

Modern Cane Railways of Queensland

Carl Millington's presentation at the Modelling the Railways of Queensland Convention, 2004

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These notes were written to give the reader an insight into the operations and equipment used to transport the sugarcane from the fields to the sugar mills over the vast narrow gauge railways used throughout the Queensland sugar industry.

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Part 1: Background

Sugar mills have two seasons. The crushing season (June-December) and the Slack season (January-May). During the crushing season mills employ extra workers, known as seasonals, to operate mill equipment such as the milling train and to crew their cane trains. During the Slack season mills do heavy overhauls of their plant and tramways.

The aim of all sugar mill tramways is to transport harvested cane from the fields to the mill in a quick and efficient manner. Harvested sugar cane needs to be crushed within 18 hours, so as to extract the highest possible amount of juice out of each billet of cane. Sometimes this can not be achieved due to mill or loco breakdowns and derailments.

Each mill has a cane inspector who determines which farmer's fields will be cut and how many bins are to be allocated to that farm on the day that they are cutting. This information is given to the traffic officer who issues a running or delivery sheet to the loco crews showing them how many empties are to be taken and where they are to be delivered. Several deliveries will need to be made to every siding to make up the allocated number of bins required for the day's cutting.

Loco crews collect their allocated empty bins from the empty yard or another storage siding, and head for their designated branch, dropping the allocated number of bins off at the sidings as shown on their running sheet. Some shuffling of bins takes place between sidings as required, generally after a period

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Most of these notes come from my experience in the sugar industry as an electrician and locomotive driver. All photographs used were taken by the author unless credited.

Although much research has been performed to ensure these notes are correct and accurate, errors and mistakes do happen. Any feedback, corrections or questions can be sent to cemillington@bigpond.com. Happy reading!

Carl Millington

of wet weather, where on farms that were to be cut on the day of wet weather, fields have become too wet to operate harvesting equipment when cutting resumes. During times of wet weather when cane cannot be harvested, loco crews are given jobs assisting navvies, loco shed staff or tasks within the mill itself.

Full bins are collected on the way back to the mill. Some mills have limits as to the number of fulls, that locos can bring back to the mill, due to grades, passing loops and the mill's full yard capacity. This means that a crew will pick up all the full bins that they can and take them to another siding or outer yard where the rake is then split into a suitable number to enter the mill.

Most branch lines only have one loco that will occupy it during a shift, making controlling or tracking of locomotives easier. Two locos may use the one branch on the same shift, with one loco working all the way out to the end and the other working part of the way, to speed up the delivery of empties to the farms and fulls to the mills.

To control the movements of trains over each mill's tramway system mills employ Traffic Officers. Traffic Officers give authorization to locomotive crews to depart or enter designated sections on the system. Communication between locos and the traffic office is done by two-way radio. Several mills have introduced Global Positional Satellite (GPS) tracking

to their fleet so quick reference can be made to the location of locomotives.

Several mills have small servicing depots located at a point where there are many branch lines radiating from the base of a fairly long main line. At these "out depots" you will most likely find fueling and sanding facilities and a small servicing shed. Several locos, normally one of the mill's smaller locos like a ComEng or small bogie Baldwin, will be based at these out depots for the duration of the crush. The crews that operate the locos based at these out depots, generally live close by. At the end of the crush the locos are returned to the mill for storage and heavy servicing.

Locos at out depots take empties from an exchange yard out to the branches and bring fulls back to the exchange yard. One of the mill's bigger types of locomotive, i.e., large bogie Baldwin, DH or Eimco, is used to take empties or fulls between the mill and these exchange yards. An example of this arrangement is South Johnstone Mill's Japoon line where an out depot is at Silkwood and Bingera Mill's Wallaville line.

Billets of chopped cane are tipped into the cane bins by several means.

- There is the roll-on/roll-off method where the bins are rolled onto the back of a trailer towed by a tractor which then parallels the harvester in the field while cutting the cane and conveying it into the bin at the same time.
- Another is infield loaders. These take the form of tractors towing a bin, which tips the cane directly into the bins at the siding.
- Transloaders are used by trucks, be they semis or rigid fitted with a bin. The truck backs up to the top of the loader and tips its load out onto a conveyor belt. The driver or transloader operator then fills the bins as they are moved under the transloader by a series of pulleys and cables.
- Several mills have semitrailers that carry a number of the mill's bins from a dump point to an outer area not covered by the tramway. An example of this is the cartage of cane by truck from the Booyal area to the Adies Pad near Isis mill.

Most mills operate four working shifts, with three shifts working all the time. Each shift works eight hours each day normally starting at 8 a.m., 4 p.m. and midnight on a seven-day roster depending if the mill is on a continuous crush or a five-day crush. Some mills have loco crews start and finish earlier so as to be able to deliver bins to farms that are at the end of very long lines. For example Invicta Mill's Dalbeg line whose terminus is 100 km from the mill and a one-way trip takes approximately four hours.

During the slack season heavy overhauls of locomotives, cane bins and the perway (permanently

way) takes place. To maintain the perway mills have a variety of track maintenance wagons and machines, like ballast wagons, weed sprayers and track tamping machines. A lot of these wagons have been made by the mill, from old cane frames and locomotives.

Out of the 26 sugar mills in Queensland (as of 2003), 22 of them use two-foot gauge tramways to transport their cane. Out of the other four, Pioneer mill uses the gauge of 3' 6" for their tramway and the other three mills use road transport.

Many mills in the same area are owned by the one company, and their tramway systems are linked. This not only allows locos from another mill to be transferred to cover a breakdown it allows cane from one mill to be taken to another to be processed when the mill has a breakdown. Locomotives coming from one mill network to another simply change radio channels at the network boundaries. As one mill's crews don't know the other's network, maps are carried in the locos.

Only one mill has a mixed or dual gauge track with Queensland Rail, this being Kalamia Mill near Ayr. QR operate bulk sugar trains over the branch from Ayr to the mill, while the mill hauls QR molasses wagons, using their two-foot gauge locomotives. All traffic over the line is controlled by the mill's traffic office. Only one gauge type of train can occupy the line at once due to safety reasons. Sidings along dual gauge lines are spread further away from the main line to take in QR's loading gauge.

QR operates bulk sugar trains along this branch with their own locomotives. Molasses trains are hauled from an exchange yard by one of the mill's two-foot gauge locomotives fitted with train line air brakes. A match wagon converted from an old steam loco tender is placed at either end of the rake to match coupling heights and types.

The other mixed gauge mill is Pioneer, who operate a 3' 6" gauge network that shares several kilometers of dual gauge track with Kalmia and Invicta mills who operate a two-foot gauge network.

It is interesting to note that most mills, past and present, once had dual gauge tracks around the mills; some even operated both gauges.

Over the years the sugar industry has looked at ways of making their tramway operations more efficient. These methods have put into place things like upgrading track to suit higher speeds and heavier loads, using remote control locomotives placed mid-train to move bigger loads, installing automatic points to save on wear and tear of the locomotives and rollingstock.

Several sugar mills have main line tracks that are just as good as their bigger cousins.



Moreton Sugar Mill's EMB bogie locomotive *Coolum* leads a rake of cane through Bli Bli in 2002.



Isis Central Sugar Mill near Childers, June 2001



Mulgrave Sugar Mill locomotives go about shunting the mill's full and empty yard in 1998.



Invicta Sugar Mill's *Scott* brings back the last cane from the Dalbeg area for the 1999 season



Infielders lined up ready for the next day's work, Maroochy area 2003



Moreton Mill's *Petrie* and *Maroochy* together with *Jimpy* stand at Jamaica with a work train, December 2003.



Kalamia Sugar Mill locomotive *Airdmillan* lifts a rake of QR Molasses wagons out of the exchange siding at Ayr. The wagons at each end of the train are match wagons.