the process and the primacy of the effect:

This program is an experiment, an exploration. It has been put together with enormous enthusiasm with equipment designed for other purposes. It’s not a masterpiece, not even a minor one, and it’s not a stunt. We think it is worth broadcasting as a perfectly serious first attempt to find out whether we can convey a new kind of emotional and intellectual experience by means of what we call radiophonic effects.

As a way of establishing the legitimacy of the new art, he reinforces the popular connection of tape music with high technology (and thus with the supernatural or magic) by defining it as “a science of making sound

patterns” capable of creating “a vast and subtle symphony from the sound of a pin dropping...A sort of modern magic.”⁶⁷

One of the most important points for McWhinnie to make was that radiophonics weren’t a new thing; that people on the continent had been doing it for years, and that the British had held aloof, in his opinion, “partly from distrust: ‘is it simply a new toy’, and partly from complacency, ignorance too. We are saying at last we think there’s something in it.” Anticipating complaints from the musically conservative public that it isn’t really music at all, he disavowed its comparison to music by noting that the BBC has chosen the term “radiophonic” over the more controversial “*musique concrète*,” and that the work they are to hear is a completely new genre, the radiophonic poem, “Quite distinct from the poem on page or the poem read aloud, a poetic experience that only exists in terms of a sound complex.” Noting radiophony’s suitability for radio drama, indeed drama of all media, he hoped that these techniques, with their ability to create unheard-of sounds, could be free of irrelevant associations, “with an emotional life of their own.”

The potentially difficult combination of text and effects required a special kind of script, one that took into account the sounds laid on them. The authors must avoid giving the impression that the sounds were added to

⁶⁷ Donald McWhinnie, “Private Dreams and Public Nightmares,” *Radio Times*, 4 October 1957: 27.

the text as an afterthought. McWhinnie made the strong point that the text, written by Frederick Bradnum, "was specifically designed to exploit some of these new sounds, and completely dependent on them for full effect." Like *Opium*, a great deal of the program's effect depended on the electronic treatment of voices, a process McWhinnie defended as providing emotional effects mechanically that would be impossible for an actor to create alone. He acknowledged that some of the effects have been used already for comedy (as in the *Goon Show*) or in science fiction, but that its potential for use in a broader range of dramatic works had yet to be explored. "It's much more difficult to manage tenderness, lyrical beauty, sweetness and light. Perhaps because of the inhuman element in the actual process of manufacture."

One can sense a certain defensive tone in both his radio introduction and the blurb he wrote for the *Radio Times*. He knew his Third Programme audience had already in large part passed sentence on both electronic music and *musique concrète*, and that the piece would be disliked intensely by most of his radio listeners, and he did his best to deflect criticism away from the techniques used, practically begging his audience to listen with patience, and to accept the preliminary stage of their training and abilities:

You may detest this programme, but I hope you won't dismiss it. Certainly nothing like it has come out of your loudspeaker before. . .much work has still to be done before we can handle

them [radiophonic effects] with style and confidence. . . Clearly the new techniques must be used with discretion.⁶⁸

At one moment he even sides with the adversaries, acknowledging that “One thought does occur from time to time, not entirely frivolously, ‘would it not be more illuminating to play the whole thing backwards?’”

Bradnum explained his approach to writing a radiophonic script in terms of certain kinds of opera libretti, particularly Wagner’s:

It must have shape, and an idea, which is worked out and brought to a conclusion. It must impose strong visual images upon the mind, and these should in turn suggest sound patterns. So far as I can see at present, it ought to strike at the subconscious, at the instinctive emotions. By this, the finished work, word and effect, can create a world of different dimensions from that created by any other art form.⁶⁹

The poem is about the helplessness and fear experienced during a nightmare. Three voices represent different sides of the subconscious. The first voice, a female one, acts in conjunction with repetitious sound effects as a drone, representing the state of consciousness; at rest, agitated, etc. The second voice, a male, serves as the antagonistic expression of unconscious fears and pain, who is most often represented at a louder volume, with harsher equalization. It continually chides the 3rd voice, also male, who represents the conscious protagonist. The physical script depicts this

⁶⁸ McWhinnie, “Private Dreams and Public Nightmares,” 27.

⁶⁹ WAC R97/7/1 Radiophonic Effects and Electronic Music (1956-63) “A Radiophonic Poem (Third Programme, October 7, 1957).”

integral combination of voices and sounds with the dialogue on one side, and the proposed effects on the other. McWhinnie reproduced some of this script in his book *The Art of Radio*, and it offers an indication of the abstract conception of the sounds intended. This script indicates only the sound that should accompany the text; it says nothing about the specific treatment of the individual voices, or more precise indications as to how the effects are to be created. I assume that in a performance script, as in the case of *Opium*, the voice treatments would be written next to the appropriate lines of dialogue. Example 4 is the opening of the poem as written in the printed script:

Example 4:

Basic Effects	Dialogue
A contrapuntal rhythm	1 st Voice: Round and round Like a wind from the Ground Deep and deep A world turns in sleep.
A comet-like shriek. Acoustic change. Pulsating beat. Descending scale.	2 nd Voice: I fall through nothing, vast, empty spaces. Darkness and the Pulse of my life Bound, Intertwined with the Pulse of the dark world.
A developed sound like a cry.	Still falling, falling, But slower now...

The actual realization of the effects was a much looser affair than the script indicates. For example, when the second voice enters, the “comet-like shriek” is the only effect utilized until “Still falling, falling”, at which point rather than a “cry”, a rhythm, a sped up version of the opening one, enters, grinding against the pattern of the voice. This rhythm (which sounds like a slowed-down spring “dooooiinggg” looped in a repeating pattern with added echo) gradually slows down to the next line of text, “But slower now, like music the way down, slow defying gravity. Almost to a stop. Almost.” It’s obvious that the effects written in the script were used by the production team as a guide rather than as a literal roadmap. Much of the realization was obviously determined by what they were able to achieve technically, given their limited resources in the studios at Piccadilly Two. Joining Desmond Briscoe was a Studio Manager from the Music Department, Daphne Oram, as well as the engineer Norman Bain.

Oram had joined the BBC in 1943 as a sound engineer, her job consisting of balancing levels for recordings and creating simple sound effects, but she had always harbored an interest in electronic music. By her own account, she would experiment at night after everyone had left the BBC, moving tape recorders together to try the techniques she had heard Continental composers use, replacing them before the staff returned the

next day.⁷⁰ Since preparing the initial document for Brian George outlining the potential and history of this new music, she had had no official outlet for the production of tape music.

The formidable combination of Briscoe's sound effects background and Oram's musical training and experimental curiosity gave the final program a polish never before seen in a radiophonic production in England. The vocal treatments, primarily exaggerated equalizations, contribute hugely to the overall effect. In addition, most of the standard *musique concrète* techniques were used: sped up tape, backward sounds, echo effects, tape loops, mostly of a percussive character. One of the most effective moments is the extended concluding section. McWhinnie had noted in his introduction the difficulty in producing sounds that were warm and beautiful, and it was one of his goals for this production to attempt sounds that weren't just nightmarish, but also representative of a kind of peace or joy. The moment closest to this feeling occurs at the very end (Example 5) where the dreamer is finally comforted by the realization that he himself has generated and embodied all his own worst fears:

Example 5:

Voice 3: My fear! It was you who first made me fear, you who screamed that corruption when I recurred.

⁷⁰ Giles Wilson, "Daphne Oram, the unsung pioneer of techno," <news.bbc.co.uk/2/hi/uk_news/2669735.stm> (1 September 2003).

You who placarded the headlined world into my suspended cocoon of peace. You!

Voice 2: I? Look into my face and tell. What face do you see?

Voice 3: I see myself. The image is no longer divided. Like a mirror, I am you and you are me.
In sleep our shadows cling like those of lovers.
As lovers we can shut out the world. Not think upon tomorrow.
Nor think upon our rootless awakening.

The solution the production team arrived at for this epiphanal ending was to return to a sound much nearer traditional tonal music than the abstract percussive sounds used throughout the rest of the poem. What results is a drone based on the interval of a major third between D-flat and F in a pattern that undulates gently. It provides a comfortable but indefinable warmth, a shell of sound that surrounds the listener with its stability and solidity after the barrage of cacophonous sounds heard earlier. The production team had hit upon something fundamental that would have a profound impact on the way tape music would be used to best effect at the Workshop. One of the things tape manipulation was uniquely good at producing was this kind of low frequency static texture, an effect impossible for traditional instruments to recreate, and also uniquely good at evoking a kind of trance-like state, a scene of absolute stasis, of potentially infinite duration, with a mechanical rhythmic drive that remains frozen in one spot.

This wasn't the most memorable facet of the production to most contemporary listeners, however. It was the jarring and disturbing effect of much of the rest of the program that had the most profound impact on them. An Audience Research Department report survives at the BBC for this production, and it provides a fascinating look at how a group of 97 listeners from all quarters of the Third Programme audience reacted right after hearing it.⁷¹ The audience was asked to grade the program, and provide written comments under this grade. The grade distribution was as follows: A+ 14%, A 20%, B 28%, C 21%, C- 17%, (with C- the lowest grade possible) leading to an appreciation index of 56. Not terrible, but when compared to other programs listed in the report of the same kind, only the initial broadcast of Schaeffer's *Symphonie pour un Homme Seul* – which, remember, was the British public's first exposure to *musique concrète* – scored lower:

1954	Schaeffer's <i>Symphonie pour un Homme Seul</i>	49
1955	Henk Badings – <i>Orestes</i>	62
	Humphrey Searle – <i>Night Thoughts</i>	66
1957	Ton de Leeuw – <i>Job</i>	61

⁷¹ The Third Programme Listening Panel had been set up in the fall of 1954 to express the views of listeners. Members of the panel were sent questionnaires related to forthcoming broadcasts and these were studied by the Audience Research Department and the results assembled into a report.

The anonymous author of the report said that there seemed to be a general approval that the experiment had been made, but that there was a wide range of opinion about the merit of this particular experiment. Most of the audience agreed that the text was a failure and “was considered weak and feeble by a sizable group.” A Bank Official noted that “The words that were spoken were not poetic and they prevented undivided attention being given to the strange sounds: they were an intrusion and an obstacle.” If the text was almost uniformly dismissed, the effects elicited a more divided response. On the one hand, a minority condemned it entirely as “loathsome,” “lunatic ravings,” “cacophony,” while others (a larger group) enjoyed the performance; the largest issue focused on was that there was felt to be a lack of unity between the sounds and the voices, one of McWhinnie’s greatest fears. Listeners either preferred one or the other, one listener writing “Which came first? I sometimes thought that words were simply fitted to the sounds, although the reverse process would seem better,” while another thought that “There was too much talk and the ‘music’ was relegated too much to the background as ‘effects’. I am dying to listen to a programme of nothing but edited sound track, or ‘concrete music.’”

On the other hand, there was a great deal of enthusiasm for the broadcast. The majority of listeners did like it, at least some aspects of it, and wished for more programs of the same kind. One listener called it “a

challenging and fascinating experiment” making “a terrific impact.” Another student said that “the whole work was excellently conceived and extremely powerful.” As usual the cases against this sort of program were made much more forcefully than those in favor. It is also important to notice that the audience for the broadcast was a phenomenally small 0.2% of the total listening public in the United Kingdom.

One interesting observation (shared by several people) by a Research Physicist compared it negatively to the Goon Show, writing, “The Goon Show is intelligent and intelligible – this was not; the Goon Show is both funny and clever – this was neither; but, most important, the Goon Show is always in good taste – which cannot be said for Mr. Bradnum’s nightmare.”⁷²

⁷² Other amusing observations include the following: “I found this at first interesting then oh! So funny! I do hope Mr. Bradnum intended it to be humorous, because it was. What fun it must have been to put over!” (Housewife/former WAAF Clerk): “I thought this was going to be an unusually interesting programme, but it sent me to sleep. I missed the end and dreamt about the Russian satellite instead.” (Civil Servant): “Technically clever, yes. But 20 minutes of technique without emotional or intellectual unity doesn’t seem valuable. Or did I just miss seeing a unity?” (Schoolmaster): “Very, very interesting!! Parts were disturbingly good – parts trite – as one would expect; all things being considered, a most creditable performance.” (Statistician): “The use of ‘Nightmares’ in the title is a useful excuse for the assaults and insults to the ear. Experiments in sound must be made, I suppose, but why to create ugliness instead of beauty? And please hands off the most perfect natural instrument of all, the human voice.” (Wife of Bank Clerk): “This sort of broadcast makes one wonder who is pulling whose leg. I stuck it out – and it was an effort – the twenty minutes of cacophony, in the ever-receding hope that something sensible or worth-while must emerge. But it didn’t, and the Bach concert that followed was quite a wonderful relief, and a return to sanity and beauty. If there was anything lower than a C-, this would have it.” (Wife of Insurance Underwriter).

The mainstream press reaction to it was much less vehement in its disapproval, but its praise was guarded. Like the Audience Report, the reviewer for *The Times* thought the text itself was not worthy of such treatment, and spent most of the extended review slamming this aspect of the production. It is perhaps a sign of the musical establishment's slow warming to the sounds of *musique concrète* that the reviewer could write,

In England we have heard many objections to *musique concrète*, but few of the actual sounds that have provoked so much gleeful disapproval. The unearthly tangle of noises Mr. Peter Brook attached to his production of *Titus Andronicus* recently illustrated the idiom's theatrical possibilities; and last night on the Third Programme, Mr. Frederick Bradnum's "radiophonic poem"...demonstrated its power to support, indeed transfigure, the most commonplace writing.⁷³

The critic noticed the effectiveness of the sounds, at least in one situation:

Many of them were astonishingly visual; the reverberating clash of metal doors stridently gabbled commands, and monotonous footsteps evoked a prison interior that was painfully vivid...During the one passage in the poem where Mr. Bradnum took the trouble to make a clear connection between one section and the next the production ceased to appear arbitrarily experimental.

The generally more positive critical reception the work received by the press seems to be a change from the glowing but guarded reviews of *All That Fall* or the scathing reviews of *Opium*. Although radiophonics were still novel enough to startle and upset some listeners, they had, upon careful listening, come to be regarded as an effective storytelling device, as valid as

⁷³ *The Times* (London), 8 October 1957: 3.

traditional music, and in the case of *Private Dreams and Public Nightmares*, moving beyond music to tell a more effective story than the words alone had the power to do.

A Winter Journey

Despite the seemingly uphill battle each radiophonic production fought, the production team behind John Gibson's *A Winter Journey* tackled a new problem. According to the BBC Publicity Department, "This is the first application the BBC has made of this technique to a dramatic production not specifically written for the purpose." For this program, the team behind *Private Dreams and Public Nightmares* returned to see if it was possible to create a radiophonic poem out of a preexisting text. It seems they weren't entirely successful, and yet it is difficult to tell from the reviews (the recorded program no longer exists) if it was the sounds themselves that offended or the imposition of the sounds on the dialogue. Roy Walker, in his review for *The Listener*, seems almost guilty for disliking the program:

[referring to *Private Dreams and Public Nightmares*] – I thought it had possibilities, and said so. Last week the Third took the experiment a stage further. No doubt they will go on experimenting and they certainly should do so. But James Hanley's 35-minute play 'A Winter Journey' ran up against a major snag. If I now concentrate on this I hope it will not be taken as merely destructive criticism. The BBC has something here. They, and we, have still to make out just what it is, or rather how it can be used with full effect...A play conceived in terms of one sort of effect was literally submerged in production effects of a radically different kind. To some

extern, anyway, producer and playwright were treating the theme in opposite ways. . .Mr. Gibson appreciated that Mr. Hanley was out to contrast the charitable and courageous commonplaces of the lonely old woman with the almost insane intensity that minutiae may assume in such a solitary situation. . .[He] decided to make the nightmare audible and then some. Sense-perceptions were stretched to screaming-point. Cars whizzed past the old woman as she crossed the road like intercontinental missiles under one's nose. Ghost voices of the absent husband and neglectful children emerged from a heaving ground-surge of pulsating sound. Wind never reached anything but gale force. We were to know what the old woman felt as well as what she said. But the understatement of the words and the overstatement of the sounds were on such different planes that no polarity resulted.⁷⁴

He goes on to compare the overwhelming intensity of the effects with color films of Shakespeare, which to his mind loses its poetic effect through visual overstimulation. Walker finally concludes that radiophonic effects can rarely be used successfully for plays not written for the purpose, and adds that the text itself should probably be metrical rather than realistic, since "just as the sounds are not those to which the everyday ear is accustomed, so the words cannot be those of near-naturalism." His enthusiasm for radiophonic effects is apparent when he notes that "this partial failure was far more interesting and important than the week's moderate successes in a more conventional kind, which is why I chose to write at length about it to the exclusion of all else."

⁷⁴ Roy Walker, "Whanged Words," *Listener*, 6 March 1958: 421-423.

By outlining the influential radiophonic productions made between 1957 and the opening of the Workshop in April 1958, I have shown an evolution of technique, from initial tentative steps into a remarkable level of experimentalism given the limited equipment and conditions under which the production teams worked. Chapter four concerns events behind the scenes while these productions were being made. There was a serious effort underway to provide a location, equipment and staff for the development of radiophonic sound. As the writers, producers, technicians, engineers and musicians became more confident in their abilities, the necessity for a place where they could strike out on their own and create an art form with fewer ties to *musique concrète* became more pressing. But everything wasn't smooth sailing. Every good story needs a villain, and here the BBC's Music Department fills the role admirably. They were decidedly against the Radiophonic Workshop, both for practical and philosophical reasons, and were determined to thwart its creation using their considerable influence.

Chapter Four: Ideological Struggles and Pragmatic Realities

In that part of my project is to make as tangible as possible the material reality of radiophonic music's creation, I will spend a great portion of this chapter discussing the physicality of the Workshop; its location, equipment, staff and procedures. The situation surrounding the creation of the Radiophonic Workshop's music was unique in several respects. Their musical style depended to an unusually high degree on their studio equipment's idiosyncracies, and on the space in which they worked. A study of radiophonic music must by necessity deal with issues that are often taken for granted in other areas of research. Without a clear image of the space and equipment from which this music originated, in other words, without a thorough investigation of the *hows* and *wheres*, a deeper understanding of the *whys*, the ultimate purpose of my investigation, becomes impossible.

Let me return to the first discussions about the creation of the Workshop on April 13, 1956, at an Entertainment Divisional Meeting of the BBC. Brian George (Head of Central Programming Operations) proposed setting up a small laboratory in order to experiment with electronic sound effects in radio productions. Shortly before the broadcast of *All That Fall* in November 1956, he commissioned a report from Alec Nesbitt, an engineer who followed developments in electronic music, on the subject of *musique*

concrète and *Elektronische Musik*. In this five-page document, Nesbitt traced the history of the genres described, the existing facilities in France, Germany, the USA, and the rest of Europe, and discussed ways of establishing a similar studio at the BBC. He argued that in addition to studio equipment, the new department would need four employees (whom he never refers to as “musicians”), an engineer capable of creating and repairing machines, and three “tape editors and devisors of special effects.” He suggests that Studio Managers (SMs) could do the editing and effects. This was a position slightly higher than an engineer in the BBC hierarchy and one that valued creativity and originality. After examining the document, George assembled a group of producers, SMs, and other bureaucratic officials from various departments to form the Electroponic Effects Committee (EEC), which convened for the first time on December 14 1956.¹ At this meeting, they debated again what kind of facilities and staffing were needed for the proposed unit, who would direct it and what its administrative structure would be. Since they found the extemporaneous qualities of sound effects especially important, they noted that, “perhaps it might be stressed that the ability to improvise will be a quality preeminently

¹ The EEC was comprised of Pip Porter (Chairman), Dr. F.W. Alexander (Senior Superintendent Engineer, External Broadcasting), D. Winget (SER), Eckersley (Assistant Head in Charge of Programme Operations (Recording)), and M.R.G. Garrard (Organiser, Studio Operations).

to be looked for both on the technical and production sides of the team.”² They also emphasized in this initial meeting whether they wanted to “loan” SMs and Engineers to the new department rather than creating permanent appointments. Later documents indicate that the committee believed musicians/engineers would be able to deal with electronic sound effects only for a limited amount of time before succumbing to mental instability!³

In his enthusiasm to teach others within the BBC about the potential of electronic and tape effects and music, producer Douglas Cleverdon arranged to have “monthly playback of electronic music lasting between 40 and 60 minutes” (and sometimes longer), starting in February 1957. He devoted the first evening to *Nadja Etoilee* by French composer of *musique concrète*, Andre Almuro.⁴ Cleverdon’s aims went beyond familiarizing “lay people” at the BBC, however. He also was on the lookout for composers, technicians, poets or Studio Managers who might be interested in the techniques and equipment available to them at that time. Another example of such an internal broadcast took place in the Council Chamber of Broadcasting House on May 9, 1957, and consisted of Jim Fasset’s *Symphony of the Birds*, Stockhausen’s *Study II*, Eimert’s *Etudes*

² BBC Written Archive Centre (WAC) R97/11/1 19th December, 1956. Letter concerning minutes of December 14, 1956, from Eckersley to Garrard.

³ Desmond Briscoe and Roy Curtis-Bramwell, *The BBC Radiophonic Workshop: The First 25 Years* (London: BBC, 1983), 37.

⁴ WAC R97/11/1 – RW General (1953-73 file 1), letter dated February 1957.

Übertongemische, Berio's *Mutazioni* and Bruno Maderna's *Notturmo*. The main feature of the evening was *Ruisselle*, an hour-long radiophonic poem with words by Roger Pillaudin and music by Maurice Jarre. Cleverdon sent out invitations a week before the event, announcing it as a playback of "experimental recordings in the fields of electronic music, musique concrète, and other forms which may generally be described as radiophonic music."⁵

Up to this point in time, all the members of the Electro-Phonic Effects Committee were representatives from sound broadcasting. They agreed on March 6, 1957, to ask a representative from television to join them. This person became Mr. L.P Salter (H.M.P.Tel).⁶ They also decided to change the name of the subject under discussion from "Electro-Phonic" to "Radiophonic," because the former term was currently used in brain research. They agreed upon the change, subsequently changing their name to the Radiophonic Effects Committee (REC).

One of the biggest obstacles for setting up the Workshop was the lack of a viable site for its studio. They sought a location that would provide,

⁵ WAC R97/11/1 Telegram from Douglas Cleverdon (Features Department) dated May 2, 1957.

⁶ A complete list of the revised committee members is as follows: Mr. E.W.S Porter (Assistant Head, Central Programme Operations (Studios)), in the chair; Dr. F.W. Alexander (Senior Superintendent Engineer, External Broadcasting); Mr D. Winget; Mr. T.H. Eckersley (Assistant Head in Charge of Programme Operations (Recording)); Mr. M.R.G. Garrard (Organiser, Studio Operations); Mr. L. Harvey (Central Services Planning Officer); Mr. F.O. Wade (Head of Light Music Programmes (Sound)); Mr. D. McWhinnie (Assistant Head of Drama (Sound)); Mr. G.R.S. Dixon (Schools Broadcasting Department); Mr. T.D.K Cleverdon (Features); and Mr. P.K.M. Dixon (Variety).

“adequate daylight, large rooms, little interference with other people, peaceful surroundings, and...not too easily accessible to keep away people not connected with the work.”⁷ They considered Nightingale Square, a huge Victorian-gothic nineteenth-century building in Clapham which had been a convent for elderly Belgian nuns before being taken over by the BBC Engineering Department.⁸ (It had the advantage of being close to electrical equipment and facilities.) They also contemplated some abandoned rooms in one of the BBC’s first buildings, The Langham. The most desirable site, though, and the original thought of the committee, was to use the Maida Vale studios, where the majority of the BBC’s music was recorded in five large studios. The BBC had used the huge art nouveau Maida Vale complex (1909) since the 1930s, when they had it converted from a large sunken roller skating rink, the *Maida Vale Roller Skating Palace and Club*, into a multipurpose studio complex for use by the BBC Symphony Orchestra, chamber music groups and dance bands. Since then, it housed all the BBC’s major music recording studios. Although it offered the perfect location, it proved impossible to move the Workshop there because no space was available. Over the next few meetings of the REC, the problem of an adequate space prevented the group from moving forward. The need for several soundproof rooms, free from interference and noise, with close

⁷ WAC R97/11/1 minutes of REC, March 6, 1957, p. 2.

⁸ Edward Pawley, *BBC Engineering 1922-1972* (London: BBC Publications, 1972), 198.

access to echo rooms and existing studios, made the search more difficult than it might otherwise have been. It went on until June 1957, when the committee discovered that there was space available in Maida Vale.⁹ The Engineering Department cleared two rooms to house the new Radiophonic Workshop: the first, room 13/14 (created by knocking down a center dividing wall to create a large working space), and the small adjoined studio, room 15. The rooms were situated in the old balcony of the sunken rink, which had long ago been converted into recording rooms in the studios below.

Trying to evoke the materiality of this space is difficult. What I mean by this is that although it is easy enough to describe the details of the original rooms, it is much more difficult to describe how they combined to create the specific environment needed for the creation of the radiophonic sounds under discussion. I want to emphasize that I am not concentrating on material specifics to prove a “perfect conjunction” of elements, or a “unique combination” of people and equipment banding together to create works of universal genius. Although it is certainly true that these works can be judged by some set of standards as either good or bad, successful or

⁹ When he was informed of the new availability, George sent a memo immediately to Senior Engineering Sound Broadcasting, writing “We had almost given up hope of finding suitable accommodation for the Radiophonic Effects Unit and the area which you are kindly making available promises to meet the needs of the unit with the minimum expenditure on wiring, acoustic treatment, etc. I am very grateful.” Briscoe, *BBC Radiophonic Workshop*, 29.

unsuccessful, that is not my primary goal. Rather it is simply to show the hidden details of production in their banal context.

Visiting it now, Room 13/14 betrays nothing of its radiophonic past, in that the equipment has long since been evacuated and the space converted into office cubicles. But as the winter of 1958 turned into spring, and the Workshop's opening approached, the REC and the Engineering Department began filling this newly created space with electronics. The room was about 25 feet long and 15 feet wide, with two frosted windows on the south side, and doors leading into the main hallway directly opposite on the north. The ceiling was low with a thick supporting beam running its length and concrete arches extended from it on both the east and west ends of the room, making for an irregular working space. Short carpeting covered the floors, and a series of soft lights illuminated the space. The lack of ventilation in the room was a cause for concern. It could become very stuffy, because the source of outside air was often blocked to eliminate sound from the busy Delaware Road. Located right next to this room (usually just called room 13), was room 15, which was not so much a room as a utility space. Because of its small size, and it had no outside windows, it was most frequently used to record sounds in isolation for later treatment. Engineer

Dick Mills noted that if more than one person used the room at the same time, “we almost had to take turns to go outside and breathe!”¹⁰

Figure 5: Radiophonic Workshop Rooms 13/14¹¹



¹⁰ Dick Mills, letter to author, 16 February 2002.

¹¹ Reprinted from Briscoe, *BBC Radiophonic Workshop*, 7.

Having solved the question of location, the committee turned its attention to matters of equipment and staffing. Although Nesbitt had offered suggestions as to which recorders, filters, and other equipment the fledgling studio would require, and although he had given his opinion on the best method of staffing such an organization, the REC could not go ahead with his plans, as the next section will demonstrate.

Opposition from the Music Department

The Workshop's supporters and opponents were clearly divided. Predictably, the strongest criticisms of the Workshop came from the Music Department, and from Light Music in particular. As I discussed in chapter two, the Music Department had resisted supporting electronic and concrete music since it had first been developed, leaving it to the Drama Department to pursue its own course. The antagonism between departments had developed as a result of the BBC's difficult mandate to cater to large audiences while at the same time "educating" the public in the repertoire of classical music. The upshot of this was a persistent middle-of-the-road approach to broadcasting. Predictably, certain staff members quickly dismissed avant-garde trends or experiments off-hand as of too limited a utility.

By the mid-1950s, those in power at the Music Department must have known of British composers' growing desire to experiment like their American and Continental colleagues with the developing medium of electronic music. After the success of Beckett's *All That Fall*, they must have felt within the BBC the growing impulse to create a separate, internal department for the creation of electronic sound effects for drama and, most threatening to them, music. One can detect the Music Department's careful fencing in the boundaries of *musique concrète* in the minutes of the first meeting of the REC on March 6, 1957, during which the second item under discussion was the terrain of each department. The committee agreed that the sounds under consideration should fall into two categories:

- A. Those produced on instruments played by musicians which may include electronic devices, but the music of which can be expressed in existing forms of musical notation.
- B. Sounds, produced by technical methods, embracing the techniques already developed in other countries, e.g. electronic music derived from oscillators and for which the composer cannot use existing forms of musical notation, and music concrete based on natural sounds.¹²

I struggled for a long time to understand why this issue was of such importance to the committee. This seemingly arbitrary distinction between "notatable" and "nonnotatable" music seems to demonstrate nothing more

¹² WAC R97/11/1 – Minutes of the REC, March 6, 1957.

than that electronic music was very new to the committee. It seems as if they were trying to find in electronic music features of the “traditional” music with which they were more familiar. When it came to dividing the work to be done between the Drama and Music Departments, discussions became more politicized. They agreed that the Music Division would be responsible for “all music effects under 'A',” while “Entertainment Division” [Drama and Feature Departments] would “be responsible for sounds in 'B'.” This implied that if a sound could be notated, it would belong to the Music Department. It was then, in fact, music. Of course, the opposite was also true. If the sounds were not notatable, they did not constitute music. This easy way of dealing with Electronic Music (and especially *musique concrète*, which was of particular interest to British composers) only temporarily satisfied young composers who wanted a chance to experiment with new equipment outside of the confines of dramatic productions.

Faced with what they must have seen as an inevitability, the committee decided to defuse the burgeoning movement for a fully-fledged electronic music studio with a plan of their own. For the idea to work however, the Music Department had to satisfy the Drama Department’s needs, as well as those of eager composers and advocates of electronic music, without sacrificing their ideals of maintaining the musical highground. They attempted to do this by purchasing a unique, new

instrument that created electronic sounds but kept the comforting form of an organ. In 1957, the Head of Light Music Programmes (Sound), Frank Wade, along with F. W. Alexander (both EEC members) requested the purchase of this new musical instrument, which could create music electronically, and yet was more suited to the tastes of less highbrow audiences. They received permission to order the construction of a special "Colour Tone Instrument" or "Multi-colour Tone Organ" from the firm Musical Research Ltd (a division of The Miller Organ Co., Ltd) at a cost of £3000. In a letter to the accounting office dated February 11, 1957, Wade wrote:

From our knowledge of what has already happened in Europe, and to a lesser extent in America, where musico-electronics remain under control of scientists and have no really practical musical application, we are convinced that we should concentrate on being the first country to combine electronics with live instruments in the production of real music.¹³

One of the supposed benefits of the instrument was that it had a keyboard just like an ordinary organ, with a single manual, and could function as an organ, conforming to "established musical patterns."¹⁴ Wade hoped that the instrument would help existing musical ensembles to save money, and that the novelty of its electronic sounds would increase listeners to the BBC's programs.

¹³ WAC R97/11/1 – memo from Frank Wade to H.S.B.A., February 11th, 1957.

¹⁴ Ibid.

The Colour Tone Organ could also produce “electronically generated ‘effects’ sounds useful in plays, features, etc.” and thus was a perfect concession to the Drama Department. This multi-purpose instrument could be used to “experiment with electronic sound as a musical language and to expand the colour tone box into a musical instrument in its own right,” and thus seemed to make the Workshop redundant. The Music Department recognized the use of electronic sounds in their Drama productions as legitimate; this was not the problem. It was more threatened by the potential use of electronic sounds to create undesirable *music*, because such music threatened to undermine the careful cultural work they had undertaken over so many years.¹⁵

With the purchase of this instrument, the question of electronic music seemed, to the representatives of the Music Department, to be answered. They could see no reason to continue their discussion on creating the Workshop; they did their best to fight the promotion of music they felt jeopardized the moral musical culture of Britain. However, the purchase of this instrument as a supposed solution to the electronic music problem did

¹⁵ The instrument was eventually premiered in an experimental concert recorded on October 3rd, 1959 in a program performed by William Davies which consisted the following: 1. Belle of the Ball (Anderson), 2. Pavane (Gould), 3. Passepied (Delibes), 4. Summertime (Gershwin), 5. Midnight at Mayfair (Chase). The internal record at the BBC also lists an item, “VK 29.9.59 – James Dufour,” which could conceivably be a concluding “experimental” work, which although listed without a publisher is placed in line with the other items on the program. WAC R53/483/2, September 29, 1959.

not diminish composers' and producers' desire to see the BBC create studios like the ones existing in Europe and America.

An amazing collection of memos and letters survive in the BBC's archives showing just how divided the Drama and Music Departments were over this issue. One particular event fanned the embers of controversy that had been on the point of igniting for some time, bringing the most conservative members of the Music Department in contact with the most radical proponents of electronic music for the first time, with Drama representatives seemingly caught in the middle. On February 12, 1957, four members of the BBC's upper staff met with representatives of the Society for the Promotion of New Music (SPNM). The BBC contingent was comprised of Bernard Keefe and Frank Wade (representing the Music Department), Douglas Cleverdon from Drama, and M.R.G. Gerrard (the "number two" of Studio Operations, responsible for the staffing of the Workshop). After the meeting, both Keefe and Cleverdon reported to their bosses. It is difficult to believe they attended the same meeting given the tone of their letters. Cleverdon, who had lunched with the chairman of the Society on the day before, had nothing but enthusiasm for the organization and was eager to accommodate the needs of its composers. Cleverdon saw collaboration between the SPNM and the BBC as leading to "useful cooperation," taking for granted the need to pursue in-house electronic music production.

Cleverdon addressed his letter to the heads of all the various departments, including the open-minded Head of the Music Department, R.J.F. Howgill. Cleverdon reiterated that he planned to conduct monthly playback sessions of experimental music (the first of which, Andre Almuro's and Maurice Jarre's *Nadja Etoilee* was scheduled for a week after the meeting). He saw these sessions as a means of exposing young talent to the new techniques of electronic and tape music "with occasional demonstrations of new BBC gear as it becomes available. This would help us to get to know young composers with the necessary enthusiasm and elementary technical knowledge, who might in due course undertake experimental work for us."¹⁶

Note that Cleverdon had no qualms about calling the creators of electronic work "composers." The ideological baggage surrounding the traditional notion of the composer was not nearly as important to Cleverdon, detached as he was from the intricacies of union politics, individual musical biases and institutional prejudices that had grown up around experimental music within the Music Department.¹⁷

Keefe and Wade's response was not nearly as optimistic. Wade added a handwritten addition to the bottom of Cleverdon's memo confirming that

¹⁶ WAC R97/9/1 Memo dated Feb 13, 1957. This led to the monthly internal playing of Radiophonic Music, as detailed above.

¹⁷ Cleverdon was helped in his programming of these demonstrations by the electronic studios in Paris and "Dr. Stockhausen" in Cologne, who sent tapes of their music to the BBC. WAC R97/11/1 Radiophonic General (1953-1973 file 1), memo dated November 5, 1957.

the Music Department wanted to be allowed to pursue electronic music in their own way. At the same time, Wade indicated that he respected Cleverdon's position: "It seems desirable in view of the many lines of approach to electrophonic effects of which the above is only one example that as soon as possible a further meeting of the committee might be called...to assure coordination." His insistence that the sounds under discussion be labeled "electrophonic effects" rather than music, and his subtle attempt to make sure "his people" were included in the discussions betray a fear that the "lunatic fringe" would take over the more musical commissions.¹⁸ Keefe expressed this fear more explicitly in his letter to the Controller of Music Department, R.J.F. Howgill and his more conservative assistant, Maurice Johnstone. Keefe understood his discussion with the SPNM as settling into two perspectives. First, he expressed his and Wade's position that electronic sound should be "limited at present to the technical facilities necessary for compositions of electronic music and 'musique concrete' *used in conjunction with features and drama productions.*" [emphasis mine] This way, there could be no misunderstanding of the boundaries between proper "music" and this new potentially subversive form. Second, Keefe resented the composers, two of whom he felt were urging the BBC to "spend every penny it could lay its hand on to build an

¹⁸ As English music critic Reginald Smith Brindle had labeled the composers of electronic music in an influential article read by the entire EEC committee, "The Lunatic Fringe II: Electronic Music," *Musical Times* (July 1956): 300-301.

electronic studio to outdistance those at Cologne and Milan. . . My personal impression is that one or two of the composers were anxious to have a toy to play with, not that this was the only instrument by which they could realize their imaginative dreams."¹⁹ Keefe did not object primarily to the idea that composers would take advantage of the BBC's generosity. Rather he dismissed these composers for turning against the ideals of British Music. These traitors, in his eyes, were merely small symbols of what he saw as a larger threat to the newly established British Musical Tradition. He articulated his beliefs further in the memo which bears reprinting in full, for it represents a perspective and philosophy widespread among musical conservatives in the Music Department at the time:

A comparison between the situations in Germany and England was continually emphasized [in the meeting], suggesting that the BBC was hopelessly conservative. I think the comparison was false: in Germany composers had experimented in atonal and dodecaphonic music to a degree beyond which the human element was inadequate in performance, and electronic devices offered the only means of realizing the mathematical complexities their music seemed to need. Webern himself said that he could go no further with traditional means. Such a situation has not arisen in this country. Twelve tone composition has been used by very few, and without any marked success. At this stage I think the BBC should beware of providing what will be little more than an opportunity to escape from a stylistic impasse. . . The situation, I think, is comparable to that of a few years ago when every composer

¹⁹ These two were Francis Chagrin and Marc Wilkinson. Francis Chagrin was a prolific composer of film and television music, frequently composing for BBC productions, as was Marc Wilkinson. This early advocacy of the creation of the Workshop, especially in Wilkinson's case, allowed him to be one of the few independent composers to use the facilities after its opening in 1958.

thought he should write another "Ring," and demanded eight horns, Wagner tubas, four harps, etc.²⁰

Keefe articulated a narrow position, ignoring British twelve-tone advocates Elisabeth Lutyens and Humphrey Searle, to say nothing of younger up-and-coming composers. He argued that although electronic sound was rapidly evolving into a necessary element in drama and features, it should be restricted to these areas. He urged the administration to prevent any further encroachment of electronics into the sonic world of the BBC. Drama and Features had to remain firmly separated from Music; this was essential to their position. Musical conservatives like Keefe saw electronic music as just the serialist composer's latest attempt to gain a foothold in Britain. Electronic music was thus irredeemably associated with the ideological battles being waged throughout the Continent, which Britain had managed to avoid, largely due to the exclusionary policies of the BBC.²¹ Keefe's and other's anxiety over musical technique coincided with a uniform belief that the composers of this music were largely charlatans; who sought a style that could disguise their lack of ability. Keefe presented the case cryptically, and in a diplomatic fashion. But there was nothing cryptic about the memo

²⁰ WAC R53/483/1 Memo dated Feb 13th, 1957 from Mr. Bernard Keefe to C. Music.

²¹ For more on this topic, see Jennifer Doctor, *The BBC and Ultra-Modern Music, 1922-1936: Shaping a Nation's Tastes* (New York: Cambridge University Press, 1999).

Wade sent a day later to Howgill, in which he rearticulated this position unmistakably:

In Europe, in my opinion, it is already *vieux jeu* to make electronic noise for its own sake. There was of course, heavy pressure from the more extravagantly minded (and less erudite) composers for the BBC to provide them with an expensive toy. But Mr. Keefe and I endorse each other in the view that the [BBC] should continue its two-pronged policy:

- A. To provide an electronic instrument that can be combined musically.
- B. To supply Drama and Feature's legitimate requirements of background and effects.

Our inability to supply the Society for the Promotion of New Music, etc. with the £150,000 toy they demanded does not seem terribly important to me. *Guardianship of rational development of musical aesthetics in this country does, however, seem to be of paramount importance.*²² [emphasis mine]

There is no mistaking the vital importance of the project of “rational musical development” to the Music Department. Nothing less than the musical integrity of the nation was at stake. That is where their Multi-Colour Tone Organ came in. It allowed electronics to be used in a way that “[could] be combined musically.” Wade sarcastically dismissed composers’ desire to take advantage of the musical tools of their continental colleagues with a barely concealed contempt for their perceived inarticulateness.

On March 19, Wade outlined the Music Department’s position in a letter to the Controller of Entertainment (Drama and Features). This letter included a “Statement of Purpose,” which Wade forwarded to all the important figures in sound broadcasting at the BBC. He began by reiterating

²² WAC R53/483/1 Memo dated February 14th, 1957. From Frank Wade to C. Music.

the positions articulated at the meeting of March 6 on the division of labor. Acknowledging both the inevitability of establishing a Radiophonic Effects Unit, and the desire of “musical” composers to utilize the equipment housed there, he then revealed that Music Department heads had recently decided they needed to exert control regarding electronic music, “A watch will be kept to safeguard the rational development of musical aesthetics in this country, and at the end of the year selected composers only will be given the opportunity to experiment.”²³ He cited Frank Howes's review of electronic music in *The Times*, which had said that, “The scientists and trautonists are therefore not yet dealing with music, which is an art, but only with its raw material.”²⁴ Using Howes as a tacit endorsement of his ideas, Wade went on to claim that the primary and “legitimate” concern of the Music Department was to protect how “art” and “raw material” were combined. He proposed the Electronic Colour Tone instrument as the solution to this problem.²⁵ With it, “appropriate results” could be injected into the art form. Although Wade acknowledged the legitimacy of electronic sound effects, and that laboratory work might be required for such projects, he added:

²³ WAC R97/11/1 – Letter to C. Ent. From Head of Light Music Programmes (Sound), Frank Wade. March 19, 1957.

²⁴ As noted in Chapter Two, Howes was the one-time Chairman of the BBC's Music Advisory Committee, and as such rarely programmed contemporary music.

²⁵ An excellent history of the Miller Organ Company and its electronic organs can be found in Ted Crampton's “A Lasting Invention,” *Choir and Organ* 8:3 (May-June 2000): 24-25.

We are also very concerned that the sterility, which has resulted in Europe from expensive laboratories being at the disposal of secondary musical composers who have produced little beyond freakishness, should be avoided here. In due course we shall doubtless emerge at a point where the results of the sound effect operation can have some bearing on the future of the music art form. But that point will be some time ahead.

The decision to house the Radiophonic Workshop at Maida Vale was a coup for those who believed in electronic music, and had political implications outside the realm of electronic sound production. With its close proximity to traditional musicians in the orchestral studios, the Workshop became associated more with "music making." Such geographical proximity enabled the kind of back-and-forth communication between the Workshop's composers and engineers and those associated with more traditional music. One can only imagine how the output of the Workshop would have differed if they had ultimately found a home at the Engineering building at Nightingale Square. At the time of Wade's memo (March 19, 1957), the decision on where the Radiophonic Workshop would be housed was still three months away, and could thus still be influenced by the Music Department (although, ultimately, practical considerations outweighed any philosophical ones). Their goal was to maintain two distinct strains of development for electronic sound, as Wade concluded his memo:

May we ask that it be ensured that the two parallel lines of development be pursued and that there be no undue haste to

exploit sound effects, under a pseudo-musical label, for their novelty, freak or feature value.

It was up to forces outside the sphere of the Music Department to advocate in favor of electronics. Two weeks later, in a spirit of reconciliation, the Head of Features, Lawrence Gilliam wrote a carefully worded response to Wade's letter, directed to all the recipients of that Statement of Purpose.²⁶ Gilliam, a longtime supporter of experimental techniques, "strongly support[ed] [Wade's] view that the radiophonic equipment should not be used by secondary composers who (have failed perhaps to establish themselves in more traditional forms) wish to cash in on this new technique." He did not believe that more established or promising composers should be allowed to experiment, "whether [by] using electronic instruments, [practicing] the so-called 'musique concrète', or a combination of the two." Gilliam gingerly admonished Wade for assuming that just because experiments on the Continent had ended in "sterility," British composers would naturally end up with the same results. "The younger generation of composers is interested in these possibilities; and inasmuch as the BBC is the only organization in Britain with the necessary equipment, there is a certain obligation on the Corporation to let them see what they can achieve." With a bit of rhetorical sleight-of-hand, Gilliam then described the

²⁶ WAC R97/11/1 Memo from Head of Features, Gilliam to C.Ent (Sound), cc to Chief Asst to DSB., HSBA, HCP.Ops, C.Mus, HMP(S), AO.Music, HLMP(S), dated April 3, 1957.

situation for three respected “art music” composers, Peter Racine Fricker, Humphrey Searle, and Michael Tippett, who had all expressed an interest in composing electronic music for features, but were severely limited by the lack of equipment available. The pig-headedness of the Music Department was now affecting the output of Features, Gilliam seemed to be saying. No one could deny that Tippett was a respectable composer. Gilliam knew that the BBC Music Department’s short-sightedness had been in some way responsible for the bad reputation of English music in Europe. Only by encouraging the more experimental paths of those other studios could England hope to compete. Comparing the Music Department’s members to an earlier generation of art critics, Gilliam noted that, “the early cubists were often accused of ‘sterility and freakishness’, but no informed person would now dare to deny their formative effect on such modern masters as Braque and Picasso.” As if to prove the Music Department’s reactionary position invalid, Gilliam reminded of the BBC’s poor showing in recent Continental music competitions by reminding them that “we cannot blink the fact that, in the view of the Italia Prize juries, the BBC music entries [meaning the entries from Music Department] so far have all failed to exploit the potentialities of the radio medium.” Hoping to bind the Sound Broadcasting world together, Gilliam finally reminded them of the elephant in the closet,

television, whose growing market share threatened to eliminate radio altogether if it did not begin to explore new, more dynamic techniques:

In the present situation of Sound broadcasting, it is surely self evident that we must pursue with energy, determination and ingenuity a new technique that belongs to the realm of imaginative creation in the Sound sphere.

Gilliam's note calmed the Music Department, or at least made them reconsider their public opposition. In private correspondence, their antagonism toward the Workshop continued unabated. Over a year after the Workshop opened in April 1958, Wade again wrote an angry note after receiving a cost estimate for the Workshop's services that had apparently been sent around to all production departments as a way of recruiting business. Wade wrote to Pip Porter, who was responsible for scheduling commissions for the Workshop's services:

I do not understand why your memo. . has been addressed to me – it should be quite clear that this department would never use the Radiophonic Workshop and is, in fact, offering much more economic facilities through the Colourtone Instrument now installed in Maida Vale 3. . I shall be more than interested to know how the overall cost of the Radiophonic Workshop to the Corp. could be reduced by proper consideration of the facilities now available in MV3 via the Colourtone Instrument.²⁷

Porter responded immediately to Wade's letter by agreeing that it would be nice if the Workshop staff could use the Colourtone Instrument,

²⁷ WAC R97/11/2 October 29th, 1959. HLMP(Sound) Wade to AHCPOps Porter.

but that no one knew how to use it!²⁸ Wade, responsible for the Light Programme, only perceived part of the threat of the Workshop, however. What he and others in the Music Department did not realize, however, was that radiophonics were ultimately to abandon whatever tenuous claims could be made for it as part of the “contemporary music” scene and tread directly into the territory of Light Music. Gilliam’s claim that electronic sound “belonged” to sound broadcasting also held true for only a short time, before television changed the way electronic sound was utilized in programs (and evolved into a form so far removed from the high art culture of the Music Department to cease being a serious threat to them).

Perhaps related to this was the important philosophical shift in the Music Department at this time. In Winter 1959, William Glock was appointed Controller of Music. With this change in management came a huge shift in programming direction. In contrast to his predecessors, Glock was famous throughout Britain for his advocacy of contemporary music, and particularly for his enthusiasm for young avant-garde composers. He had created Britain’s first journal devoted to the study of contemporary music, *The Score*, founded in 1949. To further the promotion of new music, he had also established at the beginning of the decade, with the help of other leading composers, a summer school on the model of Darmstadt in Dartington. This school emphasized both the study of contemporary and

²⁸ WAC R97/11/2 October 30th, 1959. AHCPOps Porter to HLMP(Sound) Wade.

early music. In this new climate, those in Light Music (and the more conservative individuals within the larger music department, such as Howgill's second-in-command, Maurice Johnstone) were forced to rethink their aggressive tactics.²⁹ Cleverdon, too, was more willing to acknowledge the position of the Music Department (while never denying the importance of electronic music), noting in a meeting of the Third Programme Board that "although Music Department seemed to be willing to put on recordings of electronic compositions from the continent, they did not seem to be so anxious to encourage British composers in this field." He then wondered "whether electronic composition in fact really came more within the scope of Features Department."³⁰ His concession that his department might be responsible for support of the fledgling artform indicates his resignation to Music Department's continual opposition.

Location, Staff, and Equipment – Stocking Rooms 13/14 and 15

²⁹ Glock discusses his complex professional relationship with Johnstone in his always-entertaining autobiography, where he also discloses the obstacles he faced in trying to programme more difficult music during his tenure at the BBC. For example, he was responsible for reshaping and expanding the scope of the ultra-traditional Proms concert series, including for the first time the works of Boulez, Carter, Messiaen and Webern. William Glock, *Notes in Advance* (Oxford: Oxford University Press, 1991).

³⁰ WAC R34/11217/1-3 Minutes of the Third Programme Meeting, 27th Jan, 1958, minute 108.

It is not easy to trace the equipment that ultimately ended up in the Radiophonic Workshop of rooms 13/14 and 15 in April 1958. Since no records survive detailing the specific machinery in their entirety, it is impossible to determine with any certainty the exact equipment in place when the Workshop opened. Nevertheless, by using records, photographs, and the memories of those involved, I have attempted to reconstruct as closely as possible the limited inventory of the Workshop at the time of its creation. Again, such detail is inevitably necessary as it was those specific pieces of equipment that were to determine the nature and sound of the Workshop's output. One thing is certain; my task was made much more difficult by the haphazard methods by which the Workshop gathered equipment. From the moment the REC secured a home for the Workshop, they began asking around in other departments for obsolete or redundant and used equipment. After receiving the overly optimistic equipment list suggested in the initial proposal, the committee was faced with the realization that they would receive only £1900 for "minimum purchase of essential equipment not obtainable from redundant plant."³¹ What this meant was that, although they would be receiving *some* money, "start up" money as it were, most of their equipment needs would have to be met by soliciting other departments or by requesting through the Equipment

³¹ Briscoe, *BBC Radiophonic Workshop*, 29. Here Briscoe claims 2000 as the amount offered, but the internal paperwork contradicts this.

Department a search of the redundant plant, a storage facility for overstocked items or equipment too obsolete or old fashioned to be wanted by any other department.³² These items still had to be paid for, but could be bought for a reduced price. They managed to scrape together some pretty exotic things, in particular some equipment from the recently upgraded Royal Albert Hall. This included a huge ornate wood-carved mixing desk. The Equipment Department sent them a list of available items, a shabby collection of secondhand, unwanted gear including microphones, amplifiers, jackfields, filters and other assorted studio essentials, but very few large items.³³ Once they had established what kind of material they would obtain from other departments, the REC was able to begin shopping for new equipment which they purchased from their £1900 budget. George summarized the final approved budget to McWhinnie in a letter and chart dated February 25, 1958:

Approval is requested to a capital allotment of £1,900 (£350 of which will be required in Swiss Francs) for the equipment listed below which is needed to set up, on a modest scale, an experimental unit to produce radiophonic effects which are used in many types of modern plays and drama productions. Existing staff and accommodation are available at Maida Vale for the work and the small costs of maintenance and materials can be met from existing approved rates.

³² As befits the bureaucratic nature of the BBC, even the acquisition of equipment has to go through its own department.

³³ Of the more obscure sounding items, a few definitions will probably be useful. Jackfields were bays into which power plugs could be inserted. Disc racks were, quite simply, for the storage of recorded discs. The details of the redundant plant inventory are documented in two letters, WAC R97/7/1, both dated Jan 17th, 1957 from A.E. Hawkeswood for the Head of Equipment Department.

ITEM	Manufacturer	Type No.	Approx. Cost
Two Reflectograph Industrial Model Recorders (variable speed)	Rudman Darlington (Electronics) Ltd.	RR 102	£241
One Reflectograph Twin Channel Data Recorder	Rudman Darlington (Electronics) Ltd.	RR 102	£250
One Decade Oscillator	Muirhead	D-650-B	£313
One Square-wave Shaper	Muirhead	D-783	£70
One Variable voice frequency filter with amplifier	Albiswerk Zurich S.A.	502/50	£480
Two Lenco four-speed Transcription Units complete with pick up and band location service	Goldring Manufacturing Co. (Gr. Britain) Ltd.	GL56	£46
Minor equipment which cannot be specified in detail at this stage			£500 Total: £1,900

Orders have been placed for this equipment but delivery may take some time – up to a year in the case of one important item. In the meantime work is going ahead on the installation of OBA 8 [the Royal Albert Hall mixer] and other equipment from redundant plant in an area which we eventually found at Maida Vale. This “workshop” will come into limited use in about a week’s time.”³⁴

George was overly optimistic about the opening day for the Workshop, and yet the contents of his list were purchased without delay. The equipment

³⁴ WAC R97/9/1 letter from R.V.A. George to Donald McWhinnie, Feb. 25, 1958. This use of the word “workshop” to describe the Radiophonic Effects Unit is the earliest I can find such a reference, with the name “Radiophonic Workshop” officially adopted at the April 23rd 1958 meeting of the REC.

listed above, together with the redundant equipment “adopted” by the Workshop from other departments, constituted an effective bare-bones basic lab, even though the equipment was almost entirely second-hand and ill-functioning. These obsolete and antique items constantly needed repair and/or adaptation to fulfill the demands of the composers. As such it seemed necessary to have a highly skilled engineer who worked full time keeping the equipment in working order.

Tape Recorders

In the “classic” tape studio, the tape recorders are the single most important pieces of equipment. The Workshop ended up with a unique combination of such machines. The most interesting and eccentric pieces were the two German-made Motosacoche tape recorders. To enable dubbing back and forth, these huge machines, about 4 1/2 feet tall and 3x3 feet square, were linked by a central controlling unit, making for three huge boxes. They were the first non-steel tape recorders bought by the BBC, and reportedly took 15 seconds to gear up to the correct speed.³⁵ They were, however, very reliable machines once they had warmed up, and could run all day without problems. The Motosacoche company was known for their

³⁵ The Blattnerphone was the first magnetic tape recording system used at the BBC, starting in 1930. This used steel tape 6 mm wide and .08 mm thick, and a full 20 minute reel weighted 21 pounds! Several innovations in design led to the Marconi-Stille machine – still using steel tape, but with more reliability – in 1935. These were used until just after the end of the war.

motorcycles, and an interesting feature of these recorders was that their “hoods” could be raised by electric motors and steel ribbons to above head height for repair and motor replacement!

The BBC had also modified the original machines in order to modernize them. They had replaced the original open platter format from which the magnetic tape spooled with less precarious closed tape reels, and adapted them in the interest of tape economy to run at 15 inches per second (IPS) rather than their original continental standard of 30 IPS.³⁶

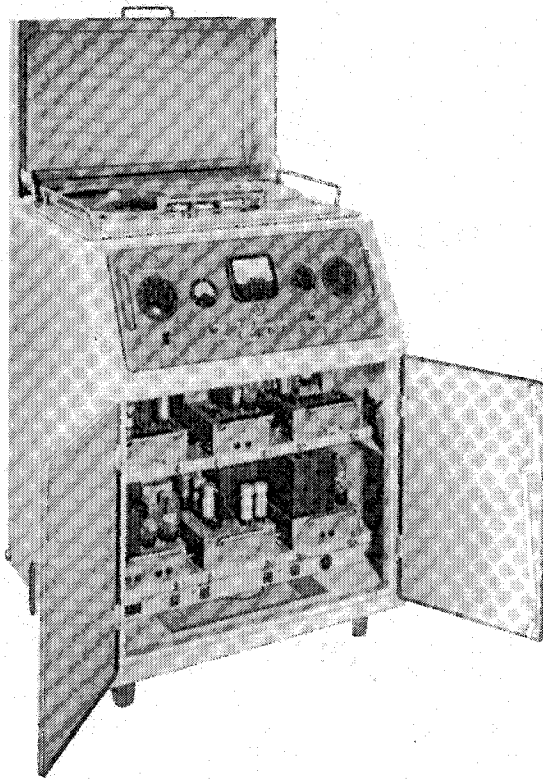
The EMI BTR/2 tape recorder was only slightly less bulky than the Motosacoche, and requiring no separate controlling unit. This British machine had been the professional standard recorder at the BBC since 1953. Its versatility, ease of operation and most of all, durability, made it the dominant professional tape recorder used with the Corporation.³⁷ The BTR/2 was about 4 feet tall, extremely reliable and provided an exceptional

³⁶ The BBC disabled other unique functions of the original machines, including most interestingly their ability to record programs longer than the length of one tape. Both machines would be loaded with full reels. As the first tape recorder reached the end of its reel, a button on the central console would be pressed, so that the second machine would start recording. At the precise moment of overlap, a small piece of editing tape would be placed on both reels at the same time – both to facilitate editing later, and for easy rebroadcasting. The first machine would then stop. To playback the two tapes, the second player’s speed would be controlled by a manual “tram-handle,” enabling the engineer to adjust the position of the tape, faster or slower, synchronizing the two before switching the second machine’s output on. When the machine was acquired by the Workshop, this feature was no longer functional, but still allowed for interesting interplay between the two machines.

³⁷ Sound engineers throughout England praised this machine, including G.A. Briggs and Edward Pawley. G.A. Briggs, *Sound Reproduction*, 3rd Ed. (Bradford, Yorkshire: Wharfedale Wireless Works, 1953), 232-234. Edward Pawley, *BBC Sound Engineering, 1922-1972* (London: BBC Publications, 1972), 391.

frequency range (50-15000 cycles per second). They had adjustable speeds that could play at either 15 IPS or 7 1/2 IPS.³⁸ The main drawback was their prohibitively expensive cost. New machines sold for £850. By 1958, these machines had largely been replaced by the cheaper EMI TR90, which ran at half the cost. The BTR/2 became an uneconomical choice, and I can only assume the Workshop was able to get one of the BTR/2 machines after it had been replaced with the cheaper TR90 in another department.

Figure 6: BTR/2 Photo³⁹



³⁸ The BTR/2 was also manufactured in another version which could be recorded at either 30 ips or 15 ips.

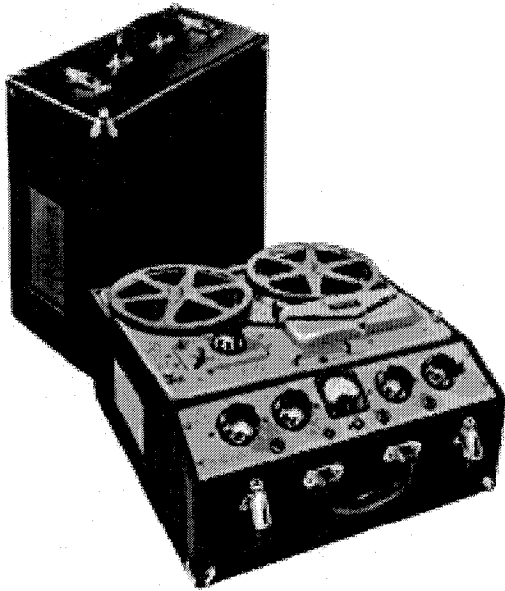
³⁹ Reproduced from H.G.M. Spratt, *Magnetic Tape Recording* (London: Heywood & Company Limited, 1958), 221.

The "Reflectograph 500's" were a new model of "semi-professional" mono tape recorder, which recorded at a slower speed than the Motosacoche, but had the advantage of variable speed, adjustable anywhere between 3.75 and 7.5 ips. Recording pitch could be raised or lowered in interesting ways. They were also fairly portable at about 3x3x1ft, with detachable lids.

One of the Reflectographs acquired by the Workshop was a special new model that could record two separate tracks onto the same piece of tape. It was different from a stereo recorder, since it couldn't record both channels of sound at once, it was still the first "multi-track" recorder the Workshop possessed.

At the bottom of the rung were the Ferrograph recorders. These portable workhorses were used in the Workshop for recording sounds in isolation or on location. They were common throughout the BBC, and had been used before the Workshop opened in the studios in Piccadilly, and in particular at Piccadilly Two, where *All That Fall* had been recorded.

Example 7: Ferrograph Recorder⁴⁰



Turntables

In the late 1950's, tape was still a very new medium. The vast majority of recording at the BBC, including all programs recorded for rebroadcast, was still done on disc. Most stations around the globe still required disc copies of BBC programs, which were provided for them by the BBC transcription service, who recorded them onto special larger discs that required special turntables. The Workshop acquired a set of internally built machines known as the TD/7 Transcription Disc players, which were the standard machines used to play back these discs. The Workshop required these turntables not only for playback, but also to rerecord tape recordings onto disc for playback on TD/7 machines. In order to play back standard

⁴⁰ Reprinted from Spratt, *Magnetic Tape Recording*, 216.

records, the Workshop acquired a set of Lenco turntables, Lenco being a company that specialized in high-quality turntables for broadcasting.

Loudspeakers

Two loudspeakers played back all the recordings within the department (remember, in 1958 all productions were mono, requiring only one speaker for playback). Both of them were of the BBC's own design; the first was called the LSU/1, and was one of the first BBC speakers. It served as a basic monitor of recorded sounds. The second was called the LSU/10. This was the most popular speaker in use by the BBC in the late 1950s and originally featured a 15 inch Tannoy speaker alone. The limited range of this single speaker, which couldn't broadcast very high frequencies, above 7000kHz, meant that a common problem, a 10,125kHz whistle caused by a 405-line television, could not register on it. To remedy this, the speakers were fitted with a Lorenz-65 high frequency tweeter, driven by a 12 watt valve amplifier and a high pass filter.

Sound Generators and Miscellaneous Equipment

Following methods developed in earlier productions, most of the actual sound creation in the Workshop in the early years was done by manipulating existing sounds in the manner of *musique concrète* rather than by producing it electronically through oscillators. The north wall of the

Workshop, in between the two doors, was devoted to three large rack-mounted units holding miscellaneous pieces of equipment for sound manipulation, mostly signal amplifiers and filters. A small workstation was attached to the racks on the right where portable components (filters, oscillators, tape recorders) could be combined to create new sounds.

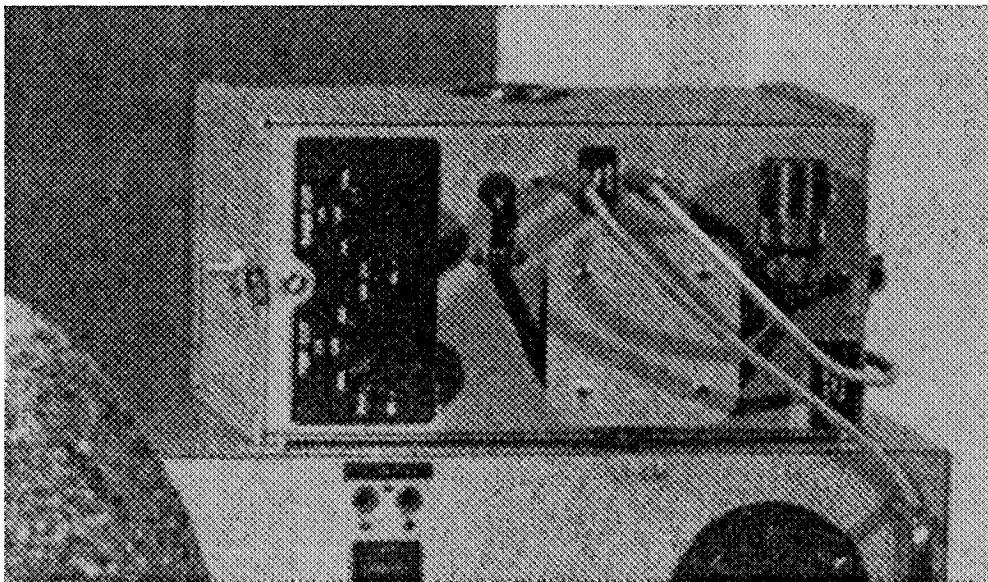
Before any sound could be recorded, its signal had to be amplified. The Workshop owned two kinds of amplifiers: the line and trap-valve. The line amplifier is a basic amplifier that simply boosts a weak signal. The slightly more complex trap-valve amplifier isolates a signal. Each individual signal was fed into the trap-valve amplifier, in order to separate it from the other sounds. At this point its level was adjusted independently of other sonic components.

Various filters were acquired to alter the quality of sound signals. Filters are used usually either to amplify or attenuate specific aspects of a signal; by amplifying the low frequencies, for example, the sound becomes much richer. Attenuating the middle frequencies, on the other hand, hollows out the original sound, making it appear disconnected and ethereal (such as those created for *Private Dreams and Public Nightmares*).

The most useful filter was also the most basic. Known as a Portable Effects Unit (PEU), it was initially used within the BBC to remove irritating low frequency noise heard frequently during phone calls. It could filter out

low or high frequency sound, but also could function well in drama as a filter for making a regular studio microphone sound like a voice heard over a telephone. It was also surprisingly useful for creating the kinds of alterations in voices effectively demonstrated in *Private Dreams and Public Nightmares*. It is a perfect example of a piece of technology being used in a way never intended by its creators. It was passive, which means it didn't contain an amplifier and had no external power source – it was simply plugged into the microphone and adjusted before the signal reached the mixer. Since it was also so portable, no permanent place was given to it on the equipment racks; it floated around the studio, usually resting on the mixer or on top of larger machines.

Figure 8: PEU Filter⁴¹



⁴¹ Reprinted from Pawley, *BBC Sound Engineering*, 391.

Another filter, slightly more high-tech than the PEU, was the Variable Correction Unit. Again, not necessarily meant for the artistic manipulation of a signal, its original function was to reduce disc hum in turntables and to act as a primitive noise-reducer on high-noise disc recordings. This filter's controls enabled users to add or remove the high or low frequencies of a sound. By means of a central switch, users could instantly add or remove the filter's effects.

The Workshop initially acquired two high quality oscillators. Generating their own sound electronically, most oscillators of the 1950s (before the advent of the voltage controlled synthesizer) could produce only simple sine waves. Consisting of only a simple single tone, with no overtones to muddy the sound, a sine wave's sound would then often be treated to complicate the sound. The Muirhead Decade oscillator could create an audible sine wave on adjustable frequencies, and was so named because it had preset controls that produced frequencies set in units of tens or multiples thereof. Along with this was the Muirhead Square Wave Shaper, a smaller box that converted the sine wave signal from the oscillator to a square wave. The Workshop also bought a beat-frequency oscillator known in-house as the "Wobulator," which was originally designed for engineering acoustic tests, but was quite useful as a source of raw material. It created a

sweeping tone whose pitch was continuously varied by a second internal oscillator, creating moving patterns of electronic sound. The range of the sweep was controlled by a large central knob. One could also add to the moving sound a set amount of pitch “wobble.”

The Workshop created reverberation in two ways. The first, most basic, was by using a small echo room in the basement of Maida Vale, the technology and idea for which had been around since practically the beginning of radio. Its bare smooth walls created natural reverberation. The room had a loudspeaker at one end, and a pickup microphone on the other. The echo thus created was “authentic,” although of rather short duration. To create a more exaggerated echo, a new machine created within the BBC was used. This Artificial Reverberation Unit (ARU) utilized a rotating drum with tape oxide on its outer rim. Multiple playback heads (as used in tape recorders) read the signal from the drum, and each were controlled individually. The playback quality was less than ideal, and for the Workshop composers, the machine worked best when the rotating motor was switched off during recording to achieve even longer durations of echo.⁴²

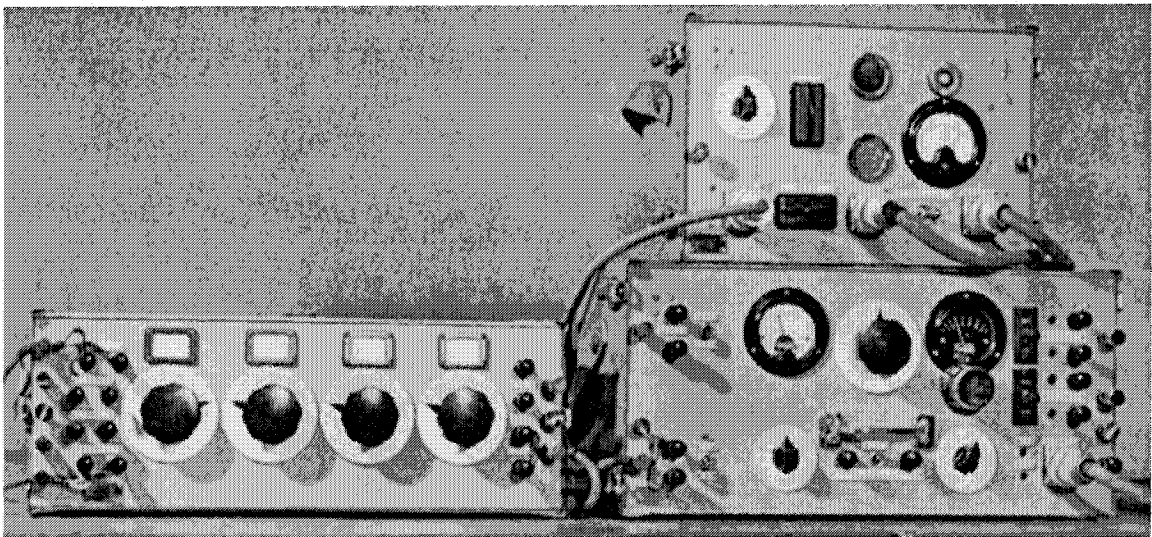
Mixing Desk

The Workshop members controlled sound sources’ inputs from a massive oak mixing desk obtained from the refurbished Albert Hall. This unit dated from before the Second World War, and contained the obsolete

⁴² Dick Mills, letter to author, 16 June 2003.

modular components of the outside broadcast amplifier known as the OBA/8. The OBA/8 had been designed in 1938, and was comprised of three components. The smallest box was a simple power supply amplifier (known as an MU/3A), providing power to the rest of the unit. The larger box was the OBA/8 itself, a component for combining various sound signals. The longer box was known as MX/18 and was a four channel mixer. It allowed the user to adjust the volume of up to four separate signals at once before it entered the OBA/8 and from there into what ever recording media was used. The Workshop's mixing desk contained three separate MX/18's enabling the mixing of up to 12 signals at once.

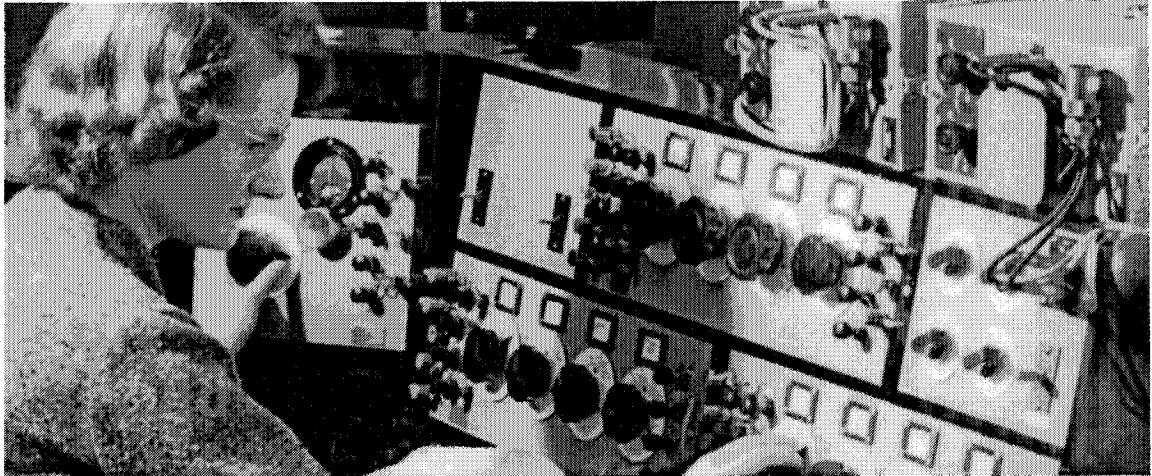
(The three elements of the OBA/8: from left, moving clockwise, MX/18, MU/3A, and OBA/8)⁴³



⁴³ Reprinted courtesy of BBC engineer Roger Beckwith.

Below is a photo of Daphne Oram with the old Albert Hall OBA/8 unit. Note the PEU units on top of the mixer.

Figure 9⁴⁴:



Staffing

The question of how to staff the Workshop troubled the REC from the very beginning. An initial document prepared in November 1956 suggested “three tape editors and devisors of special effects” and one “recording Engineer...experienced in construction of apparatus.” This was followed up on March 6, 1957 with the suggestion of combining staff from the production and engineering departments, but not exceeding three or four people. But a month later, M.R.G. Garrard reported to the committee that in the few radiophonic productions that had been created up to that point, staff had complained about how fatiguing it was to devise radiophonic sounds. Garrard also acknowledged that the time intensive process of creating

⁴⁴ Reprinted from Briscoe, *BBC Radiophonic Workshop*, 7.

sounds was a necessary part of the learning process, and should not be hurried. He thought "it would be necessary to use larger numbers of people and change them frequently. The recent experiments in 'Radiophonic Effects' had aroused widespread interest throughout all units...and it was proposed to let as many interested people as possible try their hand at the work"⁴⁵

In an attempt to find those members of staff most adept at radiophonics, Garrard organized and designed a two day course to teach potential senior studio managers (SMs) and selected members of their staff in the techniques of electronic music. The first day would be spent demonstrating recordings of continental and U.S. studios, and describing their apparatus. During the afternoon, the class would begin to assemble their own effects "involving the primitive methods at our disposal."⁴⁶ This project would then be completed on the second day. Garrard hoped that the course would be conducted on a regular basis. Whether or not the course was ultimately successful is unknown, since no records survive, but one can assume it was the prototype for later, more hands-on courses taught to prospective composers for which records do survive.

⁴⁵ WAC R97/11/1 Minutes of the REC, April 4, 1957, minute 5.

⁴⁶ WAC R97/7/1 Radiophonic Effects and Electronic Music (1956-63), memo dated April 9, 1957.

When the wiring of the studio began on December 30, 1957, its staffing had still not been decided. It was planned at this point that the staff would consist of two SMs and two engineers (one senior and one junior). The engineering staff organized the installation of the equipment, with the new SMs not present until the installation was complete.⁴⁷ Ultimately, the solution to the problem of fatigue was solved by the decision to introduce two SMs along with one engineer, with a third SM arriving six months later as a replacement for one of the managers, and continuing in rotation, every six months “for rest and refresher...and so maintain continuity of work and thought.”⁴⁸ According to future Workshop director Desmond Briscoe, the reason why employees were constantly juggled around was more than a little political: the powers that be hoped that this shifting would prevent the musical “lunatic fringe” from gaining a foothold within the Workshop.⁴⁹

Engineering work was not considered as “fatiguing” as the supposedly more creative work done by the SMs. They were not to be shifted as often – in fact, no provision was made for the moving around of engineers at all. In a demonstration of the BBC’s notorious “scaled” hierarchical job system, the engineers were thought to have a less stressful job “merely” realizing the more mentally draining artistic vision of the SMs.

⁴⁷ WAC R97/11/1 Minutes of the REC December 10, 1957, minute 4.

⁴⁸ WAC R97/9/1 Memo from E.W.S. Porter to H.C.P. Ops., March 5th, 1958.

⁴⁹ Briscoe, *BBC Radiophonic Workshop*, 37.

Daphne Oram was the committee's first choice as one of the studio's SMs. She had by far the most experience with radiophonic production, and had expressed an interest in the field long before the establishment of the REC. Oram, a skilled musician, had been employed initially as a BBC 'music balancer' during the war. Oram also trained as an engineer and by the early 1950s had been promoted to Music Studio Manager. In this capacity, she campaigned for electronic music facilities, and was one of the contributors to Derek Nesbitt's initial proposal to the then-EEC in 1956. On January 26, 1958, a radio adaptation of Shaw's *Heartbreak House* featured radiophonic effects by Oram. This was preceded by a discussion of *concrète* effects on the program *Monitor* immediately before, so a great deal of publicity had been given to the production. In March of that year, Oram composed music and effects (constructed with sine-wave oscillators, a single tape recorder and home-made filters) for *Amphitryon 38*, the first television program to use radiophonic effects. In the months leading up to the opening of the Workshop, Oram added radiophonic elements to several other plays including *Prometheus Unbound*. She was clearly electronic music's most experienced and enthusiastic advocate among the Music Department's SMs. Her musical training and experience also gave the fledgling Workshop a much-needed dash of musical credibility. Oram's great hope was that the Workshop would use the success of its productions for the Drama

Department to encourage the creation of more straightforward musical works, and that it would eventually become a center for electronic music creation rivaling that of Paris, Cologne, Milan or at Columbia-Princeton. That she was the first person considered for the job is clear from a letter from staffing executive E.W.S. Porter who specified that if she was around, she could “impart the know-how so far gained” to the other “suitable types.”⁵⁰

The choice for the other SM was equally easy – it made sense to employ someone from the Drama Department, since so many of the commissions would come from there. The Manager with the greatest experience, Desmond Briscoe, had worked on Beckett’s recent hit, *All That Fall*. Since Beckett’s play, Briscoe had worked on Giles Cooper’s *The Disagreeable Oyster*, as well as *Private Dreams and Public Nightmares* and *The Winter Journey*. In essence, he had participated in all of the major dramatic productions featuring radiophonic sound up to that point. Although he wasn’t trained as a classical musician in the same way as Oram, his practical experience in electronic sound effect production made him the perfect choice. His bureaucratic deftness and showman-like personality was also something highly valued in the politically sensitive world of the BBC.

⁵⁰ WAC R97/9/1 memo to H.C.P. Ops from E.W.S Porter (Assistant Head of Central Programme Operations (Studios)) dated March 5, 1958.

The Senior Engineer was Richard "Dickie" Bird, an elderly man with over thirty years experience at the BBC. Dickie Bird had begun his engineering career maintaining slot machines in pubs and cafes (where his predecessor had told him to give over a certain percentage of the takings and keep the rest for himself!). Although he maintained equipment with an astonishing degree of dedication, he also had continued a successful career moonlighting as a sound recordist for feature films. His technical expertise and love of machinery made him the ideal choice as the Workshop's permanent engineer. The shoddy and precarious condition of most of the equipment meant that Bird would be required to take apart, repair, and reassemble almost everything at a moment's notice. He would also be required to fulfill the artistic needs of the more "high-minded" SMs. It was his duty to help them realize their creative visions in a practical way, and to let them know if an idea was in fact possible.⁵¹

A friend of Oram's, Jeannie MacDowell was employed as a Junior Engineer and assistant to Bird. She was from the Control Room, but also

⁵¹ A few anecdotes about "Dickie" Bird related to me by his co-worker, Dick Mills. "He was very precise over certain things, specially his beloved cars. If it was raining, he would take his wife, Olive, to her work then drive back home, wipe the car dry and come to work on the train! When he went abroad to France for holidays he would have fitted duplicate important items (ignition coils, carburetors, etc) in the engine compartment ready to be switched over in event of breakdowns...He had no children, 'not until they came as "boil in the bag" items and you got change with them', he used to say...He took great pride in maintaining any equipment we had (his own domain was one end of Room 13)...Paradoxically, he hardly ever created an original piece of equipment...I think this was Dickie's way of secretly showing that he didn't really believe in any of this nonsense and was always in fear and trembling of having to find a proper job!" Dick Mills, Letter to author, 15 April 2002.

had experience working in electronic sounds due to her relationship with Oram.

In the beginning, the SMs and the engineers fulfilled two completely separate roles. This had as much to do with political and class hierarchies within the BBC as with the actual work undertaken. In spite of, or perhaps because of, the changes occurring in British culture in the late 1950s, when women entered the workplace, and the majority of working class Britons received higher pay, and class distinctions began to blur, the BBC attempted to maintain as rigid a class structure within its walls as was legally possible.⁵² Operating on a “graded” scale, BBC jobs were deferred according to their relative difficulty, i.e. whether it was skilled or unskilled work, creative, technical or clerical. Such distinctions, intentionally or unintentionally maintained the larger class divisions of society at large. Dick Mills, who joined the Radiophonic Workshop in 1959 as an engineer only half facetiously observed the class distinctions between the “first class” of employees, the SMs, producers, etc., and the “second class,” the Engineering staff. He noted that “the first group consisted of ‘arty’ folk who knew about the loftier aims in life, which knife and fork to use at ‘Dinner’, could probably recite Shakespeare, play the piano and took the *Daily Telegraph* or

⁵² This culture has been eloquently described in Tom Burns’s fascinating sociological study *The BBC: Public Institution and Private World* (London: MacMillan Press, 1977).

The Times. (Calling each other 'Luvvy' came later!).”⁵³ The engineers, in contrast, worked mostly in the Control Room, which was like a telephone exchange center, receiving the signals from the various studios and outside broadcast units and recording them. The Engineering Department had responsibility to maintain all of the equipment, and understand their workings inside and out. Their services were then invaluable to the more “artistic” staffers whose knowledge of technical matters could be less than adequate. In an atmosphere which was, in the words of Mills, “typical of the British class system, each department were looked down on (or up to) by the others. Studio Managers obviously thought Control Room staff couldn’t hold a tune, whilst recording staff felt that Studio Managers couldn’t wield a razor blade for fear of hurting themselves!”⁵⁴ Because of this fear, it was decided that each new project at the Workshop would be realized using one SM and one engineer working together.

In spite of all the careful planning, it was impossible to tell what the actual job descriptions would be for the initial staff. Pragmatic decisions made fairly early on reflected more accurately the necessities of production. This included having visiting Studio Managers in the first year – like Norman Bain, who returned in a more official capacity in 1960, and whose experience in engineering made him a useful colleague for the Workshop’s

⁵³ Dick Mills, letter to author, 15 February 2002.

⁵⁴ *Ibid.*

initiates, and engineer Ken Squires, the resident engineer at Maida Vale. He was essential in getting all the new equipment operational and powered in a 50 year old building. In general, after the opening day, a more flexible attitude towards Workshop appointments was adopted by BBC staffers. This makes it much more difficult to tell who did what, with the result that many creative minds were able to work on the various projects always in continuous circulation through the studio. This feeling of communal work was encouraged by Oram and Briscoe. Nearly all Workshop projects are credited in broadcast credits to the "Radiophonic Workshop" only rather than to an individual composer or engineer who actually worked on it.

Opening Day

The Radiophonic Workshop officially opened on April 1, 1958, although it had begun tentative projects several days earlier, and was not completely operational until the April 14.⁵⁵ In fact, after the main equipment had been set up, it had to be calibrated and master tapes of various electronic sounds prepared. This happened in the first three weeks in April. On April 15, 16, and 17, for example, Daphne Oram recorded basic oscillator notes for future use, making a stock of individual pitches that could be

⁵⁵ WAC R97/11/1 – RW General (1935-73 file 1) memo from AHOCPO (Studios) [EWS Porter] to REC, April 11th.

reused, and save her the task of setting up an oscillator each time a specific note was required.

The REC met for the first time in Room 13 of Maida Vale on April 23 to discuss the first few weeks of the Workshop's operation and to sort out remaining problems. The Workshop opened with £500 in the bank, but staffing still remained a problem. Although Oram, Briscoe, Bird, and MacDowell were all to stay, only Oram's position could be guaranteed. Apparent staff shortages meant that the other three could potentially be sent elsewhere if needed. Oram, as unofficial "head," was to remain "for some time to preserve continuity."⁵⁶ Perhaps because of this it seems that the majority of the earliest projects in the Workshop were realized by Oram rather than Briscoe, who mostly acted as a liason to the outside. In addition to creating the basic oscillator tapes, Oram also realized most of the effects for the first production to come out of the newly christened Workshop, *The Heritage*, produced by John Gibson. These effects must have been a fairly small commission, because the next production, an adaptation of James Hanley's novel *The Ocean* occupied most of the rest of April and was a group effort.

The BBC called a press conference on May 22 to announce the Workshop's opening. It released a four page description of the new service

⁵⁶ WAC R97/11/1 REC Minutes, April 23, 1958.

with the heading “BBC Opens Britain’s First Radiophonic Workshop.” The publicity material goes to great pains to distinguish between what the Workshop was doing and *musique concrète* or electronic music. “although some of the techniques are similar, radiophonic sound is not an art in itself – it is used to provide an additional ‘dimension’ for radio and television productions.”⁵⁷ They still acknowledge the dual function of the effects, however, by noting they “provide an aid to productions which neither music nor conventional sound effects can give.” In light of the battles between the drama and music departments, this distinction was particularly important. By calling the Workshop’s output neither literally music nor sound effects, but acknowledging its capacity to be both, the BBC effectively hedged its bets, proving its mastery of diplomacy. In the daily newspapers, the arbitrary distinction between “music” and “sound effects” again caused some confusion. Some, like *The Times*, merely reproduced the BBC’s description of the Workshop’s output as “providing an imaginative background to drama productions which cannot be obtained from ordinary music or from the stock-in-trade of sound effects.”⁵⁸ Other papers, however, weren’t nearly as certain of this distinction. Several prominent papers, after considering the output of European electronic music studios hoped that the

⁵⁷ WAC R53/483/1.

⁵⁸ “B.B.C.’s Radiophonic Workshop,” *The Times* (London), 24 May 1958.

composers of “radiophonics” in Britain, “a team of enthusiasts, led by musician and technician Daphne Oram” would “yet dazzle their continental counterparts by their independent discoveries and ambitions.”⁵⁹

As the team settled into their jobs, it became apparent that the main focus of their work would not in fact be radio drama, but rather high-blown Third Programme projects constituted only a small proportion of their duties. Productions of an adaptation of Jean Cocteau’s film *Orpheus* and of Giles Cooper’s *Under the Loofah Tree*, demonstrated a fluency and indeed mastery over *concrète*-style abstract effects that the BBC’s press announcement had emphasized. It was the next generation of compositions for television and radio signature tunes that would direct the emphasis away from abstraction and into a more “musical” world, albeit far from the ivory tower of the contemporary classical world.

⁵⁹ Madeau Stewart, “Is it Really Music,” *Tablet*, 26 April 1958.

Chapter Five:

Radiophonic Music: Nine Attempts to Understand It

Good evening ladies and gentlemen, Hans Joachim speaking...

[Music]

This well known signature tune which has introduced and ended our weekly chronicle for the past fifteen years and for the past five years also our daily chronicle, has just been heard by you for the last time. We want from now on to begin our program with a new signature tune. Why do we wish to alter a well known theme? . . . We thought about it for a long time. . . There is no absolute necessity for change, but if, in spite of this we have decided to alter the tune, it is for one particular reason. *The Daily Chronicle*, more strongly than most programs reflects the face of the world, the state of our society. Looking back, it has, so to speak, drawn a temperature chart of our epoch...Our world has altered since 1950. It has become more hectic, more materialistic, freer; quite simply, more modern whether we are happy about it or not. We have, therefore, got the impression that our old signature tune has become rather old-fashioned, no longer up to date. It is just a coincidence that this new tune, which you will soon hear, has been composed by an English woman, Delia Derbyshire, but the fact that you and I find nothing unusual in being in contact every day with the rest of the world is for us also a symbol. Fifteen years ago the world would have been astonished. This new melody is not played by instruments. It has been made by artificially produced tones in the Electronic Workshop of the BBC. Are the older ones amongst us going to lament this fact? The world of 1966 is no longer the world of 1950. We can only come to terms with it when we accept this. And now to our program.¹

This transcript from a radio news program from the mid-sixties goes some way to defining for us the issues and priorities affecting British subjects and their place in the modern world. That Hans Joachim thought they could

¹ BBC Written Archive Centre (WAC) R97/9/1, undated.

position themselves as “citizens of the modern era” by using electronic music is clear. What isn’t quite as clear is how the music accomplishes this. Is there a one-to-one relationship between the electronic and the modern? To be sure, electronic music emerges in the modern, if not postmodern, era. If this is the case, does electronic music somehow represent this “more hectic, more materialistic, freer” society in a one-to-one relationship? Of course not. But getting to the bottom of any “real” meaning of electronic music, or even an agreed-upon function specific to a place and time is not easy. In the Sixties, electronic music came into its own, developing in many directions, even in the days before voltage-control synthesis. It still frightened, it still mystified, and represented the psychologically off-kilter, as it had in its early days. But by the early 1960s, beautiful electronic and tape music entered the composer’s bag of tricks. No longer could it *only* frighten; now it could move an audience to tears. The remoteness from humanity that electronic music seemed to possess could now also represent a very human disjunction, melancholy and wonder.

The changing form and function of electronic music during the first nine years of the Workshop’s existence adheres as a foreground topic to these larger philosophical questions in this chapter. I will be discussing nine radio and television commissions relatively in-depth, both radio and television, with several other projects described in less detail.² The evolution of the

² All of the works or tracks discussed in this chapter have been commercially released with the exception of *The Ocean*, *Under the Loofah Tree*, and *Orpheus*.

sound of the music produced at the Workshop forms the structural foundation of this chapter. I will demonstrate the shift from more abstract, *musique concrète*-based pieces to works that are driven primarily by tape-loop created rhythmic patterns and finally to a combination of these rhythmic structures and tonally based-composition. This shift is gradual but persistent, and the works chosen are both chronologically typical and exemplary demonstrations of those shifts.

A primary task of the chapter will be to discuss in detail nine individual works, with each discussing incorporating and combining the most useful methods of analysis and interrogation – transcriptions, film and sound theory, aesthetic theory, and, when useful, basic harmonic analysis. Shaping much of this will be the exploration of radiophonic sound's unique power for blurring the distinctions between digetic and non-digetic noise, and using the non-representational acousmètre in more complex ways than is possible in traditional music and sound effects.

The final function of this chapter is to draw conclusions about the nature of British modernism in the period under discussion as it is manifested in the pieces produced by the Radiophonic Workshop. One option, perhaps the standard one, is to see the works through the lens of the traditional narrative of contemporary post-war music. They can be viewed as essentially “watered down” examples of continental modernism, with its notions of the supremacy of musical autonomy, dissonance and “difficulty.” Another is to

reconcile the various conflicting elements in the Workshop's output. Its primary function was to provide television and radio productions with sound and music. Continental composers might view this as an unacceptable concession to anti-modernist aesthetics. The Workshop's production style combined rhythmic regularity, tonal progressions, recognizable structural forms, and familiar albeit treated sounds, with the modernity of contemporary recording methods, electronic sound production, truly challenging timbres; a "difficulty" which, in spite of bouncing melodies leaves an audience with an experience of the modern.

This realization enables a new understanding of the works as modern and challenging *within the context of their creation*, and their potential value as effective, moving, complex works of art, as seen from within a uniquely British populist modernism may be judged on these new sets of criteria. This modernism is content to reference qualities of high modernism, and sample them freely – a little dissonance here, a little electronic sound production there – without committing itself to the musical, cultural and political implications of high modernism.

First Projects

Almost immediately after opening in April 1958, the staff of the Workshop began asking for more money for equipment. In particular, they wanted funds to set up a studio for the production of electronic sounds. The equipment currently used was mostly for manipulating traditional sounds.

For the first year or so of the Workshop's operation, there were only limited possibilities for producing electronic sound, for example through the Muirhead oscillators. This limitation was clearly impossible to sustain. As a result of the paucity of equipment, the kinds of pieces composers tended to create in the beginning were less tonally precise. They were more abstract and atmospheric -- the kinds of works made possible by slowing and speeding up existing sounds. Such sounds worked well as backgrounds for programs, but limited the potential creativity of the Workshop.

Three kinds of compositions were required of the Workshop. First, following the mandate of their founding, they continued to contribute to Drama Department productions with radiophonic sound effects (although the boundary between sound effects and incidental music was tenuous at best). Second, and more problematically for the nature of the equipment possessed, they needed to compose signature tunes for radio and television productions (music for the opening and closing credits.) Thirdly, they needed to provide what was called "interval music", to be played either during the beginning or end of the broadcast day or between programs. If on television, the sound was accompanied by an image of a moving clock.

This log book from the first six months of the Workshop's opening shows both the balance of labor and the various roles each staff member played. Oram operated as a full time composer, while Briscoe combined

composition with public relations. This list also shows the sheer variety of projects undertaken and the speed with which they were completed.

Table 2: Logbook of Radiophonic Workshop activities for first five months

Dt.	Project or Task Performed	Radiophonic Employee
'58 4/8	Equipment Installation	
9	Equipment Installation	
10	Equipment Installation Effects for Antarctic Wind	Daphne Oram, Richard Bird
11	Equipment Installation	
14	Equipment Installation	
15	Equipment Installation Recorded basic oscillator notes	Oram
16	Equipment Installation Recorded basic oscillator notes	Oram
17	Equipment Installation Recorded basic oscillator notes Effects for The Heritage	Oram Oram
18	Collecting materials, tapes, etc. from various places, taking to Maida Vale	
21	Effects for The Ocean	Oram, Desmond Briscoe, Bird
22	Effects for The Ocean	Oram, Briscoe, Bird
23	First demo for Radiophonic committee Playback of The Ocean for Donald McWhinnie, Producer	Oram, Briscoe, Bird
24	The Heritage The Ocean	Oram Oram, Briscoe, Bird
25	The Ocean for McWhinnie Meeting with Producer to discuss Arabian Nights	Oram
28	Visit by publicity officers	Oram, Briscoe, Bird, Norman Bain
29	Demonstration for BBC Controllers The Ocean Playback of The Heritage for Gibson, Producer	Oram, Briscoe, Bird Oram, Briscoe, Bird, Bain Oram
30	The Ocean recording in Studio 3 Maida Vale with cast	Oram, Briscoe, Bird, Bain, Nesta Cathn
5/5	Effects for I Talk To Myself	Oram, Bird, Denis Lewell, A. Henderson
7	Effects for I Talk To Myself	Oram, Bird, Denis Lewell, A. Henderson
8	Effects for I Talk To Myself	Oram, Bird, Denis Lewell, A. Henderson
9	Effects for I Talk To Myself	Oram, Bird, Denis Lewell, A. Henderson
12	Effects for I Talk To Myself	Oram, Bird, Denis Lewell, A. Henderson
13	Private Dreams and Public Nightmares, playback and copying	Oram, Bird, using Motosacoche
14	Mr. Goodjohn and Mr. Badjack, discussion with producer	Oram
15	Mr. Goodjohn and Mr. Badjack, creating and recording effects	Oram
19	Press photographers visit	Garrard, McWhinnie, Oram, Bird, Briscoe
27	Planning and prep for The Talking Bird Visit by member of Hebrew Section, demonstrations for Hebrew Section	Oram, Bird Oram, Bird
29	Oram goes to Broadcasting House to pick up Pakistani and New Zealand visitors, gives demonstration of equipment	Oram
30	Effects for Talking of Films	Bird
6/3	Effects for Studio E (television program title)	Oram, Bird, director Len Chase
11	Work on Howard Blair television program Work on Children's Hour Effects for The Jack in the Box	Oram, Ken Squires (Maida Vale in-house engineer) Oram, Squires Oram, Squires
16	Radio Show (TRW#1012)	Oram, Bird, producer M Garrard
30	Ken Squires gives demonstration to Mr. Crawford (Superintendent)	Squires

	Engineer, Sound Broadcasting)	
7/1	Preparation for Under the Loofah Tree	Briscoe
2	Discussion with producer for Under the Loofah Tree	Oram, Briscoe, McWhinnie
4	Effects for Under the Loofah Tree Effects for Towie Castle "two inserts radiophonically treated and replaced on original tape"	Oram, Briscoe, Squires Oram, Briscoe, Squires
5	Incidental Music for Edinburgh Festival [8 short pieces for Adamov's <i>Invasion</i> for Oxford Arena Theatre]	Oram
7	Incidental Music for Edinburgh Festival Effects for Ballad of Mari Lwyd	Oram Oram
12	Edinburgh Festival with producer, Bryan Izzard	Oram, Izzard
14	Bird "treating television news with PEU...to try and increase body of chimes. Original tape quality poor with distortion and tape flutter."	Bird
17	Trial effects for The Language of the Sea	Bird, producers Thomson, A. Henderson, H. Catlin, J. Johnson
22	Recording Under the Loofah Tree	Briscoe, Bird
23	Recording Under the Loofah Tree, with time in Echo Room	Briscoe, Bird
24	Recording Under the Loofah Tree, with time in Echo Room	Briscoe, Bird
25	Recording Under the Loofah Tree, with time in Echo Room	Briscoe, Bird
8/5	Completes music for Edinburgh Festival Clearing up after recording Under the Loofah Tree	Oram Bird
6	Music for The Creation of the Animals	Briscoe, Oram, Bird, producer Douglas Cleverdon, composer Andre Almuro
13	Music for The Creation of the Animals	Briscoe, Oram, Bird, Cleverdon, Almuro

The Ocean *and* Under the Loofah Tree

The first project created in the new Workshop, *The Ocean*, exemplifies perfectly the kind of composition that blurs the distinction between "music" and "effects." After producer Donald McWhinnie explained what the production required, Studio Managers (SMs) Desmond Briscoe and Daphne Oram along with engineer Norman Bain (who, with Engineering Assistant Jeannie MacDowell, comprised the entire complement of the Workshop's staff) worked together for seven full days creating the sound effects and atmospheres. James Hanley's drama concerned the crew of a World War II ship who were adrift in a lifeboat. Two notes from an E-flat clarinet served as the sound source for the majority of the effects. These sounds combined were then treated, with the clarinet sounds bent in a downwards slide.

McWhinnie described how difficult it was to translate for radio a novel set entirely at sea in an article for the *Radio Times*: “Clearly, conventional methods would not do – one must evolve a radio style which would blend poetry and realism, drama and reflection.”³ Remembering the attitude of the press after *Public Dreams and Private Nightmares*, he again apologized in advance for the program possible lack of success:

The attempt to re-interpret Hanley’s vision has been one of the most exciting radio experiences and I hope that the sound-complex you will hear on Monday evening may prove to be one of yours. If not, please don’t shoot. . .the wonderfully creative team of technicians who have spent hours in blending realistic and radiophonic effects. Don’t shoot me either; just switch off.⁴

The reviewer of *The Listener* warmly received the production, singling out the radiophonic sounds as its strongest element: “This. . .made surrealist sounds serve the script. The three-note phrase, something like the slow swell of the sea but also like a groaning dirge from some inhuman voice,. . .and as effective as an audible equivalent to nightmare.”⁵ An unnamed critic even went so far as to note that “few who heard it will forget the haunting theme which so aptly conveyed this impression.”⁶

³ Donald McWhinnie, “The Ocean,” *Radio Times*, 16 May 1958: 6.

⁴ McWhinnie, “The Ocean,” 6.

⁵ Roy Walker, “Sound Broadcasting: Drama,” *The Listener*, 29 May 1958: 915-916.

⁶ Unlabeled, undated newspaper clipping found in the WAC, R97/9/1.

The Ocean was an important testing ground for the facilities of the Workshop in its opening days. A greater challenge for Oram, Briscoe and Bird was to come in Giles Cooper's follow-up to *The Disagreeable Oyster*. Inspired by the success of that play, Cooper wrote *Under the Loofah Tree*, capitalizing in those elements of his earlier comedy that had made use of tape manipulation and other relatively rudimentary techniques. Whereas before his productions had been assembled using whatever equipment happened to be available, now he had the full attention of a unit dedicated to their creation. This encouraged Cooper to let his imagination run riot, and to work closely with the production team in finding out what was possible.

Perhaps it was good that the first major production undertaken in the new Workshop dealt with a subject familiar from earlier projects, namely a cloudy, surreal world, introduced through a "Theatre of the Absurd"-like narrative, describing life in a distorted post-war Britain. In *Under the Loofah Tree*, Cooper invented a hero who was terrified of the world outside the four walls of his bath. He used his protagonist's paranoia to explore issues of domesticity and the outside world, and larger issues of masculine and feminine spaces, as he had in *The Disagreeable Oyster*, although here, the reclamation of the hero's domestic space is the central theme.

As a popular theme in modernist discourse, the postwar battle over domestic space deserves a bit of explanation. As a result of the blending of men and women's spaces in ways they had not done earlier, the definition of a

location as masculine or feminine became more and more culturally significant. As men had sought entertainment outside the house through the development and proliferation of men's clubs, mass sporting arenas and pubs throughout the 20th century, they gradually lost their hold over domestic space. In his article on the postwar Hi-Fi sound system, Keir Keightley quotes housing historian Margaret Marsh, who observed that suburban homes "came to represent togetherness by reducing the number of rooms and opening up floorplans...the important new idea about domestic space was that the house should express togetherness and family activities, not provide special spaces for individual activities...However, husbands were heard to say that togetherness made them feel trapped."⁷

This sense of paranoia over the loss of private space, both at home and the office (where the idea of being "part of the team" became more prevalent) and in the larger urban world in general, led men to try and recover some of their lost turf. A perfect example of such a struggle is the bachelor pad. Keightley describes how a male culture developed that deliberately created these specifically masculine spaces, which also came to include backyard tool sheds, or garage workshops, or, in Britain, the allotment. Artificial *sonic* spaces of privacy (and, by extension, masculinity) were created as well through the newly developed hi-fi sound systems. Although the actual hi-fi

⁷ Margaret Marsh, *Suburban Lives* (New Brunswick) quoted in Keir Keightley, "Turn it down!" she shrieked: Gender, Domestic Space, and High Fidelity, 1948-59," *Popular Music* 15/2 (1996): 153.

equipment was compact, they allowed men, using already 'masculinized' "exposed wire" technology, to reclaim the feminized living areas of the home through sheer volume. The importance of this sort of reclamation, Keightley believes, is that men were using technology as a means of "realizing [their] repressed, true self, of momentarily abandoning the sham, pretense and rationality of a compromised age in favor of authentic emotions and unbridled experience."⁸ Technology conveys a more authentic experience than the one men experienced in their suburban lives. More than this, though, men were able to redefine their arenas, recapturing their territory through sheer sound. What could represent this newly reclaimed masculinity better than *mechanized* sound? Sounds treated electronically are inherently infused and imbued with traces of technology. They cry out, "I once was boring, natural, now I am treated, better, scientifically enhanced, made manly." They had masculinity squeezed into them.

Cooper's plays were successful because they use technological "innovation" to critique the masculinist worldviews his characters embodied. Technology didn't necessarily empower these characters, but was vital to the redefinition of their physical or mental space.

In *Under the Loofah Tree*, the negotiation of sonic spaces is of primary importance. Our hero Edward Thwaite has locked himself in the bathroom, and the entire play is performed from his bath. He paints in his imagination,

⁸ Ibid., 157.

Walter Mitty-like, different scenarios and locations, including great military victory on the Loofah fields. All the while he is constantly interrupted by either his wife or others, including traveling salesmen, bill collectors, tax men, etc. His imaginary sonic experiences are all contained within the material space of this room, but from the listener's perspective, the space opens and closes according to an hallucinatory "vision." I would like to concentrate on the final montage for my discussion of the way Cooper uses radiophonic sound to both expand and constrain Thwaite in this play. (See Example One)

Example One:

EDWARD: But how? (*An intensely menacing rumble begins in the distance. It comes closer and closer until it fills the air with its heavy throb*) Oh, God, I might be eaten by a lion. How do I know? Or hanged. Run over by a train. A madman with a hatchet. How can I sing or splash or even wash myself with such a moment waiting? How can I go on living?

CHORUS: Why bother?
You don't have to
You could stop now.
Death by drowning. Easy.
Do it yourself.
The tools are all provided.
And do it now.
And then you'll know.

EDWARD: I might at that. How would it be? (*He takes a deep breath and plunges under. His heart-throb can be heard strong and steady throughout the following scene*)

My whole past life before me in a flash.
(*Fade in a tape recording so speeded up as to be merely a series of squeaks. It slows down to a growl*)

CHORUS: Thwaite, Thwaite, Edward Thwaite, Mr Edward Thwaite, our Ted.

(*It is now so slow as to be unintelligible*)

EDWARD: What are they saying about me?

(*Cross fade from this tape to the sound of the sea*)

What are the wild waves saying behind my back?

(All the following voices are away from Edward, talking to someone else, unaware of his presence)

WOMAN: It's a boy. Seven and a half pounds.

(Fade in trams clashing and clanking over points and grinding uphill)

MOTHER: He can talk but he won't.

(Someone whistles 'Bye Bye Blackbird')

FATHER: There's no sense taking him. He'll only be a nuisance.

(Fade in 'The Music Goes Round and Around')

GIRL: He's just like all the others. Only wants one thing and that he won't get—not with all those spots.

(The throb of his heart continues.)

MAN: Oh no, we don't want *him*. Surely there's someone else.

(Fade in a chorus of 'Roll Out the Barrel' intoned with an air of tuneless gloom)

SERGEANT: They're coming on quite well, sir, most of them. There's *one* not up to standard, only *one*.

(Fade in 'All Clear' siren)

MAN: He says he was with us before the war, but I don't remember him.

(Fade in 'Here Comes the Bride')

WOMAN: She's never marrying him. Whatever for?

(At this point the voices begin to go faster matching the increased speed of the heart-throb)

CHORUS: Oh, no never, not while there's anyone else suitable for re-grading.

Give him the corner by the serving hatch.

Is he really the father?

He can't do much harm

I dare say he means well.

Oh no, I don't think so really, not him.

And then, of course, I suppose there's always

Thwaite.

(The heart-throbs are going very fast now and behind them is a high single note, increasing in volume until it is unbearable at which point there is a mighty splash)

EDWARD: *(In a shout)* There's always me! *(There is a great puffing and blowing as he sits up. He breathes heavily)* If I'd stayed under much longer I would have drowned. They'd have had to break down the door.

(Knocking on door) It's all right.

MURIEL: Ted. What you doing?

EDWARD: Washing.⁹

As the excerpt opens Edward Thwaite is taunted by the dead soldiers with whom he had served during the war. They accuse him of cowardice, but assure him he will get his chance to die soon. "But how?," Thwaite asks. At this point, a low indefinable tone plays in the background, much as The Deflector had in Cooper's earlier, pre-radiophonic 1956 play, *Mathry Beacon*. It fills the space, removing the ambient bathroom noise that had sheltered him throughout the rest of the play. Voices, treated with tape echo, and processed through a PEU filter to remove the high and low frequencies, taunt him to drown himself, their technologically augmented nature highlighted by their abrupt cutoff as Thwaite's voice reenters. As he plunges under the water, with a sound far more expansive than realistic, the low tone is replaced by a more insistent pulsing, ostensibly a heartbeat, but just as likely the sound of machinery. "My whole life passed before me in a flash" he says. His "life" is depicted as a document preserved on magnetic tape, as the whirr of tape spins round and round, eventually slowing. Each of the people who then talk are defined before their voices appear by a sonic marker of the space they inhabit. Some are more material than others (realized by varying degrees of frequency filtration). For example, the sounds of a nightclub presage a girl who once rejected Edward's advances. A miserable chorus of singing soldiers introduce

⁹ The connection between these scripts and those of Lance Sieveking's 1920s plays for the Dramatic Control-Panel as discussed in chapter two should be clear.

Thwaite's sergeant, whereas a wedding march plays before a woman expresses her disappointment over Thwaite's wife settling for him. As in *The Disagreeable Oyster*, technologically altered sounds, sounds rendered into virtual acousmètre, can just as easily signify an internal paranoia and fear of inadequacy. But in this case, the sounds seem external to the protagonist, representing more a "hypermasculinity," an unattainable goal, the inescapable pressure of an unrealizable normality.

As the underwater sequence comes to a climax, each voice is treated differently, reflecting different aspects of Thwaite's insecurity. And as if to emphasize the supremely alienating effect this has on him, a high pitched electronic hum enters the texture, gradually gaining in intensity. This is the first immediately identifiably electronic sound heard, until Thwaite bursts back into the highly reverberant safe space of his bathroom with a desperate emphatic assertion of himself, "There's always me!" This electronic element, the high pitched hum, functions so effectively because it is the first time that that technological world has made its bare self audible, that the technology has peeked out from behind the curtain to make its presence known.

Cooper's plays not only explore new technologies, but also examine the ways in which they affect and change peoples and cultures. When viewed in the context of the late 1950s, they stand out as an excellent representation of contemporary sensibilities, which Cooper is never afraid to complicate or critique.

Change and Signature Tunes

About six months after the Workshop opened, Daphne Oram, in frustration at not being allowed to work on more abstract, strictly musical projects, left to set up her own electronic music laboratory in an old round oast house, "Tower Folly" in early 1959. In this new location, she eventually designed her theories of what she called "Oramics," a method of creating music through oscillators connected to photoelectric cells. She built the instruments herself. The cells read an image drawn with black ink onto plastic sheets, converting the image into sound, reminding of a process created by Percy Grainger for his Free Music Machines of the 1940s and 1950s, and by the Soviet composer Yevgeny Alexandrovitch Sholpo in the 1920s and 30s. Eventually Oram applied this technology to personal computers developing software to exploit the possibilities of Oramics.

Given her importance and influence as the primary musician responsible for the establishment of the Workshop, and as the first woman in the world either to open an electronic music studio, or to construct electronic instruments, I am disappointed and frustrated that Oram occupies such a small place in my discussion of the Radiophonic Workshop. This is due to several factors. The first, and most practical, lies in the plain fact that very little of her music survives in the BBC archives, and what does has been inaccessible to me because of the fragile nature of the material. (Magnetic

tape, once touted as “indestructible” tends to have a remarkably short lifespan.) One project in particular, the television adaptation of *Amphitryon* 38, which first substantially used radiophonic sound in that medium, and was first given a special “Radiophonic” credit in the Radio Times, no longer exists, like so much of the BBC’s output from the earliest years up to the late 1960s. As the sole “trained” classical musician among the early Workshop crew, and the only Studio Manager from the Music Department – certainly the person with the best knowledge of Continental techniques – a fuller knowledge of her approach would have enriched this project immeasurably. I would love to know how Oram approached scoring for television; certainly her electronic film scores composed after she left the Workshop, such as her uncredited collaboration with Georges Auric on 1961’s *The Innocents*, betray a subtle understanding of the ability of manipulated sound to frighten and to generate an atmosphere of unease.

Accounts of the Workshop tend to downplay Oram’s role in its success.¹⁰ This has led to something of a snubbing in the public record, and must inevitably be related to her position within the BBC as a woman. Although that topic is far too large to go into here, and it should be acknowledged that of the great “successes” of the Workshop, an almost equal

¹⁰ Principally, Briscoe and Curtis- Bramwell’s book.

number of woman to men must be counted¹¹, there can be no doubt that in the 1950s, women in so-called “men’s” jobs at the BBC faced a great deal of, if not outright prejudice, then, condescension, from many of the more old-fashioned male staff. Delia Derbyshire, for example, when she was resident at the Workshop, is reported to have worked only after the “suits” had gone home to avoid having to deal with the “wonder” they faced at the prospect of an attractive woman doing a job traditionally identified as masculine. Although, as Maddalena Fagandini acknowledges, there had been a tradition in the BBC of hiring women as engineers and technical people in radio, these same women faced “quite a cut back after the war when the surviving gentlemen came back and wanted their jobs.”¹²

Finally, Oram suffered a stroke in the mid-1990s, and became quite sick just as I began work on this project, dying in early 2002. As it is, it has been quite difficult for me to find information about many of the BBC’s staff and employees, due to the marginalized position of the Workshop in the more general histories of electronic music. I relied to a great extent on personal contact with the composers for my information, and without her input, it has been very challenging to insert her voice into my project and to make her

¹¹ Including besides Oram, Jenyth Worsley, who became a producer in BBC Radio, a successful writer and poet, Margaret Etall, now a prolific director in BBC Radio, Elizabeth Parker, a successful composer, Clare Elstow, the current head of BBC Pre-school programming, and perhaps most famously of all, Delia Derbyshire, whose reputation in the world of electronic music continues to grow.

¹² Jo Hutton, “Radiophonic Ladies,” published online <www.sonicartsnetwork.org/ARTICLES/ARTICLE2000JoHutton.html> (January 13, 2003).

presence and contribution known. I hope these comments do something to ameliorate this situation. Oram's position on the process of composition, and her ideas about music in general can be read in a fascinating and eccentric book she wrote in the early 1970s, as she worked through the implications of her Oramics system. It explores her philosophy of composition through engineering metaphors in a delightfully technical way, as if everyone's brains worked in such complex mathematical ways!¹³

When Oram left the Workshop, her engineer Jeannie MacDowell left as well, as she had been primarily there to assist Oram. Rather than replace Oram outright, the Radiophonic Committee thought it would be better to follow the original idea of bringing in a rotating field of SMs and engineers to work for a brief time. In the five years under discussion here, these included Maddalena Fagandini, Dick Mills, Jimmy Burnett, Phil Young, Dennis Morgan, John Harrison, John Baker and Delia Derbyshire. On account of the overwhelming success of the new Workshop however, the BBC decided to increase the regular staff to ensure the timely completion of the ever-growing number of commissions.

Quatermass and the Pit (TV, 1958) - Briscoe, Mills

¹³ Daphne Oram, *An Individual Note: Of Music, Sound and Electronics* (London: Galliard Ltd, 1972).

When writing about music for television, it might seem that different interpretive methods would be necessary than for radio. But as I suggested in chapter three, music for radio is fully capable of commenting on the dramatic action and its context, indeed, it is difficult to think of any aspect of film or television music that doesn't have an equivalence in radio drama, regardless of film music's scholarship's central position in this discussion, as if it were alone in this ability.¹⁴ On the surface it might seem as if the visual nature of film and television offers a unique opportunity for music to comment on the silent action of the moving image (and, as our experience of film going and television watching shows, an opportunity film composers often take advantage of). Perhaps the primary function of film and television music depends on our usual assumption that it emulates an experiential phenomenon, relating and reflecting the essence of that experience in aural terms. Is there a substantial difference between the musical evocation of a visible emotion (as in a film) and one implied by radio's dialog, or an actor's reading? Or, in fact, cannot this phenomenon be traced back to opera, and from there to *any* musical interpretation of a sung text? To continue this line of reasoning, one must then include just about any madrigal from the Renaissance using text painting. Whether or not the music comments on the

¹⁴ A centrality due to the simple fact that since the inception of film theory in the 1960s there have been no correlative studies of how music for radio drama works.

text, or vice versa, it is clear they are irretrievably intertwined – and that music for radio drama has this sort of relationship as well.

The apparent division between sound effects and music in radio, film and television can also be complicated using examples from western art music's relatively distant past. To take one example, Clément Janequin's famous madrigal *La Guerre* from around 1529 takes full advantage of a combination of that which could be called "strictly musical" (harmonic motion, modal melodies) and that which in a later era would be called "sound effects" by using onomatopoetic effects in the vocal parts to recreate the sounds of battle.

If one of the basic uses of "film music" is to represent the internal thoughts and feelings of the characters and their struggles in the onscreen drama¹⁵, then another use must certainly be a more symbolic representation, one step removed from the direct expression of emotion, or of the genre into which the film *wishes* to be placed. I am not discussing the simple use of musical shorthand, which may seem like a cheapening of "real" emotional expression in music through its apparent simulation, but rather the taking advantage of the effectiveness of musical shorthand to instantly convey genre conventions. For example, it is difficult to know whether or not an audience

¹⁵ And, indeed, this function is precisely that which defines the output of the Workshop in official documentation: "to produce sounds which convey to the listeners' imagination the *mood* or *emotional idea* behind the author's theme of his radio or television drama." Quoted from F.C. Brooker, *BBC Engineering Division Monograph: Radiophonics in the BBC*. (London: BBC, 1963), 5.

responds to tremolo strings with a feeling of suspense because the tremolo strings naturally evoke this feeling, or because audiences have learned to expect that such an effect *tells* them to feel suspense. Film music holds, by its manipulation of generic signs, the ability to generate the emotion itself, evincing from its listeners the feelings required to place the film, radio play or television show into whatever category it wishes to be placed. The signs, as complex as they are, present film music scholars with a problem, as film music scholar Caryl Flinn notes, in “how to talk concretely and specifically about the effects generated by a signifying system that is so abstract.”¹⁶

This kind of detachment includes by extrapolation any musical representation of genre, mood, or tone, as a stereotype, such as “sentimental” (strings), “heroic” (diatonic brass), and, of course, “frightening” (dissonance or electronics). The establishment of these characteristic’s symbolic meanings often dates far back into musical history. But some of these meanings date only to the creation of the sound producing machines themselves. Creating commentary through symbolic sound bites is one of film music’s most powerful tricks. Such commentary can be equally effective without visual components; for once a convention is established, an audience no longer even needs to *see* what it is reacting to: the music does all the work.

¹⁶ Caryl Flinn, *Strains of Utopia: Gender, Nostalgia, and Hollywood Film Music* (Princeton, NJ: Princeton University Press, 1992), 7.

If the always-diagetic electronic sound effects are symbolic representations of how a something imaginary is supposed to sound (both futuristic and “the unknown,” syncretic acousmatic or acousmatic)¹⁷ then electronic music that is non-diagetic can be a symbolic internalization and aural expression of both emotion and the “mood of the film.” The question then, in the context of this study, becomes whether or not an electronic noise can pass from sound effect to non-diagetic music. Or whether or not a sound can be acting as a sound effect, which is acting as music (in much the same way source music contributes to the “mood,” diagetic or not). This is the issue that the next Workshop project under discussion raises.

Quatermass and the Pit (1958) premiered on BBC Television on December 22, 1958 at 8pm, slightly late for the traditional early slot to which science fiction was regularly relegated. Writer Nigel Kneale had a reputation as a political writer, because of his 1954 adaptation of George Orwell’s *1984*, and of his prior two *Quatermass* adventures, with their decidedly “Green” perspectives. He was labeled as an author of serious science fiction, as opposed to children’s works. The third science fiction serial involving the popular Professor Quatermass of the Rocket Research Group, *Quatermass and the Pit* told in six 30-minute episodes the story of the Professor’s thwarting of an attempted invasion of earth by the psychic force of a group of ancient Martians.

¹⁷ See chapter three.

Desmond Briscoe devised several Radiophonic cues that could be used as music or sound effects, in combination with a traditional orchestral score composed by Trevor Duncan. For the entire first episode, Duncan's traditional brass-heavy "suspense" music accented the growing tension between the military establishment, and the "rational" scientists. The military jump to easy conclusions about the bizarre phenomenon experienced with the discovery of a large mysterious container buried in Central London. The scientists, however, wish to study the object more before offering an explanation of its origin. This music is a combination of brief stings with dissonant quiet music reserved for mysterious moments. There are only four cues total in all six 30-minute episodes, and each of them repeats many times, conveying a different feeling or emotion. The general, non-melodic nature of the longer "atmospheric" cue lends itself to this kind of reuse. Rather than seeming merely repetitious, these cues contribute to the overall suspenseful texture of the program as a whole. The main theme is more typical of a fanfare that opens and closes each episode as well as dramatizing the more climatic moments in the drama. Typical of the kind of music written for television at the time, each of these cues was flexible in meaning and use. For example, the cue used as a sting, while fading slightly after the initial burst, can continue for an additional 20 seconds if required.

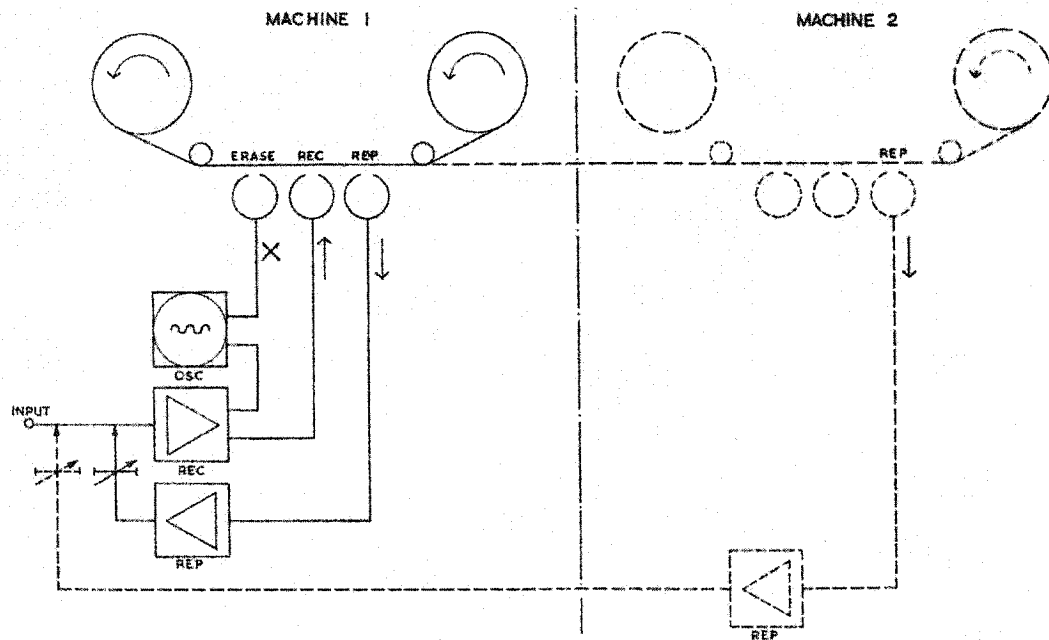
Not until halfway through the third episode, over an hour into the total serial, does the first radiophonic cue enter, and when it does it takes the

listener (and characters) by surprise. Two soldiers, standing around chatting, are in charge of starting the generator that powers a large drill used to bore into the mysterious buried ship. Suddenly, quietly, an upward-moving sine tone, processed with vibrato, rises into the sound texture. They look around – the soldiers obviously hear the sound – and wonder where it is coming from. It seems to emerge from nowhere, neither from the ship they are guarding, not from any specific location. They look around, they look upwards, and as quickly as it arrived, the sound is gone. “Did you hear that?” one of the soldiers says to the other. But before they have time to discuss it, another soldier yells at them to switch on the generator. Against a backdrop of mechanical drilling, a whole complex of radiophonic sounds emerge, again from no fixed location, and representing no specific “kind” of sound other than purely “alien.”

This acousmètre asserts itself not only through sheer volume (it is deafening) but through the very timbre of the competing sounds themselves. Beginning as before with an upward-rising sine tone it continues rising further and further until it is taken over by a bass rumbling, processed through tape feedback. This particular kind of feedback, heard here for the first time in television, had become a staple of radiophonic broadcasts over the radio, and sounds like a kind of distorted echo. It involves playing a recorded sound back onto itself, and repeating the process again and again, manipulating the sound, altering it until it no longer sounds like its original

source. Figure 10 shows the process whereby a sound (fed from an oscillator) recorded and played on one machine is played on a second machine then fed back through the original recorder, adding that replayed sound to the original tape, the entire process repeated potentially endlessly:

Figure 10:¹⁸



In *Quatermass*, the original sound has also been slowed down, creating a churning, chugging sound. This chugging, and combinations of chuggings, other recorded tape feedback loops oscillating at different rates, increase in amplitude until the characters cry out in pain. On top of this, extremely high-pitched electronic screams, like the cries of hyenas, yelp out of the texture (see figure 11):

¹⁸ Reproduced from Brooker, *Radiophonics in the BBC*, 4.

Figure 11:



In a perfect example of acousmatic sound, the radiophonics capture the extreme enigma of the situation, i.e. there is no discernable *reason* for the sound – it emerges from nowhere, and seems to represent no material object or technology. There is a material analog to the sound in the physical presence of the buried ship, however, and it is the attempt to understand its elemental structure that causes the sounds to emerge in the first place. The soldier's frustrated efforts to penetrate the shell of the ship exemplifies the

inability to understand it – it can't even be described to any satisfaction, alternatively using the terms “greasy,” “plastic,” “metallic,” “like diamond,” “crystalline”; it, like the radiophonic noises that repel them are simply beyond their understanding.

This kind of cue, however, also acts as “music” as it has traditionally functioned in drama, when we encounter the alien “consciousness” for the first time. Although always diegetic, the effect of hearing these sounds on the listener corresponds to the effect of hearing a piece of contemporary music for the first time: the sounds are purely “sound,” without associative quality, and the listener struggles for comprehension, lost in a sea of unfamiliar sonic signs, listening for melodies, rhythms, anything that helps impose a formal design. The disorienting sensation, mirroring the character's disorientation on the screen, offers both a suspense similar to and timbre foreign to Duncan's more traditional score, absent in this section.

Duncan's music does appear with Briscoe's radiophonic score later in the production, however, and the effect is impressive. The end of episode four features another psychic attack on a worker near the buried ship. The scene takes place late at night; a lone mechanic is busy setting up machinery for the next day's work at the site inside the ship, when a wrench beside him starts moving by itself, accompanied by a quick pulse of a sine wave. It is unclear whether or not the sound attached to the wrench is heard by the worker; more likely it serves two functions. First as a kind of radiophonic mickey-mousing,

a “technological” (read: alien) explanation for the sudden movement. Perhaps more importantly it also serves as a reminder to the audience of the genre they are watching; electronic sounds encourage a “science fiction” reading of the phenomenon, fulfilling and rewarding the viewer’s expectation and generic knowledge. The worker’s face screams terror, accompanied by a dramatic sting of Duncan’s brass music (see figure 12):

Figure 12:



His reaction is a response to the physical phenomenon, seemingly unaware of the sounds that surround him. He runs out of the ship and tries to escape the increasing chaos of his surroundings; tools, boards, equipment all

fly through the air, and radiophonic and brass music combine cacophonously through it all. Rapidly moving flute lines connect crunchy dissonant brass chords and underneath this both rumbling tape feedback loops and bent sine wave attacks follow the worker as he tries to outrun the phenomenon. Here it is impossible to separate the diegetic and nondiegetic, the acousmatic from the atmospheric – even if the radiophonic noises are meant to be heard as sound effects, their commingling with the brass and flute make such a unified “music” the result sounds like a traditional evocation of “suspense” and “science fiction.”

Outside (TV, 1959) – Briscoe, Fagandini, Mills

The first television documentary to use the Workshop was a thirty minute program called *Outside*, first broadcast on February 19, 1959. It followed a discharged prisoner, John Morris, for six months after his release, depicting the realities of life outside the prison walls. For the program, Fagandini and Briscoe offered director David E. Rose a sound sculpture that combined fixed pitches with abstract noise. From the 39-second clip included on the twenty-first anniversary album of the Workshop, it is clear that the music represents on some level the experience of facing an unfamiliar world. Unfortunately, the program itself no longer exists, making a discussion of the interaction between the two impossible.

The clip divides into three main segments (see transcription in Appendix A): the first, approximately eight seconds, includes the unpitched and untreated sound of keys and a mumble of voices. Suddenly, all sound drops out, the clattering of locks transitioning into the second section. Here, pitched, gong-like banging in an irregular meter and emphasized by percussive tapping in the background, alternates up and down, never resolving. The feeling of tottering instability is reinforced by the fading in of a piano playing a quickly moving ostinato on notes dissonant to the alternating B-A# of the gongs, and the A, B-flat, D-flat, E-flat. The piano builds in intensity, six notes of the scale all clashing against each other. Finally, all these sounds are interrupted by a loud gong-like sound (like, and yet vaguely unlike, as if the gong were being heard underwater) firmly on B. With its sheer solidity and loud echo, this is the resolution to the conflict of the central section.

The Workshop team clearly opted to try and evoke the prisoner's sonic experience, offering a symbolic interpretation of his world, in much the same way as Desmond Briscoe had in Beckett's *All That Fall*. There, you will recall, Briscoe constructed sounds that conveyed the distorted world view of the protagonist, Maddy. Sounds appeared as distorted, altered versions of themselves. What the listener heard was a reflection of that sound passed through the mind of the protagonist. In *Outside*, the relatively untreated sound of the opening eight seconds depict the sounds of prison life, which are

familiar to this man. The sounds emerge from his mind relatively unchanged and unfiltered, as an unremarkable example of the sounds he hears everyday.

These sounds drop out, however, with the turning of the key, and the shifting of the locks, when they are replaced by the indefinable pulse, throb, and hum of specific pitches. Suddenly, all the known world, the world of direct sonic realization (almost like one of Ludwig Koch's "Sound Portraits" of the 1940s and 50s), disappears at the precise moment of the prisoner's release. The level of unfamiliarity is so great that the recognizable sounds that had surrounded him (and by proximity, the listener) vanish, replaced by completely alien sounds. But these are not quite *just* sounds, either. What we hear is in fact pitched music, as if that which had been sound (sound effect) had been mentally rendered into the more abstract form of music, to deal with the sheer level of confusion in the mind of our protagonist. With every frame of reference gone, his mind resorts to that most abstract, least representational art, music, to explain his experience, with only the shadow of his actual sonic diagenesis remaining in the abstract clicking. Each click, *almost* pitched, is accompanied by an artificially generated echo rhythmically establishing both its place in the real world and its distortion at the hands of the world "outside." Finally, the concluding gong, again is not recognizable as a real sound in the world, but is at least not complicated by other sounds. It exists in isolation, and as such is indefinable as either/neither music or sound effect. This can be interpreted, if the sound reads as music, as a supremely

alienating, a conclusively distancing finale to our released prisoner's experience, an inescapable hopelessness. Having found nothing in the outside world to relate to, he is reduced at last to one unknowable chime. If, however, the sound reads as sound effect, it is a victory, an emergence from the fog of alienation as represented by music into a world of potentially identifiable sounds again. If the gong isn't quite familiar, it is still recognizably a gong and that must be something.

Science and Industry (*Radio, 1959*) – Young, Fagandini

Phil Young and Maddalena Fagandini were two of the most promising new Studio Managers brought in to work at the Workshop after Daphne Oram left. Young was expert at adapting the techniques already in practice, and expanding on them, especially in the use of more tonally precise music (music that uses actual pitched notes instead of abstract sounds). His work, both in composing signature tunes and incidental music for television and radio, is among the best of the early Workshop compositions.

Maddalena Fagandini, one of the Workshop's most prolific composers, began her career at the BBC as a typist before getting a job on the "technical" side of production, working on general programs (news, talks, disc shows). After a few years, she was transferred to the Drama Department with a view to an eventual attachment to the Workshop. She had had musical training as a child, and after the war had briefly studied composition (using Hindemith's

textbooks). Her bosses realized that with her combination of technical skill and musical training, she was perfect for “radiophonics.” One of the first assignments for Young and Fagandini was the signature tune for a BBC World Service program, *Science and Industry*, credited as being “the first completely electronic signature tune in radio,” although it uses both electronic and *concrete* sounds.

The piece is in four brief sections and opens with the sound of a tinny hammer in counterpoint with a bass throbbing. In a tritone (A – D#) interval separated by several octaves, the two parts alternate a rhythmic pattern emphasizing a strong beat on every pulse by filling in at the eighth note level each space in the texture. (See transcription in Appendix A) This alternation has the effect of establishing quickly a rhythmic beat. The bass drops quietly out after about four seconds and the second section begins with its replacement by the high pitched sound of a sine wave on a single pitch (nearly a quartertone higher than the A that had been in the bass, and only a fourth below the hammered pitch). This sine tone shifts up to an F# after about 8 seconds. A descending minor triad (B-G-E) in a mid-frequency range is introduced, articulating a rhythm unrelated to the initial pattern against the continuing regular tapping of the treble hammer. This descending triad, produced by a square wave oscillator (buzzer, less soft than the sine wave) increases in amplitude, as does the persistent sine wave, periodically

punctuated by brief apparently random high-pitched electronic swoops of sound, almost like bird calls.

The square wave pattern fades out, overlapping the beginning of the third section at around 17 seconds. The treble hammering also fades, and in its place another collection of sine tones on a rich F# major chord gently chimes twice. Another sine tone provides a delicate dissonance, introducing an upwards-moving swoop from C# to E that repeats slowly against the sustained F# chord. The random electronic noises continue in the background texture against this. Finally, all these sounds drop out with a concluding bass throbbing in a new rhythmic pattern – one that repeats the motive of the first (shorter notes as pick-ups to strong downbeats), only this time in a duple rather than triple meter.

The composers have only a few seconds to convey their intentions. To do this, they depend on the listener's recognition of key conventional signifiers. In a radio signature tune, without the help of visuals, the music contains all the information the listener receives. A quick discussion of how these signifiers are deployed will demonstrate their power. First, despite the constant activity, the spaciousness and austerity of the texture is always apparent, through the continuous use of echo effects, harmonic distance between notes and drastic differences in dynamic levels between foreground texture and background. The tune embodies the spirit of the modern age for a "Science and Industry" signature tune, reflecting simplicity and rhythmic

regularity in lieu of textural filigree and ornament. It is a functional demonstration of the field it attempts to reproduce.

More fundamentally, each of the sounds, either electronic or *concrète*, contributes somehow to the evocation of science or industry. The initial “hammering” sounds, which originate in the sound of a piano processed through filters to remove all bass frequencies, as well as the accompanying bass (throbbing in the rhythm of an assembly line), to the electronic sounds, both the “tuning” frequencies of the random slides and the single sine tones, (as signifiers of technology) were all chosen for their quick associative qualities. Here again we have the alternation of function from sound effect (hammers, bass throbbing, random electronic sounds, as if a functional element of some advanced piece of equipment) and tonally-based music. The rapidly descending minor triad, after the introduction of the “sounds of industry” is a musical evocation of physical movement, of technology racing along, the introduction of the sine tone and random electronic “tweaks” emphasize the importance of technology in this process – in the best tradition of film music. The fact that the triad itself is electronic only highlights the “progress” message of the theme: nothing so romantic as a melodic theme, the streamlined workings of the modern factory contain maximum effect with the least romance. The eventual success of the combination of science and industry is ultimately demonstrated by the electronic consonance of the static

F#-Major triad against the still “hard-at-work” electronic whirrings of the upward moving third quietly behind it.

**The Artist Speaks: Victor Passmore (TV, 1960) – Young, Fagandini,
Mills**

Another collaboration between Young and Fagandini, this time also with engineer Dick Mills, involved composing incidental music for an episode of the artist profile series, *The Artist Speaks*, devoted to Victor Passmore, broadcast August 15, 1960. The program demonstrated how Passmore’s art, mostly involving spiral motifs, evolved from watching the waves of the sea curl onshore.¹⁹ For the fifteen minute program, Young, Fagandini and Mills composed about two minutes of music. An eight-bar repeating tape loop provides the foundation upon which a freemoving treble moves in an improvisatory manner. In the lowest voice, treated piano (with attack removed) plays long held D#s, leaping slowly up an octave every two “measures,” ending each 8-bar phrase with two bars of rest. (See transcription in Appendix A) In the middle range, a plucked harp string treated with echo also plays a D#, but this time, each D#, in addition to the echo, is artificially rearticulated in regular time. In other words, each D# repeats not in a gradually fading echo, but with nearly equal strength. These two elements form the rhythmic backbone of the piece, providing both a strong downbeat

¹⁹ Undated, unnamed newspaper clipping, WAC Radiophonic Workshop clipping file.

for each "measure" and internal rhythmic drive. A third element is introduced almost immediately, one separated both spatially, rhythmically and timbrally from the foundational loop; a sine wave passed through a heavy echo. This sine tone moves freely, almost randomly through a quick succession of 3-6 notes before sustaining on a held pitch. The pitches aren't random, though, because they more often than not choose to end on the notes most dissonant to the underlying D#; A, E, C. There is no functional intention of the "melodies," no eventual goal. The piece eventually ends with a long fade.

In approaching the music for the program, Young, Fagandini and Mills faced the difficult task of trying to express the philosophy behind Passmore's abstract art in sound. The only review of the music, in the regional newspaper, the North Western Evening Mail, felt "that in a suitably abstract way [the music] suggested the surge of the sea and its thundering against rocks."²⁰ Producer John Read noted that, "The most significant factor about this approach to painting and sculpture, completely free from representation, is that it provides a completely new and more dynamic relationship between the work of art, the artist and the spectator."²¹ Perhaps Young and Fagandini felt music could enter into this equation rather than merely reflecting the inspiration for the paintings. If the art is truly "nonrepresentational," then an attempt to *depict* the art and sculpture would inevitably end in frustration.

²⁰ *North Western Evening Mail*, 6 August 1960.

²¹ John Read, *Radio Times*, 12 August 1960: 10.

Broadcast against an image of the art, representational music would appear simplistic and banal. Instead, the Workshop team appears to portray what sounds like the popular conception of the "isolated artist": a lone, isolated voice attempting to make itself heard using unusual and difficult methods. It is the sonic articulation of the attempt rather than the realization that characterizes this music, one step removed from the actual art into the act of "art-making" and "artist-being." In this, it again achieves a common outcome of radiophonic music at the BBC, namely, the reification of traditional notions of culture through the application of stereotyped conventions; here, most obviously, the visual arts. But also music as well, if we hear the piece as one possible interpretation of how contemporary "art music" is meant to sound, full of the dissonance and rhythmic variation contained in Continental electronic music.

The grounding of the whole work in the rhythmic pattern of the bass is what makes this a product of the Radiophonic Workshop, however. The technique of precisely cutting tape loops had been getting gradually better, but when Maddalena Fagandini joined the staff of the Workshop, her skill at assembling and coordinating hair-thin tape cuttings elevated the art to a new level. In *Outside*, for example, the rhythmic element provided less a sense of drive than a sense of instability. Using the same technology of the tape loop to generate its effect, it is a more primitive evocation, bringing together three elements that roughly combine. The piano in that work has no relationship at

all to the other parts, furthering the sense of rhythmic off-kilter-ness; very effective in that case, but also a product of the inexperience of the composers and newness of the artform. The subtle effects possible by combining layers of rhythmic patterns opened the door for the Radiophonic Workshop to contribute something radically new to the world of electronic music, and would have an enduring effect on both popular music and the way television and radio music evolved over the next 30 years.

Rhythm and Music

Interval Signal (1960) - Fagandini

The interval signal genre was a piece of music of indeterminate length to be broadcast either on radio or television between the scheduled programs, or when there was an unscheduled break in broadcasting. It could not be too adventurous or abstract since it has to both mark the passage of time and maintain the attention of an audience tempted to switch channels. These pieces were often rhythmically interesting, and as a genre enabled Workshop composers to experiment freely with complex rhythmic patterns. Maddalena Fagandini experimented with combining rhythmic tape loops for one of the first of many interval signals composed by the Workshop. In her own words, “They tend to be less abstract than other work because they are for the general

listener or viewer rather than a modern drama audience.”²² On television, a clock would often be shown, and Fagandini took this as her guide, shaping the piece around the idea of a ticking clock (see transcription in Appendix A). Within a four-bar framework, she constructed six different rhythmic loops. For this exercise in loop combinations, the timbral color remained limited to one kind of sound, a wood block. Although the tape manipulation produced intervals, the intervals served only to articulate an abstract change of pitch (up or down) rather than a more specific interval relation. All but the first loop are on the same “chord” (comprised of intervals outlining a C# major triad), which makes the shifting between loop 1 and the other loops another area of “change.” More importantly, each bar is geared towards generating tension in its first half and resolution in its second. Five of the loops have a strong downbeat on beat three, while the single loop without a strong beat on three uses syncopation to surround it.

Because there is no tonal direction to the piece, and because it essentially “cadences” halfway through each measure, the interval signal works in much the same way as many minimal works of the 1960s (although coming before the earliest of LaMonte Young’s similar pieces) – that is, without a teleological imperative; it works by accruing and discarding disposable modular elements. The texture is the work. If the ticking of a clock was the initial inspiration, this interval signal elaborates on that imagery,

²² Maddalena Fagandini, letter to author, December 10, 2002.

imagining an eternal clock of infinite variety, but with each loop working toward the same goal, each “tick” (beat one) leading inexorably toward the concluding “tock” (beat three).

Although the piece could conceivably continue forever, Fagandini has constructed the interval signal around a larger repeated loop of six four-bar groupings. Within this larger grouping there are internal repetitions of loop combinations, showing a reflexive relationship. Fagandini eliminates the possibility of any larger sense of teleology (by “terracing” levels, for example) by making the four-bar groupings relate to each other in a simple mirror relationship. Yet, this method of construction organizationally demands closure of a certain kind. The piece would remain structurally unsound were it to conclude without its final iteration of a single pattern.

Orpheus (1961) – Fagandini

In 1961, Maddalena Fagandini provided music and radiophonic sound effects for Douglas Cleverdon's radio adaptation of Jean Cocteau's film *Orphée*, providing a final example of the period in the Workshop's history when members combined complex rhythmic and *concrète* methods with the beginnings of tonally-based melody, *Orpheus* succeeded better than any other program of its kind in realizing musical and extra-musical effects. Although the scale of the work (almost 90 minutes) precludes any serious in-depth analysis of its entirety here, I would like to draw attention to several of its

most impressive moments. I realize I threaten to alienate readers by choosing to write on a work that has had very little public exposure - one that has in fact received no repeat broadcasts in recent history let alone a commercial release. Its own excellence, however, urges me to discuss it; the film upon which it is based is easily available, and I have provided transcripts of major music cues in appendix A.

Cocteau's *Orpheus* script is a contemporary telling of the legend; Orpheus lives as a poet, misunderstood by both the public and his wife, Euridice. Death, personified as "The Princess," enters into the world and falls in love with him. Her assistant, Heurtebise, both pities and loves the neglected Euridice. As he sees his popularity fading, Orpheus starts obsessing over cryptic messages broadcast on his car's radio, ignoring his wife's pleas to disregard them. The messages are, in fact, from the Princess, who attempts to draw his attention away from his dying wife (dying, one assumes, from neglect). After Euridice's death, and against the wishes of the Princess, Heurtebise helps Orpheus rescue her by descending into the Underworld. Overcome with guilt for abandoning his wife, and despite his growing feelings for the Princess, Orpheus eventually recovers Euridice, but on the condition that he never look at her again. This proves impossible as Orpheus succumbs again to the ambiguous messages on the car radio, finally glancing at Euridice while scolding her through the car's rear view mirror. As a result of their

interference, both the Princess and Heurtebise are put in front of a mysterious tribunal, and are forced to restore both Orpheus and Euridice to life.

More than rethinking Cocteau's film in an electronic music idiom, Cleverdon and Fagandini abandoned Georges Auric's original score, instead choosing to incorporate portions of Gluck's 1762 opera, *Orfeo et Euridice*, Wagner, and French jazz in addition to original music cues. Taking advantage of the Workshop's knack at appropriating the meanings of aural signs, the radio play deploys these musical elements as if they were signs of the things themselves, cultural ubiquities that need no further explanation: if Gluck's *Orfeo et Euridice* once depicted Orpheus's descend into the Underworld, then now all that is needed are a few chords from the recorded opera to effectively symbolize the same. So ubiquitous is Gluck's opera that it can exist both in the world of the score, non-diagetically, and as source music, diagetically. This diagetic use occurs often; whenever a character turns on a radio, this is what is playing. It is music that is understood to be known to all - a "classic" that exists in some respects as aural wallpaper, and in another as a very real signifier of certain experiences; lost love, longing, romance.

One of Fagandini's primary challenges involved Orpheus's descent to the Underworld, and to evoke it, Gluck's music is excerpted in three key places in the opera. First, the fanfare opening of Act Two; with a quickly rearticulated unison on E-flat, it evokes nothing but itself as "Gluck's Opera." In the Opera, Orpheus has at this point arrived in the Underworld and has yet

to experience anything there at all. Poker-faced, the music betrays none of its eventual torments, and as such is the perfect excerptable moment - uniquely recognizable for the memorability of its unison and yet lacking conventional emotive significance. Fagandini uses only a few seconds of this music, just the first four bars, for key moments, and like a fanfare.

The second and third excerpts both occur just moments later in the opera, but in tone evoke a very different mood. Two sections featuring harp arpeggios, first, immediately after the opening full orchestral phrase, the second, after the Dance of the Furies, are looped to remove the voices and provide an endless progression. Again, the music is used as a quick reference to remind listeners they are in the Underworld or, even more generally, in the world of “Orpheus the myth,” using *Gluck* as signifier.

These references are the most obvious, being direct, unaltered samples of actual recorded music. Another reference hides deep in the texture of Fagandini's originally-composed score. She wrote two primary musical themes for the Princess, realizing, in her words, that the Princess's effect on Orpheus “required a musical quality (as opposed to an ‘effect’).”²³ She was looking for an unfamiliar sound, though, and so explored several Greek enharmonic scales, finally settling on one consisting of three intervals: a third and two semitones (originally quartertones). She recalls: “They were all a bit

²³ Fagandini, letter to author, January 8, 2004.

too recognizable for me [the Greek scales], except one which is very short, only four notes and three intervals...which of course you can split apart by an octave or two. I confined myself to just those four basic notes.”²⁴ After composing several variations using the four note scale, she plucked out the intervals on the nine-foot concert grand piano in Studio One Concert Hall in Maida Vale, holding the pedal down, “to get maximum harmonic richness and reverberation.”²⁵ This was to be the raw material for the majority of the themes, although when she got back to the Workshop, she realized how much more interesting the sounds were when played in reverse, when the initial attack faded out! In addition she used sample tones from the Muirhead oscillator and performed another set of variations on marimba.

The play opens with a trilogy of musical evocations. First an excerpt from Gluck, one of the quiet harp moments, followed by three brief sine wave melodies (Orpheus Cue 1). The opening concludes with a segue into the action; a quiet guitar blends into the final seconds of the sine wave melody, and eventually a voice enters with the guitar singing a ballad in French. The next music cue (Orpheus Cue 2) for the first time initiates movement reminiscent of what will be the First Theme, but never explicitly outlines it. The marimba is used here, playing formless patterns, wandering around a limited 13-note range.

²⁴ Hutton, “Radiophonic Ladies,” 3.

²⁵ Maddalena Fagandini, letter to author, December 10, 2002.

The first theme proper (Cue 3), heard almost 17 minutes into the play, unfolds in two parts and an introduction. After a brief opening section utilizing a backwards-treated build from a pianissimo E to a sforzando A, the final two elements are constructed in an antecedent-consequent phrase – the first half of the melodic theme, A-F-E-D# is followed by its answer, B-G-F-F#. These patterns both consist of the original Greek-inspired intervals, but have been manipulated to occupy various octave placements. Both motives are similar in their tonal abrasiveness, mostly on account of the chromaticism. First heard as the Princess declares her love for Orpheus, the positioning of the intervals instantly evokes the opening of Wagner's *Tristan und Isolde's* identical pitches in the cello: A-F-E-D#. This outrageous bit of “sampling” again relies on the audience’s familiarity with the opera, on the one hand a perfect example of “Third Programme” snobbery, but on the other an excellent shorthand for the forbidden nature of the Princess’s love for her mortal subject.

The second theme occurs just over ten minutes after the first (Cue 4), and again is comprised of an antecedent-consequent phrase, four notes each, with a drone underneath it. The antecedent is a diatonic four-note motive that is answered with a motive reminiscent of the first theme, only a half step high. The entire phrase sounds less abrasive than the first theme, largely because of the drone below it. It increases in volume until just before the end of the first section, dying off before rearticulating itself at the end of the whole phrase. Its

dissonant C# against the rest of the phrase (which starts as a tri-tone) resolves into a major third by the end.

The rest of the play uses cues based around these two basic themes, often with minor melodic variation, or slight speeding up or slowing down. Occasionally, as in Cue 5, Fagandini combines the two themes, playing them at the same time, altering with the variable speed tape recorder the first theme so it sounds an octave lower.

Even the basic “*musique concrète*” sound effects evolved out of careful planning, with the emphasis on internal cohesion rather than eventual perceptibility. When Orpheus is torn apart, screams of the Furies, treated with reverb and rearticulated echo and filtered to remove bass frequencies, serve as backdrop to the altered cries of Orpheus. His almost-inarticulate shouts were achieved “by recording separately each syllable of the author’s name, “JE...AN...COC...TEAU.”²⁶ The pitch was altered, and tape feedback and echo were applied to give each syllable an unnatural quality, extending it and deepening it.

Back in the Workshop, I simply chased after the infinite possibilities the material offered – until, that is, the producer said that whatever I’d prepared was it because he was doing the final recording and editing for transmission. There’s nothing like a transmission deadline to concentrate the mind!²⁷

²⁶ Hutton, “Radiophonic Ladies,” 3.

²⁷ Maddalena Fagandini, letter to author, December 10, 2002.

Orpheus was received with greater acclaim than any recent Radiophonic production, with an extended review in the *Musical Times* written by skeptic Reginald Smith Brindle (author of the earlier *Musical Times* article "The Lunatic Fringe," critical of the possibilities of electronic music). In this review, Brindle lauds the BBC for attempting something beyond the mere "sound effect":

Radiophonic works in which music and drama have an equal balance of power seem to be the most fruitful development in post-war radio. . . Unfortunately the BBC seems slow in taking up this medium wholeheartedly. . .

However Jean Cocteau's *Orpheus*. . . reveals a definite move towards true radiophonic music-drama. The great point of this production was that the visual element was recreated for us in a most suggestive way through the medium of sound. This is the true function of a background score – not as a mere ear-tickler, suggesting appropriate emotions, but to open up a three-dimensional panorama, skillfully coloured with emotive undertones.

The work began badly, with a purely 'sectional' treatment – passages for harp, sine-tone imitation of the Greek aulos, guitar and jazz band followed each other without a sense of unity. But as the work developed, *Orpheus* became more evolved and more successful. The journey to the underworld, the judgment scene, the return to this life, all these were excellently suggested in a continuous score which gave unity to the action. . . Unfortunately, there seemed to be little use of electronic sounds in more complex forms, and none of 'white sound.' It would seem that the BBC facilities are still rather primitive, inferior to pre-1952 Germany and Italy. . .

However, *Orpheus* indicates that someone is trying hard under difficulties, and rather than discourage him, I wish him more power to his elbow.²⁸

²⁸ Reginald Smith Brindle, "Broadcast Music: Radiophonics," *Musical Times* (April 1962): 244.

The reviewer recognized the shift from less-integrated sound effects to a complete collaboration between sound and story, with sound incorporating both effects and all the emotional range music can offer. The passing of the blame for the productions few shortcomings to the BBC rather than the composer indicates a real sympathy for the plight of the Workshop; understaffed, overworked and with outdated equipment, with the direction the center's projects were headed, things had to adapt.

By 1963, when the Workshop celebrated its fifth operational year, they had acquired another room and additional equipment. Getting Room 12 (next door to the existing studio) opened the possibility to work on more projects at the same time, and with the workload continuously increasing, the staff of the Workshop increased as well. With the musical and, above all, technical abilities of the staff always improving, the initial idea that both an engineer and studio manager should work together on each project was phased out (in practice it never proved to be that cut-and-dried anyway). Instead, Briscoe, appointed Senior Studio Manager, assigned projects to staff, or producers would request specific staff to work on their productions.

Also by the early 1960s, as in the case of *Orpheus*, the Workshop found its assignments shifting away from simple tape manipulation; with the proliferation of tape recording equipment in most studios, this kind of work was now being done by normal studio managers outside of the Workshop facilities. With this shift came a more "musical" emphasis, a direction that

promoted the hiring of musically trained staff, staff that moved away from the traditional "Drama Department" SMs to ones that were "primarily musicians."²⁹ Although, according to composer Delia Derbyshire at the Workshop, "The BBC made it quite clear that they didn't employ composers and we weren't supposed to be doing music,"³⁰ this change was noted in an internal document from 1963 probably written by Desmond Briscoe. Briscoe explains (most likely in an attempt to encourage more commissions) how much more comfortable the Workshop composers are at purely musical projects:

It would seem that the work which the unit is called upon to create has steadily become more sophisticated, more precisely designed and shaped and above all more musical in nature, whether the source of this musical sound be electronic (in this respect we have increased our equipment, having twenty-two tone generators with two associated keying units, as compared with two generators when most of our work was special effects) or the sound of musical instruments played either by members of the unit or by professional musicians on contract for the particular programme.³¹

With the staff increases and additional space came equipment increases. In the five years since the Workshop opened, although tape manipulation remained essential and the Workshop increased nearly threefold their number of tape recorders, a gradual shift towards electronically generated sounds occurred, and this is reflected in the

²⁹ Unsigned document, WAC dated May 1963.

³⁰ Hutton, "Radiophonic Ladies," 3.

³¹ Unsigned document, WAC dated May 1963.

purchases made over that period. By 1963, the two main Workshop rooms were each self-contained studios. A quick inventory of the rooms compared to the list from chapter four should show both how all the original equipment was still very much in use, and also how new pieces were integrated into the existing studios.

Workshop Rm. 13:

1. seven sine/square wave signal generators
2. Keying units giving adjustable rise and decay characteristics (for item 1)
3. Sine-wave signal generator
4. White-noise generator
5. E.M.T. reverberation plate
6. Artificial reverberation machine (magnetic drum type)
7. Four high/low pass filters, each with nine cut-off frequencies.
8. Two variable-frequency response control units.
9. Octave filter
10. Two ring modulators
11. Limiter
12. Two Motosacoche tape recorders with console (15 i.p.s).
13. Three Philips EL3503 tape recorders (7 1/2 and 15 i.p.s).
14. Reflectograph tape recorder (variable speed, 3 to 8 i.p.s).
15. Ferrograph tape recorder (7 1/2 and 15 i.p.s).
16. Disk-playing equipment
17. Peak program meters
18. Loudspeakers
19. 12-channel mixer console, with acoustic foldback facilities

Workshop Rm. 12

1. Twelve sine/square wave-signal generators
2. Keying unit and (separate) adjustable decay unit (for item 1)
3. High-stability decade sine-wave signal generator
4. Sine-wave generator with frequency modulation
5. Square wave shaper
6. Zither and guitar with electromagnetic pick-ups
7. E.M.T. reverberation plate, with remote control facilities
8. Artificial reverberation machine (magnetic drum type)
9. Four high/low-pass filters, each with nine cut-off frequencies
10. Variable frequency response control unit

11. Tierce Filter
12. Octave filter
13. E.M.I. BTR/2 tape recorder (7 1/2 and 15 i.p.s.)
14. Three Philips EL 3503 tape recorders (7 1/2 and 15 i.p.s.)
15. Ferrograph tape recorder (7 1/2 and 15 i.p.s.)
16. Disk-playing equipment
17. Leever-Rich eight-track tape recorder (0-40 i.p.s.)
18. Oscilloscope, Cossor double-beam
19. Peak program meters
20. Loudspeakers
21. Twenty-channel mixer console

In addition, room 11 contained recording facilities for these two studios, and it contained the following:

1. E.M.I. TR/90 tape recorder (7 1/2 and 15 i.p.s.)
2. Ampex tape recorder (7 1/2 and 15 i.p.s.)
3. R.G.D. tape recorder (15 and 30 i.p.s.)
4. Reflectograph tape recorder (7 1/2 and 15 i.p.s.)
5. Ferrograph tape recorder (7 1/2 and 15 i.p.s.)
6. Ferrograph twin-track tape recorder (3 3/4 and 7 1/2 i.p.s.)
7. Four channel mixer unit

This left the Workshop with a fairly well equipped studio, and reflects the more "tonal" nature of the projects. Nearly every piece of equipment was geared towards producing or altering a sound that then can be manipulated on tape. The keying units in particular merit further discussion: these devices chained groups of oscillators (in the form of the twelve notes of a piano, completing an octave), with the intention of tuning the oscillators to the regular notes of the scale. This not only reflects that in the period *before* the keying units there was a regular effort to achieve pitches in a standard octave, but that music using a traditional 12-note scale was in such great demand it warranted using 12 oscillators for the device. And obviously, once such a piece

of equipment is constructed, the kinds of works that are produced are affected by both its ease of use, but also its limitations. The closing off of all pitches not included in whatever twelve note scale (one assumes a tempered scale) is configured returns electronic music to a music that potentially abandons the founding tenets of that field for the traditional rules and functions of tonal harmony. But of course, this was nothing new for the Workshop; they had done this through their whole career, and this was merely the latest manifestation of that progression. To realize normal tunes *electronically* was the goal – to understand this sense of modernism – detached from the Continent, but still with the power to express the feelings and attitudes of that movement, was the goal.

Giants of Steam (1963, TV) – Brian Hodgson, Dick Mills, Ron Grainer

The television documentary *Giants of Steam* exemplified this shift. Broadcast in April 1963, this program detailing the history of the steam train in Britain featured a collaboration between Ron Grainer, the “Master of the Signature Tune” and the Workshop.³² Assigned the task of working with

³² As he was called in an episode of the series *Tonight* called “Master of the Signature Tune” broadcast May 25, 1963. Up to this point, Ron Grainer had written incidental music for television plays, like *The Birthday Party*, and had become famous as a writer of signature tunes, beginning with *Maigret* in 1960, continuing on to write the themes for *That Was The Week That Was*, *Steptoe and Son*, *Comedy Playhouse*, *Fanny Craddock* (one of the first BBC cooking shows.)

Grainer were Brian Hodgson and relative veteran, Dick Mills.

Hodgson joined the BBC as an SM, mostly in the Drama Department, where he worked on numerous plays, including *Orpheus*. After two years in Drama, he was inspired by a visit to the Workshop, and requested a three month attachment (and ended up staying, not counting a brief time away, nearly 25 years, becoming Senior SM after Briscoe left in 1970). Hodgson was not trained as a musician, but had an extensive practical knowledge of electronic music and electronic sound creation, working in the theater with composers like Marc Wilkinson. Rather than creating extended musical works based in tonality, Hodgson's *forté* was finding and assembling the right noises, the right component sonic elements that combined create unique sound collections for a work, and as such was the perfect person to work on *Giants of Steam*.

Hodgson and Mills assembled these tracks to approximate and symbolize the regularity of a steam train's sound. This worked partially to eliminate a potential problem, as Hodgson remembers:

When John Read made *Giants of Steam* one of the problems was that he wanted to use a lot of silent archive film and this country is full of railway geeks who would shriek and volubly protest if they heard the wrong sound with a picture of a railway engine so it was decided that all the sounds of engines would be stylized.³³

³³ Brian Hodgson, letter to author, January 17, 2004.

To do this, they combined tiny pulses of white noise from Room 13's white noise generator and sounds taken by pounding on an old oil-drum, constructing an elaborate tapestry of polyrhythm.³⁴

With the Workshop commissioned, then, to provide these sound effects, Briscoe suggested to Grainer that perhaps the rhythms could be incorporated into the music, reflecting a more “musical” interpretation of the loops. Grainer liked the idea and chose about a dozen of the rhythm loops and composed around them. He wrote several cues, a combination of brass fanfares, pastoral harmonica folk-like tunes, and elegiac melodies for sections about the “end of the steam age” and conducted his band against a backdrop of the Workshop's rhythmic creations.

The music was a huge success, and resulted in the rerecording of the main theme for Decca Records with the aim of an eventual release as a pop single. While this never happened, the music, which the *Radio Times* described as Grainer's “most ambitious work yet for television, and a brilliant interpretation of the railway saga,”³⁵ inspired Grainer and the Workshop to collaborate again less than six months later on a project that would give the Radiophonic Workshop a higher profile than anything else in their nearly 30

³⁴ This information is taken from Radiophonic Workshop composer, Mark Ayres's website: <http://ourworld.compuserve.com/homepages/mark_ayres/DWTheme.htm> (January 10, 2002).

³⁵ Philip Blake, *Radio Times*, 16 May 1963: 25.

year history and prove to be their biggest success - the signature tune to the science fiction program, *Doctor Who*.

Although certainly the most famous tune to emerge from the Workshop, (and, arguably, the most famous British signature tune ever written) in most ways it was assembled using the same techniques as many other Workshop projects. We are fortunate, though, that because of the popularity of the theme, dozens of discussions exist about it and its composition.³⁶ For that reason, my examination will merely place it in the long trajectory of works that move gradually towards more rhythmic complexity and above all more tonally melodic language.

The two composers most responsible for the completion of the shift to tonality are Delia Derbyshire and John Baker – their music for the Workshop can often be said to use tonal chords; the *Doctor Who* theme is no exception. However, although many works could now be said to work in within a tonal

³⁶ My own Master's Thesis dealt exclusively with the creation of music for this program. *Music in Doctor Who: Conventional and Electronic Techniques in Television Music*, University of Texas at Austin, 1998. Mark Ayres's website contains the most thorough written description of the history of the theme and its composition: <http://ourworld.compuserve.com/homepages/mark_ayres/DWTheme.htm>. (January 10, 2002). The following articles in *Doctor Who Magazine* contain excellent interviews with the composers: Austin Atkinson-Broadbelt, "Soundhouse: Brian Hodgson," no. 193 (25 November 1992), 42. , Austin Atkinson-Broadbelt, "Soundhouse: Delia Derbyshire," no. 199 (12 May 1993), 14. Austin Atkinson-Broadbelt, "Soundhouse: Dick Mills," no. 198 (14 April 1993), 42, Marcus Hearn, "The Dawn of Knowledge," no. 207 (22 December 1993), Andrew Pixley, "Doctor Who Archive Feature: 100,000 B.C.," *Doctor Who Magazine Summer Special* (1994.) Other excellent sources include: *Alchemists of Sound*, BBC4 2003 documentary, "Doctor Who – 30 Years," Radio Program, BBC Radio 2, 1993. Jeremy Bentham, *Doctor Who: The Early Years* (London: W.H. Allen, 1986.) John Tulloch and Manuel Alvarado, *Doctor Who: The Unfolding Text* (New York: St. Martin's Press, 1983.) David J. Howe, Mark Stammers, and Stephen James Walker, *Doctor Who The Handbook: The First Doctor* (London: Doctor Who Books, 1994.)

framework, this never changed the Workshop's emphasis on unique sound. In other words, even though signature tunes were now, well, *tunes*, the sounds forming the tunes were uniquely constructed *musique concrète* creations. The power and effectiveness behind the works usually lie in these individual sounds.

The biggest difference between the collaboration on *Giants of Steam* and *Doctor Who* lies in the production of the music itself. For *Giants of Steam* Grainer both wrote the music and performed it, leaving the Radiophonic element for the underlying rhythmic base. In *Doctor Who*, Grainer is said to have "scribbled a melody and bass line on a piece of paper"³⁷, leaving it to the Workshop staff to "realize" his score completely using electronic sound.

Delia Derbyshire joined the Workshop in 1962. She studied math and music at Cambridge and, after applying to Decca Records and being told that "they didn't employ women in the recording studio," toured for a time with a stage production of *Julius Caesar*, providing off-stage electronic sound effects.³⁸ After joining the BBC, she spent much of her time as an SM visiting the Workshop, and often asked Briscoe if she could "just sit in the back and watch."³⁹ Once employed there, she quickly learned to combine her love of

³⁷ Austin Atkinson-Broadbelt, "Soundhouse: Delia Derbyshire," *Doctor Who Magazine*, no. 199 (12 May 1993), 14.

³⁸ Interview, <http://www.deliaderbyshire.com/interview_surface.php3> (1 December 2003), originally published in *Surface*, May 2000.

³⁹ Briscoe and Curtis-Bramwell, *BBC Radiophonic Workshop*, 83.

music and mathematics to create new sounds; one method involved analyzing complex concrete sounds using an oscilloscope, then recreating that sound using banks of Jason valve oscillators.

These oscillators, along with the white noise generator, were used by Derbyshire to realize the *Doctor Who* theme, individually pitching and recording each sound, one element at a time. In Grainer's description of the sounds he desired for the theme, he used words like "clouds" and "wind bubbles," but with the additional mandate from the program's producer to create music that sounded "familiar but different," Derbyshire found her ability and interest in "recreating" natural sounds electronically very useful indeed. The sonic effect is exactly one of vague recognition. Both the bass line and melody are eminently hummable, and yet the sounds, completely unidentifiable.

My earlier distinctions between "music," "sound effects," "acousmatic" and "syncretic acousmatic," lose some of their relevance when talking about a thing for which it is difficult to experience as anything but music. The *Doctor Who* theme clearly *is* music – one finds oneself following the rhythmic pulsations as one does a pop tune; the melody is relentlessly hummable; the piece itself has a traditional 8-bar-with-bridge structure. The Radiophonic content, the individual sounds, however, contain the "alienating" elements.

Radio Nottingham (1967) – John Baker

In the mid-sixties, the BBC began expanding its system of regional radio stations, giving each county its own station. These stations would specialize in programming for that region, such as local news, weather, and individually-produced programming, like an American “local-access” cable network. As these stations came “on-line” (for the first years, usually only for a few hours a day), each was anxious to make an impression on listeners, and one effective way of making an impact is through a distinctive “sign-on” tune, to announce the beginning and ending of each broadcast day. The main problem facing the stations, however, was the familiar one of very small budgets. One solution was to hire the Radiophonic Workshop, whose services were quite cheap, as well as being internal to the BBC.

One of these stations was Radio Nottingham, first on the air January 31st, 1968. Broadcast on vhf 94.8 and Rediffusion Channel C, one of the initial call signs was the sound of flying Sherwood arrows, reflecting the desire to maintain an individual sense of location.⁴⁰ (Other sign-on tunes composed by the Workshop often depicted the distinctive trade of the region, such as *Radio Sheffield*; Sheffield being known for its steel industry, Workshop composer David Cain constructed the theme using sounds of Sheffield cutlery.) The other primary call sign was specially composed by John Baker at the Workshop (see transcription in Appendix A). Baker’s musical credentials were

⁴⁰ An excellent summary of British regional radio stations can be found at <http://www.geocities.com/thehotw/aircheck_UKNotts.htm> (15 January 2004).

the most impressive of any Workshop composer to that point; trained in composition and piano at the Royal Academy of Music, he worked primarily as a jazz pianist before coming to the BBC in 1960.

Radio Nottingham's sounds are not primarily electronic; derived instead from the sound of air passing over the opening of an old bottle, each note was individually pitched on a variable speed tape recorder to create the main melody. The warmth of the tone produced by the bottle, almost flutelike, made it one of Baker's favorites, and he used it frequently for his elaborate tape splicing compositions. Baker was as well known for his unpitched complex rhythmic constructions, building on the techniques developed by Maddalena Fagandini. Baker's syncopated patterns derived more from his jazz training and popular music than any compositions had before them, and the repetitious forward-moving motion sounds to early 21st century ears remarkably similar to minimalist composer Steve Reich's process music of the 1980s.

The form of *Radio Sheffield* is straightforward: each sound element enters at two-bar intervals; first, the "bottle" begins a treble ostinato pattern. Second, a plucked "bass," slightly more rounded than a string bass (perhaps derived from the bottle as well) begins its two-bar repeated ostinato. Third, the metallic percussion complex enters. Finally, the main melody, a bass tune, sounding slightly like a plucked electric guitar enters. Its phrase structure is as straightforward as could be; a series of four two-bar

antecedent/consequent phrases, repeated three times with a six-bar bridge between the second and third iteration of the main melody. The melody itself is a cute if banal tune – the “radiophonics” of the piece come in the intricate interaction of the different elements, and the quick tempo. Like a Bach Invention, the top, flute-like part moves in rapid arpeggiated triads with mechanical precision, each shift in harmony locking together as if assembled by computer; indeed, this is the primary impression of the piece, that it was realized by computer. The relentlessness of the rhythm and bass below it, and the inevitability of its simple harmonic motion sound like a vision of a dynamic, efficient future; as efficient and machine-produced as any atonal composition by Stockhausen.

Conclusion

At the time Derbyshire realized this signature tune, major changes were occurring in the way electronic music was produced throughout the world. Voltage control synthesis, the first practical electronic music synthesizers, were coming onto the market. The Moog and, in Britain, the EMS VCS3 synthesizers revolutionized electronic music with their ease of use and affordability. Although they were not originally built with keyboards, they quickly became standard. Alongside the new “keyboard” instruments came the traditions associated with them, including melodic and harmonic ideas based in jazz and popular music, especially the music of Workshop composers Paddy Kingsland, Peter Howell and Roger Limb. This was still a time of

integration, however, and often synthesizer works were created in combination with the more familiar tape medium, and as I have shown merely continued a trend towards greater melodicity away from its distinctly avant-garde roots. Partially the diminishing relevance of radio drama was to blame, but the rising acceptance of electronic sounds, eventually comfortably familiar, made their use just another aspect of popular music.

With the importation of keyboard instruments, there was on the one hand a broadening of musical style, but on the other a reduction in the kinds of experimentation and exploration possible of unknown sonic territory. The keyboard limits the range of the music to the confines of a standard 12-note scale, making more difficult the manipulation of these scales. Consequently, the resulting music emerged equally tempered. It would be the end of a particular kind of composition but the beginning of a new one, a more popular, equally influential style – one that carved a new niche for the Workshop for the next generation, an influence that continued until its closure in 1996.

Choosing this arbitrary moment in the Workshop's history to conclude my discussion should not lead to the assumption of some great procedural shift. As I have shown, the change towards more popular styles was gradual and the technological encouragement these techniques received from voltage controlled synthesis was only one element in the Workshop's evolution. The continuation of the story of the Radiophonic Workshop, one that includes a

discussion of its influence and impact on popular culture through its productions, must inevitably be told if any full understanding of the use of electronic instruments in popular music is to be desired. The Workshop's function as an introduction for millions of people to the sounds of electronic music cannot be underestimated. For the continuing success of programs like *Doctor Who*, credit must surely be given to the Radiophonic Workshop's immense contribution. Through this program and hundreds more like it, electronic music reached an audience unimaginable in the United States, encouraging young musicians in Britain to compose and popularize electronic music. This small island has led the vanguard of popular electronic music, from progressive rock in the 1970s, to the new romantics in the 1980s, to contemporary techno and downbeat as I write. This is the true legacy of the Radiophonic Workshop, and one that must be taken into account for a fuller understanding of these genres.

Appendix One: Transcriptions

Science and Industry (1959)

Phil Young, Maddalena Fagandini

This system contains four staves of music. The top staff, labeled 'Treble Hammer w/ reverb', is in treble clef with a key signature of one sharp (F#) and a time signature of 8/8. It features a rhythmic pattern of eighth notes with a 'G¹²' marking above the first measure and a ':05' time signature. The second staff, 'Sine Wave Oscillator', is in treble clef with a key signature of one sharp and a time signature of 8/8, showing a melodic line with a 'G¹²' marking and a fermata. The third staff, 'Square Wave Oscillator', is in bass clef with a key signature of one sharp and a time signature of 8/8, containing a square wave pattern. The bottom staff, 'Bass Pulse', is in bass clef with a key signature of one sharp and a time signature of 8/8, featuring a simple pulse pattern.

This system contains five staves of music. The top staff, 'Ham.', is in treble clef with a key signature of one sharp and a time signature of 8/8, showing a rhythmic pattern with a '3' marking above the first measure and a ':14' time signature. The second staff, 'Sine', is in treble clef with a key signature of one sharp and a time signature of 8/8, featuring a melodic line with a 'G¹²' marking and a fermata. The third staff, 'Sq.', is in bass clef with a key signature of one sharp and a time signature of 8/8, containing a square wave pattern. The fourth staff, 'Sine', is in treble clef with a key signature of one sharp and a time signature of 8/8, showing a sine wave pattern with a '3' marking above the first measure. The bottom staff, 'Bass', is in bass clef with a key signature of one sharp and a time signature of 8/8, featuring a simple pulse pattern with a '5' marking above the first measure.

The Artist Speaks (Victor Passmore) - (1960)

Phil Young, Maddalena Fagandini, Dick Mills

The musical score is presented in three systems, each with three staves. The first system includes a Sine Wave Oscillator staff, a Piano w/ Rearticulated Reverb staff, and a Piano w/ Attack Removed staff. The second system includes a Sine staff, a Pno. staff, and a Pno. staff. The third system includes a Sine staff, a Pno. staff, and a Pno. staff. The score is written in treble clef with a key signature of one sharp (F#) and a common time signature (C). The first system spans four measures, the second system spans four measures, and the third system spans four measures. The Sine Wave Oscillator staff features a melodic line with a half note, a quarter note, and a quarter note. The Piano w/ Rearticulated Reverb staff features a rhythmic pattern of eighth notes. The Piano w/ Attack Removed staff features a bass line with a half note and a quarter note. The Sine staff features a melodic line with a half note, a quarter note, and a quarter note. The Pno. staff features a rhythmic pattern of eighth notes. The Pno. staff features a bass line with a half note and a quarter note. The score is marked with measure numbers 5 and 11.

Interval Signal (1960)

Maddalena Fagandini

Pattern 1

Pattern 2

Pattern 3

Pattern 4

Pattern 5

Pattern 6

[Pattern Combinations]

:00-:08 :08-:16 :16-:24 etc.

1

2

3

4

5

6

Orpheus Cue 1

Maddalena Fagandini

Sine
Tone

40

8

16

1:40

Orpheus Cue 2

Maddalena Fagandini

Marimba
w/ echo

12

19

Orpheus Cue 3 (Theme 1)

Maddalena Fagandini

Piano,
backwards
with a & d
removed

16:54 17:05

Slow build to attack

7 17:30

Orpheus Cue 4 (Theme 2)

Maddalena Fagandini

Piano
w/ Echo

28:30 29:10

Bowed
String w/
A & D
Removed

fade rearticulate

Orpheus Cue 5 (Themes 1 and 2)

Maddalena Fagandini

40:08

Piano w/ Echo
ppp

Bowed String w/ A & D
Removed
ppp

9

40:56

Pno.

Str.

Radio Nottingham

John Baker

8th

Round Tone From Bottle

Plucked Electric Guitar Sound

Plucked Bass Sound

8th

Clicked Metallic Percussion

Detailed description: This system contains the first four staves of music. The top staff is a treble clef with a key signature of three sharps (F#, C#, G#) and a 4/4 time signature. It features a melodic line with eighth-note patterns, marked with an 8th dynamic. The second staff is a bass clef, mostly containing rests. The third staff is a bass clef with a melodic line, also marked with an 8th dynamic. The fourth staff is a percussion staff with a series of 'x' marks indicating rhythmic patterns.

5

5

5

Detailed description: This system contains the next four staves of music. The top staff continues the melodic line from the first system. The second staff has a bass clef with a melodic line. The third staff has a bass clef with a melodic line. The fourth staff is a percussion staff with rhythmic patterns marked by 'x' and 'y' symbols.

9

9

9

Detailed description: This system contains the final four staves of music. The top staff continues the melodic line. The second staff has a bass clef with a melodic line. The third staff has a bass clef with a melodic line. The fourth staff is a percussion staff with rhythmic patterns marked by 'x' and 'y' symbols.

12

12

12

12

More complex percussion begins

16

16

16

16

20

20

20

20

:42

24

Musical score for measures 24-26. The system consists of three staves. The top staff is in treble clef with a key signature of three sharps (F#, C#, G#) and a common time signature. It contains a complex melodic line with many sixteenth and thirty-second notes. The middle staff is in bass clef with the same key signature and time signature, containing a simpler melodic line. The bottom staff is in bass clef with the same key signature and time signature, containing a single long note with a fermata.

27

Musical score for measures 27-30. The system consists of three staves. The top staff is in treble clef with a key signature of three sharps and a common time signature, containing a complex melodic line. The middle staff is in bass clef with the same key signature and time signature, containing a melodic line with some sixteenth notes. The bottom staff is in bass clef with the same key signature and time signature, containing a rhythmic accompaniment of eighth notes with 'x' marks above them.

31

Musical score for measures 31-34. The system consists of three staves. The top staff is in treble clef with a key signature of three sharps and a common time signature, containing a melodic line. The middle staff is in bass clef with the same key signature and time signature, containing a melodic line. The bottom staff is in bass clef with the same key signature and time signature, containing a rhythmic accompaniment of eighth notes with 'x' marks above them.

34

Musical score for measures 34-36. The system consists of four staves. The top staff is in treble clef, and the bottom three are in bass clef. The key signature has three sharps (F#, C#, G#). The music features a complex melodic line in the treble and a rhythmic accompaniment in the bass.

1:08

37

Musical score for measures 37-39. The system consists of four staves. The top staff is in treble clef, and the bottom three are in bass clef. The key signature has three sharps. The music features a complex melodic line in the treble and a rhythmic accompaniment in the bass. A time signature change to 3/4 is indicated at the beginning of measure 37.

40

Musical score for measures 40-42. The system consists of four staves. The top staff is in treble clef, and the bottom three are in bass clef. The key signature has three sharps. The music features a complex melodic line in the treble and a rhythmic accompaniment in the bass.

**Appendix Two:
Selected Programs Utilizing or of Interest to the
Radiophonic Workshop, 1951-1963**

Appendix Two: Selected Productions Utilizing or of Importance to the Radiophonic Workshop, 1951-1963

Key

- Pro.= BBC Network or Programme
 RT = Radio Times - If at least a brief description or review of the program, I indicate with the source.
 Li = The Listener (BBC weekly companion to RT, with independent reviews of productions)
 RW = Radiophonic Workshop composer for project, if known
 H = Home Programme
 L = Light Programme
 3rd = Third Programme
- N3 = Network Three
 B=Desmond Briscoe
 O=Daphne Oram
 Ra=Norman Bain
 F=Maaddalena Fagandini
 M=Dick Mills
 D=Deila Derbyshire
 J=Jimmy Burnett
 BH=Brian Hodgson

Underlined and Bold programs are Radiophonic Workshop projects
 TRW# refers to the catalogue number given by the BBC Radiophonic Workshop for their internal database
 All times P.M. unless otherwise indicated
 Bibliographic entries are listed by journal first, then the cover date of the issue. If the citation is in a year other than the broadcast year, the year is then given as well. Radio Times citations are on the date of broadcast unless otherwise indicated.

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
1951	11.10	Cont. Music: H. Searle, Varese, Ionisation					3 rd			Darmstadt recording, from 1950 Darmstadt Festival	
6/4	11.30										
6/18	7.40-9.10	The Childermass	D.G. Bridson		Wyndham Lewis	Walter Goehr	3 rd	6/19,		"Music specially composed by WG" (6/18/51)	RT
10/10	6.35-6.50	Music of the Sea	Ludwig Koch		Ludwig Koch		3 rd	10/12,29		Sound picture without words	RT
1952											
9/3	7.05-7.20	Paris	Ludwig Koch		L. Koch		3 rd	9/6, 9/18		"A picture of everyday sounds"	RT
11/9	6.35	One Eye Wild	Louis MacNeice	Ba	Louis MacNeice		3 rd	11/11		"OEW is equally experimental but much less pretentious; the action is confined to one day, there is no special music (thought lots of sound effects)...So the central massiff of this programme is built on Walter Mitty lines." LM	RT
1953											
4/12	6.30-8.55	The Dance of Death	Donald McWhinnie		August Strindberg, Max Faber		3 rd	4/14			RT
6/15	10.35	Gerald McBoing Boing	Maurice Brown		Dr Sues, Gail Kubik	Gail Kubik	3 rd	6/17		Music also by Tod Dockstader	RT

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
	10.50										
9/21	7.30-8	Journey into Space	Charles Chilton		Charles Chilton	Van Philips	L			Ep. 1 Music/sounds taken from Jet Propulsion Lab	RT
1954											
1/25	7.25-8.55	Under Milk Wood	Douglas Cleverdon		Dylan Thomas	Daniel Jones	3 rd	1/27			RT
2/8	10.30-11	Musique Concrete	Frederick Goldbeck		Frederick Goldbeck		3 rd	6/28		"Musique Concrete has been developed by Pierre Schaeffer, who regards it as the music of the future. It makes little or no use of musical instruments and the use of musical instruments and the "music" is built up by superimposing tape recordings of sound effects, most of them distorted. Pierre Schaeffer's <i>Symphonie pour un homme seul</i> is to be broadcast on Wed. at 8.50 p.m. Mr. Goldbeck is a music critic in Paris.	RT
2/10	8.50-9.10	Symphonie pour un homme seul				Pierre Schaeffer	3 rd	7/1		"This in one of Schaeffer's most important creations in the Musique Concrete idiom. There are ten short movements: Prosopope; Paritia; Valse; Eroica; Scherzo; Cadence; Eroica; Apostrophe, Intermezzo; Strette. RT	RT
3/13	6-7.50	Amphitryon 38	EJ King Bull		EJ King Bull	John Hotchkis	3 rd			"recorded broadcast of Dec. 4, 1949"	RT
7/18	8.15-10.40	L'Etranger	DG Bridson		Albert Camus, Sasha Moorsom	Roberto Gerhard	3 rd	7/23			RT
		The Prisoner				Roberto Gerhard				Stage production, Globe Theatre, chamber ensemble and tape.	
1955											
5/24		The Childermass	D.G. Bridson		Wyndham Lewis	Walter Goehr		7/12/57, 10/13/63		New production with the publication of 2 nd and 3 rd books in trilogy.	RT
		A Leak in the Universe				Roberto Gerhard				"Music composed and conducted by WG" (10/13/63)	
		King Lear				Roberto Gerhard				Radio production	
1/30	9.15-10.45	The Creature	Rudolph Cartier		Nigel Kneale		TV	2/3		Stage prod. Memorial Theatre, Stratford-on-Avon, chamber ensemble and tape	Li.2/3.213.

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
		Orestes			Henk Badings		3 rd				L1,7/7,39
1956											
3/4		A Hedge, Backwards			Henry Reed	Donald Swann	3 rd	3/4/58		Contains examples of Hilda Tablet's <i>Musique Concrète Reinforce</i>	
		The Dark Tower	Louis MacNeice		Louis MacNeice	Benjamin Britten	3 rd	10/15/63		First broadcast in 1946, this was a new production, conducted by Charles Mackerras	
		Mathry Beacon			Giles Cooper		3 rd	5 th 11/25/62			L1,6/28, 904.
1957											
1/7	9:45-11	Lord of the Flies	Archie Campbell		William Golding, Giles Cooper	Chris Whelen	H			"Music and special effects, by C. Whelen" Shortened version of August 28, 1955 version	
1/7	10-10:45	The American Composer			Racine Fricker		3 rd			Examples of Ussachevsky	
1/11	6:55-7:55	ALL That Fall	Donald McWhinnie	B, Ba	Samuel Beckett		3 rd	4 more	997		L1,1/24,167,2/28,359, 3/6,423,6/12/58,992, 8/28/58,319
2/18	7:3-8:10	Job: A Radiophonic Oratorio				Ton deLeeuw	3 rd			This 'radiophonic oratorio' was awarded the 1956 Italia Prize for a musical work with text. In addition to the normal resources of chamber chorus and orchestra, the composer has made frequent use of superimposed recordings, transpositions of tones through speed changes, electro-acoustic filters, and electronic sound. The text (in French) is taken from the Book of Job. RI listing	RT,L1,2/28,359.
3/18	7:20-7:50	Opium: An Essay in Experimental Radio	"supervised" by Douglas Cleverdon		Cocteau, Trans. Naomi Lewis	Andre Almuro	3 rd	3/21, 9/16		"It is based on Jean Cocteau's journal which is, in fact, a poetic view of the effects of opium. The work was originally produced by Andre Almuro for RTF, and we have spent this last week together superimposing English dialogue on the original French <i>musique concrete</i> . RT "this work was first brdct by Radio-diffusion-Television Francaise. For this English production the voices of	RT

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
5/14	6:55-7:25	Dilemma of Cont. French Music					3 rd			the English readers have been superimposed on the original recordings of Andre Alimuro's <i>musique concrete</i> ". RT	
6/12	10:15-11	Contemporary German Music					3 rd			Stockhausen, last program of 5	
6/11	7-8	Prometheus Unbound	Michael Bakewell		George D. Painter, Andre Gide		3 rd	6/13			RT
7/13	9:40-9:55	Modern Music: A mid-century stocktaking	Geoffrey Sharp				3 rd				
7/17	6:4-7:10	Modern Music is Growing Old					3 rd				
8/15	8:1-8:55	The Disagreeable Oyster	Donald McWhinnie	B., Ba	R. Gerhard		3 rd	8/21	998, 2054	Comments by Gerhard on article by "Dr. Adorno in <i>The Score</i> "	RT
10/7	8:4-9	Private Dreams and Public Nightmares	Donald McWhinnie	B., Ba, O	Giles Cooper		3 rd			"Sound effects and production of a type more readily associated with the <i>Goon Show</i> than with drama productions are among the vital ingredients of Giles Cooper's play, TDO, which the 3 rd will present on Thursday." RT	RT, L, 10/17, 627, 3/6, 421.
10/18	10:40-11:10	Electronic Composition	Reginald Smith-Brindle		Frederick Bradnum		3 rd		999	"an experiment with 'created sounds'"	
10/27	5-6:30	Metamorphosis	Michael Bakewell	B	Franz Kafka, tr. Willa & Edwin Muir	F. Reizenstein	3 rd	10/29	1000, 2,28	From Milan: Berio, Maderna, Pousseur	RT
1958											
1/3	2-2:20	The Candy-Stripe Dream			Albert Jeanes		H			Saturday Matinée	
2/7	10:40-11:05	Concerto des Ambiguities				Pierre Henry	3 rd				
2/24	8:30-9:05	A Winter Journey	John Gibson	B	James Hanley		3 rd	2/28	1001		RT, L, 3/6, 421, 5/29, 915, 6/12, 992, 7/31, 176, 8/28, 319.

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
3/2	8.30-10	Amphitryon 38	Harold Clayton	O	SN Behrman		TV		1002	"Radiophonic effects by Daphne Oram"	Li.3/6,420
4/12	9.15-10.35	Hour of the Rat	Enyr Humphreys		Jon Manchip White		H	4/14	1021	Recording of broadcast on Welsh Home Service on Jan 3 rd	RT
4/13	5-7.10	The Typewriter	H.B. Fortuin		Jean Cocteau, tr. EJ King Bull		3 rd	4/18			
6/19		The Ocean	D. McWhinnie	B	James Hanley		H	2/9/59	1004		RT, RT2/6/59, 3.Li.5/29, 915, 2/19/59, 347.
5/24	9.15-10.45	The Heritage	John Gibson		Stephen Grenfell		H		1003		
6/1	9.15-10.35	I Talk To Myself	John Gibson		James Hanley		3 rd	6/5	1005	"A companion-piece to <i>A Winter Journey</i> , in which James Hanley and his enterprising producer, Donal McWhinnie, assailed us with the vast loneliness of an old woman's last hours, this presents a retired sea-captain 'close-hauled' in a tiny bedroom and looking out over a sea of concrete." RT	RT, Li.6/12, 992.
6/11	10.15-10.45	Mr. Goodjohn & Mr. Badjack	Frederick Bradnum		F. Bradnum		H		1006		RT
7/31	10-10.35	The Ballad of the Mari Lwyd	D. Cleverdon		Vernon Watkins		3 rd	8/2, 1/2/31	1014		RT
8/3	5.30-6.15	Under the Loofah Tree	D. Cleverdon	B, Ba	Giles Cooper		3 rd	8/8, 1/2/59	1013		RT, Li.8/7, 212.
8/6	10-10.45	The Talking Bird	C. Beardsall, F. Bradnum		Muriel Levy	Henry Reed	H		1009	"with BBC concert orchestra & chorus" "Charles Beardsall introduces a radio version—using radiophonic effects—of a famous story from the Arabian Nights. The Talking Bird is based on the story originally called "The Jealous Sisters: The bird is one of three delightful phenomena which occur in the story—the others are the Golden Water and the Singing Tree. It was these three which caught my imagination as ideal for radiophonic treatment. Radiophonic effects, which are created by a multitude of technical means from basic sounds varying from a rustle of paper to	RT, L 1, 8/1 4, 24 9.

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
8/12	9.5-10.15	Towie Castle	F. Bradnum		Gordon Rottomley		3 ^d		1011	a note from an electronic oscillator, are not of course new to radio programmes. They were used experimentally last year in a Frederick Bradnum production, and have been heard in several recent plays." RT	Li.8/21, 283
8/22	10.30-10.50	The Creation of the Animals	D. Cleverdon		J. Supervielle, trans. Naomi Lewis	Andre Almuro	3 ^d	3/7/59, 11/15/58	1017	"A Composition in Musique Concrete" "One of the foremost French exponents of MC, Andre Almuro, has paid a special visit to London to work with D C on the radiophonic version of Jules Supervielle's TCOTA....S's fantasy—based on Genesis—lends itself admirably to treatment by MC, and the original French production aroused much interest."	RT, Li.8/28, 319
9/14	8.55-11.05	Vasco	H.B. Fortuin		G. Schehade, trans. Robert Baldick	Humphrey Searie	3 ^d	9/17	1019		RT
9/28	9.30-10.20	The Untouchable	Norman James		Florence Hayes Turner		TV		1024		
10/9	8.15-9.15	A Shaft of Light	Nesta Pain		Kenneth Alexander	John Hotchkis	TV		1028	"A dramatized study of dreams and their meaning"	
10/24	8.5-10.25	Agamemnon	F. Bradnum		Raymond Postgate		3 ^d		1027		
10/27	9.15-10.45	Plot on the Moon	Val Gielgud	M	Redmond Macdonogh		H	11/10	1032		Li.11/6, 750.
11/8	6	La Grande Tentation de St Antoine			Louis de Meester		3 ^d			Radiophonic cantata	Li.11/6, 750.
11/12	9-10	Breakthrough	Philip Daly				TV			"The exploration of space by rockets and satellites"	RT
12/15	9.15-10.45	Noah	Wilfred Grantham	B, J	Wilfred Grantham		H		1026		
12/22	8-8.30	Quatermass and the Pit	Rudolph Cartier	B	Nigel Kneale		TV		1044	Episode One: The Halfmen (six eps total)	
1959											
1/4	5.40-8.05	Rosmersholm	Mary Hope Allen		Max Faber		3 ^d	1/28	1031		RT
1/5	6.45-7.15	Sound	Marguerite Cutforth				N3	1/12		New Series, Mondays. D. Cleverdon, T. Cary, Tony Gibson "We shall also	RT

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
1/19	10-11	A Man in the Zoo	Robin Midgley		Giles Cooper		H		1052	broadcast electronic music, MC, even musical computers." "TC considers the relationship between natural and artificial music and explains some of the methods he uses when combining the two."	RT, Li, 1/29, 225.
1/26	8-8:30	Quatermass and the Pit	Rudolph Cartier	B	Nigel Kneale	Trevor Duncan	TV		1044	Ep. 6: Hob Still no RW credit in RT	RT
2/2	6:30-7	Sound	Marguerite Cufforth				N3	2/9		T. Cary "interesting sounds from simple equipment" "Cary suggests more ways of getting interesting sounds from your tape-machine, this time by imaginative tape-cutting."	
2/8	5-7:10	The Unknown Woman of Arras	Frederick Bradnum		Armand Salacrou, tr. Robert Baldick		3rd	3/4	1061		RT
2/16	9:15-10:45	The Conqueror	Peter Watts		Naomi Mitchison, adpt by Peter Watts		H		1058		RT
2/19	8:45-9:15	Outside	David E. Rose	B, F	G. Bellman, John Witney		TV		1063	Recording on TV21	RT
2/28	2:10-2:55	Home Comforts	Robin Midgley		Leslie Godfrey		H		1062	"Saturday Matinee"	
3/2	6:45-7:15	Sound	Marguerite Cufforth				N3	3/9		T. Cary "Sounds and Shape" "Effects should be part of a total design in sound, not as afterthoughts. TV discusses his methods of attempting their integration in various contexts."	
3/22	8:30-10	Mary Rose	John Harrison		JM Barrie		TV		1065	"One of the most famous ghost stories ever written for the theatre"	Li, 3/26, 566, 4/9, 689.
3/27	9:30-10:30	The Hill: A Passion Play for Good Friday	Paul Almond		Paul Almond		TV		1072		
4/3	9:30-10	Love and Mr. Lewisham	Douglas Allen		HG Wells, Denis Constanduros		TV		1073	Six episode serial. This is pt. 1	RT, Li, 4/9, 645.
4/3	8:20-9:20	The Master Cat	Francis Dillon		Francis Dillon	Tristram Cary	3rd		1070	"Music composed and conducted by Tristram Cary"	

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
4/5	5-7:45	Heartbreak House	Val Gielgud		George Bernard Shaw		3 rd	4/28			RT
4/5	5:20-	The World's Wonder	Finlay J. Macdonald		Alexander Reid		3 rd	4/24, 12/27/59	1066		Li.4/9,645
4/14	8:30-10	The Offshore Island	Dennis Vance		Margharita Laski		TV			Science Fiction - on cover of RT	RT
4/27	7:30-8	City of the Hidden Eyes	Michael Bakewell		Philip Levene		L		1075	Episode 1. "Some really horrific sound effects have been created by that most inventive producer, Michael Bakewell.:"	RT
4/27	8:05-10:45	Coriolanus	John Gibson		W. Shakespeare	John Buckland	H				RT
4/30	8-9	Out of the Night	RD Smith		RD Smith		H	5/2	1071		RT
5/10	6-6:20	Mitchener's Dog	John Gibson		Tyrone Guthrie	Humphrey Searle	3 rd	6/5	1074		
5/11	5:30-6:30	Roundabout					L		1082	Doc. This might not be correct. Also contemp. series of same name	RT
5/24	10:30	Sherlock Holmes (Sign of the Four)?							1086	Or 6/30. Beryl Coronet. More probably "The Public Life of SH," 5/28	
6/2	9:30-11	Blood Wedding	George E. Foa		Lorca, trans. G. Leeson	Eduardo Torner	TV		1078	"World Theatre Presents" "The music has been composed by Eduardo Torner, and was originally written for a sound production of this play by George Foa (who will be producing on Tuesday) first presented in 1950."	RT
6/10	9:30-10:05	Sounds of the Violin	WH George		WH George		3 rd		1088	"W.H. George, PhD, F.Instr.P., Department of Physics, Chelsea, College of Science and Tech. An illustrated talk dealing with the sounds of the violin and some of the experimental research carried out on the instrument: the illustrations include electro-acoustic experiments made in the BBC's Radiophonic Workshop , dealing especially with the G string of the violin. A virtuoso performance, entirely on the G string, is included."	RT
6/24	8-9	Embers	Donald McWhinnie		Samuel Beckett		3 rd	7/16	1090	"Beckett's first work for radio, <i>All That Fall</i> , was originally broadcast in 1957, when it was acclaimed for its masterly use of the medium. According to DM, the producer, Embers is an even more	RT, L 1,7/2 ,35.

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
7/25	7:30-8:40	<u>East of the Sun and West of the Moon: A Norwegian Folk Tale</u>	Louis Macneice		Louis MacNeice	Tristram Cary	3 rd	8/9, 2/21/60		interesting piece of radio, as well as an impressive restatement of the author's favorite themes. "Music and specially devised sounds by T. C."	
8/10	8-9	<u>The Age of Anxiety</u>	Frederick Bradnum		Auden/ F. Bradnum	John Buckland	3 rd		2000	A reading of Pt. 3 and pt. 4.	
	6:45	<u>Monday To Friday</u>					TV		1091	Biweekly Series	
	8:3	<u>A-Z</u>					TV		1085	Biweekly Series	
8/20	9:10-10:40	<u>Rhinoceros</u>	Michael Bakewell	F	Eugene Ionesco, trans. Derek Prouse		3 rd	9/12	1097	"This oppressiveness is given its most striking projection in <i>Rhinoceros</i> , where the herds of thundering pachyderms choke the characters with the dust and drown their cries with their trumpeting." "the marvelous technical device which guides the ship is called Mimma, and it speaks in a non-human way through the insertion of pre-recorded tape music into the score. Blomdahl believes that (as he has himself written) an opera composer should be ready to use specifically modern musical resources, while preserving a straightforward, dramatically simple musical language suitable to the stage."	RT
9/4	8:45-9	<u>Intro to Aniana</u>	Ian Rodger		Ian Rodger		3 rd				
9/5	6:55-8	<u>Aniana</u>				Karl-Birger Blomdahl	3 rd			Performed by Royal Opera of Stockholm. (Tape music) At Edinburgh Festival	RT, Li.
9/21	8:25-9:05	<u>The Children of Lir</u>	Douglas Cleverdon		HAL Craig	Tristram Cary	3 rd Rpt on H	10/14, 10/4/62	?	"Craig's imaginative treatment of the tale gives scope for <i>musique concrete</i> and for unusual sound effects, which TC has wedded to the spoken words." Later "for Schools"	RT, Li, 10/1-547.
9/28	7:30-8	<u>Orbiter X</u>	Charles Maxwell		BD Chapman		L		1098	ep. 1: The first step to the stars" "A highly efficient and enthusiastic team led by Harry Morris is providing special sound effects. As many as forty different recorded effects spin from the hands of Harry's assistant, Ian Cook,	RT

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
10/15	9.45-11.05	I Call Me Adam	Louis MacNeice		Laurie Lee		3 rd	11/1		during the course of the first episode – four or five effects sometimes being blended together to produce one particular sound.	RT
11/10	9.15-10.30	Asylum Diary	Michael Bakewell	F, M	Christine Lavant	Roberto Gerhard	3 rd	12/3	1076	"Sound Composition by R G" "Another dimension had been added to the text by the sound composition of the composer, RG, who has experimented with a mixture of true, musical sound and electronic sound, freely combined to interpret the changing moods of his story by a series of sound images. He feels that AD was particularly suitable to the medium of electronic composition which can produce the eerie sounds of a fantasy world in a way that would have been impossible with conventional means. With the advice of the BBC's Radiophonic Workshop , he prepared the music at home on his simple, shoe-string equipment of three tape machines, a microphone and a turntable. He finds this limitation of equipment extremely stimulating to his inventive imagination."	RT
11/21	7.15-8.05	Musique Discrete	Douglas Cleverdon		Reed and Swann	Donald Swann	3 rd	2 nd		Concert of Hilda Tablet Compositions	Li.11/1,799
11/25	3.20-4	The Comedy of the Man Who Married A Dumb Wife	Bryan Izzard		Anatole France, Ashley Duikes		H		2006	"Wednesday Matinee" Second of a double feature	
12/24	9-9.45	The Ox and the Ass	Douglas Cleverdon		Jules Supervielle, Dorothy Baker	Andre Almuro	3 rd	1/14, 60	2004	"with Musique concrete composed by Andre Almuro." "The elements of the MC were devised by Andre Almuro in Paris, and subsequently developed by him at the BBC Radiophonic Workshop ."	RT
1960											
1/2	8.40-9.10	Quatermass and the Pit (repeat)	Rudolph Cartier		Nigel Kneale	Trevor Duncan	TV		1044	All six eps. repeated. Credited now, "Special Effects: Sound: BBC Radiophonic Workshop ."	

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
1/11	9.15-10.45	Angel of No Importance	Bryan Izzard		Claude-Andre Puget, tr. BI		H		2007		
1/18	9.15-11	The Cherry Orchard	R.D. Smith		Chekov, tr. William Glen-Doepel		H		2030		
1/26	8.15-9.15	David and Broccoli	Michael Elliott		John Mortimore	George Hill	TV	9/1	2026		
1/27	8-9.45	Free Fall	Donald McWhinnie		William Golding, DM		3 rd	2/14	2031		
2/16	2.05-2.35	Riders to the Sea	George R. Foa		J.M. Synge		TV		2005	"For Schools"	
2/22	10.15-11.40	Lazarus	George R. Foa		Pirandello, tr. Eric Crozier		TV		1069		
2/25	10.15-10.55	Exercises in Style	Douglas Cleverdon		Raymond Queneau, tr. Barbara Wright	Pierre Phillippe	3 rd	2nd	27, 2024		
2/26		Who Goes Home					TV		2037		
3/1		Siwan			Saunders Lewis		TV	3/21	1092	Page missing from RT	
3/10	8-9	Thursday Invitation Concerts begin					3 rd			Byrd, Boulez, Machaut together	
3/30	5.10-5.30	Experiment - Sound in Vision	Clive Parkhurst	O			TV		2045		
4/3	9.35-10.05	Reflections in a Village	Christopher Burstall		James Morris		TV		2010		RT
4/10	8-9.30	Glorious Morning	Rudolph Cartier		Norman MacOwan		TV		2048		
4/14	8-9	Good Friday	Hugh Stewart		John Massfield		H		2041	"Music and Sound Effects by the Radiophonic Workshop" - in a big central location	
4/15	6.10-7.25	Noah	Joy Harrington		Andre Obey, Tr. Arthur Wilmut		TV		1026		
4/20	8.20-9.15	Miss Pulkinhorn	David Thomson		William Golding	Organist	3 rd		2049		RT
4/21	9.50-10.50	The End of Fear	Terence Miller		Denis Saurat, Tr. by Philip Mauret	Tristram Cary	3 rd	2nd	?	"with musique concrete by Tristram Cary"	
4/22	8-8.30	Meeting with Johnny	Peter Hammond		Pamela Fry		TV		2046		
5/13	9.30-10	The Grandeur That Was Rome:	Stephen Hearst		Stephen Hearst		TV		2034	Not sure which episode has the music called "The Splendor of	RT

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
5/19		1 - The Skeleton of an Empire Tobias and the Angel							2039 2056	Rome" "Thursday's Opera" Page missing from RT	RT
5/20	10-15	The Grandeur That Was Rome: 2 - Gods and Men	Stephen Hearst		Stephen Hearst		TV		2034		
5/20	5-10- 5-40	Red Fire on the Lost Planet	Kathleen Garscadden		Angus MacVicar		H		2044	"Children's Hour" Ep. 1, "SOS from Hesikos," etc.	
5/22	10- 10-45	Lament for the Death of a Bullfighter	DG Britson		Garcia Lorea, tr. A.L. Lloyd	Roberto Gerbard	3 rd		2027 6541	"The English translation set to electronic music by RG"	
5/27	9-25- 9-55	The Grandeur That Was Rome: 3 - Roman Art and Architecture	Stephen Hearst		Stephen Hearst		TV		2034		
5/28	10-15 -11-15	Stereophony Effects	Douglas Cleverdon							"Examples from Radiophonic Workshop, adapted by D Cleverdon" "Music and specially devised sounds by TC"	
5/31	9-45- 11-50	They Met on Good Friday	Louis MacNeice		Louis MacNeice	Tristram Cary	3 rd TV	3 rd brst	?		
6/7	8-50- 10-20	The Ordeal of Gilbert Pinfold	Michael Bakewell		Evelyn Waugh, M Bakewell		3 rd		2057	"When we set out to talk to Michael Bakewell about TOOGP, the novel by Evelyn Waugh which he has adapted for the 3 rd Programme on Tuesday, we were not surprised to hear that he was at the BBC's Radiophonic Studio. This is the place where new techniques are investigated, and weird sound-effects are produced on demand for use in experimental programmes. And there is no doubt that the book gives plenty of scope for weird sounds and disembodied voices. Pinfold is a successful middle-aged author (believed by many to be a thinly veiled self-portrait of Mr. Waugh), who, feeling tired and bored, goes on a cruise only to find himself suffering from hallucinations of a persecutory nature. Mysterious voices come to him—insulting, threatening, or seducing by turn—and he is made restless by other unaccountable noises. "It is an ideal subject for radio," says Bakewell, 'but	RT

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
6/13	9:15-11	The Children In Darkness	Frederick Bradnum		Geoffrey Household		H		2042	there is more to it than stunts."	RT
6/18	2:30-3:10	The Proxies	Michael Bakewell		A. Juan Skene		H		2050	"Even today there are many jobs that machines can do better and faster than their creatures, and some people are tempted to look ahead with trepidation. Just suppose that machines could really think, suppose one day they had it in their power to take control! This play suggests it might not be altogether disastrous."	RT
6/19	8:20-9:50	The Insect Play	Hal Burton	F	J&Karel Capek		TV		2053	"20 th Century Theatre"	RT, Li
6/23	8-9:45	As I Lay Dying	D.G. Bridson		Faulkner, Dorothy Baker		3 rd	7/10	2059		
6/27	8:45-9:15	Death of a Ghost	John Harrison		Margery Allingham	Chris Whelen	TV		2060	"Theme music composed by CW" Ep.1	RT
7/16	10:15-11:15	Stereophony -- "Panacousticon"	Douglas Cleverdon							On Network 3 wavelengths, "for voice and noise effects by Donald Cotton"	
8/15	10-10:15	The Artist Speaks	John Read		John Read		TV		2020	About Victor Passmore "Abstract sound by the BBC Radiophonic Workshop"	RT, 8/12/60, 2 & 4.
8/26	9:15-10:15	Under Milk Wood	Douglas Cleverdon		Dylan Thomas		H				
9/2		Panorama					TV		2076	Series begins, not sure which ep. (perhaps ep dated 10/17)	RT
9/13	8:30-10	Without the Grail	Donald McWhinnie		Giles Cooper		TV				RT
9/27	2:50-2:35	The Haunted House	Rosemary Hill		Titus Maccius Plautus		TV		2068	"For the Schools"	
10/7	9-10:35	The Ballad of Peckham Rye	Christopher Holme		Muriel Spark	Tristram Cary	3 rd	10/29		"with music by TC" "The music, spiced with 'pop', jazz, and Victorian rhythms, is by TC in his wittiest vein."	RT, 10/27/60, 4.
10/10	8:30-10	The Mother	HB Fortuin		K Capek, tr. Paul Selver		H		2067		RT
10/12	10:45-11	Conservative Party Conference					TV		2082	Not sure this the night, or the party	
10/16	5-	Paul of Tarsus	Joy Harrington		Joy Harrington	Christopher Whelen	TV		2088	"music composed and directed by CW" a cycle of ten plays, ep. 1	RT (see other eps)

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
10/16	10:30	The Telephone	Walter Todds		G.C. Menotti	G.C. Menotti	TV		2064	Conducted by Charles Mackerras	RT
10/16	5-10:55	Phra the Phoenician Sound	Claire Chovil		Michael Kelly		H	1/11/63	2081	A play in 6 eps, ep. 1	
10/16	5:45		Marguerite Cuthforth				N3			TC talks about his work on the score for <i>Ballad of Peckham Rye</i> .	
10/19	2:40-3:10	England's Harrowing	RD Smith	M, B	Hardy, F Bradnum	H Searle	3 rd	11/6	2068	"from <i>The Dynasts</i> by TH with music by TC. Music played by the Sinfonia of London conducted by the composer" pt. 1. Trafalgar	RT 6/15/61, 19.
10/21	8:40-10:10	England's Harrowing	RD Smith		Hardy, F Bradnum	H Searle	3 rd	11/9, 6/19/61	2068	"from <i>The Dynasts</i> by TH with music by TC. Music played by the Sinfonia of London conducted by the composer" pt. 2. Waterloo	
10/23	5-5:30	Paul of Tarsus	Joy Harrington		Joy Harrington	Christophe r Whelen	TV		2088	"music composed and directed by CW" a cycle of ten plays, ep. 2, the Road to Damascus	
10/30	5-5:30	Paul of Tarsus	Joy Harrington		Joy Harrington	Christophe r Whelen	TV		2088	"music composed and directed by CW" a cycle of ten plays, ep. 3, Simon Peter	
11/4	8:50-9:50	The Treasure House	Robin Midgeley		Peter Gurney		3 rd	11/26	2086 6200	" Music by the Radiophonic Workshop "	RT
11/6	5-5:30	Paul of Tarsus	Joy Harrington		Joy Harrington	(no credit in RT)	TV		2088	"music composed and directed by CW" a cycle of ten plays, ep 4 Herod the King	
11/7	8:30-10	The Lady from the Sea	RD Smith		Ibsen, tr Max Faber		H		2094		RT
11/8	9-9:31	Seeing a Beauty Queen Home	John Gibson		Bill Naughton		L		2093	"Thirty-Minute Theatre"	RT
11/13	5-5:30	Paul of Tarsus	Joy Harrington		Joy Harrington	Christophe r Whelen	TV		2088	"music composed and directed by CW" a cycle of ten plays, ep 5 From Saul to Paul	
11/15	8:55-10:20	Emily Butter	D Cleverdon		Henry Reed	Donald Swann	3 rd				
11/15	9-9:31	The Window	Hugh Stewart		JAE Seager & Edward Livesey		L		2075	"Thirty-Minute Theatre" " Music by the Radiophonic Workshop " "The production is the first to sounds of electronic origin exclusively"(RT) "The background has been conjured up by the BBC's Radiophonic Workshop and the production is the first to use sounds of electronic origin exclusively."	RT

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
11/21	8:30-10	The Right-Hand Side of the Setting Sun	Michael Bakewell		Barbara Parker		H		2095		RT
11/23	8-9	The Infernal Machine	HB Fortuin		J Cocteau, Carl Wildman	Tristram Cary	3 rd	12/16	2090	"music by TC with special effects by the RW"	RT
11/25	9:10-10	La Rencontre D'Oedipe Et Du Sphinx. Act 2 of La Machine Infernale	Carl Wildman		Jean Cocteau		3 rd	12/17 6/19/61		Production in French	
11/27	5-5:30	Paul of Tarsus	Joy Harrington		Joy Harrington	Chris Whelen	TV		2088	"music composed and directed by CW" a cycle of ten plays, ep 7, Greece	
12/3	8:30-10	The Moving Toyshop	RD Smith, Keri Lewis		Edmund Crispin, Keri Lewis		H	12/5	2080		RT
12/9	8:45	L'Etranger			Camus	Roberto Gerhard	3 rd			"new production of the dramatized version first broadcast in 1954" "Both RG, who has composed the music for it, and I had the opportunity of discussing it with Camus in great detail before his death, and we have tried to be as faithful as possible to the spirit of the original book."	RT
12/7	8-9:45	La Naussee	Barbara Bray		Sartre, Bray		3 rd	1/1/61	2097		RT
12/11	5-5:30	Paul of Tarsus	Joy Harrington		Joy Harrington	Chris Whelen	TV		2088	"music composed and directed by CW" a cycle of ten plays, ep 9; Jerusalem	RT, 5/4/61, 22-23.
12/18	5-5:30	Paul of Tarsus	Joy Harrington		Joy Harrington	Chris Whelen	TV		2088	"music composed and directed by CW" a cycle of ten plays, ep 10; To Rome	
12/23	6:20-7:29	The Adventures of Alice	Charles Lefaux		Carroll, Lefaux	Anthony Hopkins	TV		3006		
12/24	10:10-10:55	Ghost Story: A minimal opera in the Haunted Manner	D Cleverdon		Donald Cotton	James Stevens	3 rd	2/21	2099		
12/25	7:45-8:35	The First Family	R.D. Smith		Supervielle, tr. Patric Dickinson		3 rd	1/16/61	3002	"Effects by the Radiophonic Workshop"	
1961											
1/1	7:45-8:25	The Christmas Carol: The Story	RD Smith		Nina Epton	Freddie Phillips	H		3003	"Effects by the Radiophonic Workshop. Guitar music	

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
1/2	8:30-10	<u>of a Miracle</u>								composed and played by FP"	
1/9	8:30-10	<u>The Go-Between</u>	Archie Campbell		LP Hartley, Archie Campbell		H		3004	"Pianist, Josephine Lee"	RT
1/9	8:30-10	<u>Stage Play</u>	Michael Bakewell		Anthony Skene, Beileau & Narcejac		H		3010	"The tinkling of a luster which Merry kept to ward off evil spirits sounds intermittently through the play and heightens its tense, sinister atmosphere."	RT
1/30	8-10	<u>The Dance of Death</u>	HB Fortuin		Strindberg-Max Faber		H	8/9/62 3 rd Pr.	3015	"The Pianist, Clifton Helliwell"	RT
2/2	8:45-9:45	<u>Three Ring Circus</u>	James MacTaggart		Jack Gerson		TV		2085	"Special Sound Effects by BBC Radiophonic Workshop"	RT
2/6	8:30-10	<u>One Traveller Returns</u>	Martin C Webster		Moray McLaren		H		3019		
2/8	8:45-10	<u>The Fall</u>	HB Fortuin		Camus, Harry Moore		3 rd			"From the ling 'confession' emerges a remarkable self-portrait of a disillusioned man of our time, uneasy of conscience, rudderless in the sea of contemporary difficulties. As a form, the monologue is well suited to radio, and in this production sound effects not only indicate the changes of scene but help to convey the atmosphere of the novel."	RT
2/15	8:45-9:45	<u>The Danger Zone: An Experimental Drama</u>	Christopher Holme		Muriel Spark	Tristram Cary	3 rd	4/4		"Music of Jones's Ditty by TC with Desmond Dupre (guitar)"	
2/20	10:25-11:05	<u>The Avant-Garde</u>			Peter Stadlen		3 rd	8/12		"electronic music from Darmstadt." "The emergence of electronic music during the last decade has caused a reconsideration of the inner-most nature of music itself." "From the North"	RT
2/25	9-10:15	<u>A Perfect Stranger</u>	John Warrington		Lynn Foster		TV		3024	"Saturday Matinee"	
3/4	2:10-2:40	<u>Never Forget A Face</u>	Robin Midgley		Barry Bermange		H				
3/5	3:50-4:50	<u>The Ideal Home Exhibition</u>	Noble Wilson				TV		3022	"Direct from Olympia"	

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
3/10	8.25-9.25	<u>The Administrator</u>	Louis MacNeice		Louis MacNeice		3 rd	3/25 8/20	3025	"Special Effects by the Radiophonic Workshop"	RT, Coulton 180-81.
3/20	8.30-9.45	<u>The Safety of the City</u>	Val Gielgud		Jean Morris		H		3028	"Part 1: The Prize in That Race"	RT
4/6	8-8.30	<u>The Little Key</u>	Michael Hayes		Marian Hemar		TV		3018	"Special Sound by Radiophonic Workshop" From the Midlands	RT
4/13	7.30-8.30	<u>Fakes, Frauds and Forgeries</u>	John Thompson		John Thompson		H		3030	Ep. 1: The Ern Malley Story	
4/25	10.15-10.30	Composers or Computers?			Philip Laird		3 rd		3033	"In this talk Philip Laird examines the general direction in which the avant-garde are moving the art of composition. He argues that their techniques have brought music closer to science and that the more that music is conceived pre-compositionally the easier it is to produce on a computer."	RT
4/25	8.45-9.15	<u>Back of the Sun</u>			Ronald Kelly		TV		3034		RT
4/26	8.40-9.10	<u>It's a Square World</u>	GB Lupino		Michael Bentine, John Law	"Ronnie Grainer"	TV		3035	Series returns	RT
6/4	7.30-8.50	<u>Home at Seven</u>	Eric Taylor		RC Sherriff		TV		3037	"The Sunday Night Play"	RT
6/12	9.15-10	<u>The Flowers Are Not For You To Pick</u>	John Gibson		Tyrone Guthrie		H		3049		RT
6/18	8.10-9.25	<u>The Infernal Machine</u>	HB Fortuin		J Cocteau, Carl Wildman	Tristram Cary	3 rd	3 rd	2090	"Music by TC" "Music with special effects by the RW conducted by the composer"	
6/18	7.30-8.05	<u>A Call on Kuprin</u>	John Jacobs		M. Edelman, Anthony Stevens				3038	"The Sunday Night Play" "Pt. 1"	RT
6/25	3-4	<u>Music for News: Movie-Go-Round</u>	Alfred Dunning		Lyn Fairhurst		L		3055	Series	RT
6/25	7.30-8.05	<u>A Call on Kuprin</u>	John Jacobs		M. Edelman, Anthony Stevens				3038	"The Sunday Night Play" "Pt. 2"	RT
6/26	9.50-11.20	<u>Waiting for Godot</u>	Donald McWhinnie		Samuel Beckett		TV		3043 4022		RT
6/28	8.30-9.30	<u>The Flight of the Earls</u>	Douglas Cleverdon		HAL Craig	Tristram Cary	3 rd	7/21		"The songs set by TC and Dominic Behan"	RT

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
7/2	5-5:30	Hurricane	Joy Harrington		CE Webber		TV	6/62	3045	Pt. 1	RT
7/9	5-5:30	Hurricane	Joy Harrington		CE Webber		TV	7/11	3045	Pt. 2	RT
7/9	5:20-5:50	20,000 Leagues Under the Sea	Norman Wright		Lance Sieveking		H			No Workshop contribution "We evoke all the wonders of the deep before the mind's eye, by appealing to the ear alone. It probably has not occurred to most people that fishes have voices and that deep water is the best conductor of sound that exists; and what sounds!"	RT
7/16	8:30-10:50	Caligula	Michael Bakewell		Camus, Stuart Gilbert	Roberto Gerhard	3 rd	2 nd			
7/25	9:30-10:55	The Return of General Forefinger	Michael Bakewell		Giles Cooper		3 rd	8/18			RT
7/31	7:31-8	The Sand Leopard	Robin Midgley		Berkeley Mather		L		3068		RT
8/20	6:50-7:55	The Administrator	Louis MacNeice		Louis MacNeice		3 rd	3 rd	3025	"Special Effects by the BBC's Radiophonic Workshop"	
8/26	7:05-7:55	The Minotaur	Christopher Sykes		Dieter Wellershoff, tr Martina Mayne		3 rd	9/20	3053		
9	11:30-12 am	Philoctetes	Ronald Eyre		Sophocles, Kenneth Cavander, Bernard Williams		TV	9/15/62, 9/17/62, 9/24/62	3041	"For Sixth Forms"	
9/4	9:05-9:55	The Renegade	Naomi Capon		Penelope Mortimer		TV		3063	"Special Music by the BBC Radiophonic Workshop"	RT
9/16	7:15-8:15	The Case of Satan (moralist) vs Job (scientist)	Christopher Holme		TS Gregory		3 rd	10/13	3072		
9/18	8:50-9:50	Traitor in a Steel Helmet	Patrick Dromgoole		Charles Wood		TV		3067	"Special Sound effects by the Radiophonic Workshop"	RT
9/22	8-8:50	Queen in Death	Charles Lefeaux		Henry De Montherlant, tr Robert Baldick		3 rd	10/8	3062		RT
9/23	8:30-10	Man with a Background of Flames	RD Smith		Richard Johns, J Maclaren-Ross		H	9/25	3065		RT

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
10/3	8.30-9.15	A for Andromeda	Michael Hayes, Norman James		Fred Hoyle, John Elliot		TV			Pt One, No Workshop Contribution	R
10/3	2.05-2.35	Philoctetes	Ronald Eyre		Sophocles, K Cavander		TV		3041	No Workshop Contribution	
10/2	8.30-10	Hedgehog	Archie Campbell		F Bradnum		H				
10/14	9.30-10.15	Sterephony: Electronic Music from NHK Studio of Elec Music					N3			"arranged for English presentation by Raymond Raikes, John Humphrey" from Japan Brd Corp.)	
10/15	2.40-3.10	Sound	Richard Keen				N3			"Radiophonics in the BBC" with HAL Craig, discusses House that Died and Living Time	
10/26	8-10.15	Thursday Invitation Concert					3 ^d			"Integrates, Offrandes, Deserts" by Varese	
10/28	9.30-10.15	Sterephony: Henk Badings								"this programme includes a record of some electronic music by Henk Badings"	
11/9	9.50-10.45	Living Time	Michael Bakewell		Arthur Adamov, tr Peter Meyer		3 ^d	11/25	3084	"Special Effects by the BBC Radiophonic Workshop"	RT
11/14	9.50-10.10	One Eye Wild	Louis MacNeice		Louis MacNeice		3 ^d	12/2	3089	"Special Effects by the BBC Radiophonic Workshop"	RT, Coulton, 181
11/20	11.30-11.55 am	The Growing Town	Peter Dunkley				TV	11/21	3076	"For Sixth Forms" "Episode 4: The Contemporary Town" Not sure this the example	RT
11/21	8.30-9.15	The Escape of R.D.7	James Ormerod		Thomas Clarke		TV			No Workshop Contribution. 5 parts	RT
11/22	8.45-9.15	A Chance of Thunder	Director: Peter Hammond		John Hopkins		TV		3081	"Music by Radiophonic Workshop" "A Weekly Serial in six parts"	RT
11/22	8.30-10.40	A Hospital Case	Martin Esslin		Dino Buzzati, tr Henry Reed		3 ^d	12/10	3095	"Special Effects by the BBC's Radiophonic Workshop"	
12/15		Let's Imagine							3092	Series begins	
12/24	4.25-5.20	Quillow and the Giant	Bryan Sears		James Thurber		TV		3069 ?	"musical associate, Kenny Clayton. Music and Lyrics by Ralph Blane and Wade Barnes"	RT
1962											
1/6	7-8	Let's Go Yellow	Louis		Louis		3 ^d	2 nd			

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
1/11	8-8:55	Differences	MacNeice		MacNeice	Eytle	3 rd			Uses a group of instrumentalists and a tape which is played through four loudspeakers.	
1/10	7:30-8	Man and his Senses	Luciano Bertio				3 rd			"5 programmes in which physiologists and psychologists consider how we receive and interpret info about our environment and remain in balance with it. 1. Scopes and Meters"	
1/15	11:30 - 11:55 am	The Restless Atom	John Braybon				TV			1. Intro to the atom. The first of a series of ten progs intro by Prof. David Ingram	
1/16	9:05-9:55	The Death of Adam	Terence Tiller		Terence Tiller	Elizabeth Poston	3 rd	2 nd			
2/5	8:30-10	Waiting for Godot	Robin Midgley		Samuel Beckett		H				
2/6	7:30-8:30	The Bomb	DG Bridson		DGBridson		H				
2/7	8:30-10	Orpheus	Michael Bakewell		Jean Cocteau, M Bakewell		3 rd	2/27, 9/21/62		"Special effects by the BBC Radiophonic Workshop"	RT, Li
2/12	8:30	The Death of Abel	Alfred Bradley		Peter Gurney		H	2/25/63		Originally broadcast on Leeds Radio "Special effects by the BBC Radiophonic Workshop"	
2/14	8:30-10:55	The Tower	HB Fortuin, William Glen-Doepel		Hugo von Hofmannsthal, Michael Hamburger	Roberto Gerhard	3 rd	9/10/62			
2/22	8:50-9:15	Your Life In Their Hands	Peter Bruce				TV			"The Surgical Treatment of Deafness"	
3	12:30	The Restless Atom: Splitting the Atom	Donald Grattan				TV	1/9/63			
3/5	9:25-10:15	The Ballad of Peckham Rye	Alan Bridges		Muriel Spark, Roger Smith		TV				
3/16	7:30-8	Motoring and the Motorist	James Pestridge				N3	3/17 H		Series, every Friday.	
3/17	9:30-10:15	Artists in Orbit	Douglas Cleverdon		Donald Cotton, H Searle		N3,TV			A Stereo Review	
3/18	7:15-8:40	The Rescue	Val Gielgud		E. Sackville-West	B. Britten	3 rd	2 nd			

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
3/20	9.10-10.4	The Caretaker	Michael Bakewell		Harold Pinter		3 rd	4/13			
4/3	8.15-8.30	The Talking Machine			Stanley Watkins		H			About the Vocoder	
4/4	8.30-9.45	The Mad Islands	Louis MacNiece Monica Sims		MacNiece Kenneth Horne	Ostian Ellis	3 rd	4/24		"Special Effects by the BBC Radiophonic Workshop"	
5/3	10.15	Let's Imagine: Other Worlds in Space					TV	9/5			
5/25	5.15-5.55	A Journey to the Centre of the Earth	Claire Chovil		Lance Sieveling		H			in 7 parts	
5/27		The Ballad of Peckham Rye	Christopher Holme John Gibson		Christopher Holme Bruce Stewart	Tristram Cary	3 rd	4/22/63			
6/4	8.30-10	The Hot and Copper Sky					H			"Special Effects by the BBC Radiophonic Workshop"	
6/9	6.30-7	The Big Pull	Terence Dudley		Robert Gould		TV			"Music and special effects by Radiophonic Workshop" (6 part serial)	
6/8	10.25-11.10	The Chairs	Naomi Capon		Eugene Ionesco, Donald Watson		TV				
6/10	3.30-4	Sound	Richard Keen				N3			"Musique concrete - home-made: FC Judd, author of <i>tape recording for Everyone</i> , demonstrates what can be done."	
6/25	9.25-10.25	Suspense: Virus X	Stephen Harrison		Evelyn Frazer	Tristram Cary	TV				
6/28	8-8.45	The Andromeda Breakthrough	John Elliot		Hoyle, Elliot		TV				
7/2	9.25-10.15	Suspense: Fantasy and Fugue	Alan Bridges		Roy Fuller		TV				
7/3	10.25-10.55	The Wicked Queen	Arne Arnborn		Birgit Cullberg	Dag Wiren	TV			ballet, awarded an Italia Prize in 1961	
7/12	9.35-10.10	The Salt Lake Line	Christopher Holme		Gunter Grass, C. Holme	Humphrey Searle	3 rd	2 nd		"with a section of the Sinfonia of London conducted by the composer"	
7/14	7.10-8.15	The Wound	Douglas Cleverdon		Ted Hughes	Alexander Goehr	3 rd	3 rd		with the Melos Ensemble	
7/16	10.20-10.40	Anathema	Douglas Cleverdon		Philip O'Conner	Marc Wilkinson	3 rd			"with electronic sound by MW. In this experiment in the fusion of words with electronic music, the sounds are derived from the words alone and reinforce the	

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
7/20	8:35-9:40	The Cricket under the Cascade	Michael Bakewell		Krieza, Dorian Cooke		3 rd	8/5	4052	poet's diatribe. The poem itself is often ambiguous; sometimes it deals with specific matters, at other times it is vague, even surrealistic. The setting accentuates these changes of mood, sometimes stressing the normality of a passage, sometimes aiming at horrible sounds of mutation as though of a radioactive wasteland.	
8/5	10:15 - 10:50	Petrushka	Margaret Dale		Ninette De Valois, Director	Stravinsky	TV		4045	"Special effects by the BBC Radiophonic Workshop"	
8/17	8-8:30	The Long-Distance Piano Player	Christopher Holme		Alan Sharp	Richard Rodney-Bennett	3 rd	9/1	4069	"Special Effects by the BBC Radiophonic Workshop." "Bennett also has an accomplished jazz style and himself plays the piano in this production, with which he has been associated all through -- from the first working-over of the script to the final stages in the BBC Radiophonic Workshop"	RT
8/19	5-5:25	Katy	Dorothea Brooking		Constance Cox, Susan Coolidge		TV			1 st episode of this serial.	RT
9/6	8-8:55	A Hospital Case	Martin Esslin		Dino Buzzati, tr. H. Reed		3 rd	3 rd	3095	"Special Effects by the BBC Radiophonic Workshop"	
9/12	9:20-9:45	There Will Come Soft Rains	Nesta Pain		Bradbury, Pain	Antony Hopkins	3 rd	9/29	4085		
9/5	8-8:50	Dial Rix	Brian Rix		Brian Rix		TV		4032	"Monthly series of topical tv farces"	
9/10	7:15-7:35 am	Today					H		4084	Daily program that used the Workshop in some capacity. Intro by Jack De Manio	
9/24	9:25-10:15	Maigret: Voices from the Past	Gerald Glaister		Giles Cooper	Ron Grainer	TV				RT
9/28	11-11:20 am	How Things Began: 2. What is a Fossil			Henry Marshall		H		4077	"For Schools"	
10/15	11:30 - 12am	The Bacchae	Roland Eyre		Euripides, Neil Curry		TV	10/18	4044	"For Sixth Forms"	

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
10/22	11.30 - 11.55 am	Cubism and After: 1 Departures	Michael Gill		Michael Gill		TV	10/25, 1/9/63	4074	"For Sixth Forms" Episode 1 of this series	
10/24	11.05 - 11.35	Science and Life 6: The Telephone					TV	10/25		Schools	
11/1	8.45-9.15	It's A Square World	John Street		Michael Pentine, John Law	Ron Grainer	TV				
11/5	10.40 - 10.55	Aniara	D.G. Bridson		Harry Martinson, tr. Hugh MacDiarmid, Elspeth Harley Schubert		3 rd			Serial readings of the story	
11/8	8-8.45	The Monsters	George R. Foa, Fr. Mervyn Pinfield, Dir.		Evelyn Frazer, Vincent Tilsley	Humphrey Searle	TV			4 episode science fiction serial	RT
11/12	11.30 - 11.55 am	Cubism and After: 2 Sum of Destruction	Michael Gill		Michael Gill		TV	10/25	4074	"For Sixth Forms" Episode 2 of this series	
11/13		Aaron's Fall Out Shelter	D.G. Bridson		Adamov		3 rd		5003		
11/13	9.25-10.25	World of Sound	Peter Stone				TV			Documentary about radio sound	RT
11/13	9.35-11	Words and Music	Michael Bakewell		Samuel Beckett		3 rd			3 rd radio drama by Beckett for BBC	RT
11/9	11.30 - 11.55 am	Cubism and After: 3 In the Arena	Michael Gill		Michael Gill		TV		4074	"For Sixth Forms" Episode 3 of this series	
11/20	9.25-10.15	Destination: Moon	Glyn Jones		Glyn Jones		TV		4093	Originally scheduled 10/23	RT
11/26	11.30 - 11.55 am	Cubism and After: 4 Figures in Space	Michael Gill		Michael Gill		TV		4074	"For Sixth Forms" Episode 4 of this series	
11/27	9-9.25	The Ants	Michael Bakewell		Caryl Churchill		3 rd	12/15, 4/22/63	4088	"Special effects by the BBC Radiophonic Workshop"	RT
11/28	8.30-9.10	Luciano Berio					3 rd	2 nd		Differences, Circles.	

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
11/28	9:55-10:15 am	Music and Movement: 2	Vera Gray		Rachel Percival		H		4072	One of many rebroadcasts	
12/3	8:30-10	The Heretic	Michael Bakewell		Jean Morris	John Beckett, Michael Morrow	H		4089		
12/17	8:30-10	The World's Great Stage	Charles Lefeaux		Pedro Calderon, Elizabeth Jennings, Robert Pring-Mill	Roberto Gerhard				World Theatre	RT
1963											
1/12	5:25-6	The Chem. Lab. Mystery	Joy Harrington		David Turner		TV		5010	"Music By BBC Radiophonic Workshop". Serial in 6 parts	
1/14	11:3-11:55 am	Science Serves the Arts: 1 Science and Music	Lawrie Lawler			Tristram Cary	TV	1/7		"John Borwick discusses with TC the use of electronic equipment to increase his range of sounds..." For Schools	RT
1/15	10:30-10:59	The Dancing Partner	Charles Lefeaux		Jerome K Jerome, Michael Molite Hardwick	Denys Darlow, Ron Grainer	H		4097	"Special effects by the BBC Radiophonic Workshop, Music arranged and conducted by DD, Signature tune for the series composed by RG"	RT
1/21	8:30-10	Lease of Love	David H. Godfrey		Aldo de Benedetti, tr. Robert Rietty	Alan Paul	H			"Atonal music reluctantly composed and played by Alan Paul"	
1/21	8-8:30	Difficulties of a Bridegroom	Douglas Cleverdon		Ted Hughes	Nicholas Maw	3 rd	2/9	5022		
1/28	6:50-7:29	Tonight					TV		5050	series	
1/28	9:10-9:15	Points of View			Robert Robinson		TV		5000	Series "a quick look at points from the week's post"	
2/6	5:15-5:55	The Kingdom of the Green	David Davis		Aubrey Feist		H		5030	"A new adventure serial in six episodes"	RT
2/5/63	8-8:40	Bitter Waters	Robin Midgley		Luigi Pirandello, tr. Frederick May		3 rd	2/25, 8/7	5021	"Special Effects by the BBC Radiophonic Workshop"	RT
3/8	8-8.3	The TV Lark	Alastair Scott Johnston		Lawrie Wynman		L		5019		
3/10	10:10	The Third Front: The Red Cross	Alan Sleath		Wilfred Greatorex		TV		4063		

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
	11.10										
3/19	9.25-10.15	<u>Time on Our Hands</u>	Don Haworth		Don Haworth		TV	6/13	4060	"A look into the next twenty-five years"	RT
3/27	8.41-9.40	<u>Cross Roads</u>	Archie Campbell		Paolo Levi, tr. Robert Reitty		L		5035	Mid-Week Theatre "Musical effects by the Radiophonic Workshop"	RT
3/25	9.25-10.15	<u>The Tourelle Skull</u>	Rex Tucker		Johnnie Archambault	Richard Rodney Bennett	TV		5023	"Music composed and played by RRB in collaboration with the BBC Radiophonic Workshop." From Scotland. "Suspense"	RT
4/1	9.25-10.15	<u>Protection</u>	George A Foa		Michael Ashe		TV		5026	"Special Sound by BBC Radiophonic Workshop." From the Midlands. "Suspense" New Serial	
4/7	5.45-6.10	Jane Eyre	Rex Tucker		Constance Cox	Tristram Cary	TV				
4/18	8-8.45	<u>Bedlam Galore for Two or More</u>	R.D. Smith		Eugene Ionesco		3 rd		5028		
4/26	8.20-9.20	<u>Eli: A Mystery of the Sorrows of Israel</u>	Christopher Holme		Nelly Sachs, tr. Heinz Schwitzke, Holme	Hans Keller	3 rd	5/12	5050		RT
5/3	9.25-10.15	<u>The Spread of the Eagle</u>	Peter Dews		William Shakespeare	Chris Whelen			5052	A nine-part cycle based on three roman plays by WS	RT
5/6	8.30-10	<u>Every Pebble on the Beach</u>	Charles Lefaux		James Forsyth	Brian Easdale	H		5059		RT
5/9	2-2.20	<u>Oliver Twist</u>			Richard Wortley		H		5054	For Schools. Adventures in English Series (Serial)	
5/9	2.40-3	<u>Francis Younghusband in Tibet, 1903-4</u>			Philip Holland		H		5053	For Schools. Stories from British History Series	
5/12	4-4.30	<u>Sound: The Sound Makers</u>	George Angell		Intro. By Douglas Brown		N3	8/4	5058 5078	"This month Sound looks a the work of the BBC's Radiophonic Workshop, with the help of Desmond Briscoe, Brian Hodgson, Malcolm Mitchell and His Trio. The programme also includes some examples of the effects used in a forthcoming television documentary, <i>Giants of Steam</i> ."	RT
5/21	9.25-10.05	<u>Giants of Steam</u>	John Read Philip Blake?		John Read	Ron Grainer	TV	7/26	5041	No mention made of Workshop contribution. "The film has a musical score specially written by RG - his most ambitious work yet"	RT

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
5/23	8-8:50	Moonstrike: Four To Go	Gerard Glaister, pr. Michael Hayes, dir. Kenneth Corden		Robert Barr	Dudley Simpson	TV			for television, and a brilliant interpretation of the railway saga, from the strident confidence of its beginning to the pathos of its present decline. "It was a British entry at the recent film festival in Venice"	RT
5/25	10.45-11.15	Master of the Signature Tune				Ron Grainer	TV			"The man who wrote the theme tunes of TWTWTW, Steptoe and Maigret, Ron Grainer, conducts a studio orchestra and talks to Cliff Michelmore about theme music in television."	RT
5/30	9.25-10.25	Science in the Shadows	Glyn Jones, pr. Michael Latham, dir. Vera Gray				TV		5065		RT
5/30	9.55-10.15 am	Music and Movement. Stage 1		O, B	Rachel Percival		H			For Schools, one of many broadcasts	
5/30	8.25-9.15	Moonstrike: Last Act	Gerard Glaister, pr. Christopher Barry, dir.		Allan Prior	Dudley Simpson	TV			Music composed and arranged by DS	
6/6	8.25-9.15	Moonstrike: A Girl Friend	Gerard Glaister, pr. Prudence FitzGerald, dir.		Terence Dudley	Dudley Simpson	TV			Music composed and arranged by DS	
6/6	9.25-10.15	World of the Unknown	Richard Evans		Donald Holms		TV			"A further exploration of science fiction films and their relation to the world of reality," with clips from <i>Forbidden Planet</i> , etc.	RT
6/16	9-9.50	The Full Chatter	John Elliot, pr. Don Taylor, dir. D.G. Bridson		Hugh Whitmore	Bert Chappell	TV		5062	"The Sunday Play: Season of New Drama"	RT
6/28	8-9.15	Parure Would Take A Wife			Francois Rabelais, D.G. Bridson	Joseph Horovitz	3 rd		5076		RT
7/3	10.20-10.50	Les Structures Sonores	Humphrey Burton, dir			LSS	TV			"New Instruments...New Sounds...A fabulous new world of music created and explored by the Lasry-Baschet Group from Paris,	

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
9/16	11:40 am-12	Music and Machines					H		5079	now making a return visit to England after their successful debut in <i>Monitor</i> last December." "For Schools, Orchestral Concert Series" - Desmond Briscoe shows how the technique of recording and altering sounds has developed in the last fifty years into the highly complex art of Radiophonic music "	
7/10	5:25-5:55	Sword from the Stars: 1. The Secret Watcher	Anne Catchpole	BH	John Hynam		H		5066	"A new science fiction serial play in six parts." Contains original Radiophonic treatment for <i>Doctor Who's</i> Daleks	
7/13	9:30-10:30 am	Stereophony: The Island - A Jazz Opera	Douglas Cleverdon		Adrian Mitchell	William Russo	N3, TV	9/20, not on 3 rd	5032	" Electronic sequences by the BBC Radiophonic Workshop " "The Third Network transmitters...with be used for one channel (left), and the BBC's Television sound transmitters for the other (right)...This work was specially commissioned by the BBC as an experiment in the exploitation of stereophony for a radio opera." "Suspense" From the North	R T
7/15	9:25-10:15	The Survivors	John Warrington, pr. Vivian A. Daniels, dir.		Cyril Abraham		TV		5084		RT
7/17	5:25-5:55	Sword from the Stars: 2. A Robot named Jones	Anne Catchpole	BH	John Hynam		H		5066	"A science fiction serial play in six parts."	
7/24	5:25-5:55	Sword from the Stars: 3. The Distant Voices	Anne Catchpole	BH	John Hynam		H		5066	"A science fiction serial play in six parts."	
7/29	9:25-10:15	The White Hot Coal	John Warrington, pr. John Crockett, dir.		Christopher Hodder-Williams		TV		5083	"Suspense"	RT
7/31	5:25-5:55	Sword from the Stars: 4. The Deep Diggers	Anne Catchpole	BG	John Hynam		H		5066	"A science fiction serial play in six parts."	
7/10	5:25-5:55	Sword from the Stars: 5	Anne Catchpole	BH	John Hynam		H		5066	"A new science fiction serial play in six parts."	
8/14	5:25-5:55	Sword from the Stars: 6. The Silent Victors	Anne Catchpole	BH	John Hynam		H		5066	"A science fiction serial play in six parts."	

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt. Date	TRW #	Notes	Bib.
8/15	10:30-10:59	I Gotta Universe	William Glen-Doepel		Giles Cooper		H		5089	"Special effects by the BBC Radiophonic Workshop" "In 1958 a play of mine called <i>Under the Loo/ah Tree</i> was produced by Donald McWhinnie. This had been specially written to make use of the many and weird resources of the RW at Maida Vale. I enjoyed this ...and the following year I wrote IGU, in much the same style" "The demand for special sound effects for GC's plays was in fact the occasion for the establishment of the BBC's RW in 1957 [sic]. The Workshop provides sound effects for both Sound and Television productions. These are made up from both natural and electronic sounds which are put together by various means: by modulation, manual tape manipulation, and such recording processes as varying the speed." "Life on a fourteenth-century manor" "Stories from British History Series"	RT
9/19	2:40-3	Piers the Plowman			John Allen		H		6001		
9/19	8:30-9:45	The City	John Gibson		Ingmar Bergman, tr. Paul Britten Austin		3rd	10/6	5088	"Special effects by the BBC Radiophonic Workshop" One of Bergmans' earlier radio plays, <i>Staden</i>	RT
9/23	8:30-9:45	In Camera	Alfred Bradley		Jean-Paul Sartre, tr. Stuart Gilbert		H		5063	"Special Effects by the BBC Radiophonic Workshop"	RT
10/2	9:05-9:45	A Round of Silence	Nesta Pain		Christine Brooke-Rose	Roger Smalley	3 rd	10/20	5042	"Music composed by RS in collaboration with the BBC Radiophonic Workshop" "We had a great deal of fun recording this play, a real combined operation of producer and author with the BBC RW, who, together with the composer RS, gave me exactly the noises and the music I had in mind - all merging at the end into such delicious <i>musique concrétisée</i> by bedpans, banging doors, voices, footsteps, ambulance bells, etc., that I was almost sorry I hadn't written a longer play, just to make more noise" CB-R	RT

(Appendix Two cont.)

Date	Hr.	Title	Producer	RW	Writer	Additional Composer	Pro.	Rpt Date	TRW #	Notes	Bib.
11/3	9-15-10-45	The Ha-Ha	Michael Bakewell		Jennifer Dawson, adapted by MB	Tristram Cary	3 rd	11/14			RT
11/13	10-15-11	A Dream	John Gibson		James Hanley		3 rd	12/1			RT
11/23	5-15-5-40	Dr. Who: An Unearthly Child	Verity Lambert, pr. Waris Hussein, dir.	D, M, BH	Anthony Coburn	Norman Kay, Ron Grainer	TV			Pilot "Incidental music by Norman Kay" "Title music by Ron Grainer and the BBC Radiophonic Workshop"	RT
11/23	5-15-5-40	Dr. Who: The Dead Planet	Verity Lambert, pr. Christopher Barry, dir.	D, BH	Terry Nation	Tristram Cary, Ron Grainer	TV			"Incidental music by Tristram Cary" "Title music by Ron Grainer with the BBC Radiophonic Workshop"	RT

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