Thoughts towards an effective and lasting strategy for archiving Nimbin Aquarius resources.

John Allen: *We should all make a concerted and cooperative effort to preserve the Nimbin archives - they are a great legacy and learning resource for the future. I would like to see all the archives brought together in one place accessible to all. It is a big task, and needs dedication as an on-going archive for Nimbin.*

What follows is a summary of my thoughts and suggestions for what I believe to be an effective approach for the Nimbin community to take in terms of archiving your own resources.

I'm not a professional archivist or historian but rather a filmmaker. I just fell into this archivist/historian role trying to preserve my own films for posterity. As a result, I have learnt a few lessons along the way, often from my own mistakes, that might be helpful to others. So I hope some of this might strike a chord and prove to be useful or helpful information.

We are blessed by the fact that the Nimbin Aquarius Festival in 1973 is far better documented that any other similar archival project I have undertaken. Granted, lots of irreplaceable stuff was lost or never recorded, but it is still better documented than most other (if not all other) events of a similar nature in a similar time frame. So somewhat to my surprise, the amount of resources is overwhelming. It looks like another first for Nimbin!

What I'm describing in this document is my personal approach to archiving similar historical resources. In other words, I'm trying to apply what I've learnt in a practical way to what little I know about the situation on the ground in Nimbin. I believe the principles I outline remain applicable but the implementation can be adapted to suit local realities.

So I hope this document proves to be useful to whoever undertakes this noble and worthwhile task.....

Scales of Time:

When I refer to preservation for the "future", I mean 40 or 50 years plus, not just say, the next 10 or 20 years, which is a relative flash in the historical pan.

It is easy to archive for 10 or 20 years, but 40 or 50 years and more is an entirely different matter.

Literally putting stuff in a box under your bed will work for 10 or 20 years, but usually not for 40 or 50 years and beyond.

Physical Depository:

Any serious, long-term archiving effort needs to be done in conjunction with a major physical depository. This is of the utmost importance. The bigger and more established the depository, the more likely resources will survive in the future, be valued as something special and unique, and hopefully provide inspiration for future generations.

Where physical assets exists, they should be housed in climate-controlled conditions for their long-term preservation. The most effective way of doing this is through stable, well-financed institutions such as State and/or Federal libraries and/or major university libraries.

"**Best**" Facility:

I understand the State Library of NSW has been developing a "*Rainbow Archive*" with Nimbin Aquarius resources.

Having the active support of the State Library of NSW, suggests to me that this might be a key facility to focus on as a primary physical depository for valued Nimbin Aquarius resources.

However, I think the best approach is not to focus on just one major depository but as many of them as you can persuade to accept and house your unique resources. I'd encourage you to approach all State, Federal and major university libraries. You'll find some will want to co-operate while others will show marginal interest or will decline.

Approaching libraries is not as easy as it sounds. Some libraries can be extremely frustrating to deal with and the simplest little things can take years to put in place, or more likely never eventuate. This is really an indication that these institution are under funded, under staffed, and struggling - although probably well intentioned underneath it all. But thankfully some libraries are the exact opposite and are indeed a pleasure to work with. The ones that respond with interest, enthusiasm and competence will be the best ones to focus on.

Where you have duplicates of the originals assets, consider donating those original resources to those other depositories as well. The idea being that at least one depository has a complete set of the "originals" for the Nimbin archives, while the others have partial sets to back this up.

As I see it, the key is not to put all your eggs in one basket when there is no need to do so. Who knows if the State Library of NSW will still exist in 50 year's time, let alone 100 years.

With the support of the State library of NSW and others, at least there is the potential for a new lease of life for these resources further down the road in say 30 or 40 years. No guarantee, but that is the best we can do to facilitate this happening, or to increase the chances of this happening.

Copy, then Donate:

I would urge you not to make the "mistake" of depositing resources first then asking for copies later. I'd definitely recommend scanning (digitising), photocopying, or photographing everything before donating those resources to the State Library of NSW. Once inside large institutions, it is often very difficult, or impossible, to have material digitised later and copies returned back to the community (including to the original donors).

The reason for this is not because these institutions are unsympathetic or don't want to be helpful, but rather this is because the digitising of resources is governed by library policy, budgets and available personnel and facilities. Naturally they have to prioritise, as they are the guardians of mountains of resources, not just the *Rainbow Archive*. They may very well want to help with your requests but other factors are likely to prevent this happening, or at least in a timely fashion. Even offering to pay for this work yourselves typically does not produce the desired result.

You can't just assume libraries will digitise their collections. Even where a policy and the budget to undertake such a task exists, this work will take decades and it is never ending. They have to priorarise the order in which this work is performed.

However, you can 100% short circuit this "problem" by generating your own copies (particularly digital copies) before anything is handed over to the major physical depositories

Migration to Digital:

I believe a digital archive needs to work in conjunction with a physical archive. Each should support the other.

As you create digital copies, these files will more than likely assume special importance. They will tend to take on a life of their own.

They usually become the new master copies, and in a sense become, or will become, more important than the originals. In time, they will eventually replace the originals, or tend to do so (especially for things like video tape which won't survive long term - even film has a limited life span due to chemical deterioration and shrinkage).

There will be a strong tendency for the digital files to become the new "originals". If for no other reason, then from the point of view of convenience if nothing else. This has already happened for nearly all of my own films, videos and audio tapes in my personal archive.

Safety Redundancy:

As everything is digitised, it needs to be backed up on different types of media (hard drives, optical discs, flash memory) and stored in physically different locations to help protect against unusual and unexpected catastrophic loss. Otherwise you risk losing everything in a moment of neglect, carelessness or simple bad luck. Such loss could represent hundreds of hours of work down the drain and might include the loss of resources you no longer have access to.

The Web:

There is a strong tendency these days to post everything on the web and leave it at that. However, it is clear that things come and go on the Internet all the time......it is the nature of the beast. You can pretty much guarantee that most, if not all, web sites will eventually disappear in time.

Therefore I would caution that relying on web sites alone is almost a guarantee of the eventual loss of those resources forever! There are ways to archive web sites which I will discuss later (see section under the heading Pandora).

Effective, long-term archiving needs to be a multi-pronged approach.

Role of the WWW:

Despite its transient nature, I strongly believe web sites are key and vital as part of effective archiving. Why? Realistically, this is the main way, indeed, the only way for most of us, that these resources will be accessible and will ever be seen, including by future generations.

So I believe we need to address both halves of this equation (depository and web) as being symbiotic. Having both working together in a healthy balanced way is vital and essential in my opinion, since neither can do the job alone.

When these web sites eventually disappear (say in the next 10 to 20 years), the source material will presumably survive in those physical locations in well-established and stable depositories, such as the State Library of NSW and similar.

The trend is that preserved assets will be in the form of digital files, remembering such files need to be physically stored in a similar way as archiving valuable documents printed on paper. You still need physical storage for digital information.

Realistic (real-world) Access:

Usually, access to physical depositories is impractical for anybody who lives, say, further away than a 100 mile radius of an archival facility. This assumes people even have the time or inclination for this sort of activity in the first place which might include digging through boxes and folders of material as a researcher might do.

Candidly speaking, if you can't reasonably get to these facilities, then this amounts to the same thing as those resources not existing!

Access to depositories is usually more limited and controlled. Facilities like this usually cater for research purposes, exhibitions, publication, and so forth. By its very nature, access is much more limited and regulated.

That's is why I favour dissemination via the WWW (i.e. world wide web via the Internet). Then virtually everybody has access. Moreover, it is fast, easy and inexpensive access.

Using online search engines, you can usually find an item you are interested in reviewing quicker than finding your car keys to drive to Lismore or Sydney (or where ever the physical depository is located).

Maximising General Accessibility:

I feel it is important to provide world-wide access, and not just access in the Nimbin and/or Lismore areas. This is easily done using the World Wide Web.

A key advantage of a web-based digital archive is you can provide world-wide access very easily for a relatively modest outlay and with minimal upkeep.

This can be done by individuals or interest groups, even as a volunteer effort without any budget at all where hosting can be provided free of charge (e.g. via the Nimbin web portal).

I think the more people involved in the presentation (repackaging) of our historical resources the better, so I would encourage this. I'm thinking of web sites in particular but this might also include exhibitions, displays, seminars etc.

The *Aquarius & Beyond* project based at the Southern Cross University springs to mind. I helped with historical resources for this seminar event and they in turn tracked down and contributed additional resources (especially programs from broadcast television from that era). So each helped the other.

Every project will have its own slant and therefore offer unique strengths and benefits to viewers and audiences. We shouldn't expect any single web site can be everything to everybody. So the more presentations on the web and elsewhere the better. And when you think about it, the more places we can set up archives and historical resources the greater the chance our resources will survive into the longer term for posterity.

Avoid Compression:

Special attention should be paid to the practicalities and actual techniques for digitising your resources. There are many ways to go about this task but some processes make more sense than others from a long-term archiving point of view.

Firstly, lets look at the role of compression schemes otherwise known as "codecs". Most files we work with these days are compressed. This means they have to be uncompressed (usually almost instantaneously, or "on the fly" in the case of video), in order to view them.

This is done with software or "codecs". Some codecs are generic, while others are proprietary. The term codec is derived from the words **CO**mpression / **DEC**ompression. If you don't decode the compressed file, you cannot view the content.

You can think of it in the same way as a coded message. If you don't have access to the cipher you can not decode the message in order to read it.

You can also think of codecs as being similar to "formats" in the old analogue sense (which, as it happens, used earlier, non-digital, forms of compression).

Compression is a lossy process degrading quality......especially repeated compression (i.e. when you re-compress already compressed files to other forms of compression or even back to the same type of compression).

Some of these compression schemes come and go like changing your socks, while others are more durable and hang around for years, even decades. But they are all evolve and change, some very quickly, some more slowly.

So if you are thinking in time scales of 30 or 40 years plus, I ask the question who will be able to uncompress (i.e. access) files that were popular in 2013. Maybe nobody. Or it might become extremely difficult.

The reason being that these codecs will tend to disappear over time, possibly without trace, especially the less popular or short-lived ones. Also proprietary codecs will probably be locked away in vaults when they fall into disuse and eventually forgotten about. So effectively lost forever.

Recommendation:

Long story short - I don't use compression. I scan everything to uncompressed files.

So in the case of simple documents, I use uncompressed TIFF and not compressed JPEG (even though JPEG is totally ubiquitous and universal by today's standards).

I digitise video and audio resources as uncompressed files exclusively.

For audio, I save to uncompressed WAV files at the higest level of quality available, usually 24-bit at 96KHz (or higher specs if I can).

Indeed, this approach is even more important with video, as video codecs are particularly volatile and constantly evolving as the technology barrels ahead at breathtaking speeds.

I always scan video to uncompressed files even if it means they are hundreds of GB is size. I have master copies of some of my 16mm films that are around 240GB. Luckily this is no big deal for modern storage when most hard drives are terrabytes in size. Don't be afraid of large files. Call me crazy for doing this, but I want these files to be accessible in 30 or 40 year’s time, if not much longer than this.

Maximise Quality:

There is another very important aspect to optimising your digital files. We also need to be concerned with quality, not so much in the here and now but with a mind to the future.

I have been scanning my films to HD resolution because that has been the highest-quality technology available......well, up until recently. But we are already shooting in Ultra HD and DCI 4K which is four times this resolution.

So my aim is to give future technicians as much raw data to work with as I possibly can (hence the "uncompressed" and the "HD" as a minimum delivery format. 4K would be better if available). Who knows what technologies will be around for viewing our films in 30 or 40 year's time when I'm sure our current HD will look as quaint and quirky as a flickering Charlie Chaplin film does to us today.

They will repackage our films and audio into the display technologies of the time.......perhaps true 3D holograms or something like that? They may be able to design software than can upgrade old films to something that looks significantly better than their original quality. So the more data available for future wizzkids to work with, the better this result will be.

My advice is to scan all your resources to uncompressed files and in as high quality as you possibly can. From the perspective of today, this might seem to be unnecessary overkill. So we need to resist the influence of today's logic and try and think strategically in the longer term. Admittedly, this is not easy to do and takes some re-adjustment of our values and perspectives.

Recovering that information in the future will be hard enough without adding obscure, old fashioned compression schemes (codecs) to the equation. And the more data available the better the repackaging will look in the decades to come.

I believe it is "smart" practice to give future generations a fighting change if you want them to work with your resources and for it to look acceptable in future display systems.

Digital together with Originals:

Be sure to also donate the scanned/digital copies of all your Nimbin resources to the State Library of NSW in addition to the originals you are placing in their care. The reason to do this is manifold.

It saves the depository the time and resources performing work which you have already done for them. Or another way to look at this is it ensures everything is digitised in case the institution never gets around to doing it themselves (in whole or in part) because of time, staffing and monetary restraints. Or it ensures this happens more quickly than it might otherwise happen (i.e. now, rather than, say, in 10 year's time).

Once in a digital form, the State Library of NSW is more likely to stream some of these resources on their own web site which is desirable since it will increases the potential for wider public access. In a digital form, it is easier to put this material on DVD disc (or similar) for their lending library, and so forth. Basically, of benefit to all.

It also means these digital files will be archived in the long term, remembering they may end up being more important than the originals as time goes by.

Web-site Builders and Managers:

The next phase is to deliver copies of these digital files to the people and groups interested in making and managing historical web sites with Nimbin Aquarius resources.

For example, the *Lismore Historical Society* who presumably will add a historian's perspective to this material which could be both interesting and illuminating. Also people and groups using the Nimbin web portal, and so on.

Of course, archives are not somehow objective entities, but on the contrary are highly subjective in the way they are organised and presented. That is why I would encourage as many different web sites as possible since having multiple sites will cover a broader range of interests and tastes in the wider community.

PANDORA, Australia's Web Archive:

In Australia, there is a special archive designed for preserving web sites called Pandora. Inclusion in the Pandora archive will help offset the transient nature of web sites in the longer term.

The name, PANDORA, is an acronym that encapsulates their mission: *Preserving and Accessing Networked Documentary Resources of Australia*.

The Pandora Archive is "*a selective collection of web publications and websites relating to Australia and Australians. It includes materials that document the cultural, social, political life and activities of the Australian community and intellectual and expressive activities of Australians.*"

Online publications and web sites are selected for inclusion in the Pandora collection with the purpose of providing long-term and persistent access to them.

Pandora was initially established by the National Library in 1996. It now works in collaboration with other Australian libraries and cultural collection organisations. Since March 2004, all of the mainland State libraries, the Northern Territory Library, the National Film and Sound Archive, the Australian War Memorial and the Australian Institute of Aboriginal and Torres Strait Islander Studies had become participants, making ten contributing agencies in all.

This special archive will help with longevity of web sites provided your site meets the acceptance criteria. I would encourage all historical web sites presenting Nimbin Aquarius resources to apply for possible inclusion in the Pandora archive: http://pandora.nla.gov.au

Autonomy:

When you read the fine print in the user's Terms of Service (TOS) contract, both *Facebook* and *Google* claims to "own" everything posted on their networks. In other words, *Facebook* and *Google* insist on being able to make use of anything posted on their networks for their own self promotion and for marketing purposes etc.

In November 2006, *YouTube* was bought by *Google* for US$1.65 billion, and operates as a subsidiary of *Google*. I mention this since many web sites make use of *YouTube* as an effective, world-wide streaming network for embedding video streams.

To me, this is an argument to put everything on your own servers that you control yourselves. Also to avoid the use of applications that are intricately networked by these global mega monopolies (such as *Facebook)*.

Making use of streaming networks for films and video is essential however, so consider using *Vimeo* instead of *YouTube*. *Vimeo* is every bit as good (if not better) and its policies are more liberal and less "greedy" in the corporate sense.

Basically we should strive to be in better control of the content we manage, or at least to the extent that is possible on the world-wide web.

Role of Copyright:

Attitudes towards copyright and ownership can be potentially counter-productive to successful archiving strategies. In other words, I'm suggesting it might not be opportune to be overprotective of personal resources under your control.

My attitude is that over time, "copyright" and "ownership" begin to lose meaning and significance in a traditional sense. Efforts to protect copyright will greatly effect access to those resources. This in turn increases the risk of the eventual loss of those resources permanently.

Using a super-8 film shot at the festival as an example, I believe the survival of independent resources like this ultimately depends on wide dissemination. So the exact opposite of the path likely to be taken with more restrictive copyright practices. So it is better to relinquish protective control in terms of copyright and ownership if the survival of the work for posterity is ultimately more important than protecting the original creative endeavour for yourself.

Wide dissemination as a tactic:

My general idea about successful, long-term preservation of resources like independently-made, low-budget films is simple. Get as many copies out there to as many places as possible, and in as many formats and storage mediums as possible. This is a flooding strategy, rather than putting all your eggs in one basket. Generally speaking, try and flood the universe as best you can.

It is like radomly spreading seed in the wild hoping some of it will grow and survive in the future.

Then there is a chance that somebody's grandchild, or great grand child, will post these old films and resources back on the web again, organise some screenings or an exhibition, add them to some other collection, use them in a research project, redistribute them again, or whatever.

Our films ought to be quite a curiosity by 2050 when it will be something like us looking at old silent films from the 1920's now.

This is still not a guarantee of long-term preservation, but I think it increases the chances of that outcome exponentially.

Long-term Survival of Resources:

This is a tough one, since nothing is permanent.

Right now, the best means of archiving digital files is on LTO tape. LTO stands for Linear Tape Open which is a magnetic tape data storage technology that was developed in the late 1990s as an open standard. It is a storage system that focuses on longevity as a key benefit.

It works by saving a disc image (of a hard drive, for example) that can be copied back to another disc in the future, so the files can be accessed again using a computer.

LTO tape has a "guaranteed" 15 to 30 year lifespan....and is specifically designed as an archival medium for digital content. I believe it is the best archival storage system currently available in terms of longevity and stability.

There is also the so-called "100-year gold DVD disc" but capacity is limited when dealing with large uncompressed video files.

Ideally, we should rent or buy a LTO system (the cost to purchase is a few thousand dollars) and store everything on LTO tape, not exclusively, but as a key storage medium among others. Then make sure that as many physical depositories have copies as possible i.e. State, Federal and major university libraries.

About every 10 or 15 years, this data needs to be backed up again to newer technologies, including to later generations of the LTO system itself (now in its sixth generation, with LTO-7 and LTO-8 currently on the drawing board).

Currently, periodic migration is the only way to ensure survival of resources beyond a few decades.

Vintage Tape Technologies:

The Sony portapack was revolutionary technology in its day. Undeniably a real game changer. Its EIAJ-1 format (aka "J-format") was the first standardised format for non-broadcast video tape recorders, and importantly, was accessible to regular folks.

Much of the Nimbin Aquarius festival in 1973 was documented on reel-to-reel tapes using these J-format Sony portapacks.

Tragically, most of those J-format tapes are unplayable today or close to end of life. Not because the technology to play (or dub) them has vanished, but rather because the tapes themselves are rapidly disintegrating from chemical deterioration.

This happens with film emulsions as well (especially colour film), but in the case of video-tape coatings this process of deterioration happens much more rapidly leading to catastrophic failure of the media.

The problem with video tape is all magnetic video tape coatings are hydroscopic. Over time, the coatings can absorb water molecules from the atmosphere. The presence of water causes a chemical reaction rendering the coatings soft and sticky. In other words, the coatings can become fragile and easily damaged during played back. Therefore old video tapes are usually "baked" in an effort to expell any absorbed moisture as part of the recovery process.

The National Film and Sound Archive has many hundreds of these portapack tapes, probably many thousands (I donated scores of them myself). Faced with this dilemma, they have become experts in recovering this video.

The basic problem is when you try to play the tape, the spinning heads on the tape deck can wipe the magnetic coating off the tape backing completely destroying the tape. But they have developed a technique where they can temporarily stabilize the magnetic coating so the tape can be played once, and possibly once only.

So they dub it to another media as the original tape is possibly permanently destroyed during the dubbing process.

So one approach to recovery is to donate the tape to *The National Film and Sound Archive*. Assuming they think the content is important enough, they will attempt to dub the video to another format, usually analogue Betacam SP or Digital Betacam (PAL) which are formats they use extensively.

Then you can order a copy for yourself (as the copyright holder) which is not too expensive relatively speaking. You can also have it sent as an uncompressed digital file which is usually the cheaper alternative and more useful for archiving purposes.

Film, Video and Audio Resources:

As a filmmaker, I'm very audio-visually orientated. So I focus on audio visual materials in particular (films, video and sound) which tends to be harder to track down and are certainly more expensive to digitise

A good physical depository for this sort of material is the *National Film and Sound Archive*. Donate the originals if you can, or digital copies, or best of all, donate both. You will still have control and access as the copyright holder throughout your lifetime.

What I'm suggesting is to donate the original films, video and audio to the *National Film and Sound Archive*, and digital copies of those same resources to the State, Federal and major university libraries.

Most physical media is subject to ongoing and continual chemical deterioration. This happens more quickly with some media (video tapes) and more slowly with other media (film, especially black & white film). The *National Film and Sound Archive* has specially designed climate-controlled storage facilities that slows down the self destruction of these resources to a minimum. Slows down but does not stop this completely.

They also have a migration program to copy to newer media as the old media reaches end of life. Ultimately, all preservation efforts comes down to a process of migration.

Passing the baton:

I offer this written summary of my personal archiving strategies to the individual or group that undertakes to manage and co-ordinate the archiving and presentation of Nimbin's historical resources. I hope this summary proves to be useful, or at least thought provoking.

Effective archiving takes time, perseverance and follow through.....

Peter Gray (California, June 2013)

http://radicaltimes.info

Responses:

Paul Joseph (25/6/13): *Good on you Peter*

Graeme Dunstan (10/8/13): *Great insight and wisdom, Peter. Thank you. Now where to find the archiving angels?*

John Allen (19/1/14): *Your strategy makes great use of your experience and knowledge as a guide to preserving Nimbin archival material, with a view to its future survival and availability. I heartily commend it to anyone or institution participating in the archival process, and warmly commend your suggestion of the Rainbow Archives at the State Library of NSW as a central depository, backed up by as wide a distribution as possible. Thanks Peter, your present archives stand as a remarkable achievement, and as a pointer to the future for anyone interested.*