

CASE STUDY 9 - PaperPrint - Security

Security of valued items on hand made paper, such as early maps, can be enhanced by the PaperPrint procedure. It calls for a front lit image and a back lit image to be captured. Both images are captured under the same conditions. There must be no displacement of camera or subject so that when the images are archived as two layers on one digital file they are perfectly aligned.

The first consequence of creating that single file is that the equivalent of a digital 'fingerprint' of that paper item is available. In the event of theft and recovery the PaperPrint file provides indisputable evidence of ownership.

Another consequence of creating the PaperPrint file is that a valuable research resource is created. First example - it is possible to so manipulate the two images that hidden data is revealed as in CASE STUDY 8 - England - Hidden Data Revealed above. Second example - it is possible to so manipulate the two images that unwanted data can be digitally 'removed' thereby revealing watermarks. The following (greatly reduced) front lit image is of a 1695 Copper Engraving in the my own collection.



The following image shows the centrally placed Isle of Mann by back light:-



The chain lines, the laid lines and items such as specks and flecks in the paper are clearly visible. The distribution is unique to that item.

Secondly, using the same image subtraction procedure as that used in CASE STUDY 8 - England - Hidden Data Revealed above, it is possible to enhance the watermark as shown in the following image:-



The Lindley Library at the Royal Horticultural Society (RHS) archive PaperPrint files of selected items. See the RHS abstract at Endnote RHS PaperPrintⁱ.

Thanks to PaperPrint the security of items on hand made paper is being enhanced and a valuable research resource is being made available.

ⁱRoyal Horticultural Society



22 May 2013

**The Royal Horticultural Society's Lindley
Library: Safeguarding Britain's Horticultural
Heritage**

Dr Brent Elliott

The Royal Horticultural Society is the world's largest horticultural society – membership passed the 400,000 mark this year – and it also has the world's largest horticultural library. This would be the case even if we took only the principal branch, at the Society's offices in London, into consideration; but there is also a major collection at the Society's principal garden at Wisley, and smaller collections at its three other gardens. In 2011 the Lindley Library was given Designated status by the Museums and Libraries Association as a collection of national and international importance.

This is the first of 13 pages of an account by Dr. Brent Elliott in which he describes the collections and the work of the RHS Lindley Library. It shows that the Library plays a key role in the preservation and study of the UK's horticultural heritage. It is the primary collection for the study of garden history in all its aspects.

See his Conclusions here ...

In the course of this work, I am proud to report the Library's role in pioneering a contribution to the protection of antiquarian books. As with any collection of early printed books, the Library contains a variety of types of early paper, in many cases with watermarks. At the end of the last century, the Library sponsored a project on the imaging of watermarks, conducted Dr Ian Christie-Miller. The analysis of the paper and watermarks in early English and French books resulted in the discovery that the older the book, the more disparate the sources of paper: since there were no paper mills in Britain in the 16th century, British printers tended to stockpile paper wherever they could find it, and upwards of fifteen different types of paper could be used in the

production of a single book. In the course of this research Dr Christie-Miller developed his system of “PaperPrint” identification for books printed on handmade paper. Take the title-page, and one or two other pages selected at random (so a thief does not know what to remove); photograph them using both reflected light (for easy identification) and transmitted light (to show the paper structure). Handmade paper always had imperfections and inclusions, and in no two copies will these be in exactly the same places on the page; in no two copies will the pieces of type occupy exactly the same positions in respect to the chain-lines in the paper. The result is, for an antiquarian book, the equivalent of a fingerprint: if the book ever disappears, and there is uncertainty over whether a recovered copy is the correct one, the PaperPrint will allow for an unambiguous identification. This has been a brief and inadequate account of the collections and the work of the RHS Lindley Library – but, I hope, sufficient to demonstrate that the Library plays a key role in the preservation and study of this country’s horticultural heritage. It is the primary collection for the study of garden history in all its aspects.

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[Transcript for "The Royal Horticultural Society's Lindley Library: Safeguarding Britain's Horticultural Heritage" \[8\]](#)

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