Shambhala Archives Audio Recovery Project

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Abstract

"The Shambhala Archives (SA) is the repository for one of the largest audio-visual collections of lectures and oral discourses by Tibetan Buddhist Teachers in the West" (Shambhala Archives 2006). A primary mandate for SA is "to locate, acquire, arrange, describe, preserve, and make available all original records pertaining to the life and teaching of the founder of Shambhala, the Vidyadhara the Venerable Chögyam Trungpa Rinpoche, and of [his son] the Sakyong Mipham Rinpoche (Ösel Rangdrol Mukpo) and of [his] the Mukpo family" (Shambhala Archives 2006, Mandate).

Chögyam Trungpa Rinpoche was the supreme abbot of the Surmang Monasteries in Tibet, where he received the degree of Khenpo, equivalent to a doctorate of divinity in the West. In 1959, he secretly left his homeland and traveled to India to escape the religious persecution that followed the Chinese occupation of Tibet. For the next four years, he served, by appointment by His Holiness the Dalai Lama, as the spiritual advisor to the Young Lamas' Home School. In 1963, he traveled to England to attend Oxford University, as a Spaulding Fellow, where he studied Western philosophy, religion, art, and language (Trungpa 1984, 195). While at Oxford he began to teach Buddhism to Western students and in 1968 founded a meditation centre, Samye-Ling, in Dumfriesshire, Scotland. In May of 1970, he moved to North America to teach. "From 1970 [until his death in] 1987, Trungpa Rinpoche traveled continually, criss-crossing the North American continent and, occasionally, Europe, teaching and lecturing to tens of thousands of people" (Shambhala Archives 2006, VCTR fonds). He also founded Vajradhatu, later to become Shambhala International, the parent organization for approximately 125 Buddhist

meditation and study centers world-wide, and the Nalanda Foundation, the non-profit, educational, parent organization of Naropa University in Boulder, Colorado.

The SA's holdings include approximately 2,000 unique audiotape recordings of the oral teachings given by Chögyam Trungpa Rinpoche, mainly during his tenure in North America. All the tapes are composed of ¼" polyester material. Most of these tapes are 7" or 10" reels, of 1800' or 1200' length, but "some master records reside on standard cassettes of varying lengths" (Levy, email to author, 26 April 2006). These audiotapes are considered "at risk" due to deterioration and instability of the magnetic and polyester materials. The recovery, digital migration, preservation, re-mastering, and limited distribution of complete sets of these re-mastered audio recordings are the primary goals of the SA's Audio Recovery Project (ARP) and the subject of review for this paper.

Project History

The ARP was first proposed in 1996. The equipment and methodologies employed have evolved over the subsequent nine years as technological advances offered better solutions. All aspects of the digitization process have been, and continue to be, handled by SA staff, utilizing equipment purchased and funded by SA. Over these ten years, project protocols have included the use of a Sony PCM digital audiotape recorder to digitize and record to VHS videotapes; migrating to new analog reels and type IV metal cassette tapes; digitizing and recording to audio CD-Rs, DVD-Rs, and to hard drives, configured in a redundant array of inexpensive discs (RAID), which provide two terabytes of storage on a computer server (Levy, email to author, 24 April 2006).

Funding for this project has also evolved over the years. The annual budget for the SA is approximately $120,000 (U.S.), which is raised primarily from individual donors. This project,

at first, was also funded entirely by individual donations, through a campaign entitled "Adopt-A-Tape," where individuals would make contributions to support the digitalization and audio recovery of individual audiotapes. "The revenue stream was shaky, at best . . . [and] resulted in a very slow pace of digitization. Between 2000 and 2005, only 10-12% of the collection of 2000+ reel to reel tapes had been digitized" (Levy, email to author, 24 April 2006). In 2005, a different approach to funding was introduced. Individual practice centers, world-wide, were invited to sponsor the project by contributing $3,000 (U.S.) each year for three years, in return for receiving a complete set of CDs (estimated at 1500) including all the recovered, re-mastered audio recordings of these teachings of Chögyam Trungpa Rinpoche. Currently, 28 entities, consisting of centers, consortia of centers, and affiliated Buddhist organizations from Canada, Mexico, Chile, the United States, Germany, England, and Nepal, are participating in this sponsorship program, resulting in an annual operating budget, after currency exchanges, of approximately $72,000 (Cdn) for a period of three years (Kidd, email to author, 26 April 2006).

During these years, there were also a number of staff changes that impacted the progress of the project. Today, the ARP staff consists of an audio technician, a technical director, and an assistant with peripheral support from the Archives Director and other administrative staff. "The audio technician [handles] all aspects of analog to digital file creation, enhancement and preparation for duplication; the technical director oversees the fulfillment of the protocol and centre fulfillment; [and the] fulfillment assistant makes the CD copy sets, according to the project specs" (Kidd, email to author, 26 April 2006).

In-House Processing

Since renovations were undertaken in 1990 to the headquarters of the SA's parent organization, Shambhala International, to create a 400 square foot, climate-controlled vault for

archival storage, the original analog tape recordings have been "stored vertically, packed well on the flange" (Levy, email to author, 26 April, 2006), in an environment regulated at approximately 35% humidity and 18 degrees C. Prior to this time, storage conditions for the tapes were not as consistent or ideal. Therefore, the recovery process begins with inspection of the original analog tapes to determine if there is any damage or deformation requiring corrective treatment. A common problem and the primary concern is a condition called "sticky shed syndrome," which results from "the degradation of binder polymers [glues] in magnetic tapes due to a chemical process known as hydrolysis" (Vidipax 2006). As a result, the surface of the tape can become gummy and stick to the heads and fixed guides of the tape transport, causing squealing, jerking, and, in extreme cases, slowing down or stopping the tape transport completely. Fortunately, tapes with this condition "can benefit from exposure to elevated temperatures for several hours, which bakes the binder back onto the base material" (Vidipax 2006). This treatment, when successful, allows the tape to be played and copied onto new analog or digital media. When the ARP audio technician discerns that a tape has this condition, the tape is baked in a fruit de-hydrator, which "applies an even, low heat, and draws the moisture out of the binders used to adhere the magnetic layer to the tape backing" (Levy, email to author, 26 April, 2006). Other standard preparation procedures include the following: "Tapes are fast forwarded and re-wound . . . [to] dissipate any built up magnetic fields [thereby] reducing print through; heads are cleaned; track composition is determined (stereo or mono); and playback levels are adjusted to optimum" (Levy, email to author, 26 April, 2006).

Four reel to reel tape decks, playing back two channels each (left and right stereo), feed sound into the M-Audio 8 channel digital I/O card that converts the analog audio signal to digital using a sampling rate of 44.1.kHz (the number of times per second the amplitude of the wave is

measured) and a bit depth of 24 (the range of numbers used to record each measurement). Steinberg's Cubase SX software is used to capture and record the digital signals in WAV file format to an array of six 400 GB Seagate SATA hard drives in RAID 5 configuration on a dual processor Zeon Intel computer server with 2 GB of RAM. No signal filtering or processing is conducted on these master preservation digital files. The RAID 5 configuration provides an additional level of data security because each hard drive reserves part of its data space to record parity information that will allow all data to be recovered if a single drive ever fails. A second computer is used to create four additional copies of this master preservation file, two recorded to Mitsui Gold DVD-R discs, and two recorded to Mitsui Gold CD-R discs, dithered down to 16 bit depth. These discs provide "back up in case the RAID computer dies suddenly, . . . [and one disc of each media is] stored off-site in case the archive building dies suddenly" (Levy, email to author, 27 April 2006).

A third computer utilizes Steinberg's Wavelab two track audio editor software, with plug-ins from Waves, Inc., to restore and re-master the 24 bit master file. The audio technician "remove[s] low frequencies, such as hum and traffic noises, fans, air conditioners, etc.; remove[s] some hiss from the high frequencies; use[s] a broad band de-noiser for really noisy situations; boost[s] [the volume of] questions [from the audience], if the audience is not 'miked'; [and] boost[s] and fatten[s] the overall signal using varying amounts of audio compression to bring up the volume in quieter parts to achieve a more linear dynamic range" (Levy, email to author, 27 April 2006). Two copies of the re-mastered, 24 bit, 44.1kHz file are recorded to Mitsui Gold DVD-R, one for off-site storage. A 16 bit, 44.1 kHz CD image file is created and copied, via Ethernet network, to the internal hard drive of a professional DVD/CD duplicator. Finally, an MP3 file, encoded at 44.1 kHz and 128 kbs, is created from the re-mastered file and

stored to the RAID hard drives on the server. An MP3 file that provides an audio demonstration of the quality improvements from the re-mastering process is available for download from the Archives web site at http://www.shambhalashop.com/archives by clicking on the link entitled "Audio Recovery Project."

Dissemination and Access

An integral part of ARP project is copying the re-mastered audio recordings onto Mitsui Silver or Taiyo Yuden CD-R media for distribution to the 28 sponsoring entities. The R-Quest TC-8908 duplicator allows the simultaneous recording of eight CDs and a "compare master to copy" mode to verify for data integrity. A Rimage Image, monocolor, thermal printer is utilized to print talk information and the Shambhala Archives logo onto the face of the CDs. Traycards (the paper insert between the back of the jewel case and the CD tray) are also printed in-house, on color stock, with information about where and when the original recording was made, the title and/or other identifiers, and then cut to size to fit into the jewel cases. The information on the traycards is also included on the slates (identifying information included at the beginning of each recording). "It takes about ten weeks to manufacture each shipment [of 28 sets of 144 CDs]. We are shooting for three shipments per year. As of this writing, we have shipped one set, but we are sending another out on Monday [May 1]" (Levy, email to author, 28 April 2006).

The copyright to these audio recordings is held by Chögyam Trungpa Rinpoche's wife, Lady Diana J. Mukpo. "Copyright is a form of protection provided by the laws of the United States (Title 17, U.S. Code) to the authors of 'original works of authorship," including literary, dramatic, musical, artistic, and certain other intellectual works (LOC 2006, *What is Copyright?*). In general, the law gives the owner of copyright the exclusive right to reproduce, prepare derivatives, distribute copies, perform, and/or to display the original work or to authorize others

to do so for a certain period of time. Exceptions to these exclusive rights are elaborated in Sections 107, regarding "fair use" and 108, relating to "reproduction by libraries and archives" (U.S. GPO *Circular 92* 2003, 8-22). The distribution of these CD sets does not include or imply permission to make unlimited copies of the CDs for circulation purposes, but making a copy of specific recordings, or programs [of talks], upon request from center members, for study purposes, is encouraged. "It is a lot of trouble for us to replace them [the CDs], and they could be damaged. We feel that it's very important to have back-up archives in different places, so we view this as a kind of preservation [strategy]" (Gimian, telephone interview with author, 28 April 2006). There is some concern that making these recordings available in digital format could result in some violations of copyright. "We are going to have to rely, in this case, on the practice [i.e. a connection to the Buddhist lineage and the practice of meditation that includes understanding the need for oral teachings to be transmitted in the proper time and place (Gimian, email to author, 1 May 2006)]. "People regard these [teachings] as special. If they want to ignore the copyright, there's not a lot we can do about that, but I don't think most of the centers we're dealing with would do that" (Gimian, telephone interview with author, 28 April 2006).

Assessment and Conclusion

Any assessment of the ARP should begin with exposition of the judgments that led to the decision to make this project a priority. "We realized we were at a point where we had to save the audio, because [even] if we decided that we were just going to save what was on the audio [the content] and not try to save the voice, we didn't have time [due to the instability of the original analog tapes and limited financial and human resources] to get all the transcribing done, because we have such a big collection of material that we think is important" (Gimian, telephone interview with author, 28 April 2006). Next, given that this project is almost ten years old and

still incomplete, something should be said regarding the protocol decisions made in the project's early years. The current audio technician offers that these decisions were "a mistake called 'early adoption,' where a format is adopted but that format dies out in terms of popularity and acceptance" (Levy, email to author, 24 April 2006). The SA is certainly not alone in its experience of this "early adoption mistake," and, it is, perhaps, fortunate that the lack of reliable funding in the early years slowed down processing efforts so that financial consequences were minimized. Finally, after applauding the creativity involved in achieving a relatively successful fundraising campaign, it is important to acknowledge that limited financial and human resources continue to require the ARP to focus their priority almost entirely on the recovery and preservation of these recordings with the consequence of limiting efforts to provide greater accessibility to them. Since one of the primary benefits of digitization is increased flexibility to provide expanded access to information, via the Internet and other media, in this author's opinion, the continued constraint on accessibility is the biggest short-coming of the ARP to date.

The next few paragraphs will discuss specific comparisons of protocol decisions made by ARP staff with current best practices for audio preservation and digitization. First and foremost is the decision, made in 2005, to not continue making ¼" reel to reel analog masters of the original recordings due to the costs involved ($20 for 90 minutes of stereo) and it's increasing obsolescence. Although Archives Director Emeritus, Caroline Gimian, characterizes this decision as "radical" (Gimian, telephone interview with author, 28 April 2006), there is support in the most current professional literature for this decision. "As of 2005, only one major manufacturer, Quantegy (formerly Ampex), still manufactures analog magnetic recording tape stock for the U.S. market. Only a handful of companies still manufacture the machines that play open-reel tapes. Some tapes manufactured for preservation reformatting, such as polyester tape,

have been found to deteriorate over time . . . [and] acknowledging that digital tape is as subject to deterioration as analog tape, some preservationists are developing systems to manage sound recordings as digital files, to be archived in repositories and periodically refreshed and migrated" (CLIR 2006, Part 1 - Introduction). Additionally, each copy made from analog tape results in an unavoidable loss of quality. Copies made from digital files are "lossless."

Other assessments pertain to decisions made by ARP staff about digital capture protocols and file formats, signal processing, storage media and location. Best practices for archival copies of analog recordings, published in the current professional literature, recommend digital capture protocols of 24 bits per sample at a rate of 96 kHz to an uncompressed, non-proprietary WAV file (CDP 2005, 15-18). However, the NINCH Guide to Good Practice notes that "the quality of the original also needs to be taken into account: there is no point in using a high sampling rate for a poor quality original" (NINCH 2002, page 131). Given the financial constraints of the SA (larger sampling rates create bigger files that result in additional storage requirements), and the fact that these are voice-only recordings, the decision to use a reduced sampling rate of 44.1 kHz is reasonable and adequate. Decisions regarding the re-mastering of the original recordings follow best practices by creating an unaltered master preservation copy of the recordings, as well as, a re-mastered file. The decision to re-master and improve the "listening experience" is coherent with and vital to the ultimate use of these recordings and creates added value for the collection. "It is highly recommended that organizations utilize a strategy employing multiple redundant copies of digital files in separate locations, as a fail-safe strategy for the failure or destruction of the digital media" (CDP 2005, 27). Decisions to record the unaltered preservation master files to three different, high quality storage mediums, with second copies stored off-site, meets this recommendation admirably.

Primary concerns remain regarding the lack of financial resources for the SA. Contrary to a popular belief, stated by Caroline Gimian as follows: "People think that because its digital, it's eternal" (Gimian, telephone interview with author, 28 April 2006), the preservation of digital files is an on-going challenge. There is a lack of enduring file format standards and a rapid obsolescence of hardware and software required to view, playback, store, or otherwise make use of digital information. Many of the file formats, media, hardware, and software that are predominantly in use are patented by private corporations which may, or may not choose to continue to support them. Recalling the 5¼ " floppy disk or MS-DOS, Windows 3.1 or 95, and Wordstar, provides an adequate variety of examples. As a result, preservation of digital works requires an on-going commitment of human and financial resources to refresh (move from older to more current medium, e.g. from CD-R to DVD-R) and migrate (to new file formats as standards evolve) to ensure viability over the long-term. Is there sufficient awareness of these challenges within the Shambhala International community to provide adequate support?

In addition, as mentioned previously, the lack of financial and personnel resources constrains the possibilities for increased access to these recorded teachings. Internet access possibilities are not yet available. Metadata has not been collected and organized to provide even subject-level searching capability for these recordings or for the transcriptions that have been accomplished to date. This is not because the SA staff is unwilling to pursue expanded access to these materials. In fact, questions asked regarding expanded access revealed that many ideas and aspirations are percolating: subject-indexed, searchable transcripts of the audio recordings; an updated SA web site for Internet access (possibly through subscription, with pass-word protection) for downloading MP3 files or listening to streaming audio; perhaps pod-casting; and provision of a searchable database of information for the CD sets of recorded

teachings. These visualizations of expanded access are totally dependent on financial resources to support them. An annual budget of $120,000 is not adequate to manifest these ideas, at least not any time soon.

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