

Laser Videodisc Technology

A Tool for Collections Management at the McMichael Canadian Art Collection

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Cape Dorset is a community on Baffin Island in Canada's Northwest Territories. An art co-operative - the West Baffin Eskimo Co-operative (W.B.E.C.) - was formed there in 1959 to encourage the production of drawings, prints, sculpture, and other handicrafts. The Co-operative purchases hundreds of drawings from artists annually and selects and translates some of these into prints for its yearly collection release.

The McMichael Canadian Art Collection is a gallery in Kleinburg, just north of Toronto, dedicated to exhibiting, collecting and caring for 20th century Canadian Art including First Nations and Inuit Art. In 1987, the W.B.E.C. approached the McMichael to assist with the preservation and care of their collection. The Cooperative's archival collection itself consists of approximately 100,000 drawings, 3,000 prints and 100 works of sculpture. All have been created by artists in Cape Dorset within the period between 1957-1989. As an archive of an artistic community the collection is considered to hold both national and international significance.

A long-term loan agreement of 15 years was written and signed by the McMichael Canadian Art Collection and the W.B.E.C. in November of 1990 and the collection was moved from Dorset to the McMichael the following year. The primary objectives of the move were to protect, document and preserve the collection and make it more accessible. The agreement and the goodwill associated have been termed a "Cultural Initiative" and is one of only a handful of such projects in Canada. Funding for the agreement, move and facilities came from various agencies of the Government of Canada, the Province of Ontario, the Government of the Northwest Territories, and the Municipality of Vaughan.

Up to the point of the move documentation of the collection was a low priority. A ledger based accession numbering process on the drawings was completed by the W.B.E.C. in Dorset in the early 1980s but the records had not been maintained since that time. The numbering process was organized by giving each artist a distinct number, then consecutively numbering the works of each artist. The co-operative housed the collection as best they could but conditions were poor. Fire had destroyed two

other archives in the north and this was (and remains) a threat to buildings there. The co-operative also had no conservation or exhibition facilities, and realized the need for both as the collection grew. The issues of conservation were most important for a portion of the drawings collection (about 10% of the total works) created in the 1960s using porous felt-tip pens. Porous pens were used by the artists for their exuberant colours, quick coverage and easy handling. However, since the use of these pens (in the mid 1960's), two characteristics of this medium have emerged as problematic: the first being its tendency to transfer from one support material to another; and the second being its extreme sensitivity to light. The deterioration of these drawings and their effect on drawings stored above or below acted as a catalyst to the loan and to the planned use of a technology which could quickly capture the state of these drawings before more fading occurred.

Following its arrival at the McMichael, management of the collection became a high priority. Four staff were hired to curate, document and administer the Dorset works. The process of documentation has been split into 3 components: rehousing the works, creating data records and video imaging to develop a visual database. The processes have varying completion dates with the database being the fastest to complete. The textual database has been the priority for the department thus far as the management of any collection is made less difficult with the availability of even limited computerized records. We have completed the creation of these records for approximately half of the drawings and expect that in the next year we will have a clearer picture of the exact number of drawings in the collection. It is estimated that the process of rehousing will be ongoing for another 6-8 years. I will discuss the video imaging process after a summation of how and why our Laser VideoDisc system was chosen.

The development of a collections management plan began months before the collection arrived and integral to the plan was research into an appropriate form of technology to visually document it. Research was begun by investigating all analog and digital systems commonly available in 1990- 91. Advantages and disadvantages of analog, WORM (write once, read many) optical discs, erasable optical discs, CD-I and CD-ROM systems were examined. An important point in the decision process was the determination of the end use of the system and any special requirements that use would impose on the selection of technology. Cost, quality and versatility were also factors examined, along with the realization that the decision would need to accommodate future possibilities in technology growth. Each system was analyzed for the following factors: cost; storage capability (volume, full views and details); durability and longevity of the medium; ease of use; the quality of the stored image; the ability to produce an economical hard copy; the quality of the printed image; image retrieval capability; database interface capabilities; long term potential for gallery/outreach uses; and future release possibilities.

In our case the end use of the system was determined to be firstly as a collections management tool and possibly as a gallery aid. This decision meant image storage and retrieval were the prime functions of the system (we did not require a system where images could be manipulated or enhanced). Also,

because the Dorset system was initially intended for staff and researchers and not for use by general public, we purchased only a single research station at the time. Plans for multi-user stations would be part of a larger gallery initiative and not part of this project.

Analog systems were examined more closely than their digital counterparts as their easy usage and cost effective nature met more closely the needs of this collection. Two manufacturers were investigated as their products were already distributed in Canada. They were Panasonic Canada and Sony Canada. Both companies manufactured products similar in scope, quality and cost, however Sony had the extra attraction of supporting a software program that could be adapted to fit our needs and this was the manufacturer finally chosen. Through previous research it was concluded that buying compatible hardware and software and buying it from only one Toronto-based company was advantageous in the long term. Also, this fell within the McMichael's policy to "buy Canadian". In 1991 dollars the Laser VideoDisc recorder station, researcher/player station, printer, other computers for office use and software cost approximately 90,000 Canadian dollars. Funding for the purchase of the Sony equipment was made possible through a grant from the Government of Canada's Cultural Initiatives Program and the Ministry of Communications and Culture. A listing of individual Sony products and prices is available if anyone is interested.

The decision in favour of the analog Sony Laser VideoDisc technology was based on the following eight points:

1. High storage capability - our discs hold 43,500 images per side or 87,000 on each 12" disc. Six videodiscs were purchased , providing capacity for 522,000 images, sufficient for imaging this entire collection. It was an important decision to purchase enough videodiscs to ensure that every work in the collection would be imaged.
2. User friendly technology (for staff and researchers), understandable methodology of equipment. Images are taken through a video camera - a familiar and non-threatening piece of equipment these days. Also, for researchers computer literacy is not a pre-requisite to use the researcher station.
3. Long life span of equipment - no deterioration of recorded information from constant use, handling or mishandling. Upon completion of the imaging project the videodiscs will be reformatted onto glass master discs as they are a stable medium unlike magnetic media (we have been told by Sony officials that glass master discs should remain in an unchanged state for about 100 years).
4. Ability to accommodate motion and still shots together on the same media. An important consideration for unknown future uses.
5. On-line response time. Response time to precise or random searches is approximately 1/2 of a second.

6. A single, integrated system of text and visual data (which I will discuss in more detail later) will help to further reduce the frequency of use of the collection itself. Researchers benefit from the flexible searching ability, fast precise data retrieval, or random access to any item or group of items all within an extremely short period of time.

7. Analog systems are more cost effective for large collections such as this one. Our computers did not need increased memory, and only one video card was purchased to allow the computer link.

8. The use of this technology goes beyond the needs of collection management into more public functions such as improved interpretive and educational programming.

Another plus to the use of any new technology lies in its revenue generating possibilities. Access to collections such as the Cape Dorset collection was previously limited to those who knew of them and could afford the costly trip north. With the ability to reproduce discs with images at costs much lower than traditional printed means, the question of availability in both the north and south should be resolved. Revenue potential from this source is an additional benefit.

The use of our video disc system in conjunction with other collections management functions is as follows. The technician uses the video camera which is mounted vertically on a copy stand to record prints and drawings. The image is displayed on a high resolution, Analog RGB Sony Trinitron Color Video Monitor and instantly recorded onto the videodisc using the Laser VideoDisc Recorder and a remote control. The researcher station uses a VideoDisc Player and a smaller version of the same Analog RGB Color Video Monitor. These in turn are connected via cabling to a DOS platform 386 Samsung computer. Images from the screen can be printed off in two minutes using the Sony Color Video Printer - Mavigraph. As the technology is analog, small horizontal lines appear on the prints themselves. Our printer uses 720 x 468 PELS or picture elements. The resulting prints are good colour images, but are not a fixed medium, and unlike prints from a digital printer, are not of reproduction quality thereby diminishing some copyright concerns. The use of the printer has led to a reduction of the costs associated with conventional photography.

Six discs were purchased in order to allow up to five images of each artwork to be taken. These images could include: a complete recto shot; details regarding content or medium; a verso shot of the accession information; and verso shots for those drawings with images on both sides. In practice we have found that some drawings and prints use all five or possibly more shots while some only necessitate the use of two. We have organized our imaging process to shoot the drawings which exhibit colour transfer first. The reason for this is twofold. Firstly to obtain an image at a point in time for reference purposes for our conservation department and their ongoing experiments, and secondly to obtain a permanent record of each artwork before any further damage occurs. Work will then progress by artist according to exhibition or research needs.

The final project will be to record the sculpture collection. The sculpture may be shot in still format as the twodimensional artworks have been, or in three -dimensions by mounting the video camera on a dolly and using live-action video to film all angles of each object.

The imaging process is being handled in two stages, as necessary. The first stage documents a full view and a recording of the accession information in order that at least one permanent visual record exists. Unless specific research requires them, detail shots are not taken at this point. It was determined that an initial overview of the collection would be completed followed by an analysis of additional needs. The second stagewould then be to return to the works and record details or comparison shots. It is expected that the lengthy initial process will take another six years to complete (imaging has been ongoing on for two years).

Due to the fact that several staff use the equipment concurrently, the imaging process for each artist will not necessarily be consecutive. Therefore, the link between the computer and VideoDisc player becomes pivotal to the searching ability and success of the system as a whole. Without computerdriven searching abilities, more organization would have been necessary in the planning stages to determine beginning and end points on the videodiscs for each artist. This would be the only method whereby images of each artist's work would remain consecutive. The computer link provides much more flexibility in the recording process.

As works are video imaged, other information is gathered. The disc number and measurements, as well as condition, location or print status, are recorded by hand and entered onto the database at a later date. It may be determined that entry of this secondary information directly onto a computer designated for use at the video imaging station using word processing software is a more appropriate solution, with subsequent downloading to the database.

The database software that was purchased was in the end not successful in meeting our needs. In order for it to be tailored to our needs, some complicated programming was necessary and for cost reasons the software was abandoned. It also became apparent in experimenting with the software that it was more applicable to exhibitions or research than to managing a collection. The Canadian Heritage Information Network (CHIN) sponsors a national database for art, archeological and scientific collections and we put our first records onto the system in January of 1993. Since CHIN is a standard format for museums and galleries, and as McMichael staff were already familia with it, it was chosen as the alternative to the customized software. The CHIN system allows for flexible searching on numerous fields, and requires no software customization. Discussion is ongoing as the McMichael is being used as a test 'Pilot Project' for the linking of CHIN textual data and Sony Laser VideoDisc images. At this time there are no plans for the linking of text and video on work-stations off-site (for example - other galleries or in Cape Dorset).

Category 5, 4 conductor Communication cabling has been put into place at the McMichael. This 'state of the art' cabling will allow both visual and textual data to be accessed from any computer in the building.

The linking of the text and image is made possible via one CHIN field called the OTHER MEDIA field. The disc captures an image and associates it with a disc address, which in turn becomes part of the work's data base record. Although not necessarily consecutive, each artist's work is contained on a single disc and each disc holds up to 47,500 per side, again based on artist number. The main difficulty arises from the fact that the system is limited to viewing from one disc at a time. Therefore, if a set of information from CHIN is created which includes several artists' work, viewing these images involves considerable switching of discs and interruption of flow. We did not purchase a "jukebox" - a device allows access to more than one disc at a time - which could have alleviated this problem. However, when examining one artist's work it is an extremely quick and versatile medium. As the process of imaging is non-sequential on the disc, the computer link is imperative.

We have one technician on staff who is primarily responsible for the rehousing and video imaging components. He does the majority of the imaging however, all staff in the Dorset project have been trained to use the equipment. It is important to note that due to the user friendly nature of our equipment we were not required to hire a trained photographer. Instead, our priority for hiring could remain on art handling experience and a concern for the artworks involved. Specific training for the equipment occurred on the job.

Another consideration in the use of any technology as a research tool is the amount of staff time spent guiding researchers and other staff in the use of our research station. The simpler the methodology and the more generic and understandable the research station is, the less time spent by staff in maintenance and training. We haven't had a lot of experience yet but expect that staff time will be minimal once an instruction sheet is finalized.

There are a few ways in which technology may prove advantageous in public programming. Public access to stored collections can bear witness to the depth of an artist's or, in the case of Cape Dorset, a community's work. The inclusion of technologies such as this can also add context to an exhibition - giving it a human element and encouraging visitors to interact with additional, related works not necessarily in the exhibition. However, the investigations into using technology in exhibition or outreach capacities has not yet been dealt with by the gallery as a whole.

Upon completion of the project, it is planned that discs will be made available to other cultural institutions. It cannot be foreseen at this point if the medium of information will be identical to that now being used. Perhaps the information on these discs will be digitized into other formats or transmitted

via phone lines, just as the CHIN textual data is, thereby possibly making the need to copy discs an obsolete procedure of the late 1980's, early 1990's.

In closing, the use of any new technology can greatly increase the awareness and enjoyment of collections which are otherwise inaccessible or in danger from excessive handling. Primary considerations for use as a collections management tool must be determined by the end use, size of the collection in question, funding availability, and future considerations. Extensive forethought went into this project and particularly into the use of technology. The success of the system lies in the quality of the background organization and the adaptability of staff and equipment in this constantly changing environment.

Acknowledgments

Staff of the McMichael Canadian Art Collection

Staff of the West Baffin Eskimo Co-operative and Dorset Fine Arts