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Ethnomusicology and Audiovisual Documents:
Challenges and Solutions
at the Dawn of the Digital Age

Keynote Paper

Technical Challenges and Developments in

21st Century Folk Music Archiving

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The digital age opens new dimensions of access to information and knowledge. Indispensable prerequisite for access, however, is the mere physical existence of information. This paper concentrates on technical and strategic preservation issues.

- 1 Introduction
- 2 Safeguarding the primary sources accumulated so far
- 3 New perspectives of audiovisual field work and of safeguarding these sources

Introduction

Sound recording and moving images:

- Developed for research purposes
- Prerequisites for ethnomusicology, linguistics, parts of anthropology
- Consequently, first audiovisual (= sound) archives were founded by academic institutions in
 - Vienna 1899
 - Berlin and Paris 1900
 - St Petersburg 1908

Entertainment record and film industry emerged soon after technology was available

- Film 1895
- Phonographic industry 1898

Systematic collections of published records followed in the 1920s/30s

- Discoteca di Stato, Italy
- Phonothèque Nationale, France
- Music Division, Library of Congress, USA

Early phonographic field work - cumbersome and expensive

- Cylinder phonograms: low recording quality and limited recording time
- Electrical gramophone recording: too complicated for wider use
- Cinematography: extremely rare because of costs

However: greater part of field documents were deposited in institutions and survived to date

Mid-1950s: advent of transistorised battery-operated audio tape recorders

- permitted high quality field recording everywhere in the world
- field collections mushroomed

Mid-1980s: easily portable video recorders expanded ethnomusicology sources from audio into audiovisual

Greater part of recordings were not kept under archival conditions

Safeguarding the primary sources accumulated so far

Worldwide holdings:

Estimate, supported (not verified, however!) by recent research:

- 100 million hours audio
- 100 million hours video

Number of research documents unknown: assessment challenge for ICTM, IASA Research Archive Section

Audio and video recordings are

- prone to deterioration
- threatened by format obsolescence and unavailability of replay equipment

Instantaneous disk

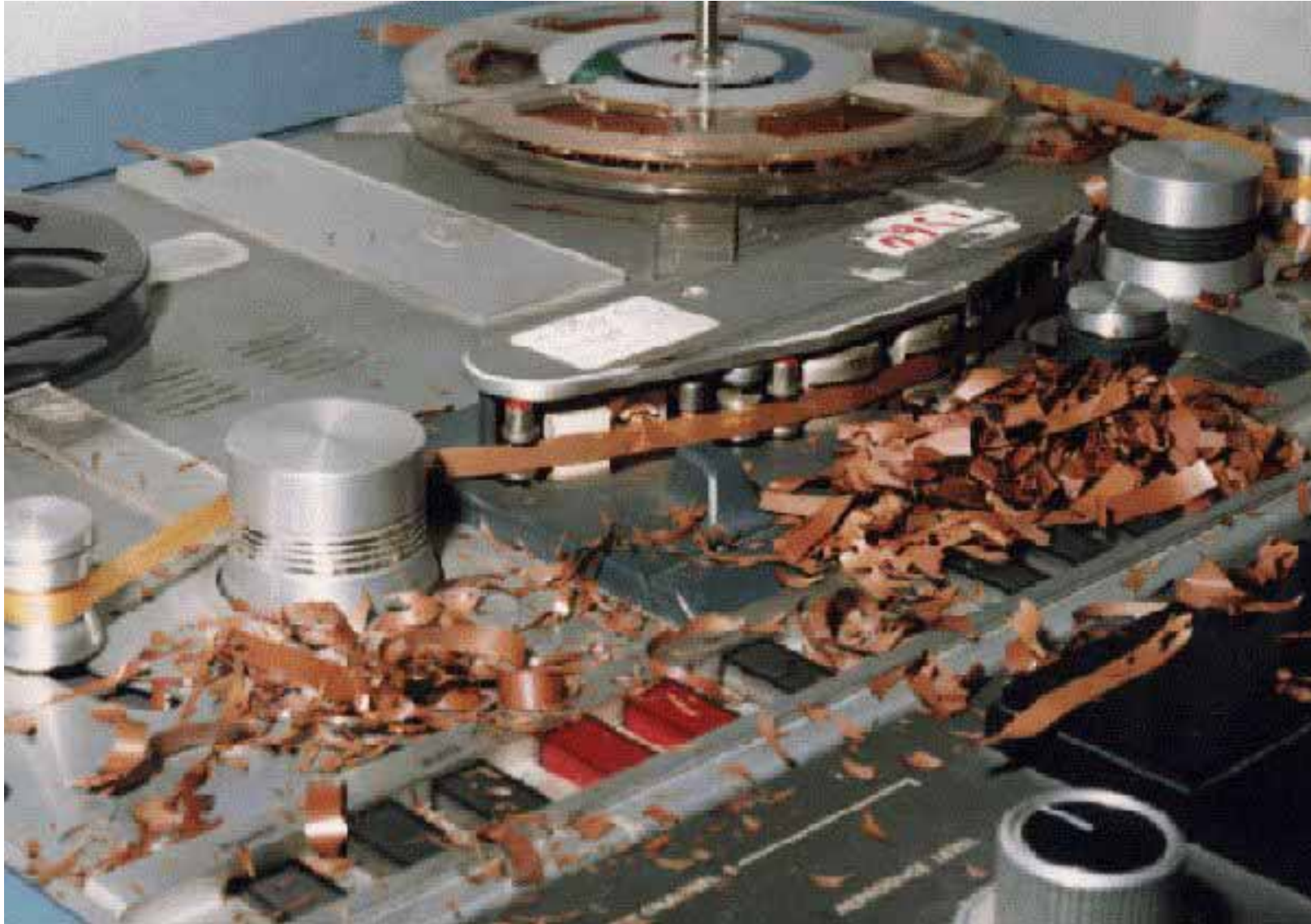
1990



2001



Ultimate state of binder degradation



Obsolescence of formats:

Almost all dedicated audio formats are dead

Video follows from dedicated to file formats

Recording, post production and storage is/becomes part of
IT world

Replay equipment vanishes from market as formats
become obsolete, spare part and service support fade
out

Change of preservation paradigm from 1989/1990 onward:

- preserve the content, not the carrier*
- generally well established for audio, video about to follow
- time window left 20 year
- availability of equipment considered more critical than carrier degradation
 - first three generations of digital video formats already dead
 - since ~2002 breathtaking pace of industrial retreat from support for dedicated audio formats: ¼ inch open reel tape, R-DAT, compact cassette.....

* *Guidelines provided by IASA-TC 03*

Two demanding aspects of digital preservation:

- feeding contents into digital repositories = signal extraction from original carriers
- preserving digital information in the long term

Feeding analogue and digital single carriers into digital repositories in demand of:

- time
- modern, format-specific replay equipment
- regular maintenance of equipment
- specialised experts in fading technologies
- critical masses to make autonomous transfer viable:
several thousand items per format
- professional IT components to take up digitised contents

Guidelines provided by IASA-TC 04

However, transfer is the first step only...

Long-term preservation of digital files requires permanent efforts in terms of

- logistics
- personnel
- financial means in previously inexperienced dimensions ...

to keep digital files alive

Present costs 5 USD/GB/year - decreasing

UNESCO short-term (??) target 1 USD/GB/year

Typical insufficiencies/mistakes made in audiovisual preservation projects

- inadequate equipment for signal extraction from originals: e.g. Uher Reports, Revox
- no precision AD converters
- streaming instead of file formats
- inadequate digital resolution
- data reduced (“compressed”) target formats for analogue originals – e.g. DVD for analogue video originals
- optical recordable discs as sole digital preservation media

Radio & television archives and national archives of wealthy countries will solve preservation problems professionally by

- (selective) transfer of holdings within next 20 years
- raising funds to keep digital files alive

....but what will happen to the greater part of ethnomusicology documents...?

Considerable proportion (80 % !?) of av holdings reflecting linguistic and cultural diversity is held outside archives proper:

- appended to research and cultural institutions without specific preservation programmes
- private researchers

To date, this system of relative disorganisation has worked somehow

Further survival of sources can only be managed by systematic and continuous input

Typical barriers against safeguarding audiovisual research materials in the West:

Optimisation of research output in terms of publications vs safeguarding primary sources for later generations:

- archiving standards frequently sub-optimal
- in case of budgetary problems of academic institutions audiovisual collections often threatened first

Typical problems in former Eastern bloc countries:

- due to research tradition great amounts of audio recordings
- collections part of specific (small) research units in (former) academies of sciences
- scepticism vis-à-vis cooperative models

Most recent TAPE study, however:

- mistrust is generation problem
- high awareness of audiovisual preservation problems among young researchers
- open to cooperative solutions

Cooperative solutions imperative to rescue original sources of present knowledge of ethnomusicology at various levels

- institutional
 - universities, academies of sciences
- national
 - digitisation plans, labour division
- European
 - funding digitisation as research infrastructure
- international
 - establishing standards, enforcing training

Failure to preserve originals would

- undermine fundamental research principles
- invalidate today's knowledge

(what would be the basic difference between a present-day publication and one of the 16th or 17th century?)

New perspectives of audiovisual field work and of safeguarding these sources

Digital technology opens new perspectives in field work

- hard disk and flashcard recorders permit high resolution file-based recording for audio
- analysis and annotation can be made in the field - new dimensions of cooperation with informants
- ideally, archival files including metadata can be completed during field work and “ingested” into digital repositories without considerable additional efforts

Challenges and risks

- field recordings need (multiple) back up copies – notebook, external hard disk
- demanding in terms of file management
- (further) development of ethnomusicology field tools
- power supply management

Specific video issues:

- video follows audio in tapeless file format recording
- general problem: high amount of data
- additional challenge: HD recorders upcoming - based on MPEG4 data reduction to keep amount of data within manageable limits
- threat: SD recorders may fade out soon

Ethnomusicology's interest in film and video: to high degree based on single frame analysis

- choreology
- instrument playing techniques
- transcription of fast and/or multipart instrumental music

MPEG data reduction limits single frame analysis



COMPRESSION ARTEFACTS



DV (25 Mbit/s)



MPEG2 (4 Mbit/s)

Summary field work in digital age

- digital technologies considerably support field work and enhance effectiveness
- management, however, demanding
- archiving will become a by-product of well organised field work

General summary

- digital age opens new dimensions of access to information and knowledge
- indispensable prerequisite for access, however, is the mere physical existence of information
- ethnomusicology will profit enormously - provided funds are set aside to ensure effective infrastructure on a permanent basis
- unless substantial efforts are made to systematically safeguard primary source material, ethnomusicology runs the risk to lose essential parts of its basis as an academic discipline

Thank you!

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