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PREVENTIVE ARt CONSERVATION WORKSHOP:

Storage and Environment Control Based on Context Found in Thailand

ARtPrevCon
(อนุ)รักษ์คงยังไม่ผอ

08

Preserving and Restoring Works of Art (Case Study)

By Dr. Nicole Tse

08

Preserving and Restoring Works of Art (Case Study)

By Dr. Nicole Tse

22 January 2023

The final lecture is a presentation of materials conservation case studies. One case studies will be presented on Wayang Kulit Puppets from Indonesia, beloning to the collection of the Music Archive Monash University (MAMU) in Australia.

From day one, the focus has been on decision making and a conservation practice that is collectively informed by a community of professional and non-professional experts and different forms of knowledge. This emphasises the reasons why conservation is practiced, its purpose and value. Further conservation is an investment. Shared and clear arguments why conservation is necessary and how it will benefit society, is important for any budget discussions. There is no point making conservation decisions based on one individuals knowledge, it needs to be collective and inclusive.

When considering conservation treatments, a question that comes to mind, is how long a collection is expected to last? This is a cultural and social decision usually determined by the custodians, governance framework and the collections value, which in turn garners the resources required to conserve the work of art. As a conservator, though, there is a responsibility to reach an agreed expectation of the lifetime of a collection, and also consider the durability of processes to limit repeated treatments. Usually, a treatment should last between 50 to 100 years, which might be longer than the lifetime of the conservator. So good documentation and data management systems are needed to transmit the record to the next generation, and not buried in a computer or folder. For purposes of risk management, it is also important to archive the material, not only digitally in the cloud, but in two separate places and formats.

Figure 203: Petruk (Cirebon style), Wayang Kulit Jeune Scott-Kemball Collection, Music Archive of Monash University (2016): Petruk - Wayang Kulit (shadow puppet). Monash University. Dataset. https://doi.org/10.4225/03/5726F90FB49E7, CC BY 4.0

For some years, we have been working with a collection of Wayang Kulit puppets from the Jeune Scott-Kemball collection belonging to the Music Archive at Monash University (MAMU) (Image 203). Professor Margaret Kartomi, founded the MAMU collection of Indonesian and Southeast Asian musical instruments, rare music recordings, manuscripts, letters, notes, slides, photographs, theatrical puppets and masks, images, costumes, and textiles from the 1970s. Kartomi is now a renowned ethnomusicologist of Indonesia and Southeast Asia, and the world authority on the music of Sumatra. MAMU's repository is unique, and represents Australia's past and present research interests in Southeast Asia. As part of the music archive, all collections co-exist and are connected with relationships to one another and are not static; the Wayang Kulits in this case, have many intangible links for conservation to examine and value. Not only is the performance of Wayang Kulit puppets important, but also the accompanying music of the Gamelan Ensemble, and the local Indonesian customs of the Dhlang puppet master, the audience located on the other side of the screen to the dalang, the audience's response to the Wayang Kulit, characters and performance, the performative lighting, sound and acoutstics, and the storage, history of care and maintenance traditions, that should be preserved as part of the conservation process. But with the puppets retirement from performance upon

Scott-Kemball's acquisition of the collection and then donation to MAMU has altered their meaning and shifted their worth from the spiritual to a music archive and academia.

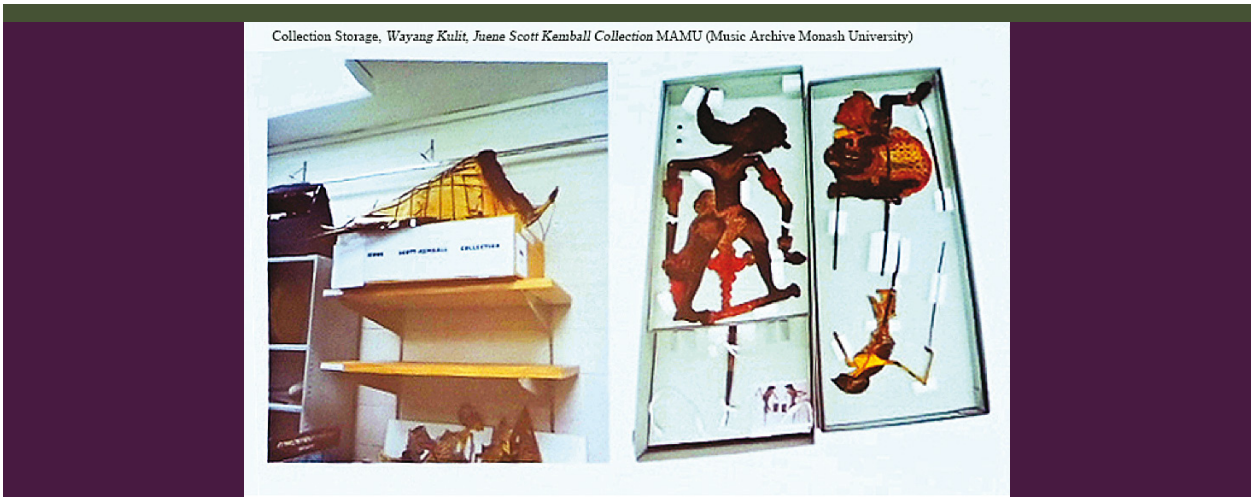

Figure 204: Collection Storage of the Juene Scott Kemball Wayang Kulit Collection at MAMU (Music Archive of Monash University).

image: Nicole Tse

Here is the museum storage at Monash University (Image 204). It is typical of museum storage systems in museums and galleries worldwide and maybe similar to that in Thailand. Collections can be stored in many different ways, and often when dissociated from their place of origin, decisions informing storage systems are informed by the collections' physical fabric and less so on their cultural connections and custodian beliefs. Without a strong connection with the community of origin where a collection is valued, works of art can become static and separated from their living and performative ties. A goal for dissociated collections, is to build connections, to not think of them as museum objects that are static and invisible, but to embrace the living, musical and performative links, in this case with Dalang shadow-masters, narrators and puppeteers. Fortunately, through MAMU's networks, links with Dalang's in Melbourne and Indonesia could inform the interdisciplinary enquiry and conservation approaches. This begins to reconnect their intangible links but also represents the puppets cache of material, cultural and social knowledge.

Some of the questions we may start with for any interdisciplinary conservation project can include:

- What do you want to know?
- What knowledge domains are important?
- Why is it necessary?
- What information will be gained?
- What don't you know and how can you effectively and ethically partner with others?
- Can the treatment be approached in another way? More ethically, efficiently and effectively?
- How significant is the work of art to society and culture?
- How will your knowledge and treatment of the work of art create change?
- How will you circulate the outcomes?
- How will you archive your data?
- How will you acknowledge and represent those involved?

Figure 205: Photographs of puppets from MAMU's collection in Jeune Scott-Kemball's comparative catalogue, dated 1984, Music Archive of Monash University (MAMU)

As part of the enquiry was the history of care and maintenance traditions The collection was donated to MAMU by Jeune Scott- Kemball; who was a curator at

the British Museum who was associated with the famous raffles Collection of Javanese Art Objects. The Jeune Scott-Kemball collection "consists of more than one hundred physical items originating predominantly from Indonesia, but also including puppets from India and Thailand", that were acquired during her research. "Most of the examples in this collection have been donated to the Archive, with some dating as far back as 1918" (see: Archive of Monash University, Music 2022: Puppets. Monash University. Collection. https://doi.org/10.4225/03/577A0614F0745)

Image 205 on the right shows how Jeune Scott-Kemball stored her works, which were based on the traditional practices of the Wayang Kulit (Image 205). The wooden plank where they were displayed, traditionally was a length of bamboo. Here they are on display in Scott-Kemball's home, ready to be performed, exposed to air so they can breath. According to a Dalang this is an important way to keeping them alive. There are also hand written notes by Scott-Kemball of image 3 on the left. The two Semar puppets "573/785" and "572/784" from the Raffles collection to respectively represent Cirebon and Surakartan style– showing their difference of style and cultural preferences across Wayang Kulits (Hale 2016).

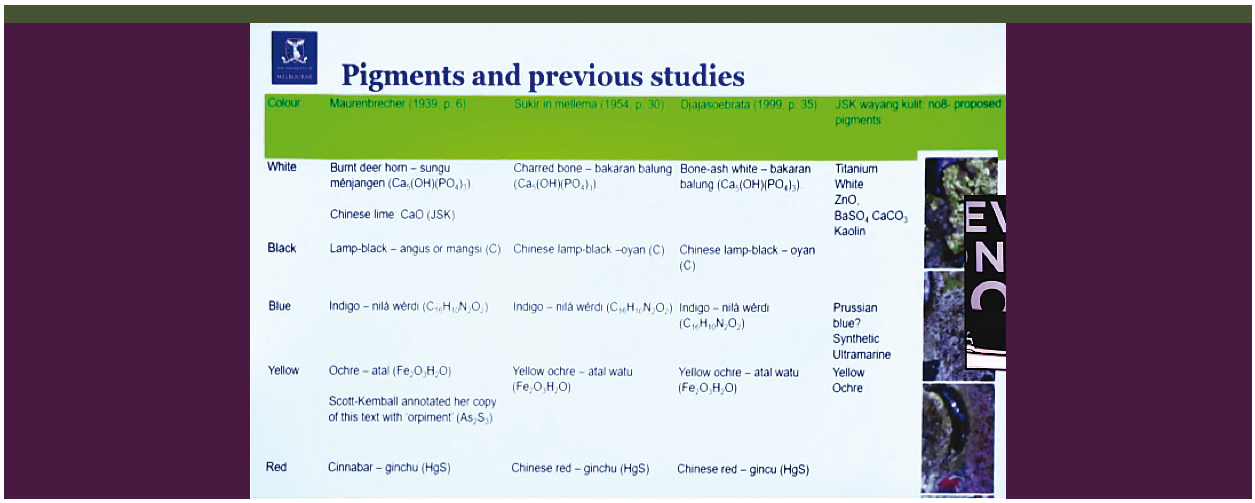

Figure 206: Wayang Kulit: Proposed pigments from previous studies (Maurenbrecher 1939, p. 6; Sukir in Mellema 1954, p. 30; Djajasoebrata 1999, p. 35) & analysis of A Setanan, JSK P8, Jeune Scott-Kemball Collection, MAMU.

image: Nicole Tse

Often conservators are concerned with the identification of pigments, colours and binders. Questions arise like, should we retouch the areas of loss and if so what pigments and binders should we use? What level of conservation should we undertake, and who should decide? A place to start is with the literature; what materials have been reported in scholarly text? Language obviously becomes an issue when conserving collections other than your own or outside your own experience, and access to translations. Where are the original areas of paint, pigment and binder? Have additional paint layers or repairs been undertaken over the years, and if so did the Dalangs themselves overpaint them? When examining the Wayang Kulit, additional layers of paint were applied on a few occassions and the layering of different colours, types of paint and repairs could be characterised. Who did this work, and on what occasion was not really clear so it was decided to retain all historical repairs and elements, and focus on the stabilization of Wayang Kulit materials.

To return to the question 'What level of conservation should we undertake, and who should decide?' is an important one. A few different views were shared by the puppeteer and narrator Dalang's. One perspective of the Dalang was, "As soon as we stop performing, the Wayang Kulit's should return to earth and be buried. They are part of the spiritual environment, they should be buried, and not placed in a museum". Another perspective was whether the loss of paint was important? Do we consolidate the paint? Do we retouch areas of lost paint? That Dalang said, "For me as a performer, I'm responding to the colours and the characters of the Wayang, so they need to spiritualise my soul and my instincts for the performance"; with this perspective, the colour needs to be retained.

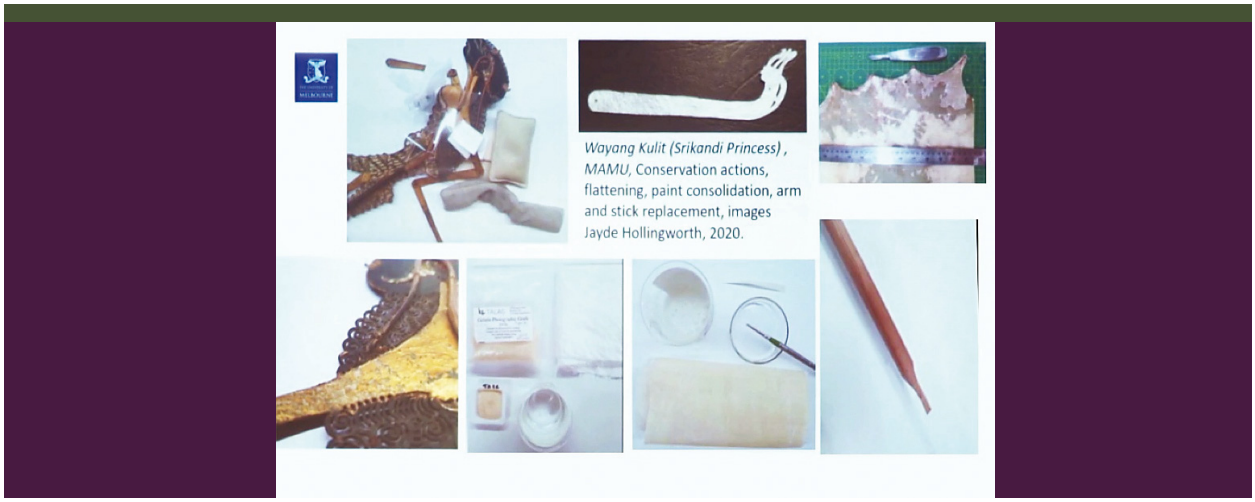

Figure 207: Wayang Kulit, Princess Srikandi arm and stick replacement, JSK P6, Jeune Scott-Kemball Collection, MAMU, image Jayde Hollingworth 2020, Conservation treatment, Masters of Cultural Materials Conservation, Grimwade Centre for Cultural Materials Conservation, The University of Melbourne.

Beyond the paint and colours, Wayang Kulit are shadow puppets, so the casting of their shadow and shape are critical performative elements and their value. Some puppets had missing parts, so the replacement of those missing parts seemed relevant. As seen in Image 207, Princess Srikandi is missing one of her arms. In this case, it was important to reconstruct the arm from materials appropriate to the cultural tradition. They obtained buffalo skin, the original material, and reconstructed it to replace the arm. They were also thinking about what type of glue to use and what is culturally appropriate for the tradition of Wayang Kulit. One of the options was gelatin. Gelatin contains combinations of pig, fish, and cow skin, and these animal-based products could not be used with from a cultural perspective. Our aim was to identify a protein based adhesive with no pig products, and those of pure composition from fish, a plant, synthetic or bovine source.

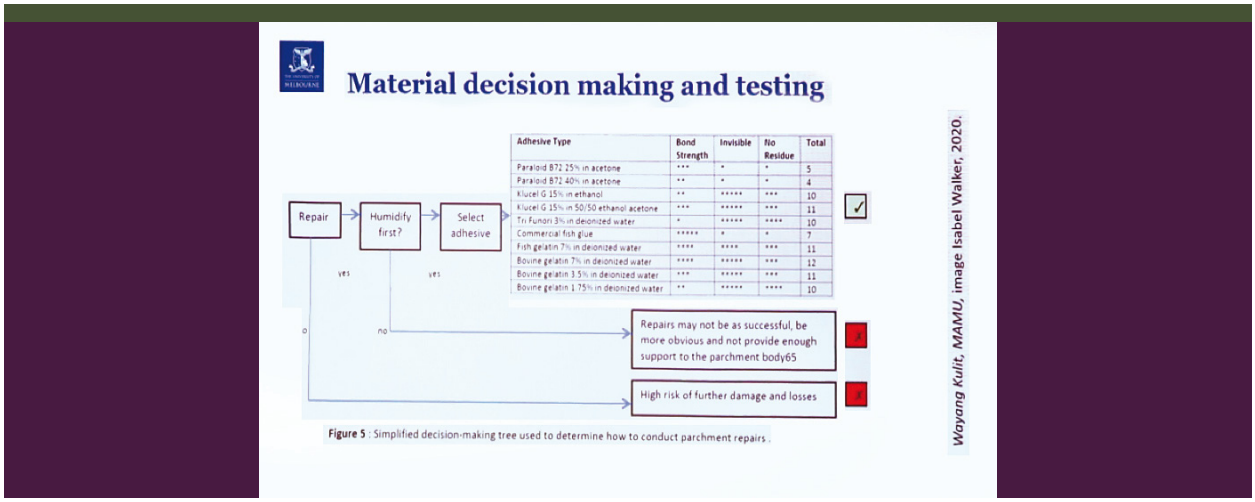

Figure 208: Material decision making framework and testing approach, image Isabel Walker 2020, Conservation treatment, Masters of Cultural Materials Conservation, Grimwade Centre for Cultural Materials Conservation, The University of Melbourne.

Making decisions about the types of materials to introduce to collections as part of conservation treatments is not a simple choice. Often there are many criteria to consider, and there is no perfect solution, rather it is compromise between different types, their physical and chemical properties, their optimum handling properties, is it available, is it sustainably sourced and disposed of, the cost and the most culturally appropriate one. Image 208 shows the criteria used to assess the performance of adhesives. First the only the culturally appropriate adhesives were tested, then they were ranked according to their bond strength, optical properties, and handling and residue properties. The gelatin at 200 Bloom is generally made of fish and cow origins, so was thought to be possible and also performed reasonably well when tested. The testing of synthetic resins, Tri-Funori (a type of seaweed), some fish glues, and 200 Bloom gelatines showed missed results, with a synthetic adhesive Klucel G being the most appropriate.

Figure 209: Dr Gea Parikesit: 3D Shadow vibrometry measurements (see G.O.F. Parikesit, GOF & Kusumaningtyas, I 2017 "Engineering design and analysis in the art of Wayang Kulit", Gadjah Mada University Press, Yogykarata, ISBN: 978-602-386-267-2, < http://ugmpress.ugm.ac.id/en/product/sosial-humaniora/engineering-design-and-analysis-in-the-art-of-wayang-kulit>).

image: Nicole Tse

Another focus are living heritage links, and ways to integrate these values as part of conservation actions. Performance, music and the audience are central to Wayang Kulti Theatre, and an Indonesian scholar, Dr Gea Parikesit, from Gadjah Mada University (UGM), has been working in this area. Dr Gea is an engineer interested in Wayang Kulit and the imaging of their shadows and movement (image 209) (Parikest & Kusumaningtyas 2017) . The question with musical collections is whether to continue with their performance or not, and if so, how can access and the risks be managed? Some of Dr Parikesit's studies inform some of these questions and the material thresholds of the Wayang Kulit when performed.

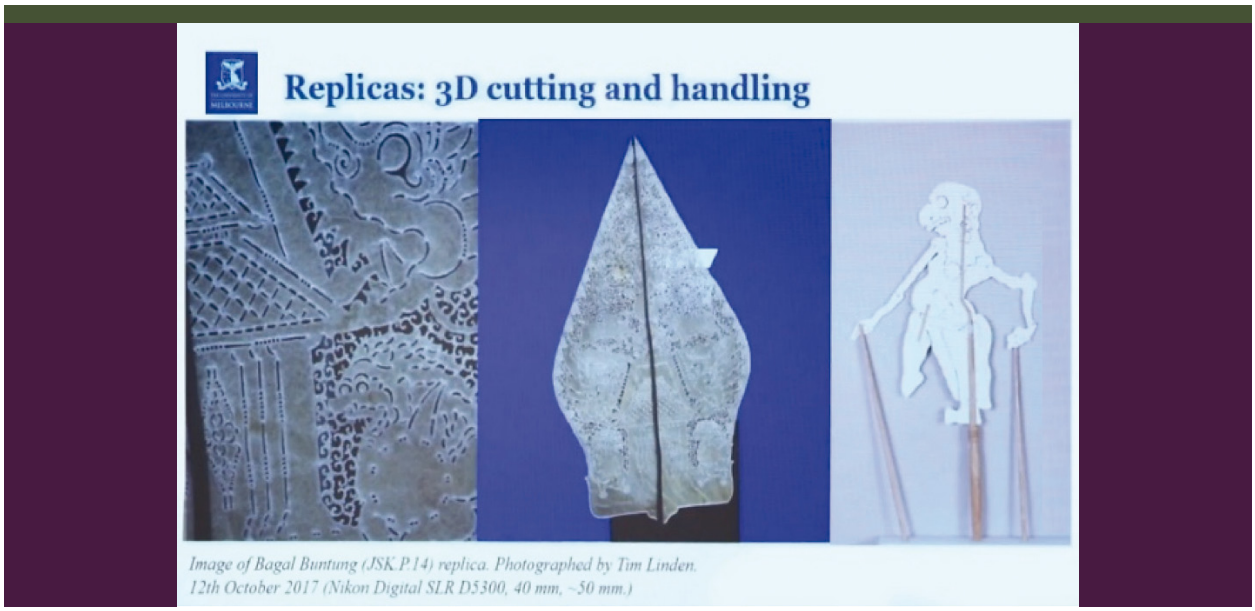

Figure 210: Replication of Wayang Kulit Gareng, JSK P14, Jeune Scott-Kemball Collection, MAMU, image Tim Linden 2017, Minor thesis, Masters of Cultural Materials Conservation, Grimwade Centre for Cultural Materials Conservation, The University of Melbourne.

There may be a risk in re-performing collections, and one approach is to reconstruct performances and create replicas to perform with and become accustomed to the handling of Wayang Kulit puppets. Replicas provide access and after being scanned, were created with 3D cutting techniques.

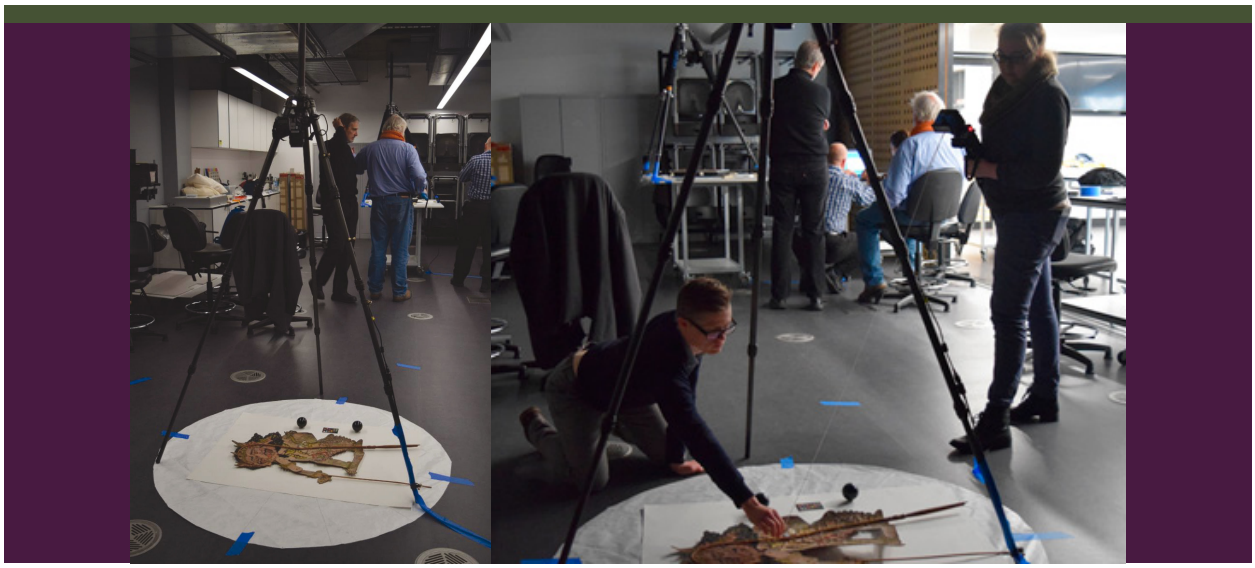

Figure 211: Wayang Kulit Reflectance Transformation Imaging (RTI) with Cultural Heritage Imaging (https://culturalheritageimaging.org/)

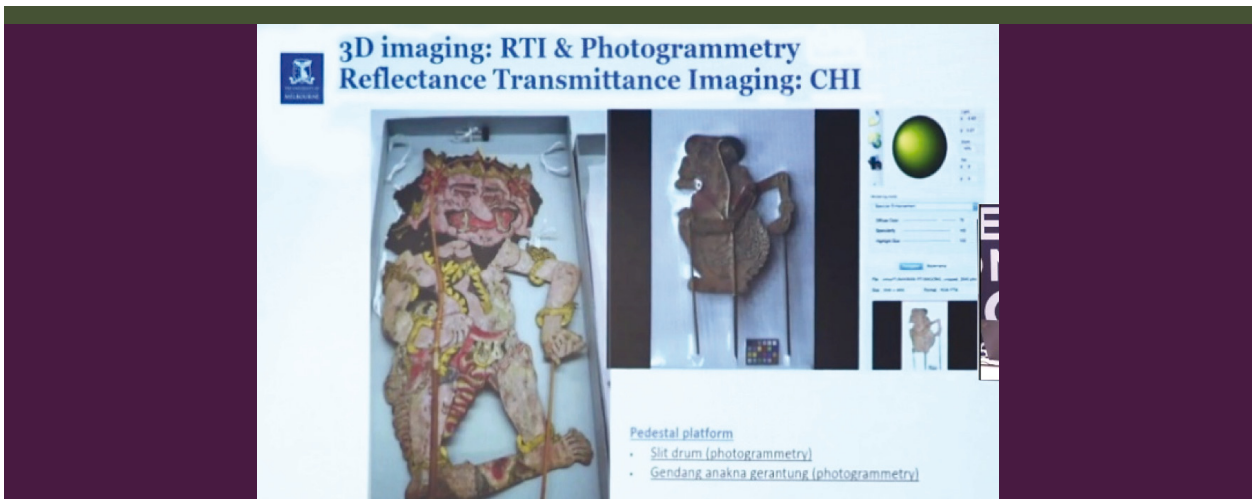

Figure 212: 3D RTI imaging: Wayang Kulit Bagong, JSK P9, Jeune Scott-Kemball Collection, MAMU.

image: Nicole Tse

Lastly imaging work has continued for purposes of digital repatriation and to produce high quality documentation files. Some workshops with 'Conservation Heritage Imaging' from the US and Reflectance Transformation Imaging (RTI) (Image 10) has led to the RTI imaging. RTI provides very close-up imaging; it is a low-cost way of scanning works of art at high resolution. You take a circular dome of images at different angles and use freeware software that analyses and processes the images captured. This lets you view the Wayang Kulit from different angles and close-ups. The digital capture and processing is one step towards the 3D models being available as part of digital repatriation processes and access. We are working towards public access of the Wayang Kulit digital files via an online platform soon.

Practical Session – Demonstration

Part 1: Pests: Low oxygen (anoxic) environments for insect treatments demonstration

For the practical session, we will focus on first-aid treatment and discuss how to deal with termites and insects, which we often come across.

Figure 215: Mock canvas infested with insects (for demonstration purposes) (left), Image 13 Aluminum foil bag (right)

If we can imagine that the painting on the left has insects and termites in the wood, we will run through a low oxygen (anoxic) treatment process to mitigate insect damage. Image 11 shows the set up with two black objects that need treatment, blue cardboard and foam to protect the items when the oxygen is removed, the oxygen scavengers and temperature and oxygen loggers inside. It is usually the wooden frame, stretcher or strainers or the solid wooden panel that are affected by insects. Paintings are made up of individual layers of materials of various compositions that respond differently to moisture and temperature, and chemical treatments. Fumigating paintings due to the sensitivity of paint layers, is not recommended and paintings on canvas cannot be readily removed from their stretchers or strainers. This requires too much handling and intervention. How can paintings on canvas be treated without chemicals, moisture or freezing when effected by insects?

To eliminate the insects, we expose the painting to a low oxygen enclosure. To create the enclosure we use a barrier film called Marvelseal (or Cryovac). Marvelseal is an aluminized polyethylene and nylon barrier film that resists the transmission of water vapor, other atmospheric gases and is puncture resistant. It can be used to make bags, and is also used as a barrier film on storage shelves, shipping crates, picture frames as it reduces interactions with the volatile organic components and off-gassing from wooden materials (Image 13). We can make Marveseal bags to size, place our paintings inside, then remove the oxygen inside and seal the bag.

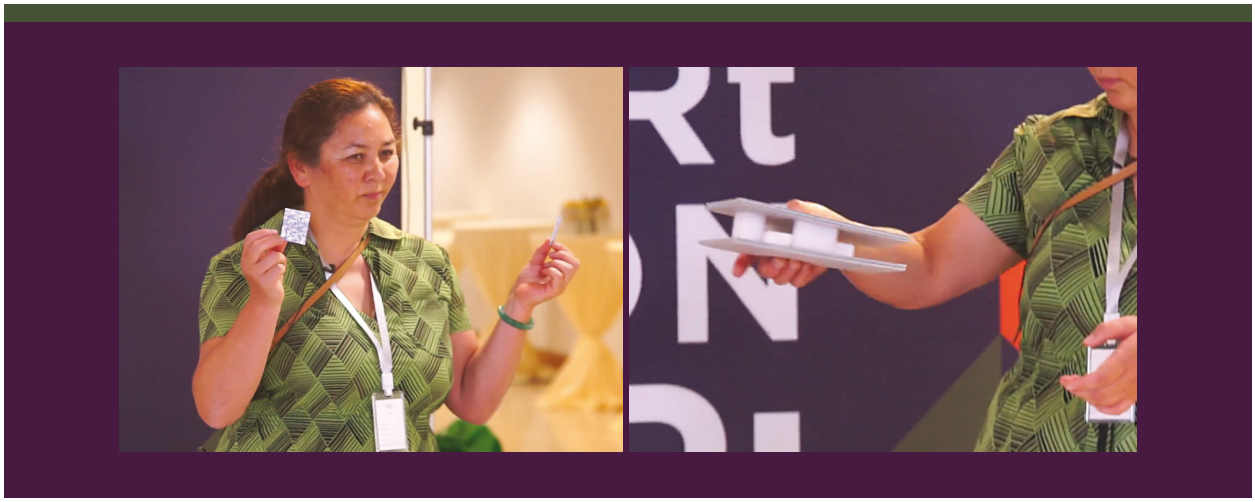

Figure 216: Oxygen Scavenger packs, Image 15 Protective cardboard box to mechanically protect the insect infested painting.

Image 216 shows an oxygen scavengers, often found in vacuum-sealed packs of food to keep it fresh. A way to kill insects is to remove the oxygen and suffocate them. Before removing the oxygen when the painting is in the bag, a cardboard box with foam is first made to protect the painting and its surface (image 15). Otherwise the vacuum suction and direct contact with the Marveseal bag, may indent or flatten it.. Foam higher than the depth of the painting and double-sided tape is used to attach the foam to the bottom board, the painting is then placed between the foam, and then an upper board is placed on top with an air gap between. There should be nothing in direct contact with the paint layer. Oxygen scavengers are placed around the work and then the protective cardboard frame is placed into the Marvelseal bag before it is heat sealed.

How many oxygen scavenger bags are needed? The volume of air inside the enclosure is first calculated to work out how many bags were needed. The measurement of the internal space in the example below is 18 x 21 x 5 cm. = 1890 cm^3 (image 16). The cm^3 converted into litres by multiplying the value by 0.001. So there is 1890 cm^3 x 0.001= 1.89 litres of air space within the cardboard boxed frame below.

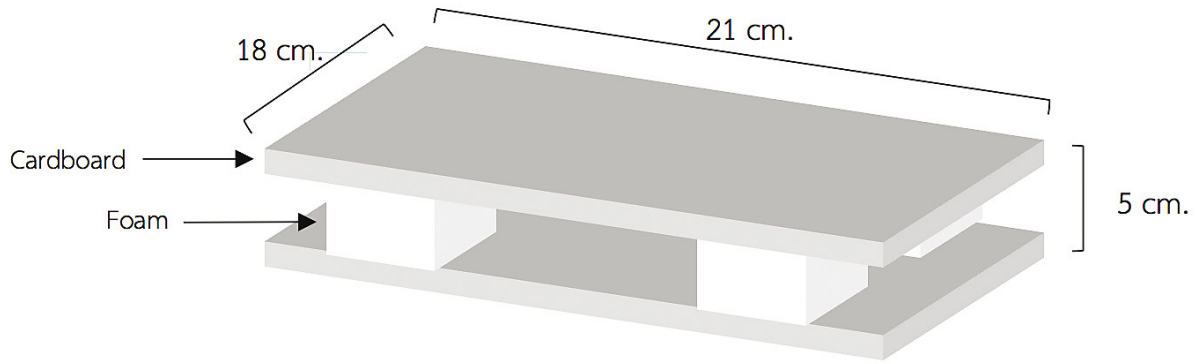

Figure 217: Cardboard boxed frame to protect the painting

Figure 218: ZPT 200mbc Oxygen Scavenger bags (left),
Image 18 Assembly of the cardboard frame box with painting (centre),
Image 19 Inserting the cardboard frame box into the Marvelseal foil bag (right)

To determine how many oxygen scavenger bags are needed, first check what size satchel you have as labelled on the bag (Image 218). For this one, ZPT200mbc, a bag will absorb 200mbc, equivalent to 200 millilitres of liquid. This is converted into litres, where 200 millilitres = 0.2 litres. To find out how many bags to put inside, divide 1.89L as calculated above ÷ 0.2L = ~9 bags ZPT200mbc bags.

1 Oxygen scavenger absorbs 200 mbc
200 mbc = 200 millilitres = 0.2 litres

Frame box internal space
Height x Width x Depth
5 x 21 x 18 = 1890 cm^3

Cubic centimetre ➡ Litres
1 cubic centimetre = 0.001 litres
Frame box 1890 cm^3 x 0.001 = 1.8 litres

How many bags?
[Box size] ÷ [Type of Oxygen scavenger bag] (in litres)
1.8 ÷ 0.2 = **9 bags**

The painting is held into place with cotton tape (Image 219). Oxygen indicator tablets or sensors can also be inserted. Typically the tablet will change colour from white to pink if there is too much oxygen inside and will indicate that the oxygen levels are not low enough to kill the insects. Finally the edges of the the Marvelseal bag are heat set with either an iron or a hair straightener, or a commercial unti. Ideally the bag should be a little larger than the painting being treated. If too large, the volume of air and number of oxygen scavengers will be excessive.

Figure 219: Vacuum hose to extract the air out (left),
Iron to seal the Marveseal foil bag (centre), Final vacuum sealed package with the painting inside, oxygen scavengers and oxygen indicators (right)

To more efficiently create a low oxygen environment, air within the bag enclosure is removed with a low suction vacuum. The opening of the bag is first sealed with an iron or heat sealer (image 21), leaving enough room for the hose of the vacuum to be inserted to remove the air. When most of the air has been removed (image 20), remove the vacuum hose and secure the opening with your hand. This edge will now need to be heat set so the bag is completely sealed.

Leave the in the sealed bag for ten days, or longer if the insect life cycle from adult, egg, lavae to pupa state is greater or you are sure that oxygen levels are low (sometimes an air quality probe or Bluetooth sensor can be used to measure the oxygen levels). When you open the bag, if the oxygen indicator tablet turns pink, it means there is too much oxygen within the bag, and the insects could have survived. You may need to repeat the process.

This method is a non-chemical way of dealing with insects. It can be used with large-scale works provided you have access to the Marveseal foil and can make your own customized bags. The foil is sold in a large roll, allowing you to create the desired size for your work. You can also buy larger oxygen scavengers bags- see below for the details. .

Materials and Equipment

- Marveseal or Cryovac.
- Ageless oxygen absorber satchets.
- heat sealer (iron, hair straightener).
- vacuum, data logger.
- customised cardboard trays.
- Rulers.
- Cutters.
- Pencils.
- Foam blocks.
- O_2-RH indicator strips.
- Oxygen sensor (if you have one).

Summary of Steps

1. Assess your object and size.
2. Construct a Marvelseal (or Cryovac) enclosure to bag the object, oxygen scavengers, O_2 indicator tablets and strips, RH indicator strips, customised cardboard trays with lids to protect the object and any other monitoring device.
3. Seal 3 edges of the bag with a heated iron-spatula.
4. Place the object, scavengers inside and indicators.
5. Calculate the number of Ageless® ZPT-100MBC sachets (oxygen scavengers) are needed from the volume of the bag:
6. Measure the width and length of the tray and estimated height of the finished bag in cm (not the height of the squashed flap, but the height of the void).
7. Multiply the H x W x D cm (of the assumed void) and this will give the volume in cm^3. Convert cm^3 to litres by x 0.001.
8. Oxygen scavenging sachets come in different sizes. RP3K is for 300ml of air, RP5K is for 500ml of air and RP20K is for 2000ml (or 2 litres) of air. So for 1400ml bag /500 ml= ~3 RP5K sachets.
9. Remove as much air as possible with a reverse vacuum.
10. You can include an oxygen sensor to measure the low levels (Honeywell BW™ Solo gas detector (O2) BWS1-XL-Y (Bluetooth version), supplied by Active Environmental Solutions ($590AU).)
11. Provided oxygen levels less than 1% are achieved, leave for 10 days to eradicate insects.

Resource: *National Park Service 1999 'Anoxic Microenvironments: A Treatment For Pest Control', ConservOGram, no.3/9, viewed 24 May 2019, <https://www.nps.gov/museum /publications/conserveogram/03-09.pdf>Trafford, A 2017 Construction of Anoxic Microenvironments – Project Airless <https:// stashc.com/the-publication/environment/ construction-of-anoxic microenvironments-project-airless/>*

Part 2: First Aid biodeterioration (for painted surfaces): Aseptic methods

Figure 220: Examining biodeterioration

The second practical is on biodeterioration and its treatment. Biodeterioration is a hazard; so as a first principal make sure you are protected by personal protective equipment (PPE) such as gloves and a N95 mask, even if you are unsure mold activity. When inspecting the painting for biodeterrioration the goal is to determine if it is active or not. In this case, it is hard to tell with a magnifier and such close up examination provides an indication of mold activity but is not conclusive. We are looking for signs of hyphae- three dimensional long filaments and structures found in fungi. There may be coloured and stained areas that have penetrated the substrate. For more conclusive evidence of biodeterioration, microchemical tests that stain a small sample removed from the effected area, may show microbial activity. If however, it is not possible to do such tests, the best action is to assume that biodeterioration is present and treat it as such..

The goal is to remove the active biodeterioration as a priority and possibly the staining, but the removal of stains cannot also be guaranteed. A critical step is to first remove the biodeterriorated object from the source, and to isolate it from other collection material. We do not want the collection item or any of the waste generated to

contaminate other areas or works of art. So a clean, aseptic and separated workspace is needed that is sprayed with 70:30 ethanol: water mix and wiped down before and after the treatment. And waste flows clearly labelled.

If there is fungi above the surface, remove as much as possible as possible via mechanical means. Sticky tape is ideal, it can be hovered above the surface with no direct contact or pressure applied to the surface of the artwork, and it is non-invasive (Image 221). Each time you collect some fungi on your tape, dispose of and use a new piece of tape. (Image 221)

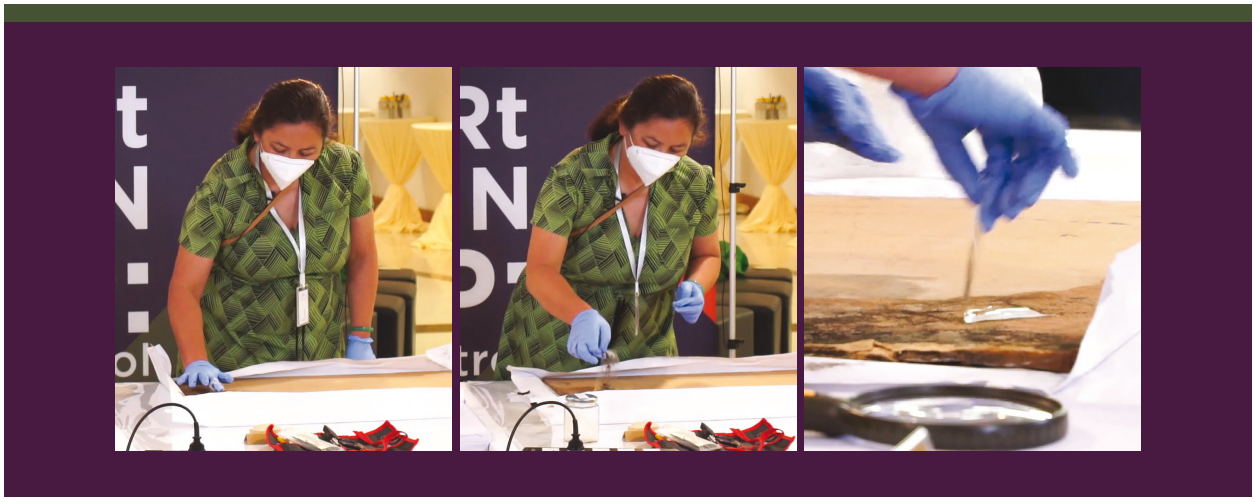

Figure 221: Hovering he sticky tape above the surface to pick up the fungi (left), removing the mold with strips of tape (centre-right)

Once all of the biodeteriorations is removed, we have to disinfect it. What do we know from Covid? What do we use to disinfect our hands? Alcohol. You can buy this one (Image 222) which is already mixed up at 70% Alcohol in water. Pour the 70:30 alcohol into the spray bottle. Then, simply spray the biodeterioration with a bottle that sprays a fine mist (image 222).

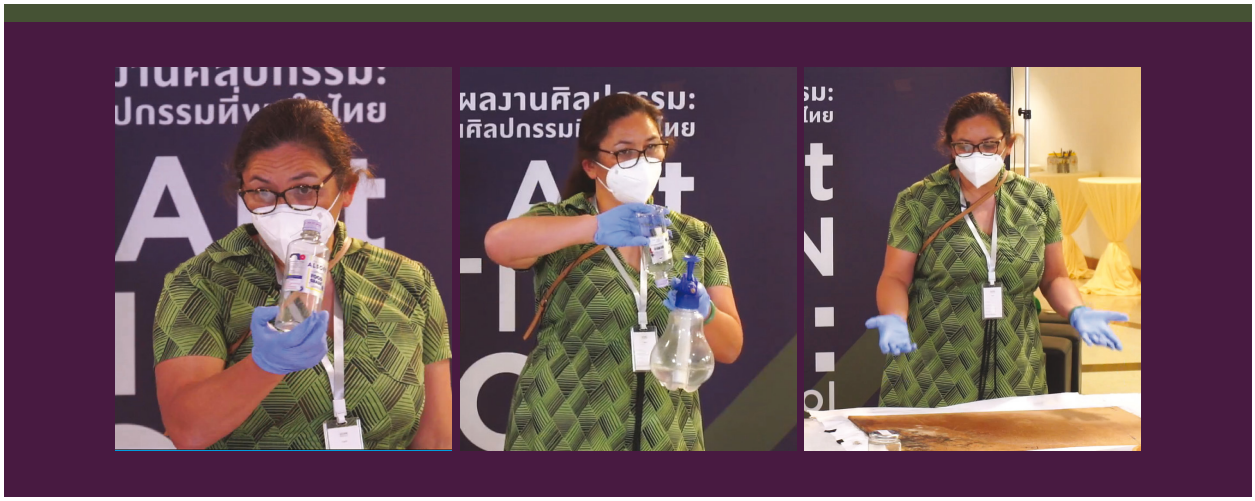

Figure 222: 70%: 30% Alcohol: water (left), Spray bottle (centre),
The painting sprayed with alcohol (right)

Before spraying an entire area, first test the spray in a samall area and test the solubility of the paint surface with the 70:30 ethanol:water solution. If ok, then spray the entire painting with one pass and allow the solution to evaporate. Now leave it to dry (Image 222). In the laboratory, we do not want cross contamination. A board on top supported by foam blocks to cover it is possible and make sure to place a 'biohazard' sign above the work. Wait about twelve hours for it to dry. After it is dry, we can brush vacuum the biodeterioration off. The type of vacuum we use needs to have a HEPA filter.

Figure 223: Using a brush and vacuum to remove biodeterioration (left),
Chemical Sponge (right)

Once twelve hours have passed, then a vacuum can be used to remove the biodeterioration (Image 223). If there is still some biodeterioration, use the tape to take it off once more. Then use a chemical sponge after brushing it; this should be complete.

We can also treat the front of a paintingAgain test every colour on the painting: blues, greens, browns, whites, and reds (Image 224). If satisfactory you can place a little drop of 70:30 ethanol on one colour and use the blotting paper to check if there was a colour change (Image 224)

Figure 224: Testing colour with ethanol:water (left),
Using blotting paper to check for solubility and any colour changes (right)

Materials and Equipment

- Distilled water.
- 70 % ethanol solution in water.
- Soft brush.
- Groom sponge.
- Low density sponge (make up ones).
- HEPA filter vacuum, Masks: N95.
- Mold effected paintings.
- Plastic to wrap and isolate.

- Zip lock bags.
- Sticky tape to secure bags.
- Labels, and pens.

Summary of Steps

First steps

1. Isolate affected materials. This can be done by placing them in a plastic bag and moving them to a dry area or by quarantining the affected area with plastic sheeting and reducing air circulation between the affected area and the rest of the building.
2. Locate the source of mold activity. Look particularly for cross contamination, building and HVAC failures.
3. Remove the source or the object from the source, and increase air circulation.
4. If dry, you can remove the mold via dry brush vacuuming using aseptic methods and correct OHS protocols.
5. Standard household vacuum cleaners should NOT be used for vacuuming mold from artefacts. The exhaust from such a vacuum cleaner will blow mold spores and bits of mycelia into the room. Vacuuming is the most effective means of removing mold, and a vacuum with a high efficiency particulate air filter (HEPA) or a water bath filter are required.
6. First the materials to be vacuumed must be thoroughly dry. Select brushes and probes suited to dislodge the mold attached to the surface.
7. After as much mold has been removed, remaining spore populations maybe removed via:
   - Chemical methods with a spray of 70:30% w/v ethanol: water. The water makes the spores more vulnerable to thefungicidal effect of the ethanol.
   - Grated erasers, either Art Gum or grated vinyl, to remove mold residue after the major growth has been removed with a vacuum or aspirator.

- A really fuzzy superficial growth may be removed with pressure-sensitive tape. Tweezers: Very fine pointed dissecting or surgical tweezers may be used for lifting mold from fragile surfaces and pastels.

8. Ensure the working space is dry and well ventilated. Return the item to the same conditions if possible.

Q/A

Q - Should we use high-grade ethanol to remove the biodeterioration?

(Couldn't hear the question, assuming it was something like this??)

Dr. Tse - I think the food-grade ethanol is okay. We don't have to use the expensive lab grade for this purpose.

Q - Can this method be used on paper or watercolour work?

Dr. Tse - It's not really great for paperwork. You have to test it beforehand. It's really important with the spray droplet size. If it's big drops, it's not good. It has to be a really fine spray. Always test how it will react to the paint first.

Q- If we test it and this method can't be used. What kind of method can we use to kill the biodeterioration?

Dr. Tse - Sometimes we can use UV-C, UV light at C- level, which has high radiation, but it may cause some fading to the colour. You have to decide; do you allow a little fading so that you can remove the mold because the mold can cause a lot of damage. Some people have the proper sterilised UV-C lights used in hospitals, which are more controlled. But I know some conservators who take the artwork outside and just leave it in the sun for 10 minutes and bring it in. It's not very controlled, but it is a technique. There are some other chemical methods with enzymes, one called lysing. It will work with a lot of different biodeterioration and molds. Some people even use microwaves, but it's still a bit experimental at the moment.

PREVENTIVE ART CONSERVATION:
Storage and Environment Control Based on Context Found in Thailand

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