

THE PRESENT USE OF 35 MM MICROFILM IN THE BRITISH LIBRARY FOR CARTOGRAPHIC MATERIALS

During the course of any one year the Map Library deals with the reproduction of approximately 3500 map items; 80% of these items are required for microfilming, for making photographic enlargements or electrostatic enlargements printed from microfilm. Very few maps are small enough to enable conventional electrostatic prints to be made of a whole map sheet at a time. Furthermore copying machines in general office use which are capable of making copies of large maps cause handling and conservation problems which render them unsuitable for Map Library material. Many, for example, are of the flow type - the map being posted, so to speak, into the machine at one end and coming out the other with the completed copy. The largest of any type up to size A2 (594 × 420 mm) at present in use in a United Kingdom map library is the Japanese manufactured Canon machine NP A2 at the Ministry of Defence at Tolworth (1). The original sheet map is placed face down on a moving table which passes over the contact plate for direct copying. For single modern sheet maps this copier has obvious advantages in that it produces an instant cheap copy although even at A2 size (420 × 594 mm) maps often have to be copied in more than one section. For older or heavy material, such as the volumes of eighteenth and nineteenth century maps from which our reader require same-size copies, no contact plate copier is really suitable. Both the surface of the maps and the bindings risk damage. For this conservation reason in the book field the British Library is funding the development of an «overhead» direct copier, which alters the optical path of a conventional copier so that it becomes a «look-down-from-above» model. If this is successful, adaptation to larger sizes up to A0 (841 × 1189 mm) would be possible for maps if it could be shown to be remunerative to the Library. The absence at present of a suitable large format direct copier for the maps in the Map Library collection means that, as in other libraries, the Reprographic Service has to offer alternatives. These do not form a rapid copy service as such but can produce, subject to staffing levels in the Library, copies within one week. These forms of copying are photographic and electrostatic enlargements from either 35 mm roll film or frames mounted in aperture cards. In the Photographic Service three cameras are in use filming map material. Depending on the type of print required the film is then either fed into a Imtec AO microfilm enlarger / printer machine (2) to produce electrostatic prints or the film is enlarged photographically by

a standard enlarger such as the one manufactured by Durst.

On the Imtec machine electrostatic prints up to AO size are produced simply and cheaply. As with other printers the copies have no tonal quality but are perfectly adequate for the sort of line reproduction found on large scale plans and less detailed topographical maps. Imtec's microfilm enlarger / printer is also being used by the Hydrographic Department at Taunton to reproduce electrostatic prints of their retrospective collection of charts which are being microfilmed on 35 mm film. For tonal reproduction on document weight paper the film is enlarged photographically by a Durst enlarger. At present the Map Library finds enlargements of 762 × 508 mm of sufficient size to cope adequately with the early editions of the Ordnance Survey at scales 1/10,560, 1/2500, 1/1250 but, as some of the original sheets are larger than the copy size offered, to reproduce the sheets to full size they must be filmed and printed in half sheets.

Microfilm is produced by the Photographic Service in 16 mm and 35 mm widths. For maps the most common request is for whole series of early editions of OS maps, often for use by local authorities or record offices. The Map Library also generates microfilm, so to speak, by initiating its own microfilming projects at 35 mm of its special collections for conservation reasons. The photographic service and reader service combined required over 41,000 map items in 1981, and over 5,000 readers visited the Map Library in the same period. The amount of wear and tear on certain areas of the collection is increasingly evident. In response to this a microfilm camera was set up in the Map Library in 1976 to film the whole of the King George III's Topographical Collection. This collection was presented to the Library by George IV in 1828 and contained both manuscript and printed maps. It is often in demand both for book illustration and for personal and academic research. At present 56 volumes of a total of 320 have been filmed on 35 mm roll film at variable magnification and the Library hopes to be able to withdraw the original maps from reader and photographic service use shortly. The originals will, like the filmed Ordnance Surveyor's Drawings, be available by special request to the Map Librarian but the readers will be expected to use the 35 mm film, whether on roll or aperture cards, as much as possible. Duplicates or the same film will be available for reproduction. In order to read the 35 mm

film adequately the Library has purchased, as has the National Library of Scotland, two specially altered viewers manufactured by MEC Microfilm Engineering Ltd. (3). The viewers present a horizontal screen on which a reader may trace maps at large scales, e.g. 1/2.500 and larger. The screens are larger than many viewers at 510 × 760 mm, and will take a reproduction at full-size of, e.g., the current Ordnance Survey map sheets at scale 1/2.500 from 35 mm microfilm mounted in aperture card. The machines have a good history of reliability at Manchester Public Library where they were first used and are relatively cheap. There are of course screen viewers available now up to AO size but they do not incorporate the horizontal viewing screen which seems to be of value to map users in the Map Library.

The Map Library also has two vertical screen viewers for the selection of particular maps or parts of maps from roll-film at variable magnification which provide users with a quick means of selecting the particular map they may require to see as an original. This avoids having to retrieve large numbers of fragile maps for a reader's selection in the first instance; for example three volumes of the King's Topographical Collection can be scanned on film for possible use and the relevant original map retrieved after this initial search. At present the Map Library's holdings of roll and aperture card film is relatively small - 150 roll films and the series of some 400 Ordnance Surveyor's Drawings on a thousand 35 mm aperture cards.

The control of this film archive is by a handlist of the contents of each roll film prepared in the Map Library. Master rolls and duplicates are held by the Photographic Service for further reproduction. For aperture card format the cards are held in the numerical sequence of the original group of documents, and a simple description on the *pro forma* aperture card is given, e.g. O.S. Drawing 6 inch scale sheet n° 117.

The introduction of survey information on microfilm by the Ordnance Survey of Great Britain (4).

In 1978 the United Kingdom national mapping agency, the Ordnance Survey, began to issue its large scale map series (1/1250, 1/2.500) on 35 mm microfilm, now generally known as SIMS - Survey Information on Microfilm. The publication on paper copies of the maps continues but at a reduced level. The microfilm system involves making a 35 mm microfilm copy of the Master Survey Document or Drawing at fixed criteria of change on the ground, currently set at 50 units of change. For those customers such as local authorities and engineers who require an instant up-to-date plan, or part of a particular plan, of a locality the regional offices of the OS provide dye-line copies of the actual MSD in periods between issuing Updated SIMS.

New redrawn paper maps at scales 1/1250, 1/2.500 are issued only every 300 units of change and are also available on microfilms as Redrawn SIMS : these are not copied from the lithographic paper

maps but from the photographic reproduction material to achieve greater resolution. Both types of SIMS for both scales are filmed at a reduction factor of 15 and cover 1 km squares of the National Grid. Users of the films naturally require them to be accurate to scale and distortion free and the OS has carried out some tests on the cameras, viewers and printers necessary to produce and use the film.

The SIMS are produced for the legal deposit libraries in the British Isles as duplicate silver halide film which has been available in aperture card format. The British Library Map Library also purchases two diazo copy-cards of the master cards, one for the reproduction by the photographic service and the other for reader use in the Map Library. Our horizontal viewers, at a fixed enlargement focus of X 15, enable readers to study the whole map sheet at full-scale. Commercially the OS has set up microfilm agencies equipped to print-out from the microfilm cards on Caps A1 machine. A similar service, via the British Library photographic service, is available.

At present the Map Library receives Updated SIMS and continues to receive lithographic paper copies of the redrawn sheets. The transfer from paper copies to small format cards has obvious implications for our future storage and conservation plans. By storing the silver halide master set in appropriate conditions we hope to achieve the maximum length of film life possible and to maintain the film's stability. The acquisition of cards rather than paper copies, which may run at 3,600 per year, should eventually reduce our requirement for storage cabinets, but increase our need for microfilm cabinets in the reading room.

Future developments

The Ordnance Survey has mounted an investigation to test the feasibility of extending the SIM system to cover the 1/10.000 series of maps and is also carrying out experimental work on colour microfilm but we have no details as yet. They have also considered filming maps using 105 mm film, as has the Hydrographic Department at Tauton. For smaller scale maps (1/10.000 and smaller) the Map Library continues to try to keep up-to-date in its knowledge of technical developments in reprography which may be of use. Maps at smaller scales obviously present problems of greater detail and colour. In the United Kingdom at present two companies provide some government and county authorities and commercial companies with 105mm film reproductions of engineering drawings and plans. The camera used is a Lithotex-Type 10 (5) camera which is capable of recording originals of up to 1070 × 1520 mm at reductions in the range of 3 to 10.3 X. For print-outs the IMTEC A2 electrostatic machine has now been modified by E. Marshall Smith to operate with 105 mm film (known as IMS 105). Colour reproduction on microforms still remains a problem in terms of producing colour true to the original, and in maintaining colour stability over a long period of time. The resolution of these problems would enable the Map Library to fulfill a national need to preserve its

collections and make them available on appropriate size film and print-outs.

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Footnotes :

1. Canon plain paper copier NP A2 (1979) Canon Inc. 11-28, Mita 3-chome, Minato-Ku, Tokyo 108, Japan.
2. IMTEC Equipment Ltd., 170 Honeyput Lane, Stanmore, Middlesex, HA7 1LB England.
3. The horizontal readers are based on Microfilm

Engineering Company's International AZ reader. MEC Microfilm Engineering Co. Ltd., Snugborough Trading Estate, Union Mills, Isle of Man.

4. This summary of developments at the Ordnance Survey is based on unpublished paper written by M.C. Simmonds of the Ordnance Survey, «The presentation of Survey Information on Microfilm» (1980), which he kindly communicated to the author.

5. The Lithotex Type 10 camera is manufactured by Pictorial Machinery Ltd., Honeycroft Lane, Salfords, Redhill RH1 5LX. An account of its performance and details of other recording equipment for 105 mm is included *Reprographics Quarterly*, vol. 13, no.3.