OTHER SYSTEMS NEWSLETTER

OSN 7 OCTOBER 1992

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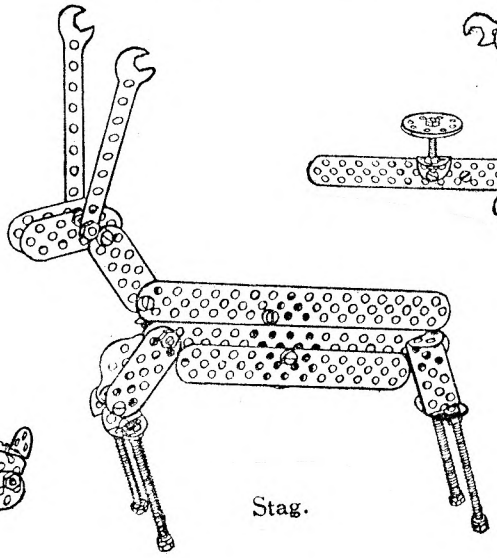
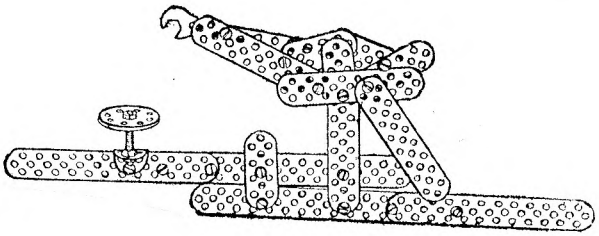
EDITORIAL For one reason or another Part 5 of MCS has not appeared as I write this but Frank tells me that it should be ready by September. The delay has not prevented the preparation of new, additional MCS Sheets as envisaged in the last Issue; all being well these will be included with this Newsletter for those who have said they wish to buy all of them, others will find details of the new Sheets at the end of various articles in this OSN and there is a consolidated list on p171. The basic numbering of these Sheets is the same as in Parts 1-5 except that between the name of the System and the Page No there is X1 denoting the first batch of eXtra Sheets for that system; if there were to be a further set of extra Sheets for that System they would carry X2, and so on. So a (fictitious) new Sheet might be designated TRIX (2): X1.6. Unless it is specifically stated that a new Sheet is intended to replace an existing one, it will add to those already in MCS.

Also listed at the end of appropriate articles, as well as the new MCS Sheets, are small Amendments to MCS, where a new Sheet would not be justified, and amendments to the OS Index given in OSN 6. To save toing and froing and with his agreement, Frank Beadle will not necessarily have seen the MCS amendments before they appear, but he will comment as necessary for inclusion in the next Issue.

Mistress and Dog.

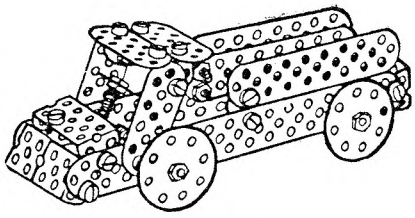


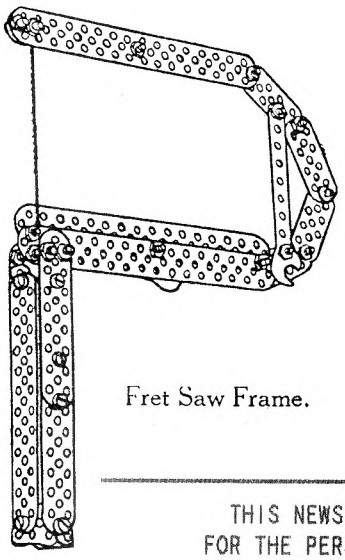
Stag.



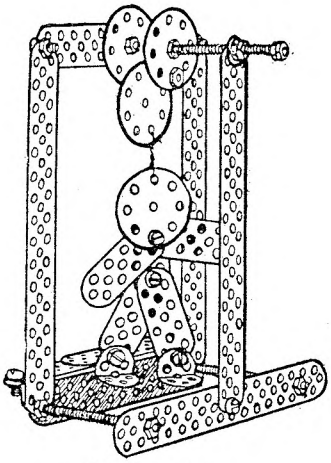
Pecking Hen.

Lorry.



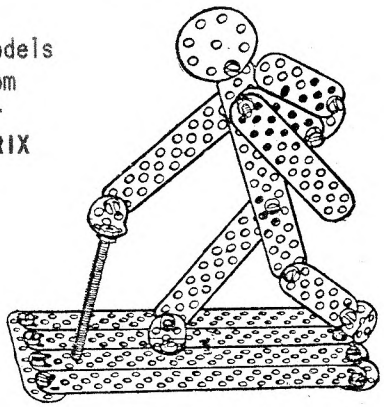


Fret Saw Frame.



Marionette.

These models come from a prewar **ELEMENTRIX** manual.



Hiker.

BRAL UPDATE Brian Rowe recently send two multi-language leaflets (in Italian, English, French, German and Spanish), probably from 1991, one showing the range of sets available and the other the parts in the system. First the sets, there are the standard sets 2-6 in cardboard cartons and 7-9 in wooden boxes, and 8 'kits' which make one smallish model each, except that two are shown for the SPACE SHIP. No Set 1 or Conversion Sets are mentioned, and no motor is listed although the tortoise shown below appears to contain the old style electric motor. The main sets are listed as ICM 2 (90002) to ICM 9 (90009); the lids of Sets 2-6 are very colourful, each showing several models and an exploded view of the steering gear of a tractor.

The colours of the parts are not consistent between Sets 2-6 and 7-9, and the various models shown. For what it's worth all the Strips look as if they might have a bright finish; in the smaller sets rigid Plates are blue, flexible (plastic?) Plates yellow, small Pulleys bright, and the 3" Pulleys in Set 6 are red. In Sets 7-9 rigid Plates are again blue, flexible Plates are red or blue, Braced Girders and 2" and 3" Pulleys are red, Spoked Wheels (MECCANO 19a) are bright, and what might be Conical Discs are yellow.

The Kits are as follows:

- KTX 90050. SPACE SHIP. (Looks like the set described in OSN 5, p89.)
- KTE 90053. elekit. (Helicopter on floats.)
- KTE 90054. motokit. (Motorcycle with fairings.)
- KTS 90055. sidekit. (Motor scooter with sidecar.)
- KTA 90056. helpkitcar. (Breakdown truck with crane on the back.)
- KTE 90057. jeepkit. (Open Jeep.)
- KTE 90058. idrokit. (3-engined high wing seaplane.)
- KTE 90062. BIG FOOT. (Cross country type pickup truck with relatively large wheels.)

These are all attractive looking models with 'Stickers' used to give greater realism. From the small illustrations shown, it looks as if some special parts (not listed in the second leaflet) are used, for example the floats on the aircraft and the large wheels on the BIG FOOT. The colours of the parts vary from model to model.

The second (huge, 25"x19") leaflet shows the parts around its edges, surrounding various simple mechanisms and examples of constructional techniques. New 4-figure Part Nos are used and there are a few changes in the parts listed compared to those in MCS:

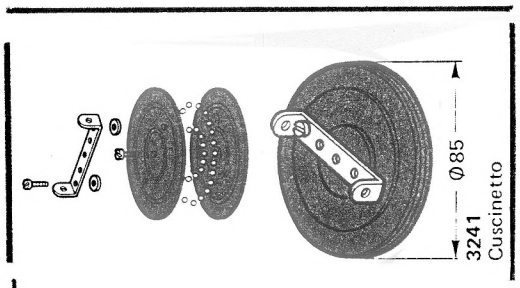
- #3076 looks like a MECCANO Spring Clip and replaces the MCS #35. This change must have occurred some time ago because a set bought in the mid 1980s contained the MECCANO type.
- MCS Parts 35b (type of Screwdriver), 40 (Cord), 66, 66a, 67 (MÄRKLIN Pulley and Flanged Circular Plates) are not in the new list.
- New are #3088 (Collar with 4 tapped holes), 3241 (85mm dia Ball Thrust Race), an extra Hook, and 3227 (5mm Bolt).

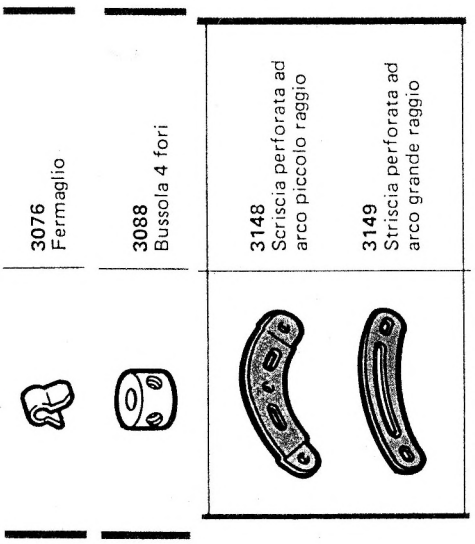
The new parts, and those which show features not seen in MCS, are shown opposite. The MÄRKLIN style #90/3149 may be new, it is not illustrated in MCS (the part shown as 90 there is really 90A), but in a similar list #90 is shown exactly as a MECCANO #90. All the parts with their new PNs are shown in new MCS pages.

The name of the manufacturer of BRAL is given in the leaflets as BRES S.R.L. instead of the former Roberto Braglia; the 'Via Paolo Lomazzo, 34' address remains the same.

NEW PAGES FOR MCS: BRAL (C): X1.3/4g,3/4h. [1 Sheet]

AMENDMENTS TO MCS: SETS: Add, "In 1991, Standard Sets 2-9 plus 8 small kits called SPACE SHIP, elekit, motokit, sidekit, helpkitcar, jeepkit, idrokit, BIG FOOT." MANUFACTURER: Add "Later BRES S.R.L., at the same address."





EZY-BILT This is an attempt to put a number of documents into chronological order and to note any points of interest. For convenience the following abbreviations and References are used:

E-B = EZY-BILT.
CPPL = Colton, Palmer & Preston Ltd., the first manufacturer of E-B.
EBL = Ezy-Bilt Ltd., the second Australian E-B manufacturer.
EBPL = Ezy-Bilt Pty. Ltd., this is believed to be the later name of EBL.
RSL = Rayon Surfaces Ltd., the New Zealand E-B manufacturer.

DOCUMENTS IN ASSUMED DATE ORDER
Ref A = Original page 3/4 of MCS. Illustrated List of E-B parts 1-27, made by CPPL.
B = Original page 3/4a of MCS. Illustrated Supplementary List of E-B parts 3a,5a,14a,20a,24a,25a, 28-31, made by CCPL.
C = Page 6 of MCS. Contents of CCPL Sets 1-5, almost certainly from the same period as Refs A,B.
NB. Refs A-C were replaced by Ref E; A and B were deleted at that time but not C.
D = Manual for Sets 1-5, made by CPPL. Full details are given below.
E = Current pp 3/4, 3/4a of MCS showing Illustrated Parts and Contents of Sets 1-8. The maker is not stated but as will be explained, from the PNs it is likely to have been CPPL.
F = Manual for Sets 1-5, made by EBL and RSL. Almost identical to Ref D, see below.
G = Colour Leaflet from EBL showing range of sets, etc.
H = Price List of Sets, and Parts (some illustrated), dated February 1966; manufactured by EBPL.

From Ref C it can be seen that the parts listed in Ref A are all required in Sets 1-3, while those in Ref B are needed for Sets 4 and 5. So possibly 1-3 was the original range of sets with 4 and 5 coming later when the Ref B parts were introduced. The parts shown in Refs A,B look similar to later illustrations except:
• #17, the Base Plate is shown with the 2" Saw Blade slit as well as the ½" lateral slot (the slot only is shown in all later illustrations).
• #21 is described as a Rubber Clip, its illustration doesn't show it clearly but the models in Ref D show it as a short length of tube. In Ref D #21 is described as a Wing Clip and in the Illustrated Parts section it looks just like a MECCANO Spring Clip. In Ref E and H it is called a Spring clip. This sequence has been used to put the CPPL material (Refs A-E) in date order.
• #24, the Screw Driver, looks like MECCANO #36; in Refs E,G the wire handle has near parallel sides. The handle illustrated in Ref D could be taken as a squashed (sideways) version of Ref A, but it may be the way it was drawn. The same one is shown in Ref F, almost certainly because the Ref D plate has been used,
• #24a, 'Screw Driver (wood handle)'. This is shown in Ref B and was included in Sets 4 and 5 (Ref C). It was also in these sets in Ref D but not in Ref F, where the wire type was shown for all sets.
• #25a. This is described as '2 in. Barnet Glass Rubber Tyre' and presumably Barnet Glass was the name of a tyre manufacturer; no name is shown in any of the later lists but a Tyre which may be E-B has OLYMPIC AIR RIDE MULTI RIB moulded into it.

Apart from the differences mentioned above the parts and their descriptions are as would be expected in all the remaining CPPL literature. Ref D lists only the parts needed for Sets 1-5 and Ref E, which probably came from a 6-8 manual shows only those needed for those sets. There may well have been other parts at that time, for the No 9 Set if it existed then, and possibly others not used in any of the sets. As will be seen this was almost certaimly the case later in the E-B story. Before leaving the CPPL era there is one anomaly in Ref D worth noting. The Set Contents shows that Sets 4 and 5 contain respectively 2 and 4 of both the 2" Pulley and the 2" Rubber Tyre, but although several of the models show the Pulley in use without the Tyre, all models that need 2" tyred wheels are shown fitted with #32 Road Wheels (as in MCS). This part is not included in Sets 1-5 or mentioned by name or No. anywhere in the 1-5 Manual, and this was also the case for Ref F.

Ref H has been judged the most recent of the three post CPPL items because by then the name of the company had changed to EBPL. Ref G is assumed later than Ref F only because it looks more modern. Ref F is, apart from minor changes, the same as Ref D but one of those changes is that on the front cover it says 'Copyright by Ezy-Bilt Ltd., Kilkenny, S.A.' and on the back cover is 'Manufactured in Australia by EZY-BILT LTD.' and 'Manufactured in New Zealand by RAYON SURFACES LTD'. In MCS it is said that the manufacturer after 1959 was EBL, later RSL, and this could be taken to mean that RSL was the last and at that time, sole manufacturer; but at the time of Ref F it seems that EBL still retained sole copyright but that the product was being produced in both countries by the named companies. It also says in MCS that the parts were renumbered for New Zealand but since renumbered parts are shown in Refs F and H it is possible that it was the same new numbers used for both the Oz and NZ parts.

Ref F contains the new numbers for all the parts listed, those needed for the 1-5 sets that is; Ref H has the full list of parts available and contains 130 parts (up to #177) against the 88 shown in

MCS. For this reason new MCS sheets are available which give full details, but the main additions are different lengths of Strips, and Angle Girders (up to 24½"), Flat Girders up to 9½", more Screwed Rods, more Gears, and Sprockets. This leaflet lists Sets 1-9 but whether all the additional parts were used in the No 9 Set is not known, the latter cost $53.65 against $26.65 for the No 8. This Price List also lists Conversion Sets 1A-8A, and Star Sets Nos 3,4,5 which are cheaper than the corresponding standard sets, but no details are given.

The Clockwork motor is also listed, and it is included in Sets 8,9,7A. There is an illustration of it in the earlier Ref G, (reproduced in the new MCS sheets); it is shown red and measures 3x4½". This Leaflet lists the same sets as Ref H except that the Star sets are not mentioned. The layout of the sets in their boxes is shown for Sets 1,3,6,8 and again these are shown in the new MCS sheets. The colours of the parts shown are as stated in MCS, red for all plates and green strips etc. Pulleys are red; small brackets, the Bush Wheel and the 1¼" Disc are shown white so are probably plated. The Road Wheel which looks just like the original MECCANO pattern, is red with a white 'tyre' in the pictures of the sets but the 'tyre' is shown black in the models illustrated. The ones owned by Frank Beadle are red with dark grey 'tyres'.

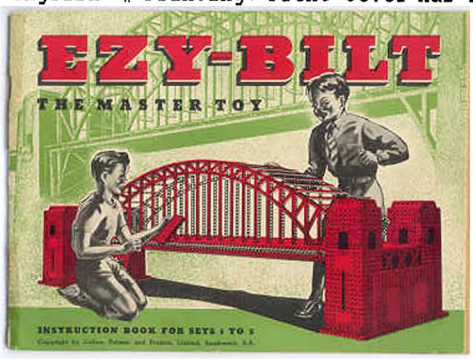
The contents of Sets 1-5 did not change between Refs C and D except that in the latter Grub Screws are listed for Sets 2-5. The parts in Refs A,B are shown with the bosses fitted with Set Screws, possibly standard Bolts. Ref F is identical to Ref D except for the type of Screw Driver in Sets 4 and 5, as already mentioned, and the addition of a Spanner in each set. Ref E is the same too except that 4x2½" DAS are listed for Set 4 instead of three.

As far as is known E-B parts are not generally marked but one Base Plate seen is stamped EZY-BILT parallel to the ½" slot.

There are some references to E-B in the New Zealand NZFMMM. In the April 1979 Issue Bruce Baxter wrote 'during the years just preceding the war the Red/Green Australian Ezybuilt (sic) outfits were prominent in N.Z. toy shops, reappearing after the war with the Buz outfits in Red/Green. At one stage Ezybuilt for the N.Z. market was being manufactured in Auckland'. So E-B was available rather earlier than the MCS date of the 1940s. Whether Penrose, the address of RSL, is near Auckland is not known. A letter in the April 1987 magazine from Brett Gooden of South Australia mentions a metal box for the E-B No 6 Set as being 17x9x2½" deep and goes on 'Ezy-Bilt parts were green and red. They were almost exact replicas of Meccano parts but not so well made, the holes in the strips were often not regularly spaced which lead to great frustration when model building. Ezy-Bilt was produced 1 mile from my childhood home in Adelaide by Colton, Palmer & Preston Ltd.' The address given for CPPL in Refs A,B,C is Adelaide; it is shown as Southwark in Ref D (and MCS).

SUMMARY OF MANUAL

#Name: EZY-BILT #Details of maker: Manufactured in Australia by EZY-BILT LTD., 630 PORT ROAD, KILKENNY, SOUTH AUSTRALIA. Manufactured in New Zealand by RAYON SURFACES LTD., 122A ROCKFIELD ROAD, PENROSE. [on back cover] #Dates &/or Ref Nos: PRINTED BY WHITCOMBE AND TOMBS LIMITED [on back cover] #Page size: 237x174mm deep #No of pages: 36 plus covers [pp 1,2,36 are not numbered] #Language: English # Printing: Front cover has EZY-BILT in red at top, with THE MASTER TOY in black underneath.



Below is a red model of Sydney Harbour Bridge with one boy behind and another in front of it. There is a green band at the bottom with INSTRUCTION BOOK FOR SETS 1 TO 5 and Copyright by Ezy-Bilt Ltd., Kilkenny, S.A., both in black. The background is cream with green spots and the real bridge in green. Inside is black on white except pp 3-10, 11-26, 27-34 which are red, purple and red on white respectively #Page Nos of Parts List & highest PN: 2, 142 #Page Nos of Set Contents & highest PN: 2, 142 #Sets covered: 1-5 #No of models for each set: 25,27,32,35,45 #Name, Model No, Page No of first & last model of each set: 1: Kite, 1.1, 4; Bi-Plane, 1.25, 3. 2: Scales, 2.1, 8; Fire Engine, 2.27, 7. 3: Crane, 3.1, 12; Submarine, 3.32, 10. 4: Grab Crane, 4.1, 22; Flying Fox, 4.35, 19. 5: Steamer, 5.1, 33; Revolving Searchlight, 5.45, 25. #Other notes: The models are not arranged in order of Model Nos. On the inside front cover owners name and address can be recorded and at the back the date when the models in the book were built. An earlier version of this manual is identical except for the following differences:

#Details of maker: Manufactured by COLTON, PALMER & PRESTON LTD., SOUTHWARK, SOUTH AUSTRALIA. [on back cover, with similar on bottom of pp 3-35, as shown in MCS p5]
#Dates &/or Ref Nos: The Advertiser Printing Office, Adelaide [on back cover]
#Printing: Copyright by Colton, Palmer and Preston Limited, Southwark, S.A. on the bottom green band of the front cover. All the inside pages are black on white (but yellowed with age) [Cont. >]

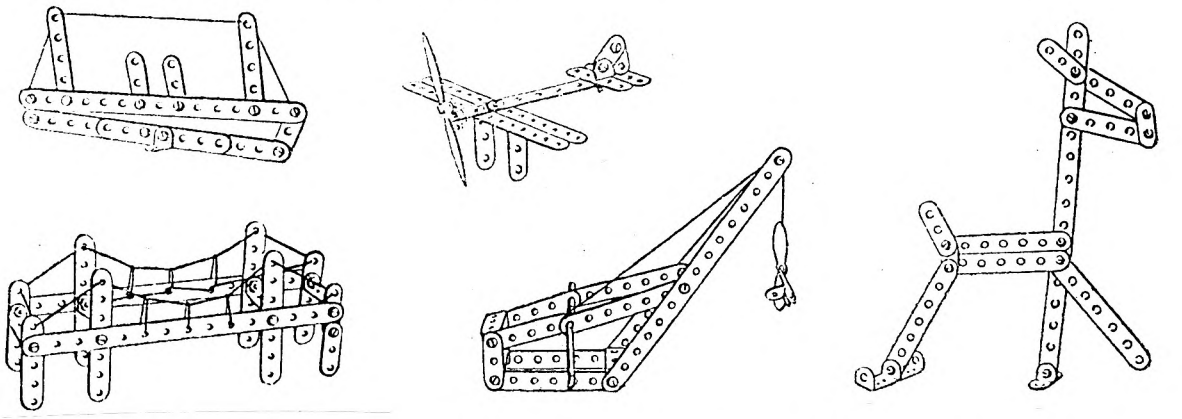
#Page Nos of Parts List & highest PN: 2,84.
#Page Nos of Set Contents & highest PN: 2,84.

This article is based on material contributed by Gary Higgins and Ed Furness, for which many thanks.

NEW PAGES FOR MCS: EZY-BILT: X1.3/4,3/4a,3/4b,7. [2 Sheets] [The new 3/4 pages are additional to the existing ones.]

AMENDMENTS TO MCS (as necessary, depending on version)
Sets: 1-9, 1A-8A, STAR SETS 3-5.
Parts: 130.
Nuts: 111 in Set 8.
Colour: Red plates, pulleys. Green strips, A/Gs, large brackets. Road Wheel red with dark grey rim.
Motor: 1 C/W.
Period: Known late 1930s to 1966.
Manufacturer: Originally Colton, Palmer & Preston, Adelaide, later Southwark, South Australia. From 1959 EZY-BILT Ltd., 630 Port Road, Kilkenny, South Australia. Also manufactured in New Zealand by Rayon Surfaces Ltd., 122A Rockfield Road, Penrose during the EZY-BILT Ltd phase.
Comments: Almost identical to MECCANO of the period. Parts renumbered for EZY-BILT Ltd/New Zealand phase.

NEW SYSTEM: CONSTRUCT. Tony Homden came across this little set recently, and 'little' describes it in all respects. Its box measures 7"x4½"x½"; it contains 23 aluminium alloy parts, plus a steel Crank Handle, and 10 each of steel, unplated, standard sized 6BA cheesehead Nuts and hex Bolts; the parts are quite small with a hole spacing of 3/8"; and 11 models are shown on one side of a single sheet 6½"x4¼". The usual details will be given in the new MCS pages listed at the end; shown below are some of the models to give an idea of the parts.



All parts are left in their natural metallic state. They are accurately made with no rough edges, although the width of the Strips, nominally 3/8", varies slightly (±.007") depending on the length; the ends of the Strips are fully radiused. The aluminium parts are all the same thickness, .024", and the longer Strips feel rather flimsy. The range of parts is about what one might expect in a set of this sort, Strips of different lengths with Angle Brackets and DAS. But there are one or two surprises - there is no base plate, or indeed plate of any sort, but there is a Propeller; there are no axles, the two Discs included are attached by the ¼" long Bolts (the Nuts are the thinner 'halfnut' sort); there are no slotted holes but the Bolts have some play in the 3.1mm dia holes.

The box is basically red in colour but the lid is nearly completely covered by a label, orange with white areas in which models from the Instruction Sheet are shown, and also a B&W photo of a happy looking 6-year old putting the finishing touches to the animal model shown above. It's quite a nice looking animal, I think, and it rings a bell but I can't quite put a name to it. The set was made, it says on the lid, by Allwrights Mechanical Productions at Clacton-on-Sea, probably, at a guess, soon after WW2. Also on the lid - 'contains 44 parts,' - which agrees with the number found in the box. All of them looked as if they had never been disturbed since being packed, and the method of packing is unusual, the blue card packing board has pairs of slots cut in it, about 1/8" apart, at suitable points, and the part between is pressed up to form a 'tunnel', through which the Strip or whatever, passes.

I've just realised, the set doesn't contain a spanner or a screwdriver, or any tools at all. Also I should have said that the Crank Handle has a diameter of 2.67mm.

NEW PAGES FOR MCS: CONSTRUCT: X1.1, 2/5, 3/4/6 [=2 sheets].

BET YOU DIDN'T KNOW THAT - MERKUR. MERKUR 10-hole Braced Girders are to be found with either male ends or with female ends. The MCS entry (MERKUR (C). 3/4c) which comes from the older style small format manual, shows the latter, and so does my similar manual; the other sort appear in the newer large format ones. And its not just in the manuals, I have some of each sort, but unfortunately I didn't notice until I had mixed up for ever those from a new and those from an older set.

NECOOBO MOD 1 GEARS. In OSN 5/85 I suggested that the original NECOBO gears were Mod 1. Hans Klarenbeek recently kindly gave me a handful of gears which turned out to be Mod 1 and which fitted more or less exactly the description of NECOBO gears #127-130A in MCS(FB), p3/4. That's to say they have the same number of teeth, and there are no holes in the faces of the gearwheels. The only difference is that the Worm Wheel in MCS looks like a proper one with the teeth shaped to conform to the Worm whereas the one I have is just like the other gearwheels except for the number of teeth. The Worm and Worm Wheel mesh at 2-hole centres and not the 1-hole spacing that I postulated in OSN 5. I've typed 1-hole and 2-hole advisably because the only problem in saying these gears are almost certainly early NECOBO is that suitably paired they bind rather if mounted at centres that are multiples of $\frac{1}{2}$". They run sweetly when spaced x 12.9mm apart. I haven't myself any NECOBO parts to check their hole spacing but MCS says $\frac{1}{2}$"; it also says that the hole diameter is 4.5mm and if that is correct it would mean that MECCANO diameter axles (4.1mm) would be a loose fit, and this might just allow the gears a reasonable mesh. All five gears are brass throughout; the bosses have an o/d of 10.0mm, a bore of 4.1 (they just fit a MECCANO axle), and they are double-tapped 5/32 BSW; the o/d of the Worm is 14.0mm and the face width of the Pinion is 5.3mm.

CONSTRUCTION C40 Control System

Hellmuth Kohler

The last two issues of OSN have given brief details of this set which contains a programmable sequential controller; here is a fuller description. The heart is the programme unit, as illustrated in OSN 6/133. This has groups of electrical inputs, outputs and a programming board area.

What does this quite complicated system do? It controls a sequence of up to ten 'states' or steps. Each step is initiated by a momentary contact closure - and maintained until the next impulse is received. At each step, zero, +4.5 or -4.5 volts is provided at each of two independent output sockets, a third output socket gives only zero or +4.5 v. Motors or lights or other 4.5 v devices can be driven from the outputs. Reset, that is a return to the first step in the sequence, is automatic after ten steps, or can be programmed earlier at any stage. There is no inbuilt timing element, contrary to the claims in the original German publicity.

OUTPUTS and PLUGBOARD. Output channels are at the top of the unit. A1 and A2 each have two pairs of pins, 1 & 2 together with 3 & 4. A3 has just pins 1 & 2. On channels A1 & A2, pins 1 & 4 are connected always to 4.5 v, on channel A3 pin 1 is also at 4.5 v. Jumper plugs, which can be inserted for each step (row) of the controller, determine the output states at the pins when the program row is active. The controlled pins of the output channels A1 and A2 are 2 & 3, on A3 pin 2 only.

With no jumper plug, pins are not live. Either pin 2 **OR** 3 can be made active by inserting a jumper. With the jumper to the left, pin 2 is at 9.0 v (U_B); with jumper to the right, pin 3 is at 0 v ($\perp$). Inserting two jumpers in channel A1 or A2, which would appear to switch on both pins 2 and 3, is not allowed, and might (will?) damage the unit.

Single pole devices, lights, etc. are connected to pins 1 & 2 and/or 3 & 4 as desired, and can be switched on or off. Channels A1 and A2 can drive 4.5 v d.c. motors in either direction, by taking pin 1 (or 4) to one motor terminal, and commoning pins 2 & 3 to the other. The system output connecting plugs do this for you. As pins 1 and 4 are at 4.5 v, 2 at 9 v **or** 3 at 0 v, the motor 'sees' + **or** - 4.5 v.

CONTROLLING the SEQUENCE. The active row (or step) in the program is shown by a lit LED. At the top left of the controller is the input area. There are 4 input pins 'S' (all with similar function, but not just in parallel to give one input), ($\perp$) are two ground pins, and at **R** are two reset pins. Every time an 'S' pin is grounded, the control steps along one row. This input need only be a transient contact. The system protects against contact bounce by requiring about a two second interval before any further input signal is accepted.

On applying + 9.0 v to an 'R' pin the sequence resets to step (row) 1 immediately. This 9.0 v can be obtained direct on the board from the first pin in a row, with no jumper in place, as shown in the model picture. Note that this 9.0 v only appears when the program row is active.

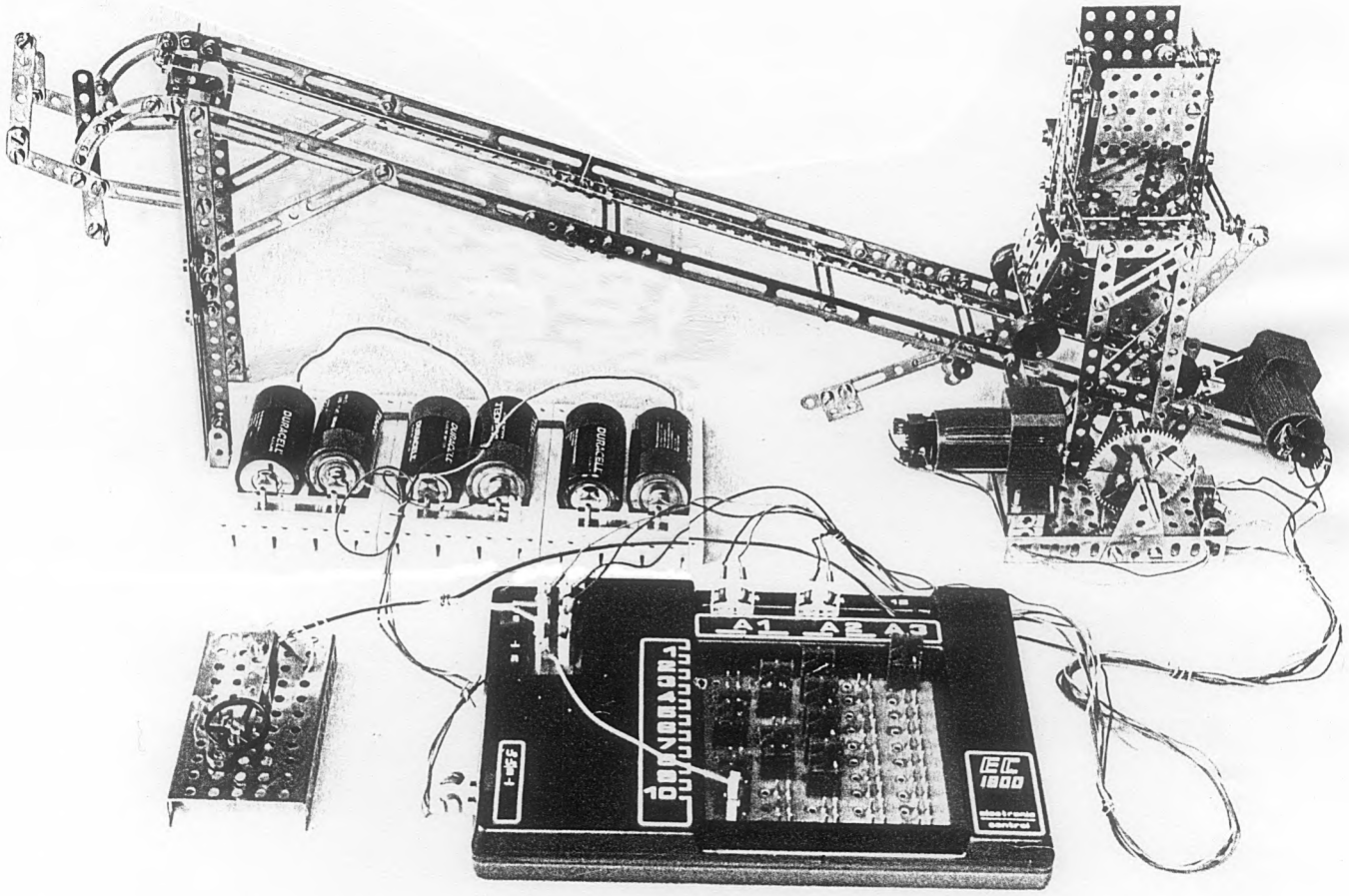
The jumpers are not simply connectors, they contain diodes to prevent unwanted current flows.

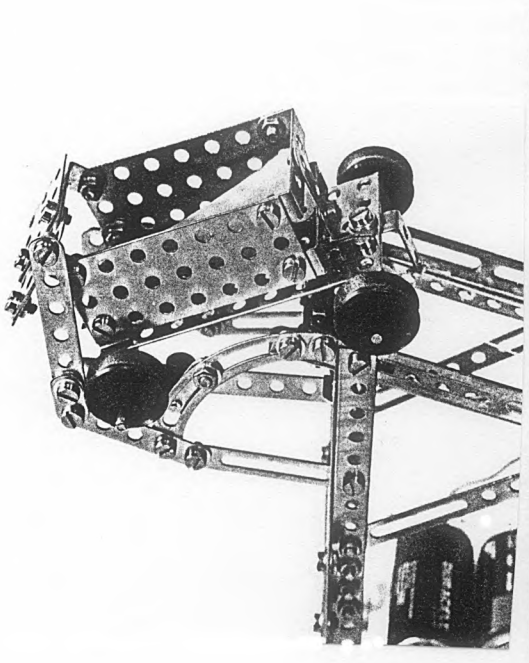
[cont. >]

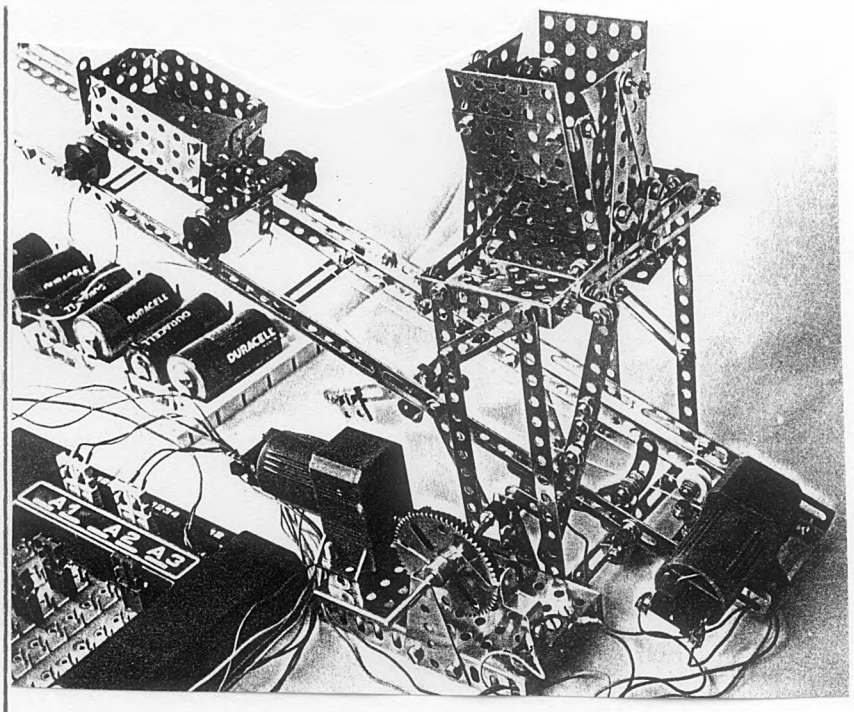
POWER SUPPLY. A three wire cable and plug connects the battery pack to the bottom left of the unit. A special procedure for making the connections is described in the manual to avoid any risk of damaging the Controller. With batteries, working voltage U_B is 9.0v (6 x 1.5v U2 batteries), with a 4.5 v centre tap, $U_B/2$. A mains adaptor giving stabilised 2 x 4.5 v could be used, but must be voltage controlled so that the output does not rise above 2 x 6 v on no load. Actual working voltage range is 6.0 v to 12 v, though this requires 6 v motors (and bulbs, etc.).

No-load current is 25 milliamps, and the maximum permitted output current is 800 ma, apparently for each output, rather than overall, but be careful. This is plenty for the motors supplied.

It is not clear how well the system is protected against overload, short-circuits, incorrect battery connections, program errors, etc, so be very sure connections are OK.







The MODEL. This 'fun' model was built to try out the various features of the controller. Lightweight objects (I used acorns) in the hopper are released by clamshell doors which open and close, and fall into the trolley. This then runs to the end of the ramp, tilts, and the trolley end door is opened by a fixed screw pushing against an arm attached to the door. With luck, the acorns fall out. The trolley then returns to the bottom of the ramp, and the sequence repeats. After two cycles, there is a reset to program row one, which has no motor outputs, only a lamp output. The lamp under the hand switch lights to invite a press and consequent impulse to restart the sequence.

One motor drives an endless cord with a gravity tensioned jockey pulley to work the trolley. The other motor both works the hopper doors, by a crank, and provides a timer element. Two projections on the large gear driven by this motor touch an insulated contact at each half revolution of the gear. This contact is connected to a controller input pin at region 'S'. The gear shaft also has a crank, the connecting rod is slotted so that only the top half of the crank rotation lifts it and thereby actuates the door linkage, opening and closing the clamshell doors in one continuous operation. The other half-rotation of the gear has no effect on the doors, but does give a time delay before a further stepping impulse.

Not seen well in the photograph are the limit contacts for the trolley. Because the plastic wheels insulate, a flying lead to the trolley body would be required if the trolley simply touched an insulated contact to the controller input at the extremes of its travel. Flying leads have poor aesthetic appeal, and on the model the trolley pushes earthed swinging arms, which rotate to make contact with the insulated input contacts.

The need for multiple inputs to the controller is demonstrated by the model. The timer contacts move slowly, so that they remain closed when their drive motor stops. So the next stepping impulse has to be routed to a different input pin, and is then accepted, even though the previous input pin is still earthed.

In detail, the controller steps are as follows:

Step 1. A 'waiting' step. The jumper at A3 causes a lamp at the key-switch to light. Pressing the key initiates Step 2.

Step 2. Hopper motor, controlled from A2, jumper inserted to give anti-clockwise rotation, runs for one half revolution of the timing gear and crank, which lifts and lowers the connecting rod thus opening and closing the doors. A pawl on the big gear closes a contact at the end of the half revolution, and initiates Step 3.

Step 3. Trolley motor, controlled from A1, jumper to give clockwise rotation, runs to drive trolley up ramp, on reaching end the trolley pushes a swinging arm to make a further contact, which initiates Step 4.

Step 4. Hopper motor, controlled from A2, jumper inserted to give anti-clockwise rotation, runs for one half revolution of the timing gear and crank, but as the crank is slotted, the doors do nothing. A second pawl on the big gear closes the contacts at the end, and initiates Step 5.

Step 5. Trolley motor, controlled from A1, jumper to give anti-clockwise rotation, runs to drive trolley back down ramp, on reaching end the trolley pushes another swinging arm to make a further contact, which initiates Step 6.

Steps 6, 7, 8 and 9 repeat the sequence of Steps 2,3,4 and 5, except that the impulse at the end of Step 9 initiates Step 10, which causes reset to Step 1.

The model goes through two sequences before needing a restart impulse not because this seemed a good idea, but because on my controller the 'reset' mode does not work from the middle few programming lines. This is a fault, but the only one found so far. Some general comments - the parts are very well thought out, with push-on connectors, pre-wired battery and output plugs. One of my motors is a little temperamental. After a week or two out of use, it is reluctant to start, possibly due to sticky brushes, but the brushgear is very primitive and best left alone.The geared motors have good low-speed torque, and the plastic pulleys with metal grub screws eventually slip on the motor output shaft so providing a slipping overload clutch - whether intended or not I do not know. The claims for applications referred to in the OSN p107 notes are exaggerated, there are insufficient steps for anything beyond the most simple sequences. However, all in all, very good fun.

This is perhaps the place to express my thanks to Brian Rowe, who introduced me to the C40 set, and was kind enough to pass his on to me at cost. Brian also provided most of my other CONSTRUCTION sets, as a search of local cut-price toy shops yielded only two sets. CONSTRUCTION (CONSTRUCTO?) has its irritations, as can be seen from the model, linkages do depend on lots of locknutted bolts and angle brackets. Also the plastic pinions have inadequate boss thickness so that the grub screws only hold with care. It is not MECCANO, but then neither is a 2CV a Porsche Carrera.

TRIX MATTERS Various more or less unconnected items have come to light and may be of interest.

TRIX ENGINEERING MANUALS. Many readers will be familiar with the TRIX Complete Engineering Manual, a largish volume of 116 pages slightly smaller than A4 size. On p4 a list of Editions shows that it was first published in May 1947, and the last one in the manual that I have is the 19th (Reprinted) in December 1958. Whether there are any differences between the various editions is not known to me but an earlier 17th Edition is identical to the 19th except that the publisher is different.

This manual also appeared in French and German versions and the cover of the French one is in MCS under TRIX (3), and the crane on it is identical to that of the English one illustrated in TRIX (1) of MCS (FB). The Illustrated Parts in the French manual are identical to those in the English version and have the same Part Nos, and the pages reproduced in MCS have the same page numbers and illustrations as the English one. The only difference, apart from the text being in French of course, is that the dimensions of the drawing on p107 (MCS, p5c) have been changed from inches into millimetres, and judging by the 'roundness' of the inch dimensions (with halves, quarters and eighths) compared with the slightly tortured French ones, it is a fair bet that this manual was originally produced in English. As an example, $\frac{1}{4}$" becomes 6.35mm and this precision would have been quite unnecessary had the original schema been in metric. Pages 8 and 9 of the French manual (MCS pages 6 and 6a) show the range of Units A-G, as in the English version, and not the earlier 1, 1A, etc shown in a French TRIX leaflet.

Information on the German version comes courtesy of Peter Kessler who lent me his copy for comparison. The front cover is different with a photograph of an excavator made from TRIX parts, but it contains the same number of pages as the English one and all of them correspond in terms of subject matter. All the models are identical and the same photographs are used, but unlike the French variant the Units, although the same, are designated 1, 1A, etc - details are given below. There is no positive indication of the date of publication but under the Index there is a '56' on the left hand side of the page and 'Copyright vorbehalten' on the right. So just possibly this might indicate 1956 I suppose. The differences between the two manuals are as follows with comments as appropriate -

Page 5: The Foreword of the English version has been rewritten with no photograph of or reference to Bassett-Lowke.

Page 6: The Illustrated Parts are identical to the English ones with the rounded Hook and not the flat-sided one which is shown on Page 3/4 of TRIX (3) in MCS(FB). Most of the parts have different letters to denote them, the better to describe them in German,

so the English	U	W	ER	V	P	S	N	G	GB	C	SU	B	WM	A	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12
become the German	D	B	E	R	L	G	M	KR*	KR**	H	U	S	AS	W	LP	GL	MS	MK	F2	KL	F1	JS	KW	DS	UR	L5

Except for the E parts any Numbers following Letters of UK parts remain the same. * With 'a' after the number so G10 becomes KR10a. ** With 'b' so GB10 becomes KR10b. The Spanner SP is called Schlüssel with no abbreviation, and the CHAIN becomes Kette.

Pages 8, 9: The designations of the Units compared with their English counterparts are

English:	A	B	C	D	E	F	G
German:	1	1A	1B	1D	Elektro 11	Gummireifen	1C

The English Units are colour coded but no colours are mentioned for the German ones. Page 9 has been rearranged to make room for another item, a Packet SM 50 which contains 24 Nuts (M1) and 24 Bolts (S1). Also the photo of the Tyres is different and the tread shown looks crosswise rather the radial pattern on the Tyres that I have seen. A photocopy of these two items is shown opposite.

Pages 10, 11: The numbers of the Standard Construction Details are prefixed by Gf (Grundformen) instead of SCD.

Page 12: Three motors are shown, the d.c. 2050, the a.c./d.c. 2060 and the clockwork 2170. Details are given later. Since all the illustrations of the models are identical to the English ones neither the 2060 nor the 2071 are used in them. The 2050 looks exactly the same as the 2051 in the models.

Page 78: The photographs of the Standard Electrical Circuits are replaced by line drawings and each is given a number (1-7) in the text instead of being labelled SEC 1 to SEC 7.

Pages 79, 82, 87: The circuit diagrams have been redrawn with improvements in some cases.

Page 107: The drawings of the cab roof and crane chassis floor have been redrawn and, as in the French version, dimensions are given in millimetres. They are not exactly the same though and again their complexity (the equivalent to $5\frac{1}{2}$", a non-critical dimension, is 139.8mm; it is 140 in the French version) makes it fairly sure that the English manual came first. This is also evident from the Parts List for each model where the parts are listed in the order used in the English version but because

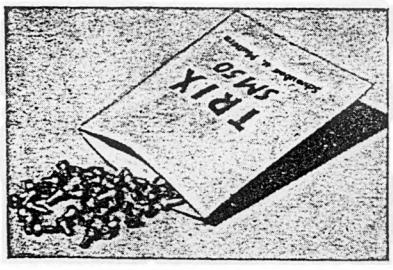
the Part Nos have been changed they are no longer in alphabetical order.

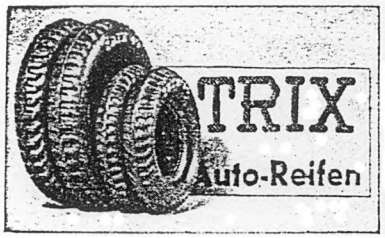
SUMMARY OF MANUALS

#Name: THE TRIX UNIT SYSTEM. THE TRIX complete ENGINEERING MANUAL #Details of maker: 17th Edition published by TRIX LTD., 11, OLD BURLINGHAM STREET, LONDON, W.1. 19th Edition published by DUFAY LIMITED (Sole manufacturers and distributors of Trix products), P.& O. HOUSE, 14-16 COCKSPUR STREET, LONDON S.W.1 #Dates &/or Ref Nos: 17th Ed, Dec 1955; 19th Ed (Reprinted), Dec 1958. Both have 10M/4045/655 and Priited by HARRISON AND SONS, LTD., ST. MARTIN'S LANE, LONDON on p114. #Page size: 214x280mm deep. #No of pages: 116 including covers. Pages 1-3, 6, 10-11, 114-116 unnumbered. #Language: English. #Printing: Halftone photographs of models. Cover has a black, non-TRIX crane on fawn ground shaded red on lower half. Lettering in black, red, fawn. #Page Nos of Parts List & highest PN: Parts shown on p6, again on 8,9. Motor 2051 on p12. Parts not numbered in sequence. #Page Nos of Set Contents & highest PN: 8,9 for Units A,B,C,D,E,F. #Sets covered: None. Models shown need various combinations of Units. #No of models for each set: 69 in all (27, 11, 9, 18, 4 in Parts 1 to 5, see below). #Name, Model No, Page No of first & last model of each set: The manual has 5 Parts; most models are not numbered. PART ONE. TO START YOU BUILDING: 90° ANGLE, 1, 14. TWIN-ENGINED MONOPLANE, -, 34. PART TWO. ADVANCED MODELS: SEWING MACHINE, -, 38. WINDMILL PUMP, - 59. PART THREE. GEARS: SPEEDOMETER, -, 62. QUEEN MARY TRAILER, -, 74. PART FOUR. UNIT E - ELECTRICAL PARTS: Bell, -, 80. BREAKDOWN LORRY, -, 94. PART FIVE. MASTER MODELS: PORTABLE JIB CRANE, -, 98. PENDULUM CLOCK (SELF WINDING), -, 109. #Other notes: None.

#Name: DAS TRIX BAUKASTEN SYSTEM. ANLEITUNGSBUCH FÜR DEN TRIX-INGENIEUR #Details of maker: Herausgeber: TRIX VEREINIGTE SPIELWAREN-FABRIKEN ERNST VOELK K. G., NÜRNBERG, Dammstraße 5-11. #Dates &/or Ref Nos: Kern Druckerei Nürnberg, on back cover. There is '56' followed by 'Copyright vorbehalten' after the Index on p4. #Page size: 208x280mm deep. #No of pages: 116 including covers. No numbers on pages 1-3, 6, 10-11, 115-116. #Language: German. #Printing: Halftone photographs of models. Cover has black TRIX excavator (which extends onto back cover) on red (left side) & fawn ground. Lettering in black, red, fawn. #Page Nos of Parts List & highest PN: Parts shown on p6, again on 8,9. Motors 2050, 2060, 2170 on p12. Parts not numbered in sequence. #Page Nos of Set Contents & highest PN: 8,9 for Units 1, 1A, 1B, 1C, 1D, Elektro 11, Gummireifen (tyres), SM 50 (nuts & bolts). #Sets covered: None. Models shown need various combinations of Units. #No of models for each set: 69 in all (27, 11, 9, 18, 4 in Parts 1 to 5, see below). #Name, Model No, Page No of first & last model of Each set: The manual has 5 Parts; most models are not numbered. Teil I. Modelle für den Anfänger: 90°-Winkel, 1, 14. Zweimotoriges Flugzeug, -, 34. Teil II. Modelle für Fortgeschrittene: Nähmaschine, -, 38. Windturbine mit Pumpwerk, -, 59. Teil III. Getriebe: Geschwindigkeitsmesser, -, 62. Sattelschlepper, -, 74. Teil IV. TRIX-Elektro: Klingel, -, 80. Abschlepp-Kranwagen, -, 94. Teil V. Meistermodelle: Dreibock-Schwenkkran, -, 98. Pendeluhr (mit Selbstaufzug), -, 109. #Other notes: Models identical to English version.

SM 50 — Diese Packung enthält 24 Schrauben S 1 und 24 Muttern M 1.

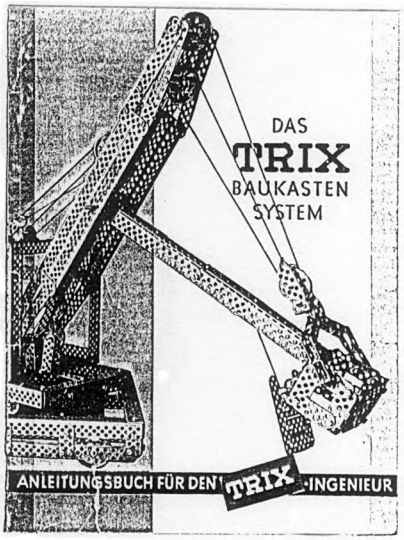




Gummireifen — Verseht eure Modelle — Wagen, Luftfahrzeuge, Lastwagen usw. mit TRIX-Gummireifen, diese tragen stark zur Natürlichkeit bei.

Enthält die folgenden 4 Teile:

Gummireifen klein . . . . . 2 Stück
Gummireifen groß . . . . . 2 Stück



TRIX MOTORS. In the German version of the Engineering Manual the 3 motors illustrated add a little to the information on TRIX motors in OSN 4, p52. The d.c. 2050 was mentioned there but with no details - the casing code is 0, that is uncased, the base is Type 2, and of course it would have been sold in Germany. It is stated to operate on 4-8 volts. The second motor, No 2060, is for a.c./d.c. (8-12 or 6-8 volts respectively), the casing is again 0 and the base again 2. The third motor, the clockwork 2170, is as listed in OSN 4 for Belgium/Holland. The illustrations of the motors in the Manual are quite good so those of the 2060 and 2071 are reproduced at the end of this piece, enlarged slightly. 'a' and 'b' of the 2060 are the terminals.

[cont. >]

TRICY TRIX ELECTRICAL ENGINEERING MANUAL This at 100 pages is nearly as thick as the Engineering Manual proper but the page size is only about half as big, and it is much less well known. My copy, the only one I have ever seen, has FIRST EDITION - AUGUST, 1949 on the inside front cover. The opening pages contain illustrations of the various parts included in the TRICY TRIX set, 163 in all, then a 2-page intro called 'How Electricity Works!', and then details of SEC 1-7 (seven Standard Electrical Circuits). Over 60 models are shown and they are split into three groups; the first has bells, buzzers, shocking coils, motors and some small models powered by solenoids or motors using one or two TRIX Coils. I made a simple 1-Coil motor from the manual and it worked well, but only when twice the voltage recommended was used; in fact no actual voltages are quoted and there is some ambiguity as to how many cells/3-cell 4½v batteries, are meant to be used - so perhaps I do TRIX an injustice, the Coil got very hot but it didn't melt. The second part of the manual is devoted to switches, relays, variable speed controllers and the like, again using at most two Coils; the third part is 7 'Projects', each of which combines control elements with a model, taken from earlier in the manual or from the Engineering Manual, to give a measure of electric control over the model in question. As examples the second Project is a Railway Lifting Bridge Controlling Train Signal, and No 6 is full Automatic Control of Travelling Gantry Crane. That's the big crane and apart from all the parts you need to build it, more, including an extra 9 off E Units, are needed to do the controlling - to quote the manual, 'This project shows how a big crane can be controlled by merely pressing certain push buttons. Each of the four motors in the Gantry Crane can be stopped, started and reversed by the use of the impulse switches and relays. Each individual motor is selected by the eight-way switch, noting that only four contacts are used.'

SUMMARY OF MANUAL

#Name: TRIX UNIT SYSTEM. TRICY TRIX Electrical ENGINEERING MANUAL. #Details of maker: TRIX LIMITED, 11 OLD BURLINGTON STREET, LONDON, W.1. #Dates &/or Ref Nos: FIRST EDITION - AUGUST, 1949. #Page size: 215x140mm deep. #No of pages: 100 including covers. pp 1-3,100 unnumbered. #Language: English #Printing: Black on white. Near full tone photos of models (against black background). #Page Nos of Parts List & highest PN: Parts illustrated on pp4-5. They are lettered nonsequentially. #Page Nos of Set Contents & highest PN: Contents not stated. #Sets covered: TRICY TRIX. #No of models for each set: 55 (42 in Pt 1, 13 in Pt 2) plus 7 in Pt 3 which need extra parts. #Name, Model No, Page No of first & last model of each set: Models are in 3 sections. PART ONE. WORKING ELECTRICAL MODELS: BELL,-,12; MAGNETIC COUNTER,-,60. PART TWO. CONTROLLERS AND SWITCHGEAR: SIMPLE SWITCHES,-,67; DOUBLE RELAY,-,80. PART THREE. MORE ADVANCED APPLICATIONS: TRAIN OPERATED RELAY AUTOMATIC SIGNAL, PROJECT NO. 1, 82; RELAY CONTROL FOR SELF-WINDING MECHANISM OF PENDULUM CLOCK, No. 7, 94. #Other notes: The models in Pt 3 are labelled TRICY TRIX PLUS, there are 4 others shown under this label but without instructions; they are standard models (which use Electrical parts) from the Engineering Manual.

A PREWAR ELEMENTRIX MANUAL. There is no date on it to prove that it is prewar but the whole style is typical of early TRIX literature, and the two sets that make up an Elementrix outfit are No 1 and No 1a, which became A and B after the war. Also the main manuals are advertised as Books Nos 1, 2 and 3, which again as far as I know didn't reappear after WW2. The main interest is that 150 models, which can be built from the Elementrix, are shown; many are simple of course but no letters or numerals are included to swell the total. In a postwar Elementrix manual the number had shrunk to 44 and many, but not all, of those omitted could be described as static models in which nothing moved, small ships for example, and figures of one sort or another, animal or human. Many such were to be found in MECCANO manuals through the mid 1930s, and I always rather liked them, though I don't think I ever made many of them as a lad. I expect that lots of other kids didn't make them either and that was why they were dropped, but I was delighted to see the TRIX ones and I've put a selection on the front cover (plus a few of the more conventional ones) in memory of times gone by.

The manual contains various references to other sets and manuals and the following extract summarises it all, except that elsewhere it is stated that Book No. 1 contains over 100 models.

150 MODELS OUT OF THIS 1/- SET

Here you have 150 different models, which can be made with one set of ELEMENTRIX. This will give you some idea of the wonderful possibilities of Trix Sets. Just imagine what you can do by adding a few more sets from time to time.

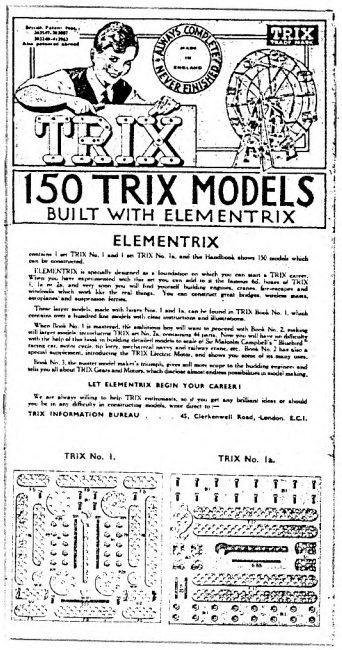
TRIX BOOK No. 1. The next step is to get a Trix Book No. 1, showing a large number of more elaborate models, all made by adding a few more 6d. sets, No. 1 and 1a.

TRIX BOOK No. 2 should follow, which shows how to build still bigger and better models with the help of Trix No. 2a, another fine 6d. set. This contains larger wheels, some flanged for making pulleys and motor wheels, longer spindles and very useful U-pieces. This book also introduces the famous Trix Electric Motor **2/6d.**, by far the finest value ever offered in Electric Motors.

TRIX BOOK No. 3 embraces nearly everything that can be built in Engineering and brings into action the Trix Gear Set, chain drives, worm drives, gear drives, angle drives, sprocket wheels in three sizes, chains, couplings, long spindles and base. EVERYTHING COMPLETE FOR THE MODEL ENGINEER. Here we see how to make Differential Gears, Power Winches, Electric Generating Sets, Speedometers, Tractors, Clocks, Conveyors, marvellous working Fire-Escapes, Jib Cranes, Transporter Bridges and many other fine models.

Other famous Trix Products are—TRICY TRIX, the Electric Trix, and SCIENTRIX which contains parts for 100 thrilling experiments in Electricity, Physics, and Magnetism.

There is no reference to Angle Girders anywhere in the manual and a photo of the well known TRIX Gantry Crane on the rear cover shows that the main legs of the gantry are made from Strips at right angles to each other instead of the A/Gs seen in later pictures.



SUMMARY OF MANUAL

#Name: ELEMENTRIX. #Details of maker: None as such but contact point given as TRIX INFORMATION BUREAU, 45, Clerkenwell Road, London. E.C.1. #Dates &/or Ref Nos: None. #Page size: 175x338mm deep. #No of pages: 16 inc covers; 1 & 16 unnumbered. #Language: English. #Printing: Black on cream. Covers contain some halftones but all other illustrations are line drawings. Front cover shows Big Wheel at top right and at the bottom the parts in the Nos 1 & 1a sets. #Page Nos of Parts List & highest PN: No list of parts. #Page Nos of Set Contents & highest PN: Contents illustrated on p1; they are lettered nonsequentially. #Sets covered: Elementrix (consisting of Sets 1 and 1a). #No of models for each set: 150. #Name, Model No, Page No of first & last model of each set: 45° Angle,-,2; Wringer,-,15. There are no Model Nos. #Other notes: 21 Elementary Constructions are shown on p2 (EC1-EC21).

TRIX SETS WITH RED AND BLUE PARTS. Judging from the packaging these were produced during the final phase of TRIX in the UK, and no doubt the colours were an attempt to make the product more attractive. All but the gears, nuts, bolts and washers were painted, with most parts light red but the Hook, Spanner, Flanged Plate, small Double Brackets, and circular parts were a medium blue. Two sets have been seen - the first one, details from Roger Baker, has on the lid 'TRIX CONSTRUCTION SET' and 'No. 2, Contains 112 Components, Makes 33 Models'. Also on the lid, 'Supplied with Engineer Style Tool Roll', and this, made of yellow plastic with transparent pockets, houses all the parts. The selection of parts is a little unusual in that although it is only a small set, it contains Angle Girders. The models are shown on a folded Instruction Sheet, printed in white on blue and called a blue-print; at least some of them are well known TRIX models though with some different views and rather more explanatory text than in earlier manuals.

The second set is called JUNIOR MECHANIX and this name is on the yellow centre panel of the lid together with a picture of a very cheerful looking boy; it is surrounded by 8 drawings of engineering achievements, mostly coloured red and blue, most of which could not be easily modelled in TRIX. Perhaps the boy hadn't realised that. The centre panel also carries a TRIX motif with under it, 'MADE BY BRITISH TRIX LTD'; and under that was probably the address but a sticker across it bears another motif (an arrow going backwards into a hollow square) and 'A MEMBER OF THE COURTAULDS GROUP'. The set consists of 4 Units, each packed into a formed plastic tray with a transparent lid. As far as could be seen their contents corresponded with those of the standard TRIX Units A, B, C and G, but moulded into the Trays were 1, 1A, 1B and 1C, the numbering system used in the German Engineering Manual discussed earlier. The Instruction Sheet in this set is again blueprint style and most if not all the models are from earlier manuals. These details courtesy Mike Rhoades.

TRIX ADDRESSES. Finding the Courtaulds label led me to look through the TRIX literature and other references to hand for any other such indications of TRIX history in the UK. What emerged is noted below in what may be chronological order.

- TRIX Ltd, 4 Golden Lane, London EC. [from introduction to TRIX in 'Hobbies' 12/3/32; reproduced in the Sheffield Meccano Guild Magazine No 15, Sept 1986]
- TRIX Information Bureau, 45 Clerkenwell Road, London EC1. [from the prewar Elementrix manual des-

cribed above]

• TRIX Ltd, 5 Conduit Street, London W1. [quoted in MCS(FB), dating uncertain relative to the others]

• TRIX Information Bureau, 91 Regent Street, London W1. [from several small TRIX manuals, in one this address had a printed line through it and the next address was printed below]

• TRIX Ltd, 11 Old Burlington Street, London W1. [in Electrical Engineering Manual, 1st Edition, Aug 1949; and Engineering Manual, 17th Edition, Dec 1955]

• DUFAY Ltd (sole manufacturers and distributors of TRIX products), P. & O. House, 14-16 Cockspur Street, London SW1. [in 19th Edition (reprinted) of Engineering Manual, Dec 1958]

• TRIX, 310 Summer Lane, Birmingham 19. [from EXTRA-PAKS leaflet, see below, and, as the address for TRIX Construction Sets, on the Instruction Sheet in the Set 2 described above]

• BRITISH TRIX Ltd. [name on the Junior Mechanix set above, with the Courtaulds label over the address]

EXTRA-PAKS. As already mentioned these were from the Summer Lane era and the Instruction Leaflet from the Set 2 mentions the extra 'blue-prints' which were also available, see below. The details which follow have been reproduced from a leaflet contained in an Extra-Pak, slightly compressed to fit across the page; also in the leaflet is a photo of all the TRIX parts, an ad for the 2051 motor, and instructions for building a Windmill Pump.

TRIX

EXTRA-PAKS

These Extra-paks are used in conjunction with the Trix Construction Sets, and the models on which they are used are fully illustrated and described in the four different sets of assembly blue-prints which can be obtained.

Set No. 1/13/H ... 13 simple models.
Set No. 2/11/H ... 11 more advanced models.
Set No. 3/15/H ... 15 very advanced models.
Set No. 4/9/S ... 9 electric battery-operated models.

Leaflet SCD illustrates 50 Standard Construction Details, including Double Disc Wheels; Crank and Pulleys; Piston and Cylinder; Hoist Mechanisms, etc. In addition to illustrating and describing the famous Trix Permag Electric Motor No. 2051.

Any two of the above will be sent post free on receipt of 1s. stamps, or the whole set of 5 will be sent for 2s. 6d.

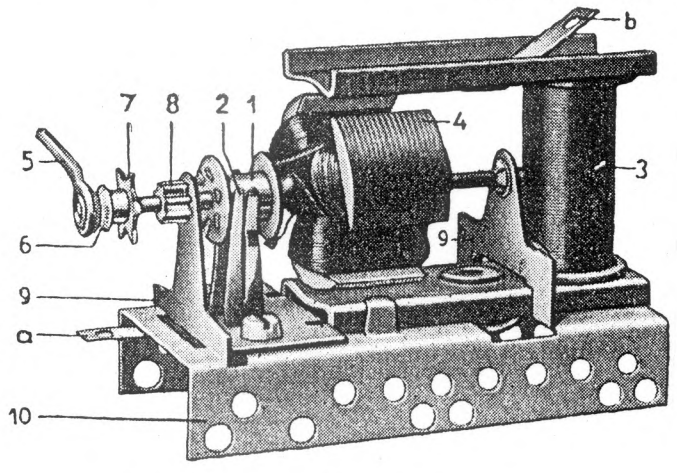
TRIX

310 SUMMER LANE, BIRMINGHAM 19

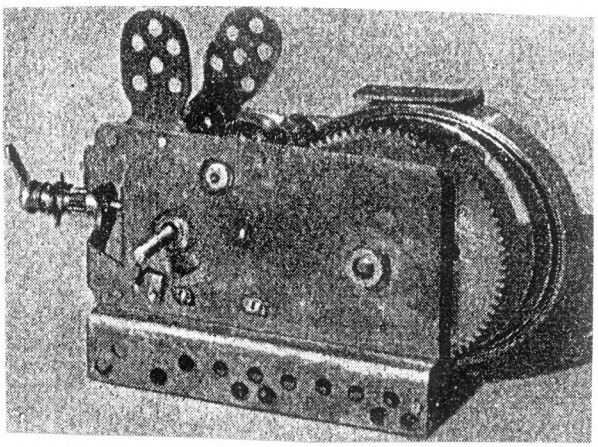
Patent Nos. 363547, 413963, 421924, 539851 and patented abroad

Part No.	Description	No. Used per Pak
EXTRA-PAK No. 11		
F5	Flat Strip	8
F17	Flat Strip	4
EXTRA-PAK No. 12		
F9	Flat Strip	10
F13	Flat Strip	3
EXTRA-PAK No. 13		
B2	Grub-Screw	4
C1	Crane Hook	1
E5	Brass Strip	1
E8	Fibre Insulator	2
ER1	Eccentric Washer	2
N2	Connecting Nut	1
P29	Pierced Disc	3
S25	Spindle	2
S55	Spindle	6
S120	Spindle	1
W16	Washer — Large	4
EXTRA-PAK No. 14		
G10	Gear Wheel	1
G20	Gear Wheel	1
GB10	Gear Wheel with Boss	2
GB20	Gear Wheel with Boss	1
GB40	Gear Wheel with Boss	1
EXTRA-PAK No. 15		
CH	Chain	1
EXTRA-PAK No. 16		
U1	'U' Piece	4
U2	'U' Piece	4
U3	'U' Piece	2
V35	Dished Pulley	4
EXTRA-PAK No. 17		
35	Tyre — Small	2
EXTRA-PAK No. 18		
49	Tyre — Large	2
EXTRA-PAK No. 19		
B1	Bolt	24
N1	Nut	36
EXTRA-PAK No. 20		
A1	Angle Piece	5
A18	Angle Piece	2
EXTRA-PAK No. 21		
A9	Angle Piece	2
SU1	'U' Piece	2
SU2	'U' Piece	2
S87	Spindle	2
EXTRA-PAK No. 22		
E1	Base Plate	1
E4	Core	1
E6	Contact Spring	2
E10	Connecting Coil	1
W10	Washer — Small	1
EXTRA-PAK No. 23		
P49	Pierced Disc	2
WM	Worm	2

Part No.	Description	No. Used per Pak
EXTRA-PAK No. 1		
P49	Pierced Disc	2
S87	Spindle	1
SU1	'U' Piece	2
SU2	'U' Piece	2
U3	'U' Piece	2
V35	Dished Pulley	2
EXTRA-PAK No. 2		
A9	Angle Piece	2
E12	Lamp Holder	1
S87	Spindle	1
V35	Dished Pulley	2
EXTRA-PAK No. 3		
A1	Angle Piece	1
B1	Bolt	12
F5	Flat Strip	2
N1	Nut	24
U1	'U' Piece	1
U2	'U' Piece	2
W10	Washer — Small	1
EXTRA-PAK No. 4		
A18	Angle Piece	1
E6	Contact Spring	4
E7	Commutator Brush	2
E8	Fibre Insulator	2
E10	Connecting Coil	2
W10	Washer — Small	4
EXTRA-PAK No. 5		
A1	Angle Piece	1
A18	Angle Piece	1
E4	Core	1
E5	Brass Strip	1
F5	Flat Strip	2
F9	Flat Strip	2
EXTRA-PAK No. 6		
A27	Angle Piece	2
EXTRA-PAK No. 7		
E3	Bobbin	1
EXTRA-PAK No. 8		
B1	Bolt	24
E11	Commutator	2
ER1	Eccentric Washer	2
P29	Pierced Disc	2
S25	Spindle	2
EXTRA-PAK No. 9		
E2	Bell	1
E9	Crank Axle	1
N1	Nut	24
EXTRA-PAK No. 10		
DS	Double-Ended Spanner	1
SD	Screwdriver	1
SP	Spanner	2



Wechselstrom-Motor 2060



Uhrwerkmotor 2170

MANUFAX One or two items of interest have come to light. David Martin sent two ads from The Model Engineer, the first dated 3/9/31 describes MANUFAX as 'Something New & of intense interest', but gives no hard information beyond showing pictures of a Double Track Railway Bridge and a Bogie Timber Truck, except that it states 'Sole Licensees and Manufacturers:- BRUNTON & TRIER, LTD., Felsham Works, Felsham Road, Putney, London, S.W.15'. I suppose this means that B & T didn't own the patent(s). In MCS(FB) the manufacturer is given as Manufax Ltd, Cressey Road, NW3 and the start date as 1920, so if MANUFAX was really introduced in 1931 presumably Manufax Ltd came later, alternatively if it was introduced in 1920 then Manufax Ltd could have been the first maker followed by B & T. Certainly there was something happening before 1931 because some Design Sheets belonging to John Stevenson are dated 1930, but this could have been during the preparatory stage prior to the launch.

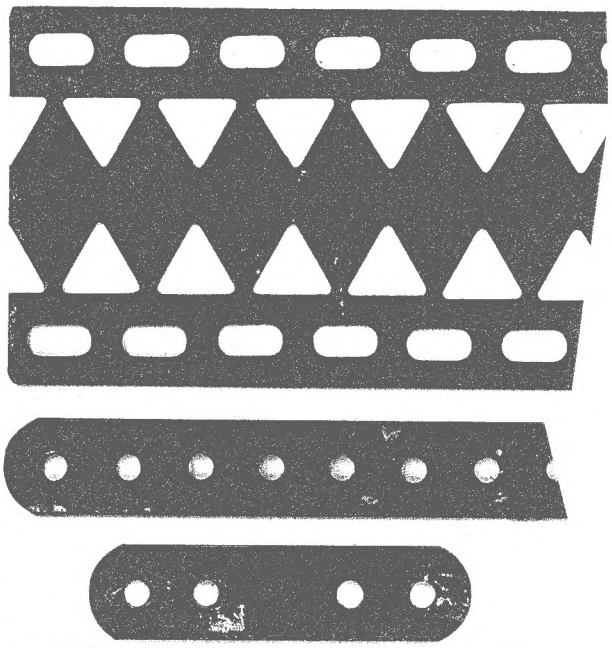
The second ad is from a Special Gifts Supplement of 3/12/31, it contains a photo of a set (below left), and 2 sets are listed - OUTFIT No. 1 at 19/- and No. 2 at 33/6. Also, 'The new constructional "Manufax" Outfits created a sensation at the last Model Engineer's Exhibition.', that was in the September. In another ME ad of 8/9/32 that I came across, it is still B & T but 4 sets are now listed, Nos 0-3, at 12/6, 21/-, 30/- and 42/- respectively. This ad also included a reference to 'Laminated steel girders of various sections ...', and it was this feature, that is the use of many layers of very thin steel to make up the cross section of each shape of girder, that allowed ready deformation of the girder by the Lock-Rivetting Tool, and so allowed the thin Clips to be 'rivetted' securely into position. This is shown at D and F on p5a of MCS. I was surprised how solid such joints felt but whether they would stand repeated loading and unloading I don't know.

The final ad was found in the 12/46 MM; on p527 Hamleys include in their list: 'MANUFAX' ENGIN'ING OUTFIT. 67/6, 1/6 post. So MANUFAX was still being sold in the mid 40s, but whereas JUNEERO, which was mentioned in the same ad, was again included a year later, no further reference to MANUFAX was found. So maybe MANUFAX was made after WW2 or possibly Hamleys were selling off prewar stock.

The last item is a set belonging to Roger Baker. The lid is of the same design as the one in the ME ad and has no set No on it. The cover of the Handbook is as shown in MCS (p1), with white arcs on a red ground. The Tools (below right) differ a little from those shown below left and in MCS(FB), with no spring return fitted to the various types of pliers, and the hammer handle is made from heavy gauge wire rather than wood. The Girders are painted green. The Handbook contains a List of Contents; Tools, Girders, Clips, some Design Sheets, but none of the 'A' series Accessories except A2, A3 and A19. The complete list will be on a new MCS p6. A 'Revised Price List' of parts is also included in the set, the Girders and Clips are, with a few minor anomalies, the same as those in MCS, but more 'A' parts are listed than are shown on p3/4 of MCS(NZ), and less than on p3/4b of the FB version. The latter is worth getting from Frank if MANUFAX interests you, it has good illustrations of most of the Tools as well as some of the 'A' parts. The only part in the Revised list which is not in MCS, is A 17, Corrugated Sheet, $2\frac{1}{2}$"x$2\frac{1}{2}$".

NEW PAGE FOR MCS: MANUFAX: X1.6. [1 Sheet]

AMENDMENTS TO MCS (as necessary, depending on version)
SETS: 0,1,2,3. Also 1A. COLOUR: Early tinplate, later parts light green. PERIOD: Probably 1931 (but may be earlier) to late 1930s or mid 1940s. MANUFACTURER: Manufax Ltd., Cressey Road, London NW3. In early 1930s Brunton & Trier Ltd., Felsham Works, Felsham Road, Putney, London SW15.



MYSTERY PART NO 17. David Martin showed me the Braced Girder opposite, it is 25 holes long and dark red in colour. Over half its length the hole spacing is 12.7mm, the remaining holes have a pitch of about 12.6mm; such irregularities are not unknown in Braced Girders so the nominal spacing may be ½". It looks rather like the BRAL pattern (as shown in MCS) but with the centre diamonds left solid. Its thickness is .026".

MYSTERY PARTS NO 18. Mike Edkins once kindly gave me a bag of OS parts; they were mostly LYNX, many of them marked or in their original small packets, but there were also other parts, mostly probably PREMIER. But quite unrecognisable were the two sizes of strips shown opposite, the longer one has 16 equally spaced holes and is 6.1" long overall. The hole spacing is exactly 3/8". Two of the 2" ones were painted, one red, one blue and the other four were nickel plated; some of the 6" ones were also red, blue or nickel, but some were painted green, some gold and one silver. In general appearance these strips are very similar to LYNX ones: in width and in thickness they are identical (½" and .050" within a few thou), the LYNX parts are painted green, red or blue, in shades identical to those of the mystery strips, and the general finish of the edges and ends is LYNX-like. Also the distance from the centre of the end hole to the end of the strip is the same, and this means that for the 3/8" pitch parts the end is further from the centre of the end hole than half the hole spacing. The most important difference is that the hole diameter at 3.5mm is noticeably less than the 3.8 of LYNX. One other possible LYNX connection, the LYNX 3-Hole Angle (illustrated in MCS, it's like a 3 hole MECCANO #127) normally has standard diameter holes but the hole spacing is 5/8" instead of the usual LYNX ½"; also it's a rather unusual shape with quite small radii at its corners. In with all the other parts was one of them, nickel plated and with the 5/8" spacing, but with 3.5mm countersunk holes. The countersinking was done before the part was plated, and this part could relate to the parallel range of DIY parts that LYNX marketed under the name LINX.

CONSTRUCTIONAL TOYS - a new booklet from Malcolm Hanson. Booklet is hardly the word because it consists of some 40 well produced A4 pages, spirally bound, and packed with good, large photocopies of OS material, mostly of manual covers, and easy to read text giving an outline of Wooden, Metal, Plastic, and, briefly, Scientific systems. Where appropriate each of these is sub-divided by method of fixing, and then into chronological order. It was prepared to accompany the recent Exhibition that Malcolm held at the Gloucester Folk Museum (see OSN 5/104), and provides an excellent introduction to Other Systems. Naturally it is not possible to cover everything in 40 pages but all the major Systems are mentioned, except perhaps BRAL which appeared in the early 1920s and is still going strong; and there is mention of a good number of those less well known. I found quite a few facts about these which were new to me, and I am pleased to have this 'booklet' on my OS shelf. It costs only £2 plus post (60p for UK) from Malcolm Hanson, 11 Willow Close, Long Ashton, Bristol BS18 9DT.

ORSTA PNEUMATIC SETS. Following the piece on p132 of the last issue, Gaston Marette has sent more details of these sets, including the contents of P01 and a leaflet explaining that the last item in the List of Parts on p132 (Kolbenstangenkopf = connecting rod head), which is not shown in the Contents, was a new part not in earlier sets. All the information available on the ORSTA sets is included in Extra MCS Sheets. Gaston also wrote that the holes in the Trunnions in his sets are not as illustrated, and as supplied they can be used with 10mm spacing (CONSTRUCTION say) or 12.7 (MECCANO/MÄRKLIN). The ones in P01 differ from those in P02 and a sketch showing the two patterns is included in the new Sheets.

EXTRA PAGES FOR MCS: ORSTA: X1.1,2,3/4/6-3/4/6b,7. [3 Sheets]

BILT-E-Z. Malcolm Hanson has sent more details for MCS, including the range of sets and their contents, from a manual in one of his sets. The smallest set is 0, then comes 00, then A through F. The 0 has 70 parts; the F, 1825 including 425 Windows, and it weighs in at 30lb. Full details as follows:

[cont. >]

EXTRA PAGES FOR MCS: BILT-E-Z: X1.6a,6b. [1 Sheet]

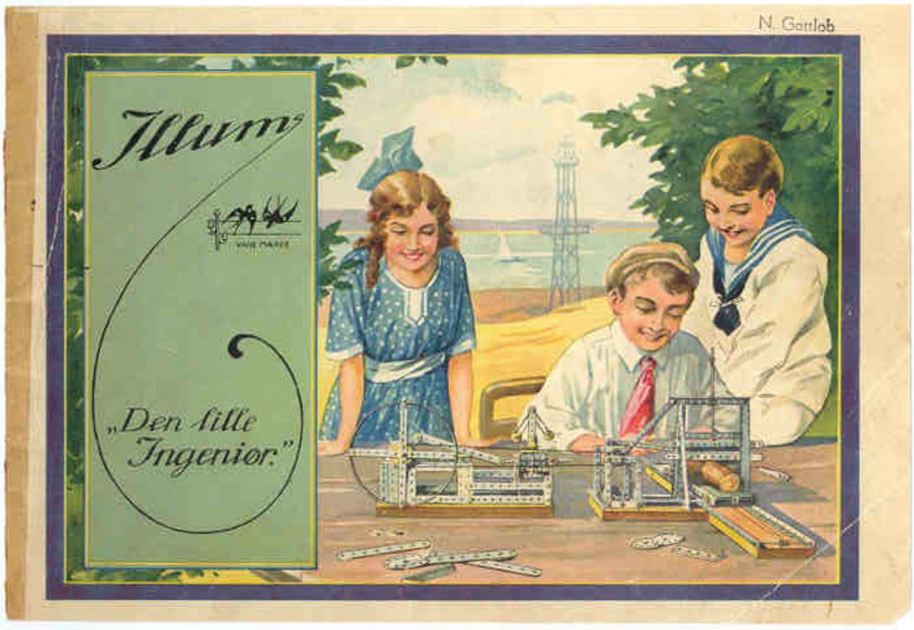
AMENDMENTS TO MCS (as necessary, depending on version)
SETS: 0,00,A,B,C,D,E,F.
MANUFACTURER: SCOTT MANUFACTURING COMPANY, 1701 West 74th Street, CHICAGO, ILLINOIS. USA.

ABBREVIATIONS. After the proposal in OSN 5 that a list of the meanings of abbreviations found in OS literature should be compiled, Don Redmond has made a start with those below. Suggestions for additions, with or without meaning, would be welcome.

AB	Aktiebolaget = Company
a.s.o.	'and so on' (evidence of translation of this particular item directly from German which has the corresponding 'usw', (und so weiter). Etc. is the normal usage in English.
Betr.-Nr	Betriebsnummer = Factory No.
B.S.G.D.G.	Brevété sans garantie du gouvernement = Patented without government guarantee (of quality.
Cie	Compagnie = Company
D.B.	? Deutsche Bundesrepublik (usually BRD, Bundesrepublik Deutschland) = Federal Republic of Germany (West Germany as it was).
DRGM	Deutsches Reich Gebrauchesmuster = German trademark register(ed).
DRPa	Deutsches Reichspatent angeboten = German patent applied for.
Gebr.	Gebrüder = Bros. (Brothers).
GmbH	Gesellschaft mit beschränkter Haftung = Co. Ltd.; PLC.
J.d.P.	Jouet de Paris (French firm).
Mk.	Marks (German currency).
TE	? Telephone.
VEB	Volkseigener Betrieb = People's Factory (communist state enterprise in East Germany).

Still to be found: DBGM, BGB, BRM, BTW, KG, CCIA, SRL, VEM, SPRL, PVBA.

DEN LILLE INGENIØR. Thanks to Jim Gamble I have recently been able to see some manuals, in Danish, which belonged to the late Niels Gottlob. The earliest is a STABIL for sets 53-55; it has a date of Oktober 1921 printed on the very fine coloured cover, which shows a boy sitting at a table outdoors making a model, while another boy in a sailor suit and a girl look on. The second has a similar cover but instead of STABIL in the panel on the left side there is 'Illum' and 'Den lille Ingeniør' (right, x½). Inside are models for STABIL Sets 49-52 and various references to STABIL and Walther (who made STABIL). There is no date printed on it but written on a brown paper dust cover is 1930 in ink, and 1925? in pencil. The third has a less classy red cover which won't reproduce, but makes clear that Illum were the suppliers, with Copenhagen under their name. No date on this at all and no reference to STABIL inside but some of the front pages are missing, and in fact most of the models are identical to those in the 49-52 manual already described. On the back cover is an ad for Sets 49-53.



It's fairly clear I think that DEN LILLE INGENIØR was a name used for STABIL in Denmark, just as ARTS ET METIERS was used in France, so should there be an entry in MCS for D L I as there is for A e M, or would it be sufficient in the interest of keeping the bulk of MCS down to have a section for such alternative names? But if one wishes to record the history of the different phases of, say, STABIL, and there is no detailed MCS entry for D L I, where does it go? Just in OSN perhaps, as above. Let me know if you feel strongly about it.

CLASSIFICATION OF MCS PARTS. Have you ever been sure that you've seen a particular part somewhere in MCS and then spent a long time turning pages over before you (I hope) found it. Well Don Redmond has been pondering on how to classify some of the types of parts that commonly turn up and I am pleased to print the first instalment below. Please write if you spot any errors or omissions, or if you have any other comments, for example on how useful, or otherwise, you find this feature.

METAL CONSTRUCTIONAL SYSTEMS

FLANGED PLATES, TRAPEZOIDAL (SECTOR PLATES)

Classification

A. Wide end 5 holes.
   1. One row of holes lengthwise.
   2. Three rows of holes lengthwise.
   3. Other patterns.

   UNDER EACH: (a) Round-hole flanges
   (b) Slotted flanges
   (c) Slotted face
   (d) Cutout in face.

B. Wide end not 5 holes. Describe.
   1-2-3 (a-d) as above.

Under each subclass, arrange by length in number of holes (not hole pitches).

The following index is taken from MCS and is not yet complete.

A.1 (a) Wide end 5 holes, 1 row holes lengthwise, round-hole flanges.
6 holes long: Il Costruttore Meccanico
7 " " Alpha, FALT
8 " " Struc

A.1(b) Wide end 5 holes, 1 row lengthwise, slotted flanges.
7 holes long: Micul Mecanic, Wisdom
8 " " American Model Builder, Ami/Lac, Boites de Construction Metallique, Bral, Cigea, Märklin, Scientific Bouwdoos, Spirou, Staba-Ehrlich, Structomode, Temsi

A.2(a) Wide end 5 holes, 3 rows lengthwise, round-hole flanges.
6 holes long: Buildo
8 " " Necobo, Pionerul Constructor, Schefflers, Vulcano
9 " " Buz Builder
11 " " Juego de Ingeniera Mecanica Infantil, Mecanica Infantil

A.2(b) Wide end 5 holes, 3 rows lengthwise, slotted flanges.
7 holes long: Condor
8 " " Ami/Lac, Beaver, Der junge Konstrukteur, Edison, Maakeets, Märklin, Mekanik (Germany, Sweden), Metaling, Pionier, Unimetal, Vašek, Vogue
9 holes long: Buz Builder (NZ), Elektromehaniskais Konstruktors, El Mecanico, Ezy-Bilt, Metaling

A.3 Other hole patterns.
8 holes: 2 intermediate holes each side of face: Castle Builder

A.3(a) Other hole patterns, round-hole flanges.
9 holes: El Experto Mecanico
11 " Premier

A.3(c) Other hole patterns, slotted face.
8 holes: Master Builder (USA), Mécanic

A.3(d) Other hole patterns, cutout in face.
7 holes: Inventrix, Stabil (C), Technikus

B.2(a) Wide end not 5 holes, 3 rows lengthwise, round-hole flanges.
6 holes long: Constructor
7 " " Construct-o-Craft

B.3(a) Wide end not 5 holes, other patterns, round-hole flanges.
5x3 holes: Prmeier (edge rows parallel to flanges)
6 holes long: Fémépitö (4 holes wide end, 2 rows of 6 holes)

Aluminium: A.2(a) holes: Buildo (USA); B.3(a) 6x4 holes: Mechanika

Incomplete information: Arte-Meccanica, Bettafit, Du-en-Loz, Model-It (USA), Mountjoy, Palikit, Staba (E. Germany)

MORE ON JEP In OSN 6 (p66) there was an account of the JEP No 4 Army Set, and a brief outline of the others in the series, Sets 1, 2, 3 and 5. Peter Kessler has now lent me the manuals and a few parts from these, again the sets were bought in South Africa. The first manual, mostly in Korean, but with the parts and models named in English as well, covers Sets 1, 2 and 3. The Illustrated Parts List and Set Contents will be included in the new MCS sheets on JEP; the Contents are very similar to those of the MECCANO 1978 series and the models in the manual, and the step by step instructions, are, with minor changes, identical. The page size of the JEP manual is the same as the MECCANO one and at first glance it might be thought that the same plates had been used, but there are small differences in some of the photographs. Also except for the models which come from the Pocket Meccano Set, there is a colour photo of each model, with B&W for those showing the stages of assembly. The general standard of the photographs is good although they are not quite as clear as the MECCANO equivalents. The exception is the Pocket Meccano models which are crowded into two pages instead of three and the photos are rather blurry.

A few of the titles of the models have been changed so the Stock Car becomes a Jeep, for instance, and the Jumping Dog just a Dog. And the rather unconvincing MECCANO Ferris Wheel has been renamed Seesaw. The only significant change noticeable in the models is in the motorisation of the Lathe, Model 2.4, where the motor and drive is shown; in the MECCANO version the motor does not appear in the finished model, nor does the drive between it and the Lathe's faceplate. It is remarkable that although both the MECCANO and the JEP No 2 Sets contain a motor the only model in which it is used is the Lathe.

The parts themselves including the 'Crane' motor and the Battery Box, look identical to MECCANO ones, and the parts Peter sent for comparison, a 2" Strip, a Flat Trunnion and a 5x3 hole Plastic Plate, are exact replicas. The Strip is painted in the 1978 MECCANO dark blue and the colour of the Trunnion is very similar to 1970 Liverpool yellow. The Plate is yellow but with more of an orange tinge to it. Judging by the colour photos in the manual the parts have generally the same finish as MECCANO ones with brass or iridescent nuts and bolts, and small brackets, and dark blue (or in some photos brass) $1\frac{1}{2}$" Pulleys. The DAS and Formed Slotted Strips are dark blue. The gears and the 1" and $\frac{1}{2}$" Pulleys are yellow plastic, so are the Crane motor and the Battery Box. The 1" Pulley appears to have a brass boss through the plastic. None of the models in the manual bear any of the decorative stickers that used to come with the comparable MECCANO sets.

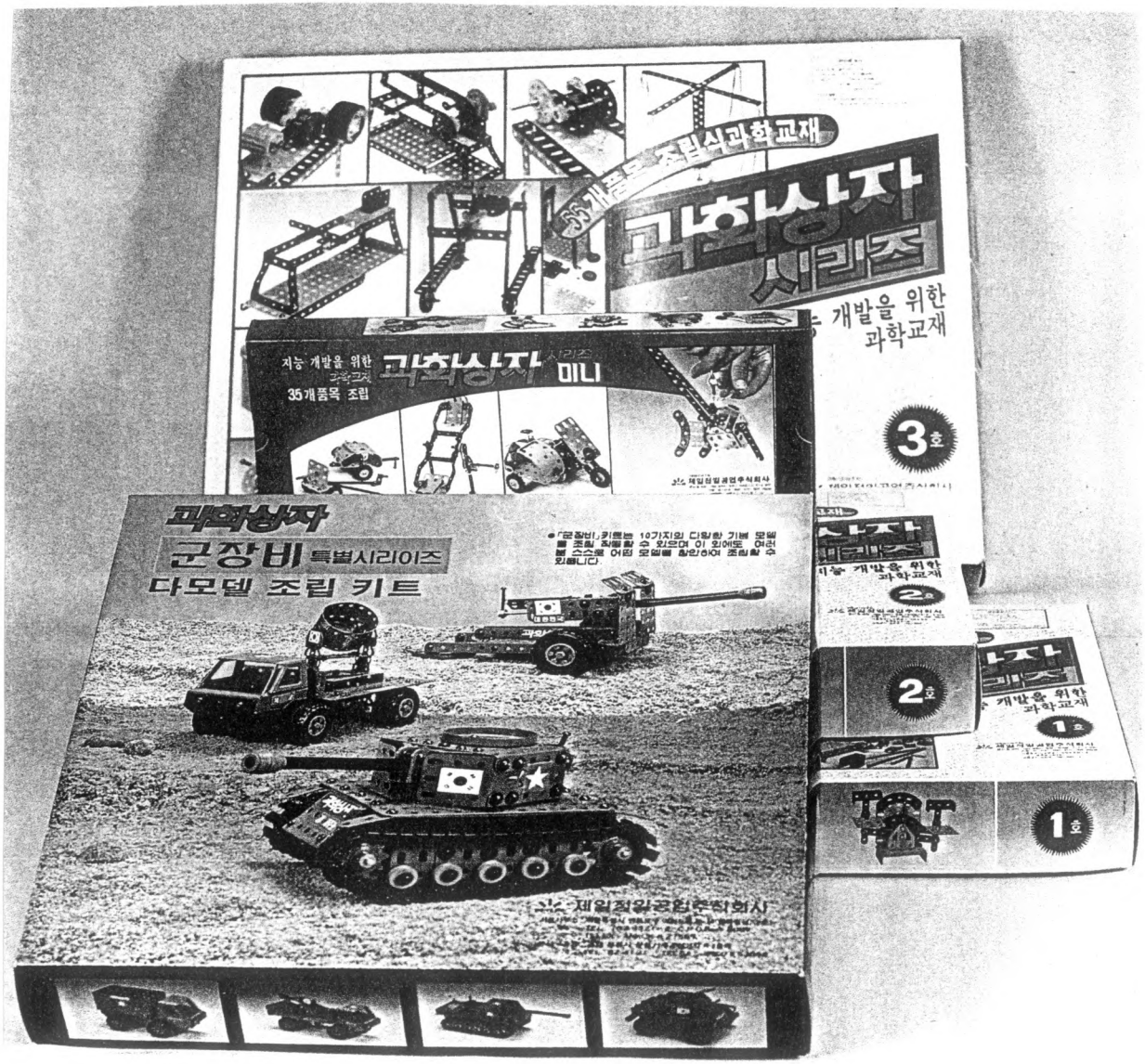
The manufacturers seem to be realistic, they copy the best system in the world (I stand to be corrected), and waste not want not, some of the models in the manual can be seen, in the colour photographs, to have been made from parts that were clearly far from new, with circular score marks around some of the unused holes.

There seems no need to show many models from the manual here since most readers will be familiar with the MECCANO originals. The modified Lathe is reproduced overleaf and the usual small manual cover is shown below with the Summary.

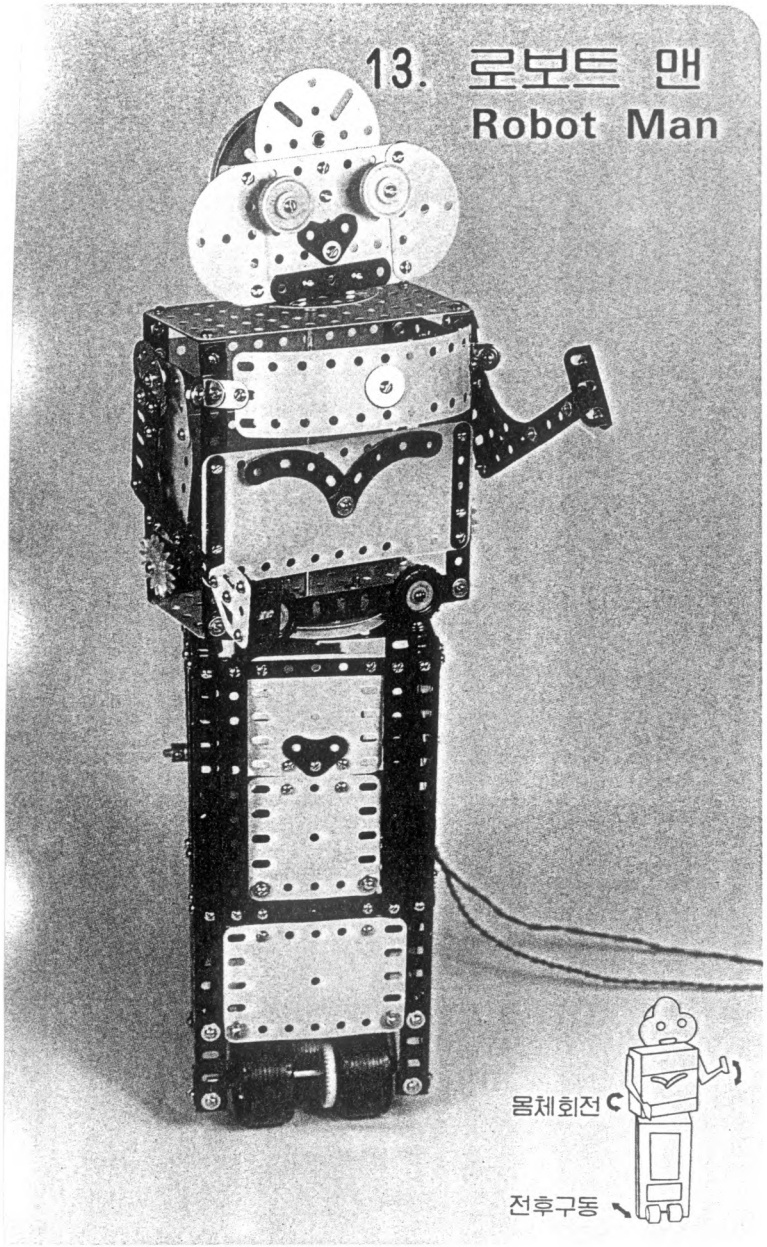
SUMMARY OF MANUAL

#Name: JEP (Name taken from advert, it is not on the manual). #Details of maker: None. #Dates &/or Ref Nos: None. #Page size: 297x182mm deep. #No of pages: 40 inc covers, all unnumbered. #Language: Korean. Names of parts and models also in English. #Printing: One colour photo of each model (except B&W for 1-11 to 1-35) and B&W halftone photos of assembly stages. Front cover has yellow and dark blue model on light blue ground. Border is white with name in red. #Page Nos of Parts List & highest PN: 40. 99. #Page Nos of Set Contents & highest PN: 2. 100. #Sets covered: 1.2.3. #No of models for each set: 35. 10. 10. #Name, Model No, Page No of first & last model of each set: 1: Scales, 1.1, 3. Helicopter, 1-35, 9. 2: Forklift Truck, 2.1, 10. Fire Truck, 2.10, 19. 3: Jeep, 3.1, 21. Lift Bridge, 3.10, 39. #Other notes: Models are nearly identical to those of 1978 MECCANO Sets 1-3. Pocket Meccano models are Nos 1-11 to 1-35.

SET No 5 The manual is large, glossy and badly bound, with the edges of the pages glued to the spine. It has 86 A4 size pages and the 18 models are, as in the 1-3, all shown in colour with the assembly steps in monochrome. The colour plates are very good, the B&W I found rather small and somewhat indistinct, but my eyes aren't what they were. No expense has been spared in the introductory pages, two in colour showing an historical pageant of apemen, a Roman chariot, etc, through to the space age, then three more in colour showing small pictures of all the models and a spaceman (or is it a knight in armour wearing headphones) in five positions as he leans forward and turns his head to face the



◆ 3호에 추가호를 더하면 5호가 됩니다.



reader. There are also slabs of text, would that I could read Korean. After three pages illustrating the parts and set contents there are two more with 21 Standard Constructions, and then the models.

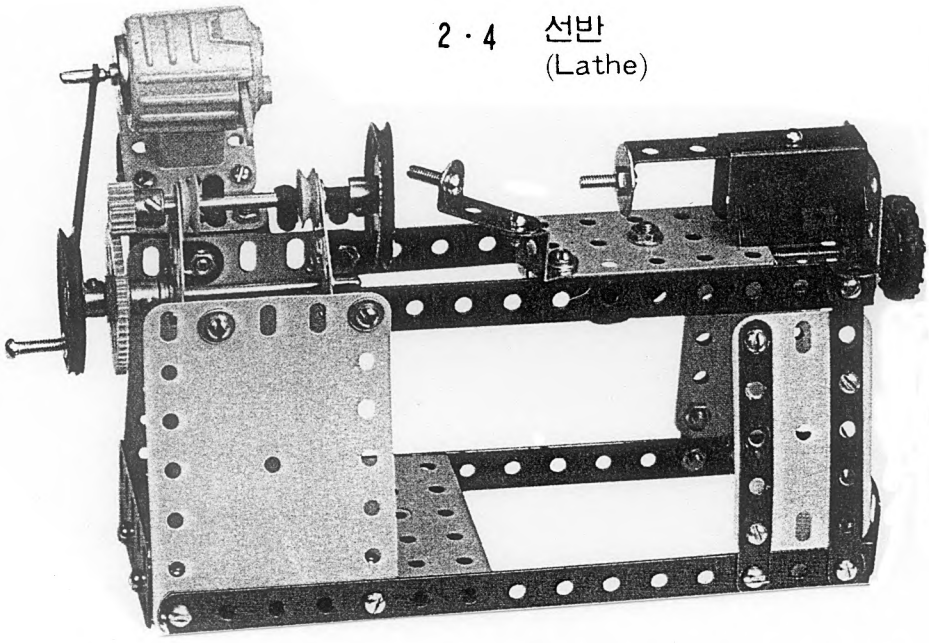
Before going on, back to the contents - all the parts of the MECCANO Set 5 are included except that there are no Wheel Flanges or Compression Springs. But there is a Geared Motor, the same one that was in the Army Set, and in addition a Crane motor. So a set with two motors, the last one I can think of that had two was the prewar MECCANO No 10, and one of those was clockwork. As well as the extra motor there are more of some of the parts than in the MECCANO No 5, mostly extra Brackets, Plates and Narrow Strips, about 30 in all, plus over 50 extra Nuts and Bolts. Full details are in the new MCS sheets. The numbering of the parts is consistent, with minor exceptions, with that used in the 1-3 manual. The numbers/illustrations of the plastic/flexible plates may have got into a slight muddle but notice that there are 3 Korean words used for these plates, presumably for the metal Flexible Plate, the plastic Flexible Plate and the Transparent Plate. To the right of the column showing the contents of the No 5 Set are the parts needed to convert a Set 3 into a 5, and so perhaps there is a linking set in the range.

Now the models, a few of them such as the Tachometer and the Meccanograph (renamed Graph Drawing M/C), are improved, usually slightly larger versions, of MECCANO 4 or 5 Set models, but most are new, and are again relatively large. They generally seem well designed, making good use of the parts available; nearly all incorporate the two motors and some are quite complex mechanically for this size of set. In the helicopter for example, the main rotor is driven by the Crane motor, with a shaft driven tail rotor geared to it; the Geared Motor drives the main undercarriage wheels, and the nose wheel can be steered manually. 55 photo steps are needed for this model and although some of the more straightforward ones need only 10, the most complicated, an Excavator, needs 79. One of the models is shown opposite and another is included in the MCS pages; stickers can be seen on some of the models.

On the inside rear cover there is a picture of several of the sets (left) and the middle of the three 'vertical' ones has 35 in the top LH corner, probably it is the linking set between Nos 3 and 5.

SUMMARY OF MANUAL

#Name: JEP (Name from advert, no English name in manual). #Details of maker: None. #Dates &/or Ref Nos: None. #Page size: 209x295mm deep. #No of pages: 86 inc covers. Pp 1-6 and 86 unnumbered. #Language: Korean; titles of models are also in English. #Printing: Colour photo of each model with B&W halftones of assembly stages. Colour cover (see below right) with helicopter made from dark blue and yellow parts, on light blue ground. Top half is different light blue with lettering in white, red-brown, blue and '5' in red. #Page Nos of Parts List & highest PN: 7,8,9. 102. #Page Nos of Set Contents & highest PN: 7,8,9. 102. #Sets covered: No 5. #No of models for each set: 18. #Name, Model No, Page No of first & last model of each set: Racing Car, 1, 12. Space Station, 18, 83. #Other notes: Model 17 has no English name.



NEW PAGES FOR MCS: JEP KIT: Xl:1,2,2a,3/4/6-3/4/6d,5,7. [5 Sheets]

AMENDMENTS TO INDEX IN OSN 6

NAME: JEP KIT. TYPE: ML. CY: KO. THREAD: M4. SPCE: 12.7. dST: 4.3. DAXL:

BUCO-INGENIEUR Following the piece in the last Issue about this system (p134), Erwin Wyss sent an extract from a book on Swiss railway toys which gives more details about the sets and the history of the manufacturer. The August Bucherer referred to in OSN 6 was the father of August Eugen Bucherer, and after leaving Märklin in 1911 he worked as a Technical Manager for the toy manufacturer, Bruno Ulbricht, in Nürnberg. Then in 1919 he and his son set up Bucherer AG at Amriswil (in Switzerland) - AG stands for Aktiengesellschaft, Joint Stock Company - later to become A.Bucherer & Co. AG, and later again, in 1930, to move to Diepoldsau. The company specialised in wooden articles, initially jointed SABA figures and then parts for ciné cameras, wooden ware for restaurants, wooden toys, etc, etc. During WW2 imported toys became scarce and this lead in 1942 or 1943 to BUCO starting to introduce the railway toys for which they became well known. Also at that time BUCO-INGENIEUR was launched and the system of using steel brackets to hold the wooden strips and plates together was patented, see Fig. There seems to have been three variants of one of the brackets in the Patent (Figs 5, 6 and 7), cf Fig 3 on p134 of OSN 6. It is stated in the extract that BUCO-INGENIEUR was based on metric rather than the inch units used in MECCANO and MÄRKLIN, and also that the disadvantages of using wooden Strips were that they could not be bent and that longer Bolts were needed to hold them.

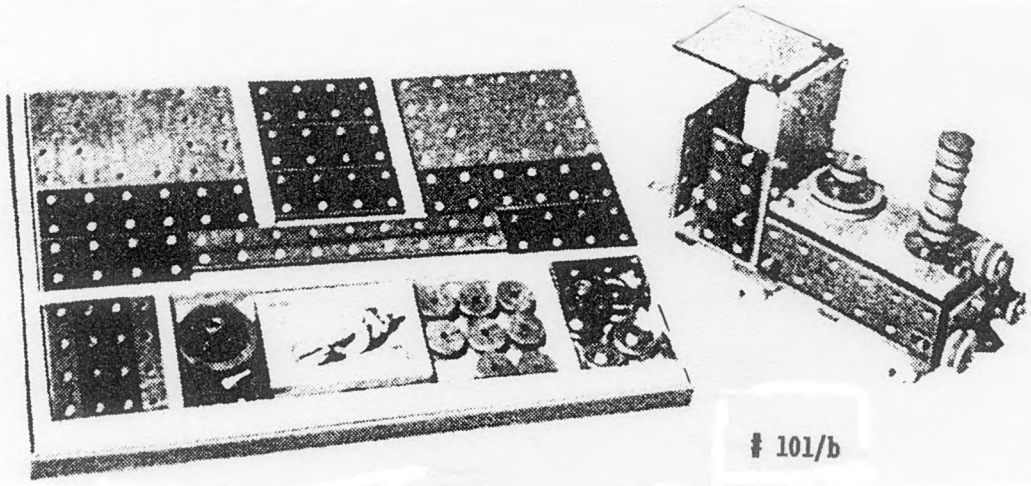
Also included, and reproduced here, are photos of Set 3 and the three Loco/Rolling Stock Sets 101b, 101c, 101d. The text makes it clear that they will fit 0 gauge track.

After the war, with MECCANO and MÄRKLIN freely available again, and after the successful launch of STOKYS, BUCO-INGENIEUR found it hard to compete and it disappeared from the market around 1950. Production of miniature trains continued successfully until the factory closed due to financial problems unconnected with the business. Plastic articles are now produced in the Bucherer buildings.

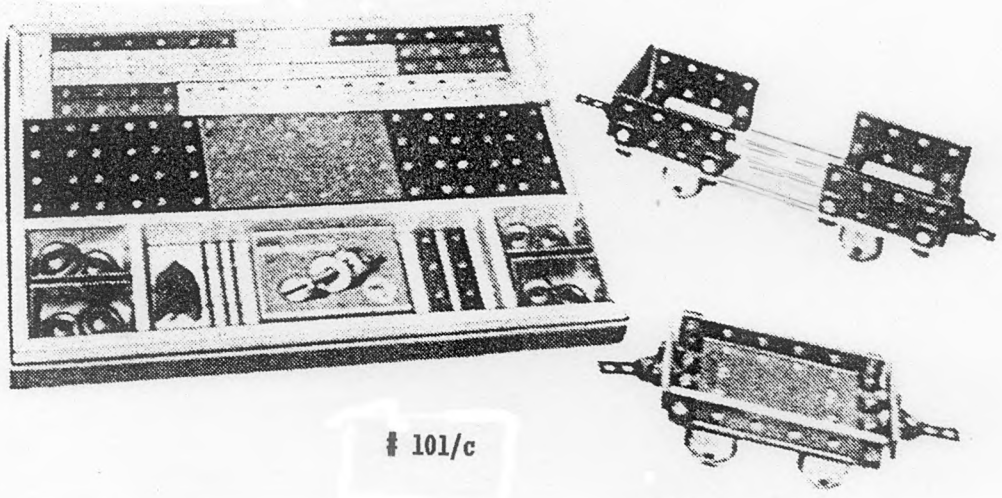
There is no suggestion anywhere that Bucherer, father or son, had a hand in the system included under BUCO in MCS and it seems likely that this entry was really about TECNICO.

NEW SHEETS FOR MCS: Information given in OSN about BUCO-INGENIEUR is now available in MCS format as pages BUCO-INGENIEUR: X1.1,2,4/6,5 [2 sheets].

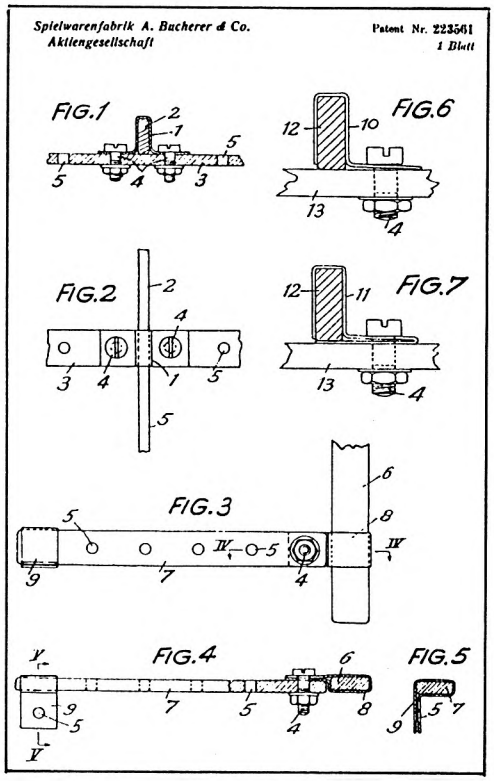
AMENDMENTS TO INDEX IN OSN 6: Delete completely entry for BUCO. Add:
NAME: BUCO-INGENIEUR. TYPE: NM.



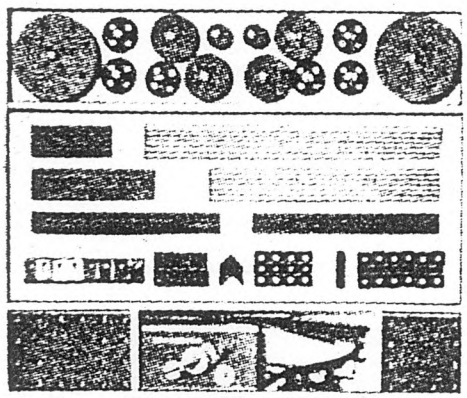
101/b



101/c



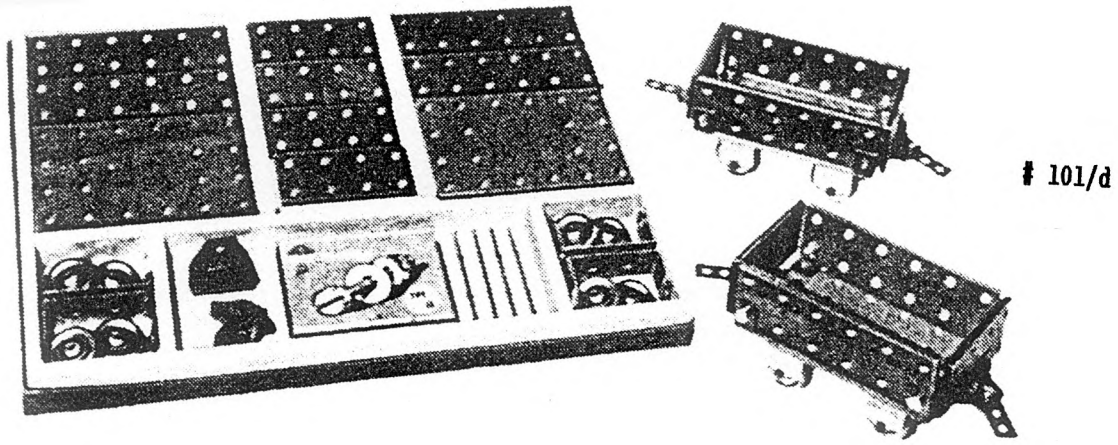
BUCO



«BUCO-Ingenieur» Nr. 3,

Buco-Ingenieur	1	Fr. 14.50	Buco-Ingenieur	101	Fr. 27.
	2	Fr. 19.50		101 b	Fr. 10.50
	3	Fr. 37.		101 c	Fr. 10.50
	1 a	Fr. 6.		101 d	Fr. 8.
	2 a	Fr. 18.50			

Supplementing the „Buco Engineer", special construction sets for rolling stock have been developed. They contain material for the construction of an O gauge locomotive and car. The construction set „Buco Engineer" imparts valuable technical knowledge to the young model engineers. It contains a rich assortment of construction material ranging from the plain perforated girder to the crane hook. Its particular advantage over other systems is the new possibility of joining girders at any point by means of patented connecting links.



 # 101/d

MORE 'NEW' ERECTOR SETS. Bill Harrison in Massachusetts probably doesn't admit the existence of the current ERECTOR sets filled with those MECCANO parts; for him ERECTOR means A.C.Gilbert and now that he has some leisure in his retirement he aims to make sure that American boys can still buy the genuine article. To this end he buys secondhand sets and completely refurbishes them with all the parts repainted and the bright parts replated. The blue and yellow colour scheme is that of the late 1930s although to keep costs within bounds the plating is the bright zinc of the late 50s rather than the original nickel. In some ways the sets are improved with the parts mounted on wooden boards instead of card, and the reprinted manual has plastic covers and lay flat binding.

Bill sent a colour brochure which shows the most popular set, the #8½, in its red metal box with the large coloured picture of the Ferris Wheel and the Giant Power Plant, inside the lid. The 8½ contains well over 600 parts including an Electric Motor and Gearbox, the Electromagnet, a Boiler, 6 Gears, some 200 Nuts and Bolts, and that little House that you see standing by fairground models in ERECTOR ads. More of the sets go to nostalgic dads than to kids, and if you would like one write to W.Harrison, Marion Designs, 594 Front St., Marion, MA 02738. USA. A #8½ costs $250, with smaller sets down to the #4½ at $120 (plus shipping, for all sets).

Bill also produces the Newsletter of THE A.C.GILBERT HERITAGE SOCIETY; it is mostly about ERECTOR and is worth taking if ERECTOR is one of your especial interests.

NEW SYSTEM - WALTHER'S INGENIEUR. Thomas Keel has sent some details of a set, in its original wooden box, that he found in Zürich recently. The manual and box are in German and Walther is the name of the firm that made STABIL of course, and although there is nothing to prove that it is the same Walther in both cases, the way the models are described in the manual (see the Saw Bench opposite, x.7), unique to Walther I think, makes it practically certain, even though, as will be seen, the hole spacing differs between the two systems. Again there is nothing to positively date the set but the consensus among those who have seen the manual and box lid, is that it is pre WW1. Quite apart from the style of the artwork it is probably significant that a horse and a loco can be seen in the illustrations but no motor vehicle or aircraft.

Inside the box lid was pasted an Illustated Parts List (opposite, x.7) which also shows the contents of this Size 11 set. It isn't a particularly large set so '11' may not mean that there were 10 smaller sets; STABIL sets for instance were numbered from 48 to 55. The Parts List shows Wooden Parts on the left, with Tools below, and Metal Parts on the right. A few remarks about the parts:

- Thomas kindly sent a 6-hole Strip, it is 8.3mm wide, .020" thick, and has semi-radiused ends. Its hole spacing is 10.3mm; the diameter of the holes is 3.0mm.
- The 5mm Rundstäbchen are dowels which are pushed into the wooden Pulleys to form a Winding Drum, although in the drawings they look as if their diameter is 3mm; those listed as 3mm are used to form a lattice (when pushed through an outer frame of Strips), within which the Stampfen rise and fall vertically in a Stamping Mill. The 1-hole Strips are rather longer than might be expected and are bolted, equispaced, on a screwed rod, and as the rod rotates they engage the cutouts in the Stampfen and cause them to rise in turn, and then fall under gravity as the cutouts are cleared.
- In the list of Tools the use of the Rundstab (round rod), is not clear, perhaps it fits in the hole in the Sockel which is 8.5mm diameter, but none of the models show it. Possibly it is used with the Sockelschraube but again this isn't shown anywhere.
- The other tools are a large and small Screwdriver, a Drift with wooden handle, and two Spanners. Also listed are the Manual - and the Schachtel mit Nietklammen, more about that in a moment.
- The Kreissägeblatt is a circular saw and not a gear.
- The details of the two Welle (Axles) at the end of the Metal Parts are not made clear in the illustrations of the models. A long one of about 215mm length is used in the Windmill opposite but is called up as 3mmm diameter and not the 4mm given in the Parts List. There wasn't either a 3 or a 4mm rod in the set but there was one of the right length, 3.4mm diameter except for the last 5mm which was 2.7mm. The other perhaps connected mystery is the Deckplatte which is described as having an oversize middle hole, it doesn't seem to be used in the models.
- The other Welle is used as the main shaft for all the rotating parts, but is unfortunately missing from the set. It was supplied with 5 nuts and is shown in some of the models as being threaded over about half its 70mm length. 5 nuts would have been enough to lock the Pulleys and so forth used in the models, properly on this shaft, but from the drawings the nuts aren't always arranged to do this, and unless some of the wooden parts such as the Klemmscheiben and Stellringe are threaded internally, which seems unlikely since they are wooden, some of the parts mounted on the shaft would be loose, unless they were a tight push fit on it.

Now what is missing from the Parts List? Nuts and bolts, and there aren't any because the strips and plates are not bolted together but are held by what I would call 'Bifurcated Paper Clips'. The ends of them, bent over, can be seen in some of the drawings of the models, and the Schachtel mit Nietlklammern mentioned earlier translates literally as Box with Rivet-Clips. Similar Clips were listed by MÄRKLIN as #14110 (Befestigungsklammer) and were included in sets, though not actually shown in models. They could, I suppose, fill up holes or, at a pinch, be used when the Nuts and Bolts ran out.

The metal parts in the set are tin plated; some of the wooden ones are painted red or blue, others are untreated.

Apart from the Windmill, which uses the Windrad and the Steuerruder, and the Stamping Mill, the models in the manual all consist of a framework of one sort or another, to support a shaft which carries a Pulley, Drum, etc, with a Pulley by which the model can be driven, by means unspecified. One, the Saw Bench is shown opposite. All the stuctures are well cross braced and so might have been fairly rigid, at least until the Clips worked loose. Other models from larger sets no doubt, adorn the box lid and three of them, plus a Winding Drum similar to one in the #11 set manual, are reproduced opposite.

Two thoughts about the connection with STABIL. Several of the 'special' INGENIEUR parts look very similar to STABIL pieces and have the same name, for example the Windrad, and the Kreissägeblatt. And the Klemmscheibe and the Steuerruder look like early STABIL parts (not in MCS) although the former was, at least later, made of metal. Also STABIL had some wooden Pulleys and a wooden Saw Bench Top. Secondly STABIL means 'stable', ie rigid not where horses live, and I have sometimes wondered if the name was chosen to emphasise the rigidity of STABIL models compared to the rather rickety ones that could be made with STRUCTATOR, assuming that STABIL came after STRUCTATOR of course. But maybe it was Walther's own early product that wasn't so hot in that respect, and was replaced by stable STABIL.

EXTRA PAGES FOR MCS: Name: X1.1,2,3/4/6,5. [2 Sheets] [These will be available with OSN 8]

AMENDMENTS TO INDEX IN OSN 6. Add:
NAME: WALTHER'S INGENIEUR. TYPE: NM. CY: GG. THREAD: SPCE: 10.3. dST: 2.7. DAXL:

Inhaltsverzeichnis zu Walthers Ingenieur-Bauspiel

Größe No. 11

Teile aus Holz

1 Sockel,	120	mm lg.,	80	mm br., 17 mm stk.
3 Stampfen	140	„ „	14	„ „ 7 „ „
1 Kreissägetisch	100	„ „	65	„ „ 2 „ „
1 Tischplatte	100	„ „	65	„ „ 2 „ „
1 Hockerplatte	80	„ „	65	„ „ 2 „ „
1 Spannbrett	57	„ „	40	„ „ 5 „ „
1 „	45	„ „	15	„ „ 5 „ „
1 „	35	„ „	35	„ „ 5 „ „
2 Rollen	47	„ Durchmesser		
1 Wellenhaube	18	„ „		45 mm hoch
2 Antriebscheiben	20	„ „		
2 Klemmscheiben	16	„ „		
3 Stellringe	9	„ „		
6 Rundstäbchen,	40	mm lang, 5 mm stark		
10 „	57	„ „ 3 „ „		
5 „	70	„ „ 3 „ „		

Teile aus Metall

2 Lochplatten,	5	Loch lang,	3	Loch breit
2 „	4	„ „	3	„ „
2 „	3	„ „	3	„ „
1 Mittelbrücke,	7	„ „		
1 Deckplatte,	3	„ „		mittleres Loch größer
2 Winkelarme	3	„ „		

1 Windrad

1 Steuerruder

1 Kreissägeblatt

2 Doppelwinkel, 6 Loch lang

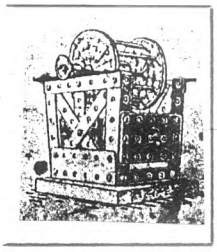
Flacheisen und Winkeleisen a und b wie folgt:

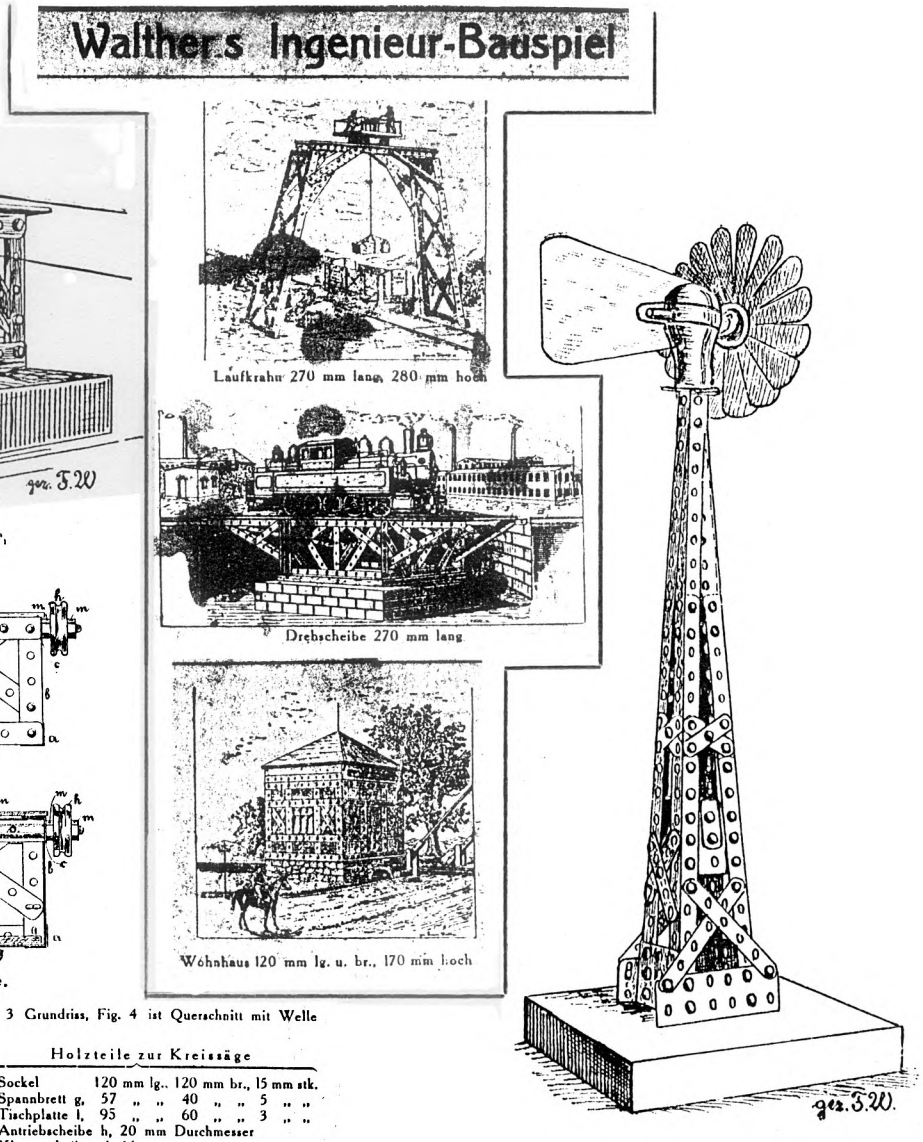
8	Winkeleisen,	11	Loch lang
4	„	9	„ „
6	„	6	„ „
4	„	5	„ „
4	Flacheisen,	9	„ „
4	„	7	„ „
8	„	6	„ „
4	„	5	„ „
8	„	3	„ „
3	„	1	„ „

1 stehende Welle 215 mm lg., 4 mm stark
1 Sockelschraube mit Schraubenmutter
1 Welle mit 5 Schraubenmuttern

Werkzeug

1 Rundstab, 210 mm lg., 8 mm stk.
1 Arbeitsstift mit Schraubenzieher
1 Arbeitsstift mit Spitze
1 kleiner Schraubenzieher
2 Schraubenschlüssel
1 Schachtel mit Nietklammern
1 Vorlageheft



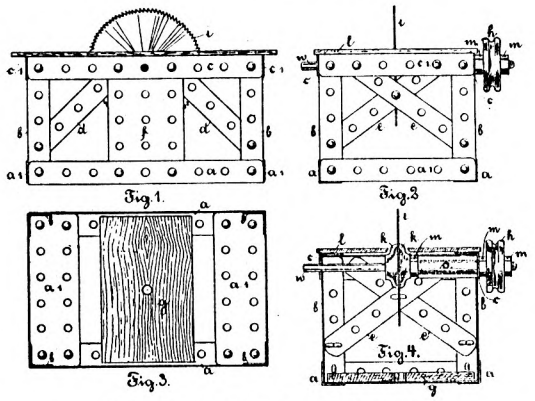


Laufkrahn 270 mm lang, 280 mm hoch

Drehscheibe 270 mm lang

Wohnhaus 120 mm lg. u. br., 170 mm hoch

Kreissäge 100 mm lang, 80 mm breit, 75 mm hoch



Anleitungszeichnung zur Kreissäge.

Fig. 1 ist Längsansicht, Fig. 2 Seitenansicht, Fig. 3 Grundriss, Fig. 4 ist Querschnitt mit Welle und daran befestigtem Sägeblatt.

Metallteile zur Kreissäge

2 Langschwellen a,	Winkeleisen	9	Loch lang
2 Querschwellen a 1,	„	6	„ „
auf einer Seite doppelt gelocht			
4 Eckstiele b,	Winkeleisen	5	Loch lang
2 Langrahmen c,	„	9	„ „
2 Querrahmen c 1,	„	6	„ „
4 Eckstreben d,	Flacheisen	5	„ „
4 Kreuzbänder e,	„	6	„ „
2 Lochplatten f,	3 Loch breit,	5	„ „
1 Welle w mit 3 Schraubenmuttern m			
1 Sockelschraube mit Mutter			

Holzteile zur Kreissäge

1 Sockel	120	mm lg.,	120	mm br., 15 mm stk.
1 Spannbrett g,	57	„ „	40	„ „ 5 „ „
1 Tischplatte l,	95	„ „	60	„ „ 3 „ „
1 Antriebscheibe h, 20 mm Durchmesser				
2 Klemmscheiben k 16	„	„		
1 Stellring s				

QUERIES.

1. In OSN 2 and 3 it was stated that the thread of British TRIX is 4BA and certainly all the threaded parts commonly found have this thread; however Peter Page has some TRIX which he is 99% sure is prewar British, and the thread is much coarser than 4BA, he thinks it is probably the 3.5x.8mm referred to in OSN 2, p17. In the next Issue will be some information on old Belgian threads sent by Gaston Marette, and this includes one with a diameter of 3.5mm and 32tpi. The equivalent pitch is .794mm so if the Belgian standard was the same as that used in other continental countries it is just possible that the TRIX thread is the bastard 3.5mmx32tpi.

11. Thanks to a number of readers who wrote explaining what VEB means (OSN 6, p113). Geoff Davison's letter arrived first saying 'VEB stands for Volkseigener Betrieb, which means a business belonging to the people. It was used in the former DDR (GDR) for what we would call nationalised industries; as the Treuhandanstalt gradually privatises these firms, the use of the term will of course gradually die out.'

12. Several readers were also good enough to send the info on PRIMUS prices requested in the last issue, p113. Enough is to hand to allow one or two tentative conclusions to be drawn, it is hoped in OSN 8. but if anything new turns up please send it along.

13. Back to TRIX, Geoff Wright and others have asked if anyone knows how TRIX hole spacing came to be what it is. Although variations do occur, typically the spacing along strips is between 7.810mm and 7.815, giving a diagonal spacing of around 11.05mm. Converting these figures to inches doesn't improve their roundness. One number is no doubt as good as any other, but few if any OS venture beyond one decimal place in their nominal spacing, unless of course straightforward fractions of an inch are used. So why 7.81? for TRIX?

14. Has anyone come across ALCON as an OS name? I thought I had but I now can't find it in the MCS Index or anywhere else. I was looking for it because I came across an advert for it in the MM of 12/49; one set was on sale at 7/9 'containing over 1000 pieces', and there is an illustration of a skeletal 'Suspension Bridge, 2ft.4in. long'. ALCON conjures up 'aluminium' and 'construction' in my mind but there is no mention in the ad of the material used or how the different elements were joined together. A thousand parts for 7/9 sounds like good value when a No 1 Dinky Builder set, advertised in the same MM, was 10/6. So maybe the parts were wooden or even plastic, perhaps glued together. There were two further mentions of ALCON in MM, in Gamages' ads in 1951, where it was said to be 'Based on an entirely original idea with only seven basic components.'

STOKYS PARTS, 1989. The last Illustrated Parts List I had was No 40 from 1981 but last December Harry Mariën sent me one, not numbered, dated 1989, and I understand that when it was sent, it was still current. There is no List of Parts in MCS (p3), just an illustration of some of them, so I'll compare the new List with the No 40. Quite apart from a few parts being deleted and a fair number added, there have been two major changes since 1981, the PNs have been changed and the screw thread, which was 5/32"BSW, is now M4. The new PNs start with a letter which is sometimes the initial letter of the part in question, for example Z for Zahnrad (gear, everything is in German), followed by a two figure number; fortunately both the old and new numbers are given.

To avoid confusion between parts with the old and parts with the new thread, it is stated that bosses tapped M4 are silver colour and those with BSW are yellow (brass I suppose); also that metric Bolts are black and the 5/32" ones are yellow. Nuts are not mentioned but in the List both the M4 and 5/32" variety are included, but only M4 Bolts. Most of the other threaded parts are noted as M4 but in two cases (Threaded Pins) versions with both threads are shown, and sometimes eg the Coupling, no thread is mentioned.

Deletions since 1981 are the transparent version of the Plastic Flexible Plate; the separate parts of the Universal Coupling; the large diameter 3-hole Collar; the Buffer; the Potter's Wheel and Clay; the Meccanograph (if STOKYS will forgive the word) Table and Paper for it; and the two special Brackets, #646 and 648. The deleted parts that are not illustrated in MCS are shown below.

There are over 50 additions and in outline these are:

- 78-hole versions of the standard, Z, and U section A/G.
- 6 extra lengths of the 4-hole wide Perforated Plate, up to 78-hole long.
- 6 lengths of 5-hole wide Perforated Plate from 7 to 78-hole.
- Flat Girders (like MECCANO not 2-hole wide Strips) in 19 lengths from 1 to 78-hole.
- A Wheel with wide Tyre, 47mm dia o/a; and 6 Wheels with large tyres (Ballonräder), diameters from 50 to 120mm.
- Misc items - a 22-hole Rack; what looks like a Geared Roller/Ball Bearing, 115mm dia; different lengths of Screwed Rod and Bands; bulb holders and a range of coloured bulbs. holders.

The 1989 List is for parts only and contains no details of the sets amd manuals that were in earlier editions; motors are listed and are the same as in 1981, but with different numbers.

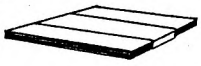
While writing about STOKYS it is worth correcting the MCS entry for PERIOD. In the North Midlands Newsmag No 24 Felix Stockmann, then head of STOKYS, wrote a short note on the origins of the firm: it seems that his father and uncle were silversmiths and in 1942 they founded STOKYS because during the war their trade was slack, and MECCANO was not available. In Newsmag No 26 (Dec 1981) he is quoted as saying, "Due to disagreements within the management of the family business the firm is to be sold as a going concern to a middle-sized steel and fuel trading company of Lucerne which wants to diversify its business. Production will remain in Lucerne. The effective take-over and official announcement will take place in January 1982."

EXTRA PAGES FOR MCS: STOKYS: X1.3,3a,3b. (2 Sheets)

AMENDMENTS TO MCS (as necessary, depending on version)
PERIOD: Replace by: 1942 to current (1992).
MANUFACTURER: Gebr. Stockmann Brothers AG, Maihofstrasse 36, 6004 Luzern, Switzerland. In 1981 the name of the company on a Price List was STOKYS EIKO AG, at the same address. In 1989 after the firm had changed hands a Price list showed STOKYS, CH-6014 Littau-Luzern.

AMENDMENTS TO INDEX IN OSN 6
THREAD: Add: later M4.


210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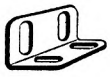
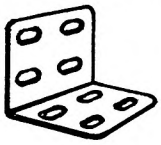
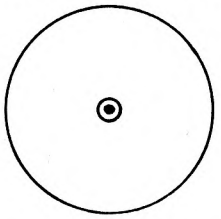

646


648


215

210 Zeichentisch, Holz, 15×15 cm
Table de dessin en bois, 15×15 cm

211 100 Blatt Zeichenpapier, 15×15 cm
100 feuilles de papier à dessin, 15×15 cm

646 Verbindungswinkel, doppelt
Equerre de raccordement, double

648 Verbindungswinkel 4×4-Loch
Equerre de raccordement 4×4 trous

215 Töpferscheibe, ⌀ 90 mm, mit Nabe
Tour de potier, ⌀ 90 mm, avec moyeu

216 1 kg Modellierlehm (mit Wasser bearbeiten)
1 kg d'argile (façonner avec de l'eau)

HOBBIES STRIPWORK. Geoff Wright pointed out the ad below (rearranged to fit and enlarged in part), in a HOBBIES magazine dated Dec 18, 1926. You may be able to see that the manual has STRIPWORK on it but what looks as if it is the box lid has STRIP WOOD-WORK. As it says in the text the wooden strips are nailed together so I don't think this outfit counts as an OS, but the gears and other metal parts on the board at the front are clearly very similar, if not identical, to the KLIPIT parts on p3/4/5 of MCS. So was STRIPWORK sold at the same time as KLIPIT? Or could it be that HOBBIES launched STRIPWORK and then finding that the young were better at nailing the strips to the furniture than to other strips, hastily invented the metal clips that hold the strips in KLIPIT together.

STRIPWORK

helps the young idea the laws of engineering and construction.

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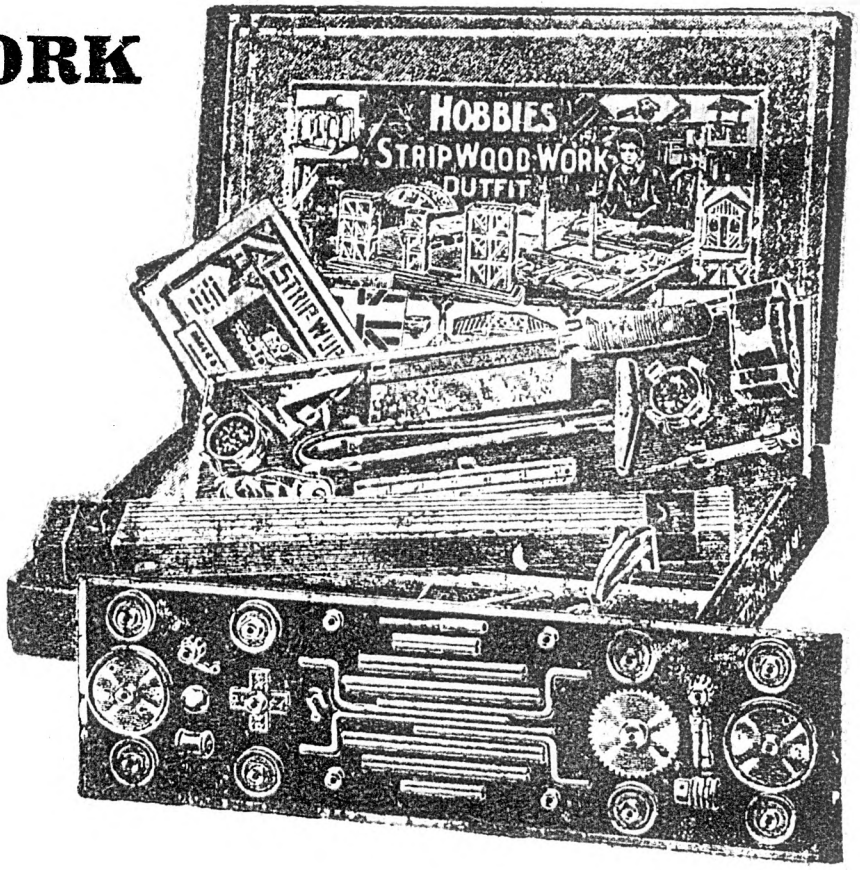
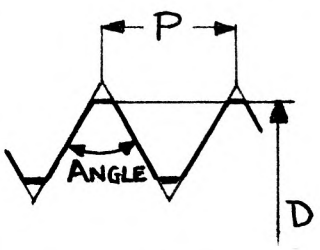


SCREW THREADS A number of readers have asked for details of the different types of thread that may be found in OS, so opposite are the data to hand for threads with diameters from 2mm to ¼". Obviously there are many gaps so if anyone has additional information, including the names and details of the series used in particular countries, please write in. What follows is intended to provide some background information and to explain the abbreviations used in the Tables.



First some generalities, there are 3 main parameters that characterise a thread (see left), the Angle, the Pitch, P (or the Threads per Inch, tpi), and the nominal Outside Diameter, D. Nominal because threads are always slightly undersize to allow clearance between the mating faces (various fits are defined depending on how tight or loose a fit is desired). There are other less important differences, in particular the shape of the peaks and troughs of the threads. These can be sharp, flat or rounded but this doesn't matter for our purposes.

The first standardised (Whitworth) threads, around 1840, had an Angle of 55°, later (1860s on) came American and Metric threads. As far as I know all US threads have an Angle of 60°, but Metric ones on the Continent used I believe 53°8' as well as the now uniform 60°, and the British Association (BA) metric threads uses 47½°. (There was an earlier 47½° metric thread called Thury but no details are available). The BA threads are numbered from 0 to 16 and each has a particular D and a particular P. For the other Angles there are numerous series of threads, each with its own combinations of D and P. Most thread sizes are referred to by the D, eg, 2mm, ¼" followed by an abbreviation which shows the series, and hence the P/tpi and Angle can be inferred, eg ¼" BSF (see next para) has 26 tpi and an Angle of 55°. For non-standard threads the P or tpi is given after the D, eg 2x.4 (mm) or ¼x30; the Angle is rarely quoted. The smaller ANC/F and UNC/F threads (see below) are numbered, the first digit(s) being a code for the diameter, followed by the tpi, thus 8-32 for example.

The original Whitworth series is now called British Standard Whitworth (BSW) and a complementary series is British Standard Fine (BSF). There are or were many others that use the 55° Angle; those known which are within the range of sizes being considered are Model Engineer (ME), and British Standard Brass (BSB).

The US 60° thread was originally called the Sellers or Franklin Institute thread (no details are available) and in a UK reference book published in 1938, 3 American series are listed, as follows, using the abbreviations of the original: U.S. Std.; S.A.E. Std.; U.S. Form. Later the current American National Coarse, and Fine (ANC, ANF) were introduced with Numbers defining the D and tpi for D<¼". These series may have been in use well before 1938 because ERECTOR literature referred to 8-32 threads, ie the ANC terminology, in the mid 1920s. Also this size, though not shown in the 1936 reference, was used by ERECTOR at least as far back as WW1. During and after WW2, ANC/F threads were used widely in the UK under the name of Unified Coarse, and Fine (UNC, UNF); there were some minor changes to thread form between the AN and UN series but they were interchangeable. An early UK thread with a 60° Angle was the CEI (Cycle Engineers' Institute), and this is still in use, unless it has been displaced recently by metrication.

The first metric threads were called Löwenherz or Delisle; no details are available. The 1936 book lists 'International and French Standard Threads' (IFS for reference purposes here). In a post WW2 reference two series of metric threads are given, the Löwenherz (Lhz in the Table) as the German/Swiss standard and another as the French standard (Fr). The Angle of the former was given as 53°8' while the French one was by inference 60°. The current series are the ISO Coarse (called M followed by the D in mm, eg M3.5, in the UK, and elsewhere?), and the ISO Fine. Some of the Coarse ones are stated to form the US Metric standard (US in the Table). There have almost certainly been other series and one or two other pitches for particular diameters, taken from a current Tap and Die Catalogue, have been included opposite. Note that the 3.5x.8mm size which it is believed was used in some versions of TRIX, is not shown anywhere. This or something very near was included in an obsolete Belgian series (OSN 3, p41 - 32 tpi is quoted there but this may have been an approximation to the 31.8 appropriate to P=.8), and was no doubt used in other continental countries.

The wide manufacturing tolerances which are sometimes used in the production of nuts and bolts can mean that a nut or bolt will engage satisfactorily with a mate that has a similar but not identical thread. It is often the case that a nut will run on the bolt of a slightly different thread but the latter's nut will not run on the other bolt, so it is always worth trying an unknown nut and bolt both ways with a possible match.

With a suitable instrument it is easy to measure the o/d of an unknown bolt and this may help with its identification, but often there are several possibilities, particularly taking into account production tolerances. For example the nominal diameters of 4BA (.142"), ANC No 6 (.138), and M3.5 (.138) are similar and samples just selected at random measured .136, .135 and .135" respectively.

Different lengths of MERKUR M3.5 bolts showed between .133 and .136". The P or tpi can be found using Screw Pitch gauges; these cost £2-3 per set in the UK but really several sets are needed to cover BA, Metric, Whitworth/ANC/F. The P/tpi with the diameter often allows identification, although in the case quoted above the tpi of 38.5, 40 (ANF) and 42.3 would be hard to tell apart unless the precise gauges were available and some care was taken in using them. With the fine pitches usually found on OS threads trying to decide the Angle is probably impossible without specialist measuring gear.

THREADS IN IMPERIAL UNITS

D in.	dec.	tpi										A/UNC/F No.
		BSW	BSF	BSB	ME	CEI	US Std	US Form	SAE	A/UNC	A/UNF	
	.086									56	64	2
3/32	.094	48					50	56,60				
	.099									48	56	3
7/64	.109						48					
	.112									40,36*	48	4
1/8	.125	40	48	26	40		40	32,36,48		40	44	5
	.138									32	40	6
9/64	.141						40	32,36				
5/32	.156	32			40,32		36	40				
	.164									32	36	8
11/64	.172						32	36				
3/16	.188	24	32	26	40,32	24,32	24	30,32,36				
	.190									24	32	10
13/64	.203						24	32				
	.216									24	28	12
7/32	.219	24	28		40,32		24	28,32				
15/64	.234						24	28,32				
	.???									20	24	14
1/4	.250	20	26	26	40,32	24	20	24,32	28	20	28	
ANGLE(°)		55	55	55	55	60	60	60	60	60	60	

* Non-standard

METRIC THREADS

BA No.	D mm/in.		P mm/approx tpi							
			BA	IFS	Lhz	Fr	C'se	ISO Fine	US	Other
	2.0	.079			.40/64	.40/64	.40/64	.25/102	.40/64	
8	2.2	.087	.43/59				.45/56	.25/102		
	2.3	.091			.40/64	.45/56				
7	2.5	.098	.48/53				.45/56	.35/73	.45/56	
	2.6	.102			.45/56	.45/56				
6	2.8	.110	.53/47							
	3.0	.118		.50/51	.50/51	.60/42	.50/51	.35/73	.50/51	
5	3.2	.126	.59/43							
	3.5	.138			.60/42	.60/42	.60/42	.35/73	.60/42	
4	3.6	.142	.66/39							
	4.0	.157		.75/34	.70/36	.75/34	.70/36	.50/51	.70/36	
3	4.1	.161	.73/35							
	4.5	.177			.75/34	.75/34	.75/34	.50/51		
2	4.7	.185	.81/31							
	5.0	.197		.75/34	.80/32	.90/28	.80/32	.50/51	.80/32	.90/28, 1.00/25
1	5.3	.209	.90/28							
	5.5	.217			.90/28	.90/28		.50/51		
0	6.0	.236	1.00/25	1.00/25	1.00/25	1.00/25	1.00/25	.75/34	1.00/25	.50/51
ANGLE(°)			47.5	60	53°8'	60	60	60	60	?

ITEMS FROM LETTERS

1. Ashok Banerjee has been in touch with the firm who used to manufacture PLANO who said that there might be some old stock left but it would be of very poor quality and finish, because the dies, after 30 years of use, had worn out. But it was hoped to bring out a new series of metal construction outfits in a couple of months using new tooling. [Ashok wrote in February and will send more details when they become available.] From a later letter "I visited Calcutta recently and the Australian set in the toy shop there was a BUILD-A-KIT Outfit No 4. It was in a dark red MECCANO-like cardboard box, about the size of a MECCANO No 2 of the fifties. The parts were similar to MECCANO strips, plates, trunnions, DA strips, and flanged sector plates. The box was in poor shape, and the parts badly affected by rust, though still strung. Unfortunately I didn't have your list with me, so seeing the condition of the set, I didn't buy it. But now I realise that I should have because it is not listed in MCS!".

2. From Don Redmond, "I hope someone will tackle the identity of the producers of those Korean and (mainland) Chinese systems.

Re STRUCTATOR joint pieces, if they are zinc-based the breakage is almost surely due to alloy deterioration, triggered to an open break by mechanical stress. It's very common in old cast toys.

In the summary presentation of the MCS Database LEICHMETAL is almost certainly misspelled. Leiche means corpse/funeral, whereas 'leicht' means light, and Leichtmetall, light alloy, i.e. aluminium and the like. [The name was taken (accurately) from a MCS list, NZ I think, of MCS known by name but for which no details were available. I shall change the entry to LEICHTMETALL until something more definite turns up.]

I wish someone would attack the matter of strip lengths, and odd-number-of-holes vs. even number, as mentioned in regard to META BUILD, and characteristic of STOKYS. Also re META BUILD, I wonder how they got away with using 'Tinker toys', even as two words; TINKERTOY has been a recognized trade name at least in N. America for more years than I've been around.

Matchbox sets (OSN 6, p130-1}: I had one as a child before WW2, probably in the USA, but I don't remember what name or label it had. Note that the cover design of boy, train and gun is identical in all. It seems likely to me that MACON came not from Spain but from Latin America (Mexico?); cf, the reference to Texas and 'Toyland Mechanic'; Spanish is common in SW USA. The CLOU set was probably made in Germany for export, with both 'D.R.P.a' (German patent applied for) and 'U.S.A.pend' (US patent pending) on it.

YESTERDAZE TOYS ceased publication about Nov 1991; The parent publication DAZE deals only with china and glass collecting."

3. Gaston Marette: "For the system presented on pp134-135 of OSN 6, the name BUCO derives from Bucherer & Compagnie. BUCO-INGENIEUR must be relatively recent as the page size of the manual is A4. About the countries in the list of systems, please replace HO Holland by NL The Netherlands." [Delete HO, insert NL, will do. There is more on BUCO dates in this issue but it's interesting about A4, when was it introduced on the Continent? From memory it was not in common use in the UK until the mid 1960s.]

And "Continental TRIX bolts are very similar to MECCANO [dome headed] bolts. However their shank diameter is slightly lower and their length is slightly longer. In a lot of replated MECCANO 'dome' headed bolts from Arthur Clapp (Warminster, Wilts), I discovered a shining TRIX bolt!"

4. Ed Furness kindly sent a photocopy of the Instruction Manual (English/French/German text) for the RIGI Cable Car, a rather attractive looking LEHMANN toy made in 1981. Its probably outside the scope of this Newsletter but I can send details to anyone who is interested. In similar vein I have a couple of Manuals from plastic constructional sets. One is called BOLT 'N BUILD and shows models made from perforated strips and plates; the other is JUNIOR ENGINEER and contains some quite elaborate motorised models using parts that look rather like PLASTIC MECCANO.

MÄRKLIN 1957 SERIES SETS. In OSN 5, p99, no details could be given of the add-on sets 1035 and 1036; the Contents Lists of some manuals now to hand solve the puzzle. The earliest dated April 1959 (#171b) shows both the old and the new set numbering, and that the sets 99-105 were replaced by 1009 to 1015. There was no mention of a Set 1015 in the MÄRKLIN history. 1034 was the conversion set from 1014 to 1015, but it could also be bought in two bites, 1035 and 1036. The equivalent obsolete numbers for these sets were 104A/1 and 104A/2, the two together making 104A of course. No mention anywhere of the 105A Set.

The next manual of June 1959 (#14920) shows exactly the same except that the old numbers aren't given. The third manual (#14930/A) from 1965 lists the 1009-1014 sets, and the 1034, but not the 1015, nor the 1035 and 1036.

CONSTRUCTION UPDATE. It appears that the company that makes CONSTRUCTION sets has been denationalised. Gaston Marette writes, "The CONSTRUCTION sets are now made by EITECH GmbH, 5631 PFAFFSCHWENDE; the range is 01 to 06 (without the initial C) but their contents have been modified. The set 06 is a theme set to build a 'Jeep and many other models'". Gaston sent photocopies of the front of the new 06 Instruction Leaflet and the Illustrated Parts and Set Contents pages, the latter in French. The front is identical to that of the old C10 set except for the 'Set No' block and the addition of 'eitech GmbH' in the bottom left corner. A different view of the model on the cover was shown on p36 of OSN 3. Also identical apart from the Set No, are the Illustrated Parts including the Part Nos, but the Set Contents shows two changes compared to that of the C10 given in OSN 3, p34; one less of #1004 (5h Strip) and one less of #1111 (5x5h Flanged Plate) are now included. The name Eitech, where does it come from I wonder. Ei is egg in German, pronounced like 'i' in English, and tech is tech the world over, more or less.

AMENDMENTS TO MCS
SETS: add 'From 1992 #01 to 06.'
MANUFACTURER: add 'From 1992 Eitech GmbH, 5631 Pfaffschwende. Germany.'

eitech GmbH

UNIMETAL HOLE SPACING. In MCS the spacing is given as 12.7mm and it is said that the system was a copy of MÄRKLIN, and certainly the model on p5 of the NZ version is straight from a MÄRKLIN manual. However in the part of the Set Contents missing from the NZ MCS but included by FB, the diameters of some of the circular parts are given and two of those illustrated, HR70 and HR50, are 70 and 50mm. This means that the radial spacing of the holes in these parts is probably 10mm, or at least much less than 12.7. And from the drawings the spacing of the holes in the other parts seems to be the same.

THE CANADIAN MECCANOMAN'S NEWSLETTER. Good things are worth waiting for! Unavoidably the March issue has been delayed but you will probably have received it by the time you read this, and after that all should return to normal. I can still accept CMN subs in sterling for 1992, but please note that the rate is £13 and not the £11 quoted in OSN 5. That was a mistake but of course all subs already received at that rate will be honoured. The rate for 1993 has not been fixed as I type this, please check with me late in the year if you have not by then had details from Ed Barclay.

EXTRA MCS SHEETS. The sheets listed below are available at 15p each plus postage. The following relate to this Issue, except that the article about JUNEERO will appear in OSN 8.

BILT-E-Z: X1.6,6a [1 Sheet]
BUCO-INGENIEUR: X1.1,2,4/6,5. [2 Sheets]
BRAL(C): X1.3/4g,3/4h. [1 Sheet]
CONSTRUCT: X1.1,2/5,3/4/6. [2 Sheets]
EZY-BILT: X1.3/4-3/4b,7. [2 Sheets]
JEP KIT: X1.1,2,2a,3/4/6-3/4/6d,5,7. [5 Sheets]
JUNEERO: X1.6. [1 Sheet]
MANUFAX: X1.6. [1 Sheet]
STOKYS: X1.3/4-3/4b. [2 sheets]

The remainder record material from OSN 6 with limited additional information in some cases.
EL INGENIERO MECANICO (2): X1.1,2,3,5. [2 Sheets]
MEKANIK (3): X1.1,2,3/4/6,5. [2 Sheets]
META BUILD: X1.1,2,3/6,4,5. [3 Sheets]
ORSTA: X1.1,2,3/4/6-3/4/6b,7. [3 Sheets]
SIMPLICO: X1.1,7. [1 Sheet]
TECC: X1.1,2,3/6,4,4a,5,7. [4 Sheets]

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Construction

METALL- UND GETRIEBEBAUKASTEN

M 29
Fahrgestell mit motorangetriebenem Differential
Chassis with motor-driven differential
Châssis à différentiel commandé par moteur
Chasis con diferencial accionado por motor
chassis met een door motor aangedreven differentiaal

This Chassis was contained in the manual of the superceded #120 Set, and is not in the current, equivalent #C03 book. The motor is the obsolete type which was held by being clamped between upper and lower formed plates, with a square of thin rubber sheet inserted to make sure of a good grip. MCS contains illustrations of this motor and some larger views of the Chassis.