

;;;Learning Times 131016

>> Hello, everybody, it's a pleasure to be here with you today.

And for the first session of the "Caring for audio visual material" for webinar one.

My name is Mike Morneau I'm your technical producer for today's session.

Before we get going at the top of the hour, about 60 seconds from now I just want to let everyone know that you can feel free to ask questions at any point in time during today's session by using the chat window.

If you require any technical assistance, please feel free to send a message in the chat and we will respond as quickly as we can to try to resolve any issues.

We still see some people with multiple log-ins.

If you are experiencing any echos at all or distortion in your audio make sure that you only have one log-in session going at a time.

That way it won't -- it will clear things up otherwise your sound card is trying to deliver audio itself and that's the cause of the echo.

Today's meeting is going to be recorded and the recording will become available in the connecting to connections online community in the near future.

Without further delay I would like to -- I'm going to start the or I'd like pass the audio off to your host, Jenny Arena

from heritage preservation.
Jenny, please go ahead whenever
you're ready.

>> Great, thank you so much,
Mike.

Welcome everyone.

To our first webinar for the
course "Caring for audio verb
material" we're so happy to have
so many joining and looks like
we have a great -- robust crowd.
We're looking at 230 and
climbing.

So feel free to continue saying
hello in that chat box
throughout the session please
feel free to post your questions
there as well.

We'll hold on to the questions
and pose them to our speaker
during breaks we hope to get to
them all by the end of the
session today.

Fingers crossed.

As many of you already know this
is just one course in our series
"Caring for yesterday's
treasures today" we have now
concluded six courses this year.
If you miss any of those courses
or you're just simply interested
in going back through the
material everything is archived
on the online community from our
webinar record tongs resource
links can make sure to check
that out.

This entire series has been made
possible by 21st century
librarian of the institute of
library service.

Woe a great thanks.

Fortunate to have learning times
and Mike on board with us today
to help with the website and
webinar support.

For this particular course we owe a great debt to the conservation center for art and historic artifacts for organizing all of our speakers and the materials.

Throughout the course we'll have someone from CCA on board to help post your questions since they are by far greater experts on this topic than I am.

Today we have with us Dyani Feige who is preservation specialist with CCA.

Would you go ahead Ip throw dues yourself to everyone just say hello.

>> Hi, thanks, my name as Jenny mention asked Dyani Feige I'm preservation specialist at CCHA we are a nonprofit paper lab in Philadelphia.

A few years ago we put together an extensive traveling program on AV preservation called "A race against time.

We continue to be active at least the education end of that field.

We're very glad to be on board with this project cohost these webinars for you.

>> Thank you so much.

Dyani will pose all her questions to the speaker, keep them rolling in.

Before we move on to that topic today, I just have a few things I need to go through.

I promise in the future these will be much shorter but if you're joining us for the first time it's great to get all this basic information about the courses.

As you know this is just one

part of this five-part course.
After today our next webinar
will be Monday October 21 at
2:00.

Log in just as you've done
today.

Like all of our other courses
you are able to earn a
certificate of completion and
also digital credential for
preservation, we just ask could
few things from you.

The first is that you registered
online for this course and that
first page of the online
registration form looks like
this.

If this page does not look
familiar to you or you did not
receive a reminder e-mail we
sent that out on Thursday.

There's a chance you may not be
registered please contact us to
make sure to get you sign up.
Registration is our only way to
track your participation.

We also ask that you complete
all five homework assignments
whether you log in live for the
event or watch the recording
that we'll send you.

After each live webinar we'll
send you a recording of the
webinar link and so you can keep
up with the course if you aren't
able to join us live.

The e-mails will come from
heritage preservation, so just
make sure we're not getting
blocked by your spam filter.
Again, if you are not receiving
our e-mails let us know.

Then the final requirement for
this course is to complete all
five homework assignments.

At the end we'll post a link to

that homework assignment, e-mail you the link, you'll also find it on the course home page.

I will note that these are not graded homework assignments please don't stress yourself out about them.

Our intent was to get you thinking critically about the topics, simply do your best. And everything for this course is due no later than Wednesday November 6.

Of course you're not required to work toward a certificate but if you like to make sure you get everything in by that time.

I will just quickly say if you are a certified war safist this is eligible for five continuing education credits you can find more information on their website.

we have amazing list of resources they're still compiling them Mac sure to check that out.

Also find PDF hand out and power point for each remember that are, because for this course our presenter are using some great.Ages, we provided just black and white quick print hand out then also a full color print out for you guys.

Also find links to the homework assignments, a transcript of the closed captioning and as soon as this course has concluded we'll go ahead and post the recording, the webinar record tongs that page as well.

I also want to invite you if you haven't done so already to join the online community.

It's not a requirement of

participating in this course, but becoming a member does give you access to the discussion board which is great place to continue some of these conversation, is that we'll be having.

Now if you have any questions throughout the course, please feel free to e-mail us or call us we're here to help you.

Without further adue, let me introduce today's speaker, again I promise my intro will be much shorter in the future.

Today's instructor is Karen F.Gracy she's assistant professor at Kent state university, school of library and information science where she teaches courses in digital preservation, digital cure rakes and audio visual archiving.

She possesses an MLI S&P HD in library and information science from the university of California, Los Angeles.

and M.A. in critical study of film and tell vehicles from UCLA her book "Film preservation, competing definition of value, use and practice was published.

And actually you can see some of her more recent plushly occasions on the course webpage.

Karen, thank you so much for joining us today.

I am going to pull this out of the way and hand things over to you.

>> Hi, there, Jenny, thank you very much for the very nice in production.

It's really a pleasure to be with all of you today and also to be -- to launch this series

on caring for audio visual
media.

Very exciting to have something
like this available.

And I think many of you who are
connected know that it is
sometimes challenging to get
good information about this
area.

Hopefully this will be a great
series for you.

And without further adue I'm
just going to get right in to it
and talk a little bit about
audio visual material and its
importance.

This is an area that I think
cultural heritage institutions
have shifted their attention to,
I put up this quote by Paul
Conway from just a few years ago
where he talks about how -- if
you are familiar from the
library or archival community
you may have heard of that movie
and also just this idea of the
slow fires in our collections
and they were referring to
deteriorating paper.

So, Paul is suggesting that our
new big challenge is really
audio visual media, particularly
acetate based film, audio tape,
Mac net particular media.

So hopefully beginning today you
can start to think about getting
a handle on these collections in
your institution and taking this
first steps if you haven't
already.

Today is really about either
getting us started and thinking
about what the major problems
are, what is the physical
composition and vulnerability of
audio visual format.

How can we best limit deterioration through appropriate storage environments and become more familiar with recommended techniques and approaches for care and handling of materials.

These are some of the biggest issues that we deal with audio visual media.

First of all, these are primarily becoming noncurrent or niche formats.

Anything that is in analog form -- either has become obsolete or is in the process of becoming obsolete.

We have had some situations where certain things disks are record players are coming back but not the major distribution media that they once were.

Motion picture film is another area, Kodak, if you followed the news you know that Kodak declared bankruptcy a year or two together.

Most motion pictures are -- theater -- movie theaters are going toward digital projection which means there will be fewer prints being made on film.

So we're dealing with lots of material that we are having fewer and fewer ways to play it.

We also have to deal with issues how are we going to reformat, get access to this information that are on these older media.

Digital reformatting is obviously what many of us are interested in because it's the way of getting this material in to the -- in front of more people than we would have if people had to just come to our

institution.

We have situations where certain media is not even possible to do film copying because it's very expensive and decreasing availability of film stock is going to make it very difficult to do that in the future so we have to start thinking plan Bs for that.

We often don't have that expertise in our institution we're very reliant on vendors for conservation and reformatting.

We also have this issue for some of these media, are they valuable.

Do we still want to keep some of this material around even though we've reformatted it.

Are there things about it that make it still something we want to keep around.

That's something I think it really depends on the media, for example, motion picture film, there's actually lots of things about the container itself that has valuable information not just the content that's on it.

I think all of these issues will come up as you go through this session today and later sessions if you join us for the other webinars in the series.

So, this is just your outline for what we're going to talk about and cover today.

I just want to say, many of the things that I'm going to go over today you're going to have a chance to go in to in more depth for later speakers in the series.

For example, if you are really

interested in audio you're going to want to join the webinar that's next Monday.

Same thing for video and for film.

Definitely come back if you have sort of more specific questions. But we're going to try to cover film, some of the analog audio format and analog video formats specifically magnetic media.

Covering what the physical composition, what the vulnerabilities are and also talk a little bit about choosing the appropriate closures, controlling for the affects of temperature and relative humidity, trying to keep dust out of these materials, magnetic fields which can be a problem, you want to make sure that you're not going to rerace your magnetic media by doing bad things.

And then lastly this idea of making sure that you have the right equipment and so it's the do no harm philosophy of what can you do with this material and not further harm it.

So that's the goal for today. I will be stopping for questions several times.

I'm going to try to keep an eye out for questions to answer. But there sill will be several points I'll stop for a little bit.

Okay, first we're going to talk about basically the vulnerabilities of audio visual media.

We have several different types of deterioration that we're dealing with.

There's the chemical deterioration which might call the natural aging process. That is over time there be inherent advises that will cause them to decompose.

For motion picture film both nitrate and acetate based. You have the hydrolysis reaction it's absorbing water from the air and that is causing chemical changes, it's breaking down parts of the object.

Also the hydrolysis reaction with magnetic media causing things like sticky shed syndrome where you start to not be able to play your tapes well any more or the oxide starting to flake off.

With acetate disks, sound recordings, there's again you can see this is common theme of hydrolysis being a problem. There are certain aspects of many of these materials that will cause them to deteriorate over time unless we do things to stop that.

Some of it involves things like controlling the temperature and relative humidity.

We also can have mechanical deterioration that's resulting from stresses introduced by temperature and relative humidity fluctuations.

Common example if you are certain age you had a record warp on you, I have child of the '70s this happened to me probably has happened to you those high temperatures can be bad in other ways.

Then lastly we may have to deal with biological deterioration,

our mold, mildew, our pests.
An example of that for this is
wax cylinders which are
particularly susceptible to mold
because of material that is used
in the manufacturing.

We have to deal with all of
those.

With these media.

We'll start with motion picture
film.

In the later webinar, you're
going to get much more
information about motion picture
film but I wanted to cover for
all of these media the most
commonly encountered format.
There are other formats within
motion picture film but most
likely to run in to in your
collections are at least in the
United States are one of these
four flavors.

35 millimeter film, that has
been the film for over a hundred
years has been shown in
theaters, it's a professional
gauge I'll try to distinguish
between more professional type
formats then the consumer
formats.

As we go along from analog to
digital media we're seeing a lot
of blurring of those lines
between the two, but for many
decades there were definitely
differences between the formats
that professionals used in
production versus the formats
that consumers use.

5 millimeter -- 35 millimeter
has been used by Hollywood and
film producers around the world
for over a hundred years, it's
still out there today.

Still being shown in lots of

theaters around the world.
The fact that it's still around
and it was originally introduced
in 1893 is kind of amazing.
16 millimeter film it's kind
of -- still considered
professional format but you are
more like three find those in
institutions like schools,
anybody who collected film or
produced film for industrial
uses, educational uses, up until
about the '70s from the '40s
through the '70s there were
just a lot of 16 millimeter
films made and purchased by
universities, you do have some
people who were creating films,
sort of smaller independent film
makers using 16 millimeter.
That is also a format that's
been around for quite awhile
since 192.

Then you have these other two,
the super 8 and 8 millimeter.
Those are consumer formats, 8
millimeter is older they look
very similar.

Since they're both 8, 8
millimeter they are the same
width.

But if you ever want to
distinguish between the two the
super 8, the perforation that
run along the side are
actually -- sort of going the
different directions.

The other films the perforations
are horizontal these are more
vertical.

The other distinction is often
super 8 film you can have
magnetic stripe along the other
side which could be used to
record sound where as regular 8
millimeter will always be

silent.

You get much more information from I believe Jeff Martin if you tune in on the 28th of October.

I just wanted to distinguish among those.

Here is a little bit more information about film gauges and also the material that these gauges are made out of.

Anything before 1951 that is 35 millimeter is at least in the United States most likely to be nitrate.

And after 1951 more likely to be tri-acetate.

There is a few years of overlap between those two formats.

Nitrate if you know anything about nitrate you know it's flammable, deteriorates in bad ways.

It's possible that you could have material in your collection but if you are a cultural institution that has film and it tends to be later than that, it's likely, you're more likely to have acetate film.

Don't get too scared about having nitrate, really is almost exclusively in the U.S. going to be 35 millimeter before the '50s.

We also have another base that's been used since the '80s polyester based that's very, very stable it's not really -- doesn't deteriorate in the same ways that the nitrate and acetate bases do.

16 millimeter, 8 millimeter, super 8 never use nitrate.

Mostly tri-acetate.

Some very early 16 millimeter on

slightly different variety of acetate called cellulose Diacetate.

If you have anything like that it's probably very deteriorated at this point unless it was kept very carefully.

Just very briefly to mention there are few others what we call smaller gauge films out there that are much less common in the U.S. than they are in other parts.

World.

But some people do have them. I'm not going to talk a lot just to be aware they're out there. They could conceivably be nitrate or Diacetate which is fairly unstable.

Just to go through quickly the differences between the deterioration of nitrate and acetate film.

There are five stages in the deterioration of nitrate it starts out where the image starts to fade and brown, a little bit of a smell.

By stage two is sticky you try to handle it -- it's sticking to --

[no audio]

Sticking to itself.

In third stage may be honey on the top of the roll.

By stage four pretty much a solid mass.

At this point it's very unlikely that you're going to be able to salvage a nitrate film.

By stage five it really does disintegrate in to dust.

I give some examples of some of the stages here.

So you can see at the top of the

slide, something that there's no deterioration, if it goes to stage one, image fades and starts to brown.

Stage three you can see the blisters that honey start to form on the top of the roll. And by stage four and five, you can actually -- sometimes the films can be more than one stage at a time.

Sort of half stage four, half stage five.

Underneath all that brown dust is actually a pretty solid mass it's in the process of going from stage four to five. Really not salvageable at that last stage.

You may be able to partially copy something off of the roll in stage three or earlier.

Now acetate film.

There's die as state die acetate from the '20s and early's 30s.

Hydrol lists reaction I was talking about so even though a similar kind of kelp Camry action is taking place then with the nitrate or similar as the nitrate there are sort of different physical signs of that.

You get very -- becomes very, very brittle.

The film loses all flexibility. You get a lot of shrinkage where the base is shrinking but the emulsion isn't.

It's a physical stressor on the emulsion F. we were looking at still Plymouth channel can, the same thing happening.

Still the same thing is happening, just on a roll of film it look like -- of where

the film begins to deteriorate if it gets to a certain point which we call the auto catalytic point the deterioration can be low grade for very long time. Then it hits that point and it accelerates rapidly.

In ideal world you want to be able to address problems with vinegar syndrome early on. Because once -- as with my trait once you get past a certain point it's difficult to do anything with the film.

And likely we have loss of plates take sizes which -- if it looks like this with all that spoking that's channeling that's happening.

For that base is shrinking but emulsion is not.

At the very end stage of vinegar syndrome you may actually -- I have seen this myself you open up the can you have little shards of film that are filling up the can.

That's end stage.

Really nothing that can be done with that film even if you could begin to roll it's still on that reel off it would inevitably shatter if you put it through any sort of viewing equipment or laboratory equipment.

Here we just have our graphic of the autocatalytic point.

Hopefully this will make things clearer for you if you didn't quite follow that earlier.

Once it gets there, away it goes.

Luckily for us we have ways now of monitoring acetate deterioration for both motion picture film and also for still

film.

The image permanence institute has something called acetate detection strips, A.D. strips. What you do you can put those in the can for a couple of days and they actually have a chemical that's -- specially treated paper that will change color if acid vapor is present.

You put them in the can for 48 hours, then you take it out and you compare the color of the paper to, I think they give you a special pencil with the different stages of deterioration on it.

As with nitrate, if you are at the lower levels of deterioration you can often do something about it and think about either changing the storage conditions or even doing reformatting.

The other thing that you can do that monitor acetate deterioration is use something called the molecular sieve. Made by Eastman Kodak and other manufacturers that is sort of more pro-active way of getting rid of the acid vapor as film slowly deteriorates it's releasing the acid vapors you can have the molecular -- keeping the film from reaching the autocatalytic point.

Two great ways -- unfortunately we don't have those argue that many cultural institution, acetate probably the big E problem because you have more of that material in your collection.

Just to conclude this section here on motion picture film, if

you were to begin to look at your collections, this is really sort of the first step is trying to figure out what you have and what condition.

[no audio]

Maybe some cotton gloves and nice clean workspace.

And you could begin to gather information on things like who is the manufacturer of the film. There are clues on the film that help you do this.

Trying to date it using either contextual information you have or there actually is information on the film itself, often there are codes that are used.

You can certainly distinguish whether or not something is black and white or color usually.

You can probably figure out whether or not there's a sound track on the film or whether it doesn't have sound.

You can measure, figure out what gauge of film you have.

Using some of that information that you gather about the manufacturer and the date of manufacturer, you can often figure out, is this nitrate, is this diacetate or polyester.

Generation, this is very important.

You want to separate, if you have materials that were used in creation of the film, for example, original negative, work prints, you want to treat those slightly different from out you treat your access copies because if you ever want to do any sort of preservation work you want to begin, work with the

production -- those production materials.

It's important to try to distinguish.

It is challenging if you don't have any expertise to distinguish among -- do I have an original camera negative or do I have negative that was used in duplication to create access copies.

Being able to distinguish between negative and positive is a good first step.

You can also do inspection to see if you find any damage.

This you may actually need to have some sort of equipment like reminds, if you want to roll through the entire -- rewinds to roll through the film.

Are there scratches.

Are there broken perforations, is this dirty, are some sort of contaminants on it.

You can also try to assess whether there's shrinkage.

There's ways of doing this.

Try to see any sort of color fading.

Many of us may have had the experience of seeing what we call pink prints, where you see a film, the whole thing cast in light reddish color.

That would be very easy to spot and make notes about.

Number of supliess, type of perforations, this is more advanced knowledge.

that can help you do things like identify different types of perforations and different types of damage.

I believe that's on the resource list.

Some of which you need no equipment at all some you need very little equipment.

At least get you started.

There's also a source on the reading list that I think is coming out of the University of Washington.

I believe it's called "Film preservation manual, low cost and no cost to care for your film" even if you don't have the right equipment you can get started with some of this. This is a good point to stop for some questions.

>> Sure.

We have definitely had a lot of questions so we're not going to be able to get to all of them.

As Jenny mentioned in the beginning some of the more specific questions will hopefully be addressed in future webinars.

Let me see, we had Sarah from South Hampton, U.K., had a couple of questions on nitrate film.

First question was, what is your view on nitrate, should we try to preserve it or do the dangers outweigh the benefits.

>> I think that's a really good questions.

There is instinct, a fear of nitrate and people just want to get it out of their institution. Oftentimes there are local regulations on storing this film.

And so they feel like we can't even have it on the property and let's copy it get rid of it as quickly as we can.

If you don't have those

regulations that you have to adhere to, nitrate is amazing as a medium.

Something that I think is worth holding on to if you can for all you can.

Obviously there are lots of factors that go in to decision making.

If it's really important content, this is getting back to, I think I made a point earlier about intrinsic value or is it just a container.

I think increasingly we're seeing really good arguments made for how important nitrate was as a medium and lot of contextual information is on the object that doesn't get transferred in reformatting.

I don't think I have an easy answer.

But I think oftentimes it is worth it to try to hang on to it.

>> Okay.

Some other questions also specifically about the molecular sieves, Diane in Albuquerque asked who else, I believe someone else, who else makes them other than Kodak?

>> You know, I will admit that I haven't kept up on this but I'm guessing it's one of those Google search things where you did it, you probably could come up with it.

They were the first on the market.

It's possible that there could be different people marketing it in different countries as well, I know have a lot of international listeners.

I apologize, this is one that I will have to do some investigations see what else is out there.

>> One more real quick question.

Maricel asked if molecular sieves can be used for photo negatives.

>> I assume she means still photos.

As long as acetate-based film, I think you can.

It just doesn't work for nitrate, that's I think the main issue.

I believe it was probably originally developed specifically for motion picture film but I believe it also works for other -- for still photos as well.

>> Thank you very much.

>> There were some more but as I mentioned I think they will hopefully participants can stay tuned.

For future webinars.

>> All right.

If people are ready I can move on to the audio part of this.

First we'll talk about wax cylinders and disks.

And these are the things that I think people are most likely to run in to in their collections in this category.

The wax cylinders are the earliest type of sound recordings that we have, really. This is -- was Edison's -- his brainchild back in late 19th century.

Before we ever had disks we had wax cylinders.

78 was were the first disk

format then LPs that were on vinyl come later.

Those come in the two flavors, the -- or speeds, there's the 33 1/3rd and the 45RPM, revolutions per minute.

Wax cylinders, very nifty little things and if you have some in your collection they're just amazing.

But they're the most delicate things ever.

Because of the way they were manufactured using wax and some other substances they're just incredibly fragile.

They will crack if you breathe on them the wrong way.

So we have to protect them.

And that original housing that you see there, that original case is not the best permanent storage for it.

It's usually made of some sort of paper you really need to rehouse these.

The other issue, often encourages mold so you oftentimes will open up those wonderful little original cases that is all fuzzy inside.

Definitely these are very vulnerable to humidity changes.

Both mechanically and kelp I can tree and biological -- chemically and biological problems as well.

Then we have our analog disks.

This is just slide here that shows you the difference.

The 78s and LPs they look similar but 78s are smaller they're a lot heavier.

Our LPs those are fairly light weight because they use the Polly vinyl chloride for the

final.

Light weight compared to the 78s which actually used different materials that's part of the reason why they're heavier.

Then our 45s, obviously a lot smaller, pretty easy to identify.

the biggest problems for disks are the acetate or lacquer disks.

By far the least stable disc in sound recording we have an issue with brass take sizer that -- you can see this resulting in two different types of residue.

There's a powder residue that you can see so you can get these little tasty moist mounds that are on the groove surface.

Also can have palmitic as id it's more credit tallized or dry white specs.

This is one of those issues if you see a problem you may have to consult an expert to distinguish between the two but you can be comfortable in noting that there's definitely a problem occurring.

I think I had -- there, here is my palmitic acid example you can see what it looks like you have that residue across the top of the disc.

Another issue with these acetates they were often used for transcription.

One of the biggest differences between that regular commercial releases and the transcription discs are that they play from the center.

You'll usually see in that label, in the center, it will

say whether or not it's playing from the center.

And many of us might still have a record player lying around but you probably don't have a machine to play these types of disks.

This is definitely going to be a situation where you are going to have to consult a vendor that specializes in sound recording preservation.

The acetates they tend to delaminate basically where the material that is in the coating that's over the top will separate from inside, once delamination happens there's -- there is really not very much that you can do to reformat the content of the disc.

Hopefully you want to avoid that from happening.

We also have 78s which are made of shellac.

These tend to be -- they tend to become brittle -- embrittled over time, the filler of used sometimes made out of organic materials that are susceptible to mold.

If you have more recent discs they are often made out of vinyl that's actually amazingly enough is one of the more stable materials that is used for disc sound recording we don't think of PVC as being stable but in this case it's probably a lot more stable than shellac or lacquer disks.

It will -- if you have high enough temperatures it will degrade but much slower rate than the other disks.

I also threw in our compact

discs because I think many people think of compact discs as being really stable media.

But we now know is very susceptible to certain types of deterioration.

And delamination is the biggest problem there.

I think that probably our sound specialists will have more to say about this in later webinar. I don't think anybody is really going to recommend that you reformat on to compact discs any more.

I don't think that's the way that people are going to be going.

If you are going to inspect sound recordings, this is a similar list to what we had with the motion picture film what sorts of information could you record about it.

Some of which you can do just by visual inspection.

You can look for things like labels and look at the containers that they're in and try to get some contextual information about them there.

You can probably figure out with your ruler what the size of the disc is.

If you're lucky you may have labeling which will tell you if monoor stereo sound.

Like the 78s will all be mono. Stereo sound didn't come in until after World War II.

You can be pretty safe on that if you have early discs to say that it's mono.

Vertical or lateral grooves.

I didn't mention earlier but wax cylinders actually the earliest

action cylinders that Edison --
wax cylinders that Edison
created they actually had
different grooves than the later
discs.

So this can actually be really
important to discern if you are
going to have things reformatted
later.

But it's oftentimes not easy to
tell just by looking at it what
sort of grooves you have as this
might be case where you have to
consult with the sound
specialist.

It's often combination of
identifying the data -- date of
manufacture and who the
manufacturer was of the disc
whether or not you have vertical
or lateral grooves.

He tons use his vertical
grooves -- I'm sorry, lateral
grooves Edison did the lateral
grooves.

If you have Edison diamond disc
it's got the lateral grooves.

Speed, if you are dealing with
certain types of transcription
discs this may be a little
tricky to discern but if you
have a commercial disc,
obviously if you have a 78 in
your hand that's 78 revolutions
per minute if you have an LP
that's 33 1/3rd then those
smaller vinyl discs are the 45.
But for our transcription discs
remember I made a distinction
between production formats and
consumer formats.

Our transcription disks were
moch more likely to be a
production format.

They can be, it's not as
standardized so possibility that

you could have another speed if you're lucky it's on the label if your not lucky it's not. That would be a case where vendor might be able to help you out.

And also, also refer to determine if you have nonstandard material, is that were used, some of the -- this is like lots of technologies, people experimented with the materials early on and it wasn't until later that you start to have standardized materials used, for example, the LPs are pretty much universally the PVC material but some of our earlier 78s can be whole variety of materials that may not always be easy to discern.

For both our cylinders and discs we can also -- we can see some physical damage sometimes, the over-recorded versus under-recorded that's something that you would need a player to be able to discern.

This has to do with the sound levels.

And this would be something you need special equipment to be able to discern but certainly some of the more obvious damage that's on a disc or cylinder you could record in an initial inspection.

Now I'm going to move on to the magnetic media, analog audio magnetic media.

This is our open reel tapes and cassettes.

Open reel tapes until about 15 years ago this was actually the gold standard way to master sound recordings and also for

reformatting.

It's been pretty much entirely displaced by digital -- reformatting in to digital media but we still have quite a few -- lots and lots of these open reel tapes out there that we have to deal with.

Maybe you had reformatting project, somebody back in the '80s decided to reformat a bunch of oral histories on to quarter inch open reel tape.

And so now you have to go back look say, do I want to reformat this again in to digital.

The tape can actually come in lots of different sizes, you can have different variations on things like the speed that it was recorded at.

The size of that reel.

How thick the tape is, and the track format that was used.

All of these are actually really important to try to discern before you do reformatting.

There we go.

This two inch and one inch analog recording tape, if you have these really huge tapes in your collections these are productive format.

This would be -- in terms of sound recording that is on them and definitely if you have any materials from recording studios or from independent artists who had this sort of equipment you may come across this tape.

You also may have lots of these things.

Audio cassettes which are still out there, this is one of those formats that still is kind of clinging, you still can buy

cassette tapes in the stores.
And it's not the highest quality
dash recording but oftentimes
this is the sole source, or oral
history interviews, lots of
important content often on these
cassette tapes.

The biggest problem people often
run across is damage to the
case.

So this is something really easy
that you can do to at least
until ready to do transfer to
digital, you can actually
replace some of these.

If you have an issue with tape
being essentially pulled out of
the cassette and tangled up
that's a whole different issue.
But definitely the shell issue
you can -- something you can
deal with yourself.

Let's talk a little bit about
the magnetic media, the audio
tape.

What it's made out of.

We have the base, which can be
either acetate or polyester.

Acetate came first.

It's by far the more fragile of
the two.

Polyester really is chemically
quite stable.

We're going to talk about the
acetate first.

The thing in which the iron
oxide which is -- where the
signal is recorded it's
basically supporting that
there's a binder there, a kind
of glue that carries that iron
oxide and it also binds it to
the base.

And I also want to mention
you'll see on the slide there,
have acetate or polyester-based

tape in your collection.
Essentially the three things
that audio tape is most
vulnerable to are hydrolysis of
the binder, that's that sticky
shed syndrome.

That can affect both your open
reel tape and your cassettes.
If you ever put a tape in a
player and you hear a high
pitched squeal, that is
definitely indicator of the
deterioration of the binder.
And you also more advanced cases
have magnetic material flake
away from the base.
So that is a situation where
it's much more advanced and more
problematic.

If you have acetate-based tape
it's vulnerable to the same type
of deterioration as
acetate-based motion picture
film.

So it is susceptible to that
vinegar syndrome.

I'm get that pungent vinegar
odor which is the Acetic as id
and may get the shrinkage
similar to the motion picture
film.

You may also come across
problems with mold.

You can have that smell of mold,
mildew with that fuzzy stuff on
the tape.

All three of these can be
problematic.

And also I wanted to add that
videotape is very similar, only
difference is videotape was
never made using acetate.

It's mostly dealing with the
binder hydrolysis of the binder
issue.

How do you distinguish between,

if you have acetate or polyester tape.

One of the easiest ways is to hold that reel up to the light.

You should be able to see through the acetate tape.

But the polyester will be opaque, you won't be able to see light through that.

That's really quick, easy test to do.

One of the things we want to encourage people to avoid is trying to handle magnetic media on a hub like you see in that image.

You always want to make sure that it's supported by those flanges there.

I once worked with audio collection where there were many of these auto tapes on hubs, there was at least once where something bad happened and all of a sudden you had a tangled web of tape.

You never want to be in that situation you want to be extremely cautious make sure that it's always protected.

Acetate tape is very responsive to changes in temperatures and relative humidity.

It will grow and/or shrink depending on the humidity.

So you see here you have our reels are no longer perfectly round.

They are basically being distorted because of high humidity.

That's definitely going to be a problem if you're in an environment where you don't have good control over these two environmental factors.

When you try to play acetate on a player, you can start to see that it's not smoothly coming off the reel, going around the caps.

As you can see it's starting to cup.

It's really difficult to both play and reformat these tapes because it's just not writing smoothly along those tape paths and across the heads.

This would be case if you have fairly ancient acetate that is exhibiting some of these signs of problems like the hydrolysis of the binder or the deterioration of the base if it's acetate.

You are going to want to take it to a vendor who can make adjustments to their equipment to try to get the best recording of that off the tape if they can.

With equipment that you tend to have in your own institution like a player it's often you can't adjust the equipment.

So definitely more advanced stage deterioration cases.

That is going to be definitely your indication to try to to go a vendor or conservator.

This is more about the acetate tape.

Dimensionally unstable, very brittle.

It will tend to break very easily.

You'll have that vinegar-like odor.

And one of the biggest problems with vinegar syndrome is has tendency to contaminate other materials.

So if you start to suspect that something is falling prey to vinegar syndrome you're going to want to isolate it from other types of media because in general having acid vapors that can have a bad impact on many different types of material, not just other tapes.

So if you have way of sequestering that media in another storage place that would be particularly helpful.

Another problem with acetate is you can have lubricant failure. Magnetic media tend to have lubricants built in to it as it plays it helps the tape run smoothly along the tape path. But there's a limit to the amount in there.

Once it's gone then it will be very problematic to play it. There's no easy cure for this. This would be another situation where you tried to play it and it would make horrible noises in the machine and if you suspect that something is advanced deterioration again that would be your cue to go to vendor or conservator.

In compare ton to acetate polyester had a lot of things. We don't use these tapes as much as more because we're all going to digital.

But it tended to -- it's not unstable as temperature and relative humidity, rise and fall it doesn't change the shape. It's rare to have the lubricants fail.

It had better fidelity than acetate tape.

The biggest failing of polyester

is it got caught in the machine
it would stretch.

It wouldn't break, it would
stretch M. ways that's worse
because if you have a track that
is laid down on that tape all of
a sudden you try to play it back
it's going to be permanently
distorted not going to spring
back.

Here is a brief graph.

If you have -- polyester is more
likely to stretch and acetate
would break.

If you are trying to identify
what is happening you should
have the tape coming across,
coming off smoothly if it's
starting to stick, if it's not
coming off smoothly that means
there's -- it's possibility that
it's got sticky shed syndrome.
There are little brown flake, is
that are coming off the tape
that is generally a very bad
sign.

You don't want to continue to
try to play a tape that is in
this condition.

You have ruined the machine.

So you did he have in they want
to pay very close attention if
you're trying to play back a
tape if you start to see any
sign of this just stop
immediately.

Not try to continue playing it.
As with cylinders and disks we
have list of things that you can
look for if you're trying to do
initial inspection.

Be the later the technology,
magnetic media it's a lot harder
to ascertain some of these
things without playing it.

So that is a little bit of --

it's tricky, you may be able to read labels, may be able to do visual inspection but there are certain things you're not going to be able to fully assess unless you have an opportunity to play it back.

Or -- I'm actually going to move along with this slide and the next, I think some of it repeats some of the things in the earlier inspection slides.

Now have any particular questions -- if you have any particular questions on these slides do let me know.

I may take a moment to take more questions.

We're about at the 2:00 mark.

>> A few participants had questions about housing for wax cylinders.

In Massachusetts and Connie in Arkansas both wrote, what is a better housing for wax cylinders.

>> Yeah, that's a really good question.

I believe that there are some acid free -- what you want to do is you want to make sure that you're not putting pressure on sort of the outside corners of it.

So I know that people have been working on containers that try to have -- have support from the inside.

I'm not sure if that came to fruition depending where you live.

Glass storage containers may be a very bad idea if you're in earthquake country.

That's another one I think I'm going to have to do a little

investigation, see what vendor are out there and definitely we're going -- want something inert.

I know that there are vendors that have created definitely acid free cardboard containers but there may be other materials as well.

>> Handful of questions about with some specifics about DVDs and CDs I believe we'll get more in to that in the future seminars.

The third webinar in the series. Old coated CDs or DVDs more stable than regular ones?

>> They are.

From that sort of chemical point of view.

However bigger issue to address is how much longer are we going to have players for those CDs. We're starting to see computers going away from even having CD players in them.

Some of the more recent laptops like from apple or not including those players.

Making that sort of investment in what are very expensive media then you find out ten years later that it's almost impossible to find a player to play them.

That's the big E issue.

The player are u rather than longevity of the media.

I think we really are going toward either hard drive storage or a lot of people are starting to look at cloud storage seeing if that is feasible for them in terms of the costs for long term archive storage.

I'm personally of the opinion,

particularly for sound and video the sizes of the files are such that makes much more sense economically to go more towards hard drive, rather than trying to put something on some sort of removable media in the media device like optical disc. Hopefully that answered the question.

>> The next question I'll ask one more then we can hold more until the end.

Karen in Maryland asked, this might somebody what related in an ideal world if you can migrate data from a deteriorating media to more stable one which would you choose.

Polyester or digital?

>> This is for audio.

I think the field has really made that decision for you.

I know very few people who are still reformatting on to polyester.

They have really made that jump. The video folk and motion picture film folk there are some good reasons why we're still clinging on to some of our cassette tape storage for a little bit longer.

But I think for audio I don't know of any vendors who were going to recommend that you remaster ton polyester tape.

They're not making -- the players and recorders any more for one thing.

They have stopped.

They have stopped a number of years ago.

However, this does bring up the point, we still have this

material in this older format we still need to be able to play it.

If only to assess the content and to do that reformatting. Those players will at least, vendors, conservation laboratories will continue to be around for awhile longer as long as they can maintain the machines but it's really not a good idea I think to remaster on to polyester tape at this point. All right.

I guess we are moving on to video now. There are professional quality formats.

You might remember from the earlier audio side. Sometimes hard to tell the difference between two inch video and one inch -- you can be assured is a professional format.

There is one or two very, very rare early consumer formats that were on open reel. But most video that is -- I'd say post -- mid '80s is going to be in cassette form.

And almost all of the consumer formats are going to be on a cassette.

So there have been over a hundred different types of video formats, you can probably update that say 70 years at this point. So many look very similar and you're only going to be able to distinguish among them by looking at the width of the tape and looking at the clues that you find on the housing, like who is the manufacturer, what is -- sometimes some sort of not

model number but description of it.

It will say like beta cam, something like that.

That is easiest way to try to distinguish what you have.

It's definitely worthwhile to investigate.

There are couple of different websites out there that can help you identify videotape formats.

And this is one of the nicest ones that I know of, this is coming out of Texas.

Go ahead take a look at that link when you have a chance.

If you have mystery video formats.

Hopefully after looking at that the site you'll be able to tell what they are.

Here I've just showed you, show you how difficult it can be to distinguish, for example, beta cam which is professional quality format actually came in two different cassette sizes which correspond to different tape lengths.

I'll let you guess which one is VHS which many of us are most familiar with that's one on the lower right.

It looks very similar to the beta cam the 30 minute beta cam tape.

That can be very tricky.

We also have had multiple of these consumer formats over the years.

Anybody who had a camcorder in the early '80s, knows that some of these earlier formats like eight millimeter, high 8, later digital 8.

They all look very similar,

really just in the labeling that you can tell the difference between them.

There is also VHS, SVHS those are ones you can play on your home VHS player then there's sort of a baby version of it called VHS-C, C stands for camcorder.

Some of you, if you had a camcorder at that time knew there was device that you can put smaller tape in to put it in your regular VHS player and play it on your television you can see your home videos on the television.

Also have mini DVD this is small sampling of some of the option, is that you may encounter in your collection.

Videotapes have some similar problems to our later audio tapes.

You'll see in the upper left hand corner there is a graphic which shows you the different components of the videotape.

Sometimes you do have back coat but sometimes you don't.

You'll have polyester base.

Then magnetic layer where the magnetic particles are in a binder that attaches to the base then there's lubricant reservoirs.

So, it's in that binder that the issues often come up with the deterioration, hydrolysis reaction that results in the deterioration of that oxide layer.

We also have some images here, some very sad videotapes of obviously been abused, like the one on the upper right there,

that's most likely damage from a player that was having some sort of problems and chewed up the tape.

On the lower -- let's see on the right, the lower right you see that has mold or mildew issues there, see those little fuzzy specks.

Then on lower left this is often true, this is actually on open reel tape where there was a problem with the tape pack.

We want that tape to be smooth all along if you have misalignment in your player it will not result in a smooth tape pack.

I'll have a little bit more about that in a second.

[lost audio]

[i'm reconnecting]

>> You are not going to want to stack them horizontally like you did with the motion picture film.

They are opposite of one another.

Audio storage, we want our disc to be supported so you can see there there is nice example on the left.

Those might be 45 disc, is that are individual.

And they are fully supported fully vertical.

Very nice acid free containers for those as well that you can probably quite easily find.

At your favorite preservation or conservation.

Now we're getting in to some of the recommendations for temperature and humidity.

Just to make some -- I won't go in to particulars too much of

every single base but essentially some motion picture film likes to be cold and dry. The colder you can get it the better.

Some cases for things like color film that's the only way to really retard color fading.

If you have a little bit of film, you have the potential to maybe buy a freezer and store it that way.

If you have can after can, hundreds of cans there is a reality that unless you have lots of money you may not be able to create a whole separate storage facility and keep it at 45 degrees and 30% relative humidity or whatever it is.

They will often do something in between, multiple types of media in storage facility maybe they will choose something that's -- could be colder similar right in the middle.

If you look at the -- skip over to the videotape, the long term storage for that kind of likes to be in the 50s.

Maybe if you actually have ability to create a media storage room and you have lots of different types of media with the middle of the range.

Not going to be the best for some, but certainly going to be better than having it be at temperature.

You'll see it says, do not freeze magnetic media.

Want to keep that a little bit warmer.

Going back to the audio, you see here, actually does a little bit better at higher temperatures,

reel tapes could be a little bit cooler, be perfectly happy. But the disks and cylinders it can take slightly higher temperatures and slightly higher and be okay.

'climbtization.

If you are keeping something in a colder storage facility you don't want to bring it out just try to play it immediately.

Climatize it.

If your storage and operating temperatures are more than 15 degrees Fahrenheit, you need to allow for four hours for every 18 degrees Fahrenheit or ten degrees Celsius different.

You can work out that math for yourself if that's going to be an issue for you.

Otherwise you're going to have condensation problems and very poor idea allow that to happen. Particulate matter, another thing I mentioned, dust is not the friend of particularly magnetic media.

You are going to want to keep things clean as much as possible especially when you're in the process of infecting things. Cotton gloves, actually pretty good idea.

Particularly for motion picture film.

Interestingly enough acetate film you are more likely to transmit fingerprints than nitrate.

Nitrate once it's cured, we'll assume that most nitrate stopped being manufactured about 60 years ago it's supposedly cured at this point.

It doesn't take fingerprints

quite as badly as acetate does but still you want to protect it as much as possible.

Same sort of moratorium on no smoking, no eating, no drinking around these materials.

We often have to deal with past poor handling with our collection.

If you see that there is some sort of past particulate contamination you're going to want to consult your conservator or vendor about that.

Magnetic fields.

Keep magnetic tape away from fields.

Don't stack tapes on top of player equipment or television, things like that.

Have potential of affecting that signal that's recorded on that tape.

The usual things like don't put these things in the sun.

Motion picture film while never, never, never nitrate anywhere near any sort of heat source because of its flammability.

Hopefully that one is obvious.

We've had very sad stories over the decades of fires, particularly with nitrate because of poor decisions made by people.

We want to be ultra cautious with our handling of the nitrate in particular.

Replay and inspection equipment.

If you have it, you want to make sure it's clean as possible.

Oftentimes cleaning it after you use it every time you use it.

If you are dealing with material that is actively deteriorating, likely to leave some sort of

residue.

Stickj shed problems,
delamination.

You want to gravitate towards
more gentle inspections.

Methods and equipment where you
can -- look for things that are
known to be easier on materials
and I can give you some more
direction on that if people are
trying to figure out what is
better piece of equipment.

And also if you can get your
hands on professional quality
equipment, you are going to get
better playback and better
reformatting.

Whenever you use professional
quality equipment for your audio
visual media.

There are still things that you
can do without playback
equipment, you can still look at
the first few feet of film,
still look at evidence that
onioned on the container to be
able to identify, evaluate
things about attempting play
back.

So don't worry if you don't have
play back equipment there are
still things that you can do.

I think this last bullet point I
probably made couple of times.

Anything that seems to be sort
of non--- dash basic
capabilities that's when you
want to contact your vendor or
your conservator.

There are lots of vendors out
there that can help you that
specialize in preservation --
evaluation of things and
preservation transfer.

I think I've made it.

>> That was fantastic, this is

Jenny.

Wow, that was great.

We have a ton of questions, let me quickly pull over the homework assignment and everyone do your best, we'll review the questions at the next webinar.

I have all the answers.

Karen gave me all the answers.

I'll let you know what the -- just do your best.

>> I really -- we had polling questions I apologize I completely forgot about those.

>> No worries.

I'm going to pull over attendance chat box this is just for folks who logged in as a group.

I just want the name of your group number so we can mark you down as having attended.

You logged in just yourself, you entered your name in to the system we got you don't worry.

This is just for our groups.

We have about four minutes, Dyani choose the best couple of questions.

>> Sure.

There were a lot from this last section.

We had couple of questions about film storage, for the cans, vented or non-vented.

>> The haven'ting once are much more expensive but they're fantastic if you can afford them.

I think basic idea is that you are not going to get the acid vapor building up in the can.

Because it's going to be escaping slowly over time.

You're going to be not reaching that auto catalytic point.

If you can afford them I recommend them.

Very nice option if you can afford it.

>> There were a couple interesting questions, Philip in New York City and Diana in Madrid were both asking about keeping original sleeves from LPs or 45s, for instance they should be kept separate and acid free containers with cross reference metadata or -- and putting the records themselves inside a polypropylene case.

>> I think that is your best solution because you don't want to store them in the paper sleeves permanently.

Obviously a bit of a pain to be doing all of that -- that linking to make sure that you still know which sleeve went -- sometimes if there's nothing written on them just a simple paper sleeve that doesn't have any contextual information on them.

Or are you talking about the covers?

There are sleeves then there are the covers.

Obviously the glorious LP covers you're going to want to keep around.

Interior sleeves probably you can get rid of unless there is something written on them.

>> Christa in New York City asked, is there a difference between using cotton gloves versus Nitrel gloves handling film.

>> That's next excellent question.

You would definitely go towards

the Nitrel if you're going to do any sort of treatment yourself. For example if you decided you wanted to buy film cleaner you want to protect your hands and that would be when you could go to anigh tremendous glove just inspection -- a Nitrel glove. Cotton gloves should be fine. I know a lot of archivist they take the cotton gloves off for some parts of the inspection. Rewinding motion picture film fairly quickly you have your gloves on there is possibility that if there is a broken perforation you can see a snag and can further tear the film. I know some people who they just go bare handed if you are feeling along the edges of the film, rewinding. It's not a hard and fast rule but most of the time cotton gloves are okay.

>> All right.

I'm going to cut in here so it looks like we are out of time. We do have all your questions we're going to hold ton them, I may hold on to them until the end of the entire course because I think a lot will get answered in following webinars we'll hold on to them if you feel like at the end you still have questions you can always feel free to e-mail us.

Reminder out next webinar is on Monday at 2:00.

Karen and Dyani thank you so much thank you to everyone who logged in today.

>> Thank you very much.

Everyone have fantastic afternoon.

>> Thanks, you, too.
Take care, everyone.