THE TROPICAL QUEENSLAND SUGAR CANE INDUSTRY

A STRUCTURAL AND MATERIAL SURVEY, 1872 TO 1955

by

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ABSTRACT

The aim of this project is to survey and document examples of extant structures and artefacts, and former major sites; and to make recommendations for their preservation and restoration where appropriate.

The area surveyed will be that of the northern mill areas (from Ingham to Mossman) and the industry as it was prior to 1955 when mechanization was just beginning to change the nature of sugar cane cultivation, harvesting, handling and milling.

In each mill area examples of structures and artefacts will be viewed, photographed and documented. The geographical size of the area to be surveyed is prohibitive both to making an adequate study of the entirety and to conducting truly scholarly field work. It is unavoidable that remarkable examples worthy of and even in urgent need of preservation and/or restoration will have been missed.

Nonetheless, never before has the Queensland sugar cane industry been studied from this perspective making this study one of intrinsic significance and value.

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GLOSSARY

Bag lifter	a lifting device operated from the tractor hydraulics, used to lift 1,000 kg bags of fertilizer.
Bagasse (or megass)	the fibre remaining after the juice has been extracted from the stalk of cane. It is used to fuel the mill.
Billet	the short lengths of cane (approximately 300 mm) into which a whole stalk of cane is cut by a mechanical harvester.
Bogie	flat top railway wagon used, amongst other things, to convey sugar bags to the wharf.
Boom spray	device attached to a tractor used to distribute herbicide over the cane stools. The herbicide is distributed in a fine mist from a tank via the boom arms.
Break pusher	a cone-shaped frame attached to the front of a tractor. It is used to push a fire break between rows of cane in order to separate that cane which is to be burnt prior to harvesting from that which is to remain unburnt.
Burn (n)	cane can be burnt prior to harvesting. This process removes extraneous matter and makes the cane both cleaner for harvesting and later for crushing.
Butty gang system	desribes a method of work where each member of the team shares equally in the joint earnings derived from their work as a group.
Cane carrier	cane brought to the mill for harvesting is first weighed then dumped onto a cane carrier or conveyer belt which conveys it to the shredder where it is cut into fine pieces.
Canecutter	a person who manually harvests sugar cane with a cane knife.
Cane cleaner	an implement designed to remove soil from the furrow and rake small weeds from the row of cane.
Cane inspector	the intermediary between mill and farmer.
Central Milling System	a system where small growers can send their cane to a central mill for crushing.
Centrifugal	raw sugar crystals are spun in this device in order to spin off any remaining syrup.
Chaff-cutter	a machine used to thresh materials such as green cane tops to be used for fodder.
Chopper harvester	a mechanical harvester which chops the cane into billets and loads them immediately into trailer bins.
Clarifier	the vessel in the impurities from the cane sugar juice, which has been mixed with lime and heated, settle out.

Combine planter	a mechanical planter which not only plants the cane but also drills out and plants the cane but also drills out and fertilizes in the same operation.
C.C.S.	commercial cane-sugar or sugar content (of cane).
Compaction roller	a device designed to compact the soil around the newly planted sett.
Cooler	the stage between the crystallizers and the centrifugals in the milling process.
Corner	the track from the main railway line to the paddock.
Cotton king	a light disc cultivator used to either cut the soil away from the young plant can or throw the soil back on as needed.
Crushing	the cane harvesting season (approximately from June to December).
Cutter planter	supercedes the combine planter. It not only has the same attributes as the combine planter but in addition it cuts the cane stalks into plants.
Degibreur	an earlier device designed to tear the cane into pieces before it passes under the mill crushing rollers.
Desbessies	the use of the chemicals, sulpher and superphosphate, in the milling process.
Diamond harrow	a popular type of tyne harrow used for breaking down cloddy or clumpy soil. It is distinguished by the tynes which are arranged in a diamond configuration.
Disc harrow	an implement used to level or break up soil. Rather than spiked tynes the implement is equipped with discs which supercede the tynes.
Disc plough	the best implement to use to plough in the leguminous crop. The implement isequipped with a disc (of 60 - 76 cm diameter) rather than a mouldboard and supercedes a mouldboard.
Drill	a row of cane. Drills are 140 cm apart.
Drill out	mark out the paddock with furrows for planting.
Drop planter	a mechanical planter which drops and covers the cane with soil only.
Dryer	the mill stage between centrifugal machine and storage where the raw sugar is dried by a tumbling action in a rotating drum.
Emery ratooning implement	a versatile implement attached to the rear of a grubber chassis consisting of two discs, an horizontal cutting knife and two stabilizing coulters. It is mainly used for ratooning but can be used for hilling-up, making water-drains and even ploughing out

	cane stools.
Evaporator	vessel in the milling process where the clear sugar juice is concentrated to a syrup by boiling it under vacuum.
Fertilizer box/ distributor	implements designed to deliver fertilizer to the stools of cane. Fertilizer is ideally placed at a depth of 7.5 cm or 10 cm. The applicator distributes it via flexible pipes or hoses attached behind tynes which run through the soil making small furrows into which the fertilizer flows.
Filestick	a length of pipe in which files used for sharpening cane knives are stored in the field.
Front-end loader	a device which is attached to the rear of a small wheel tractor and which mechanically piles up cut cane stalks and loads them on to trucks. It is capable of picking up a load of 355.5 kg of cane at a time.
Gang	group of canecutters contracted to a farmer to cut his cane.
Green cane	cane left unburnt prior to harvesting. Cane can be harvested burnt or unburnt.
Grubber	a versatile tractor-drawn implement equipped with seven to nine tynes used mainly for cultivating the ratoon crop but which can be used for all deep tillage work.
Hayrake	an implement used to rake the cane trash and tops into rows so that they can be burnt. The rake is comprised of numerous curved tynes attached to a wheeled frame.
Headland	access road bordering a cane paddock.
Hilling-up	shaping of the drill by means of cultivation the aim being to present a suitable profile for drainage and harvesting. It also describes the practice of controlling weeds and grass in the cane row by throwing soil up around the cane stools.
Horse line	railway line so called because horses (and mules) would be used to pull a rake of trucks along this line to the mill, or from the farm to the main line. It is moresubstantial than portable line.
Key	device used with a ratchet to tighten the chain thrown over the loaded truck of harvested cane. The chain holds the cane securely on the truck.
Krajewski crusher	located between the carrier and the first mill which crushes the cane into pieces before it proceeds to the rollers.
Loading	the process of placing the harvested stalks of cane onto the tray of a motor-truck or onto a cane truck.
Megass	see BAGASSE
Mill (v)	the process of transforming harvested cane into raw sugar.

Mill train	the crushing plant that crushes the harvested cane in the milling process. The plant is comprised of a number of 'trains'. Each train is comprised of a number of 'mills' which are each made up of three rollers. When the cane is passed through the rollers the juice is squeezed out.
Mouldboard	generic name applied to the various types of single furrow swing ploughs.
Out of hand	a stage when the crop has grown too tall for the ground surface to be worked.
Pony plough	smallest member of the swing plough family.
Push-pull trolley	also known as 'jigger' or 'pump-trolley'. These hand operated tramway vehicles were used not only by navvies for maintenance of the tramways but by farmers during the 'wet' when the roads were impassable.
Rake	a quantity of cane harvested in one cutting session and which has to be loaded before cutting can recommence.
Ratoon	is the consequent crop of cane grown from the stubble of cane left in the ground after harvesting. One plant can produce any number of ratoons depending on the health of the soil but the usual number is three to four.
Raw sugar	the end product of the milling process.The sugar crystals that are separated from the syrup in the centrifugal.
Revolving levelling knives/shredder	device which shreds the cane into pieces before it proceedes to the rollers in the milling process.
Rotary-hoe	an implement equipped with revolving blades used to break up the old stool after the last ratoon.
Scarifier	a tyned implement used to till the soil from the drill into the furrow to smother the weeds.
Season	the cane harvesting months, usually June to December (see also CRUSHING).
Selective topping	where the canecutter cuts off the leafy top on the cut cane stalks before the stalks are laid on the ground.
Sett	a piece of cane stalk which contains roots and buds and from which, when planted, a stool of cane will grow.
Skeleton plough	a swing plough with its mould board removed. Its job is to break up the soil without turning it over.
Slack	The five months between harvest seasons.
Smoko	breaks from work in mid-morning and mid-afternoon.
Spinner	an implement which features a wheel comprising at least 18 spoon shaped spikes. This wheel rotates removing weeds and excess soil from the cane drill.

Spring tyne cultivator	a tyned implement used for ratoon cultivation.
Stool	the cluster of cane stalks that grow from a planted cane sett, or the regrowth of cane which comes from the buds remaining on the stubble of cane left after harvesting (see RATOON).
Stooling	the process of a cluster of cane stalks growing from a planted cane sett or buds remaining on the stubble of cane.
Stubble	what remains of the fully grown cane stalk after it has been harvested.
Stubble-shaver	an implement used for ratoon cultivation. It is equipped with two rotating discs to cut off the top buds of the underground stubble. The rationale is that the ratoon shoots will develop from the deeper eyes.
Swing plough	otherwise known as a mouldboard plough. Its job is to turn the soil.
Syrup subsider	where the syrup that remains from the centrifugal process goes onto further processing and impurities are again given an opportunity to settle out of the syrup.
Tandem disc harrow	a tractor-drawn implement used for preliminary cultivation of ratoon fields.It is comprised of two rows of 14 discs, the second of which is divided into twounits of seven discs, the degree of set of which can be adjusted depending on the nature of the soil surface.
Tar shed	houses a bath in which portable cane rails were dipped in tar because an application of tar was found to keep the portable cane rails from rusting.
Top	green leaves and cabbage (green, soft length where the leaves branch out from the stalk).
Topping	cutting off of the top.
Tram	subdivision of a paddock for convenience of cutting. Each tram contains approximately 18 drills of cane.
Trash	dry cane leaves removed by burning or by use of the hook on the end of the cane knife.
Trashing	cleaning the cane of the lower leaves and the drills of weeds, a job done by hand in the days prior to the burning of cane.
Trash stripper	a tool used to strip the trash off the cane stalks prior to planting.
Triple effet	where three vessels are used in the evaporating process. If five vessels are used then it is referred to as quintuple effet.
Truck	later called BIN. The wheeled receptacle onto which cane is loaded to be hauled by locomotive to the mill.
Trucking out	hauling out of the loaded cane trucks from the paddock to the

	siding (or mainline).
Tumbling Tommy	a scoop used to shift soil from one place to another. The name derives from the tumbling action required to empty the scoop of its load of soil.
Tyne harrow	an implement equipped with spikes or pegs. The tynes can be arranged in various configurations, for example, as in the strawberry harrow, or as in the diamond harrow.
Vacuum pan	the vessel used in the milling process to boil the sugar syrup under greater vacuum than in the preceeding stage (evaporator), until it forms raw sugar crystals.
Water-cart	field fire fighting equipment comprising tank, P.T.O. driven pump, gun, hose and cart. The unit is drawn to the paddock by tractor when burning, to be used in the event a fire gets away.
Watering point	tank at the mill or on a creek bank where the tramway runs along the creek, used by steam locomotives to fill with water.
Weils disease	common name for the disease *Leptosperosis*, a virus spread by rats' urine on wet ground and cane stalks which can be contracted by canecutters when cuts on their hands and bodies come into contact with contaminated cane.
White sugar	the refined product with all impurities removed resulting from the refining process.
Whole stalk harvesters	a mechanical harvester that cuts cane into whole stalks which have to be loaded in a separate operation.

URGENT RECOMMENDATIONS

a) *that the Australian Sugar Industry Museum be enabled to function efficiently and professionally ,* **see Recommendation 26;**

b) *that the Pyramid Mill site be thoroughly excavated and recorded,* **see Recommendation 31;**

c) *that the Gairloch Mill Site be preserved along with the two remaining pieces of plantation machinery,* **see Recommendation 2;**

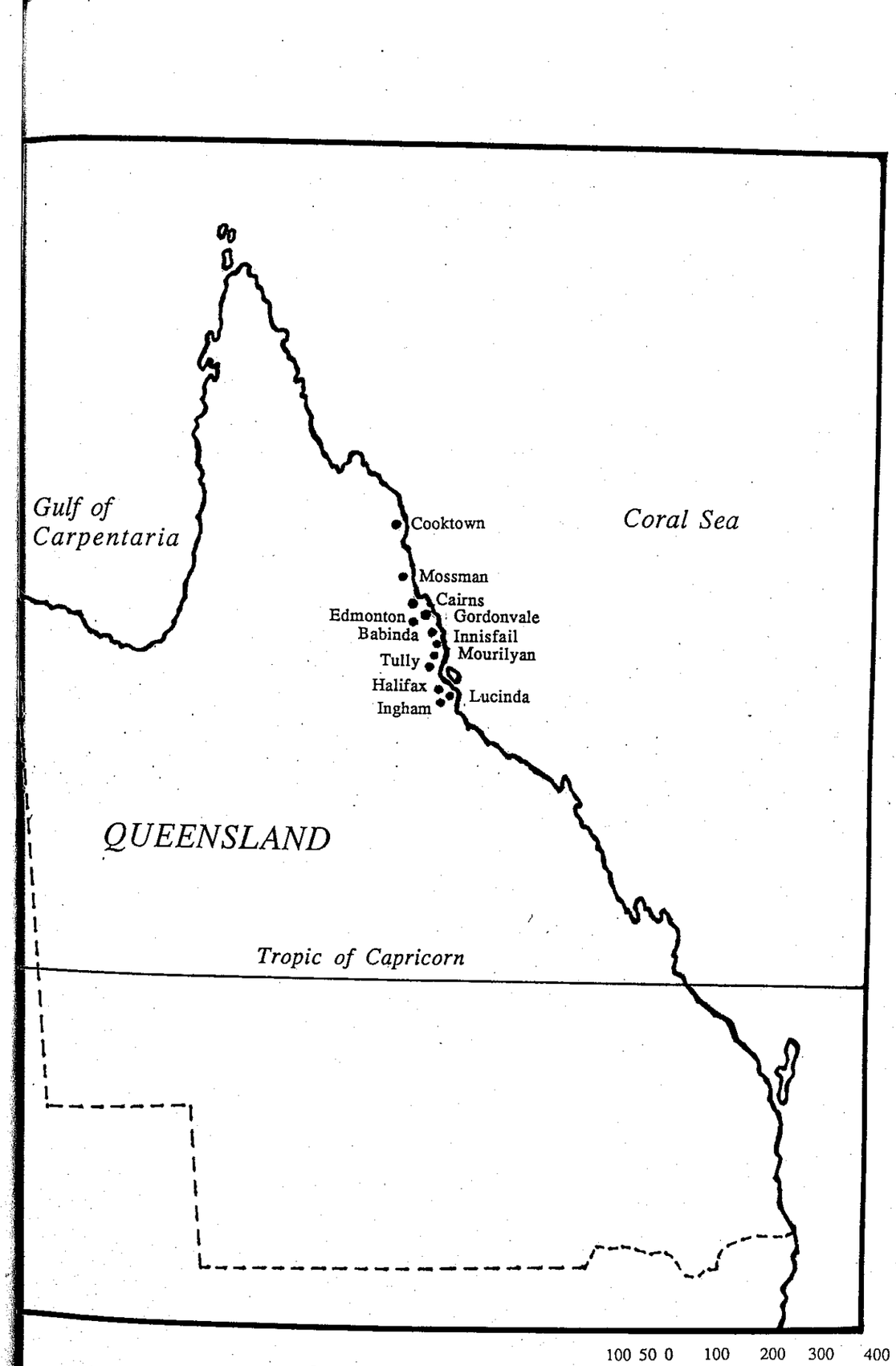
d) *that the one remaining building on the Ripple Creek Mill site be preserved,* **see Recommendation 3;**

e) *that approaches be made to the owners of Oakleigh, Richmond and the Draper barrack regarding their preservation,* **see Recommendations 6,38 and 34;**

f) *that the nature and feasibility of J. Reynolds and J.R.R. Connolly's proposal for the Mowbray Valley be investigated in the light of preserving sugar industry structures,* **see Recommendation 39;**

g) *that registers of significant structures and collections be established taking into account: a) age and historical significance; b) uniqueness c) representativeness and d) architectural style exclusive to a particular geographical area and/or era,*

h) *that a study be carried out of the concrete structures of North Queensland, particularly where they were built by Italian immigrants ,* **see Recommendations 13 and 20.**



PREFACE

Sugar cane was first grown on the Brisbane River in the early 1840s. By 1955 sugar cane districts stretched along 2,000 kilometres of Queensland coastline. 31 mills crushed 1,327,270 tonnes of sugar that season.

Though pastoralists had trekked north in search of land as early as the 1850s they had kept "clear of the jungles, mountains and tropical fevers on the coast" (Kerr 1979:1). It was sugar that opened up the coastline to settlement by Europeans.

Selections were taken up, land cleared, and acres of cane planted. Coloured labour was imported because it was believed Europeans could not labour in the steamy tropics. Kanakas, Chinese, Malays, Javanese, Sri Lankans and others toiled to cultivate the crops. At first the plantation system prevailed where each plantation milled and even sometimes refined its own crop. Mills proliferated and in 1886 there were 166 mills in Queensland. At the height of optimism land was selected for sugar cane growing as far north as the McIvor and Bizant Rivers.

Many parts of the Queensland coastline were eminently suited to sugar cane cultivation receiving the requisite rainfall and being warm and frost free and cane did flourish. However the earlier optimism was tempered by the realities of economics, labour and climate. The northernmost selections proved too dry and the availability of coloured labour was curtailed by Commonwealth Government legislation. The plantation system gave way to a situation where farming and milling became distinct enterprises. The Sugar Works Guarantee Act of 1893 provided for central mills to be established and so eventually the central mill system replaced the plantation system.

In time the Queensland sugar cane industry came to be characterized by small farms employing white labour and serviced by central mills, whether they were proprietary or co-operative. Southern Europeans: Italian, Maltese and Spanish replaced the coloured labour and like them were considered more suited to toiling in the tropics than the Anglo-Saxon labourer. The 'displaced persons' were the last in that era to be coerced to sugar field labour.

The intervening years had witnessed remarkable changes and progress in the technology of farm and mill practices. Sugar growers' and workers' lifestyles and living standards changed. The facilities and the architectural style of mills, farm houses, barracks and sheds all reflected those changes. Covering such a vast area as the Queensland sugar industry does it is natural that there would have developed variations in those practices and architectural styles.

Though it was initially envisaged that the project would research and document the sugar cane farming industry of tropical Queensland, its structures, equipment and processes, the size of that area is prohibitive to one person making an adequate study of the entirety. The area encompassed by the Queensland sugar industry lends itself to being divided into three sub-groupings: the tropical North comprising 1) Mossman to Ingham and 2) south of Townsville to the Tropic of Capricorn; and the sub-tropical area 3) south of the Tropic of Cancer to the N.S.W. border. This project then will focus on the 'far' northern area of Ingham to Mossman. That area has developed in a sufficiently distinctive manner, district variations as mentioned not withstanding, to warrant particular study.

An outline of the physical development of the Queensland sugar industry as it

inched its way up the coast in the years from 1849 to 1925 puts each 'mill area' into an historical perspective. In this retelling there will be obvious omissions of aspects of the history of the sugar industry. The labour issues, the sugar industry structure and organizations, government legislation, domestic and international economics and politics will only be mentioned where they have had relevance to the physical development and material aspects of the Queensland sugar industry.

The sugar industry is attributed with the populating and the development of the state, particularly of the northern part. Its labour has attracted people of many nationalities, both Asian and European. It has given rise to a distinctive body of literature and artistic expression, and material structures and characteristics to serve its needs and the nature of the environment. These factors have determined not only the way of life and cultural experience of those living in the sugar farming communities of North Queensland but have also determined the way the sugar industry is viewed by those in, and out side of the industry. While the other factors have all been acknowledged by writers of various disciplines the last, ie. material structures and characteristics, has not been similarly recognized and documented. For that reason this study is both timely and necessary.

A brief overview of the mechanics of sugar cane cultivation and milling as it was conducted in the northern sugar growing area between 1872 and 1955 will be given. After 1955 mechanical harvesting was to dramatically change the nature of sugar cane cultivation, harvesting, handling and milling.

The history of each mill area together with the researcher's observations on the material structures and artefacts of each will make up the major part of this study. The

items looked at will have been in use from the earliest days of the north Queensland sugar industry to 1955. They will include former mill sites; mill machinery; farm machinery (including early horse-drawn equipment and mechanized equipment); workers' dwellings (eg. barracks); farmers' houses; sheds; windmills; water tanks; and such like. Finally structures recommended for listing and/or preservation and/or restoration will be identified and described and recommendations made accordingly.

In the 120 years of sugar growing in far north Queensland the industry has undergone many material changes. No more is sugar grown on labour intensive plantations. Mills are no longer numerous or lit by gas. It is a long time since farm work was done by hoe and horse. Gangs of canecutters no longer flock to the canefields each season to live in isolated and primitive barracks. Any remnants of these changes need to be documented before they too disappear forever. We owe it to the industry that has given Queensland so much to document its material culture and where possible preserve salient examples. Future generations will then be better able to understand the origins of this industry and the nature of the labour and way of life which characterized its early days.

The project was funded jointly by the James Cook University and a National Estate grant to Professor Barrie Reynolds, Director, Material Culture Unit. The writer was employed as the Research Officer for the project.

The support of the University and the National Estate is gratefully acknowledged. I express my thanks to Rhondda Leung and other staff of the Material Culture Unit for their help and particularly to Professor Reynolds for his patient supervision of my work. Especial thanks go to all those people who assisted me in the field with advice, information, material and hospitality. Profound thanks go to my husband for his help in the field and for facilitating every opportunity for me to work on the project.

1. THE PROJECT: NATURE AND PROCESS

INTRODUCTION

This project is the result of a survey of two years duration of the extant structures and artefacts, and former sites of the sugar industry of tropical north Queensland in use from the earliest days to 1955.

Research involved a field survey of samples of structures and artefacts on 109 farms, 15 former and present mills, five public collections and one port site of the region and interviews with millers, farmers and curators of collections together with a perusal of secondary historical sources and some primary documentary sources.

NATURE OF PROJECT

This project is concerned with the structures and artefacts distinctive to the sugar industry of tropical north Queensland in the period 1872 to 1955. The region defined as tropical north Queensland extends from Ingham to Mossman and the timespan covers the period from the establishment of the first mill in the region, Gairloch in 1872, to 1955 when mechanization was just beginning to significantly change the nature of sugar cane cultivation, harvesting handling and milling.

Structures included were those to be found on mill sites, on farms and at rivers

and ports. Artefacts similarly included those to be found on mill sites, on farms and at rivers and ports as well as those in private collections. Structures and artefacts surveyed are for a large part distinctive to the industry and are indicative of the way of life and work in the sugar communities of tropical north Queensland at that particular time.

RESEARCH METHODOLOGY

The aim of this project was to survey and document extant structures and artefacts, and former sites; and to make recommendations for their preservation/restoration where appropriate.

Research involved investigation of samples of extant structures, artefacts and sites and perusal of documentary evidence, primary and secondary, in order to place the field work observations within some historical perspective.

FIELD OBSERVATIONS

In each of the present eight mill areas examples of structures, artefacts and sites were located, viewed, photographed and documented.

The geographical size of the area surveyed was prohibitive both to making an adequate study of the entirety and to conducting truly scholarly field work. It was unavoidable that remarkable examples worthy of and even in urgent need of preservation/restoration were missed.

Geographically the tropical northern district inclusive of Ingham to Mossman is

huge and varied. Historically each district within that area has developed at a different pace and in a characteristic way. Farming techniques and therefore machinery used have also varied from district to district.

The field work attempted was a considerable task for one individual for those reasons and at best only a superficial field survey could be conducted. Field work difficulties encountered were:

a) difficulty of obtaining cognizance of and locating field sites

b) inaccessibility of some field sites

c) distances covered in process of field work

d) danger afforded by farm dogs; and also by snakes where structures and artefacts were encroached upon by vegetation.

e) lack of a field assistant whose assistance would have been helpful on occasion.

Once a structure, artefact or site was located photographs were taken using B/W Ilford FP4 125 film. A survey form was completed on the structure, artefact, and for each individual structure and artefact remaining on a site. The survey form was substantially that devised by Dennis Formiatti for his survey of *Sugar Cane Barracks of Far North Queensland* (1984). It served the purpose but in retrospect could have been improved upon over and above the modifications originally made for this project's purpose. The survey form required a location plan and a sketch plan to be completed where appropriate or obtainable. The survey form was completed using visual observation and where available oral sources.

On return from field work the survey form information was typed up on a clean survey form and the printed photographs attached to the survey form or if numerous

stored in negative preservers and attached to the relevant survey form.

Due to inexperience in use of any photographic equipment and in particular of the sort supplied, a Pentax K1000, the resulting photographs are of varying quality and informativeness.

The completed survey forms were filed into folders inclusive of a geographical area: Herbert River district; Tully district; Johnstone River district; Babinda district; Cairns district and Mossman district.

Where available photographs of machinery in use in the field and structures and sites as they were during the period under study were obtained and also attached to the relevant survey form using pages of protective plastic photograph keepers.

Any additional historical information relevant to the structure, artefact or site was also attached to the appropriate survey form particularly when obtained via an oral source.

Possible inaccuracies, inconsistencies and omissions in field work observations to be noted are due to the field work difficulties encountered.

The method used to conduct the field work was dependent on the hospitality and good will of mill managers, land-owners, and curators and fortune to obtain an *entree* into a particular community whereupon appropriate contacts could ensue.

Bell observes in his report *Vernacular Domestic Architecture in North Queensland Mining Towns* (Bell 1979:21) "Initial impermanence and subsequent decay or prosperity

have almost entirely eradicated the physical evidence of the formative years...". Similarly with the sugar industry very little physical evidence remains of the earliest phase of settlement, say 1872 to 1920s; while a little more remains of the later phase 1920s to 1950s. However for the later part of the latter phase it is more difficult to obtain cognizance of artefacts and cognizance of and *entree* into structures. Much of the mechanical machinery of the period, not of curiosity value like the horse-drawn machinery, has been modified, used as scrap or dumped. Houses built between 1950 and 1955 brought to the researcher's attention and where sighted have undergone such modification in recent times that there is no value to making a record of their existence.

One notable observation is that of houses constructed of concrete in the area, predominantly by Italians, though not exclusively. This type of structure is most evident in Tully and the Johnstone River districts. This regional phenomenon: its origins, characteristics and demise begs further study.

GENERAL SECONDARY SOURCES

Sources with reference to sugar industry structures and artefacts specifically are sparse. *The Australian Sugar Journal* and the *Producers' Review* (later known as the *Australian Canegrower*) however are useful in providing photographs and explanations of earlier machinary at work. The *Australian Sugar Journal* contains advertisements for the early horse-drawn farm machinery which are particularly illustrative as also are the advertisements for semi-prefabricated houses and barracks. The *Producers' Review* (*Australian Canegrower*) includes historical articles. A particularly good series of articles was written by Clive Morton on the history of the mechanical harvester. It also documents the Australian Sugar Industry Museum from its origins through to the refurbishments

carried out in 1988 and on to recent additions to the collection.

Books and journal articles referred to are listed in the bibliography.

Locality and Mill Publications. These give invaluable information regarding the history of a particular mill or locality and of changes that have occurred over the years. They often contain useful photographs.

Local Histories. These are particularly useful for background information on the development of mill areas. Sometimes specific details of the mills, e.g. of initial plant purchases and of the nature of structures, are to be found. Reference is occasionally made to how farmers and workers were housed.

Machinery Manufacturer's Publications. John Deere and International Harvester have both published comprehensive works detailing their mechanical inventions. These are useful in helping to date machinery sighted in the course of field work.

Cane-growing Manuals. Publications such as *The Queensland Cane Growers' Handbook* (1939) and *Manual of Cane-Growing* (1953) are invaluable sources for an understanding of early horse and tractor machinery and their workings. These also contain useful photographs.

Research Papers. Research papers such as Bell's *Vernacular Domestic Architecture in North Queensland Mining Towns* (1979); Frost's *The Queensland High Set House* (1992); and the Department of History and Politics J.C.U. (Cairns Campus) *Pyramid Sugar Mill (Site Report)* (1992) are useful in affording some specific understanding of structural

characteristics.

PRIMARY SOURCES

Archival Sources. The Noel Butlin Archives Centre housed at the A.N.U. affords early reference material pertaining particularly to C.S.R. mills. From the John Oxley Library copies of early photographs are obtainable. The shortcoming of using these sources at a distance is that the totality of what they have to offer can not be fully taken advantage of.

The Hinchinbrook Shire Council's *Local History Anthology* is a useful source for particular reference to the mills of the Herbert River district.

The Dorothy Jones Library, Tully, has compiled an impressive collection of local photographs including many which feature sugar cane field work and housing.

Private Documents. *The Diary of Arthur Neame* is a document of this type perused and affords some information of the building process and style of domestic dwellings of the late 19th century and gives a good description of the workings of a mill both in terms of the mechanical process and life on a mill estate. *The History of Mr Frank Darviza's [sic] cane-farm on the St. Johnstone Road* by R. Scheu is another such document.

Oral Sources. Interviews provide some information about sites structures and artefacts. But unless the person is actually the owner of a structure that has been family property for many years or has actually used the artefact in question their information is of dubious value. Occasionally information regarding a structure had to be obtained by written communication. Information thus supplied was usually scanty and hardly

conclusive.

Photographic Evidence. Whether photographs are obtained from an interviewee or observed in a publication or collection they can provide valuable information as to

a) how a structure or site previously looked

b) a date of construction or manufacture

c) how a particular piece of machinery worked

for example.

USEFULNESS OF THE SOURCES

Perusal of these sources simply yielded additional information or illustration of a particular structure, artefact or site. A complete perusal of issues of the *Australian Sugar Journal* from 1901 to 1955 for example would have been interesting and illustrative but enormously time consuming and hardly of commensurate value for time expended. Similarly specific newspaper articles where obtained e.g. the descriptions of Gairloch and Hamleigh Mills contained in *The Sydney Mail* of October 18 1884 were of considerable value but indepth perusal of newspapers in which references to the tropical north Queensland sugar industry structures, artefacts and sites would have been random did not warrant as Bell observed the "tedious page-by-page searching of a massive quantity of material" (Bell 1979:14) that would have been required.

The perusal of these sources did not facilitate any firm and specific conclusions to be drawn about the style of structures favoured by farmers as domestic dwellings, or help, for example, to reveal a predominant structural style for shed structures.

2. THE BEGINNINGS OF THE QUEENSLAND SUGAR INDUSTRY

In the 1990s the growing of sugar cane is regarded as one of Australia's most important primary industries, evidenced by export sales in excess of $1000 million annually (Canegrowers 1990:1). Now redolent of the North Queensland vista, are stands of pinkly flowering sugar cane, harvest fires, and the smoking stacks and cloying odour of the crushing. Yet when the 'First Fleet' anchored in Botany Bay in January 1788 it carried on board the first cuttings of sugar cane ever to reach these shores. Despite being separated by less than 160 kilometres from New Guinea where indigenous sugar canes flourish, there were no native species of the plant to be found in Australia.

The fate of these imported stalks taken on board at Cape Colony is uncertain (Deerr 1949:188) but apparently a further supply was received in 1817 and consequently an attempt was made to establish a sugar cane industry in the Port Macquarie district on the Hastings River in N.S.W. (Bell 1956:7-8). Captain Allman, Commandant of the Port Macquarie Penal Settlement and James Williams, a negro convict from Antigua, are said to have been responsible for the first recorded cultivation of sugar in Australia (Australian Sugar Museum 1985:9). However, despite scholarly disagreement as to where and how Thomas Scott became involved in this first sugar growing venture, it is he who has been accorded the distinction of being the principal pioneer of the sugar industry in Australia (Deerr 1949: 188). Seventy tons (71 tonnes) of sugar was manufactured in 1823 and in 1826 it was anticipated by Thomas Scott that 200 tons (204 tonnes) would be produced.

However, by 1831 sugar growing and manufacturing at Port Macquarie had

ceased. After the abandonment of this venture, Scott continued experimenting in the cultivation of cane, north of Sydney, on a land grant given to him in recognition of his services to sugar growing in the colony. The Port Macquarie venture foundered in part because inappropriate varieties were grown in climatic conditions unsuited to sugar cane (Australian Sugar Museum 1985: 7-10).

Manufactured sugar, while not an essential food, has been used since the early historical times to render starchy foods palatable. From an exotic and difficult to procure commodity it has become an easily procured and widely used substance. While sugar can be recovered from many plants, by far the most widely used has been that derived from cane (Bell 1956:3). Sugar cane (*Saccharum officinarum Linn.*) is one of a vast family of grasses that includes barley, wheat and rice in its number. This particularly statuesque grass can grow to 3.5 metres in maturity (Wegner 1984:100).

Cane is a resilient crop able to withstand droughts on the one hand and heavy rainfall, short term waterlogging and high winds, even cyclones, on the other. Nevertheless, it grows best in well drained soils and in a climate that is warm and frost-free. The rainfall needs to be substantial and ideally in excess of 1000mm annually. However a period of cooler and drier weather before harvesting is essential to check growth and increase the commercial cane-sugar or sugar content (C.C.S.) (King et. al. 1953:5).

The Port Macquarie plantations were thwarted by the cold climatic conditions and attendant severe frosts. Today the N.S.W. sugar industry centres on the more northern Clarence, Richmond and Tweed Rivers. Cane sugar by nature was found in time to be more suited to the climatic conditions prevailing in Queensland. This has resulted in the situation where today Queensland growers alone produce 95% of Australia's sugar crop

(Canegrowers 1990:1).

Sugar was first grown in Queensland on the Brisbane River in the early 1840s. By 1849, a sugar company had been founded and a small plantation at Eagle Farm was growing sugar cane. Meanwhile sugar cane was also grown in private gardens and in the government Botanic Gardens where an area was designated for its cultivation. Thomas Bowden was brought to the colony specifically for the purpose of growing sugar cane and of manufacturing sugar. He proved unsuccessful. Nevertheless from that plot, in the Botanic Gardens, sugar cane was passed between two steel rollers and the juice then taken to either Mr. Brook's biscuit factory or Mr. Fowler's bakery, both in Queen Street where six pounds of sugar was manufactured. In 1861, cane and rum, grown and manufactured locally, were exhibited at the first Queensland Exhibition.

Mr. John Buhot is given official recognition for making the first granulated sugar in 1862 from sugar cane grown in Queensland and rewarded with a 500 acre (202.5 ha) land grant (Easterby 1932:2). It is Captain the Honourable Louis Hope, however, who is regarded as the real 'father' of the Queensland sugar industry. In 1863 he was provided with 200,000 cane plants by Thomas Scott (Deerr 1949:188) and he planted these on 20 acres (eight ha) of his plantation at Ormiston near Brisbane on which it is said he was occasionally helped by John Buhot. 1865 saw him building the State's first sugar mill, and incidentally the first commercial raw sugar mill in Australia, at Ormiston to crush his cane. His mill was able to manufacture three tons (3.06 tonnes) of sugar a day (Australian Sugar Museum 1985:11). In recognition of his contribution to the infant sugar industry he was granted the right to select 2,560 acres (1,037 ha) of land to be within 30 miles (48 km) of the coast.

From that point the growth of the sugar industry moved swiftly. The Queensland Acclimatisation Society brought in a large number of cane varieties and the Government, under the Sugar and Coffee Regulations of 1864, made land available on very easy terms (Australian Sugar Museum 1985:12). People with no knowledge of sugar cane growing were planting it in the most unsuitable places. By 1867, there were 2,000 acres (810 ha) under cane and six mills which together manufactured 168 tons (171 tonnes) of sugar. Because the emphasis was on the extension of land under cultivation and the growing of cane in those early days, there was for a time a shortage of cane for planting and an inadequate number of mills to handle the quantity of cane produced (Easterby 1932:2-3).

By 1864 cane was already growing well in the Maryborough district. Buhot was sent there that year on behalf of the Victoria Sugar and Cotton Company to obtain cane for the Company's plantation south of Brisbane in the Pimpama area (Kerr 1979:1). Maryborough's first known raw sugar mill was erected in 1866 and Bundaberg's in 1872 (Australian Sugar Museum 1985:12).

By 1870 there were 28 mills operating in the south of Queensland servicing the principal cane districts of the Albert, the Logan, the Moreton Bay area and the Mary and Wide Bay. 2,854 tons (2911 tonnes) of sugar were produced in that year (Australian Sugar Museum 1985: 12).

As in N.S.W. the soils and particularly the climate of the Brisbane area proved to the detriment of a cane sugar industry. A case in point were the farms established in the Brisbane River district between Corinda and Chelmer in the late 1860s. A primitive mill was built, the area underwent expansion and two more mills were erected before finally the endeavour was defeated by three severe winters in succession (Easterby 1932:2-3).

Accordingly sugar growing began to move northwards. In 1868, a fledgling enterprise in the Bowen district came to an end because of what the Bowen Sugar Company (floated in 1865) considered to be "disappointing results". The initiators of this enterprise had failed to realize that the dry climate of the area was a significant impediment (Bolton 1972:73). Sugar growing was also attempted at Townsville by Robert Towns. Likewise, he was defeated by the unsuitably dry climate (Kerr 1979:2).

It was in Mackay in June 1867 that the first raw sugar in North Queensland was produced at the Pioneer Plantation Mill. John Spiller had established this plantation two years earlier. Though a primitive mill at first it was later improved and went into continuous production (Bolton 1972:73). It was at the Alexandra Plantation owned by T.H. Fitzgerald and J. Ewen Davidson, however, that the commercial possibilities of Mackay grown sugar were proven in 1868 when 110 tons (112 tonnes) of sugar were produced in seven weeks of crushing. The Mackay sugar industry gained impetus after that and by 1874 16 mills was crushing cane from 4,927 acres (1995 ha) of cultivated land (Bolton 1972:74).

The Herbert River Valley was to be the first far northern district to see land taken up for sugar cane cultivation with the consequent successful establishment of crushing mills. J. Ewen Davidson had pre-empted this in 1866 with his sugar plantation on Bellenden Plains, north of Cardwell. Located on a floodplain of the Murray River the plantation was abandoned in 1873 (Frost 1992: 40; Jones 1961:120-132).

As the Herbert Valley was opened up by cattlemen sugar experimentation quickly followed with 5,000 acres (2025 ha) already taken up to grow sugar by 1870. Over the next two decades the land area under sugar expanded rapidly. Among the first people to

select land in the Herbert Valley, with a view to cane sugar growing was a Scottish family by the name of MacKenzie. They named their selection Gairloch and their Gairloch Mill first crushed in 1872 (Jones 1961:145). Besides the Gairloch Mill, there were Bemerside (1873), Hamleigh (1881) Macknade (1874), Ripple Creek (1882) and Victoria (1883).

In 1866, while J. Ewen Davidson was establishing his Bellenden plantation, a company was formed to grow sugar in Tully and a mill was built on the Murray River. The dismantled plant may have been transported to Mackay where it was re-erected as the Alexandra Mill (Easterby 1932:123). Sometime between 1879 (Fallon 1990: 66) and 1881 (Moore 1975:unpaginated) James Tyson (a millionaire pastoralist) and two other men, Isaac Henry and Hewitt, acquired 20,000 acres (8,100 ha) at Tully. They planted 150 acres (60.75 ha) of cane, imported labour and planned a mill. The venture was later abandoned and it was not until 1925 that a mill in the Tully district, the Tully Mill, began to crush. A co-operative mill, it was at one time the largest in Queensland (The North Queensland Register 1933:26).

T.H. Fitzgerald who brought Mackay into prominence as a sugar growing area and then whose plantation succumbed to the "rust" outbreak of 1874 to 1875 is next credited with founding the sugar cane industry on the Johnstone River. The coast north of the Herbert had been pioneered by beche-de-mer fishermen and cedar-getters and selections on the Johnstone River had been taken up by Heinrich Scheu and Leopold Stamp (Bolton 1972:138). In 1873 a government sponsored expedition led by G.E.Dalrymple had been charged with the task of assessing the rumoured riches of the north by making a detailed study of the coast line from Cardwell to the Endeavour River. The expedition was also to attempt to find a suitable port to service the Palmer goldfield (Collinson 1943:261). In 1879 Fitzgerald made investigations of his own from the

Daintree to the Johnstone Rivers and confirmed for himself the findings of the earlier Dalrymple expedition. He arrived on the Johnstone River on April 23, 1880, and selected 10,000 acres (4,050 ha) on the north and south sides of the river to form the Innisfail Estate (Fallon 1990:62). The Innisfail Estate Sugar Mill first crushed on November 9, 1881. The Queensland Sugar Company's Innishowen Mill on the Queensland Estate commenced crushing in 1883 (Easterby 1932:87-88). In 1885 C.S.R's Goondi Mill commenced operations, the Mourilyan Mill first crushed in 1884 and the South Johnstone Mill did not commence until 1916. It was built as a result of the report of Sugar Royal Commission of 1911 which had recommended the establishment of central mills at South Johnstone and Babinda (Easterby 1932:44).

In September 1876 a route was hacked along the rain forest ranges from the Hodgkinson townships to Trinity Bay and a new settlement was founded, Cairns. The first sugar mill in the district, the Pioneer on the Hap Wah (Hop Wah) Plantation with 160 acres (65 ha) under cultivation, first crushed in 1882 (Collinson 1943:261). In 1881, the principals of a Melbourne firm of flour millers and biscuit manufacturers, Thomas Swallow and F. T. Derham, selected land six miles from Cairns. Their mill, the Hambledon, began crushing in 1883. J.B. Loridan from Bendigo arrived in the district in 1882. He took up land in the Mulgrave valley, called it the Pyramid Estate, and built a mill there. This mill first crushed in 1884 (Q.S.C.G.C. 1965:20). The Sugar Works Guarantee Act of 1893 facilitated the establishment of central mills by providing that a community of farmers could raise money by debentures in order to erect a central mill (Bertei 1959:8). This resulted in the building of the Mulgrave and Mossman Mills. The Mulgrave Mill, the first provisional directors of which were men who had actually pioneered the district, first crushed in November, 1879 (Collinson 1943:263).

After Dalrymple's discovery of the Mossman River in 1873, the district was first opened to settlement in 1877 when Christie Palmerston forged a track to the coast to improve the dray road to Trinity Bay. On December 1, 1877, Port Douglas was proclaimed a port (Kerr 1979:8). Selections were soon taken up along the Mowbray River close to the road. On some of these selections sugar cane was grown only as an adjunct to other more marketable crops. Meanwhile John Spiller of Pioneer Plantation, Mackay, impressed by the district's potential for sugar cane growing, sent up to selectors 14 varieties of cane for experiment. In 1882, Harriet Parker of Victoria obtained title to a tract of land on the west side of the South Mossman River to create Mossman's first plantation and mill, Brie Brie. The mill first crushed on September 5, 1884, and operations continued until 1888 when the mill was abandoned (Kerr 1979:10, 25-26). Like the Mulgrave, the Mossman Mill was built under the Sugar Works Guarantee Act of 1893. It first crushed on August 23, 1897.

The most northerly mill ever constructed in Queensland was on the Bloomfield River 25 miles south of Cooktown. In June 1882 Frederick Bauer and his brothers selected most of the best land near Weary Bay on the northern side of the Bloomfield River, calling their plantation the Vilele (Kerr 1979:21-22), also spelt Villele (Fox 1923:682-683). The area had already been visited by cedar getters and William Hann's expedition into the Cape York Peninsula in 1872 (Bolton 1972:51). Bauer was experienced in sugar growing having been a major shareholder in the Pimpama Sugar Company formed in 1865. He was now manager of this enterprise of the newly floated Bloomfield River Sugar Company. A large mill, capable of crushing 2,000 tons (2040 tonnes) of sugar per annum, was built. It first crushed in 1884. It never crushed to capacity and was "hopelessly uneconomic". By 1890, it had ceased to operate. Interestingly, the mill was dismantled and transported to the Isis to operate as the Knockroe Mill until it too was in turn

dismantled. Some of it may have gone to Hambledon Mill (Kerr 1979: 21,25)!

Other attempts to grow cane in even more northerly districts, such as on the McIvor and Bizant Rivers, were defeated by the fact that the climate was unsuitable, the area being subject to long periods of dryness and drought (Kerr 1979:19-21).

The Sugar Works Guarantee Act of 1911 enabled the establishment of the Babinda Mill, another co-operative mill, at Babinda, 36 miles (58 km) south of Cairns. The building of this was to be financed by the Government. Erected in 1914 it first crushed in 1915 (The North Queensland Register 1933:25).

The maximum number of Queensland mills to operate in the late 1880s was 166. They crushed a combined 59,000 tons (60,180 tonnes) of sugar per annum. By 1955, 31 mills, 10 of them north of Townsville, were in operation and crushed 1,301,245 tons (1,327,270 tonnes) in the 1954/1955 season (Bell 1956:9-10) The growing of sugar cane was described at that time "as the largest agricultural undertaking in the State" ranking Australia as "seventh in the scale of world sugar producers." (Taylor 1954:28)

From Captain Louis Hope's time the plantation centred system of growing, milling (and sometimes even refining), prevailed until the late 1880s when with changes in legislation, particularly the Sugar Works Guarantee Act of 1893, central mills were erected and small cane growers were able to farm profitably. By the 1950s the average sugar cane farm size was 53 acres (21.5 ha) (Taylor 1954:28).

The intervening years saw remarkable changes and progress in the way sugar cane was cultivated and milled. Sugar growers' and workers' lifestyles and living standards

changed. So too did the nature of sugar field labour as the last of the Pacific Island labourers, so reminiscent of the plantation era, were expulsed and it became accepted that white men could indeed live and work in the tropics.

Today sugar cane grows along a coastal strip, nearly 2,000 kilometre long from the New South Wales border to the Daintree in North Queensland. Cane cultivation, in good part, has been responsible for the opening up and settlement of this area by Europeans, providing a unique way of life and work.

3. THE SIGNIFICANCE OF THE QUEENSLAND SUGAR INDUSTRY

As the history of Queensland is sometimes told, if it had not been for sugar cane, white men might still be skirting the fecund and steamy tropical coastline, wary of its fevers, native inhabitants and mysterious rainforest impenetrability!

An amusingly self-conceited notion no doubt but certainly, at first, the profit of exploration was good pastoral country stretching out behind the rugged ranges hugging the coast. Ludwig Leichhardt on his expedition of 1844 to 1845 viewed the Valley of Lagoons behind Cardwell favourably because it had "all the elements of a fine pasturing country ... here united ... Finer stations for the squatter cannot exist". He gave perhaps a too ebullient prediction of the promise of such remote areas (Bolton 1972:11; Allingham 1988:9). But while good pastoral country was still available closer to the settled areas in the south-eastern corner, north Queensland remained undeveloped.

Undocumented journeys were no doubt made into northern Queensland by squatters hungry for land and others searching for the mineral riches the land might yield. One such journey was probably made by Christopher Allingham in 1851 or 1852 from Armidale where there was much interest in northern settlement (Bolton 1972:14; Allingham 1988:11). He did, in fact, establish a property, Hillgrove, on the Burdekin, as soon as the land was opened in 1861. He was also to select land on Palm Creek in the Herbert River district (Bosworth 1990:27). However, it was not until 1 January, 1861, that the new Queensland government opened up the Kennedy district for selection, a decision which followed the return of George Elphinstone Dalrymple's expedition north to the Valley of Lagoons with his report that the land he saw was "undoubtedly capable of becoming one of the finest and largest pastoral and agricultural regions of Australia"

(Allingham 1988:11).

Settlement and development of the more northern areas of Queensland was seen as requisite to economic productivity and growth. In 1859, Queensland's population of 25,000 was concentrated mainly in the south east corner while primary industry was Queensland's major source of revenue. With much of the State's 668,497 square miles (1,731,407 square km) unexplored and therefore undeveloped it was an obvious priority for the government to unlock the one resource it had in abundance as quickly as possible. It was envisaged that, as elsewhere, the pastoral expansion would be followed by mining discoveries and that the population attracted and capital generated would enable a tropical farming industry to develop on the coastal lands (Allingham 1988:12-13).

Certainly it was the discovery of gold west of Townsville in the years 1867 to 1869 that bolstered the struggling Kennedy pastoralists whose original optimism for the area had not yet been justified. The durability of some later finds, such as those at Charters Towers, meant that facilities such as roads, railways and telegraph were constructed, and whole families were attracted to the districts. New service centres grew up to meet their needs, providing amenities such as schools and churches (Allingham 1988:204-205).

Where, for some time the Kennedy had not been attractive, now that the economic prospects of the northern graziers had vastly improved, settlement and investment once more took off (Allingham 1988:208). The population of the entire Kennedy district population grew from 86 in 1862 to 4,955 in 1868. After the discovery of gold it soared so that by 1876 the population was 27,489 (Allingham 1988:224).

However, in this buoyant era it was not only grazing that attracted outside investment but also sugar. The growth of the north Queensland sugar industry was spectacular. In 1878 less that half of Queensland's sugar was grown in the north, but, by 1885, two-thirds was grown there. As the timber-getters cleared the heavy stands of forest along the northern coast, speculators encouraged by good sugar prices followed, taking up large tracts of land in the coastal valleys in order to establish plantations (Bolton 1972:135). While the land was tied up by these speculators there was no room for the small farmer, and while the plantation system held sway he had no way of having his cane milled anyway. However, the days when each planter could mill his own crop were fast coming to an end; technological advances were such that milling required substantial capital.

While the Land Acts of 1876 and 1884 had opened up land in the sugar districts to the small farmer, it was the introduction of the central milling system which enabled him to cultivate sugar. In 1884, the C.S.R. Company, which had already introduced the system in northern N.S.W., made agreements with small growers in the Lower Herbert to accept their cane for crushing. After 1885 the Government's central mill system facilitated the establishment of mills on a co-operative principle. Consequently, land holders were able to mortgage their holdings to the Government who would build and run the mills until the capital expenses were paid. The mills were then handed over to the farmers to be run as co-operatives. This signified the end of an era. As the plantation economy disappeared, farming and milling were evolving into two separate enterprises, the plantations being partitioned up and smaller farms created (Bolton 1972:14, 153-154).

With the decline of mining as lodes were exhausted after the turn of the century, agriculture, primarily sugar growing, became the basis of the north east Queensland

economy. It was firmly believed at that time that nothing else could be profitably grown on the north coast (Bolton 1972:311). Many ex-miners bought land in the sugar districts and commenced farming. North Queensland was becoming populated by small land holders who were proving that white men could live and work in the tropics and stay healthy. The implementation of a 'White Australia Policy' had resulted in the removal of all Kanaka labour whose recruitment had ceased in 1904.

The tropical area, largely underpopulated and defenceless, was of considerable concern to the new Commonwealth Government and was seen to require the establishment of industries in order to populate and safeguard the area. Consequently, the sugar industry was regarded as requiring government protection in order for it to "continue to contribute to the problem of settlement and defence of the northern portions of Australia" (Bolton 1972:303, 309). Proponents of such protection had even argued that sugar was an "investment in defence" (Bell 1956:22). Bell goes so far as to argue that the Australian and United States forces were able to repel the Japanese because the vulnerable north east coast, luckily developed by sugar farmers, was able to be used as a springboard, and their equipment and the facilities normally used to service their industry were able to be commandeered for the war effort (Bell 1956:22)! Such arguments were at the same time a justification for protection, which, incidently, was not bestowed on any other tropical crop.

It was also seen to require protection because it was competing against sugar grown elsewhere with coloured labour. For that reason it was accepted that in order "to develop a stabilized tropical agricultural industry" protection of the industry was required. It was commonly concluded that had it not been for the sugar industry "the long tropical coastline of Queensland would have remained undeveloped" and the land used for

nothing else but grazing cattle (Bell 1956:21)! Writers of the period also attest that the coastline would not have been settled by white people at all if it had not been for sugar: "Sugar... is the mainstay of intensive white settlement in North Queensland" (Simonett 1954:28) or "The sugar industry ... supports a thriving and increasing white population in the north ... Without sugar a large proportion of our important north-eastern coastline would be only sparsely populated" (Taylor 1954:28). Demographically and politically then, there appears to be no argument that the sugar industry has been of considerable significance.

By 1955 a large proportion of the population living in tropical Queensland was dependent on the sugar industry. Of the State's then population of 1,200,000, approximately 300,000 or 25% lived in the tropical north and were directly or indirectly supported by sugar cane production. Simonett calculated that in 1954 sugar accounted for about half of the gross value of agricultural production in Queensland and that a good part of that was derived from the sugar grown in tropical north Queensland which produced 80% of the entire Australian crop. Within the area encompassed by this study, Mossman to Ingham, "the equatorial frontier of cane farming" as Simonett calls it, the Cairns-Tully area alone produced more than one quarter of the sugar milled in Australia in the 1950s (Simonett 1954:223). By 1955, mainly because of the sugar industry, all the necessary infrastructures such as harbours and port facilities, railways, roads, airports and telecommunications were in place to service both it and the communities it supported. Obviously, the sugar industry had become essential to the economic well-being of the State and even the nation.

The Queensland sugar industry was established from the outset along the lines of the colonial plantation system and remained reliant for 50 years on imported servile

labour: Malays, Japanese, Javanese, Chinese and Melanesians (Kanakas) for example. The major justification for the continued use of such labour was that white man could not sustain hard physical labour in the tropics without "complete collapse in health" (Roberts 1959:9). With Federation in 1901, a 'White Australia Policy' was implemented however, and the use of coloured labour became an Australia-wide issue. As a result, in Queensland, the importation of Kanaka labour was brought to an end and simultaneously other sources of imported labour became unavailable. While it had already become obvious that white men could live and work hard in the tropics, there still lingered, even into the 1950s, a belief that there were certain national types more suited constitutionally to work in the tropics, namely Southern Europeans.

At the time when the importation of Kanaka labour was being phased out, the importation of Italian labourers met a part of the labour shortfall. In 1891, 335 Italian immigrants were imported as agricultural labourers by a Townsville businessman, C.V. Fraire, who went to Italy with Government backing to recruit them. Of these 266 were sent to work as canecutters futher north. Thus began a chain of Italian migration over the next 60 years that was to result in a strong Italian presence in the North Queensland sugar belt. Between the war years Italian migration was once again encouraged in order to fill severe labour shortages in the North Queensland sugar industry. By 1925, there were 2,000 Italians in Queensland. What is significant is not their numbers but the fact that by that time they had managed to buy farms to such an extent that they represented "1/3 of the entire register of cane farms" (Cresciani 1985:39). Wegner attributes their success to the fact that in the earlier period other farmers were eager to sell their farms "because of the uncertainties plaguing the industry" (Wegner 1984:153). As a result Southern European migrants held 40% of cane assignments in the early 1950s and were a significant proportion of the canecutting labour force (Wilson 1953:191). Hempel, in *Italians in*

Queensland (1959), goes so far as to suggest that the spectacular growth of the sugar industry in Queensland in the first half of this century was related to the Italian immigrants. Even so, as Bolton notes "there were those who feared that their settlement might in some way compromise the ambition of developing Australia's tropics as an outpost of national security (Bolton 1972:310).

In 1948 to 1951 approximately 2,000 displaced person migrants, contracted for two years to the Commonwealth Government, were directed to Queenland's canefields to labour as canecutters. Soon after many more Italian migrants arrived, also contracted to cut cane for two years, in Queensland and New South Wales there being difficulty attracting local labour to the industry. The sugar industry has been responsible for attracting people of many nationalities other than Anglo-Saxon. Besides Italians there were also, Spaniards, Maltese, Yugoslavs and Finns. This has determined the nature of whole communities, physically and culturally. Occasionally their influence can still be seen in structures of the period, for example, the Canecutter Monument erected by the Italians of the Innisfail community, or Jose Paronella's Spanish Castle at Mena Creek. Their influence is also discernable in the building materials used in the structures.

The Queensland sugar industry has generated a considerable body of fictional literature written by both migrants and native-born Australians alike. This literature depicts life in the canefields, particularly from the canecutter's perspective. It has fulfilled the valuable function of immortalizing a way of life and labour that no longer exists and before too long will no longer be remembered (Vidonja Balanzategui 1985:83). Fortunately many of these works give graphic descriptions of the structures that were lived in, particularly barracks, and of equipment used in the canefields. Naish's books, *The Cruel Field* and *That Men Should Fear*, Devanney's books, *Sugar Heaven* and *By Tropic Sea*

and Jungle, and Donaldson, Joseph and Braddon's book, *Cane!* are particularly valuable in that respect while Andrew's play, *In the Shadow of the Dinosaur* describing reactions to the first mechanical harvesters is a unique piece of writing. More recent non-fictional works such as Burrows and Morton's *The Canecutters*, Vidonja Balanzategui's *Gentlemen of the Flashing Blade* and Kerr and Blyth's book *They're all Half Crazy* provide more scholarly descriptions of life and work in the canefields and the associated structures and equipment. However while these descriptions of the 'material culture' of the Queensland sugar industry contained in both fictional and non-fictional work are invaluable they are an insufficient record given the magnitude of the Queensland sugar industry and its importance to the nation.

The Australian sugar industry generally has evolved distinctive structures and equipment over time, together with regional variations. These structures and equipment have never been surveyed and documented and as the industry undergoes technological changes, mills close, unused structures collapse, are destroyed by cyclones or are removed, and former farming land is absorbed into suburbia, any possibility of restoring or preserving, let alone sighting and documenting is lost forever.

4. THE SUGAR GROWING DISTRICTS OF TROPICAL NORTH QUEENSLAND: HISTORY AND STRUCTURAL SURVEY

THE HERBERT RIVER

The first mill to commence operation in the Herbert River District was the Gairloch Mill in 1872. Today two mills continue to operate, both C.S.R. owned: Macknade and Victoria. In 1992 these mills crushed a combined 3,398,430 tonnes of cane supplied by 740 growers (Canegrowers 1992:19).

Of all the northern mill areas the sugar cane grown on the Herbert River had the highest C.C.S. for that year. The Herbert River district is ideally suited to sugar cane growing and the district's industry is a viable and expanding one, not only because new land is being opened up to sugar growing but because there has been an increased interest in irrigation and greater emphasis (with the prompting of the research of the B.S.E.S. into soil quality and characteristics of the individual farms) on a correct application of fertilizers. Hence farmers are growing heavier crops on old land.

The establishment of seven sugar cane mills was attempted in the Herbert River district: Gairloch, Ripple Creek, Bemerside, Hamleigh, Ings, Macknade and Victoria. Of those, Ings never operated; Gairloch, Ripple Creek, Bemerside and Hamleigh no longer operate; and Macknade and Victoria are still in operation. All but the former Bemerside Mill site were viewed by the researcher.

Structures on 35 farms were viewed and two public collections of machinery were viewed: that of Peter Hansen, Black River and that of Hec Masters, Abergowrie.

Gairloch Mill was set up by the Mackenzie family, and after a checkered history was closed in 1886 with land being sold to the Ripple Creek Mill and horses, plant and tools to the C.S.R. Company (Easterby 1932:97). Ripple Creek Mill was owned by Wood Bros. and R.M. Boyd. It comenced operations in 1882 and on its closure in 1910 cane from the former plantation went to C.S.R.'s Macknade Mill. Purchased by C.S.R. in 1897, Macknade Mill was first established by the Neames, Arthur and Frederick and the Wallers and first crushed in 1874. Bemerside Mill, erected by the partnership of Fern Haig and Henry Miles began trial crushing in 1873. In 1882 it ceased operations as a separate plantation and was taken over by Gairloch Mill (Herbert River Express January 11 1992:6-7 and January 18 1992:7). Hamleigh Mill owned by the Hamleigh Sugar Company first crushed in 1883 and was sold to C.S.R. in 1900 on its closure. Ings Plantation was owned by William Bairstow Ingham after whom the town of Ingham was named. Arriving in the Herbert River Valley in 1873 he set to to build up a plantation. Work on a mill commenced but the 1875 to 1876 sugar price drop and the catastrophic rust disease outbreak thwarted his endeavours (Herbert River Express January 11 1992:6).

All the Herbert River mills were set up during the plantation era including that of Victoria Mill established by the C.S.R. Company in 1883 in its first foray into growing sugar cane in Queensland enabled by the C.S.R. Company's Act of 1880 (Wegner 1984:13). The plantation era came to an end in 1885 to 1886 when the Queensland plantations which were inefficient and over-capitalized were "brought to ground by competition from" the European beet sugar industry which conversely was efficient and technologically

advanced. All but two of the Herbert River mills thus ultimately faltered. Those that did survive were C.S.R.'s Victoria which from the start had been established "using the best milling technology and machinery available" and Macknade which Arthur Neame sold to C.S.R. in 1897 (Wegner 1984:112, 1119, 125). Consequently, attempts were made to divorce milling and growing by settling small farmers on the former plantation lands, the mills to be retained by the planters. The attitude to the use of non-white labour both of government and the labour movement also reinforced this change (Wegner 1984:119-120).

The Gairloch Mill and the Ripple Creek Mill offer the most scope for documentation and preservation of any of the defunct 19th century mill sites. Not only is one entire structure remaining on the Ripple Creek Mill site but on the Gairloch site can be found machinery footings, mill machinery and plantation field machinery. The histories of these two mills reflect all the turmoils facing the early plantation mills: fluctations in sugar prices, outbreaks of sugar cane diseases such as 'rust', consequent tightening of credit by banks and investors, locust plagues, the Acts prohibiting the importation of Kanaka labour and subsequent federal disapproval of the employment of other non-white labour. Ripple Creek Mill, the longest operating of the now defunct Herbert River district mills, finally foundered on the latter. Robert Shepherd wrote of Ripple Creek Mill:

> "Strangely, Ripple Creek had come nearest in reality
> to the dreams of the first planters, though it was
> the last plantation to be put underway. In its
> comparative isolation, employment of Asians,
> refining of its own sugar and so on it came closer to
> the ideal of the pre-civil war plantation of the American
> deep south" (The Herbert River Express February 27 1992:7)

As elsewhere no structural evidence remains here of the Kanaka presence. Similarly nothing remains to remind us of the contribution of the other non-European

peoples who were indentured to work on the plantations in the early days of the industry.

Envisaging that suitable European labour might be imported to replace non-white labour, Italian immigrants were brought out to work in the cane fields. In the 1930s Italians had become the dominant nationality in the Herbert River district with Italian farmers outnumbering others (Wegner 1984:154).

The penchant for the use of concrete and brick in North Queensland in domestic architecture can be hypothesized to have had its origins with the Italian migrants. Structures constructed of those materials were viewed in the Herbert River district.

The expansion into Abergowrie with soldier settlement in the 1950s and the duplication of Victoria Mill was a response to international events, one being the post-war demand for Australia's sugar. The 1949 agreement with the U.K. Government meant that physical expansion of the Australian industry was required if the new demand was to be met (The C.S.R. Company Ltd. 1953:67).

Progressive developments over the years: the development of the tramway system and the discontinuation of the use of the Herbert River and its wharves by mills for the transport of goods and sugar; the opening of the bulk-handling facilities at Lucinda; the introduction of mechanical processes including that of harvesting have meant that many structures have become redundant and have disappeared or are presently deteriorating and in threat of demolition, e.g. canecutter barracks; stables and smithies; riverside wharves, earlier port facilities; and mill structures and machinery. Until the 1950s the canefarms of the Herbert River district were substantially worked by horses. Having

become available in the 1920s by 1939 there were 467 tractors working in the Herbert River district while mechanical loaders became widely used in the early 1950s (Wegner 1984:149). Earlier sheds for that reason have been replaced by larger sheds which could accomodate the size of the mechanical machinery. Some good examples of older style sheds however can still be sighted.

Dwellings too reflect the changes of time and fortunes. Houses of plantation style architecture and proportions, small farmer dwellings of timber and/or of concrete Italianate style and the fibrolite clad dwellings of the 1950s are all to be seen in the Herbert River district.

The two private collections include an impressively wide variety of horsedrawn machinery and restored tractors and other vehicles.

TULLY DISTRICT

Further north in Tully though earlier attempts had been made to establish a mill, one by Ewen Davidson and another by James Tyson, it was not until 1925 that a mill, the Tully Sugar Mill, commenced crushing. In 1992 the mill crushed 1,399,178 tonnes of cane supplied by 237 growers (Canegrowers 1992:19). Today the Tully sugar industry receives serious competition for land and labour from the banana industry which grossed $59,890,000 compared to $33,193,000 gross value - at the farm gate for sugar in the 1991/1992 period (Cardwell Shire Council 1991/1992:5). Tully Sugar Mill was viewed by the researcher as were structures on 19 farms.

Ironically it was banana growing which was the principal rural industry along the

Tully River in the earliest days of settlement. A handicap to this early industry was the lack of transport and it was not until the meeting of the north coast railway links, north and south, in 1924 that a sugar mill could be feasibly established at Tully (Moore 1975:unpaginated).

Each time a Royal Commission (1911, 1922), Board of Inquiry (1915) or Premier (1922) visited the Banyan-Tully area the settlers did everything they could to impress the visitors of the need for a mill in the area. It was not until 1922 with the passing of a new Sugar Works Act and the adoption by the Theodore government of the 1922 Royal Commission's findings that the prospect of a mill looked certain.

The mill began crushing in 1925 and operated under the Sugar Works Act of 1922. In 1931 a ballot among growers overwhelming voted for the mill to forthwith operate as a co-operative and consequently the mill suppliers took over the operation of their mill from the government (Moore 1975:unpaginated).

The Tully Mill was the last mill in North Queensland to be built but prior to its opening some cane was already being grown in the Tully area, being sent to the South Johnston and Giru Mills.

Soldier settlement blocks were opened up in 1922 with the specification that the cane grown was to be crushed at the South Johnstone Mill. The area so opened up was named El Arish. When the Tully Mill began crushing in 1925 their cane was transferred to that mill (Jones 1973:325-326).

The structures sighted dated from that settlement in 1922 with a soldier settler's

cottage constructed in 1922 being the oldest structure actually sighted. Of the other structures most dated from around 1925 obviously built in anticipation of the mill being opened or consequent to its opening once it has become a certainty.

The changes in mill structures reflect the general trends. Technological advances in the 1930s and 1950s warranted replacement of some machinery. In the 1970s with advanced technology bringing about more mechanization and automation resulting in less labour being required many of the older facilities such as single men's barracks and refectories became redundant and either used for other purposes or removed. Likewise staff houses too were sold off (Kerr 1979:80-81).

Concrete houses can also be seen in this area as can concrete (in posts; and floors with colours added) incorporated into the traditional wooden high-stumped structures.

JOHNSTONE RIVER DISTRICT

There have been five mills in the Johnstone River district: the South Johnstone and the Mourilyan Mills which still operate; and the Goondi, the Innisfail and Innishowen Mills which no longer operate.

In 1992 the Mourilyan Mill crushed 952,008 tonnes grown by 233 growers while South Johnstone Mill crushed 1,025,108 tonnes grown by 235 growers (Canegrowers 1992:19). While sugar is still considered the economic base of the district the banana industry has grown substantially in the last years. For instance while total cane revenue for the district was valued at $55 million in 1992, banana revenue was put at $50 million in

1992 with more than 44% of North Queensland banana growers located in the Johnstone River area (Graphically Speaking 1993:4-5).

Bananas have been grown in the Johnstone River area since the earliest days, particularly by the Chinese who established an industry supplying southern markets. The rich river alluvial land of the Johnstone was particularly suited to this industry and a river frontage was considered mandatory as the bananas had to be punted downriver for loading on the waiting ships (Jones 1973:247-248). Much sugar land was first cleared by the Chinese who grew bananas on the land until such time as the leases were terminated and the land resumed by the landowners.

Today the horticultural industries such as bananas and pawpaws are again taking hold "because of the major downturn in the sugarcane industry caused by bad weather and low world price" (Graphically Speaking 1993:4).

Structures and artefacts were viewed on 23 farms in the Johnstone River district with two former mill sites being sighted, and two functioning mills being visited. A public collection, the Australian Sugar Industry Museum, was also visited by the researcher. The Museum is the only one of its kind in Australia of which entire exhibits are those illustrative of the sugar industry.

The Innishowen Mill first crushed in 1883. By 1891 the mill had crushed its last cane. Today little evidence of the mill remains. The researcher understands that nothing today of the Innisfail Mill is to be seen. It first crushed in 1881 but had a very short life with its successful operation already questionable in 1884 and having closed by 1885. Though said to have worked "...on economical principles..." and to have "...produced a

wonderful crop of grass" the Innishowen Mill apparently struggled "against falling prices and rising wage costs in the midst of the Griffith's anti-kanaka legislation..." (Jones 1973:140). Similarly, possibly because of falling sugar prices (Birchley 1986:9) but more likely according to Jones because of underinvestment by Fitzgerald, the Innisfail Mill apparently only crushed for four seasons (Jones 1973:124-125). Thereafter the cane from the Estate was crushed at Goondi Mill (Jones 1973:146, 252).

In 1882 the Colonial Sugar Refining Company purchased land in the Johnstone River area. It was enabled to do so by the Colonial Sugar Refining Company's Act of 1881 as much of the land was already conditional selections. A mill was not originally planned for the estate (named Goondi by it first Manager, C. E. Adams) but that cane would be sent to the Innisfail Mill for crushing. Due to the uncertain future of that mill Goondi built its own. Goondi Mill first crushed in 1885 and finally ceased to crush one hundred years later in 1986, a victim of the C.S.R. Company's changing interests (Birchley 1986:10-11). Little of significance remains today on the site.

Set up by the Mourilyan Sugar Company, Mourilyan Mill first crushed in 1884 and still crushes today. In a demographic sense construction of the Goondi and Mourilyan Mills was vital to the settlement of the Johnstone River district for with "their extensive building programmes and acreages [they] introduced many people to the district who were to remain for the rest of their lives, their descendants still living there" (Jones 1973:147).

The South Johnstone Mill was constructed under the Sugar Works Guarantee Act of 1911 and first crushed in 1916. In 1927 it became a co-operative under farmer control, forthwith referred to as The South Johnstone Co-operatiave Sugar Milling

Association Ltd. Unlike the Mourilyan Mill the South Johnstone Mill appears to have retained little in structural terms from its earliest days. The 1960s witnessed a largescale refurbishment (Ken Whereat pers. comm.:15 January 1993). The adjacent little township of South Johnstone with the tramline running through its main street remains in appearance and feel much as it did in earlier days however.

In 1883 work began on the tramline to Mourilyan Habour where a wharf and storage shed would be built. Around these a township grew up. In 1921 further work was carried out with the wharf being extended for deep water harbourage, two large sheds were erected to store sugar and rails were laid along the wharf front (Jones 1973:370). Sugar was lighted from there to Cairns where it was transferred to ships. In 1958 work began on converting the harbour facilities to a bulk loading terminal (Jones 1973:373).

Use was made too of the river to transport sugar from river sites such as that of Goondi Mill wharf. In June 1893 the Adelaide Steamship Co. Ltd. commenced operations in North Queensland being contracted by C.S.R. Co. Ltd. Using lighters and small steamers it would lighter cargo from shallow water ports to deeper water where larger vessels would be anchored (Jones 1973: 295). The river wharves were important ports of call along the route taken by the Adelaide Steamship Company lighters between the Johnstone River, Townsville and Cairns. This practice of shipping the raw sugar directly from the mills' riverside wharves was referred to as "sold on the river bank" and started with the Innisfail Estate Mill in 1881 and continued until the final loading of raw sugar from the Goondi Mill wharf on April 9 1960 (Lack 1961:626).

Italians first came to the Johnstone River district via the Herbert River in the 1890s and appear on lists of Goondi tenant farmers in that period. In 1907 or 1908 large groups

of Italians came to the area to cut cane and by hard work and cooperation with their compatriots managed to acquire farms (Jones 1973: 303). Further migration in the 1920s and 1950s increased their numbers. Today not only is their imprint to be noted in houses, barracks and sheds, which illustrate their penchant for and skilful use of concrete, but their contribution to the sugar industry is recorded by a public monument - the Canecutter Memorial unveiled in 1959.

Spaniards too migrated to the district mostly initially as canecutters. One, Jose Paronella, who took up a selection at Mena Creek, built his Spanish Castle which today as Paronella Park stands in ruins but continues to be visited by tourists.

Of the earlier plantation workers, the most significant being the Melanesians, no structural evidence remains though the Australian Sugar Industry Museum does acknowledge their role with its Kanaka hut display.

The Johnstone River district has been visited by many severe cyclones, among the worst being that of 1918. Ferociously destructive, it resulted in considerable loss of life and extensive damage to property. "Not a building escaped damage", "The sugar mills were shattered" records Dorothy Jones (1973:319-320). It has to be accepted that most of the older structures still standing today are not the original ones, these having fallen victim not only to such extremes in climatic phenomena as cyclones but also to the wet tropical climate of the Johnstone River district. Where older style structures are still in use vigorous endeavours have usually been made to ensure that these destructive elements: termites, moisture, and weathering are combated by various means. In domestic structures, for example, wooden stumps are replaced by concrete or steel; wooden exteriors are clad in zinc alum; verandahs are enclosed; roof lines are altered;

breezeways and vents are replaced by fans and airconditioning. All such efforts while saving the structures destroy the original appearance and character.

A mention is made of fires by Jones who offers an interesting possibility for the disappearance of not a few older dwellings. She writes "So frequent were they that 'cash sales' was the northern term for Innisfail fires - whether deserved or not. In 1929 not only public buildings but farm houses fell victim to these 'cash sales'" (Jones 1973:360).

The history of the Johnstone River tramway system has been well covered in Armstrong and Verhoeven's *The Innisfail Tramway* (1973) and makes a very interesting story inseparable from that of the Johnstone River settlement itself. Very little remains of the original structures associated with the tramway such as bridges and barracks for mill locomotive crews. Of interest however is the tank used to fill steam trains which still stands near Daru Creek as a rare reminder of the way things were once done.

BABINDA DISTRICT

Babinda just north of the Johnstone River district has 287 growers who sent 1,061,301 tonnes to the mill to be crushed in 1992 (Canegrowers 1992:19). One mill site was viewed by the researcher and structures on 10 farms.

The Babinda Mill first crushed in 1915. Like the South Johnstone Mill it was constructed under the Sugar Works Guarantee Act of 1911. The extension of the Mulgrave Tramway to Babinda in 1910 (that line being purchased by the Queensland Government in 1911 becoming the Cairns to Brisbane Sunshine Route) facilitated the transport of any sugar crushed by a mill in the Babinda area to the Cairns wharf (Collinson

1943: 264) and "played no small part in the opening up of this section of the land and the ultimate establishment of the Babinda Mill" (The Mulgrave Central Mill Co. Ltd. 1947: 36).

The mill was managed by the Bureau of Government Sugar Mills until 1924 when the farmers assumed control and it became a co-operative registered as the Babinda Central Mill Company Ltd. (The N.Q. Register 1933:25).

Much of the available land in the Russell River area had been taken up speculatively in the early 1880s with the anticipation that a sugar industry and consequently a mill could be established there (Jones 1976:157, 244). Prior to the mill's opening, cane grown in the Russell River area was sent for crushing to the Mulgrave or the Hambledon Mills, was used for plants, or remained unharvested (Easterby 1932:46).

By 1947, having undergone a major programme of expansion, much of the earlier machinery of the mill had been replaced to achieve "the elimination of unpleasant manual tasks as well as the improvement of crushing" (The Australian Sugar Year Book 1960:262).

Farm dwellings, essentially cottages said to predate 1918 and grander homes built in the 1920s, are suggestive of the different lifestyles the sugar farmers assumed once their livelihoods were assured by the coming of the mill. The Italian presence is here again reflected in houses constructed of concrete.

Among several interesting barracks, Mayer's barrack, built circa 1935-1936, is particularly illustrative of the changes occurring in the industry generally. Even with the transition from Kanaka labour to white labour, large gangs were still required. As living and

working conditions improved, the 'butty gang' system became widely adopted, the job became more generally known and understood and growers' organizations assumed responsibility for the recruitment and allocation of gangs. As a result gangs became more efficient with productivity going up "from 2-3 tons per man in a day to 6-8, depending on the state of the crop" (Wegner 1984: 146-147). Smaller gangs could then be employed to do the same work previously done by much larger gangs. Farms also required fewer workers as cultivation methods changed. Trashing was abandoned and hand hoeing by large gangs of labour was replaced by mechanical cultivation. Tractors, becoming available in the 1920s, reduced the labour force required (Wegner 1984:149). Thus the original barrack on site constructed circa. 1915 housed 12 men. This was replaced two decades later by a new barrack built to house eight men. Later, in the 1960s, it was remodelled to house three or four men only. By that time further mechanization had occurred in the industry with mechanical loaders assuming one of the most onerous tasks of the canecutter's job. Structures and their history afford tangible illustrations of the wider economic, social, political and industrial developments that were taking place in the sugar industry and in the wider community at any given time.

CAIRNS DISTRICT

In the Cairns district today only one mill continues to operate - the Mulgrave Mill in Gordonvale. In the 1992 season that mill crushed 1,327,944 tonnes of sugar cane grown by 282 growers. After the Herbert River district the cane grown in the Cairns district had the highest C.C.S. calculated at 13.75 (Canegrowers 1992:19).

Over time four mills operated in the district: Hap (Hop) Wah (or Pioneer Mill) first crushing in 1882 with its final crushing taking place in 1886. The Pyramid Mill first crushed

in 1885 and it also ceased to operate circa 1889. The Hambledon Mill first crushed in 1883 and sadly after 109 years of successful operation crushed for the last time in the 1991 season and was consequently dismantled. The Mulgrave Mill first crushed in 1896 and continues to crush today. Three mill sites were viewed by the researcher as well as structures on 13 farms and the minor public collection at 'Sugar World'.

Today very little remains of the Pyramid Mill. What does remain will in time be absorbed by the Little Mulgrave River which has already claimed a significant proportion of the site. According to a recent study it has been calculated that since the mill closed, at least 70 metres of the bank has been eroded and this process is likely to continue (Department of History and Politics James Cook University 1992:16).

The mill established at the tail end of a boom period in the sugar industry was thus adversely affected by the marked drop in world sugar prices, the beginning of the 1890s depression and the threat of withdrawal of Kanaka labour with the election of a Liberal Government in Queensland. Beset too by the problems facing any North Queensland agricultural enterprise of the time: floods, fires, transport difficulties and aboriginal resistence, its demise was assured (Department of History and Politics James Cook University 1992:8).

The Hap Wah (later Hop Wah) or Pioneer Mill was established by an influential Chinese settler, Andrew Leon. D. Jones notes the "Chinese more so in Cairns than any other northern settlement were also land selectors". Their rush for selections reflected the general trend in the district in the early 1880s of the selection of every available piece of land even that only marginally suitable to sugar growing. Andrew Leon was the only Chinese however to establish a mill and plantation. Many more Chinese were employed

on the plantations as labour rather that management. The mill was never really a success with the estate not being suitable for sugar cane growing being "open forest, poor country and swamp" and poor crushings resulted. Today nothing of the site remains (Jones 1976:152, 157, 159).

Established by Thomas Swallow and opened at the height of the sugar boom, the Hambledon on the other hand survived all the vagaries of the times: "the unprofitable years or poor seasons, good European sugar beet crops, enormous initial investment and the lack of confidence in the future of the industry brought about by Griffith's determination to abolish that Kanaka labour all growers thought essential for survival" (Jones 1976: 159, 167) only to succumb 109 years later: " a victim not of mismanagement nor of inefficiency but choked to death by urban sprawl onto some of the best farming land in Australia" (Sandes 1991:20). Though some pre-1955 structures and machinery remained on site and in use until the mill's closing the site has since been raized and rehabilitated. Today very little remains to indicate a mill ever existed.

Mulgrave Mill on the other hand continues to crush today. Having its origins in the promises offered by the Sugar Works Guarantee Act of 1893 the original shareholder, a group of farmers, mortgaged their lands to the Queensland Government as security for advances under the act to establish a mill (The Mulgrave Central Mill Co. Ltd. 1947:31). The mill has undergone considerable refurbishment over the years beginning with the end of the 1921 season when "the last [was seen] of what was known as the old mill" (The Mulgrave Central Mill Co. Ltd. 1947:79) and the mill plant was practically rebuilt.

The fact that only one of four mills originally established in the Cairns district remains operating today, that even this mill has undergone such refurbishment over the

years that little remains of the pre-1955 era highlights the urgency of the need to describe and document the material culture of the industry from its origins to 1955 before all evidence completely disappears.

Further to the decision to establish a Sugar Experiment Station in Mackay, the Sugar Experiment Stations Act of 1900 was passed to establish and control Sugar Experiment Stations. Of three Experiment Stations then set up, one was to be in the Cairns district in the vicinity of the Mulgrave Central Mill (Jones 1976: 373). Today the Station continues to operate with two of the original buildings still in use.

The industry in the Cairns district is at a crisis. The Mulgrave Mill itself, sited as it is in the township of Gordonvale is landlocked and sugar growing lands are being continually encroached upon by the suburban sprawl. Barracks, farm sheds and houses are disappearing daily. Structures have not only been vulnerable to the usual climatic influences, termites and weathering, but also to the many severe cyclones that have lashed the district, particularly those of 1906, 1920, 1927, 1937 and 1956. Again Cairns' recent growth in recent years has been at the expense of older buildings with very few pre-1910 remaining and probably none, built before 1900, having survived (Bell 1982:75). Those remaining have undergone considerable refurbishment in order either to halt deterioration or to bring them in line with current expectations of comfortable living. Thomason's 1926 house is a rare example of a comparatively unchanged earlier style house.

Shipping of goods in and out of Cairns passed through Cairns Port at Trinity Inlet and downstream to the river ports e.g. Hambledon Mill's Swallows' Wharf and Stewart's landing at Edithvale (Redbank). At Swallow's Wharf for example machinery for the mill was

brought in as well as Kanakas. The researcher has been assured that nothing remains of those facilities from the pre-1955 period (Morton pers. comm.:13 January 1992). At the Port sugar was transferred from sugar lighters to larger vessels or stored in sugar sheds, to be loaded at a later date. At the Port today sugar is bulk handled with the installation beginning operation in 1964.

As elsewhere along the sugar coast, while it was the Europeans who owned the land, it was the Chinese who cleared it. Leasing the land, they established market gardens, mainly for bananas. It was Chinese who cleared the Hambledon lands and planted the first cane between the remaining stumps (McInnes 1982:5). Chinese were also used substantially as plantation labour alongside Melanesians and to a lesser extent Malays, Japanese and Javanese amongst others. By 1906, a remarkable 75% of Hambledon Mill's leaseholders were Chinese (Jones 1976:394, 426). Rarely though did they achieve such prominence in sugar circles as Andrew Leon. Structurally, nothing remains today of the Chinese contribution to the Cairns sugar industry.

Italian migration has left a significant mark on Cairns with Jones estimating that by the late 1970s they and their descendants comprised 15-20% of the district's population, holding 30-40% of the district's wealth. Of course, people of all nationalities were attracted to the sugar growing districts and some were employed as sugar field labour, for example, Indians and Russians (Sandes 1991:3 and Jones 1976:463-464). Abdul Mohammed, whose grandfather arrived in Port Douglas in 1900, farms in the Sawmill Pocket (Mount Peter) area. Today he has a significant and extensive private collection of sugar farm implements. Unfortunately, the researcher was unable to view this collection.

While in the popular mind the use of Melanesian or Kanaka labour is the most

evocative of non-white sugar field labour, no structures specific to their life on the canefields remain while artefacts are few and far between. The former Draper barrack in the Cairns district is probably a rare example of a building formerly used by Kanakas (Straguszi pers. comm.:18 January 1992). However today, standing as it does on the edge of an urban sprawl which threatens to swallow it in its wake, the barrack is more a poignant symbol of the ever-continuing and seemingly unnoticed and unmourned loss o significant examples of the material culture of the North Queensland sugar industry.

MOSSMAN DISTRICT

Further north in Mossman 170 growers sent 833,167 tonnes of cane to be crushed at the northern-most mill, Mossman Mill (Canegrowers 1992:19). In the Mossma area nine farms and one mill site were visited by the researcher.

The first mill to operate in the district was Brie Brie. Today Brie Brie is part of the land owned by Don Watson farmer and Chairman of the Board of Directors, Mossman Mil Apart from some small artefacts held at the Mossman Mill the researcher saw nothing els of the former mill. Crushing first in 1884, by 1888 the plantation was offered for sale and the mill shut down. Accoring to Kerr "Brie Brie....demonstrated the folly of investing capital with distant management unacquainted with the problems they might encounter (Kerr 1979:26-27).

Land first taken up along the Mowbray in the late 1870s was often planted with maize, vegetables and fruit trees and was also used for pasturing cattle. As elsewhere land was leased to the Chinese to clear and grow rice, bananas and other 'garden' crops their efforts helping to fulfil the improvements conditions required of the selector.

Sugar was also sometimes grown by selectors but without a mill was of little value. Spiller (of Pioneer Plantation, Mackay) sent up cane varieties for the selectors to try. Time expired Kanakas were used as labour. At Drumsara for example, 50 acres (20.25 ha) of sugar cane had been put in by 1886 (during the time of Brie Brie Mill's operations). Nearby selectors also grew cane in anticipation they would be able to send cane to that mill.

The enactment of the Sugar Works Guarantee Act of 1893 brought hopes of a mill for the Mossman district settlers to fruition. The Mossman Mill, a co-operative, first crushed in 1897.

Sugar from the mill was taken by rail to Thooler on the Mossman River and from there by lighter to Port Douglas for shipment. However once the mill was connected to the Port in 1900 sugar was taken by rail directly to the Port (Prince 1977:30). Thooler was the original designated town site and it was through the wharf there that all supplies for the burgeoning district passed.

As elsewhere Kanakas, Chinese, Japanese, Indians and Italians were used as sugar field labour with Italians proving to be the most successful and with the greatest influence on the community.

The Mill, a small one located in the town of Mossman itself, with its older style structures and machinery, including the original office, staff dwellings and working steam locomotives, retains a feeling of the past.

Several buildings in the Mossman district give the casual observer the impression that the residents retain a sense of history and pride in the achievements of their pioneering ancestors. The older buildings, dating from as early as 1886, are significant structures the histories of which reflect the history of the district and the names that pioneered the district: Crawford, Rex, brothers Samuel and John Johnston and Pringle.

John Reynolds' proposed plan for the Mowbray River valley reflects his family's early connections with the area, his grandfather having taken up land there in 1883. The handful of historic buildings dotted along the valley and their still isolated locations have a certain potential for communicating to visitors the manner in which sugar farmers and their workers lived and the primitiveness and seclusion of their holdings.

Ben Cropp's Maritime Museum now occupies the remaining sugar storage shed at Port Douglas effectively preserving the structure.

The Mossman district offers an interesting aspect of sugar cane transport in its early use of the cane wagon (later truck) circa 1907 (Kerr 1979:61-62). Though no examples of this piece of machinery were noted in the district they were seen elsewhere.

Further north on the Bloomfield River was Queensland's most northerly sugar milling venture. With the Bauer family selecting land and the floating of the Bloomfield River Sugar Company, the Vilele Plantation and Mill was set up. The mill first crushed in 1884 but was insolvent by 1890. Today some of the former plantation site forms part of the Mt. Louis Pastural Company Holdings but little evidence remains of the original venture.

CONCLUSION

Today every evidence of a mill is removed including concrete floors and footings and the site is rehabilitated as was the case with Hambledon in 1991. Similarly in Cairns, the sale of former cane lands for suburban development has meant that every vestige of former farms, their houses, barracks, sheds and machinery, is removed.

The settlement pattern of northern Queensland is closely linked with the establishment of the sugar industry and the histories of whole districts have been shaped by the industry and the people who were attracted to it. As pointed out in the Department of History and Politics James Cook University paper on the Pyramid Sugar Mill a more valuable exercise than that particular site report would have been a careful recording of the Hambledon Mill before it was dismantled. It too was a nineteenth century mill and had incorporated Pyramid Mill's machinery on its demise. (Department of History and Politics James Cook University 1992:16). Yet since Hambledon Mill's closure in its turn, that has since become an impossibility. Even as this project has been prepared structures seen by the researcher (and for which recommendations could have been made) have been drastically altered or dismantled.

Straguszi's barrack (Cairns district), standing like a lone sentinel with suburbia on one side of the road and the remaining cane field on the other, symbolizes the urgency of the need to record and preserve some evidence of the sugar industry as it was before all tangible evidence is lost.

As the physical evidence disappears it also becomes more difficult to comprehend how the industry functioned. Literary sources without physical verification

and vice versa make for confusion as to how the different processes from soil to ship were conducted. The following chapters attempt to give a brief overview of how sugar cane was cultivated in the period 1872 to 1955 and with what machinery; of how the harvested sugar was transported and milled and the milled sugar dispersed; and of the standing structures typical of the industry at those stages: farm, mill and port.

5. SUGAR CANE CULTIVATION 1872-1955

INTRODUCTION

Once selected for sugar cane growing, land had to be cleared of trees. Cane could then be planted, and the work of cultivation and eventually harvesting would follow. The methods used for these processes changed radically in the period, 1872 to 1955, and the years since then have witnessed even more radical developments in the technology of sugar cane cultivation. However, examples of the equipment used in the earlier period still abound and give us some insight into the work of sugar cultivation in past days. How sugar cane farming was conducted in the 1872 to 1955 period, what equipment was used in that process and what of that still remains requires closer examination. For this chapter only, the description of the processes and the corresponding material survey will be dealt with individually.

LAND CLEARING

The selectors who took up land for sugar cane farming along the northern coastline, made their choice based on observations of "soil, vegetation, topography, rainfall and temperature" (King, Mungomery and Hughes 1953:58). Scrub lands were selected first and when all that was accessible had been taken up, forest land was selected, and then grass-plain lands last of all. The discrete districts into which the sugar growing area of Queensland is now divided resulted from this early selection.

Land clearing methods have changed over time. Prior to 1940 land was cleared by hand, the methods used were laborious, and the tools required were a brush-hook, axe

and cross-cut saw. In scrub land, after vines and undergrowth were cleared using brush-hooks and such tools, timber getters removed all saleable timber and other trees were felled with axes and cross-cut saws. These processes were usually conducted during the wet season and winter months so that, during the dry spring months, the brushed and felled material could dry out. Towards the end of the year, the land was burned off and, under optimum conditions most of the tree trunks were burnt leaving only stumps and a few logs. The cane could then be planted among these remnants. In forest land the job of clearing land was a great deal harder. Usually, it was not enough to fell the timber, here the stumps and roots had to be grubbed out and pushed into heaps for burning. Once all obstacles to implements had been removed the soil could be thoroughly cultivated and cane would then be planted.

The reasons for the different processes were twofold. Firstly, in scrub land, the timber was mostly softwood which rotted away more quickly than the hardwood timbers which characterized the forest land and took many years to rot. Secondly, scrub land soils were normally fertile and required no cultivation. The original scrub cover carpeted the soil with a layer of dead vegetation which had decomposed by the action of micro-organisms and soil insects rendering the soil rich and friable. In the forest land, however, where the vegetation was more open, the soil had been compacted by rain, and animals, the forest litter has been regularly destroyed by bush fires and for these reasons the soil life was less intensive. Accordingly, the soil had to be worked to obtain the 'mellow' seed-bed required before cane could be planted (King, Mungomery and Hughes 1953:58-61 and Kerr and Bell 1939:38).

In the far northern areas a lot of the land was cleared by Chinese who undertook contracts to do this work (Jones 1973:141, 156) or who had obtained 'clearing leases'

from Europeans who could not afford to or were not interested in the clearing and cultivation of their selections. In return for a five year lease the Chinese paid a nominal rent and felled the timber. While this system suited the absentee landowner it also suited the resident landowner who similarly leased the land to the Chinese who felled the trees and cultivated the soil, growing small crops until such time as the stumps rotted and the selectors could plough the soil (Bolton 1972:223-224 and Kerr 1979:84).

From 1940 onwards, land was also cleared using bulldozers. The bulldozer pushed down the trees which were then pushed into stacks. A tractor pulling a plough or disc harrows, or a bulldozer with ripper attachment, would rip the remaining roots from the bulldozed land. A tractor pulling a trash rake could also be used to rake surface roots and material near to the stacks where the bulldozer would push them on to the stacks. This method involved a certain amount of hard physical labour because roots and trash had to be gathered manually into piles which were in turn thrown on to a trailer hauled by a tractor and deposited onto the stacks for burning. When the stacks had dried they were burned.

In the Herbert River district a much simpler process was sometimes employed. Much of the land, emminently suitable for sugar growing, was of an alluvial nature bordering the river. That land was covered in "dense native grasses, higher than a tall man" and only required burning off (Bolton 1972:84).

THE FIRST PLANTING

Once the felled timber on the scrub land had been burned, cane was planted among the stumps. The farmer dug holes in rows with a mattock and placed in them the cane setts. A couple of chippings with a hoe would suffice to combat the growth of weeds

until the cane grew and covered the ground. No further cultivation was required.

No fertilizer would be applied on this first crop on virgin soil. The crop was ratooned at least twice and the farmer would continue to cultivate them with hand implements. Some four years after initial clearing, the remaining stumps would have rotted and dried and could easily be removed by manual grubbing or by tractor. These stumps would be pushed into stacks and burned. Naturally, as the years passed and the soil aged it became harder and harder to create the mellow seed-bed that cane required.

TILLAGE METHODS PRIOR TO PLANTING

Because of the nature of the crop and the Queensland weather patterns, several workings of the soil are essential each time a crop is cultivated. In Queensland sugar cultivation is therefore tedious and costly. The first ploughing cuts up and ploughs in the old stubble so that it will rot (Kerr and Bell 1939:39). Prior to 1940 a horse-drawn plough was used to plough in the cane stubble from the last ratoon and the holes left by the removal of stumps were filled. A tool called a Tumbling Tommy could be used for this. All first farm implements were imported, particularly from Great Britain and later from America and Canada. In time Australian made agricultural implements were favoured.

The earliest ploughs were the imported wheel plough having both a land wheel and a furrow wheel. The various types of single furrow swing ploughs, simply known as the mouldboard, were very popular. Double furrow ploughs and 'turn wrest ploughs' were cited by Easterby as being very popular in their day. An American single-furrow swing plough known as the Solid Comfort Sulky Plough, which had the mouldboard and share placed between two wheels and a seat for the ploughman, was also very popular (Easterby

1932: 171,173). In 1882, when the Colonial Sugar Refining Company (C.S.R.) came to the Herbert River, steam or traction engines were used alongside ploughmen with their horse-drawn ploughs to prepare the land for sugar cane. The steam engine tended to be a plantation unit only though, being an expensive piece of equipment (C.S.R. 1970:22). Also plantations were clearing large tracts of land so the work was far more laborious than on a smaller selection. Steam engines were more capable of the heavier work required than horses.

Late in the 19th century disc ploughs superseded the mouldboard ploughs. At first they were usually manufactured with one disc of 24 to 30 inch (60 to 76 cm) diameter. They were mounted on two or more wheels with a seat for the ploughman. A popular one was called the Canton Disc and C.S.R. used one called the Secretary. Early disc ploughs were made in America and Canada but were later manufactured in Australia (Easterby 1932:173). Single disc ploughs were usually drawn by three or four horses. There were also reversible double disc ploughs pulled by two horses.

Once tractors came into widespread use most ploughing was done by tractor. At first the tractor dragged a single or double disc but later gang ploughs of multiple discs were used. Horse-drawn single disc ploughs could be modified for use with a tractor by adding a draw-bar. The use of these units signified a great saving in time and labour (Easterby 1932:173). These disc ploughs had a manual lifting device but later were superseded by directly attached and hydraulically operated disc ploughs. A stump-jump disc plough was particularly useful in working new land because, as its name indicates, it was able to handle land littered with roots and stones. Rotary hoes were also useful for this work but were easily damaged by roots and stones. After the preliminary ploughing, holes and depressions were filled using a simple farm leveller dragged over the paddock

(King, Mungomery and Hughes 1953:63). Levellers were usually home-devised: a rail, a blade, or a bar attached by chains to the swindle or draw bar. Rainwater collected in the depressions if they were not filled. In cleared forest lands there was no cane stubble to be removed but the rest of the process was the same as for scrub land. In addition if the land was particularly badly drained flat country drains would have to be carefully laid out (King, Mungomery and Hughes 1953:64).

For breaking down cloddy or lumpy soil tyne harrows and later disc harrows were used. They were used as well for levelling and for covering the green manure seed with soil. Tyne harrows could easily be home made. A popular type was the diamond harrows. The tyne harrows tended to bring the old ploughed out stools to the surface so a heavy roller would then be passed over the paddock to press the stools into the loose soil. This would aid in their decomposition and made for less troublesome ploughing in of the green manure crop. It was usual to follow each ploughing with a harrowing. The first ploughing and harrowing were usually followed by several others. The second, would be a deep ploughing in order to break the soil to the desired depth. However, a good farmer would know that it was not implements alone that rendered a mellow seed-bed but the alternate wetting and drying that caused the soil to swell and shrink and reduce the clods to the "desirable granular structure" required of a good seed-bed. The extent of his manual operations would be determined by local practices, soil type, local conditions and prevailing weather (Kerr and Bell 1939:39).

After the scrub land had been ploughed and harrowed a green manure crop was planted. This green crop rendered the soil more productive because of its ability, in simple terms, to collect nitrogen from the air and, upon dying and decomposing, add it to the soil. This nitrogen was sufficient to supply the requirements of the plant cane crop (King,

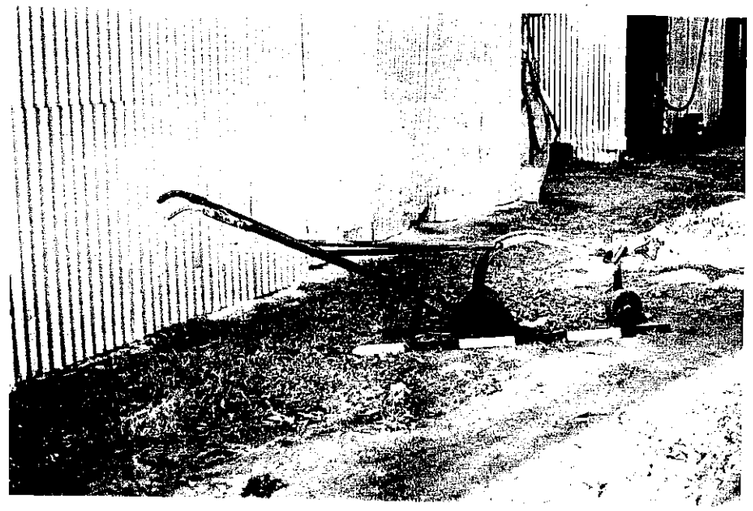


Plate 1: A swing plough

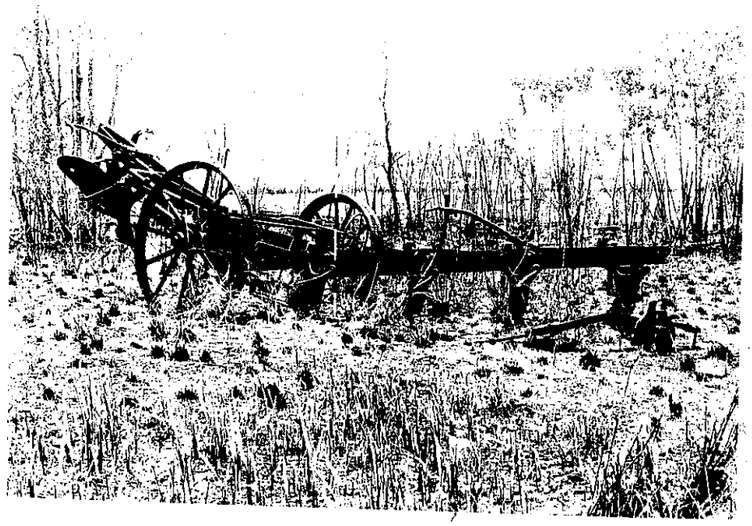


Plate 2: A steam plough

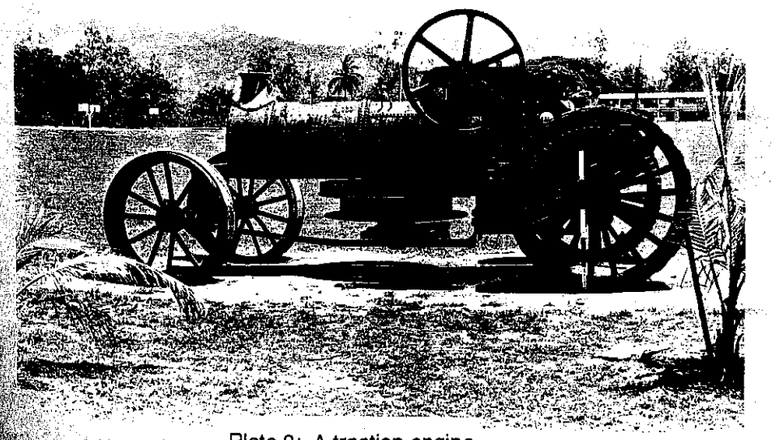


Plate 3: A traction engine

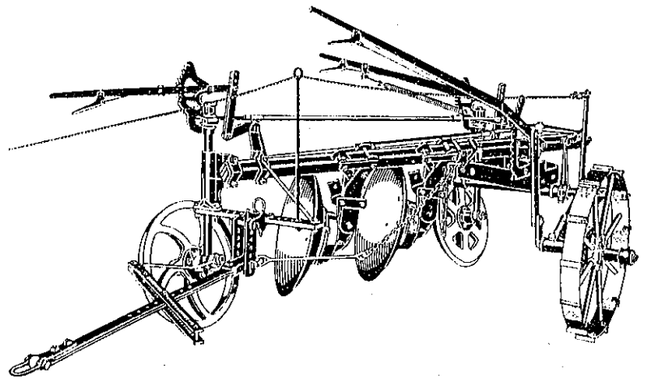


Plate 4: A type of two-disc plough (Kerr and Bell 1939:42)

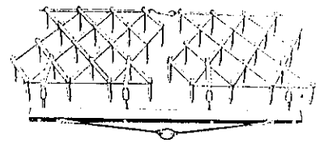


Plate 5: Diamond harrows (Kerr and Bell 1939:45)

Plate 6: A single-disc plough (Garrone)

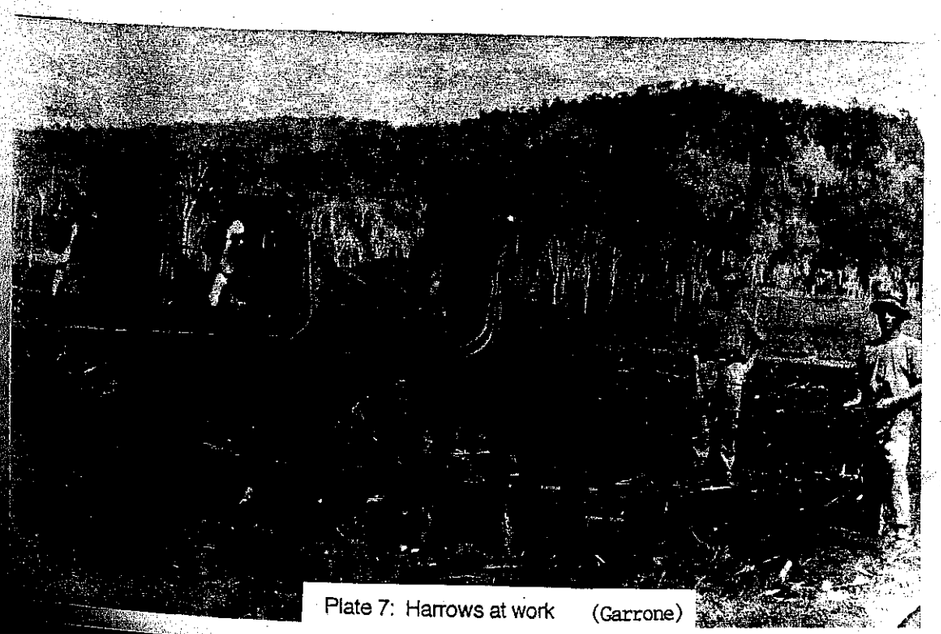


Plate 7: Harrows at work (Garrone)

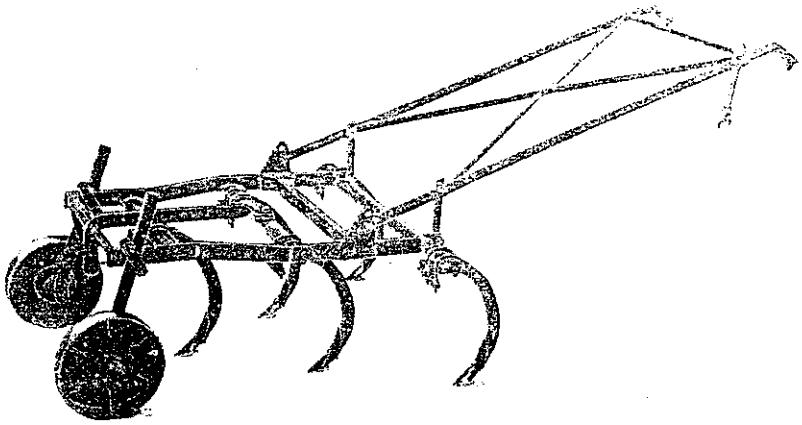


Plate 8: A horse grubber (Kerr and Bell 1939:56)

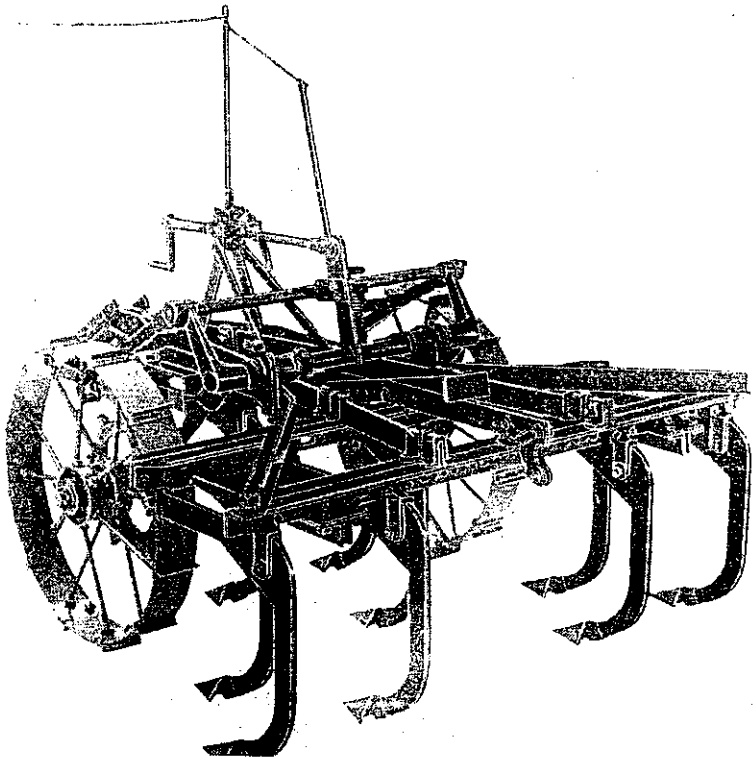


Plate 9: A grubber (Kerr and Bell 1939:57)

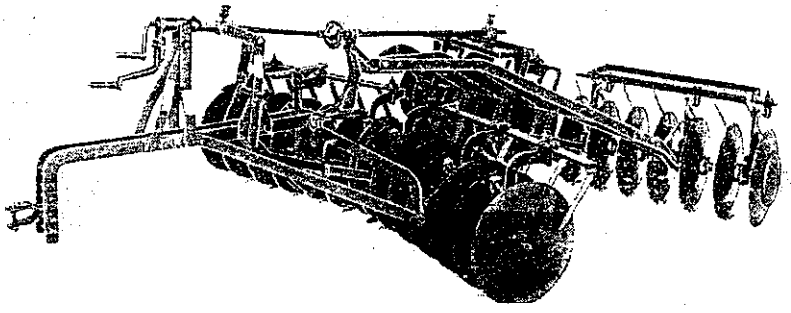


Plate 10: A tandem disc harrow (Kerr and Bell 1939:56)

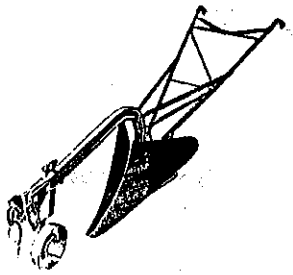


Plate 11: A drill plough (Kerr and Bell 1939:45)

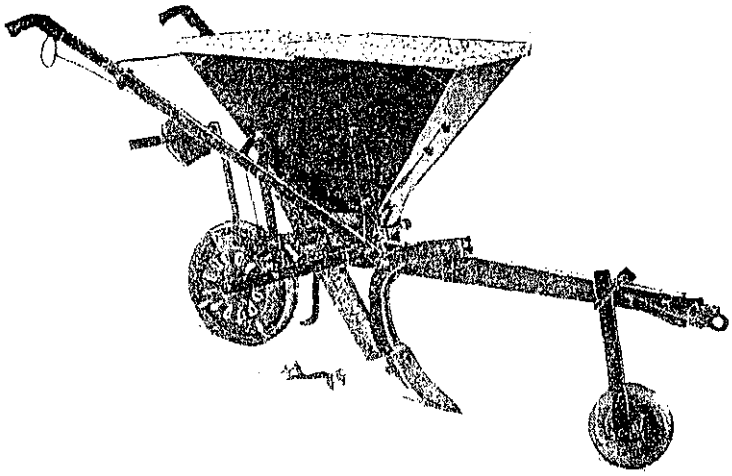


Plate 12: A vibrator type of fertilizer distributor
(Kerr and Bell 1939:45)

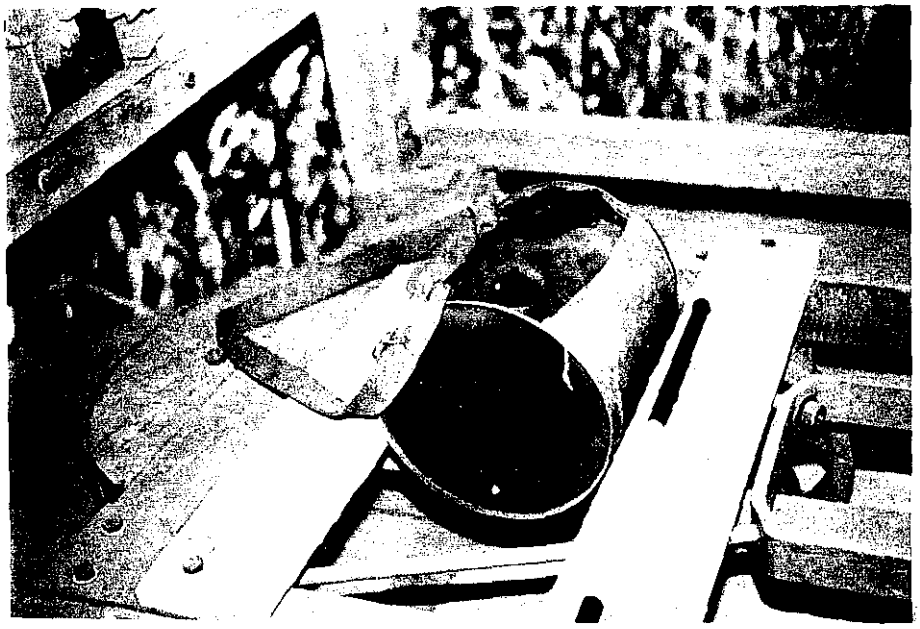


Plate 13: An early device for the distribution of fertilizer

Mungomery and Hughes 1953:38-39). Also the leafy cover would protect the surface of the soil, help it retain moisture and make the soil mellow and friable. This crop was grown during the summer months and ploughed in using a disc plough, sometime between January and April. This could be the last ploughing the land would receive before planting so the implement had to plough to maximum depth. The disc plough did not invert the furrow slice as did the mouldboard plough. The benefits of leaving the material on the surface for "speedy decomposition under aerobic conditions" were early recognized (King, Mungomery and Hughes 1953:66-67).

If a swing plough had its mouldboard removed (subsequently called a skeleton plough) it did the same work as the later rippers or grubbers, namely, ploughing the soil without turning it over. Farmers commonly effected this modification to that implement, particularly in order to break up a 'hard pan' of soil (Kerr and Bell 1939:41-42). If the farmer was dissatisfied with the depth of this ploughing he could cross the paddock with a deep grubber which would increase the depth of ploughed soil. Both the skeleton plough and the grubber would make a narrow trough in which rain water would collect transferring it from the saturated surface soil to the deeper soil (Kerr and Bell 1939:42). The third ploughing would not be done on soils which were in good natural condition. As noted earlier, each ploughing was usually followed by a harrowing which broke down any residual clods. Tyne harrows were superseded by disc harrows because tyne harrows, just as they drew the old stools to the surface, tended also to draw the green cover, which had been ploughed in earlier, to the surface. A disc harrow did not do that and also left a finer or more regular surface because the set of the discs could be adjusted to move the soil one way or another (King, Mungomery and Hughes 1953:66, 67, 68). The tandem disc harrow, once commonly seen on farms, was a valuable implement used at all stages of cultivation: for cutting up trash before ploughing; for cultivation of both fallow and ratoon

fields (Kerr and Bell 1939:42).

PLANTING

In earlier times drill ploughs were used to make the drill or open furrows into which the cane setts or whole stalks were dropped during planting.

At first, planting was done by hand. After drilling out the furrows, fertilizer was applied if required. An early device for fertilizer distribution was a kerosene tin or oil tin. A section was cut out of the tin so the fertilizer could be placed in it and a leather carrying strap was attached. The person distributing the fertilizer walked along the drill carrying the distributor over his shoulder. He distributed the fertilizer by hand into the open drill (Australian Sugar Museum Field Work File: 12/15).

When this process became mechanized fertilizer distributors were used. The cane would then be applied to the open drill. After the chosen variety of cane to be planted was cut, it was stripped of trash using a stripper. This might be homemade or manufactured commercially. Cane would be laid in the drill either as setts or as whole stalks. When the cane was dropped in setts the man pressed the sett down into the soil with his bare foot (Kerr and Bell 1939:51). The setts were carried in a bag which was slung across a shoulder (Shepherd 1983:4). Another way was for a bag to be slit and placed over the farmer's head; a semicircle was cut out of the other end of the bag and a stalk of cane put across that end of the bag to provide a handle; the bag was then folded upwards and the cane setts carried in the sling so made (DiGiacomo pers. comm.:10 October 1992). A 'pony plough', the smallest member in the swing plough family, would be used to cover the cane setts after the cane was laid by hand into the open furrows. The whole

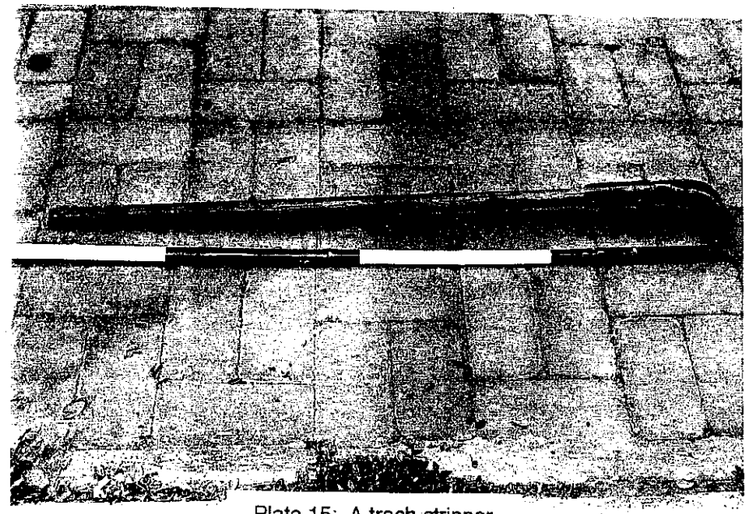


Plate 15: A trash stripper

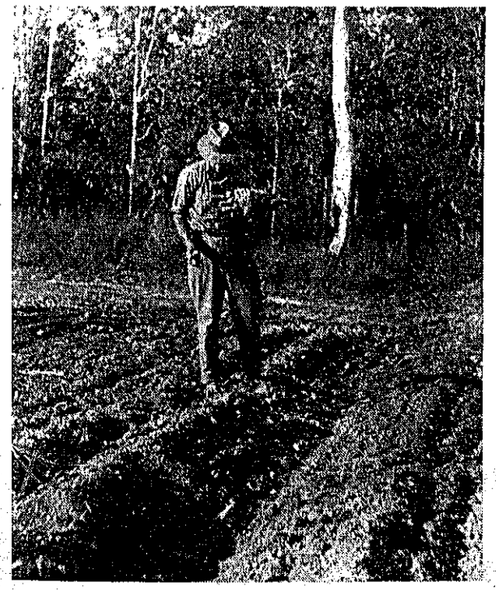


Plate 16: Planting by hand (Kerr and Bell 1939:47)

Plate 17: Cutting stalks into billets in the drill (Biletta)

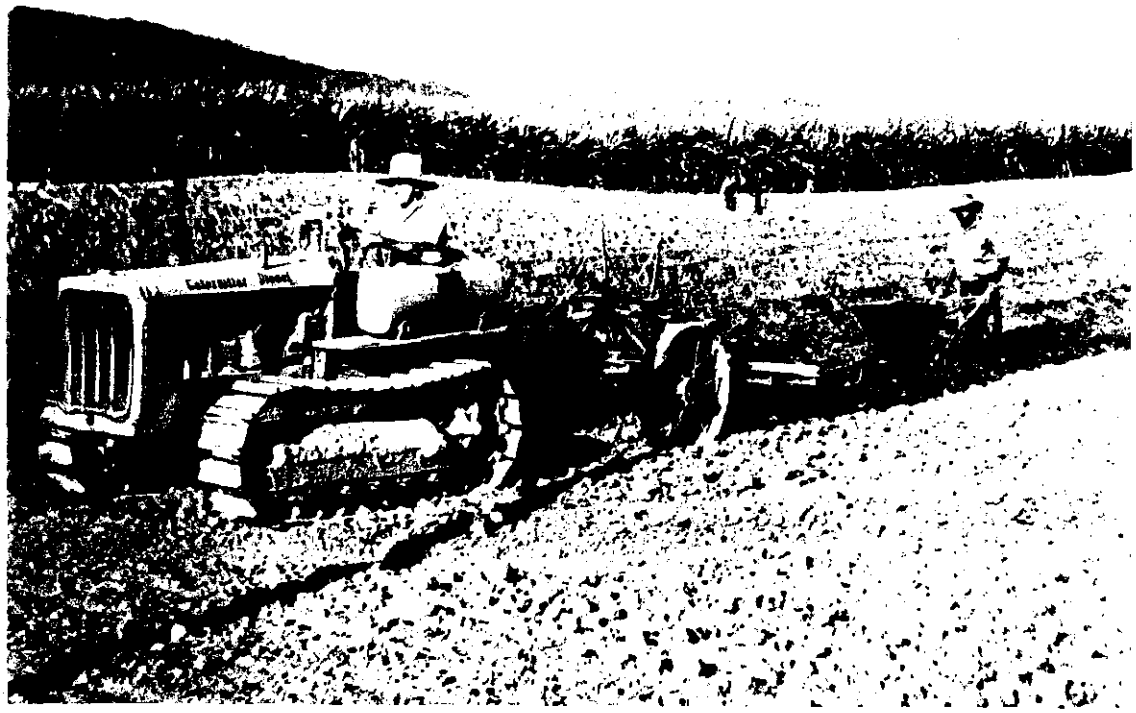


Plate 18: Drilling out and applying the fertilizer (Abbot)

Plate 19: A cutter-planter (Vico)

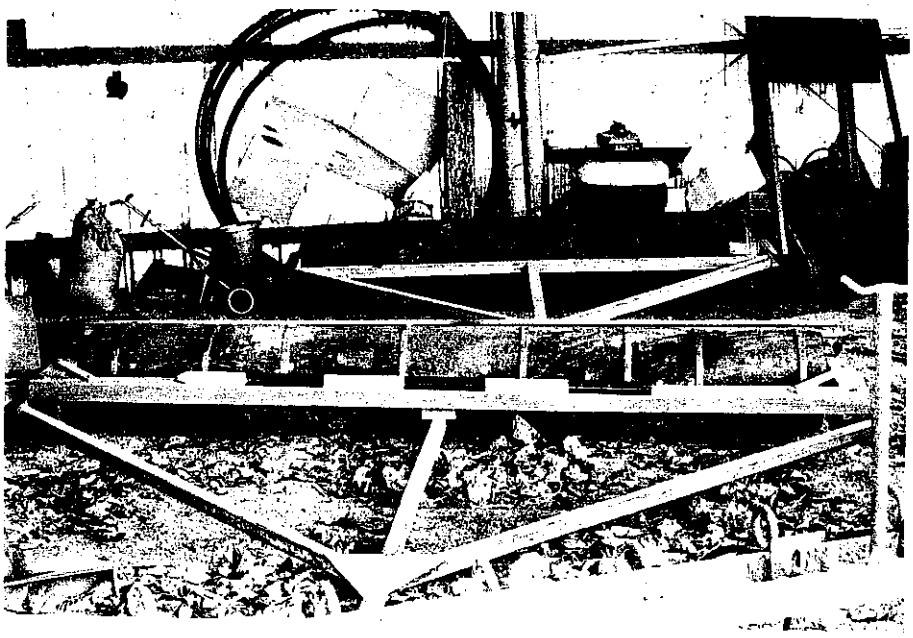


Plate 20: Rollers

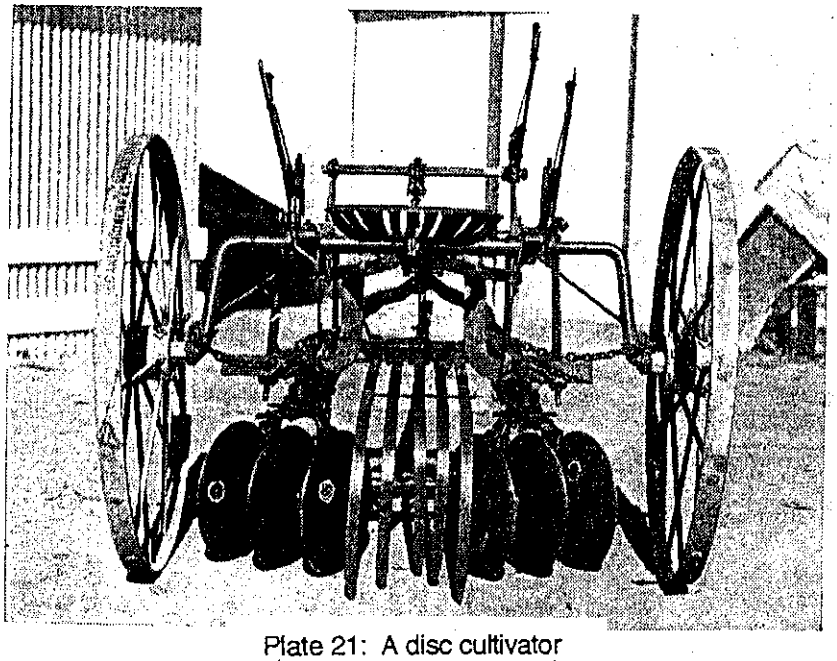


Plate 21: A disc cultivator
(Kerr and Bell 1939:53)

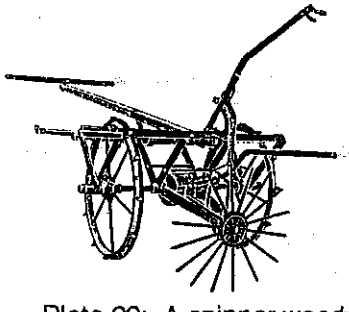


Plate 22: A spinner weeder (Kerr and Bell 1939:52)

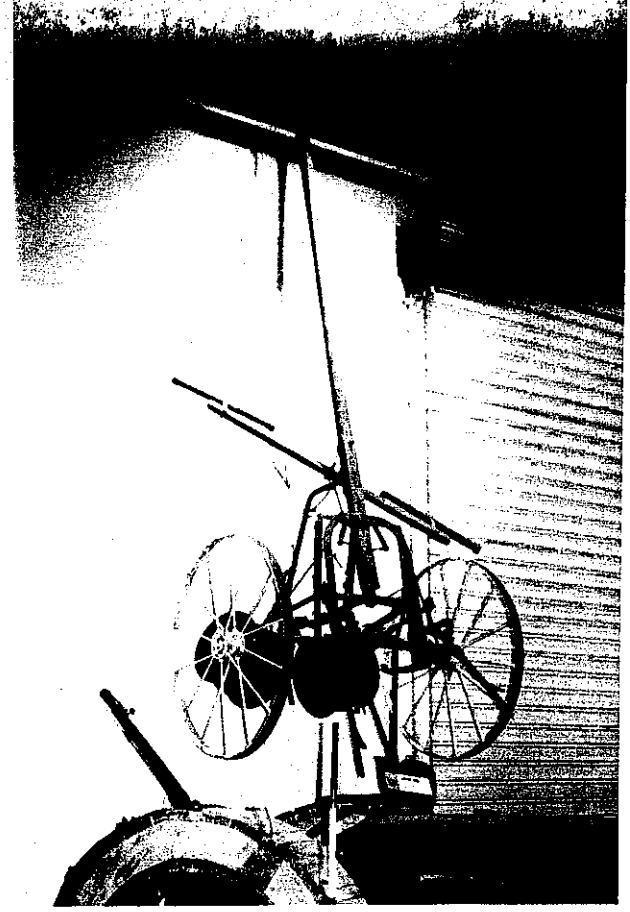


Plate 23: A cotton king

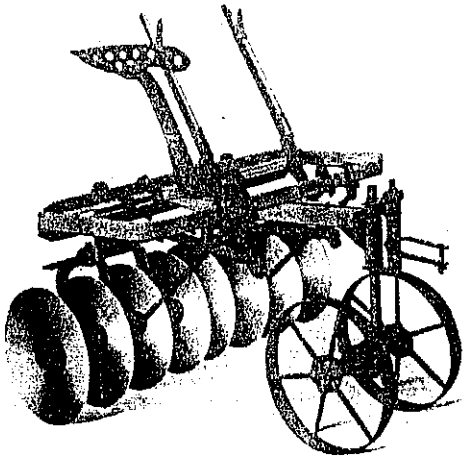


Plate 24: A cotton king disc harrow manufactured by International Harveste (Wendel 1981:104)

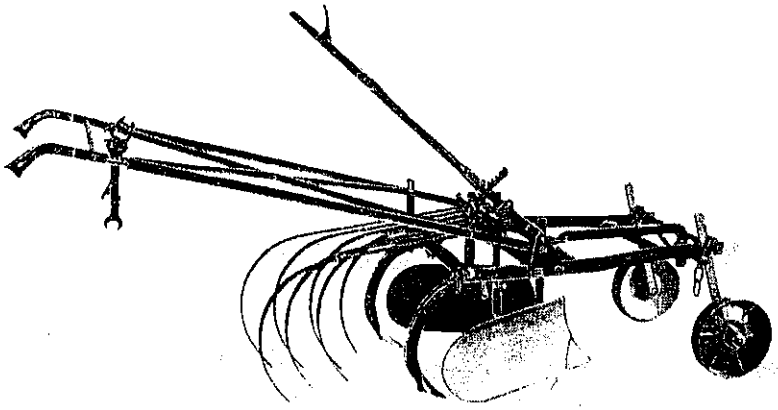
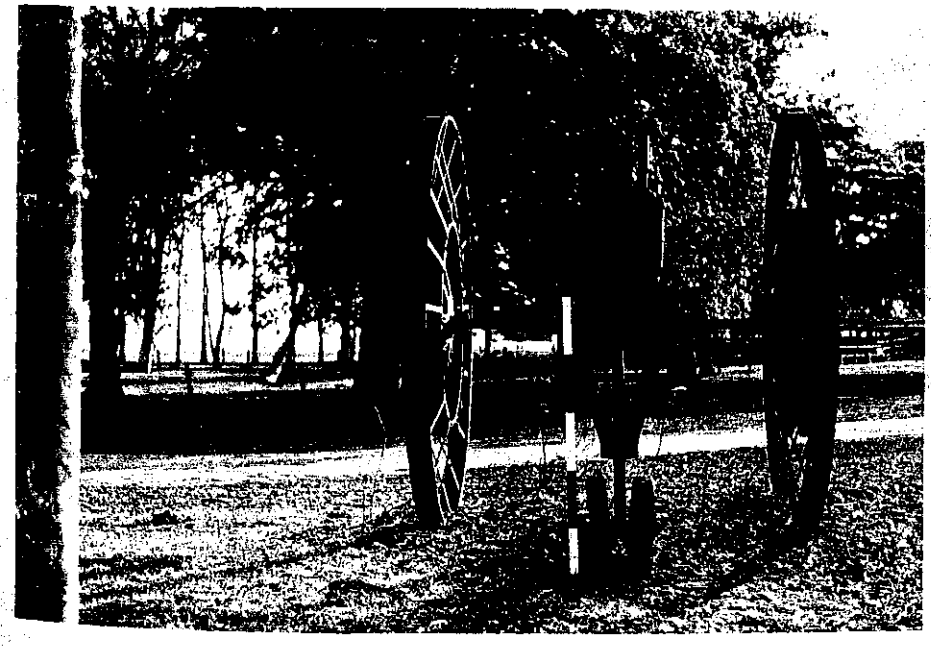


Plate 25: A cane cleaner (Kerr and Bell 1939:52)

Plate 26: A tractor modified for the dispersal of 2,4-D



stalk method was more or less confined to the wettest area, Babinda - Innisfail (King, Mungomery and Hughes 1953:78) though Terry Abbot describes it as the method used on his farm in the Herbert River district (Terry Abbot pers. comm.:7 July 1992). This method was risky in areas where the rain- fall was less, because the soil would lose moisture while the drill remained open to receive the stalks. The whole stalks were carried into the paddock on a dray, later on the tray of a truck, and thrown systematically into the bottom of the drills. Using cane knives, the farm workers would then come along and cut the stalks between the eyes into billets of 11 to 18 inches (28 to 45 cm) lengths (King, Mungomery and Hughes 1953:78, 79). Following either the sett or the whole stalk method, a scarifier, from which all but the two outer tynes had been removed, would be used to cover the cane with soil to a good depth, approximately four inches (10 cm) (Terry Abbot pers. comm.:7 July 1992).

Once cane planting was done by hand because cultivation costs were low and the price of sugar relatively high. As labour costs rose, more labour saving devices were demanded and consequently evolved. One such invention was the horse-drawn drop planter which was the standard method of planting on farms in the 1930s although even that method was exceedingly laborious by today's standards. Interestingly, the planter was a Queensland invention (Kerr and Bell 1939:48). As described for hand-planting, the ground had to be drilled out first and then fertilizer applied into the drill if required. The planter was then drawn up and down the same furrows dropping the setts and covering them with soil (King, Mungomery and Hughes 1953:72). The combine drop planter succeeded the drop planter and was a great improvement for it drilled out, planted the cane, and fertilized, all in the one operation. The cutter planter then succeeded the combine planter. Its advantage was that it was also able to cut the cane stalks into billets. Both could plant one or two drills at a time. Several types of cutter-planters came on the

market. By the 1950s they were very efficient implements with facilities for adjustment according to depth of a particular furrow, amounts of cover required, length of setts and spacing in the drill required. Fertilizer could be applied simultaneously and a roller for compaction could be attached (King, Mungomery and Hughes 1953:73). Some of the well-known brand names were Milne, and Hodge of which there was a single row version and a double row version. Both could be horse or tractor-drawn.

The use of tractors made these advances in planting technology possible. From the 1930s onwards there was great progress made in farm mechanization. This progress signified a great saving in labour for the farmer and the death knell for horse power (King, Mungomery and Hughes 1953:72).

It was desirable to have the soil compacted over the newly planted setts. The advantages were twofold: by compaction the soil was consolidated around the sett and also retained moisture. With horse-drawn drop planters, compaction was achieved as the farmer walked behind the planter. His weight trampled down the soil on the setts. Even though the necessity for compaction was early realized, it was not until the 1940s that compaction rollers received more attention. Rollers evolved that were actually part of the cutter-planter unit. However, many farmers chose to go over the planted furrows with a separate compaction device whether it was a roller, log or bag of soil.

TILLAGE METHODS AFTER PLANTING

After planting the farmer's job was to control the growth of weeds and grass and keep the drill open until stooling of the cane had progressed to a suitable stage. Finally the planting furrow was filled in order to leave the field level for harvesting. Again it was

to the discretion of the farmer which cultivation implements he used, in what order he used them, and how many operations he carried out.

The mouldboards of the cutter-planter left the furrows with almost vertical sides. To remove the soil so that it did not collapse on the emerging plants as it dried out, a cotton king or disc cultivator was used. The implement sloped the vertical side of the drill and ploughed the excess soil into the interspace, while the rake attachment broke the hard crust of soil in drill and interspace compacted by the compaction roller and by the passage of tractor and planter (King, Mungomery and Hughes 1953:82-84). Generally it was advisable for good stooling, for the setts to be covered with as fine a layer of soil as possible while still allowing enough soil to hold moisture over the sett. If there had been little rain, however, it might be desirable to throw a little more soil on the sett to conserve what moisture there was. This could be done in many ways, including the use of the cotton king, altering the direction of the discs, or using spring tyne cultivators (tractor-drawn).

On the other hand, if there had been a good downpour of rain it might be necessary to break the hard soil crust formed by the rain. This crust needed to be broken to allow further rain to be absorbed and not stand on the surface. Soil moisture evaporates quickly from compacted soil. If the top layer of soil is kept loose the drying out occurs in this layer while the underlying soil retains moisture. This, and the removal of the excess soil to facilitate good stooling, could be done at the same time as cultivation for weed control.

The implement that could be used for this job was the spinner of which there were both horse-drawn and tractor-drawn types. The spinner was usually preceded by the pony

plough which first ploughed away from the cane. The spinner would then remove the remaining ridge of soil and weeds (Kerr and Bell 1939:54). The cane-cleaner type of mouldboard could be used instead of the spinner while various examples of cultivator tynes were used also. As these implements broke up the surface of the soil they removed unwanted weeds. Another way to do it was to throw soil on to the weeds to smother them and when they had died, the soil was thrown out again. A cotton king was used for this method of weed control (Australian Sugar Museum Field Work File:11/35 and Herbert River District Field Work File:4/17). While the discs would clean the inter-row the scratchers would clean around the emerging stools.

In the early days hoes were used to clear weeds from the ground, a very costly, tedious and labour intensive method. Historical photographs show large numbers of indentured labourers standing in rows hoeing the paddocks clean of weeds; this was only possible in the days of cheap and plentiful labour. Yet in upright varieties with sparse tops or when the cane got to tall for mechanical working it remained the only effective method to keep the cane free of weeds and grass. Again, while surface cultivation implements attached to high-clearance tractors would destroy the weeds and grass in the interspaces those growing in the cane row could only be removed by chipping with a hoe. By the 1950s high-clearance tractors were in use to keep the cane clean to an advanced stage of its development. Once the crop was out of hand the tops would shade the interspaces and grass and weeds would be naturally inhibited. Once the stooling was complete the furrows were filled. Horse-drawn scarifiers or the cotton king would achieve the filling of the planting furrow later achieved by inter-row tractors. The aim was to finish with a clean level surface for harvesting.

Research in farm technology in the 20th century revealed that soil did not need

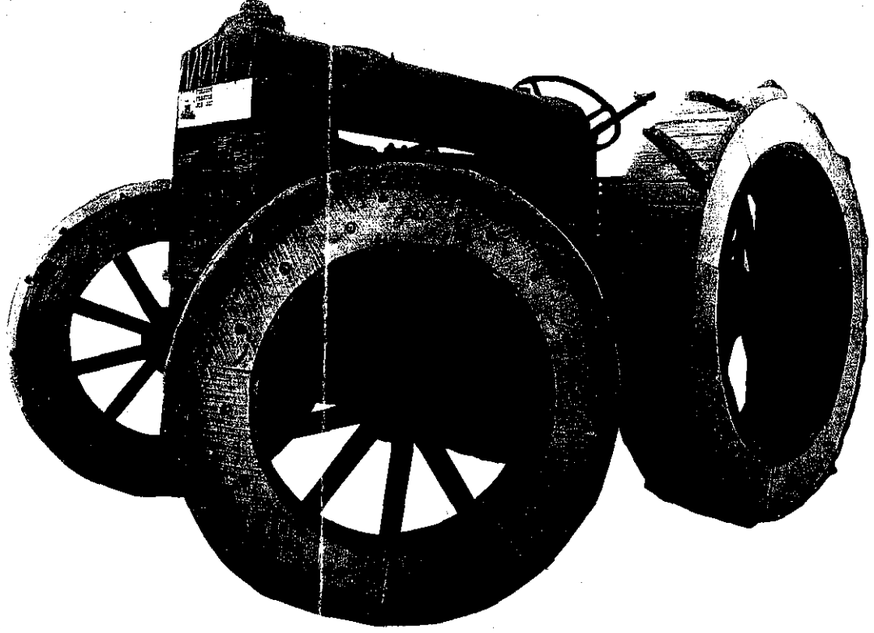


Plate 27: A Fordson F with farmer's own modification (The Johnstone Shire: brochure)

Plate 28: Cutting cane (Vidonja Balanzategui 1990:64)

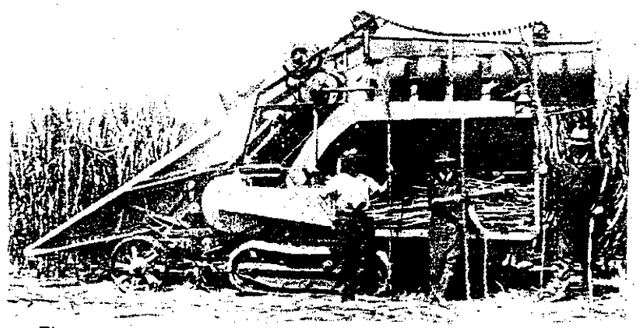


Plate 29: The Falkiner harvester (Kerr and Blyth 1993:29)

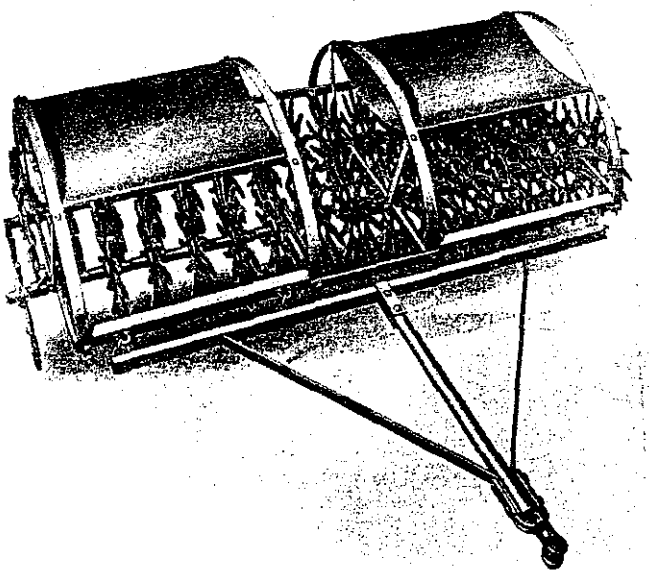


Plate 30: A rotary hoe (Wendel 1981:248)

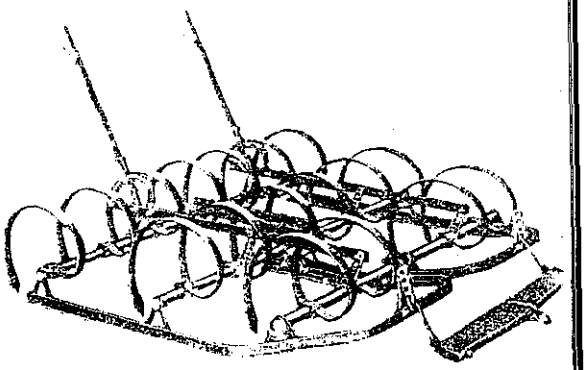


Plate 31: A spring tyne harrow (Wendel 1981:1

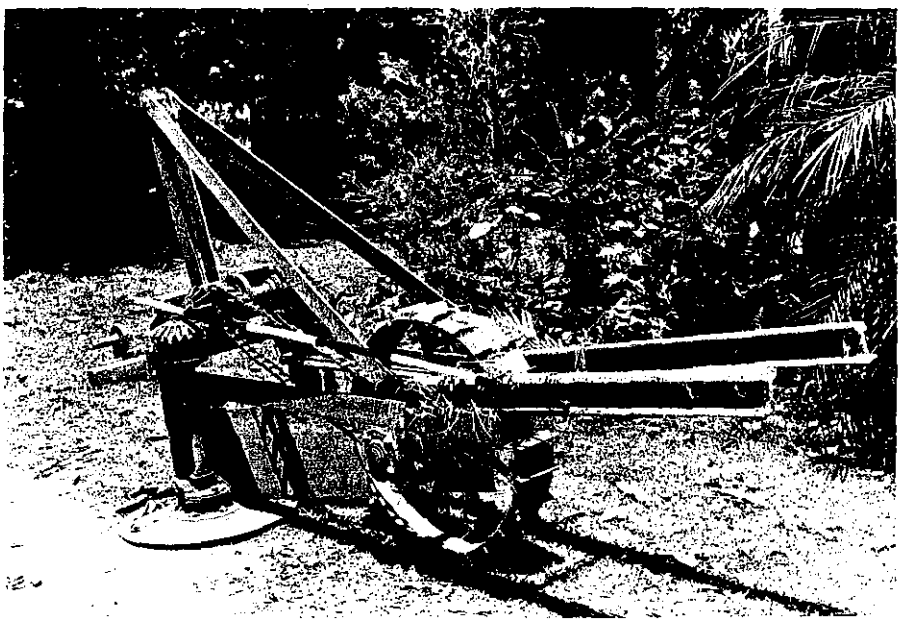
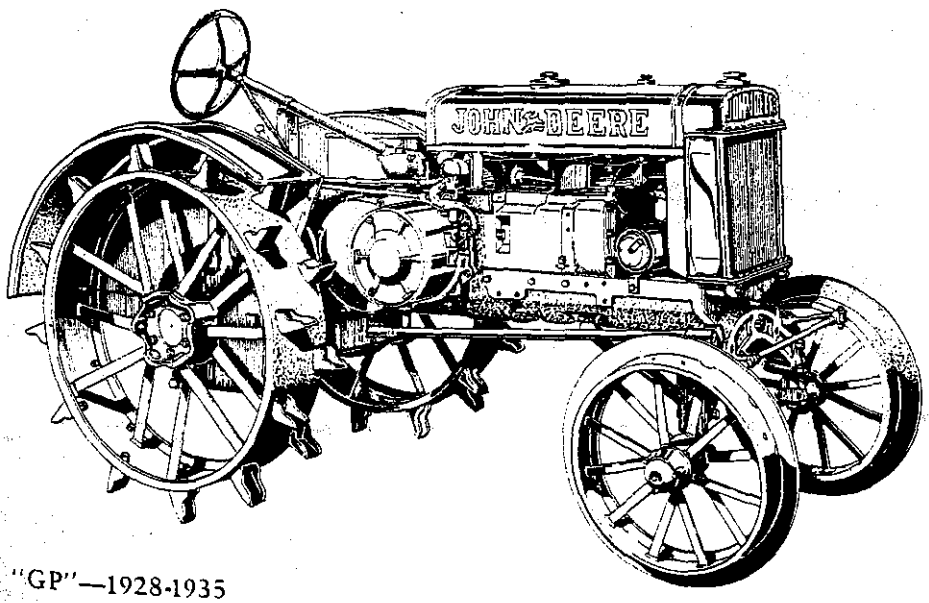


Plate 32: A stubble shaver

Plate 33: John Deere 'GP' model 1928-1935 (John Deere 1976:6)



"GP"—1928-1935

much work as was formerly thought and in fact the least working the better. Hence, there was a move towards the use of chemicals in the form of pre-emergence weedicides to maintain a clean soil. During the war the hormone-type weedicide 2,4-D was found to be safe and effective and began to be popularly used. Implements used to distribute this chemical on the soil were called boom sprays. After planting, the farmer would go through the paddock with discs and rakes to remove any weeds and grass that had already emerged and to fill in the drill level of the field. He would then follow with the boom spray.

TILLAGE FOR A RATOON CROP

After harvesting the paddock was cultivated to obtain a ratoon crop. Sugar cane is able to produce new shoots from the harvested plant crop, and given the right conditions, a ratoon crop, almost as good as the plant crop, can be grown. It is usual to obtain two ratoons from a plant crop before the stubble is ploughed in and a new crop planted. However more or fewer than two ratoons may be grown. Various factors determine: climatic conditions; infestations; district farming practices; and quality of the soil. Ratoon crops cost less to produce than a plant crop so a farmer cultivates them carefully for it is from these crops that he can profit.

Ratooning methods varied depending on district practices, individual farmers, soil types and the farm implements available. Any description of ratooning methods and implements mentions only some of those used. The following are said to have been most widely used and most conducive to a successful ratoon crop (King, Mungomery and Hughes 1953:87-95).

After harvesting the remaining trash and tops were raked into rows for burning.

The implement used for this purpose was the hay rake which could be either horse or tractor-drawn.

It was important to work the land immediately after burning the trash if the soil wa not to lose moisture. Grubbers were used to break up the soil to a depth of eight or ten inches (20 to 25 cm) and tear off the masses of old roots which had spread into the interspaces. This now allowed for rain penetration and aeration. However if the soil was left too lumpy, disc or tyne harrows would be used to break up the clumps and to leave soil in a fine condition. It would be hoped to achieve with the first implement pass a successful surface mulch.

One of the oldest methods of ratooning cane was to plough a furrow away from each side of the cane row and to plough the interspace to break up the soil. This was followed by a harrowing. Another old method was to go through the paddock with a sin tyne subsoiler or skeleton plough. This was a very time consuming method because the interspace had to be gone over three times to achieve the desired result. Kerr and Bell (1939: 58) regard the tandem disc harrows as the most useful implement for ratooning This could be drawn across the field in two directions at right angles

Another ratooning method was to use the rotary hoe with the middle blades removed. The remaining blades would work the soil on either side of the cane row. This procedure would still have to be followed by a grubbing. The spring tyne cultivator (as described earlier) was another implement used for ratooning. It would be drawn across paddock after a light disc cultivator such as the cotton king had gone down the cane row throwing soil away from each side of the drill. The spring tyne cultivator would break the ridge left in the row and scatter a shallow layer of soil over the stubble.

Stubble-shavers were first introduced from America and according to Easterby did not prove successful here (Easterby 1932:174). However King (et al) speak highly of the stubble-shaver. Its job was to cut off the top of the stubble with its two rotating, overlapping discs. The top buds of the underground stubble were cut off and consequently the stool would shoot from the deeper eyes. The disc harrow would also do this, but not as well.

King (et al) mention another ratooning implement that was in use in the period of study: the emery ratooning implement. It was attached to the rear of the standard grubber frame and consisted of two discs, a horizontal cutting knife and two stabilizing rotary coulters. It could be used not only as a ratooning implement but to make water drains on irrigated caneland or to plough out cane stools (King, Mungomery and Hughes 1953: 93-95).

FERTILIZING A RATOON CROP

After these cultivations, preferably after the first grubbing, fertilizer was distributed in the paddocks. This was applied close to the stool at a depth of three to four inches (7.5 to 10 cm). Fertilizer distributors were either horse-drawn or tractor-drawn and could be manufactured or homemade.

Almost all of Queensland's sugar producing soils are acidic. Lime was therefore distributed, usually after the final ratoon had been harvested but before it was ploughed out. Among other beneficial qualities lime application reduces soil acidity (King, Mungomery and Hughes 1953:124-133).

Cultivated land requires fertilizer in order to provide essential plant foods which a lost from the soil through leaching, erosion and cultivation. Sugar cane usually requires additions of nitrogen, phosphorus and potassium. In the period under study, mixes of these were devised suitable to the varying soil types in the sugar belt and for application planting or ratooning mixes. Sulphate of ammonia was a favoured top dressing fertilizer was usually applied on the ratoon crop in November to December before the onset of th wet season or when the cane stools were approximately 12 to 18 inches high (30 to 45 cm) (King, Mungomery and Hughes 1953:98-113).

The paddock was then cultivated as a paddock of plant cane would be. Once th cane was out of hand there was, in terms of cultivation, little more the farmer could do. H relied then on adequate falls of rain to promote growth.

While well-known manufacturers both local and overseas were supplying implements to Queensland farmers, the latter also produced homegrown variants and modifications out of necessity, whim or inventiveness. Some of the early well-known implement makers were the International Harvester Company, Massey-Harris, H.V. McK Willman, Walkers and the Bundaberg Foundry.

TRACTORS

During the 20th century, cane sugar cultivation in Queensland was revolution in a few short decades by radical technological advances. The tractor spelt the death for the horse in the sugar industry. Once tractors became more affordable all farmers see their advantages. Care of his horses took a good part of a farmer's day. The tracto

not have to be stabled and fed. The tractor was capable of far heavier work in shorter time. The tractor reduced labour costs as its use enabled work once done by many, to be completed by a few.

In the booklet *John Deere Tractors 1918-1976* the observation was made,

> Despite the increasing popularity of tractors, many farmers kept their horses until well through the 30s. Some plowed and planted with tractors but preferred Ol'Dobbin for the meticulous work of cultivating. Others, on small farms, believed the size of their operations simply did not justify a tractor. So the horse remained an important source of farm power. (John Deere 1976: 12).

In the era under discussion there were numerous companies selling tractors to farmers, the most popular initially being those of the Ford Company and later those manufactured by International Harvester, John Deere and Massey Ferguson. Each company was continually updating, and marketing new models, though older and newer models were being manufactured and sold concurrently. Models could be manufactured with variations, for example, high-clearance models or industrial models, and purchased with optional additions. Branches of the same company in different parts of the world could also be producing tractors with confusingly similiar serial numbers. For example, the Farmall 130 and International 130 tractors (with a Farmall 130 high-clearance model also available) were produced in the United States. Meanwhile McCormick International - International Harvester Company of Great Britain Limited was making the McCormick International Hi-clear 130!

Tractors were first manufactured with steel wheels but by the 1940s rubber wheels were becoming popular. Tractors with pneumatic rubber tyres were first

manufactured in the early 1930s. It would appear that tractors were first sold with steel wheels but rubber or split combinations were options. Farmers with earlier model tractors sometimes converted their steel-wheels to rubber (Wendel 1981:100,348 and Masters 1982:Photo Collection, Book 2 - no number). Rubber wheels were preferable to steel because the latter lacking traction, would spin and bury in difficult conditions. Rubber gave better steering, allowed for higher ground speeds and gave the farmer a more comfortable ride so reducing fatigue. On the other hand steel wheels were cheaper, an important consideration for a small farmer. Nevertheless, within ten years of the introduction of pneumatic tyres, steel wheels were rarely used (Wendel 1981:100, 107).

Tractors were versatile, able to be utilized for many purposes other than field work. Equipped with a pulley they could drive a chaff-cutter or irrigation pump. While implements were initially 'dragged' from the drawbar of the tractor and lifted manually by hand levers or by ropes extending from the implement to the tractor; a welcome development was 'power lift' which meant that cultivation equipment could be raised or lowered by tractor power. One of the first tractors to show this was John Deere's 1928 'G' or 'General Purpose' model. In the 1940s further progress was made with the conversion to hydraulic lift. The next important development within this period was the facility for power takeoff (PTO). A fully independent PTO controlled by its own clutch was first provided on a John Deere tractor with their John Deere 50 model. The independent PTO extended the practical applications of tractor power (John Deere 1976:16-17). A boom spray, a rotary hoe and a water cart are examples of implements that would utilize power takeoff.

This discussion does not attempt to cover all the variations on horse-drawn equipment, tractor-drawn equipment and methods practised in each era. For example, in

the end of production of horse-drawn **cultivation** equipment the International Harvester Company alone had designed and built some 500 different models (Wendel 1981:95)! Once tractor power became popular all farm implements had to be redesigned, and improved models continued to be produced in bewildering quantities. Neither are the two eras distinct, for occasional farmers were still using horses exclusively for fieldwork into the 1950s, while other forward thinking or wealthier farmers were using tractors as early as 1910. Even within a farm farming was not necessarily done exclusively by horse or tractor in this early period. While a tractor might have been used for the heavier work such as ploughing, horses would still have been used for the lighter work such as planting and cultivating.

Moreover, horse-drawn machinery was often modified for tractor use. Inevitably tractors, such as the International Harvester Company's 'Farmall' (first produced in 1924), which was an all-purpose tractor capable of cultivation work, hastened the end of cultivation by animal power. The company went on to design implements specifically for use with the Farmall. The John Deere Model H, introduced in 1939, is similarly claimed by that company to have signified the end of the draft horse because the H was a small tractor that "met the small farmer's needs for power at a price he could afford" (John Deere 1976:12).

MATERIAL SURVEY

Land clearing. In Hec Masters' private collection at Abergowrie, saws, brush hooks, wedges and axes, road ploughs and tree pullers used in the Herbert River district to clear land are to be seen. There are also several smaller items such as saws and axes in the Australian Sugar Industry Museum collection.

The first planting. Farmers are never quite sure how old their mattocks and hoes are. Hardy little tools, they last for many years. However, they are also the cheapest and most easily replaced implement on the farm Relatively old examples are still to be seen in use on the Balanzategui farm, Herbert River District.

Tillage methods prior to planting. Examples of a Tumbling Tommy can be seen in both Peter Hansen's and Hec Masters' collections. The Masters display includes various types of single furrow swing ploughs. The mouldboard plough as seen on the Balanzategui farm is the one piece of horse-drawn equipment that seems to have survive on many farms. Well known machinery makers included John Fowler and Co. and Ransome and Sims of Great Britain, Mclean of Brisbane and Willman of Mackay (Easterby 1932:171,173). St. Theresa's College, Abergowrie, Herbert River district, has on display at the front of the College a steam engine manufactured by John Fowler and Co. Leeds, was used on the Lannercost Flats (Doran pers. comm.:November 1991). There is also a steam plough on the Gairloch Mill site, Herbert River district, which would have been use with the traction engine. It too, was manufactured by John Fowler and Co. Easterby describes a Colonial Bullock Plough made by Alexander McLean of Brisbane which ha be pulled by 10 bullocks or six horses and was used for breaking up land and could cu through roots and such like to a depth of 10 inches (25.4 cm) (Easterby 1932:171). Masters has an unusual mouldboard plough mounted on wheels with a very solid frame that would have been drawn by three to four horses. Apparently it was used for workin virgin land. Perhaps it resembles the Colonial Bullock Plough.

Single furrow horse-drawn disc ploughs can be seen in Hansen's collection: one a Newell and Sanders plough manufactured in Chattanooga, Tennessee, and the other

a Sunshine make, manufactured in Australia. Sam Finocchiaro's collection, Herbert River district, also includes a Sander's plough. Hec Masters' collection includes a Sunshine single disc plough usually drawn by three or four horses and a reversible double disc plough pulled by two horses. At Hansen's can be seen a horse-drawn single disc plough modified for use with a tractor by adding a draw-bar. A multiple disc unit can be seen at Don Watson's Brie Brie: a Don drag disc plough which had four discs originally.

There is an early steel-wheeled Howard tractor with a rotary hoe attachment as well as a rubber-wheeled DH22 Howard that used to draw a rotary hoe attachment (both unrestored) in Peter Hansen's collection.

There are several home made tyne harrows in the Masters' collection. Examples of diamond harrows are to be seen in the shelter of the Balanzategui barrack, Herbert River district, and also near the old shed on DiGiacomo's farm, Herbert River district. Andrea Mancuso, Herbert River district, has two excellent examples of wooden rollers. In the Masters' collection is a swing plough converted to a skeleton plough with the removal of its mouldboard.

A tandem disc harrow is to be seen on Grossi's farm Herbert River district. Grubbers are in both the Masters and Finocchiaro collections. Hec Masters has three types: the Grossner (horse-drawn); Sunshine (tractor-drawn) and Don (three point linkage), all now obsolete, while Finocchiaro's is horse-drawn. A horse-drawn Gaston grubber can be seen dumped over the riverbank on Roy Lavis' farm, Cairns district, - an ignominious but common fate of much early equipment

Planting. The Masters collection includes several drill ploughs, all of them to be drawn by

four horses. Included in the Australian Sugar Industry Museum collection is a drill plough said to have been drawn by three horses. The Hansen collection includes one that is supposed to be pre-1900.

There is a 1920s fertilizer box in the Hansen collection. Hec Masters has several early types in his collection: one a Hodge horse-drawn fertilizer distributor and another couple, one of which is the often seen vibrator fertilizer box known by some as 'Old Tacka Tacka' or more commonly as a 'tap-tap' box. It gets its name from the action of the implement. An adjustable arm makes contact with small appendages spaced at regular intervals on the rear wheel, causing the tray attached to the arms to vibrate and spill out fertilizer. When the arm and wheel make contact a 'tacka-tacka' or 'tap-tap' sound is made hence the nicknames (Masters 1982:Photo Collection). Joe Elortegui, Herbert River district, has an example of the latter in beautiful condition that was manufactured in the 1930s, as does the Australian Sugar Industry Museum which has a vibrator fertilizer box which is a Sunshine model manufactured in Victoria in 1939. At the Australian Sugar Industry Museum is a Massey-Harris fertilizer distributor of around 1910 vintage. It was drawn by two horses and is a sizeable implement. It was also used to distribute fertilizer prior to planting.

In the Masters collection there are two homemade trash strippers made of length of brass tubing with wood at one end for handles and two pieces of beading from old tyres attached at the other end to act as hooks. These hooks would be drawn down either side of the stick of cane to clean off the trash. On the Balanzategui farm there is a manufactured one comprised of a wooden handle with two steel hooks lined with a cane type lining. This example is in excellent condition.

There are numerous good examples of drays still extant. The Masters collection includes several, some of which have been modified to be drawn by tractor. Others in varying condition were sighted at Drexl's farm, Cairns district, (bad condition); Watson's Brie Brie Estate (excellent condition); 'Richmond' homestead (good condition); 'Fairymount' homestead (excellent condition) Mossman district; Finocchiaro's farm, (fair condition) and Spina's farm (excellent condition), Herbert River district. A dray in Hansen's collection is in excellent condition and one in the Australian Sugar Industry Museum is in fair condition.

Older model trucks are infrequently sighted. A Fargo Dodge utility, 1953 model is still in use on Bellero's farm, Lannercost, Herbert River district. Henry Hill, Cairns district, still uses his 1941 International K5 truck, also an army surplus vehicle; while in Reghenzani's shed, Bruce Highway, via Gordonvale, is an unused diesel Commer Rootes truck. Peter Hansen's collection includes an Austin three ton truck. There is also an Austin on Grossi's farm, Herbert River district, which is still in occasional use.

A drop planter, circa 1920s vintage can be seen at the Australian Sugar Industry Museum. It was drawn by three horses. It had two tynes at the rear which threw soil over the setts. One can also be seen on Hill's farm.

The Masters collection includes two Hodge cutter-planters and a Wallis cutter-planter designed by the Wallis Bros., and manufactured in Ingham by Hansens Engineering Works, Ingham. Hansen also has a Wallis planter - H2 Series, No.277. On Balanzategui's farm is a Wallis cutter-planter decaying on a river bank - where much horse-drawn equipment ended up, once it had outlived its usefulness. Milne planters can be seen in various states of disrepair on many farms including Elortegui's, Balanzategui's and

Rowe's, Herbert River district, and on the Lavis and Hill farms. All except the one on the Balanzategui farm are steel-wheeled. Old planters of unknown manufacture were sighted as well, such as the cutter-planter at Drexl's which resembles a Hodge cutter-planter. It is steel-wheeled, has the frame for holding the whole stalks, and was tractor-drawn.

Excellent examples of wooden 'belly rollers' are to be found in the Herbert River district. The best example, being in good condition, is the one on the Ingegneri farm. Under the Ferrero barrack and in Peter Hansen's collection are belly rollers in poorer condition.

Tillage methods after planting. Cotton kings can be seen in the Hansen collection and the Masters collection. The latter however has been modified to be drawn by a tractor. There is also in the collection another horse-drawn one that had been likewise modified for tractor use but it unlike the others has a rake attached. The cotton king is the Finocchiaro collection is also equipped with a seven tyne rake. In the Australian Sugar Industry Museum there is a cotton king quite different from the others in that it has two large metal wheels. There is also one of this type in the Masters collection though it was not used locally. He says this type of cotton king was called a 'Wiggle Tail' because of the facility for the driver to be able to move the two gangs of discs in whatever direction the driver desired (Masters 1982:Photo Collection).

Tractor-drawn spring tyne cultivators can be seen in the Masters collection. Several horse-drawn types of spinner can be seen in the Masters collection; in the Australian Sugar Industry Museum collection; on Ingegneri's farm; while a tractor-drawn one can be seen on Hardwick's farm, Cairns district. A cane-cleaner type of mouldboard used instead of the spinner can be seen in the Masters collection and on DiGiacomo's

farm. Various types of cultivator tynes also used can be seen in the Masters collection: a scratcher with seven tynes and a home-made cane cleaner with two shares and eight tynes. Apart from the horse-hoe scuffler or scarifier the Masters collection also includes an interesting mobile scarifier.

Peter Hansen has in his collection a 1950 Ransome Crawler that was used for inter-row spraying of herbicides (weedicides). David Robino, Herbert River district, has a 1938 F14 International Farmall that was uniquely modified and made into a high-clearance tractor for spraying the weedicide 2,4-D.

Tillage for a ratoon crop. In the Masters collection is a horse-drawn hay rake that was modified for tractor use. There is also a hay rake in the Hansen collection and in the Australian Sugar Industry Museum store items. Both were horse-drawn.

There is a stubble-shaver on the Balanzategui farm as well as in the Masters collection - one manufactured in the early 1930s and the other after World War 11. Both are tractor-drawn but the latter has an hydraulic lifting system.

Fertilizing a ratoon crop. Fertilizer distributors can be seen in the Hec Masters collection: a tractor-drawn example, manufactured by the Sunshine Company, the other homemade after World War 11 when machinery and materials were unavailable. A wooden fertilizer box is attached to the Farmal AV tractor on Bellero's farm. Don Watson and Elmo Ferrero each have lime spreaders which could also be used for the distribution of fertilizer.

It is not uncommon to find on farms one old tractor which the farmer regards with some affection and which is still in reasonable running order. Examples are Bellero's

Farmall AV, a high-clearance model manufactured in the years 1939 to 1947; and DiGiacomo's McCormick International Hi-clear 130, also a high-clearance model.

The most impressive collection of tractors, restored and unrestored is that of Pete Hansen. The oldest in his collection is a 1917 Fordson F steel-wheeled tractor with a side plough attached made by a foundry in Brandon. A side plough could be used for clearing land. He also has a 1945 Fordson rubber-wheeled tractor which was used for heavy farm work. The Ford Motor Company Ltd. manufactured these tractors. A 1950 Ransome Crawler, made in England, a 1923 Cletrac E.N. and a 1938 T20 McCormick-Deering Crawler (TracTracTor) manufactured by the International Harvester Company are examples of a completely different type of 'tractor' used in that era. This type could be employed in many different stages of work from 'drilling out' to 'trucking out' to spraying of weedicides. He has several other McCormick-Deering tractors, restored and unrestored.

Peter Hansen asserts that Fordson and McCormick-Deering were once the "backbone of the sugar industry" (Hansen pers. comm.:17 December 1992). The most recent of the latter in his collection is a 1942 W4 interestingly with steel wheels at a time when rubber wheels were becoming more popular. There are several other tractors made by the International Harvester Company, Chicago U.S.A. in his collection: a circa 1947 International Super A and a 1939 International Farmall M. Other brandnames to be noticed in his collection are Howard (Australia); John Deere (U.S.A.); Allis-Chalmers (Great Britain) and Oliver (U.S.A.). The 1934 Allis-Chalmers tractor in the Hansen collection has a pulley to drive a chaff-cutter or irrigation pump.

At the Australian Sugar Industry Museum can be seen a 1932 Fordson N tractor (rubber-wheeled) and a Fordson F manufactured post-1917. This latter has an interesting

farmer innovation: the steel wheels have been encased by wood to raise the tractor off the ground, making it a high clearance tractor. In this collection is also a Farmall F30 (steel-wheeled).

In the Hec Masters collection is a Ransome crawler tractor that was used for inter-row cultivation and a steel-wheeled 1922 Hart Parr tractor (Australian).

On the Mancuso farm can be seen a McCormick-Deering tractor, possibly a 15-30, a model which changed the face of farming for with it 'power farming' became more widespread (Wendel 1981:293). The farmer bought it and a cultivator in 1929. The tractor was used for all aspects of farm work. At Finocchiaro's is another McCormick-Deering tractor, again appearing to be a 15-30. It was one of the first in the area and was used to plough the farmer's own and his neighbours' farms.

C.S.R. Hambledon has restored a John Deere and a Farmall tractor from the 1920-1931 era. Both were steel-wheeled. I was not able to sight them and am unaware of their fate since Hambledon Mill ceased to operate (H. Solomon pers. comm.:15 January 1992). On Roy Lavis' farm is a Farmall M tractor. First produced in 1939 the manufacture of these ceased in 1952. The Farmall M was an exceedingly popular model. A German Lanz tractor, 1940s vintage, is also in Roy Lavis' shed. It was used for ground cultivation and later pulled fertilizer and water carts. Up until recently it was used in local processions because of its novelty value. There is also to be seen there a Caterpillar 10 - 1930s vintage. It was used for cleaning plant cane on hill sides and for break pushing. Such machines had a low centre of gravity meaning they could be used on hillsides where wheel-type tractors couldn't (Wendel 1981:333). Henry Hill also has a Caterpillar 10 that he says was manufactured in 1929. As he put it:

> When you used it as a farm tractor you were far in advance to everyone else for while you were working all the time those who had to use six horses to do the same sort of work were busy feeding and caring for horses! (Hill pers. comm.:15 January 1992)

He has several TracTracTors, or crawlers, one being a McCormick-Deering T20 fi produced in 1929 and another, a Fordson manufactured around 1945. Hill suggests tha the earlier T20 was far superior in design to the Fordson. He also has a 1953 Ferguson tractor. He claims these were an exceedingly popular tractor. He still uses his for the cultivation of plant cane. He has a Ted 20 Harry Ferguson manufactured in the late 194 in England that he occasionally uses for the same job. He has a steel-wheeled Case (D tractor manufactured in 1939. It was a heavy duty tractor suitable for ploughing. It was la used for pumping water.

Don Watson has several old tractors in working order. One is a Farmall A.V. mod The A series was first introduced in 1939. The A.V. was a high-clearance model. The Farmalls As were "an entire new generation of tractors, bringing unheard-of versatility t tractor power" (Wendel 1981:346). Don Watson used his with a fertilizer box and also wi the water cart. He has a John Deere Model 70. The series was manufactured betwee 1953-1956. His is a 1956. It was used for land preparation, for grubbing and ratooning This particular tractor has the distinction of being the first in the district to pull bins for a mechanical harvester. The other tractor he has is a Case Model L 1932. It was a heav duty tractor used for land preparation. It also hauled cane bins for a mechanical harves

CONCLUSION

Basing this chapter on the highly acclaimed cane growing manuals of 1939 and 1953 issued by the Bureau of Sugar Experiment Stations (B.S.E.S.) I have tried to present an overall view of cultivation methods practised and implements used during the period, 1872 to 1955, in the area, Mossman to Ingham. It is inevitable that some implements and methods considered important by farmers of that period will have been overlooked. As Kerr and Bell (1939:51) said in their manual, only "general principles [can] be discussed, and it will be ... the discretion of the grower to determine what elements are best suited to his peculiar conditions. No set formular could be laid down which would fit all areas in all seasons".

Methods described by farmers as being practised in the horse-drawn era can often be verified by sighting equipment for, because of its curiosity value, quite an amount of horse-drawn equipment has been kept. However, early tractor-drawn equipment is harder to sight. Not of such curiosity value, if superseded by a more efficient updated model, it has been traded in, dumped over a river bank, used as scrap metal or been otherwise disposed of. It is much harder to substantiate by illustration the early tractor-drawn implement era.

Harvest time proved the quality of the work carried out by the farmer in land preparation, planting, fertilizing and cultivation, and at last he realized on all the time, effort and money he had expended.

The methods used to harvest the crop in the period, the means used to transport the cane from the field to the mill, the milling process and the transportation and disposal

of the resultant sugar are discussed in the next chapter.

6. FROM FARM TO PORT 1872 - 1955

As the work of planting finished and cooler weather set in, the harvesting season began. The methods used to harvest sugar cane differed from era to era and from district to district. The availability of labour, cultivation methods of the time, climatic conditions and geographical aspects, all were determinants of the methods utilized. This chapter provides a general description of the methods of harvesting cane practised in the period 1872 to 1955 and also of the way the harvested cane was carried to the mill and in turn to the port in that era. Examples of relevant extant artefacts and structures are also cited.

MANUAL CANECUTTING

In the days of indentured labour cane was cut green and the various aspects of job done by different groups of workers. The cane first required trashing, cleaning the cane of the lower leaves and the drills of weeds, a job done according to Bolton (1972:84) by the 'old hands' amongst the Kanakas, those who were already inured to hard physical labour. The stalks were then cut with a cane knife and thrown on the ground. The tops were cut off each stalk by another group. Yet another team tidied the felled stalks into bundles ready for loading and also raked the ground clear of trash. The groups would then exchange jobs. This method was neither ordered nor efficient in the way canecutting was later to be (Burrows and Morton 1986:14-15).

Burning prior to the cutting of cane was not universally practised in the north, prior to the Weil's Disease outbreaks of 1934 and 1935. Like all other aspects of sugar

cane cultivation this practice differed from district to district. For example, in *Northern Outpost* (1979:51), John Kerr claimed that 60% of cane was already being cut burnt in Mossman as early as 1907. Before the strikes, burning and the removal of extraneous trash was regarded as a method of speeding up harvesting. Burning made the physical task of cutting the cane stalks less onerous for the canecutter. However, the advantages of burning were considered to be far outweighed by the disadvantages. There was marginal loss of C.C.S. at first, but if the cane was left standing for over 48 hours the C.C.S. fell in proportion to the time left standing. Trash for humus was also lost and burnt cane had to be cut as soon as possible otherwise there was a risk of losing the burnt stand of cane altogether. In fields to be left fallow working of the ground was made much easier when the cane had been burnt prior to harvesting. With the implements available at the time the farmer found it difficult to deal with the heavy layer of trash remaining after cutting green.

The first clinical diagnosis of the disease Leptospirosis, commonly known as Weils Disease, was made by an Ingham doctor, Doctor Morrissey, during the 1933 sugar cane harvest. Unprecedented outbreaks of the disease in, and north of Ingham, followed after the very wet seasons of 1934 and 1935 and led to strikes in those years by canecutters pressing for the cane to be burnt before harvesting. Weils Disease, a virus spread by rats' urine on wet ground and cane stalks, could be contracted by cutters when cuts on their hands and bodies came in contact with contaminated cane. The sharp edges of the sugar cane trash scratched and cut the canecutters' skin. Obviously, burning removed the troublesome trash but it had long been thought that it also sterilized both cane and ground, the heat destroying the leptospirae, drying up surface moisture and driving out the rats. In 1936, the Industrial Court handed down a ruling that all cane was to be burnt prior to harvesting. This decision, however, finally had more to do with war time labour

shortages than the spectre of Weils Disease (Jones 1973: 348-353; Menghetti 1981:28-42; Wegner 1984:142-145).

Burning required matches, water-soaked sacks and armsful of trash and was done several times a week. The amount burnt would provide enough cane for two or three days cutting. A fire break was made by forcing two adjacent rows of cane in opposite directions to separate what was to be burnt from what was to remain unburnt. This was done at first by men walking down between the drills leaning on the cane to push it back. Later a break pusher would be used to achieve this less laboriously. This implement would often be paired with a crawler type tractor and even today it is not uncommon to see such a tractor, with its break pusher still attached, parked unused in a shed as in Mizzi Bros. shed, Johnstone River district. The burn was then started at the break and taken around the perimeter of the paddock. A handful of trash was set alight with matches and held to the cane at the point where the fire was to begin. Sometimes grass burners were used to start the fire. As the fire burnt away from the break, the smouldering grass and trash at the perimeter of the burnt area was beaten with wet sacks.

In the early days of the sugar industry skilled work was usually done by white labour and unskilled work by non-white labour: Melanesians, and as restrictions were placed on the importation of that form of labour, others such as Chinese, Singalese, Japanese, Javanese and Malay labour. By 1913 Commonwealth legislation had been enacted to exclude all non-white labour from the Queensland sugarfields. Radical adjustments had to be made by the whole industry in order to facilitate the use of white labour.

Where formerly all the processes of sugar cane production from cultivation to

milling were conducted under the centralized plantation system, the industry now became one of small, family sized farms supplying cane to the former plantation mill, or to a co-operatively owned mill. Sugar cultivation and milling became separate, specialized processes. While the family could adequately meet the labour needs of cultivation and planting, the harvest required additional labour which had to be met by men prepared to work seasonally and to leave the district at the end of the harvest to seek work elsewhere.

The system that evolved for harvesting the sugar cane crop was a 'butty gang' system. It was already widely practised by the time it was acknowledged and described in Parliament in 1912. The 'butty gang' system describes a method of work where each member of the team, or shares equally in the joint earnings derived from their work as a group (Shlomowitz 1979:41-42). The gang usually worked under a piecework system contracting to cut a set number of tons in a season and paid a fixed rate for each ton cut. In the area under discussion, depending on the size of the farms, a gang of up to eight men would sign a contract with one or more farmers in the one area to cut an agreed tonnage. Where the gang was contracted to cut with more that one farmer, the farms would be cut in strict rotation. These gangs were far more efficient and self-motivated than the larger gangs of non-white wage labour of the plantation system (Vidonja Balanzategui 1990:78).

Though the actual technology of sugar cane cutting changed little in this early period of transition from indentured coloured labour to white labour it became far more scientific. The gang was supplied with the tools required for the job: cane knives and files, by the farmer. The cane knife consisted of a long blade of highly tempered steel, not more than a thirty-second of an inch (one mm) in thickness, set in a wooden handle. Handles ranged in length depending on personal preference. The short handled knife

was preferred in the days when cane was cut green. Later, in burnt cane, the long handled knife became more popular. At the very end of the blade was a hook-like projection designed to strip leaves off the stalks of green cane. A new knife had to be tailored to the individual cutter's requirements. The handle would be worked with a rasp to shape the grip to the comfort of the individual. Using the file, most commonly a ten inch (25 mm) 'Wiltshire mill bastard' file, the knife blade would be carefully sharpened. To keep the knife razor sharp it was sharpened frequently by file in the field.

If the files were not carried around the canecutter's waist in a self-fashioned holster they were stored in the field in a 'filestick' - an ingenious homemade piece of equipment. A filestick was made of a suitable length of piping, plugged at the bottom and secured onto a rod of sharpened steel which was driven into the ground. The top was covered with either a roofed piece of piping or a conveniently sized jam tin (Vidonja Balanzategui 1990:65-68; Burrows and Morton 1986:47-48). On average, a canecutter would wear o.. three or four knives in a season. Good examples of these items: cane-knives, both short handled and long handled, and a 'filestick' can be seen in the Australian Sugar Industry Museum collection.

Cane was cut by the cutter bending down and encircling two or three stalks of cane at chest height with his left arm. He then cut these stalks with a short sharp motion just above ground level. He threw the stalks forward, or with a back-hand motion, depending on his position, onto the ground to form a regular line of cane in readiness for gathering into bundles for loading. Topping on the ground came into practice in the late 1940s and early 1950s. Formerly, for unburnt cane the practice was selective topping, meaning that the leafy top was cut off before stalks were laid on the ground Burrows and Morton (1986:53-54) provide a useful description of green cane canecutting.

MECHANICAL CANE HARVESTING

The parameters of this project cover a period concluding with the year 1955, after which mechanical harvesting changed the face of the Australian sugar industry forever. It is in the years after 1955 that the impact of mechanical harvesting was dramatic. Between 1956 and 1968 the percentage of the Australian sugar harvest cut mechanically rose from 2% to 68%.

Hand cutting of sugar cane was an effective and efficient means of harvesting the crop as long as the labour supply was assured. However, labour became increasingly difficult to obtain and more expensive. In Australia, once effective mechanical means to harvest the crop were developed, mechanical harvesting was adopted very quickly (Department of Labour and National Service 1970:7). The rationale of a mechanical harvester was that cane was cut by a machine in the field into whole stalks and loaded separately (wholestalk harvesters) or chopped into billets and loaded immediately into trailer bins (chopper harvesters).

In 1889 a model of a mechanical harvester was displayed in Bundaberg but of nothing more was heard (Easterby 1932:175). However, by 1909 the first working machines were developed. Mechanical harvesters were on trial or in use in every season from that year onwards. Their successful operation on a wide scale began however, in the mid-1950s when particularly severe labour shortages and production increases gave the concept impetus (Department of Labour and National Service 1970:9, 18).

Mechanical harvesting was adopted most quickly in the northern mill areas,

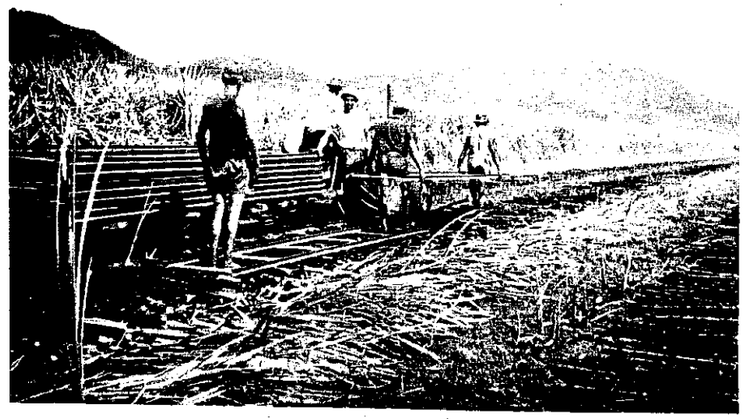


Plate 34: Laying the portable rail (Vidonja Balanzategui 1990:66)

Plate 35: Shoulder loading (Vidonja Balanzategui 1990:61)

Plate 36: Tightening the load (Vidonja Balanzategui 1990:68)

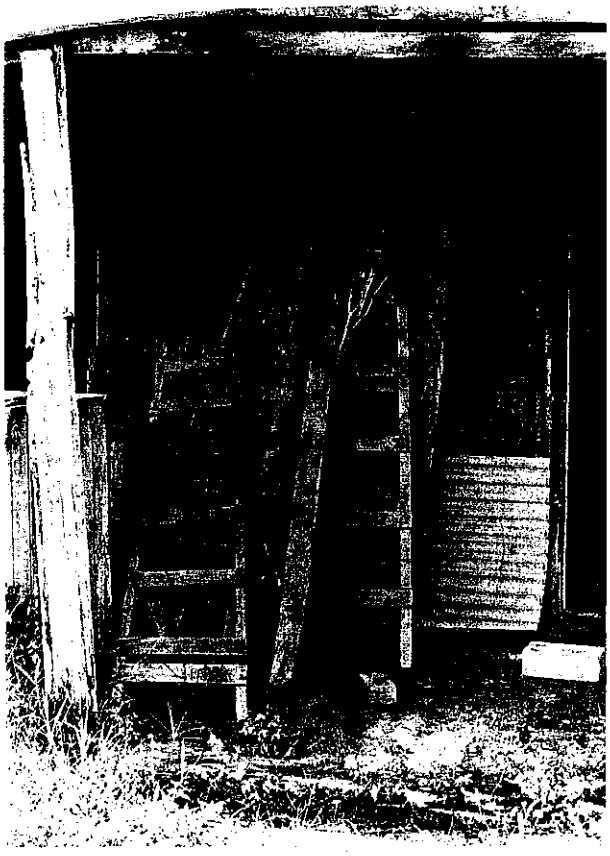


Plate 37: Cane ladders

Plate 38: Mechanical loading (Vidonja Balanzategui 1990:67

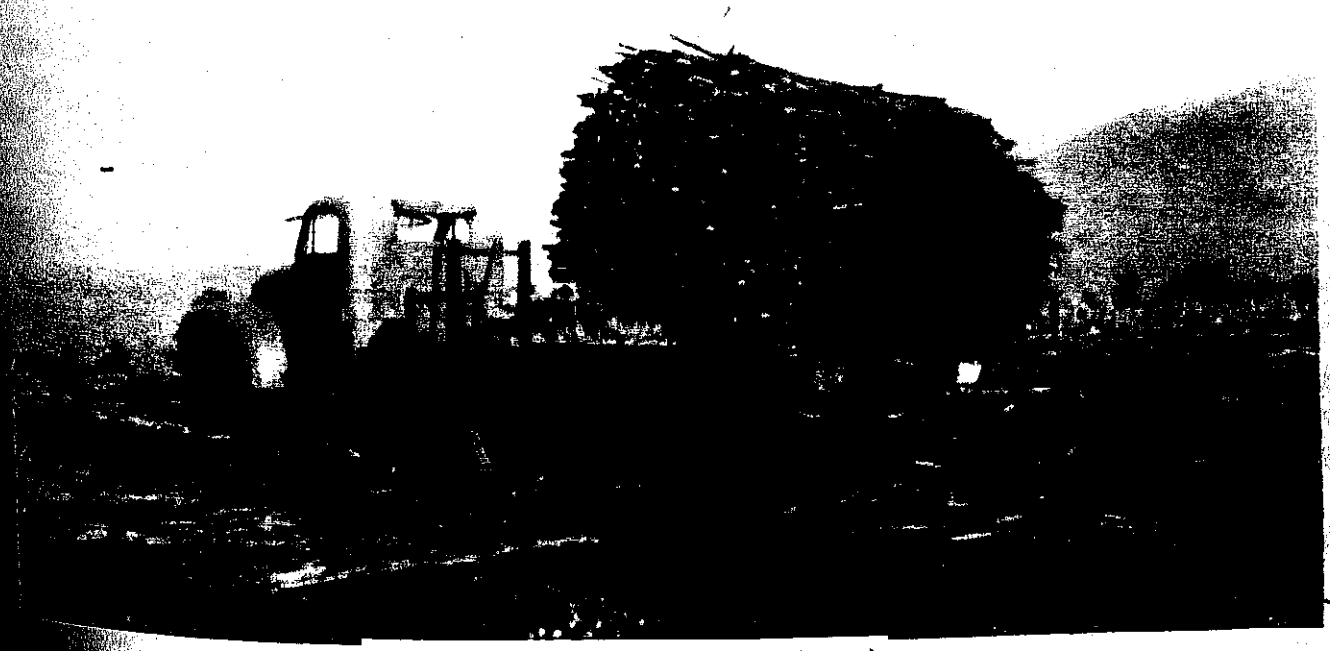


Plate 39: Truck of cane on a truck (White)

(Mossman to Ingham) where the harvest was still reliant on a large seasonal work force (Department of Labour and National Service 1970:20). In the 1920s the most successful of the early harvesters, - a Falkiner was developed and a company, the Queensland Cane Harvesting Corporation, Limited, was set up in 1925 to protect the Australian rights to the machine. Six of these harvesters were manufactured in Australia, five of them in Queensland by Evans, Deaken, and Company. Ralph S. Falkiner derived its design in part from the 1910 Hurrey Harvester and it was a forerunner of the chopper harvester (Kerr 1979:9; Easterby 1932:180,187). Cutting the cane at ground level, the cane was cut into short lengths and the tops and trash removed by a strong blast of air (King, Mungomery, Hughes 1953:189). The photograph of a Falkiner harvester pictured by both Easterby, in *The Queensland Sugar Industry,* and by Shepherd in *C.S.R. Victoria 100 Years Onwards,* is claimed by Shepherd to show the harvester on trial in the Victoria Mill area (Shepherd 1983:unpaginated). Although it was used successfully in Florida, it failed to meet Queensland requirements and conditions.

A harvester made in Louisiana by the Luce Cane Harvester Company received much publicity in Australia in the period 1914-1929, with photographs appearing in the Sugar Journals of the time and a film being made on its operations. It was never developed in Australia. A harvester in the storeroom of the Australian Sugar Industry Museum is claimed to be a Luce (Robertson pers. comm.:January 9 1992). Comparing the machine with old photographs of the various early harvesters, I would suggest that the harvester is more probably a Falkiner.

Other harvesters followed, among them the Miller-Owen (wholestick), the Howard (chopper), the Fairymead (wholestick and the Kinnear (wholestick). Essentially, the reason that these harvesters, though workable, did not prove successful was because

they could only handle straight, standing, burnt cane. Tangled, leaning, flattened cane was impossible for them to handle (King, Mungomery, Hughes 1953:196). The Massey-Ferguson MF-515 Harvester was the first truly successful harvester for Australian conditions. The work that produced this machine was initiated by the visit of the Managing Director, Tom Ritchie, of H.V.McKay, Massey-Harris Limited, to the Australian sugar districts in 1954. By 1956, Ken Gaunt, his Superintendent of Engineering Research and Design with his team, Jim Wood, Jack Douglas and Charlie Stephens had produced the original prototype. Machines were distributed in 1959 between Cairns and Bundaberg to test their operation in a wide range of conditions (Burrows and Morton 1986:160; Kerr and Blyth 1993:86-90). One of these machines is housed in the Australian Sugar Industry Museum.

PORTABLE RAILS, HORSE LINE AND LOADING

In Kanaka days, in some districts such as the Herbert River, cane was loaded on horse-drawn carts and then carted to the mill. Even where tramways were introduced, horses would pull the trucks to the mill along these lines (Wegner 1986:104). Elsewhere a horse-drawn, flat-top wagon carrying portable rails would be driven into the field by a white overseer. The Kanakas would lay down their cane knives and unload the portable rails from the wagon. These early portable rails were made of wood or steel and were half the size of conventional rails. Burrows and Morton, in writing about the Cairns district, mention wooden rails being used on the Pyramid Plantation, while steel rails were introduced by Thomas Swallow on the Hambledon Plantation. Just as was done in later times, these rails were laid up the centre of the cut cane and joined on to a tramway line already laid along the outside of the paddock.

The rails were then stabilized. Along this line would be drawn empty wooden cane trucks. These would be loaded, two or three stalks being thrown across the width of the truck at a time. The cane was tied down with a chain and the loaded truck hauled by horses along the portable line to the main line where it was hauled to the mill, again by horses (Burrows and Morton 1986:14-15, 22).

A Mr. N.C. Rosendahl of the Herbert River district was credited with introducing the "chain and fastening appliance to bind the cane to the trucks for transport". It was said that after a visit to the south in around 1894 he returned with a chain and winding gear manufactured by the Bundaberg foundry. The C.S.R. Victoria Manager was so impressed with the device that he had 50 trucks fitted with it. This proved such a success that all subsequent trucks were similarly fitted. Prior to this, cane which fell off the trucks on the way to the mill was collected by Mill 'pick-up-gangs' and this cane divided among the farmers at the discretion of the Cane Inspector and Weighbridge clerk. (Noel Butlin Archives Z303/Box 45 D.3.0.1.1.).

When white canecutters assumed the work once done by Kanaka labour, the day would start with loading or cutting as the gang chose. There had, however, to be two loading shifts in each mill district, as the mills could not supply enough trucks to allow all farms to load at the same time. Loading was the most laborious part of the canecutter's job and the first to be mechanized. Cane was so loaded that stalks did not work loose on the bumpy ride to the mill. The cutter rolled a bundle of 12 to 15 stalks of cane onto his foot and raised one end of the bundle. Encircling it with his arms, he manoeuvred it onto one arm then rolled it on to one shoulder. He carried the bundle at a brisk speed to the truck onto which it was thrown. As the bundles of cane accumulated, the cutter had to load from a ladder which made the task even more difficult. The cutter carried his short ladder from

truck to truck as he went. Once loaded, a chain was thrown over the cane and pulled very taut using a 'key' and ratchet. Each truck would carry two and three quarter tonnes of cane.

Another arduous task of canecutting was laying the portable rail. The tracks might belong to the farmer or be supplied by the mill. It was the responsibility of the Cane Inspector to ensure that each farm was provided with its daily quota of trucks and was equipped with an adequate supply of portable rails. Each time a new paddock was cut, the portable rail had to be loaded on a truck by the gang and hauled to the new paddock by the farmer. The farmer would lay the 'corner' (the track from the main line to the property), bring empty trucks to the paddock and haul them full to the main line. The canecutters laid the portable rails up the centre of the tram (subdivision of paddock containing around 18 drills of cane) and the trucks were spaced along the track. Two and a half to three rail lengths per truck usually measured enough cane to fill that truck. When the cane was short it would take more rail lengths to fill the truck so the rail had to be uncoupled and shifted more frequently (Vidonja Balanzategui 1990:62-65).

Each full rail measured 16 feet six inches (five metres) but rails came in straights, half-straights, curves, half-curves and quarter-curves. The trucks were loaded from either side of the truck. The common quota of trucks was three per cutter per day. The truck was transferred from the portable track by butting the line to the mainline at the terminus. Otherwise, riding points, short lengths of rail shaped at one end to fit over the main line, were used. Collections of portable rails are to be seen on Mancuso's farm, Herbert River district, and on Don Watson's farm, Mossman district.

Once on the main line a docket (consignment note) was attached to the truck

bearing such information as the name of the farmer, names of the canecutters, variety of cane, and paddock designation. The trucks would be weighed at the mill and the cutters paid per ton of cut cane (Vidonja Balanzategui 1990:63-65).

The front-end loader was an Australian invention first developed by George Quaid of Mossman in 1951. Designed to be mounted on the small Ferguson TE20 tractor, it was attached to the back of the tractor and linked to its hydraulics. The driver manipulated the arms of the loader to grab a bundle of cut stalks. The bundle was then lifted from the ground and loaded on a cane truck.

Don Leighton of Mulgrave developed another front-end loader that could handle heavier crops and larger tonnages than that designed by Quaid. He made improvisations on a Nuffield front-end loader, replacing the dirt bucket with two pairs of improvised claws. Activated from the tractor's three point-linkage, it had the capacity to lift 12 cwt. (610 kg) of cane as compared to the seven cwt. (355kg) advertised capacity of the Quaid unit. In a modified form, it was subsequently manufactured in Brisbane and marketed in Australia under the brand name 'Nuffleigh' (Burrows and Morton 1986:145).

The front-end loader was an innovation which literally removed the hardest task of canecutting from the canecutters' shoulders. It was also timely, for it permitted higher output from the decreasing number of canecutters available in a time of industry expansion. Where in 1954 only 50 loading machines were at work in the field, in the 1955 season 385 loading machines loaded about 740,000 tons (754,800 tonnes) and by the 1956 season 950 machines loaded about 29% of the Queensland crop (A.S.P.A. 1957:10).

While at first the use of a mechanical loader was not economically feasible. the variations made during the 1955 season to the Sugar Industry Award allowed canecutters who loaded manually to be paid substantially more than those who only cut. Mechanized loading then proved to be economically viable (Burrows and Morton 1986:146).

The benefits of this invention were significant and far reaching. The cutter benefited not only physically but through increased earnings. Freed of the arduous job of loading he was able to cut long and hard. Burrows and Morton (1986:149) calculated that wages increased by up to 40%. The canegrower benefited for he saved 4s. per ton and because of the increased cutting rate he was able to harvest a larger tonnage. The sugar miller benefited because he was guaranteed a more regular supply of cane. Clearly "at a time of sugar industry expansion mechanical loading was an instance of technological change from which all parties profited" (Burrows and Morton 1986:149).

The method of moving the cane out of the paddock was determined by the era and by district practices, the distance of farms from sidings and other such factors. In Mossman for example, cane was loaded on a dray hauled by horses and later by the table top (or tray top) method hauled by truck. Cane was loaded by the canecutters on the dray or tray on top of wire ropes which later lifted the bundle of cane. Loading was conducted in the way described earlier, using a cane ladder to reach the higher layers. The load was similarly tightened with a chain.

The dray or tray of loaded cane was hauled to the siding and manouved under a derrick or gantry on which was a block and tackle, usually operated by pulling on an 'endless' chain. The wire ropes had back-spliced loops that were caught up to hook onto the tackle and the load would then be winched free of the dray/tray. A mill cane truck

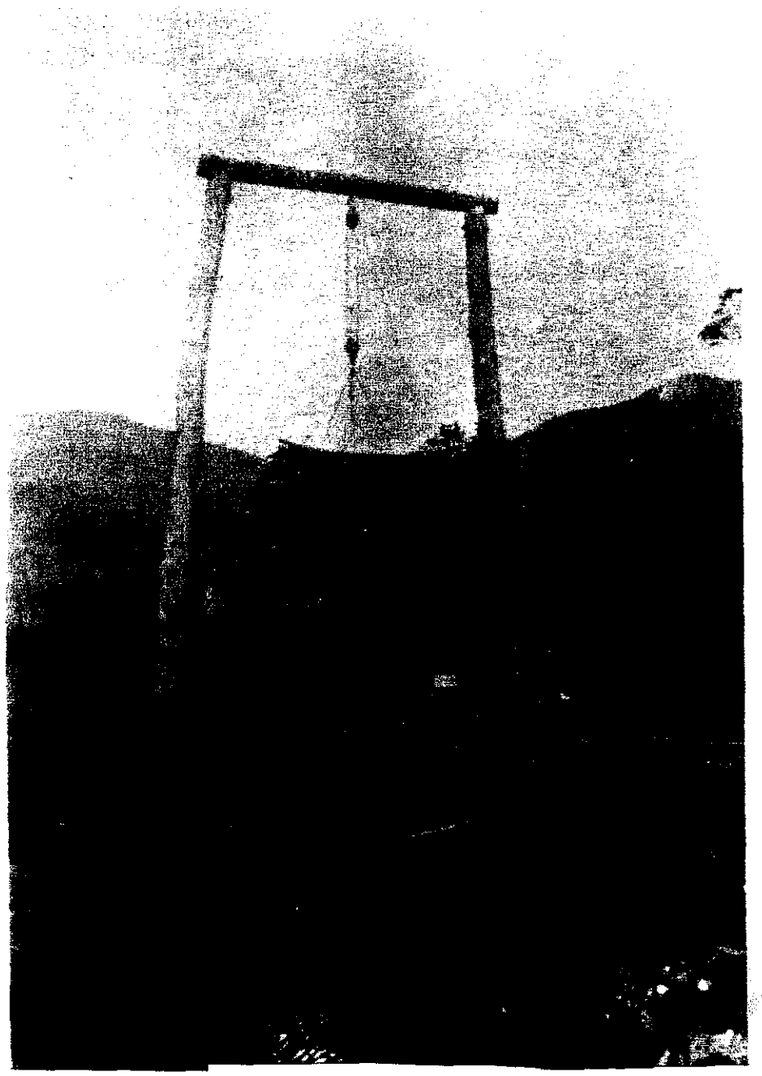


Plate 40: Gantry in use. (White)

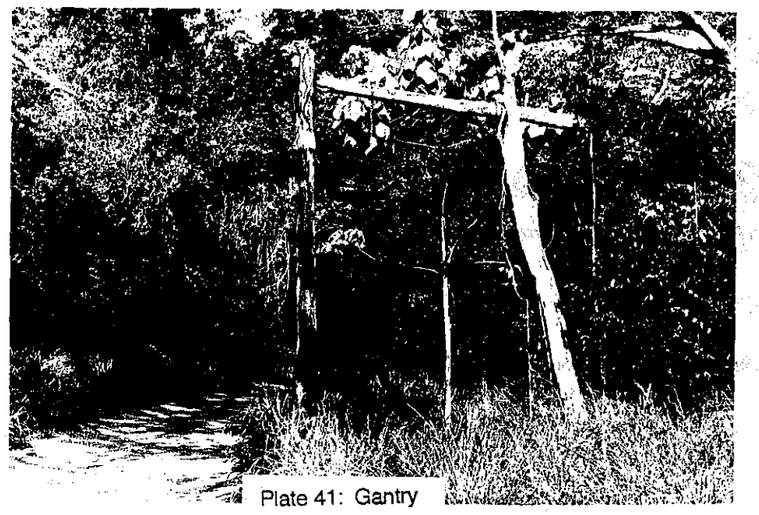


Plate 41: Gantry

Plate 42: Cane trucks being hauled along horse line (Gerasolo)

Plate 43: A farmer built bridge in construction (Garrone)

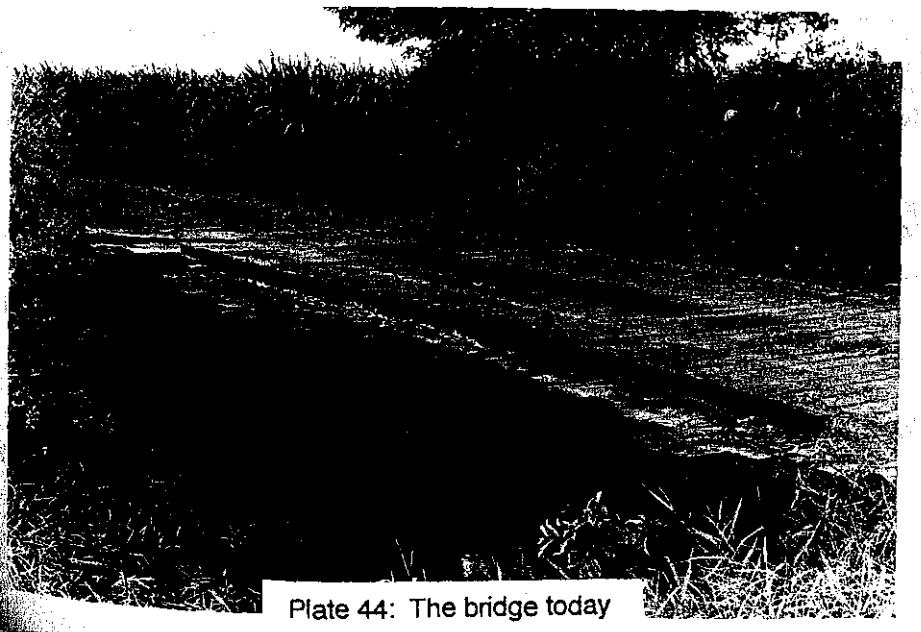


Plate 44: The bridge today

would be pushed under the bundle of cane and the bundle lowered onto it. The truck was then moved to the mill by steam locomotive. On Mowbray River Road, there still stands a gantry, comprising two upright forked tree-trunks across which has been laid a third trunk. The unused tramway siding runs alongside. Drays in excellect condition can still be seen on many farms including Spina's, Herbert River district and Vico's, Mossman district.

Another method used was to fit a wagon or later a truck tray with a set of points, tracks, and a hinged detachable set of short rail to span the gap between tramline/ground and wagon/tray. A hand operated geared winch would enable the cane truck to be winched on to the wagon/tray. To unload the truck into the field or onto the siding, the operator would loosen the ratchet on the winch and the truck would roll slowly down the points, its progress controlled by the use of a hand-brake on the winch-drum. At the siding the cane truck would be unhooked and given a push. It would roll to where it could be hauled to the mill by steam locomotive. All sidings had a slight slope down to the main line so that the full cane trucks required little pushing after being run off the tray (Vico pers. comm. 24 March 1992).

Technological improvements soon made the routine more efficient. After the war a winch, mechanically operated from the truck's power take-off was introduced. Hydraulically operated points also came into use and, where once only one truck could be hauled to the paddock, later two could be. The only example of this method sighted was on Costanzo's farm in Tully. That particular example was a Bedford truck with the tray fitted to carry two cane trucks. An alternative method, similar in principal, that became popular in Mossman, was a trailer fitted with tram rails and hauled by a tractor. A marvellous example of this innovation can be seen on Hanson's farm in Babinda.

Kerr (1979) says that by 1933 60% of Mossman's cane was moved by 'truck wagon'. It is interesting to note the reasons why Mossman came to rely on this means to transport cane. White labour working in numerous smaller gangs required more portable rail than large gangs of Kanaka labour. There was the tendency also to use portable rail to extend main lines to newly opened areas until the supply from these areas warranted a permanent tramline. These demands for an increasing amount of expensive portable rail made an alternative attractive and the mills actively encouraged the use of the cane truck wagon by paying sixpence extra for each ton of cane delivered without the use of portable rail. Big farms still tended, however, to use portable rail (Kerr 1979:61-62).

As mentioned earlier, in other areas this method was adopted early out of necessity, until the time when main lines were extended into newly opened areas. Such areas, for example, were Upper Stone and Abergowrie in the Herbert River district. There the cane was hauled on wagons by horses or on a truck tray to a siding where, using a gantry or derrick the bundle of cane was loaded on a cane truck From there it was hauled by locomotive to the Victoria Mill (Victoria Mill Photo Collection; Doran pers. comm.:22 November 1992).

Another type of line was sometimes referred to as a 'horse line', because horses (and mules) would be used to pull a rake of trucks along this line to the mill or just from the farm to the main line. This line was slightly more substantial than portable line and was laid on wooden or steel sleepers. Horse line was often used in the early days of the mills. "Cane transport was by means of horse and mule teams; ... The Macknade tramline, which had been constructed for horse traction, was of light rails..." and in the case of Victoria Mill "...we propose when the traffic increases to use locomotive instead of horse traction

which will be adopted at first." (Noel Butlin Archives Z303/Box 46 D.3.0.3.3.; D.3.0.2.3.). It was used particularly when new areas were opened up, as when Hambledon Mill agreed to take cane from Aloomba growers (1899) and from the area that used to be the Hop Wah Plantation (1915) (Sandes 1991:2, 3). When farming land was opened up on the south side of the Stone River, at Peacock Siding, Herbert River district, the cut cane had to be transported across bridges to the nearest sidings which were on the north side of the river. The trucks would be hauled along horse line to a bridge where they would be uncoupled from the horses, coupled to a wire rope and winched across the horse line laid across the bridge. The trucks would then be coupled once more to a team of horses on the other side and hauled to the nearest siding.

Usually the trucks and portable line were the property of the mill and were distributed by it. There were not enough trucks and portable rail for the whole mill district at one time so they were constantly being collected from farmers as their round (percentage of their harvest) was completed, and distributed in turn to other farmers. Trucks were maintained by the mill and the line by the mill or farmers depending on the district. A tar shed can still be seen at Mourilyan Mill. There, bundle by bundle, portable rails would be lowered by gantry into a bath of tar. The tar kept the rails from rusting (Fitzmaurice pers. comm.:14 January 1993).

One type of truck typical of those days was made of wood to which were attached two sets of wheels and axles, running on brass bearings. At each end was a pair of stanchions or uprights to hold the cane on the truck. The cane was tied down by a chain tightened by a ratchet. Stanchions and chain were detachable. The ratchet used a key which was the farmer's property. Each truck was about five feet (1.5 metres) wide (Kerr 1979:63). A truck, with its stanchions and other components made of steel was also used

in some mill areas, as early as 1948 in Tully but not until 1964 in Mossman (Burrows and Morton 1986:114; Vidonja Balanzategui 1990:photo facing 69; Kerr 1979:64).

Most farms still make good use of cane ladders. Those in Spina's shed were made by the farmer in the wet season. Made of wood with six rungs, they have steel supports on the first, fourth and sixth rung. Numerous ladders can also be seen on Kowalczuk's farm, Herbert Raiver district. Fortunately the Australian Sugar Industry Museum has both a ladder and a wooden cane truck in its display.

TRANSPORTING THE CANE TO THE MILL

Sometimes, ingenious methods had to be devised to move the cane across obstacles such as ravines and rivers. A horse-drawn tramway system was used to bring harvested cane to the Pyramid Mill, Cairns district. However, much of the cane was grown on steep ridges intersected by deep ravines. A contrivance was, therefore, needed to negotiate the difficult terrain in order to move the cane to the mill. Tramrails were laid on a specially constructed bridge across the Mulgrave River. The cane trucks were then suspended by hooks on strong wires fixed to the bank and hauled along the wires to the other side, flying fox style. Similar methods were used to negotiate steep grades elsewhere in that area (Jones 1976:163 and Department of History and Politics 1992:12).

Similarly, at the Gairloch Mill, a suspended tramway carried the cane cut from paddocks on the other side of the river, to the mill. The cane was taken by horse-drawn drays to the river bank where it was loaded onto cane trucks which were drawn along steel wires suspended from upright pillars. Once on the other side, the contents of the trucks were emptied into the cane carrier and taken to the crushers (The Sydney Mail 18 October

1884:791).

The Innisfail Estate Sugar Mill was situated on the other side of the river to the township. When the Innisfail Estate Mill ceased to crush sugar cane from the estate was punted up river to C.S.R.'s Goondi Mill and later punted to just across the river to a tramline laid to a point on the river bank opposite the estate near Saltwater Creek (Jones 1973:125). The punt was equipped with tracks on its deck and could carry eight trucks at a time. The trucks were winched on and off at either end. It was not until 1965, when the Geraldton Bridge was opened, did this interesting way of transporting trucks cease. Subsequently the trucks were transported by road transport (Armstrong and Verhoeven 1973:40).

Farmers too had to be ingenious and self-sufficient when geographical impediments occurred on their farms. On Garrone's farm there is a bridge built by the farmer sometime in the 1920s. The bridge enabled him to move implements over the creek from one paddock to another, while during the harvest he would lay portable rails across the bridge so that he could haul the cane trucks in and out of the paddock (Garrone pers. comm.:16 January 1993).

Trucks were drawn to the mill by horses at first, though horses were soon superseded by a more efficient means of transport: steam locomotives and in time diesel locomotives. As early as 1915 a Hambledon Cane Inspector commented, "Horse transport for hauling cane over long distances is out of date and costly". He suggested that a light locomotive would improve haulage costs (Sandes 1991:3). However, like horses before them, in time even steam was superseded by diesel. The modern diesel locomotives offered "economy in maintenance, higher availability and power in excess of

what had been available with steam...." (Kerr 1979:66).

Obviously an important component of the plant of a mill was the means to move the harvested cane: tramline, cane trucks and locomotives. A discussion of these in relation to four mills: Innishowen, Victoria, Mossman and Hambledon will be illustrative.

The Innishowen Mill had two to three miles (three to five km) of two foot (600 mm) tramway. On this tramway pairs of horses would haul the small cane trucks to the mill. Armstrong and Verhoeven (1973) describe how "They were harnessed abreast a pole so they could walk outside the rails and the driver sat back on the leading cane truck". They also note that, though the tramway was initially laid on wooden sleepers, *steel* sleepers were substituted by 1889 (Armstrong and Verhoeven 1973:37).

The Victoria Mill began with 17 miles (27 km) of two foot (600 mm) gauge steel tramline (some of it with steel sleepers) and four steam locomotives. The miles of tramline and number of locomotives increased as new areas in the Herbert River district commenced growing cane (Noel Butlin Archives Z303/Box 46 D.3.0.2.3.).

The first locomotives used were small four coupled tank engines built by John Fowler and Co., Leeds, England, between 1882 and 1885. With the increase of the area under sugar cane in the district, the resultant longer hauls and heavier loads meant that larger locomotives were needed. C.S.R. then acquired six coupled tank engines from John Fowler between 1892 and 1910. These were all equipped with tenders to increase their range of operation. In 1912 C.S.R. acquired its last Fowler for in 1911 it had purchased the first Hudswell Clark for the Victoria Mill. This was manufactured by Hudswell, Clarke & Co. also of Leeds. A tender for this engine was designed and made

Australia by Clyde Engineering Co., Sydney. The first Hudswell Clarke tender locomotive came to Victoria Mill from C.S.R.'s Homebush Mill near Mackay when it closed in 1922. It was built in 1914, was the first of its type to come to Australia and was the smallest supplied to C.S.R. in Queensland. It also had a tender attached which had been made locally. The locomotive was named Homebush. Homebush was fully restored by Victoria Mill in 1978, together with a 'Decauville" carriage that had been used for passenger transport on the C.S.R. line until 1932. Subsequently, all future steam locomotives purchased were Hudswell Clarke tender locomotives. The 0-6-0s with their big tenders were well suited to the longer hauls and bigger rakes that became necessary for keeping the mill supplied with cane as the mill capacity increased. From 1911 to 1952 14 Hudswell Clarke steam locomotives came to the Herbert River District for use in the canefields.

In 1953, as the last of the steam locomotives arrived, so did the first diesels. They were 0-6-0 diesel-mechanicals supplied by the Drewry Car Co. Ltd., London, and built by F.E. Baguley Ltd., Burton-on-Trent. C.S.R. also bought Australian built, Clyde Engineering, model DHf 0-6-0 diesel-hydraulics. Because other mill areas, such as Hambledon and Goondi, had steeper grades, as the new technology of diesel locomotives with their markedly increased power became available in the mid-1950s, they quickly converted to diesel. The mills of the Herbert River district inherited their discarded locomotives, boilers and parts and were still using steam locomotives into the late 1970s, long after most other mills had switched to all diesel fleets.

At first locomotives were used not only for transporting sugar cane, raw sugar and molasses, tramline materials and portable rails but also for passengers and goods.

Three of the steam locomotives that worked in the Herbert River district have

remained in the North: Homebush (1914) at Victoria Mill; Townsville (1919) at the Australian Sugar Industry Museum, Mourilyan; and Sydney (1950) at Mossman Mill as the Ballyhooley tourist train. All have been restored and preserved (Stocks 1982:1-6, 94-95; Mossman District Field Work File:9/31-36; 10/1-5,7).

In August, 1897, the newly operating Mossman Mill received its first locomotive, a John Fowler, six coupled side tank, called appropriately Mossman. This locomotive brought in the entire crop for two seasons because the Mill could not afford to purchase another until a similar locomotive named Pioneer was purchased in March 1899. Increasingly, larger locomotives: Ivy (1922), Wembley (1925) and Miallo (1934) were purchased from John Fowler until that company ceased to make locomotives in 1937. The mill subsequently acquired Bundy in 1952 made by the Bundaberg Foundry. These first locomotives were all fuelled on wood, but alternative means of fuelling were considered. These included bagasse. The first petrol locomotive was acquired in 1952 to be used for shunting and hauling maintenance trains. In 1954, the Mill acquired a diesel locomotive, Mowbray, from Baguley Railway, Mines and Plantation Equipment, London. Diesel power was an option as early as the 1930s and it was inevitable that there should be a change to this type of locomotive (Kerr 1979:65-66).

Until 1921 Hambledon Mill worked with two locomotives, both Fowlers, one large (10 tonne) and one small working two shifts. In 1922 Hambledon and Mulgrave Mills exchanged the Aloomba area for the Edge Hill/Redlynch area because as it was they were hauling cane past each other's mill. As part of the exchange Hambledon Mill acquired three Hudswell Clarke locomotives and added another in 1931. It also came to operate eight simplex locomotives in 1934 to haul cane to the Redlynch Depot where the trucks were collected by the steam locomotives. In 1935, some of these were replaced by an

Plate 45: Townsville (1919)

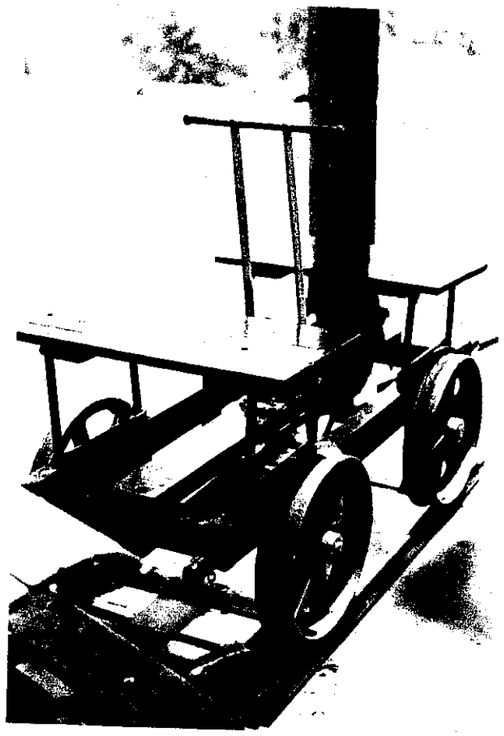


Plate 46: A push-pull trolley

Plate 47: Homebush (1914)

Plate 48: A road/rail bridge

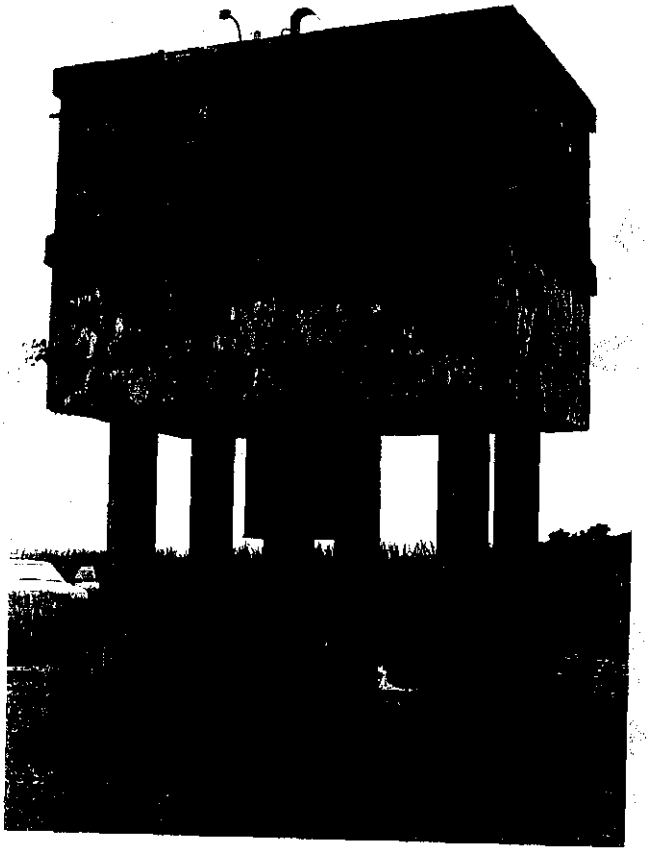


Plate 49: A steam train watering point

internal combustion locomotive, a ten tonne, petrol Fowler. Hambledon Mill also tried a diesel locomotive in 1937 but, because of its unreliability, it was replaced after two years by another steam locomotive. Like Mossman Mill, Hambledon too experimented with alternative means of fueling locomotives. Because of war-time restrictions, three simplex locomotives and the petrol Fowler were converted to a charcoal gas producer with a consequent loss of speed and power in the simplexes. In 1949 a 10 tonne Planet diesel was purchased. This is now in the possession of Henry Hill. Hambledon Mill was forced to withdraw it from service after it was stolen from the locomotive shed and taken for a joyride. The thieves drained the sump and consequently the engine seized.

In 1953 a powerful 18 tonne Gardner Drewery locomotive was purchased and proved itself to be cost effective in fuel consumption and able to haul 60 trucks against the Hudswell Clarke's 30. A Clyde locomotive was then acquired and a further two steamers replaced by Clyde diesels in 1955, leaving only two steamers in regular use. At the time it was thought that the bigger locomotives, the Drewerys, with their mechanical transmission and better engine braking, were more suited than the Clydes to the steep Hambledon grades (Sandes 1991:3-12). The last steam locomotive to be withdrawn from service by the Hambledon Mill was Loco No. 4, (a 1925 Hudswell Clarke locomotive) in 1959. It has been restored and now stands in the grounds of Sugarworld Gardens, Edmonton.

In one instance, Pyramid Mill, both portable and permanent line were of wood (Burrows and Morton 1986: 14-15). However, some mills such as the C.S.R. Victoria Mill commenced with entirely steel tramline.

The rail on those sugar plantations where steel rail was used from the outset was two foot (600mm) gauge, 28 to 38 lbs (127 to 172 kg). This was upgraded to heavier track

as the years went by, firstly to 41.25 and 42 lbs (187 and 190 kg), and later to 60 lbs (272 kg) rails. Initially the rail was usually laid on wooden sleepers (Stocks 1982:3; Armstrong and Verhoeven 1973:17).

During the slack season, the tramway had to be cleared of weeds before the new season began. At first, the job was done with hoes but later poisons were used to combat the prolific growth of weeds during the wet season. Tramway maintenance work was also carried out during the slack, such as replacing rotten wooden sleepers, relaying track on ballast rather than on the cheaper earth packing often used at first, and the maintenance of sidings. Push-pull trolleys were used not only for tramway maintenance but also for transport of residents living along the line (Bortolanzo and Russo 1990:30). In the Australian Sugar Industry Museum collection are two trolleys: one, mechanical and the other, hand operated. Both are of indeterminate vintage.

While Kanakas and other non-Europeans were employed as field workers, they were generally excluded from skilled trades and other jobs: "engineers, engine-drivers, engine-fitters, blacksmiths, wheel-wrights, farriers, sugar-boilers, carpenters, sawyers, splitters, fencers, bullock-drivers, mechanics, grooms or coachmen, waggoners, or household servants" (Easterby 1932:25). However, Japanese are cited as being employed as navvies working on the Mill tramway. Personal recollections in *Moresby State School* (1990) tell of Japanese navvies working on the Mourilyan Mill tramway line, being housed in a farmer's barracks while others camped along the line. It appears they were also used as servants by the Mill management (Bortolanza and Russo 1990:17, 41).

Tramway systems traversed all sorts of terrain including rivers and creeks. Easterby gives a description of the usual type of bridges: "piles being first driven into the

ground and afterwards fitted with headstocks and hardwood girders, decked with hardwood planks and fitted with handrails" (Easterby 1932:116). The pylons of the C.S.R. Company's Comoon Bridge can still just be seen in the South Johnstone River. First built in 1893, this bridge was rebuilt seasonally and served to convey cane from the former Innishowen Estate to the C.S.R. Goondi Mill. It was a light, low level bridge that could only carry trucks; these had to be winched across. When a locomotive did find its way on to the bridge because its brakes failed to hold on the slippery rails, there were disasterous results. One headstock of the bridge collapsed, the locomotive rolled on to the river bank and the fireman tragically lost his life (Armstrong and Verhoeven 1973:40, 86).

Just upstream and in close proximity to what remains of the Innishowen Estate Mill is the Queensland Bridge constructed in 1914 as part of a three mile (five km) line to join the Innisfail Tramway to the Mouilyan Mill's harbour line becoming the 29 mile (46.5 km) long line called the Innisfail and Mourilyan Tramway (Armstrong and Verhoeven 1973:25-26). 406 feet (124 m) long, it originally was entirely constructed of wooden pylons and girders, but while today the main pylons are still wooden, the remainder are steel.

Very few bridges in any mill district were brought to the researcher's attention. Bridges are the proverbial 'farmer's axe'! While still the original axe, the head and handle have been changed many times! So though the Queensland Bridge, constructed in 1914, is is able to be sighted it has undergone such significant refurbishments over time that very little of the original bridge remains.

Formerly, it was common to see creek bridges that were used for both tram and road traffic. A rare example is still in use behind Victoria Mill, crossing Palm Creek (Stocks 1982:61). Locomotives bring cane across this bridge to the mill. It is also used for local

vehicular traffic. Stocks describes this one as a rare surviving example. It comprises a narrow gauge tramway laid across a wooden bridge. A tramway adds character to the main street of the little township of South Johnstone. The tramway crosses the picturesque Cheeki Creek, runs through the main street and proceeds on to the mill just south of the township. Vehicular traffic proceeds at its own peril!

Bridges to be seen today are not usually those originally constructed. The Stone River bridge, Herbert River district, is a good example. As the ferocity of the river in flood-time came to be understood, bridges more suitable to its nature were built. With advances in technology, a wider range of materials also became available. In 1904 this bridge was a simple, low-level affair. By 1925 it had become an imposing structure equipped with a footway. Today the bridge crossing the Stone River at this point is constructed of steel (Noel Butlin Archives Z109/Box94 171/718).

Steam locomotives filled with water at mill watering points. The water, condensate from the mill boiler station, was treated to prevent "priming and excessive rusting". However, creek watering points were also used. Water from these points had to be treated with anti-foam tablets (Stocks 1982:21). An example still stands at Daru Creek, Innisfail district. A cement block structure, it is fitted with a power board which would indicate that water was pumped from the stream into the tank and then gravity fed into the locomotive tender.

Empty and full trucks were brought to tramway sidings. These were accessed by a number of farms. The sidings were often 'dead ends' with the points facing millwards thereby facilitating the hauling out of loaded trucks. Placing empties was a little more difficult. Stocks (Stocks 1982:58) describes sidings as being initially "a single turnout on

the main line to which was connected some second-hand rail (horseline) which generally ran at right angles to the main line. To the end of this, farmers would connect portable rail which would extend right into the cane paddock. Irrespective of the time of delivery of the empty trucks, the farmer would meet the loco with horse or tractor and tow the trucks into the field where they would be loaded" and later hauled loaded back to the siding for collection (Stocks 1982:58). Simplex section cars with bogeys attached were used to bring portable line out to the farms. Simplexes were also used for shunting full trucks from the mill yard lines and bringing empties back. A simplex was a small locomotive manned by one person. One example is still in use at Victoria Mill where it has been converted for use as a ballast packer. It was made in 1928 by Simplex Works, Bedford, England.

An example of a siding that was far from a single turnout was that at McKells, Ingham district. With the duplication of Victoria Mill and the opening of the Abergowrie area in 1953 for sugar farming, a small township was built around McKells Siding. This siding was a marshalling yard and a base for four locomotives, 10 locomotive crews, one six man rail and navvy gang, a traffic officer and two cane inspectors. Apart from the houses and barracks built to house these people, there was an office and locomotive shed at the marshalling yards. The four newly purchased Drewry locomotives were used to haul the full trucks to the marshalling yards where the navvy gang would retighten the chains before the trucks were hauled away by steam trains to the mill (Victoria Mill Vibes December 1988:unpaginated). Today, the marshalling yard is still used but there is no longer a community living around the siding and most of the houses have been removed.

SUGAR MILLING

Once transported to the mill the sugar cane is converted to sugar. In the early days the method used to achieve this was quite elementary. Horses at first provided the power. A whim drove a long horizontal shaft connected to cog wheels which drove crushing rollers into which cane was fed by hand. The rollers crushed out the sugar juice (A.S.M. 1985:11). Brice Henry, a Tully pioneer, recalled in his recollections how his family achieved the same end on their farm by manual means. "We smashed the joints of the cane with a hammer and I helped turn a large mangle, by which cane was crushed" (Moore 1975:unpaginated).

A detailed description of the early milling process and the processing machinery can be found in Easterby's book *The Queensland Sugar Industry* (Easterby 1932:3-4). The mill described is that of St. Helena near Brisbane, circa 1870, which today incidentally is said to be the best preserved of the early mill sites (J.C.U. Department of History and Politics 1992:15). It is useful to contrast this with his detailed description of Tully Mill, its machinery and processes, which first crushed on 5 November 1925 (Easterby 1932:116-123).

Sugar milling was revolutionized by the introduction of steam engines to power the milling processes. Steam engines began to be seen in sugar mills around 1869 (Roberts 1959:43,44). Though horses remained in use on mill sites for some time longer to haul trucks, to pull trucks to the carrier, to take away empties and to position trucks, they were eventually replaced by winches and 'tow motors' (Jorgensen pers. comm.:3 January 1993). Mossman Mill, for example, did not dispense with horses until 1952 when friction winches and electric capstans were introduced at the millyard to cane carrier stage (Ker

Plate 50 & 51: McKells Siding

Plate 52: Gairloch Mill Site - three throw pump

Plate 53: Gairloch Mill Site - foundations (Schafferius)

1979:144).

Gairloch Mill is, I believe, the best preserved of the non-operational 19th century mill sites in North Queensland. We know from contemporay writing what the mill machinery or components consisted of and thus the mill serves as a good example for discussion. The machinery for the 'new' Gairloch Mill (1882) was supplied by A.W. Smith and Sons, Glasgow. There were two mills to crush the cane, each consisting of three rollers, six foot (183 cm) long and 34 inches (86 cm) in diameter and driven by a 50 h.p. beam engine. Clarifiers (five cleaning pans and two concentrators), syrup subsiders, two vacuum pans (worked by another beam engine), coolers, six or ten centrifugals powered by a 10 h.p. verticular engine and molasses tanks for molasses draining from the centrifugals, made up the rest of the mill machinery. There was a sugar storeroom and a shed for the drying of megass; a cane carrier to take cane to the mill for crushing and a megass elevator to carry away the crushed cane after the juice had been extracted. The latter was a wooden tramway suspended on pillars. Over the river bank was a three-throw pump to raise water from the river to power the mill. (Noel Butlin Archives Z303/Box 45 D.3.1.0.15 and Sydney Mail 18 October 1884:791). This list reads much as the C.S.R.'s description of requirements for a sugar factory (C.S.R. 1953:32) and while it was described as "working according to the old method" the C.S.R. Victoria Mill "...would exceed any mill in Queensland as to size, and the system of working would be most modern and quite new to Queensland." (Noel Butlin Archives Z303/Box 45 D.3.0.1.1.)

Arthur Neame in his diary gave a simple description of the milling process achieved by his Macknade Mill:

> The cane was cut and carted to the Mill then passed through a set of three rollers which

> squeezed out the juice, the juice was then passed into tanks, boiled, skimmed and clarified and pased on to settling tanks from which the clean juice was sent to an evaporator where the water was got rid of and the thick sugar and molasses then went to the centrifugals which are driven at a very great speed, the molasses passes out through a fine meshed wire of which the side of the centrifugal is composed into the iron case inside which the centrifugal revolves and then into a large tank whilst the sugar remains inside this is taken out with scoops and run into the sugar room where it is put into bags ready for shipping (Local historical anthology collection 9000 08:B:162-163).

Though the essential process remained the same, by the 1950s various elements had been added. Sugar cane was now weighed before it was tipped onto the carrier. The cane then passed through a shredder which cut the cane stalks into small pieces. Passing through a series of heavy rollers (comprising the milling train) the juice was extracted from the cane while the cane fibre (megass or bagasse) went to fuel the boiler furnaces. The juice went on to be mixed with lime and heated. The lime precipitated the many impurities contained in the juice. These impurities settled out in vessels called clarifiers. The impurities (mill mud) were then carted away to be used as fertilizer on paddocks.

The clear juice from the clarifiers was concentrated to a syrup by boiling it under vacuum in a series of vessels called evaporators, some of the water evaporating in the process. The syrup was boiled again under greater vacuum in a vacuum pan until it formed raw sugar crystals. These crystals were then spun in a centrifugal machine which resembled a perforated basket. The spinning threw off any remaining syrup which as molasses was shipped to distilleries. The raw sugar left was dried by tumbling in a rotating drum - dryer. It was then bagged and shipped to refineries or transferred to bulk bins. (C.S.R. 1956:108-109; 139 and A.S.M. 1985:30).

A recent study by third year History students, James Cook University, Cairns Campus, conducted under the supervision of tutor Jan Wegner produced a flow sheet for the Pyramid Mill, another 19th mill. Though individual components may have varied from mill to mill, for example, use of revolving levelling knives; use of triple effet (Department of History and Politics 1992:13); use of chemicals, such as sulphur and superphosphate (Despessies process) (Easterby 1932:94), the general processes of the 19th century mills would have been similar.

Mill Machinery was usually imported from England, Scotland or France. The machinery in use at Ripple Creek, for instance was imported from Glasgow while the makers of machinery for the Pyramid Mill, were Manlove, Alliott, Fryer and Company of Nottingham. The Queensland Sugar Company's Innishowen Mill used machinery made by the Fives-Lille Company in France. Occasionally mills incorporated locally made machinery such as the clarifiers made by Walkers Limited, Maryborough, for the Pyramid Plantation (Easterby 1932:90-97). The original mill machinery for the Mulgrave Mill originated from A. & W. Smith and Co., Glasgow. However in the Mill expansion of 1920-1922 the suppliers of new machinery was Walkers Ltd., the observation being made that the quality of this latter machinery was a "distinct credit to Queensland" (Mulgrave Central Mill Co. Ltd., 1947:34, 47-50). This comment was in distinct contrast to the one made by Mr. G. E. Adams, Manager of the C.S.R. Goondi Plantation and Mill, who said, of his mill machinery, that "he was happy to say none of it was Colonial made!" (Easterby 1932:93).

An interesting aspect of the early mills is that of the transference of machinery and rolling stock from one mill to another. While it is particularly noticeable with locomotives, for example, the case of the steam locomotive, Homebush, cited earlier, it was also common

practice to remove an entire mill and relocate it. Thus, the Mackenzies, who established the first Gairloch Mill, purchased machinery for it from the Caboolture Mill (H.R.E. 11 January 1992:6), while C.S.R. Company's first mill in Southgate on the Clarence River was dismantled on its closure in 1879 and part of it was incorporated into the company's new mill in North Queensland - Goondi Mill which first crushed in 1885 (C.S.R. 1970:11; Fox 1923:682). Similarly on the demise of the Bloomfield Mill, near Cooktown, it was acquired by Buss, Williams and Penny of Bundaberg and moved to the Knockroe Plantation on the Isis. When it in turn was closed, circa 1890, the plant was bought by C.S.R. which owned the Childers Mill. It is conjectured that some of the machinery may then in turn have been used in the Hambledon Mill purchased by C.S.R. in 1897 (Kerr 1979:25). Incidentally both these mills, Goondi and Hambledon have since ceased to crush, Goondi in 1986 and Hambledon in 1991 and their plant once more distributed to other mills throughout the north. Fortunately, a working display of a 500 h.p., steam driven, crushing engine, built by A. & W. Smith and Co. Ld., Glasgow, in 1950 and used to drive the #3 crushing plant at Goondi Mill, is now housed in the Australian Sugar Industry Museum, as is a vacuum pump and pan manufactured in 1876 by Mirrlees, Tait and Watson, Glasgow., Mirlees, Tait and Watson manufactured, circa 1880, the 120 h.p., steam driven, crushing engine displayed at Victoria Mill. It was used to drive #2 mill of the two mill crushing train that Victoria Mill began with in 1883. It was withdrawn from service in 1971.

The earlier mills crushed cane grown on the mill's own plantation. Part of the mill's working plant therefore included machinery for working the land. In the case of Gairloch for example "steam ploughs, cultivators and other agricultural machinery and implements constituted portion of the working plant of the estate" (Sydney Mail 18 October 1883:791). Remarkably, one of these units referred to, a reversible steam plough, manufactured by Fowler and Co., Leeds, is still on site at the Gairloch Mill site. It would be

around 110 years old. It was powered by a steam traction engine of the type displayed at St. Teresa's College, Abergowrie.

Mill processing methods differed slightly from mill to mill with experimentation aiming to achieve the best results, constantly taking place. At Hamleigh, for example, a system was used called 'degibreur' (of French origin) that was designed to tear the cane into pieces before it passed under the rollers. It was located in the mill process between where the cane was thrown on to the carrier and before it went through the rollers (Sydney Mail 18 October 1884:791). Though it was no longer in use in 1884 when the writer of the article visited the mill and he thought it "will be altogether done away with", the process did later become standard procedure in milling. A Krajewski crusher which achieved the same result was ordered in October 1903 for Mossman Mill.

Managers had to be innovative men and it was often the case that they were the ones who made the that adaptions to improve the systems on site. Where it was normal practice to remove dried sugar from the centrifugals by means of boxes or trucks placed underneath them, the manager of Hamleigh "adapted to this purpose an Archimedian screw, which, turning horizontally carries the sugar into a trough whence it is taken by a travelling belt direct to the sugar room" (The Sydney Mail 18 October 1884: 791). Similarly, at Mossman, R.J. Thomas, the General Manager from 1905 to 1911, designed a pusher to feed the shredded cane from the Krajewski crusher to the first mill, a process which had formerly proved a problem (Kerr 1979:138).

Occasionally, innovations were developed by one mill that went on quickly to become standard equipment in other mills. For the 1901 season, a mechanical cane unloader developed and installed at Mulgrave Mill by the General Manager, S.W. Davids,

was subsequently installed in other mills. A photograph of it in operation at Tully Mill is extant (Moore 1975:unpaginated). The mechanism, an overhead rake which swept the wholestalk cane from the trucks into the carrier, was later s erseded by an electrically-operated truck tip which upended the cane truck, tipping the wholestick cane onto the carrier. Mossman Mill acquired one in 1925 to replace the Davids overhead rake they had purchased in 1904 (Kerr 1979: 141) and Mulgrave itself acquired one in 1934 (The Mulgrave Central Mill Co. Ltd. 1947:78-79).

Mills were undergoing constant refurbishment from the moment they were first built to meet increased crushing rates demanded by grower expansion or in order "to improve the overall efficiency of factory operations" (The Mulgrave Central Mill 1947:78). Victoria Mill for instance underwent major reconstruction in 1933 to meet the demands exerted on the mill by increased grower efficiency (rather than physical expansion) resulting in bigger crops. Kerr sums it up when he says:

> A sugar mill is never properly balanced. As each section of the plant is brought up to standard, the opportunity is taken to provide, usually for modest extra cost, a margin of spare capacity. The excess capacity is soon availed of, revealing weaknesses in other sections of the plant that had previously been coping adequately (Kerr 1979:139).

However, at various times major refurbishments took place which reflected major leaps forward in technology. The 1920s and 1930s saw many mills expanding and adopting new equipment with the expansions of Mossman and Mulgrave Mills being well documented. But the most significant period of change was the 1950s and 1960s. Wartime restrictions and labour shortages in the 1940s were rewarded by the flow-on from the "technology of war" (Jorgensen pers. comm.: 3 January 1992). Amongst the

developments of the period Jorgensen regards as significant are changes in lubrication; the introduction of electrical arc welding (particularly hard facing); the extension of use of rolling element bearings; improvements in steel quality, particularly stainless steel; the adaption of the centrifugal pump to the milling process; the introduction of fluid power, both pneumatic and hydraulic; the conversion from D.C. to A.C. power; the greater use of independent drives and the beginning of automatic control. The most significant changes were the replacement of the steam driven reciprocating crushing engines by steam turbines and the use of electric motors. At the same time, the industry was expanding with the opening up of new lands in anticipation of a reliable long-term market. One of the most remarkable mill expansions was that of Victoria Mill in 1953. The mill itself was doubled in size and the growing area extended into Abergowrie. The expansion reflected a response to post-war international demand for Australia's primary products and took place at a time when advantage could be taken of the newest technology available.

In the area under study the sites of several 19th mills no longer in operation remain in various in degress of integrity. The Pyramid Mill (1884) site has undergone detailed study in 1992 by third year Department of History and Politics students, while the better preserved site of Gairloch Mill (1872; 1882) awaits comprehensive study and action. Of the mills still in existence some, like Victoria (1883), Macknade (1874), Mourilyan (1884), Mossman (1897) and Mulgrave (1897), had their origins as 19th century mills, while others, like the South Johnstone (1916) and Tully (1925), began crushing later, but all "present a strange and uncompleted hotch-potch of the old and the new" (The C.S.R. Company Ltd. 1956: 109).

TRANSPORTATION FROM MILL TO PORT

In the period under discussion the raw sugar produced by the mills was bagged there and then transported to the nearest port for shipment. Some of the early mills produced white sugar; the Queensland Sugar Company Mill was one of those. Its bagged white sugar was conveyed in punts down the South Johnstone River to the Adelaide Steamship wharf whence it was taken to Cairns for transhipment to larger ships. For some years the Adelaide Steamship Company ran a fleet of lighters and small steamers (Fallon 1990:64,94).

Sugar mills are normally located on water courses since the processes require water. Wharves were built at accessible points in order that goods may be brought in and sugar shipped out. One mill that was ideally located was Goondi Mill on the banks of the North Johnstone River. It would load its raw sugar directly on to sugar lighters and ship it to Cairns. After the Mourilyan Bulk Terminal was opened in 1960, the Mill transported the raw sugar to that facility in containers by road transport (Armstrong and Verhoeven 1973:40). Similarly, in the Herbert River district each mill constructed a wharf, for example, Macknade's wharf was on Neame's Inlet, Ripple Creek Mill's was located on the Seymour River, and Victoria's (and later Macknade's) was at Halifax. From these wharves, raw sugar would be taken by punts towed by steam launch or a small paddle steamer to Dungeness where it would be transferred to larger ships. In *Lucinda, N.Q., Yesterday and Today*, Hetty Shaw (1978:9) described the barges that were used to carry the raw sugar as being 30 by 16 feet (nine by five metres), and made of oak and capable of carrying a three tonne load of bagged sugar. Sugar bags were made of jute and held 160 lb. (726kg) of raw sugar. Packed at the mill, they would be stored and later transferred to the port to be temporarily stored or loaded direct on to a ship (The Sugar Board 1982: unpaginated).

Barging sugar up the silting Herbert River became increasingly more difficult. A new jetty was therefore built in 1896 at Lucinda Point and the C.S.R. tramline extended from Halifax to the port. Sugar was hitherto carried by rail to ships waiting at the Lucinda Point jetty. When the jetty was opened the C.S.R. Company sugar shed at Halifax was transferred to Lucinda (Noel Butlin Archives Z303/Box 45 D.3.0.1.1.). At Lucinda, remains of an old barge were revealed at low tide until the late 1970s (Shaw 1978:8, 9). The raw sugar continued to be conveyed in sugar bags on open, flat top, bogie wagons until 1958 when the Lucinda Bulk Sugar Terminal was completed. The facility then received its first consignment of raw sugar conveyed on the tramway in bulk sugar 'boxes' holding seven to eight tonnes (Shaw 1978:38). Stocks states that the former flat top bogie wagons became the basis of the bulk sugar wagons (Stocks 1982:76).

At first an argument on the merits of Mourilyan Harbour as a port for the Innisfail district waxed and waned (Jones 1973:370-371). In 1921, the wharf at Mourilyan Harbour was lengthened and widened for deep water harbourage, two sheds were erected to store sugar and tramrails were laid along the wharf front. Finally, in the 1950s, a decision was made that Mourilyan Harbour "should be developed as an independent overseas bulk sugar port" (Jones 1973:372-373). The facilities were opened in October 1960. In the Australian Sugar Industry Museum can be seen a steam winch from a sugar lighter and associated pieces (harbour lights and an anchor) from Mourilyan Harbour. The winch was used to load the bagged sugar. Mourilyan Mill and South Johnstone Mill both made use of Mourilyan Harbour. Though the Mourilyan Sugar Company's land had a river frontage, the river was shallow and difficult to navigate at that point. It was, therefore, decided to build a tramway linking the mill to the coast so that goods could be brought in and raw sugar taken out (Armstrong and Verhoeven 1973:27). A railway line joining Mourilyan Mill store and the jetty was completed in June, 1884. South Johnstone Mill, the site of which

was established at the terminus of the Innisfail Tramway's #1 branch, had available a Government rail connection to the harbour from its inception (Armstrong and Verhoeven 1973:42). Tully sugar, which had formerly been railed to Townsville, went to Lucinda Bulk Terminal from 1958 and from 1961 by road transport to Mourilyan (Jones 1973: 372-373).

The loading of bagged sugar was slow, heavy, unpleasant work. Strikes and industrial disputes were common. After the war the price of the jute sugar bags had risen steeply and wages had also risen, making the cost of manhandling bagged raw sugar at mills, ports and refineries more costly.

The introduction of the bulk handling process for loading sugar was much more efficient, both physically and cost-wise, and was also less labour-intensive (Lack 1961:629-630). Bulk terminals were finally established at Cairns, Mourilyan, Lucinda, Townsville and Mackay. Prior to 1960, when Babinda Mill sugar began to be transported by the Johnstone River Transport Company to Mourilyan Harbour, it went by rail transport to Cairns. Mossman Mill was another where the cane was eventually to go by road transport to Cairns after the establishment of a bulk loading terminal there (Kerr 1979:81). Until 1957, it was railed to Port Douglas in 170lb (772 kg) bags where it was transferred to sugar lighters for shipment to Cairns. Once State legislation had been passed to permit road haulage, mills were able to consider this form of transport. From then on sugar from the Mossman district was bulk handled and transported by road transport to the Cairns Bulk Sugar Terminal.

As early as 1932, Easterby wrote "the knowledge of facts concerning the early history of sugar mills becomes in the course of time more and more difficult to obtain" (Easterby 1932:170) and more recently a Department of History and Politics Site Report

on Pyramid Sugar Mill states "Very little appears to be recorded about 19th century sugar milling sites" (Department of History and Politics 1992:15). In the space of seven years, two 19th century mills have been dismantled: Goondi (1986) and Hambledon (1991). As the Department of History and Politics Report states, it would have been a useful exercise to have made a careful record of the latter, particularly because Hambledon was reputed to have inherited some of the Pyramid Mill's machinery and there was the remote possibility that some components were still extant. Such a report would have been more valuable than the recent attempt to record the Pyramid site which has declined to such a state that definite conclusions about its workings are difficult to draw.

Each mill has some proportion of pre-1950s machinery. One which has a significant proportion is Mossman Mill with mills dating from 1922 and 1936. Its juice heater and evaporator date from the 1930s and are made of older style materials: cast iron and rivetted steel. A Masquit mingler dates from 1922. An hydraulic pump and hydraulic counter weights installed in the 1930s remain in use. A reciprocating engine driving an alternator of 1951 or 1952 vintage remains in situ but is no longer used. The same applies to a molasses steam pump which was removed in the 1950s as outdated technology. It has not been placed in the dump and the Chief Engineer suggests that it may be still be put to another use. The switchboard of an electrical generating plant installed in 1952 is still in use. Artefacts of the Brie Brie Mill, the first mill in Mossman, have been now restored and mounted and are used for display purposes. These include parts of a horizontal cylinder engine that drove a centrifugal. The engine itself was put into use at the Mossman Central Mill extracting bagasse fragments from the juice until 1954 when it was scrapped. Mourilyan Mill's weighbridge set-up and fitting shop with forge are interesting and date from the early days of the mill, possibly as early as 1913-1914. All this early machinery was manufactured in the United Kingdom, particularly in Glasgow, by various

companies: A.W. Smith; Aitken and Co. Colonial Engineers; J.H. Carrathers and Co. Ld. Engineers. It is significant that Mossman Mill first crushed in 1897, so machinery regarded as 'old' in this mill is still not necessarily original and is more likely to date from one of the periods in which mills throughout North Queensland updated superseded machinery. The Mossman Mill in this way is illustrative of this trend in that the machinery cited was installed in one of those periods.

The older mills that no longer operate but of which there are significant remains, for example, Gairloch, Ripple Creek, Pyramid, Hamleigh, have little machinery still attached to their foundations. The practice was to sell working components, for example, reciprocal engines, to other mills and any other remaining metal components to scrap merchants. The last went during in the World War 11 when scrap metal was in high demand. Ripple Creek was a case in point. Engines sold by Ripple Creek Mill on its closure to Macknade Mill were in use till the 1960s and remaining steel components were sold to scrap metal merchants (Vince Vitale Jnr. pers. comm.: 31 October 1991). In the 1960s the site was finally cleared of all remaining evidence of the mill and the area planted with cane.

Remaining on the Gairloch site is a "three-throw pump capable of raising 25,000 gallons per hour from the river" (Noel Butlin Archives Z303/Box 45 D.3.0.1.15). It is attached to an impressive brick structure. A massive brick structure over the bank of the Ripple Creek has metal footings suggestive of it having been used to secure an engine of considerable size, possibly a pump to draw water for the workings of the mill. Three rivetted metal tanks are still to be found on site. Their former use can only be guessed at.

Like the machinery just described, buildings also dramatically reflect the changes that have occurred in the industry. Mill machinery was housed and processes carried out

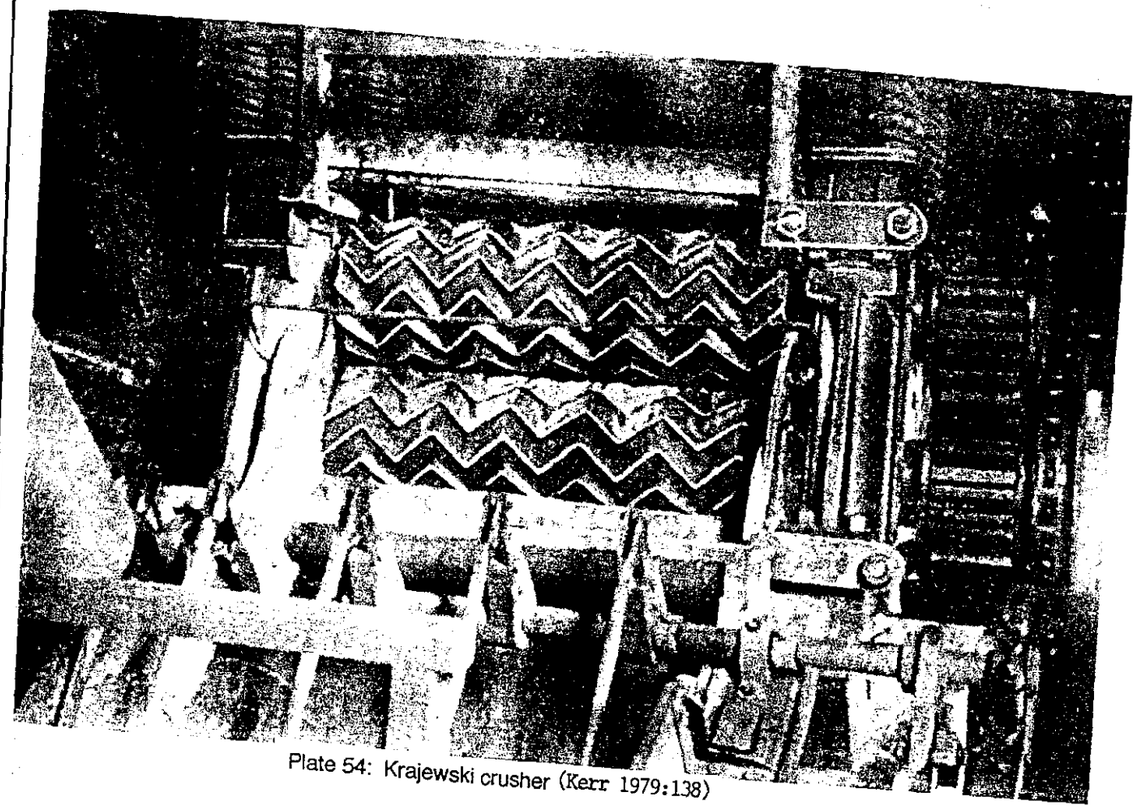


Plate 54: Krajewski crusher (Kerr 1979:138)

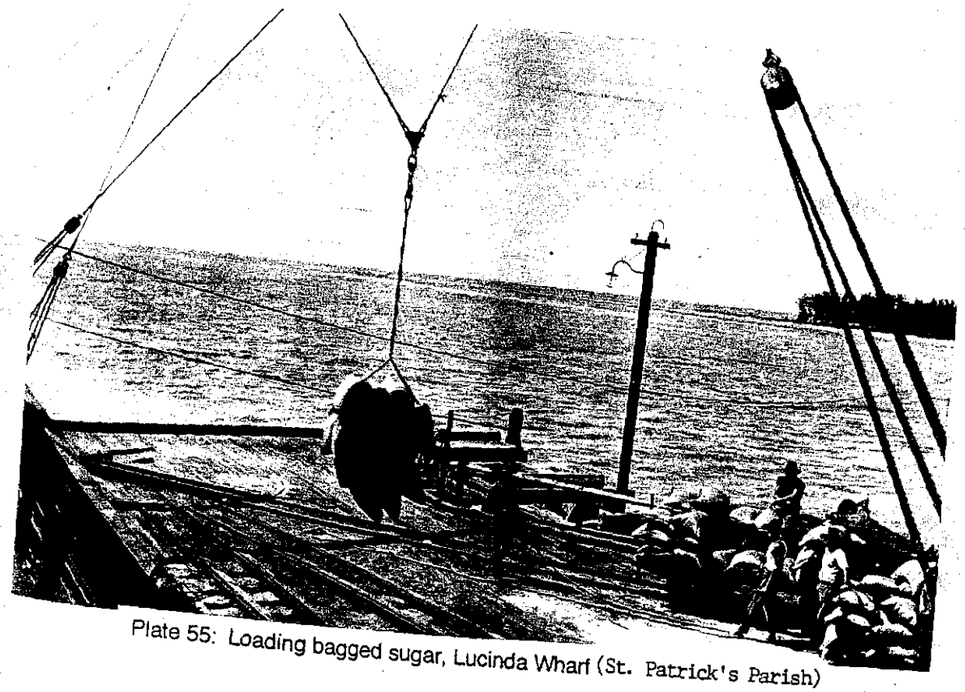


Plate 55: Loading bagged sugar, Lucinda Wharf (St. Patrick's Parish)

Plate 56: Ripple Creek Mill (one of the buildings pictured remains)
(St. Patrick's Parish)

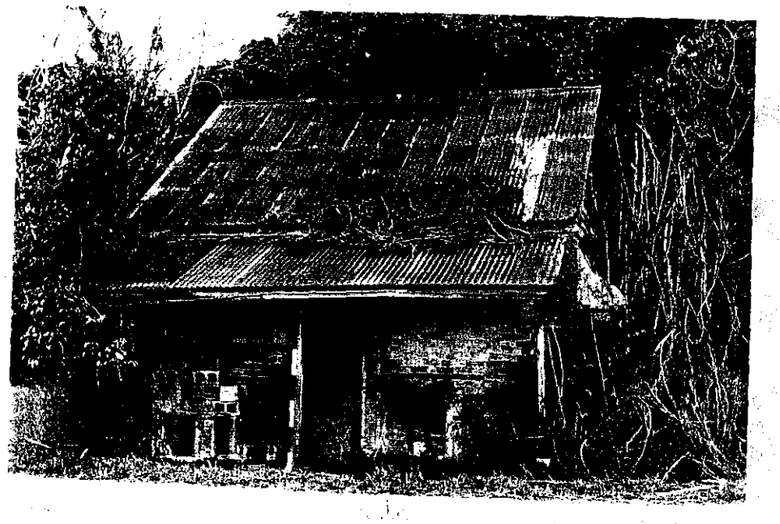


Plate 57: Ripple Creek Mill Site - remaining building

structures of various description. On the mill sites, mill management, staff and workers lived and recreated. Further out on the farms, farmers inhabited houses of varying degrees of comfort and sophistication, workers were housed in barracks and cottages and machinery was stored in sheds, horses in stables. More visible then machinery they stand as monuments to a way of life and work that was vastly different to that of the sugar industry today.

7. STRUCTURES: FARM, MILL AND PORT 1872-1955

INTRODUCTION

There is a popular conception of the plantation owners of the earlier period of sugar cane growing in North Queensland consuming "rum swizzles ... on the shady verandahs of their palatial residences" (Moore 1975:122) somewhat in the style of their counterparts in the American South. Certainly the houses the early sugar plantation owners and managers built for themselves were substantial and comfortable compared to the humpies most of the small farmers lived in. While the small farmer and his family struggled to eke out an existence on isolated selections, the plantations resembled small towns with accommodation for both white and coloured labour as well as buildings to house horses and farm machinery. As the plantations were self-sufficient enterprises, other buildings were to be seen such as the store and hospital. These early plantations supplied their own mill which itself comprised various structures besides the mill house. The means of small farmers being more limited, their farm structures such as a shed, smithy and stable were all usually very simple and makeshift in construction.

Once milling and farming became separate enterprises, small farming became the norm. The townships that served the small farmers became more established and consequently the nature of the milling and farming structures changed. Technological developments in farming, milling and transport methods too were reflected in the disappearance of certain structures and the emergence of others and in changing

architectural styles and features.

The years 1872 to 1955 saw the rise and demise of the plantation system in North Queensland and small farming taking hold of the industry. By 1955 the small farmers had helped to bring their industry to "the vanguard of world cane sugar production" and make it "...a leading supplier to the world free market" (Kerr May 1979:81). The structures to be found on farms, mills and at the wharves and ports of this time make not only an interesting architectural study but in style and features are indicative of the changing technology and fortunes of the sugar industry in the period under discussion.

PLANTATION HOUSES

As the northern areas were opened up to settlement large tracts of land were taken up by selectors, many of them wealthy and well-educated Englishmen and Scotsmen. The land they selected was river flats and the rich alluvial soil around the rivers and creeks and was well suited to sugar cane production. Investing substantial amounts of money they cleared the land, planted cane, and brought in mill plant machinery. They built their homes on picturesque sites and settled down to become the social elite of the burgeoning coastal towns. Their way of life dominated until the 1880s.

Herbert River District

The planters' houses were substantial, single or double storey, wooden homes characterized by wide verandahs, in the case of Gairloch Mill, 14 feet (420 cm) wide. The gardens surrounding the house were usually carefully planned and comprised groves of fruit trees. A visitor to the Gairloch Mill described

> the view of the river [as] completely shut out by the shady poincianas, the graceful coconut palms, now in bearing, and the numerous other trees and shrubs with which the garden is filled, including lime-trees, ... coffee trees laden with berries, an many flowering plants (Noel Butlin Archives Z303/Box 45 D3.0.1.15).

Brookland, Cordelia, is said to be in part of what was once Gairloch House, the Mill Manager's house. Daniel Pearson bought land from Neame of Macknade Mill. Because Gairloch Mill had finally closed and been sold piecemeal in 1890 he was able, in 1891, to purchase and move to the site two former Gairloch Mill structures which he joined together to make his residence (Wegner 1984:125). Later in 1921 after Daniel's son, Roy, returned to the district after World War 1 the house was divided once more and one part was transferred across the road to its present site for Roy and his war-bride. Brookland is the part that remained on site.

The farm once employed and housed 60 Kanakas. Facilities built for the Kanakas kitchen with bakehouse and laundry were still in use for their intended use or otherwise till the 1960s. The Kanakas dug an underground well which holds 18,000 gallons (81,900 litres) and is still in use but now operated by electric pump power where previously a windmill was required. The grounds once contained croquet and tennis courts. The house is a low set, wooden structure. The house has undergone considerable changes over time including interior structural alterations: closing in of verandahs, cladding of the exterior weatherboard with fibrolite, and the removal of the interior metal ceiling. Nevertheless the house has managed to retain some charm and is an historically significant house being over 100 years of age. The farm has supplied cane to three mills over time: Ripple, Victoria and Macknade and the owner still retains a docket for sale of

cane to Ripple Creek Mill (dated 10 November 1893).

Ripple Creek Plantation. The original house belonging to Boyd of Wood Bros. and Boyd who established the Ripple Creek Mill in 1876 was an excellent example of 'plantation' house architecture and style. It is also illustrative of the potential fate of even the most significant of structures. Dismantled in 1973 it was, according to the present owner of the farm which comprises the original Ripple Creek Mill site, a huge house with two stories and four fire places (two chimneys). There were eight rooms in the upstairs section which was made of wood and had wide verandahs while the ground section was made of brick. The kitchen was a semi-detached building and food was able to be sent to the upstairs dining room by a 'dumb waiter'. Electricity was supplied by a generator and the house had refrigeration even in the very early days (Vitale pers. comm.:31 October 1991). Unfortunately this house was in desperate need of restorative work. An architect put the work required at $40,000. The owner consequently contacted his member of Parliament and the National Trust. Unfortunately due to lack of interest in these quarters to preserve this exceptional instance of plantation architecture the owner decided it would be better to spend the money on a new and more practical home for his young family.

Nevertheless, what may be an original plantation structure remains nearby. Believed to have been a dwelling built for a son of one of the original plantation owners (Wood Bros. and Boyd) it is on land that was once part of the original plantation lands. It is possible then that this house is well over 100 years old. The house has undergone considerable changes having passed through several owner's hands. The present owner describes the house as once being 'rambling' and there is a large cement slab which replaced an original foundation on which it is believed another part of the house stood. The part remaining is a two storey timber structure. It is of considerable historical value as it

would be one of the few remaining plantation houses still standing and in use of any of the former plantations of the Herbert River district. Constructed at a later date and adjacent to the house is a laundry which the informant's wife described as typically Italian (Vitale pers. comm.:31 October 1991). The whole structure housed a laundry and a shower (with enamel bath) under two tanks. The boiler and tubs were constructed of concrete. There were three tubs. The clothes went from the boiler to the first tub for rinsing, to the second, which had a gridded concrete scrubbing board for removal of stubborn stains, and to the last for final rinsing. The clothes were then passed through a mangle which was attached to a post in front of the last tub! The whole set-up is a good example of the use of concrete made by the Italian migrants who often later acquired these houses.

Victoria House was another plantation house lost to the Herbert River district in recent times. The second residence to be built for the C.S.R. Victoria Mill Manager, it was built on a grand scale, being a two storey timber mansion. Reached by a drive, bordered by palms, the house was surrounded by well-tended gardens in which garden parties were sometimes held (Pryce-Davies 1986: 23). In its hey-day the house served as the social centre for the surrounding community (Shepherd 1983: unpaginated). It was subsequently dismantled in the 1970s because of considerable structural damage rendered by termites.

In his diary Arthur Neame, owner of Macknade Mill, described one of the houses he built on his plantation. While much of the structural material, for example, floorboards and roof shingles were punted in, stumps on which the house was to stand were cut on the spot. A ridge was chosen on which to construct the house. It was to be on three foot (one metre) stumps with a kitchen separated from the house but connected by a covered verandah. The house took approximately three months to construct and he recorded that

"... each had a comfortable bed-room and a large dining room, there was a 10' verandah all round the house so plenty of room for visitors who often dropped in unexpectedly" (Local Historical Anthology Collection 9000 08:B:123). Unfortunately, these houses too no longer exist. Victims of termintes, weather and the dictates of changing fashion they were dismantled.

Macknade Mill. Arthur Neame's Macknade Mill was taken over by C.S.R. in 1897. Remaining on site is a house which is much older than any other building on site and was probably built prior to C.S.R. times. It, therefore, can be classed as a plantation structure. It has been suggested to the researcher that the steep pitch of the roof may indicate that the house dates from the 1880s. The house is believed to have been that of the Chief Engineer (Collins pers. comm.:19 May 1992). Off site, one of the former staff houses is presently in use as a cafe in Cardwell (Oliveri June 2 1994:11).

Cairns District

Hambledon Plantation. Further north the plantation owners and managers similarly built substantial homes for themselves. For the Swallows of Hambledon Plantation a ready-to-erect house of Swiss Chalet style was shipped from San Francisco to Swallows Wharf and transported via horse-line to be erected in a commanding position on high ground between McKinnon and Stoney Creeks. It was described by a contemporary as "an ideal tropical bungalow. Built on piles and surrounded by fine broad verandas ... The bungalow was surrounded by an extensive and beautiful fruit and flower garden ..." (McInnes 1982:3-4).

Pyramid Plantation. At Pyramid Plantation, according to Burrows and Morton,

the "first priority" of Jean Baptiste Loridan "was not building a mill but a mansion for himself and quarters for his Kanakas". Described as a two-storey structure, like Swallow's chalet it too commanded a view, being sited on a knoll between two ranges (Burrows and Morton 1986:11-12).

Nothing today remains of either house though Hambledon House's pipeline from Isabel Falls was supplying water to a farm house close to the former house site till recent times (Solomon pers. comm.:15 May 1992).

Vilele Plantation. The Bauers, Frederick and Louis, who established a sugar plantation and mill at Weary Bay called Vilele Plantation built a substantial home for themselves on top of Mt. Annie. It was a two-storey wooden structure, with verandahs on all four sides, upstairs and downstairs. Gardens, vegetable and ornamental, were established and a tennis court provided entertainment in leisure hours. All that remains are the track up to the house and the outline of the tennis court.

FARM HOUSES - SUBSTANTIAL

The 1884 Crown Lands Act which favoured small selectors, and international competition particularly from European beet sugar which was in the forefront of technological advances changed the face of the Queensland sugar industry. The Queensland plantations, being inefficient and over-capitalized, had come to realize that if the mills were to survive they would need to consider "economies of scale, further technological improvements, the use of sugar chemistry and ...divorcing milling from growing in the interests of economy" (Wegner 1984:118-119). There was a consequent trend by planters to attempt to interest small farmers to take up ex-plantation holdings. By

1886 the plantation boom had come to an end (Wegner 1984:118-119). Some of the farmers who took up land after this time went on to build substantial homes for themselves.

The Herbert River District

Quite a few of these remain in the North Queensland sugar growing districts, particularly in the Herbert River district. Among those is the former Lacaze house.

Lacaze house. Arthur Neame was a progressive planter and had begun comparatively early to break up his substantial holdings into small farmer blocks and to accept their cane for crushing at his mill. In 1893, Arthur Neame had in his employment a Mauritius born Charles Louis Lacaze as Mill Manager and Sugar Boiler (Local Historical Anthology Collection 9000 08:B:132). He described him as living close to the mill yard yet at some time this man acquired land adjacent to the Neame holdings and built himself a palatial home in the style of the planters. The original house was surrounded by beautifully kept grounds which included a tennis court, golf course and stables for 34 horses. The verandahs were 12 feet (three metres) wide and many dances and parties were said to be held at the house. The house was a single storey, wooden structure.

Enrico Tibaldi and others acquired the farm of 160 to180 acres (65 to 73 ha) and house from Lacaze in 1913. In 1919 or 1920 the remaining two families in the partnership drew straws for the house. Enrico Tibaldi drew the straw for the back half of the house which had to be transported on portable rail to its new site. The house was divided along the original hallway between the bedrooms. Once on site Tibaldi had to put a verandah on the front and a kitchen at the back. It was a separate building constructed of galvanized iron and joined to the house by a covered walkway. The front of the original house which

had remained on site was later destroyed by fire (Mina pers. comm.:31 December 1991; Chinotti pers. comm.:28 October 1991). The Tibaldis sold the farm and house to its present owner in the 1960s since which time it has undergone considerable changes.

The house is located on Neames Inlet Road and when the researcher saw it it presented a very nondescript face being a low-structured, fibrolite-clad, unpainted building with no outwardly distinguishing features. Over time it had undergone considerable changes including restumping on cement stumps; lining of interior walls; closing in of verandahs; removal of the detached kitchen and putting in of a kitchen into the body of the house and similarly putting in a bathroom and toilet into what was formerly verandah. The roof-line was changed after the 1927 flood during which the family had taken refuge in the gable of the roof for five days.

The structural changes reflect the changes in household technology that have taken place in the last 100 years. Wood stoves which once represented a severe fire hazard and were housed separately for comfort and safety have been replaced by electric or gas stoves. The out house placed strategically at a considerable distance from the house has long since been replaced by the hygenic flush septic toilet. Fibrolite and similar flat surfaced interior and exterior wall linings have made for easier house maintenance. Verandahs which were once essential for ventilation and entertainment have been closed off to create more living space and ventilation needs are provided by overhead fans and air conditioners. Cement stumps offer some prevention against termites and glass louvres or glass sliding windows are less trouble, maintenance wise, than wood and glass casement or sash windows. Since the field work was conducted this house has once more been relocated and has undergone extensive refurbishment including the removal of interior walls and exterior cladding. While it is commendable that this house which is probably

nearly 100 years old is still in good use, the work carried out on the house has completely eradicated its former charm which is clearly appreciable in early photographs.

Oakleigh. Another house of significance from these times is Oakleigh owned by the Carr family. Now unoccupied it retains much of its original character and appearance. It was originally sited on land that is presently owned by St. Theresa's College, Abergowrie. The family believe that the house was built on the Abergowrie land sometime after its purchase on 12 August 1884. The land was later sold on 21 September 1894. It would appear that Arthur Carr bought back the house in 1899 and moved it to the land he had purchased at Cordelia Vale in circa 13 August 1878. It was not the first house on site. When Arthur first took up the selection he bought a cottage from the Gairloch plantation to live in. In taking up this selection at Cordelia Vale he become one of the first five independent suppliers of sugar cane to Victoria Plantation Mill. The house was floated, in sections, down a flooded Herbert River to be relocated on its present site. (Carr pers. comm.:29 November 1991). The house would be well over 100 years old. It is a two storey, wooden structure built six inches (15.25 cm) off the ground. The house is an historically significant structure and is one of the oldest two storey structures remaining in the district.

What emerges as a noteworthy and consistent feature of house construction of this period is that many structures to be sighted are the result of early removal and reconstruction. Of the houses so far described the Lacaze house was divided and a part removed for relocation elsewhere in 1919 or 1920; Brookland was a composite of two distinct houses in 1891 and then divided again in 1921; Oakleigh was transported down river in sections in 1899 and reconstructed.

Evandale. The former Row home of Evandale on Stone River Road is another example, only this one was transported over even greater distance: from the gold mining town of Charters Towers. Bell asserts that "The shifting of buildings from one site to another was characteristic of the earliest years of substantial construction on the mining fields ... The greatest migration of houses was from the mining towns to the coast in the 1920s,..." (Bell 1979:66). Evandale is one of several former Charters Towers homes relocated to the Herbert River district.

It was brought in sections down the tramline, horseline and portable line on cane trucks and reassembled. In Charters Towers the house was built on low stumps but when brought to its present location it was put on high stumps in order to keep it out of flood danger. A timber structure, the house stands on a sandy ridge on an undulating creek bank and when the house was erected on site the posts had to be levelled to compensate for the uneven ground. Originally the kitchen was part of the house structure but at its present location an annex was added to serve as kitchen and washhouse. A sizeable kitchen was required to facilitate the feeding of the large number of workers. That particular kitchen may have been part of the first house that was built by the original owner to the front right of the present house circa 1910/1911. Consequently that house was removed and relocated 1/4 mile (0.5 km) away to become a workman's cottage. The kichen annex was removed in 1980 because of its dangerous state of deterioration.

This house is surrounded by picturesque and well-kept grounds and maintains the aura of bygone days. In past days the farm maintained three or four families, the house was vibrant with visitors and guests who would come for a few days and stay on indefinately. Though the house is in fair condition and still liveable it needs a lot of work and is becoming more fragile as years pass. The house and grounds as a unit are of

Plate 58: Lacaze house (1925) (O'Brien 1988:18)

Plate 59: Lacaze house before recent relocation and refurbishment (1991)

Plate 60: Oakleigh (constructed 1884)

Plate 61: Zavatarro house (constructed 1940)

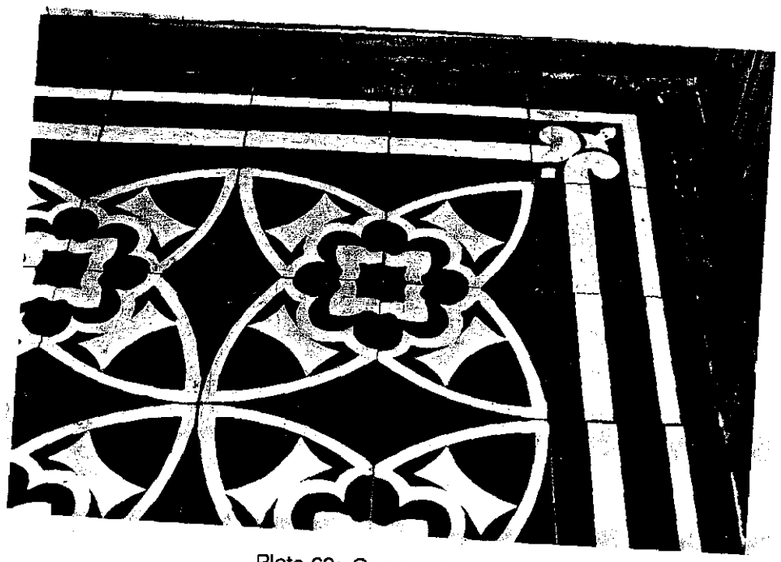


Plate 62: Cement tiles

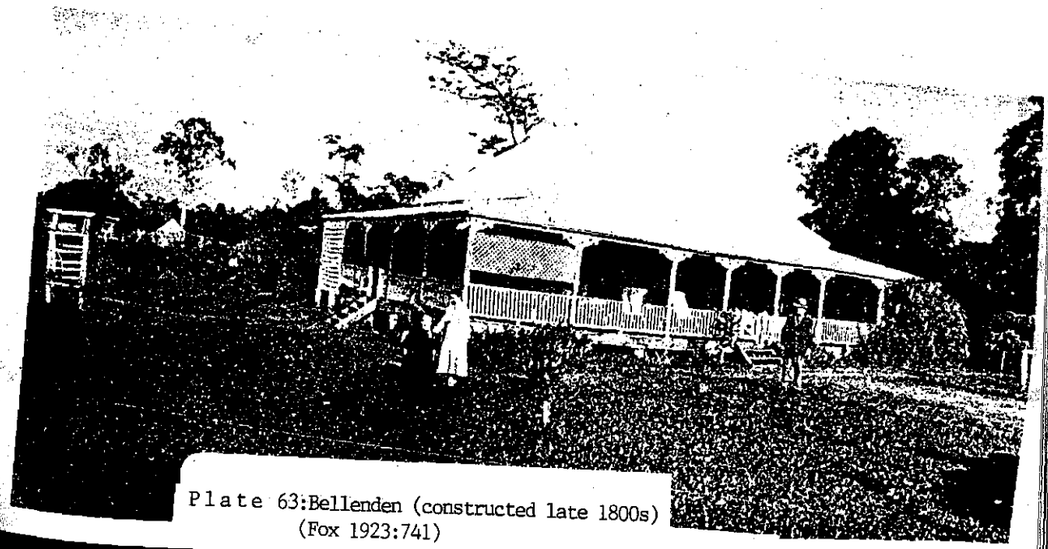


Plate 63:Bellenden (constructed late 1800s)
(Fox 1923:741)

significance, as they exemplify well the pace and lifestyle of canefarming in a past era (Row pers. comm.:22 November 1991).

Smith house. The Smith house too, at Lannercost, is a similarly old house of grand style built before 1926. Though it now looks quite different to its 1926 photo, (verandahs have been closed in; static ventilator removed; carport added; exterior clad in fibrolite etc.) it never-the-less retains some of its old world charm particularly in the interior where little has been altered.

Elma Grove, the former home, of the Abbot family was built sometime between 1886 and the turn of the century and resited in 1942 to 1943. The timber house was originally sited on an elevation over-looking a lagoon. It was surrounded by rose and vegetable gardens. When the house was removed the semi-detached kitchen was used as accommodation for an aboriginal worker and a kitchen and bathroom were incorporated into the body of the house. Though the core of the house has not substantially changed, the removal of verandahs and closing in of others; the alteration of the roof line and the interior changes and additions have altered the original character of the house.

Zavatarro house. Though the Italian settlers also lived in the styles of house described they brought a style to the north which though not so much in Ingham is much evident in the Tully/Johnstone River areas: that of the concrete structure. A grand farmhouse built for Carmilo and Modesta Zavatarro in 1940 is at Gedges Crossing Road. Built of red brick made by J.C. Nielson brickworks (now no longer operating) it features not only cement floors with coloured designs, but terrazzo floors and also cement tiles in the lounge area. The downstairs lounge-room ceiling was decorated with water-colour frescos of flora and scenes. One, of a night-scene, done in the present dining-room section was

painted in oils. The frescos deteriorated over the years and have since been painted over. The house has been extensively modernized. The verandahs were closed in, in 1975 and 1976, because they were found by the present owners to be unsuitable for the driving tropical rains which occasionally blew into the bedrooms as well. They were also always littered with cane ash in the days of burning the cane before cutting. The house is of considerable interest because of its size and design. Its Italianate design is typified by the ornate columns at front and balustrades on the front verandah; and also by the cement tiles and terazzo floors as well as by the former frescos. It bespeaks of a past era; of the aspirations and cultural baggage of the early Italian migrants; of the wealth to be made once from canefarming; of when visiting and gatherings at each other's farms were the main socializing activities. It is the antithesis of the more usual and more modest farmer's dwelling usually constructed of weather-board exterior, timber interior; or ripple/galvanized iron exterior, timber or unlined interior. It is also an example of the attempt to transplant the familiar onto the foreign.

Tully District

Bellenden. Further north, in Tully, the Henry home of Bellenden is significant. Isaac Henry came to the district in 1879 and with James Tyson and Edward Hewitt took up land with the intention of establishing a plantation with a mill. The venture fell through. Isaac Henry remained in the district and had built for himself and his wife a home, Bellenden, on his property Bellenden Plains. The holding incorporates the site of the former Mill established by John Ewen Davidson in 1865 to 1866 and later abandoned. The house described by Fox in 1923 as a "fine old house ... is surrounded by well-kept grounds laid out in lawns, flower-bed, and citrus orchards..." (Fox 1923:740). Built before the turn of the century it is a wooden structure on low stumps and according to an early

photograph would appear to have had verandahs on three sides. The house is presently in a state of disrepair. The researcher was given to understand that that is mainly because of termite activity and the fact that it is no longer lived in. The present owner was unwilling for the researcher to see or photograph the house and she seemed to feel that there was some local criticism of her for allowing it to deteriorate. There would appear to be a general sensitiveness about the property as a whole (Henry pers. comm.: 5 January 1993; Roberts pers. comm.:5 January 1993).

Johnstone River District

Lacaze house. After leaving the Herbert River district Charles Louis Lacaze settled in the Johnstone River district and in 1912 once again built himself a large home. A wooden structure on low stumps it once had verandahs on three sides. The pyramid roof line can be seen from a considerable distance. Many *ad hoc* structural changes have been made to the house and it has been poorly maintained though it is still lived in by a grandson of Charles Lacaze. The front verandah which once had a gable with decorative facade was removed and a ground level carport added to replace it. The effect achieved was to give the house no recognizable 'front' entrance.

Pittmans house. Another house of considerable age presently belonging to Frank and Gwenneth Darveniza is that built by a family who settled early in the South Johnstone area, the Pittmans. The selection on which the house stands was first taken up in 1880. The Pittmans took up the land prior to the South Johnstone Mill being erected and when the Royal Commission of 1910 visited the area pledged themselves to growing cane for a South Johnstone sugar mill should one be established (South Johnstone Co-Operative Sugar Milling Association Ltd. 1977:9-11). The house was not the first on the

property but built after the first had been destroyed in the 1918 cyclone (Scheu 1969:2). This farm has the notorious claim of being that on which cane toads were first released! The floor plan of this house is not of the typical Queenslander and it is not easy to determine what parts of the house are original or which are later additons or changes. Cerainly the back of house overlooking the river was verandah for 3/4 of its length. The house was substantially damaged by the 1986 cyclone Winifred and has been unoccupied since 1977.

Sugden house. In the South Johnstone Mill area houses of 'grand' Queenslander style have been restored with an attempt to maintain something of the original character. One belongs to the brothers, R. and N. Larsen. It was built by the Sugden family. The Sugden family was also prominent in pressing the need for a mill to the Royal Commissioners who visited the South Johnstone area in 1911 (South Johnstone Co-Operative Sugar Milling Association Ltd. 1977:8,24). The house is a wooden structure on low stumps.

McIlrath House. The other house presently belongs to Linda Hodgson and Paul Rossi. It is known locally as the McIlrath House. McIlrath was granted an assignment on the 10 April 1930 to supply cane to the South Johnstone Mill (The South Johnstone Co-Operative Sugar Milling Association Ltd. 1977:31). It is also a low wooden structure. The house has a spacious and gracious feel and despite extensive and expensive modernization it retains its essential charm.

Babinda District

Redacres, built by the Price family in 1924, is one of the few remaining grander style homes in the Babinda area. It was built of wood on high stumps. The present owner is renovating the house room by room, rendering it liveable rather than historical. He intends to replace some of the original features: french doors, ornament shelf etc. but the interior will be fibrolite and the exterior zinc alum with modern aluminium pushout shutters.

James house. A grand home built in 1920 by D.O. James is presently lived in by his daughter Myfanwy Shephard and her husband. It is a wooden house set on high stumps. With its size (15 rooms), intrinsic style and setting within manicured gardens it bespeaks of another time despite cladding with zinc alum, closing in of the verandahs with casements and the bricking in of the underneath of the house which have robbed it of some of its original charm

Cairns District

As the alienation of cane lands to suburban lots occurs with the spectacular urban growth of Cairns many of its older historic buildings have been lost. Bell notes that very few early style houses still remain in the Cairns district (Bell 1982:75).

Glenaffen (meaning farm in a valley), built by a Jones in 1912, is one of those that have survived. It is presently owned by Alan Schumacher and like Redacres is being extensively renovated using all available modern technology in order to render it comfortable, low-maintenance and suitable to 20th century living and expectations. It stands on high stumps and is constructed of wood. Of considerable age, it dates from

soon after the Highleigh area was opened up to sugar cane farming by small farmers (circa 1895).

Drumbegg. Similarly in the Highleigh area is the Thomason house, Drumbegg, built in 1926. A huge, wood and ripple iron house (60 foot X 60 foot (18.25 metres X 18.25 metres)) it is two stories and still stands on wooden stumps. This house together with its shed, barrack and collection of older machinery presents a remarkably good collection of artefacts all in one place.

Gordon House. Another home of historic interest is that belonging to Walter Anderson built in 1926 as the home for Mr. John Gordon, after whom Gordonvale was named. Constructed of Kauri pine and oak it stands on low stumps. It has been well looked after and as an historic home is worthy of documentation.

Bentley Park, built in 1913, is possibly one of the oldest houses still standing in the Cairns district. It is a two storey structure, constructed entirely of cedar. It has been recently restored. There used to be a tennis court in the grounds; today there is a large swimming pool. The graves of the mother and of two uncles of the original owner, Charles Butler, are located on the eastern side of the house (Bavington and Marino pers. comm.: 1992).

Mossman District

The older houses of Mossman are well worth noting as all those viewed were of considerable age and in a remarkable state of preservation.

Richmond built in 1897 as a home by a pioneer of Mossman, Raymond David Rex for his new wife, Gwendoline Jones is the exception being in a sad state of neglect. The property was once known as Richmond Plantation. A wooden structure on low stumps it stands on an elevation. An interesting feature, a 'cyclone house' can still be seen on the right hand side of the house on the riverbank and was apparantly used by the family to shelter from the 1928 cyclone (Rex pers. comm.:3 January 1992). Because it has undergone few changes it has been used as a location for several films. Unfortunately, the house has not been left unscathed by that use and interior structural modifications were not reversed. For instance the hallway was blocked off with a piece of plywood which is still in situe. It is one of the, if not the oldest house of the size still standing dating from the early days of Mossman. It is essentially still in its original state (and has great charm). The family would like to see the house preserved but do not want to lose control of the property. They would not want to be governed by the rules and regulations that the National Trust would impose if that body was to undertake preservation and restoration.

Drumsara. The house built in 1908 to 1909 on the Drumsara sugar estate by Samuel Johnstone is now lived in by his great-grandson, Bill Phillips-Turner. On high stumps and built of red cedar and local timbers it was renovated in 1970-1971. Prior to that, after many years of being leased, it was in a bad state of disrepair. Extensive structural changes have been made but externally the house retains its colonial charm. Like Richmond it has been used for several motion pictures because of its architectural style and well-kept surrounds. The original golf-course is now a private air-strip. The family seem very cognizant of the property's significant place in the district's history and of the importance of maintaining some of the historical features of their property for future generations to enjoy and appreciate.

Brie Brie. Don Watson's home constructed in 1911 for the Crawford family was constructed of home-grown hickory, timber sawn at Lawson's sawmill in Mossman. The high-stumped house is barely recognizable as an old home with all the alterations wrought. Nevertheless the house has been well-preserved and has been made comfortable for 1900s living. The house has several interesting features. Red cedar weatherboard from Mrs. Parker's home built circa 1882 (the original owner of Brie Brie Estate) was used in the construction of this house but came adrift from the house in the 1957 cyclone. The downstairs walls used to be lined with 'zinc-anneal' and power was supplied by 'gloria-light' (petrol through gas pipes). What is now the store-room was once the generator room. The present laundry is where the estate's workmen were fed.

Fairymount. Another house of interest in Mossman though of later vintage in the former Pringle house built in 1934. Now owned by George Vico the house is known as Fairymount and the property as Shannonvale. The original house on site was constructed in the late 1800s and later dismantled. Some of it was used to construct a barrack which at the time fieldwork was conducted at this site was about to be dismantled. The house has undergone changes in both the Pringle's time and in more recent times. The house, sited on low stumps, is built of pre-cut Maryborough hardwood which was brought by ship to Port Douglas and railed to the site. The basic structure of the house has not been changed that much, but rather the use of rooms has. The house is well and lovingly preserved and the verandah especially, with its potted palms, has a gracious and old-worldly feel about it. Like the other Mossman houses mentioned this one too has had claim to recent fame, the dining room with its old sideboard having being used in a Telecom advertisement.

The researcher feels that is is a pity that the 'barrack' was pulled down. It was

serving no useful purpose and was uninhabitable. However as part of the old house, and for the interest of how part of an old house was reused to make a barrack it was of considerable interest. Structurally, the building was not unsound or dangerous, just an eyesore!

Connelly house. In the Mowbray Valley is a house in the Queenslander style that was once a grand home belonging to Mick Connelly. On low stumps, its interior walls were of red cedar. It is presently rented out, is deteriorating and termites are active. As part of the whole plan John Reynolds has for the Mowbray Valley (which will be discussed elsewhere) this house if of interest.

Berzinski house. The original Berzinski home at Craiglea was removed to the Tin Pannikan Museum, Herberton in 1976. Rudolph Berzinski, a packer on the Bump Road, took up a selection on 1 November 1877.

Not all farmers could aspire to build such sizeable homes and the use of more than one verandah in most indicated a certain degree of wealth on the part of the owner. The use of wide verandahs entirely surrounding the house did not appear to continue past the 1930s when a simpler style of architectural design came to prevail in sugar farm housing. The 1950s saw another building boom for farm houses but in a much different style to the earlier substantial homes. No doubt this difference can be just as much linked to the economic swings in the industry as to changing tastes. Taking the late 1920s to the 1950s for instance it can be seen that the 1920s to 1930s was a period of world-wide economic depression and the Australian sugar industry suffered the effects (Kerr May 1979:78). The late 1930s however was a good period for the industry with "Improved field practices, coupled with marked technological advances in the mills [raising] standards of

production efficiency to the stage where it became profitable to explore export opportunities" (Kerr May 1979:80). With the breaking of war in 1939, the industry was once more in difficulties with machinery impounded for war use; fertilizers rationed; and a shortage of manpower. The post-war saw new demands for sugar which the Australian industry was challenged to meet and the 1950s was a period of major expansion.

FARM HOUSES - SIMPLE

When William Bairstow Ingham started work to erect his mill on his Ings Plantation in the Herbert River district he first lived in a 'grass' hut and then had a two roomed verandahed cottage built for himself. If his plantation had succeeded he may very well have gone on to build a substantial home. When the planters first took up their selections and while they were establishing themselves they lived in primitive conditions. Neame, of Macknade Mill, camped in a humpy with his men until his first house was built (Local Historical Antholgy Collection 9000 08:B:38, 163). Plantation owner, estate owner, and small farmer alike throughout the period under study all lived primitively at first. Italian migrant to the Herbert River district in 1912, Annibale Ferrando, when first he first took up his own farm in the 1920s, "lived in a bark humpy with grass thatched roof, bringing up a family of three boys and two girls in rather primitive conditions. As success came his way he built a modern home and now lives in comfortable surroundings" (C.S.R. Company Ltd 1956:caption for photograph - unpaginated). For each mill district there is a similar story. A James McFadden who was one of the original suppliers to the South Johnstone Mill took up a selection at Japoon. At first he lived in a tent. Later he cleared land on top of a hill in order to build his house which he and a carpenter constructed. "The house boards, tongue and grooved, were milled at Mareeba. They were railed to Daradgee, punted to Innisfail, loaded on to the 2' line to Japoon and then towed by sledge to the top of the hill

Plate 64: Bentley Park (constructed 1913) (Marino)

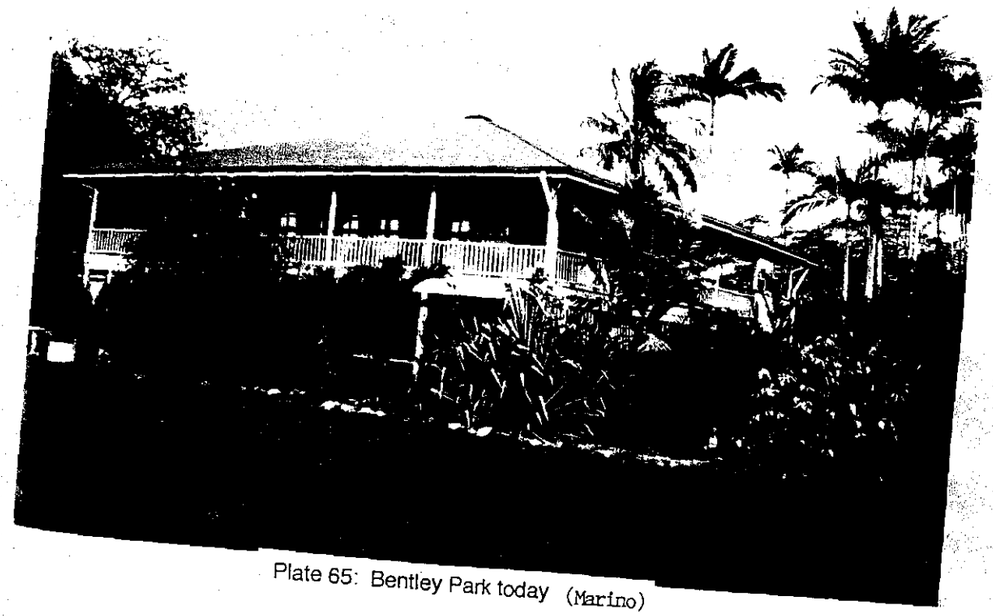


Plate 65: Bentley Park today (Marino)

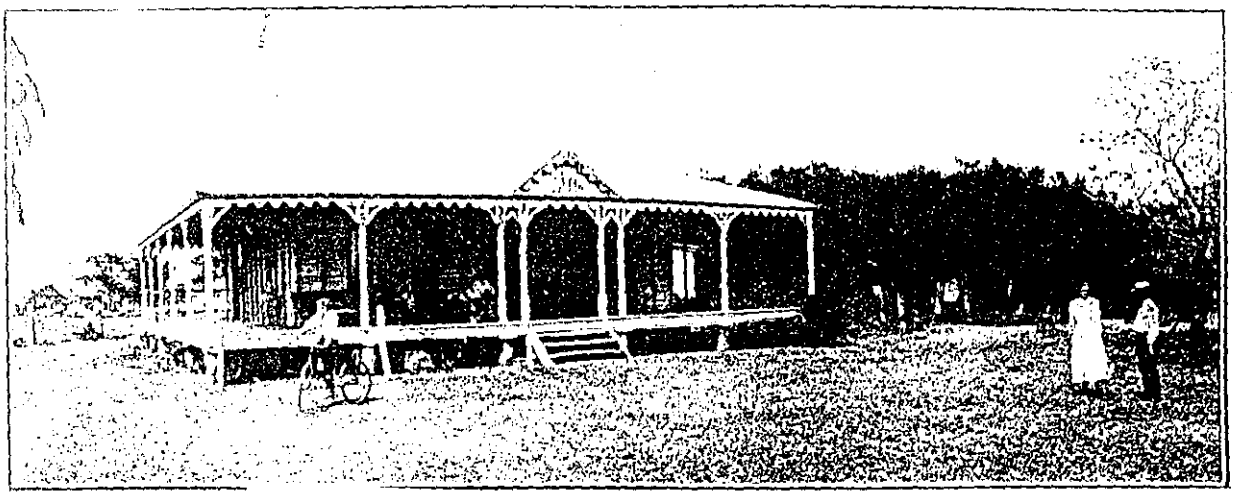


Plate 66: Richmond (constructed 1897) (Fox 1923:786)

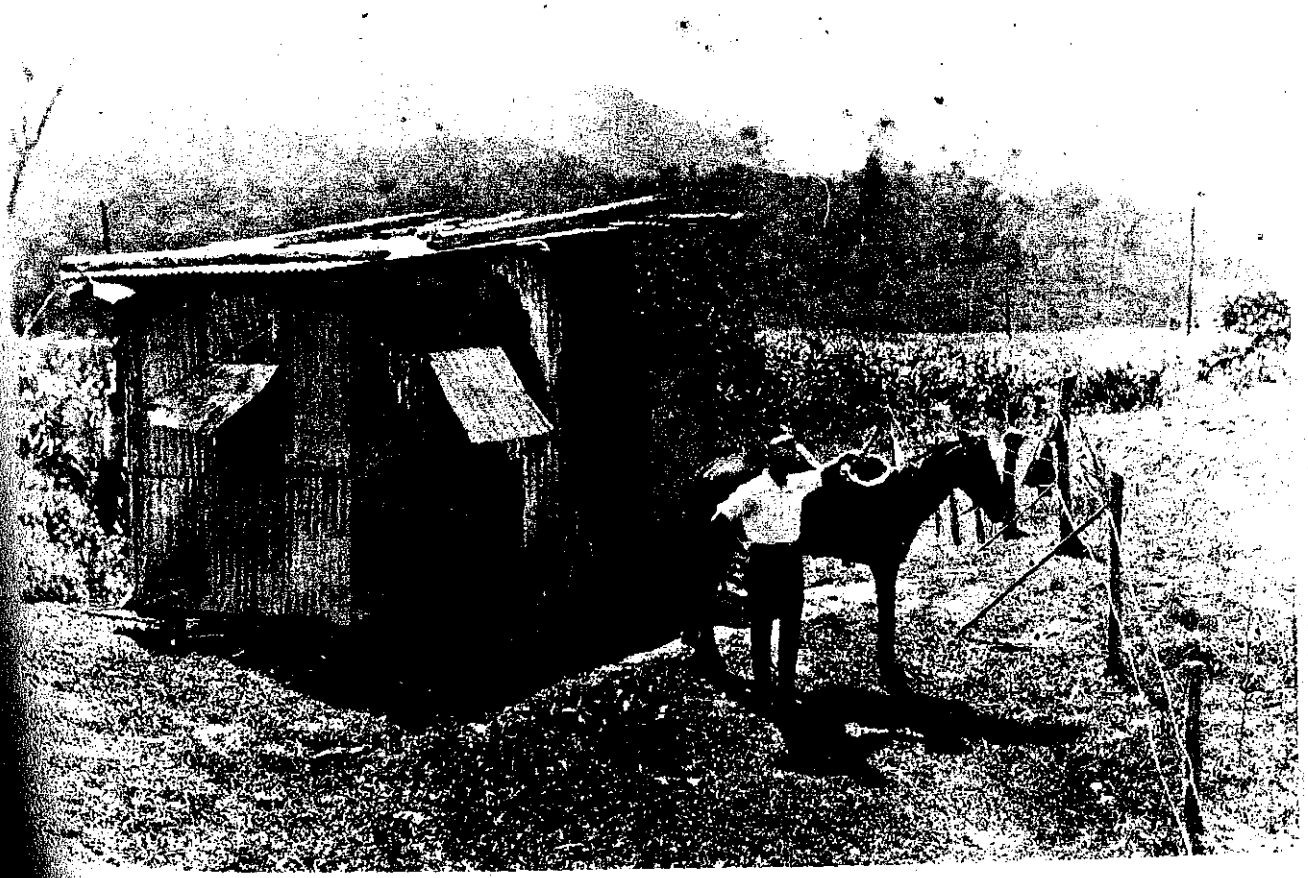


Plate 67: 'Bachelor's' Hut (constructed 1920s) (D. Jones Library)

(The South Johnstone Co-Operative Sugar Milling Association Ltd. 1977:33). According to the source the house was still standing in 1977 though whether it still stands today the researcher is not aware. Kerr, in *Northern Outpost*, includes a photograph of two early Mossman settlers "making the best of primitive conditions" posing outside of a 'tent' - a small wood and canvas structure with room enough for a bed and bedside table (Kerr 1979:41). In the Dorothy Jones Library's historical photograph collection is a photograph of a 'bachelors hut' once lived in by an early settler in the Tully district, Alf De Luca, in the late 1920s. One room, constructed of scraps of galvanized iron with pushout shutters it is an extremely primitive example.

Herbert River District

Russo cottage. Hardly less primitive is a tiny cottage on Stone River Road believed to have been a former farmer's dwelling. It has been rented to seasonal labour till recent times. Originally dirt floored, its main structural supports are hand sawn posts - all exposed in the interior. Constructed with galvanized iron exterior it remained unlined till the the 1950s when revised regulations demanded that the interior be lined with masonite. This cottage is illustrative of how primitively some of the first settlers lived when they first took up their selections.

More likely the temporary humpy was more a matter of necessity than choice and this type of living was not unknown even in the 1950s when the new land at Abergowrie was opened to cane farming. Clive Morton had this to comment in September 1955

> On the new farms at 'the Gowrie' pioneering cane growers and their wives lived in tents and humpies .... With the crop planted the new settlers, many of them ex-servicemen, began to build more permanent

> dwellings. First came the canecutter barracks, for in a State where unskilled labour is king, the comfort of the cutter took precedence over the housing of a farmer's wife and children ... when all else was ready, the growers of Abergowrie built their own homes (Morton September 1955:45).

As the settlers became more established they moved from humpy, to simple home, and then on to a more substantial home. Even if a house sighted on field work was constructed pre-1955 there was no guarantee that that was the first house on site. As stated before swings in the economic fortunes of the industry were not only reflected in structures farmers built or did not build on their farms but in the style of those structures built. Another important factor dictating the building of structures on a farm was weather, in particular cataclysmic events such as cyclones and floods, regular features of life in the the tropical north.

Gerasolo house. This house is such an example. Built in circa 1927, it owes its construction to the flood of 1927 which devastated the Herbert River district and caused considerable loss of life and damage to property. The original house on site was constructed on low stumps with verandah back and front and detached kitchen. Flooded by the 1927 flood the family was prompted to build a new house, a high wooden stumped structure of a simple design. It used the original detached kitchen. When the new house was built the older one continued to be used for sleeping quarters.

When a property changed hands, or a different family member occupied the house, houses were often dismantled entirely and a new one built or substantial changes were made. Such was the case when the present occupant and his wife moved into the house after their marriage. The house belonged to his father-in-law. On their occupation substantial changes were made to the house. An interesting feature of the downstairs

core is a cement floor to which red dye was added to some of the mix so that the floor could be decorated with a central star and borders. The cement is polished smooth by the action of human feet for dances were held in that room.

Burke house. A house typical of the architecture of the simpler style of houses but more noteworthy for the reason it was constructed in the first place is a little high-stumped house on Stone River Road. The farmer's original house was on the other side of the road on the river bank. The horse stables were on the opposite side of the road. The farmer had to walk his horses across the road to be stabled and watered. In 1937 he became tired of this routine and built this house on the side of the road close to the horses. The house could be said then to stand as a monument to the totally different priorities of past days: that a house could be built for the convenience of tending the horses that did all the farm work for the farmer. The house is two-storied and made of ripple iron and wood with an unlined downstairs area.

Cavallero house. In Cook's Lane is a low stumped farm house constructed in the early 1930s as a farmers dwelling. Later it was used as a canecutters' barrack. Of great charm in setting and construction it is unoccupied and deteriorating. When electricity came to the area in 1957 at first only electric lights were installed. At a later date other electrical amenities were provided. The exterior is ripple iron. The ceiling is lined with wood while the interior walls are unlined. The outer interior walls were lined with masonite in the 1950s when legislation dictated new standards for worker accommodation. A shower was formerly under the tank stand which is still standing on its wooden stumps, a not altogether common sight anymore. This house was rented out until 1984.

Girgenti house. A simple galvanized iron two storey house of different floor

plan but equal primitiveness is to be found in Liborio's Road. The house was originally located in Lannercost but moved to and rebuilt on this site in 1940. What distinguishes it is that its semi-detached kitchen is still in situe. The walkway, now enclosed, was once open. This house was rented out until 1988.

What typifies these houses is the simple floor plans, whether high or low stumped; galvanized/ripple iron exteriors; essentially unlined interiors; the cement floored living area downstairs in the two-storied structures; and the use of iron pushout windows. If the kitchen was not semi-detached, the wood stove was at least placed in a stove recess. And with comparatively few concessions to modern expectations of comfort the houses continued to be resided in till recently if not still lived in.

The fairly regular habit of relocating houses; constructing a larger house from two relocated smaller houses; using materials from a dismantled older house to make additions to another is confusing where no reliable source of reference regarding the age of the house etc. is still available. It also makes it impossible to make anything but generalizations about the architectural styles of houses favoured by sugar cane farmers. Bell drew similar conclusions saying that "this process [shifting buildings] has the effect of confusing whatever evidence exists of small-scale regional variations in housing form and style" (Bell 1979:66).

Jeffrey house. A house which at first appearance gives the impression of being a grander Queenslander is actually two cottages relocated and joined together on the present site at Lilyponds, Halifax Road. The house, belonging formerly to a member of the Jeffrey family, early settlers in the area, is situated on land once owned by Frank Neame. Neighbouring families sought refuge in this house in the 1927 flood and so the

house predates 1927. The front cottage was two-roomed with verandahs on three sides while the second cottage would appear to have been two-roomed with a verandah running across one end. The entirety is on low stumps and as the interior originally presented a mixture of wood and iron, the exterior too was both weatherboard and ripple iron.

Zemaitis house. This house is illustrative of a typical design but is most significant for how with little structural modification but careful upkeep this style of house can be still comfortably used into the 21st century. Built in 1939 to 1940 on the banks of the Stone River, it still stands on its high wooden stumps. Of ripple iron exterior and wooden interior, upstairs is used for bedrooms and downstairs for living. The house has been carefully maintained and recently painted in 'heritage colours' and its remarkable state of preservation and elegant appearance is a credit to its owners.

DiGiacomo house. One example of the concrete structure built in the 1940s is to be seen on Stone River Road. Interestingly it is built on the style that is commonly regarded as Queenslander: two room core, divided by a hallway and surrounded on all sides by verandahs. There was an ample use of cement with even the window hoods made of that material and a cement pathway running the entire circumference of the house. On ground level the house has cement floors some of which are inlaid with Italian cement tiles. These type of decorative floor tiles grace a number of public and private homes of North Queensland, most particulrly in Ingham and the Johnstone River district. This craft of cement tile making was begun by two farmers, Domenico Beccaris and Carlo Della Vecchia, who imported the machinery and the craftsmen from Italy in the early 1920s (O'Brien 1988:44, 49).

Tully District

Costanzo house. A tiny house used as a canecutters' barrack from 1960 onwards and still presently rented out is to be seen at El Arish. Actually a composite of two houses dismantled and rebuilt in the 1940s, the two houses were joined by a walkway on site. One (of unlined galvanized iron), became the kitchen, the other (of wooden interior with original verandah enclosed and ripple iron exterior) became the living quarters. The shower was under a tankstand; the outhouse (which is sitll in use) was constructed of plastered brick with a concrete pedestal and the laundry was in a separate structure next to the tankstand.

Reichhardt house. In the late 1940s farmers were still making use of other structures to reconstruct for their homes. In the Tully district a house can be seen that is so altered it is only of significance now to the extent that it was constructed from second-hand timber acquired when an army house was dismantled in Tolga (Reichhardt pers. comm.:8 January 1993).

Santolin house. A house built somewhere between 1927 and 1930 and relocated to its present site in 1964 in the Tully district is illustrative of the type of utilitarian home built by some of the early settlers. A galvanized iron high-stumped house, its austere lines extend even to the practical, though certainly not decorative window hoods indicating that money was not wasted on its construction. The informant described the house as designed to be "purely functional". The original house did feature a 'smoke room' used to smoke and cure meat (Santolin pers. comm.:7 January 1993).

Formiatti house. Another Italian family however, after living in a humpy went on in 1934 to build a house that was a little more substantial and on which more money was obviously expended. It was built on high cement stumps from the outset. A wooden structure, the downstairs area was closed in with concrete and the floor was made of coloured hexagonal cement tiles. The use of concrete was favoured by the Italian migrants who were skilled in its useage. The house is still lived in by the family (Formiatti pers. comm.:7 January 1993).

Tamba. Built in the 1920s the owner of Tamba obviously had a little more money to spend. He built his low house of wood with kitchen, bathroom and toilet all internal. An unusual feature is a fireplace in the lounge. The house was set in palatial grounds. Now no longer occupied the house and grounds are looking derelict.

Elston house. A house built in 1928, by Thomas Inglis Elston for his wife, is of timber exterior and interior and stands on high stumps. The house has undergone considerable change over time. It represents another variation in the combination of materials used in housing structures in this era.

Returned soldiers were issued with land packages after both wars. After World War 1 these settlers were allocated blocks of land in El Arish to grow sugar cane and were credited with 625 pounds with which they could buy stores, build a home and prepare the land (Jones 1973: 325). El Arish takes its name from a locality in the Palestine campaign. What can be seen is an interesting contrast between types of homes soldier settlers chose to live in. One is a little house constructed in 1922 in which eventually two adults and seven children were to live. It is a wooden structure on low stumps and is small even with its 1948 extensions. It does have lattice breezeways and a decorative archetrave in

the lounge but despite these features it was certainly, as the present owner describes it, built with "no frills" (Gradidge pers. comm.:7 January 1993).

Benn house. Percy Benn is a soldier settler who still lives in the house he built with his brother in 1932. As a single man he had lived in a humpy but when he married he built this house. Built of concrete because it was cheap and the easiest substance to build with the house looks imposing from the exterior but is actually quite small. Sand for the concrete came from the nearby creek and timber for the interior walls and windows was finished in the old shed on a saw bench. The house featured a dutch gable. When the roof was replaced after Cyclone Winifred the gable ended up being closed in because the builder didn't understand the concept (Benn pers. comm.:6 January 1993). The house is two-storied with wooden floors. It is not like any other house the researcher sighted in the northern sugar district and even the locals regard it with some interest.

Johnstone River District

Cataldo house. Nowhere is the use of concrete better illustrated than in the 'Italianate' house standing on the corner of the South Johnstone Road and the Bruce Highway. Affording great interest to tourists and locals alike it is an imposing two storey structure. It now has an aura of dereliction about it because the occupants are elderly and in bad health and have no-one to maintain the house and yard for them. Constructed entirely of concrete including window hoods and guttering and a fence that runs the entire circumference of the house it once featured a terrace on top (with 18 inches (45.5 cm) of concrete in the roof or floor of the terrace). The terrace was found to be unsuitable to the North Queensland climate and so a roof was added in circa 1955. While there are wooden floors upstairs, downstairs the floors are cement with Ingham made cement tiles. A

fascinating feature of the house is that it has only one door exiting from the back: a fact which has given rise to much local speculation and folklore over the years! (Cataldo pers. comm.:16 January 1993)

While there are many other good examples of concrete houses, two houses built by Italians in the Johnstone River district are of particular interest. Constructed within a year of each other, one in 1926, the other in 1927 after the 1927 cyclone with the intention that this structure would withstand any further cyclones, both were built by the same builder, Beccaris, and they resemble each other in some aspects. The older house is no longer lived in while the other is. Both were constructed of plaster over locally made concrete bricks.

Biletta house. In the 1926 house Queensland railway rails were used for the steel structural supports. This house is of great interest because of the decorative woodwork, wooden shutters, paintwork, tiles, use of concrete and rail infrastructure.

Garrone house. The 1927 house is much more Mediterranean in appearance and of a more substantial floor plan. The Mediterranean feel is given by the archways and concrete balustrades of the verandahs. While the exterior walls are concrete, interior walls are of wood. Similar to the 1926 house this house features french doors, casement windows with wooden shutters, breezeways, decorative metal vents and cement tiles. It also has decorative iron window hoods. The informant pointed out how the window sills slope for water runoff and how the wooden window shutters could be closed over the casements in storms without necessarily having to close the latter (Garrone pers. comm.:16 January 1993). This house is interesting for much the same reasons as the former and provides an excellent example of the craftsmenship of the Italian immigrant

builders and tilers of the time.

Campagnola house. A house which is distinctive looking and beautifully maintained is one in the Mourilyan area. The distinctive appearance is lent by three gables and a bay window. Built for a Spaniard in 1930, the timber for it was milled on the property. The house was of wooden interior and exterior and stood on high wooden stumps enclosed with lattice underneath. The informant claims that to her knowledge there was only one other house built to this plan in the district.

Martin house. A house built for a Spaniard by an Italian, Fernando Amadio, in 1935 in the South Johnstone area, is an interesting variation of the concrete houses so typical of the area. Built with a Mediterranean appearance it was constructed of reinforced concrete. The gravel and sand came from the South Johnstone River and was mixed by hand. The walls were then plastered. Wood was used for floors, ceilings, skirting boards, architraves and windows. This house is distinctive because it is <u>not</u> made of concrete bricks and is <u>not</u> ground level with a cement floor. It is about one and a half to two feet (30.5 to 45.75 cm) off the ground. Openings under the house run east-west to catch prevailing breezes to cool the house. The bathroom was formerly under the adjacent tankstand. The house has completely lost its Mediterranean appearance with the closing in of the verandahs with fibrolite. The cement balustrade, however, can still be seen from the interior.

Bertei house. The 1927 cyclone was a very destructive one and houses built subsequent to it were often built with its ferocity in mind. One very simple house in the South Johnstone was built post-cyclone by Italian immigrants who had arrived in Australia in 1922 in time to experience the cyclone. When they built this house they were

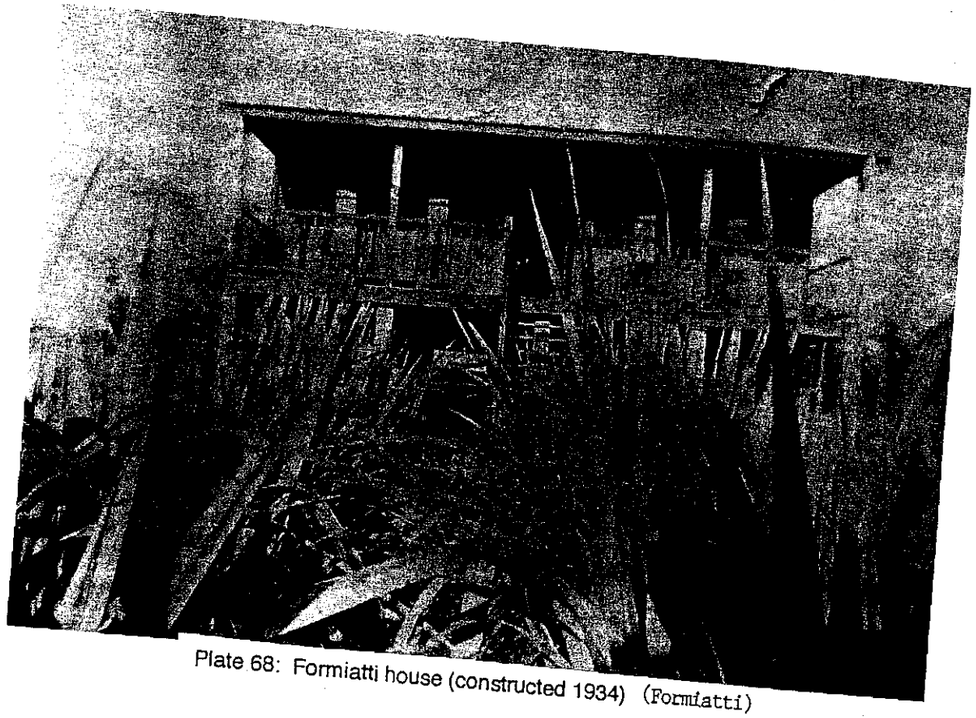


Plate 68: Formiatti house (constructed 1934) (Formiatti)

Plate 69: Formiatti house (1993)

Plate 70: Elston house (constructed 1928) (Iggulden)

Plate 71: Elston house (1993)

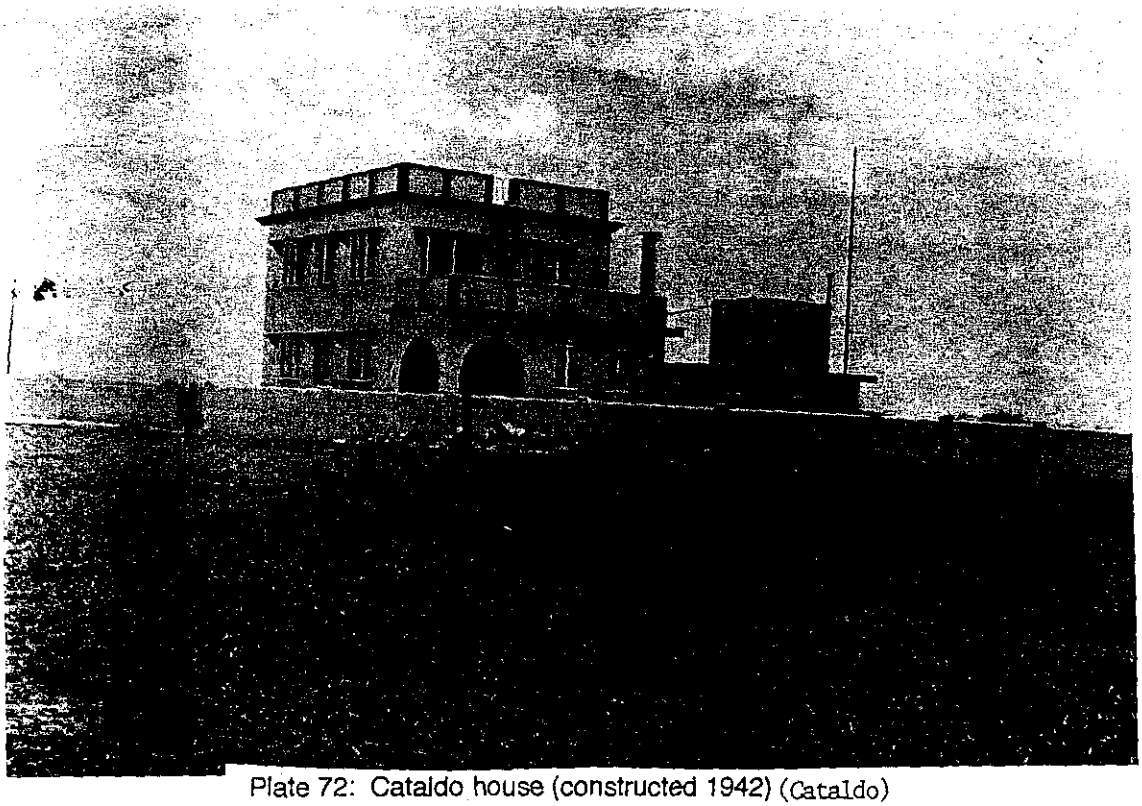


Plate 72: Cataldo house (constructed 1942) (Cataldo)

Plate 73: Cataldo house (1993)

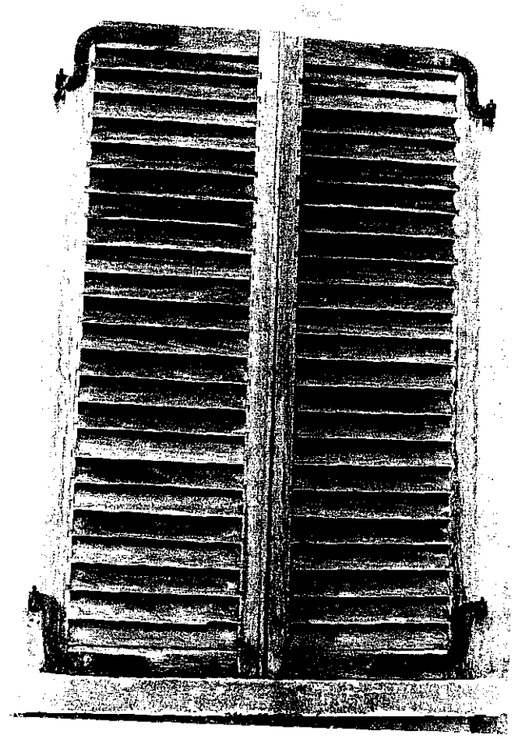


Plate 74: Biletta's concrete house: wooden shutters

Plate 75: Biletta's concrete house: artwork

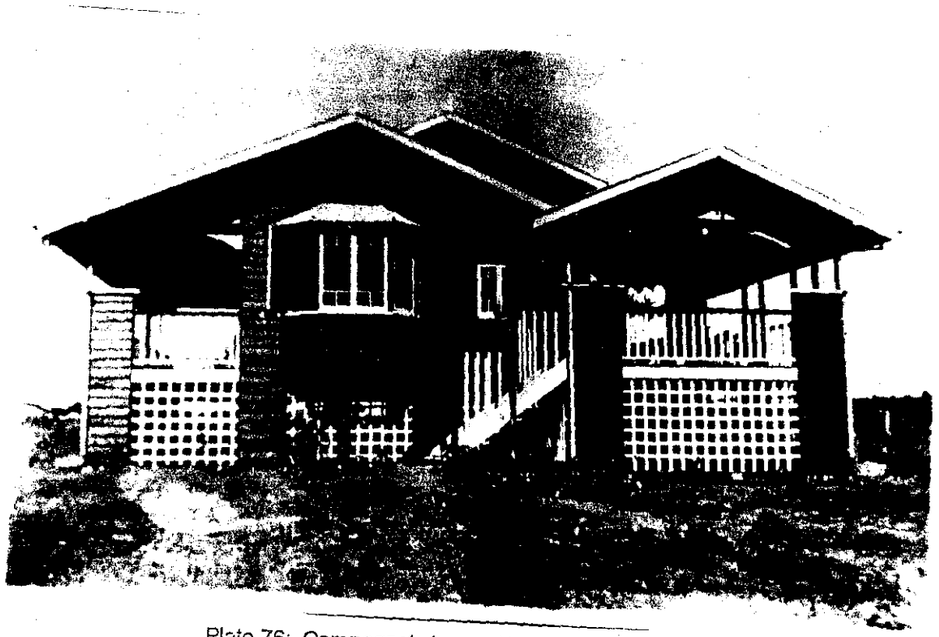


Plate 76: Campagnola house (1930) (Campagnola)

Plate 77: Campagnola house (1979)

Plate 78: Mango Park (constructed 1886)

Plate 79: Drumsara worker's cottage (constructed circa 1920)

determined to build it securely. Consequently the high concrete and wooden stumps upon which the house sits were bolted down with cane rails! The house though last lived in five years ago and still habitable is very basic.

Babinda District

Cope house. A little house predating 1918 is still in use in the Babinda area and is a good example of the simple farm house with a semi-detached kitchen accessed by a walkway. On low concrete and wooden stumps (originally all wooden) the house is clad in both wood and ripple iron. The kitchen is of ripple iron exterior with unlined interior. The shower is under a tank stand with laundry alongside. The house belonged to Frederick Cope, one of the first Mill Committee. The present occupant is elderly and maintains the surrounds well but the house is showing its age and requires considerable structural maintenance.

Hanson house. While common in the Tully/Johnstone River area the concrete house is more of an oddity in the Babinda area. One example was built in the 1920s of concrete bricks handmade on the site with sand from the adjacent Fig Tree Creek. The present owner believes that the house was probably built by an Italian (Hanson pers. comm.:29 January 1993). The floorplan is essentially that of a Queenslander.

Reghenzani houses. Two houses on the outskirts of Babinda one lived in by the farmer and the other rented out are believed by him to be over 90 years old. Their floor plans are similar. Both are out of flood level and the owner observed that the original settlers picked the highest spots for their homes. This fact is significant as this area was flooded as recently as 1977. The house he lives in is on two and a half foot (76.25 cm)

concrete stumps (formerly wooden) and clad in ripple iron. Ablution facilities, laundry and outhouse were all formerly separate to the house. Interior-wise the house is changed while externally the house has retained its old-world charm.

Cairns District

Dockery cottage. A cottage used as a farmer's dwelling in the 1930s is in the vicinity of the former Loridan house (Pyramid Mill) Cairns district. With galvanized iron walls and unsawn wooden uprights and crossbeams it is perfectly illustrative of the primitiveness of some farmer's dwellings of that period. It was lined in the 1950s as well as having electricity put on in line with the new regulations at the time.

Hesp house. The location of a house can be more evocotive of past times than its appearance. The Hesp house, built in 1936, is one such example. The house is quite difficult to get to. It can just be discerned from the Bruce Highway nestled up in the heavily wooded hills. It is to be found at the end of a tortuous dirt road and its location immediately transports the visitor back to a past era. Constructed of wood the house stands on low wooden stumps

Christensen house. A returned soldier built a Queenslander for himself in the 1920s. It is located in Springs Road. This house could probably be classed as a grander style of home being constructed of wood and having decorative fretwork on the wide verandahs which encircle the house on three sides. The house remains relatively unchanged. Why it is included here is that being secreted in a little pocket between hill and creek it, like the Hesp house, gives some idea of the isolated lives farmers and their families endured before electricity and speedier means of transport became available.

Fox house. By the 1940s the typical Queenslander floor plan and its abandoned use of wood in high ceilings, wide verandahs and decorative fretwork and other features was no longer common. Floor plans tightened up with all spaces becoming strictly utile. A house built by George **Fox** in 1942 is illustrative of this and is a good example of farmers' dwellings of the 1940s onwards. Many houses built on a similar plan can be seen around Cairns both in the town area and on farms. A wooden house, it was built on high wooden stumps (now steel).

Mossman District

Franklin in *Early Days of the Douglas Shire* describes how

> the first homes were built with timber cut with cross-cut saws then split in the bush and dressed with an adze or tomahawks as required for the building. As the family increased more rooms were added to the original building. Later when sawn timber became available, much of it pit-sawn, those who had money built new homes, while those who did not have sufficient money renovated their old ones (Prince 1977:22)

Further on in the same book the Editor of the then *Port Douglas and Mossman Gazette* who toured the district in October 1896 observed that "a difference lies between some of these places visited for whereas some settlers are content with temporary humpies as accommodation these two young gentlemen are erecting a fine substantial building which looks as though it will stand for all time ...." (Prince 1977:31).

Mango Park. An old house which looks as though it will stand for all time,

Mango Park, built in 1886 by John Torrens Johnstone is in an excellent state of preservation. It is presently owned by Murday and Staples. It is a low-set wooden structure. The house has been preserved in much the same way as it was originally built and the inate charm of the house and surrounds maintain the atmosphere of past days. The house is lovingly looked after and with upstairs kitchen is now suited to modern living. The family has been approached by the National Trust regarding registering the house with that body. The family is adamant that the house not be registered as it wants to keep the house in the family to do as it wants with the house.

Connolly cottage. The Mowbray Valley, Mossman district, in the isolation it offers its inhabitants is evocative of past times and offers a microcosm of the types of dwellings built late last century to early this century for farmers and workers alike. A little two roomed wooden cottage built by Matt Connolly in the early 1900s still stands. The outhouse (no longer used) still stands at a distance from the house.

WORKERS' COTTAGES

Herbert River District

Kowalczuk cottage. On Kowalczuk's farm at Forrest Home, is a cottage that once housed a worker and his family. Formerly the structure had been the kitchen for the original barrack. The living area of two rooms is on a raised timber floor approximately one foot (30.5 cm) off the ground, while the overhang and kitchen both of which have to be stepped down to, have concrete floors. Of unlined galvanized iron, the main supports of the cottage are bush posts. A primitive structure it is indicative of the way workers were expected to, and were prepared to live.

Evandale. A worker's dweling built circa 1910 or 1911 which is one remaining of two original worker's dwellings on the farm can be seen on Evandale on Stone River Road. The original two-roomed structure can only now be discerned from its roof line which peers above the roof of a closed verandah surrounding three sides - an addition added in the 1940s when one of the Italian workers living in the dwelling brought out his wife and child. The kitchen was formerly detached. The original building was unlined galvanized iron raised on low wooden stumps.

Spina cottage. A farm cottage pre-dating 1938 on Spina's farm, Trebonne Road, was constructed of unlined galvanized iron with the interior being lined with fibrolite at a later date. It stands on cconcrete stumps. It is now used as a storeroom. It is a good example of the size and primitiveness of earlier types of worker housing.

Johnstone River District

Schuster cottage. A nondescript cottage on what was formerly Schuster's farm in Mourilyan is said to have been built as a manager's residence circa 1920s to1930s. It would appear to have been originally a very simple structure but it has undergone considerable changes over time. Its age is questionable.

Babinda District

Butler cottage. Built in 1948, when the farmer died, a little workman's cottage on the Bruce Highway, resembles a barrack.

Cairns District

Gordon cottage. Where a farm was worked by a manager a home was often supplied. Next door to John Gordon's house at Mt. Sophia is the house that was built for Mrs. Gordon's farm manager in circa 1930. It is a simple cottage standing on three foot (91.5 cm) stumps. Kauri pine was used in the interior, while ripple iron was used on the exterior sides exposed to the weather. The kitchen was part of the structure while the ablutions facilities were separate.

Drexl cottage. A worker's cottage on what used to be Drexl's farm, Gordonvale, has retained something of its original appearance. It was built circa 1926. The interior is wood and the outside a combination of wood and galvanized iron.

Mossman District

Drumsara. On Drumsara is a worker's cottage constructed in the 1920s. It was lived in till nine years ago when the occupant passed away. It is a picturesque but primitive structure. Exterior walls are galvanized iron while the interior is wood (a great deal of which is red cedar). It stands on low wooden stumps. The family intend to restore this cottage. A nearby barrack has already been converted into a very attractive week-ender.

FARM BARRACKS

In his thesis *Sugar Cane Barracks of Far North Queensland* Dennis Formiatti suggests that "Over a period of one hundred years, the Sugar Industry in Queensland has produced a particular vernacular of building ... one building type has emerged as a clearly

recongizable form amongst the many types of buildings that belong to this period" (Formiatti 1984:ii). He is referring to the sugar cane barracks which he says "possess an historical significance in that they are a building type unique to the Sugar Industry in Queensland and are amongst the first buildings erected by men who contributed largely to the overall development of the region" (Formiatti 1984: iii).

In his survey of the area from Ingham to Mossman he identified several barrack types:

SINGLE BARRACKS

(a) linear (single banked rooms)

(b) linear (double banked rooms)

(c) L-shaped (single banked rooms)

DOUBLE BARRACKS

(a) linear (double banked rooms)

(b) L-shaped (duplex)

(c) double storey (linear single banked)

There are many good examples of barracks standing, not necessarily all in sound condition but certainly in location and surrounds evocative of the primitiveness and isolation endured by the men and women who lived in them.

Their generally flimsy appearance Formiatti attributes to the limited building knowledge of the original builders (often the farmers themselves) and the limited materials available which in turn left them vulnerable to termites, cyclones, weathering of materials and decay (Formiatti 1984:59). Over time the corrosive effects of fallen leaves and syrup from a nearby mango tree on a galvanized iron roof can be extensive as can be seen at the

Gerasolo barrack on Stone River Road, Herbert River district.

Also, the barracks were never meant to be permanent accommodation but rather housing for the itinerant worker. According to Formiatti "the men were in most cases prepared to live in whatever shelter was provided, adapting their life-style to suit each new set of conditions" (Formiatti 1984:67). Vidonja Balanzategui observed that "it was not the state or form of the barracks that shocked the migrant cutters on first appraisal but the *isolation* of their situation" (Vidonja Balanzategui 1985:166).

One farmer interviewed, in saying that barracks "were always dead buildings but needed for crushing" sums up the dilemma of these buildings. Required for only seven months of the year their use hardly justified anything but flimsy construction (Croatto pers. comm.: 19 January 1993).

Herbert River District

Ferrero barrack. Of the barracks sited in the Herbert River district the oldest, dating from 1918, is the Ferrero barrack, first used as a farmer's dwelling and not used as a barrack for canecutters until 31 years later when a house was finally built. It is an L-shaped structure of galvanized iron raised on two and a half foot (45.75 cm) wooden stumps. The kitchen (with stove recess) and a dining-room form the L of a four room (eight men) barrack. Most other older barracks dating from the early 1920s seem to tend to have had detached kitchens.

DiGiacomo barrack. The DiGiacomo barrack at Stone River, which would appear to be of considerable age with its bush stump supports and unlined galvanized iron

construction, is on ground level with a concrete flor. The L-shaped kitchen is a later addition. The original was detached. It housed eight men. Ground level barracks of considerable age would have had compacted earth floors originally. In the 1940s these were required by the Union to be laid in concrete (Formiatti 1984:72).

Elortegui barrack. Of the others with detached kitchens the most interesting and distinctive in appearance is that of Elortegui's on Abergowrie Road. A huge six room barrack (twelve men) it stands on two foot (61 cm) stumps and is constructed of galvanized iron, the interior dividing walls being ripple iron. In the late 1940s and late 1950s a lot of work was carried out on the barrack. As a result today the barrack is in a good state of preservation. The others have had their detached kitchens removed or walls pushed out be used for storage.

Grossi barrack. The Grossi barrack on two foot (61 cm) wooden stumps has a detached kitchen on ground level with a concrete floor. One wall was removed so the kitchen could be used for implement storage.

Gerasolo barrack. The Gerasolo barrack had a detached kitchen which was removed and the barrack itself has been relocated. Both the Grossi and Gerasolo barrack were four-roomed.

Robino barrack. A barrack of similar vintage that housed two single men and a married man can be seen on Robino's farm. The wife cooked for the gang. Like many cane farming structures no longer used for their original purpose its interior walls have been removed and front opened out so that it can be used for storage. Its detached kitchen has also been long ago dismantled.

It was a common practice for the wife of a married gang member to cook for the gang. Though a practice not actually permitted by the Award it was nonetheless one that "both employers' and employees' organizations (i.e. Cane Growers Council and A.W.U.) have for some time by tacit agreement 'winked at'" (Vidonja Balanzategui 1990:32).

Russo barrack. Long ago dismantled, a cottage used for married couple accommodation used to be sited next to the Russo barrack on Halifax Road. The wife cooked for the gang which was accommodated in a 10 men barrack. The barrack, constructed in 1936 of galvanized iron on three foot stumps, is of L-shaped construction. Still lived in, the interior has been extensively modernized.

Smith barrack. Another barrack, constructed in the 1920s, and still in excellent conditon is that of Smith's on Abergowrie Road. A 10 man barrack it is of L-shaped construction. Like Elortegui's barrack its condition might be able to be attributed to the fact that in the 1950s the wooden stumps were replaced by concrete ones.

Bertoni barrack and Balanzategui barrack. Barracks built in the 1930s, Bertoni's (1938) and Balanzategui's (circa 1932), which each housed 10 men, are of ground level, galvanized iron construction. The Balanzategui barrack features a dining-room adjacent to the kitchen while the kitchen of Bertoni's barrack is very large for the comfortable dining of a large gang.

Samperi barrack. The Samperi barrack built in 1941 housed a gang of 10. On ground level of linear construction, its pushout shutter windows have been replaced with louvre windows like that of Elortegui's barrack. The Balanzategui barrack now features

casement windows. However the usual form of barrack window was the galvanized iron pushout shutter type, only being superceded in the 1950s by glazed casements or louvres (Formiatti 1984:73).

Barracks built later and in areas of expansion where new assignments were being assigned (for example in Abergowrie, with the 1952 expansion) were constructed on the same architectural style but more usually constructed of fibrolite exterior material.

Galvanized iron was the dominant form of external material used on barrack structures and was used for both roofing and dividing walls. Formiatti suggests that it is "often the material for walls and roofs and most easily obtainable, and the cheapest and easiest to build with of any materials available, whilst it has the advantage, also of being waterproof" (Formiatti 1984:60). Timber, as an external cladding was rarely used while brick and concrete (or concrete block) were equally uncommon.

Where the use of concrete appears in the Herbert River district it is connected with the Italian migrants. While earlier vintage barracks were not constructed of concrete later barracks were. Formiatti suggests that "The use of concrete blocks by farmers represents a new purpose in the provision of a more permanent barrack capable of withstanding cyclonic treatment" (Formiatti 1984:65-66).

Grossi barrack. In the detached laundries of barracks and houses alike can be seen washtubs that are solid and functional structures. The washtubs in the laundry of the Grossi barrack is such an example with its two concrete tubs on a brick base. Each tub is equipped with concrete gridded wash boards. Not infrequently the concrete wash tubs are all that remain of a structure after it had been destroyed by fire or cyclone. The original

house on the Grossi farm was burnt to the ground in circa 1967 and today its set of laundry tubs stand sentinel-like in the open air as evidence of a previous dwelling.

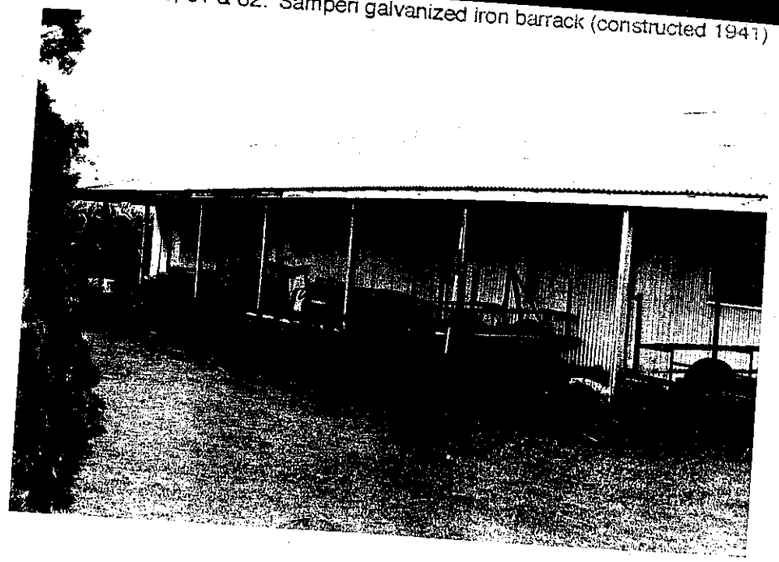
DiGiacomo barrack. At the DiGiacomo barrack too a set of concrete tubs stand on a concrete slab. The structure that housed the laundry and an adjacent bathroom has been removed. This set of tubs has a winged extension on the back presumably used as a scrubbing board.

Tully District

Borgna barrack. In the Tully area north barracks constructed of concrete or concrete block become more frequently seen. A notable example is that of Borgna's which is locally known as the 'stone barrack' and is something of a landmark in the district. Built in 1927 of linear plan the barrack could house 10 men. Constructed of concrete blocks on ground level, the interior dividing walls were galvanized iron partitions (Formiatti 1984:103). In the laundry can be seen a border of decorative bricks imprinted with a pattern.

Byrne barrack. While several good examples of galvanized iron barracks on two and a half (76.25 cm) and three foot (91 cm) stumps remain in the Tully area, a barrack raised on six foot (183 cm) stumps is a more uncommon site in any district, but one can be seen on 'Tip' Byrne's farm. Built in 1937 of galvanized iron exterior it stood on wooden stumps originally. The farmer describes the kitchen as being originally on the right hand side end forming a T-shape at the end of the barrack. Due to deterioration it had to be removed and kitchen was then made out of the fifth room. He claims that the barrack was built on six foot stumps (183 cm) because the area is prone to flooding with floodwater.

Plate 80, 81 & 82: Samperi galvanized iron barrack (constructed 1941)



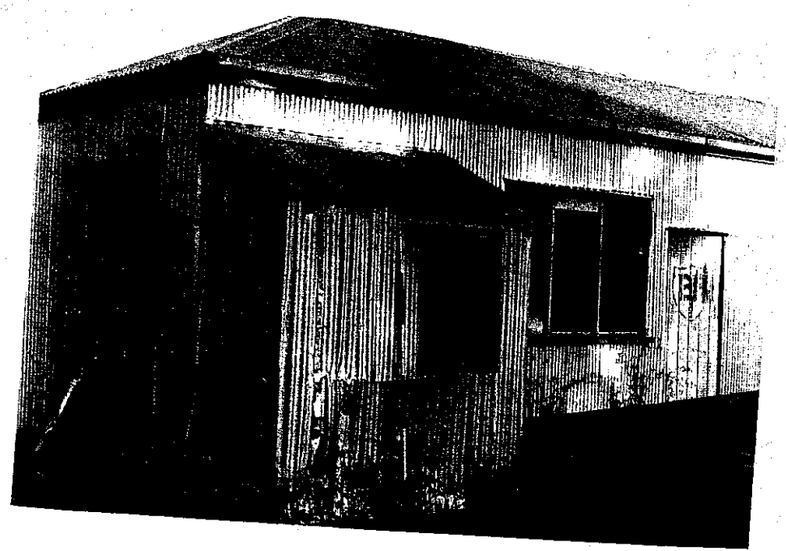


Plate 83 & 84: Borgna concrete barrack (constructed 1927)

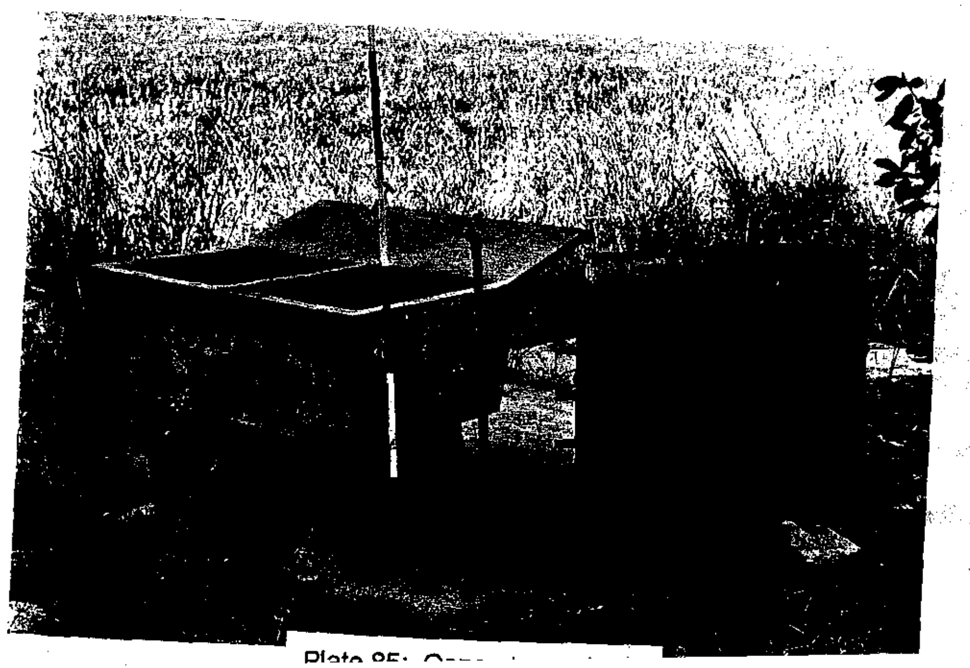


Plate 85:

the 1967 flood, coming above the floor boards (Byrne pers. comm.:6 January 1993).

Clarke barrack. On Clark's farm can be seen a barrack in an unfortunately collapsed state. It has a verandah running either side of the barrack and the kitchen running the full width of the barrack. In plan it is a variation on the linear and though not one described by Formiatti it does illustrate as he says "clearly other arrangements possible for single barrack types (Formiatti 1984:50). It is ground level of galvanized iron exterior, with wooden interior walls and fibrolite celing no doubt being later improvements. It housed a gang of 10. Of unknown construction date it was lived in till 1985. It was severely damaged by Cyclone Winifred in 1986. It is a practical example of the future facing these structures. It is now in such fragile state that it will have to be dismantled.

Marsillio barrack and Frazer barrack. An observation that can be made of barracks from Tully north is that a good proportion are still inhabited regardless of condition. Galvanized iron barracks of Marsillio (circa 1930) and Frazer (circa 1930) in differing states of repair are both occupied. The Marsillio barrack, standing on three foot (91.5 cm) wooden stumps, is of a T-shape design and in poor condition while the Frazer barrack, relocated to its present site in the 1950s and at that time placed on two and a half foot (76.25 cm) concrete stumps, is in quite good condition. Now of L-shape design it was formerly of linear plan (Frazer pers. comm.:6 January 1993).

Keto barrack. The Keto barrack built circa 1925 is also presently occupied. On three and a half foot (106.75 cm) concrete stumps of linear plan it is also constructed of galvanized iron. It is not uncommon for the farmer to reserve one room for storage purposes. In this case that particular room is still unlined and has its original push-out shutter window.

If unoccupied the barrack is opened out for storage. Formiatti observed that where the barracks were located in close proximity to the farmhouse and shed they were usually the first to be converted into storage buildings. He went on to say that "Barracks of pole construction with non-load bearing walls were the most easily converted type. Sometimes complete wall sections would be removed without incurring any structural inability. Usually, the size and location of the opening was determined by the height and width of the machinery" (Formiatti 1984:76).

French barrack. In the case of the French barrack, constructed in 1926, the front walls of the bedrooms have been removed for implement storage. In still good condition, this barrack, constructed of galvanized iron is on ground level and housed a gang of 10. It is of linear construction. The front wall of the large kitchen is a 3/4 partition with meshing to the roof. Occasionally barracks are still to be found equipped with the original furnishings. In this barrack is a corner cupboard with flywire door; hanging safes; stretchers and wood stove still in situe in the stove recess.

Johnstone River District

Cataldo barrack. A barrack of enormous size and interesting construction is that of Cataldo's built in 1946. It is of brick construction with a concrete skin. It was built with seven rooms and a kitchen on either side of a central room of church-like appearance with its unceiled ceiling. Each room accesses this central room. The barrack is ground level with a concrete floor. The stove recess with impressive concrete chimney, shower, laundry, outhouse and well are all of the same construction. Curiously the barrack like the Cataldo house has only one exit door!

Garrone barrack. The only linear double banked barrack the researcher sighted was that of Garrone's. It possibly dates circa 1926. On three foot stumps (91.5 cm) it is constructed of galvanized exterior with 3/4 wooden interior partitions and masonite ceilings. The six rooms would have housed 12 men. A detached kitchen stands adjacent to the barrack. The kitchen is two-roomed on ground level with concrete floor and bush stump supports. It has galvanized iron exterior and wooden interior walls. The laundry/shower facilities for this barrack are also of interest. The shower originally had facilities for two men to shower, the laundry has a row of wooden hooks for hanging clothes or hats and the entire structure is encircled by a concrete drain that drains water away to a sump. Still stored in the barrack are the horse-hair mattresses, pillows and stretchers used by the canecutters.

Campagnolo barrack. An eight man barrack of linear construction dating from 1923 on Campagnolo's farm is interesting because it has a separate dining room opened to the verandah between the fourth bedroom and the kitchen. It is built of galvanized iron with wooden exterior verandah walls. Like the Garrone barracks, interior dividing walls are 3/4 partitions. These are of wood while outer walls and ceiling are lined with three ply. In deference to modesty the room once occupied by a woman had the space between the top of the 3/4 partition and the ceiling filled in.

Croatto barrack and Granich barrack. Two smaller barracks used to house six men were also sighted. Of similar L-shaped construction both made use of ripple iron on the exterior though either end of one was of galvanized iron. The Croatto barrack used a middle gauge ripple iron on the facia the like of which the researcher had not sighted previously. The Granich barrack is lined with masonite on the walls, and fibrolite on the

ceiling. It is ground level with a concrete floor. It has an outhouse and ablutions facilities still standing nearby. The barrack was occupied until recently. The Croatto barrack is also ground level. It has had its walls removed and is used for implement storage.

Rungert barrack. Perhaps one of the most significant barracks in that of Tom Rungert's. A concrete barrack on ground level it is like the latter two barracks, three roomed of L-shape construction. Its most interesting features are the built-in kitchen cupboard with wooden door; lines of wooden hooks for hanging clothes or hats on the verandah; a wall-mounted box of unknown useage; and a framed Canecutter's Agreement on the kitchen door. A tankstand with shower recess of similar construction stands close by but the outhouse and laundry are no longer in situe. A well-appointed and well-preserved barrack, it would be a great pity if this barrack were ever demolished.

Erceg barrack. The Erceg barrack, a ground level 10 man barrack constructed of galvanized iron, is now used for storeage and also features a built-in kitchen cupboard. The researcher has only noted this type of cupboard in this district.

Babinda District

Mayer barrack. In many cases the present barrack is not the original barrack on site. Mayer's barrack in the Babinda district built in 1935 replaced an earlier double 12 man barrack which had a kitchen at either end. Gangs were much larger formerly and barracks were built accordingly. In the 1930s the large barrack was dismantled and an eight man barrack built. It still made use of one of the detached kitchens. However in the 1960s gangs were only comprised of three to four men so the end room and part of the verandah was made into a kitchen. The old kitchen became redundant and finally was destroyed in

Plate 86 & 87: Byrne high-set galvanized iron barrack (constructed 1937)

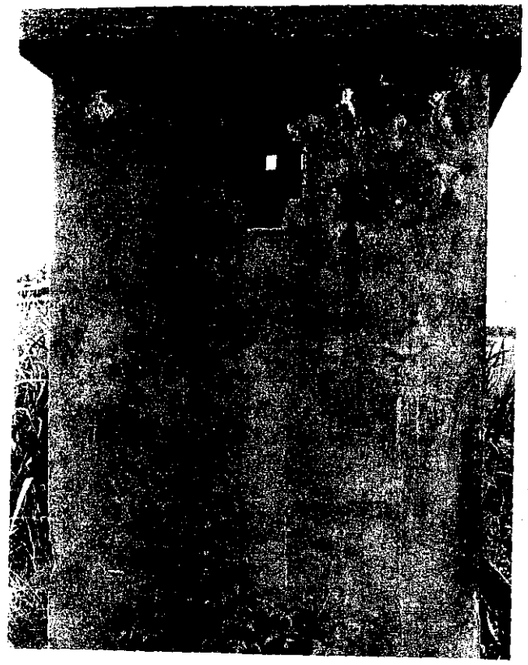


Plate 88: Cataldo concrete barrack (constructed 1946): outhouse

Plate 89: Cataldo barrack: outhouse

Plate 90: Garrone barrack

Plate 91: Garrone galvanized iron barrack (constructed circa 1920s): ablutions building

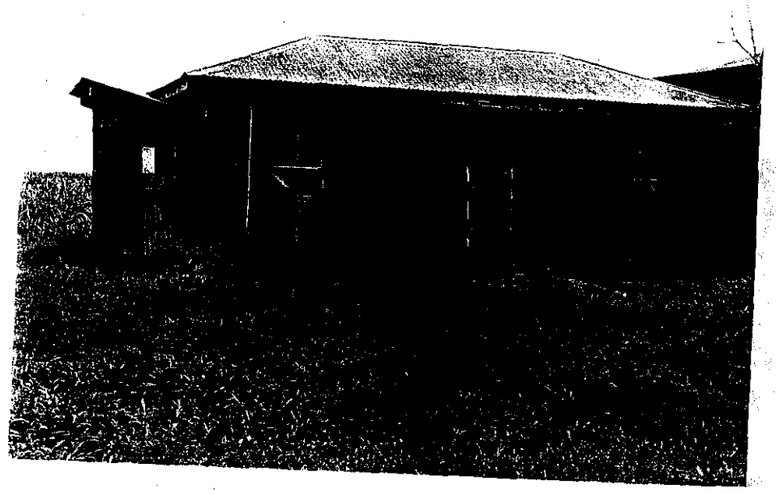


Plate 92: Garrone barrack: detached kitchen

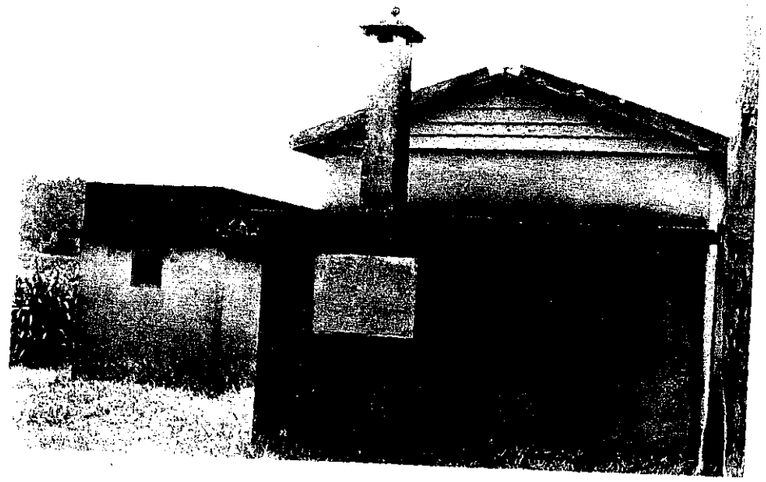


Plate 93: Rungert concrete barrack (constructed pre-1955): stove recess

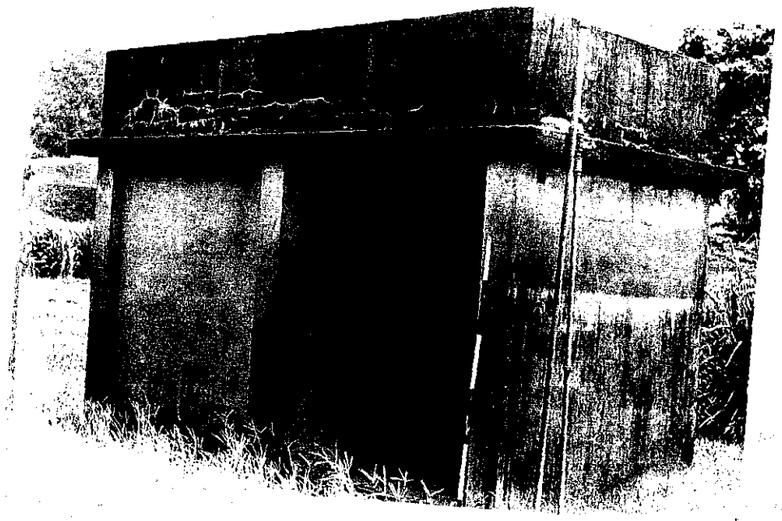


Plate 94: Rungert barrack: ablutions building

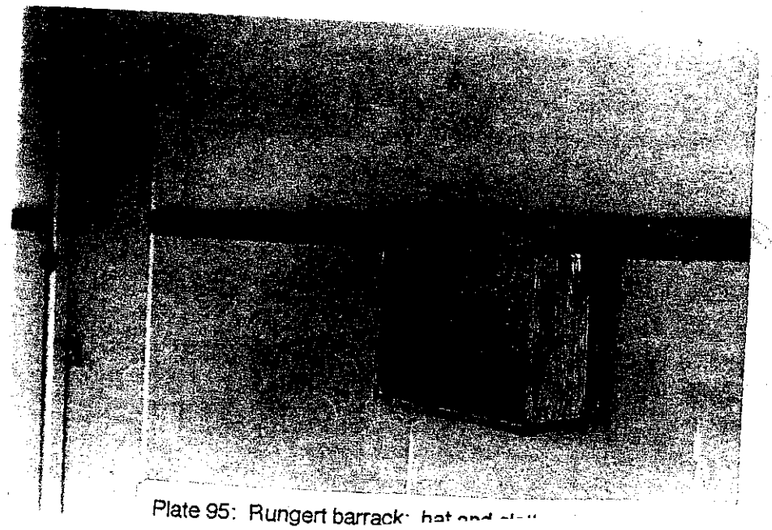


Plate 95: Rungert barrack: hat and clo

Cyclone Winifred, 1986. The barrack is on ground level and constructed of galvanized iron.

Ghidella barrack. The Ghidella barrack constructed in 1929 is in a remarkable state of preservation, has been well maintained and despite renovations to render it comfortable for modern living is remarkably original looking. An L-shape barrack that would have housed a gang of 10 men it was built on three foot (91.5 cm) stumps. It has a galvanized iron exterior. The kitchen features a built-in kitchen cupboard. The barrack is still inhabited. The bathroom/toilet and laundry facilities have been built into the body of the barrack and only a concrete pad remains where the original ablutions facilities stood. Like the Ferrero barrack, Herbert River district, it was first lived in by the farmer himself before he constructed his house.

Cairns District

White barrack. Chris White, a soldier settler, who was granted a 750 ton (765 tonne) cane farm assignment after World War 11 in the Upper Mulgrave area, built a tiny barrack to house two canecutters. The barrack, constructed in the 1950s of galvanized iron on ground level comprised of two rooms, a bedroom and a kitchen/dining area.

Straguszi barrack. A barrack, considerably older and of some significance is the Straguszi barrack. The farm was originally owned by A.J. Draper (Chairman of Directors, Mulgrave Mill Company Limited, 1879-1929, founder of A.J. Draper Pty. Ltd in 1884 and Chairman of Directors of that Company and also of the Cairns Post Pty Ltd.) (The Mulgrave Central Mill Co. Ltd. 1947:56). The present owner believes it could date from that time and may have housed Kanakas. Constructed of bricks, it is lined with a thin

skin said to be of clay and lime which is wearing away. It is basically three-roomed with a large kitchen of L-shape construction. The floor was originally packed dirt. The barrack is presently used as a storeroom, was damaged by Cyclone Winifred, 1986, and is being encroached on my urban development. Its future is uncertain.

Thomason barrack and Ghidella barrack. The four room barrack built in 1946 on Thomason's farm is interesting in so much that it is one of a collection of significant structures on the property as is the Ghidella barrack in Springs Road constructed in 1955. Both are of the L-shape plan while Thomason's has the kitchen on the left, Ghidella's is on the right. Both are constructed of galvanized iron. The Thomanson barrack has been left unoccupied since 1955. In that year the Ghidella barrack was built to be occupied by Italian immigrant canecutters who worked on the farm and is still occupied.

Dockery barrack. A primitive two room barrack built in 1937 still stands on Dockery's farm, Upper Mulgrave. Raised one foot (30.5 cm) off the ground the crossbeams and uprights are all bush stumps. It is constructed of galvanized iron and was lined in the 1950s when electricity was also connected. It has withstood recent cyclones and along with the adjacent cottage is perfectly illustrative of the primitiveness of early dwellings.

Mossman District

Brie Brie barrack. In the Mossman district several barracks were sighted whose floor plan resembled that of a cottage rather than that expected of a barrack. One constructed before 1911 to house eight men can be seen on Brie Brie Estate. It was one

of two barracks built to house eight men each. Of galvanized iron exterior, wooden interior, on three foot wooden stumps, it is a small Queenslander cottage in style. The kitchen is at ground level at the back of the barrack.

Reynolds barrack. Another owned by John Reynolds was constructed in the 1890s and housed four men. It is constructed of galvanized iron and timber exterior. The interior is lined with three ply. The barrack was on the other side of the creek but relocated to its present site in 1954 to access the town water supply and electricity. Is it the last dwelling on the town water supply going in the valley. Outhouse, laundry and shower are all at a distance from the barrack. The barrack is still lived in.

Watson barrack. Not lived in and consequently in a bad state of disrepair is a barrack belonging to Don Watson. Located on his Tara Hills farm it is built on a narrow ridge between creek and farm. Constructed of galvanized iron, cross beams and uprights are all bush stumps. The dividing walls are 3/4 wooden partitions. It has cement floors and is on a linear plan. A later addition to the barrack is of weather-board exterior, and masonite interior in line with the 1950s regulations. Some pine-box furniture still remains in the barrack. Hidden by a good deal of foliage the barrack is come across unexpectedly. For its site and remoteness from the township of Mossman it is an inimitable example of how primitive and isolated the canecutter's life was. The Reynolds' barrack is similarly primitive and isolated and its surrounds transport the visitor back in time.

FARM SHEDS

Like barracks, farm sheds constructed before 1955 are evocative of a past era and similarly many have also undergone conversion for present useage.

Before 1955 sheds were low structures incorporating a stables and smithy. Some included a fertilizer storage platform. By the 1950s horses were being phased out of farm work and with this came the demise of blacksmith skills. With increased prosperity and the wider availability of manufactured tools farmers were less inclined to make their own. Previously they would forge not only horseshoes but bits and spurs, chain links, hinges for gates and such like. Rarely today is a smithy still in situe actually in use.

In recent times fertilizer distributed in 1,000 kl bags has become favoured. The general availability of bag lifters has facilitated the handling of bags of this size. Previously fertilizer was purchased in 50 kl bags and had to a be stored out of moisture. Where it was not stored in a separate structure, a fertilizer shed, it was stored on a raised platform, which was part of the body of the shed.

The height requirement of sheds has changed considerably. As tractors became more widely available in the 1950s different storage requirements had to be met. Since the introduction of mechanical harvesting sheds have had to be constructed of a suitable height to store harvesters which from elevator to ground stand five to six metres tall. Sheds today are constructed of steel. Constructed of bush stump uprights, the older sheds were vulnerable to termite attack.

Herbert River District

Mancuso shed and Balanzategui shed. Both sheds pre-date 1929 and are plainly evocative of a past era. The smithy of Balanzategui's is built around the trunk of a large mango tree and is so low that a taller person has to duck their head to enter. Forge

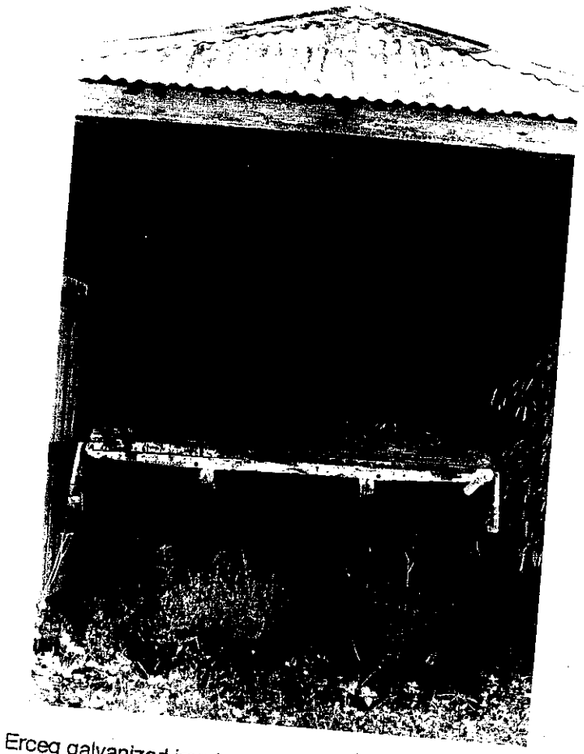


Plate 96: Erceg galvanized iron barrack: wall removed and used for storage

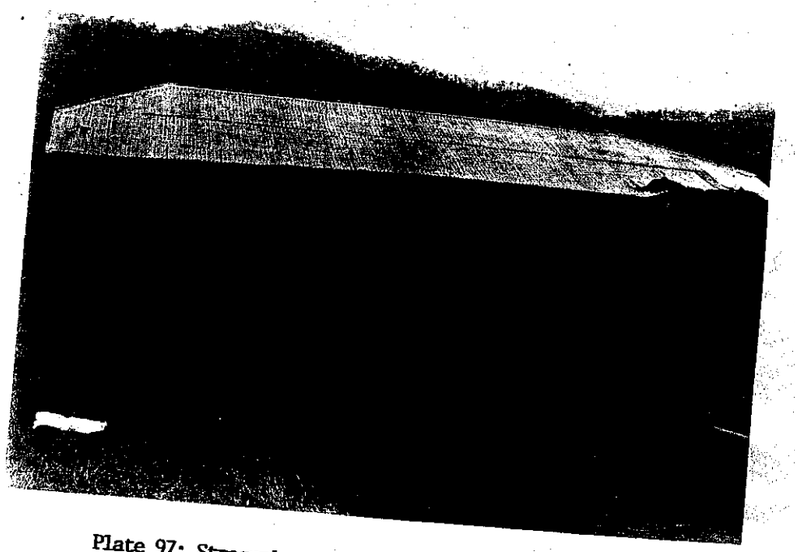


Plate 97: Straguzi concrete barrack (possibly constructed in late 1880s)

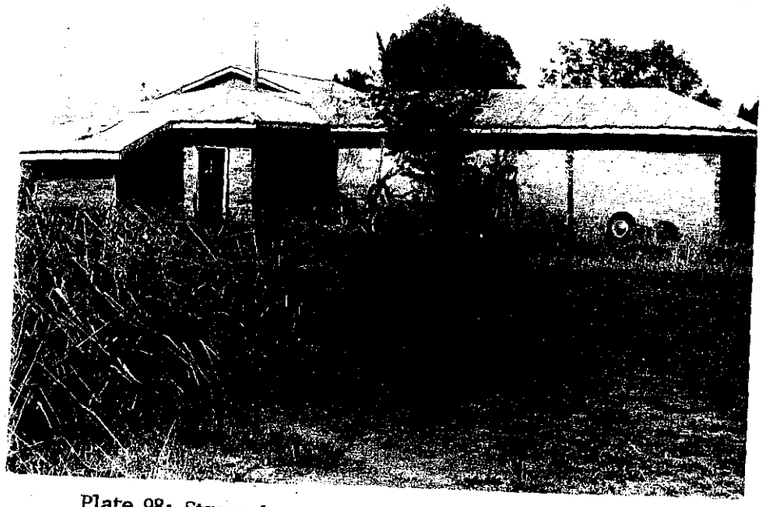


Plate 98: Straguzi concrete barrack (possibly constructed in late 1880s)

Plate 99: Watson barrack (constructed 1911)

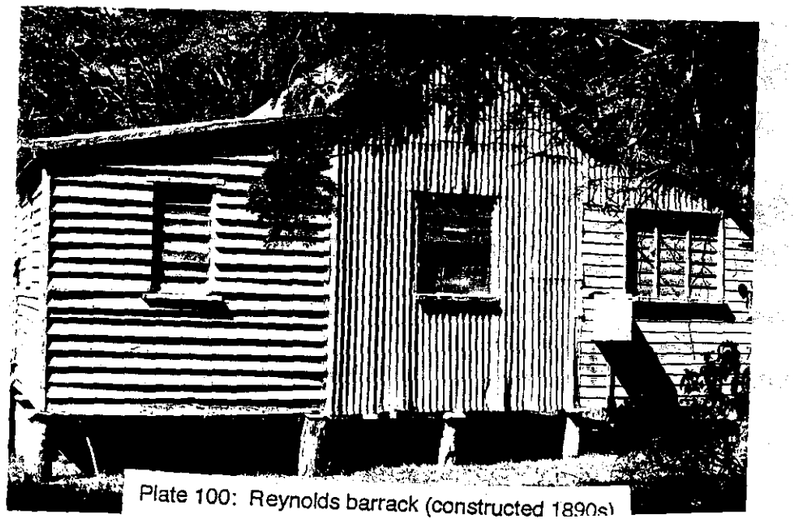


Plate 100: Reynolds barrack (constructed 1890s)

and bellows are still in situe as is a little bench constructed on a stump. The smithy structure is constructed of galvanized iron. The Mancuso shed is constructed of similar materials. Like the Balanzategui smithy the Mancuso smithy is a separate little structure tacked on to the body of the larger shed. Of the smithy equipment the anvil remains attached to its original achorage: a small bush stump. Four stalls of the stables remain. The shed in height, size and functions typifies the requirements of a shed in the days before tractors and other forms of heavy machinery typical of farm work today.

Ingegneri shed. Like Mancuso's smithy Ingegneri's smithy is a low-roofed structure or lean-to attached to a five bay shed. It is similarly constructed of galvanized iron. As in Mancuso's smithy the anvil remains here anchored to a wooden block which is in turn attached to a cement block. The stalls for two or three horses have been replaced by a fertilizer storage platform raised two foot seven and a half inches (76.25 cm) off the ground. A wooden feeding trough remains though.

Spina shed. A shed with a most distinctive high pitched roof is to be seen on Spina's farm. Constructed in 1937 of galvanized iron and concrete uprights the roof angle facilitates storage on the cross beams. Interestingly it was built with concrete uprights from the outset. The facias extending to barely six foot (183 cm) off the ground have been cut into at one end of the shed in more recent times to facilitate the storage of high vehicles in the shed.

Elortegui shed. A stables that once housed 14 horses can be seen on Elortegui's farm. Horses were phased out on that farm in 1950 to 1951. It is a galvanized iron structure. The stalls have been removed and the structure is now used for storage of older equipment.

Bertoni shed. A shed on a farm leased by Bertoni is of considerable interest comprising not only an implement storage area but a fertilizer storage platform (raised two foot, eight inches (81.32 cm) off the ground), a stables and a galvanized iron tank on wooden bush stumps used for fuel storage. All are free-standing, the posts are not anchored to the structure of the shed. These items are simply under the cover of the shed.

Gerasolo shed. The shed on Gerasolo's farm built in 1948 was built to replace the former stables though the new structure did include a few stalls for the remaining horses which were phased out of farm work soon after. Though built after the war it used the same materials as used in older sheds. The seven and a half foot (2.25 metres) clearance at the shed doors means that like its predecessors it too could not be used for the storage of later model tractors.

Russo shed. A shed which is supposed to have been built in the early 1950s (Russo pers. comm.:26 May 1992) still included stalls for six to eight horses. It used similar construction materials to other sheds seen. This shed has a closed back section which was built to house the two tractors which were bought to replace the horses. That section can be partially secured with galvanized iron doors. Adjacent to the shed is a drinking trough for the horses constructed of brick with a concrete lining.

Robino shed. The former stable and smithy on Robino's farm are long gone but the smithy components, anvil, forge and bellows, are now housed in a shed built post World War 11. The anvil is achored to a bush stump; the forge is a discarded ship's tank filled with clay. The bellows though no longer in use are still operable. The anvil is still

used. The shed is similar in structure to other sheds built at that time.

Tully District

Benn shed. Merely illustrative because of its fragile condition since Cyclone Winifred, 1986, the shed on Benn's farm was richly equipped for the farmer's needs of early this century, but it would be totally inadequate for today's farmer's needs. It pre-dates 1932. A tiny structure of galvanized iron, it once housed a manual drill, bellows, forge, anvil, work benches and saw-bench. Today, since the cyclone, all the old equipment is in disarray and the shed will have to be dismantled.

Linnet shed. Like Spina's shed, Herbert River district, Linnet's shed was constructed in the 1930s with concrete uprights. A large shed consisting of 12 bays it ably housed early model tractors but is today too low for storage of tractors.

Costanzo sheds. A shed built in 1954, now owned by Costanzo, is constructed of bricks which is a much less common building material for sheds than galvanized iron. The shed is made up of two sections. On his home farm is a fertilizer shed constructed around 1953. Built of weatherboard exterior, it stands on concrete stumps.

Johnstone River District

Cataldo shed. A farm shed constructed on Cataldo's farm in 1933 is of a more unusual construction being of concrete over brick. A garage was added in 1960. Nearby a large modern shed has been constructed. The contrast between these two buildings highlights the different needs of farmers in the 1930s and the 1990s.

Garrone shed. A 10 bay galvanized iron shed on Garrone's farm is a large, substantial structure possibly built in the mid-1920s. It houses stalls for five horses and a smithy with bellows, forge and anvil (anchored to a bush stump) all in place. The shed also houses a saw-bench.

Croatto shed. This shed differs from the main only in that it has concrete floors and round concrete uprights which at the time they were installed were of curiosity value to other farmers. Elsewhere in the shed wooden bush stumps still remain. The shed like the others once housed horses and cattle and workshop gear including a chaffcutter, grinder and hacksaw for which there was an overhead shaft with pulley and several belts to drive. Bellows from the former smithy are still in situe as is an abandoned concrete watering trough for the horses.

Mizzi shed. This shed is a four bay shed constructed in 1936. It too, has concrete posts and floor. It has galvanized iron cladding. The rafters can be used for storage.

Lacaze stables. The Lacaze stables would undoubtedly be of considerable age since the house dates from 1912. Of interesting construction, it is built entirely of wood: walls, floor, shutter and windows. The walls and rafters of the stables are still festooned with the requirements for working with horses.

Rungert fertilizer shed and Campagnolo fertilizer shed. In close proximity to the Rungert barrack is a weatherboard fertilizer shed on concrete stumps. Various good examples of these remain in the Johnstone River district including a

corrugated iron one on Campagnolo's farm (1940s) that, in contrast to the one of Rungert's, features bush post uprights, galvanized iron exterior, a raised platform and wooden slat lining to shield the fertilizer from the iron.

Zapalla fertilizer shed. Another one made of concrete stands on Zapalla's farm. With walls made of concrete one foot (30.5 cm) thick and raised on concrete stumps with a wooden platform it is a very large structure and in excellent condition.

Biletta fertilizer shed. It dates from 1926. Constructed of galvanized iron, the bags stand on a floor of dirt over rocks surrounded on all four sides by a six inch (15.24 cm) concrete edging.

Babinda District

Hanson shed. A five bay shed with smithy attached was built in the 1930s. Chaffcutter, anvil (attached to a small bush stump), forge and bellows are still in situe. The stalls for six horses have since been removed.

Reghenzani stables. The stables on Reghenzani's farm is believed to be of considerable age. It once housed five horses. Horse harnesses and blinkers are still hanging in the stables.

Cairns District

Thomason shed. On Thomason's farm is a 1926 shed built originally as stables to house 14 draft-horses. Constructed with a steep pitched roof, the loft was used

to store implements and corn. Once the stables also housed the chaffcutter, corncracker and sheller.

Drexl shed. A shed of similar vintage can be seen on Drexl's farm. It is thought to date from before 1924. Though of a much gentler pitched roof line than Thomason's it is constructed of the same materials. It is said that the farmer who took up the selection in the early 1920s, Martin Drexl, lived in the shed with the horses till the farm house was built (McGrath pers. comm.:17 January 1992).

Reghenzani shed. On Reghenzani's farm, Bruce Highway is a shed constructed of the same materials but which has a platform raised off the ground for storage of fertilizer or other items (presently timber). The nearby house was constructed in 1936 so the shed either pre-dates or was built at the same time as the house.

Hill sheds. Two sheds on Hill's farm date from 1927. The smallest one is of particular interest. It presently houses some horse-drawn equipment and is perfectly adequate for that purpose for which it was intended. That shed's size and height, barely six foot (1.8 metre) at the lowest point reflects the proportions of horse-drawn farm machinery.

MILL STRUCTURES

At first the mills were self-sufficient communities providing practically all the needs of those who lived on the mill site. Apart from the 'mill house' housing the mill machinery and the distinctive smoke stack other structures which made up the mill landscape may have included a separate boiler house; saw-mill; loco shed; weighbridge; laboratory; ice

Plate 101 &102: Elortegui stable (constructed circa 1920s): note stalls

Plate 103: Balanzategui smithy (constructed circa 1920s): forge

Plate 104: Balanzategui smithy: bellows

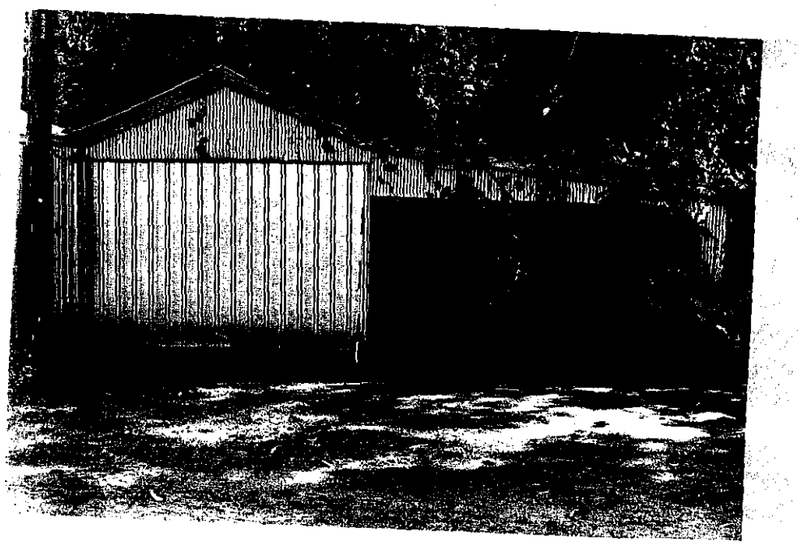


Plate 105: Balanzategui smithy

Plate 103: Balanzategui smithy (constructed circa 1920s): forge

Plate 104: Balanzategui smithy: bellows

Plate 105: Balanzategui smithy

Plate 106: Bertoni shed: stables

Plate 107: Bertoni shed: diesel tank

Plate 108: Bertoni shed (constructed pre-1946): fertilizer storage platform

Plate 109: Spina shed (constructed 1937)

Plate 110 & 111: Costanzo shed (constructed 1954-1955)

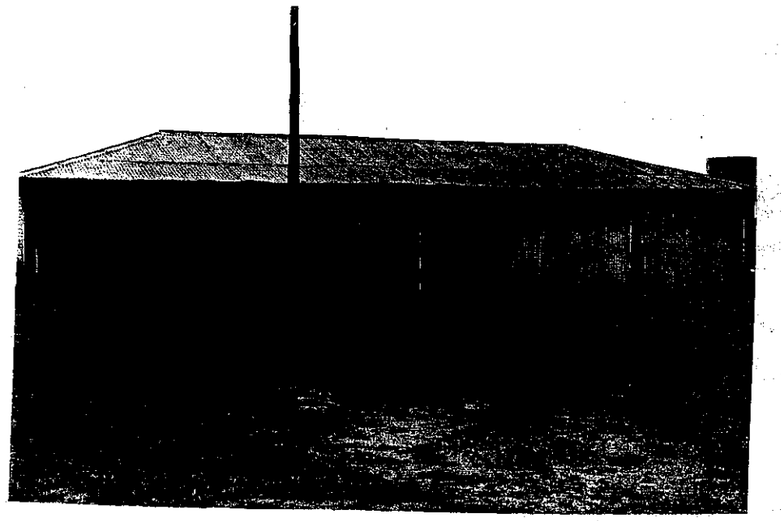


Plate 112: Costanzo fertilizer shed (constructed 1953)

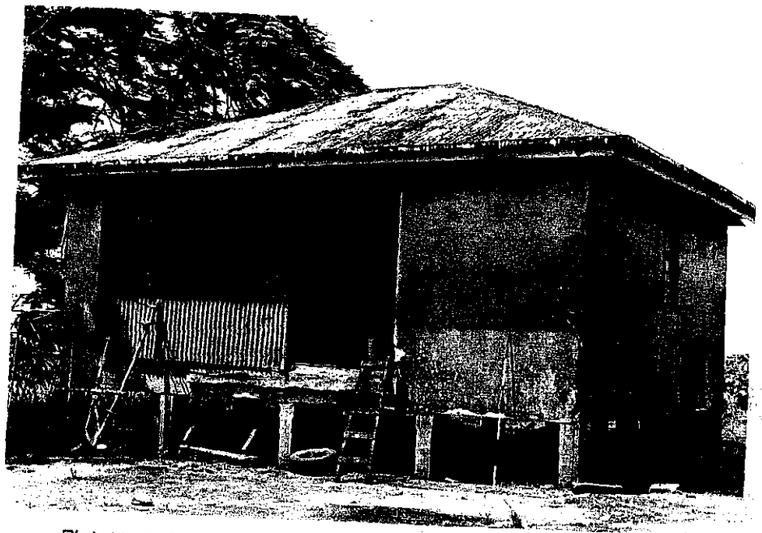


Plate 113: Zappala concrete fertilizer shed (constructed pre-1955)

Plate 114: Hill shed (constructed

Plate 115: Tully Mill: Tourist Office (constructed post-1930)

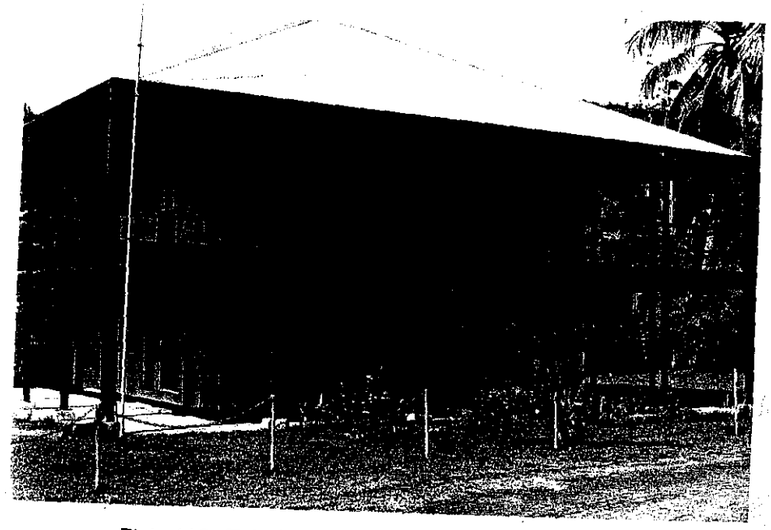


Plate 116: Tully Mill: former staff quarters (constructed 1925)

Plate 117: Mourilyan Mill: weighbridge (constructed

plant; office; truck shop; rail-tarring plant; portable line shed; and smithy. Furthermore there would be workers' housing - for single and married and for both European and Kanaka and for other non-Europeans including separating cooking facilites for each nationality ; staff housing; Kanaka hospital; stables; bakery; store and butchery; and even possibly a School of Arts, school, church and cemetary.

Herbert River District

Of the now defunct 19th century mills in the Herbert River district remnants of structures remain of Hamleigh , Ripple Creek and Gairloch Mills .

Hamleigh Mill. In excess of 30 individual concrete foundations of various sizes and lengths (including that which is known to be a flywheel bedding), many which have metal bolts protruding, are discernable at the Hamleigh Mill site. What machinery was formerly attached to the rest could only be guessed at even by an authority on 19th mills such as Peter Griggs (Geography Department, James Cook University, Cairns Campus). A recognizable structure remaining is the chimney foundation- a brick construction complete at its base but now standing no more than six feet (183 cm) in height.

Ripple Creek Mill. On the former Ripple Creek Mill site the remains are far more impressive. Though the site itself has long ago been ploughed up for canefields and no foundations remain as they do at Hamleigh the brick base to which may have been anchored a pumping unit is still to be seen over the bank of Ripple Creek. A massive brick structure, it stands approximately 20 foot (six metres) tall. At its base are metal footings to which would have been secured an engine of considerable size.

More significantly however there remains what is believed may have been a dwelling for an overseer. Prior to 1964, adjacent to this building, was a larger brick building which was converted in the late 1940s or early 1950s for use as a barrack housing four men. The remaining building was used as a kitchen. The 'barrack' building was dismantled in 1964. This building is constructed of brick.

Gairloch Mill. On the Gairloch Mill site is an exciting amount of clear evidence of the layout of the mill house and with detailed study it may just be possible for a 19th century mill historian to draw conclusions from the remains. The former mill site occupies an area of ground surrounded on three sides by cane and on the fourth, bounded by the Herbert River. The site is usually overgrown with vegetation but just before the heat of summer sets in the farmer burns the site to clear the undergrowth. Once the undergrowth grows back it is impossible to walk over the site with ease. On the site are the foundations of numerous structures some of which could be identified as:

1) pillars, possibly of a megass elavator used to transfer megass
2) megass storage shed (the brick wall)
3) the foundations of the crushing mill (50 h.p.)
4) the foundations of the beam engine (25 h.p.)
5) sunken molasses tank
6) foundations of storeroom for sugar
7) foundations of boilers (which were in a separate lean-to building)
8) a drain to take away waste
9) foundations of the clarifiers

There are bricks, both whole and broken of different manufacturers' identification lying all over the site. The bricks were manufactured in Scotland. Some of the identifications are: *Hurlford-Kilmarnock* and *Cumbernauld*. Others have no identification on them. There is

very little remaining of a material other than concrete or brick apart from: the molasses tank, a cog, bolts, pipes and steel framework for brickwork. The bricks from the 100 foot (30.5 metres) chimney which was said to be "by far the largest work of the kind attempted in the district" can now be seen lining the cutting leading to the Gairloch bridge. The mill house of which nothing remains was described as being "of hardwood slabs supported by square hardwood posts, and it is covered in with a semi-circular iron roof with light iron tie-rods, and ventilated at the top". We are also informed by the same source that most items that were attached to the still visible foundations were made of "cast iron, sent out in separtate plates to be bolted together on the mill site". We are also told that there was

> a three-throw pump capable of raising 25,000 gallons per hour from the river, a very large quantity of water being required in the manufacture of sugar, both in the steam boiling and vacuum processes, and the pump will further be availed as a means of filling a large water tank placed at an elevation sufficient to give a fall all over the building for cleaning out purposes (Noel Butlin Archives Z303/Box 45 D 3.0.1.15).

This three-throw pump is still affixed to its massive brick foundations over the banks of the adjacent Herbert River.

Macknade Mill. Very little remains at Macknade Mill of pre-1955 structures according to an informant, Peter Collins, Factory Superintendant. Amongst what remains from that era is the sugar shed used to store bagged sugar until 1964. It is presently used for storage and for some boiler making fabrication. It is a galvanized iron structure with timber supports. Until 1974 the original office was still in use. In 1977 a new office was built and the former office dismantled. All that remains of that office is the concrete safe with steel door.

Victoria Mill. Of Victoria Mill the researcher was similarly assured that very little

remains of pre-1955 structures. In 1933 and again in 1952 the mill underwent major reconstruction then duplication. The original mill house and other structures were to be as from original planned specification:

> iron throughout, all the columns carrying the building and the machinery being of cast iron: the tie rods and roof work of wrought iron and the sides and roof of galvanized corrugated iron. The whole of it must be fitted together in the manufacturers shop and it should be disigned to so as to go together easily (The C.S.R. Company Ltd. 1953:32)

McKells' siding. A complex comprised of marshalling lines; sheds with maintainance pit; workshed; storage room; office; forge; ablutions facilities; and tanks can be seen. Further on one barrack remains on site and two former mill staff houses now private property. "At its peak... There was a barracks, 8 empoyees' cottages and two staff houses. An office and locomotive shed were attached to the marshalling yards." (Victoria Mill Vibes December 1988: unpaginated).

The barrack is of a double-banked linear construction with kitchen and living room at one end. The dividing wall of the eight bedrooms is a 3/4 partition. While toilets are built onto the back verandah the ablutions facilities is a separate structure to the rear of the building. It is a more recently constructed structure which replaced an earlier ablutions area of which now only the cement pad and drains to an underground sump remain. The barrack was constructed of wood. The barrack stands on low concrete stumps.

The houses are of timber construction and stand on six foot (1.85 metre) concrete stumps. The employees' cottages were of similar though smaller construction (The C.S.R. Company 1953:19).

Tully District

Tully Mill. When the Tully Mill opened "In addition to the mill buildings proper, ample barrack accommodation for the workmen employed, staff houses, offices, and laboratory have been provided for" (Easterby 1932:121).

Several early if not original structures survive including what was the Chief Engineer's Office; the office; the single men's staff quarters; staff refectory; lime shed; sugar shed; old weigh bridge; juice laboratory; boiler house; and crushing house. Many houses: staff and workers' still stand, some of which are now privately owned.

The Chief Engineer's Office is a single skin wooden building raised slightly off the ground on concrete stumps. The building would appear to be a composite of two smaller buildings.

The Office has undergone alteration and additions. The original wooden exterior has been clad. The building stands off the ground on just over one foot (30.5 cm) concrete stumps. A newer brick building has been attached to the end of the older building.

A high set two storey building built as accommodation for single men still stands. It is said to have been built for the first crushing in 1925. Where an exterior cladding is used it is weather-board, the upstairs walls are single skin timber. External studs can be seen. The barrack is raised slightly off the ground on concrete stumps. The building is presently used as a records room. It has undergone recent restoratiave work and there is

some consideration being given to using it as a Boardroom.

Now used as the Mill Recreation Club a refectory still stands on the mill grounds. Its companion barrack was dismantled some time after 1979. The exterior is wood and stands just off the ground on concrete stumps. In Formiatti's thesis he photographed a barrack which he claimed was an original mill barrack having been used to house navvy men. He said it was constructed in the late 1920s (Formiatti 1984:104). At the time that he conducted his fieldwork it had been modified for use as a house.

Though not sighted closely former mill houses still stand including small workers' cottages raised slightly off the ground on low stumps and staff houses raised on high stumps.

Of the mill structures themselves the researcher was informed that the significant remaining structures were: the lime shed; sugar shed; old weigh bridge; juice laboratory; and boiler house.

In Easterby's description of Tully Mill he describes the various buildings as being

> constructed throughout with massive steel columns braced together with roll-steel joists and lattice girders, the roof is supported with steel principals of sufficient strength to withstand a cyclone. The sides of the building and roof are covered with galvanzied corrugated sheet iron and bolted to the purlins and principals with 3/8 inch galvanized bolts, the roof being further strengthened by having 1 1/4 inch galvanized angle-iron bars spaced equally over the length and breadth of the roof (Easterby 1932:116).

The small structures however are constructed of weather-board exteriors.

The lime shed is still in use for that purpose; the sugar shed which Easterby describes as "165 feet long by 60 feet wide and 30 feet high from ground floor, the sugar being stacked 4 feet above floor water level" is now used as a general store (and houses the bulk sugar dryer) (Easterby 1932:116). The old weigh bridge is now used as a store while the juice laboratory is now used as the Shift Engineer's office. The boiler house described by Easterby as "209 feet long by 60 feet wide by 25 feet high" is now used as a store (Easterby 1932:116). Parallel and adjacent to this building is the crushing house which is "214 feet 6" long by 60 feet wide and 30 feet high" (Easterby 1932:116). The milling 'trains' were replaced post-1955.

Johnstone River District

Innisfail Mill. Nothing remains of the Innisfail Mill, the first mill to crush in the Johnstone River district.

Innishowen Mill. A little remains of the Innishowen Mill (Queensland Sugar Company) however. It was dismantled on its closure and according to Dorothy Jones the boilers remained for some years to mark the site (Jones 1973:140). Today all that remains are blocks of concrete and bricks. The bricks have *Cartcraig* stamped on them. Two large weathered concrete blocks are to be found on the headland closer to the Johnstone River. Another two blocks which have a more discernable shape (resembling the coffin shape of some of the foundations at the Gairloch site) have metal bolts protruding. These are lying between house and barrack and may be in their original site. All else that remains is a rubble of bricks. 30 years ago there was still concrete, bricks and machinery on site. The metal was sold for scrap; the holes filled in; the bricks ploughed in; and the remaining

concrete blocks pushed to the side. Today bricks are still ploughed up when the paddock is worked.

South Johnstone Mill. At the South Johnstone Mill the researcher was informed that very little remains of the pre-1955 structures as the mill underwent a total refurbishment beginning 1962. Certainly the entire ring-road of staff houses and office presents a new facade. A few tiny low workers' cottages remain at the entrance of the mill. An original kitchen and refectory is apparantly used as a Worker's Social Club and the original carpenter's shop is still fulfilling its original function (Whereat pers. comm.:15 January 1993). The researcher was informed however by one of the Board of Directors that there were a few remaining older style buildings at the rear of the mill. A building used formerly and presently as a Farmers' Hall; a small cottage used now as a Girl Guides Hall; and a large barrack with detached kitchen no longer used were sighted (Darveniza pers. comm.:20 January 1993). The building said to be a Farmers' Hall has a ripple iron exterior. It stands on a gradient so though ground level at the front is also on concrete stumps of heights compensating to that gradient. The small wooden cottage sits on two foot (61 cm) concrete stumps.

Mourilyan Sugar Mill. This mill has maintained the use of its older buildings both of the mill itself and the dwellings for staff.

On the mill site at the original fitting or boilermakers' shop is a structure comprised of galvanized iron and rivetted posts. Part of the structure was removed prior to 1955. While the forge is still in situe and used occasionally the building presently houses ex-Goondi material. Nearby are freestanding rivetted cast iron columns that were formerly part of the building that carried the evaporator stage. The old store, which is now no longer

used, is of wooden exterior and is sited on low concrete stumps. This structure is not in its original position but was moved to this site in 1955. Originally it and the original office stood at right angles to each closer to the river. The carpenters' shop which is still in use but which was relocated in the 1960s to bring it into closer proximity with the fitting shop is of galvanized iron exterior. The tar shed once containing a tar bath into which bundles of portable rails were dipped to prevent them from rusting still stands albeit refurbished and now used for other purposes. On the other side of the road to this rail tarring plant was 'White City' where eight employees' cottages once stood. They have all since been removed.

The weighbridge, laboratory and iceplant all stand in their original positions. The weighbridge, a wooden building, is now usused. The laboratory, a wooden building, now clad in fibrolite is still used for its original purpose. The iceplant, a small glavanized iron building, is now used as a janitor's workshop. The well, from which the windmill has been removed, is nearby. Water drawn from the well was used for making ice for the staff houses.

The Manager's residence constructed circa 1914 is now no longer occupied and was at one stage converted to a 'duplex' to house staff after a new house was constructed for the Manager. The exterior is ripple iron, the interior wood with the stove recess clad in chamfer-board. French doors with glazed breezeways access the verandah. It was originally a large house built on practical lines. It underwent some structural changes once it was converted for staff quarters. A tennis court once located nearby is no longer in evidence. Since it has been unoccupied the house has fallen into disrepair. Another house nearby was constructed in 1935 to house the Assistant Accountant.

Staff houses built variously between 1913 and 1930 line the ring-road at the entrance of the mill. According to an early map there were eight houses facing the resent office. Of the eight, seven remain. #2, identified as the Secretary's residence on the map though identified as the Managers' Residence by present mill staff, was removed due to age and after the present Manager's residence was erected in 1970. Of the seven remaining, four are high-set and three are low-set. The high-set houses stand on concrete stumps. They have wooden exterior wooden interior lining. The low-set houses are on concrete stumps. All feature wood cladding on the exterior and wooden interior linings.

Goondi Mill. The Goondi Mill was situated on the banks of the northern branch of the Johnstone River. On its closure the mill was dismantled and sold to the various other North Queensland mills. Today a few structures and pieces of machinery remain on the site which is now overgrown with long grass. On Goondi Estate several residential houses remain amongst them an older style of house with wooden exterior and interior. It stands on high concrete stumps. This house has withstood cyclones with no structural damage. However the house presently shows either dry rot from a leaking roof or termite damage.

Babinda District

Babinda Mill. On the Babinda Mill site there are several older buildings still to be seen.

The Cane Inspectors' Transport Office and the Main Office are both thought to have been built in 1917 (Griggs pers. comm.:27 January 1993). While the former is now

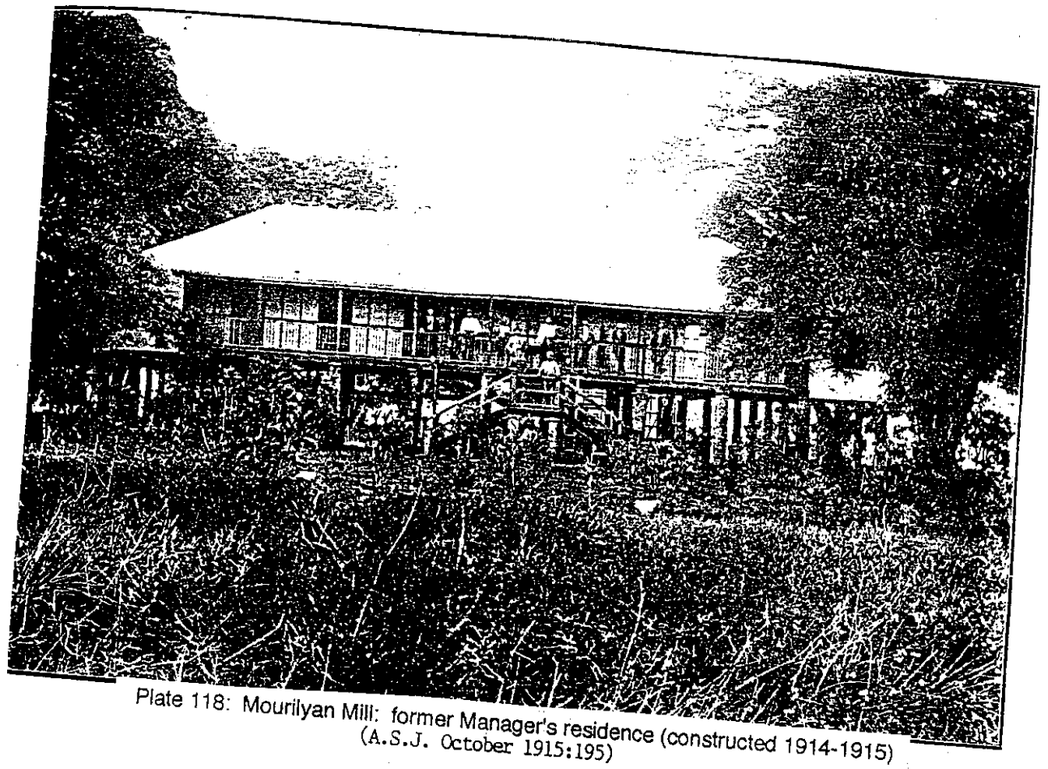


Plate 118: Mourilyan Mill: former Manager's residence (constructed 1914-1915) (A.S.J. October 1915:195)

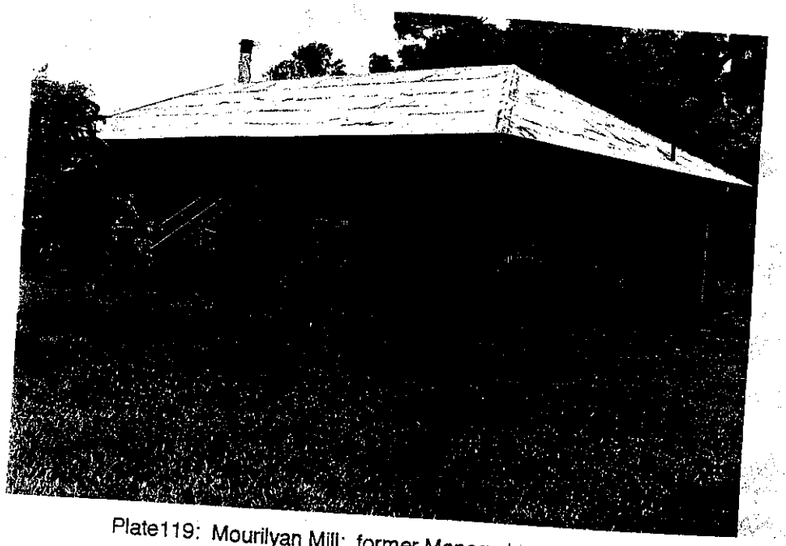


Plate119: Mourilyan Mill: former Manager's residence (1993)

Plate 120: Babinda Mill: truck repair shop

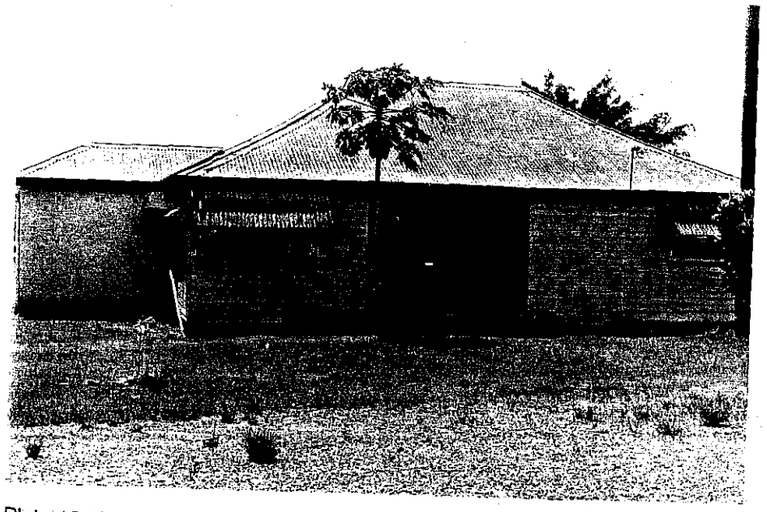


Plate 121: Babinda Mill: Cane Inspectors' Transport Office (constructed 1917)

Plate 122: Mulgrave Mill : Chief Engineer's Office (constructed post-1895)

no longer used the latter with considerable modification is still in use. The Cane Inspectors' Transport Office has a wooden exterior and interior and is raised slightly off the ground on low stumps. There is a massive safe attached to the building on the left hand side. The safe gives some reason to speculate that the building's original useage may have been as the mill office. The present office was constructed of the same materials but has been remodelled since 1988 (Griggs pers. comm.:27 January 1993).

Several older structures on the actual mill site are still in situe even if they are no longer in use: the crushing station; sugar room; truck repair shop; and old laboratory. In the main they are constructed of galvanized iron. The crushing station still houses the crushing train while the sugar room which was formerly used to store bagged sugar is now used as a store and workshop. The laboratory is no longer in use. As in other mills some of the housing structures are original but most of the machinery that they housed has been updated and replaced in more recent times or the original use is now outmoded and they are used for other purposes.

The ring-road of staff houses is comprised of both older and newer style houses. One is purported to be the original Manager's house which means it could have been constructed in time for the first crushing in 1912. The informant says that '1920' is written on the floorboards but of course the significance of that date is unknown. The house was last used as the Manager's residence circa 1969 to 1970 at which time a new Manager's residence was constructed. Since then it has been variously occupied by the Chief Electrician or the Chemist (Griggs pers. comm.:27 January 1993). The house has a ripple iron and timber exterior and wooden interior. It is raised on high concrete stumps. The kitchen is an extension of the basic core of the house.

In addition to this house there are four other staff houses of similar style and one on wooden stumps of a different style. Two are clad with aluminium cladding. A representative example has a timber and ripple iron exterior. The house sits on high concrete stumps. There are two stairways: front and rear. The kitchen is a separate building attached with a walkway. The stove was housed in a stove recess to the left hand side of the kitchen.

According to one informant there used to be 400 mill workers employed by the mill in its heyday (Lloyd pers. comm.:27 January 1993). In both Munro and Short Street mill workers' cottages can be seen, which though formerly owned by Babinda Mill are now privately owned. They would appear to be a variation of the two-roomed, single-gabled cottage. One has a wooden interior and now an unpainted zinc alum exterior. The second cottage sighted has retained more of its original appearance with timber exterior.

Though unseen by this researcher, Formiatti describes former mill barrack accommodation at Babinda Mill: a 26 room linear double-banked barrack with verandah on either side and central hallway (Formiatti 1984:118).

Cairns District

Pyramid Mill. Pyramid Mill is still to be seen on the bank of the Little Mulgrave River. Remains include concrete flooring; concrete and brick masonry foundations including what can be recognized as the trenches for flywheels and flues. In places heavy metal bolts and thick metal pipes are still to be seen set in these foundations. The concrete was made using sand and gravel from the nearby river and the bricks were made locally of local clay. English made bricks were used for the firebox (Jones 1976:162;

White pers. comm.:14 January 1992). The present remains cover an area of 50 X 20 metres though the mill would have originally extended into nearby candfields and an estimated 50 metres of the site may have been eroded away by the river. Erosion continues to take its toll. In the 1930s and 1940s any remaining machinery was removed by scrap metal merchants. At closure some of the machinery was bought by Hambledon Mill.

Nothing remains of Loridan's two storeyed house or the workers' housing. Jones in *Trinity Phoenix* mentions the accommodation built for the Europeans and Kanakas:

> The European workers' house was a quarter mile from the Kanaka House beside the mill, which was a building 102 feet by 38 feet on blocks with walls of hardwood and roof of galvanized iron. It was intended to house 160 hands and Loridan acknowledging the habits of the Islander made provision for an open fire on the floor, with a vent hole in the roof above. This house was lofty and well ventilated. Behind it was accommodation for 200 married men in separate huts (Jones 1976: 161).

Hambledon Mill. Today all evidence of the Hambledon mill site has been removed. Unlike former mill sites where foundations were left after all the machinery had been removed, here heavy machinery has enabled all concrete floors and slabs, footings and foundations, pits, brick and masonry block structures and even bitumen roadways to be removed and disposed of immediately.

On the Sugarworld Gardens site, Edmonton is one remaining staff house built circa 1938 (Solomon pers. comm.:13 January 1992). It now acts as 'Mulgrave Station' on the little train ride circuit circling Sugarworld Gardens. From the late 1970s to 1988 12 former mill houses were removed from the site, four being dismantled and eight relocated.

This one was constructed with a wooden exterior and interior on high stumps (now steel).

Mulgrave Mill. Since Mulgrave Mill first crushed there have been many refurbishments of both buildings and machinery. The overall efficiency of the milling process was constantly being improved. When there was a need for an increase in the crushing rate because of such factors as increased production the machinery would reveal its inadequacies and would need to be replaced by more updated machinery. The mill has had to weather several major cyclones with consequent damage to structures. For example, during the 1927 cyclone the brick chimney stack was blown over, falling on the mill. It was consequently replaced by a steel stack (The Mulgrave Central Mill Co. Ltd. 1947:53).

The remaining older style buildings on site are the former sugar shed; the mill store; Chief Engineer's Office; part of the crushing house; power house building; and Mill Manager's residence. The sugar shed was first used to store bagged sugar, then used for storage until 1976 and now is used as a workshop. It is a large galvanized iron building. The mill store is still used as such and is also a galvanized iron building. The Chief Engineer's Office now used as a Shift Engineer's Office is a small single skin wooden structure. It sits on low stumps.

The original crushing house was destroyed by fire in 1938. Whether this part of the crushing house sighted is part of the original that escaped damage or is part of a later structure was not made clear (The Mulgrave Central Mill Co. Ltd. 1947:60). The power house building has been added to and is still in use for its original purpose but needs to be replaced according to the informant (Flanders pers. comm.:17 January 1992). The Manager's residence, replacing a former wooden Queenslander style structure, was built

in 1928 and is now a substantial concrete structure. High set, it features arches and colonades on its upper verandah and entrance (The Mulgrave Central Mill Co. Ltd. 1947:73, 81). The Memorial Gates erected in honour of A.J. Draper, Chairman of Directors, Mulgrave Central Mill Company Limited, 1897-1928, at the entrance of the mill make an impressive sight (The Mulgrave Central Mill Co. Ltd. 1947:57).

Mossman District

Brie Brie Mill. The researcher has been assured that nothing remains of the Brie Brie Mill site. In 1895 the mill was described as lying "in wreck and ruin with the roofing gone, the tanks rusted past use, and the boiler and engines neglected" (Kerr 1979:27).

Mossman Mill. On the Mossman Mill site however there are several older style structures still in use. Among them is the office dating from the mill's earliest days which despite additions in recent times and the closing in of the upper verandah and having been clad externally in aluminium cladding is still instantly recognizable in old photographs.

The former laboratory building, presently a 'crib' room was constructed at the turn of the century. It is a single skin timbered building. (Taylor pers. comm.:14 October 1992).

Staff dwellings constructed in the first three decades of the century are to be seen. These buildings are still resided in by staff officers. They were built in the early 1900s of Maryborough hardwood for framing and exterior cladding. Sited on low stumps, the houses would appear to have been restumped on concrete stumps at some stage. The cottages have undergone changes and additions since their construction in order to

make them more suitable to modern day living (Taylor pers. comm.:14 October 1992).

Other cottages constructed in the 1930s are also still occupied by mill staff. These are of a slightly more substantial construction and architectural variations can be seen between buildings. They were constructed of pine for structure and interior while Maryborough hardwood and ripple iron were used on the exterior. The houses stand on low stumps (Taylor pers. comm.:14 October 1992).

Vilele plantation. Of Frederick Bauer's venture: the Bloomfield River Sugar company which established the Vilele plantation nothing now remains. A large mill built by Mirlees, Tait and Watson was set up, a wharf at the mouth of the Bloomfield was built and permanent railwayline between the wharf and mill was laid. Labourers' cottages, like the Manager's residence, were similarly built atop rises. They were, however, much smaller structures built on low stumps, though of similar design to the Bauer house. Again nothing remains. Imported labourers, Malays, were housed in "weatherboard quarters raised on blocks three feet high, and equipped with sleeping bunks, tables and forms" (Kerr 1979:22). Mt. Annie is now part of the property known as Mt Louis Pastoral Company and the remains of the actual mill are located on a neighbouring property. According to the informant "there is not much there at all now as it was all dismantled" (Hickling pers. comm.:April 1992).

PORT STRUCTURES

Gairloch wharf. While mills were located on or near rivers goods were brought in and sometimes raw sugar taken out via wharves located at strategic points on the banks of these rivers. In an eye-witnesses report of the time it was described how "about 16

miles from Dungeness we landed at the Gairloch wharf, and a walk of a hundred yards brought us to the site of the new mill..." (Noel Butlin Archives Z303/ Box 45 D 3.0.1.15). One remaining pylon of that wharf remains lying adrift on the riverbank.

Port Douglas. Of the port sites: Weary Bay, Port Douglas, Cairns, Mourilyan, Dungeness and Lucinda only the sugar storage shed at the wharf at Port Douglas was brought to the researcher's attention as being a remaining older style structure. That is not to say of course that there are not others.

The shed is presently being used by Benn Cropp Productions as a Maritime Museum. Built in 1896 as The Douglas Divisional Board Tramway Wharf it was intended for use for the storage and shipment of bagged sugar. The complex comprised of a wharf and two sheds separated by a tramline. It is the shed on the downstream side that can still be seen today.

OTHER STRUCTURES

Tankstands. Tankstands were multifunctional, used to provide water for machinery, animals and household use. They often housed the shower underneath and even sometimes the laundry. A small corrugated iron tank on four foot (1.25 metre) wooden stumps fed by rain water run-off from the house guttering supplied the house needs at **Elma Grove** while a 3,000 gallon corrugated iron tank on approximately 18 foot (5.5 metre) wooden stumps was filled by water pumped from a well by a windmill. The water was gravity fed to the house via underground pipes. The former is still used while the latter is not and deteriorating but is nevertheless impressive for its capacity and height.

As Easterby comments "Before the advent of the central Sugar Mills, the old plantation methods with the kanakas resembled portions of the old world where the feudal system established communities whose schools, churches, and places of abode were practically under the control of one person" (Easterby 1932:13).

On mill sites the employees worked, were housed, entertained, observed their religious practices, were hospitilized when sick and when they died buried in the mill cemetry.

Though not strictly within the scope of this report the churches of the Victoria Plantation and the Macknade Mill and the graveyard of Ripple Creek reflect a different era of sugar production: that of when the mills' attitude to its workers was paternalistic and all the requirements of life, physical and spiritual, were met within the plantation estate's perimetres. They are therefore worthy of note.

All Souls Anglican Church. This church was built at Victoria Mill in 1922, on land donated by the C.S.R. General Manager in memory of residents who died in World War 1. It is a brick building with a shingle roof. Set on a generous sized piece of ground, the church is shrouded by trees and covered in ivy. Built in more leisurely times when monies were raised for its construction by holding garden parties in the gardens of the Mill Manager's palatial home, it represents the days when mills were self-sufficient communities, where workers not only worked and lived but also worshipped and could expect to be buried in the mill graveyard when they died.

St. Martin's, Macknade. Located within the grounds of Macknade Mill, this church was consecrated in 1929, and was also built as a memorial to the war dead of World

War 1 and subsequent wars. It too is shrouded in trees and located in close proximity to the river. It is ground level with porticos. One item of interest in this church is a large clam shell baptismal font which probably came from the former Gairloch Church (Pryce-Davies 1986:31).

Ripple Creek graveyard. The Ripple Creek, Macknade and Victoria Mills are illustrative of the present condition of mill graveyards. The graveyard at Victoria Mill is well-maintained; the Macknade graveyard is now absorbed by the mill refuse dump (Carr pers. comm.:17 August 1993); and the former Ripple Creek graveyard is now under cane apart from a small area where a few remaining headstones lie in disarray. Once gazetted as a grave site covering 3/4 of an acre, it was later sold by council as farm land. Four headstones remain. The exact grave site for each headstone is unknown. The headstones are broken and lying on the ground. The farmer, in attempting to safe-keep the remains of the graveyard, has tried to piece them together but some of the inscriptions have been lost. The earliest gravestone dates from 1884. It is in memory of Eliza Agnes Boyd, wife of Robert Mitchell Boyd. Ripple Creek Mill was owned by Wood Bros. and Boyd. The last which has no date on it was of George Walker, a four year old child who drowned in the nearby Ripple Creek. His father, the last manager of Ripple Creek Mill bought the mill lands when the mill was auctioned in 1907.

Peacock Siding. Mentioned earlier when outlining the means used to transport cane the following farmer-built structures are worthy of note here. In the Stone River at Peacock Siding, Herbert River district, remain up to 15 visible wooden posts (of over 18 feet (5.49 m) height) of a former horse-line bridge built by farmers to access the nearby siding. A nearby stone-pitched bridge, used by farmers for access from one side of the river to the other, can also be seen.

Garrone bridge. The farmer-built bridge on Garrone's farm has concrete abutments, steel girders and wooden decking. It is the only one of its type seen by the researcher.

Gantry. The bush stump gantry to be seen on the Mowbray Valley Road is a solitary example of how the farmers' devised means of transferring cane on to trucks waiting on the adjacent siding.

The Canecutter Monument. This monument, in the town of Innisfail, Johnstone River district, depicts a life-sized canecutter at work and stands as a monument to the pioneers of the sugar industry. Unveiled in 1959 it was sculptured by Renato Beretta and erected on site by P. Bertolani. The statue iteself is sculptured from marble and the enclosing fence and artefacts are made of bronze. The artefacts depict life in the canefields: cane, portable rails, water bags, cane knives and files (Jones 1973:386).

Jose Paronella's Spanish Castle. Built in 1930, this castle is interesting because of its use of tramway rails. Tramway rail (and more commonly portable rail) can be seen reused for many purposes on farms throughout North Queensland.

South Johnstone township. This township is in close proximity to the mill with the tramway passing through the main street on to the mill. The stand of old shop-fronts is partly converted to private residences while the rest remains derelict. The whole is very picturesque and very reminiscent of past days.

Meringa. Under the 'Sugar Experiment Stations Act of 1900' the Bureau of

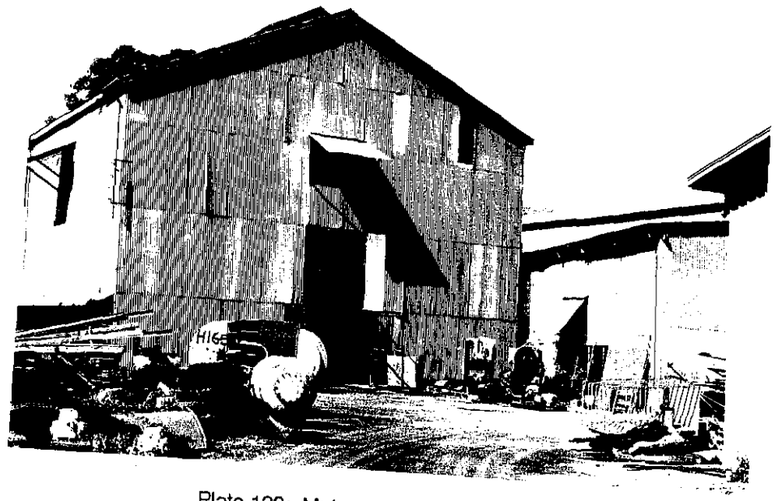


Plate 123: Mulgrave Mill: sugar shed

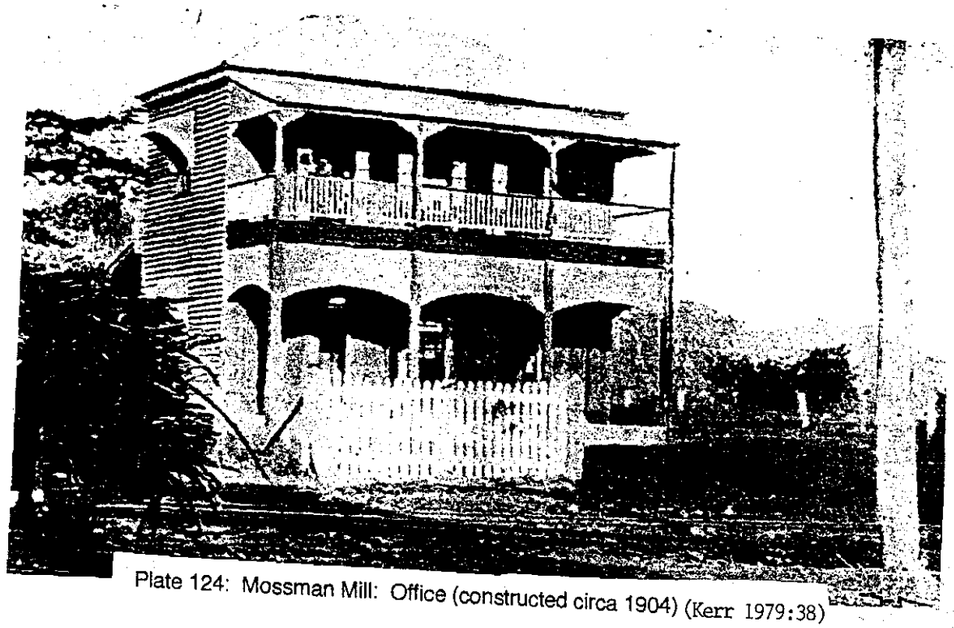


Plate 124: Mossman Mill: Office (constructed circa 1904) (Kerr 1979:38)

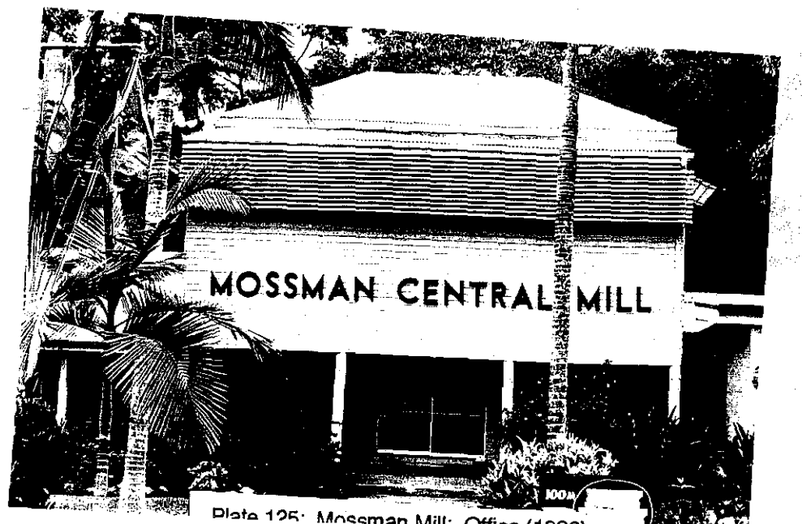


Plate 125: Mossman Mill: Office (1906)

Plate 126: Farm tank stand (constructed circa 1940s)

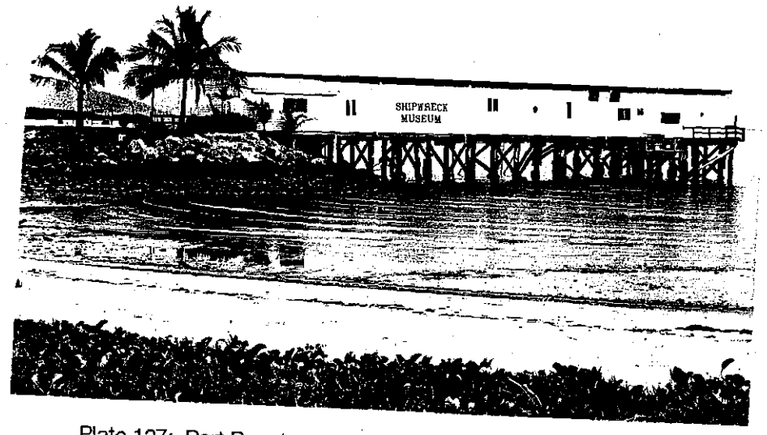


Plate 127: Port Douglas: former Tramway Wharf (constructed 1896)

Plate 128: Victoria Mill: All Souls Anglican Church (constructed 1922)

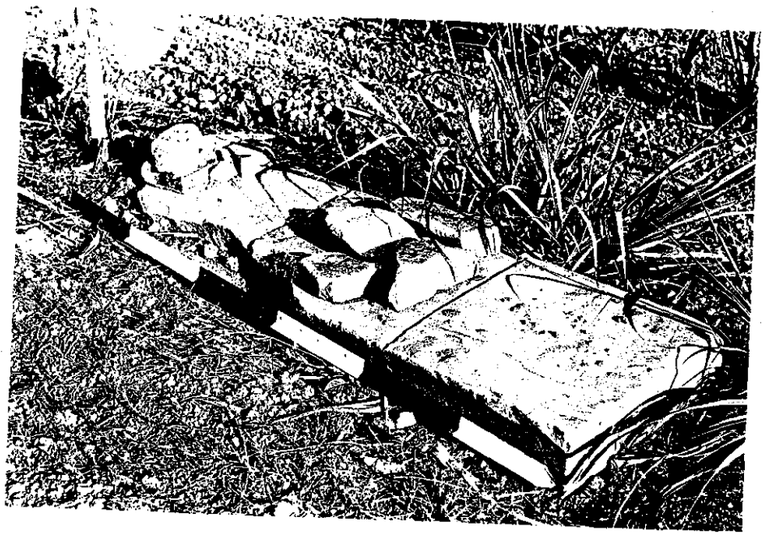


Plate 129 & 130: Ripple Creek Mill: remnants of graveyard

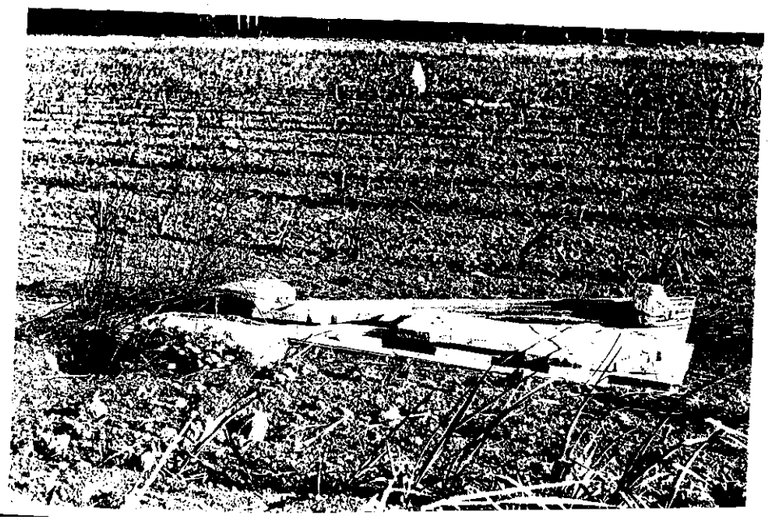


Plate 131: Remains of horse line bridge, Peacock Siding (1993)

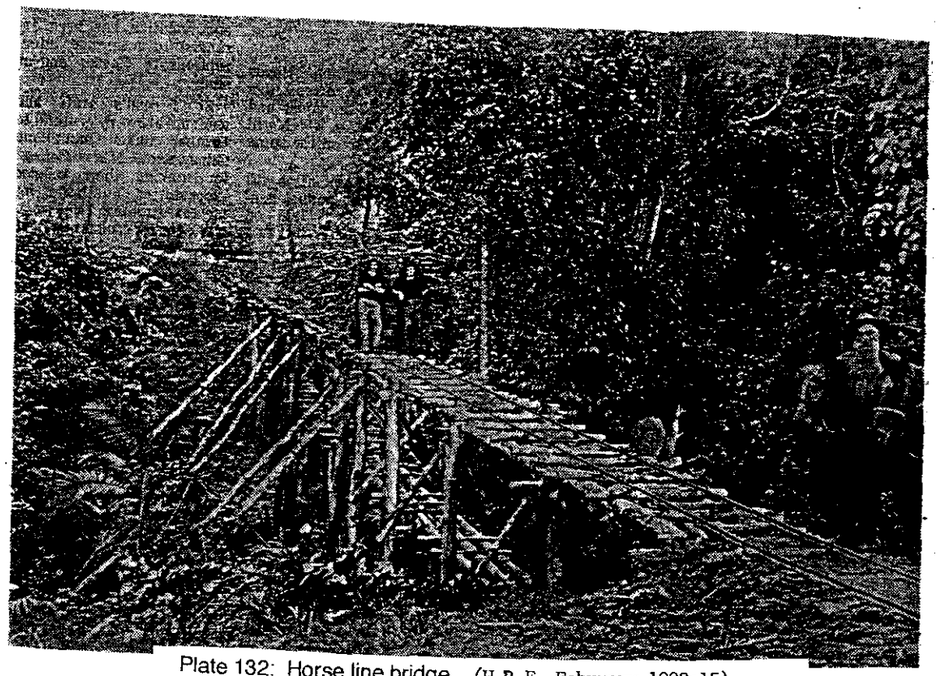


Plate 132: Horse line bridge (H.R.E. February 1992:15)

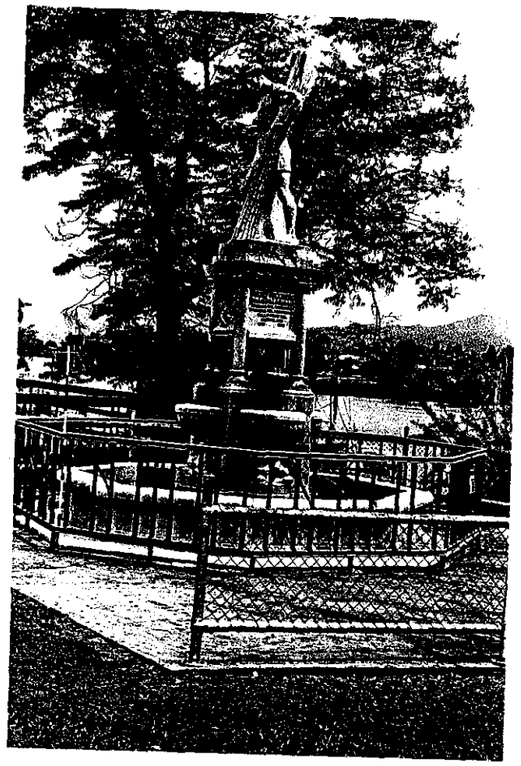
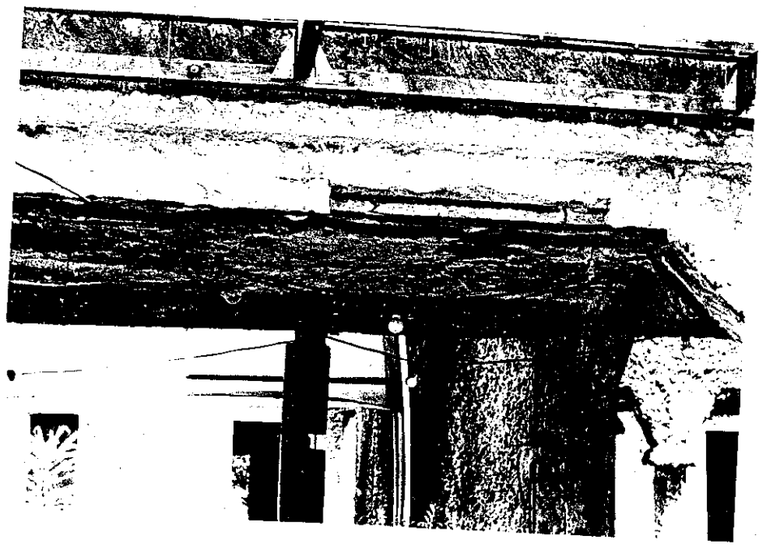


Plate 133 and 134: Canecutter monument (constructed 1959)

Plate 135 & 136: Paronella's Spanish Castle (constructed 1930): note use of rails for structural support



Sugar Experiment Stations were established and the first to commence operations was that of Mackay in 1901. "The objects of the Bureau was to carry out scientific investigations in the various phases of sugar production and to disseminate the information gained among sugar producers" (The North Queensland Register 1933:39). That at Meringa, Cairns district, was set up in 1916. It was established primarily as an entomological station to study the nature of insect pests which were devastating the crop at the time. It was hoped to devise methods for their control. Buildings were erected on a piece of Crown Land allocated by the Government at Meringa. One, the residence constructed to house the first entomologist Dr. J.F. Illingsworth, is still in use. His original entomological laboratory was converted into a ploughman's residence in 1935, and then remodelled once again in 1955 for use as a plant breeding laboratory and is also still in use. The original glasshouse (1935) was destroyed by the 1956 cyclone and the original Assistant Entomologist's residence (later converted for use as an office/soils laboratory) was removed and replaced by a brick structure in 1969.

The entomologist's house, built in 1916, is one of the oldest remaining houses of its style in the Cairns district. It was built of wood on high stumps. The house is currently occupied by the farm manager (B.S.E.S. 1971: 21, 61-62; Calano pers. comm.:1992).

CONCLUSION

The examples of farm, mill, port and other structures sighted were illustrative of a past way of living and working that has long gone.

The clearing of new land for sugar cane farming still goes on, and it continues to be back breaking work but no longer does the farmer's family accept that it will have to first

live "in a bark humpy with grass thatched roof...in rather primitive conditons" (C.S.R. 1956:caption for photograph - unpaginated) while the family farm is being established and before a more permanent home can be afforded. The farmers' houses are not today made entirely of wood. The availability and cost of timber, timber's vulnerability to termites and weathering have determined that over the years other materials have become more popular for use for exterior and interior linings. Even galvanized iron, the most commonly used material, both standard gauge and ripple, has also become unfashionable.

Changes in technology and fashion have brought the kitchen, laundry and ablutions facilities, which were once separate structures, into the main body of the house. In many instances sophisticated water pumps have replaced wells and windmills.

Mechanization of farm work and processes have meant that less labour is employed on the farm. The canecutters' barracks, workers' and manager's cottages have disappeared from the landscape of modern farms. Stables and smithies too have become redundant. Sheds once low wood and galvanized iron structures, are now the towering steel structures required to house large machinery such as harvesters and high clearance tractors. Fertilizer sheds are no longer required because fertilizer, bought in one tonne bags, is no longer stored on the farm for any length of time.

Mills too, once paternalistic, self-sufficient communities have changed over time. It is a long time since the mills issued the workers with meat from the mill butchery, stores from the mill store and medical requirements from its own dispensary and provided for their intellectual and social stimulation with a School of Arts and tennis court. Mills like farms, today employ less labour, for example, navvys and farm labourers are no longer housed by the mill. The School of Arts and the tennis court have been replaced by the Social Club

and Tours Office and as with farm houses the structures are no longer constructed of timber. Technological advances which demanded refurbishment of the factory floor required a corresponding rebuilding of the housing of that machinery. In the South Johnstone Co-Operative Sugar Milling Association Limited's *50 Years Forward 1927-1977* a photo of a new carrier building being constructed over the old carrier housing is perfectly illustrative of that process (South Johnstone Co-Operative Sugar Milling Association Ltd. 1927:25).

Road and rail transport have replaced river transport and riverside wharves are no longer used by mills to bring in goods and remove raw sugar. Technological advances in the handling of raw sugar have demanded corresponding changes at the port front. Lucinda Wharf with its massive mechanized bulk handling facilities and its deep-water off shore loading jetty is illustrative of those changes. Port Douglas as a port where bagged raw sugar was stored in modest little sheds and loaded on to sugar lighters is now but a memory.

Though illustrative the structures sighted were not necessarily representative or a balanced selection from the period 1872 to 1955. As Bell in his study concludes as regards the earliest structures

> Initial impermanence and subsequent decay or prosperity have almost entirely eradicated the physical evidence of formative years, and the rarity of survival of the few early buildings which still stand implies some form of selectivity in their survival which further brings into question their value in representing the period on which they were built (Bell 1982:21).

And a study of buildings (particularly domestic buildings) built in the last decade of the period under study presents its own set of problems.

The following chapter will outline which of the structures sighted the researcher regards as significant and will make recommendations as to what should be done to preserve them, if not in substance, at least in record.

8. SIGNIFICANT STRUCTURES AND RECOMMENDATIONS

In the far North Queensland sugar growing area extending from Ingham in the south to Mossman in the north are still to be found structures and collections of machinery that reflect the way of life and work of the sugar industry in the period 1872 to1955.

On mills and farms, and to a lesser extent at port sites and in private and public collections, can still be found representative examples of structures and machinery that give some idea of the former ways of life and work of the sugar industry. Structures include: former mill sites; present mill sites (inclusive of buildings and machinery); houses - substantial and simple; workers' cottages; barracks; sheds (inclusive of stables, smithies and fertilizer sheds); and other structures such as gantries, bridges, tramlines, steam train water tanks, sidings, monuments and port facilities. Machinery collections include farming equipment both horse-drawn and tractor-drawn; milling machinery; rolling stock; and port machinery.

Being such a huge area to survey it was unavoidable that not necessarily the best preserved or most representative nor even the most historically significant examples were viewed. Nevertheless, of what was viewed, it was incumbent on the researcher to identify those that were considered **significant** according to established criteria and to make recommendations on what possible course of action could be taken to ensure their protection.

It was determined that an item was significant if it:

a) was a collection of items that reflected the way of life and work of the sugar

industry, particularly if it was considered to be at risk;

b) was a unit of machinery that was of considerable age or rarity;

c) was a now defunct 19th century mill site that retained some degree of intactness;

d) was any other structure remaining which uniquely exemplified the technology of the industry e.g.: steam train water tank, gantry, bridge, tramline, siding or monument;

e) was any housing structure from fine house to humble barrack that was

(i) representative of an architectural style or of construction materials used; or

(ii) uniquely representative, or historically significant, particularly if it was at risk

f) was any farm storage structure, mill structure or port structure that was

(i) representative of an architectural style or of construction materials used; or

(ii) uniquely representative, or historically significant, particularly if it was at risk.

A collection of items was considered to be at risk if it:

a) had no curator to maintain and expand a collection set up initially to be a show piece, for example, The Australian Sugar Industry Museum;

b) was a sizeable collection of which future was in doubt because of various factors, for example that the original collector had died, that the collection was presently unmaintained, that it was unavailable for public viewing;

c) was an historically significant structure that was in a deteriorated state and subject to further deterioration;

d) was a significant site or individual item or structure that was exposed to the elements and thus vulnerable to ongoing deterioration.

All structures identified as **significant structures** were representative and

therefore significant in that they were illustrative of the technology and way of life of the sugar industry in the period 1872 to 1955.

However, only a few could be singled out for recommendation for further action to be taken to ensure their future significance. There are several courses of action that can be recommended determined by the individual circumstances of the item. Therefore in the case of the few structures/collections or individual items that could be identified here as warranting further action the recommendations will be made that:

a) the site be viewed, surveyed and recorded ONLY, taking destruction action if warranted, OR

b) the site be viewed, surveyed and recorded AND negotiations be entered into with the owner as to how preservation and where warranted also restoration can be carried out in a manner satisfactory to all parties involved, OR

c) the structure be listed on a suitable register as unique OR of intrinsic historical significance OR of other significance such as representative of a locally significant architectural style, OR

d) the individual piece of machinery be recorded on a suitable register AND be preserved where at risk, OR

e) the private collection be recorded on a suitable register AND negotiations be entered into regarding its preservation for future generations with a possible outcome that is acceptable to all parties, OR

f) that the public collection be facilitated to:

- engage a curator if there is not already one
- alter and add to displays regularly
- seek sources of income that are guaranteed via regular government and private grants.

HERBERT RIVER DISTRICT

RECOMMENDATION 1

That the Hec Masters and Peter Hansen collections be recorded on a suitable register and that negotiations be entered into with the owners regarding long term preservation of the collections.

In the Herbert River district there are two private machinery collections which in their individual components present an excellent view of sugar farm work from 1872 to 1955. Both the Hec Masters and the Peter Hansen collections are presently fragile collections. Both illustrate the past technology of the sugar industry and the collections do not duplicate each other.

RECOMMENTATION 2

That the Gairloch Mill site should be viewed, surveyed and recorded AND negotiations should be entered into with the landowner as to how the site can be protected. That plantation equipment located here and elsewhere in the district should be stored undercover on the site.

The Gairloch Mill site, which the researcher believes to be the most 'intact' of the now defunct 19th century mill sites in North Queensland requires prompt action. The site is not large and could easily be covered by a simple roofed structure. The **reversible steam plough** on site and the **steam traction engine** located in the grounds of

Abergowrie College should be brought together as they were companion pieces of equipment and be stored under cover. Both are pieces of plantation machinery and appear to be unique in that no other similar pieces were sighted.

RECOMMENDATION 3

That the brick structure remaining on the former Ripple Creek Mill site requires immediate listing and preservative action.

It is the only entire structure remaining on a former 19th century mill site in North Queensland. It is still in good condition and the land owner would be receptive to some action being taken to ensure its survival.

RECOMMENDATION 4

That the remaining pieces of gravestones of the Ripple Creek Mill graveyard be relocated to the Halifax cemetery where they could be cared for by Council.

What remains of the Ripple Creek Mill graveyard requires immediate action. Because of its association with Ripple Creek Mill it is of significance. The ground can then be resumed for farming. The landowner would be receptive to suggestions regarding the gravestones' long-term preservation. The local Family History Society, which is compiling a Register of Lone Graves, has already been told of their existence and been given the wording on the gravestones.

RECOMMENDATION 5

That historic housing structures be recommended for entry on a suitable register because of their age and historical significance.

Though not recommending them for restoration or preservation there are several historic housing structures sighted that could be recommended for entry on a suitable register because of their age and historical significance. These are: the **Macknade Mill** house; **Gairloch House - Brooklands; Vitale's;** and **Lacaze's** house. Their age makes them particularly significant. The fact that **Brooklands** and **Vitale's** were structures from mills that are now defunct, is an added significance.

RECOMMENDATION 6

That Oakleigh house be considered for preservation/restoration.

As one of the oldest two storey structures remaining in the district it is significant both architecturally and historically. The landowner may be receptive to suggestions regarding its future. The house is extremely fragile and may have to be destroyed if no action is taken.

RECOMMENDATION 7

That houses, cottages and barracks exemplary of the differing architectural styles of and materials used in sugar cane farm housing

structures be recorded on a suitable register.

While houses exemplary of the differing architectural styles of and materials used in sugar cane farm housing structures were also sighted none can be recommended for preservation/restoration. Examples however could be recorded on a suitable register: ripple iron (**Zemaitis**); concrete (**Mendiolea**); typical small farmer's house (**Burke**). Similarly simple worker's cottages as seen on **Spina's, Russo's** and **Kowalczuk's** farms could be recorded on a suitable register; while **Elortegui's** barrack is possibly the best example of a barrack in the district. Barracks in a good state of preservation are uncommon.

RECOMMENDATION 8

That good examples of sheds including stables and/or smithies be entered on a suitable register.

Farm sheds predating 1955 are especially indicative of the differences in technology between the earliest period where much of the work was done manually and that of the later period when many of the processes became mechanized. Sheds of the early period were smaller, lower roofed and usually housed a smithy and stable.

There is a particularly good representation of shed styles in the Herbert River district, all illustrative of the days when horses were used for sugar field cultivation and had to be housed and shod. Good examples of sheds including stables and/or smithies can be seen on several farms such as **Robino's, Balanzategui's, Mancuso's** and **Ingegneri's** farms. The latter shed also includes a **fertilizer storage platform**.

RECOMMENDATION 9

That selected items reflecting a past technology be entered on a suitable register.

Though the sheds continue to be used, most barracks are not and all are vulnerable to further deterioration as the years pass. Today, even locally, stables, smithies and barracks are all of curiosity value especially to the young who do not recall the days when these were in use. Similarly, items such as the restored and displayed **reciprocating engine at Victoria Mill; McKell's Siding; the remains of the horse-line bridge at Peacock Siding; the ablutions and laundry complex at Vitale's house;** and the **high tankstand at Elma Grove** all reflect a past technology and therefore are individually significant and of considerable curiosity value. Though not warranted for preservation/restoration some record of their existence should be made.

RECOMMENDATION 10

That a locally held register of present and past photographs of the structures mentioned, be compiled by the Herbert River Museum Gallery.

In April 1991 the Herbert River Museum Gallery was opened. A facility now exists for the collection of old photographs or for the systematic copying and storing of copies of old photographs with appropriate data. Old photographs have been donated but a specific scheme such as that initiated by the Cardwell Shire's Dorothy Jones Library has

not as yet been put in motion.

TULLY DISTRICT

RECOMMENDATION 11

That the buildings of architectural and historical significance on the Tully Mill site be preserved.

Located on the Tully Mill site are several buildings of architectural and historical significance. Two historic structures remain that are worthy of recommendation for recording on a suitable register AND for preservation: the former Chief Engineer's Office and the single men staff quarters. Both are well maintained so do not require restoration.

RECOMMENDATION 12

That Bellenden House be recorded on a suitable register.

A variety of building styles and materials are illustrated in the houses of the district. Bellenden House, a historically significant house, is in an advanced state of deterioration. The researcher does not feel that the landowner would be receptive to any action being taken by an outside agency for its preservation/restoration.

RECOMMENDATION 13

That examples of concrete structures be recorded on a suitable register

and further study be done of this architectural phenomenon

The **Benn house** and the **Borgna barrack** both constructed of concrete are illustrative of the use of a particular material and of a particular architectural method. However, while examples of concrete construction can be observed in the Herbert River district they appear more frequently in the Tully district, are extremely common in the Johnstone River district, but start to be less frequently seen by the Babinda district.

RECOMMENDATION 14

That other examples of architectural styles of barracks and houses be recorded on a suitable register.

Several other architectural styles of barrack are to be seen in the Tully district: low-stumped, galvanized iron (**Marsillio and Frazer**); and high-stumped, galvanized iron (**Byrne**). Also several housing styles are illustrated by for example: chamferboard, high-stumped (**Iggulden**); ripple iron, high-stumped (**Formiatti**) and weatherboard, low-stumped (**Tamba**).

RECOMMENDATION 15

That the work instigated by the Dorothy Jones Library to compile an historical photographic record be facilitated.

The Cardwell Shire's Dorothy Jones Library has instigated the borrowing of old photographs, their copying, and filing of the copies with identifying information. It is being

done in a professional manner and will become an important resource for local history research. Included on file are photographs of many of the older sugar farm housing structures and also photographs of early horse-drawn and tractor-drawn equipment at work with explanations of the processes.

A suitable register for the record of building styles in barrack and farmer's house in the Tully district obviously exists already with the Dorothy Jones Library collection.

RECOMMENDATION 16

That rare examples of farm machinery be relocated to the Australian Sugar Industry Museum.

In Costanzo's shed, itself of interest, is a **Bedford truck with truck wagon**. A similar item was not sighted elsewhere. It would be appropriate for the various such significant pieces of machinery sighted here and elsewhere be relocated to the Australian Sugar Industry Museum.

JOHNSTONE RIVER DISTRICT

RECOMMENDATION 17

That historic structures remaining on the Mourilyan Mill site or as property of the Mill at other locations be recorded on a suitable register.

Mourilyan Sugar Mill features many still used and other unused structures dating from the first two decades of this century and succeeds in maintaining an aura of past days. The structures were not only those used in the actual milling process, for example, weighbridge and laboratory, but the former Mill Manager's residence, iceplant, and a ring-road of older style staff houses.

Property of Mourilyan Mill, a **tank** used to fill steam engines still stands at Daru Creek and its existence too should be noted on a suitable register.

RECOMMENDATION 18

That the Canecutter Memorial be preserved.

The Canecutter Memorial, in the town of Innisfail, is a unique memorial to the back-breaking labour of manual canecutting and to the importance of the role Italian immigrants played in the far North Queensland sugar industry. It should be preserved at all cost. Its parts are vulnerable to pilfering.

RECOMMENDATION 19

That the South Johnstone township be considered for a 'Main Street' concept.

Though the South Johnstone Mill has almost entirely been rebuilt over the years the South Johnstone township with the tramway passing through the main street and its stand of old shop-fronts is very picturesque and reminiscent of past days. The township

is a perfect candidate for a 'Main Street' concept as is being mooted for the main street of Halifax in the Herbert River district. That the mill is in such close proximity to the township is an added bonus.

RECOMMENDATION 20

That examples of the variety of concrete structures in the Johnstone River district be recorded on a suitable register and that further study be done of this architectural phenomenon.

Of particular interest in the Johnstone River district are the concrete structures built by Italian settlers in the area. It is recommended that these structures be listed on a suitable register making particular note that:

a) Some were built out of a desire to build structures that could withstand cyclones (the Johnstone River district was battered by two major cyclones within nine years of each other: that of 1918 and that of 1927).

b) Even if the structure was constructed of wood the Italian influence is obvious in concrete stumps; elaborate concrete washing tubs or concrete floors (often with pigments added for decoration).

c) The concrete houses usually featured the cement floor tiles which for a period of time were manufactured in Ingham. The use of these tiles in North Queensland would appear to be restricted to the Johnstone and Herbert River districts.

Every conceivable structure required for life and work on a farm could be constructed of concrete: houses; ablutions blocks; tankstands; outhouses; laundry tubs and boilers; sheds; fertilizer sheds and barracks. Good examples of houses (with

cement tiles) are those of **Garrone, Biletta** and **Cataldo**. On the **Cataldo** and **Rungert** farms can also be seen excellent examples of concrete barracks. The concrete outhouse and ablutions block (with tank) are also interesting little companion structures to the **Cataldo** barracks. A concrete tank with shower also remains at the **Rungert** barrack. The enormous tank stand with ablutions facilities underneath on **Zapalla's** farm is noteworthy as is the concrete fertilizer shed still in use on their farm. These particular examples should be recorded on a suitable register. They are significant for reason of the materials used, the architectural styles and the cultural associations. Raised concrete tankstands, often with the shower underneath and sometimes even the laundry, are a feature of the Johnstone River district.

RECOMMENDATION 21

That other structures such as farmer built bridges be recored on a suitable register.

An interesting little farmer built bridge built on **Garrone's** farm is an example of farmer ingenuity and skill and should be recorded on a suitable register.

RECOMMENDATION 22

That the use of tramway rail as steel reinforcement in structures should be recorded, while Paronella's Spanish Castle, the structure of which is reinforced with tramway rail, should be preserved.

The use of tramway rail as the steel reinforcement of **Jose Paronella's**

Spanish Castle is noteworthy as is the use of tramway rail (and more commonly portable rail) in all sorts of applications on farms throughout North Queensland. Incidentally the Biletta house made use of rails as reinforcement. Along with Italians, Spanish people too migrated to Australia to work in the sugar industry and to settle between the Burdekin and the Johnstone Rivers. The Spanish Castle is a tangible monument to their collective dreams and aspirations.

RECOMMENDATION 23

That various architectural styles reflected in the houses built by canefarmers in the Johnstone River district be entered on a suitable register or historic house register.

Various architectural styles are reflected in the houses built by canefarmers in the Johnstone River district from the simple high-stumped galvanized iron structure of **Bertei** to the substantial weatherboard house of **Campagnolo** to the reinforced concrete house of **Martin's** to the high-stumped chamferboard house of the pioneering **Pittman** family. Martin's house was built by an Italian for a Spaniard and is different from the other concrete houses sighted in that it is raised off the ground and has wooden floors. The grander style of home, the **McIlrath** house, the former **Sugden** house and the **Lacaze** house all built on the classic Queenslander style are historic homes still standing. The first two have been restored.

RECOMMENDATION 24

That remarkable examples of sheds and barracks be entered on a suitable

register.

On **Garrone's** farm, the remarkably large shed of ten bays with smithy and stalls for five horses and the well-preserved low-stumped barrack of galvanized iron are significant. With verandahs on both sides the barrack represents an architectural style more commonly seen from Tully onwards but less frequently elsewhere. The low-stumped galvanized iron barrack of **Campagnolo's** is interesting for its separate dining room. All could be entered on a suitable register.

RECOMMENDATION 25

That good examples of fertilizer sheds be entered on a suitable register.

Various good examples of fertilizer sheds remain in the Johnstone River district. Besides the concrete fertilizer shed of **Zapalla's** other variations in style are illustrated by that of **Biletta's** galvanized iron, ground level fertilizer shed and **Campagnolo's** of galvanized iron and raised platform.

RECOMMENDATION 26

That the Australian Sugar Industry Museum secure regular funding from industry organizations, farmers and mills and the services of a professional curator; and that the entrance of the building be remodelled.

Great hopes were held for the Australian Sugar Industry Museum when it opened

on July 30 1977 and on its reopening in April 1988 after major refurbishment had been carried out. On opening the museum the then Premier, Joh Bjelke-Petersen, praised the sugar industry for the massive contribution it had made not only to Queensland's economic welfare, but to that of the nation. He envisaged that the museum would become "worldclass ... [and] ... accurately reflect the pioneering spirit of Queensland and its people". In his turn, Proprietary Sugar Millers Association Chairman, Mr. Roy Deicke, expressed the hope that "the museum would capture the history of the industry which should never be destroyed" (Producers Review August 1977:16). In anticipation of the reopening of the Australian Sugar Industry Museum a two page spread was included in the *Australian Canegrower* (formerly the Producers Review) of January 1988. The museum was now described as having been "transformed ... into a world-class museum and tourist complex". The writer went on to say that "By the establishment of such an exhibition, the Australian sugar industry stands to gain world recognition...". The then Curator, Michael Frampton, envisaged that "As well as historical value ... [he saw] the Australian Sugar Industry Museum becoming the focal point for discussion and dissemination of technical information to canegrowers and millers" (Australian Canegrowers January 1988:22-23).

Certainly the Australian Sugar Industry Museum is a significant and unique concept which does enable the visitor to appreciate aspects of the industry's history.

Presently it is the only museum in Australia which focusses particularly on the technology of the sugar industry. From its humble beginnings in a disused picture theatre in 1977 to its present form as of 1988 it has indeed come a long way and has great potential. However, substantially invested in by farmers, the Sugar Board, C.S.R., State and Federal governments and companies such as Massey-Ferguson, it should be the

show-piece of the industry. Presently it is not that. The researcher believes that presently the museum is operating in an unsatisfactory way. Without a curator, supervised by a complex manager, cleaning and day-to-day maintenance of the museum is poor. Over the last couple of years new displays have been introduced such as the Kanaka hut and stable but simple housekeeping jobs, like replacing a wall panel to the canecutter barrack display which fell out several years ago allowing dust and vermin into the display, remain ignored. The impression that management's concern is the income that comes via that outlet is reflected by those poor housekeeping standards in the museum. That the entrance is via the cafe gives a fair indication of the emphasis of the complex . The emphasis needs to be altered by the employment of a professional curator who will:

a) ensure that good housekeeping standards are maintained

b) ensure that displays are revitalized periodically

c) ensure that new displays are set up

The entrance to the museum needs to be by way of a foyer which is inviting and which, with minor displays, sets the theme of the museum.

The museum is representative of an industry that is vitally important to the state, historically and presently. For some tourists it will be the only personal encounter they will have with the industry. As the showpiece of the industry it is presently relatively tawdry. The industry must be encouraged to support its museum via periodical funding as must be mills and farmers. Government funding is also essential if a curator is to be employed. If the museum showed itself to be vital and well managed more farmers would be willing to donate items that are presently languishing in sheds and rusting in paddocks.

Recently the museum installed computers and video equipment and it is claimed

that visitors numbers have increased to the point where the museum is now making a profit (Australian Canegrower October 1993:2). Previously visitor numbers were regarded as disappointing (V. Robertson pers. comm.:9 January 1992). Unfortunately if a possible sugar industry heritage centre/theme park to be located at Mackay comes to fruition it will direct much needed funds away from the Australian Sugar Industry Museum as well as detract from its unique concept (Australian Canegrower October 1993:2).

BABINDA DISTRICT

RECOMMENDATION 27

That the older style staff houses and buildings on the Babinda Mill site be entered on a suitable register.

Babinda Mill, like Mourilyan Mill, has a ring-road of older style staff houses including that believed to be the former Manager's Residence. The former Cane Inspector's Transport Office too is of some interest.

RECOMMENDATION 28

That the tractor-drawn cane trailer be transferred to the Australian Sugar Industry Museum and that an interesting example of concrete house and older style shed be entered on a suitable register.

A piece of machinery which is significant is a tractor-drawn cane trailer. Ideally it should be in a collection as it would appear to be a rare item. This piece is to be found on

Hanson's farm. On this farm is also a concrete house. It was the northernmost farmer-built concrete house viewed by the researcher. A shed with smithy and which formerly included stalls for six horses can also be seen. Being low-ceilinged it is representative of the sheds of the era.

RECOMMENDATION 29

That the styles and nature of several barracks in the Babinda district be entered on a suitable register.

Various barrack styles are to be seen with **Ghidella's** on low stumps and **Mayer's** at ground level. The latter, formerly, had a detached kitchen but as gang sizes decreased a kitchen was made out of one of the rooms. Changing industry needs dictating architectural styles and facilities is a common thread in the study of sugar industry structures. The styles and nature of such barracks requires documentation.

RECOMMENDATION 30

That examples of the simple type of house or cottage as well as the grander historic homes be entered on a suitable register.

The simple type of house or cottage is represented by those of **Cope's, Reghenzani's** and **Ghidella's.** The grander style of house is represented by that of **D.O. James and Redacres**. Both are historic homes.

CAIRNS DISTRICT

RECOMMENDATION 31

That the Pyramid Mill site requires further investigation .

The researcher supports the suggestion made by the Department of History and Politic's (Cairns Campus) research paper on the Pyramid Mill (1992) that the Pyramid Mill site requires further investigation even if destructive methods have to be used. The mill will be lost to the district within 100 years and whatever it has to tell us about the workings of 19th century mills will then be irretrievably lost.

RECOMMENDATION 32

That the remaining older style buildings and machinery on the Mulgrave Mill site be entered on a suitable register while historic homes in the district be entered on a register of historic homes.

The remaining mill in the district, the Mulgrave Mill, has several older style buildings and machinery. Of particular interest is the Manager's residence. Several houses of historical significance which still stand in the district are **Bentley Park; B.S.E.S. Residence, Meringa; Drumbegg; John Gordon's House; and Glenaffen**. Peter Bell in his report *Vernacular Domestic Architecture in North Queensland Mining Towns* (1979) noted that "... Cairn's growth in recent years has been at the expense of older buildings" (Bell 1979:76).

RECOMMENDATION 33

That various examples of barracks, sheds, cottages, houses and machinery, indicative of architectural styles and technology favoured in the district, should be entered on a suitable register.

Drumbegg's barrack, shed and collection of machinery are all noteworthy and thus make that farm particularly significant reflecting comprehensively life and work on a sugar cane farm in past days. Various other examples sighted are similarly indicative of architectural styles favoured in sugar industry structures: the **Christensen** house; the **Hesp** house; **Dockery's** cottage; and the worker's cottage on **Drexl's** farm.

RECOMMENDATION 34

The Draper barrack should be preserved .

The present owner believes the barrack to be of considerable age and that there is reason to believe it was used by Kanakas. The barrack as described elsewhere is constructed of materials not commonly used for barracks in the Cairns district. The barrack is sited on the edge of recent urban development. It would appear that the farmer intends to demolish the barracks and that the farm will be offered for sale for urban development in the near future (Straguszi pers. comm.:18 January 1992). This type of barrack is rare, is still in reasonable condition and its association with A. J. Draper make it historically significant. This barrack should be preserved at all cost.

RECOMMENDATION 35

That significant machinery collections be entered on a suitable register.

Significant machinery collections include those of **H. Hill** and **Abdul Mohammed**.

MOSSMAN DISTRICT

RECOMMENDATION 36

That older style structures and machinery still in use on the Mossman Mill site be entered on a suitable register.

Mossman Mill, a 'farmers' mill', has a particularly historic feel to it. It has a considerable amount of older style structures and machinery still in use. The Office which features in old photos of the mill is of particular interest as it is still the focal point of the mill. It, the old laboratory building, and staff dwellings should all be entered on a suitable register. It should also be noted that a few relics from the first mill in the district, **Brie Brie Mill**, are retained at the Mossman Mill.

RECOMMENDATION 37

That older restored houses in the Mossman district be recorded on an historic houses register

Mossman is remarkable for its number of **older houses** that have been restored among them **Drumsara; Mango Park;** and **Fairymount**. The **Mango Park** owner was approached some years ago by the National Trust regarding the registering of the house with that body. He was at that time and continues to be very adamant that he does not want the house registered. The house has been preserved in much the same way as it was originally built and so maintains its basic integrity. It has an old feel to it and great charm. It is lovingly looked after and with upstairs kitchen is now suited to modern living. It is very important that this house be preserved and the family are doing an excellent job of that.

His arguments raise important considerations that need to be faced in any attempt to preserve/restore older style sugar cane farm structures in North Queensland. He argues that original structures such as kitchens cannot be usefully and safely restored for use. Detached kitchens were usually made of galvanized iron with wooden supports. He argued that not many of those buildings survived because in the steamy climate of North Queensland timber rots and galvanized iron rusts quickly. Working over a wood stove in a galvanized iron kitchen in the steaminess of a North Queensland (particularly Mossman) summer is an experience no woman would want to return to. Similarly, outside bathrooms and outhouses are not acceptable by modern standards of hygiene and comfort (Murday pers. comm.: 4 January 1992).

RECOMMENDATION 38

That Richmond be preserved as a matter of urgency.

Richmond, belonging to the Rex family, is an historically significant house that is in

a fragile state. It is in urgent need of preservation and warrants restoration. Considering its age and its place in the history of the Mossman district it is a priority that something be done about this house.

The owner expressed the view that the family would like to see the house preserved but do not want to lose control of the house and land. It would not wish to be governed by, as he saw it, the rules and regulations that such a body as the National Trust would impose if it was to undertake restoration. It is probable that the house will be demolished (Rex pers. comm.:3 January 1992).

RECOMMENDATION 39

That considering the variety and age of the structures to be found in the historic Mowbray Valley it is recommended that J. Reynolds and J.R.R. Connolly's proposal for the Valley be given every support.

In 1989 the F.N.Q.E.B. issued a proposal to construct a transmission line down the historic Mowbray Valley. Two major landholders, J. Reynolds and J.R.R. Connolly, who objected to the proposal were required to submit an alternative development proposal. They employed the services of an architect, Gary Hunt, who was directed to draw up a plan for "sensible development of the 385 hectares involved in terms of protecting the natural and historical features of the valley" (Port Douglas and Mossman Gazette February 20 1992:1). Mr. Hunt finally concluded that the Mowbray River Valley was:

> a superb area for limited and low impact development modelled around the historical values of the valley. There are various old

buildings dating back to the late 1880s that lend themselves to creating a historic village and there is the historical influence of the Bump track all combined with the natural values of the valley (Port Douglas and Mossman Gazette February 20 1992:1).

The valley gives an inimitable view of the isolation and conditions under which early cane farming families lived and worked. In addition to the dwellings of the Mowbray Valley, a primitive gantry is worthy of record and preservation.

RECOMMENDATION 40

That particular barracks in the Mossman district be entered on a suitable register.

A barrack on the Tara Hills farm of **Don Watson** is similarly well placed to give passers-by an idea of the primitiveness of the early barrack structure and the isolation that was associated with barrack's living. A cottage style barrack on **Brie Brie Estate** is also interesting.

RECOMMENDATION 41

That the Douglas Divisional Board Tramway Wharf and sugar storage shed at Port Douglas be preserved.

Very few port structures remain from the days prior to bulk handling. The Douglas Divisional Board Tramway Wharf and sugar storage shed at Port Douglas are rare examples. Used for Ben Cropp's Maritime Museum they are preserved for the time being.

Significant structures and collections do not abound and while comparatively little had been recorded about the technology of milling and cane farming even less has been recorded about milling and farming structures of this early period, 1872 to1955.

For example, a copy of *The Queensland Cane Growers' Handbook* (1939) was a text held by an agricultural college but was cancelled and was going be disposed of. Fortunately it found its way into the hands of a student. Such a book gives rare detail on how sugar cane farming was conducted in the early decades of the 20th century and of the machinery used.

Horses were long ago withdrawn from the field and the farmer who is now skilled at forge work is rare. Examples of horse-drawn machinery are to be seen because of their curiosity value and most farms have retained one piece. Early tractor-drawn equipment had less of a curiosity value and if it was not modified for continued use it was usually abandoned into a river wash-out once it was superseded. Only very serious collections cover the gamut of early horse-drawn and tractor-drawn equipment.

Abandoned 19th century mill sites now have very little information to offer about 19th century milling technology as all metal components were long ago sold off and brick foundations meanwhile deteriorate due to weathering, farmer activity and the destructive influence of forest regrowth. As mills are refurbished to match ongoing technological development older structures and machinery are discarded. Refurbishment of presently functioning mills mean that in some cases very little of the machinery dating from when the mill was first established remain. Structures are often so changed in appearance after modernization work has been carried out on them that is very difficult to recognize them as old structures. When mills close down the sites are cleared of as much as is possible. The

sites of earlier mills, where unlike today the area was not completely rehabilitated but retain evidence of footings and former structures, are fragile.

Similarly, at ports which handle sugar, when raw sugar handling progressed from bag to bulk, former bagged sugar facilities and associated structures were abandoned and dismantled.

Farm houses, cottages, barracks and mill houses of the period under study no longer offer the comfort and convenience expected in 20th century living and are being dismantled. Unless deliberate attempts have been made to preserve the character and style of the older style of house years of attempts to render them comfortable for present day living has meant that they have lost all identifying features, for example, roof line, and verandahs, making it very difficult to determine their age.

Those houses and cottages that are least changed in appearance, for example, those in the Mowbray Valley, are usually those that have been abandoned and are no longer occupied, or are those that are rented out. In both cases little or no maintenance work has been carried out and they are deteriorating.

Barracks in particular represent a way of life and work that is long gone. When the days of manual canecutting came to an end most barracks were left unoccupied and used as storage sheds. As weathering and abandonment took its toll they were finally dismantled. Sheds remaining, constructed before 1955, are similarly illustrative of a different time. Low roofed, with stalls for horses and a smithy they are entirely unsuitable for housing the large machines that modern tractors and harvesters are.

Other structures such as bridges, once abandoned for use, were either dismantled or washed away in successive floods. Bridges still in use on a site have undergone so much structural work they have no components left of the original bridge.

Other items such as derricks and gantries were dismantled once made redundant.

While it is acknowledged that it is imperative that examples are preserved to enable future generations to appreciate the life and work that was the sugar industry pre-1955 the mechanics of how to go about that are a little harder to establish.

Of the recommendations made, the most urgent are:

a) that the **Australian Sugar Industry Museum** be enabled to function efficiently and professionally;

b) that the **Pyramid Mill site** be thoroughly excavated and recorded,

c) that the **Gairloch Mill Site** be preserved along with the two remaining pieces of **plantation machinery**,

d) that the one remaining building on the **Ripple Creek Mill site** be preserved,

e) that approaches be made to the owners of **Oakleigh, Richmond** and the **Draper barrack** regarding their preservation,

f) that the nature and feasibility of **J. Reynolds and J.R.R. Connolly's proposal for the Mowbray Valley** be investigated in the light of preserving sugar industry structures,

g) that **registers of significant structures and collections** be established taking into account: a) age and historical significance; b) uniqueness c) representativeness and d) architectural style exclusive to a particular geographical area and/or era,

h) that a study be carried out of the concrete structures of North Queensland, particularly where they were built by Italian immigrants.

This project is timely for people are generally becoming much more aware of and appreciative of their heritage and the physical structures that reflect that heritage; and seeing the value in it, are willing to preserve some of that heritage for future generations.

CONCLUSION

The sugar industry is credited with the settlement and the development of the state, particularly of the northern region. Its labour has attracted people of many nationalities, both European and non-European. It has given rise to both a distinctive body of literature and artistic expression, and material structures and artefacts to serve its needs and the nature of the environment. These factors have determined not only the way of life and cultural experience of those living in the sugar farming communities of North Queensland but have determined the way the sugar industry is viewed by those in, and outside of the industry. While the other factors have all been acknowledged by writers of various disciplines the material structures and artefacts characteristic of the industry have not been similarly recognized and documented.

The aim of this project then was to survey and document extant structures and artefacts, and former sites of the sugar industry in use from 1872 to 1955; and to make recommendations for their listing, preservation and restoration where appropriate.

The area surveyed was that of the northern mill areas (from Ingham to Mossman) and the industry as it was prior to 1955 when mechanization was beginning to significantly change the nature of sugar cane cultivation, harvesting, handling and milling.

Never before has the Queensland sugar cane industry been studied from this perspective making this study one of particular significance. The industry has undergone

and continues to undergo drastic changes: conversion from steam to diesel and electricity; the demise of manual methods; the closing down of non-viable mills and the absorption of former land into suburbia. Structures characteristic to the industry are therefore fast disappearing. Consequently, the physical evidence so valuable as part of the historical record is lost and with it the understanding of the way the industry was lived and worked on a day to day basis in past times.

Once examples of structures and artefacts were located in each mill area, they were viewed, photographed and documented. The geographical size of the area surveyed was prohibitive both to making a thorough study of the entirety and to conducting truly scholarly field work. It was unavoidable that remarkable examples worthy of and even in urgent need of preservation/restoration were missed.

Structures and artefacts were photographed and documented because they were hoped to be representative examples giving some understanding of the way of life and the technology of the sugar industry in the period 1872 to 1955. A further much more in-depth study using a more scholarly methodology such as that used by Peter Bell in his work on the *Vernacular Domestic Architecture in North Queensland Mining Towns* (1979) would be required to establish whether those examples, of structures in particular, were truly representative of the period in which they were built. Even then however, the problem still remains that in making a study of standing structures "... the rarity of survival of the few early buildings which still stand implies some form of selectivity in their survival which further brings into question their value in representing the period on which they were built." (Bell 1979:21)

The recommendations made suggest that:

a) examples of milling and farming technology, particularly when these are already in collections, be preserved,

b) former mill sites are investigated further and preserved where appropriate,

c) urgent action be taken where structures are judged significant but fragile and at risk,

d) not only should a listing be compiled of structures and collections (of artefacts) that should be preserved but

e) supplementary listing should be made of examples of structures and collections (of artefacts) that are not recommended for preservation. Because they are, as Bell puts it, "certainly in need of recording in order that other [structures and artefacts] may be considered in context (Bell 1979:83).

Today the sugar industry is described as "one of the nation's most important primary industries ... with Australia one of the world's largest sugar exporters (Canegrowers 1991:1). Since 1872, however, the Queensland sugar growing industry has undergone many material changes. No more is sugar grown on labour intensive plantations and milled by numerous plantation owned mills. It is a long time since farm work was done by hoe and horse. No longer do gangs of canecutters flock to the canefields each season to live in isolated and primitive barracks. Any remnants of these changes and all the others that have occurred over this time need to be documented or preserved before they disappear forever. It is owed to the industry that has given Queensland so much to have its material culture documented. Future generations will then be better able to understand the origins of this great industry and the nature of the labour and way of life which characterized its early days.

APPENDICES

APPENDIX 1

SURVEY OF STANDING STRUCTURES - N.Q. SUGARCANE FARMING INDUSTRY TO 1955

DATE	GRID REF.	MILL DISTRICT

FARMER/OWNER	ADDRESS

ORIGINAL FUNCTION/AND CONSTRUCTION DATE

PRESENT FUNCTION/OR DATE OF LAST USE

DESCRIPTION	COMMENT

LOCATION PLAN	FILM ROLL NO. FRAME NO.

SKETCH PLAN	PHOTOGRAPHS

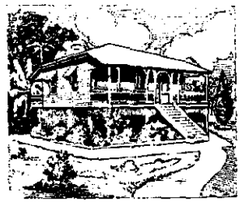
APPENDIX 2

Source: *The Producers' Review*, V. XL, N.1, November 15, 1949.

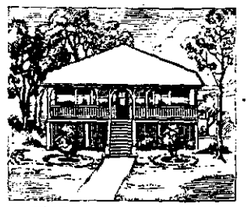
APPENDIX 3

APPENDIX 4

Build-to-Stay
The NEWSTEAD money-saving WAY!



THE "STANLEY"
£248 Ready-to-erect Newstead Home



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£298 Ready-to-erect Newstead Home

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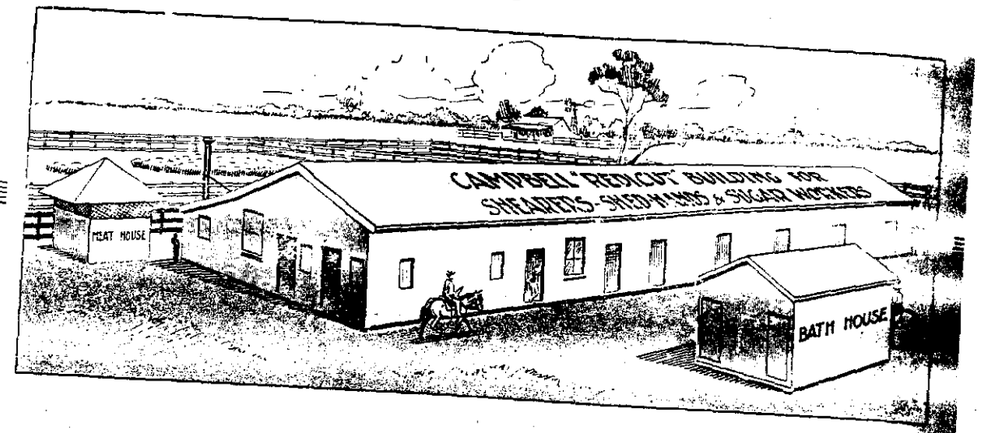
APPENDIX 5



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for Sugar Workers

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The Campbell "Redicut" Barracks

will lift all the worry from you. They are designed to accommodate from 6 to 40 workers and can be supplied at short notice. The framing is all cut to length, mortised, tenoned and marked, so you can put it together quickly and without the aid of expert workmen. Sufficient other materials, viz.—Galvanised Iron for walls and roof, Ridging, Nails, Doors, Windows, Locks, Hinges, Paints for the exterior, are supplied in ample quantities for the completion of the buildings.

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P. Collins	19 May 1992
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	K. Whereat	20 January 1993
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