

# New Frames for Old Masters. An overview of the British Library's Acetate Transfer programme

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## INTRODUCTION

After the second International Round Table on acetate microfilm, the British Library decided to top slice from its annual preservation budget, £200k every year for five years to address its cellulose acetate problem. We did this by instigating a programme of base transfer, transferring the frames from the old acetate masters onto new polyester stock. It proved to be quite a challenge and this paper reproduces largely the presentation given at CAMF, which was an overview of the background to the project and its progress.

Twenty three million feet. Not a centipedes' picnic, but the amount of acetate microfilm the British Library has in its collections. A sobering statistic. But what does it really mean? Well, if we rolled it all out, it would be enough to stretch all the way from New York to Moscow. Or, for the more vertically minded, if we piled it all up, it would be taller than not just 1 Mount Everest, but 809. That represents a pretty huge problem whichever way you look at it and my first thought when it was handed to me was, 'where on earth do we start?'

## LET'S START AT THE VERY BEGINNING

We asked ourselves two fundamental questions.

Firstly, what do we actually want from a transfer programme? Three things:

- to transfer our acetate films from an unstable film base to a stable one
- to convert our old 1000ft masters into 100ft reels
- to create a new 1000ft print master (also known as the duplicate negative/2N)

And secondly of course - how are we actually going to achieve this? What are the mechanics going be? This question has two parts:

- how are we physically going to get our film content from one film base to the other?
- and which films are we going to concentrate on first?

The second part of this was more of a pressing issue than the first. We had great faith in the technical skills of our microfilm experts both within the library and externally, and little doubt that a suitable system for transfer would be found. But it was clear that, although £1m is a lot of money, it wasn't going to be enough to transfer all of our acetate film. Some sort of prioritisation was going to have to be implemented and so we made the decision to prioritise newspaper titles.

## PRIORITISATION OF NEWSPAPER TITLES

Our decision to concentrate on filmed newspapers was informed by data gathered from two large Collection Care initiatives here within the BL. One was the Preservation Needs Assessment Survey (a huge 3 year project completed just last year at the end of 2004) in which all of our collections on all of our sites were surveyed and assessed to determine their preservation needs. This project determined that, of those collections, the newspaper library collection was significantly more in need of preservation than any other. The other was the Microfilm Mapping Project. This 3-year project provided us with vital foundation information without which we should not have been able to pursue our acetate strategy, such as

- the location of all BL microfilm
- what proportion of the films are, or are likely to be on acetate
- which films are surrogates of titles on the disposals register

- which films contain titles that were actually disposed of before the disposals strategy was suspended

It confirmed, in effect, that the majority of our microfilm holdings - and consequently the majority of our acetate film - are surrogates of newspapers.

So, having established the deliverables we wanted from our transfer programme, and the range of films we were going to concentrate on, all that remained was to determine how it was actually going to work as a project. The only way to find that out was to get out there and have a go at transferring some film.

## **PILOT PROJECT**

To this end we instigated a pilot project, which ran from January - June 2004. It had a budget of 10k and involved approximately 50 of our 1000ft acetate films. These films were selected at random from those listed in the Microfilm Mapping Project as being on acetate film stock, but which were *not* on the disposals register. All pilots are to some extent experimental, and we made sure that films we used at this stage were not films without another back up copy (microfilm or hard copy).

The major thing to come out of the pilot - which was conducted using external suppliers - was something we weren't expecting: there were two possible processes available to us for transfer:

- filming of the acetate master - the master film is itself filmed onto polyester stock, using an adapted reformatting camera
- duplication of the acetate master - the images on the acetate film are transferred to polyester film stock by direct emulsion-emulsion contact (contact duplication)

### **The filming option**

It should be stressed that we are talking about filming the original acetate film here, not re-filming the original hard copy. This process, used in this way - grading and filming frame by frame, from 35m to 35m - was not something we'd really come across before. Broadly speaking this process has three planks:

- bespoke: top-end, high-spec
- produces a high quality first generation image
- suitable for film that cannot physically withstand duplication, or from which duplication cannot obtain a suitable image

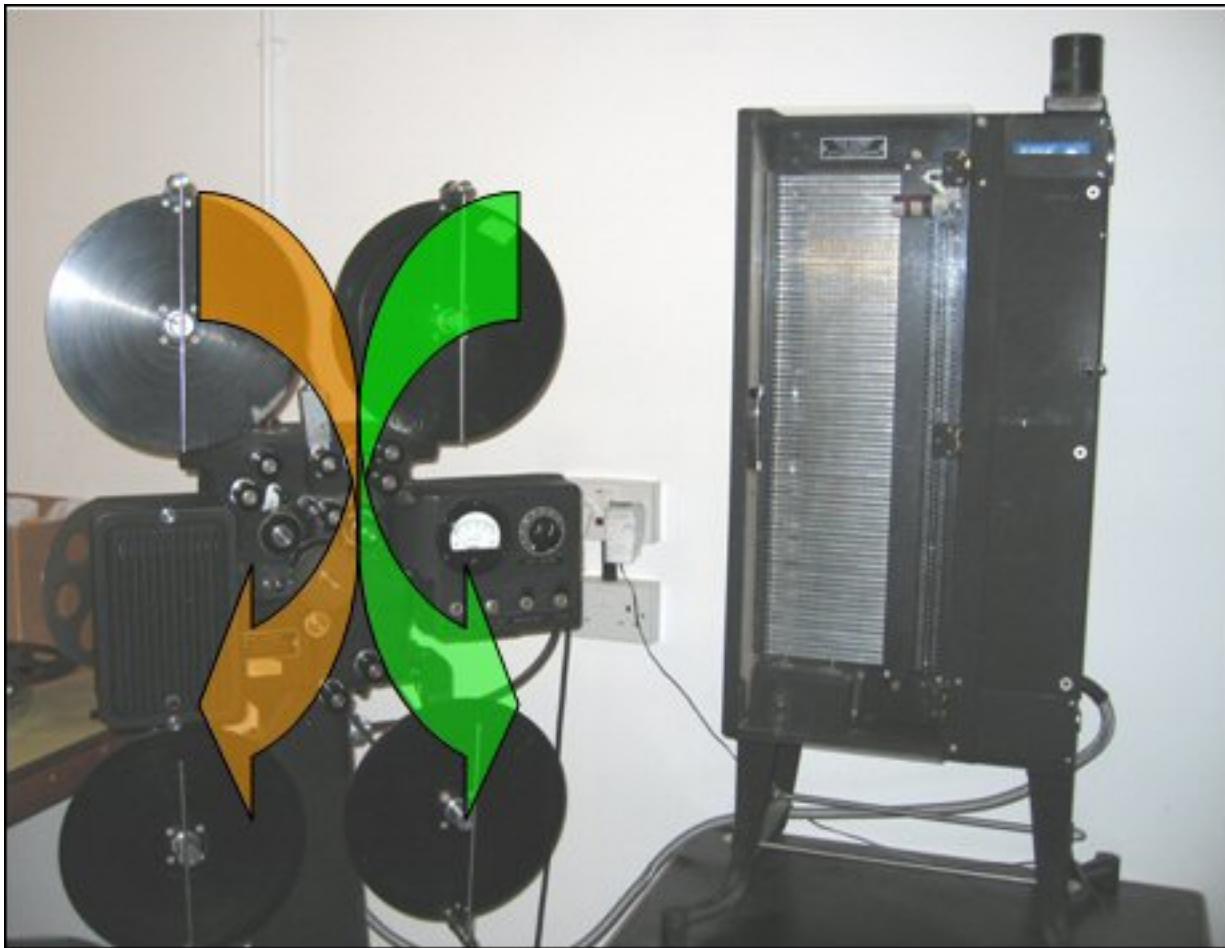
As you can imagine, bespoke is rarely cheap, and in this case the process was nearly 4 times as expensive as standard contact duplication. This fact, coupled with the sheer quantities of film we were dealing with and its relatively robust condition at this point in time, led us to choose duplication as our preferred method of transfer, with filming available as a back up where required.

### **The duplicating option**

One of the most interesting things about our duplication process is that we are using DePue duplicators. These machines were originally designed for movie film duplication and have been out of production for over thirty years now. Consequently, spare parts are almost impossible to get hold of, and keeping them working requires a huge amount of innovation and dedication, not to mention the odd spot of bribery and coercion! The grading boxes of the De Pues - the mechanism by which the lamp voltage on the duplicator can be adjusted and the film 'graded' - vary in style and form, but the De Pues all work on the same principle (see Fig.1).

*Fig.1 De Pue with 1950s grading box.*

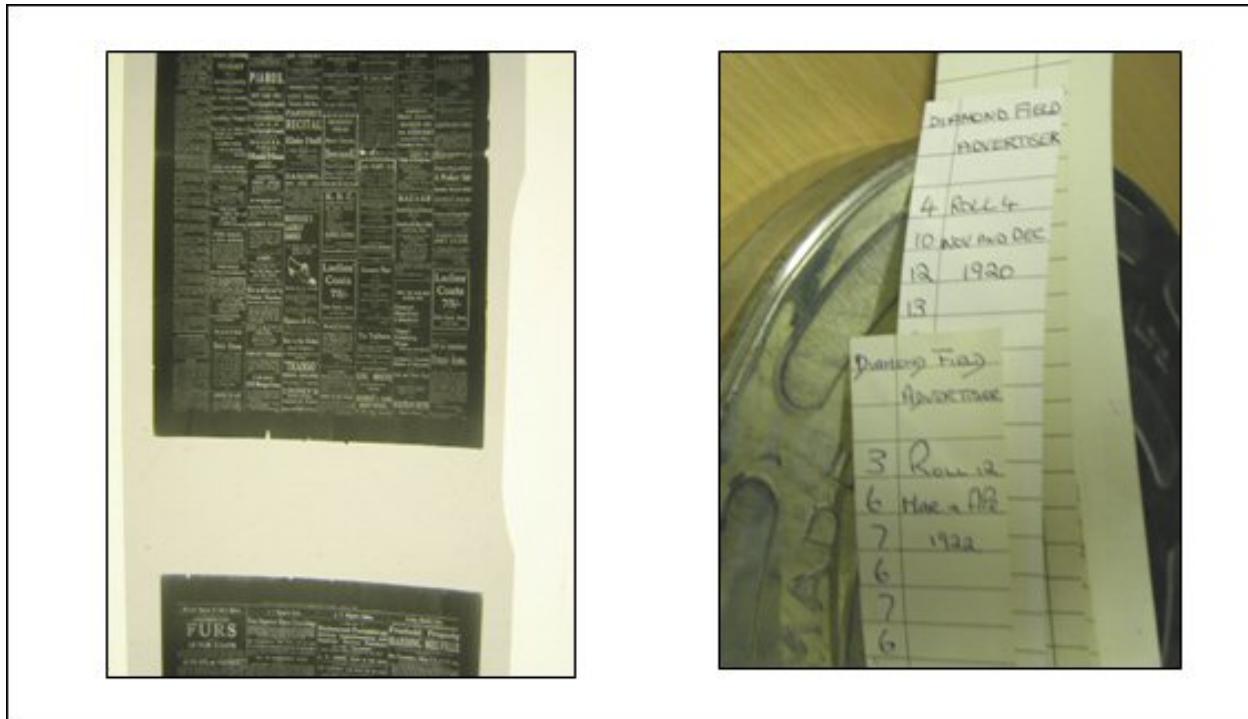
*The original master film spools from top to bottom on one side of the De Pue. The duplicating film stock spools in the same way on the opposite side. The photographic transfer of the image occurs when the films briefly come into contact.*



Throughout the process, the film is graded to improve its visual quality and this is one of the main reasons why we are using these old war horses over modern duplicators - that potential that they do offer for grading at multiple points within the film and thereby enabling us to improve the visual quality of our old films as we transfer them. Also, they are gentler on the film than most modern duplicators.

This potential for quality enhancement and the way in which the DePue works, is important for the project because many of these acetate films were produced before standards were introduced. There were few variations in light settings - items were often filmed right through on the same setting regardless of any changes in quality and type of content. Print masters were rarely made and positives were produced directly from the master film. When the positive was ready to be made, the master was notched in places to indicate the changes in the lamp settings required during the duplication process. The number of notches and their settings were recorded on grading slips, and these slips are stored in the can with the film (Fig.2).

Fig.2 A grading notch (on the right hand edge of the film) and a set of grading slips.



In traditional negative-to-positive duplication, all of the lamp settings indicated on the grading slip are set on the grading box before duplication begins. As the notched parts of the film pass through a certain part of the duplicator, changes in the lamp voltage are automatically triggered. In negative-to-negative duplication, which is what we are dealing with here, the duplication speed is much slower and consequently applying every individual lamp setting is not as crucial - particularly where there are large numbers of settings whose values differ only very slightly. For our purposes, the supplier uses initial density readings in conjunction with the information on the grading slip to determine the new grading settings, often substituting a range of old settings with a single new one. Additionally, new developments by the supplier in computer controlled grading enables settings to be stored and recalled.

### **CONTROL: LOGISTICS, QUALITY AND BIBLIOGRAPHIC**

One thing that is paramount in a project of this size and type is control and it's fair to say that, as far as logistical control is concerned, we did struggle last year with the sheer quantities of film moving through the project phases at different rates. This is something that we are addressing this year with tighter scheduling and more aggressive controls. The other types of control that it was essential to set up and maintain related to quality and bibliographic.

Quality assurance in the microfilming world is well documented and rightly stringent in places. But for this type of project we have to be much more flexible and objective. We can't easily adopt the subjective approach of modern QA, where we fail films that don't reach the standards that we set. These films were not filmed to a standard, so there are no relevant standards to apply. We work very closely with supplier to improve quality where we can, allowing technical experimentation and development to take place where the supplier feels an improvement in quality can be made and where we are satisfied that there is no risk to the film.

For this project the supplier undertakes a thorough series of checks on every film received for transfer to ascertain its suitability for duplication including

14 point quality control check	
condition of tin	condition of winding
grading slip present	emulsion correctly orientated
leader/trailer present	condition of film base

splices present throughout	condition of emulsion
type of splice	image deterioration
condition of splices	grading notches present
replace splices	condition of grading notches

The supplier also undertakes post duplication checks of the original master to ensure it has not been damaged and checks the quality of the new film, including taking density readings and making random positives. We receive a copy of every quality report for each film and we also send a random percentage of returns for external independent QA, which again includes making random positives to check the reproduction quality. So far, quality has not been an issue and in many cases has been improved.

Bibliographic control is a hot topic in the microfilm world at the moment, and microfilm surveys and projects such as ours are throwing up all sorts of bibliographic horrors. The other side of the coin, of course, is that uncovering these enables us to put them right and tighten up on bibliographic control.

To try to ensure bibliographic control throughout the process we undertake the following procedures:

- we provide an accurate record of the contents of each master reel to the supplier (this record comes directly from our master negative database and records are checked for errors/anomalies prior to despatch and corrected on the database)
- new 100ft 'masters' are labelled with the can/reel number only, not the bibliographic content. They are checked upon receipt against the original master can/reel numbers
- the new print master is labelled exactly as the original master with can number, titles and reels
- the master negative database record is updated to reflect the fact that the original film has been transferred

It's fair to say that analysing and correcting item information has taken up more time on the project so far than we anticipated. An example of one of our database records is shown in Fig.3. For each can of film being transferred we pull up the database record and check that

- there is only one can number per record (e.g. C 156)
- reel numbers are sequential, without repetition, starting from 1 (e.g. C 156/1-2, 3-4...)
- the footage listed matches the number of reels (e.g. C 156/11-12 = 2N)

Fig.3 Database record #1

Can contents listed by can number					06-Jul-05
Can no	Title	Footage	Date range	Control no	
C 156/11-12	Rhodesia Herald	2N	1919	4727	
C 156/1-2	Rhodesia Herald	2N	1914	4727	
C 156/13-14	Rhodesia Herald	2N	1920	4727	
C 156/3-4	Rhodesia Herald	2N	1915	4727	
C 156/7-8	Rhodesia Herald	2N	1917	4727	
C 156/9-10	Rhodesia Herald	2N	1918	4727	

Number of can numbers included      6

With this example we can see that the reel numbers indicate 14 reels, but the footage adds up only to 12. On closer examination we can see that reels 5-6 are missing from the record altogether.

The second example (Fig.4) seems a bit of a shocker on the face of it.

*Fig.4 Database record #2*

<b>Can contents listed by can number</b>				<i>16-May-05</i>
<b>Can no</b>	<b>Title</b>	<b>Footage</b>	<b>Date range</b>	<b>Control no</b>
1955/11-12	Bury Free Press West Suffolk Observer	2N	1965	200
1955/1-2	Bury Free Press West Suffolk Observer	2N	1960	200
1955/13-14	Bury Free Press West Suffolk Observer	2N	1966	200
1955/1-4	Dia	4N	1973 Nov - Dec	5305
1955/3-4	Bury Free Press West Suffolk Observer	2N	1961	200
1955/5	Dia	50	1974 Jan 1 - Jan 15	5305
1955/5-6	Bury Free Press West Suffolk Observer	2N	1962	200
1955/6	Dia	1N	1974 Jan 16 - Jan 31	5305
1955/7-14	Dia	8N	1974 Feb - May	5305
1955/7-8	Bury Free Press West Suffolk Observer	2N	1963	200
1955/9-10	Bury Free Press West Suffolk Observer	2N	1964	200

**Number of can numbers included**      **11**

We do have a single can number, as we looked for earlier, but there is no way we would ever have a British provincial paper spliced together with a Uruguayan national, so this cannot be right. The duplicate reel numbers throughout the record suggest strongly that we are clearly dealing with two separate records of two separate films that are showing up together under the same can number (1955) for some reason. The reason in fact turned out to be a very small error in itself - an omission of the prefix F when entering the data for Dia (F1955). This prefix distinguishes our series of foreign films from other parallel numerical series.

Colleagues familiar with the newspaper records and the database structure can correct most of these errors directly on the database, but on a few occasions we do have to manually check the 1000ft negative to confirm the accuracy of the database record. Although time consuming and labour intensive, this task is an essential one that ensures that our records, as we work through them, are absolutely correct. This is work that we have not been able to do before so thoroughly with particular set of data and it is a welcome and positive benefit of our acetate transfer programme.

## OTHER BENEFITS

Of course, when you start to go through your collections with a fine toothcomb, it affords the opportunity to do things systematically that otherwise, with the best will in the world, often don't get done. We have been able to improve housing and labelling, particularly by reverting from 1000ft to 100ft for our masters. Gone are the old/damaged cans, whose handwritten labels are clinging on for dear life in the face of sticky tape that has become yellow and brittle and about as sticky as a brick. In come smart new 100ft cartons with clearly printed self-adhesive labels. Many of our old masters have had a print master generated for the first time, while others have had new print masters made as part of the transfer process. Again, new cans and clear labelling have been an improvement.

## **THE FUTURE**

The work we have done to date on transferring our acetate films has been as instructive as it has been constructive. We have learned a great deal about the complexities of managing such a project, about what works and what doesn't; about the opportunistic benefits - and the extent of the preparation work. And we are pleased to have been able to share our experiences with colleagues through CAMF. It's fair to say that over the past fifteen months we have realised that, as a long-term strategy, mass transfer is not necessarily the best solution to the problem; and that long term dedicated cold storage is a more feasible solution. For the immediate future, we are continuing to schedule the transfer of acetate film. This year, we will prioritise the films of newspaper titles for which we no longer have the hard copy, or the hard copy no longer exists. At the same time, we will be seeking to establish cold storage as the long-term goal, with transfer on demand.