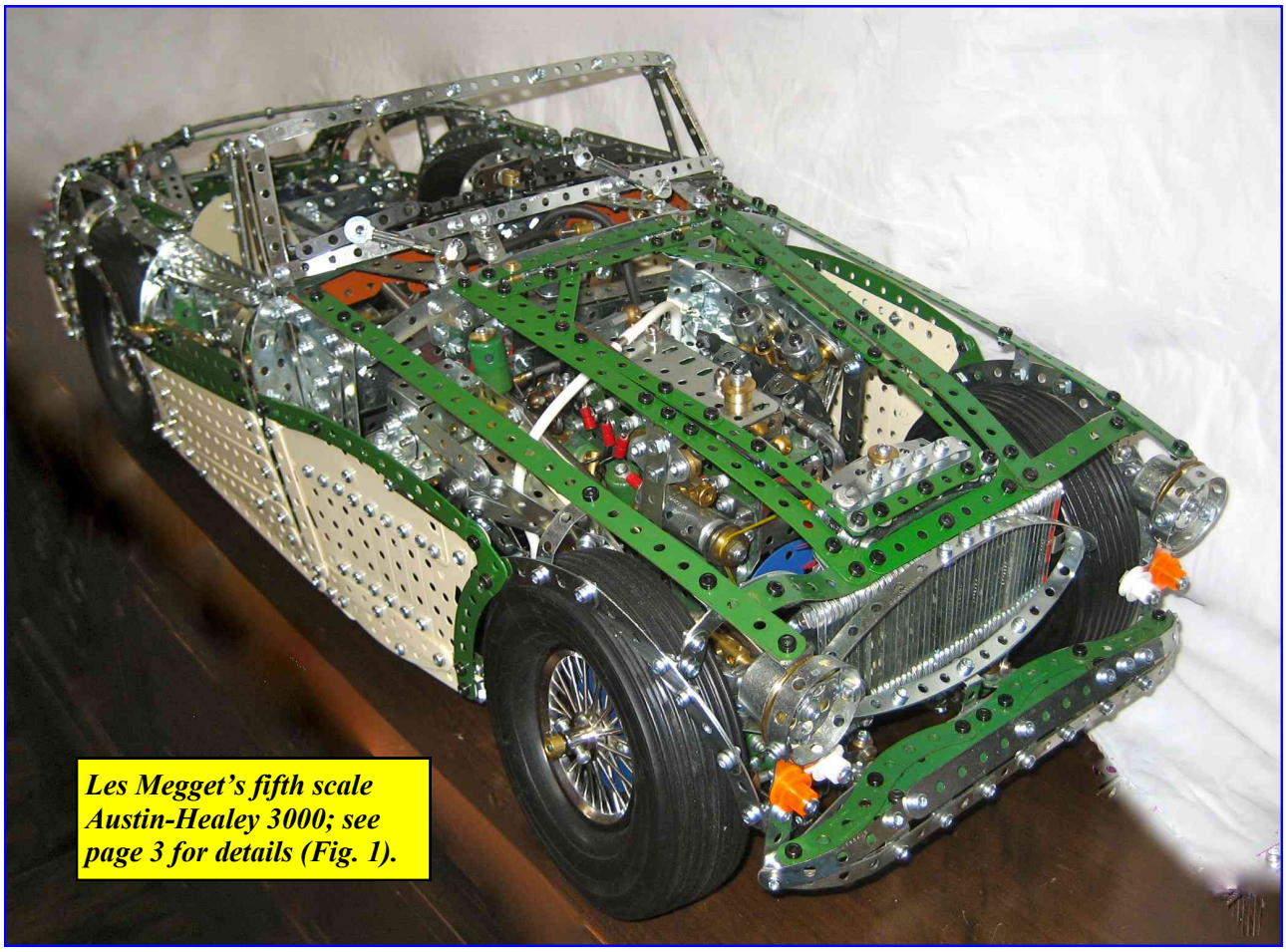
NZFMM MAGAZINE

Volume 38, No. 1 February 2014



Les Megget's fifth scale Austin-Healey 3000; see page 3 for details (Fig. 1).

Meccano Bedside Lamp, see p16.

Included in this issue:

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Letters are welcome and may be sent by post or by email. The author's name and address must be supplied. Publication of letters will be at the editor's discretion.

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Yet Another Year

So 2014 started with the usual questions such as "What will the new owners come up with to satisfy the world's senior Meccanomen? Well the answer may be more Multimodel sets and certainly new Evolution models, which aren't as complicated as the larger 2013 helicopter and truck-crane. I'd certainly like to see a smaller range of colours used with the same red and yellow as earlier, so more of the parts from modern sets are compatible. At the recent London Toy Show there were no new *Rabbids* or *Gears of War* sets on show by *Meccano Ltd*. Now that seems to be a step in the right direction with *Spin Master* promising to get back to basic Meccano.

James May's TV Toy Stories show about his Meccano bike + sidecar which travelled around the 34 mile Isle of Man TT circuit in September has recently been seen on BBC TV. I've seen it via the internet and most entertaining it was too. Don't miss it if it is shown in NZ in the near future.

Our own **March Madness** is on over the weekend of 8-9 March in Taupo. Don't forget to book a motel before heading north or south. See the November issue for details of the model locomotive competition.

Stan Baker is well into organising the 2015 Easter Convention to be held at *Te Papa* in Wellington. His first information sheet can be found on pages 7 and 8.

Keep those articles rolling in and my thanks to those who submitted articles in this issue, namely **Grace Pluck, Henry Porter, William Irwin, Stan Baker, Jeff Clark and Peter Hancock.**

Note that the annual subscription is now due. The overseas rates have been amended slightly upwards. Our thanks to **Bob Prescott** who has retired as Treasurer and the position had recently been filled by **Peter Hancock**.

LM

Contents

AUSTIN-HEALEY 3000 Mk 3

by Les Megget

Prototype: The *Austin-Healey 3000* grew from the original "Big Healey", the A-H 100 and 100/6 in 1959. The 100 had a 4 cylinder 2.6 litre engine but the 3000 had the C-series 6-cylinder 2.9 litre engine of the big Wolseley 6/110 and the Mk3 was the final incarnation of the breed. The BJ8 as it was officially called by BMC had wind-up windows, rather than the earlier side-screens, a timber veneered dashboard and front disk brakes. The Mk3 was introduced in 1964 and the final few were produced in early 1968. In all about 42,000 were produced with something like 90% of those going to the USA. The total number of Big Healeys produced was about 72,000.

The 3000 was a very successful rally car for BMC. The competition department "souped up" the standard car a bit with rally-tuned engine, stiffer suspension, an exhaust system with increased ground clearance and rear disk brakes. It won many international rallies, some driven by Stirling Moss's sister, Pat.

Meccano Model: Most Healey 3000s left the factory at Abingdon with the wire wheel option (15" diameter, 4.5" wide rims), so it seemed obvious to use the Ashok wire wheels (3" diam.) which I'd previously used on my Bentley Special Coupe. That fixed the scale at 5:1, see Figure 1, front cover.

Chassis: The Healey has a ladder frame chassis made from rectangular sections welded up from fairly thin plate C-sections welded top and bottom. There is a cruciform bracing behind the gear box and overdrive, with cross members in front of the engine and behind the rear axle, see Figure 2. The depth of the longitudinal members is reduced where they go *under* the rear axle. My model uses Angle Girders and long Flat Girders to form the C-shaped long members. There are tapered chassis extensions outwards in front of and behind the door shut faces, to which the inner and outer sills are welded.

Transmission: A mock up of the engine block and sump hides a large 12V motor which drives a single plate clutch, a 5-speed gearbox to the solid rear axle. The prototype has a 4-speed gearbox with or without an optional electric overdrive unit working to 3rd and 4th gears. I did try to model the epicyclic overdrive unit but there isn't enough length to fit it in, so I fitted a 5th speed instead. The gearbox is controlled by the neat and precise selector mechanism devised by Guy Kind for his Mini described in CQ55.

Suspension: The rear suspension comprises simple (cart) leaf springs with anti-tramp rods in the BJ8 with Armstrong lever arm hydraulic dampers. I used Couplings to represent the body of each shock absorber with Short Crank arms and short Axle Rods articulated to the top of the rear axle.

The independent front suspension units comprise top and bottom wish-bones where the top wish-bones are the arms of the lever arm shock absorbers (bolted directly to chassis upstands). The bottom unit has a steel plate recessed Trunnion shaped piece which bolts to the bottom cast suspension arms. This plate holds the coil spring in place. I had to use non-Meccano springs here (from *Mitre 10*) as Meccano ones are too small and definitely not strong enough. Fig 4 shows a front suspension unit.

Engine: Many of the ancillary items bolted onto the engine are represented namely, distributor and spark plug leads, generator driven by the fan belt, water pump and fan, starter motor, two 2" SU carbs and inlet and exhaust manifolds. See Figure 3 for more detail.

Exhaust: I've represented the convoluted exhaust system using plastic tube for the pipes and long Sleeve Pieces for the 4 mufflers. The rear 2 are across the car under the boot on the BJ8 with the tail pipes (2" long Hollow Large Axles) protruding from the right hand side, (Figure 2). There was some tricky bending required for the pipes to pass the rear suspensions pieces. The front mufflers are just under the passenger's seat and you never have to use the heater in a Healey because of the engine heat near your feet and hips and the exhaust under the seat. The gearbox and rear of the engine are only covered with fiberglass molded cover, which is screwed to the floor panels.

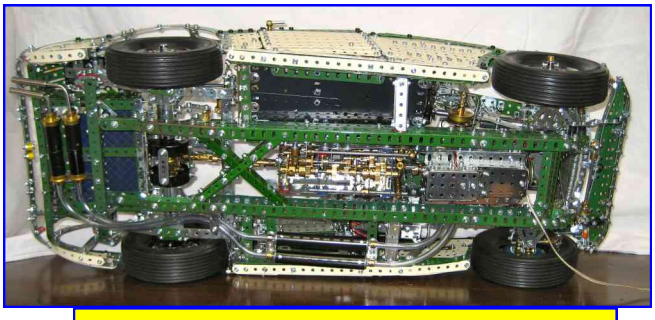
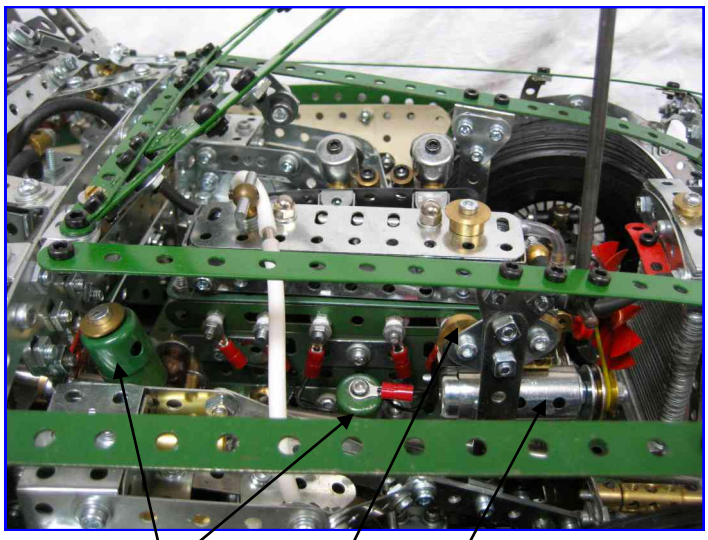


Figure 2: Healey from below showing chassis.



Distributor
Twin horns
Generator & Coil
Clutch and Brake reservoir

Figure 3: Engine bay.

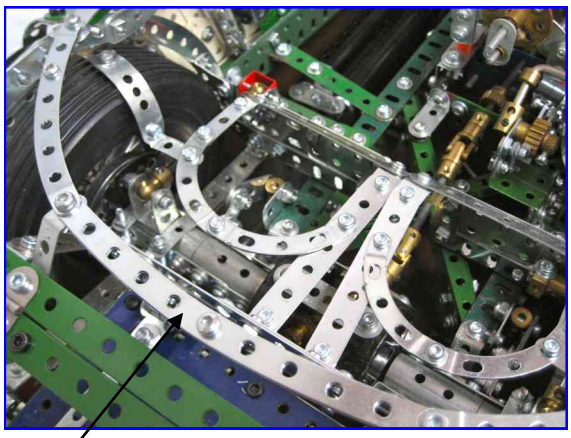


Figure 5: Rear seats & Suspension.

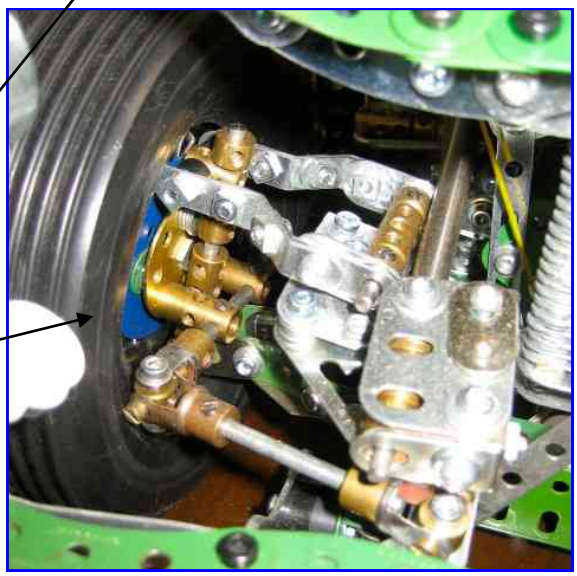
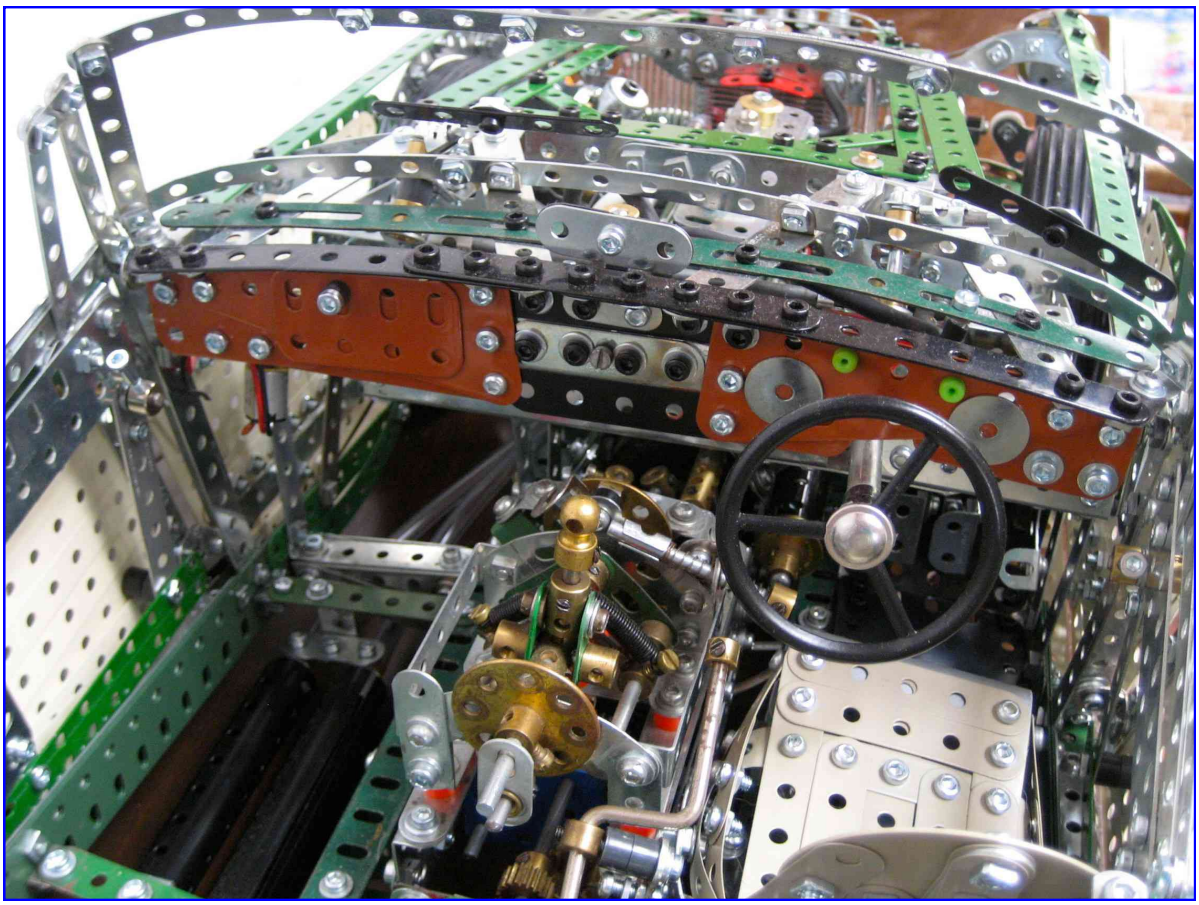


Figure 4: Front Suspension and steering box.

Figure 6: Car interior showing "timber" veneer dashboard.



Petrol Tank: The rectangular petrol tank was made from Blue/Gold Flexible Plates (cross hatching inside) and it sits on the rear chassis members and is held in place with 2 hinged steel straps (Narrow Strips), which are bolted through the rear shroud below the bumper.

Steering: The steering shaft is straight without universal joints, so if you hit anything head-on in a Healey the steering wheel is thrust into the driver's chest! I used a 11.5" Axle inside a long hollow

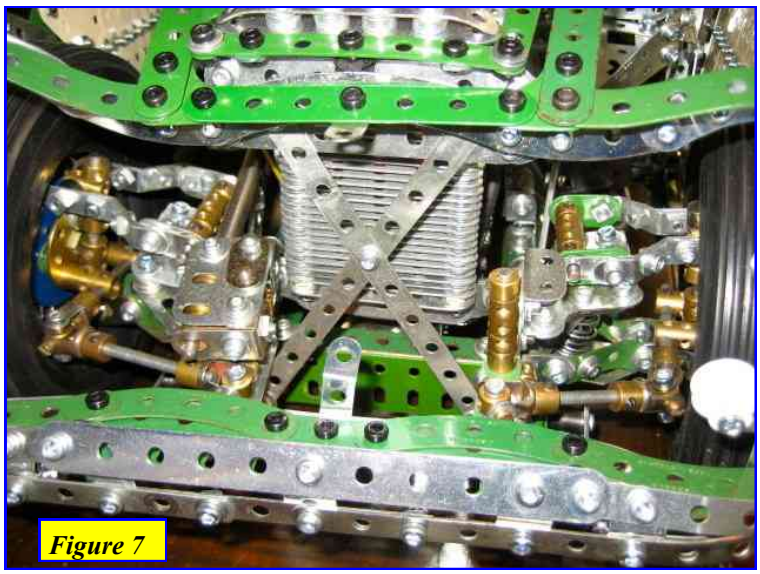


Figure 7

$^{5}/_{16}$" diam. Large Axle (from Stan Baker) with a Worm and 19t Pinion to represent the worm and peg steering box. The steering linkage to the wheels is quite complex (see Figure 7) and there is little space to fit it all in, as is the case on the real car. With all those "ball" joints the steering is fairly sloppy using conventional Meccano.

Brakes: I haven't fitted brakes to the model although the front disks are represented by 2" diam. Circular Plates and Wheel Flanges as the rear brake drums. I've included a handbrake lever but gave up trying to model the actual lever which has a button at its end which releases the sprung ratchet pawl. The brake servo unit is represented inside the right front guard. A hanging brake pedal is provided, as is the clutch and accelerator pedals. Long Threaded Couplings represent the clutch and brake master cylinders which are positioned high on the driver's side at the back of the engine bay.

Body: The prototype's body is really a big Meccano set with the front and rear guards being bolted to the front and rear aluminium shrouds, which in turn are bolted to the inner steel guards which are welded to the chassis. I made the decision early that this model would have a skeletal body so that you could see all the mechanical bits and pieces.

There is a prominent swage line pressed into the guards and doors which runs from the top of the front wheel arch and finishes just below the bumper line at the rear. This proved the most frustrating aspect to model correctly. The actual line is a very slight curve and I've had about 5 attempts to get it to look about right using large radius Curved Strips and Perforated Strips. Many Healeys were painted 2-tone using the swage line as the boundary between the contrasting colours. Our BJ8 is painted British Racing Green (BRG) over cream and I wanted to fashion the model similarly. The cream coloured pieces in the recent *Tintin Galleon set* were perfect but I needed 3 of those sets to get enough parts for the model's 2 sides! As fate would have it *Toy World* had a half price sale of Tintin sets at the time I was building the model. The BRG was represented by medium green Strips; a good match, see Figure 9.

The heavy doors have latches which slide rods into a stack of Fishplates on the rear shut faces. I haven't modelled the opening windows or the opening quarter lights.

Constructing the chromed front grill was successful at the first attempt, amazingly. An elongated oval outer shape made from Zinc Narrow Strips with heaps of vertical 5-hole Narrow Strips within and held together by Screwed Rods with Washers in between the strips (see Fig. 1). The bottom of the oval protrudes about 10 mm forward of the oval top so a bit of force was required to get that correct.

The opening bonnet and boot lids have their outer shape only and are kept open by Rods resting in brackets bolted to the shrouds, as in the prototype.

Figure 9: The real "Green Machine".

Electrical Equipment: A black battery Meccano box is fitted in the boot next to where the spare wheel would be. As you can see there isn't much luggage space in a Healey, the space behind the front seats being the better option, as long as you don't have to transport children.

The front lights are Wheel Centres bolted to Wheel Disks and a Hub Cap representing the reflector, with mutilated Narrow Strips bent into a circle to represent the headlight rims.

The indicator (orange), parking (yellow) and brake lights (red) are modelled with $^1/_2$" Pulleys bolted with $^1/_4$" plastic spacers of the correct colours to model the hemispherical originals. I had to use yellow pieces for the parking light lenses (they should be clear) but the new Evolution Helicopter set has a couple of white Pulleys and Spacers, so they will be substituted.

The windscreen wipers are powered by one of Stan's smallest 6V motors behind the dash on the left hand side. I've used a small Bush Wheel as the crank with Narrow Strips linking the crank to Short Cranks fixed to the inner ends of the wiper wheel boxes.

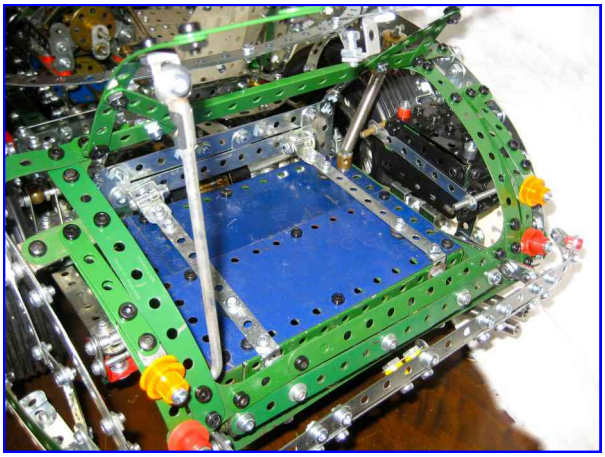


Figure 8: Open boot showing petrol tank and black battery (right).

Interior: The driver's side has a floor made from black Flexible Plates onto which Narrow Angle Girder seat runners are bolted. I made a driver's seat from beige parts from recent sets because I didn't have enough black parts to model the leather faced seats of our car. The rear of the seat folds forward to allow access to the back "seats". There are 2 very small rear seat pans over the back axle which are for occasional use at best. I've left those seat pans as open frames only so you can see the rear axle, differential and the suspension.

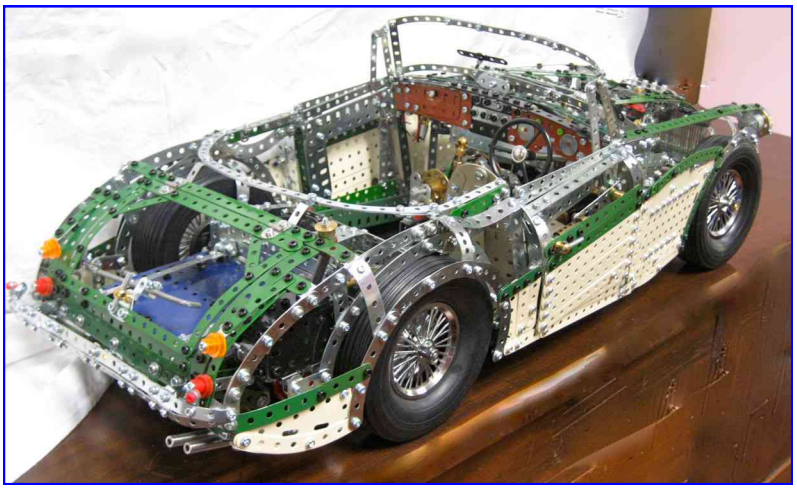
The dashboard was modelled using the brown parts from the *Tintin* sailing ship again, Figure 6. It was difficult to come up with the right shape with only a few parts being available. The speedo and rev counter are Large Washers double Sellotaped to the fake veneered panels. I didn't attempt to model the glove box with its timber fold down door.

Other Equipment: The optional heater radiator box is fitted directly behind the dash on the car's centreline and I've used black rubber tubes (from the *Mechanical Workshop* set) as the air hoses from the heater to the vents in the top of the dash panel and for the hot water hoses from the engine's radiator to the heater and back to the engine

All Big Healeys were convertibles with fold down vinyl soft tops ("drop head") with steel hoops which lie down on the back of the rear seat compartment. I haven't attempted to model the soft top at this stage; I may need Shirley to sew up the fabric if I decide going that far. There was also a factory hardtop available and that may be easier to model.

Our 2 year old grand daughter loves this model car and when she visits opens and shuts the doors multiple times. In fact after she goes home I have to readjust the hinges and door latches! I think there maybe major protests when I decide to dismantle this model.

Figure 9 : Healey rear 3/4 view. Tail Pipes are Large Axle cylinders.



Plan now to be at the Te Papa Convention, Easter 2015

From Stan Baker, President Wellington Meccano Club

Many of you will have taken part in one or both of the 2 exhibitions already held at *Te Papa.* Both of these were very successful with many thousands of attendees each day. As THE National Museum of NZ, internationally acclaimed for its multimedia exhibitions, it is arguably the most iconic venue available in NZ to exhibit Meccano. For those of you not familiar with the venue check it out here http://www.tepapa.govt.nz

For both earlier exhibitions, we had the 1st floor foyer space (with ceiling height over 10 metres for Eiffel tower models), immediately at the top of the escalators up from the entrance way. Every visitor had to walk past the exhibition to get to the rest of the museum. For the exhibitors the museum provided a breakout room and kept it stocked with food and hot and cold drinks. They also provided a large number of security staff / assistants to keep the public from touching where applicable and to demonstrate models if requested when the builders were away at tea.

It was natural therefore that the Wellington Meccano Club considered this as a possible display facility for the 2015 convention. However a convention is far more than an exhibition and we were very aware of some potential issues with previous exhibitions. The museum did not want us assembling and dismantling while the public were there. The exhibits had to be installed after 7pm one night and be ready for opening to the public at 10am the next day. Then dismantled in entirety after 6pm one night. Another possible issue was the need to find a venue where we could meet outside the exhibition hours for a national dinner and AGM. Another problem we faced was that without the ability to have a nominal entrance fee, we might be precluded from raising money outside our own group to finance prizes.

The club met with Te Papa management to determine if some compromises could be found. We found that the Museum were very keen to host a far bigger exhibition than previous ones and turn it into the centerpiece of their Easter weekend attraction. We are thrilled with what has been agreed.

Te Papa Museum will have a theme for the museum for the period of "The Life and Times of Frank Hornby". It will be widely advertised on Radio and in Newspapers, The Te Papa newsletter and possibly TV at Te Papa's cost. They are hoping to attract up to 35,000 visitors. We will have the same location in the foyer but the space can be expanded to over 600 sq. metres if we want it. Te Papa will again provide security staff that can assist the control of crowds as well as demonstrating models if desired by exhibitors.

A far larger large breakout / conference room, seating over 100 people has been allocated for exhibitors use to have a break at any time during, before and after the opening hours of 10am to 6pm. Refreshments will be provided continually by Te Papa. That room will be the venue for the dinner and AGM.

Te Papa have also allocated for our use at no cost for the whole of Easter their modern "Soundings" Theatre. This auditorium seats about 350 in comfortable movie theatre type seats and comes fully equipped with the latest audio visual equipment including a wide cinema screen. Normally this is hired out at several thousand dollars per day. We will have speakers tentatively on the hour on the Saturday and Sunday covering topics such as "The life and Times of Frank Hornby", "The Rise and Fall of Meccano", "The Products of Binns Road", "The use of Meccano in Teaching Structural Engineering", "Hornby trains", "The effect of building toys on 20th century Architecture". Many presenters have already agreed. We are looking for several more. If you have a related subject you can present, don't be shy in telling us! Between the lectures we may use the huge screen to show videos of past conventions and exhibitions globally.

The Museum will be open to the public from 10 am till 6 pm every day. With their assistance we will setup the tables (provided by Te Papa) and any available models on the Thursday night. Any visitors that can have their models setup then are encouraged to do so but it is recognised that most will setup on the Friday or even Saturday.

The Museum do not want tables moved or such like during the exhibition but exhibitors will be able to set up or dismantle models to meet individual travel times or exhibitor restraints. Indeed the museum see that the activity of setting up some of the more complex or large models is something the public will be keen to see. They suggest a commentator with a radio microphone explaining the process of models being setup maybe!! For those travelling home on Monday, models can be taken away on the Sunday night or Monday although the museum would be pleased to see as many models as possible being there over the Friday Saturday Sunday and Monday. Before the Museum opens, or after it closes each day, exhibitors will be free to arrange guided tours of all models and otherwise socialize with each other.

In keeping with the "Life and Times of Frank Hornby" theme, we propose exhibits of all products of *Meccano Ltd.* Our idea is that we have a *Bayko* display area, a Hornby traindisplay, a Miscellaneous product display area (Microscopes, speed boats, aeroplane and car constructor sets, Dinky Builder, Dinky toys, Jigsaw puzzles, etc). Of course we will also have the hands on area for introducing children to Meccano.

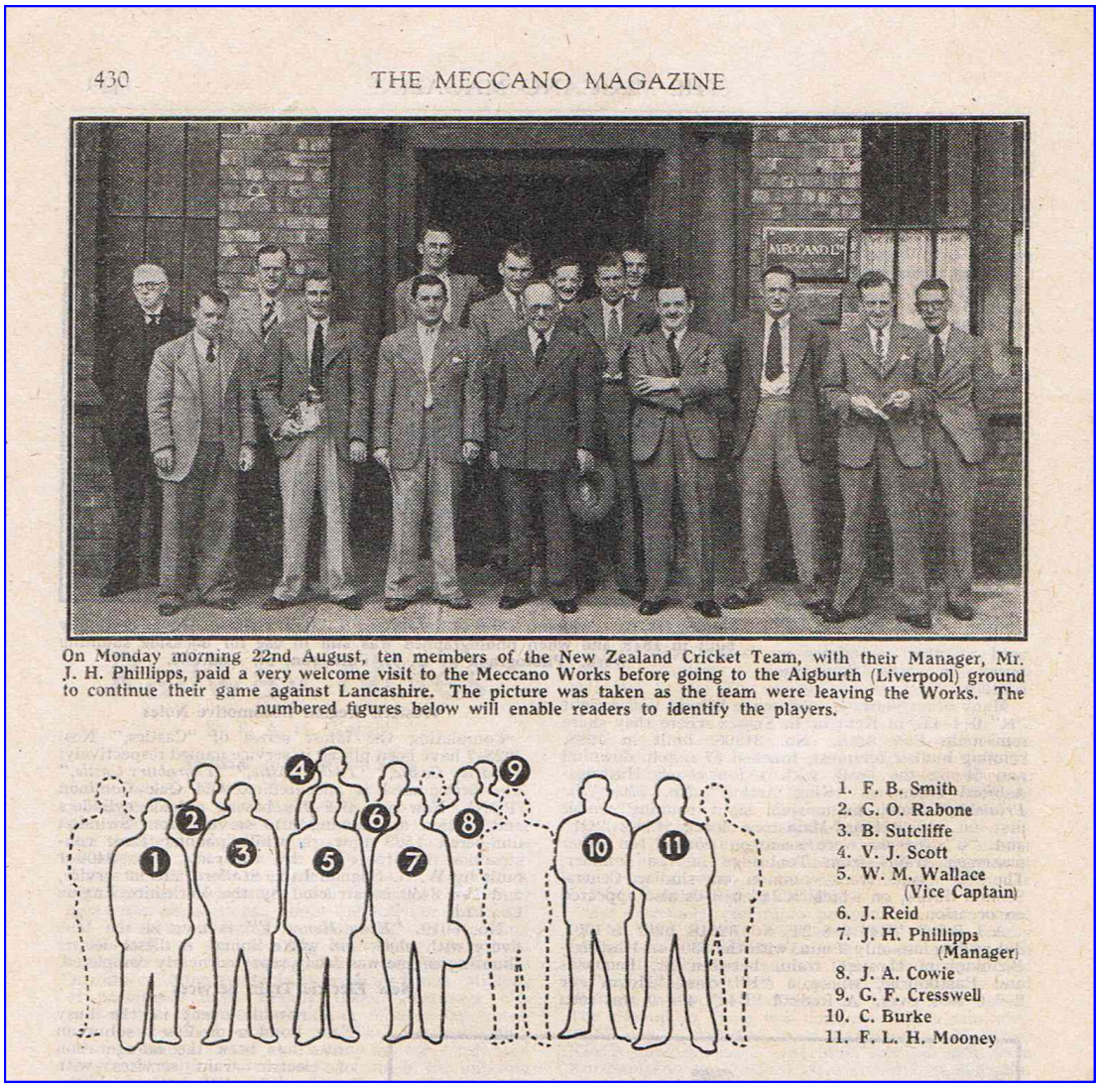
In order to fund prizes, the museum has agreed that we can sell raffle tickets to the public with suitable Meccano related prizes.

It can be seen from the above that this is different in many respects from past conventions whilst providing the same functions and facilities but on a much larger scale.

In return for all the free space, Staff, food, Insurance cover, and advertising, the museum is expecting a "WOW" display from us. They have a hope for some very complex technical models, some very large models and also NZ specific models (The Sky Tower, a NZ Viaduct, a NZ Railway icon etc. were all mentioned by them) along with all the "shelf fillers." They are very keen to get maximum audience involvement.

So now the challenge is out to all enthusiasts to assist. We would like to encourage overseas modelers to attend also. We NEED you and your models to make this a success. If you have any other ideas please let us know. More details and housekeeping will be advised closer to the date but the above is the concept. We want models that take a year to build so please plan now.

I happened upon this piece when looking through the November 1949 issue of the MM. As cricket is very topical currently I thought it might be of some interest. Famous players are Bert Sutcliffe, Jack Cowie and John Reid. I wonder how many had Meccano sets in their youth? John Reid OBE was honoured with the CNZM (Companion of The NZ Order of Merit) in the recently announced New Years Honours.



430 THE MECCANO MAGAZINE

On Monday morning 22nd August, ten members of the New Zealand Cricket Team, with their Manager, Mr. J. H. Phillipps, paid a very welcome visit to the Meccano Works before going to the Aigburth (Liverpool) ground to continue their game against Lancashire. The picture was taken as the team were leaving the Works. The numbered figures below will enable readers to identify the players.

1. F. B. Smith
2. G. O. Rabone
3. B. Sutcliffe
4. V. J. Scott
5. W. M. Wallace (Vice Captain)
6. J. Reid
7. J. H. Phillipps (Manager)
8. J. A. Cowie
9. G. F. Cresswell
10. C. Burke
11. F. L. H. Mooney

MWT Meccano Club Model Tour October 12th 2013

Words – Robin Rye
Images – Bruce Geange

Bob Prescott showed a Christmas gift he gained in 1999. It was a Meccano set gift from the UK ELF petrol stations. On the purchase of 10 pounds of petrol a small Meccano set could be purchased for an additional 1.49 pounds. Usual price was 4.99 pounds. He also had the latest magazine from the *Johannesburg Meccano Club.*

John Freer presented the epicyclic forward/ reverse shuttle gearbox destined for his upcoming road grader model. The shuttle will be solenoid operated.

Bruce Geange produced a Chieftain Tractor. A little known prototype designed for the cold swampy northern Arctic slopes. A caterpillar tracked machine. Bruce had the 150 mm model packed with 2 motors and radio control. A recent model article of his in *Constructor Quarterly* magazine was on display and also a DVD of the recent Pukekohe convention. The DVD available for purchase.

Robin Rye had an assortment of Meccano offerings. Firstly, 2 varieties of rims for ashtray tires. One using multiples of 90a curved strips and the other using Ashok flanged wheel discs, flexible plates and curved strips. Secondly, a rear differential and axle assembly with ashtray tires. Thirdly, in a desire to utilise the current common wide plastic wheel rim with the internal gear ring as a stationary hub on which a wheel might revolve as in real heavy duty axle assemblies resulted in 2 attempts that were unsatisfactory, finalising in a method using Ashok small diameter rings and 3 mm bolts with nuts and also the modification of the said plastic wheel rim by grinding off 2 of the lips on it. Fourthly, after achieving the stationary hub desire, Robin proceeded on with developing a wheel that revolved on the hub driven with epicyclic gear reduction. 2 examples in fact. One with 2 planet gears and one with 3 planet gears along with a commentary on the short comings of Meccano. (A toy being used in an attempt at engineering). All about numbers of teeth on gears and dividing and spacing them. The attentive audience soon became inattentive and numb with un-needed information.

Wayne Blakely had the new Evolution Meccano Sets for sale.

Chris Morton persevered to finish a Speed Play Robot. It did as it is supposed to do. Motored about the floor, waving its arms and emitting noises. Its more like Lego than Meccano Chris said. The raw plug like fittings can be replaced with the familiar $^{5}/_{32}$" hardware if desired.

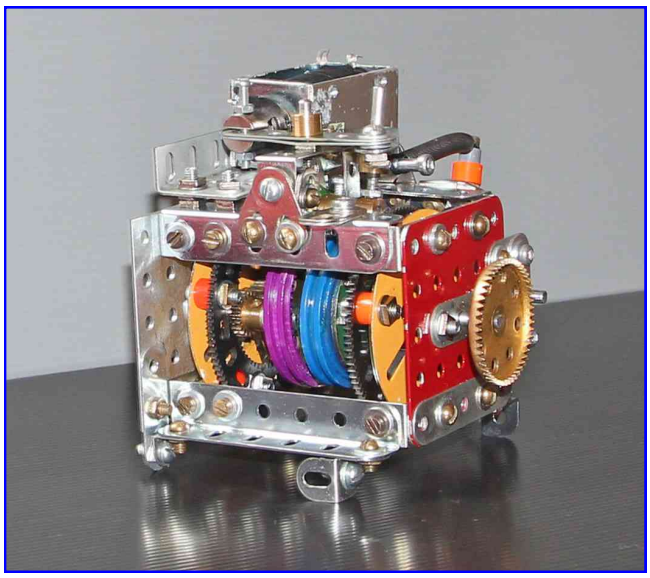
Tom Pittams had a selection of 6 different differentials made with Meccano parts. From a long ago club challenge of building a 4 part model, a candle snuffer resulted.

Richard Feltham displayed a selection of *Bayko* Plimpton of both pre- war style and post-war style and Meccano made style. He is building trays to store his *Bayko*. The real Meccano model of his used the klann linkage to build the 8 legs of a walking spider.

Hugh Ramage used the rocking gimbal linkage of the previous meeting in the propulsion of balls in a ball roller.

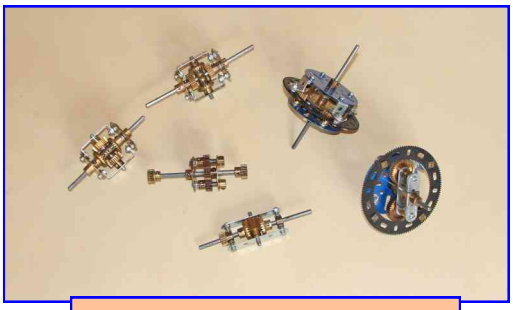
Daryl Anderson reached into his "other systems" cabinet and brought along a Trix Metallbau A+B set of 1986.

Paul Vodonovich displayed 2 *Buz* sets, Meccano Artillery Wheels both bossed and unbossed and a 3 inch Pulley with half inch boss and an early Ships Funnel. He let loose on the floor with a current pullback turbo racing car.



John Freer's Shuttle gearbox.

Robin Rye's diff.



Tom Pittam's set of differentials.

Daryl Anderson's Trix set.

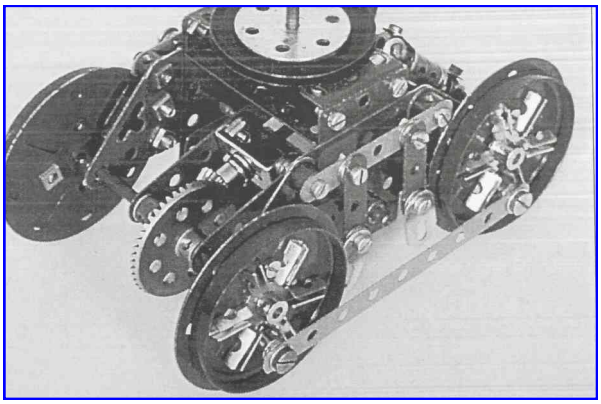
Display of Bayko by Richard Feltham.

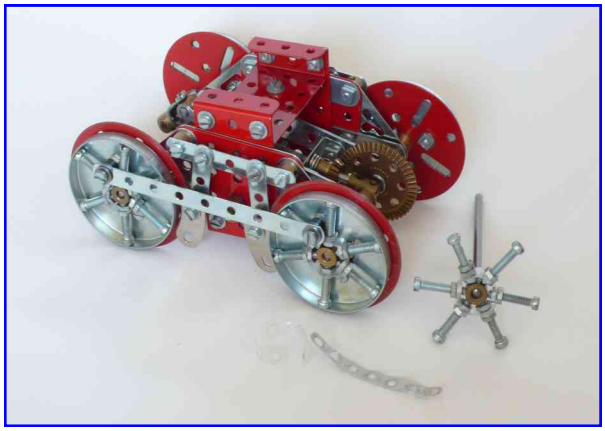
My Heisler loco's wheels by Mike Stuart

Keith Cameron's Heisler locomotive in *CQ 32* (June 1996) has wheel flanges bolted to face plates as the wheels. He gave the appearance of spokes by using three 3-way Rod Connectors without boss (PN 213a) in each wheel flange, (see photo). Not having anywhere near the required 24 such connectors, I at first just used a white circular piece of card with spokes painted in black inside each wheel flange. Later, not content with this, I contemplated ways of securing $^{3}/_{4}$" bolts. Eight was impossible and there seemed no suitable parts to affix 6 bolts. I eventually came up with the method shown in the photo. A 7mm-wide strip was cut, initially from venetian blind material (samples 150 x 25mm obtained from blinds suppliers), then from clear plastic. 7 holes were made 9mm apart (centre-to-centre) . The strips were thus about 62mm long.

Four $^{3}/_{4}$" bolts were lock-nutted in holes 1/7, 2, 4, 5 and two 21mm bolts (one actually would be enough) in holes 3 and 6 screwed into a Collar tight against the axle. To tighten the longer bolts a pair of nuts was lock-nutted together so a spanner (rather than a screwdriver) could be used. This is necessary on one end of the axle only because on the other end, the long bolts can be tightened on the axle with a screwdriver before the spokes are put inside the wheel flange.

In the colour photo a venetian blind 7-hole strip can be seen in the right foreground and to its left a clear plastic strip curved into a circle may be visible.





Auckland Meccano Guild Meeting

November 9th 2012

Reporter & Photos: Gary Higgins

The meeting took place at the home of Les and Shirley Megget in Papakura.

Henry Porter had brought along his rendition of a Saladen armoured car with independent suspension on all wheels.

He had also made up a mars curiosity rover and a tanker truck John Denton had.

William Irwin had a large collection of electric motors and gearboxes, most in original cartons. His display demonstrated the development of the Marx motors and their offshoots and look alikes as used by Meccano in the 1970s.

William also had pictures of the James May Motorcycle demonstrated at the Henley Meccano exhibition which he was fortunate enough to view when touring recently. This cycle, made almost entirely of Meccano, carried two people around the Isle of Man motorcycle course.

William and his display of motors.

Gerald Hart had made a very nice display of a dockside crane with the plans of the original by Colin Cohen and a steam engine and generator of his own design which worked most effectively.

Les Megget had made up all the newer Meccano sets and had them available for others to examine. We think that Les's helicopter was most likely the first built in New Zealand as Les had ordered it ahead of the New Zealand orders, direct from Amazon. Most of these models look the part, though the crane-truck is smaller than I expected and there are the usual problems associated with the building of new Meccano models. That is another story which I am sure Les will provide an article about.

Les had built his own version of the truck crane set and I think I like Les's version better than the original. It is better engineered for a start. I think Les will do a model plan for us if we ask him nicely.

George Ovenden had made a Meccanoids working robot from the unusual and short lived *Meccanoids* set.

Mike Stuart has now finished his *Heisler* locomotive and was able to demonstrate it running on the tracks. With its angled valve gear it is a most unusual construction.

Rick Vine had made a *Bayko* house, a grader from a recent 10 model set and a bridge in Meccano based on the full size version recently constructed overseas. Rick also had a copy of a new book called *"Architecture on the carpet"* which covers modelling in Meccano and other systems. He had another recent purchase, a book about *"The History of Cranes in NZ"* which includes Les Megget's mobile cranes.

Tony Caldwell had constructed a model of a heavy haulage truck.

Henry Porter's Saladen Armoured Car.

Gary Higgins had made an Atlantean submarine with robotic crew all powered by mysterious crystals. He brought a Korean No.5 Meccano clone set which had parts almost identical to Meccano but with some unfamiliar parts and colours. He also had a nice example of a running *Primus Engineering* motor with manual and had purchased one of the new large flanged discs from *CMC Meccano* which had curved spokes radiating to the edges. These can be bought in opposite pairs to form flywheels.

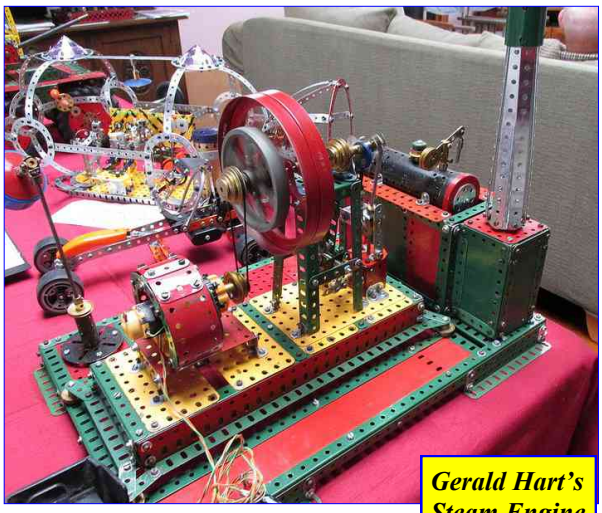
Graeme Wrightson has brought a mini digger in yellow from one of the newer sets.

Also in attendance were **Peter Hancock, David Wall and John Denton.**

Peter spoke of some details of the next Convention to be held in Wellington and of the Model-X show in Queens Birthday weekend.

The guild will reach its 40th anniversary (in March 2014) and I imagine that David Wall (our founder) may well have a few words to say in the Magazine closer to this time.

The meeting closed as usual with an excellent afternoon tea hosted by the ladies.

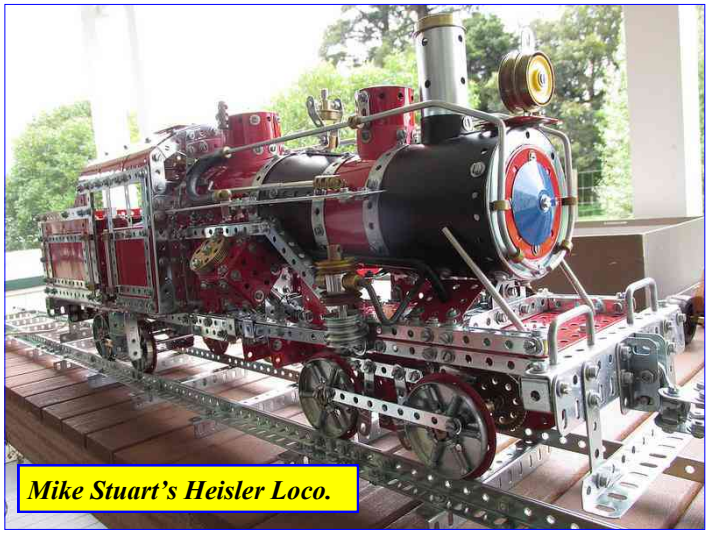


Gerald Hart's Steam Engine & Generator

Gerald adjusts his dockside crane.

Heavy haulage truck by Tony Caldwell.

George Ovenden's Meccanoids Robot.



Mike Stuart's Heisler Loco.

Manufacturing Gears: by Jeff Clark

Part 2 Bevel Gears

In Part 1 (Nov 2013) I covered how *Meccgear* started and the issues concerning Meccano Helical Gears. We now move onto the Bevel Gears.

Meccano are known for 3 Bevel gears, Part 30 a 45 degree 26 tooth gear that meshes with another Part 30 to take drive through 90 degrees. As well there are parts 30a and 30c, which are sold as a pair. 30a is a 16 tooth bevel and 30c is a 48 tooth bevel. They also turn drive through 90 degrees at a ratio of 3:1. Starting with part 30, this piece could be any number of teeth as it is a 1:1 ratio, so I am not sure why Meccano based their decision on 26, maybe someone out there has the answer. But it could have been anything 15 Tooth, 19 tooth etc.

The trick with bevels, is to establish the meshing angle for the teeth. In this case it is 45 degrees. However the cutters for the teeth pass thorough the gear face 3 times for each tooth. This is because the teeth are tapered . As well as this the depth tapers, so the tooth is shallower the closer to the centre.

Now, the maths behind this is pretty standard. The trick, however is that I found 6 different variations of Part 30 ! Over the past century their have been a number of differences with this part. Tooth Profile, outside diameter, PCD, and undercut to name a few. PCD means Pitch Circle Diameter, which effectively translates to viewing the 2 gears as cylinders, or in the case of Bevel gears, cones. It is the diameter where the two gears engage.

So to build a gear today that would mesh with all the variants that came before, became quite a challenge. After repeated measuring and number crunching it became apparent that you could end up running in circles, with back lash and tooth depth. Everything is a compromise, so effectively working out the parts of the design that needed to stay and the parts that would have little or no relevance on the outcome.

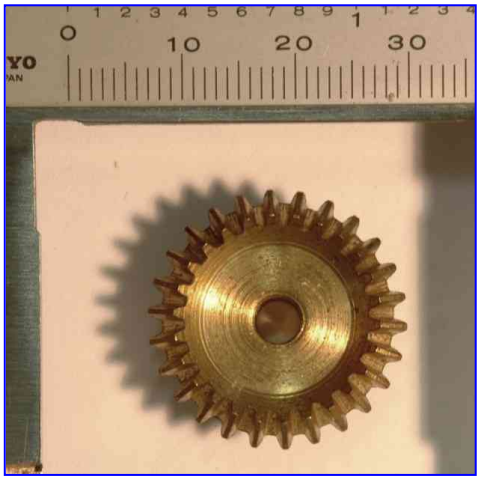
In the end I resorted to photographing each Bevel gear variant, with an ultra high resolution SLR. Then digitally transposing all the gears on top of each other, to create a virtual average. This took a bit of trial and error and in the end cosmetic differences were done away with as a filter. The main issue would be the "gear crown". By carefully lengthening the tooth and subtly changing the profile, I was able to get a good mesh with any of the 6 variants I had.

Of course meshing with itself was not an issue as we would mirror the second gear. It looks simple, and when you look at the finished gear you would say, "OK looks just like any other Part 30, but newer". But it can't be stressed how many hours were spent on this, and the questions it brought up.

Bevels by nature have a lot of leeway compared to more standard models like Pinions and Helicals. But there was quite a lot of scrap Brass before we got to a good solution.

A couple of Meccano Part 30's for comparison:

Here you can see the teeth actually taper the wrong way on this genuine Meccano part. This is not wear and tear either, as the original machining can still be seen on the face.



This Meccano Part 30 shows a much shallower distance from Tooth tip to face. But more importantly The Tooth face is parallel, quite different from the one above.

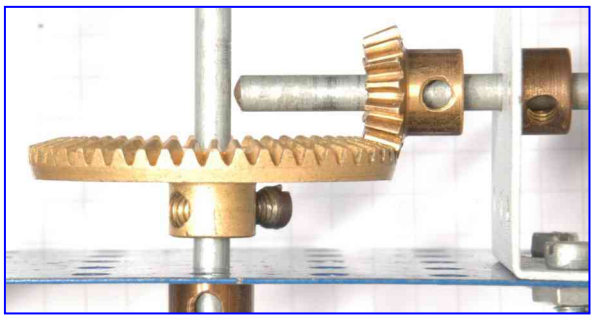
The pictures above show just a couple of variations. But once again we modelled the final unit and went into production. Some of you who have purchased the part have come back with good comments, so fingers crossed, there isn't a 7th and 8th variation we don't know about.

30a and 30c were even more complicated, as the manufacturing techniques changed as well as the design. Have a good look at your 30c if you have one.

Some of these were machined, and some were made from 2 pieces. The Crown was pressed onto a boss with the collar, these could be stamped or cast depending on the budget and cost constraints of the manufacturer. It would make fascinating reading working out the time line of these gears with relation to labour costs and Meccano's profitability, but that would be a job for another person.

The problem with the two piece manufacture, is that it makes production cheaper but you can get a reasonable level of variation between one piece and another. One of my suppliers did suggest casting this piece as opposed to machining.

These days, model building is getting very sophisticated, so tolerances and slop become a big issue. Especially if your building multiple differentials, in trucks and cranes. So the difference between working smoothly and not, comes down to the precision of the parts. While our parts work well with existing Meccano variants, it pays to match the 30a and 30c for absolutely best results.



Here you can see the genuine "cast" 2 part 30c, meshing with a "machined" 30a. There is a slight difference in the length of the teeth. But more noticeably the cast unit has "pits" and runs out. The "run out" will mean the larger gear will push up and down on the smaller gear. As the teeth ride back and forth in the groove. If you look very closely you can actually see a "dishing" in the back of the 30c. This would have been through manufacture. You can also see the teeth have parallel faces.

Here is a solid brass Meccano 30c, clearly showing the taper of the tooth edge. The "pressed" gears have parallel faces. The brass model is also substantially thinner than the cast one.

To give you an idea of the tolerances we are working on, the meshing point on the 30c we ended up with is 71 degrees. The bottom of the tooth is 73 degrees and the top 68 degrees from vertical centre. Now, over the radius of 19.275mm to the base of the crown, the taper angle of the tooth face is a mere 0.02 mm. Some would say I was being pedantic but its one of those things that would bug me if I didn't get it perfectly right. The issues of being the son of a toolmaker.

Again, we manufactured all three gears out of solid billet, and manufactured the cutters from scratch. These gears are also acid washed so they **can't** be passed off as original. I also made the executive decision to make the tooth slightly longer (0.1mm); this helps meshing with older 30a's as they can have quite aggressive tooth profiles.

Yes they are probably a 100 times more accurate than they need to be, but it is already starting to show, with clock builders and alike favouring our approach as it does make a difference with keeping good time.

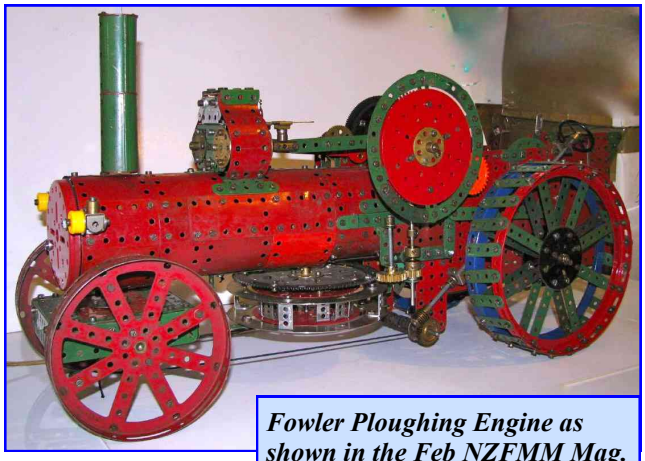
I don't have any interest at the moment to produce any further Bevel versions, and would need a fair bit of persuading to do it. These three bevels actually took more time to design and prototype than all the Helicals combined.

Oh and yes, we made thousands of them…..
Next time we will talk about the Meccano Pinions and how 2 plus 2 equals 3. Jeff is a member of the Auckland Meccano Club and Owner of *Meccgear,* manufacturing Brass parts for the Meccano Enthusiasts. He can be contacted at **sales@meccgear.co.nz**

Differentials for Traction Engines

by Henry Porter

In our February 2013 Magazine there was an article about my Fowler ploughing engine. Because there was not a picture of the differential, I decided to write an article about it. Very few people seem to have tried converting the drive from the traditional method of chain and sprockets to a proper gear train and differential.



Fowler Ploughing Engine as shown in the Feb NZFMM Mag.

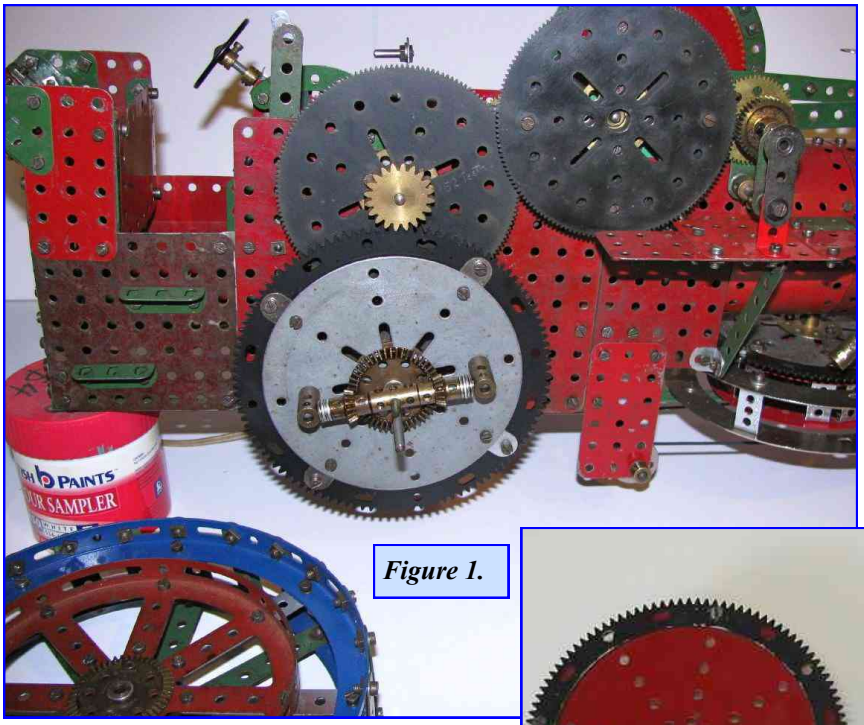
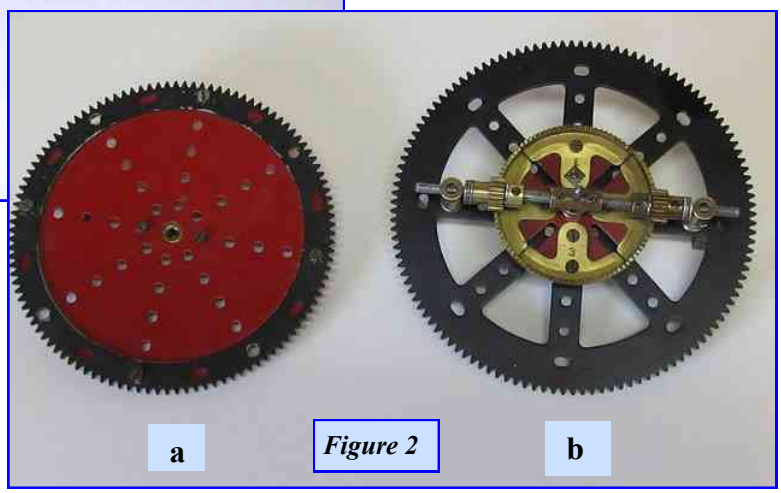


Figure 1.

Another reason is that I have now purchased from Stan Baker a number of gear ring and gear wheels which are 20DP (large toothed gears). Using these is much more realistic, not only because it is of the correct form of drive, but because the size of the gear teeth is nearer to the original scale for the larger models. However the Meccano toothed gears are good for the smaller models.

In Figure 1 the differential gears are mounted on a $4^1/_2$" Circular Plate from Australia, which is attached to the $5^1/_2$" *Exacto* gear ring with Fishplates. This gear ring has 110 teeth. Because I needed to mount a 20 tooth gear wheel above it, I had to use a $^1/_2$" spacing to accommodate it. In Figure 2a I have mounted the gear ring on an Ashok $5^1/_4$" Circular Plate, which saves using fishplates. With that Circular Plate I've used the $5^1/_2$" Gear Ring on the 120 tooth Ashok Gear Ring. The *Exacto* Gear Ring is no longer available but Ashok is now producing a new $5^1/_2$" one, No. 1140.

In Figure 2b I have constructed a differential with $2^1/_2$" Contrate Gears for larger traction engines. These contrate gears are each made up of one set of contrate segments from *Ashok*. One is mounted on a faceplate, and the other is mounted on the inside of the rear wheel. The differential in Figure 2b is mounted on an Ashok 6" gear wheel (120 teeth), or it can be mounted on a $5^1/_4$" circular plate as in Figure 2a. Because the contrate is deeper it needs 4 washers spaced under the Threaded Coupling. In another article I will show how a differential is mounted on a 4" gear wheel. This is because some American traction engines have the differential mounted on an axle in front of the firebox and the final drive is on the gear rings mounted on the rear wheels.



a ***Figure 2*** **b**

Meccano Standard Bedside Lamp

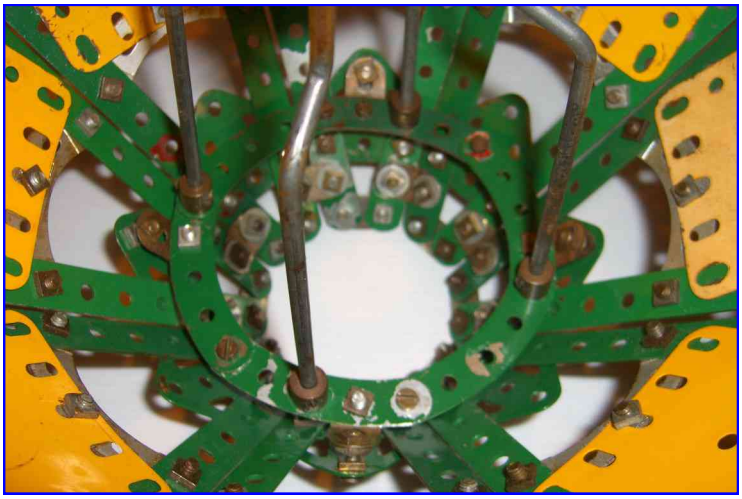
by Grace Pluck

A Creative Design conceived out of necessity.

The design was conceived through the need to have a higher standing lamp, which would enable easier reading in bed.

I initially made the base out of Meccano to lift the lamp using a Hub Disc, then found that it did not sit as secure as I liked and then added sides right up to the bulb socket. The original lamp base was a ceramic ball. This looked quite dumb but I had achieved its purpose.

Later the extra weight cracked the ceramic ball near the socket, So I removed the ball completely then using a Circular Girder as a guide and filled in the centre; a difficult task because the Meccano pieces were small to put inside. The round metal piece near the cream plastic bulb socket is *not* a Meccano piece. I also use the original screw fitting to hold the socket.



Inner detail of lamp shade.

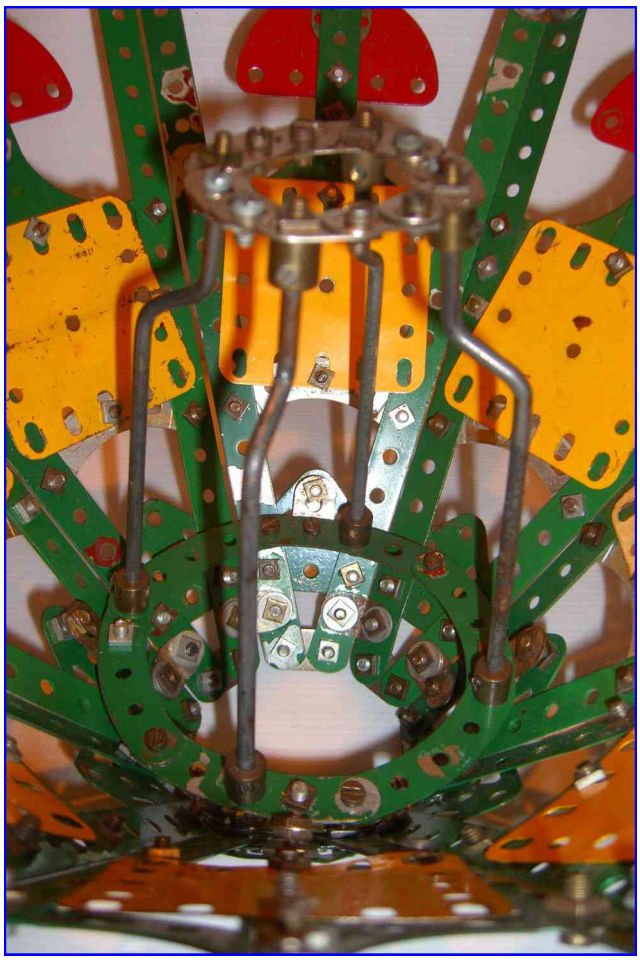
At this stage it still had a common fabric light shade. I was happy with the lamp so far and was motivated to make a shade from Meccano using the original shape of the shade. Having achieved the outside shape, I selected four crank handles but I could not work out how to attach the pieces, so Neil helped me with this.

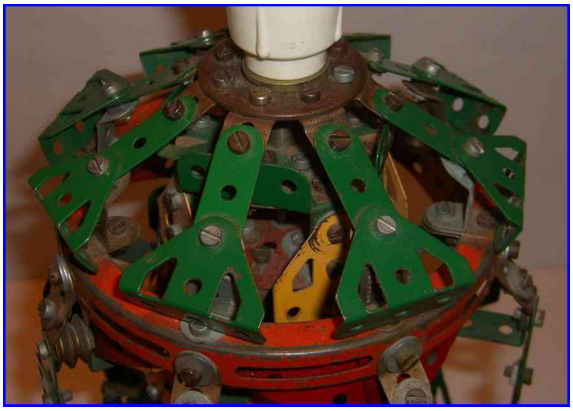
I felt a bit discouraged when I was not able to make the shade as solid as desired; but this turned out to be an advantage because when completed and the light was on, it created beautiful reflection patterns on the wall and ceiling coming through the gaps. Using a clear light bulb helped this.

The bedside lamp has been made up for six years. On the whole lamp, one section is repeated around eight times, apart from the inside which has two sections repeated four times. The complete lamp measures 50 cm high and is 34 cm at its widest diameter at the bottom of the shade.

Recently I selected the wheels to act as rubber feet in the event of further earthquakes, to prevent slipping, Neil has added these.

Lamp stand detail.





Details of Grace's bedside lamp.

From the NZFMM Archives: Part 2
by Peter Hancock

Volume 2 - Number 1 of the *'Wellington Meccano Club Rag'* dated 10th February 1977 opened with a cheerful and chatty message to readers from Editor **Don Blakeborough**. Don reported that during the holiday period he had received a number of phone calls relating to various matters relating to club opening times, telephone number lists and corrections to members postal addresses. The most significant problem reported by several members related to the breakage of the main springs in recently purchased clockwork motors and how to overcome the problem. [No solution was provided?]

Don reported that he had visited Auckland during the holidays where he met **David Wall** from the Auckland Meccano Society, with whom he swapped some part number 187b plastic road wheels for some Meccano Magazines, visited *Models (N.Z.) Ltd* the New Zealand Meccano agents who indicated that they may assist with a future "NZ Meccanomen's Convention" and *'Stoker Models Auckland'* who had a good range of spare a parts. Don reported that he left their premises some $45.00 poorer.

Building Club membership featured strongly in this edition of the "Club Rag" with Don mailing out two copies so members could hand one on and seek out prospective new members and bring them to the first meeting of the year to be held on Friday 18th February and on the 1st and 3rd Friday of each month from then on at the Railway Social Club Hall in Wellington.

Members were asked to bring as many models as possible to this meeting so that they could be taken to the Public Library to be placed on public display from the 28th of February until the 11th of March to support efforts being made by the Librarians to promote a display of *Meccano Magazines* selected from a complete collection (50 years' worth) that they had purchased.

Don reported that the *Meccano Magazine* which had moved to quarterly format in 1973 had ceased production in its current form with the retirement of Editor Chris Jelley with the October 1976 edition

[volume 61, number 4] and would be reintroduced in a larger format by new Editor, Mike Nicholls initially on a quarterly basis moving to a monthly basis as soon as possible [never actually happened]. Don closed this edition of the "Rag" with a plea often expressed by many editors since, for the supply of materials from the fraternity for future editions!

Volume 2 – Number 2 - 4th March**:** This issue included information relating to the upcoming AGM to be held on Friday 15th April. Advised **Lou Nichols** would stand down from the position of Secretary/Treasurer as he had become involved with school committee work and Don wanted to stand down from the position of President, but that he would continue to help in any way he could including providing information on Meccano.

The display at the Wellington Public Library was set up thanks to Stan, Bob, Mike and Lou and high praise from the public was being received. A further Meccano display to be held at Roseneath School is planned for Saturday 2nd April. The Club model building programme had been printed for the next five months and it is planned to keep to this model plan in the future. Members may lose up to 10 points for building models other than those as listed for each meeting?! Lou had offered to donate a number 9 instruction manual to the Club Library and members were reminded that **Mike Highly** as Club Librarian was still looking for photographs and materials to include in the Club scrap book.

NZ Meccanomen's Convention: Proposed convention will likely take place in Wellington over Easter weekend 1978 with the Wellington Meccano Club being the hosts. Pamphlets available and comments from adult Meccano enthusiasts about the idea requested. Expected that the event will be mainly for adults to get together but juniors will probably be able to exhibit in a junior section?!

Volume 2 – Number 3 – 18th March: Further information and model instructions about the upcoming display at Roseneath School to take place on Saturday April from 10.00am until 12 noon?! Further feedback was recorded on the success and thanks to Mike for assisting Don in breaking down the Library display. Don went on to provide advice to all modellers about correctly tightening screws and nuts. Apparently he found he had several nuts, screws and other parts in the boot of his car after the event. Club members had participated in a visit to a TV Studio which had been of high interest.

Volume 2 – Number 4 – 1st April: Reminder of the upcoming AGM and the need for committee members. The Clubs older *Meccano Magazines* to be bound. They are in great demand. Don passed favourable comment on the latest *Meccano Magazines* with their revised style, layout and colour covers. There was a reminder about the upcoming Roseneath School Meccano display and further comment on the recent issue of 'loose screws'. Don had loaned his model of an Ab Engine to NZR, who had it on display in the main foyer of the Wellington Railway Station.

Volume 2 – Number 5 – 15th April**:** The recent Meccano display at Roseneath School had been well received and special comment was passed regarding the interest that **Stan Baker's** 'Big Wheel' and Don's small engine running up and down on tracks attracted. **Andrew Cathie** was thanked for his assistance. Don had included an illustration titled "Round Nuts" on the do's and don'ts of positioning spanners on Meccano nuts, especially the hexagon type currently in fashion. Don reported that he had received phone calls from Masterton and Dunedin enquiring about the Club and the proposed Meccanomens's Convention.

Volume 2 – Number 6 - 6th May**:** The new committee; President; **Andrew Cathie**, Secretary/Treasurer, Buy/sell/Swap and Club "Rag" portfolios; **Don Blakeborough**, Games; **Paul Roberts;** Organiser Club visits and Model Judge; **Paul Jardine**; Model Judge; **Mathew Hudson**; Club Librarian, How to Use Parts and Model Judge; **Mike Highley**, Supper organiser; **Lou Nichols**, Committee members; **Andrew Jardine** and **Bruce McCullum.** Reminder given that annual subscriptions are due. Members reminded of the upcoming model display to be held in the Town Hall on the 21st of May.

Volume 2 – Number 7 - 20th May: Inquiries still being received relating to the Meccanomen's Convention. Advance warning given that a committee will possibly be formed shortly to handle various aspects of the event. Members were reminded that the Town Hall display will be assembled the next day [21st May] in the Concert Chamber beginning at 9.00am until 12noon [models to be set up during these three hours] after which time the Mayor of Wellington will open the event to the public. Members reminded to wear their identity cards at all times or pay an entry fee. Recommended that each person brings their own 'eats' and a cup?!

Don reported on the success of a game that was divided into two teams. Each team was provided with a selection of Meccano parts. Each team member took their turn and were allowed to assemble parts but were only allowed to use two [2] bolts and nuts each. The model was then passed on to the next team member who would assemble their parts. Again only using two [2] bolts and nuts and so on. The catch was that there was to be no discussion as to what was being built or where to put parts. The game ran for a set period of time before the models were judged. Apparently a good time was enjoyed by all involved?!

Volume 2 – Number 8 – 3rd June: June 17th is the date chosen for the formation of a committee to handle all the details of the Meccanomen's Convention. Indications are that exhibitors from Auckland and Dunedin are looking to attend the Convention. Don reported that the model display held at the Town Hall had been very successful. Report on "obsolete motors and parts". The E15R electric motor is about to become obsolete as is the Super Highway Multikit, the number 2 Clock Kit, the M4 Junior Power Drive Motor and the Windmill Sail part number 61. Two new electric motors made for *Meccano* by *Märklin* of Germany will replace the E15R, while the M4 motor will be replaced by the new Crane motor recently released. Advice has been received from England that the April edition of the recently released revised *Meccano Magazine* may not be published until the end of May and that there is likely to be a significant increase in its subscription price.

Volume 2 – Number 9 – June 17th: The meeting to form the NZ Meccanomen's Convention Committee to be held tonight. *Models (NZ) Ltd* has confirmed their intention to support the venture. Some concerns from members about the Club Model Building Programme currently being compiled. Members of the Club had enjoyed a visit to the Police Station.

Volume 2 – Number 10 - 1st July: Don reported on a recent visit to the late **Lindsay Bond** in Stratford, the late **Bruce Neilson** in New Plymouth and finally the late **Bruce Baxter** in Wanganui on his way back to Wellington. He had had a 'good yarn' to them all and enjoyed his time with all three. He records that Lindsay was a great collector of antique, modern parts and sets. **Bruce Neilson** had a vast collection of parts and is a model builder while **Bruce Baxter** is regarded throughout the world as an authority on all things Meccano. He went on to say that Lindsay's knowledge may not be far behind **Bruce Baxter's** in this field.

Don had spoken with **Bob Boundy** from the Christchurch Meccano Club who is hoping to attend the NZ Meccanomen's Convention next Easter. Bob advised that the Christchurch Club is going well with an average attendance of 18 at their monthly meetings.

Don had received news from Mike Nichols Editor of the *Meccano Magazine* in the England indicating that they will not be publishing a July issue of the *Meccano Magazine* but will issue a magazine in September which will be the start of monthly editions from then on. The NZ Meccanomen' Convention will be advertised in the September Magazine.

Volume 2 – Number 11 – 15th July: Don reported that their Model Building Programme is still to be printed. The next model will be a 'free choice'. Meccanomen's convention planning is progressing satisfactorily. There is to be a Meccano Display held at the Waterloo School on Saturday 13th of August.

Volume 2 – Number 12 – 5th August: Further information regarding the model display to be held at Waterloo School. Preliminary notice given that a Meccano display is being planned for the School Holidays at W.S. Bank Cuba Street. The Model Building Programme has been released. **Lou Nichols** has advised Don that he will write a small article for future "Rags". **Stan Baker** is travelling overseas in connection with his job on the 12th of August to Hong Kong and Japan. Stan hopes to purchase some Meccano overseas if time permits. He returns on the 12th of September.

Volume 2 – Number 13 – 19th August: The display of 15 models held at the Waterloo School had been very successful. Special thanks to **Andrew Cathie**, **Phillip Blakeborough** and **Max George** for their efforts. Don included an education section on the uses of 'Perforated Strips'. Lou's contribution was this joke: A ships Engineering Officer was acting as an examiner and was testing the knowledge of a ships Stoker. The Officer asked the Stoker; "What steps would you take if you saw water entering the engine room"? The Stoker replied; "The ladder, Sir".

Volume 2 – number 14 – 2 September: The W.S. Bank Meccano display had been well received by the public. The YWCA had included a visit to view this display in their "Holiday Activity Programme" for some 60 youngsters. Apparently the

Manager reported that the display drew many more customers than did the Bank itself during this period. Don continued his discussion on the use of Perforated Strips.

Volume 2 – Number 15 – 16th September: Members were advised that **Stan Baker** had returned from his trip to Hong Kong and Japan but had not been able to locate any Meccano. Don continued his discussion on the use of Perforated Strips. **Special:** The Wellington Meccano Club is not the first Meccano club in the area according to a report lifted from the August 1933 *Meccano Magazine* Club Notes, page 619. The *Wellington Boys Institute Meccano Club* was. The report quotes "A special display was given at the Easter Show, the models built for this purpose including the Big Wheel and the High Speed Coaler. An interesting News Sheet has been introduced in order to keep members in touch with coming events. It is hoped that this will develop into a regular club magazine. Club role: 15. Secretary: **E. Speers**, 70 Cuba Street, Petone, Wellington, New Zealand"!!!

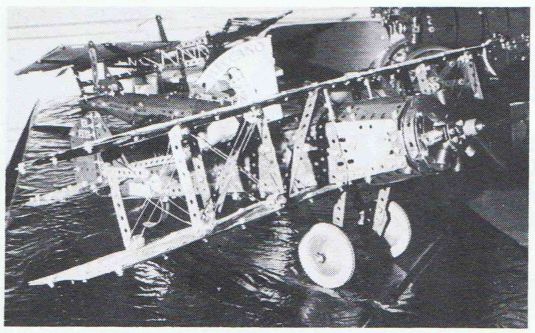
Volume 2 – Number 16 – 7th October: **Max George** has arranged for the Club to display models at the Porirua Kindergarten on Sunday 6th of November. Don continues his discussion on the uses of Meccano parts concentrating on Angle Girders. The poster for the Meccanomen's Convention is at the printers and the committee is due to meet soon. Lou's joke; "The cooker cooked": Ship wrecked Cook [to cannibal chief]: "Don't kill me and I'll cook your Sunday joint". Cannibal Chief; "Can't be done, you are the Joint".

Volume 2 – Number 17 – 21st October: The Meccano display at Porirua will now be held on 13th November. *Meccano Ltd* has advised by letter that even though *Delta Graphic* who had been the publishers of the *Meccano Magazine* have no money they, *Meccano Ltd* have agreed to honour all *Meccano Magazine* personal subscriptions. They will also honour the Wellington Meccano Convention Advertisement and expect to publish it along with the Wellington Meccano Club notes in the January 1978 edition. The *Meccano Magazine* of the future will likely be published quarterly, be of A4 format, may have fewer pages which will not be in full colour. Chris Jelly has resumed the editorship of the Magazine.

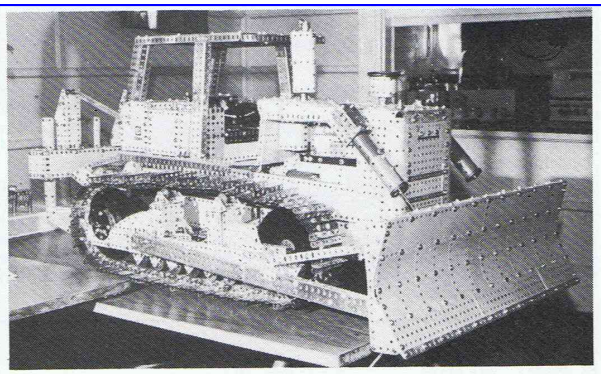
Volume 2 – Number 18 – 4th November: The Meccano display at Porirua will now be held at the Porirua East School starting at 12.30pm Sunday 13th November. Don continued the discussion on Angle Girders and their uses.

Volume 2 – Number 19 – 18th November: The Meccano display at Porirua arranged by **Max George** was a success and well patronised. Two points that have become evident over past months is that older spectators do not realise that Meccano is still being manufactured and that spares are on sale in New Zealand and dynamic models are better than static models for display purposes?! Don continued his discussion on the use of parts discussing part number 10 "Fishplates". The Christmas wind up will be held on 16th December.

Volume 2 – Number 20 – 2nd December: Call for old Meccano parts and odd parts including Blue/ Gold, Army and Aeroplane parts on a loan basis are required for the Convention. Don discusses the uses of "Double Brackets" part numbers 11 and 11a. As this is the last "Rag" for the year, Don expressed his thanks to all who had contributed items during the year and wishes all readers a merry Christmas and Happy New Year. He looks forward to seeing members on February 17th 1978.



A Meccano collector and enthusiast of many years standing, Lindsay Bond of Stratford built this Boeing 40-A Biplane which was judged 9th in the senior section of the Model-Building Competition.



Don Blakeborough of the Wellington Meccano Club showed this massively constructed and superbly finished model of a Caterpillar D9H Bulldozer. Note the rugged tracks and heavy 'dozer blade'.

Photos taken from the April 1979 Meccano Magazine, March 1978, First Convention in Wellington.

Meccano in Unusual Places

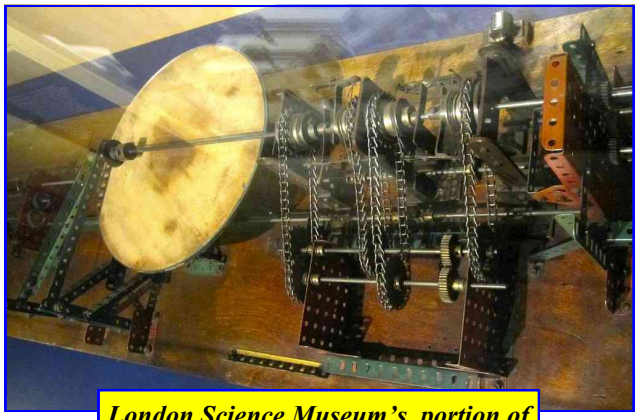
by William Irwin

On my trip to UK and Europe I have recently encountered Meccano or the use of Metal Construction systems in several unexpected places.

I went to **Bletchley Park** north of London near Milton Keynes to visit the National Museum of Computing where they have a wonderful display of many of the machines which assisted in the code breaking exercise which took place there during the second world war, including a working replica of the famous Colossus computer. Nearby in the Bletchley Park grounds I came across a small toy museum. It contained a collection of mainly pre-war Meccano items as well as several factory display models dating from 1939 with full provenance.

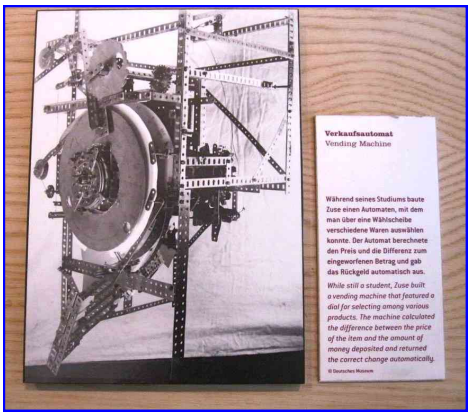
Bletchley Park Meccano

I also visited the Alan Turing exhibition **"Code Breaker" at the London Science Museum.** In the section "Computing before Computers" they had displayed the only remaining fragment of the Manchester University Meccano Differential Analyser developed by Douglas Hartree and Arthur Porter in 1934. The original machine had 3 integrators. The integrator on display is a subsequent 4th integrator built and added later using two stage torque amplifiers as an improvement over the original single stage ones. This experience was built upon by the team at Cambridge University when they built their 4 integrator machine (now at MOTAT museum in Auckland, NZ), all integrators using 2 stage torque amplifiers. Also of interest is that this integrator does not use Meccano chain and sprocket wheels to drive the torque amplifiers. The chain is much larger and the sprocket wheel teeth are a larger pitch than Meccano ones. The reason is a mystery as Meccano was freely available at the time and the Cambridge machine built shortly afterwards did use Meccano chain and sprocket wheels.



London Science Museum's portion of Meccano Differential Analyser.

In Berlin, Germany, I visited the **German Museum of Technology** (Deutsches Technikmuseum), specially to see the replica of Konrad Zuse's 1939 Z1 all mechanical computer, the first programmable computer using the binary system, rebuilt by him after the war. As a teenager Konrad Zuse used Metal construction systems (probably *Märklin*) and the display has a picture of a vending machine he built as a student that featured a dial for selecting among various products. The machine calculated the difference between the price of the item and the amount of money deposited and returned the correct change automatically! Also as part of the display there was a collection of loose parts (probably *Eitech*) in a hands on section for children (or adults) to build some models.



Meccano vending machine.

Wellington Meccano Club

Meeting Report

Date: 1st November 2013

Reporter: Max George

Meeting Date: Held at Max George's Place, Tawa.

Present: Keith McCallum, Lou Nichols, Max George, Reg Barlow, Simon Moody, Stan Baker.

Apologies: Bob Prescott, Brian Petersen, Campbell Morrison.

General Meeting:
Lou has been contacted by Rachel Ingram from the Cable Car Museum. They are having a children's day on Sunday 2nd March and would we like to display Meccano models there. Lou will come back to us after he has had more discussions with Rachel.

Stan talked briefly about the Sichuan Science and Technology Museum in Chengdu one of over a dozen he recently visited in China. That museum was much larger than NZ's Te Papa and had a different theme for each floor. The "Maths and Mechanics" floor was of particular relevance to Meccano enthusiasts and included a giant ball rolling machine 20 metres by 25 metres with a steel ball larger than a basketball being transported using 18 different mechanisms for lifting. One floor was devoted to robotics including an orchestra of humanoid robots playing genuine musical instruments and complementing this, the top floor was devoted to hands on use of over 100 Fischer technic robot modelling sets by teenagers. Other floors of interest included "Energy sources", "The Human Brain", "Old Chinese Inventions and technology " and in contrast "Aeronautics and Space Exploration".

March Madness:
This is in Taupo on the **8th / 9th March.**

Models:
Lou Nichols showed the start of the construction of Model Plan 193 Skeleton Clock. When completed there are more than 2000 washers in this model! The clock runs on the magic motor for 24 hours. A suggestion was that the theme for the next convention be clocks and knitting machines.

Simon Moody showed the middle section of Cranky the Crane from Thomas the Tank Engine models. This is also a model under construction.

Max George displayed a small Mountain Bike that was from a set he acquired from Lloyd Spackman.

Easter 2015 Convention:
Stan has had another meeting with Nicky Rich at Te Papa and they are as keen as ever to have us there over Easter 2015.

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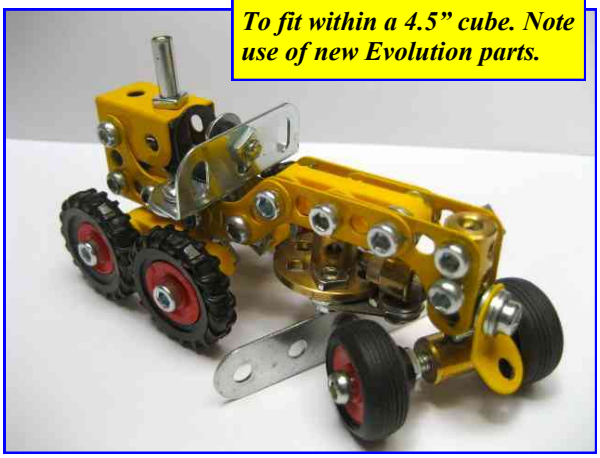


The Editor's mini Cat Grader. To fit within a 4.5" cube. Note use of new Evolution parts.

Entry in Spanner Xmas Challenge, December 2013.

Meccano at the Nelson Model and Hobby Expo

John Stark & David Couch

The Nelson Model and Hobby Expo was held at the Stoke Memorial Hall from 10am to 4pm on the Saturday and Sunday of Labour Weekend (26-27 October 2013). An article advertising the event was in the *Nelson Weekly*, one of our two free community newspapers, on 22 October. This was the same venue where we held our successful Meccano Magic Display at Easter 2012. David had contacted the organiser (Bruce Jury) who agreed that we could exhibit some Meccano Models. David had built two fairground models (a Ferris Wheel in BYZ and an Octopus in traditional R/G), the new Evolution crane-truck, and several other models from recent sets. John exhibited several clocks (which have all been seen before at Meccano displays) and his latest French Knitting Machine (which is the subject of an article in *Constructor Quarterly* No. 102) (Figures 1 & 2).

The Expo differed from every other Meccano display we have attended. All of the tables were fenced off to prevent the public from getting too close or touching the models. We can understand that given the small size, high value, and 'pocketability' of many of the models on display, but the barriers certainly did detract from the visual appeal of the display. Most models were static – there was more action (which certainly did attract an audience) in our modest Meccano section than in the remainder of the hall. Up on the stage there were model aircraft – a Spitfire and a Lancaster bomber were especially appealing as was a large yellow floatplane hanging from the ceiling. There were displays of model cars – with a focus on Kiwi motorsport including a vast array of V8 Supercars and a tribute to the late Jason Richards (Figure 3). Other models included large yachts, stationary steam engines, steam rollers (Figure 4), earth-moving equipment, a large number of American fire engines, motor cycles, boats, and Star Wars models. Perhaps the most different items were the amazingly intricate decorated ostrich, emu, duck, and goose eggs by Josephine Monk.

From our, somewhat Meccano-biased perspective, the FKM certainly was one of the stars of the show. It ran most of the time during the two days- ticking over on 4 Volts and, when someone showed interest, a burst of speed to impress. David's fair-ground models ran continuously and attracted a lot of interest too.

A follow-up article was published in the *Nelson Weekly* (29 October) in which the organisers said that the 'event exceeded all expectations with more than 1,000 people through the door.' That estimate seems a little high to us (based on our experience at Easter 2012 when we had 1,300 attend), but the organisers were very pleased with the variety of models on show at the event and the very positive feedback from the public who attended. Costs were met and a surplus was donated to the Jason Richards Foundation. We expect we may be invited back next time (in 2015).

Figure 1: Our Meccano models on display. This young lady spent a good 15-20 minutes watching the FKM in action.

Figure 2: Another view of the Meccano corner with the Octopus and Ferris Wheel.

Figure 3: Some of the V8 supercars on display.

Figure 4: Stationary steam engines, steam rollers, and traction engines, with model aircraft on the stage.

New Ashok Parts now in Stock with Stan Baker

Over the last year *Ashok* has introduced around 65 new compatible parts. In addition I have sourced new speed controllers for all types of DC motors used in Meccano and a range of new balloon tyres to fit ½, ¾ and 1 inch pulleys as well as collars and couplings and even axle rods.

This article lists all recently introduced parts from Ashok and describes some of these along with a few photographs. The following page has a full list in tabular form of new Ashok parts with brief descriptions.

Some further comments and descriptions of some of the parts follow. Photographs show some of these new items with their part numbers as captions. All are available in standard finishes similar to the other similar parts unless otherwise stated in the text below. Prices for any of these parts in either $NZ or $Au currency can be supplied on request. All products are in stock or replenishment stock on order.

Part 12 f: 1" x 1" slotted bracket. A very handy new part similar to part 12 but with long slots on both faces. Ideal for positioning securely parts at non-standard spacings.

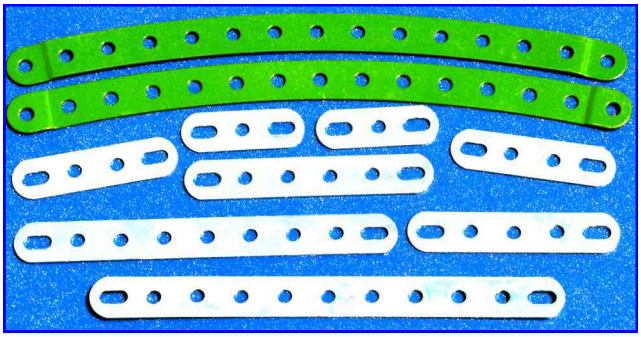
Part 22b: Narrow 1" pulley. This item is similar to the popular ½" narrow pulley with similar holes but 1" diameter.

Part 32d: Wide Worm wheel. Another very handy part, this meshes with a standard 50 tooth gear at standard Meccano spacings giving a 50 to 1 reduction. Combined with a 2.1 further reduction this gives a very simple 100 to 1 ratio that has been missing from Meccano previously.

Part 32d

Parts 55c to 55j: These are standard **perforated strips with a small slot** at the end similar to new parts in the evolution series. As with part 12f this allows assemblies to interconnect at non-standard spacing. Ideal for lattice bracing in cranes and the like too.

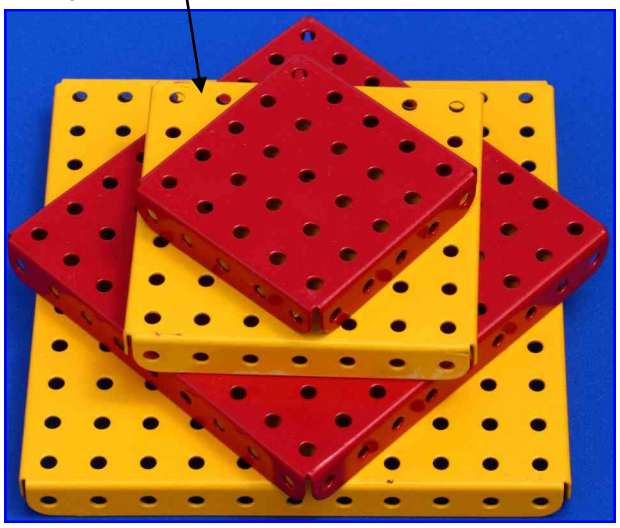
Parts 89c and 89d: Large stepped curved strips. These can be used to form circular rings with 12" and 14" diameters.



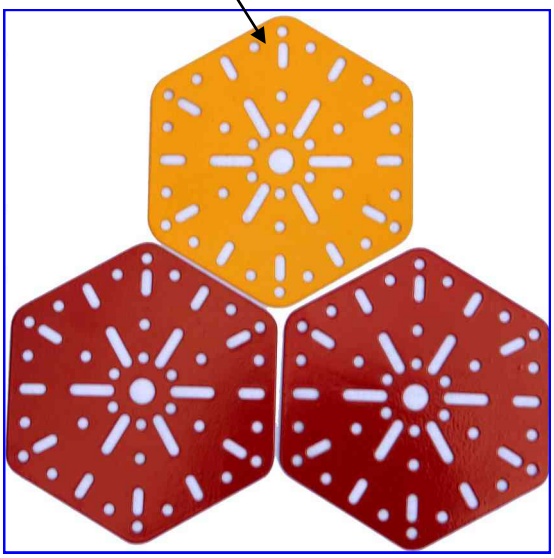
Parts 55c to 55j and part 89d.

Part Number	Description	Dimensions / comments		Grams
12 f	Slotted Angle Bracket	1" x 1"		4.0
22 b	Pulley w/o boss & holes similar to 23b	1"		5.1
32 d	Worm - Wide Meshes with 50t Gear			25.0
55 c	End-slotted Strip	1 1/2"	½	2.7
55 d	End-slotted Strip	2"	2/2	3.8
55 e	End-slotted Strip	2 1/2"	3/2	4.9
55 f	End-slotted Strip	3"	4/2	5.8
55 g	End-slotted Strip	3 1/2"	5/2	6.9
55 h	End-slotted Strip	4 1/2"	7/2	8.7
55 j	End-slotted Strip	5 1/2"	9/2	10.7
89 c	Curved Strip - Stepped	6 1/2"	12" radius	14.0
89 d	Curved Strip - Stepped	7 1/2"	14" radius	16.0
53 c	Flanged Plate - 4 flanges	2 1/2" x 2 1/2"	5 x 5	47.0
53 b	Flanged Plate - 4 flanges	3 1/2" x 3 1/2"	7 x 7	83.0
53 d	Flanged Plate - 4 flanges	4 1/2" x 4 1/2"	9 X 9	132.0
53 e	Flanged Plate - 4 flanges	5 1/2" x 5 1/2"	11x11	181.0
76 a	Hexagonal Flat Plate	4 1/2" across flat	5 x 5 x 5 x 5 x 5 x 5	57.5
59 m	Eccentric Collar	3/8" x 3/8"	1/8" off-set	5.7
59 c	Ball Grip 1/2" Ø sphere.	Tapped & Bored	@ 90º	6.7
63 j	Rectangular Coupling 7 Bores	1/2" x 1/2" x 1-15/16"		46.3
179 a	Pivot Rod Socket	5/16" Dia.		3.0
140 a	Constant Velocity Joint			19.0
99 NSO	Braced Girder - 3h wide	12-1/2"	25	12.6
100 NSO	Braced Girder - 3h wide	5-1/2"	11	5.0
98 NSO	Braced Girder - 3h wide	2-1/2"	5	2.0
163 e	Sleeve Piece	6 1/2"		42.7
163 f	Sleeve Piece	7 1/2"		49.5
163 g	Sleeve Piece	9 1/2"		62.1
163 h	Sleeve Piece	12 1/2"		74.6
164 a	Chimney Adapter	Large Axle bore—	8mm Ø - for rams	3.7
233 b	Corner Bracket	1 1/2" x 1/2"	3x5	4.7
233 c	Obtuse Corner Bracket	1 1/2" x1/2"	3x5	4.7
212 b	Narrow Rod & Strip Connector	Right-angle		1.2
289	Curved Strip - 1/4" spaced holes	5 1/2"	21	6.0
289 b	Curved Strip - 1/4" spaced holes	4" stepped	15	4.0
290	Curved Strip - 1/4" spaced holes	2 1/2"	9	3.0
108 a	Trapezoidal Gusset [3 into 2]	1 1/2"x 2 1/2"	3x[2+1]	4.7
255 c	Narrow End-slotted Strip	1 1/2"	1/2	1.9
255 d	Narrow End-slotted Strip	2"	2/2	2.4
255 e	Narrow End-slotted Strip	2 1/2"	3/2	3.0
255 f	Narrow End-slotted Strip	3"	4/2	3.7
255 g	Narrow End-slotted Strip	3 1/2"	5/2	4.6
255 h	Narrow End-slotted Strip	4 1/2"	7/2	5.8
255 j	Narrow End-slotted Strip	5 1/2"	9/2	6.8
247 c	Narrow Connector Strip	7/8"	3h at 1/4" spacing	1.0
247 d	Narrow Connector Strip	2 3/8"	9h at 1/4" spacing	2.6
247 e	Narrow Connector Strip	3 3/8"	13h at 1/4" spacing	3.7
247 f	Narrow Connector Strip	4 3/8"	17h at 1/4" spacing	4.8
247 g	Narrow Connector Strip	5 3/8"	21h at 1/4" spacing	5.9
323 b	Pulley without boss	1/2"		6.0
1105 a	Toothed Ring 20 DP	110 Tooth	5 1/2"-4 1/2"	56.0
1106 a	Toothed Ring 20 DP	150 Tooth	7 1/2"-6 1/2"	121.0
E1 K	Straight Erector Style Ribbed Strip	10 1/2"		13.0
E1 Ks	Straight -Stainless Steel version of E1K	10 1/2"		13.0
E2 & E2 S	Straight Erector Style Ribbed Strip	5 1/2"	E2 S is stainless steel	6.5
E4	Straight Erector Style Ribbed Strip	3"		3.5
E4 S	Straight -Stainless Steel version of E4	3"		3.5
E89	Curved Erector Style Ribbed Strip	5 1/2"		6.0
E89 S	Curved - Stainless Steel version of E89			6.0
E90	Curved Erector Style Ribbed Strip	3"		4.0
E90 S	Curved - Stainless Steel version of E90	3”		4.0

Parts 53b to 53e: Flanged plates with flanges on all 4 sides. Just as the VERY common part 52 the 11 x 5 holed plate with flanges on all 4 sides is ideal for strong clean looking bases for models these new complimentary items have respective 5 x 5, 7 x 7, 9 x 9 and 11 x 11 holes with a ½" flange all round. Many of these have been sold already.



Part 76a: Hexagonal Flat Plate. This new part is similar to that which could be created by 6 of part 77 the 5 hole by 5 hole by 5 hole triangular plate (but cheaper!!) One use already seen for it is as the hub for fairground models. It is a heavy duty hexagonal plate with 4.5" across flats and 5 holes on each of the 6 faces.



Part 59: Eccentric collar. This part is simply a normal collar with the centre bore offset by $^{1}/_{8}$" to produce a tiny cam with ¼" throw. Don't get them mixed up with your collars, they are difficult to easily see the difference!

Part 59: Rectangular Coupling with 7 Bores. I have sold hundreds of Ashoks holed couplings with similar bores and taps to the Meccano standard coupling but made from ½" x ½" square brass. Thes are ideal for the strongest anchoring of rods ixed to flat surfaces. This new product extends the possibilities with at 3.5", 7 hole long unit.

Part 179a: Large Pivot Rod Socket 5/16" Dia. This heavy duty pivot complements the smaller normal pivots where a heavy duty application is needed.

Part 140a: Constant Velocity Unit. This item designed by the Professor of Mechanical Engineering at Edinburgh University is an improved version of the Meccano universal coupling that is smaller but designed to carry far high loads and at greater offset angles with less power loss. It contains captive ball bearings that cannot come out of the unit.

Parts 98 99 and 100 with NSO suffix 3 hole wide braced girders: These have been in heavy demand since they arrived and are especially designed for bracing on cranes or similar structures. They come in green only to match the normal colour schemes for such structures. Available in 5, 11 and 25 hole lengths

Parts 163e to f: Long Sleeve pieces. To meet strong demand Ashok now offers these sleeve pieces in 13 15 19 and 25 holed versions. Ideal for simulated hydraulic rams

Part 164a: Chimney Adapter is identical to the standard chimney adapter except the radial hole has a diameter of 8 mm for heavy duty axles simulating large rams. Ideal for use with the new long sleeve pieces.

Parts 289 289b and 290: Curved Strips are improved direct substitutes for the similar Meccano items but have ¼" spaced holes allowing for far greater division of the circular rings or arcs created by the strips. These are particularly suited to large models where numerous "spokes" or the like of a wheel are required.

Parts 225c to 255j: Narrow Strips with End slots, similar to parts 55c to 55j above, but narrow. New Evolution sets include some of these.

This article will be conclude in the next issue.

New Zealand Club Diary 2012

Auckland Meccano Guild

President: David Wall, Tel. (09) 426 1965

Secretary: Peter Hancock, Tel. (09) 535 5355

Meetings at 2pm on second Saturday every third month. The next meeting will be held on **Saturday 10th May** at David & Elizabeth Wall's 45 Kath Hopper Drive, Orewa from 2pm.

MWT Meccano Club

Chairman: Chris Morton (06) 323 8001

Secretary: Robin Rye (06) 764 8670, 0274 461 540

Meetings at 1pm. Next meeting: **Saturday 12th April** at St. Luke's Church Hall, Corner Cornfoot and Manuka Streets, Wanganui.

Wellington Meccano Club

President: Stan Baker, Tel. (04) 566 7150

Secretary: Max George, Tel. (04) 232 4200

Contact: Lou Nichols, tel. (04) 297 1515

Meeting at 7:30pm on first Friday every second month. Next meeting: **TBA.**

Christchurch Meccano Club

President: Neil Pluck, Tel. (03) 389 8134

Secretary: Roland Jaspers, Tel. (03) 358 1357

Meetings at 7:30pm on first Friday every month (except January) at Papanui RSA Club, 55 Bellvue Ave or No. 1 Harewood Road, Christchurch.

Additional Meccano Contacts

Hamilton: Don McClelland, Tel. (07) 843 4198
Hawera: Daryl Anderson, Tel. (06) 278 7666
Kapiti Coast: Bob Prescott, Tel. (04) 905 2963
Napier: Trevor Adam, Tel. (06) 843 4837
Palmerston North: Bruce Geange, Tel. (06) 357 0566
Nelson: John Stark, Tel. (03) 545 1025

Articles, etc. for the May 2014 issue of NZFMM Magazine should be sent to Les Megget before the 1st May 2014.

Back Numbers: NZFMM Magazines from April 2001 are available. Please contact Bruce Geange.

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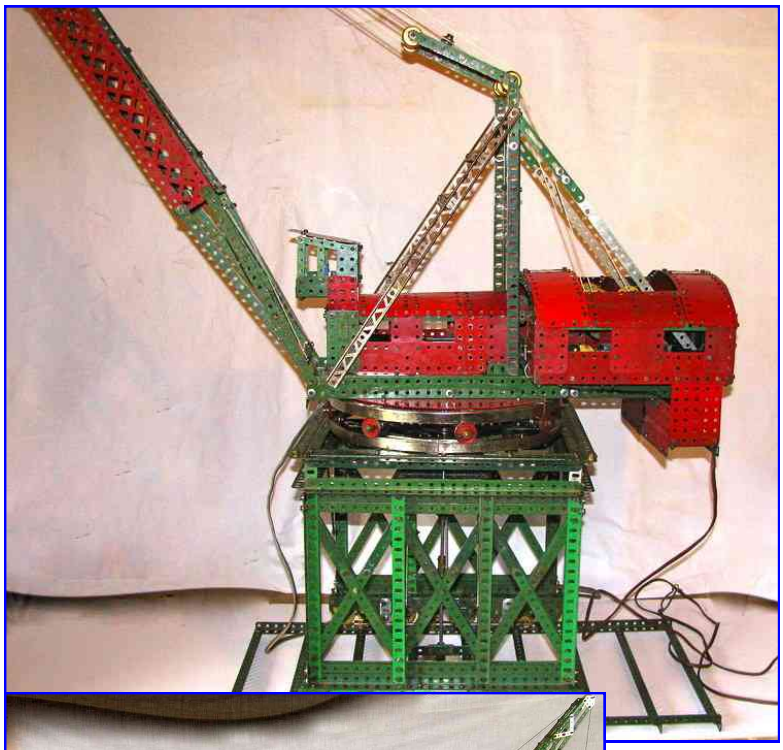
MARCH MADNESS

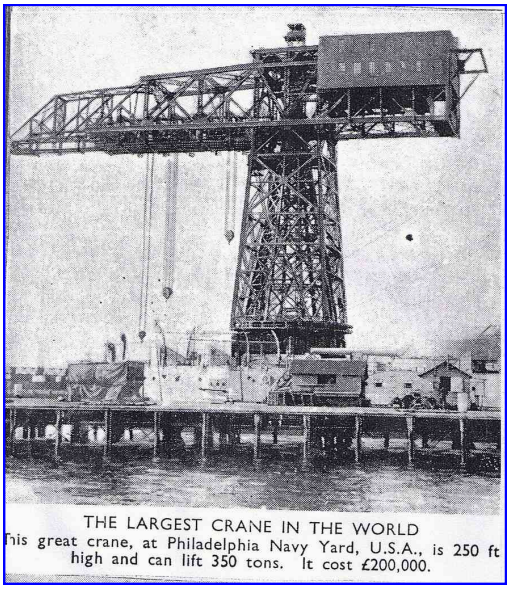
Begins at 9am Saturday March 8 2014 at the St. Andrews Hall, 91 Titiraupenga Street, Taupo Town Centre.

MECCANO ROADSHOW

18-20 April 2014, Cashmere High School Hall, 172 Rose St., Christchurch, 10am-5pm.

Henry Porter's Cranes (well some of them). Photos by Gary Higgins.





THE LARGEST CRANE IN THE WORLD
This great crane, at Philadelphia Navy Yard, U.S.A., is 250 ft high and can lift 350 tons. It cost £200,000.

PRINTED by KIWIPRINT, Papakura, Auckland

Henry has to be the most prolific Meccano modeller in New Zealand currently.

There are over 1,900 images of his models on Gary's Flickr website (Meccanohig). Well worth a look but put aside a couple of hours at least!