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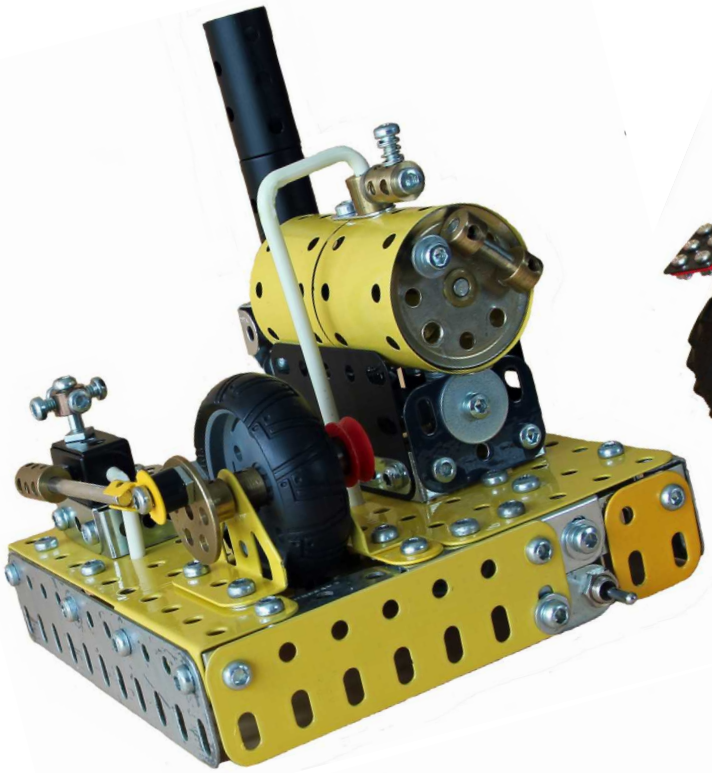

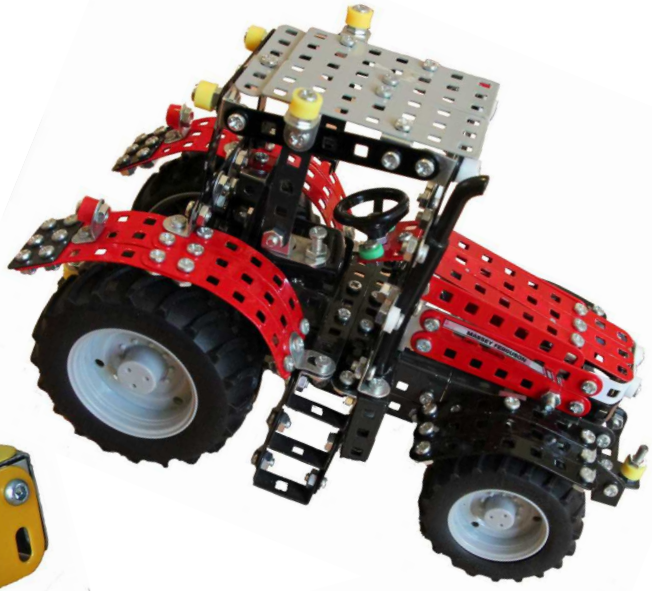

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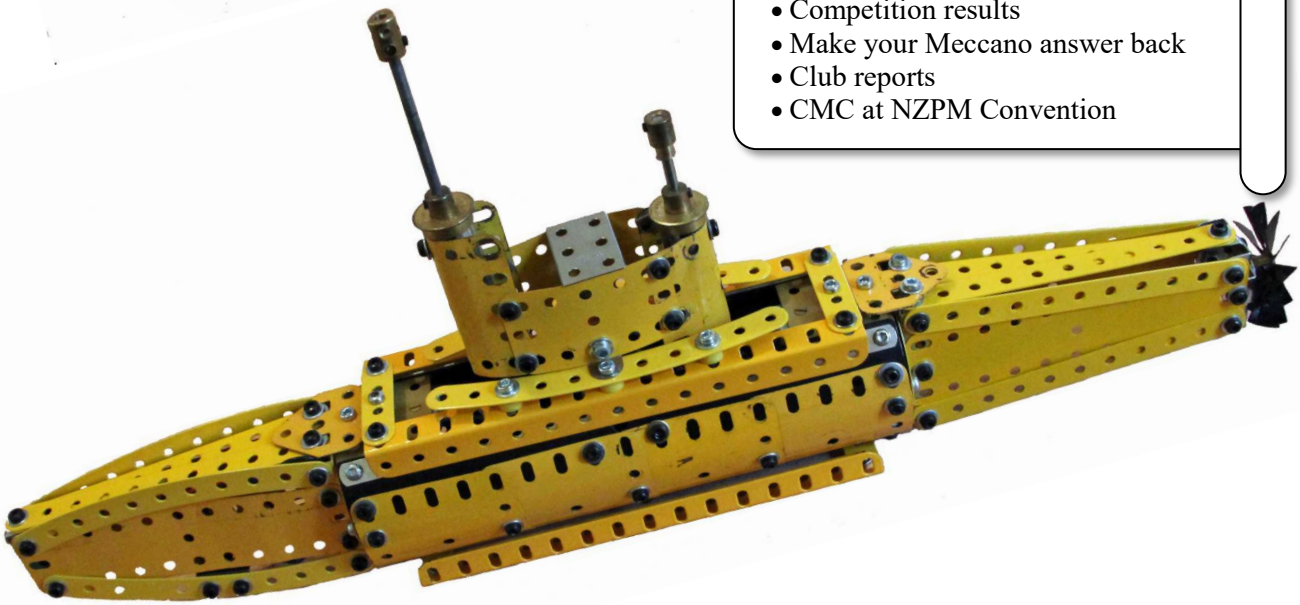

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Editorial

In this issue we have the continuing saga of Smart Meccano from **Bruce Durdle**, focusing on sensors and how to use them. A great practical guide to choosing and buying motive power through the Chinese on-line marketplace of *AliExpress*, courtesy of Nelson's **David Couch**, augments our digital offerings.

Bruce Geange contributes a neat little motorised toy, well within the build capability of our younger readers or your grandchildren.

We have the results of our first puzzle competition and a new one to keep those grey cells active.

Once again, a huge gobbet of appreciation to those who have taken the time and effort to contribute to our magazine; sharing ideas is what out hobby is all about.

Even as I write (in October) the insidious commercialisation of Christmas is already deep about us. Avoid the anxiety of trying to decide what to buy loved ones — what ever the age, Meccano is the perfect gender neutral present.

Best wishes and Season's Greetings to everyone
Richard

Letter to the Editor

Hi Richard,
Regarding page 5 of August issue and – I think in a previous one, that is NOT a 'Howitzer' it is a 'Gun', a Howitzer can be elevated beyond 45° to perhaps 70° - 80° and that one clearly cannot. Most Guns have an elevation limit that is around 45° - 50° (some rather less). There are Oddities like the UK 25pdr and 5.5" efforts that are 'Gun/Howitzers' – elevation from - 12° to +75° but with a barrel longer than a 'Howitzer' but shorter than a 'Gun'. Also the barrel is far too long to be a Howitzer – they are rather short. I have served on 25pdr / 4.5" / 5.5"/ 175mm army and 40mm / 12pdr & 16" naval. Howitzers are to drop shells into trenches and close behind hills – a bit like 'mortars', Guns are to deal with longer range matters.
Peter King
Christchurch

CONTENTS:

Meccano Model of a Toy Oscillating Steam Engine

By Bruce Geange of **MWT**

A model similar to this one designed and built by Dave Harvey gave me some ideas for improvement and includes a motor with batteries under the base to operate the model. The only non Meccano parts being a 4mm knitting needle bent to shape for the steam pipes and a motor that came from an old CD drive unit. General view of model shown in *(fig 1)*.

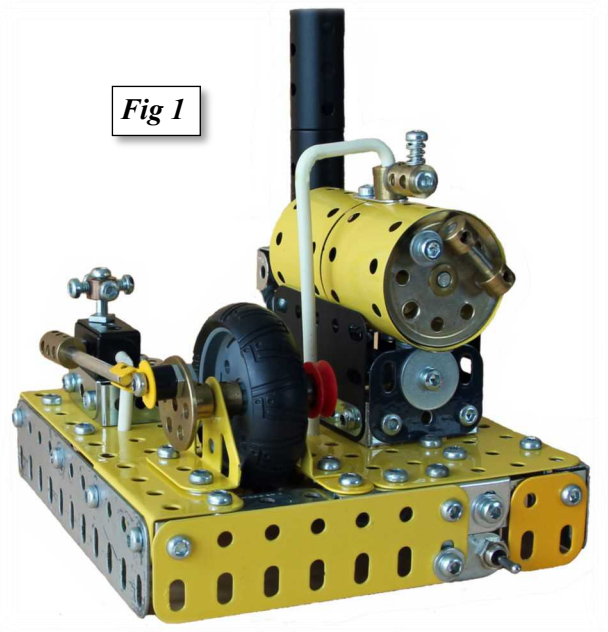


Fig 1

For the base (*figs 2 & 3*) bolt a $5^1/_2$" Angle Girder to a $5^1/_2$" x $2^1/_2$" Flat Plate by the round holes. Bolt a $5^1/_2$" Flat Girder with Angle Brackets at each end to the AG by the round holes. A 2" Angle Girder bolts to the fire door end of the flat plate by the round holes and overlapping one hole. Bolt a $3^1/_2$" x $2^1/_2$" Flanged Plate next to the FP at the chimney end with two Fishplates. This end is filled in with a $3^1/_2$" and $1^1/_2$" Flat Girders. Bolt a $2^1/_2$" Angle Girder to the flanged plate with a second $5^1/_2$" Flat Girder along the side. The other end has a 2" x $^1/_2$" Flanged Plate with an Angle Bracket fixed to the FG. .A second $3^1/_2$" Flat Girder bolts to the angle bracket then fixed to the 2" angle girder. A 1" Flat Girder completes that end leaving a gap for a switch. A 2" Strip bolts to the end

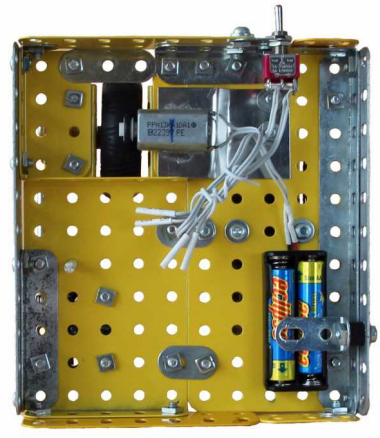


Fig 2

hole on the 2" angle girder and a $1^1/_2$" Strip fixes to the 2" x $^1/_2$" flanged plate. Two Trunnions bolt to the top for the crankshaft bearings. These may need Washers to keep the axle parallel.

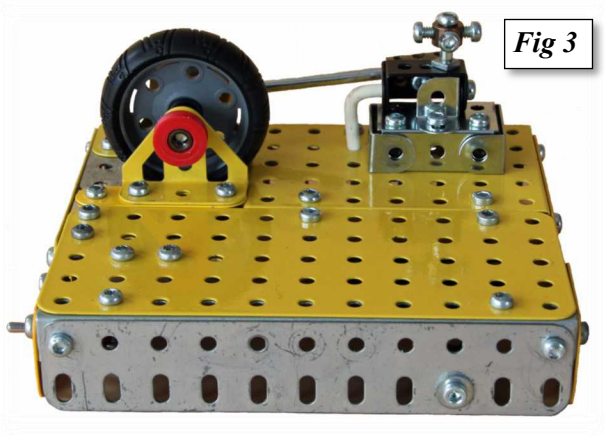


Fig 3

The boiler (*fig 4*) has been constructed by rolling two $5^1/_2$" x $1^1/_2$" Flexible Plates into circles and bolted side by side using a 3" Narrow Strip The holes next to these bolts have an Angle Bracket spaced with three Washers and a 1 x $^1/_2$" Angle Bracket also spaced with Washers at the rear end. Join the top with a Fishplate and the fire door end held with a Rod Socket. A Short Coupling fixes to the front end with a $^3/_4$" Bolt and two Washers. A $^1/_2$" Bolt with a Spring represents the safety valve. Two $1^1/_2$"Pulleys on a 3" Axle Rod form the boiler ends with the front pulley having two Collars with a 1" Axle Rod for the gauge glass with the pressure gauge being constructed from a $^3/_8$" Bolt, Washer and Mini Plastic Spacer.

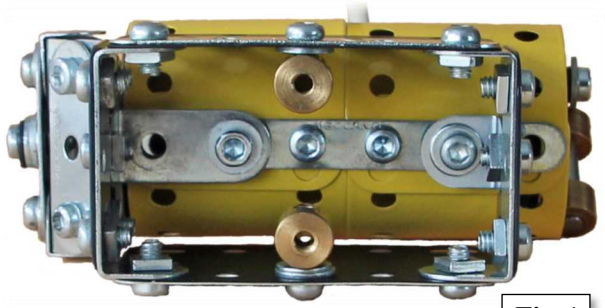


Fig 4

Each side of the fire box has a $2^1/_2$" x $1^1/_2$" Flexible Plate with a $2^1/_2$" Narrow Strip bolted to either side of $1^1/_2$" x $^1/_2$"Double Angle Strips and a $1^1/_2$"Flat Girder at the ends by the round holes. Two Sleeve Pieces make the smoke stack are joined with a $2^1/_2$" Narrow Strip overlapped one hole. Bolt a $1^1/_2$" Angle Girder to the narrow strip by the slotted hole spaced with three Washers. The other slotted holes have an Obtuse Angle Bracket with an Angle Bracket bolted to them. The obtuse angle brackets extend further with two more Obtuse Angle Brackets and an $1^1/_2$" Strip filling in the gap. Bolt the fire box to the angle brackets on the boiler with a $^3/_4$" Washer for the fire door. Bolt the smoke stack as-

sembly to the rear and two Threaded Bosses for the mounting of boiler to the base.

A 1 1/2" Tri Axle makes the crankshaft and has a 1/2" Pulley, Washer, Driving Dog (A444), Wheel Hub (A587) with Tyre (A388), Collar and a 1" Bush Wheel. To the bush wheel add a Rod and Strip Connector and Plastic Spacer on a 15mm Pivot Bolt. A 1 1/2" x 1/2" Flange Plate forms the base of the engine with 1" Double Angle Strips filling in the ends. Two 1" Double Angle Strips bolted at one end with a Corner Angle Bracket fixed by the round hole form the valve chest. A four hole Collar with a 15mm Pivot Bolt bolts to the top. Screw four Bolts into the collar. A bolt and Nut are fixed to the centre hole facing out with a Coupling free to pivot on the bolt. Bolt the valve chest to the base and with 3/4" Bolts and two Plastic Spacers on each fix this assembly to the main base. A 2 1/2" Axle Rod becomes the connecting rod. A small motor from an old CD drive has had a piece of tinplate soldered to it and an O ring fitted to the pulley. A couple of holes in the tinplate with two folds bolts in place. A small amount of friction on the tyre runs the model. Two AAA batteries fitted in a holder slide under a 1 1/2" x 1/2" Angle bracket. A forward off reverse switch bolts to a Fish Plate and fixes to the front end of the base. Next fix the boiler to the base with two Bolts and Washers. An old 4mm knitting needle has been cut and bent to shape for the steam pipes. The engine runs well and looks the part.

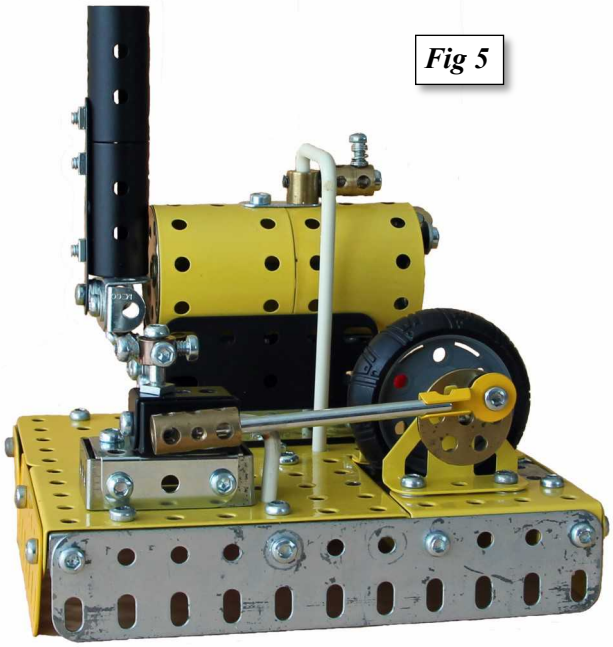


Fig 5

Smarten Up Your Meccano

Part 4: Sensors

We have seen that it is useful to be able to get some sort of reaction from a model that indicates that it is doing what is required (or possibly what is not wanted). Sensors let us monitor the performance of a system so that its operation can be changed when necessary, and are an essential part of any smart system.

Developments in electronics and widespread use of sensors in consumer applications means that measurements that were once very difficult can now be made using relatively cheap components in simple circuits. For instance, the advent of air-bags in cars means that there is a wide range of devices available that can measure acceleration. Because most Meccano models will include some sort of movement, I'll concentrate on ways of detecting physical location and related effects. Some examples are:

- Sensing objects – such as the end of a track, detecting a workpiece, or counting.
- Following a track of some sort.
- Tracking a source of light – could be used to keep solar cells aimed at the sun.
- Tilt or inclination for crane jibs.
- Measuring the distance to a target, or how far something has travelled.
- Orientation or direction.
- Acceleration or vibration.
- Tension or strain in a structural member.

Specifying Sensor Behaviour

Anything that can be changed by the effect we want to sense (the measured variable) and alter something else we can detect (the signal) can be used as a sensor. In most cases these days, the signal will be electronic in form, but this is not necessarily the only option. Until the early '70s, most industrial "intelligence" used pneumatics and a surprising range of physical effects could be used to generate a controlled air pressure signal. Direct mechanical motion has also been used as a signal for a long time, starting with centrifugal governors as found on the early Boulton and Watt steam engines and probably earlier. To describe a sensor, we need to define the measured variable, and the resulting effect on the signal.

Generically, sensors of the type we are interested in can be put into one of two types. The limit switches I looked at in Part 2 are examples of the simplest type – producing On/Off, Open/Closed or similar "discrete" signals having only two possible levels or states. When referring to on/off sensors three things need to be considered – what does the "On" indication mean; what does the "Off indication mean; and what happens if there is a fault with the sensor. I generally refer to these as "Active", "Inactive", and "Failed".

For example, the limit switches mentioned previously are there to indicate when the crane has reached the end of its permitted travel range. This is the Active state. If the crane has not reached the limit in that direction, the switch is Inactive. In this case, for safety, we want a failure in the circuit to show up as Active. The most common mode of failure with an electrical switch is an open circuit or loss of voltage, which is the same as the switch going open. So the Active state is the switch open, the Inactive closed, and the Failed state open.

The second type is generally more complex and will provide more information. An example for use with the crane would be something that could be used to give an indication of how far the crane has travelled from its home position. This type of signal is referred to as analogue (analog in US spelling). In this case, the sensor definition will have a range specified by minimum and maximum values for the measured variable, and the same for the signal. There also has to be a defined relationship between the two ranges – this is usually linear, but may involve some sort of mathematical relationship. Again, in critical applications, sensor failure must be considered. Changing the speed of the Boulton and Watt governor (see *image page 8)* causes the centrifugal force acting on the balls to change, and alters the balance between the radial force tending to force the balls apart, and the weight of the balls acting vertically to bring them together. By considering the balance between these two forces, an equation can be obtained linking the angle of the arms from the vertical to the rom of the engine being controlled. The Boulton and Watt governor also acts as an actuator, with the movement of the linkage to the top left of the photo directly operating a steam valve – hence the valve opening is related to the speed.

For a simple analogue measurement such as crane travel, we could use a variable resistance or potentiometer (pot) connected to produce a voltage which varies as the trolley moves along the bridge. The measured variable in this case would be position, with 0 % (or equivalent actual position in mm) at one end of the bridge, and 100 % (also with equivalent actual distance) at the other. This would need to be converted to % travel of the pot, noting that we want to have the pot travel cover a wider range

than the permitted bridge travel (0% position could be say 5% of resistor travel, and 100 % position 95%). The actual signal output in this case would be voltage, and we would need to specify this signal at 0% and 100% values. Finally, if using a computer as "smarts", we need to indicate the actual values stored in the computer at either end of the range.

(A word of warning here – if using a standard electronic pot for this purpose, check the equation. The standard variable resistance as used for volume control in audio work has a logarithmic equation rather than a linear one, since the human response to sound level is nonlinear (hence the decibel scale). This will be indicated using "A" as part of the rating – eg, A10k. A linear pot will be indicated by B10k. This example also illustrates what is meant by the equation linking input and output.)

Analogue sensors may also give a more complex electronic output, using a series of on/off pulses to represent an actual value. The value of the signal is coded in some way, and this type of signal usually needs some compatible software or hardware in the associated smart elements.

Some performance terms:

When dealing with analogue signals, there are some terms that you might come across. As usual, when used in a technical sense, these have specific meanings that may be different from those in normal use.

Accuracy and Precision:
While these are usually treated as equivalent, they indicate different factors. A simple example is a standard watch. The measures time, and will commonly display time in a format such as 8.57 AM. The PRECISION indicates the smallest interval that can be read – in this example, 1 minute. However, the ACCURACY indicates how closely the indicated value matches the value of a recognised standard, and with a watch will depend on the time reference used to set it, and any drift or changes in performance since then.

Resolution:
Resolution is closely related to precision. If using digital equipment, any analogue readings will usually be converted to a numerical value, and the number of bits used in the conversion process will dictate the resolution. With a 10-bit converter, the resolution is 1 in 2^{10}, or precision about 0.1 %.

Update time:
Depending on the technology used, it may take significant time to make a measurement with some sensors. For instance, with the ultrasonic distance sensor described below, the measurement process takes time as it directly measures the time taken for a sound wave to travel from the sensor, be reflected from a target, and return to the sensor. This time is directly related to the distance, and if a greater range of measurement is needed there will be a longer time between readings.

Physical Principles

There are a lot of effects that can be used in sensors. Some of the most widely-used for our purposes are:

- Contact
- Magnetic
- Optical (including visible light and infra-red)
- Sound (audible or ultrasonic)
- Gravity or acceleration

Which is best depends on the requirements of the application. Contact and optical effects are usually on/off. Magnetic effects are also commonly on/off, but some sensors can also give an analogue output. Sound sensors usually have an analogue output, whether used to convert something like speech into equivalent electrical signals or as an ultrasonic range finder. Accelerometers and the like will give an analogue output, often encoded to allow several measurements to be made by a single sensor. For example, a common sensor used in drones can produce 9 different output values: 3 accelerometers; 3 gyroscopes; and 3 magnetic field sensors. A 10^{th} element may be added to sense air pressure which can be used to indicate altitude.

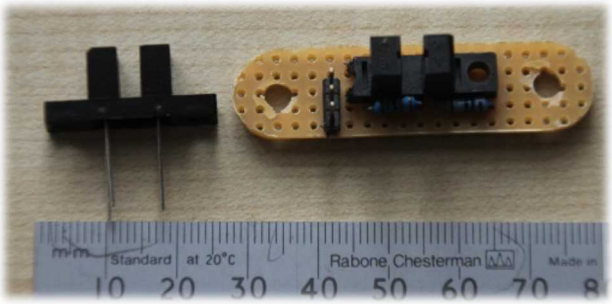
While the internal workings of these things may be of interest, in most cases you are better off treating the sensor as a black box. There are situations where the peculiarities of the sensor type may be of interest. One common example that needs to be remembered is that contact-type switches generally do not make a single clean contact but will bounce and produce several short-lived pulses before finally making or breaking permanently. This doesn't affect slow actuators such as relays but will be interpreted as several different make-break events by high-speed electronic smart devices. Optical or magnetic sensors usually do not have this problem.

Some Examples

Optical detector (photo-interrupter)

I have used several of these in Meccano projects. The basic module contains an infra-red LED and a phototransistor, mounted in a single package so that the light from the LED falls on the active area of the phototransistor and turns it on. The two parts of the sensor are separated by a slot so that the beam can be interrupted to turn the transistor off. The ones I

use are the item ZD1901 from *Jaycar* outlets but others are also available.



The ZD1901, and most other sensors that are easily available, don't come with a convenient Meccano footprint, so I've made up a base the same size as the No 6 2" Perforated Strip using Veroboard. The sensor does have the connecting leads compatible with a 0.1" matrix, which is also common with other sensors. Some electronics is also needed – I have included resistors on the Veroboard so that the module can be connected using a 3-wire lead. The circuit can be arranged to give either a high or a low voltage out when the beam is intact – I use a circuit where the output is high when the beam is broken.

We can use these to replace the limit switches on the travelling crane application by mounting them in a suitable position on the trolley track, and adding an element to act as a flag which will interrupt the beam when the permitted travel position is exceeded. In this application, the beam is intact until the permitted motion limits are exceeded, and the system description is

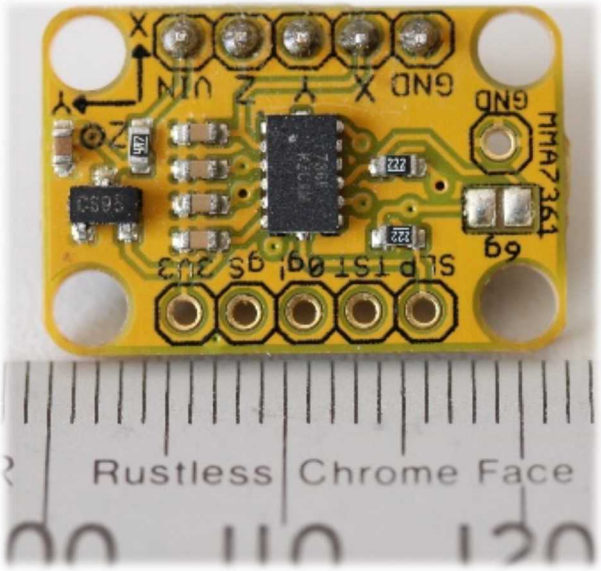
- **Normal** – within limits – beam intact – phototransistor on – voltage out low.
- **Active** – limit exceeded – beam broken – phototransistor off – voltage out high.
- **Failure** – no power to LED or circuit failure – voltage out high.

Since the consequences of a limit switch not making can be pretty drastic, the failure state has to be the same as the active state. It's also necessary to make sure the mechanical arrangement is safe and adequate end-stops are present.

In another application, I'm using these to indicate coins in a coin counter. Here, coins are sorted by size and fall on to balanced levers. Each lever has a flag on one end which breaks the beam in an interrupter when a coin hits the other end and tilts the lever. In this case, the description is:

- **Normal** – no coin – beam broken – phototransistor off – voltage out high.
- **Active** – coin detected – beam intact – phototransistor on – voltage out low.
- **Failure** – no power to LED or circuit failure – voltage out high.

The failure mode in this case is not critical (unless you're an accountant) but if necessary the circuit can be adjusted.

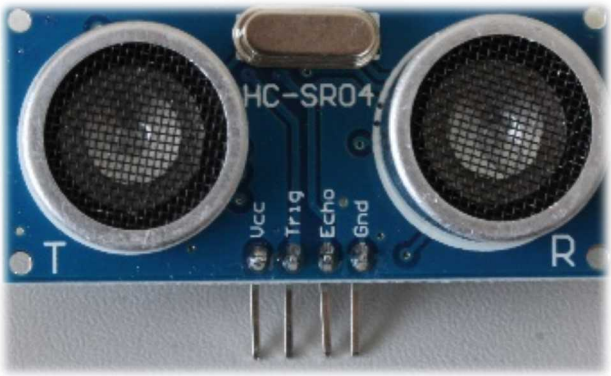


Accelerometer

With the advent of airbags as secondary restraint in cars, small and cheap accelerometers became readily available. A common type can sense acceleration in 2 horizontal directions (X and Y) and vertically (Z). Since gravity has the same effect on objects as acceleration, these can be used to indicate the inclination of a surface. When horizontal, the X and Y elements will indicate 0, and the Z element will indicate 1 g (9.81 m/s^2). If the surface the sensor is attached to is rotated out of the horizontal, the sensor outputs will change and the results can be used to indicate orientation. A typical sensor of this type will have 3 analogue outputs, with 0 g resulting in a mid-range value, and positive end negative accelerations being higher or lower than this.

Accelerometers can also be combined with gyroscope and magnetic elements. The gyroscopes measure rotation about each axis, and the magnetic elements allow orientation relative to the earth's magnetic field to be calculated. Since there are 9 separate measuring elements, these are referred to as "9 degrees of freedom" modules, and are the basis of the control systems used in drones.

Ultrasonic range sensor

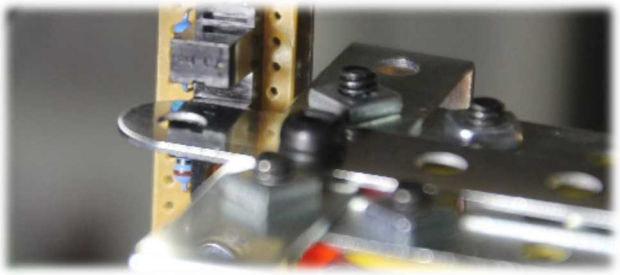


A project such as the travelling crane should have some way of sensing how far the trolley has travelled. One way of doing this is to use an ultrasonic range sensor which sends out a short pulse of sound and measures the time taken for the reflection to return.

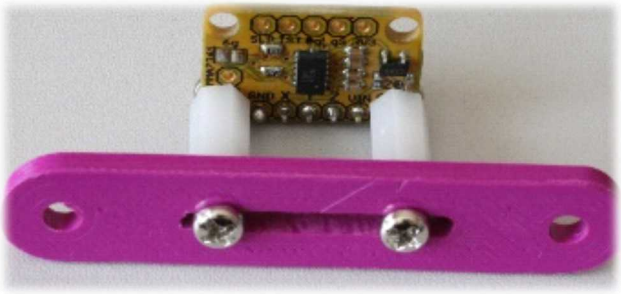
A typical item of this type suitable for use with Meccano projects will indicate distance by setting an output HIGH on sensing a pulse, then taking it LOW on receiving the echo. By measuring the length of this pulse, the distance to the reflecting object can be calculated.

Installing Sensors

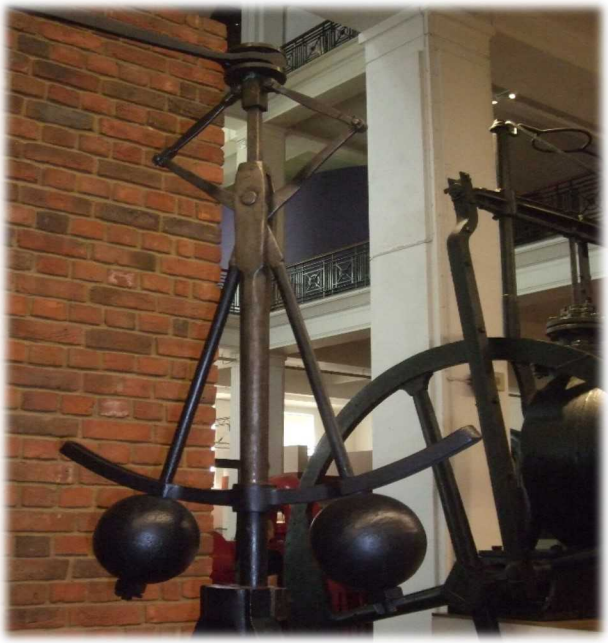
Sensors in the raw form are not easy to use – most are produced as microelectronic chips one or two



cm on a side. Incorporating these into mechanical projects such as Meccano in this form is not really an option. However, there are many versions of these which are built into small circuit boards with holes or pins provided to make the necessary electrical connections – these are termed "breakout boards". The accelerometer shown on page 7 is actually the small IC in the centre of the module – it is mounted on a breakout board along with a few other components to make it easier to use (and find if it falls on the floor).



The biggest problem with using sensors and breakout boards in a Meccano project is fitting them to the Meccano grid. In many cases, the positioning of a sensor can be fairly critical – for instance, with photo interrupters, the gap in the interrupter is 3 mm wide and needs to be on the same



centre-line as a flag which is mid-way between Meccano holes. The slotted holes in girders, angle brackets and fishplates can be used to allow positioning and orientation to be adjusted, but tend to get a bit fiddly.

3D printing can be used to fabricate adapters that will allow small sensors to be mounted on the standard ½" hole grid. The adapter shown has the same overall length and width as a No 6 perforated strip, with a mounting slot rather than fixed holes so it can handle a wide range of transducer arrangements.

Bruce Durdle
MWT

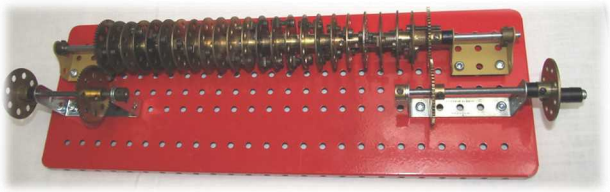
Auckland Meccano Guild Meeting

Meccano Meeting of the Auckland Meccano Guild 17th August 2019

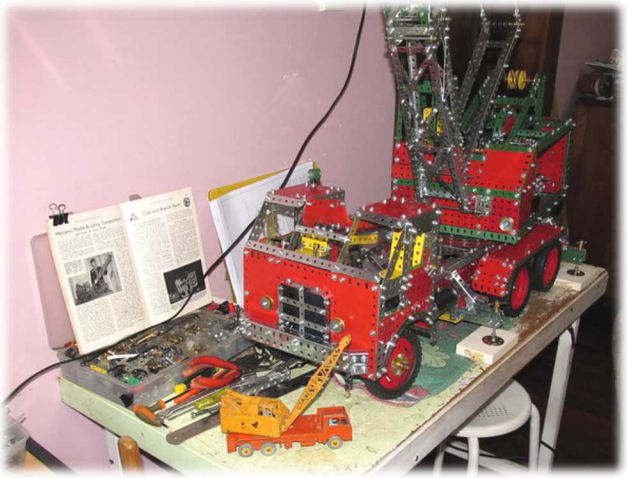
The meeting was held at the home of Les and Shirley Megget in Papakura. Apologies from **Dave Greenwood** and **William Irwin.**

Gerald Hart had constructed a working model of the early lifting bridge still present at the Auckland viaduct harbor. The model rolls on a curved base in which bolts serve to guide it in the correct angle as it lowers. Gerald has managed to copy the original in great deal and it works most realistically which is a credit to his modelling ability.

Rick Vine had brought a plethora of items including some of the dreaded Lego. The Lego model was a very large Saturn rocket with a tiny moon lander and Apollo capsule placed on top, very topical for the 50th anniversary of the moon landings, has it really been that long? He also had an epicyclic gears demonstration model 16:1, a mini Lego digger, and a 20 bushwheel delayed action gearing, he also had some stamps which featured Fun Ho toys.



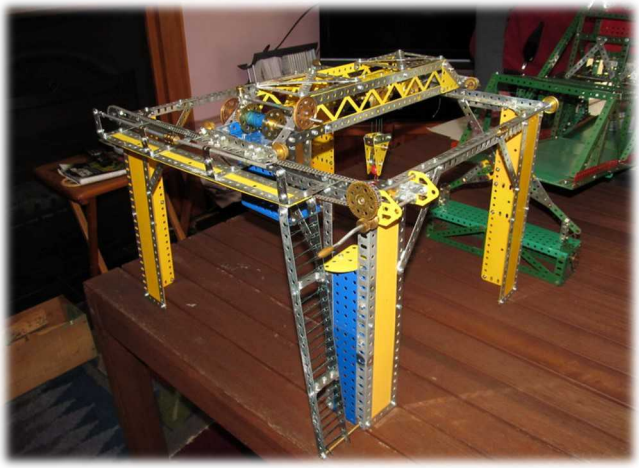
Les Megget has been building a Coles lorry mounted crane based on one of his favourite Dinky toy models. He had a Meccano Magazine cutting showing a similar model made by one of the many Meccano boys so Les thought why not give it a go! It is everything we expect from Les and is a joy to behold. (My Apologies to Les for missing him from the write up of the last meeting, he was certainly in the photos.)



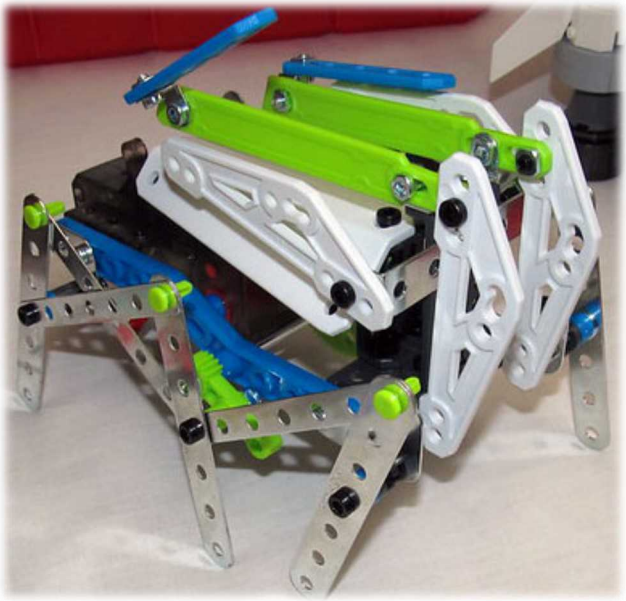
Gary Higgins has bought a selection of the new sets and is pleased at the direction Meccano is taking. The new sets appear to be more like the original Meccano programme with each set building a number of models but is complemented by the next highest. There are four such sets so far from the smallest up and likely to continue. Gary showed a walking machine from the motorized movers set 19602 which makes the use of a 3x AAA battery motor which is very powerful and works well. He also had an example of the 19201 set. A motorbike or car set making 5 models, this has 4x spoked wheels which will be a useful addition.

Gary had also built a submarine from the Meccano Loco set with some variations and had brought along two of the Meccano O gauge stations, a 1939 Wembley station 4E with electric lighting and a cut out section through the centre and an early 1924 Winsor station with opening doors and candleholders in the base.

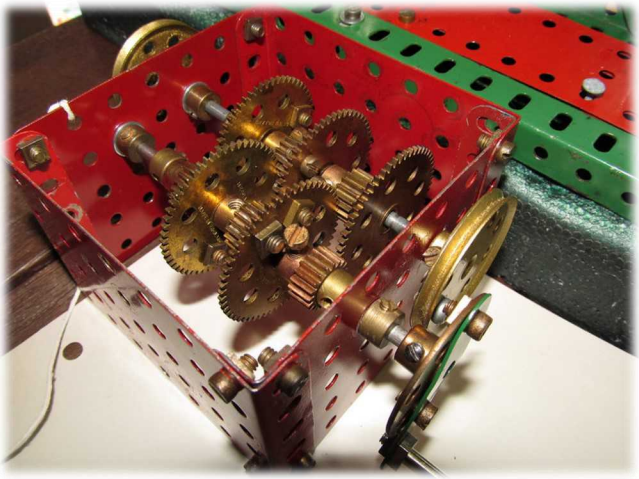
Anthony Caldwell had built up an overhead gantry crane with a fixed base which worked very well.



David Wall had made up an excellent model of a Scammel crane truck from a local Eitech clone. It looked really good and shows what can be made from other systems.



Graeme Mills had built a gear reduction box and was pressing members to try and guess the ratio. Easy as Graeme; I guess it is 243:1 or there about.



Brian Cotton, our resident locomotive expert had brought along some rare O gauge items for our education namely two men hauling an enormous sign with the words "*Halls Distemper*" on it, place in any field on a loco display, quite rare now. He also had a platelayers hut with opening door, also hard to find a watchman's hut with coal brazier and a K series miniature oil can, both highly sought after.

Neil Carey was also present.

The meeting concluded with a supper hosted by the ladies.

Gary Higgins
AMG

Buying motors from AliExpress

by David Couch

AliExpress is an electronic store-front for thousands of small Chinese manufacturers, and offers a huge variety of items, mostly at ridiculously cheap prices. For example you can get a PWM motor controller for about one dollar, or an Arduino Uno for about five dollars. Incidentally, AliExpress is owned by the Alibaba group, but its web site is quite different from the alibaba.com site.

To enter the AliExpress site, browse to www.aliexpress.com At the top of the page is a search box where you enter a description of the item you want. If you enter a generic description such as **dc motor** or **m3 screws** you will find that there are dozens of manufacturers offering similar products, and you can browse through them to find one that suits you. I will give some examples of individual items, but you may find others you like better. If you are reading the electronic version of this magazine you can just click on the links (the word **here**). If you are reading the paper version I can't give you URLs because they run to hundreds of characters. Instead I will give you search terms which should enable you to find items fairly quickly.

DC motors

There is one type of motor which has become widely standardized, and is very suitable for most Meccano models, except perhaps the very largest. It is a geared motor, which means it has built-in gearing, so that the output shaft rotates relatively slowly with plenty of torque. It is cylindrical in shape, 25 mm in diameter and 50-60 mm long. The output shaft is always 4 mm in diameter, which conveniently fits Meccano bosses. An example is shown in Fig 1.

Fig 1

Geared motors are available for 6 volt, 12 volt or 24 volt supply, and with nominal output shaft speeds ranging from 12 rpm to 2000 rpm. An example is here (or search for **bringsmart dc motor jga25**). My own favourite is a 6 volt 100-133 rpm motor, which is extremely versatile and can drive most loads either directly or with just one stage of gearing. These motors have plenty of power, but still draw a current of less than one amp, so that you can use them with motor controllers such as the Arduino motor control shield.

For mounting, the motors have two holes which are tapped with an M3 thread. You need 5 mm or 6 mm M3 screws and washers, which of course you can also get from AliExpress here (or search for **m3 screws**) and here (or search for **m3 washers**). Fig 2 shows an example of a motor with two Angle Brackets attached to form a mounting.

Fig 2

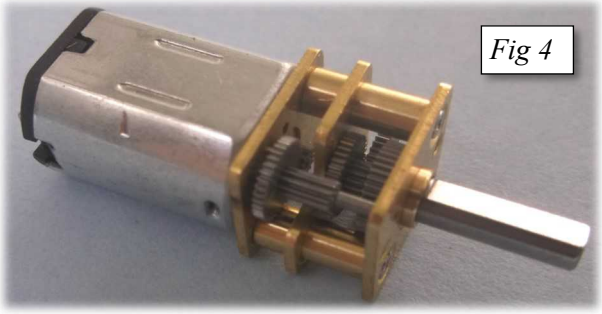
Electrical connections are made to two small tags at the rear of the motor. You will need to solder wires to these. The tags may snap off, making the motor useless, if they are bent too often. One solution is to anchor the wires to the body of the motor with a cable tie, as shown in Fig 3.

Fig 3

Smaller motors

Another standard type of motor is a geared motor that measures only about 24 mm long and 12 mm wide. An example is shown in Fig 4. These tiny motors are surprisingly powerful and quite adequate to drive a small model. Again they are available in a wide variety of nominal shaft speeds. An example is here (or search for **mini micro metal gear motor**). The shaft diameter is always 3 mm. A simple

Fig 4



way to make it fit Meccano bosses is to glue or solder a piece of 4 mm o.d. brass tube over the shaft, as shown in Fig 5. You can order brass tube here (or search for **brass tube**). The motor has two mounting holes with an M1.6 thread. Fig 5 shows another way of mounting the motor. It fits neatly inside a Double Bent Strip, and is gently clamped in place by a Nut and Bolt.

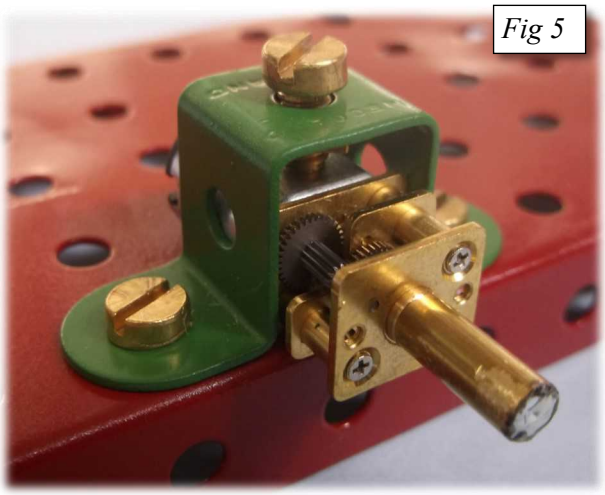


Fig 5

Larger motors
There is a wide variety of larger DC motors on the AliExpress site, including some geared motors, though there is no single one that I could recommend. These motors all seem to have 5 mm or 6.3 mm shafts. One way to incorporate such a motor into a model without mutilating parts would be to use a shaft coupling, which is available here (or search for **shaft coupling**).

DC motor controllers
The best way to control the speed of a motor is with pulse width modulation (PWM). Many PWM controllers are shown on the AliExpress site. The speed is usually controlled by a potentiometer with a rotary knob, which may be fixed to the board or connected via flexible wires so that it can be mounted in a control panel. The PWM output is in one direction, but some controllers come with a reversing switch which can also be mounted separately. An example is here (or search for **dc motor controller**). Don't buy a brushless motor controller, which is something quite different.

Stepper motors
There is a wide variety of stepper motors shown on the site. Nearly all have 5 mm or 6.3 mm shafts. However I have found one type with a 4 mm shaft, and have bought one and tested it. It is here (or search for **35BYGH39-2W**). It has four mounting holes tapped M3 and spaced one inch apart, as shown in Fig 6.

Servos
I have bought and tested one of the many servos shown on the site, and it seems to have good performance. It is here (or search for **MG995 Servo**).

Power supplies
If you prefer to run your models from mains power a plug-pack power supply is very convenient. I prefer the type with selectable output voltage, ranging from 3 to 12 volts. An example is here (or search for **power adapter**). In New Zealand, make sure to select one with an Australian (AU) type plug.
Plug-pack power supplies are nearly always fitted

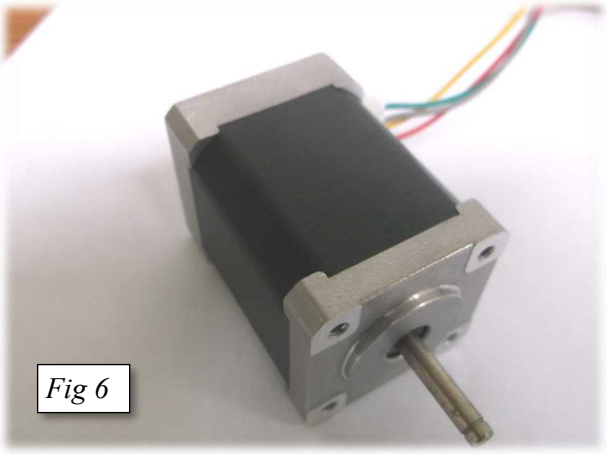


Fig 6

with a 2.1 mm barrel jack plug. You can conveniently connect this to your model using a wired socket, seen here (or search for **barrel jack connector**) or a panel mounted socket, seen here (or search for **barrel jack socket**).

Other items
Other items I have bought from AliExpress include electrical components such as switches and connectors, electronic components such as LEDs and colour sensors, Arduino processors and shields, batteries and a charger. I recommend buying one of the boxes of assorted metric screws, nuts and washers that you will see on the site, as small nuts and bolts are so hard to find and expensive in New Zealand. One of many selections, which includes washers, is here.

Buying from AliExpress
When you first buy something from the site you will need to create an account by entering your email address, password and postal address. The site has the usual facility of a "shopping basket" so that you can order several items and pay for them in one payment, using your credit card. However the items will arrive separately, as they are sent directly by the manufacturers. In my experience delivery takes from two to five weeks.

Please send questions and comments to;
david.couch46@gmail.com

Laurie Webb—A personal account from Bryan Jones, MWT.

Laurie Webb and his wife Jean shared several interests outside of the Meccano world with Nancy and I. We were interested in overseas travel, particularly to Germany, and we shared interests in railways and buildings. Laurie and I became close friends around the time I produced my model of the Liebherr tower crane. We both wanted to do big original models, and the European connection (Liebherr cranes are made in Germany) perhaps might have struck a chord with him. The only model I know of (before our tamper) that he collaborated on, was with Simon Moody back around 1990. They built a pair of railway breakdown cranes together, and I understand it was exhibited at a Meccano Convention in Wanganui around that time. Laurie also joined in when we did the rail yard diorama for the 2008 Hawera Convention, putting his own interest on show by building a model of a Swiss electric loco which fitted into the scheme of things.

Laurie had a station wagon, so it was useful when we did the combined meetings between Wellington and MWT, using it to transport the models to Wanganui. I remember we took his large hammerhead crane, based on the original in the dockyard in Sydney. Back to the tamper model! In 2008 I was working at Hutt Shops, assisting KiwRail with the half-life overhaul of one of our tampers. I had talked to Laurie on several occasions about using my knowledge of the tamper construction to consider replicating one in Meccano. A Europe trip by Laurie and Jean saw them visit Austria, where they took the time to find Plasser and Theurer's head office in Vienna, so that Laurie could talk to someone about the machines. He came back with photos of European made machines and some literature. I gathered some plans, videos and more literature from Plasser Australia (the branch factory that Kiwi Rail deals with). We decided (in our collective madness!) to go for one of the more complicated machines that Plasser and Theurer made, having a good amount of research material to hand, although there are none of these particular machines in NZ.

I did the initial design work, scaling up some original plans and doing some frame construction to see how big this thing was going to be! We agreed on a size, and what features the model was going to have. Laurie then undertook the job of building the bodywork, while I concentrated on the mechanical bits. We used our respective Meccano sets for the areas we were building, and had several sessions on Saturdays where I would visit Laurie and Jean for the day to work through design issues. About this time Nancy and I left Wellington to relocate to Waitarere Beach, so I made occasional day trips back to Wellington as the model progressed towards completion.

We had hoped to have the tamper finished for the Convention in Christchurch, but a lot of the mechanical parts were still not made. Laurie built a coffin-sized transit box so that we could get it there and back safely, but we only had a completed body on temporary powered bogies to drive back and forth, so it wasn't quite the hit that I hoped for at the time. The details came later, together with a bit more mechanical movement, and it culminated with the MWT showing just over 10 years ago. A lot of the model was "pose-able only", in that it could be set up by hand to the movements that the original performed, but the original has a lot of hydraulics to do this, and it was not possible to replicate this in the scale that we chose.

I took a few photos at the Whanganui meeting, and sent copies of them to Kiwi Rail and Plasser Australia. I received favourable comment from both parties, and Laurie and I had the pleasure of seeing our model featured in an article in "*Plasser Today*", the company's in-house international magazine. The model remained assembled for a few months afterwards until Laurie and Jean announced their intention to move to Perth. Laurie dismantled the model to retrieve his parts, and returned all my sub-assemblies for me to dismantle separately. In writing this, it has brought back many happy memories of our shared times together. I was indeed surprised to find that the model was finished ten years ago.

Plasser & Theurer 08-475 Unimat Tamper

Above: **Laurie** and **Bryan** setting up the tamper.

COMPETITION AND PUZZLE PAGE

Puzzle No 2.

Background:

Dazza was not a happy chappy. His normally pristine workbench was littered with examples of every spur gear that Meccano ever produced. In spite of spending much midnight oil he was no closer to his goal of building a gear train that would perform a divide by pi (π) function to finish his entry in the current club competition to design a mechanical calculator.

***Question** #2:*

*Describe a **spur gear** train using **metal Meccano factory gears** that will produce an output of **3.14** turns for an input of 1 revolution. Minimum acceptable level of precision is two decimal places. Remember children, neatness always counts.*

***Conditions**:*

This competition is open to all financial NZFMM members. The prize will be awarded to the most correct answer received by the Editor. If no reasonably correct entry is forthcoming the prize will be held over to the next competition. In the event of multiple correct entries being received the winner will be decided by random draw. The Editor's decision is final and no correspondence will be entered into; (unless it is witty and/or only mildly abusive.) The solution and winning answer will be published in the February 2020 issue. Closing date for entries is 20/2/20

Solution to Puzzle No 1.

Readers were invited to calculate the total number of different ways a part **48d** (5½" double angle bracket) and a part **52** (5½" flanged plate) could be joined with a single bolt, excluding rotations and mirror reflections. Different in this context means that it requires the bolt to be moved or otherwise shifted in either or both parts to count.

The key to solving this is threefold. Firstly, as part **48d** has a *single axis of symmetry* passing vertically through the central hole, only seven of the total 13 holes can be counted. Secondly, the **flanged plate** is *completely asymmetric* because in 1928 they had added slots to accommodate a faux circular saw blade and hence **all** the holes are valid. (*See opposite*) Lastly, because the bolt can be slid along the transverse slot, we can add further combinations. What counts as 'different' here is dictated by the lesser diameter of the bolt verses the width of the slot. Twice this slight clearance is the minimum amount you must move the bolt along the slot to be in a 'new' position. The slot is a nominal 0.5" long. The clearance is the width of 0.170" minus 0.150" bolt diameter, equals 0.020". Therefore you can identify 0.5/0.02 or 25, minus the two already counted, or **23** distinct positions along the slot. This gives a grand total of **2742** different ways.

		52 FFU	52 FFD	52 LFI	52 LFO	52 RFI	52 LFO	52 TFI	52 TFO	52 BFI	52 BFO	52 SLOT FU	52 SLOT FD
		55	**55**	**11**	**11**	**11**	**11**	**5**	**5**	**5**	**5**	**23**	**23**
48d	**6**	330	330		66		66		30		30	138	138
48d	**6**	330	330		66		66		30		30	138	138
48d	**2**			22		22		10		10			
48d	**7**			66		66		35		35			
48d	**1**	55	55	11	11	11	11	5	5	5	5	23	23
2742		**715**	**715**	**99**	**143**	**99**	**143**	**50**	**65**	**50**	**65**	**299**	**299**

FFU=flat flanges up: FFD=flat flanges down: LFI=left flange inside: LFO=left flange outside: TFI=top flange inside
TFO=top flange outside: BFI=bottom flange inside: BFO=bottom flange outside: SLOT FU/FD=slot flanges up/down

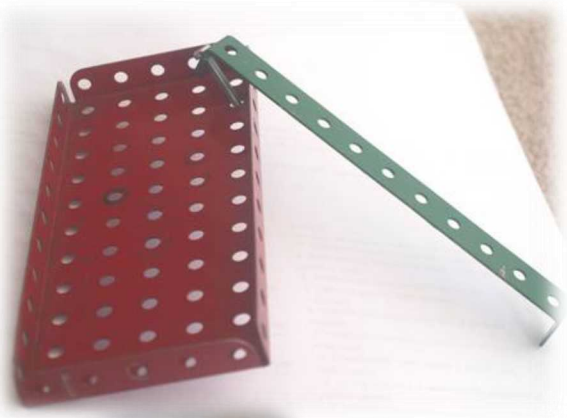
Puzzle No 1 answers.

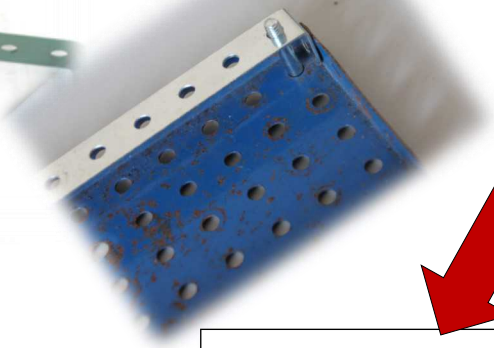
Many thanks to those who took the time to provide thoughtful answers. Clearly a lot of time and effort went into them. Of particular note was **Paul Dale**, whose detailed analysis ran to several pages. His method of annotation was the most ingenious. From overseas **Georg Eiermann** in Germany provided multiple images of the various relationships, and in the UK **John Evans** did well finding 1131 possibilities. Closer to home **Ross Quale** let his imagine run free, to which his numerous pictures attested.

Unfortunately no one spotted the 1928 — 33 saw slot variation. A clue was Dazza's bloodied hand. Some correctly noted that the length of the bolt was not stipulated whilst others felt that reversing the bolt direction was a legitimate ploy, but the competition conditions did not allow for that.

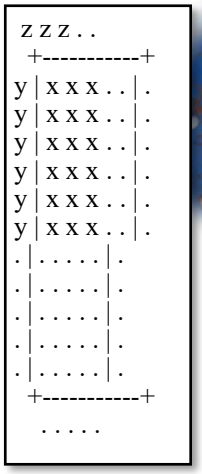
All in all, while there was no outright winner the following people deserve mention for their presentation and reasoning. The prize will therefore be carried over to the next issue.

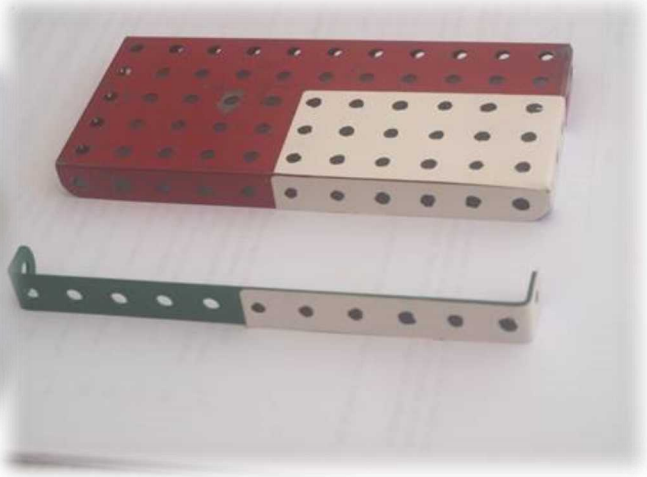
- **Ross Quayle** = 1483
- **John Evans** (UK) = 1131
- **Daryl Anderson** = 860
- **Paul Dale** = 746
- **Georg Eiermann** (Germany) = 378
- **Chris Morton** = 179 (Best description award.)





Because no winning entry was received the prize will jackpot and a second **geared DC motor** will also be included.





Greater Waikato Meccano Club

Club Display at the Cambridge Model Railway Show Report 17-18 August 2019

In August 2019 we were able to run a two-table Meccano Display at the Cambridge Model Railway Show. Four of us participated and promoted our club and Meccano well. It was a good display and created a lot of interest.

Doug Harris presented our club with two large Meccano posters to use (thanks Doug) and lent two of his models (a bush railway logging truck and an early Holt Crawler Tractor) for display.

Clive Nicols & **Brian Hickson** at the display

Clive Nicols showed some of his Army models in a small diorama and spent a lot of time showing kids how to turn crank handles. A large windmill and a small excavator were among other models he had also brought along. Clive also built an easel for the club to hold a large poster display board which was much appreciated.

John Rickit Transport Ltd carries **Brian Hickson's** excavator to a new job...

Doug Harris' Holt Crawler Tractor

John Rickit built a nice articulated low-loader truck which was used to transport Clive's blue excavator. **Brian Hickson** brought his Centenary Set Crane and black Locomotive, No.5 Set Fire Engine, tractors and the tractor-pull sled. He then excelled himself, enthusiastically talking to our visitors and possible new members (but we didn't get any so he will have to try harder next year!) and the chairman had a lot of trouble flitting between our Meccano display, fixing helicopters and then driving trains on the GWR model railway (his fault for having too many hobbies !). He also had the blue cars (with flashing lights) and a couple of small cranes and windmills on the table for the younger visitors to operate.

Doug Harris' Bush railway logging truck

The Cambridge Model Railway Show was very successful in its own right (making a gain of $1000) and proved to be a great opportunity to promote our club and the Meccano hobby. There was a good crowd visiting each day and many superb model railways were seen. The model railway club, with around fifteen helpers had plenty of experience and resources for organising this show, booking the Town Hall, getting local publicity and using the Cambridge Brass Band for catering (this was a fundraiser

for them; and last year the Brass Band also provided a mini lunchtime concert). Two or three other community groups, such as the Cambridge Quilters and Patchwork Group were also invited to attend in order to widen the visitor experience. Meccano fitted in nicely with all this. We are now hoping to repeat this next year.

Greater Waikato Meccano Club Meeting Report 7 September 2019

Our September meeting was held at **Mike Walmsley's** place in Paeroa. Eight members attended and there were two apologies. This meeting was preceded by a short AGM.

We had a varied display with a variety of items brought along by members. **Brian Hickson** had built a Fire Engine from an early 1950's No. 5 set which he had improved with an extending ladder.

Graeme Wrightson had built up a yellow tractor based on a 4WD moon-rover vehicle found in the manual for the purple French 40-model Multi-Model Set. He also showed the Jack Parsisson replica Channel Ring (a complete one-piece ring dimensioned to the ring made up of 1928 Channel Segments) recently bought. Stronger and better than the original and much cheaper, these are very useful for building flywheels or large Super Model crane turntables.

Hamish Campbell demonstrated his Meccano M.A.X. robot and explained the virtues of robotics to us. I am not sure that all of us were convinced, though!

Mike Walmsley is building the SML Level-luffing Crane and showed the tower base, complete with original Geared Roller Bearing. He also had a $15 Meccano-copy set (metric spacing) which made up a nice model of the Flying Scotsman locomotive. Mike then presented three of Bernard Perier's fascinating model books for us to peruse. These were the ***Magic Factory***, the ***ZKWYX Meccanaut*** and the ***Serial Constructor.*** **Barry McKey** arrived after buying up some Meccano parts and sets to expand his Meccano collection. He had two small models of tanks and is intending to build a few more.

Then we discussed our display at the Cambridge Model Railway Show in August and came up with some suggestions for future displays. This was followed by afternoon tea while Dave explained the intricacies of operating a Ford Model T gearbox.

Graeme Wrightson. Chairman GWMC

Above: Fire Engine from Set 5 by **Brian Hickson**
Left: **Graeme Wrightson's** Tractor
Right: Tank by **Barry McKey**

Christchurch Meccano Club

NZFMM Magazine report November 2019

The major highlight of the last few months has been our participation in the exhibition of the International Plastic Modellers Society on 7 and 8 September. We received an invitation to take part at a cost of $10 per table. The club agreed to take 20 tables. We had no idea what to expect; our thinking was that we would be just there to bulk out a number of tables of plastic scale models. Well, we were wrong. It was a full-on display of plastic models, model boats up to a metre long, ditto for model aeroplanes, a model-railway display and full-size NZ and German army vehicles, complete with life-size models in uniform. (*below)* For us it was a very relaxing show as we were not involved at all in any organisation and administration. It was not too busy but we had a steady number of visitors past our display. As per usual, I had made a rod for my own back by having most of my hands-on models there. At times there was a queue, but there is great pleasure to be gained from seeing children (4 to 80) involved with the models. All 5 junior members of the club were there for the duration of the show. The boys showed great willingness to assist other exhibitors when needed, so well done! To **Neil's** great surprise, at the end of the second day the show manager arrived with a trophy. We had won the prize for best club/group display.

International Plastic Modellers Society Convention Wigram 2019

The next big event for all of us will be the convention/exhibition in 2020. Wellington is an easy and convenient location for our club members, so at the October meeting the club has committed to attending the event. We have sufficient financial reserves to get our models across on the ferry and will be able to attend at any weekend that the organising committee decides upon.

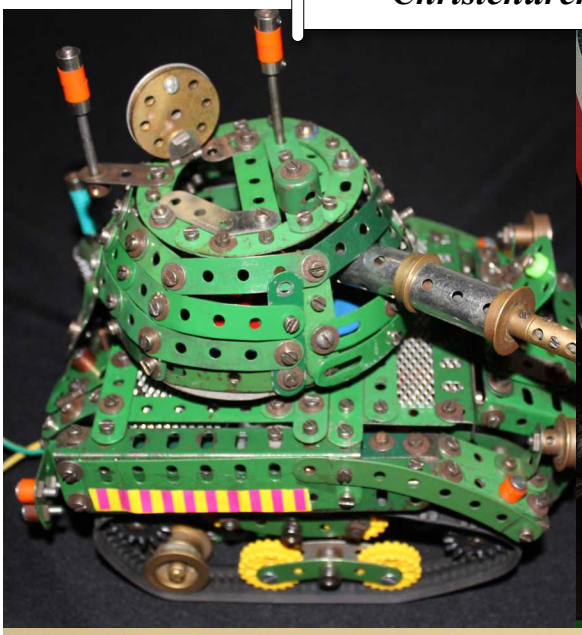
We usually have an exhibition in the years between National Conventions and are currently researching provincial centres where we might go in 2020.

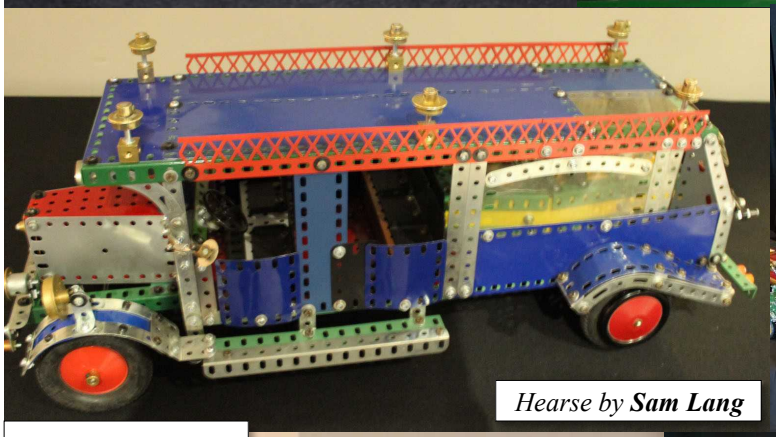
Meetings have been fairly relaxed, with no great administrative or planning requirements needed. The accent has therefore been on the social aspect of the meeting (always a success) and admiration and discussion of models. Club members are given a bit more leeway with the model competitions which has resulted in some great models as illustrated in the photographs (*see next page*). Not too much planned for the balance of the year, other than the end-of-year barbeque, likely to be 8 December. If you plan to be in Christchurch at about that time, consider yourself invited.

The Christchurch Meccano Club wishes all readers a pleasant and safe holiday season. Remember, Santa's sleigh has no suspension so can never be overloaded with "too much" Meccano.

Cheers **Roland**

Christchurch Meccano Club — a vignette

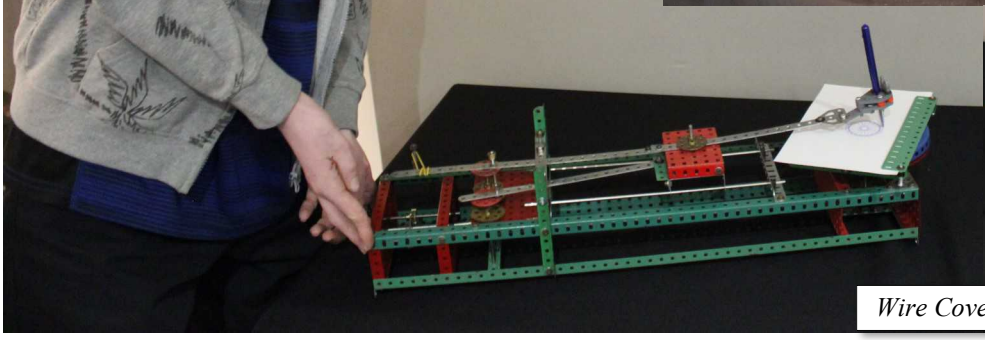


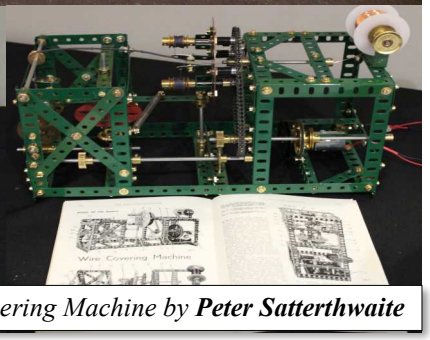


*Hearse by **Sam Lang***

***Mike Howse** and **Neil Pluck** hold the fort*

***Nathan Lang** & his Meccanograph*





*Wire Covering Machine by **Peter Satterthwaite***

Gazza's eBay Column
Gary Higgins

Wow this year is going really fast and I must confess my eBay Interests have been currently on Dinky Toys which explains why I have not been concentrating on Meccano. Anyway I am still keeping an eye out for those Meccano bargains.

We have a Meccano Meccanoids set in a rough looking box with the comment " appears complete" this usually means there is something missing. Hmmm, anyway from 1979; sold for NZ $58.84 plus pp
No 32532000147

A Meccano Action troopers set, an older childrens style set but contains lots of small useful plastic parts such as headlights etc., priced at NZ$158.86 plus $56.16pp **No 300982279978**

A Meccano 2in 1 motorcycle set, speedplay era $46.29 No **202426635410**

A Meccano Highway construction set lots of good value parts in these sets described as 90% complete but no idea what is missing. $49.01 plus $52.54 No **323768525626**

1970 space set 2501 described as 100% complete. $78.43 plus $44pp. One of the last sets produced at Binns road, all parts in very good condition. No **202671831260**

Vintage Meccano Army Multikit, again another useful set especially for the track and sprockets $194.17 plus $37.19pp No **183574652950**

A deluxe space shuttle with booster by Eitech C12 $256.72 looks to be a nice model No **381187501037.**

'*Adventures of Tintin'* seaplane (New in box) a great little model this one. $88.24 plus $45.33pp no **362616890251**

An early accessory box 30's no 3a empty box only $25.40 plus $37.81pp No **254259870566**

An original catalog 1957 (very good year) for Meccano, Hornby and Dinky $61.13 no **153336019869**

Meccano Chaos silver force commander one of the largest sets from this series $43.80 plus $19.54 no **122083706416**

Meccano ERECTOR 18214 Engineering and robotics space set not yet in NZ $120.35 plus 46.76pp
New with damaged box and fading of artwork on box lid parts still sealed No **223485764965**

Meccano Pagani Huayra roadster one of the new foldable plastic sets $56.88 plus $11.76pp. No **264408197422** new and unused.

1916 Meccano 2x set in original box with manual $256.72 plus 7$0.60pp Lots of other parts in box including some erector motor parts. No **323816437424**
Vintage French meccano A set no 086400 $28.32 plus $111.68pp complete with stickers and instructions doubt it has ever been used no **323761777815**

Meccano MAX Engineering robot, not boxed described as used and taken apart $128.35 plus $31.99 no **132968554593**

Vintage Meccano set boxed outfit no 7 from 1950's red and green missing manuals and 2 flat plates parts in well used condition $103.95 plus $90.00pp no **333326927486**

There you go, that should keep you in touch with what is available. One thing that has not gone down is the postage! It is often more than the item in many cases.
Happy eBaying

The Wellington Meccano Club Minutes

Secretary / Reporter – Max George

Meeting Date: 2nd August 2019 at 7:30. Held at Lou Nichol's place, Summerset Village leisure centre, Paraparaumu.

Present: Brian Petersen, Keith McCallum, Lou Nichols, Max George, Simon Moody, Stan Baker, Stephen Westmoreland, Trevor Green.

Apologies: Campbell Morrison, Reg Barlow, Robert Vale, Ross Quayle,

Meccano for Sale: Reg had been contacted by Winton, a member of the public, with Meccano that he didn't want and we could have it and sell to club members as a fund raiser for the next Convention. Reg laid out the parts at Lou's place and because he was feeling rather poorly decided to miss the meeting. Later in the evening the original owner Winton turned up to see what we were doing with the Meccano.

Above: **Stan Baker** conducts the auction

Model Building:

There was no specific model theme for this meeting. Unfortunately with all the looking through parts and the auction itself we didn't have time to view and discuss the models. However these are what were on display

Brian Peterson: Was the keenest modeller for the evening and displayed a Swivel Bridge with one of his Meccano engines on it and a short boat just to show that it could go through the gap. The bridge is

Above: Looking for that rare part

turned by hand to open it up and Brian intends making a loop track to join both ends of the railway line on the bridge.

Above: **Brian Peterson's** Swivel Bridge

Above: Highway and Army multikits

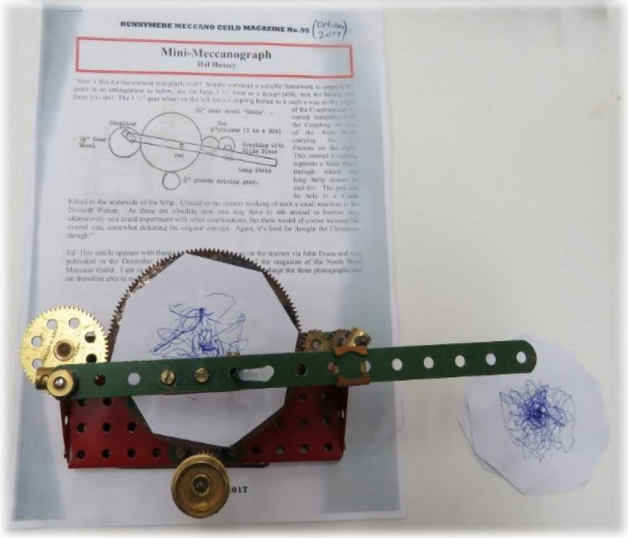
For a second model, Brian had acquired both the Highway and Army Multikit sets, both of which are incomplete and so he combined them to build the Truck that is displayed on the cover of the Highway Multikit set box.

Simon Moody: Is still working on the base of his massive Dockside Crane. This time he is demonstrating to Keith the pivoting platform.

Above: **Simon Moody's** magnum opus

Keith McCallum: Has completed the Special Edition Mechanical Workshop set #0532 very realistic 5 cylinder motor car. It was not easy to construct. Unfortunately the steering wheel has ended up between the seats!

Above: **Keith McCallum** Universal drive?



Above: **Stephen Westmoreland** Meccanograph

Stephen Westmoreland: Displayed a very simple Meccanograph which did a pattern in three revolutions having 19 and 37 tooth gears at either end of the pen shaft. This has given him inspiration to build the supermodel Meccanograph.

Max George: Instead of a model, Max brought along a photograph album from the first Meccano Convention held in the Wellington Railway Station social club hall over Easter 1978. This album has been hidden away and was located when Max was packing up to move house. Several members at the meeting were at the first convention.

The meeting closed at 10:30 pm.

Next Meeting:

This will be held on Friday 6th September at Keith McCallum's, Khandallah.

The theme for the meeting is something using lots of gears.

ADVANCE NOTIC

The 2021 New Zealand Federation of Meccano Modellers National Convention

Will be held at the

Waikanae Memorial Hall on 19th, 20th, 21st March 2021.

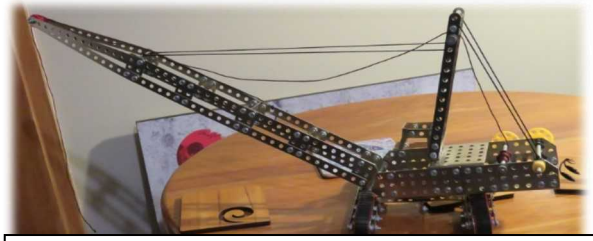
(*Open to the public on the 20th and 21st)*

Co-ordinator: Reg Barlow, 021 955 488

reg_barlow123@hotmail.com

FROM THE WMC JULY MEETING

Reg Barlow Showed **VirtualMec**, a computer package that can be used to build virtual Meccano models. The example he showed was Andreas Konkoly's Chariot and Horse. Version V2.1.4 of VirtualMec is now free but you need to register the software to be able to save .MDL files. You can find a lot of models on the VirtualMec site www.virtualmec.com



Above: **Ross Quayle's** crane

The Wellington Meccano Club

Reporter – Max George

The meeting took place at the home of Keith McCallum on Friday 6th September 2019 at 7:30.

Laurie Webb: Laurence (Laurie) Sidney Webb passed away on 15th August 2019.
Laurie was a long standing member of the Wellington Meccano Club having joined not long after the first convention. He was an excellent builder and for some models worked with other club members. His best known model was the German Unimat 08-475 tamper, made by Plasser and Theurer of Austria. It was exhibited at a MWT meeting in Whanganui on June 13 2009, after a couple of years of planning and construction. This was built in conjunction with Bryan Jones now a member of MWT.

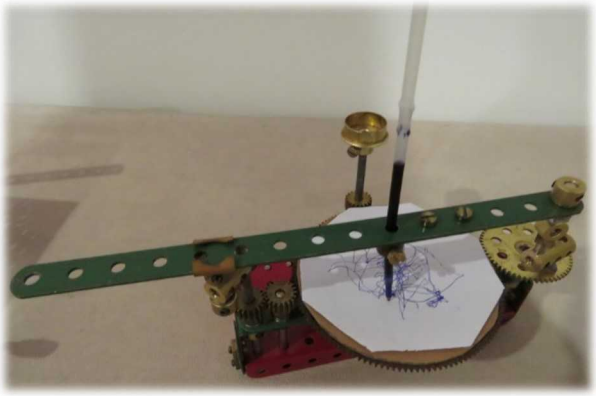
Model Building:

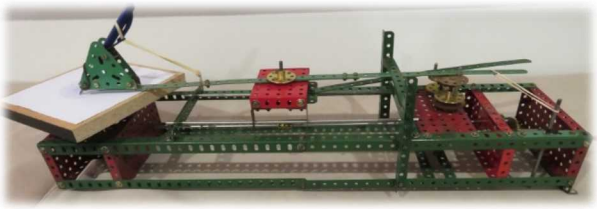
The theme for the meeting was something using lots of gears.

Stephen Westmoreland: Displayed two Meccanographs. He started with the very simple one he brought along to the last meeting which did a pattern in three revolutions having 19 and 37 tooth gears at either end of the pen shaft. Stan offered him suggestions as to how to improve the model.

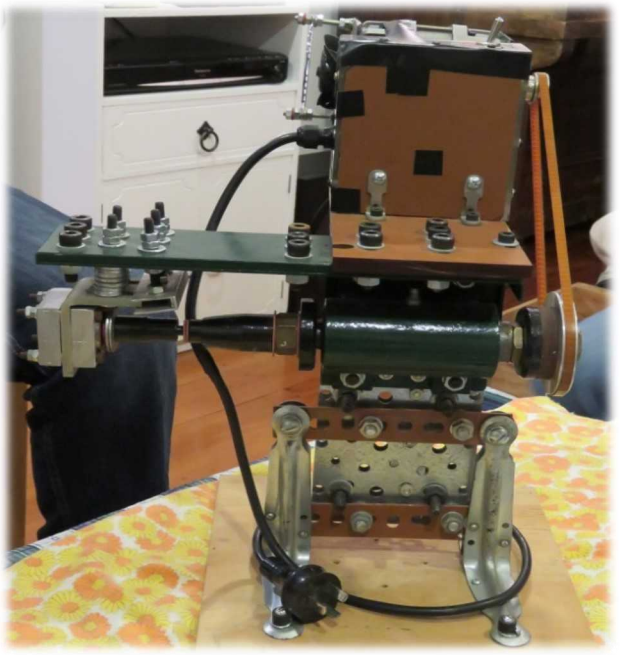
The second Meccanograph was from the Hornby Companion series and it worked much better. The table should have been 3/8" thick there being an actual Meccano part #107 made for this. The best pens for Meccanographs are the *Stabilo* ones used for writing on transparencies.

The more intricate Meccanograph from the Hornby Companion Series book The Meccano Super Models #13





Franz Schleicher: Brought along his gear cutting machine he had made He explained that it was not working very well and he had more work to do with it.



Above: **Franz Schleicher** gear cutter

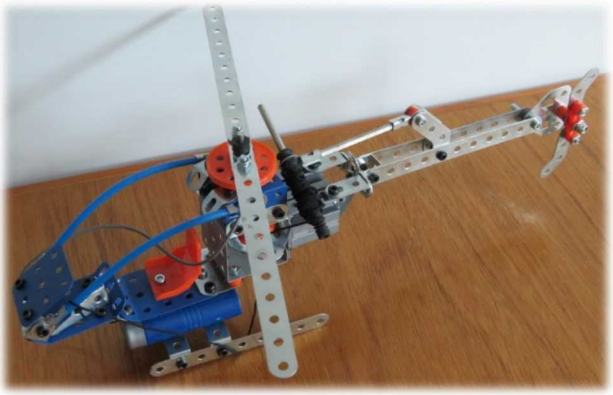
Trevor Green: Has been working on his sandblaster and brought along nuts and bolts he has cleaned. He is working on making a container for blasting and feels he can improve on what he is working on. The parts were very clean.

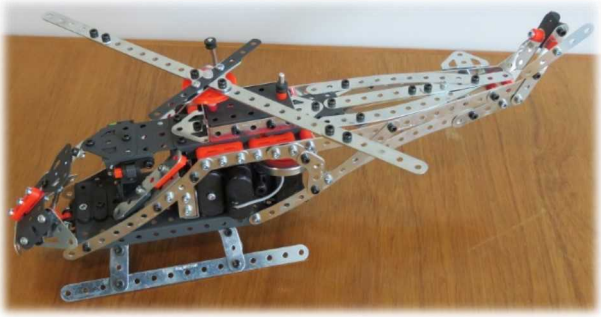
Max George: Again brought along models built by members of his U3A Meccano building group.

Helicopter built from the 20 Model Motion Systems set 6520.

Above: **Trevor Green** — clean machine

Helicopter built from the Special Edition 100th Anniversary Set 7080

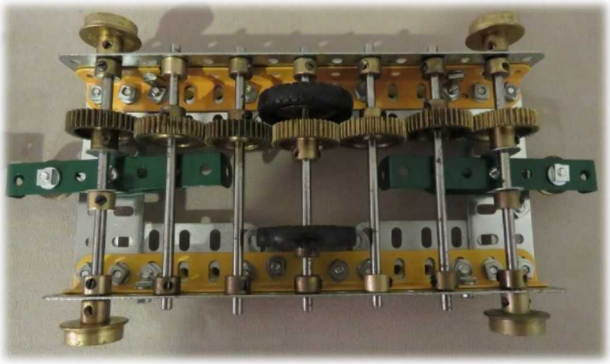




U3A Members helicopter contributions

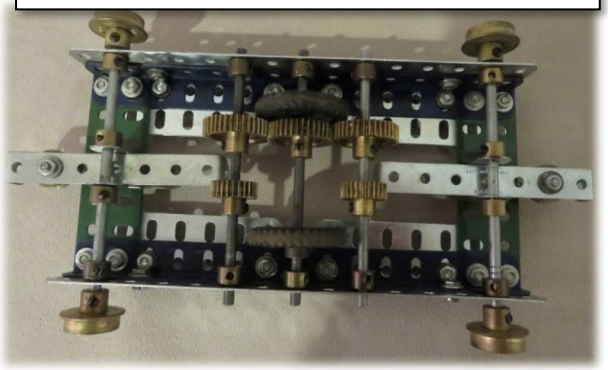
For the theme of this meeting, Max brought along two of his trolleys used in his Little Joe and Tricky Track showing the use of gears to move the trolley along the gaps in the track.

Underside of trolley used in his Sydney Harbour bridge. The model he copied it from used string to pull the trolley across the gap but Max decided that 1" gears would work better.



Above: **Max George's** Little Joe gears

Below: Underside of the trolley from the Walking Bridge from the Modelplans 89 instructions.



The next meeting will be held on Friday 4th October at **Trevor Green's** place.

Stan Baker: Has been rummaging about in his attic and came across a Bernard Perrier Clock. Unfortunately, the cyclist would not run around the large flange ring. The clock runs from a synchronous AC motor in the base turning at 1 rev every 10 seconds and thus giving a very accurate time. The driving shaft for the tilting flange ring is an axle from a hole out from the centre on the bush wheel and because it is not centric, it tilts the ring and the cyclist moves around the ring.

FROM THE WMC JULY MEETING

MWT MEETING REPORT for 10th AUGUST 2019

MWT Meccano
Model Tour 10th August 2019

Report: Robin Rye,
Photos: Bruce Geange

MWT Meccano Club Model Report 10 August 2019

Model Challenge: Liverpool legends; Meccano and The Beatles.
John Freer: Yellow Submarine
Robin Rye: Sergeant Peppers Lonely Hearts Club Band.
Daryl Anderson: Yellow Submarine.
Peter Winter: Octopuses' Garden with music.
Stuart Lindsay: Yellow Submarine.
Paulette Morton: Yellow Submarine.
Richard Feltham: Lucy in the sky with diamonds.

Peter Winter won the popular vote.

Robin Rye: Of all the current Meccano sets for sale at the convention, only the Ferrari appealed and bought, built and on display. Quite an intricate model to make. A Tronico Massey Ferguson tractor. An International 4100 tractor that was made for the 6 inch cube competition but not shown. He thought it may qualify for the current Beatles challenge but nowhere in The Beatles song lyrics are the words "attract her" used! A further Charlie Cross made truck and trailer model.

Peter Winter: His Supermodels 32 Twin Cylinder Steam Engine model was on show. He detailed features such as there being no axles to make the handrail as shown, the difficulty of getting painted parts to slide and the various parts he used to make the flywheels. A home made box to store a No.10 plus was for sale. Some somewhat exotic parts were in his recent Meccano find including parts of a Lighting Set. Peter admitted that he disposed of what were probably lenses belonging to the set before he realized what they were.

Viv Alexander: Further efforts with his 9a box restoration include now restoring or making stringing cards and starting to fill the box with appropriate period parts. Another large set in the form of a Set L repainted crosshatch blue and gold colours in a reproduction cabinet. Viv has had the set for 20 or so years but cannot remember where he got it. He led a discussion on painting the gold cross hatch lines.

Bruce Geange: His scratch built passion was revealed with a NZ Railways Diesel Shunter loco EB25 that now resides at the MOTAT Museum. Built to run on Hornby O gauge electric track. A Meccano model in the form of a Thorneycroft Amazon truck with mounted electric crane as often used on airfields to attend to aircraft maintenance and recovery from 1940 onwards.

Tom Pittams: Opened a suitcase of early MWT club information. During 1998, he wrote an essay on the construction of the Egyptian Pyramids and he used Meccano to make replicas of survey tools used at that time. On show were some current jet fighter Meccano set models and the Hummer style radio control set from 10 years ago. If you were in doubt about making 8 hole strips, the Hummer model should have dispelled your fear of "naughty" comments from your fellow Meccano friends!

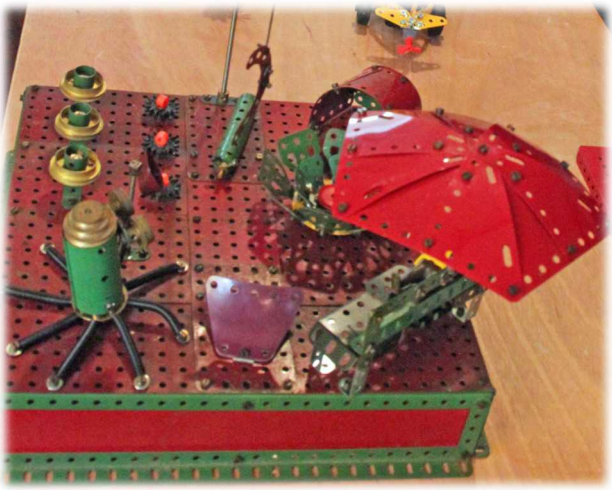
Bryan Jones: Brought along his convention model Spider Bike based on a contraption made by Dave Hunger of Stratford. Looking somewhat like a Penny Farthing bike but with a set of 6 legs where the farthing would be. Each leg is driven by a crank with 2 levers with the 6 phased so a walking motion is achieved both forward and reverse.

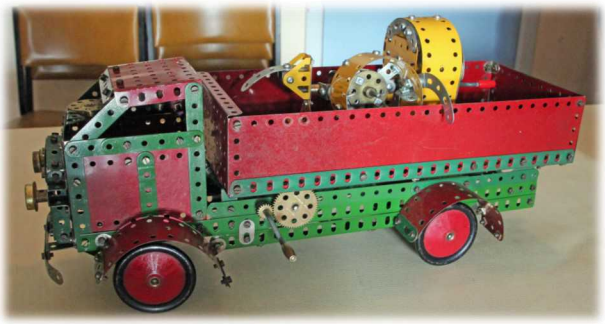
Hugh Ramage: Mark 5 French Knitting machine was busy knitting with improved needle setting and improved tension mechanism. A half size Jenny Lind Singer No. 1 sewing machine is Hugh's current Meccano project. It won't sew yet but is getting closer. He has developed a crank that has a slow movement one way but a fast movement back with a constant input speed....needed in the thread hooking mechanism under the needle. Hugh will make it sew. He also had a large wooden model of sewing machine needle that shows how the thread is held in a slot in the needle, not really obvious to the observer.

Richard Feltham: His convention Ball Roller with some computer gee whizzers was on display. A model with much development ahead. The possibilities of Meccano compatible hollow axle rods found in a hobbies supply shop are being explored by Richard.

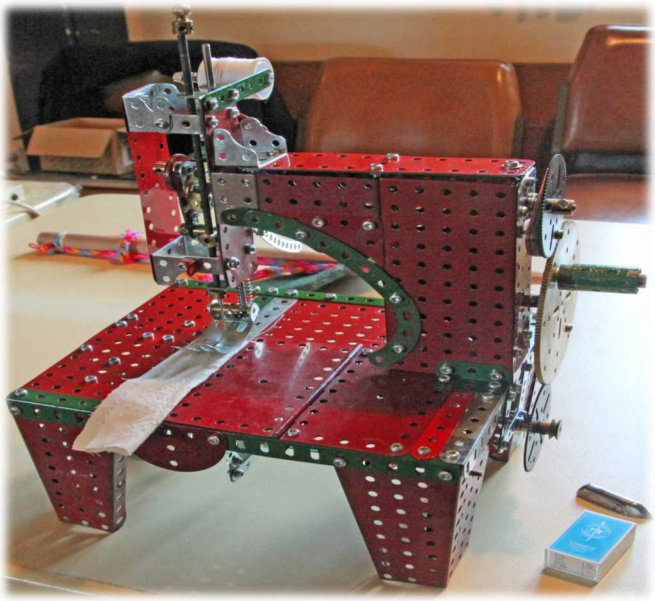
Paul Vodanovich: First built long ago when he was 8 or 9 years of age, a 1950's set 7 Tip Truck has been proudly built again. A small concrete mixer model Paul thought was made for a past

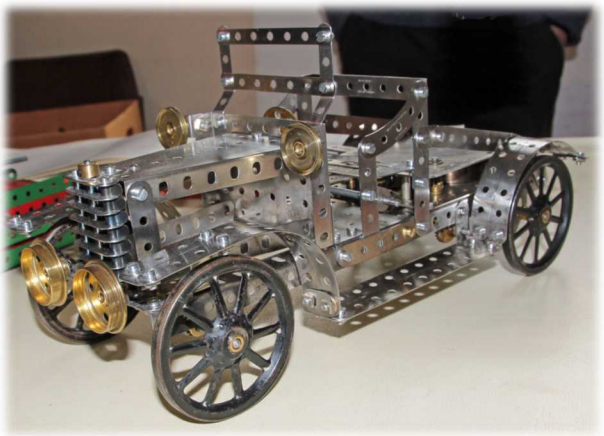
challenge. 3 inch pulleys through the ages was the 1 part study for Paul this month. From 1918 to recent were a variety of styles, bosses, writing, finishes and V shapes.





Clockwise above: 1) **Daryl Anderson** (*right*) receives the 2019 'Lindsay Bond Trophy' for outstanding contribution to Club Activities from **Richard Feltham.** 2) Octopus' Garden **by Peter winter.** 3) **Paul Vodanovich'** 1950 Tip Truck. 4) **Mikayla Lindsay** ably assists her Dad, **Stuart.** 5) Veteran car. 6) Dinky Builder display. 7) **Hugh Ramage's** No1 Singer Sewing Machine.





Auckland Meccano Guild

President: David Wall, Tel. (09) 426 1965
Secretary: Gary Higgins, Tel. (09) 832 4292
Meetings at 2pm on second Saturday every third month.

MWT Meccano Club

Chairman: Chris Morton, Tel. (06) 323 8001
Secretary: Robin Rye, Tel. (06) 764 8670
Meetings at 2pm.at St. Luke's Church Hall, Corner Cornfoot and Manuka Streets, Castlecliff, Wanganui.

Wellington Meccano Club

President: Reg Barlow, 021 955 488
Secretary: Max George, Tel. (04) 232 4200
Contact: Stan Baker 04 566 7150
Meeting at 7:30pm on first Friday every second month.

Greater Waikato Meccano Club

Contact: Graeme Wrightson
Next meetings: **Saturday 2nd November** 2019 Starts at 2:00 pm.

Christchurch Meccano Club

President: Neil Pluck, Tel. (03) 389 8134
Secretary: Roland Jaspers, Tel. (03) 351 4389
Meetings at 7:30pm **on first Friday every month** (except January) at Papanui RSA Club, 55 Bellevue Ave or No. 1 Harewood Road, Christchurch.

Additional Meccano Contacts

Hamilton: Don McClelland, Tel. (07) 843 4198
Tauranga: Barry McKey, Tel. (07) 576-1623
Hawera: Daryl Anderson, Tel. (06) 278 7666
Napier: Trevor Adam, Tel. (06) 843 4837
Palmerston North: Bruce Geange, Tel. (06) 357 0566
New Plymouth: Richard Feltham (06) 753 7414
Nelson: John Stark, Tel. (03) 545 1025

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First insertion will be printed in full.
Subsequent identical insertions (max. 1) may be abbreviated to fit space available.

FOR SALE
Replica Meccano and Compatible Parts
Contact Stan Baker
nzmeccanoman@gmail.com
Phone +64 4 566 7150 Evenings
or +64 21 421 750 mobile

TAUPO IN NOVEMBER

FINAL REMINDER

Saturday 9th November 9.30am to 5pm
St Andrew's Church Hall
91 Titiraupenga St
TAUPO

Provide own lunch. Dinner at 'Cossie Club.'
Contact Reg Barlow on 021 955 488
$10 to cover hall hire.

BE WARNED

The 2021 Meccano Convention

will be held at the

Waikanae Memorial Hall on

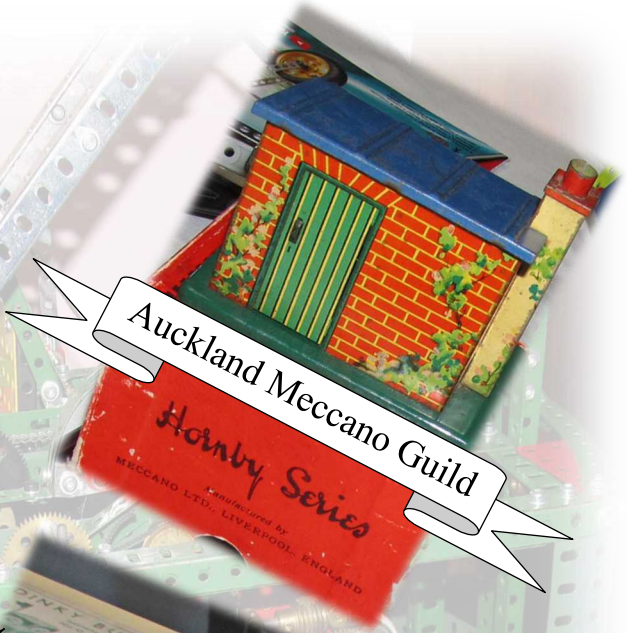
19th, 20th, 21st March 2021.

The Hall is ideally situated , adjacent to a rail station, with ample free parking. Across the road is the Waikanae Club, with good quality restaurants and cafes within walking distance. Also the Mahara Art Gallery and the Southwards Car Museum a short drive away.

Articles, photos, club reports and items of interest for the February 2020 issue of NZFMM Magazine should be sent to the Editor before the 20th January 2020 at:
richard.feltham174@gmail.com

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

Wellington Meccano Club



Auckland Meccano Guild

Greater Waikato Meccano Club

Manawatu-Wanganui-Taranaki Meccano Club

Across New Zealand all aspects of the **Meccano** legacy are alive and well, thanks to the ongoing support of NZFMM members

Christchurch Meccano Club