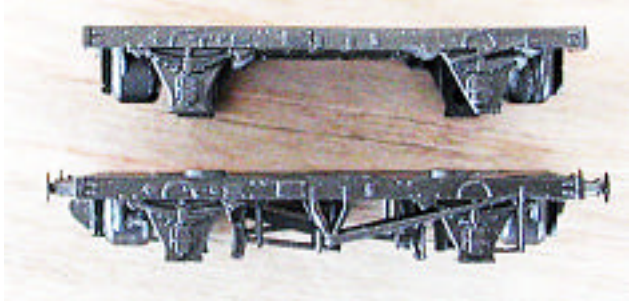
Kitbashing Freelance Wagons/Bins

Scratch-building is fun and challenging but it can also be time consuming and doesn't always result in the same operating quality as a commercial model. This note begins by describing the process of turning a standard N gauge wagon chassis (Peco, Roco, Egger, Jouff, etc.) into a HOn30 (1:87) cane truck or wagon, avoiding the complexity of modelling and positioning wheel bearings, etc. It follows with my experiences scratchbuilding wagons, etc.

Chassis Kit: I'm primarily using a wood type solebar wagon chassis kit (Peco NR-123). With a 10' wheelbase in N scale, it makes a ~10 3" long HOn30 wagon with a ~6' 6" wheelbase and an N gauge (often Kato) coupler in the pocket. This is too long for a wholestick cane truck but makes a good four wheeled flat or maintenance of way wagon. Peco also has kits for longer wagons and several other manufacturers have comparable kits.

While I haven't yet found a suitable source, I've been assured that comparable chassis kits are also available for On30 use.

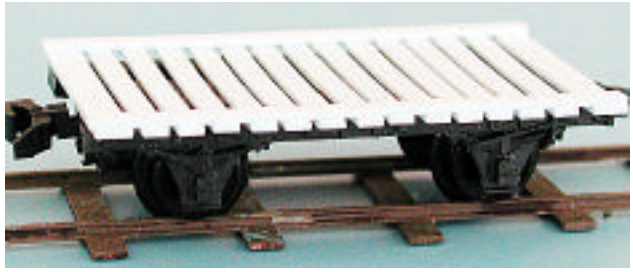
Cane trains depend upon the locomotive brakes for stopping, thus we need to remove the cast-on brake rigging. As well, the N gauge buffers are too small for a HOn30 model and must be removed.



The 'before' model above shows the Peco chassis as delivered; the 'after' model has the brake rigging and buffers removed. While I apparently got a bit too enthusiastic with the nippers on one bearing box, this won't be so obvious on the finished model.

The Deck: The simplest deck would likely be a piece of .010" or .020" styrene with an edging of styrene angle stock to represent a welded-on edge fixed to the top of the chassis with a standard styrene-type cement. The angle would likely be fixed on top, forming a shallow basin which would prevent tools, etc., from falling off in transit.

A wood deck can be represented with HO scale styrene stock. This deck has scale 2 x 8s at each end and 13 more-or-less evenly spaced 2 x 6s between with a 2 x 6 running lengthwise on each side (a 1 x 6 might be more prototypical). The metal weight from the Peco kit has not been used as the wagon will have a load.



Loads: The wagons can be used in almost any kind of cane railway service, including carrying cane. The two wagons below have been freelanced but are generally based on photos of actual equipment.

The molasses tanker was kitbashed from half of a Cooper Craft (OO) lorry tanker. The ends are capped with .080" styrene sheet glued, trimmed and sanded to shape, leaving the kit ends for a second tanker.

The hatch detailing is from the tanker kit. The drain pipe was formed from styrene rod and tube shapes with a N scale buffer as the valve.

The cradle is four wedges cut from scale 4 x 10 and glued to the deck. Wrap a piece of fine sandpaper around the assembled tank body as a sanding block to form the curved shape.

The tool and crew wagon chassis/deck is essentially the same as the molasses tanker, except it lacks the longitudinal timbers on the outside of the deck top.

The body is framed with scale 2 x 4, 2 x 6 and 4 x 4 styrene stock and generally follows accepted construction techniques. The bench is fixed to the centre wall and corrugated metal sheets will sheath the walls for safety and security.

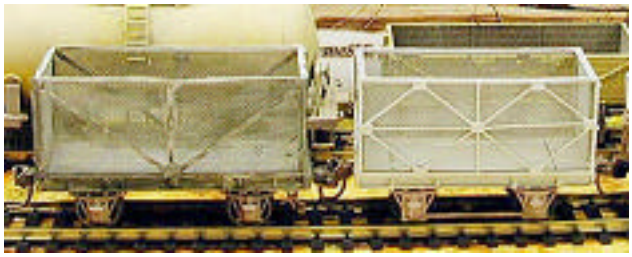
The wagons, figures and load (barrels, track jack, coal hod, etc.) were hand painted with acrylic paints (base coat of light gray), then weathered using dry brush and wash techniques.

I'll eventually add the word 'molasses' and a number to each side of the tanker using decals or press-on lettering but the crew wagon doesn't necessarily need any lettering.

Representative Cane Bins

Most of my HOn30 cane bins are Bob Dow's ready-to-run or kit models which are no longer available. Others are on order from Tom Badger as these notes are being written but they haven't yet arrived.

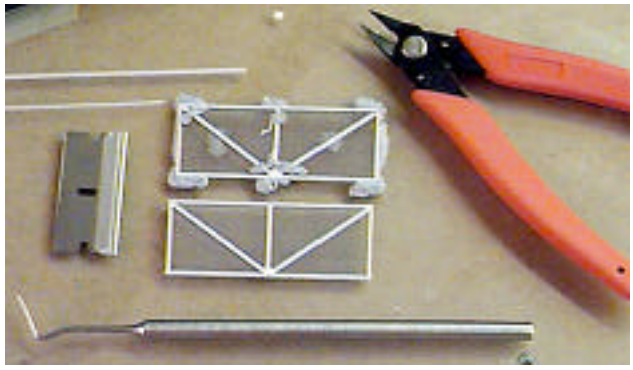
The two bins which follow are the result of a challenge by my local hobby shop proprietor to build a representative cane train for novice modellers from standard HO components. They served the purpose and similar techniques can be used for more prototypical bins on a scratchbuilt underframe similar to my whole stick truck or on a commercial chassis as used on the wagons on the previous page.



One bin uses a Camco 4 wheel NSWGR CW Cattle Wagon as its base, the other a Silvermaz 4 wheel NSW CCH Coal Hopper. I could have used almost any HO 4 wheel wagon frames, or scratchbuilt a frame similar to the wholestick trucks, but I had some otherwise surplus kits in my cupboard.

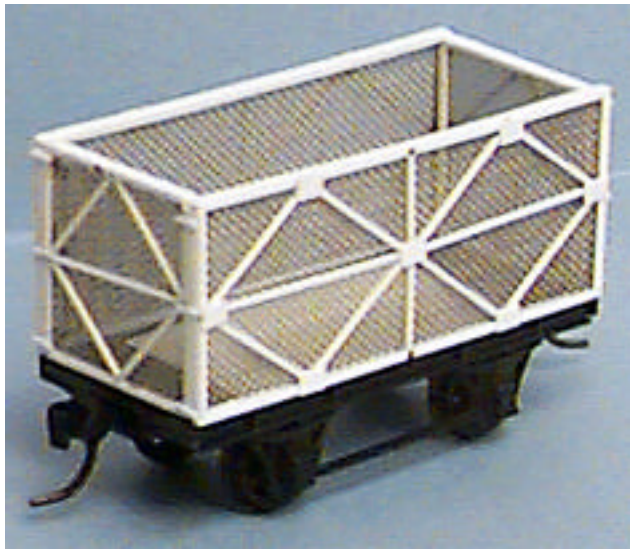
The first step with both bins was to discard unneeded components, carefully cutting to save end sills, etc. Flash was removed as required, brass wheel bearings installed, the underframe assembled and glued, and Kadee couplers installed.

While cane bins don't normally have brakes, I decided to install the supplied brake fittings as these wagons will be operating on a standard gauge railway. The standard gauge wheelsets result in the models sitting roughly 30" off the track rather than a more realistic ground-hugging narrow gauge height.



The bin is constructed from styrene shapes and stainless steel mesh (40 mesh size). The two sides and ends are constructed alike, a rectangular frame made from 3" x 6" channel (shallow 'U' shape) encloses the mesh, with scale 2x4s for the braces (vertical and diagonal), 1x8s for the reinforcing plates and 1x2s for the end latches.

The larger bin (18' x 8', 6' 6" high) has two different ends, representing the common cane railway practice of repairing a damaged bin with whatever parts are at hand, even if they don't quite match.



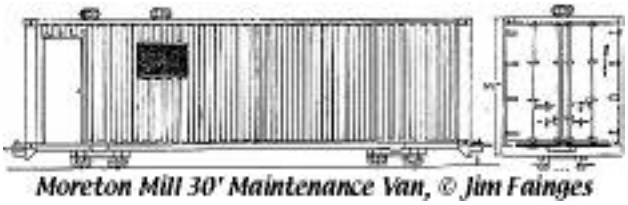
The construction of the cane bin on the second wagon (above) was similar, albeit shorter and with a different mill's pattern. The main bracing uses scale

2x2s, with 1x8s for the reinforcing plates and 1x2s for the end latches.

For comparison purposes, the bin on a Moreton Mill 4 ton bin is 9' long, 8' wide and 4' 6" high with the top of it's chassis 1' 4" above the rail.

Maintenance Van

This model started as a standard TES 20' container and is roughly modelled after a 30' Moreton Mill maintenance van (drawing below).



Prototype for a similar 20' container now used as a backyard shed. Note that the flat area on the side is not door width, thus the need to extend into the ribs.

The interlocking pins from the bottom corners of the container were removed, the bottom frame sanded flat and buffer/drawbar components added using styrene shapes fitted around the couplers.

While it isn't clear from the photos, the underframe is a scale 4 x 12 x 65 mm (to run the full length from coupler to coupler) with additional lengths of 4 x 12 x 20 mm at each end to form the bolster. The bogies are located 18mm from the end in the construction photos but were relocated to 12 mm from the end to improve operation..

A hole was cut in the body and the side door and frame fabricated from styrene angle and sheet. The roof vent is an 8 mm square of .010" styrene and with a 'sculpted' HO buffer for the rain cap. The side vent is scale 1 x 2s cemented horizontally between the vertical ridges of the side.

The finished model has been painted (primer red, flat aluminium, etc.) and weathered (messy repaint with a lighter colour, dirt and rust).

The finished van needs additional weight and careful adjustment of the bogies for good operation.

Sugar Box and Underframe

Since most of Australia's sugar is either exported or shipped to larger cities for refining and distribution, the raw or refined sugar must be transported from the mill to market. In Australia and other nearby sugar growing countries this often means a short rail or truck movement to a nearby wharf and then by sea to export markets.

A sugar train at the wharf (above).

In the earliest days sugar was bagged and moved to the wharf by horse or steam power, either in a low-sided wagon or flat. This model represents an early narrow gauge bulk shipping wagon and utilises a *Queensland Outline Miniatures* (*QOM*) casting of a

CSR Victoria Sugar Mill sugar box on a scratchbuilt timber underframe. The sugar is loaded from the top and one side of the box opens for tipping/dumping.

A mishap with a train of loaded sugar boxes shows the underframe. Sugar is loaded from the top. The boxes are hinged to the wagon along one side so that they can be tipped for unloading. The doors ore on one side only and are hinged from the top (note the wagon closest to the locomotive above) so that the sugar can be dumped.

This longer wagon (above) is similar to the prototype for my model and has painted braces and fittings, likely indicating that they are of untreated iron, rather than the rust resistant materials used on newer wagons.

QOM's notes indicate that Victoria Mill used a 2' gauge 15' x 4' 8" timber underframe with bar frame bogies. I've widened my model to 5' 4" with a 6' wide deck to accommodate 2' 6" gauge archbar bogies (Micro-Trains 1011) and my modelling needs. I decided not to model the truss rods as on the photo above, however they would be required if I was modelling a three hatch box on a 20' timber frame.

The deck of my underframe is Evergreen scribed styrene (21 x 52 mm, .040" with .050" spacing) and simplifies the construction. The deck scribing has been continued along the edges (notched with a blade) to represent a timbered deck. The frame sides are scale 6 x 10 x 15' scale feet (52 mm) long. They are separated by two scale 6 x 10 x 16 mm.

The underframe ends are scale 4 x 10 x ~5 mm (cut to fit the coupler boxes). The centre beam/bolster is scale 8 x 12 x 12 mm with the bogie holes located by eye (11 mm from end) after the couplers were screwed in place.

The box was repeatedly washed (to remove casting residues), repaired (missing brace sections added), painted (gray undercoat, white wash and rust-brown bracing/fittings) prior to attaching to the deck with epoxy. The under-box braces are styrene channel shapes cut to fit along the deck and epoxied in place.

I've also built a similar wagon using a N gauge 15' four wheel wagon chassis kit (Peco NR-122). This isn't prototypical but the chassis kit is less expensive than the bogies and the resulting model looks acceptable running on my demonstration layout.

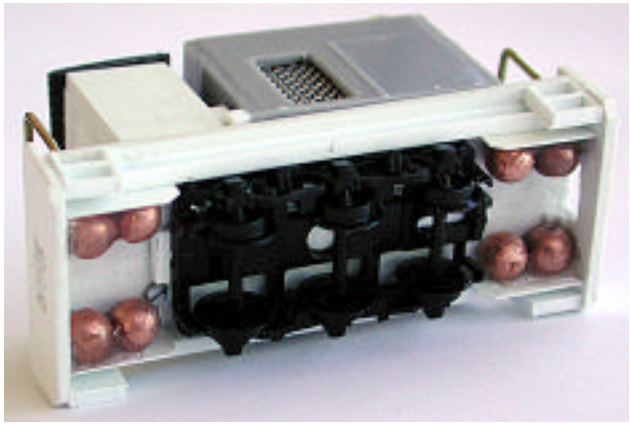
I now have several photos of steel underframe sugar boxes and my next model will likely be steel rather than timber. Among other things I'll do differently is to epoxy a piece of .005" styrene sheet to the bottom of the sugar box to eliminate the need to epoxy other components (under-box braces, etc.).

Brake Van

Prototype brake vans vary considerably. What they have in common is a heavy weight, often the result of being built on an old locomotive frame, and radio controlled brakes operated from the locomotive. A yellow flashing light is also common and can be hidden inside even an HOn30 model.

Compare the brake van (above), built on a locomotive-type frame similar to the locomotive pulling it, with the bogie brake van (below), also using a locomotive-type frame.

The model here represents a brake van constructed on the frame of a scrapped 0-6-0 diesel locomotive and features a flashing light using a Circuitron N scale (FLN1/1023) yellow strobe flasher. See also Greg Stephenson's brake vans in an earlier section of these notes (4: Modelling).



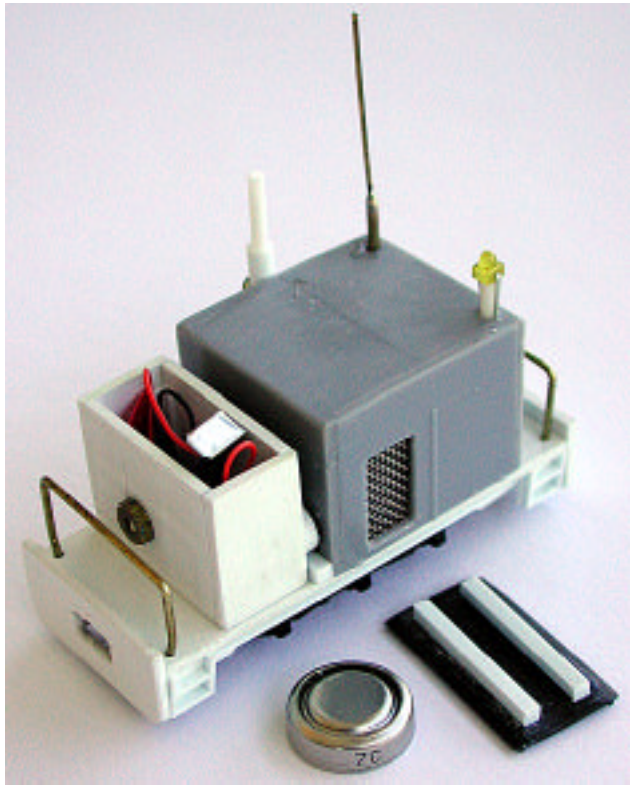
The weight-providing B-B shot is obvious; not so obvious are the three screws holding the deck structures in place.

The basic construction is the same as for the Jenbach locomotive frame (8: Modelling the Bundaberg Jenbach 0-6-0 Diesel) with a sheet styrene deck and end buffer plates. The underbody is a Micro-Trains six-wheel passenger bogie, shimmed with styrene to make the correct height for mounting the couplers. Styrene channel, etc., is used to block the view under the floor and achieve a heavy locomotive frame appearance. Steps on each corner add to the ex-locomotive appearance, as do the handrails formed from brass wire. Eight 'B-Bs' from the scrap box were epoxied under the deck to balance the off-centre weighting of the flashing light circuit and battery.

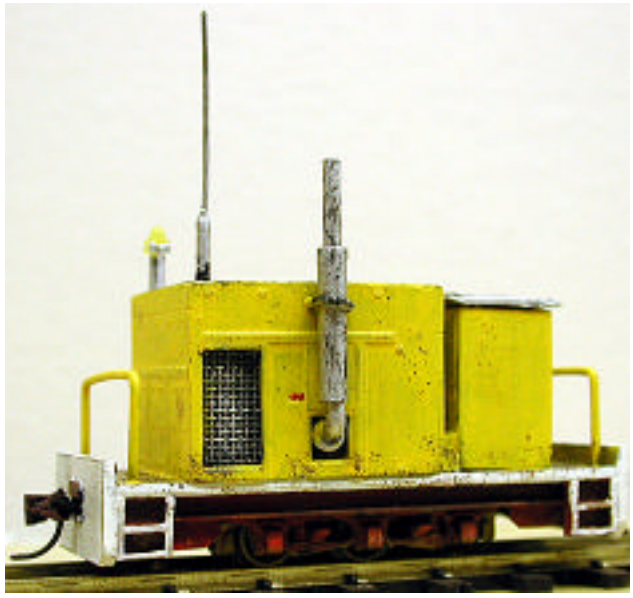
The larger equipment housing contains the flasher circuit and is adapted from the compressor in a Hasegawa 1:72 scale aerospace ground equipment set. Hoses and related details were discarded and an exhaust pipe with muffler (styrene tube and rod, rod bent to shape with a #62 hole drilled in end to represent pipe) added as well as cutouts for the ventilation grills (steel mesh). This housing just fits on the deck, resulting in the exhaust pipe and muffler hanging over the side.

The metal tube containing the flasher circuit just fits from one bottom corner to the opposite top corner inside the housing. The flasher LED fits along a piece of styrene rod extending into the housing for added strength. The radio antenna is a piece of brass wire soldered into a brass tube and likewise extends into the housing to minimise the potential for breaking.

The smaller structure houses the 1.5 volt #386 silver oxide battery and 'switch'. It's styrene with a removable 'corrugated iron sheeting' roof cut from a NSW wagon roof left-over from a kitbashing project. The blob on the rear is the nut and cutoff bolt which serves as one terminal post for the battery. The other wire to the battery is soldered to a nickel silver track joiner which is pushed into the space between the battery and housing to activate the circuit. The removable roof holds the battery and wires in place for operation.



Bracing between the two equipment housings interlocks to hold them in relative position when screwed from below to the base (floor) with Micro-Trains coupler screws.



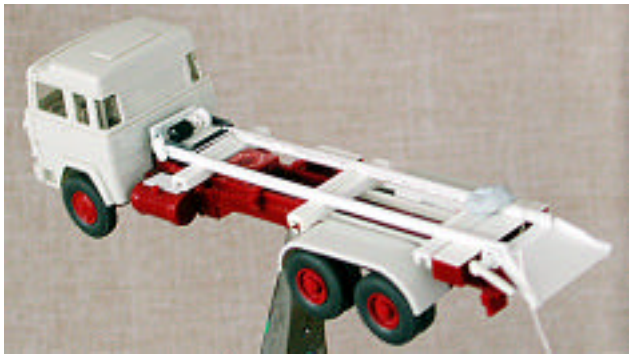
Components that appear oversize are a compromise for strength, rather than appearance. Probably the greatest compromise, however, involves the use of N scale couplers, resulting in too large a distance between units.

This brake van is really too heavy to operate well at the end of a long rake of lightweight bins. However

its flashing light guarantees interest and demonstrates that it's (just barely) possible to include an operating flashing light on a HOn30 brake van.

Bin Transporter

Bins are transported from field to track transfer point (or all the way to the mill in some areas) on everything from single bin trailers (like those used to haul a small boat) hauled by a tractor or ute to purpose built transport trucks.



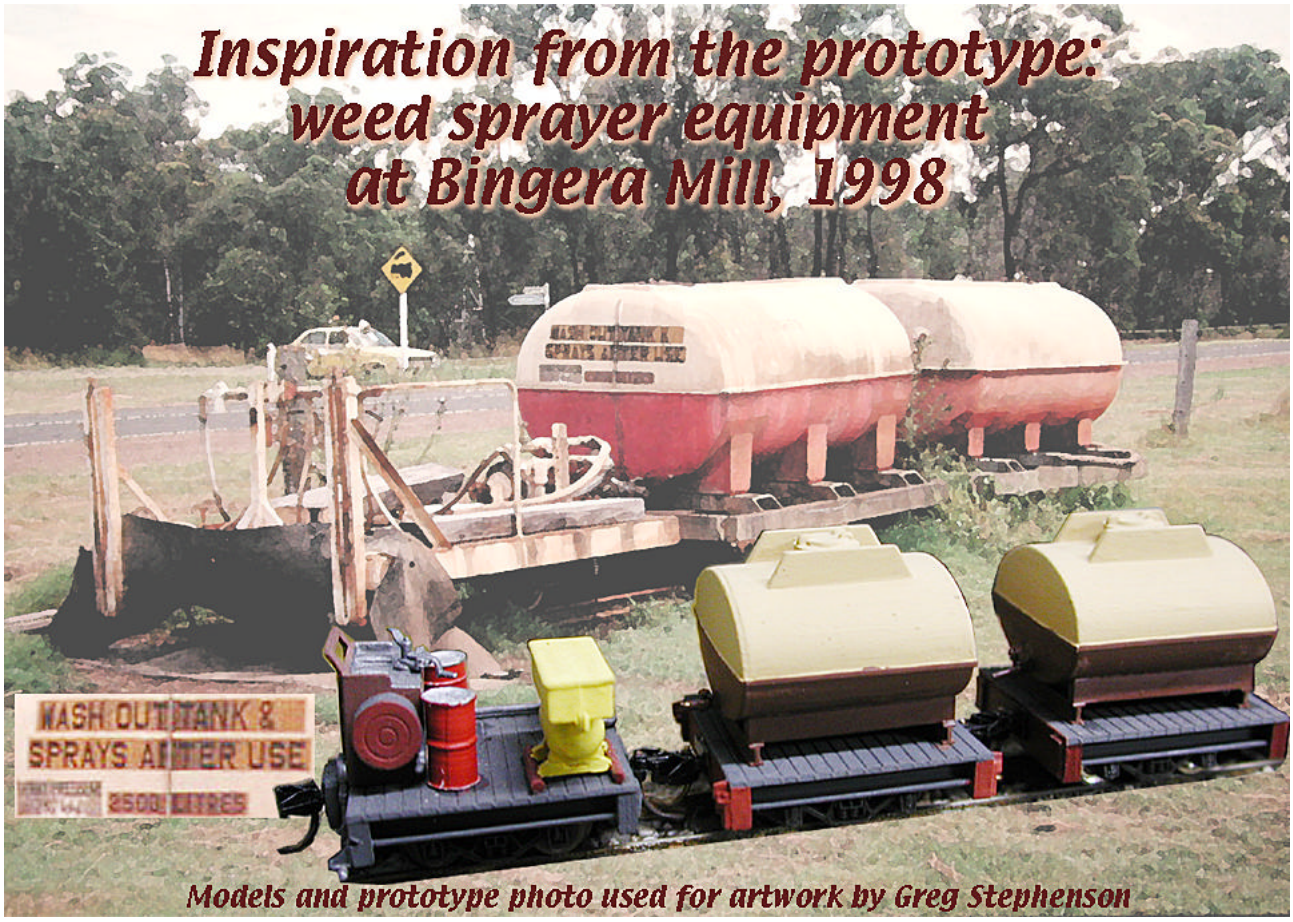
This model represents a medium-sized truck with a winch and rails for hauling two bins. It would likely be long enough for six ton bins except for the oversized couplers on our models. It's actually a HO left-hand drive unit, but the steering wheel isn't readily visible. It had a long box with 'canvas' top; the box was discarded and fittings removed.

The fittings on this model are totally freelanced as I didn't even have a suitable photo to work from. However, I've seen several such trucks while travelling in cane areas and have photos of several cane trailers.

The winch is fabricated from styrene shapes and a piece of sprue sculpted to shape. The winch cable is a single strand of 'metallic' embroidery thread. The 'rails' and 'pan' are fabricated from styrene sheet and shapes.

The model was ready for painting when I realised that no self-respecting cane farmer or contractor would have a truck that didn't have bull bars, thus the styrene fabrication on the front of the vehicle.

The Poison Train



Greg Stephenson's models appeared in an earlier section (4: Modelling) but are worth repeating here as another illustration of scratchbuilding inspired by the prototype.