

Accessing Medieval Music: from material codex to digital specimen

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The scholarly study of medieval music manuscripts has traditionally required that musicologists travel to libraries and museums where the artefacts of interest, the complete manuscript or fragments of manuscripts, are physically held. However, with the introduction of digital image archives scholars now have the ability to conduct much of their research through both the inspection and manipulation of digital images. We argue that increasingly digital image use in the humanities is extending beyond the *description* of visual images through the analysis of aesthetics and culture (e.g. art history and media studies) towards their respecification as research objects where ‘technical work’ is conducted in order to draw out and *expose information* that wasn’t accessible before. We are finding that work conceived of as traditionally ‘scientific’ kinds of practices are nonetheless being adopted by humanities scholars especially in their use of digital image analysis software tools to manipulate, mark, categorize and compare features that reside within such images (Terras, 2006; de la Flor *et al*, 2010). The increased use of computational technologies within the humanities is transforming research processes and knowledge production amongst these scholars and so provides us with an opportunity to investigate beyond the sciences across a wider swath of academic disciplines.

Our focus in this paper is on a specific digital image archive - DIAMM (The Digital Image Archive of Medieval Music)¹ where we discuss how the musicologists who use it conceptualise this shift in their study of physical objects mediated through the use of high resolution naturalistic photographs. The archive was originally set-up to support the conservation of medieval polyphonic music manuscripts dating from approximately 800 to 1550 to ensure that their contents may still be viewable in cases of their loss from natural degradation, theft and geopolitical difficulties to gaining access. However, increasingly musicologists are using the archive as a research tool and in the first half of 2010 we interviewed scholars distributed across three continents to discuss the ways in which they use DIAMM including the kinds of substantive research practices they conduct through digital image analysis software, its effect on their interpretation of images and the corresponding results of such work.

Within the DIAMM archive each image includes the following elements (Fig. 1); a manuscript item (1), a colour patch (2) and ruler (3). Both the colour patch and the ruler are placed alongside the manuscript to provide indications of its actual appearance and serve as objective supplementary elements in the rendering and translation of physical objects into digital form. The ruler indicates its actual size which remains consistent relative to the level of zoom and the industry-standard colour patch assists in determining if a user’s computer monitor is calibrated correctly.

¹ <http://www.diamm.ac.uk>



(Figure 1. DIAMM digital image of a manuscript fragment - GB-Canterbury Cathedral Archives MS M369 B 2 recto)

Through this display, each leaf or fragment of a manuscript is extracted from its context within a codex and is presented as a discreet scientific specimen. This is particularly interesting because well-known accounts, within Science & Technology Studies (STS), of scientists who use visual representations of physical objects have characterized their use as leading to, in the case of astronomy, a transformation of "observational field science to an image-processing laboratory science" (Knorr Cetina, 1992: 117). And, in the case of the UK systematics community, resistance to digital imaging technologies where existing material culture determined scientists' responses to an engineered virtual culture (Hine, 2006).

Both of these concerns - the transformation of fieldwork approaches into a laboratory-type science, and points of resistance to the introduction of new technologies are important topics in debates about the use of computational imaging within a range of research disciplines. Whereas in the sciences the use of digital images have been challenged on these grounds, in the humanities we find that the scholars using DIAMM appraise the properties of digital images as supporting and enabling their research goals.

More specifically, we found that digital images afford a kind of durability that enables detailed inspection and manipulation which would otherwise permanently damage or destroy the physical object. Additionally, digital images also provide a route into more elaborate manuscript analysis such as leaf textures, processes of book binding, pigments used, tracking its historical context, following the career of particular scribes, and the sounds that a series of musical notes might represent. In this way, the musicologists' approach to the use of digital images is similar to what Pink (2009) describes as the capacity of visual images to provide a route into multisensory knowing as opposed to being strictly defined as "observational and objectifying tools" (p. 99). Additionally, having access to a wide range of manuscript fragments within the DIAMM database makes possible the piecing together of broken up manuscripts where they were reused to make book bindings, chair stuffing, papering for ceilings and even hat boxes and musical instrument cases. These fragments are located across the entire European continent and beyond. Having access to their digital images makes it possible for scholars to compare them and to identify those that may belong to the same manuscript.

In what follows, we present detailed examples of the ways in which digital images are transforming research practices in musicology and the manner with which they afford; durability to enable detailed inspection, routes into multisensory knowing and the linking together of heretofore disparate manuscript fragments. From this, we conclude that the introduction of laboratory-type practices where digital images serve as a mediation device between the scholar (the musicologist) and the physical object (the manuscript) has subsequently had a more positive effect for musicological research and provides opportunities for new ways for revealing the details of and interpreting physical objects.

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