

The Trevor Jones Archive: Issues in the Establishment and Management of a Film and Television Music Archive

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Film and television music archives can provide valuable insights into the technical and aesthetic aspects of the compositional process. They additionally offer a means by which other facets of the entire production process, and the interactions between the creative individuals and teams who collectively create films and television programmes, can be better understood. Such additionality is contingent upon the decisions about the types of material which find their way into an archive and this inevitably depends on why and by whom the material is retained. This paper considers the author's experiences of researching for two monographs on scores by Bernard Herrmann and developing a large archive of materials donated to the University of Leeds by the composer Trevor Jones. It considers some of the issues and problems in the management of such an archive, in particular focussing on digitisation, the acquisition and cataloguing of metadata, and the question of copyright and access.

The larger studios in the United States, particularly those which survived from what Richard Jewell has called the 'golden age' of production tended to maintain a library of paper-based materials such as manuscript scores and sound recordings in various media. Rarely were such industry libraries intended to be

places of scholarship and these were largely established for pragmatic reasons such as (among others): the release of recordings of suites from the soundtracks; the reuse of cues in other multimedia outputs; and the defence (or instigation) of challenges of ownership or plagiarism through legal action. Their resources were carefully secured and as an example from my personal experience from the end of the 1990s, it took many months to gain access to a photocopy of Bernard Herrmann's manuscript score for *Vertigo* (1958) when I was beginning work on my monograph for Greenwood Press.¹

When I was finally lent it for extended study by the Paramount Music Library through the auspices of Sid Herman of the Famous Music Corporation I was told that I was the first scholar to be allowed this privilege as previously it had only been available to view within the library. Essentially a revenue stream for the company, a significant charge was levied both for the loan and copyright clearance for music examples.

Other institutional archives usually held by universities and major public libraries (such as the British Library and the Library of Congress) have often resulted from bequests in composers' wills or other post-mortem decisions about the preservation of the primary materials that were retained by their creators during their lifetimes. Many of the available archives in the United States, commercial and otherwise, have been identified by Pool and Wright,² and the location of such resources has become much easier with the development of accessible online catalogues.

The *Bernard Herrmann papers, 1927–1977* is an example of an excellently managed collection. Consisting of 119 linear feet of material bequeathed to the University by the composer and comprised of scores, documentation, photographs and recordings (including those made by Herrmann of other composer's works as a staff conductor of CBS radio in the 1930s), it benefits from a very detailed online finding aid that allows the scholar to very rapidly find individual resources. Perhaps just as importantly, it identifies where copyright is held and how clearance is to be obtained for the various categories of media. In so doing it highlights a common and ongoing problem for the archival scholar of film music namely that all of it:

was written under composer-for-hire contractual agreements. It is standard practice for studios to specify in these contracts the publisher who will take the copyright for the music produced under the agreement. Most of the publishers named in his contracts have been sold a number of times.³

At this point users are directed to the various organisations and their databases which identify the current rights holders.

The experience of negotiating access to a digital copy of Bernard Herrmann's score for *The Ghost and Mrs Muir* (1947) from the Library of Congress for my monograph for Scarecrow Press proved somewhat simpler than that of a few years earlier with *Vertigo*, though still not without issues.⁴ In this case the score was held in the *Bernard Herrmann papers, 1927–1977* by the Department of Special Collections of the University of California Santa Barbara (henceforth UCSB). Its curator David Seubert, a noted Herrmann scholar in his own right, was very helpful in my dealings with the Library of Congress (henceforth LOC), which provided a digital copy of the score on CD from its microfilm holdings (the Special Collections at UCSB referring all microform copy requests to LOC because they were set up to make copies from the microfilm).

As I discovered when dealing with the photo-duplication service of the reference section of the Library of Congress about reproduction of the score to *The Ghost and Mrs Muir*, even when the permission of the copyright holder has been received, this is not necessarily sufficient. The Library of Congress had an additional requirement that the permission of Mrs Herrmann, the composer's widow, was required, despite the fact that she was not the copyright holder and that this was not specified in Herrmann's will. The rationale for this was not clear, either to David Seubert at UCSB or to music staff at the Library of Congress, but fortunately Seubert was able to grant permission on Mrs Herrmann's behalf.

It has been less common until more recently for composers to make their personal archives widely accessible during their lifetimes (while, of course, often allowing access to them by researchers on an individual basis). In relation to Ennio Morricone, Franco Sciannameo has commented that:

The current problem with Morricone is that of accessibility to his archives. All is kept in his studio which only a few have been able to visit as his guests for an hour or so. I was fortunate to spend time with him searching for manuscripts related to *The Mission*. He produced a few sheets, xeroxed and signed them for me and that was it.⁵

ESTABLISHING A FILM AND TELEVISION MUSIC ARCHIVE

Two large bodies of material were passed to the University of Leeds in the UK in the 2000s by active film composers. The first was by the South African Trevor Jones whose substantial filmography includes *Notting Hill* (1999), *Excalibur* (1981), *The Dark Crystal* (1981), *Labyrinth* (1986), *Mississippi Burning* (1988), *Angel Heart* (1987), *Cliffhanger* (1993) and *The Last of the Mohicans* (1992); and TV work such as *Dinotopia* (2002), *Gulliver's Travels* (1996) and *Cleopatra* (1999) among many other outputs.⁶ Jones's first donation came about as a result of a conversation I had

with him at the Film and Music Conference that I co-organised with Christopher Fox as part of the 11th Bradford International Film Festival in March 2005, at which he was the keynote speaker. It arrived later that year and consisted of more than 400 multitrack recordings in analogue format which the composer had preserved by vacuum sealing the two- and one-inch reels of magnetic tape in plastic bags of the type used to package meat for freezing. In addition to the audio material (largely session recordings and mockups of cues) was documentation such as spotting notes, mixer and effects settings and other records from postproduction. Jones's original contribution to scholarship was in response to a comment I made about the benefits such multitrack recordings might have for the teaching of audio mixing to music technology students. However three further donations in 2010, 2013 and 2015 extended the holdings of what was now described as the Trevor Jones Archive to more than 1000 audiovisual items, containing in excess of 10,000 individual cues, along with supporting documentary items and scores in digital form, forming one of the largest and broadest collections of a single film composer's materials in an academic institution.

Jones's audio material, where supplied on multitrack magnetic tape (either in analogue or digital formats) involved a significant element of self-documentation which permitted the identification of separate takes of individual cues by track and provided a considerable degree of detail about the circumstances of the recording. As an element of two research projects supported by the United Kingdom's Arts and Humanities Research Council (a small scoping grant for 'A Digital Archive of Film Music Materials by Trevor Jones' in 2005–2006 and a large award for 'The Professional Career and Output of Trevor Jones' between 2013–2016) almost all of the material provided by Jones was digitised and catalogued.⁷ The latter project had a core research team of the current author (primary investigator), Dr Ian Sapiro (co-investigator), Dr Laura Anderson (research assistant) and Dr Sarah Hall (project PhD student), all of the University of Leeds, and resulted in the monograph *The Screen Music of Trevor Jones: Technology, Process, Production*.⁸

Michael Nyman, who was the guest speaker during the following film and music conference at the 12th Bradford International Film Festival in 2006, was interested to hear of Jones's donation and offered his archive, which he was keeping in a storage facility, on loan to the Library of the University of Leeds. Although this was a much more haphazard collection of material it offered many fascinating insights, particularly into the composer's collaborations with the director Peter Greenaway.⁹ Around twenty-five percent of the material was digitised as part of a British Academy Small Research Grant in 2008–2009 ('A Digital Archive of Film Music by Michael Nyman'). In 2017 Nyman retrieved the physical archive as part of his move from the UK and setting up home in Mexico City.

Both of these archives raised a number of technical issues in terms of their curation and the management of the media. They equally span the analogue to digital switchover in the industry and include numerous different media types (both audio and video), many of which have subsequently become virtually redundant. To add to the complexity, there are many device-specific formats (such as for drum machines, signal processors and hardware sequencers). The magnetic media on which the scores are recorded is prone to deterioration and as noted by FX, the company we commissioned to undertake the digitisation:

Under humid conditions (which means anything other than controlled low-humidity storage), the polyurethane used in the binder [the chemical compound that holds the oxide particles together and sticks them to the tape backing] has a tendency to absorb water.

The water reacts with the tapes' urethane molecules causing them to migrate to the surface of the tape where they gum up the tape path during playback, leaving a dark gummy residue. However, this effect is temporarily fixable by a controlled heating (baking) of the tape involving a process pioneered by Quantegy (formerly Ampex).¹⁰

The baking process (which takes place at a very low temperature in specialist ovens) has a nominal turnaround time of 96 hours and must be completed prior to digitisation.

Given that this was the archive of a living and active composer's work there was a possibility that the composer might wish to reuse the material, for instance by producing or reissuing recordings of scores. Thus to maintain the highest quality the audio material in the archive was digitised for long-term storage at a 96kHz sampling rate and at 24 bit resolution in the lossless WAV format. A lower resolution (48 kHz, 16 bit) version was also created for immediate access.¹¹ This necessarily resulted in enormous data storage requirements given the quantity of material being digitised with concomitant access times. In order to ameliorate delays in retrieval the material was subsequently converted to FLAC (Free Lossless Audio Codec) format, which resulted in a data reduction of around seventy percent.¹² Once the audio material was digitised, a much more complex task was the cutting up of the audio files into the individual takes of cues which they comprised and labelling them following the conventions described below in relation to metadata.

Video tapes containing rough cuts of films form a particularly valuable element of the Jones archive. Often relatively low quality VHS tapes, these give a clear indication of the structure of a film when Jones was working on the score in the postproduction stage (noting that for some films and TV programmes, for instance *The Dark Crystal*, he began work much earlier in the production cycle). Some of the videos include the audio temp tracks used by the editor to cut the film

and when triangulated with the spotting notes and Jones's original score they can reveal much about the process of translation of the director's vision into musical terms. In this case absolute quality was less of a priority as the material was for research purposes rather than reproduction and thus it was digitised and saved to MP4 format.

For the most part, the digitisation of paperwork, including material such as manuscript scores, track sheets, cue sheets, spotting notes, mixer and outboard data, and email discussions (among others) was a more straightforward issue, though the photographing of bound scores (which could not be scanned without unpicking bindings, which the composer did not permit) was time consuming and laborious. Black-and-white paperwork was scanned at 400 dpi and colour paperwork and pencil sketches at 600 dpi, and saved as PDF format.

From the early 1990s Jones made extensive use of the digital audio workstation Pro Tools, particularly for mockups of the score and indeed he was able to supply material for the archive in entirely native digital formats for his more recent projects. As well as using sequencing applications (Notator and Cubase appeared in 1988 and 1989 respectively), he employed the music processing application Sibelius almost from its inception. Julian Kershaw, Jones's orchestrator from 1995 up to 2004, comments that he persuaded him that he should adopt it for his film and TV scores, Kershaw remarking to Ian Sapiro that 'I was, I think, the first professional orchestrator to use Sibelius software in films, no-one else was using Sibelius at that time, some used Finale software but most people still were handwriting scores'.¹³ Such sequencing and music processing software provided two significant advantages over handwritten scores: the ability to generate scores and orchestral parts very rapidly; and the means of creating more or less realistic mockups (depending on the library of samples employed) to pass to the director and editor for consideration about their suitability. While music processing tends to speed up the decision-making process it can encourage a composer to create multiple iterations of cues – often far more than would have been likely for handwritten sketches – which may or may not all be retained. As an example, for one cue in *Notting Hill*, Jones produced more than sixty variants, all of which were kept, providing valuable insights at the micro-level of score composition.

METADATA AND CATALOGUING

Although the digitisation of a large scale archive can require substantial effort and result in a significant amount of data (and the Trevor Jones Archive and associated material currently occupies 5.9TB of storage and consists of around 400,000 files)

it might be argued that this aspect of film music archival management is, in reality, the least problematic. Of much greater importance is the cataloguing of the material to make it accessible. In order to make sense of upwards of one million pieces of metadata that pertain to and describe the individual elements of the archive, a metadata schema had to be created that detailed its overall architecture. As we explain in the documentation for the web based portal for the metadata, *Screen Music*, items in the *Screen Music* database are labelled using a bespoke naming convention that uses a series of concatenated abbreviations to create a unique ID. Separate abbreviations are linked by underscores (_), with parts of abbreviations linked by hyphens (-). Items are classified by material type as either audio (A), video (V), textual documentation (T) or musical notation (M), with the names then formed as follows:

Audio

Structure: [Project Name] _ [Material Type] _ [Cue Number or Name] _ [Audio Type*]
_ [Recording Chronology] _ [Take] _ [Slave, Copy or similar] _ [Track]

* The audio type is logged as either a demo (D), toolkit (T), session (S), mix (M), album (A) or other (O).

Example: M-F_A_5M4_M8_C1_T1_TR01

Explanation: Track 1 of take 1 of the 1st recording of an 8-track mix (Audio) of cue 5M4 from *Molly*

Video

Structure: [Project Name] _ [Material Type] _ [Cut Type (if known)] _ [Episode Number]
_ [Reel Number] _ [Date]

Example: M-F_V_Viewing_29-6-1999

Explanation: Viewing copy (Video) dated 29 June 1999 for *Molly* (no episode or reel number)

Textual Documentation

Structure: [Project Name] _ [Material Type] _ [Cue Number] _ [Item Type] _ [Audio Type] _ [Recording Chronology]

Example: M-F_T_5M4_TS_S24_C1

Explanation: Track sheet (Text) for the 1st 24-track recording session of cue 5M4 from *Molly*

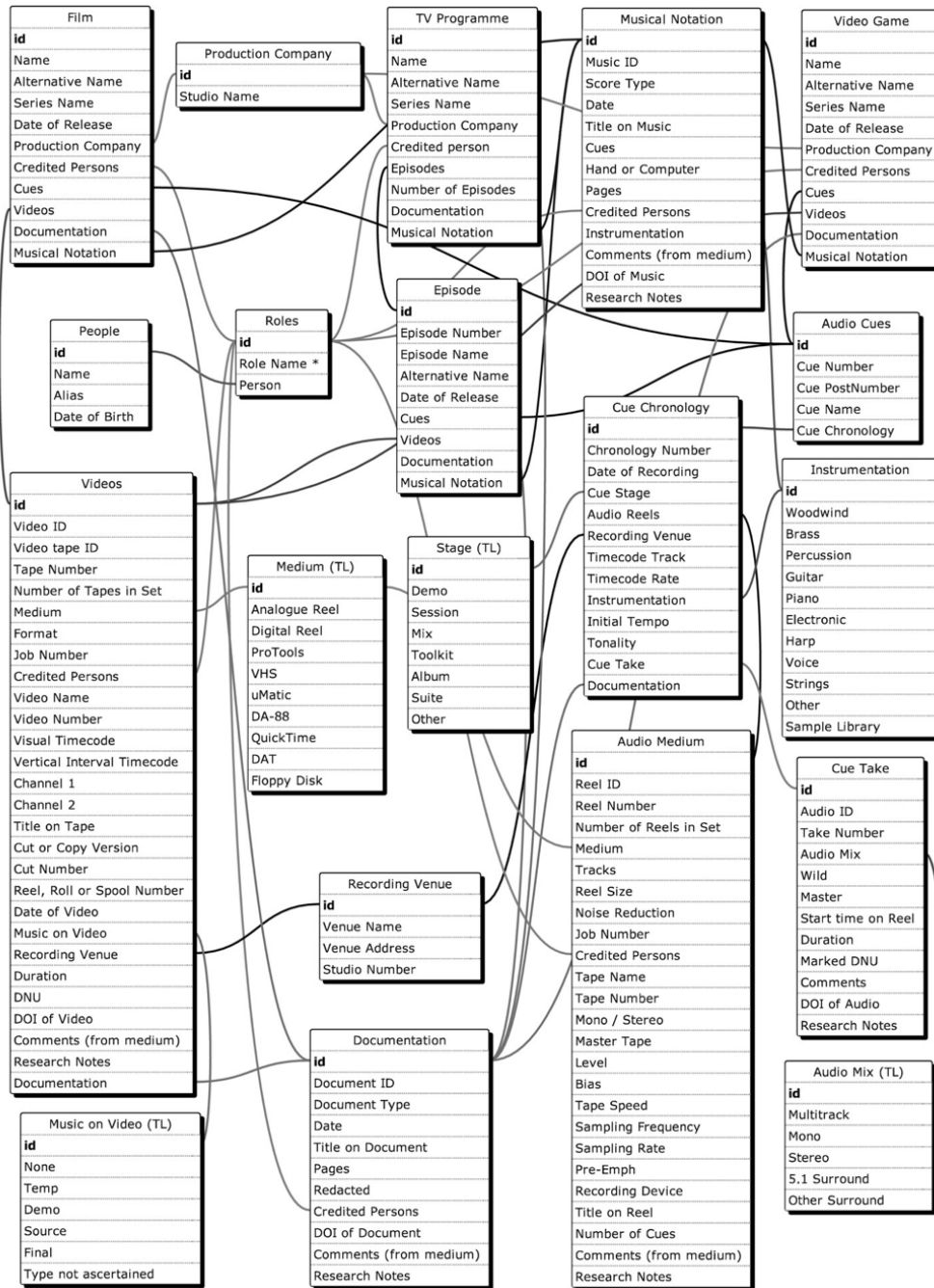
Musical Notation

Structure: [Project Name] _ [Material Type] _ [Item Type(s)] _ [Cue Number(s), Various, or Complete]

Example: M-F_M_S_Various

Explanation: Sketch material (Music) relating to various cues from *Molly*¹⁴

FIGURE 1. Metadata schema for the Trevor Jones Archive. TL indicates table lists from which one of the fields may be selected.



THE TREVOR JONES ARCHIVE

The complete metadata schema for the descriptive, technical and administrative metadata held in the database that underpins the online archive is presented in FIGURE 1. It will be noted that the top-level objects ‘film’ and ‘video game’ share exactly the same set of fields though ‘TV programme’ is slightly differently organised to allow for single or multiple episodes, with the child object ‘episode’ providing the fields otherwise missing from the parent object (date of release, cues and videos). As can be seen from the schema, while the object ‘videos’ is the direct child object of ‘film’, audio recordings of individual takes of cues lie some distance away in the hierarchy ‘film’ → ‘audio cue’ → ‘audio chronology’ → ‘cue take’ because of the large amount of extra metadata associated with an audio cue take.

FIGURE 2 shows an indicative image of one of the tape box covers, in this case for a tape from John Boorman’s historical epic *Excalibur* (1981), which had a working title during production of *Merlin and the Knights*. This itemises five of Jones’s original cues and excerpts from three of Wagner’s operas that feature in the score as well as technical and administrative details of the recording. The transcription of all this metadata, in the main from information held on the boxes containing

FIGURE 2. Information on one of the tape boxes for *Excalibur* with the working title *Merlin and the Knights*.

Title		Take	Start	Finish	Dur	Remarks and Editing Instructions
"MERLIN + THE KNIGHTS"						REF. TONES AT HEAD OF REEL 1
15.11.2						
9.17.2						
7.11.2						
7.11.6						
10.11.3						
GÖTTERDÄMMERUNG						
PARSIFAL						
TRISTAN + ISOLDE PT. 1						
TRISTAN + ISOLDE PT. 2						

24 TRACK	X	QUAD	X	ENGINEER	TREVOR JONES	NAB	✓	SPEED	7 1/2 ips	MASTER	X
16 TRACK	X	STEREO	✓	ASS. ENGINEER	MARK PHILLIPS	CCIR	X	DOLBY	X	COPY	✓

individual tapes and videos, proved a massively labour-intensive operation and involved not just the core members of the research team but also a large cohort of paid student interns.

The website <https://www.screenmusic.leeds.ac.uk> forms the catalogue and access point for the metadata and is intended to provide a framework that could be used for any collection of film or television music related materials, though

FIGURE 3. Audio cue AH_A_Lounge-Lizard_TK24_C1_T1 from *Angel Heart*.

Screen Music UNIVERSITY OF LEEDS

Home Composers Scores About Contact Search

Screen Music / Scores / Angel Heart / Lounge Lizard / Chronology 1 Log In

Chronology 1

Takes

Take 1

Number	1
Audio Identifier	AH_A_Lounge-Lizard_TK24_C1_T1
Mix Type	Multitrack
Start Time on Reel	00:07:02
Duration	00:03:40
Master	No

Audio Reels

AH_A_R4-36_(24) / 4

Identifier	AH_A_R4-36_(24)
Medium	Analogue Reel
Number	4 of 36
Tracks	24
Size	2
Tape Name	Tool Kit Tape 1
Tape Speed	30
Pre Emph	Yes

General Information

Number	1
Date	12th December 1986

Instrumentation

Brass	No
Electronic	No
Guitar	No
Harp	No
Other	No
Percussion	No
Piano	Yes
Strings	No
Voice	No
Woodwind	Yes

Recording Studio

Name	Angel Recording Studios Ltd
Address	311 Upper Street, London N1 2TU

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in this instance its content is limited to Jones's film, TV and video game scores. FIGURE 3 shows the output from the catalogue for a take of the cue called 'Lounge lizard' from the film *Angel Heart* (1987) and illustrates how the information that is extracted from the repository for this element of the score is presented on the screen.

Clearly it would be a trivial issue to link the physical object (in this case an audio file) to the catalogue entry for retrieval (either streamed or downloadable), but herein lies the most significant problem for this and many other such archives of contemporary media productions – the issue of intellectual property and its protection through copyright. Jones donated the material to the University of Leeds for academic use. According to Section 42 of the UK *Copyright, Designs and Patents Act 1988* ('Copying by librarians etc: replacement copies of works'):

(1) A librarian, archivist or curator of a library, archive or museum may, without infringing copyright, make a copy of an item in that institution's permanent collection

(a) in order to preserve or replace that item in that collection.

...

(7) To the extent that a term of a contract purports to prevent or restrict the doing of any act which, by virtue of this section, would not infringe copyright, that term is unenforceable.¹⁵

According to this legislation, two conditions apply:

(2) The first condition is that the item is —

- (a) included in the part of the collection kept wholly or mainly for the purposes of reference on the institution's premises,
- (b) included in a part of the collection not accessible to the public, or
- (c) available on loan only to other libraries, archives or museums.

The second condition is that it is not reasonably practicable to purchase a copy of the item to achieve either of the purposes mentioned in subsection (1).

The Jones Archive fulfils the first condition of the need for preservation but must also fulfil condition 2(a) that the material is held for reference on the institution's premises, albeit accessed via computer terminal. To provide further access would require explicit permissions from copyright holders.

As with most UK and US film composers (including Herrmann, as discussed above) the majority of Jones's work was contractually employee-for-hire (or 'work for hire') in which, as Jeffrey and Todd Brabec note, 'the producer (normally the movie studio or production company) becomes the author pursuant to the U.S.

Copyright Law'.¹⁶ While major studios quite reasonably tend to pursue their rights aggressively to ensure they maximise revenue from their projects, in many cases the copyright of the score may be perpetually attached to a production company which was formed simply to create the film and dissolved at some time after release if it was not a financial success. Therefore the tracing of copyright ownership to get approval for broader access to the material can be an intricate, time consuming and potentially expensive issue. As a result of this and for the time being the files contained within the Trevor Jones Archive will remain accessible only from within the University of Leeds and for the purposes of scholarship and research.

CONCLUSION

As intimated at the beginning of this paper, film and television music scholarship does not take place in isolation from other aspects of media study. Where the materials they contain are sufficiently representative of the various stages of scoring, from the engagement of the composer to the dubbing of the approved score, film and television music archives can offer a locus in which the whole gamut of aesthetic and technical decisions made in postproduction (and often much before this) can be better understood. The monograph resulting from our research uses Jones's entire output as a case study for this approach, demonstrating how the combination of scoring-related artefacts collectively provide a more refined picture of the technical and creative processes and a clearer understanding of the directorial intention.

In establishing the Trevor Jones Archive, we were fortunate to have a composer who was not only willing to donate a substantial part of his personal holdings to the University of Leeds, but was sympathetic to the underlying intellectual project and gave his full support to it, regularly allowing the research team to interview him and answering questions about the fine details of his activity. This combination of material evidence and the testimony of the human agents who were responsible for it (Jones and colleagues from the music team who worked closely with him and could be deemed the 'living archive') was particularly beneficial to the research team in their analysis of his working methods. However, without the very significant funding from the UK Arts and Humanities Research Council the large-scale research project outlined in this paper, and the development of underlying archive, would not have been viable.

Notes

- 1 David Cooper, *Bernard Herrmann's Vertigo: a Film Score Handbook*, Westport, CT: Greenwood Press, 2001.
- 2 Jeannie Gayle Pool and H. Stephen Wright, *A Research Guide to Film and Television Music in the United States*, Lanham, MD: Scarecrow Press, 2011.
- 3 http://findaid.oac.cdlib.org/findaid/ark:/13030/tf438nb3jd/entire_text/ [14 January 2020].
- 4 David Cooper, *Bernard Herrmann's The Ghost and Mrs Muir: A Film Score Guide*, Lanham, MD: Scarecrow Press, 2005.
- 5 Personal email correspondence. For his published discussion of *The Mission* (1986) see Franco Sciannameo, *Reflections on the Music of Ennio Morricone: Fame and Legacy*, Lanham: Lexington books, 2020.
- 6 For a brief biography of Jones see <http://www.trevorjonesfilmmusic.com/about.html> [8 April 2020].
- 7 <http://www.trevorjonesfilm.leeds.ac.uk> [4 April 2020].
- 8 David Cooper, Ian Sapiro and Laura Anderson, *The Screen Music of Trevor Jones: Technology, Process, Production*, Abingdon: Routledge, 2020.
- 9 See David Cooper and Ian Sapiro, 'A Source-Studies Approach to Michael Nyman's Score for *The Draughtsman's Contract*', *Journal of Film Music*, III/2, 2011, pp. 155–170; Ian Sapiro, 'The Filmmaker's Contract – Controlling Sonic Space in the Films of Peter Greenaway', in: *Music, Sound and Filmmakers: Sonic Style in Cinema*, ed. by James Wierzbicki, Abingdon: Routledge (Routledge Music and Screen Media Series), 2012, pp. 167–180; David Cooper, 'Michael Nyman – from 'Experimental' to 'Mainstream' Film Composer?', forthcoming.
- 10 <http://www.fxgroup.net/copyroom/restoration> [11 February 2020].
- 11 David Cooper, Ian Sapiro, Laura Anderson and Sarah Hall, 'Digitizing, Organizing and Managing an Audio-Visual Archive: The Trevor Jones Archive at the University of Leeds', *Journal of Film Music*, VI/2, 2013, pp. 101–110.
- 12 <https://xiph.org/flac/features.html> [20 March 2020].
- 13 Ian Sapiro, *Scoring the Score: The Role of the Orchestrator in the Contemporary Film Industry*, Abingdon: Routledge, 2016, p. 209.
- 14 <https://www.screenmusic.leeds.ac.uk/about> [2 April 2020].
- 15 <http://www.legislation.gov.uk/ukpga/1988/48/section/42> [7 April 2020].
- 16 Jeffrey Brabec and Todd Brabec, 'Music, Money, Success & the Movies: Part Three'. Available: <http://www.ascap.com/help/music-business-101/music-money-success-movies/movies-part3> [6 April 2020]. For a sample composer contract see <https://indiefilmmlaw.wordpress.com/forms/film-composer-agreement/> [7 April 2020].

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