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A Chronicle of the Timber Industry in East Arnhem Land, Australia

Cecil A.L. Pearson¹ and Klaus Helms²

¹*School of Management, Curtin University,
Perth, Western Australia*

²*Gumatj Corporation, Nhulunbuy, Northern Territory
Australia*

1. Introduction

The north eastern part of the Northern Territory (NT) is East Arnhem Land. This expanse of Australia is the homeland of the Indigenous Yolngu clans whose forbears occupied the land some 50,000 years ago. These people survived in a nomadic lifestyle of hunter gatherers on their traditional land (Altman, 2002; 2003). Historical records show that from the 17th Century Indigenous Yolngu traded with seafarers from China, the Celebes, Japan, the Netherlands and even sailors navigating the great southern land (Berndt & Berndt, 1999; Worsely, 1955). Over 300 years later within the first quarter of the 20th Century, the Methodist Church began to develop the coastal region of East Arnhem Land, and thus, began the congregation of Indigenous communities (Trudgen, 2000). Living in this inhospitable land obliged the non Indigenous settlers to use available material to establish structures and facilities vital to sustain a string of mission stations. A primary resource was cypress pine (*callitris intratropica*) which was resistant to termites, the indefatigable predators of other timbers, and this was the beginning of merchandising the timber industry in East Arnhem Land.

Within this chapter a number of places of interest are mentioned. Seldom are all of them to be found in a standard atlas as many are in the category of an outstation. While some of these isolated centres may have populations of 100 or more people others may have less than a handful of houses that at any time can be vacant as the people move from one to another location for cultural festivals, funerals or ceremonies. One location, which is likely to be found on a standard map, is the town of Nhulunbuy that acquires the name from the sacred Mt Nhulun, and by that translates from the local mother tongue language from where I come (i.e., I come from Nhulun). The town site of Nhulunbuy, which skirts Mt Nhulun, has some 4000 people, mostly non Indigenous. A majority of these people work in jobs associated with the mining operations as the refinery (12 km from the town) is one of the biggest in the southern hemisphere with a capacity of 3.8 million tonnes of alumina per annum. Nhulunbuy is on the Gove Peninsula and the region is home to about 8000 Indigenous Yolngu who live mainly at Yirrkala (about 800 people) and on outstations and hamlets as all the land is classified as native titled. Those places which are nominated in the following pages are identified in Figure 1.

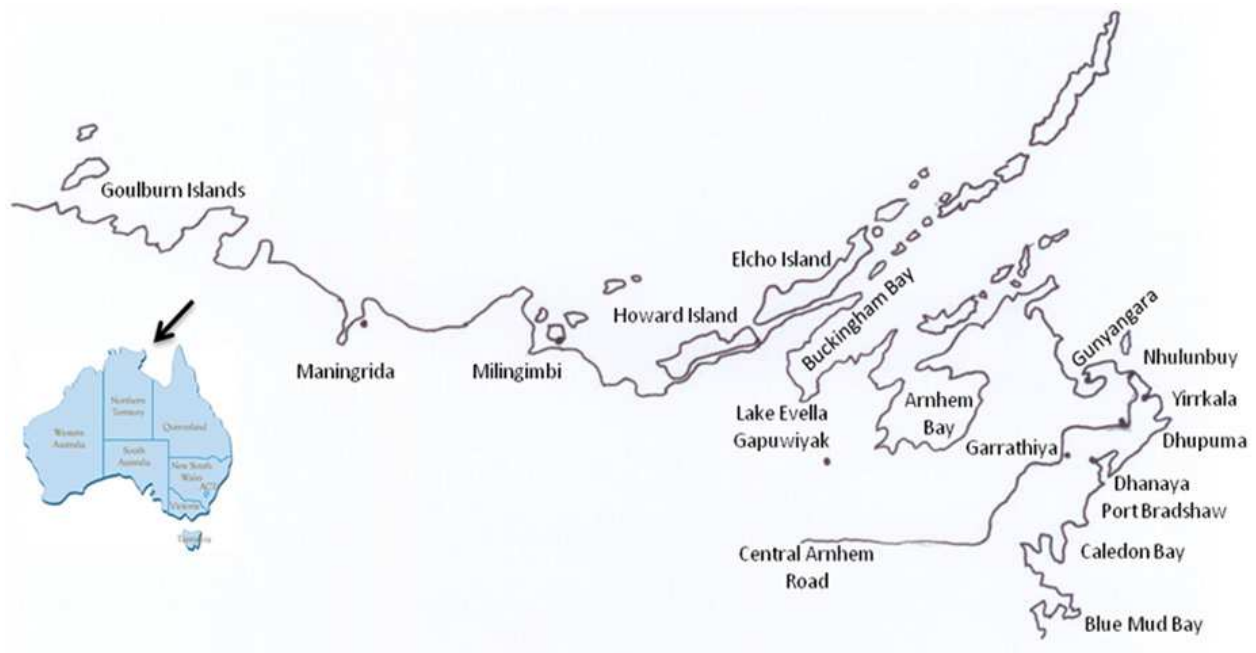


Fig. 1. East Arnhem Land and Places of Interest

2. The beginning of the NT timber industry

Despite the tyrannies of isolation, climatic inhospitability, and the ravenous appetite of white ants that consumed the construction timbers shipped in by luggers, other church missions were established. In 1922, a mission was started on Elcho Island by the Reverend J. C. Jennison. But when the Napha Petroleum Company began drilling within sight of the mission buildings, and with an expectation that the extensive operations would attract a large settlement of white people, the mission was relocated to Milingimbi in 1924. Later, in 1935 a mainland Methodist Church Mission was established at Yirrkala. The creation of these church missions provided the underpinning for sourcing durable construction timber, and consequently, milling facilities were built as there was a local flora that resisted white ant attack (Shepherdson, 1981).

The commercial milling of timber in the East Arnhem Land of the NT of Australia has roots in the activities of the Methodist Church Missionaries. During 1911 when the Commonwealth Government of Australia assumed responsibility for the administration of the NT this action included the welfare of the Aboriginal people (Anderson, 2007; Smith, 2006). In the following year, an interdenominational Committee of churches, with an explicit interest in Australian Aboriginal Missions, was formed in Melbourne. This organisation negotiated with the Australian Government for the right to establish missions in the NT. In 1913, on suggestion of the Committee, the Methodist Overseas Missions Board commissioned the Reverend James Watson to examine the proposal of establishing a church mission for Aboriginals in the largely unexplored Arnhem Land of the NT. Subsequently, in 1915 the Reverend Watson made two land and sea forays as far as the Goulburn Islands that were at the western boundary of Arnhem Land. After considerable deliberation the Methodist Foreign Mission Society commissioned the Reverend Watson to establish the first Aboriginal Church Mission on South Goulburn Island in 1916.

2.1 Influence of the Reverend Shepherdson

A central figure in the timber milling operations that commenced in 1928 was the Reverend Harold Urquhart Shepherdson. Harold, a qualified engineer, born in Bunbury, Western Australia, was married to Ella (who was born in Edinburgh, Scotland in 1913) in October 1927. The couple often met at the Methodist Church at Payneham (a suburb of Adelaide), and when engaged decided to do missionary work. Harold was encouraged by the church authorities to work in a timber mill on a country property, while Ella completed a six month nursing course. More fascinating is that the Christian Endeavour Society in Adelaide initiated a collection to purchase a saw mill for a mission in the NT, and when Harold and Ella Shepherdson arrived at the remote Methodist Milingimbi Mission on the 28th April 1928 the mill had preceded them.

Although Milingimbi Island was devoid of stands of suitable milling trees, there was a plentiful supply on nearby Howard Island and the previously explored Elcho Island. The Reverend Shepherdson built a log whim (4 foot diameter wheels), which was shipped to the islands, where it was used by Aboriginal ten men teams. Logs of 15 foot length up to 20 inches in diameter were dragged to the shores of Howard and Elcho Islands, and these masses of wood were then transported to Milingimbi Island by luggers (approximately 50 foot in length). There Shepherdson assembled the 5 foot diameter blade mill, which was belt driven and powered by an internal combustion engine, to mill the logs to structural strength boards and planks. Later the power source was a steel wheel tractor that was scavenged at Elcho Island from the defunct oil company that went into liquidation in 1931. The timber, which was cypress pine and highly resistant to white ant attack (due to its high oil content), was used to build a second house (for the Shepherdsons), a workshop (25 feet x 14 feet), and auxiliary buildings. In addition, milled timber of various sized sections was stored in racks from which it was drawn, bound in bundles with steel straps, and shipped to other locations.

Hostilities between the Indigenous people and seafarers triggered an extension of the mission stations. Historical records show that from the 17th Century the Indigenous Yolngu people of Arnhem Land had traded with the Macassans, who came in praus / prows from the Celebes, to a lesser extent the Chinese, and later with the Japanese who exploited the Australian northern waters. These seafarers came for trepang (sea cucumber), pearl shell, turtle shell and timber, which was traded for tobacco, axes, steel for spear heads and cloth material (Cawte, 1996; Ivory, 1999). However, when the Japanese sailors mistreated Indigenous women at Caledon Bay in 1933 five were killed by the Yolngu. This action spurred the Methodist Church to establish a further mission in the region and in 1935 the Reverend Wilbur Chaseling and his wife arrived at Yirrkala to establish the third mission station in the NT. A year later in November 1936 a lugger loaded with timber milled at Milingimbi arrived at Yirrkala where the Reverend Shepherdson and two Aboriginal carpenters constructed the first of two mission timber structures. One was a corrugated covered shed (50 feet x 30 feet) that was used for storage. The second building was a house for the Chaselings. This dwelling was on six foot piles, with a floor plan of 50 feet x 40 feet, and the roof was corrugated iron. Mr Phil Herdman, the Nhulunbuy historian, told the first author that despite these two buildings being in sound structural condition they were demolished in 2000/2001. The time was confirmed to the first author by a number of long term residents of Yirrkala, who stated delays to the demolition were due for the need to

conduct an exorcism of a poltergeist from an Indigenous death in the house that occurred after the Methodist Mission Reverend vacated in the early 1980s.

Further expansion of church missions in the NT was curtailed by the onset of the Great Depression. Despite Elcho Island having land more suitable for cultivation, a more sustainable water supply, better anchorage and plentiful stands of milling trees (as well as the Napha Petroleum Company vacating the island in 1931) the Methodist Overseas Mission Board was unsympathetic to the relocation of the Milingimbi mission. It was not until 1942, at the height of the Second World War, when the Australian military decided to establish spitfire and beaufort squadrons on a new aerodrome on Milingimbi Island (within three km of the mission), that the threat of being bombed emphasised a need to move the mission to Elcho Island. On Monday 3rd August 1942 the loaded 56 foot lugger *Larrpan*, with the tractor in tow on a pontoon, departed for Elcho Island.

Establishing the Methodist Church Mission on Elcho Island for the second time did immediately intensified timber milling. Whereas the milling was conducted in the open at Milingimbi extensive facilities were built at the Elcho mission to protect the operation and the large stacks of commercial timber. Continuous milling was sustainable as the forest was accessible and a regular supply of felled logs to the mill site was maintained with the use of a steel wheeled tractor. Trained Aboriginal men milled the cypress pine logs to a range of cross section beams, planks and purlins that were used to build a number of church mission buildings on Elcho Island. These structures included a hospital, a church and a large house for the Reverend Shepherdson. Once the immediate needs of the mission were met commercial timber was available for other regional construction projects. Later, the Reverend built a medium size boat for the transport of personnel and goods to other centres. In 1964 a new hospital was constructed at Milingimbi and the continual drawing on the natural resources encouraged Mr Russell-Beasley to commence a reforestation programme, but the incessant demand for milled cypress pine had peaked. During the 1960s political social forces and technological advancements reduced the relevance and influence of the church missions, and eroded the importance of cypress pine as a domestic building material in East Arnhem Land of the NT.

In 1969 the Methodist Church established the last mission on the mainland in East Arnhem Land. Often referred to as an Elcho Island outback venture the settlement was referred to as Lake Evella or Gapuwiyak, and was under the management of Mr. and Mrs. Geoff Davey. The mission was on the edge of a body of fresh water some $\frac{3}{4}$ mile long and $\frac{1}{2}$ mile wide. This lake had been sighted by the Reverend Shepherdson when he and the Reverend T. T. Web flew over the water in a Miles Hawk on their way from Milingimbi to Yirrkala in 1935. Consequently, the lake was named after their wives; Eve and Ella. A mill was established at Gapuwiyak to cut commercial timber from the surrounding bush, but most of the buildings were constructed with contemporary materials (e.g., bricks, concrete, steel, fibro) or practices that incorporated chemical protection from the white ants, so milling became an abstraction. However, in 1981 to 1983 when the second author was managing a barge service to the nearby coast of Lake Evella via the Buckingham River for a short time an industry flourished with 8 inch diameter poles of cypress pine. These small sized logs were bundled and transported to Kuri Bay in Western Australia for the Paspaley Pearling Company as the timber was resistant to attacks from sea organisms. The cessation of this trade brought to the close the commercialisation of timber milling of cypress pine in East Arnhem Land. This

industry had been founded by a handful of white men and women, who in the words of Maisie McKenzie (1976, forward), were described as "...people who cared so much about the "wild savages of the north" they were prepared to risk their lives in serving them."

3. The contemporary era of NT timber milling

Commercial milling of timber in East Arnhem Land reemerged in the late 1990s with features substantially different to the industry that had been fostered by the missionaries. Driven by a primary motive of dogma the missionaries acquired a secondary pragmatic desire to obtain building materials that would survive the avaricious appetite of the white ants. In 1998, when the Gumatj clan of the Indigenous Yolngu inaugurated their milling operations, the primary objective was to obtain flat timber boards for platforms of windmills, decks of bridges or verandahs, while their latent motive was to undertake the activity on their land for which they have holistic spiritual allegiance (e.g., *dreamtime*). A salient contrast between the two milling systems is the missionaries cut softwood logs (cypress pine), whereas the Gumatj people are predominantly milling the savannah forest hardwood of the NT stringy bark (*eucalyptus tetrodonta*). Technological development has strongly influenced the operational differences in the two distinct periods of timber milling. In the time of the missionaries a large diameter circular saw was housed in a robust timber bench, which made the apparatus relatively immovable. Today, the Gumatj use a Lucas mill, which has a much smaller diameter circular saw that is compactly coupled to a combustion engine to alleviate belt drives. Moreover, the equipment is moveable as it can be disassembled in less than half an hour, transported on a flat tray truck, and reassembled at a new site in the forest in about 20 minutes. Figure 2 shows a team of Yolngu men of the Gumatj clan milling a log in the savannah forest. Commonalities of both systems were the training and the initial supervision of the Indigenous people was done by non Indigenous (ngapaki) personnel, and both arrangements generated high quality milled structural timber for building construction with an opportunity for furniture manufacturing, and other unique more artistic and utilitarian products.

3.1 The Gumatj Corporation initiative

The motivation for timber milling by the Indigenous Gumatj family has been instrumental. Initially the milling of hardwood logs was for specific components (i.e., decks, platforms, floors) of traditional log structures on their cattle station, and when the task was completed the milling equipment was warehoused. The region of milling was on the east side of the red dirt track Central Arnhem Road and west of Dhanaya about 10 km northeast of the Garrathiya (land of the cycads) cattle station homestead. However, in 2008 the milling of timber was reinvigorated. Revitalisation of the industry was driven by the notion to utilise the abundant natural resources, including the latent strengths of the cattle station, in a long term strategy to reduce the socio economic disadvantages experienced by the Gumatj clan.

Indigenous Australians experience severe socio economic disparities compared to other Australians. In East Arnhem Land this minority group often resides in remote geographically dispersed communities where there are seldom mainline jobs. Often these Indigenous people are low skilled in terms of civilised societal jobs, they lack relevant industrial work experience albeit some of them may be intermittently employed in a



Fig. 2. A Team of Yolngu Men Operating a Lucas Mill

community development employment project scheme, and thus, are likely to be wedded to welfare. Poor employment prospects are consistently linked with the lowest income, the least educated and most unhealthy living conditions. In turn these patterns are associated with a multitude of social indicators such as material poverty, unhygienic housing, inadequate nutrition and unhealthy lifestyles, substance abuse (alcohol, tobacco, recreational drugs, petrol sniffing), higher incarceration rates, lower life expectancy, and epidemic rates of lifestyle diseases (diabetes, cardiovascular, coronary heart). Many of these fundamental differences with the non Indigenous population are experienced by Yolngu people as lesser life opportunities and weaker wellbeing.

Alleviating the level of social and economic disadvantage of the Gumatj family lay in a heightened timber industry. The head of the Gumatj clan and the second author held the view if the capacity of the farm could be developed cattle could be field killed in a hygienic portable abattoir. Then the cryovaced chilled meat could be sold to nearby Indigenous communities, but a majority of the product would be brought to Gunyangara where Indigenous ladies would prepare wholesome meals (in existing high quality kitchens) for sale to local Indigenous people. This ambitious plan was predicated by a sustainable meat supply, which required additional head of cattle, and thus, more holding yards. In late 2008 a D6 bulldozer was purchased that would be predominantly used for clearing of fence lines in the virgin savannah forest. A rectangular 7km x 3km paddock, with internal zigzag fencing for easier mustering, would be required on the west side of the Central Arnhem Road adjacent to the existing current Garrathiya cattle station. But before the fencing project

could commence extra workers would be required, and thus, additional accommodation had to be built.

3.2 Accommodation construction

The first new accommodation was a structure that combined traditional and contemporary building techniques. All the vertical columns were debarked logs that were positioned in concrete footings, while the girts and purlins were milled structural members. Field supervision of the Indigenous men who felled the trees, milled the logs and built the facility was provided by the Jack Thompson Foundation. Built in 2008/2009 the accommodation unit had three separate buildings that were connected with concrete footways. At one end there was an ablution block (5 metres x 4¹/₂ metres) containing three toilet cubicles and three showers, and at the other end there was a large kitchen (6 metres x 4 metres). Between these two units there was a large dormitory (9 metres x 8 metres) that has a central passageway with three rooms each side. As each room had adequate floor space two beds could be put in each to give a capacity for 12 people. Within the kitchen was a number of open work benches that had timber slab tops and shelves (50mm thick) held in a milled timber framework. The floors were concrete for ease of cleaning, while the roof and external walls were olive green steel cladding. Private contractors were engaged to fit all electrical wiring, ceiling fans, power outlets and the plumbing. Figure 3 shows the external arrangement while Figure 4 reveals the internal construction technique.

In 2009 a second accommodation dwelling, architecturally designed to Western standards was built. This structure (14.6 metres x 15 metres), commonly referred to as the Garrathiya



Fig. 3. The Garrathiya Dormitory and Outbuildings during Construction



Fig. 4. The Kitchen Unit Showing Construction of Traditional Log Columns and Milled Timber Girts

five room bunk house, is illustrated in Figure 5. The leader of the Gumatj clan, Mr Galarrwuy Yunupingu AM, who had been Chairman of the prestigious Northern Land Council for over two decades, was able to use his extensive industrial and business network to acquire the assistance of three leading Tasmanian Corporations; University of Tasmania, Forestry Tasmania, and Fairbrother Builders. The architectural School of the University of Tasmania designed a timber structure of standard section structural timber with minimal employment of other construction materials. For instance, steel galvanised footings (for white ant protection), and plywood bracing gussets (to reduce the need for steel brackets) were the main off site structural non local timber components used in the building. Forestry Tasmania provided the initial supervision of two Lucas mill teams (six Yolngu men) and training in sustainable timber harvesting and management (four Indigenous men). Fairbrother Builders, a specialist company in building and construction, provided non Indigenous personnel (two men) to supervise the 18 Gumatj workers who built the bunk house. The 20 tonnes of timber used to build the bunk house was produced by another team of 10 Yolngu men who felled the trees and milled the logs.

Collaborative arrangements between the Indigenous stakeholders underpinned a number of successful endeavours. For example, the booklet (A3 size) of architectural plans and lists of sectional sizes of the timber members were more meaningful to the Fairbrother Builders supervisors, yet the Indigenous team working in the savannah forest was able to meet the continual demands for milled timber at the bunk house building site. Intense oral coordination between the construction group and the milling team ensured the timber



Fig. 5. The Garrathiya Five Room Bunkhouse

decking was transported to Gonyangara where it was dressed (by a third team), and then conveyed to the building site without delaying the erection progress. The design of the bunk house incorporated roof bracing to cyclonic wind standards, and to further accommodate the tropical climate other features included an overhanging roof to create shade on both side verandahs. Despite there being an absence of a time line chart to gauge the rate of progress the bunk house was built to an exceptionally high standard in a relatively short period (Pearson & Helms, 2010a). Both authors were at the site on the morning of the 25th April 2009 when the first footing was set in concrete, and again on the morning of 7th August 2009 when the dwelling was officially opened. This ceremony was attended by reporters of local and national newspapers, government officials, politicians (Territory and Federal), representatives of the project partners (Mr Jack Thompson; Mr Bob Gordon, Managing Director of Forestry Tasmania; University of Tasmania; Fairbrother Builders), Mr Galarrwuy Yunipingu, and a contingent of Yolngu men, who through their collaborative efforts had built the bunk house. Not only was it a magnificent achievement, but this was the first contemporary architectural designed timber dwelling that had been built by the Gumatj clan members on their ancestral land.

The second architecturally designed timber dwelling built by the men of the Gumatj clan was a four bedroom house. This structure was constructed on the shores of Port Bradshaw at the outstation community of Dhanaya. Already existing at this place were five other houses that had been built by private contractors several years earlier using contemporary building materials of steel sheeting, fibro, steel and aluminium framework and plywood.

When occupied these original houses drew energy from a diesel powered generator. The new house, which had a floor plan of 18.9 metres x 12.5 metres, and an external garage, was predominantly built with hard wood timber that had been selectively harvested by a team of Gumatj clan men, from their traditional land about 10 km west of Dhanaya (Pearson & Helms, 2010b). Figure 6 shows the house during construction.



Fig. 6. The Dhanaya House during Construction

Construction of the house commenced in the latter half of 2009. After completing the bunk house the Indigenous men exercised their reward in the form of a hunting and fishing trip to the Daly River, and shortly after returning to the Gove Peninsula began to be involved with the house construction venture. Two supervisors from Fairbrother Builders resided in one of the Dhanaya houses for the duration of the project, while one supervisor from Tasmanian Timber was required less often as the Indigenous men had become proficient in felling trees and could now competently operate the Lucas mills and the associated equipment.

The building was essentially completed by mid 2010, but occupancy was delayed. A new diesel generator and the installation of underground electrical conduit could not be commenced until after June. Traditionally, East Arnhem Land is inaccessible during the 'wet' season (November to April). Thus, contractual plumbing and electrical work could not be completed until after the roads and tracks to Dhanaya became useable. Figure 7 shows the generator housing with the house in the background, and Figure 8 is a view of the now occupied house.



Fig. 7. The Generator Housing in the Foreground and the Dhanaya House



Fig. 8. The Completed Dhanaya House

It is widely acknowledged that Aboriginal housing in Australia is deplorable. Inadequate maintenance and overcrowding of Aboriginal houses, especially in remote communities, demonstrates the prolonged failure of successive Australian governments to improve the unhygienic living conditions of Aborigines. To break this impasse the vision of Galarrwuy Yunupingu was that the Gumatj men would build houses for their clan. But the reality was the time for building the Dhanaya house was about nine months, and many houses were required. Hence, an alternative practical strategy was to buy seven kit homes and have the Indigenous men assist the contractors by adding timber verandahs. Four of the houses were built at Gunyangara, and three others were erected in Nhulunbuy. Two of the three town houses are being rented and the third was sold to give the project a cost neutral outcome. However, the homes, which were designed in Tasmania for southern climates, have not been entirely satisfactory for the extreme weather conditions in East Arnhem Land. For instance, door and window frames shrink and expand in the 'dry' and 'wet' seasons, and window/door openings do not allow sufficient airflow, while the ceilings are too low for cooling fans. Consequently, the contractors have been invited to address a list of 'defects' and tender a revised design. Shown in Figure 9 are Gumatj men building an outdoor verandah from timber milled by their colleagues.



Fig. 9. Gumatj Men Constructing a Verandah on a Kit Home at Gunyangara

3.3 Furniture manufacture

The number, different sizes, and geographical dispersion of Indigenous communities create enormous difficulties in supplying suitable furniture. Large distances between outland centres, and limited access to retail outlets compound transportation costs, while low incomes of Indigenous people limit purchasing power and the selection range. Furthermore, plastic, chip board, or plywood furniture lacks durability in overcrowded houses where there is a greater usage and wear and tear than is normal in non Indigenous homes. A novel technique to convince Yolngu members, who had never before made contemporary European furniture, was to begin at the high quality end of the spectrum. With guidance from a non Indigenous cabinet maker five large board room tables were made (Pearson & Helms, 2011). Valued at \$3.5K each (3 metres long and 1 metre wide) they were sold locally. Figure 10 shows one of the tables. Currently, in a shed at Gunyangara, which contains a few industrial wood working machines, some Gumatj men are designing and making household furniture from eucalyptus tetrodonta. Outside the shed, under cover, are several tonnes of different sized milled timber being air dried. One important project is to make 50 single beds, and then to engage the Health Department personnel to teach the Indigenous ladies how to regularly sterilise the beds and mattresses. The overall goal is to prevent further outbreaks of scabies in the community.



Fig. 10. The Boardroom Table

3.4 Building strategic capabilities

The Gumatj clan is on the cusp of expanding their timber industry. On 8th June 2011 the Prime Minister Julia Gillard visited Nhulunbuy, and later in the day went to Yirrkala to ratify the new 42 year mining lease. The occasion was a historic agreement between the

international mining company Rio Tinto Alcan and the Traditional Land Owners, who are the Yolngu clans of the Gumatj, Rirrantjingu, and the Gälpu. Over 1000 people attended Yirrkala to witness the ceremonial signing of the Gove Traditional Owners Agreement, which will provide over \$700 million in royalties and associated financial contributions during the period the bauxite ore is mined. And while the lease provides many direct attractive financial features it is also connected with an ambitious timber milling programme.

Challenging the conventional method of land clearing prior to mining operations taps into a plentiful timber resource. Since the mining operations on the Gove Peninsula commenced in the mid 1960s historical established protocol has been observed. First, the Indigenous ladies collect seeds from the savannah forest; second, the flora and overburden is bulldozed and the vegetation is burned; and last, after the ore body is depleted the ground is levelled and reforested from the stored seed bank. In a progressive move the Gumatj clan wants to change these methods. They are seeking approval from the Territory Government to annex sections of the lease, from which useable timber will be harvested, before the vegetation is cleared and burned. Legitimacy for this inaugural initiative is the mining lease is only for material under the surface. However, the extensive Minerals Royalty Act of the NT (as in force from 1 July 2008) prescribes regulations preventing timber activities preceding site clearing and overburden removal. Currently, the issue is being addressed in negotiations between the Territory Chief Minister and the second author.

The location of the mining lease provides two attractive features for the next development of the Gumatj milling operations. First, as the new lease of some 10 km length is south of the Gove airport, is parallel to and east of the Central Arnhem Road it is sufficiently distant from the social distractions of Nhulunbuy and Yirrkala. Second, close to the southern extremity of the lease are the sites of the now nonexistent Indigenous transitional Dhupuma College, and the European Launching Development Operations (ELDO). What does remain from these facilities are bitumen roads and reasonably large flat tracts of concrete on which buildings could be erected and serviced. The hardstand will provide foundation for dormitories to accommodate Indigenous Yolngu, and structures in which they can operate new milling equipment.

Milling structural grade hard wood timber has been the main stay of the Gumatj operations, but other entrepreneurial avenues have been investigated. Expectedly, the two Lucas mills can be used to mill larger diameter logs for structural timber. In addition, the Gumatj have purchased a Mahoe mill (A\$45K), which is now housed at Gunyangara. This mill is both more efficient in cutting logs and affords greater accuracy, which will give products for furniture, floorboards, and sizing of planks and boards for the general market. Smaller diameter logs will be used to manufacture hardwood veneers. During 2010 a number of logs were sent to Queensland and the successful peeling trials has encouraged the Gumatj family to install a peeling machine at the Dhupuma / ELDO site as there is an extensive global market for hardwood veneer. And other parts of the trees are marketable. For example, bark, sawdust, and chips are sought by the horticulture industry or can be used as a fuel supply. The availability of relatively small drying kilns will provide a better seasoning outcome than the current undercover air drying of timber being prepared for furniture manufacture. Overall, the opportunity exists for a wide range of jobs for Indigenous people, who in the past (in the absence of mainstream work) have been wedded to welfare.

4. Conclusion

The timber industry of East Arnhem Land grew out of necessity. Historical records attest to large fleets of paus / paws from Macassar travelled from the Celebes / Sulawesi from the 17th century to trade with the Indigenous Yolngu for coastal sea products in exchange for tobacco, alcoholic beverages and iron tools. And there is suggestion the Chinese preceded the traders when in search for trepan (beche-de-mer) for their stimulating and aphrodisiac properties. There is every likelihood that some of these masses of ships, like Captain James Cook in 1770, would founder on the treacherous Australian reefs. Consequently, some sailors would require repairs to their ship worm infested timber boats. As such, it is conceivable that the rendering of the vessel seaworthy for the home bound trip spawned the timber industry in East Arnhem Land.

More definable accounts of visitors to East Arnhem Land are formed in ship logs. One of the earliest sailors to encounter East Arnhem Land was the Dutch explorer William Jansz, who traversed the northern region in 1605 in the *Duyfken*. Some years later in 1623 when two ships commanded by Jan Carstenszoon were blown from the tip of Cape York Peninsula across the Gulf of Carpentaria the land they discovered in the Gove Peninsula was called Arnhem after the name of the ship captained by Willem Joosten van Colster. Both authors have copies of maps that were available to the seafarers of that time, which demonstrate little of the coastline had been accurately plotted. In 1803, when circumnavigating Australia in the HM sloop *Investigator* Captain Matthew Flinders was in the region of Melville and Arnhem Bays. His log accounts in great detail interactions with the Macassans and the Yolngu people who had been able to inhabit the off shore islands because they had been shown by the traders how to make dugout canoes. More specific is the considerable detail of how the trepang was prepared for transport back to the marketplace. And the Yolngu acknowledge in their Madayin the death of an Aboriginal in a skirmish with one of Flinder's crew at Blue Mud Bay. Although the trepang trade was extensive in 1906 the South Australian Government (then responsible for the NT) revoked licenses for trepang fishing. Thus, the fledgling timber activity was terminated.

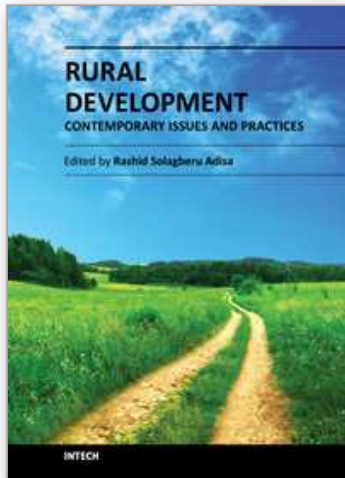
When the missionaries came to East Arnhem Land to civilise the Yolngu a pragmatic timber industry evolved and flourished for over 40 years. Underpinning a fundamentally different customary hunter gatherer economy of the Indigenous people was a need for building materials that would withstand the insatiable appetite of termites, the milling skills of the Reverend Shepherdson, and the technical equipment for harvesting the trees. Pivotal changes during the 1960s in the governing arrangements were legislative and constitutional reforms to remove a number of colonial structural barriers that had denied Indigenous people citizenship rights of freedom to vote, to work, and to move away from the coastal missions and government settlements. Consequently, in the 1970s there was an exodus of Indigenous people back to small communities (outstations) on their traditional ancestral lands with which they held strong spiritual and religious connections. Further erosion of the mission contribution to the timber industry lay in the gradual administration of the schools by the NT Ministry of Education and the absorption of the hospitals by the Department of Health. Last, the availability of a range of attractive desirable building materials resistant to white ants made the milling of cypress pine irrelevant.

A need to provide platforms on traditional log structures motivated the Gumatj clan to commence timber milling. The prohibitive cost of barging sawn timber to Nhulunbuy

compared to the availability of suitable hardwood trees on their traditional land led to the emergence of an enterprise generating economic, social and ecological benefits. These boundaries are being stretched within a vision of extending the timber milling activities to embrace a significant shift in Aboriginal aspirations to facilitate a sustainable future for the clan.

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Development of rural areas has witnessed increasing attention globally, especially over the past three to four decades. The highpoint in the renewed global interest in the development of rural people and their environment was reached with the setting of the Millennium Development Goals (MDGs) in the year 2000. All of the set goals are basically rural development goals. With less than four years to the deadline for the achievement of the MDGs, it is almost certain that the goals are far from being achieved in, especially, most developing countries for whom the MDGs were essentially set. The struggle thus continues for rural development. As long as problems of poverty, disease, illiteracy, unemployment, poor infrastructure, environmental degradation and others persist (or increase) in rural communities, better and more result-oriented solutions to perennial and emerging problems of rural communities would be required. But rural development, in spite of the variations in thresholds of rurality among nations, is not exclusively a Third World or “developing countries’ process, owing to its multi-dimensionality. It is a global phenomenon that obviously requires global strategies. This book not only looks at rural development from its multi-dimensional perspectives, it is also a product of the experiences and expertise of distinguished scholars across the continents. Aiming to provide a comprehensive single volume that addresses salient issues and practices in rural development, the book covers themes ranging from sustainable agriculture, biodiversity conservation, strategic environmental assessment, renewable energy, rural financial resources, assessment of protected areas to statistics for rural development policy. Other subject matters covered by the book include social marginality, land use conflict, gender, cooperatives, animal health, rural marketing, information and communication technology, micro-business, and rural economic crisis. The book is thus an invaluable source of useful information on contemporary issues in rural development for researchers, policy makers, and students of rural development and other related fields.

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Unit 405, Office Block, Hotel Equatorial Shanghai
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中国上海市延安西路65号上海国际贵都大饭店办公楼405单元
Phone: +86-21-62489820
Fax: +86-21-62489821

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