Tropicality and Creative Practice: Temperature, Temperament and Temporality

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An exploration of materiality, corporeality and the creative tropics. The paper investigates factors affecting creative practice in the tropics, referring to the experience of the author and selected local artists and teasing out the impact on the creative mind, body and output. Major themes are the impact of: heat and humidity; tropical light and colour; and the impermanence of material culture. The scientific foundations of these aspects are outlined and a range of experiences, implications and adaptive strategies are discussed. These factors are seen to be more generally applicable and the concept of the Tyranny of the Temperate is identified. Paper illustrated with stills from the author's work, *Tropicality 1.2*

This paper explores materiality, corporeality and the creative tropics. It is a position paper, focusing on three core themes that are established in physics and biology, developed through interviews with local artists and applied to creative practice in the tropics and beyond.

The paper has a Far North Queensland-centric perspective and studies the impact on creative practice of: heat and humidity; light and colour; and the impermanence of material objects. As part of this process I conducted brief interviews with four local artists who generously shared their experiences. They are referred to here by their initials. Their full names, areas of practice and websites are listed in the Appendix.

But let's start with the back story.

I'm a recent arrival to the tropics, relocating from Victoria to Townsville in late 2011. I interviewed for my job on a balmy winter's day, but moved here in the peak of summer. JCU had shipped my un-air-conditioned car to Townsville, so I navigated my new life in the tropics within a hot, hard and harsh new light. For my first day at work, I drove through a frightening, vision-obscuring downpour and sprinted to the office. On arrival I was dripping copiously, a look preserved forever in my staff card photo, even if I accidentally *lose the card.*

Temperature and Humidity

My (temporary) office had a problem with mould, so I began to work more at home. I didn't turn on the air-conditioning, as it seemed an unnecessary luxury to my southern Australian mind. It was *a little warm, but more seriously, my lifelong ease with technology seemed to have deserted me. Brushing up on the latest developments in HTML and CSS, I couldn't seem to remember much of what I had just read.*

So let's start with heat and humidity. In any discussion of the tropics, the question ' is geography destiny?' can hover at the periphery and I will return to this issue later. However

we must start with geography, defining the tropics as a "hot, moist band around the equator typified by little seasonal change of temperature"(Teygeler 2001).

At the equator the sun hits head on, rather than at an angle, so that solar radiation is almost at 90 degrees to the earth's surface. In contrast, nearer the poles the angle is much smaller, so there is more ground for the same amount of sunlight to heat (Fig. 1). Hence, the tropics are hotter, although this is not news to anyone. However, it is, if not the elephant in the room, then the air-conditioner in the room of almost any academic discussion of the tropics. It is ever-present, but so obvious that it is less frequently discussed.

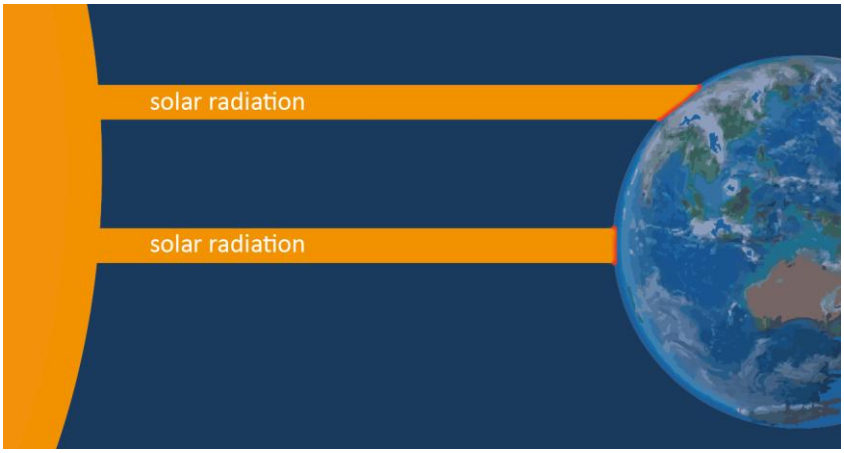

Figure 1 Solar radiation and the earth [not to scale]

What impact does this higher temperature have and how do humans cope with it? In *The Wealth and Poverty of Nations*, David Landes points out that "[t]hree quarters of the energy released by working muscle takes the form of heat, which the body, like any machine or engine, must release or eliminate to maintain a proper temperature. Unfortunately, the human animal has few biological devices to this purpose. The most important is perspiration, especially when reinforced by rapid evaporation" (Landes 6). Landes notes that fanning can speed this evaporation, however while "[f]anning oneself may help psychologically … the real cooling effect will be cancelled by the heat produced by the motor activity …[because of] the law of conservation of energy and mass" (Landes 6). In other words, someone else (or a machine) must do the fanning in order for it to cool you down, because moving muscles create heat. Thus, for Landes, "[t]he easiest way to reduce this waste problem is not to generate heat: … keep still and don't work" (Landes 6).

Not only is it hotter in the tropics but it can also be more humid, especially in the wet tropics or the wet period of the wet-dry tropics. Humidity, that is, the amount of moisture in the air, reduces the effectiveness of perspiration to cool us down. The problem is that if the surroundings are as warm as, or warmer than the skin, blood brought to the body surface cannot lose any heat, so perspiration becomes the only way to cool down. However when it is humid, the air is already saturated with water and cannot take up much more. Thus, much less evaporation of perspiration occurs and much less cooling down. Meanwhile the body keeps pumping blood to the surface, capillaries beneath the skin dilating in order to release heat and encourage the sweat glands and hence there is less blood supply for active muscles, the brain, and other internal organs. So physical strength declines, fatigue sets in faster and alertness and mental capacity are reduced. You can enter heat stroke and heat exhaustion if this goes on too long.

That explains my own experience of a new stupidity about HTML/CSS. Higher levels of heat and humidity do not just affect a person's sense of comfort, they also affect productivity. This has been the subject of a number of studies. Kosonen and Tan (988) note that thermal sensation is influenced by a number of factors: personal metabolic heat production; physical activity; clothing; and the environmental factors of air temperature, mean radiant temperature, air velocity and air humidity. They point out that even very moderate heat stress has a negative affect on mental performance and also that in hot conditions the human body lowers its own internal heat production in a process that is *beneath* consciousness, thus reducing perspiration and leading to lower arousal and a slower work rate.

This is an area of ongoing investigation. For example, studies done on the reduction in productivity as the heat rises show that typing productivity slows down more quickly than thinking (Kosonen and Tan 988). I'm not aware of any studies measuring the impact on creative practice, however it must be similar to tasks involving both mental and physical activity. Overall, about 2% less work is done for every 1 degree centigrade rise in temperature and this was confirmed in Japan after Fukushima, when power usage was severely reduced leading to higher workplace temperatures (Drum 2012).

This brings us to our tropical 'elephant' in the room: the question of air-conditioning. Landes points out that while "[t]he ultimate answer to heat has been air conditioning… it is costly … and simply redistributes the heat from the fortunate to the unfortunate. … It needs and consumes energy, which generates heat in both the making and using … thereby raising the temperature and humidity of uncooled surroundings" (Landes 7). He reminds us that air-conditioning is a relatively recent technology, adopted mostly since World War II, with America being an earlier adopter and air-conditioning arguably making the economic prosperity of the new South possible. Landes is not the only thinker to link air-conditioning and increased tropical productivity. This is a very common perception. For example, Rosenthal quotes Wargocki's assertion that air-conditioning made the economy develop for Singapore and other emerging economies (Rosenthal 2012).

The issue of air-conditioning and the productivity and prosperity of the tropics is complex and almost certainly multifactorial. It is worth noting Goldstone's review of *The Wealth and Poverty of Nations* where he claims that the story that tropical climates are bad for work is too simplistic: "[t]here is no mention of a tropical society that was the technical wonder of the world in its day—China of the southern Song dynasty or for that matter of the brilliant and trade-savvy Javanese, or of Cambodia, with its astonishing temple structures built at Angkor Wat. And no mention that Mayan civilisation, with its complex written language, brilliant calendar, and numerous stone cities and temples, arose in the tropics" (Goldstone 107).

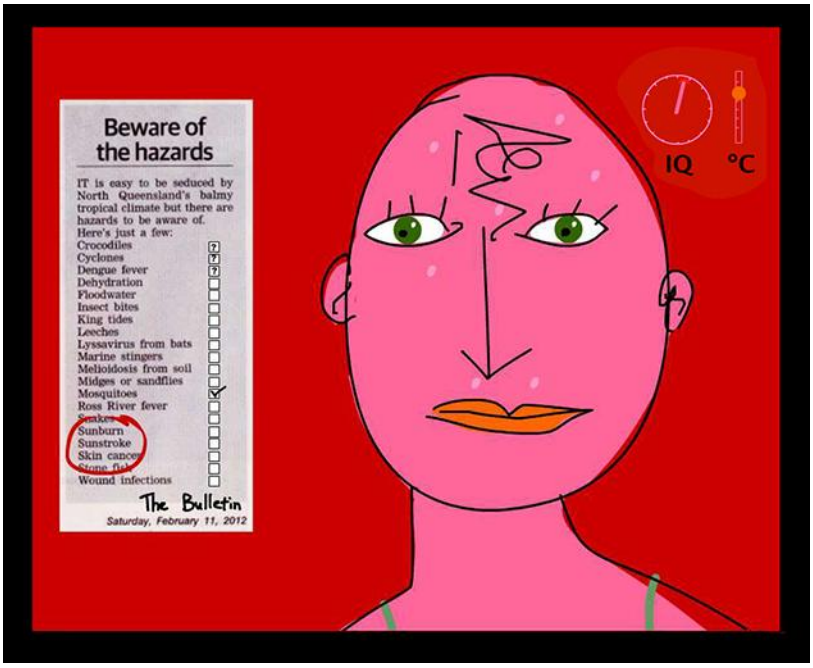

Fig. 2 *Still from Tropicality 1.2*

Temperature and Humidity Affects Creative Practice

What impact do the higher heat and humidity of the tropics have on creative practice? There are obvious components: reduced mental and physical productivity, interference with the creative process (e.g. sweat dripping on work, pianos going out of tune, etc) and interference with the creative products (e.g. prints going mouldy).

Landes reminds us that "personal experiences can be misleading, if only because of the variance among individuals. One person's discomfort is another's pleasure. Still, the law of heat exhaustion applies to all, and few manage to work at full capacity when hot and wet " (Landes 15). Thus, one artist, RG, said that he was not affected by the heat and humidity at all. More typically, CD found it difficult to work in the heat (wet or dry), as she became lethargic and unmotivated, especially after rain. She needed to work in the early mornings or late afternoons and this was hard to fit in around a full-time job. CD preferred winter in order to be creatively productive. GS said that he had the same experience.

CD also noticed an effect on her art materials: paint dried faster so she needed to adapt by using a wet palette technique involving strategic misting of the palette. En Plein Air painting was no longer ideal for her because the heat, sun, and humidity all affected the use of wet materials. GS talked of charcoal and pastel dust sticking to his sweating body and said that linoleum became very soft in these conditions, tearing easily and making his linocut prints more difficult to produce. We must remember that the non-living components of creative practice, such as computers and communication infrastructures don't work well so well in such conditions either.

Is air-conditioning the simple answer for tropical creative practice? Firstly, it is quite expensive to install, run and maintain, and creatives aren't invariably affluent (an understatement). In addition, GS said that he didn't personally like air-conditioning anyway: it "dried him out" and gave him headaches. CD found it hard to achieve the right temperature

for creative practice, being either too hot or too cold, which is a significant issue when being comfortable in her environment is important for her creative practice.

This critical attitude to air-conditioning encourages us to extend the discussion and also look at the dark side of what many see as an enabling tropical technology. As Elizabeth Rosenthall stated:

> Fact 1: Nearly all of the world's booming cities are in the tropics and will be home to an estimated one billion new consumers by 2025. As temperatures rise, they — and we — will use more air-conditioning.
>
> Fact 2: Air-conditioners draw copious electricity, and deliver a double whammy in terms of climate change, since both the electricity they use and the coolants they contain result in planet-warming emissions. (Rosenthal)

Rosenthal draws attention to Wargoki's claim that air-conditioning poses a huge threat to global climate and energy use and that the current pace is very dangerous (Rosenthal 2012). However, as she says, "it is easy to decry the problem but far harder to know what to do" and there are cultural issues involved, for example Americans prefer lower temperatures compared to Europeans and developing tropical economies seem to be following their lead (Rosenthal 2012). This is a complex issue but clearly there need to be more conversations about minimizing the use and impact of air-conditioning and maximizing the research and application of alternative building models that can, have been or could be successful in the tropics. I note that there is a developing body of knowledge around 'cool living': material culture designs spanning architecture, furniture, clothing, fanning, gardens, customs and habits (for example at http://socoolh.com/). Research and dissemination of such knowledge so that affordable, comfortable and sustainable productivity is possible in the tropics is clearly important, not just for wallet and/or comfort-challenged creative practitioners.

Before we leave heat and humidity, let's not forget the impact on other living creatures. For example, Landes points out that "year-round heat … encourages the proliferation of life forms hostile to man. Insects swarm as the temperature rises, and parasites within them mature and breed more rapidly. The result is faster transmission of disease and development of immunity to countermeasures.… Winter… [i]n spite of what poets may say about it, is the great friend of humanity: the silent white killer, slayer of insects and parasites, cleanser of pests. (Landes 7-8). Paul Carter referred to insects devouring the notes that Wallace was writing almost as fast as he wrote them (Carter 2013) and this brings me to my second topic: *impermanence*. I am talking not so much about the impermanence of our human bodies which I suppose we must accept (however gracefully), but the impermanence of material culture, which we have more chance of resisting.

In the evenings, I sought relief by swimming inside the stinger nets at the Strand, but was shocked to later hear from locals that the toxic parts of the most life-threatening stingers, the Irukandjis, can actually get through the nets. Apparently they are so small that you may not know at first that you've been bitten and one symptom is feeling a sense of impending doom. My [sad] joke is that in today's academia, how would you know it was a stinger? Nevertheless, I pressed on with adapting to the challenges of tropical life, expressing my experiences in an artwork, ***Tropicality 1.2*** *(Figs 2-5) as, one by one, my favourite cotton-elastane garments degenerated, their rubber fibres giving up elasticity and surrendering to impermanence.*

Fig. 3 *Still from Tropicality 1.2*

Impermanence of Material Culture

What makes objects more impermanent in the tropics? The Art Conservation Handout by the Bishop Museum in Honolulu points out that

> …[i]n Hawai'i, the tropical climate is waging a war against your collection of valuable books. Year round warm weather, bright sunshine, and humid tropical breezes rustling through the palm trees evoke paradise ... but not for your books and valuable works of art. Year round warm weather creates a breeding ground for insects which can attack and chew through books and art on paper. Bright sunshine contains harmful ultraviolet rays which cause fading and yellowing, and the high humidity provides a perfect atmosphere for mold and mildew. The combination of these factors makes Hawaii a hostile environment for books, art on paper, and photographs, and threatens their longevity. (Bishop 1996)

Broadly speaking, all organic materials begin to deteriorate in reaction to the environment and this happens faster in the tropics (Bishop 1996). Chemical reactions are speeded up in the heat, leading to faster deterioration. Fluctuations in temperature and humidity cause organic materials to expand and contact. For example, paper, being hygroscopic absorbs and releases water. The problem is that different materials do this at different rates, so that composite objects, such as books and stretched canvases, lose their integrity and fall apart. To avoid this happening, a stability of temperature and humidity is required, although it can't be assumed that the mere addition of an air-conditioning system will supply this, as ventilation is also required.

As for Landes' (un-dead) tropical insects, bacteria and parasites, let's return to Hawai'i where "opulent homes and beach shacks have one thing in common—the never ending war against pests" (Bishop 1996). In a comprehensive study of the preservation of archives in tropical climates, Teygeler notes that many species "thrive in tropical environments… [and there are fewer] obstacles to stop them …[and heat] and high humidity also increases insect activity". He points out that "insects have been around for a long time…[and have the ability] to adjust to practically every situation" (Teygeler 2001). Teygeler notes that simple celled organisms

such as mould don't need energy from light for growth… [the high] humidity encourages growth… [and they love] dark humid spaces with lack of ventilation. (Teygeler 2001).

And there is more: a number of further entries can be made on this list of tropical impermanence agents, such as dust, sand, rodents and other pests. Naturally these problems have attracted a lot of attention from archivists and libraries. Recently there was a major conference in Thailand about the conservation of material culture in tropical climates (APTCCARN 2012). And of course no list of factors involved in tropical impermanence would be complete without mentioning the increased probability of severe weather events such as cyclones and floods, with their devastating consequences.

Impermanence for Creatives

How does this impermanence affect creative practice? Obviously it affects the raw materials, the creative process and the finished products. RM said that the environment "takes the work of art by surprise" and that he was aware of a faster process of decay. He stopped making art *objects* altogether after he moved to Cairns and suffered infestation of artworks by ants and saw other artworks floating off in floodwaters. He began making ephemeral, performance-based works as a response to the environment. In contrast, GS keeps producing works on paper but daren't look at his print collection stored in a corrugated iron shed at home. Formerly he also made paper pulp sculptures, which were easy to make and durable in Sydney conditions but which never dried out in the tropics and were rendered unstable and soft by the tropical humidity. In contrast, RG observed that timber bleached faster and metal rusted and decayed faster, but that suited his particular creative purposes for sculptures.

CD talked about mould developing on the back of paintings that were stored in a dark moist part of the house. She treated them in order to kill the mould but this left marks on the back of the canvas and inhibited her when selling them. She also found that her paper went mouldy and that she had to get all finished works framed, which is expensive. As a result she made a conscious choice to change the art materials used in her practice. CD also talked about being inhibited from painting outdoors, because the threat of mosquitoes carrying dengue fever significantly reduced that sense of comfort in her environment that she needed in order to be productive.

I observed that a colleague at JCU suffered mould infestation in the lenses and insides of his cameras and in 2012 I attended an exhibition at the TYTO Regional Art Gallery in Ingham. This featured works by the artist, John Coburn, that had been held in the collections of local family and friends and hence, in tropical conditions. The influence of insect and mould damage was sadly evident. As for myself, I deliberately didn't bring my art archive to the tropics and in some ways I welcome being released from some of the *stuff* I did bring and that I carry around with me in case it will be useful one day in a collage, artwork or publication. I'm not so sure about my landmark 1983 16mm film however or my vintage stationery collection, my books and the backups of my digital works.

RM talked of professional artists and institutions keeping one room air-conditioned and ventilated in order to protect an archive, or of building a customized cabinet, although this was not something he did personally. This suggests that one method of encouraging the tropical arts would be to assist with addressing such storage issues, setting up appropriate and affordable solutions with a stable temperature and humidity for storage of materials and finished work. In addition, studies could be made available of the materials that *can* survive

local conditions and solutions disseminated, such as the use of fungicides and biocides in paints to retard pests and mould or explorations of alternatives like non-western paper (Teygeler 2001). More generally, Jullapech and Bhuripongsanond urge that more attention is paid in tropical art education to the durability of art materials and products and access to research on material properties, fabrication techniques, factors affecting deterioration and effects of environmental conditions (Jullapech and Bhuripongsanond 2012).

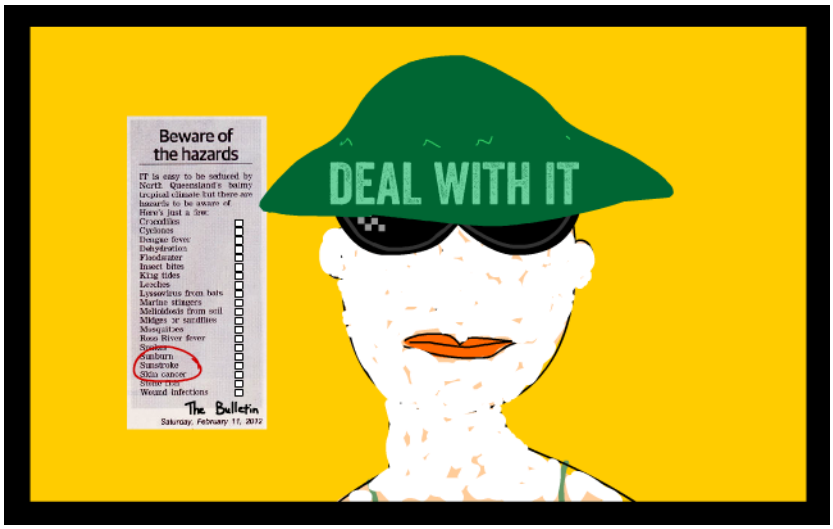

Fig. 4 *Still from Tropicality 1.2*

Tropical Light and Colour

Does being in the tropics affect the experience of colour and intensity of light? The short answer is yes. Not only does the tropical light affect personal comfort, productivity and durability of material culture, it also changes *perception.*

Light changes in colour and intensity depending on a number of components, including such factors as the nature of the light source (e.g. fluorescent light compared to the sun) and the time of day (i.e the position of the sun). Vernazza and Noyes found clear and measurable differences in the brightness and the colour temperature of the light near the poles and interpreted them as "resulting from a lower chromospheric density at the poles than at the equator… The poles have a lower density and a smaller temperature gradient than the equator does (Vernazza and Noyes 335).

There is a fundamental difference and we must return to geography and Figure 1 in order to explain it. If we imagine a high noon, such that a telegraph pole would cast no shadow at all, we can see that the only people on the planet who could see such a sight would be in the Tropics, that is, between 23.5 [degrees] south latitude and 23.5 [degrees] north latitude. And even there, the Sun passes directly overhead on only two days a year. More generally, the sun is higher at midday in the tropics, the colour temperature changes more throughout the day and extremes in color and contrast are readily seen. Thus the light is a different intensity, a different colour and has a higher contrasts, leading to, amongst other things, better sunsets. And the vegetation is often more intensely coloured.

Tropical Light, Colour and the Creative

The increased brilliance, vibrancy and luminosity of the tropics clearly influences creative practice. One artist, RG, observed that after moving to the tropics his artwork evolved from pastel hues to more vivid colours. Another, GS, had considered in his former (Sydney-based) life that bright tropical art was "hippie". After relocating to Townsville, he found the colours more intense and plants brighter. He found it hard to work with this palette as he had not considered it to be sophisticated. It was as if these colours could not be believable unless the viewer actually encountered them in situ. GS pointed out that in the work of Ray Crooke we see blue shadows in his work: highly saturated, extreme blues, vivid even in dark shadow. He compared this to tonal paintings, with their subtlety of fine demarcations of grey. GS asked whether Gaugin adjusted what he painted in order to account for the colours of the temperate regions. Did he mute his perception somewhat by viewing the environment through the memory of where he had been? GS connected this with early images of Australia, where artists sought out or imposed English-ness in colour and form.

GS has thought a great deal about these issues. He asks how we can stake a claim for the tropical aesthetic, so that the real palette of the tropics is no longer seen as immature and lacking subtlety in the eyes of the influential art centers nearer the poles, artificial lighting and grey skies. GS urges that we stake a claim for the tropical aesthetic as being sophisticated and resist what I would like to call the *Tyranny of the Temperate*.

More generally, a temperate audience brings many preconceptions to the idea of the tropics. Barbara Creed spoke of historical attitudes in the popular imagination where the tropical jungle seemed to express wildness and a site for a delicious, constructed combination of fear and excitement (Creed 2013). Stephen Naylor referred to a more recent attitude where the tropics can be positioned as a kind of paradise or an exotic holiday location, not 'reality' and not sophisticated (Meyer and Naylor 2013). Thus artwork expressing the tropics can be presupposed to be unsophisticated.

A complementary perspective was provided by CD. She pointed out that Cairns is a big tourist destination with a significant market for (perhaps decorative) art that reflects the bright, tropical experience and is oriented to holiday gifts or souvenirs. This inevitably has an effect on the local creative practitioners in Cairns, who are not immune to the need to earn an income.

This focus on the particular qualities of a tropical visual aesthetic and a tyranny of the temperate offers an opportunity to ask questions about temperate attitudes to tropical output in a number of more general areas, however that is well beyond the scope of the present paper.

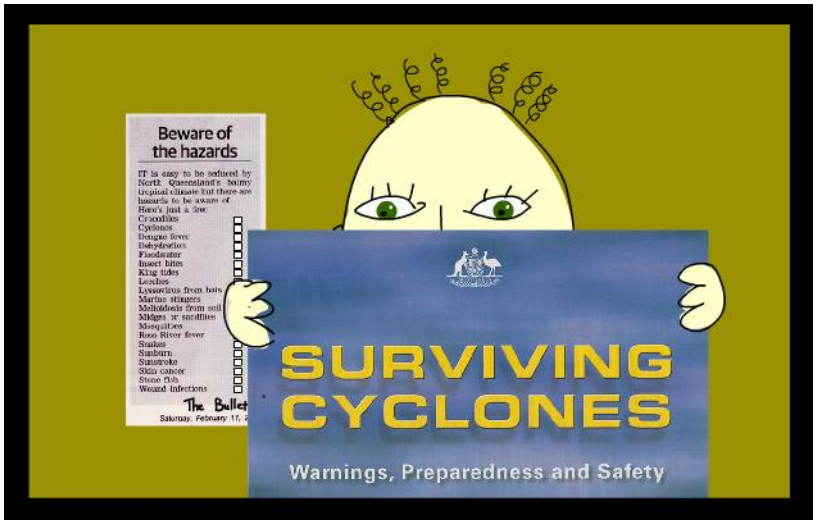

Fig. 5 *Still from Tropicality 1.2*

Creative as Canary in the Coal Mine?

These three themes – heat and humidity; light and colour; and impermanence of material culture – are clearly important for creative practice in the tropics. Throughout this paper, attention has been drawn to aspects others may brush over as too trivial or obvious to mention. I have investigated their impact and discussed how they can be ameliorated, rather than being issues the creative person just has to shut up and endure. I did find a range of views amongst the four creative practitioners. For example, CD felt that working as an artist in Cairns was a kind of push-pull process: she was inspired by the light and colour and yet held back by the climate-induced lethargy. In contrast, RG did not find this to be an issue. Meyer reported speaking to an artist who felt that such struggle led to stronger work (Meyer and Naylor 2013).

Are these three themes and their management relevant to more than just creative practice? They must be. Paul argued that tropical geography could inform western epistemology through what he called an archipelago consciousness (Carter 2013). I could not claim an epistemological breakthrough here, but my investigation leads to some interesting discussions that *do* have applications well beyond creative practice. For example, if climate change means that the entire globe approaches a tropical climate, could sustainable 'cool living' ideas or publicly available climate-stabilized storage systems have much wider applications? Could the ephemerality of the tropical (art) object be embraced? Could specific solutions to the impermanence of material culture in the tropics be more generally applicable? Can the tyranny of the temperate be more pervasively named and shamed?

This is a position paper developing question that might usefully be asked rather than providing all the answers. Clearly there is a great deal more to research and many more people to interview. I will close here by returning to the question of whether geography is destiny. Landes thought that "it would be a mistake to see geography as destiny. Its significance can be reduced or evaded, although invariably at a price. Science and technology are the key; the more we know, the more can be done to prevent disease and provide better living and working conditions… The prognosis for tropical areas is better than it used to be… [however] [d]efining away or ignoring the problem will not make it go away" (Landes 15). I would agree with this, but add that we need insights from more than just the science and

technology communities. Clearly what is required are cross-disciplinary approaches, including those from the creative arts, the arts and humanities generally.

It's the first day of putting a big show together and time to bring our artwork into the gallery – prints, photographs, painted fabric, computers, etc. It hasn't rained at all for about nine months in Brownsville (oops…Townsville), not a drop, but today ... well, you can guess the rest [if not, simply return to the beginning of this paper].

Thanks to Kirsten Heritage, Photography Lecturer at the School of Creative Arts, JCU

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Appendix

Artists interviewed:
Chrissy Dwyer (CD), (formerly living in) Cairns — painting
http://www.chrissydwyer.com.au/

Richard Gillespie (RG), Townsville — sculpture
http://flashartdesignsquad.tumblr.com/

Russell Milledge (RM), Cairns — digital art
http://bonemap.com/

Gerald Soworka (GS), Townsville — drawing, printmaking, installation
www.canetoadhunter.wix.com/canetoadhunter