DEAD RECKONING

Curating the currents of Oceania on a journey towards rediscovery

Explanatory document
By Carleone Posala

Approximately forty thousand years ago a small group of humans ventured out of their homeland in Africa. Their remarkable journeys saw them wander to every corner of the globe and settle in some of the most challenging environments. For thousands of years, these early human cultures flourished representing the magnitude and importance of what we humans can continue to accomplish today. It is these various and often contrasting cultures, all originating from one place, which make human life and their efforts on this Earth so fascinating. Since humans first journeyed out of Africa, the scope of cultural diversity of indigenous people groups and their legacies have become misinterpreted and underrepresented in the 21st century. Therefore, with architecture as the subject of this research project, a specialist has been consulted to redefine some of the preconceptions today’s readers may have regarding indigenous cultures.

Wade Davis holds degrees in anthropology and botany from Harvard University and is currently a National Geographic Explorer-in-Residence. He has dedicated his life work to defending the plight of indigenous cultures, and his work has revolutionised how the modern world views indigenous people. His insights assist in understanding why indigenous knowledge matters in a modern world and the roles we all must play in safeguarding our human legacy.

Following the abstract from Wade Davis is a photo essay presenting a primary motivation for this project. Each image represents the diversity and beauty of indigenous cultures. Even more intriguing is trying to understand how these cultures have emerged and what philosophy has shaped them. It is through research projects such as this, that we must ask how can these cultures and people help enhance others’ lives through architectural diversity.

“The social world we live in does not exist in some absolute sense, but rather is simply one model of reality, the consequence of one set of intellectual and spiritual choices that our particular cultural lineage made, however successfully, many generations ago.”

“Culture is the acknowledgment that each is a unique and ever-changing constellation we recognise through the observation and study of its language, religion, social and economic organization, decorative arts, stories, myths, ritual practices and beliefs, and a host of other adaptive traits and characteristics. The full measure of culture embraces both the actions of a people and the quality of their aspirations, the nature of the metaphors that propel their lives. And no description of a people can be complete without reference to the character of their homeland, the ecological and geographical matrix in which they have determined to live out their destiny. Just as landscape defines culture, culture springs from a spirit of place.”

“All cultures share essentially the same mental acuity, the same raw genius. Whether this intellectual capacity and potential is exercised in stunning works of technological innovations, as has been the great achievement of the West, or through the untangling of the complex threads of memory inherent in a myth – a primary concern, for example of the Aborigines of Australia – is simply a matter of choice and orientation, adaptive insights and cultural priorities.”

“The myriad of cultures of the world are not failed attempts to be us. They are unique answers to the fundamental question “what does it mean to be human and alive?” When asked this question, the cultures of the world respond in 7,000 different voices, and these collectively comprise our human repertoire for dealing with all the challenges that will confront us as a species over the next 2,500 generations, even as we continue this never ending journey.

“Whether we travel with the nomadic Penan in the forests of Borneo, a Vodoun acolyte in Haiti, a curandandero in the high Andes of Peru, a Tamashek caravanseri in the red sands of the Sahara, or a yak herder on the slopes of Chomolungma, all these people teach us that there are other options, other possibilities, other ways of thinking and interacting with the earth.

“The ethnosphere is a term perhaps best defined as the sum total of all thoughts and intuitions, myths and beliefs, ideas and inspirations brought into being by the human imagination since the dawn of consciousness. The ethnosphere is humanity’s greatest legacy. It is the product of our dreams, the embodiment of our hopes, the symbol of all that we, as a wildly inquisitive and astonishingly adaptive species, have created.

“On average, every fortnight an elder dies and carries with him or her into the grave the last syllables of an ancient tongue. What this really means is that within a generation or two, we will be witnessing the loss of fully half of humanity’s intellectual legacy. This is the hidden backdrop of our age.

“There is a fire burning over the earth, taking with it plants and animals, ancient skills and visionary wisdom. At risk is a vast archive of knowledge and expertise, a catalogue of the imagination, an oral and written language composed of the memories of countless elders and healers, warriors, farmers, fishermen, midwives, poets, and saints – in short the artistic, intellectual, and spiritual expression of the full complexity and diversity of the human experience. Quelling this flame, this spreading inferno, and rediscovering a new appreciation for the diversity of the human spirit as expressed by cultures, is among the central challenges of our times.

“The problem is that even those of us sympathetic with the plight of indigenous people view them as quaint and colourful but somehow reduced to the margins of history as the real world, meaning our world, moves on. Well, the truth is the 20th century is not going to be remembered for its wars or its technological innovations, but rather as the era in which we stood by and either actively endorsed or passively accepted the massive destruction of both biological and cultural diversity on the planet. Now, the problem isn’t change. All cultures through all time have constantly been engaged in a dance with new possibilities of life.”
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Wendy Posala
ABSTRACT

Indigenous Samoa is the subject of this research project. Thousands of years ago ancestors of oceanic people were the first to journey across the largest body of water in the world. Through observing the natural environment oceanic people created systems for navigating Oceania. Settling every island in Oceania they established flourishing societies that remain today.

Approximately two hundred years ago these oceanic people encountered cultures outside of Oceania and subsequently were colonised and their indigenous way of life dismissed. The significant shifts that occurred in the cultural landscape jeopardised the connection to oral history and the relevance of indigenous knowledge in contemporary society.

This research investigates how an architect can contribute to safeguarding this legacy and explores how architecture can become an artefact that reconnects people to their under-represented history in a contemporary setting.
1.0 INTRODUCTION

Over the past two hundred years, Samoa’s cultural landscape has changed significantly in consequence of interaction with the outside world. The result of these changes has left many people questioning the relevance of indigenous knowledge in contemporary society. As an oral tradition, much of Samoa’s history is yet to be documented and remains encoded in myths, legends, songs, dances and customs. As the elders continue to pass, and the need for their way of life supplanted, we lose a portal to understand the cultural history held within them that can never be restored. As a developing nation, Samoa also faces a range of problems which can gain value from indigenous insights.

This research seeks to explore how an architect might design a facility that will acknowledge the ancestors who have come before, archive existing narratives, analyse the current state of indigenous knowledge, and find ways to progress indigenous Samoan thought.
1.1 | AIMS AND OBJECTIVES

This project has two primary aims. The first is to challenge how we perceive indigenous cultures in a modern world. The reader’s engagement with this project is intended to raise awareness of the problems faced by indigenous cultures around the world. The second, is focused on the profession of architecture, and the relationship it can collaboratively harness with global indigenous cultures by utilising architectural skills to better support the preservation and evolution of cultural practices. Every culture represents thousands of years of trial and error processes that can enhance our skill-sets as designers. This project aims to demonstrate that indigenous cultures and the architect can both benefit through mutual exchange and relationship.

1.2 | SCOPE AND LIMITATIONS

Identifying the scope and addressing the limitations of this research project is particularly pertinent. This project places an emphasis on recording existing indigenous knowledge and finding ways to use it in a contemporary setting. Due to the nature of oral traditions, the recording of all existing narratives is not achievable within the scope of this work. It is also not possible for a single architectural intervention to provide solutions for all the problems faced by the indigenous culture. Therefore, the focus is placed on empowering people to undertake this work for future generations. The final design outcome will provide an opportunity for people to archive, analyse and advance indigenous knowledge. This places responsibility on the user group to be active participants in restoring their indigenous legacy and enables them to generate solutions to their current and future needs as they see appropriate.

1.3 | RESEARCH QUESTION

How might we elevate our understanding of indigenous cultures through refining an architectural artefact in a progressive society?
The following section is primarily focused on providing the reader with a broad understanding of indigenous Samoa’s history and has been divided into four key sections.

1. The first provides a historical overview of indigenous Samoa’s history in the form of a timeline.
2. The second identifies Apia as a significant location for indigenous interactions with the outside world and provides the reader with an understanding of how the indigenous have been historically portrayed and how the challenges it faces today.
3. Section three seeks to better understand the culture’s emergence and the influence it has had on indigenous architecture.
4. Section four examines the role indigenous architecture played in sustaining cultural knowledge.


### Oral Tradition

Oral tradition provides a wealth of information about the pre-colonial history of Samoa, including stories, genealogies, and songs that preserve the culture and traditions of the island. This oral tradition is vital as it serves as the primary source for understanding the pre-Christian times in Samoa. The significance of oral tradition cannot be overstated, as it played a crucial role in the transmission of knowledge and the preservation of cultural practices.

### Events Affecting Knowledge Transferral

The conversion to Christianity had a profound impact on Samoan society, leading to the establishment of the first Samoan orders of architecture in 317 AD. This event marked the beginning of a new era in the island's history, characterized by the arrival of missionaries and the introduction of European influences. The first churches in Apia, along with other cultural and commercial centres, emerged during this period.

### Historical Timeline

#### Prehistory

- 1100 BC: Arrival of settlers from the south to the Samoan Islands.
- 1000 BC: Deep sea voyaging and settlement history.

#### Early History

- 700 BC: Arrival of Tagaloa-a-lagi, the First Polynesian Immigration.
- 500 BC: Settlement of the Society Islands.
- 400 BC: Hawaii & Rapa Nui.

#### Colonial Period

- 300 AD: Arrival of these settlers.
- 200 BC: Western Polynesian Culture.
- 100 AD: Arrival of Tongo and Tui Tonga, leading to colonialism.

#### 18th Century

- 1768 AD: Arrival of Captain James Cook.
- 1774 AD: Captain James Cook returns to Samoa.
- 1791 AD: Captain James Cook partners with the Samoans.

#### 19th Century

- 1826 AD: Arrival of John Williams.
- 1832 AD: First Protestant Church.
- 1842 AD: Pacification of the Chiefs.

#### 20th Century

- 1914 AD: First Teuila Festival.
- 1950 AD: Methodist Church.
- 1960 AD: Apia city Centre.

### Resources

The following section is primarily focused on providing the reader with a broad understanding of:

- historical events which have left indigenous Samoa both under-represented in today’s contemporary society and vulnerable to further knowledge loss
- future development plans which will have significant effect on the urban fabric which continues to neglect indigenous thought.

Samoa has been radically transformed since first being sighted by Dutch Captain Jacob Roggenveen in 1722 AD. Comprehending core elements of historical events and future visions is imperative to one’s understanding of this project.
Apia represents architecturally, and non-architecturally a significant record of interactions between Samoa and the outside world. Apia emerged as a small port town, classified as a neutral territory between outsiders and the indigenous people. In its early years Apia hosted one of the most diverse communities in the Pacific with settlers arriving from "Germany, Britain, America, France, Denmark, Norway, Sweden and China." Traders, merchants, and missionaries began transforming the architectural landscape with the introduction of new building typologies such as small shops, hotels, churches, while developing the port and plantations.

 Beautification of Apia

By 1900 Samoa had formally become a "Protective Territory" of the German Reich, by which the Germans meant ‘colony’. This represented the introduction of significant town planning in the area, becoming known as Governor Solf's Beautification of Apia. Underpinning this planning was creating a more ‘hygienic’ town for foreigners to enjoy. This saw the relegation of indigenous people who were not involved in the planning process.

Model Villages

At the beginning of WWI, New Zealand was sent to overthrow the Germans and administer the Samoan people under the British crown. The new administration under Governor Richardson was responsible for the development of ‘model villages’ which sought to rationalize the village through organizing buildings in straight lines around a parade ground. This saw an uprising by Samoan Matai, who opposed this newly enforced planning strategy. For example, Chiefs who witnessed fruit bearing trees being cut down to allow for street and building alignment, deemed this new typology wasteful and not appropriate to Samoan living. As it removed privacy from the open space, the eradication of important natural resources and meant the indigenous people could not be with their ancestors who were buried in the village.

HISTORIC CONTEXT

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Conflict and the Mau Movement:
Over the course of the last two hundred years, Samoa has overcome two civil wars, been colonized twice and fought for independence. Throughout these events a number of Samoans have sacrificed their lives to give the nation the independence it has today. For some Mau leaders and followers, the docks were the last place they stepped on before being banished to Saipan, forever. Therefore, Apia has a real poignance to this significant time in Samoan history. A place that has provided the backdrop for protest, expulsion, death and liberation. This is particularly relevant for the 'Acknowledging' section in 3.1 Response 1.
Indentured Labor:
During the early settlement period, thousands of people who provided indentured labor arrived in Samoa to work in plantations. Many, especially the dark skinned, were mistreated badly, similar to the extent of neglect shown towards the indigenous community, represented in this research project. Mixed marriage was frowned upon in the early settlers period, but this did not stop the rise in half-caste children. Today there is a strong expatriate community who are decedents of indentured labor or half-caste community who have suffered and served the indigenous Samoan. This is particularly relevant for the ‘Acknowledging’ section in 3.1 Response 1.

Missionaries
The Christian faith was widely accepted in Samoa. Today approximately 97% of the population belong to a Christian denomination. However early missionaries had a huge impact on Samoan customs and rituals. For many elders and ancestors who didn’t convert to Christianity their way of life became marginalized. They had no one to share their stories and genealogy with and effectively slipped un-noticed into the margins of history. The importance of re-engaging with these practices to understand the meanings behind them. What can they tell us about our ancestors? Where these practices really the act of the devil or simply practices the Christian belief disapproved of? What can we learn?
Gateway to the world

For many Samoans, the port represented the gateway towards opportunity. Passage and work in Los Angeles and New Zealand saw many Samoans make the journeys to seek a better life abroad.

The positive effect of this is Samoans living in the diaspora have generated the beginning of a knowledge base which is helping reconnect with their indigenous heritage.

The negative effect is that many Samoans who have moved abroad struggle to make an impact in Samoa because many Samoan architects who have attempted to practice in Samoa have failed to achieve anything because of the complex political structure.

Samoans brought up abroad, or have studied abroad have to earn respect when they return moving back & for many Samoans of the diaspora this is a deterrent and the easier lifestyle aboard becomes the better option.

Influenza

During the new Zealand administration, a ship carrying the influenza was permitted to dock in Apia. This brought mass devastation to the small population with an estimated death toll of 1/5 of the population.

In an oral tradition where elders are the keepers of knowledge, the impact on indigenous culture was immense. This is particularly relevant for the ‘Acknowledging’ section in 3.1 Response.
APIA’S FUTURE

The Samoan census of 1905 documented a total Samoan population of about 33,000 with “no more than 20 buildings.”

The 2017 Samoan census projected a population of “37,000” in Apia alone. The capital city’s rapid urban growth is evident in the satellite image opposite. Classified as a developing country, Samoa and its cities are faced with major infrastructural and urban planning problems caused by the rapid urban growth. To combat these problems, the Apia Waterfront Development Plan 2017-2026 has set into motion. This plan makes an effort to create and reflect a unique Samoan experience. However, it does not define how indigenous thought has been considered or consulted in the development of the city’s future. If major developments, such as this, do not consult indigenous thought, countries fail to create opportunities for their fading heritage to develop. The following analytical maps identify strengths, weaknesses, and opportunities of this plan which will later inform the site selection in section 3.

13 Reshaping of Paradise: Wilhelm Solf’s City Renewal in Apia, Samoa
The Enduring

Apia’s urban fabric significantly lacks fundamental representation of indigenous Samoa. This cultural absence asks how the enduring urban fabric can add significance to Apia and this research? John Ruskin posits "(…) the greatest glory of a building is not in its stones, not in its gold. Its glory is in its age, and in that deep sense of voice-fulness, of mysterious sympathy which we feel in walls that have long been washed by the passing waves of humanity." 15

Throughout Apia there is a range of new architectural typologies which have emerged after European contact. These typologies include schools, churches, hotels, commercial ports, and governmental buildings reflecting significant shifts away from indigenous practices. This research builds a platform to raise awareness concerning these shifts. Apia’s Waterfront Development Plan will provide interactive signage at each key historic site.

The map identifies buildings and tombs which relate to significant shifts in Samoa’s history. A map containing site names is included in Appendix A.

The Ephemeral

Best representing indigenous Samoa in Apia’s urban fabric is the natural environment. Apia hosts Vaiusu mangroves, Vai’ala beach, Harbour beach, Palolo Deep Marine Reserve, Vaigagoa River and the Eastern Fringing Reef (proposed site). These natural reserves add significant value and serenity to elders who might otherwise view Apia as a place remembered for its indigenous oppression. These areas invite opportunity for residents to reconnect with the narratives once imbued (right word?) in the natural environment. For others connecting with nature represents an opportunity to draw inspiration and offer a peaceful place for contemplation.

Apia’s Waterfront Development plan aims to enhance existing green spaces, and provide better accessibility to other environments. By introducing a new water taxi locals and visitors alike engage with the marine ecology of Apia.

Figure 16 Apia Waterfront Development Plan: The Ephemeral
The Four Zones

**Apia Waterfront Development Plan**

*Mulinu’u* as defined by the Apia Waterfront Development Plan, is a multifaceted space for contemplation offering opportunities to relax amongst historical sites and nature.

**Apia Central** will include areas for commercial and administrative use and will be the busiest area of the four zones. It will hold public events and strive to provide vibrant and lively commercial opportunities, recreational space and cultural exchanges.

**Waterfront harbour** is comprised of the port, marina, beach, and various heritage buildings. It will become the centre for arts and heritage, showcasing and facilitating Samoan art and culture.

**Vaiala Beach** will be defined as a low-density village. It will highlight village lifestyle and significant aspects of the Samoan culture, including family, faith, art and culture.

**The Spline**
As the capital city, Apia is an urban hub which is central and accessible to the whole of Samoa and the World. This diagram identifies the main spline collecting the arterial routes along the waterfront. These routes are a crucial part of Apia’s vision to create a more pedestrian-centered streetscape. The spline contains a seawall component, urban streetscape, ocean stairs, beaches and environmentally friendly boardwalks. The spine connects the enduring, ephemeral and four key zones in Apia’s vision.

As observed above indigenous Samoan culture is under
As stated in the previous research section, indigenous Samoan is underrepresented in Apia, and it is unclear exactly how it will be represented in the future. It is therefore essential that the reader has a grasp on:

• Where the indigenous Samoan culture emerged and what philosophy shaped it?
• In what way did cultural emergence influence the indigenous Architecture?
represented in Apia. If it becomes important to represent each cultural structure in Apia it is not clear how that might occur. Therefore, the question at hand is how should we go forward in representing indigenous Samoa in the palimpsest that is Apia. This research section answers this question by delving deep into understanding where the indigenous Samoan culture emerged, what philosophy has shaped it, and what presence it holds today.

A common outsider perspective of Oceania is that it is a series of “islands in a faraway sea.” The basic understanding of where oceanic people have come from was historically problematic. Spanish explorer Ferdinand de Quiro was one of the first Europeans to wonder where oceanic people originated from when passing the Marquesas Islands in 1595. “He assumed that they were either from a nearby island, had accidentally drifted there, or arrived by a miracle.” In 1722 Dutch sailor Jacob Roggeveen puzzled over how remote islands like Easter Island were settled. “His view was that these people must either have been created there or landed and brought by another means.” The search for Oceanic origins has been a major scholarly investigation ever since. The strongest scientific enlightenment has been the discovery of Lapita pottery through Oceania. Archaeologists were able to determine likely patterns of human settlement throughout the Pacific from a trail of this pottery. The map on the opposite page traces the first “island hopping” ventures out of Melanesia ca. 1200BC and the progression to deep-sea voyaging towards Fiji, Tonga and Samoa approximately 1000BC. These discovery voyages were followed by expansive expeditions to Rapa Nui and Hawaii approximately 700 AD and New Zealand approximately 1200AD.

In contrast to outside perspectives, Tongan anthropologist Epeli Hau’ofa explains Oceanic people viewed their world as a “sea of islands,” and embraced the ocean for its role in connecting island groups. This view and relationship with the ocean was introduced to children “as soon as they could walk steadily” and was vital in defining and sustaining their way of life. “From one island to another they sailed to trade and to marry, thereby expanding social networks for greater flows of wealth. They travelled to visit relatives in a wide variety of natural and cultural surroundings, to quench their thirst for adventure, and even to fight and dominate.”

For centuries, the people of Oceania were perceived as too

18 Ibid. 274
19 Ibid. 6-11

Figure 19 The Oceanic Odyssey
primitive and incapable of navigating and settling the Pacific before European explorers despite scientific evidence and a plethora of sophisticated oceanic sea craft. In response to this disbelief, a small group of Hawaiians sought the wisdom of ‘Mau’ Piailug, the last remaining master navigator in Oceania from Satawai in the Caroline Islands. Together they constructed the Hōkūleʻa, a traditional Hawaiian ocean-going, double-hulled canoe and sailed from Hawaii to Tahiti and back. This grand voyage across the Pacific demonstrates that non-instrumental ocean navigation is possible and affirms the scientific evidence proving Oceanic settlement and way of life. This has triggered new interest in this field with over ten new voyaging canoes since being constructed by the Polynesian Voyagers Society and the Okeanos Foundation. These two organizations support the regathering of indigenous knowledge beginning with the ocean and interisland navigation.

Samoa was first sighted by French explorer Louis-Antoine de Bougainville in 1768. Observing the “skills displayed by the inhabitants in the management of their canoes he named the archipelago ‘Navigator Islands’, and its people, ‘the Navigators.’”

“The skills recorded by Bougainville signify that Samoans were active mariners. In the context of Oceania, the island countries of Samoa, Fiji and Tonga have played a significant role in Polynesian history. These three countries constitute a collection of islands sometimes referred to as the ‘Cradle of Polynesia,’ and are known as “the place where culturally distinct Polynesian aspects were developed, dispersed and transformed into many of the other Pacific cultures we know today.”

The previous section provided a discussion on how the Samoan...
culture emerged from the ocean and retraced oceanic origins back to Melanesia approximately 1200BC. This section explores how this remarkable journey influenced the emergence of indigenous Samoan architecture and defines new constraints in contemporary society, further investigated in my Research Response 2.

A common approach to understanding the origins of architecture is an often reductive assumption that it emerges from the primitive hut in the forest. Mike Austin and Jeremy Treadwell are leading architectural academics who have demonstrated that oceanic architecture arises from the openness of the ocean. Austin posits "the history of openness in architecture is yet to be written." There are two key approaches to make this connection between architecture and openness.

The first approach has been the more popular of the two in recent years, stating "technology of the house construction derives from canoe-building traditions." Tectonic connections between a canoe and the Samoan fale (indigenous archetype) can be transferred to tectonic systems such as counterweights, movement joints, structural isolation, and pre-stressing techniques. Tectonic relationships between the fale and va'a (canoe) have been explored comprehensively in recent scholarship, placing a strong emphasis on this research on the following idea/approach.

The second approach is based on the notion introduced by Austin, it suggests its are derived from the openess of the ocean. The critical components of this are "platforms, decks, terraces and beaches which are organised to optimise porosity, connection or view, rather than enclosure, shelter, or containment." These structures are a palimpsest of the landscape, and in turn, the structures organise and give significance to the landscape." Today, Palagi (Western / non-Samoan) style houses lack the quality of openness and "their separate bedrooms have been identified as the reason for rheumatic fever with their lack of air flow. They are unsuitable in a cultural sense, as well as in terms of health and climate." With the rise in aid-funded buildings there has been criticism from the public. Many Samoans feel as if "(they've) got all these big buildings designed by people not from here and not climate-appropriate, nor energy-efficient. They are not tailored to Samoan society or climate, and they need to be because of our limited resources." What is important about these abstracts is understanding the constraints for openness have changed and the architecture is yet to define an appropriate response. Creating the resulting openness observed in the indigenous fale is no longer appropriate and creating extreme enclosure rejects openness and the architectural identity of Oceania. This research will seek to navigate the two extremes to find a solution. The investigation will strive to create a gradient of openness defined by connections to key aspects of the environment required for celestial navigation, such as the stars, sun and moon. A short summary of navigation techniques are found on the following page. The final design outcome pays specific attention to celestial navigation, dead reckoning and birds. According to Lapita pottery trails, Samoa was first settled...
Celestial Navigation:

Celestial Navigation provides the most accurate navigation method. In principle, stars rise above and set below the horizon plane. A star’s rising point and setting point is always symmetrical along an axis known as the going. Early navigators memorized hundreds of star constellations and their associated rising and setting points in order to know where they were. In turn, these constellations acted as a guide to calibrate their vessels in the direction they were traveling.

When stars rise too high on the horizon plane gaining an accurate bearing becomes difficult to the human eye. In this case, the navigator scans the sky for other constellations, or relies on the sun during the day for navigation. If stars or sun prove to be too difficult to follow, they then turn to studying wind and swell patterns.

Cloud Formations:

High peaks of land cause clouds to form in a cluster. When these clusters blow around and away from the peak navigators are able to visually differentiate these clouds formed by the land collision apart from other clouds with no land interference. Cloud formations located over a lagoon can create different colouration under the clouds. Green hues reflect a lagoon, yellow hues reflect beaches and dark green hues reflect vegetation.

birds:

Birds venture out from land to look for food, with different species flying away from land at varying radii. Some species, such as Nodies, can venture up to thirty miles from shore. This enables navigators to identify landfall direction and distance.

Dead Reckoning:

The most important aspect of navigation is knowing one’s current location. The navigator is able to achieve this by keeping a running mental record, without the use of instruments, of every twist, turn and change of the course. This can be particularly challenging on stormy evenings, or by contrast long periods with no wind.

Swells:

Interruptions in swell patterns can be used to identify landfall. When swells collide with land they either wrap around an island or fall back into the ocean. Identifying the direction of swell patterns enables navigators to determine where land is located.

Interruptions in swell patterns can be used to identify landfall. When swells collide with land they either wrap around an island or fall back into the ocean. Identifying the direction of swell patterns enables navigators to determine where land is located.
2.3) RESEARCH ERA 3

In research period one, the reader uncovered indigenous Samoa is underrepresented in Apia, and it is unclear exactly how it will be represented in the future.

In research period two, the reader engaged with the oceanic odyssey and was provided an understanding of how openness influenced indigenous Architecture.

The focus of this research section is to provide the reader with an understanding of:

- How indigenous Samoa recorded information and transferred it to future generations without a written record for 3000 years?
- What role did architecture play in archiving, advancing and disseminating knowledge?
- In what ways was the indigenous archetypes successful, and how can it also be improved?
approximately 3000 years ago. Little is known about this period, but what we do know is that throughout this time, Samoa was actively involved in exchanges with other oceanic communities and the culture flourished. The question therefore is, how did they record information and transfer it to future generations without a written record? The term oral tradition is often used, but tells us very little about the process. In order to understand the oral tradition, we must understand how they viewed reality. This lens of the world is called Va, and is outlined below by Albert Wendt.

Central to understanding the Samoan view of reality is the concept of "Va". In 1996, Albert Wendt, a renowned Samoan Author published "Tattooing of the Post-Colonial Body", a seminal text offering the first written definitions of Va. "Ve is the in-between space, not empty space, not space that separates but space that relates, that holds separate entities and things together in the Unity-that-is-all, the space that is context, giving meaning to things." For Samoans, creating relationships was particularly important for communicating, through abstracting meaning associated to their surroundings. These relationships inform the building blocks for Samoan communication. This dialogue between people could be portrayed in songs, dances, art, oratory and ceremonies. Their vocabulary was inseparable from their surroundings. The ability to define relationships was of utmost importance to the culture giving rise to the term 'le teu le va' meaning to cherish/ nurse/ care for the Va. In 2005 Tui Atua Tupua Tamasese Ta’isi Efi published In Search of Harmony: Peace in the Samoan Indigenous Religion. This text discusses an array of core relationships in which sustained harmony in the ‘fa’asamoa’, the Samoan way of life. The foundation of these harmonies are underpinned by the following fundamental relationships:

1. Harmony between man and the cosmos
2. Harmony between man and the environment
3. Harmony between fellow men

These relationships have sustained the Samoan way of life. An important note to make here is that "Samoa has an artistic heritage spanning almost 3000 years. In that time Samoans have adapted, appropriated, borrowed and exchanged as a result of interactions and influences within and outside their island. The transformation made since the arrival of Europeans continues a process that began well before, and is central to the way that culture is understood to work." The concept of change is not a foreign one in Samoa; the concern is the rate at which change is occurring. Historically, the culture has had time to record and adapt; today the rate of change is occurring so quickly these processes don’t have an opportunity to.

This research will ensure appropriate spaces are provided for archiving indigenous knowledge and also the correct platforms to provide opportunities for further research and development. This is particularly relevant for the 'archive' + 'advance' section in 3.1 Response 1.

This focus of this research section is understanding the role...
architecture played in archiving, advancing and disseminating knowledge. In what ways was the indigenous arche-type successful, and how can it also be improved?

The sacred Samoan Fale Tele is the subject of this discussion. In recent years the Tufuga Fau Fale (Samoan master craftsmen) has relied heavily upon tourism related commissions to sustain the construction of the Fale Tele. This has provided a lifetime for a contemporary scholar to understand it. Albert Refiti is the leading academic in this field and provides insights on the topic.

The role of the Fale Tele was two-fold, firstly it acted as a platform that connected people to the vital Va relationships within their surroundings. This includes the natural environment and artefacts imbued with meaning, and also through performance, such as song, dance, oratory recital and ceremony. Secondly, "the fale was a building initially made by Tufuga, as a topogenic device to narrate the connections between a founding ancestor’s settlement of land, on the one hand, and his descendants who remain in the place, on the other.” Albert Refiti identifies that through archaeological evidence, the Classic Fale Tele has been present in Samoa for the last 1000 years and was a development of the Fale Ula which originated in Manu’a approximately 1700 years ago. Over the past 1000 years, the Fale Tele has not significantly changed. In the context of archiving knowledge, this was an important attribute. Samoans descended from a strong mariner culture, believed that the canoe was not moving, but the world was moving around them. In order to create a reference point for overlaying narratives, the architecture was reproduced and minor cosmetic variations made.

This overview of the Fale Tele presents two issues this project will address:

1. The Fale Tele became a tradition. When an artefact falls into a tradition, the culture gets caught in the process of reproducing the same artefact for, in the case, 1000 years. They have a well-developed system for resolving one major problem and can solve minor problems effortlessly. But when a new culture, such as the Europeans arrive, with a range of solutions, the culture cannot adapt quickly enough and falls vulnerable to prematurely accepting new solutions that are not appropriate for them.

2. The Samoan fale tele was designed to represent a very strong formal representation, completed by a roof representing the cosmos.


Figure 24. Fale Tele & the Va
1. **Detail Location**

   - **CUSTOM APRON**
   - **FASCIA TO SOAKER FLASHING**
   - **FLAT METAL ROOFING**
   - **STOP ENDED**

2. **Junction Detail**

   - **A1 SCALE 1 : 5**

3. **ROOFING BELOW WALLS**

   - **02 WALL MEMBRANE**
   - **11 CAVIBAT CAVITY BATTENS**
   - **02 CORNER FLASHING Internal**
   - **31 STRUCTURAL STEEL**
   - **01 TIMBER WALL FRAMING**
   - **31 STRUCTURAL STEEL**
   - **03 FORMANCE TAPE WALL 2 BARGE/ ROOF**
   - **10 FORMANCE TAPE**
   - **10 16mm FYRELINE PLASTERBOARD WALL**

4. **SOFFIT (ROOF SHOWN CUT WRAP TO UNDERSIDE OF WALL MEMBRANE**

5. **METAL ROOFING**

   - **FULLY WELDED**
   - **As indicated**

Samoan Social Structure

This section provides the reader with an understanding of the hierarchical structure of a Samoan village. It describes the roles and responsibilities of individuals within the village, emphasizing the importance of maintaining traditional knowledge and preserving the indigenous culture.

The taupou is the daughter of the ali'I or paramount chief. She generally has not married her own family, and has been chosen to represent the family in many ceremonies, the aiga and alalafaga.

The manaia is the son of the ali'I or paramount chief. He is the right-hand man who advises the ali'I on many matters of the aiga and alalafaga. He is to respect and succumb to the wishes of the ali'I, tulafale, taupou and manaia are also untitled, they are more superior than the aiga tautua, dependents or wider “untitled” members of the alalafaga. They are responsible for the day to day operations of the aiga and alalafaga. They are to respect and succumb to the wishes of the ali'I. Tulafale, taupou and manaia are also untitled, they are more superior than the aiga tautua.
3.0 RESEARCH RESPONSE

This chapter presents three key responses to the literature explored in section 2.

Response One: explores how an architect might provide a programme to assist the conservation of indigenous knowledge

Response Two: Explores how the oceanic odyssey can inform a design project.

Response Three: Explores how an indigenous artefact might be re-imagined today.
In research section one it was identified that Samoan culture had undergone change at an unprecedented rate. In this section we explore how Samoan society views change, and how the architect intends to facilitate a programme through designing processes. Sean Mallon explains,

"Samoan has an artistic heritage spanning almost 3000 years. In that time Samoans have adapted, appropriated, borrowed and exchanged as a result of interactions and influences within and outside their island group. The transformation made since the arrival of Europeans continues a process that began well before, and is central to the way the culture is understood to work."

Change is not the problem, the problem is that there is no opportunity for indigenous knowledge to be archived, analysed and advanced in contemporary society. In order to facilitate these actions this project proposed a process which enable this to occur. The importance of processes are,

"Contemporary architecture tends to produce objects while it’s real role should be that of generating processes. This distortion confines architecture to a very narrow strip of a whole spectrum leaving it open to the risk of dependency and megalomania, leading to social and political difference."

Acknowledgement

• It is a vital part of the Samoan culture to acknowledge ancestors and elders. It is imperative that this project will create a space which acknowledges the people who lost their lives fighting for Samoan independence and those who passed during all other efforts and events taking place since collision and integration with the non-oceanic world.

Archive

• Currently in Samoa, there is a limited time frame to capture and preserve the oral wisdom held by aging elders.
• For many elders, their knowledge is now being replaced by advancing technology. Subsequently, many of them believe their knowledge has become unnecessary and out-of-date. They no longer see the value in orally transferring knowledge to their descendants and take the last vestiges of their legacy with them to the grave.
• For other elders, such as village chiefs and family leaders, retaining indigenous knowledge is a way to safeguard power and control over affairs and skillsets. This limits others’ opportunity to understand how they can engage with this knowledge and how it can be implemented in contemporary society. In order to archive this knowledge, younger generations need to become active agents who challenge their elders. Elders also need a space in which they can understand their role in preserving the indigenous culture. Creating a neutral space, that temporarily removes people from social constraints, enables necessary dialogue between elders and their decedents which is crucial to this project.

Analyse

• Much of what is understood about indigenous Samoan was documented when other societies framed indigenous people as ‘uncivilised’, ‘primitive’ and ‘barbarian’.
• Over the past 20 years, the Diaspora has made efforts to better understand Polynesian history.
• The analyse aspect of this project is intended to critically cross-examine the early writings of Samoan culture by outside societies with the present-day discoveries and material emerging from the Diaspora and other anthropology ventures.

Advance

• Over the past two hundred years, Samoa has greatly transformed. Yet, as a developing country there is still a need for improving education systems, health care, infrastructure, etc.
• With the challenges of climate change and rising sea levels the country faces imminent environmental issues.
• The advance faculty of this project is intended to provide an avenue to explore how indigenous knowledge might be used to provide progressive solutions to these problems.

In research section one it was determined that indigenous Samoan...
3.2) RESEARCH RESPONSE 2

is under-represented in Apia. In research section two the reader was equipped with the understand that the pulse of Oceanic people emerges from the ocean, that the ‘openness’ of the ocean influence’s oceanic architecture, and identified key navigation systems for design investigation.

This research response explores

1. How can the be ocean metaphorically interpreted to inform space?
2. How can Mike Austin’s ‘openess’ be explored
3. How might Navigation systems inform space
4. “the fale was a building initially made by Tufuga, as a

Exploration 1

How can the ocean metaphorically be interpreted to inform space?

Approach one

These investigations explore how a ‘pulse’ might be represented on a plane which represents the ocean. The first models explore how adjusting range and frequency of the pulse can influence how wide a space can be or how narrow and vertical it be. The second line of models explore how this relationship is effected if the pulse emerges from a point.

Approach two

This investigation explores how a pulse can have a flow direction. Through a series of iterations the flow direction is altered to generate a range of spatial possibilities.
Exploration 2
2. How can Mike Austin's ‘openness’ be explored

These iterations explore folding, repetition and sliding to generate a porosity and visual connection whilst allowing for a degree of enclosure.

A simple plane was explored through folding it backwards. In doing so it creates a channel of space which guides users through and maintains an openness to three sides.

This exploration seeks to increase the porosity through separation, repetition and folding.

Traditional Pola or screens were used to create protection from the elements. These blinds define spaces through the act of sliding vertically.

These drawings seek to develop spatial sequences and pockets of space through sliding horizontally and vertically.

Figure 30 Openess exploration

Figure 31 Openess exploration
Exploration 1

2. How might Navigation systems inform space

Approach one

This approach explored how metaphorically representing celestial navigation might be possible. Stars acted as guides for navigators; these iterations explored how architectural elements such as ceiling, walls and floors could guide people through space.

Figure 32 Star Field Exploration

Approach two

In the design of the Fale Tele, the roof represented the cosmos & the building itself the ancestors who first settled in Samoa. The building as identified in Research section 3 defined the traditional way of life. In this iteration the idea was to generate a more 'open' space, and reconnect people to the natural environment that propelled the journey of the first settling ancestors. This approach provides tools for contemporary Samoans to embrace the changes currently being experienced and take a journey of their own. Utilizing aperture these iterations explore how to frame views of the natural environment used for navigating.

Figure 33 Visual Connection Diagram
3.3] RESEARCH RESPONSE 3

1. The Samoan Fale which is a "topogenic device to narrate the connections between a founding ancestor's settlement of land, on the one hand, and his descendants who remain in the place, on the other."[35]

2. The idea that the Samoan Fale fell into a tradition, which made it vulnerable to being replaced.

3. A Samoan social structure which has a limiting effect on archiving existing cultural knowledge.

Two key questions arise from these findings which will be explored in this section.

1. In what way can the Fale artifact be re-imaged for a sustainable future?

2. How might the building act as a neutral territory?


Exploration 1

1. In what way can the Fale artifact be re-imaged for a sustainable future?

Approach

- In research response one a process is discussed to provide a platform for acknowledging, archiving, analysing and advancing indigenous thought.

- In research response two, exploration 3, approach 2 the idea of connecting people to elements of the natural environment used to navigate is introduced.

Firstly, the Fale was a record of the oceanic odyssey and navigation systems were recorded on the artifact. In this exploration the founding ancestors are represent the building and frame different aspects of the environment used for navigating.

Iteration 1

These elevation sketches explore how a figure can suggest relationships with celestial navigation. Row one represent a architectural component taking the form of a human figure which is repeated to identify rising and setting point on the horizon. Row two is an extension of this and explores a much broader figure which will be more appropriate for creating spatial volumes.
Iteration 2
These elevation sketches explore how the figure could create relationships with the surroundings whilst also nurturing space.

• Row one represents a founding ancestor and an apprentice observing the environment.
• Row two represents a founding ancestor with a much more volumetric arrangement.
• Row three represents a founding ancestor standing to guard the Samoan culture.
• Row Four looks to create a dialogue with the ground. The ancestor pulling the heritage out of the ground.

Figure 35: Figure Drawing Iterations
Iteration 3
These plan sketches explore how these figures could be arranged to create space.

Iteration 4
These sketches explore how a skin can emerge out of a water surface to take shape of founding ancestors standing facing towards the horizon. This iteration is later developed in the architectural project as the skin can be used to frame key relationships with the surrounding context.
Exploration 2

2. How might the building act as a neutral territory?

In research response one it is discussed that some elders retain vital cultural knowledge which younger generations are unable to challenge them for. If this knowledge is not transferred before these elders pass away, then we will lose a portal to the past.

Strategy

Defining a neutral space slightly removed, by creating a journey out onto the water.

- By slightly removing the building from Apia and out onto the water, elders and descendants will have a space in which they can go and temporarily challenge each other. The design will pay particular attention to creating a threshold in which demarcates a neutral space for discussion and debate.
4.0 DESIGN

Defining a neutral space slightly removed, by creating a journey out onto the water.

- By slightly removing the building from Apia and out onto the water, elders and descendants will have a space in which they can go and temporarily challenge each other. The design will pay particular attention to creating a threshold in which demarcates a neutral space for discussion and debate.
4.1) PROGRAMME

The Five Zones

In order to develop this project into an architectural scheme, a programme needed to be considered.

The focus of the programme was to facilitate the acts of acknowledging, archiving, analysing and advancing. To achieve this, several aspects must be considered:

1. In what medium does the existing indigenous knowledge occur?
2. What resources are readily available to facilitate the documentation of this material?
3. What architectural facilities can create opportunities for this material to be developed?
4. What programme can be selected to generate activity?
5. How might these spaces be arranged?

The following section answers these questions through the discussion of five key spatial zones. The intent of this programme is to provide a platform for users to carry out the process of acknowledging, archiving, analysing and advancing indigenous thought.

Archive

Planetarium, Exhibition & Active Recording

The existing indigenous knowledge is encoded in song, dance, ceremonies, narrative, artefacts and craft. The archive centre will act as a space for the recording and dissemination of oral material. This zone will include recording studios, exhibition spaces for artefacts, and digital theatres for showcasing recorded material.

Secondly, a planetarium stardom offers a flexible spatial typology that synthesises many of these processes and will formulate a critical part of this zone. This will provide the following:

- An interesting cross-section between reclaiming indigenous knowledge and contemporary technology.
- A bridge between indigenous Samoan thought and today’s scientific research.
- A space that will appropriately narrate the story of the Polynesian odyssey, and provide a framework to understand how the Polynesia odyssey fits into a wider network of indigenous cultures.
- A space in which video can be used to disseminate, analyse and present contemporary problems with the facility working to solve through progressive teachings.
- A space to study Oceanic celestial navigation.

Active exhibition

The active exhibition space will comprise of a flexible studio environment with audio and visual recording facilities. This space is intended to be utilised by visiting elders who have come to the space to record the narratives of their ancestors. The space will need to be flexible in order to create enclosed space for elders who prefer privacy and open space for elders who are comfortable to share their narratives with others using the space.

Static exhibition

This space is for documented cultural artefacts to be showcased to the viewers. Fundamentally serving as an open space with a series of exhibitions.

Analyses

Library

The library is another European term adopted by this project. This is not to devalue indigenous approaches towards knowledge preservation but to create an addition to it. For approximately the last 200 years literature has been preserved by written word in Samoa. The library provides greater opportunity to share information to a wider audience for commentary and criticism. The library acts as a central database for all written work about indigenous Samoan history and creates a platform to connect with other library networks abroad. The centralised database will create accessibility for local researchers and elders to critically evaluate existing material recorded in libraries across the world. The library will contain a combination of large open space and smaller private-samurai space with informal pockets of space.
Advance
Dry docks
This project endeavours to move beyond solely archiving and analysing. Instead the aim is to create a platform in which this knowledge can be developed and transferred to assist the wider community. For centuries mentorship has been a big part of Polynesia culture, and is a key component this project. The advancement zone of this project will encompass a dry dock for indigenous vessel construction and maintenance. Servicing this space will be a range of workshops and studios that will educate participants about carving, lashing and material studies. The public will be able to visually engage through viewing platforms and a number of small ‘quiet cells’ that will be integrated to allow for academics and ethnists people to interact and promote discussion.

Acknowledgment
Bathing bay
The bathing bay is intended to act as a sanctuary - The therapeutic qualities of bathing create a relaxing space that enables an opportunity to reflect, remember and heal. - The process of bathing has the ability to engage all five of the senses: taste, sight, touch, smell and sound. Voyagers were dependent upon all of their senses to travel the deep seas, and Samoan ancestors depended on them to narrate their stories to younger generations. Bathing creates a programme that activates all of the senses drawing users back to the ocean and therefore, closer towards the Samoan ancestral legacy. - The bathing bay also acts as an activation node. Critical to the success of this initiative is raising awareness and inviting the community into a space they feel comfortable to use and occupy. The intent is to create an enjoyable and therapeutic environment, increasing the frequency of interaction between users, and hopefully improving the opportunity for people to connect with their indigenous heritage. - As demonstrated in section xx-xx the bathing bay challenges users to redefine how they perceive indigenous rituals that have been demonised by Christian values. By creating a space that reveals the tatau and malu (Samoan male and female tattoos) users are reminded of an art-form, tracing family genealogy and history, that was almost lost. These tattoos are symbols of religious and political resistance and perseverance, which are key to understanding Samoa’s fading history.

Auxiliary
The auxiliary zone hosts activity that will service the building. The space will comprise of an arrival and departure pontoon, reception space, kitchen (for staff), and changing rooms.

Additional Spatial Considerations
<table>
<thead>
<tr>
<th>User Group</th>
<th>Interests and Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researcher</td>
<td>Theory + Practical</td>
</tr>
<tr>
<td>Elders</td>
<td>Older and fragile</td>
</tr>
<tr>
<td>School groups</td>
<td>Primary to tertiary</td>
</tr>
<tr>
<td>Tourists</td>
<td>Academics, Leisure Tourists</td>
</tr>
<tr>
<td>Local Community</td>
<td>Academics, Leisure</td>
</tr>
</tbody>
</table>

In order to ensure the spaces are best suited for the intended user groups, an interest and consideration study has been utilised to understand how the programme might fulfill the spatial requirements.
4.2 | SITE SELECTION

Eastern Fringe

For indigenous Samoan reefs acted as a place of refuge. They protected people from dangerous predatory marine life, such as sharks, as well as from extreme weather conditions brought on by cyclone induced swells. They also nurtured an ecosystem and sustained marine habitats. To indigenous Samoans the ancestors were spiritually intertwined and dependent upon this environment that provided for them and protected them.

The eastern fringe, northeast of the Apia beaches, was crucial to the Samoan way of life and important from a historical perspective. In 1899 the world powers of the United States of America, Britain and Germany gathered to fight over administration of the country. On the day of the battle a cyclone tore through the county leaving ships capsized on the reef forcing a more diplomatic resolution. Unfortunately, much of this reef has been reclaimed to create EleiElei Fou and dredged to allow for larger ships and fishing boats to move freely in the port. Also threatening the survival of the reef is climate change with increasing numbers of cyclones bringing swells that ravage the ecosystem. The reef is in need of conservation and adds value to the narrative of this project.

Active Marine Environment

The port and harbour facilitate a multitude of every day marine activities playing host to cruise liners, container ships, yachts, fishing boats, regattas and rowing events such as the annual Fautasi race. This site will create an easily accessible route for barges to service the building and for voyaging canoes of the Polynesian Voyaging Society and Okeanos Foundation for the Sea. This accessibility is vital to Epeli’s vision of the oceanic people having a place for exchange.

Epheermal

The site is located in the water. This provides a platform for exploration and engagement with an active material that is constantly flowing, renewing, connecting and sustaining the indigenous Samoan way of life.

Openness

The site also provides a high degree of exposure to openness. Of primary interest is the undisrupted view of the horizon plane towards the east where the sun rises every morning. This orientation has importance to the Samoan people as many paramount tombs and indigenous grave sites have been oriented towards the sunrise. This formulates an interesting duality with the horizon plane to engage within this design project while still sharing a relationship with the Mulinu’u Peninsula representing the enduring history of Samoa. This dialogue between the horizon and urban fabric are contextually vital to this project.
Site: Eastern Fringe
Site: Departure Point: Old Port
Central Transportation Hub
Vaiusu Mangroves
Vaiusu Bay
Apia Harbour
Urban green space
The Spitre
Figure 40: Apia Site Location Plan
Prior to the introduction of the new port in Matautu, the old port was located in the proposed Apia central transportation hub (refer to research section one for image), containing the fish market (hatched in diagram). The site is the perfect historical gateway for this project. It has seen the arrival of indentured labour, traders, merchants, early round, steam liners, explorers, settlers, colonials, and disease. This site also served as the banishing point for the Mau members sent to Saipan and the departure point for the Diaspora (Samoans moving to New Zealand, Australia, USA, Britain, Germany, etc).

Located in Apia central, and predicted as the busiest part of the waterfront due to the transportation hub, the site is accessible to every Samoan.

This site also creates an opportunity for a water taxi in the Apia Water Front Development Plan. This project proposes that a water taxi be utilised with aims to re-introduce traditional sea craft to transport users to and from various waterfront locations. This initiative has been pursued by the Okeanos Foundation. The water taxi will retain three distribution points along the spline to create a range of experiential possibilities.

Figure 43 Site Access

Figure 44 Key Site Features

Water Taxi or Modes of Water Transport

For oceanic people the water is a part of their identity. Samoans were master navigators and are vastly involved in way-finding revival efforts. This project suggests that a water taxi be developed similar to short-distance ocean-going canoes, inspired by indigenous vessels. Through interaction with this aspect of infrastructure, users undergo a journey that will engage the senses and create an opportunity to participate in similar experiences of their ancestors. Samoan culture emerged from the ocean and it is intended that the users return to the ocean to visualise their place in Samoa’s future.
Key site features

Site: Eastern fringe

Boundary between Enduring & Ephemeral
Slightly removed, but accessible

Openess

Eastern sunrise & unobstructed ecliptic
Sun, Stars, Moon, Clouds, Birds
Reef break
-White wash
-Swell protection

Enduring
Ephemeral

Uninterrupted view of atmospheric cosmos

Figure 45 Section A-A: Key Site Features
Due to limitations in available material determining the exact contour of the eastern fringe, investigation of the site was not possible. Through investigating photographs and a general marine chart, a topographical model has been generated. The dark grey represents the sandy sea bed at the greatest depth. The medium gray represents an area of volcanic rock. The lightest grey represents the fringing reef, a habitat for marine life. The site has been located in the red ring, which will not interfere with the existing marine habitat. Also important to the location of the building is the reef break. The building platform has been located centrally on the reef to optimise protection.

The proposed building platform will take refuge behind the eastern fringe. Centrally located, the site optimises protection from swells. The proposal seeks to include volcanic rock sympathetic to the existing sea floor. In radiating outwards, the platform on the one hand relates to a marine wildlife habitat, while structurally reinforcing the existing fringing reef, which has been battered by cyclones and human activity, and provides a breakwater for vessels arriving in the rear.

Figure 46 - Reef Model: Proposed Site
4.3 DESIGN DEVELOPMENT

Openness and Navigation

The eastern fringe provides an open platform to connect people to components of celestial navigation such as the rising and setting points intersecting the horizon, the eastern orientation which will capture the sun rise and transverse the sky throughout the day and 360 degrees sightliness. It also provides a connection to dead reckoning in which white wash represents the dead wake behind the vessel.

In order to optimise the relationship between the user and the surroundings an axis running west to east is established. This ordering device is useful in clarifying complex relationships inherent in this research. Firstly the openness must be ordered, to achieve this a definition of openness is useful. In oceanic society creating resolute openness was possible, today there is a need for creating enclosure, such as the planetarium in this project. Openness in this project therefore is dependent on how many connections the user can make to the below.

‘Dead reckoning is knowing where you’ve come from in order to know where you’re going.’

Figure 47 Proposed Site Relationships
This section defines a static to dynamic spatial arrangement. In this application an axis is used to organise space from past to future. The exhibition spaces is arranged to allow the user to interact with past artefacts. The research wing, bathing bay and application wing are organised at the open end of the axis to reflect a journey towards the future.

Mass sizes have been producing using spatial sized in Appendix.

Spatial Organisation

Figure 48 Proposed Massing
In research responses two and three the ideas of a pulse representing the heart of Oceania emerged from the ocean to define space. Creating connections through apertures was then explored as a means to connect people to the environment. A series of sketches then explored how a figure could represent the founding ancestors who have emerged to reconnect people to their heritage.

In this section these ideas will be compounded to formulate a single figure which emerges from the ocean to nurture future generations through connecting them to their ancestry.

In order to synthesise openness and navigation, spatial organisation and the Guardian into a cohesive whole the building was developed first as a whole in context to establish critical site relationships and then divided into three key sections for further development.

Figure 49  Guardian Concept

Figure 50  The Guardian
The original sketches explored design options with a range of ancestors standing towards the horizon. This iteration progresses this concept with a single ancestor, the founding ancestor, Tagaloa. This iteration begins with a flat plane wrapped around the central bathing space oriented to the project axis facing west, east.

It's important for the viewer to understand this skin sits above the water line to formulate a flat roof. This iteration explored unwrapping the skin to formulate a cloak like space on the western end which dips down into the water.

This iteration introduces the flow of water into the central bathing area to create an outdoor bathing bay as opposed to an enclosed European bath house. An important interaction with the site is realised. As the white wash from the reef break is visually apparent here, it may also venture into the bathing area. The white wash is akin to the dead wake of a vessel.

This iteration seeks to take advantage of the bathing bay through folding the outer skin down and outwards towards the horizon. The result is a hierarchy of visual vistas. Through two folds the skin provides a spatial hierarchy without compromising openness. The three visual vistas ensure each section connects to the horizon.
This iteration develops the skin as it folds down to create the ground platform. The outreach creates sight lines that are equally divided and represent the rising and setting points on the horizon (this concept is inherent in the roof ribbing of the fale tele). It will also add as an extension to the reef and act as a breakwater ensuring safe passage for the water taxi transporting users to and from the building. It will also create a surface for local mariners to ‘beach’ their vessels as well as a break out outdoor area for the dry dock & library to utilise.

This iteration alters the back skin which originally cradled the entrance. It now unwraps and opens up to generate a more directional flow towards the horizon. As the building unwraps along the axis the spaces become more open and visually outreaching. What becomes more apparent in this iteration is that there is a transition point when the user returns and the openness becomes more enclosed.
At this phase of the design the rear skin defines a symmetrical void which conforms continuously along the project axis. This section establishes a spatial hierarchy and explore how to deal with the necessary enclosed spaces.

What is successful about this elevation is it contains strong macro design moments. It is visually open on all sides including the vertical. The planetarium is visible which acts as way finder etc. What is lacking in this elevation is sophistication. It doesn’t consider enclosed space for changing rooms and other auxiliary spaces & the threshold is revealed too early in the journey. The transition needs to be a space in which enables the user to slow down and relax before entering the space (for both workers & visitors).

In allocating enclosed volumes on either side of the central void the space becomes compromised. The planetarium becomes more defined. The openness this building strives to achieve disintegrates and the user might be left feeling uncertain about the journey ahead. Furthermore, the enclosed space draws the eye to the platform which becomes too dominant.
This iteration breaks away from the continuous void section to generate a central enclosed space. The intent here is to prioritise the views outward. The demand for enclosure in this section of the building creates an opportunity to disrupt the view of the planetarium whilst acting as a way finder. A opening in the transition space is retained at this point to utilise light to demarcate the ‘threshold’.

This section of the building demands enclosure in changing rooms but other spaces such as dining areas don’t. In this iteration a level change is introduced to generate spatial hierarchy. The upper platform will be where visitors land and begin their transition to the facilities by changing in the central spaces. They will then progress towards the planetarium. On their return they will transition to the lower platform which will contain the kitchen & departure platforms. The separation ensures that the most central of spaces retains a visual connection outward. It is also much lighter than the original platform which is more sympathetic to the roof forms.

After resisting this move, this iteration replaces the central void. After evaluating the exterior skin, the outer edges (shown with arrows) create a dip which confines the visual outlook. The decision to cap this central area will make the building more cohesive by defining the threshold via containment.
The threshold represents a space in which the user enters into a world somewhat removed from the present. The planetarium becomes an energy source for this other world which attracts and propels people through the space. These iterations explore how this energy force meets the planetarium.

**Iteration 1**

This iteration defines the first energy pulse in which a lower skin radiates into the water. Its ripples formulate the changing rooms and central enclosed space on the upper platform of the entrance. The open space between the ripple becomes the threshold. The first wave of energy radiates out the top of the planetarium.

**Iteration 2**

The iteration introduces a secondary skin which is generated from the water in the planetarium. The internal skin creates opportunities to generate space on the secondary level and a dynamic connection opportunity over the planetarium. In this iteration the connection of the two skins is weak and needs further development.

**Iteration 3**

In this iteration the two separate skins become much more connected with the two coming together to form skin further development.

**Iteration 4**

In this iteration a third layer is introduced. The connection with the two skins is more advanced. Layer two and three need to be considered further.

---

**Figure 59**

Section 1: Iterative Study Chart 3
This worm’s eye view demonstrates how the flow of energy generates a hierarchy of space from the inside out. The less important auxiliary spaces reflect in a ripple form dropping into the water. The more important spaces generate an up and outward explosion gradually becoming more open as you progress along the axis.

Figure 60 Section 1: Iterative Study Chart 4
This section of the building involves exploring how to occupy the central space. This space acts as a ‘nexus’ which visitors moving through the threshold will transition to. In occupying the space, the tension between the two skins must be preserved and relationships between the nexus space must be developed whilst maintaining flow towards the three outreaching spaces.

This iteration was investigating possible ways to enclose the central skins. This approach was abandoned as it disconnected the flow of sunlight through the central axis. It also deconstructs the tension originally generated by the two skins facing each other. It also lacks a connection to the central energy source of the planetarium. Furthermore, it prolongs the sense of enclosure making it difficult to create a sense of ‘openness’ in all three wings. It was this iteration that made it obvious that the threshold needs to be a short but powerful transition.

This iteration explored how a lower roof plane with light voids could be utilised to enclose the central space. This approach represents steps in the right direction. The introduction of a new element creates another layer of separation which begins to define the three different outreach sections without introducing too much enclosure. The central light wells enable light to flow into the building and also connect the viewer to the ecliptic. Where this iteration fails is its unnatural look. The hood, cap or tongue like roof dilutes the tension between the skins and viewing experience.

This iteration begins to generate an acceptable solution. A new skin on the interior is introduced by creating a separation from the outer skin which is then connected. The flow of space creates an opportunity of the shell like forms to naturally connect into the planetarium which can be a connective tissue which allows the planetarium to act as the energy source from the inside out. The creation of an upper level space also offers opportunity to create a hierarchy of space within the central space. It also creates an opportunity to build on the existing tension and frame views of the ecliptic. It also contains a natural flow to outreach spaces.
As shown in the previous section, this iteration demonstrates how the planetarium acts as a source of energy, which is then translated out of the diagrammatic drawing on the right hand side, and is continued in the nexus section.

In this iteration the energy flow from the planetarium intersects the second (inner) skin. The spaces provide opportunities to occupy a second level which possesses more enclosed and private spaces than the lower ground plane. The skin which wraps around the planetarium offers enough space to create circulation up to the threshold. Between the planetarium and the outer skin is a space which can be used for side circulation allowing users to bypass the upper level in transition. The decision to occupy the upper level creates a free flowing lower platform for exhibitions which can be enclosed in protective casing. The vast open space is then extended to create three outreach spaces which claim their own open space. In this iteration the double skin is separated to create a light void, ensuring each space in the nexus has access to the ‘ecliptics.’

1. Planetarium
2. Threshold
3. Changing room
4. Nexus (Archive Space)
5. Research Wing
6. Bathing Bay
7. Application Wing

Figure 63 Section 2: Iterative Study 1
Figure 64 Section 2: Iterative Study 2
In this iteration we begin to see the relationship between the enclosed (converging) and open spaces (diverging) along the primary axis. The intersection of the nexus and auxiliary spaces meet at the threshold which coincide with planetarium. In this view we are able to see a single skin diverge towards the horizon. Energy emits in the form of layers from the planetarium which formulate the enclosed spaces which retain the key references to the horizon & ecliptic. The two skins formulate a geometry seemingly looking like a bird mid flight emerging from the planetarium. This is a fitting concept as birds (as indicated in research) represent hope for navigators homing in on land.

This iteration is exploring the relationship between the energy skins which emit from the planetarium and its impact on the visual experience in the nexus space. The object here was to adjust the amount of tension between the two primary outer skins. Through creating a pinch point the skins control the amount of openness the vertical dimension. The pinch point also contributes to the darkness cast not allowing for masses forming in an void.

**Figure 65** Section 2: Iterative Study 3

**Figure 66** Section 2: Iterative Study 4
This iteration defines the unresolved eastern corner issue. As the second skin layer has been developed the issue of how to connect the layers became problematic. The connection appears unnatural, it also creates too much enclosure in the open space. The intention to allow light into the double skin appears too great. The planetarium also appears too spherical.

This iteration explores an alternative to the exposed planetarium. The result appears to be a more fluid and generate a more sympathetic connection to the outward flowing skins. The end result clarifies the threshold as a departure point for users and enhances the vertical axis while retaining a strong presence.

This iteration explores generating more openness in the nexus. To achieve this the barrelled skin is pulled back. In doing this the threshold becomes increasingly defined.

In this iteration a third skin is introduced to the central space. The existing space lacked a sense of vertical enclosure. The proposed skin is low lying and mitigates any visual interference in the vertical axis. It also generates a form sympathetic to the lower barrel. This relationship provides an opportunity to develop the corner further whilst retaining the original openness. The final adjustment is the reduction of void space between the upper skins. The third skin will act as an circulation space to service the upper level.
The previous section concluded any major alterations to the skins of the building. This short section identifies key aspects of the wings which have been developed in the macro section through perspective drawings.

1. Research Wing
2. Bathing Bay
3. Application Wing

This iteration was exploring an organic roof form opening towards the horizon plane. The original idea was opening towards the horizon, towards the "future." This iteration was disregarded as the effect could be achieved through framing views.

This iteration was exploring the potential of connecting the central volume and the bath house tectonically. The idea was to use tension rods to pull and the roof would open towards the horizon. This iteration was again disregarded as the effect could be achieved through framing views.

This iteration was reasonably developed. What was successful at this point was the dip in the skin that created sea steps. It was this iteration, which led to major reconsiderations. The central enclosure, cluttered the central space dining views of the horizon, the vertical columns visible on the perimeter of the building created significant visual disruptions and the split level under the central skin disrupted the axial flow.

Figure 69 Section 3: Location Axo
Figure 70 Section 3: Identifying the Problem
This render reflects the present scenario. The skin emerges from the volcanic platform to barrel into the roof skin. The structure is contained within the flow of the skin to ensure openness towards the horizon.

This render reflects the present scenario. The view of the horizon is completely undisturbed. The skin, with its radiating lines project towards the horizon, connecting intersecting stars on the horizon. This view is from the research and advance wing, which has been organised to give the sense of moving towards the future accompanied by your ancestors.

This render reflects the present scenario. The view of the horizon is completely undisrupted. The skin, with its radiating lines project towards the horizon, connecting intersecting stars on the horizon. This view is from the research and advance wing, which has been organised to give the sense of moving towards the future accompanied by your ancestors.

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Legend
1. Landing Platform
2. Changing rooms
3. Threshold
4. Planetarium
5. Static Exhibition
6. Library
7. Bathing Bay
8. Dry Dock and workshop wing
9. Flexible Platform
10. Active Exhibition
11. Departure Platform

A. Wharfage over Eastern Fringe
B. Deep Oasis
C. Horizon in the distance
Figure 75: Design Outcome: Long Section 2

Legend
1. Landing Platform
2. Changing rooms
3. Threshold
4. Planation
5. Static Exhibition
6. Library
7. Bathing Bay
8. Dry Dock and workshop wing
9. Flexible Platform
10. Active Exhibition
11. Departure Platform

A. Whitwash over eastern fringe
B. Deep Ocean
C. Horizon in the distance

Figure 76: Design Outcome: Long Section 2
This section is generally open, with no views of the ecliptic, horizon or white wash. Through centralising the required enclosed space and introducing a split level the space retains an open quality without revealing the journey ahead.

Serial Progression: Auxiliary

**Building Section 1**

Figure 77  Design Outcome: Sectional Study Chart 1

Figure 78  Design Outcome: Short Section 1
Serial Progression: Threshold

The threshold is characterised by enclosure vertically and horizontally. Utilising enclosed space to slow the user down and introducing a spit level to demarcate the space.
Serial Progression: Archive Zone

Utilising the required enclosed space, the archive zone has a framed view of the ecliptic, horizon and white wash.

Figure 81: Design Outcome: Sectional Study Chart 3

Figure 82: Design Outcome: Short Section 3
Serial Progression: Library, Bathing Bay, Application Wing

Openness is at its greatest in this section of the building. With views of the horizon, ecliptic and whitewash.
5.0 CONCLUSION

This project sets out to challenge how indigenous cultures are perceived by the modern world. In researching the city of Apia, this project has found that indigenous thought and consideration is often overlooked. Through an in-depth study, this project identifies a need for an Indigenous Research and Innovation Centre to facilitate the acknowledgement of ancestors, archive existing narratives, analyse the current state of indigenous knowledge, and find ways to advance and progress indigenous Samoan thought for future generations. Through investigation of indigenous culture emergence, this project redefines a 1500-year-old architectural artefact so it may better serve the continuously evolving culture. The final design outcome defines a neutral territory to nurture exchanges between elders and descendants and reconnect people with their fading cultural legacy.
6.0 REFERENCES

6.1 | BIBLIOGRAPHY

Books


Articals and Publications


Internet Sources


5.2) LIST OF FIGURES

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7.0 APPENDIX

APPENDIX A

Historic References
### APPENDIX B

**Spatial Sizing & Typology**

<table>
<thead>
<tr>
<th>Building Section</th>
<th>qt</th>
<th>Spatial requirement</th>
<th>Floor Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLUSTER 1</strong></td>
<td></td>
<td>Gateway, transition space, operational space, attract, propel</td>
<td></td>
</tr>
<tr>
<td>Jetty - Arrival + Departure</td>
<td>2</td>
<td>x Transportation dock</td>
<td></td>
</tr>
<tr>
<td>Reception space</td>
<td></td>
<td></td>
<td>50m²</td>
</tr>
<tr>
<td>Kitchen</td>
<td></td>
<td>(Staff daily operation)</td>
<td>165m²</td>
</tr>
<tr>
<td>Changing room + rinsing shower</td>
<td>(4*20 + 120)</td>
<td>Visitors use, staged visiting sessions</td>
<td>200m²</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>415m²</td>
</tr>
<tr>
<td><strong>CLUSTER 2</strong></td>
<td></td>
<td>Practical, Noisy, Dusty, Wet at times</td>
<td></td>
</tr>
<tr>
<td>Dry dock</td>
<td></td>
<td>Gantry, viewing platform, barge access</td>
<td>450m²</td>
</tr>
<tr>
<td>Machine workshop</td>
<td>2</td>
<td>@75 Timber, lashing, material studies</td>
<td>150m²</td>
</tr>
<tr>
<td>Studio Spaces</td>
<td>1</td>
<td>@50 Research &amp; design studio</td>
<td>50m²</td>
</tr>
<tr>
<td>Quite cells</td>
<td>2</td>
<td>@10 Quite cell</td>
<td>20m²</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>670m²</td>
</tr>
<tr>
<td><strong>CLUSTER 3</strong></td>
<td></td>
<td>Quite, Dry,</td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td></td>
<td>Literature, sculpture, dance etc</td>
<td>450m²</td>
</tr>
</tbody>
</table>

**Closed cells**
- 3 @ 30 + 5 @ 10 140m²
- Research space
  - In Circulation space 50m²
- Archive space
  - Sculpture, digital etc 740m²

**CLUSTER 4**
- Textile, sensory, wet, exposure to elements, inward, intimate
  - Indoor pool 150m²
  - External pool 200m²
  - Private showers + pools 3 @ 20 + 3 @ 30 Temperature changes 150m²
  - Reflection space 5 @ 20 Recording, sauna, massage 200m²

**CLUSTER 5**
- Orientation space
  - Theatre Dome 2 50m²
  - Exhibition spaces & Circulation 100m²

139 140
APPENDIX C

Physical Site Condition

Location
Latitude -13 deg south + Longitude -171 deg W
Climate characterised by uniform temp, pressure, abundant rainfall and high humidity

Season
Hot and Wet  Nov - April  70% of Rainfall
Cool and Dry  May - October

Rainfall
Annual rainfall 3000-6000mm  70% during hot and wet
Rainfall distributed mainly to windward side
South to south east
El-nino Southern Oscillation (ENSO) drives rainfall
Lower than normal rainfall (every 2-7 years)
La-nina Above normal rainfall

Temperature
Samoa mean temperature  26-31deg sel
Apia low 22 deg (July-Aug)
Hot and Wet
Cool and Dry

Wind
Southeast trade winds  Tuaoloa
Warm westerly considered to bring bad weather
Relative humidity  80%

Sun
Typical mid day angles  70-110deg

Sea level rise
4mm on average since 1993
3-15cm by 2030
Sea level wave height (Ranges throughout seasons) Max 2m
Full name of author: Carleone Posa

ORCID number (Optional): ............................................... .

Full title of thesis/dissertation/research project ('the work'):

DEAD RECKONING
CURATING THE CURRENT OF OCEANIA ON A JOURNEY TOWARDS REDISCOVERY

Practice Pathway: Architecture

Degree: Master of Architecture (Professional)

Year of presentation: 2018

Principal Supervisor: David Chaplin

Associate Supervisor: Annabel Pretty

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Date: 24/05/2018
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Name of candidate: Carleen Posala.

This Thesis/Dissertation/Research Project entitled: Dead Reckoning: Curating the current of Oceania on a journey towards dis/mapping is submitted in partial fulfillment for the requirements for the Unitec degree of MASTERS OF ARCHITECTURE PROFESSIONAL.

Principal Supervisor: David Chaplin

Associate Supervisor/s: Annabel Pretty

CANDIDATE'S DECLARATION

I confirm that:

- This Thesis/Dissertation/Research Project represents my own work;
- The contribution of supervisors and others to this work was consistent with the Unitec Regulations and Policies.
- Research for this work has been conducted in accordance with the Unitec Research Ethics Committee Policy and Procedures, and has fulfilled any requirements set for this project by the Unitec Research Ethics Committee.

Research Ethics Committee Approval Number: ..........................................................

Candidate Signature: .......................................................... Date: 24/05/2018.

Student number: 1349530