FORT ALICE – SYNCRETIC ARCHITECTURE IN SARAWAK UNDER THE BROOKE REGIME

John Ting
RMIT University, Melbourne, Australia

ABSTRACT

Colonial architecture in Malaya typically followed the classical traditions of 19th century British architecture or the later Indo-Saracenic styles of the Victorian period. Colonial buildings were designed as clear symbols of British imperialism. In neighbouring Sarawak, the architecture of the Brooke regime of the same period is quite different. Sarawak was not a British colony but annexed and ruled outright by the white rajah James Brooke (1803-1867) and his successors. They set up an eccentric "freelance imperial" system where their primary objective was altruistic. Unlike most imperialists, the Brookes had a syncretic approach, attempting to unify and reconcile many differing schools of thought, not only between the indigenous peoples but also between eastern and western ideals. The architecture of James Brookes' Fort Alice can be seen to be a result of this approach. It is an architectural reflection of their unusual approach to governance, resulting in a blend of architectural ideas that the Brookes brought with them and the architecture of the indigenous Iban of Sarawak. It is a building that was designed according to a set of parameters and desires not limited by colonial British ideas and architecture of the time and the space given to the local is highly unusual in terms of late 19th century colonial architecture. This paper attempts to tease out the syncretic ideas of the Brooke regime and test them against the architecture of Fort Alice, to bring out the unique origins, strategies and methods employed in their design and construction.

The contention here is that their policies were not just 'hybrid', originally a biological term to describe the breeding together of 2 species[1] but syncretic, being 'a fusion, in perception or thought of incompatible elements'.[2] Syncretism is a term that is usually used in a religious context, specifically with the fusion of Christianity and non-monotheistic religions, where the fundamentals of the two or more religions are at odds with each other. Examples of this would be some of the Caribbean religions, which have incorporated certain African gods into the pantheon of Christian saints. Christian doctrine does not allow this, as it does not accord with their system of canonisation of saints. Another example would be the sects based on Christianity that don't recognize Jesus as the son of God. In this light, as colonials the Brookes are seen as syncretic as they treated their subjects in ways that would have been seen to be incompatible and opposed to the colonial project, such as the British East India Company that James Brooke and his father worked for. Thomas Brooke was a judge for the East India Company controlled High Court of Beneres (now called Varanasi), and his mothers' brother was a member of the Company controlled Bengal Council[3], very much part of the hegemonic power structure that existed in India then.

The East India Company was an economically monopolistic organisation, with increasingly imperial ambitions. By the time James Brooke was growing up in a Beneres suburb, the Company was moving from having a number of 'factories' or trading settlements acquired through negotiations with local Indian rulers to the outright acquisition of territory through whatever means were effective. By 1857, the authority of the Company was transferred to the British Crown, with a complete civil structure as opposed to the more militaristic functionings of the Company. This put the colonials on top of the class hierarchy in India. Apart from international prestige, there was an economical imperative at work here, with the colonies providing cheap raw materials for the developing military-industrial complex in Britain, and at the same time those colonies providing profitable markets for British manufactured goods. The architecture of colonial India was imported wholesale from Britain to symbolically reinforce their economic and political authority throughout the colonized territory, much as the ancient Greek temples dotted around the Mediterranean marked the extent of their control and authority in their colonies. Apart from assuming a position of cultural and social superiority, it was not in the interests of the colonials to be in any way sensitive to the locals, forsaking even local climatic and environmental conditions in favour of the symbolic power of imperial British architecture.

James Brook grew up within this tradition, but the way he later ruled Sarawak was quite different. While the Brooke regime ruled with a paternalistic overview, they also had an uncommon concern for the welfare of the natives[4] who were their subjects. While they were also interested in the economic success of Sarawak, they were opposed to the economic colonial project that had little regard for indigenous peoples. Some clues might be gleaned from his background. James Brooke was born in India in 1803, but unusually spent the first 12 years of his life there in good health. The

children of colonials were usually sent back to England at a young age based on a preconceived idea that they needed to escape exposure the tropical diseases of India.[5] He would have had good exposure to Beneres through living there and would have been exposed to the local servants that his father's household undoubtedly had. He was then sent to boarding school for an English gentleman's education, and after being privately tutored (the school would not take him back after he had run away) he fulfilled his desire to return to the east when he became a soldier as part of the East India Company in 1819. At the beginning of the 1825 Anglo-Burmese war, he must have felt a certain empathy with the indigenous peoples when he volunteered to train and lead an advance guard troop of 'native army irregulars' (or indigenous conscripts that could not be made to fit into the colonial mold). He was mentioned for gallantry in his troop's first battle, but was injured soon after and sent to Britain for convalescence. After 5 years convalescing at the home of his now retired father in Bath, he 'quit John Company and his evil ways'[6] while on his way back to resume his post in India. It was the culmination of a growing dislike for the methods and aims of the Company, borne out of his reading and thinking during his convalescence, where he was developing his own ideas about the east.[7]

He joined a ship as a traveler that was going to China via Singapore, and his observations there reinforced those he already had. He felt that the Company was neglecting the economic development of India in favour of quicker profits that could be garnered from trade with China. While visiting Canton he felt the Company to be 'careless' with Britain's international prestige by allowing themselves to be subjected to humiliation by the Chinese in the interests of business. Contrary to most colonials of the period, he was also sensitive to the welfare of indigenous peoples, considering in India that too much contact with Europeans as 'bringing them nothing but harm[8]', and that they became tainted when they lost their particular virtues arising from their habits and religions. For this, he blamed the British in India[9]. This attitude also extended to the effect non-western migrants had on the indigenous populations, such as the ethnic Chinese that the British were encouraging to Singapore. He considered Chinese merchants and coolies there to be 'interlopers', who grew rich from exploiting the indigenous Malays.[10] He was, however, a complex, perhaps naive person who seemed to change his mind whenever it suited his particular position – he felt that many of his issues with the way the Company ran India could be dealt with by breaking their monopoly, getting rid of their rules and opening up the colonies to settlers and freer development, where in other cases, such as colonies in North America and Australia, proved to be extremely detrimental to the indigenous peoples.

He returned to Bath after that trip, but immediately set upon planning another trip to the east, perhaps not feeling at home within genteel English upper class society[11], but certainly with a desire for exploration and adventure. He proposed to outfit a ship with trading goods and sail for the South China Sea, although gentlemen of his class did not trade. In 1835, Thomas Brooke dies and leaves his son a considerable inheritance. Armed with this, James Brooke sets sail for the general vicinity of Borneo. He first reaches the north-western tip of Borneo in 1839, and by 1841 has been bestowed the title of Rajah, and ceded the territory that was known as Sarawak, by the Sultan of Brunei.

He achieved this complex political coup with the help of the local Sarawak Malay nobles, who were at the time in conflict over taxation and territory with the representative of the Brunei Sultanate. Given that he did not have the military resources of the Company behind him, he had to do this politically, and with a sensitive understanding of their cultural power structures. While there was not much research and literature on the class structure and culture of Brunei and Sarawak Malays at the time, his experience with Indian class hierarchies and power structures and possibly even manners would have put him in good stead, given the Indic basis of Malay culture from Hindu/Buddhist influenced Java and Sumatra. In J.H. Walker's book *Power and Prowess: The Origins of Brooke Kingship in Sarawak*[12], James Brookes practical willingness to use the non-western ideas of *semangat* (or life force) and ritual custom of the various indigenous Sarawak peoples to bolster power and influence as Rajah, shows that he understood the local and imported cultures and cosmologies of those who occupied Sarawak at the time. He was more than the observers that other gentleman explorers were, as he willingly overcame upper class manners and etiquette and partook in many ritual activities with the indigenous peoples. An example of this would be Brooke sharing his 'spiritual life force' by agreeing to spit his saliva into the rice seed of the Bidayuh prior to planting[13]. They believed that this would make for a good harvest, but one can only imagine that many English gentlemen, used to more technological methods of farming, would have found this superstitious and unpalatable. His attitude to architecture was similarly practical: he understood that he was representing the Sarawak Raj and not the British, and therefore was not limited by British attitude to building outside of Britain and in the tropics.

While the Brookes carried the title of Rajah and were sovereign rulers of Sarawak, they can still be considered as colonialists as they all remained British subjects. However, theirs was not the orthodox colonial project, and in many ways their aims had a sensitivity to the indigenous peoples that was at odds with colonial attitudes at the time. While they were interested in the economic development of Sarawak, they were not willing to embrace the plantation model adopted in India, where 'landless coolies toiled while their white masters sipped gin slings on shady verandahs'[14]. To

this day, Sarawak's large number of smallholder farmers is a legacy of what the Brookes promoted as a different type of colony – an emphasis on small scale agriculture by local landowners on what land they had, who sold what was not needed for subsistence to the government, who controlled the price of certain items to protect the natives from being taken advantage of by indigenous Malay and ethnic Chinese middlemen. In other words, they welcomed any commerce and industry that was not detrimental to the interests of the natives, and went as far as passing laws that outlawed forced labour.[15]

This unusual sense of social justice for the indigenous inhabitants of a colony, where they were working for the good of the natives can be seen in their other documents, such as the Rajah's instructions and regulations for outstation residents (or European government representatives in rural areas), where they were required to apply 'proper deference' by learning the local language and *adat* (customary law), the end of the regulations stating "….. they are NOT inferior, but different."[16] This is in direct contradistinction to the orthodox colonial project, where knowledge of indigenous peoples was used against their interests, and worked for the economic and territorial interests of western colonials. James Brooke and his successors were implementing their ideas of what they thought an eastern colony might be, a government that was economically sustainable but informal, personal and mostly non-disruptive of native customs and interests.[17] The architecture of the regime similarly reflected their interests and approaches.

In the early 19th century, there were many preconceptions with regards to Asian architectures, mostly relating to the unhealthy nature of many indigenous building types. By this, I am referring to mostly to the socially stratified British attitude that traditional housing types of the (lower class) masses were unsuitable for permanent habitation by the ruling class colonials. The development and formalization of the Anglo-Indian bungalow came to mean a building that was primarily European in conception and construction, which bore no relationship to the "bangglo" or peasant dwelling of rural Bengal from where the term originated[18], and with none of the moral, health and sanitation[19] (and class) problems of the indigenous dwellings as perceived by the colonials. James Brooke, on the other hand, does not seem to have shared these prejudices or been limited by these misconceptions – he does not seem to have had any of those concerns with his first house in the main town, Kuching, which was a Malay house, built for him by the local Sarawak Malays in what might be considered typical of a house built within the Austronesian[20] language area – that is, with pile construction, reflective of a tripartite cosmos in section, and with expressed or decorated finials to the large roof[21]. The official architecture of the Brooke regime similarly did not have the need to propagate British architecture of the time, reflecting a point of difference between themselves and British colonials – while they had similar needs to impart their authority through their architecture, they had different aims to the orthodox colonial project.

As an imperial (albeit unorthodox) organisation, the Brooke regime used their architecture in a similar way to the British in India – as symbols of control and authority. However, that's where much of the similarity ends – where the architecture of British India was an expression of Empire and Britishness and symbolic of British superiority, the architecture of the Brook regime was much more varied and much less curated. James Brooke did not feel the need to build facsimiles of his 'home' architecture, as the whole idea of home itself was not definite. Unlike the early colonials who overcame huge difficulties in building facsimiles of their home architectures with often inappropriate materials and construction methods[22], the Brookes were much more willing to use more practical and appropriate architectures within their territorial realm, and also from the realm of their experience. James Brooke borrowed widely from the indigenous architectures of Sarawak, but also used some of the early hybrids of informal British colonial architecture in India.

Possibly the first building Brooke built outside the capital was a fort at the mouth of the Skrang river, a tributary of the Upper Lupar. Like the colonials that preceded him, he used forts to control movement and communications over that territory and along the river as it was used as the main form of communication, due to the mountainous interior away from the rivers making overland communications difficult. The main mode of transport for goods and peoples was (and is still) by river, which criss-cross Borneo. Fort James was probably built mainly by local Malays and out of area Ibans who were collaborating with Brooke in the early 1850's to control the movements of their political rivals, the Saribas and Skrang Ibans[23] to shore up his authority after a battle to quash their resistance at Beting Maru. Once his authority had been established at that location, it was considered as a place for a settlement by traders, but was unsuitable due to most of the land around it being prone to flooding. In 1864 he decided to abandon that location and establish a settlement 10km downriver. Instead of destroying the fort (as the British did to the old Portuguese fort in Malacca that when they decanted their straits headquarters to Penang – they had taken over the use of the fort when they deposed the Dutch from the town) to stop it being used against them, the fort was dismantled, and the main structural elements moved to its present location.

While this move might seem practical and possible with a timber and thatch building, it should also be looked at from Iban practice when whole longhouses migrate – in some cases, they would dismantle their longhouses and move the main structural elements to the new location by boat,

before rebuilding them. Parts of the building which were high maintenance but easily sourced, such as thatch and bamboo cladding were left at the old location and installed new from the second location. Brooke could quite easily have destroyed the fort by fire (as he did with the longhouses of the vanquished Iban communities that resisted his authority[24]) and built new at the second location, but was probably informed by his indigenous collaborators that buildings that were burnt down carried negative spiritual connotations that would have shown an erosion of his power[25]. The fort was renamed Fort Alice, and I am assuming that it was rebuilt near the Malay village at Simanggang (now Sri Aman) by indigenous collaborators, as the ethnic Chinese were not used in military or governmental operations, and there were no European troops. A few Europeans were appointed as officers to the regime, but as with the orthodox colonial project, there were never European regular soldiers.

The materials used in the construction of the fort, apart from being easily available at the time and commonly used by the indigenous builders, react to the climate in the same way that their longhouses do. They generally have low thermal mass, which mean that they do not retain heat, and hence do not radiate heat back into the building at night. The thatch used for roofing keeps the rain out, but is also permeable to air, meaning that any heat built up in the ceiling spaces can be dispersed through the roof material. Thatch is also a reasonable insulator in that it has low conductivity when it comes to heat, and does not allow the heat of the sun to penetrate into the interior of the building. Timber shingles also have low conductivity, and have a certain amount of air permeability. Not all the materials have the longevity of belian timber, but the perishable materials such as thatch and bamboo are still readily available from local natural sources.

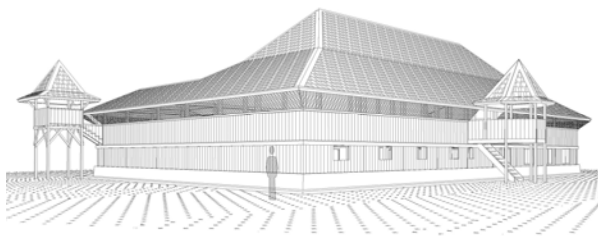

Figure 1 – Fort Alice from the river side
Digital reconstruction of the building by John Ting

W. J. Chater states that Fort Alice was built entirely out of belian[26], a very hard and dense[27] local rainforest ironwood that resists borers and termites, and does not rot when immersed in water. This highly prized timber was also used by the Iban for the main structural members in the construction of some of their longhouses in the region, such as *Rumah* Samu[28] on the Paku river, and *Rumah* Matop, on the Saribas river where large belian trunks of about 700mm diameter have been stripped of their bark and branches and used as the main posts. In Fort Alice, as with British carpentry practices, the timber has been milled into square and rectangular sections, and the joists have scarfed joints, with mortice and tenon connections to the square columns. Interestingly, this method of joining joists is also used in Iban construction, where the floor joists or beams are scarfed in opposite directions to either side of the *tiang pemun* (central post), which is directly related to their ritual conception of the center of the longhouse, from where the rest of the longhouse is built to either side.[29] The floorboards and timber cladding are also belian, but the original roof cladding was thatch, as shown in an illustration from 1865[30]. At its centenary, the fort is shown to have a roof cladding of belian shingles, a material used by Iban and Malay carpenters. I suspect that the local Malay carpenters were involved in the design and construction of the large roof of the fort as it is a double pitched roof (see Figure 1.). The upper part of the roof has a steeper pitch than the lower part, and there are no ritual precedents for this in Iban architecture. However, the roof forms of the oldest and most common Malay house (the Bumbung Panjang type[31]) and also of the South-east Asian mosque that originated with the Masjid Agung in Demak, Java, both have double pitched roofs.

In contrast, the British in India moved away from indigenous construction as soon as they had the means, building structures that had some of the features of indigenous architectures, but that were constructed of masonry and designed very much according to the current architecture of the home country. Indigenous architecture here is referred to as the vernacular architecture of India, rather than the monumental and formal architecture of the ruling castes. Early informal versions Anglo-Indian bungalow were interesting in that they adapted verandahs[32], deep eaves, large hipped roofs and the lightweight construction materials of the peasant "banggolo" dwelling type of rural Bengal with the British architecture, but the need to symbolize the empire through built form and the negative colonial attitudes to vernacular architecture soon put a stop to these experiments. There are programmatic similarities between Fort Alice and the latest iterations of the Anglo-Indian bungalow, such as its use as a rural or "outstation" facility that was both residence and place of work for the officials. The fort was also a multi-purpose facility, which housed all the functions that the administration was required to provide. It housed the officers and garrison of troops, but it was also court, offices, amoury, post office, dispensary, jail, and tax collection center[33].

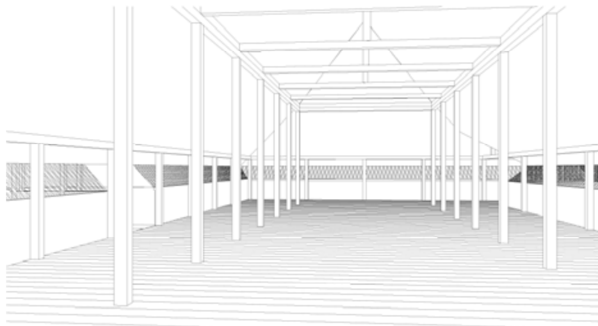

Figure 2 – Interior view of the court room at Fort Alice
Digital reconstruction of the building by John Ting

Fort Alice has two parallel blocks, the front one three times wider than the rear, connected at the ends to form a courtyard between the two blocks. Ward writes mainly about the use of the main (upper) level of the fort. The large block was the front of the fort, facing the river, and it was accessed through the base of a small tower, or bastion, from a stair which could be retracted at night for security. There are also small towers at each of the inland corners. From Ward's text[34], it seems that the large block was the public side, housing the courtroom, which had as its backdrop the amoury, with desks along one side, and the officers quarters on the other side behind a partition wall. This room has 2 rows of posts along its length that hold up the upper roof (see Figure 2), forming the 'nave' of gun racks that Ward talks about.[35] The courtroom was used to hear disputes and for official functions, whereas the other functions of the administration was probably carried out from the desks. The rear block was the sleeping quarters for the garrison, and mirrored the longhouse in keeping the fighting force together for fast activation in case of attack[36]. There is not much mention of how the ground level was used, except that there were some jail cells there. The ground level of the fort has some small windows, but these are hardly adequate for cross ventilation, and as they are made of belian cladding, are secure from intruders and ventilation when shut. The windows from the ground floor into the courtyard (see Figure 3) are secured with steel grilles, to fulfill their functions as a jail.

The walls of the upper level no not reach the roof at any point, creating one continuous strip window that runs along the perimeter of the building and courtyard, allowing for effective cross ventilation by the river breezes. This strip window was secured by a timber trellis running between the top of the wall and the outside edge of the deep eaves. The eaves are not as deep as the verandah on an Anglo-Indian bungalow, but then again the verandah, as mentioned above, is not an Iban tradition. Iban longhouses also have air-permeable floors, allowing the rising warm air to draw cool air in from below, and to keep the sub-floor area under the longhouse dry. While the floor of the fort is made of (non-tongue-and-groove) timber floorboards and not as air-permeable as the floors of Iban longhouses, air was still allowed to circulate through the windows that were opened during the day around the base of the building, similarly keeping it dry and helping to prevent degradation of the timber structure.

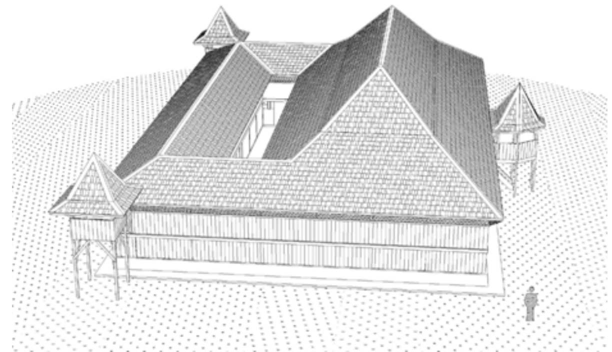

Figure 3 – Aerial view of Fort Alice showing the courtyard
Digital reconstruction of the building by John Ting

The ones that were built after it reflected the compact and engaging system of administration described above. The Anglo-Indian bungalow was designed to accommodate their class hierarchy of labour, where colonials used their indigenous servants to 'wait on them hand and foot', including powering the cooling systems needed to make up for designs that did not deal with the weather very well. Given the manpower-heavy way they ran their installations, their designs also had to accommodate the local class hierarchies or castes, with the staff generally living on a side verandah, and the lower caste staff (who dealt with lower caste activities, such as dealing with night-soil) living on separate verandahs at the rear of the building, as not to upset those of higher caste. To this end, 'tropical life' was equated with 'colonial life'[37], and bears a striking resemblance to the expectations of expatriate westerners who work in the tropics of South-east Asia today. In stark contrast, officers of the Brooke regime were expected to do most things themselves. While it is undeniable that they also employed servants they certainly considered other means in which to achieve their ways of life without resorting to large numbers of local staff. After all, it was the 'welfare of the natives' that the regime chose to consider, rather than reconfirming to the nth degree the hegemonic colonial power structure of India, with the British colonials clearly on top.

The fort was different from the Anglo-Indian bungalow in the sense that it was also a defensive building, whereas the planning of the bungalow was totally unconcerned with defense, being a series of wings and pavilions connected by covered walkways. In terms of function, the fort here is very similar to the Iban longhouse, a single defensive structure where most of the functions of daily life took place. Iban longhouses are raised off the ground, and most of the functions take place on this raised level. The *bilik* (apartments) and *ruai* (covered gallery) are located here, as well as the *tanju*, an uncovered balcony that runs the length of the building along the *ruai*, which provided an

outdoor space for their use without having to leave the physically and spiritually protected space of the dwelling. The fort also has a defensible outdoor space within the confines of the building, but it is a courtyard, and on the ground level. While both structures are raised on timber piles, the timber wall cladding of the fort comes down to the ground, whereas the cladding of the longhouse stops just below the floor level. The underside of the longhouse is used to shelter livestock, and defense of the longhouse is often achieved by a stockade around the building forming a staging space between the stockade and the building. The fort seems to have brought this stockade right up under the building, making it a double storey structure (rather than an elevated single storey structure) and perhaps again points towards Brookes' experience in India.

Buildings that have Indian Hindu/Buddhist origins differ to those that have their origins with the pre-historic Dong-Son culture of southern China, in that Indian based buildings are generally built directly on the ground or on earthen or stone platforms, and the other ones have their floors lifted off the ground by piles[38]. The longhouse as discussed here clearly does not have its origins in India, as it a pile structure with a raised floor. Vernacular Bengali housing types, such as the houses of the Namoshudra people of what is now southern Bangladesh do, as they are built on compressed earth platforms[39]. I am speculating here that these vernacular houses with the pre-tensioned bow roofs are similar to the ones that King writes about when discussing the origins of the bungalow[40]. Brooke would almost certainly have been exposed to the bungalow, both in its vernacular form from his time in the Army, and also in its amended colonial form, having grown up in India. That might explain the fort, while having most of its function on the first floor like other pile constructed buildings, also can be considered as a building that has been built on the ground like a building that originated in India.

The interior of the fort has been altered, as there are no longer any internal partitions as mentioned in the literature. There do not seem to be any historical drawings showing how the interior was partitioned, but there have been 2 sets of measured drawings done. The first was by the Sarawak Museum (who administer the Heritage Buildings Register) in 1993, and the second by Sarawak firm Akitek JFN, who were working on a feasibility for the adaptive re-use of the fort as a museum and visitor's center. The drawings generally accord with my site visit to the fort – the exterior of the building is relatively intact, but in poor condition. The fort was the favourite of the second Rajah, Charles Brooke, who was stationed there as Resident before the death of the first Rajah. He thought that it should be the prototype for all of Sarawak's forts in its then ever-expanding territory, and that new precedents were to be avoided if possible[41]. Certainly, there are strong similarities with the forts built after Fort Alice, particularly with the construction and materials, and also with their response to the environment with the strip window around the first floor being replicated in the new forts. Also common were the walled-up ground floor and compressed earth base, but the courtyard plan did not survive for very long. Up to 16 forts were built after Fort Alice, as the Brook regime increased its territory over the northern flank of Borneo.

There are 12 forts from the Brooke era that have survived. Of these, 6 are relative unaltered, whereas the other six have either been rebuilt or constructed with modern construction. 9 of these forts are on the states Heritage Register, but state funding has not been there to help to preserve these unique buildings. However, there seems to be a growing interest amongst Sarawakians for the welfare of these buildings, and for the uniqueness of Sarawak within Malaysia, of which it is now a state. Sarawak is a unique entity and a special territory within the Federation of Malaysia, where it gets to control many of its own laws, political and social demographics, originally developed from the Brooke period, which do not conform to the seemingly neo-imperial intentions of the federal government. Architecturally, while mainstream concerns seem to be interested only neo-classical pastiche buildings that do not respond to the local culture, environment and climate, Fort Alice and many of the forts that came after it stand as a testament to the success of an architecture that showed that a syncretic approach of heterogeneous and often disconcordant beliefs could produce something that at the same time recognized the past and proposed possibilities for the future.

NOTES

[1] Alan Bullock, Oliver Stallybrass & Stephen Trombley (eds.), *The Fontana Dictionary of Modern Thought*, London: Fontana Press, 1977, p. 398
[2] Bullock, et al, *The Fontana Dictionary of Modern Thought*, p. 839
[3] Payne, *The White Rajahs of Sarawak*, p. 16
[4] The term 'native' was used in Brooke-era publications to describe the indigenous peoples and is still used currently by the indigenous peoples of Sarawak to describe themselves. The term is not seen as derogatory, as a different kind of distinction was kept by the Brookes when compared to a conventional colonial project such as the British in India.
[5] Robert Payne, *The White Rajahs of Sarawak*, Shah Alam: Oxford University Press 2004 (originally published by Robert Hale Ltd. 1960) p. 17

[6] Payne, *The White Rajahs of Sarawak*, p. 19
[7] Steven Runciman, *The White Rajahs: A History of Sarawak, 1841-1946,* Cambridge: Oxford University Press, 1960, p.48
[8] Runciman, *The White Rajahs,* p.49
[9] Payne, *The White Rajahs of Sarawak*, p. 21
[10] Payne, *The White Rajahs of Sarawak*, p. 22
[11] Payne, *The White Rajahs of Sarawak*, p. 23
[12] John Henry Walker, *Power and Prowess: The Origins of Brooke Kingship in Sarawak*, Crows Nest, Sydney: Allen and Unwin 2002
[13] Walker, *Power and Prowess*, p. 116
[14] Robert H.W. Reece, The Name of Brooke: The end of White Rajah Rule in Sarawak, Kuala Lumpur: Oxford University Press 1982
[15] Runciman, *The White Rajahs,* p.68
[16] A.B. Ward, *Rajah's Servant*, Ithaca: Data Paper No.61, Southeast Asia Program, Department of Asian Studies, Cornell University, 1966, p. 33-34
[17] Except for headhunting and the keeping of slaves.
[18] Anthony D King, *The Bungalow; The Production of a Global Culture*, London: Routledge & Kegan Paul 1984, p. 14
[19] Roxana Waterson, *The living House,* p.29
[20] As discussed in James Fox, 'Comparative Perspectives on Austronesian Houses' in James Fox (ed.) *Inside Austronesian Houses: Perspectives on Domestic Designs for Living*, Canberra: ANU Dept. of Anthropology, 1993
[21] Roxana Waterson discusses these characteristics in depth in Chapter 1 of *The Living House*
[22] Alphonse de Albuquerque's 'A Formosa' fort in Malacca is an example here - built at great expense and effort out of a porous, coral limestone in a location that did not have any tradition of building in stone nor the correct type of stone, the fort had to be whitewashed once a year to maintain the mirage of a fort in Mediterranean Portugal miraculously transplanted wholesale to the tropical Malay peninsula
[23] Ibans name their particular communities and longhouses according to the rivers and locations along those rivers by which they live.
[24] Walker, *Power and Prowess*, p. 71
[25] John Ting, *The Egalitarian Architecture of the Iban Longhouse*, p. 363, in Andrew Leach & Gill Matthewson (eds.) *Celebration: Conference Proceedings from the XXII Annual Conference of SAHANZ*, Napier: SAHANZ 2005
[26] W.J. Chater, *Sarawak Long Ago,* Kuala Lumpur: Dewan Bahasa & Pustaka, 1994, p.33
[27] Its specific density is more than 1000kg/m^3, meaning it is one of the few timbers that it sinks in water.
[28] Visited by the author in 1997
[29] Clifford Sather, 'Posts, Hearths & Thresholds: The Iban Longhouse as a Ritual Structure' in James Fox (ed.) *Inside Austronesian Houses: Perspectives on Domestic Designs for Living*, Canberra: ANU Dept. of Anthropology, 1993, p. 70
[30] Bob Reece The White Rajahs of Sarawak – a Borneo Dynasty, Singapore: Archipelago Press 2004
[31] Lim Jee Yaun, The Malay House – Rediscovering Malaysia's Indigenous Shelter System, Penang: Institute Masyarakat, 1987, p.23
[32] King, *The Bungalow* p. 25
[33] Ward, *Rajah's Servant,* p. 28
[34] Ward, *Rajah's Servant,* p. 28
[35] Ward, *Rajah's Servant,* p. 28
[36] Ting, *The Egalitarian Architecture of the Iban Longhouse* p.360
[37] King, *The Bungalow* p. 47
[38] Roxana Waterson, *The living House – An Anthropology of Architecture in South-east Asia*, Singapore: Oxford University Press, 1993, pp. 1-7
[39] Paul Oliver (ed.) Encyclopedia of Vernacular Architecture of the World, New York: Cambridge University Press, 1997, p. 937
[40] King, *The Bungalow* p. 46-3
[41] Runciman, *The White Rajahs,* p.205