

EDITORIAL Again a couple of long articles has meant that a few items have had to be held over, including some Mystery Parts, and updates on STEEL TEC and MEK-STRUCT.

Thanks to all who sent replies to my questions about Extra Sheets. The general view was that new Sheets should be produced, and existing ones updated, as quickly as possible. However if that could not always be achieved, less frequent revisions to current systems, once every two or three years was suggested, would be acceptable. Amendments to major systems were given the lowest priority, particularly where a specialised book is available which gives a good account. Several expressed the hope that more such books would appear. The Extra

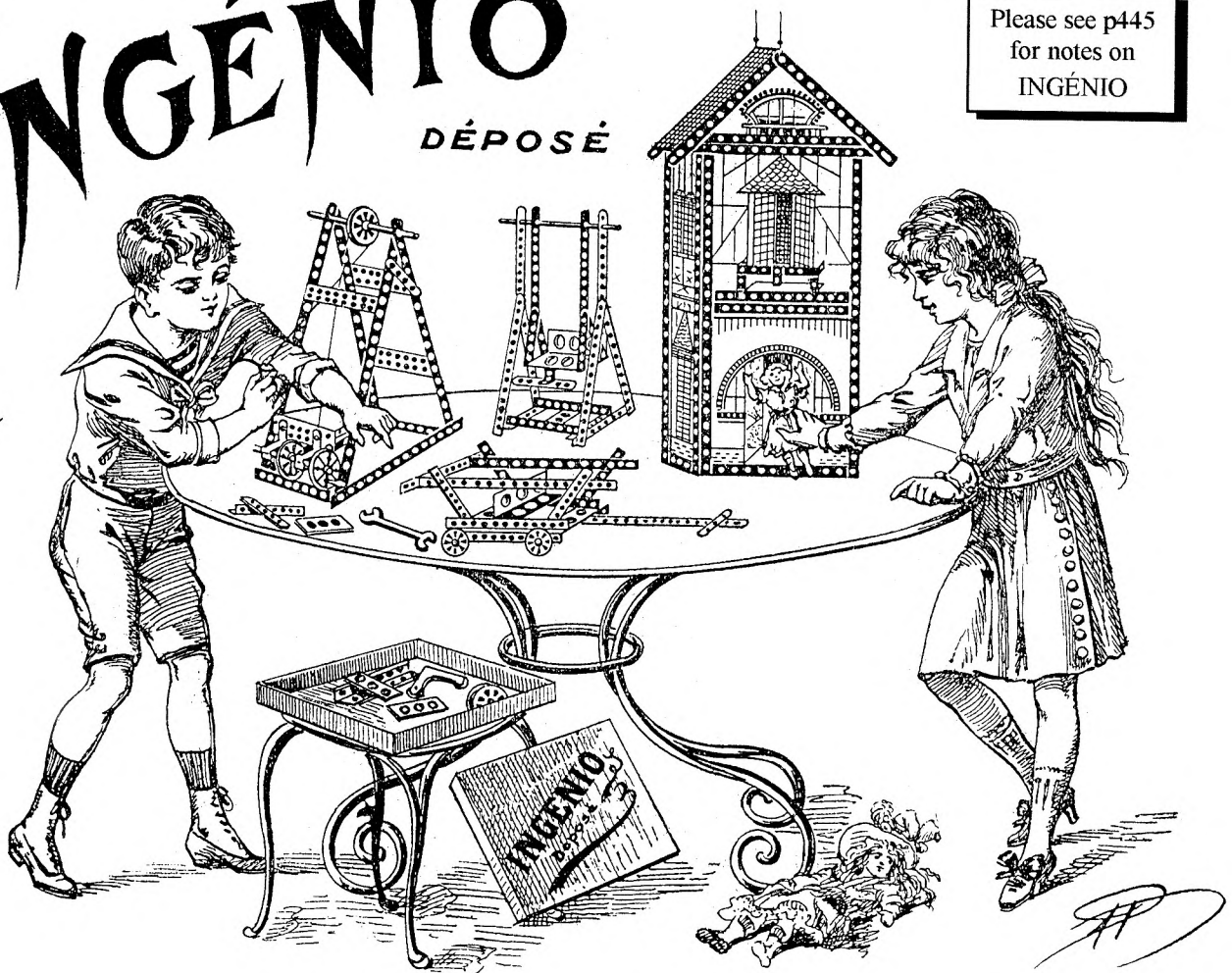
Sheets listed on p459 cover most of new material in this Issue, and by next October I hope to have caught up with the backlog from OSN 15.

Overseas subscribers please note that I can no longer accept credit card payments. Sorry about that, but for anyone who would like to pay in U.S. dollar bills, please note that I now receive enough of them to make bank charges in changing them into Sterling negligible.

Someone, perhaps from North America, kindly sent me 7 photos of pages from a French STANDARD L.R. catalogue. Unfortunately I've lost track of who it was and I'd be grateful if the sender would mention the fact when he next writes.

INGÉNIO

DÉPOSÉ



FABRICATION FRANÇAISE

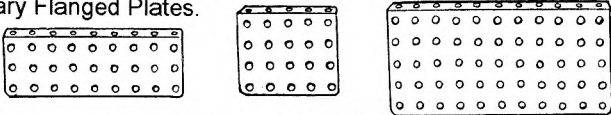
The STERLING TOY BUILDER Arlan Coffman kindly sent copies of the manuals for Set 1 and Set 6 of this early American system. It was made by the N.N.Hill Brass Co., and Arlan wrote that both this company and the Watrous Mfg Co., who made MODELIT (see 8/186 and 12/326), are considered to have been very important makers of high quality metal toys in America. They were both of East Hampton, Conn., and were actually housed in the same building. In 1905, as branches of the National Novelty Corp., they produced a catalogue of bell toys together.

The MCS entry for STERLING shows and lists the 64 parts in the system but no models are included; nor is there anything on set contents, and the manuals don't have any details of these either. Also MCS doesn't give the hole pitch but it's almost certainly 1/2". It seems that STERLING parts and sets are rarely found and all the comments here are based on the illustrations of the parts in the manuals.

THE PARTS The most unusual feature of STERLING was that all the outfits were available in two different colour schemes. In one the parts were nickel plated; in the other they had an 'Antique Copper' finish, which was black with diagonal bands of copper about 3/4 to 1" apart. Imagine that.

The STERLING Parts List shows 64 items, with the 6 Plates looking like some of the STRUCTO ones (15/424), but all the other parts, with a few exceptions, appearing to be like AMERICAN MODEL BUILDER.

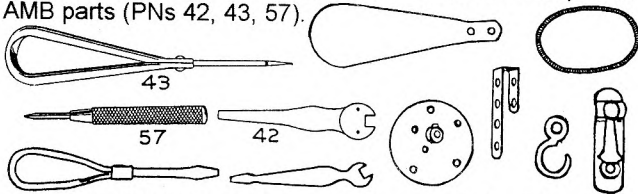
There were 3 sizes of Perforated Plates with 4*9h, 5*5h & 6*11h, and these were also flanged along one long side to give those shown below, called Angle Plates. Pairs could be bolted together to make Sector Plates as well as ordinary Flanged Plates.



The main run-of-the-mill 'AMB' parts were 4,5,6,7,11, 25h Strips; Single, Double & Large (2*5*2h) Bent Strips; 11,25h A/Gs; 1/2", 1", 1 1/2" Pulleys; Bush & Flanged Wheels; 1/2" & 3/4" Pinions; 1 1/2" Gear Wheel & Worm; 3/4" & 1 1/2" Contrates; 1" & 1 1/2" Sprockets, & Chain; 1, 2, 3 1/2, 4 1/2, 5, 6, 8, 11 1/2" Axle Rods; 4 1/2, 5 1/2, 6 1/2" Crank Handles; Eye Piece, Angle Bracket, Spring, Collar, & Coupling.

The STERLING Parts that might be said to be like AMB 'specials' are shown below and comprise the Propeller Blade, Hanger Bent Strip, Pulley Belt, Eccentric Wheel, Hook, and the later type of AMB swinging Pawl.

Also below are two parts that don't look like AMB, the Span'driver and Screwdriver, together with the comparable AMB parts (PNs 42, 43, 57).



Finally 2 STERLING parts that weren't in AMB, Strips with 9 & 17 holes.

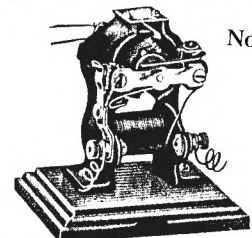
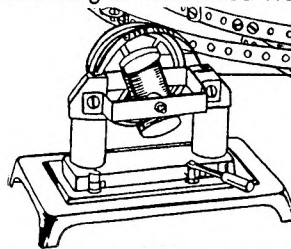
All the AMB 'prototype' parts were in the early (1913) AMB Parts List in MCS except the Coupling, and the swinging Pawl, which AMB probably introduced in 1914 (see 13/340). The only AMB part in the early List that wasn't in STERLING was the Oscillating Rack.

It's not of course possible to say what, if any, detailed differences there are between AMB/STRUCTO and STERLING parts - for instance there are small cross holes through AMB Crank Handles and some Axles (11/278).

Some differences were spelt out by Tim Holls in the July 1988 S.Cal. Newsletter: the Span'driver has the name Sterling Toy Builder on it; the Contrates are brass against nickel for AMB; the swinging Pawl is solid but the AMB one has a diamond shaped hole in it; and the tip of the STERLING Hook turns outwards. (On the Pawl, I noticed that although the diamond hole isn't shown in the

STERLING Illustrated Parts, it can be seen on the part when it is shown in the manual models.) It isn't clear whether the differences above are the only ones, but if they are could some or even most STERLING parts have been simply bought in? If so they were probably finished by Hill - in an April 1915 Playthings ad reproduced in the same S.Cal. issue, it is claimed that STERLING is 'the most highly finished construction toy on the market', and in the manual, 'all steel parts are heavily copper plated before final plating to prevent rusting'.

MOTORS An electric motor was included in Set 4 and above. The one shown in the models in the manual can be seen in the Machine Shop, and the detail from another model below. It looks to be the same as the No.10 illustrated for MODELIT Phase 2 in 12/327. However in the back of the No.6 manual a No.200 (below) is advertised at \$1, and is said to be the one supplied with the sets. It appears to be the same as the one used in the MODELIT Phase 2 models (12/327,332), and is not the fully enclosed No.200 shown in the MODELIT Phase 1 manual (8/186). It is described as being 3 1/2" high, finished in black enamel with nickel trim, with a 3-pole armature, and a 3/8" Pulley fitted to the shaft. It would run off 1 or 2 dry cells, or the 3 volt setting of the No.300 Transformer (3-20v, 60 watt, \$5).



THE SETS There were 8 main outfits, 0 to 7, with a suffix A for the antique copper finish, or N for nickel; and linking sets 0AX/0NX to 6AX/6NX. In the absence of the proper set contents, the quantities of some of the main parts called up for the manual models are given below

SET No.	0	1	2	3	4	5	6
25h Strip		4	6	8	12	18	18
25h Angle Girder					8	8	10
11h Angle Girder							4
11*5*1h Plate	2	2	2	2	4	4	6
9*3*1h Plate		4	4	4	4	4	4
5*4*1h Plate					8	8	12
1" Pulley	4	4	6	8	8	8	8
1 1/2" Fl'g'd & Grooved Wheel				4	4	6	6
Bush Wheel		1	1	1	1	2	2
Pawl & 1/2" Pinion					2	2	2
Eccentric Wheel, 3/4" Pinion					1ea	1ea	1ea
3/4" Contrate					1	1	2
Worm, 1 1/2" Contrate					1ea	1ea	1ea
1 1/2" Gear Wheel						1	1
1" & 1 1/2" Sprockets, Chain							1ea
Hook			1	1	2	2	2
Nuts & Bolts	14	30	38	62	99	183	218

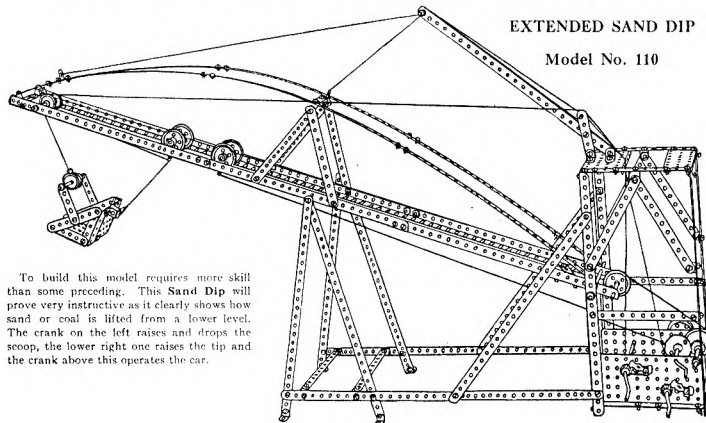
The No.7 set cost \$15 against \$10 for the No.6, and no doubt included the Flat Plates, Hanger Strip, Pulley Belt, and Coupling that seem not to have been in the No.6. Both STERLING and AMB had sets numbered 0-7 and comparing the contents above with the corresponding AMB outfit shows that generally expensive parts were introduced slightly later into the STERLING sets and there were less of them. This was particularly true of Sets 5 & 6, and although the No.6 was cheaper than its AMB equivalent, the No.5 was the same price. The smaller sets were all priced the same as the AMB ones and Hill claimed in their ad that their 'construction toy cost no more than the others'.

MANUALS The usual details of the 2 manuals are given at the end. The layout of some pages, and some of the wording, bears a noticeable similarity to the MODELIT manuals. There is a line drawing of each model, which is usually very clear, and brief construction details for some of

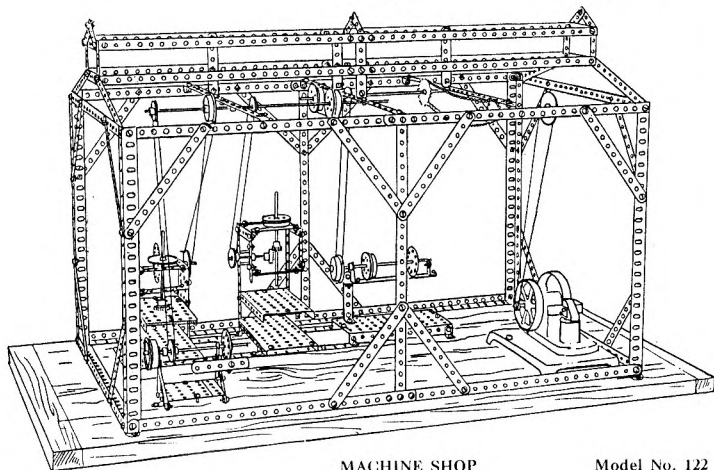
the larger ones. It's not easy to check thoroughly whether the models are similar to those in other systems but my impression is that, although a quite a few look familiar, including Frank Hornby's favourite Crane, most don't seem to owe much beyond the basic idea, to earlier models. Many of the smaller ones are rather ordinary and the Angle Plates are mostly used in pairs as conventional Flanged Plates. The larger models are generally more interesting and better use is made of the Plates. None are very adventurous mechanically, but some use is made of the Gears including a hand-operated reversing gearbox using 2 Contrates and a Pinion. Some of the No.5 & 6 models are driven by the Motor, which usually stands alone connected by a Cord driving band. The Sand Dip below is a No.5 model and the Machine Shop a No.6. If a No.7 manual ever turns up it will be interesting to see the largest STERLING models.

DATES The only date known for STERLING is the 1915 Playthings ad and that doesn't give the impression that it is announcing a new toy. The AMB swinging Pawl was probably introduced early in 1914 and assuming that Hill copied it (and not the other way around), then perhaps STERLING appeared before the end of 1914.

SUMMARY OF MANUAL •Name: The STERLING TOY BUILDER
 •Details of maker: THE N.N.HILL BRASS CO., East Hampton, Conn., U.S.A. •Dates &/or Ref Nos: none. •Page size: 254*171mm deep. •No. of pages: 48+covers. •Language: English. •Printing: line drgs of models; cover as in MCS with black Bridge with Signals, boy, toy trains, on red/cream ground. •Page Nos. of Parts List/Illustrations & highest PN: 47/46,64. •No Set Contents. •Sets covered: 0-6. •No. of models for each set: 12,25,10,10,5,5,5. •Name, Model No., Page No. of first & last model of each set: 0: ALPHABET,-,3 then BOX TRUCK,1,4; WEATHER-VANE,12,6 . 1: EMERY WHEEL,15,7; RAILWAY SIGNAL,39,16. 2: ELEVATOR,50,17; INCLINED RAILWAY,59,21. 3: REVOLVING EXTENSION LADDER,75,22; ICE HOUSE AND CHUTE,84,26. 4: ELEVATOR AND SWINGING CRANE,100,27; YARD DERRICK,104,31. 5: EXTENDED SAND DIP,110,32; MERRY-GO-ROUND,114,36. 6: RAILWAY SIGNAL,120,37; FERRIS WHEEL,124,42. •Other notes: Ad for motor #200 & transo on p43, & a gear demo model on p44. Details from a photocopy; the cover and pages 1 & 2 are missing & are assumed as those in the INSTRUCTION BOOK No.1. This is as above with p1 the title page, p2 an intro, pp3-12 the No.1 models 15-39, pp13-16 as pp45-48 above (how to use Base Plates/Ill. Parts/Parts List/Price list of sets).



To build this model requires more skill than some preceding. This Sand Dip will prove very instructive as it clearly shows how sand or coal is lifted from a lower level. The crank on the left raises and drops the scoop, the lower right one raises the tip and the crank above this operates the car.



MACHINE SHOP

Model No. 122

QUERIES 23. From 15/402. My thanks to Geoff Davison, John Hanby, Ernst Leuthold and Charlie Pack who responded to the question of **MÄRKLIN Flexible Plates**. They were introduced in 1947 and have always been made of aluminium: until 1987 they were stamped from ready painted sheets leaving bare aluminium edges. From the start all the holes were slotted lengthwise.

No one has actually seen the red/ivory ones and they were almost certainly never included in sets, but are thought to have been available as spare parts, perhaps to special order, up to around 1956.

The blue/silver ones were shown in catalogues until the range of sets was changed in 1976 but plates painted blue on both sides are known from as early as 1970 (in a 1014/1034 outfit) and may have been widely used before 1976. Blue/blue ones were certainly included in all the regular sets from 1976.

All the blue/silver ones I have seen have been painted silver on one side, but Charlie wrote that his, in sets from 1949, 1957 and 1966, are only painted on the blue side and are bare aluminium on the other. I know that some of mine were bought in 1972 and so there may have been a definite period in which the silver paint was used. In passing Charlie also mentioned that his 1949 No.103 set contains many aluminium parts in addition to the Flexible Plates, perhaps due to a shortage of steel at that time.

For the theme sets between 1980 and 1987 there were also some Flexible Plates painted orange on both sides and some black both sides. [I have some black ones with glossy paint of as good quality as the blue, but also some others which are in a duller black paint that had been applied over the original blue. The paint on those comes off rather easily, but they were bought from a spares cabinet in a German toy shop, and are presumably genuine.]

From 1987 onwards a different blue paint was used, and Ernst kindly sent a sample. The edges are covered and it is less glossy with a slight orange-peel look. It's presumably powder paint and gives the impression of being very durable. (some John bought new last summer had bare edges, but it's impossible to say of course, when they were actually made.)

On other changes to MÄRKLIN parts, Charlie pointed out that from some point in the early 1970s the **Flanged Wheel** was made of red plastic instead of metal, and that at about the same time **bosses and Collars** ceased to be double-tapped. [At some stage, perhaps at the same time, the diameter of bosses was reduced from 10.0mm to 9.0mm. I checked the parts I own and the earliest, from soon after WW1, have single-tapped bosses, and nearly all are 10.0mm Ø (the standard MECCANO 3/8" is 9.53mm). The exceptions are 9.4mm for the 19 & 25t Pinions, and anywhere between 9.4 and 10.0 for the steel bosses fitted to the 65mm Flanged Pulley. The Collar and Coupling are both 9.0mm Ø and they too are single-tapped.

Later parts, many of them bought new in 1972, are a mixture 9 and 10mm, with all the 9mm ones, except the Coupling, single-tapped, and most of the 10mm, double-tapped. The 9mm ones were quite likely new stock in 1972. Quite a few 10mm bosses, including some on Gears and Pinions, are single-tapped. On Couplings, has anyone seem a later pattern one (see 5/106) single-tapped? The only odd size bosses I have are 11.6mm Ø (d/t) on Large Bevels. All my Collars are 9.0mm (s/t) -were there ever larger diameter Collars? In checking through I noticed that most, though not all, painted and nickel bosses are steel.

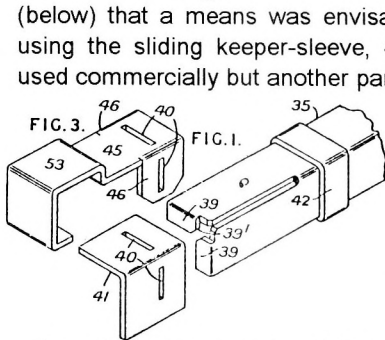
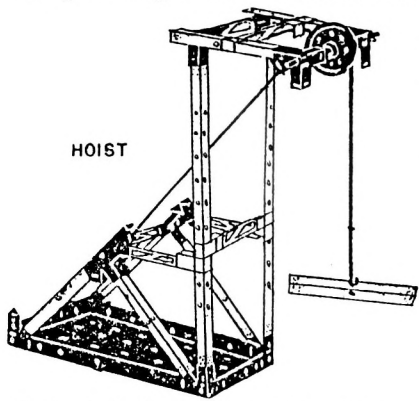
The one thing that has stayed the same over the years is the general shape of the **peening of the bosses**, with a tapered recess up to 2mm deep and a diameter at the bottom of the recess of, typically, 6mm. Of course the same type of peening is found on parts from several other systems, and a couple of my parts look just like ones known to be MÄRKLIN, except for a 4-point cross indentation on the lip of the peening. Has anyone seen this feature on known MÄRKLIN parts?

THAT WAS A GOOD IDEA In the notes in 11/290 on MORECRAFT I mentioned in passing that braced structures using the Angles and Connectors are reasonably rigid - but

many of the manual models rely on un-braced Angles, as at the top of the Hoist opposite, and there is considerable play in the joints.

David Hobson has kindly passed me a copy of the UK patent for MORECRAFT and it is interesting to see in the Fig.1

(below) that a means was envisaged for locking the joint using the sliding keeper-sleeve, 42. This part was never used commercially but another part in the Patent, Fig.3, described as a modified keeper, was produced as part C-O. It is used, as can be seen in the Hoist, to allow cross members to be located at any point along the Angles.



I made up the model and the C-Os gripped the Angles well provided that they hadn't become out of shape. As expected the top members carrying the Pulley were unsatisfactorily floppy and it occurred to me that since the 'keep' part of C-O was in effect the Fig.1 part, I ought to be able to use extra C-Os to lock the joints at the top. This worked like magic and the model was transformed.

So why was the sliding keep never used? Perhaps it was felt that it would unduly complicate what was meant to be a simple system. And a practical point, if a keep is pushed home hard it can be difficult to slide back, particularly if the joint moves slightly as other parts are added to the model.

The UK patent is No.462379 and, as for the U.S. equivalent (No.2042353 mentioned in OSN 11), is in the name of T.B.Morehouse.

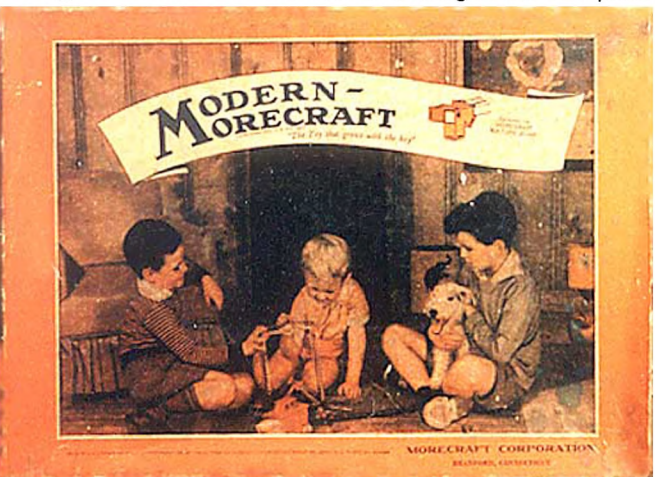
More on MORECRAFT A couple of other points while on the subject. In OSN 11 I should have mentioned that a new Connector was included in the 1946 Morecraft Corporation Parts List - it is #C-U (right) and it is used to provide a pivot at the end of an Angle, as shown in MCS/FB, p6.



Richard Symonds has kindly sent more photos/details of his unused MODERN-MORECRAFT set from the Morecraft Corp. of Branford, Conn., which was mentioned in 13/357. Despite the Morecraft Corp. name on the lid, there is also in small print 'Copyright 1937 by the Skipper Toy Company'. The same copyright wording appears on the cover of the manual and the Skipper name is on the Illustrated Parts page, with no mention of the Morecraft Corp. in either case.

The set is packed in a box 12*8*2 3/4" and the contents, at least as far as the main parts that can be seen are concerned, look as though they are similar to the © 1946 New London set discussed in OSN 11. (I can't see the Connector C-180-D that is in the 1946 set, and it may well have not been included, because it isn't needed in any of the Craftsman models in either the 1946 manual or in a 1937 Skipper Toy manual.) The colours of the parts are the same in both outfits. As with the 1946 set there's nothing to say which it is, but both are probably Craftsman Size. The most notice-

able differences are that the 1937 box is smaller in plan but has 2 layers of parts, and the illustrations on the lids are completely different. The 1946 looks much like the manual cover shown in OSN 11 and is brightly coloured; the 1937 (below) is in attractively sombre colours and shows 3 boys, a dog, and a model on the floor of a living room. The parts

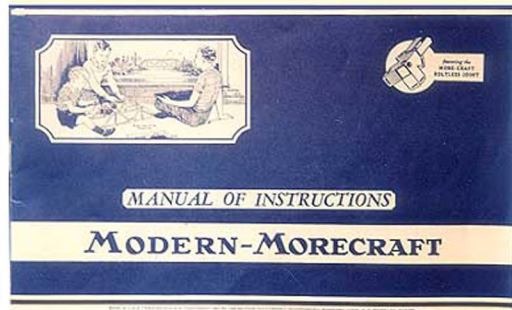


in the box are displayed in much the same way, with many of the Connectors and Angles already assembled into 2 bridge side trusses, but the remaining Angles are laid out side by side in the later box instead of being bundled up together.

The other important difference is that the wheels are the #W-2 1 1/2" Pulleys which are shown in the MECCANO-MORECRAFT and Skipper Toy MODERN-MORECRAFT Parts Lists. Referring to the Morecraft History in 13/357, the use of these Pulleys in 1937 means that the changes to the range of parts did not take place, or at least not all of them, with the advent of the Morecraft Corp. in 1937.

The cover of the manual with the 1937 set (below) is a darkish blue and its design is very similar to the one shown for MECCANO-MORECRAFT in MCS.

Going back to dates, the Patent application date was November 1934 and so I wonder if the starting date of 1932 that is given in MCS for

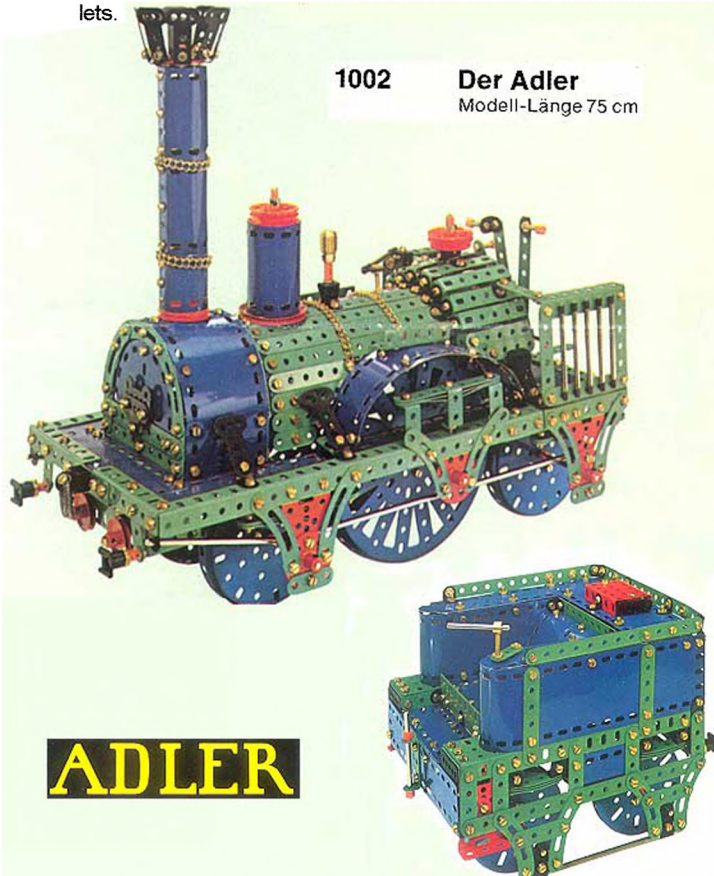


MECCANO-MORECRAFT is correct. Several sources give 1935 as the first date for Skipper Toy and MODERN-MORECRAFT but reproduced in MJ 31 is an ad for MECCANO-MORECRAFT which is said to be from *Popular Mechanic* of Nov. 1936. Any evidence for the existence of either MECCANO- or MODERN-MORECRAFT from 1932 through 1936 would be very welcome. And another question - did sets with 'Skipper Toy Co.' as the main company name on them ever exist?

A New MÄRKLIN LOCO As an advertisement to promote their constructional sets, Märklin have had a Swiss electric loco painted up to make it look as if it is made of MÄRKLIN parts. The sides and ends are framed with Strips and Plates and the centre of each side is very eye catching with a jumble of red, gold and blue gears, sprockets, couplings, etc. A model of it, H0 scale, was scheduled to be available from mid-1996, price about £170. This information courtesy of Ernst Leuthold.

MÄRKLIN SUPER SETS That's my name for the series of very large outfits, each intended to make a single model, and each only available for a limited period, that Märklin have produced since 1978. That was 3 years after they had abandoned their large sets in favour of the small A, B and C outfits. The best illustrations I have of the models are shown on the back cover and, for the Adler loco, below.

The first three appeared in 1978 and were all locomotives. Item #1001 was a 72cm long model of an electric loco, '**E-Lok BR 160**', built by AEG between 1927 and 1934. The #1002, '**Der Adler**' was a 75cm reproduction of the first loco used in Germany, in 1835, and had been built by Robert Stephenson in Newcastle. The third, #1003, was a model of a 2-10-0 steam loco, '**Güterzuglok BR 050**', 165cm in length including the tender. The names above are as shown in catalogues; they are abbreviated to E60, Adler, and BR50 on the front of the Instruction Leaflets.



All the models are striking in appearance with good external detailing, and of course the illustrations of them here don't do them justice. Nevertheless some aspects are a little disappointing. There are few working features, with non-adjustable valve gear on the BR50, and none of the wheels are sprung (although some imitation springs are fitted). There's no motor in the Adler and the others have a #1073 with a chain drive to only one axle. (These motors and some other associated parts are not included in the Sets.) As far as I can see the models sit on the A/G track provided and so perhaps they are meant to be able to run along under power, a commendable feature if that is the case. The wheels don't have flanges but all except the large pair on the Adler are grooved. Another surprise is the lack of detail in the cab of the BR50, with no 'controls', or even a proper bulkhead, although probably not much of it would be visible with the tender attached.

There is a huge full colour Instruction Sheet for each of the models, some 21*58" for the BR50, which folds up to about A4 size. One side is completely filled with a very nice picture of the finished model, and on the other are step-by-step instructions which an experienced modeller could follow without too much difficulty. The boiler on the BR50 might not be easy to make neatly: it is 25" long and is made from overlapping Strip Plates edged at the bottom of each side by Strips, with between the ends, two 'frames' made by bending 25h Strips to shape. In the Instructions for each model some of the Flexible Plates are shown being trimmed to shape with scissors, easily enough done with MÄRKLIN aluminium Plates. Getting the shape right would be tricky for the cylindrical

parts which join onto the boiler of the BR 050, because although the general shape is shown, no exact template is provided. Only one special part was introduced for these models, a 132mm Ø Domed Plate #14022, used as the front of the BR50 smokebox. One other part isn't in the Sets, the sleepers for the track - the dimensions are given and it is suggested that they should be obtained from a sawmill. One other point of interest - in several areas Rods are held in a Spring Clip against a flat surface, with both wings of the Clip (narrow like the original MECCANO pattern) passing through a round or slotted hole in a Strip or A/G. That's neat I thought but I couldn't do it with MECCANO Clips because the wings broke when bent enough to go through the hole. Later I obtained some MÄRKLIN Clips and they were of softer, less springy steel and worked perfectly.

These Sets were packed in black wooden boxes, with layers of black trays inside to hold the parts. To give an idea of size, the BR50 set contained 1059 parts + 2240 N/B/W, against a 1970 MECCANO No.10 with 1410 + 1495 N/B/W. In 1978 a No.10 cost £300 and the Watford Mail Order price for the #1003 (in 1980) was £224. It's not really a good comparison though because the German Set contained no gears and little brassware. The parts count for the Adler is 588 + 1237 N/B/W; and for the E60, 493 + 1031 N/B/W. The Instruction Sheets were sold separately as Items #14941-3.

These three Loco sets were available in 1980 but were not in the Watford list for 1981 or in a 1982 Märklin brochure.

The next super set was the #1089 **Eiffel Tower** listed only for the 1989-90 season. I haven't seen the Instructions and the details given in the catalogue were reproduced in 2/16.

There followed the #1079 to make a model of the well known 1929 '**Dornier Do-X**' flying boat. Again I haven't seen the Instructions but I have seen a made up model and the brochure photo of it. The wing span is about 4ft and the model is mostly made from Strips and some Perforated Plates, with very few Flexible Plates. Another striking model but with, I think it's true to say, no working features - it would have been nice to have had those 12 props turning. I've read that this outfit was available in 1992.

Outfit #1082, a '**Mississippi-Dampfer**', was on sale in 1993. It's about 45" long, over 18" high, and is made from 1384 parts plus 3285 N/B/W. 50 photos in the 36 page, A4 size Manual, (PR 64 408 Ta 07 92 au), show the different stages of construction. The only text is an Introduction, in German, English, French and Dutch, which says in effect that it isn't really a model for beginners and that the Set contains more small parts than are needed so don't worry if there are some left over when the model is complete. The model looks solidly built, mostly from Strips (over 380 of them), 130 Angle and Flat Girders, and 46 rigid Plates. There is quite a bit of detail and some moving parts: the two lifeboats and two gangways can be raised and lowered; 18 cabin doors open; the twin rudders are linked and are free to move but don't seem to be connected to the wheel on the bridge; and the stern paddlewheel can be driven by a #1018 motor (an extra), through a worm drive and a connecting rod at either side. In building it the only tricky part might be making neat looking funnels - each is to be made by cutting a Strip Plate to the right length and then curving it round a broom handle.

Finally mention of an American ad for a **Ju 52 Set**, to be 'available only in 1996', price \$895 plus #35 shipping, from Arts & Toys, Ostwall/P.O.Box 201, 47798 Krefeld, Germany, phone/fax: 49-2150-911625/2151-631531. It is said to be a '3-prop-all-tin-replica-model', with 'wind-up motor' and a 22" wingspan. This is perhaps based on the prewar Set #1152 which is shown in MCS, and had the same wingspan. The ad is rather blurry but the model looks as if it is made entirely of special parts. This isn't a super set, more like the Racing Car Set shown in 2/16, which incidentally, was reviewed in detail in CQ 21.

Most of the information above has come from material that Werner Sticht lent me, but thanks also to Ernst Leuthold and Richard Symonds for some items.

In a later letter Ernst mentioned a new super model for 1997, the Vienna Prater **Big Wheel**, which is 100 years old this year. As usual the set will be packed in a large wooden box, and I understand that the wheel will be some 50" in diameter. The cars, there were 30 on the original, will be made of special parts.

A new name, ERECTION

Ernst Leuthold came across a shop selling a range of sets bearing this name in his native Switzerland a year or so ago. They have MADE IN JAPAN on their lids and are unused, but look as if they date from much earlier, the 1950s perhaps. There are 6 sets in the series, and Nos.1-4 contain pieces that look, apart from their colour, just like ERECTOR, while those in the No.5 are conventional parts - some with a German MEKANIK look to them, although I understand that their hole pitch is the standard 12.7mm. There's no information about the No.0. What follows is based on the Model Leaflets for the No.3 and No.5 sets, which Ernst was good enough to lend me, and a No.2 Set which he kindly sent across.

The only clue to the identity of the maker is the logo at the top of the next page, which appears on the box and the Leaflets. It should be legible but if not it reads TRADE MARK and MODERN TOYS.

SETS 1-4 with ERECTOR-style PARTS The No.2 is in a box 15*9*1" with a full colour lid (above) showing a boy wearing a collar and tie, and a real bridge, gantry crane and ship in the background. Inside the N&B and Angle Brackets are in a small box glued onto the cream backing card, and all the other parts are individually held to it by nickel plated steel clips. The lid of the N&B box has a label in Japanese on it, and there's another Japanese label inside the main box lid showing the quantities of N&B and Angle Brackets in Sets 1-4. All other lettering on the box, and on the Leaflets, is in English.

PARTS Details of those in the No.2 are given below. The letters after my names for them are the equivalent ERECTOR designations, and their design follows the ERECTOR pattern unless otherwise stated.

• **DATA** (in mm) **STRIPS**: •hole pitch/dia, 12.7/4.2 mean; •width, 16.7; thickness, .55; •ends, see below. **BOSS**: •o/d, 8.02; •i/d, 4.00; •brass; •single tapped 1/8" BSW. **THREAD**: 5/32" BSW. **AXLE DIA**: 3.88. **DP (Mod)**: N/A. **NUT**: sq 7.5 A/F; **BOLT**: roundhead 7.0Ø; both brass plated steel.

The Set contains:

• 4 each of 2 1/2" (A), 5" (B), and 2 1/2" Curved (D) Girders. The shape of typical ends can be seen below. The width of the bracing struts varies but is usually slightly wider, up to 4 1/2mm, than in ERECTOR parts. 'A' are dark blue, 'B' & 'D' grey.



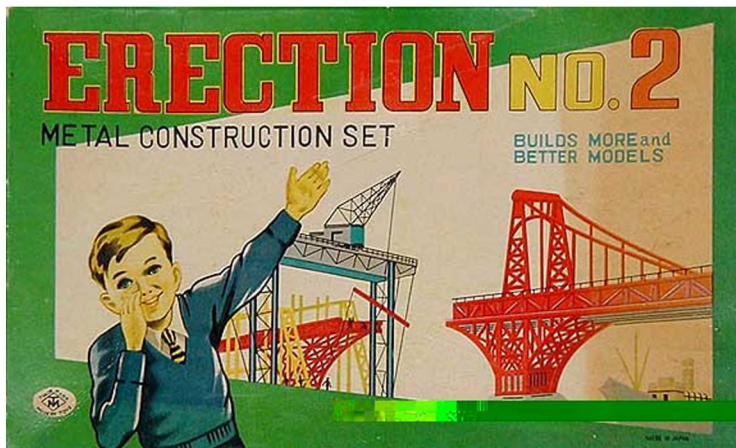
• 4 DAS (N), light bluey-green. These are the same thickness as the Girders and the base has the formed side grooves like them: the ERECTOR part is made of thicker steel with no grooving. The lugs are flat and about 1mm deeper than the real 'N', partly because the base is not quite as wide.

• 1x5 1/2*3" (MD), and 2x1 1/2*3" (MC) Flanged Plates. 2x5 1/2*1 1/2 Perforated Plates (MF). These are of slightly thinner steel than ERECTOR ones, .5mm against .6 say. MC & MF are the bluey-green, and MD a medium red.

• 4 Trunnions (P79, Car Truck), red. Like the DAS the bend point is slightly different and so the height is 1mm more and the flange 1mm shorter.

• 4 brass plated Angle Brackets, about 10mm wide like the ERECTOR part, but with the corners slightly rounded, and equal length arms (13 1/2mm), one with a round hole in it.

• 4 Pulleys, 27mm Ø (P7A). Brass plated steel with a



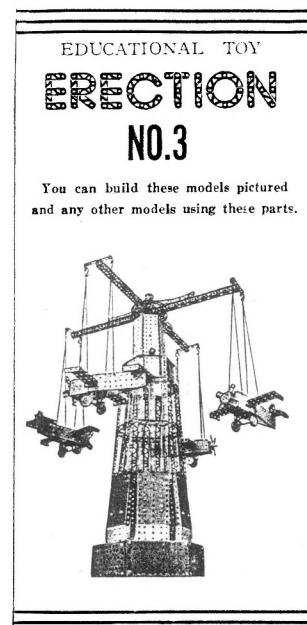
The Screwdriver (below) is 124mm o/a and is something like P33. It is painted red with a silver tip. The thin, black painted Spanner (below) isn't like any ERECTOR part I know, and one of the ends isn't quite wide enough for the Nuts. Cord is purple spun nylon.



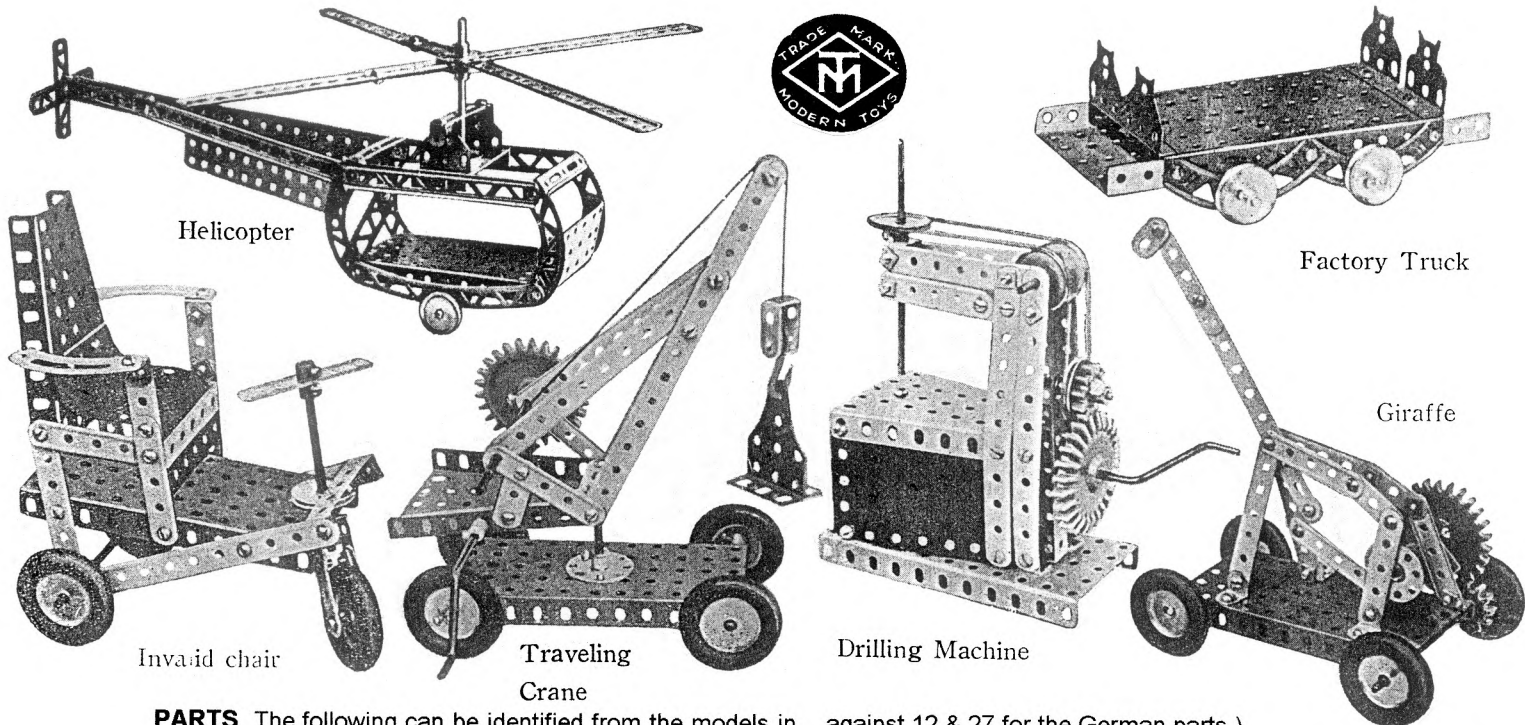
• The parts are cleanly made with just a touch of burr here and there, and the pitch of the holes isn't quite uniform, but not enough to matter. An oddity is that the holes in the different parts vary in diameter from 4.0 to 4.4mm. If the parts were made some 40 years ago they have survived well without any sign of rust, and with only a trace in a few places, of the crazing that can be seen on many 1950s red MECCANO Flexible Plates. The brass plating on the Pulleys is a little tarnished but the N&B are still very bright and shiny.

SETS The Model Leaflets show small photos of Sets 1-4. The No.1 looks similar to the No.2 but with only 2xB, and no MC, MF, or P79. The No.3 has an extra 4xA (10" Girders), 2xE (5" Curved Girders), and a Bush Wheel. The No.4 is described as 'Large set with special parts' and appears to include 21h A/Gs - not an ERECTOR length, and it can't be seen if they have slotted holes in both flanges - and Road Wheels of 2 1/2" Ø, or a little more, with either pressed or real tyres. It has 43 N&B and 10 Angle Brackets.

MODEL LEAFLETS All are 190mm deep, folded into panels 85mm wide. The Roundabout on the front (opposite) is about 30" high, and on the back are the photos of the sets, with 'Registered U.S.A. Japan' at the bottom. The No.2 Leaflet has photos of 23 models for Set 1, and another 23 for Set 2; the No.3 has all the above plus 17 for Set 3. The models are typical of those from small ERECTOR sets and I found quite a few of them in a 1949 ERECTOR manual. Some of the names too point to their origin - Bundle Truck for instance. The most modern looking model is the No.3 Helicopter which must have been built post-WW2. It is shown together with a No.2 model at the top of the next page. The No.2 Leaflet is printed green on white, the No.3 black on white.



OUTFIT No.5 It is called the 'High Degree Set' and there's no illustration of it.



Helicopter

Factory Truck

Invalid chair

Traveling Crane

Drilling Machine

Giraffe

PARTS The following can be identified from the models in the Model Leaflet, and where they look like MEKANIK parts I'll add (MEK).

- 3,5,7,11h Strips (in a few of the models their edges look as if they are turned over, or formed into a shallow ridge). 1*5*1h DAS. Curved Strip with long centre slot (MEK).
- Flat, Angle, Double, & 2*1*2 Double Brackets. Trunnion and Flat Trunnion (MEK). 1*1 Corner Bracket (MEK).
- 1" Ø Pulley with fat Tyre. ½" Pulley without boss. Bush Wheel. Axles and Crank Handle.
- 5*11h Flanged Plate (MEK) and 8h long Flanged Sector Plate (MEK). 3*5h and 5*7h Flexible Plates with all circular and no centre holes.
- A large-toothed Pinion and Gear Wheel, probably plastic, that can also mesh at angles of up to 90° (MEK, but with a smaller diameter boss, and 11 & 26 teeth are shown

against 12 & 27 for the German parts.).

- Square Nut, and roundheaded Bolts, normal and long in length. Collar. Loaded Hook with 2 side spigots.

The Gears are green and the other parts are believed to be painted in the same colours as those in the smaller sets.

MODEL LEAFLET It has the same format as the others but is printed in red, and shows only No.5 models, including the Invalid Chair on the front panel. In all there are photos of 5 Basic Constructions (cord and gear drives) and 22 models, of which the Gears are used in 10. Most are based on the Flanged Plate but a few are longer, up to about 12", and many are rather more interesting looking than those for Sets 1-3. The majority are wheeled vehicles of one sort or another, but there are as well some machine tools, a Jumping Puppet, and a Giraffe with a neck that nods as the model is pushed along. 4 of them are shown above.

A Russian Baby - KONSTRUKTOR MALYUTKA

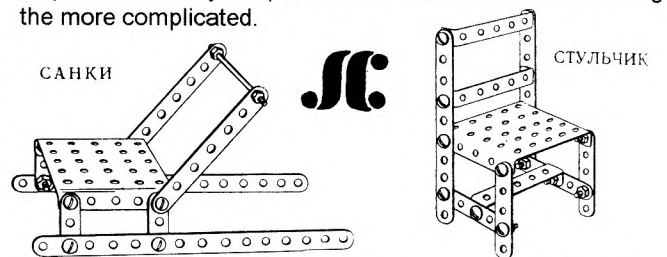
That's the transliterated name of a small set that Tony Matthewman kindly lent me, and MALYUTKA means Little One or Baby. All the parts in the set are identical to ones in KONSTRUKTOR UNIVERSAL'NYI (UNI henceforth), that was described in 11/285, and it was made by the same organisation - the same logo (opposite among the models) is used on the manuals, and on the bottom of the box there's the name in Russian of The Experimental Factory of Metal Haberdashery & Souvenirs, and a St. Petersburg address. The other, and perhaps more appropriate, meaning of the Russian word for Haberdashery is Fancy Goods.

The white MALYUTKA box measures 6¾*3½*¾" and unlike the UNI one, is quite plain. The lid is fully covered by a pale blue label with the initials KM on it, made up from Strips, and in red the name and 2 other words meaning Universal Toy - of the English version of the UNI name. Glued inside are 2 card partitions, and the parts are loose within them.

The 60 on the cover of the manual (opposite) is the total number of parts, made up of a 5*5 & a 5*10h Flanged Plate, 18 Strips from 3 to 15h long, 3 DAS, 2 Flat Brackets, a 70mm Axle with Threaded Ends, 14 Bolts & 16 Nuts, and the 4 Tools in the UNI set, including the plastic Tweezers. There are no Wheels of any sort.

Some of the illustrations in the small manual of how to use the parts are identical to UNI ones, but the presentation of the 6 models is different with step-by-step sketches to

help build the very simple models. The 2 below are among the more complicated.



SUMMARY OF MANUAL •Name: KONSTRUKTOR MALYUTKA •Details of maker: see text. •Dates &/or Ref Nos: p.o.p. 3.??? T. ?0 000 91g on back cover [?=unreadable]. •Page size: 167*79mm deep.

•No. of pages: 20+covers. •Language: Russian. •Printing: models are B&W line drgs; some red on B&W cover. •Page No. of Parts List/ Contents & highest PN: 3,16. •Page Nos. of Illustrated Parts & highest PN: 4-6,16.



•Translated Name, Model No., Page No. of first & last model: Chair,1,10-11; Stretcher,6, 20-21. •Other notes: none.

The set was bought in Russia last year and cost the equivalent of £0.75. The 91 part of the code on the back of the manual probably indicates a year, and a similarly placed 92 on the bottom of the box actually has year after it. Such dates may be when some form of registration took place rather than when an article was made.

An incomplete History of LYNX LYNX was a small system with at most about 50 parts, but after MECCANO, VOGUE and TRIX, it is probably the most commonly found metal system in the UK. It was made by The Bay Manufacturing Co. (henceforth TBMC), and seems to have appeared soon after WW2. It lasted until perhaps the mid 1950s, but in that time the parts and their finish varied considerably, starting with a handful of steel DIY fittings used to make models, and finishing with a range of quite well made anodised aluminium parts, some of them rather unusual. There are many gaps in the details available but following David Hobson's recent hunt through all the issues of *Games & Toys*, I'm going to try to provide a framework in which to fit later information. LYNX names for the parts are unusual and sometimes not very descriptive, so I'll use adapted MECCANO ones and illustrate the parts as necessary. To keep this piece to a reasonable size I've had to omit many of the arguments supporting the assumptions and deductions I've had to make, but I will be happy to debate points arising.

PHASE 1, 1946, the DIY & 3/8" Pitch Parts, Sets 1-4 It has been suggested that LYNX appeared before WW2 but I've no evidence for this and all known documents certainly date from after the war. The first reference is the ad below which appeared in the Feb. 1946 G&T, but it is possible that sets or packets of parts were available for Xmas 1945. The date of the application for the patent mentioned in the ad has not yet been traced, and the patent most likely related to the use of the parts for DIY repairs.

REPAIR AND CONSTRUCTIONAL PLATES

HOUSEHOLD REPAIR OUTFITS containing Plates, Screws, Screwdriver, etc. 2/-, 2/9, 3/9, 5/-, 12/6

REFILL PACKETS, Diamonds, Angles, Strips, Brackets, Washers, Wood Screws, Nuts and Bolts, 6d. to 1/-.

CONSTRUCTIONAL TOY OUTFITS

12/2 Inc. Tax
MODEL TANK illus.

Goods supplied through Traders only. HOME OR EXPORT

BAY MANUFACTURING CO.
MORECAMBE
TRADE ENQUIRIES INVITED

possible that sets or packets of parts were available for Xmas 1945. The date of the application for the patent mentioned in the ad has not yet been traced, and the patent most likely related to the use of the parts for DIY repairs.

The LINX brand name was presumably a play on 'links', in that most of the parts were intended to be used for repairing wooden members by 'linking' them together. The Strips (shown in 8/197) are 2" long with the end pairs of holes at 3/8" pitch and the

outside holes 1 1/2" apart. The 2*2h Angle Bracket (called Bracket) was made from the 2" Strip, and the Angle is a 3h Corner Bracket (like a short Bell Crank) with the holes at 5/8" pitch. The holes in the Diamond are at about 1 3/16" centres and the part can be seen behind the name in the ad. These were the basic LINX parts and the holes in them are about 3.5mm Ø, smaller than the normal LYNX 3.8 to 4.0mm. They were nickel plated and sometimes the holes were countersunk (before plating) to take a wood screw.

It can be supposed that someone, perhaps a Meccanoman, saw that these parts could be used as the elements of a constructional toy. In the MB 4 manual (described later) every model except a large 'Special' Tower Bridge, but including an aircraft of 18" span, is made with only these parts plus 1" Discs used as wheels (perhaps the Washer of the advert).

In April the Size 7 Steel Repair Outfit was advertised, price 15/6, with 'Handy Refill Packets' at 6d. or 1/-. All the small parts were sold in packets and a list of them at a much later but unknown date is shown in MCS/FB. Most found are labelled LYNX but some LINX packets turn up and they are not confined to the DIY parts. For example packets of 2" Axles, and of Crank Handles, are known.

If this seems strange, so perhaps is advertising DIY parts

in G&T, and it's been mooted that the makers might have been suggesting an alternative use for their repair parts because the tax on them was less than that on toys. Another possible factor was that at the time it may have been easier to get steel allocated for repair articles than to make toys, and perhaps that tempted TBMC to try to increase trade by tapping into the toy market in a quiet way.

Two examples of the packets are shown below. They are about 4*2 1/2" and packets of N&B are often found in sets. There was even a set which as a temporary measure, was made up entirely of packets.

REPAIR AND CONSTRUCTIONAL PLATES

For Every Purpose

HEAT HOUSEHOLD & GARDEN SPRAYERS SIMPLIFIES TOY MAKING

CONTENTS: AXLE RODS

KEEP A PACKET HANDY

BAY MANUFACTURING CO.

2-HOLE BRACKETS NICKEL PLATED

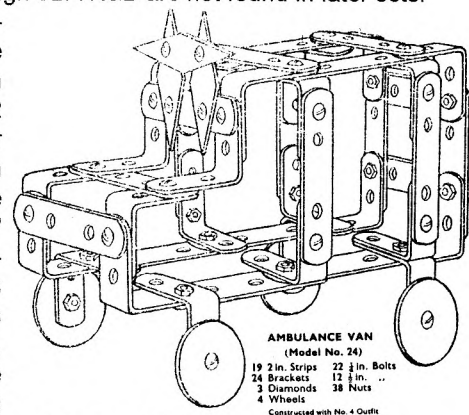
STEEL CONSTRUCTIONAL TOYS

INDIVIDUAL PARTS PACKET

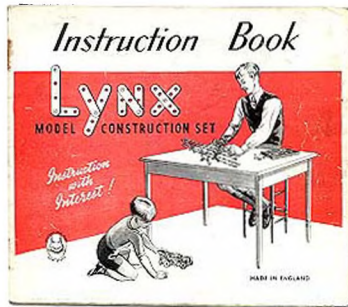
In June the G&T ad said that Messrs. Val Green & Co. of 18 Oak Lane, Bradford were sole agent for LYNX in the British Isles. Spares were also offered, 'in red, green, blue, gold or silver enamel finish': 6 & 12" Strips, Flanged Plates, Axles, Crank Handles. The Strips had the small sized holes at 3/8" spacing, and early ones were nickel plated. The Flanged Plate was the 4*7h type (but measured 2 3/8*3 3/4" overall), with round holes in the 4 flanges, and all known examples have normal size holes.

Strips with 1/2" spacing were introduced towards the end of 1946, but 2" Strips with 1/2" pitch and longer ones with 3/8" are found in sets and manuals of the time. The Illustrated Parts in the latter also shows the push-on 1 1/4" Ø Rubber Wheel and 1 1/8" Rubber Pulley. 5BA and 6BA RH Screws, both in the 3 LYNX lengths of 1/4, 1/2 & 1", and both with hex Nuts, were used; some were plain steel, some nickel, and some brass. Perhaps 6 BA was the original size to match the small holes, or perhaps it was a question of what was available at the time. However the 5 & 6BA Nuts do fit the 2 different ends of the LYNX Spanner, which was never changed, even though 6BA N&B are not found in later sets.

The MB 4 manual covered the Sets 1-4 by then available, and the 2 boys on the cover are playing with models from the manual - the 18" Biplane on the table & the Sports Car on the floor. As mentioned earlier, the models for the sets are made from the DIY parts with the 3/8" pitch 2" Strips. A No.4 model is shown above. None of the longer Strips are used in any of them but a note on the inside front cover suggested they could make the models larger and more interesting. The 'Special' model of Tower Bridge is made of 2, 6 & 12" Strips, all of 1/2" pitch.

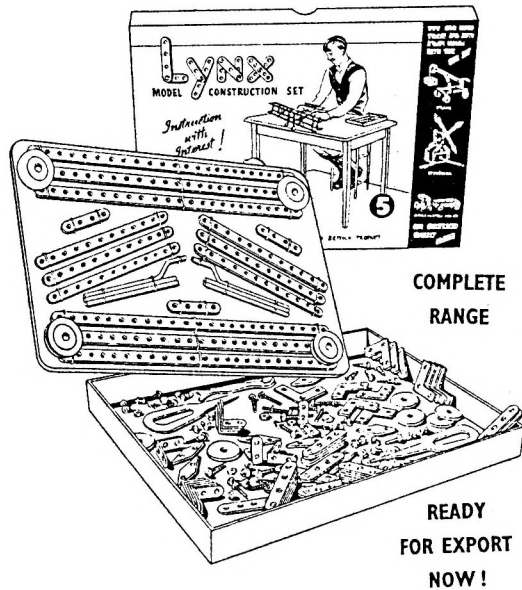


SUMMARY OF MANUAL •Name: LYNX •Details of maker: Bay Manufacturing Company, Morecambe, England, •Dates &/or Ref Nos: (MB 4) on p14. •Page size: 177*153mm deep. •No. of pages: 16 inc covers, unnumbered. •Language: English. •Printing: line drgs of models, blue on buff; cover red & black on white, with a Biplane on the table. •Page Nos. of Parts List & highest PN: 14,41. •No Set Contents: •Sets covered: 1,2,3,4. •No. of models for each set: 3,15, 2,3. •Name, Model No., Page No. of first & last model of each set: 1: GLIDER,1,3; SPITFIRE,8,5. 2: SIGNAL,3,3; HORSE AND CART,19,10. 3: SHERMAN TANK,20,11; TRAILER,22,11. 4: SWING BOAT,21,11; AMBULANCE VAN,24,12. •Other notes: a 7ft model of TOWER BRIDGE (Model 16) is shown on pp8-9, & a DAKOTA (Model 25), for Set 4 + extra parts, on p13.



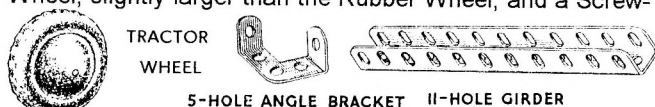
•Other notes: a 7ft model of TOWER BRIDGE (Model 16) is shown on pp8-9, & a DAKOTA (Model 25), for Set 4 + extra parts, on p13.

PHASE 2, 1947-1948+, 1/2" Pitch Holes, Sets 1A-4A, 5 & 6. In the November 1946 G&T there was an illustration of a No.5 set (below) with all 1/2" spaced parts. The box lid is typical of this period with several models on the blue side panel and the 2 boys with models as on the MB 4 cover. Probably this new set and the No.6 were available for Xmas 1946 and perhaps the 1A to 4A outfits replaced the 1-4 at the same time. The 'A' sets may have marked the end of the 3/8" pitch Strips, and they had a wider range of parts, with some of them coloured.



In a Feb. 1947 ad the address of TBMC, which had been just Morecambe previously, was Station Road, Woburn Sands, Near Bletchley, Bucks. Another address was given in a Competition Leaflet - entries had to be sent to TBMC, 171 Great Portland St., London W.1 before Jan. 31, 1948.

At the top of a Sept. 1947 Price List (ref. H.T.L. 105) are the logos of both LINX and LYNX, with the London address given above, and the Northern Office at Sefton Road, Morecambe, Lancs. LYNX constructional sets 1A,2A,3A,4A, 5 & 6 are listed, and Repair Outfits 7 & 8. For each the price and box size is given. All the Spare Parts are listed and these are as MCS pages 3/4 & 3/4a except that 12 & 24h Strips are not included. New parts include 2,3,5,11,21h Strips; 11 & 21h Angle and Channel Girders; 1*1h Angle & 1*1*1h Double Brackets; a 5h Bell Crank, and this part with turned up ends (Angled Bell Crank); a Rubber Tractor Wheel, slightly larger than the Rubber Wheel; and a Screw-



driver with a Bakelite handle. 2 Flanged Plates are listed, enamelled at 1/6 and nickel at 9d, and the latter may have been the commonly found tin plated 4*7h, and the other the later 5*7h (2 9/16*3 3/16" overall) which had slotted holes in its 4 flanges, and was always enamelled. Edgelinx and Cornerlinx are also in the List, and were probably DIY parts of some sort.

No sets larger than the 3A have been seen from this

Phase, and not many of the new parts found there way into the smaller outfits. In particular 6 & 12" Strips were retained despite not being in the 1947 List, and no sets are known which contain the 11 or 21-hole variety. Another part not in the '47 List is a steel 1" Pulleys (with a dull metallic finish) that is found in some sets. Most parts in the sets are still nickel though Flanged Plates are either green, blue or tin plated, some 6" Strips are red, green or blue, some 2*2 Angle Brackets red or green, and Discs are often red. Sets 2A & 3A are packed in blue boxes 8*6 1/2*1", divided into 5 compartments by card trays. Probably the No.1 box was 8*4 1/4", while those for the larger sets were 13*8". Lids are similar to the one in the Nov. 1946 ad. A Competition Leaflet with a closing date of 31 Jan. 1949 is sometimes found in 1948 sets: it is the earlier one overprinted with the new date and the new St. John's Road, Woking address.

The model leaflet from a 1947 No.1A set (ref. ML. 1A), is a single sheet folded in two, with the TBMC Woburn Sands address and 'Also at Morecambe, Lancs., and Glasgow'. The front is similar in design to the MB 4 above but the 1A models are completely different. They use 2 & 6" Strips and several have to be screwed to wooden bases (not provided). None can be pushed along on wheels, although Discs are used in several models. The usual details follow but from this Summary on, only changes will be included.

SUMMARY OF MANUAL •Name LYNX Outfit No. 1A. •Details of maker: The Bay Manufacturing Company, Station Road, Woburn Sands, Nr. Bletchley, Bucks, England. Also at Morecambe, Lancs., and Glasgow. •Dates &/or Ref Nos: ML. 1A on front. •Page size: 186*156mm deep. •No. of pages: 4 unnumbered [1 sheet folded in two]. •Printing: dark blue on buff. [•No Parts List/Set Contents] •Sets covered: 1A. •No. of models: 8. •Name, Model No., Page No. of first & last model: SWING,100a,2; SIGNAL,107a,3. •Other notes: none.

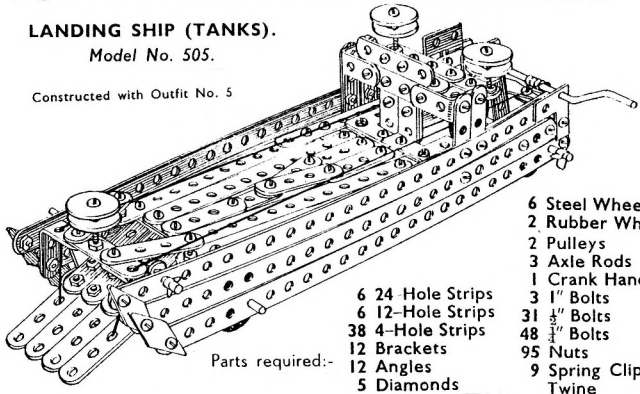
The Leaflet above is from early in 1947 and no equivalent manual for larger sets of that time has been found. By 1948 many changes had been made, and the M.B. 6A manual of that time is described below. It has the new Woking address, and there are different boys on the cover (and on the label on the sets), and different models too - with the Twin-Engined Airliner on the table and the Gantry Crane on the floor. The cover is white with red as before, but with the black replaced by dark blue. The Illustrated Parts are shown on pages 3/4 and 3/4a in MCS and are those in the 1947 List except that the 12 & 24h Strips were included. Both types of Flanged Plates are illustrated.

Models for the different sets were grouped into separate sections, although for some reason those for Sets 4A & 5 were all in one section, and one 4A model came after the No.5's. Compared to MB 4 all the models are new and the wooden blocks in the ML 1A have been replaced by the new 5*7h Flanged Plate. Models are still made with 2", 6" & 12" Strips and the original Brackets, but Rubber Wheels or Pulleys are often used instead of Discs. 4*7h Flanged Plates are used in the 7 quite large Special models, and those for Sets 3A & 6. There are photos of all those models while the others are still line drawings. It is explained in the Introduction that the models which need 12 & 24h Strips can be made with the 11 & 21h variety if they are in your set, 'without affecting the basic design'. In case any whinging lad thought that in some cases that might be stretching a point somewhat, it goes on to say, 'never forget that the skill of the greatest engineers of all time, commenced with early ingenuity to overcome obstacles by improvisation'. All the models are quite fair really, essentially simple but mostly with good lines. The largest No.6 model needs 130 N&B. The Special models require extra parts, often a great many, and the largest is the 8' 3" long Forth Bridge which needs 430 N&B. In fact there was a special set produced with enough parts in it to make this one model. They were all nickel and it may have dated from early 1947. [Cont. >>]

A less common manual from this period is the M.B. 6: it is virtually the same as the 6A except that it doesn't have page numbers. One of the No.5 models is shown below.

LANDING SHIP (TANKS).
Model No. 505.

Constructed with Outfit No. 5



- 6 Steel Wheels
 - 2 Rubber Wheels
 - 2 Pulleys
 - 3 Axle Rods
 - 1 Crank Handle
 - 3 1" Bolts
 - 31 1/2" Bolts
 - 48 3/4" Bolts
 - 95 Nuts
 - 9 Spring Clips
 - Twine
- 6 24-Hole Strips
 - 6 12-Hole Strips
 - 38 4-Hole Strips
 - 12 Brackets
 - 12 Angles
 - 5 Diamonds

Parts required:-

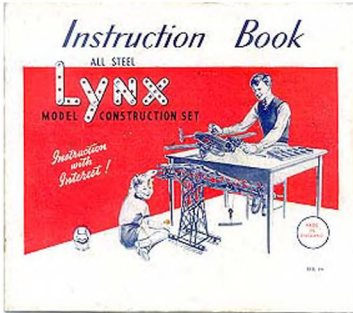
and was available in lengths of 3,5,7,9 & 21h. Both the Plate and the Girder were usually red and often made of aluminium. The Slotted Wheel was 2 1/2" Ø and a pair bolted together made a Pulley. It was made of aluminium including the boss, and painted red. The Large Gear had 28 teeth;



a small one from this period hasn't been seen but several examples are known of a Pulley, .97" o.d., which has 17 teeth at the bottom of the pulley vee, and meshes with the Large Gear at 1" centres. Both are in red painted aluminium. The red used on aluminium parts, and some steel ones, was a flat, slightly pink shade. The normal 1" Pulley was new to the manual but has already been mentioned, though it was now either made of shiny aluminium with LYNX and MADE IN ENGLAND stamped on both sides, or had an aluminium boss and was painted black. The Disc of this time was nickelled and had the outline of 4 spokes and a rim impressed on both sides. One part found in sets but not in any manual is the Flat Base Plate, which is the 5*7h Flanged Plate before flanging.

The manual is described below and the cover includes the table as before with the 'new' boys and models, and a new slogan, Miniature Engineering for Boys. The 16 un-numbered pages show the Special models and those for the sets unchanged, with the same size illustrations. Which models were for which sets isn't stated clearly but has to be deduced from the Model Nos., and one No.4 model is now only shown on the back cover, and has no title or Parts List. There are a few extra models: the Crane below, again on the back cover; and 5 on p14, numbered N.701, AN.702 to AN.705, which are quite small and not particularly exciting. None of these were newly designed because they used 12 & 24h Strips and 4*7h Flanged Plates. There's a note at the front of the manual suggesting that 24h Strips could be made up by attaching a 4h to a 21h, but no mention of what to do about the 12h ones in all the models.

SUMMARY OF MANUAL •Details of maker: The Bay Manufacturing Company, St. John's Road, Woking, Surrey. Also of Morecambe, Lancs., and Glasgow. •Dates &/or Ref Nos: M.B. 6A on FC. •Page size: 185*162mm deep. •No. of pages: 32 plus outer covers. •Printing: line drgs of models, but photos for Sets 3A,6 & Specials, all blue on white; cover blue & red on white, with Airliner on table. •Page Nos. of Illustrated Parts: 29,30 [no PNs] •[No Set Contents] •Sets covered: 1A-4A,5,6. •No. of models for each set: 8,12,5,6,6,6.

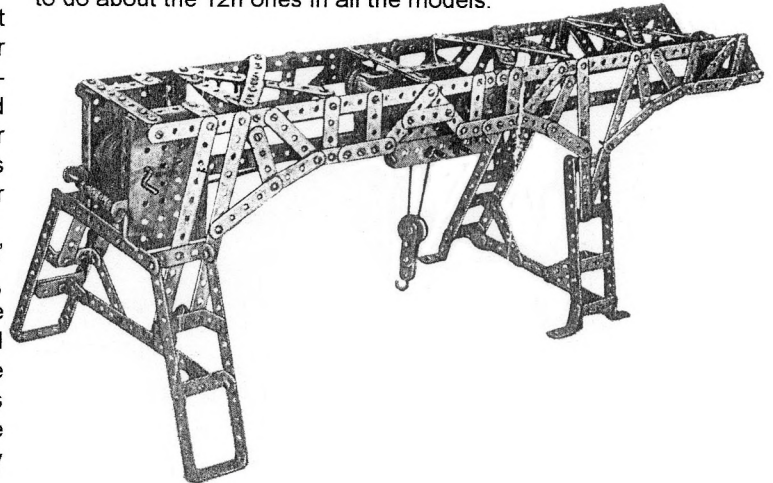


•Name, Model No., Page No. of first & last model of each set: 1A: SWING,100a,2; SIGNAL, 107a,3. 2A: AERIAL ROPEWAY,200a,6; AUTOGYRO, 211a,8. 3A: SIDE-TIP TRUCK,301A,9; AUTOMATIC STACKER,305A,10. 4A: ARTICULATED LORRY,400a,11; JIB CRANE, 405A,22. 5: "TYPHOON" FIGHTER PLANE, 500,17; LANDING SHIP (TANKS),505,21. 6: AERIAL ROPEWAY,601,23; SWING BRIDGE,605,27. •Other notes: • Also 7 Special models on pp4,5,14-16,19, 20. • A manual M.B. 6 is identical except that there are no page numbers and the references to pages on p11 of M.B. 6A are not given.

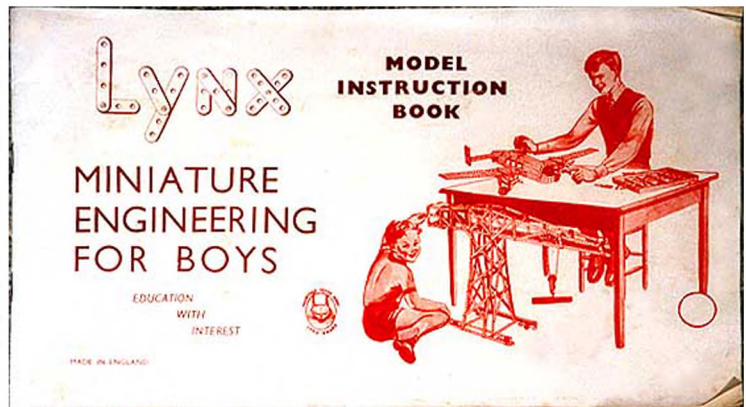
PHASE 3, Large Boxes & Manuals There were at least 3 later developments after Phase 2, but the only other known date is a small display ad from Lynx Ltd., Morecambe, that ran in G&T from Feb to Dec 1952, and invited dealers to become the sole retail agents in a district for Lynx Steel Construction Sets. All that is sure is that this must have been after the start of Phase 3, when the maker was still TBMC, and before the aluminium sets of Phase 5.

Phase 3 saw a new range of sets, 1 to 6 (with no 'A' numbers). They were in new, much larger red boxes, measuring about 15 1/2*8 1/2", with labels on the lid quite similar to the previous ones but without the blue panel and the models in it. Strangely the labels on some sets are the early 1946 type with the original boys and the early models which were no longer in the manual. The sets had some parts that hadn't been included before, and some entirely new ones, all attractively strung on yellow backing cards. There was also a larger manual with pages 14 3/4*8 1/4" deep, but with only a few new models, and those not for the sets. The maker shown on a later manual of this period, otherwise identical, was Lynx (Morecambe) Ltd., and the differences in the make up of the Sets 2,3,4 & 5 that have been examined, make it possible that this Phase ought to be subdivided.

The Illustrated Parts are on pages 4 & 15: p4 is MCS p3/4a (except that the Tractor Wheel is now called Balloon Wheel), and p15 is the /FB pp3/4c & 3/4d. p15 includes many of the parts on p4 again, but there are some new ones. Another Balloon Wheel, 1 1/2" Ø, was made from the usual 2 steel pressings, painted a glossy black. The Girder Plate was the Channel Girder before its sides were formed



MANUAL SUMMARY •Details of maker: THE BAY MANUFACTURING



COMPANY, MORECAMBE, ENGLAND. •Dates &/or Ref Nos: none. •Page size: 373*208mm deep. •No. of pages: 16 inc covers, unnumbered. •Printing: models as M.B. 6A but brown on white; cover red on white but brown lettering. •Page Nos. of Parts List: 6,15 [no PNs] •Sets covered: 1-6. •No. of models for each set: 8,12,5,5,6,6. •Name, Model No., Page No. of first & last model of each set: 1: ALPHABET LETTERS,101,7; CRANE,108,7. 2: AERIAL ROPEWAY,201,8; AUTOGYRO,212,8. 3: SIDE-TIP TRUCK,301,9; AUTOMATIC STACKER,305,9. 4: ARTICULATED LORRY 402,10; FIRE-ENGINE,405,10. 5: "TYPHOON" FIGHTER PLANE,501,11; SHIPYARD CRANE,506,11. 6: AUTOMATIC TIPPER,601,12; SWING BRIDGE,606,13. •Other notes: • Also 7 Special models on pp3-6, & 5 other models N.701-AN.705 on p14. • A loading crane and the ex 4A Jib Crane are on the back cover, untitled. • Another manual is identical except the maker is Lynx (Morecambe) Ltd., Morecambe; and another (from Phase 4) is printed in red throughout, has page numbers, the models are for sets 1-3 & 5-7, the Contents of sets 1-7 are given on the IFC (but those for 1-5 are missing, torn off), the extra models are numbered N.801-AN.805, and the maker is Lynx (Toys) Ltd., Morecambe.

The contents of the sets are only progressive in a general way, with considerable variation in the selection of parts provided over and above the core content needed to make the manual models. To give just 2 examples, there are some 2h Strips in a No.2, and some 5h in a No.3, but none of either in Nos.4 & 5; and there is no pattern to the different lengths of the one or two Channel Girders and/or Girder Plates in the different sets. Other 'new' parts included Double Brackets, 1*3*1 DAS, metal Balloon Wheels, 5*7h Flanged Plates, a Flat Base Plate in some sets, and Slotted Wheels in the No.5. A No.6 hasn't been seen.

On the 'core' parts, 11h Strips replace the 12h but most sets have 24h, though some have both 21 & 24h. There are insufficient parts in the sets to make all of the appropriate manual models, and the most glaring omission is the complete absence of the 3h Corner Bracket, a part difficult to replace in many cases.

The colours of some of the parts have already been mentioned. The predominant colours of the sets are red and green, with no blue parts. 11-24h Strips are red or green; shorter ones and the 2*2 Angle Brackets, red or nickel. Other Brackets and DAS are nickel. The Flanged Plate is always green, except that in the No.5 it is made of aluminium anodised a copper colour.

The No.5 was from late in Phase 3 and the N&B are in a cream card box, about 3*2½", instead of the usual packets.

PHASE 4, Sets No.1-7 The second variant noted in the Manual Summary above, with Lynx (Toys) Ltd., Morecambe on the back cover as the maker, is all that is known of this phase. The minor differences to the manual are that it is printed in red on white throughout, the pages are numbered, the groups of models for the different sets are identified by an outfit number, and the back cover contains panels for the owner to record personal details and models built.

The major change is that although the models are identical, the ones that were for Set 1-6 are now shown for Sets 1-3 and 5-7, with no models for Set 4. It can't be certain that a Set 4 existed but the heading on the incomplete (torn) inside front cover, which shows the Set Contents (another change) is '.....OUTFITS, 1 to 7'. Only the Contents for Sets 6 & 7 are left but this does allow a check as to whether the No.6 was different in this Phase, rather than being just a renumbered No.5. In fact there is only a broad similarity, with the new No.6 having fewer Strips, more and different types of Brackets, more but shorter Girder Plates and Channel Girders, etc., etc. Among the Brackets were 12 of the 3h Corner Brackets which are needed for the manual models and which were absent from all the Phase 3 sets.

The No.7 contains all the parts in the No.6, except 4x3h Girder Plates, and in all 192 parts plus 120 N&B, against 141 and 90 for the No.6. A few 'new' parts are included with

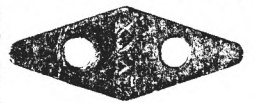
1 each of the Gears, and 2 of the Angled Bell Cranks.

PHASE 5, Aluminium Parts Some of the parts in the Phase 3 sets were made of aluminium but in Phase 5 they all are, apart from the Axles, Tools, & N&B. All the aluminium parts are anodised and the most common colour found is a slightly harsh copper, with some a softer golden shade, and a few a lighter shade with a pink tinge. In the set to be described all the parts are golden and the overall effect is very attractive. The parts are still strung and the set appears complete and unused.

The box measures 15¼*9*1½" and is cream with a large label on the lid similar to that of the Phase 2 sets. The 3 models in the blue righthand panel are the Articulated Lorry, the Excavator, and the "Reliant" Monoplane, and in the manual with the set, the small M.B. 6A already described, they are shown as 4A models. This is the only indication of the size of the set - the space on the label where the set number might be is covered with a red stick with 'Patent Number 11566 Great Britain' on it. Also on the lid are 2 other stickers, a red one 'The "Rolls Royce" of Building Kits', and one black and gold, 'Super Presentation Kit'.

Inside the parts are in two layers strung with red cord to cream backing cards, with 2 see-through cutouts in the top one. (These were also a feature of the larger Phase 3 outfits) The N&B, Discs, Tools, and Diamonds are in a cream cardboard box with LYNX on the top, and about the same size as the one in the Phase 3 No.5 Set.

Broadly the Set is slightly larger than a No.4 of Phase 3, and has a wider selection of parts. Noteworthy are: no 12 or 24h Strips but some 3h for the first time; 2x21h A/Gs, another first; more Channel Girders and Girders Plates; no Double Brackets; Rubber Pulleys (which weren't in the Phase 3 sets) instead of Balloon Wheels; a Toothed Pulley and 28t Gear; all bosses single tapped and about 9.5mm Ø; 2 Collars which are unpeened brass bosses with the normal double tapping (but no known LYNX part has a brass boss); 1" Discs with the 4-spoke impressed pattern; Diamonds of a modified design with the holes at ½" pitch (above); about 80 N&B; and as with all LYNX sets, no 1*1 Angle brackets.



Apart from the round parts and some of the Channel Girders, all the aluminium parts are stamped LYNX and all the Strips except the 11h have the number of holes stamped on as well. Most other aluminium parts seen have not been so marked.

There seems little doubt that the anodised aluminium parts came after all the earlier phases, and the small M.B. 6A manual in the sets is therefore a surprise, particularly because it still has the Woking address on the back cover. It is of course possible that production had been moved back there or that the manual found was not the original. However it does match the label on the lid so perhaps old stock was being used up. (If there was a new manual it might explain why there are not enough 4h Strips in the Set to make any of the models shown on the lid, or any of the 4A models in the manual. Even if the 3h Strips were used as substitutes, possible in some cases, there still wouldn't be enough. Also the models need the 3h Corner Bracket, and there are none in the Set, and no practical substitute. This lack of the Corner Brackets was also true for the Phase 3 sets too of course, but they were included in the Phase 4 Contents. All v. odd.)

Notes on LYNX Parts These give details that haven't been included so far.

- Holes are typically 3.8 to 4.0 mm but the Axles are only 3.25mm Ø. Perhaps they were sized for the original smaller holes. The bore of the bosses is 3.35mm; they are 9.6 to

9.8mm o.d., double tapped 5BA, and their tops are usually noticeably rounded. Strips, etc are ½" wide and have semi-radiused ends. The only fully radiused corners are on the Flanged Plates. Steel Strips and Brackets are quite sturdy and typically 1.2mm thick. Most parts aren't marked but a few Strips and other parts are stamped MADE IN ENGLAND, and my only 21h Strip is stamped 21.

- The steel parts were generally reasonably accurately made except that the length of metal outside the outer holes in parts like Strips and Girders varied considerably. Also faults in the 6" & 12" Strips from Phase 2 were quite common with holes unpunched, and in one case 7/16" spacing for the centre holes in a 6" Strip. The paint finish is often rather rough. The Phase 5 aluminium parts were well made.
- The Rubber Wheels and Pulleys can be black, dull red, or dark mottled. I've not seen the Tractor Wheel but a photo shows it black with a silver centre.
- Crank Handles are in 2 lengths with shafts about 3" & 4" long, and either can be found in any Phase.
- There are 3 types of the flat brass wire Hooks, S-shaped about 1" long, and 8-shaped, ¾" and 7/8" long, with a small closed eye at the top and a fatter open lower hook. Again they can occur in any Phase. Spring Clips are 6mm wide with 5mm long wings, and those found are nickel plated although in the 1947 list, and in the Phase 3 & 4 manuals, they are said to be blued.
- Spanners are 2.7" long, nickel plated but often black metallic in Phase 2. The hex openings are about 5½mm across at one end and 6½mm at the other. The Bradawl (below, left) is 4" long overall. Screwdrivers in sets are also the sheet steel type with cutout, nickel plated. There are 2 patterns (below) - one 4" long (bottom) and the other 3.2". There may also be another similar to the Bradawl. I haven't seen the type with the Bakelite handle.



- Brackets, DAS, and 2" Strips can be found with a dull grey metallic finish, sometimes with a yellow sheen. They have not been seen in sets - some have been with loose parts and some in Packets.
- 1*1 Angle Brackets have 2 round holes and are found painted dull red or nickel plated.
- 2" Ø red Balloon Wheels have been found in lots of LYNX parts several times but have never been seen in sets. Also among some LYNX parts were a number of thin, non-embossed Discs, painted a brightish red, and at 1½/16" Ø, larger than the normal 1".
- The date of the Price List of parts 1-50 in MCS/FB isn't known but because it includes the Gears it must have been after Phase 2. Probably it was much later because it contains the only known reference to the Geared Pulley Wheel, together with the Large Gear Wheel but not the Small one. The part in the List called a 3-Hole Angle Bracket is an unknown and this is the only reference to it. It ought to be a 3-hole version of what I've called the Angled Bell Crank, that is the 3-Hole Corner Bracket with the ends bent up. But that doesn't sound a very likely shape, so eyes open please for any part that fills the bill. Other points of interest are: no 12 or 24h Strips; no 11h A/G but the 21h, and a 7h not known otherwise; 3,5,7,21h Channel Girders and Girder Plates, but not the 9h ones in the Phase 5 set; no Flat Base Plate; the Rubber Pulley but no other rubber wheels; Edge- and Cornerlinx still listed; a Model Booklet at 6d., and a Repair Booklet at 2d.

And Notes on BILDICO and LONE STAR Some of the parts in these even smaller 1950s systems look similar to LYNX parts and it is sometimes suggested that they are related.

BILDICO The MCS pages include a manual cover that has within it a box with 'Made exclusively for Marks & Spencer' on one side of it, and on p7, a Jan. 1954 G&T ad by E.M.Napier Ltd. & Napro Products Ltd., 530-534 King-land Rd., Dalston, London, E.8, which lists Sets No.1-4, the No.4 'with Dynamo'. I suspect that the ad relates to a separate range of BILDICO sets which, though similar, had parts with larger holes, at least at one time. If that is so there may have been only one M&S outfit. I've never seen a complete set, only some parts thought to be the remains of one, and the cover of a manual that was with them, which was just like the one in MCS.

The parts were in a (lidless) box about 22" square, and not the rectangular shape shown on the manual's cover. Most of them look exactly like LYNX, and have the same dimensions, including the sizes of the holes in the different parts. They comprised green 21 & 11h Strips, a 5*7h Flanged Plate (definitely with slotted holes in the flanges), nickel 3 & 5h Strips, 1*1 & 2*2 Angle Brackets, Bell Cranks, a Spanner, and red 3 & 5h Girder Plates. The quantities are within the Contents given in MCS.

The odd men out were a solitary black Balloon Wheel of about 1¼" diameter, and 2 Pulleys very similar to the black LYNX type but 1.1" Ø instead of 1.0", and with a somewhat larger bore of 3.5mm.

Apart from Discs, the pieces seen include all the major types of part in the MCS M&S set.

E.M.Napier was a toy wholesaler and distributor and so it is quite possible that the BILDICO parts and sets, for M&S or not, were made by Lynx. Another LYNX connection is that the wording of most of the 'Builders Note' in the manual in MCS, presumably from the M&S set, is identical to that in the LYNX Phase 3/4 manuals, even though the models in MCS are not from known LYNX manuals. The dates given in MCS are '1953 to 1960s?', but I think that well before 1960 M&S were trying to project an image which wouldn't have included a rather second rate 'MECCANO' set.

Of the BILDICO outfits that weren't for M&S, I have been able to examine a No.1 set, still strung in its box, and there are many similarities to the large Phase 3 LYNX outfits. The parts look at a glance to be the same, and are in typical LYNX colours with green 11h Strips and 5*7 Flanged Plate, nickel shorter Strips, Brackets, Discs and Tools, red 3h Girder Plates, and black 1" Pulley. The box is the same size and colour, and the parts are strung onto a similar yellow card with similar red cord. Even more telling is the single sheet Model Leaflet - one side is exactly the same as p5 of the LYNX Phase 4 manual, which shows the No.1 models, except that "BILDICO" A SET OF PRECISION has been added at the top.

But there is one big difference, the holes in the Strip parts are 4.2mm Ø, appreciably larger than the 3.8mm of the equivalent LYNX parts. Those in the 5*7h Flanged Plate are only slightly bigger. I've also noted that all the holes said Plate are round whereas those in the flanges of the Lynx version are slotted, but perhaps I made a mistake. Other differences are that the 1½" Balloon Wheels are red instead of black, and the Hook is flat, about ¾" overall with a small hole for the cord - you can just see it in the lefthand packet in the set on p7 of MCS Part 5.

The 4½" Axles in the set are the standard LYNX 3.25mm Ø and so would really rattle around in the holes, and the bore of the Pulley boss is larger too at about 4mm.

With that Model Leaflet there must have been some con-

nection between LYNX and BILDICO, but why make the holes bigger? My only thought is that it was finally decided that it was better to have them compatible with MECCANO. I wonder whether the M&S set ever had the larger hole parts, and, more likely, whether the standard BILDICO sets ever had standard LYNX parts. It's probably not significant but there is a difference between the range of sets, 0 to 3, mentioned on the back of the No.1 Model Sheet and the 1-4 in the Napier ad. One firm connection between the No.1 set and the ad are the box lids, which both have a label nearly as big as the lid, and have the same dock scene except that the No.1 has the number of the outfit in a black blob under the crane's boom.

LONE STAR The 30 parts in the system are better made and better finished than LYNX or BILDICO. As with both types of BILDICO, LYNX part names are used for similar types of part, but although a few parts are almost identical, there are many that are not. Compared with LYNX, Strips, Plates, and Brackets are made of noticeably thinner steel. The parts are as follows (those asterisked are illustrated):

- Green 21,11,9h Strips (the 9h is .9mm thick), a 1*3*1 DAS, 21 & 11h A/Gs, and a 7*5h Flanged Plate, which is nearly the same size as the LYNX one but with round holes in its 4 flanges.

- Red 4 & 5h Strips, a Bell Crank and an Angled Bell Crank*, a 3h long Girder Bracket with all round holes*, 3h wide Perforated Plates, 3,5 & 7h long, and a Slotted Wheel, which is exactly like the LYNX part except that it is steel and the boss, aluminium like the LYNX, is 10.0mm Ø instead of 9.8mm. The Plates are .45mm thick; the Strips and Bell Cranks about .75mm, and slightly wider than 1/2", up to 13.0mm.

- Red, green, or grey metallic 1*1h Angle Brackets with round holes in both arms.

- Black rubber push-on Wheels, 1 3/4" Ø, with a heavy V tread, and CRESCENT ENGLAND moulded around the sides of the 'tyre'. A 1 1/2" aluminium Pulley with an 8.5mm Ø boss*, and a black rubber Tyre* to fit it, which I haven't seen. Also unseen are 4" & 1 1/2" Axles, a Crank Handle*, a Spring Clip, and a flat Hook* which looks very like the BILDICO one.

- The thread is 5BA and the N&B are nickel plated steel. The neat 5.5mm Ø RH Bolts are, like LYNX, 1/4, 1/2 & 1" long, and the Nuts are square and 6.2mm A/F, though hex are also shown in the manual. Bosses are double tapped. The Spandriver* is 70mm long.

- The ends of the red Strips and Brackets, and the corners of the Flanged Plate are fully radiused; the other parts are semi-radiused to varying degrees. The holes in the Flanged Plate and Slotted Wheel are similar in size to LYNX but those in other parts are much larger at 4.2mm. Axles are probably no greater in diameter than LYNX, and would therefore be very sloppy in the Strips. The bore of bosses is similar to LYNX.

There were 4 sets, 00-2, and the contents are given in MCS. The No.4 had about 50 N&B, 16 Strips, and 4 A/Gs, and the main parts are shown in 2 layers attached to cards, with those ear-shaped cutouts in the top one again.

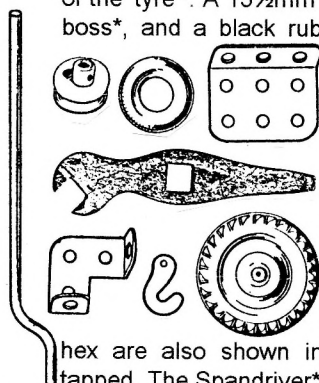
There aren't many models in the manual but they are reasonable for the size of the system, with a rather more mechanical flavour to them than most - one of the No.4 models fires match sticks, and another is an Aircraft on the end of a rotating arm which carries a bomb released by a trigger. It is shown here to give an idea, together with a 00 Crane showing the Wheel and Hook. None of the models

look like any from the Lynx manuals. The label on the set lids and the manual cover are similar with the main feature a large Bridge. All the Strips in its framework are shown green and the Flanged Plates red.

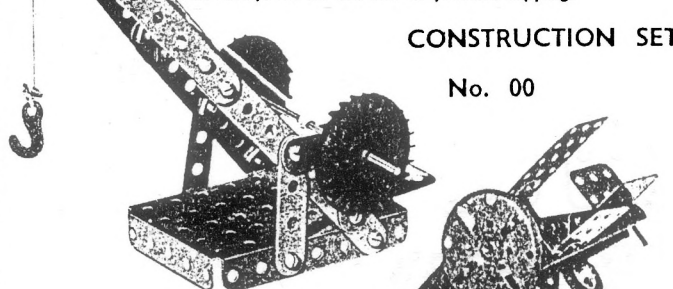
The manufacturer's initials D.C.M.T. in MCS stand for Die Casting Machine Tools Ltd., of 152 Green Lanes, Palmers Green, London. In the Oct. 1955 G&T it was announced that a new factory at Hatfield had been opened to allow increased production of Lone Star Products, and among the toys shown was a No.2 LONE STAR Set.

MANUAL SUMMARY •Name: THE LONE STAR CONSTRUCTION Kit •Details of maker: A D.C.M.T. Product. •Dates &/or Ref Nos: none

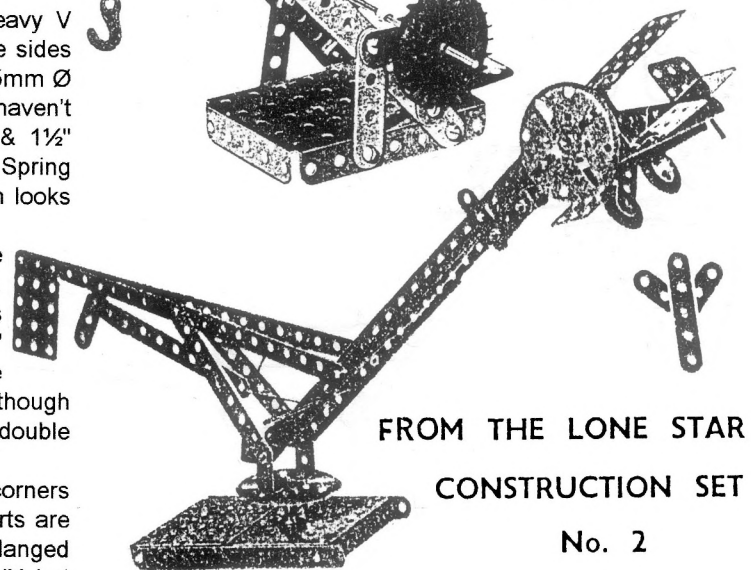
•Page size: 201*131mm deep. •No. of pages: 12 inc covers, not numbered. •Language: English. •Printing: photos of models; coloured cover, red/green on blue/yellow ground. •Page No. of Parts List & highest PN: 16,30. •Page Nos. of Set Contents & highest PN: 3+16,30. •Sets covered: 00,0,1,2. •No. of models for each set: 6,6,4,4. •Name, Page No. of first & last model of each set [no Models Nos.]: 00: WORKING SIGNAL,4; DELIVERY MOTOR SCOOTER,5. 0: GARAGE TURNTABLE HOIST,6; OLD CROCK CAR,7. 1: CRANK OPERATED TRIP HAMMER,8; ELEVATING CAR RAMP,9. 2: TRACTOR EXCAVATOR,10; GIANT MOBILE CRANE,11. •Other notes: none.



CRANE FROM THE LONE STAR
When making the Mobile Crane, tie the cord firmly around the 4" rod using a slip knot and pulling it tight. Use more cord than you require so that a few extra turns will always be on the rod to prevent slipping.



CONSTRUCTION SET
No. 00



FROM THE LONE STAR
CONSTRUCTION SET
No. 2

REMOTE CONTROL DIVE BOMBER

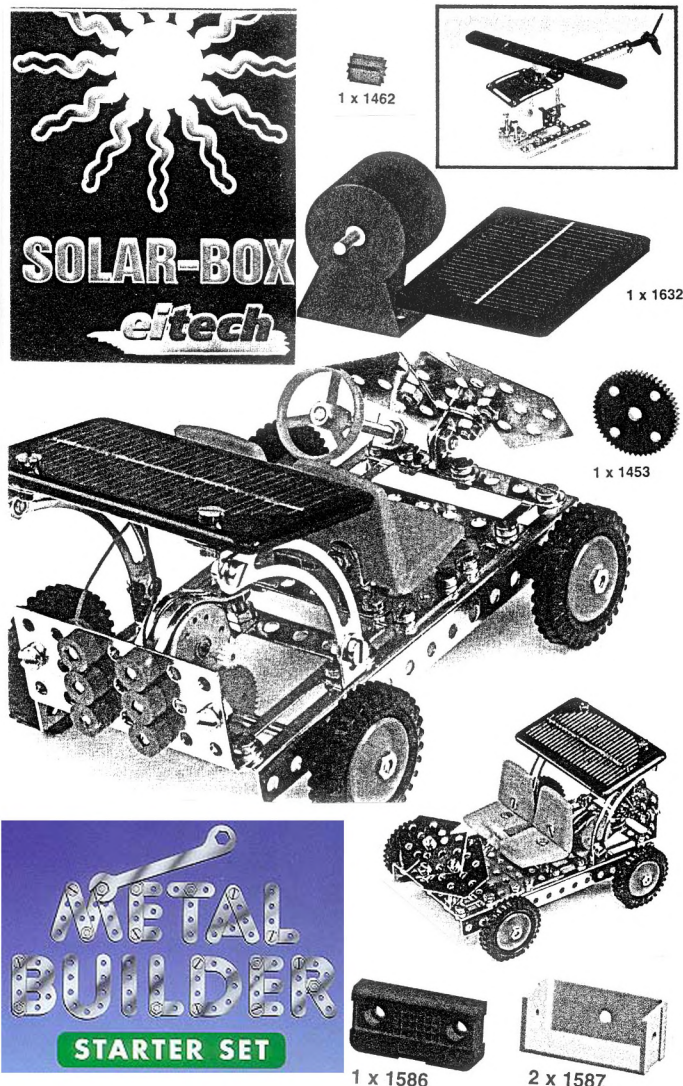
The base of this model is constructed separately and is made by bolting two 11-hole strips across the edges of the base plate. The 1 1/2" rod is held in an upright position by the two V pulleys fixed each side of the plate. The arm and trigger mechanism pivots from a slotted wheel on two 5-hole angle brackets. The releasing mechanism consists of a bolt constructed from a 5-hole angle strip and two 2-hole brackets. The 4" rod passes through this and through the Plane. The cord is attached to the rod with a spring clip. This bolt also passes through the small bomb constructed of two 5-hole strips and a 5-hole angle strip. The plane can take off and land by manipulation of the trigger arm and when the trigger is pressed the bolt releases the bomb.

THANKS As well as David Hobson, my thanks to Frank Beadle, Don Blakeborough, Richard Gilbert, Chris Goodwin, Malcolm Hanson, Jim Holmes, Geoff Wright, and Valerie Young for providing the details used in this article.

Eitech Update

CONSTRUCTION David Hobson kindly sent details of some sets that he found available at Snooks toy shop in Bath last year. Of those already known, there were several of the range of Start-Boxes (see 11/293, 13/343) at £6.99 each, and also Sets 13, 15 & 16 of the series reported from Canada in 14/383. These cost £21.95, £54.95 & £34.95 respectively. The full range of these outfits was shown on the outside of the boxes and all through No.16 appeared to be the ones in OSN 14. But the model for No.17 was a Motorcycle & Sidecar, not among the 3 featured in the Canadian leaflet. In addition there was a No.18, an Articulated Lorry with special body parts and a control box.

Also new were **SOLAR-BOXES**, of which No.71, Helicopter, and No.72, Buggy, were in stock at £24.99 each. Two more, No.73, Windmill, and 74, Monoplane, are shown on the back of the packs. David wrote, "I was tempted into buying the Buggy outfit, which contains about 72 pieces plus 98 N/B. The Instruction Sheet has clear diagrams of the parts and how they are assembled, but with no written instructions or guidance [except a note in German that adult help may be needed]. The Solar Panel measures 95*52*4mm thick and seems to consist of two cells in series, encapsulated in black plastic. The voltage across the leads is about 1v with sufficient current to operate the motor when placed about 30cm from a 60w lamp, or under a slightly overcast sky - but a sunny sky, or the lamp nearer, is needed to actually drive the Buggy. The motor, about 24mm diameter by 12mm long, is marked 'Made in China' and a push-on plastic Pinion (#1462) fits on the small diameter drive shaft. This drives a special plastic Gear of about 25mm diameter (#1453) which is a push-fit on the normal diameter back axle. The Gears are much finer-toothed (Mod .5) than standard. The motor seems to be of



the ring-field type, no doubt to make the best of the the small 1v supply from the Solar Panel.

The Motor is shown clamped between 2 semi-circular brackets which have to be formed by bending Slotted Strips. Their ends are held by Nuts on long Bolts which are spaced to give the proper mesh between the Gear and Pinion. However, in view of the limited power available, I preferred to clamp the Motor in a cage made from (extra) Strips and Threaded Rods, which was mounted directly on the back axle. The mesh of the Gears could be carefully adjusted before the 'drive unit' was placed in the model, and the whole arrangement has worked well.

Märklin marketed a 215 piece Solar Construction Set #1008 in 1990/91 (OSN 2/16), and a Solar add-on Set #1060 in 1994 (11/297). The former had sufficient parts to make 5 models, including a small Buggy, similar to the CONSTRUCTION model, but the drive was by standard Chain and Sprocket. The Motor was a 'special (1.5v)' and the illustration shows it to be of a relatively small diameter compared with the one in the CONSTRUCTION Set."

Apart from the Gears already mentioned, the only new part is an Axle with Threaded Ends, No.1363: it is 120mm long like an existing part but with 20mm of thread at each end instead of 12mm. Also the Nuts are thicker, over 3mm against the usual 2mm. All the plastic parts including the Seats are red, and the Rubber Collars are blue instead of the normal black.

The other models are shown on the back of the Buggy box; they too are simple and probably not quite as attractive looking. The Monoplane has the same Cell as the Buggy bolted on top of the centre of the (parasol) wing, but the Motor is housed in a blue plastic casing with the Propeller (the Tail Rotor from the old Helicopter Set by the look of it) pushed onto its output shaft. (In fact this Motor, #1632 opposite, is shown in the Illustrated Parts of the Buggy Leaflet.) The Motor can't be seen in the Windmill but the same Cell is used. The Helicopter (top right) has a special 2-bladed black plastic Rotor, 25cm or so long with a rather unrealistically thick chord, and a cell is moulded into each blade. What appears to be the Motor is in a yellow rectangular casing and the drive to the Rotor isn't clear; nor is the means of taking the current from the cells to the Motor.

I notice that my (1994) Maplin catalogue lists various solar cells including one that gives 400mA at .9v, and the £4.95 price includes a small motor. The cell's size is 95*65*12mm but as far as I can see no means of mounting it is provided.

METAL BUILDER In the Spring of last year The Early Learning Centre added 2 new, smaller sets to the one described in 12/329, and again they are more or less repackaged CONSTRUCTION sets. The smallest, price £6.99, is called STARTER SET and has 151 parts, enough to make 2 of the Start-Box models, Nos.81 & 93 (see 13/343), one at a time. The presentation is good with inside the predominantly yellow outer box, a blue moulded plastic tray to take the parts, fitted with a clear cover. There is a separate colour Leaflet for each model, reasonably clear, and with the warning that 'Adult assistance may be required'. PNs are the standard CONSTRUCTION ones and while most of the parts have been used in other sets, there are a few I haven't met before. The new plastic ones (1586, 1587) are shown opposite, and there's a 45mm Axle, 1354, and a 12mm Bolt, 1505. Also although the PN (1305) remains the same, the Wheel, previously used in the C12 Helicopter Set (see 3/35), now has a much larger bore to take a push-fit white plastic Hub (#1307), which in turn pushes onto the Axle. Other plastic parts are yellow, except for the red 1586 Radiator unit. The Rubber Collars are again blue, and the Nuts are their normal thickness.

I've only seen the outside of the middle size Set (£9.99), but it looks as if it is the No.11 described in 14/383. The number of parts is the same, as are the 5 models shown on

the box, except for a minor change to one of them.

POSTSCRIPT The Early Learning Centre catalogue last Xmas didn't include any METAL BUILDER sets, and while some of their shops had piles of them, others had none.

CONSTRUCTOR This is the name used for a range of 5 sets, 01 to 05, which were (are?) being sold in association with the American magazine Popular Mechanics. Richard Symonds kindly sent photos of a promotional sheet, and the box lid and some of the pages of the Model Leaflet from the 03 outfit. The ad shows the trays from all 5 sets and is headed rather ambiguously 'Popular Mechanics // Supplementary Modules of the CONSTRUCTOR Series 01-05'.

As shown the parts are housed in light blue formed plastic trays, one in Sets 01,02,04, and 2 in 03 & 05; metal parts are the usual nickel plate, while plastic ones are generally red, with a few black, including the Tyres, some or all of which may be rubber.

Set 01 is labelled 'Dune Buggy and Other Models', and the featured model is a simple 3-wheel, open framework, single-seat 'Buggy'. The set looks to be the same as the No.11 outfit described briefly in 14/383. Rubber Collars are blue and the 3-bladed Propeller black.

The 02 seems to be the 02 listed in 11/293, and is labelled 'Helicopter and Other Models'. Blue Windmill Sails are used as the rotor blades of the simple Helicopter shown.

03 is the No.06 of OSN 11, with the same number of parts. The label on the ad is 'All Terrain Vehicle and Other Models', but that name isn't on the box lid (below). The 5 models on the lid are all variations on a theme and 2 of



them are similar, though not identical, to the two C10 models shown in 3/36. The Seats, Mudguards, Front Bars, Fender, & Steering Wheel, are black. The front of the Leaflet shows one of the models with CONSTRUCTOR 03 at the top and 'Manor' underneath -

the (unusual) name of the model perhaps. There's no mention of Popular Mechanics but it heads a panel on an inner page. Apart from the main plastic parts being red instead of beige, the Illustrated Parts page look virtually identical to the one in a C10 Leaflet.

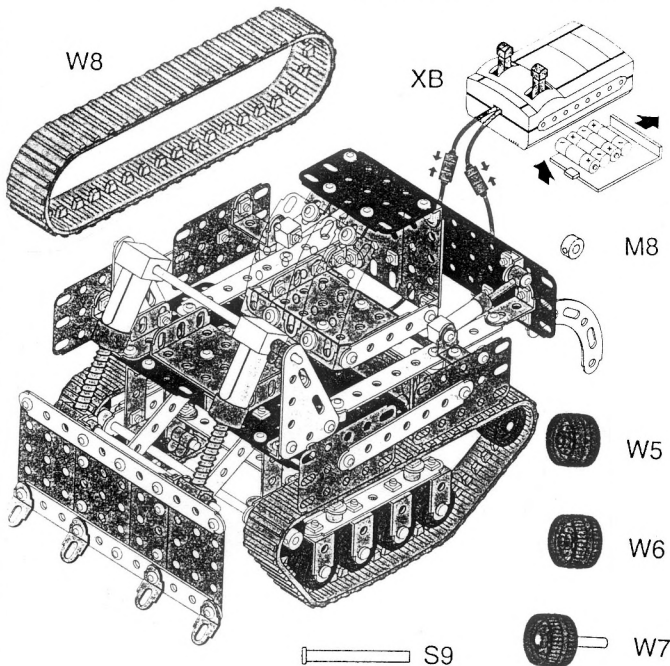
Set 04 is probably the 04 described in OSN 13/342, and its label reads 'Electric Motor Kit and Other Models' The Trip Hammer shown in OSN 13 is the featured model and alongside it is the Battery Box, which has one side perforated with a rectangle of 6*5 holes. In fact so did the one in the 04 described in OSN 13, but in C04 it had only 2 rows of 3 holes spaced 3cm apart. The plastic motor housing is black - earlier it was yellow.

Set 05 is labelled 'Motorcycle with Sidecar and Other Models', and the model shown is the 03 one in OSN 13. Not all the parts in 03 can be seen in the 05 picture but some may be hidden below others. Be that as it may, a major difference is that a Motor and Battery Box are included in the American outfit. The Battery Box is the one described above but the motor is the yellow cased Geared Motor which was packed in the C40 set, see 6/133, and as far as I know hasn't been included in any other outfit. It's also possible that both sizes of black plastic Bevel Gears are in the CONSTRUCTOR 05 set.

The panel in the 03 Leaflet mentioned above also contains 'Manufactured by Eitech // Printed in Germany // © 1993 Ace Novelty Co. Inc.' Ace are also named as the distributors and their address is given as Bellevue, WA 98005.

MEK-TRAX new from ARTIN Artin of course are the makers of MEK-STRUCT outfits, and now they are selling sets which feature tracked models fitted with 2 of the GB motor/gearboxes, under this new name. 2 have been reported so far, the #388 (at \$30) from Richard Symonds in Canada, and the #550 from Josep Bernal in Spain. Both contain a dozen or so more parts than the Set No. indicates, and most of them are standard MEK-STRUCT parts in the usual yellow, orange and blue colours.

Starting with the 550, the new parts are all associated with the tracks, and most are shown below. A new Battery Pack, XB, takes 4 AA cells, apparently in series, and has a fwd/stop/rev switch for each Motor. Each gearbox output shaft drives a Track Wheel W7, complete with axle, directly through the usual Coupling. The Side Wheels W5 and the Idlers W6 look similar except that W5 appears to be smooth with no crosswise tread. They run free on Pins S9, while the W6 are loose on a new 154mm Axle, S8, with out-side, the new Collars M8.



The manual is the new smaller size and contains only 2 models, a Digger in which the bucket on a multi-link arm can be moved by hand, and a Bulldozer (above) with a blade that can rotate and extend, again by hand. They're not large models, perhaps 10" long, but they look the part and might be quite fun to play with. Its interesting to compare the concept with the more 'mechanical' METALLICO model in 15/411.

The #388 set is Item No.3401, and as well as the new parts in the #550, there's another Axle, S7, 141mm in length. The 2 models shown on the colourful lid of the #388 are a Digger and a (tracked) Crane. They are probably identical mechanically to the #550 models and the Digger's arm and bucket are also similar. The main general difference is that their superstructures and adornments are simpler, with the cab only 3 holes wide for instance.

SMALL ADS

- **OS EXCHANGE.** I would like to contact other collectors who would be willing to trade OS sets on a regular basis. Illustrated swap list for 3 IRCs. Sven-Ulrich Glage, Schenkendorfstr. 5, 22085 Hamburg, Germany.
- **DATABASE** listing over 470 building toys, non-metal constructional systems, & special parts outfits. Prepared with a view to starting a Newsletter covering the above. UK/Europe £2; elsewhere £3 or \$5 US. David Hobson, 'Woodington', Edford Green, Holcombe, Bath, BA3 5DB, England. Tel: 01761 232741.
- **MCS DATABASE.** A new edition will be ready in a month or so. It is similar to the previous one in scope & layout (see 10/249), but now contains all the systems currently known to the Editor. Price £5.10/£5.50/£6 for UK/Europe or surface anywhere/elsewhere by air.

A MISCELLANY of SYSTEMS In OSN 15 I included some notes on various German systems, mostly based on information from Jeannot Buteux/*CONSTRUCTORAMA*, and now more from the same sources on various non-German systems. As before I'll also use material from *EISENZEIT* and other sources where appropriate.

ASSEMBLO This, as explained in 15/420, is the French original of the DINKY BUILDER type systems. A 1955 Price List shows 7 basic sets, 0-5 and LUXE, with the latter costing over twice as much as the No.5. There are also Sets A and B containing Wheels, and conversion sets 0 bis to 5 bis. The 5 bis cost only about a third of the difference in price between the No.5 and the LUXE, so most of the extra price of the LUXE probably went into better packaging.

Spare parts are also listed as follows: • Plates 1-27, but not the Nos. 28-40 that are shown in MCS. No.28 is a large rectangle and the others are the ones with tabs on both sides (see 15/420). • All the Rods shown in MCS including the 4 Angled Rods, H-L. • Of the Wheels in MCS the Pulley is listed, and one Flanged Wheel but its size isn't indicated, also the Wheel with Tyre, No.204, and the Axle Stops.

Fewer sets are shown in the 1955 List on p7 of MCS, but that was the range stocked by a particular shop.

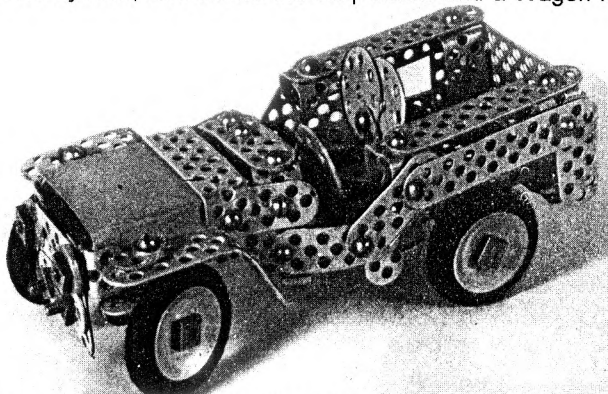
Since OSN 15 David Hobson has sent details of another, later ASSEMBLO patent. Its Convention Date is March, 1932 and it's in the name of P.L.Montchanin of 5 Rue Baudin, Rueil, Seine-et-Oise; the French and UK numbers are 752439 and 408801. The claim was that the tabs would be formed to allow the Rod to be a sliding fit in them, except that one tab on each edge would be partly divided, as below, and the shorter part closed up to grip the Rod.

This made it much easier to insert the Rods. I haven't any ASSEMBLO parts to hand but I suppose they incorporate this feature. STANLO do, but not all DINKY BUILDER parts. Those in a 1953 set do, but I'm told that earlier postwar ones don't - I haven't checked any prewar ones.

David also pointed out that the idea of plates edged with interlocking socket tabs that could be pinned together wasn't new, but was included in 2 earlier patents. No.140329 of 1919 (Edwards & Barker) used elements such as that below, for toy structures and making buckets and moulds for sand; No.166789 (Pierce, 1920) was also for sand moulds, and various shapes were to be made from formed or folded cardboard with just the outside edges pinned together, though how the sockets were to be made isn't clear.



BOY A leaflet introduces Rubber Tyres in a Box H for this Dutch system, and shows the Jeep below and a Wagon for

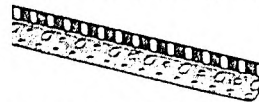


0-gauge track. Except for the Wheels on the Jeep, and the larger than usual square Nuts, the parts look like TRIX, though there is no positive indication of size. The boxes needed for the Jeep are 3 of No.1, 2 of No.1A, and 2 of H. There's no indication of date but at a guess the Leaflet might be from the early 1950s.

CONSTRUC The name of this French system was regis-

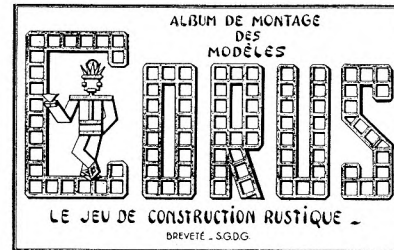
tered in 1948. The illustrations on a manual cover shows the Crane opposite and a boy working on the chassis of a 6-wheel Lorry. The structural parts - Strips and perhaps Angles and other sections - don't appear to have holes in them, and seem to be held together by push-on Clips.

CONSTRUCTOR There is much to be said about the different phases of this French system and I hope to return to it in a future Issue when I have more details. One part that's shown in MCS but I hadn't noticed until I saw it in an illustration from Jeannot, is the



1*2h section A/G (below), with all the holes in the shorter flange and every other hole of the inner row of the other one, slotted. MCS lists both these Girders and a flat Plate version, each 7,11 & 31 holes long. So with the hole pitch of 11mm, the length of the longest would be nearly 13½".

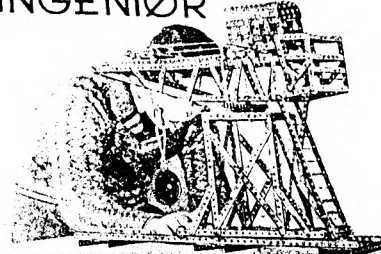
CORUS Another French system, this one patented in 1924. All that's available is the cover of the manual shown opposite. If the figure, or the letters of the name, are made from actual parts, how are they joined? And what are they made of? The word rustique may mean robust in this context.



D.V.s INGENIØR This Danish system was mentioned in 13/360 and again all I have on it is the manual cover. Under the name (opposite) is Nr.7200, and apart from that there's a smart looking boy in a collar and tie, holding 2 Strips that are joined together by a N&B, which also holds what may be an Angle Bracket.

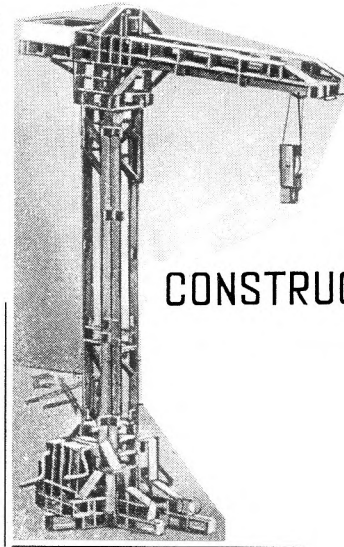


DEN DANSKE INGENIØR Another Danish system which was mentioned in 10/266 as being prewar. A copy of the box lid from a No.1 set shows the medium sized Crane opposite, made from Strips, A/Gs, and a few Perforated Plates, including some that look 5*11h size, flanged on the long sides. The load on the Hook appears to be a Pulley of perhaps 6h diameter fitted with a MÄRKLIN-style Gear Ring.

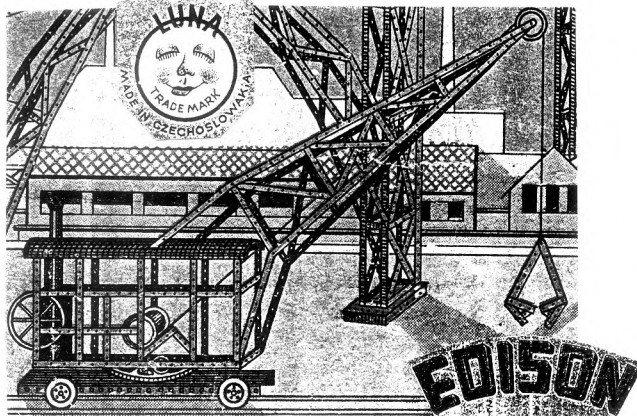


EDISON A box lid of this Czech system shows a boy looking at the Grab on the next page, with a large High-Level Railway Bridge in the background, and a girl with a Swing containing a doll. In one corner is a shop window with sets and other models in it, and children and a young woman looking in. Her dress looks to me to date from the late 1920s or thereabouts.

As far as can be seen most of the parts in the models, Strips, A/Gs, and Flanged Plates, look like the ones shown in MCS, but a few don't. For instance the 8-spoke Wheel in



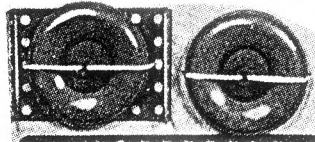
CONSTRUC



the Grab, and the large Gear Wheel under its chassis. Quite a few of the parts in MCS look similar to MÄRKLIN, and included in the Set Contents, though not illustrated, are a 95mm Pulley(?) Wheel and a matching Gear Ring, but the Gear in the Grab looks bigger than that. The hole spacing isn't given in MCS but from the dimensions of the parts in the Set Contents it must be 1/2" or very near it.

The 'moon' trade mark shown in MCS, with LUNA at the top, appears on the lid, and above the shop window is EDISON and UNIKUM.

EFEL A Leaflet shows the largest set, the No.7, made in the 1960s Martinaud phase. It weighs 3.28kg and the 503 parts are strung on 2 cards, in a box which measures 51*37*5.5cm. Several parts can be seen that weren't in the



No.5 illustrated in 5/90, notably 45h Strips and A/Gs, and what look like pressed balloon type Road Wheels (opposite), which scale at about 55mm Ø. There's also a long length, perhaps

90cm, of (plastic?) strip or something similar, which is coiled up with the ends held together by a N&B.

The other thing is that at the top of the Leaflet is 'Société Lyonnaise d'Etude, Fabrication, Exploitation, Lancements'. So the initial letters of the last 4 words explain EFEL. Was this organisation the manufacturer at the time? There's no mention of Martinaud who could I suppose have been the maker at a different period, or a wholesaler for EFEL, who also, from the order form shown in MCS, made toys as well.

ERECTOR A manual cover in French from 1920 (Code 292-5M-8-20) is similar to the U.S. cover of the time with a Bridge and 3 'undersize' boys, one of them sitting on the centre of the span. The wording is also similar but the references to Parts 2 & 3 have not been included, nor any prices. The New Haven and London (125 High Holborn) addresses are given. Another change is that models are said to be included for Sets 1-7, against 1-6 for the 1919 U.S. and UK editions I've seen. Also although most of the changes have been neatly made, the Sets covered and the French versions of the slogans look as if they have been typed in as an afterthought, and they are not quite in line with the other text.

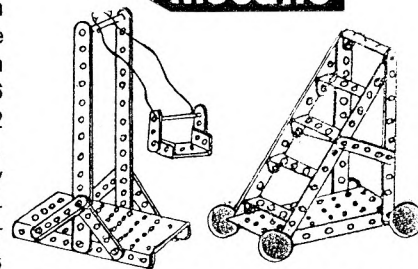
INGÉNIO The illustration on the manual cover of this 1920s French system is shown on the front of this Issue. Apart from that I have a copy of the Set No.10 model of a House, which is very similar to the one on the cover, and I'll include it in the MCS pages. As can be seen the main parts appear to be Strips, some short Flat Girders, possibly some A/Gs, and the Plate Girder with the 3 large holes in it - in the No.10 model it is shown with rows of 3 holes across its width, at each end and between the large holes. There are also presumably Panels which form the walls and roof of the House, unless they were to be devised by the model builder.

There was another French INGÉNIO system in the late 1940s but I don't have any details of it.

OSN 16

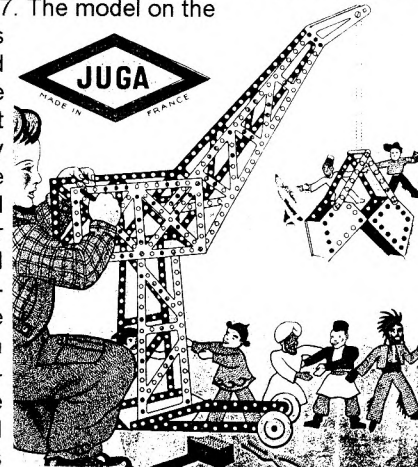
JOC MECANO

This was a small Rumanian system from around the 1970s. A page from a manual shows 16 simple models, and 2 are shown opposite. All are rather roughly drawn and this perhaps accounts for the lengths of Strips shown, with 3,5,6,8,9,11 & 13 holes, and Flanged Plates with, as examples, 3*7, 4*12 & 5*9 holes. Also shown are 1*3*1 & 1*5*1 DAS, Angle Brackets, and what looks like a small Flanged Plate used as the seat of the Swing.



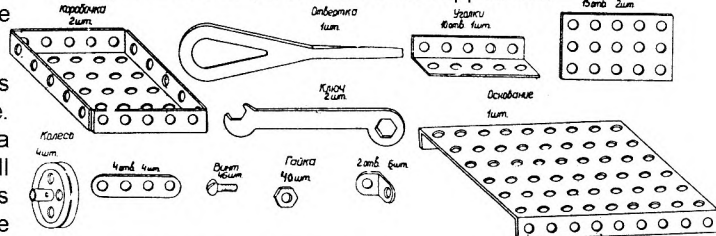
JUGA The name of this rather unusual French system was registered in 1947. The model on the

manual cover is shown opposite and the sides seem to be made from 3 different Braced Frames. They are spaced at the bottom by a Flanged Plate, but it isn't clear how they are held apart higher up. Notice the Strips in the undercarriage with their 2 rows of staggered holes. On the ground by the model are a pair of pliers and a large mallet. In the original, other models can just be seen as silhouettes in the background and include a Multi-Jib Crane, a Digger, and an Industrial Elevator.



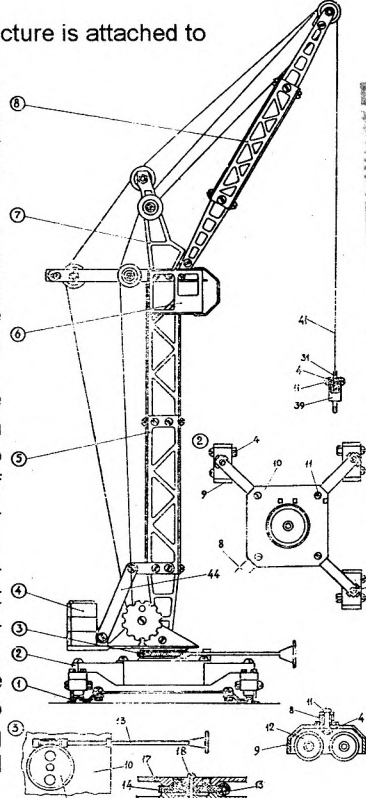
KONSTRUKTOR-III The sheet I have on this Russian system shows the parts in just one set, and all of them except the Spanner are as shown for KONSTUKTOR [3] in MCS. But there are only 22 different parts instead of 48, and generally less of those that there are, compared with the 2 sets shown for KON [3]. There may well be some connection between the two systems although the names of a few of the parts are different and KON-III parts don't have PNs. It's just a coincidence that one is labelled [3] and the other ends in '-III' - in fact the latter may be a badly printed character which would transliterate as 'sh'.

Typical parts are shown below. Others are Strips with 3,5,7,8,10 & 14h; a 1*5*1 DAS; an Axle; a Threaded Rod; a Collar; and Hank of Cord. All holes are round. In all the Set contains 33 Strips, 4 Pulleys, 5 Plates, 6 Angle Brackets, and about 40 N&B. KON [3] parts are said to be aluminium in colour, or zinc plated, with 4.3mm holes spaced at 10mm; N&B are M4, but bosses are tapped M3.



KONSTRUKTOR-MEKHNIK Another Russian system from around 1980. I say system though the model I have (on the next page) uses many specialised parts and I'm not clear whether other models can be built. The ringed numbers refer to detailed sketches which give a good idea of the construction. There are 2 Flanged Wheels at the end of each of the 4 arms coming out of the central base, and the whole Crane runs on rails. A Worm drive controls the

slewing, and the super-structure is attached to the base by a long central Bolt. The sides of the jib and vertical pillar are probably spaced by other Braced Girders, joined by DAS and Double Brackets. Winding Drums are provided for both the luffing and hoisting cords, and the winding handles are attached to outer cheeks that look like sprockets. Each Drum seems to be pushed outward by a Spring on its axle, no doubt to engage a lock of some sort. In all 44 different parts can be seen. There's no definite indication of size but I think it says that the working radius is from .3 to .8m, (and that 1.5kg can be lifted at .7m). If so the jib might be some 2ft long and the vertical Braced Girders about 3" wide.



LEONARDO This postwar Italian system was mentioned in 15/426 and a leaflet showing the largest of the 5 sets provides a few more details. The outfits were designated Alpha, Beta, Gamma, Delta, and Epsilon, and the latter is shown in a large wooden box with handles at the ends. The top opens with fitted trays inside and other trays slide into one of the ends. Not many parts can be seen clearly but they include 6-spoke Wheels with bosses; an 11*5h Flanged Plate with the old MECCANO-style saw slots; a Disc of about 5½" Ø with holes on 16 equispaced radii; a larger Flanged Disc or Ring of perhaps 7½" o.d.; 3" Ø M19b Pulleys and similar sized MÄRKLIN-pattern ones; and a Flanged Ring of about the same size.

Two quite nice looking Cranes are shown but the illustrations are too small to see any details. LEONARDO was made by a company called GEMMA of Via Borgazzi 4, Monza.

L'INGÉNIEUR FRANÇAIS The two sets, the linking set, and the parts in this system (LIF), are the same as those for BRITISH MODEL BUILDER (BMB), and MECCANO X (MCX), both British and French, and they all came on the market in late 1932. There were differences in the colours of the parts but I haven't reliable information on that, and the packaging varied too.

Each had two separate Model Leaflets, one for Set 1 and one for Set 2. The cover of the 4 page 1932 LIF Model Leaflet is shown opposite, and the BMB one of that year is identical, apart from the language, and some small details.



The models are exactly the same with the same Model Nos., prefixed by B1 or B2 for Set 1 and Set 2 models. The French MCX Leaflets of the period are probably similar but the Leaflet with an X1A conversion set which dates from 1943, has a different cover. The 1932 UK MCX Leaflets are again very similar but on the cover the Derrick is replaced by an Excavator, and the models have an X preface instead of B. It is almost certain that the models in both the UK and

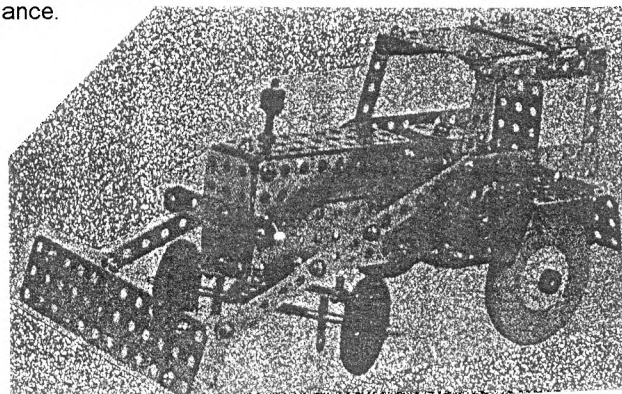
French 1932 MCX Leaflets are the same, and identical to the LIC/BMB ones.



Jeannot sent a photo (above) of 3 French sets. The first, on the left, is a 1932 'X' and the label on the lid has a boy and a large Railway Breakdown Crane. The set number is X1^S but I don't know what the small S signifies - I wondered if it meant supplémentaire, indicating a conversion set, but the contents correspond to an X1, and a French lists of the period shows an X1A conversion outfit. The second, top right, is a LIF 1A set of the same year, with what looks like a brightly coloured box and the Derrick on the front. The third is the 1943 X1A, and if it isn't clear the label has MECCANO along the top, with the Breakdown Crane and a (different) boy under it, above the wide diagonal stripe with 8 'X' models on it. The Leaflet with the unusual cover is under the box.

I don't have any positive end dates for any of the four but it's been said that MCX wasn't sold in the UK after 1936, or from another source, 1938; and I've never heard of MCX being available in France after WW2.

MALY KONSTRUKTOR This was (is?) a Polish system known from around 1985. There seems to have been only one set, and it was quite straight forward with Strips, A/Gs, and Flat Perforated Plates as the main parts. The illustrations I have of 2 models on what may be the cover of a manual are not very clear, but some of the parts may be visible in the one below. Generally they are probably simple mechanically but perhaps a little above average in appearance.

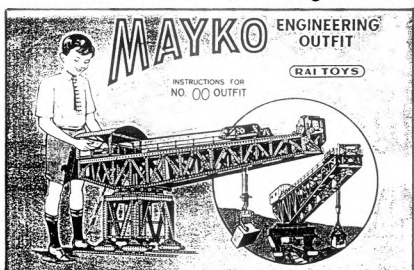


A set is shown in EZ (Pl.80) and it is probable that the holes are about 4mm at 10mm pitch. Several of the parts such as a slotted Curved Strip and a 50mm Disc, look just like CONSTRUCTION, but the A/Gs have the normal MECCANO arrangement of holes and slots in the flanges, and the corners of the Plates are rounded. The Perforated Plates that can be seen are 3h wide and 6,9 & 12h long. There's also a 6*6h Plate with holes only around the edges, and perhaps a similar one but up to 12h long. All the metal parts appear bright, and are probably plated. In plastic are 4 black Wheels which scale at about 60mm Ø, 4 yellow Wheels of about half that size, and some red parts including possibly some 2*2h Corner Brackets. The larger Wheels

on the Tractor give the impression of having a different shape of tyre to the ones in the Set.

MEPAR is highlighted on the cover and may be the name of the maker; under it is an address, UI Sobieskiego 54, 42-201 Czestochowa.

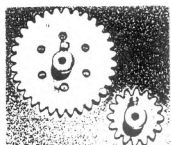
MAYKO This was an Indian system made by Rai Toys and the manual cover for the 00 set (below) is very similar to the one used by Meccano in 1934-36 & 1945-47. The only real difference is that the boy standing at the back of the Giant Block-Setting Crane has no jumper and a different



face & hair style. Probably MAYKO was one of the systems that appeared in the mid-1950s when MECCANO was no longer available in India. A set label shows the Floating Crane which was a No.2 MECCANO manual model from 1937 to 1961.

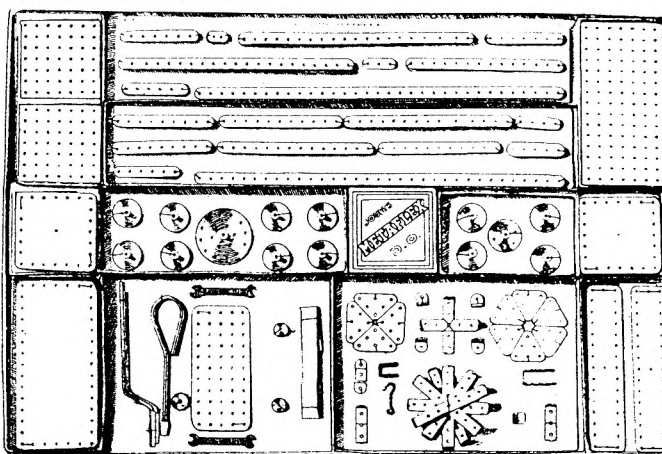
MECCANICO Sets sold under this name were made by Roberto Braglia and the front cover of a No.3 manual shows a model containing characteristic BRAL parts, with alongside other BRAL parts including the Gears opposite, (BRAL parts 93 & 93a).

Meccanico



As shown in MCS, BRAL sets and manuals were also called IL CONSTRUTTORE MECCANICO, and another name used was IL CONSTRUTTORE BRAL. The Gears shown were introduced at some time after WW2 and before 1970, probably well before, and a boy is shown on the manual wearing a baseball hat.

MÉTAFLEX A French system from the 1950s with unpainted aluminium parts, made by a company called "D.O.". There were 4 sets plus conversion outfits, and the No.1 is shown below.



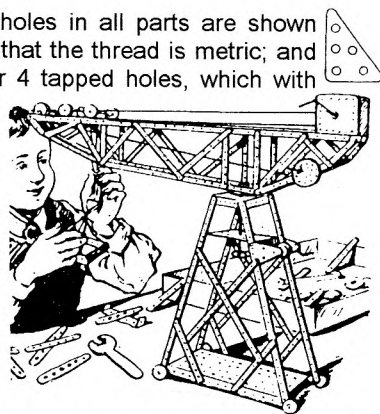
The hole spacing is 10mm and the hole diameter looks to be about 3mm. Most of the 46 parts can be identified in the Set with the notes below as a guide.

- At the top are Strips with 2,3,4,5,6,7,9,11,14,21, & 33h. Also listed is a 15h. At the sides are 7*7 & 7*15h Flanged Plates, each with 2 flanges, on the 7 & 15h sides respectively.
- In the centre bay: 7*7h Flexible Plates; Pulley & Flanged Wheels which scale at about 22mm Ø; a 6h Bush Wheel, and one of about 50mm Ø with rings of 6 & 12 holes.
- At the bottom: 7*15, 5*11 & 3*15h Flex Plates; Screw-driver, Spanners, & Crank Handles with the handles sleeved; small Pulleys with & without boss; DAS 3,5,7h wide with 1h lugs; Angle Brackets, and Double Brackets 1,2, & 3h deep; a Double Bent Strip and a Wire Hook; 3*3h Corner Brackets and Triangular Plates.

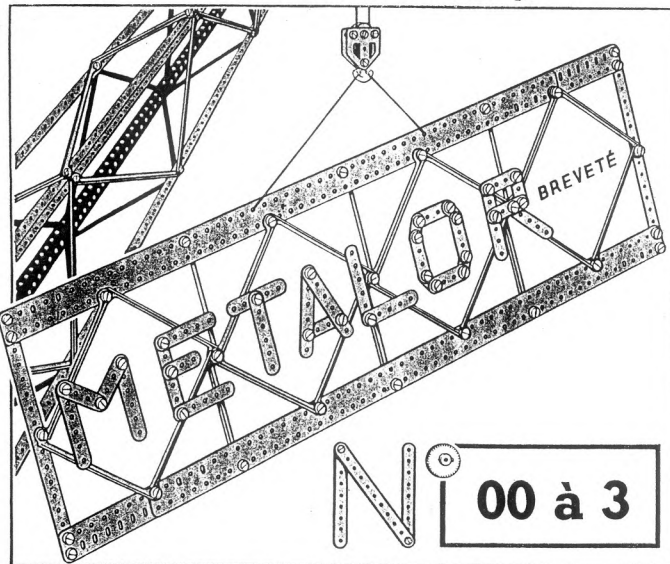
An Illustrated Parts List also shows 4 Axles, 30,40,50 & 95mm long; a hex Nut, a Bolt with a thin cheesehead, a Grub Screw; a Collar and the different pattern Corner

Bracket (opposite). All holes in all parts are shown round. An ad mentions 'that the thread is metric; and that the Collar has 2 or 4 tapped holes, which with the Threaded Rods included in the Sets, allow articulated joints and linkages.'

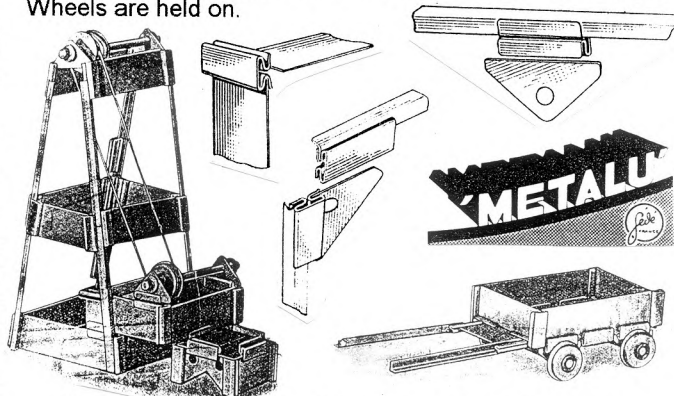
No indication of set contents is available but the No.1 looks to have a good selection of parts. The Crane opposite is shown in the ad.



MÉTALOR There are photocopies of a few parts from this 1950s Belgian system in MCS, and the hole pitch and diameter are given as 12.0 & 3.5mm. The odd thing is the flanges with slotted holes in the 3 A/Gs shown - a 5h A/G has every other hole slotted, an 11h one has all slotted holes, and a 15h has only holes 1,3 & 5 slotted. The other parts shown are 5 & 11h Strips, and a hex Nut and cheese-headed Bolt. Part of a manual cover for Sets 00-3 is shown below & a few parts can be seen on it: a Gear, Flat Trunnion, and Double Hook; Strips with 2,3,4,5,6,9,11 & 17 (or 15) holes; Flat Girders with all the holes in one row slotted, and 50h long ones with only holes 1,3 & 5 so shown; and the bracing Stays which look as if they are a very narrow angle with eyes formed at the ends of one flange.



MÉTALU There is only a small ad in MCS and the name is spelt wrongly, see 15/427. Now more details are available from several pages of a manual. Models are made from unperforated Plates and narrow A/Gs, which are joined by pushing them into 'K' section Clips. The diagrams and model below explain all. Axles run in Flat Trunnions pushed into the Clips, but it isn't clear how the Flanged Wheels are held on.



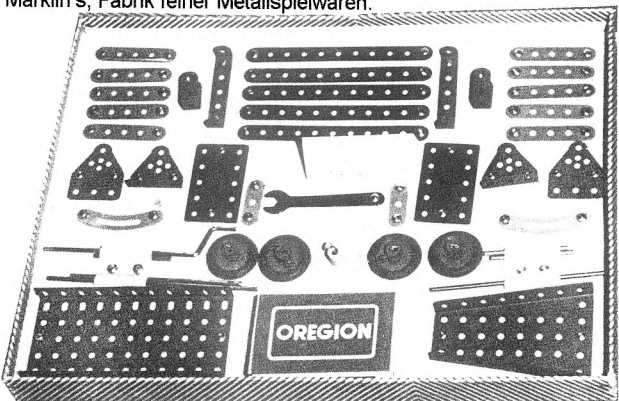
No indication of the size of the parts is given. The maker was Gédé, the firm that made one version of EFEL; MCS gives the date as

the 1940s.

MINITECH There is an entry in MCS for this French system which was made by Joma, and dates from the 1950 to 1960 period. No details are given except that the holes are 2mm Ø, at 9.5mm pitch, and the only part shown is a Flat Girder with 2 rows of staggered round holes. The manual cover above shows Plates with staggered holes but with no indication of how the braced structure is made.

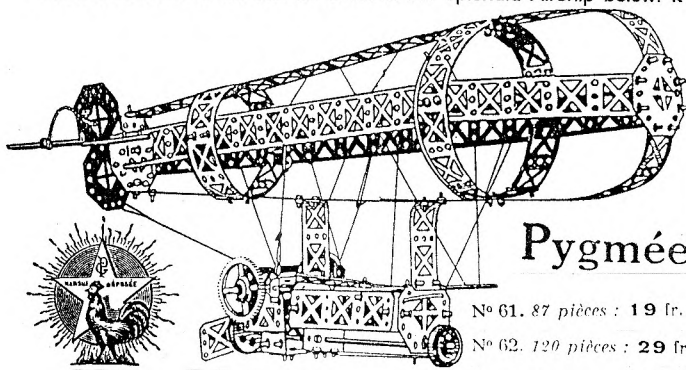


OREGION This system is believed to be Canadian but nothing is known of its history. A No.99 set, and the label on its lid, are shown below. Many aspects of the set remind one of MÄRKLIN, the layout of the label for example is quite like some prewar Märklin ones, and the boy is the same or very similar. Oddly, the text is partly in French and partly in English, and the English part (which contains 2 spelling mistakes) mentions that 47 'types' can be made from boxes 99-104. Those set numbers were used by Märklin from after WW2 until 1957. The slogan, Manufacture de jouets fins en métal, is the equivalent of Märklin's, Fabrik feiner Metallspielwaren.



Many of the parts too have a MÄRKLIN look to them but there are some differences - I don't recognise the Spanner; there's no large centre cutout in the Trunnions; the holes in the 5*3h Plate aren't MÄRKLIN pattern; nor are the Tyres, and nor is the shape of the ends of the Sector Plate. The contents don't correspond to any MÄRKLIN set either, - in general they are nearer to a MÄRKLIN 100 than a 99, but both of those contain Flexible Plates larger than 5*3h. Incidentally the boss that may be visible in the middle of the Pulleys/Tyres belongs to an 8h Bush Wheel.

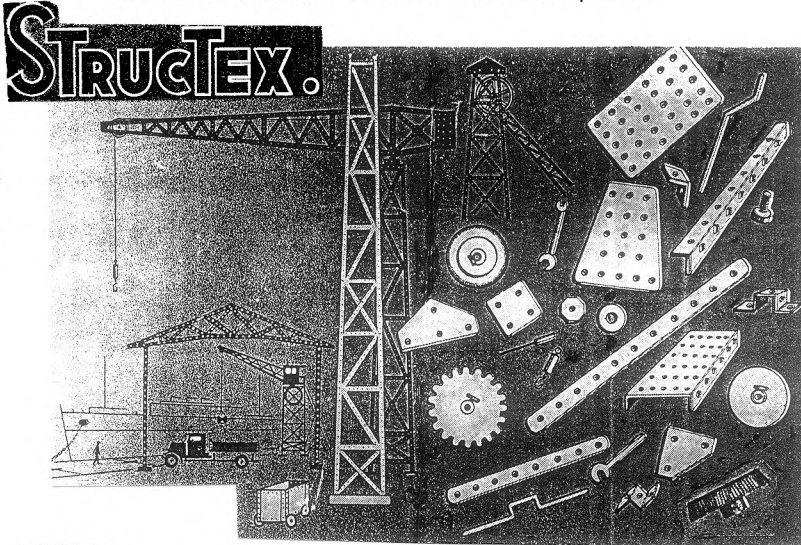
PYGMÉE A model from this French system is included in MCS but a little more detail can be seen in the splendid Airship below. It



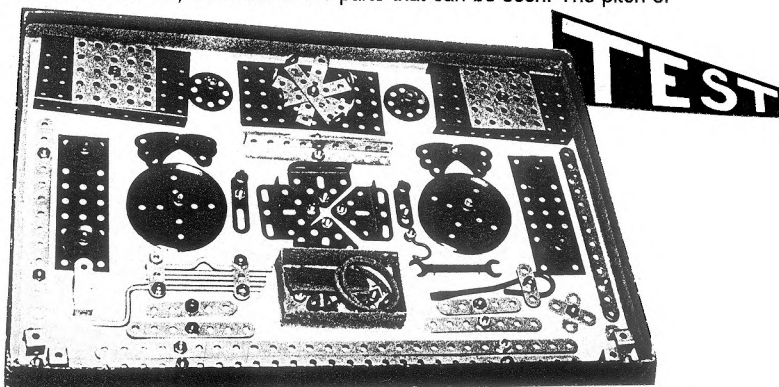
comes from a 1920 ad leaflet and the main parts are various lengths of Braced Girder and the Octagonal Plates, which can be joined at right-angles by 3h long A/Gs. And that's it really apart from the Wheels and that 4-spoke Gear, though I can't quite see what its function is.

3 sets are listed, Nos.61, 62 & 63, and they were packed in enamelled steel boxes. The ad in MCS shows Nos.51, 52 & 53, in the same packaging, at the same prices, and with the same number of parts, 87 in the 51/61 to 148 in the largest set.

STRUCTEX This quite large Belgian system from the 1950s was mentioned in 15/426. Some of the parts are shown below, notice the Bevel at bottom right, which may not be very clear, and what is that small octagonal part under the Sector Plate? A Nut? The part of the model at the top includes a 5-spoke Wheel, if it can be seen, possibly built up from separate parts, and its diameter scales at 6 hole pitches.



TEST This was a French system from the 1950s and below a photo of the known set, and a list of the parts that can be seen. The pitch of



the holes isn't known but is probably at least a little less than 1/2". The corners of the Plates and A/Gs look to have sharp corners but those of the other parts appear well rounded. The only slotted holes are in the Trunnions and the Slotted Cranks.

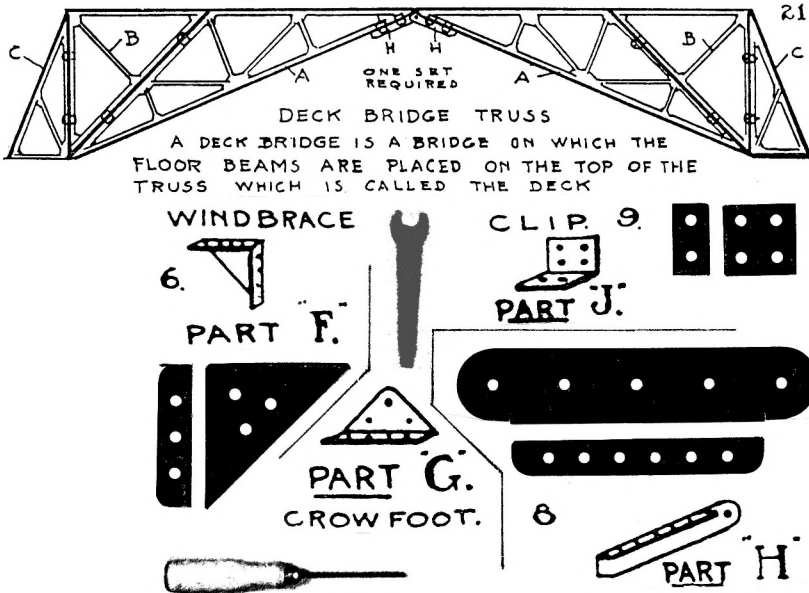
- Strips 3,5,7,13 & 27h long. Curved Strips probably about 5h long but with only the centre and end holes. 1*5*1 DAS. Angle Brackets. Double Bent Strips. What may be a 3*1*3 Double Bracket (below the LH 9*3 Plate).
- 9h A/Gs. 9*5h Flanged Plates flanged on the long sides. Perforated Plates with 9*5, 9*3 & 5*5 holes. Trunnions and Flat Trunnions with side and 3 slotted holes.
- 8h Bush Wheels. Pulleys like M22 (on the 9*3h Plates), and M19b but without the slots.
- Wire Screwdriver, Spanner, Axles. A Crank Handle with 90° bends. A Crankshaft. Largish hex Nuts (holding the parts in place). What look like Slotted Cranks, 3 & 4h long with the outer 2 holes slotted together. A Wire Hook. Also in the small box are 2 rubber? Rings which wouldn't fit the Pulleys and look too small to be Driving Bands.

STEEL TEC at The Entertainer Since before Xmas, Salisbury's branch of The Entertainer has had a good selection of STEEL TEC sets at reasonable prices. Some examples: a Harley-Davidson set with motor (#950712, 545 parts) at £16.99; USS Enterprise with sound & lights (#950992, 410 parts) at £19.99; Road Wreckers (262 parts including motor, #950682) at £12.99; Speedster sets at £4.99 (6 sets, all #700502, with from 58 to 79 parts); & the Power Wrench at £4.99.

STEEL WORKER Kendrick Bisset and Richard Symonds have kindly sent details and samples of the parts, and a copy of a manual for this prewar American system. It was intended for models of steel structures like bridges and the frameworks of buildings, and there were only 5 main parts, 3 Trusses and 2 Channel Girders. Not many but they make up for it in size, with the longest Truss some 21" in length and 5" deep. The only comparable system I know of is the French CHARPENTO, from the 1920s, which had rather smaller parts, made of aluminium I believe though I've never seen any, but there were many more of them, including Plates to cover walls and roofs. STEELWORKER (sometimes in the manual the name was spelt as one word) parts are made of thin, soft steel and even the flanges can be bent or straightened as necessary by hand. Nevertheless finished structures are rigid enough for all practical purposes. The parts were bolted together with small N&B - MCS/FB mentions rivets but nothing is known of them.

STEEL WORKER was made by the Dayton Friction Toy Co. of Dayton, Ohio 'under rights for the United States and Canada', with certain rights reserved by the U.S. Government. It is said in the Intro to the manual that the system was first designed for use in the United States Army Air Service, and that Urban C. Thies, Architectural Engineer for the Air Service at McCook Field, had the idea of using the parts for a toy 'dedicated to American youth as a means of cultivating the spirit of progress in actual building under natural conditions equally fascinating outdoors or indoors as weather permits.' Free membership of a Steelworker Engineers Club was advertised in the manual and questions about construction work would 'be answered by competent architects and engineers'.

The 3 Trusses, A, B, C, can be seen in the Bridge below, which would be some 44" long overall. The acute angle in Trusses A and C is 22½°, and the 2 equal sides of the centre Truss B are 8" long. The Channels are 11¼ & 7½" in length and about 13/16" wide. The flanges on all these parts are 3/8" deep and have holes along their whole length at 3/8", 3/4, or 1½" pitch. There are only a few holes in the face of the Trusses and in the bottoms of the Channels. The 'I' Beams mentioned in MCS/FB are formed from 2 Channels bolted together back to back.



4 Brackets (above) are provided, and the holes in them are at 3/8" pitch unless stated. The Clip, J, is 3/8" x 3/4", and 3/4" wide, with 4 holes in one arm and 2 in the other. The Wind Brace, F, is 1½" x 1½" x 3/8" and has 3 holes in each flange, and 3, not shown in the manual illustration, in the face. The Crow Foot, G, has 4 holes in its flange and 3, like F, in the face. The Hinge, H, sometimes called a Half Hinge, can be seen in use at the centre of the Bridge above. It's like a short A/G, 3/4" x 3/8" in section with one flange longer than the other. Both can be seen photocopied above - the short one with 6 holes and the other, 3 3/4" o/a, with 5 holes at 3/4" pitch.

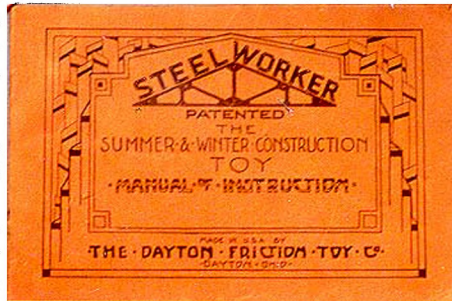
The steel in all the parts is about .021" thick: the main ones are painted a flat red colour, and the Brackets are painted a dull grey, just possibly nickel. The holes are 3.1mm Ø and the N&B,

steel brightly nickelled, are threaded 4-36, about 2.8mm Ø. The hex pressed Nuts are 6.3mm A/F, and the Bolts are roundheaded, 5.0mm Ø, and ¼" u/h. Among Richard's parts are 2 Spanners and a wooden handled Screwdriver - they are shown with the Brackets and are about 2" and 5" long respectively.

STEEL WORKER was sold as a small set, and the models in the manual needed from 1 to 32 of them. Kendrick has worked out that the Set contained 2 each of the Trusses, 4 each of the Channels and Brackets F, H & J, and at least 2 of G. The 2xC Trusses were a pair because there are left and righthand versions.

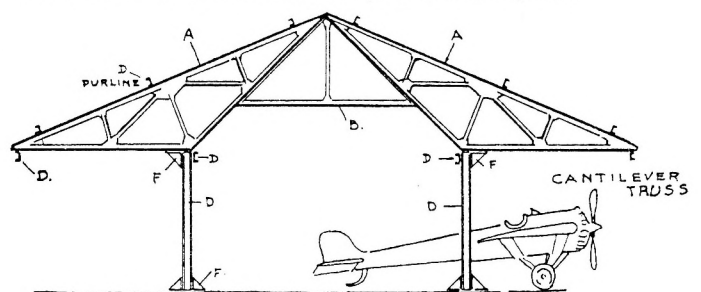
The manual is described below. Some reasonable small models can be made with one Set and 3 allow a 5 bay structure over 55" long and 21" wide, or a respectable 4ft long bridge. The largest model is an 8ft long Suspension Bridge which needs 32 sets. It is shown in MCS/FB so I've included a medium size model here, the Airplane Hangar which needs 6 sets and is said to be known as the Thies Cantilever type, as used by the U.S. Airservice at Wright Field. Kendrick pointed out that the 'T' Square model shown in MCS/FB can't actually be made with the parts as found because the only holes in the base of the Channel D are at the ends.

SUMMARY OF MANUAL •Name: STEEL WORKER Manual of Instruction. •Details of maker: The Dayton Friction Toy Co., Dayton, Ohio. •Dates &/or Ref Nos: none. •Page size: 230*156mm deep. •No. of pages: 16 inc covers. •Language: English. •Printing: black on white



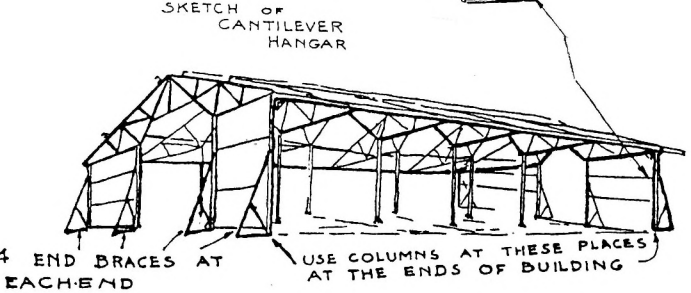
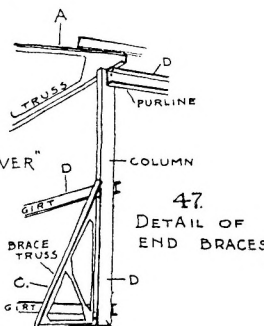
line drawings; black on orange cover. •Page Nos. of Illustrated Parts List & highest PN: 3,J. •No Set Contents. •Sets covered: one, the models need from 1 to 32 sets. •No. of models: 59. •Name, Model No., Page No. of the first & last model:

BOX, 10.4. TOWER SUSPENSION HUDSON RIVER BRIDGE, 72, 16. •Other notes: Illustrations 1-9 are the parts; Illustrations 40, 42, 47, 52 show details of other models; the models on p9 are out of sequence.



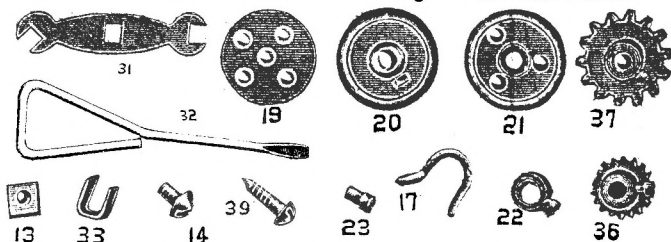
THIS IS THE TYPE HANGAR USED BY THE U.S. AIRSERVICE AT WRIGHT FIELD THE GREAT EXPERIMENTAL STATION FOR THE AIRSERVICE THIS TYPE IS KNOWN AS THE "THIES CANTILEVER"

46. 1 SET REQUIRED PER UNIT 6 SETS FOR HANGAR 6 BAYS LONG



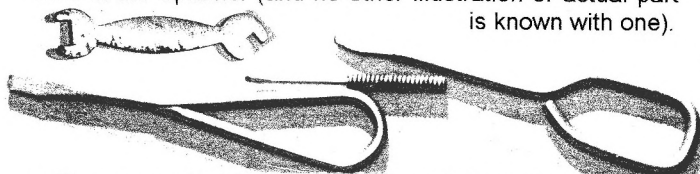
MASTER BUILDER That's the early U.S. system, not the post-WW2 UK one which has the name spelt as one word. In fact in most of the maker's literature it is called THE MASTER BUILDER, but in MCS and elsewhere the 'THE' has been omitted. For brevity I'll refer to it as M B. The system in its developed form is covered in MCS but before coming to that Kendrick Bisset has kindly sent photos and notes on an early, small (#50) set which he was able to examine courtesy of the Monroe County Historical Association Museum in Stroudsburg, Pennsylvania. Dates quoted for M B are 1915 or the mid-1910s but no one seems to know just when it came onto the market, or how long it lasted. It was around long enough though to develop from the time of the Monroe set, when there were 6 outfits (10,20,25,50,1,2,3) and 39 parts, to the MCS stage, with an extra 18 parts (some of them rather unusual), 3 larger outfits (4,5,6), 6 linking outfits, and 2 'Alphabet' sets.

The parts shown in the manual of the Monroe set are listed below. Those for which a PN is given are illustrated.



- 4,5,6,7,11,17,25h Strips. 25h A/G with square corners.
- 5*11h & 4*5h Flanged Plates, flanged on their long sides. Flanged Sector Plate with 1 row of 8 holes lengthwise. The rectangular Plates have square corners, and so probably does the Sector Plate.
- Angle Bracket. Single & Double Bent Strips (the latter is shown in the Illustrated Parts with no hole in the top but that would rather defeat the main use of the part, and the hole can be seen in the manual models, and in the actual part in the Set).
- 8h Bush Wheel. 4h Wheel Disc (#19, about 1" Ø and called a Washer). 1" Pulley (#20, with boss). 1" Pulley (#21, called Wheel - no boss but 3 holes in its face).
- Sprocket Wheel (#37) that looks about 1" Ø and is shown with 14 teeth. Sprocket Chain. Pinion (#36, about ½" and shown with about 18 teeth). Pawl like M33. (The Pinion and the Pawl were not included in any of the sets.) Collar (#22). U-shaped Axle Clip (#33). Wire Hook (#17).
- 2,3,3½,4½,5½" Axle Rods. Crank Handles, 4½,5½" - the lengths of the shanks.
- Screwdriver (#32). Spanner (#31). Wood Screw (#39). N&B (#13,#14), Set Screw (#23). Bundle of Cord.

Now some notes on the actual parts in the set, including points which don't correspond to the above. • M B holes are at ½" pitch; they are generally 4.2mm Ø but those in the 5h Strip are 4.1mm and those in the 5*11h Flanged Plate are 4.3mm. • The ends of the Strips are fully radiused although some aren't cut accurately - other known M B Strips are similar but some in the remains of a No.25 set of (probably) similar vintage, have large radii ends, and so do the Strips shown in some of the models in the Monroe manual. • The centre of the 1" Wheel appears to be formed with a slight outward lip. • The Axle Clip looks as if it is slightly waisted with its ends turned out to form very short wings. • The Hook was missing and none of the 3 Screwdrivers found in the set (below) match the illustration. • There is no centre hole in the Spanner (and no other illustration or actual part is known with one).



- The square Nut is 8.8mm A/F and 2.9mm thick; the Bolt is ⅜" u/h and the round head is 7.3mm Ø. Both are steel,

bright, perhaps nickel, plated, but the thread hasn't been identified: the o.d. of the Bolts is .153", which is just under ⅝", and the tpi, as measured over 8 threads, is 29.3, so 30 maybe. Hex Nuts are shown on some of the manual models. • The Cord is white, 1.1mm thick. • Apart from the N&B and the Screwdrivers, all the parts are tin plated and are now mostly dark grey.

The #50 box is black and measures 12¼*7¼*1". The label on the lid is similar to that of the manual, described below, but with the Set No. in the bottom right corner. A label pasted inside the lid lists the Contents.

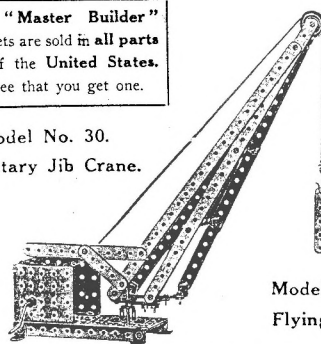
SUMMARY OF MANUAL •Name: THE MASTER BUILDER •Details of maker: communications to The "MASTER BUILDER", 468 Broadway, New York City. •No Dates or Ref Nos. •Page size: 232*140mm deep. •No. of pages: 17+3 covers (p1 is IFC). •Language: English. •Printing: line drgs of models; cover is red & white. •Page No. of Illustrated Parts List & highest PN: 16,39. •Page No. of Set Contents & highest PN: 17,41. •Sets covered: Nos.10,20,25,50,1,2. •No. of models for each set: 15,0,5,5,3. •Name, Model No., Page No. of first & last model of each set: 10: Wind Mill,1,2; Table,15,6,25; Scales,16,7; Tower Wagon,20,9,50: Dump Truck,21,9; Monoplane Model,25,11. 1: Large Windmill,26,12; Rotary Jib Crane,30,14. 2: Flying Airships,31,14; Lawn Swing,33,15. •Other notes. p1 has which models from which sets, with Nos.1-34 for Set 2 and 1-38 for Set 3; also 'the foregoing 38 models' is on the IBC. No pages are missing but Models 34-38 are not in the manual.



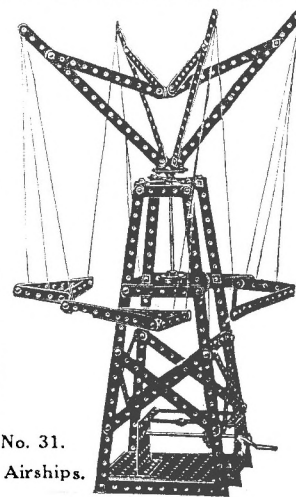
It is curious that the actual number of models in the manual doesn't correspond to the claims made, and it would have been interesting to see the models for the #3 Set, which included 4 A/Gs, 4 Sprockets and 150 N&B. The models for the #10 are not bad considering that the Set consisted of 8 Strips, a 5*4h Flanged Plate, 4 Wheel Discs and 10 N&B. Some of those for the larger outfits are less pleasing; the Rotary Jib Crane below for example, with its oddly positioned slewing axis, and the poor run of the hoisting rope. It's from the #2 set and so is the Flying Airships, which is perhaps the best model in the manual and uses nearly all the main parts in the Set, and 92 of the 96 N&B. The Swing Bridge on the manual cover could be made from the No.1 outfit.

"Master Builder" sets are sold in all parts of the United States. See that you get one.

Model No. 30. Rotary Jib Crane.



Model No. 31. Flying Airships.



The "MASTER BUILDER"—"Engineering in Miniature."

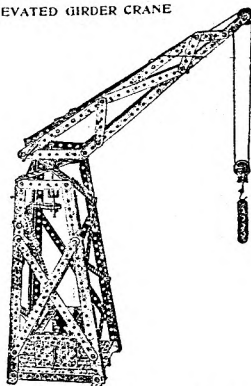
Before going on to M B in MCS, Kendrick also sent some photos of a #25 Set belonging to George Wetzel. The box has a different, later, full colour label showing 2 boys in a room playing with some grossly oversize models, notably a much more elaborate Swing Bridge, with the real bridge visible through a window. The parts look like those already described except that there is some black Cord as well as white. The N&B are in a green card box with a transparent panel in the lid (possibly ex-MECCANO, to replace the original envelope). The Set Contents, the layout of the parts in the box, and 2 #50 models are shown inside the lid. The

Instruction Leaflet has 4 panels and models are shown on 6 sides: with #10 models, 1-22, from LAWN MOWER to MONOPLANE (though #12 & #14 are wrongly numbered 11 & 3), and 10 for Set 25, from #23 HAND TRUCK to #32 TABLE. Some of the models are in the Monroe manual and some not. One of the other sides is an intro; the other shows a selection of more advanced models made from larger sets, which include parts not in the Monroe manual, and the 26 Letters of the Alphabet. These are made from special 50c & \$1 Sets, with the slogan 'Builds Letters, Spells Words, Makes Real Signs'.

Richard Symonds has contributed a copy of a #10 Leaflet, probably later still, with 4 panels of about the same (4¼*5½" deep) size. On 5 sides are 22 #10 models, as in George's, but in a different order, from #1 TABOURETTE to #22 MONOPLANE. The other 3 sides are the intro above, a wider range of models built from the larger sets, and the Alphabet ad but with the Letters in random order from L to R.

Richard also sent a copy of what is probably a label from inside a later #2 Set, which shows the Contents, and the layout of the parts in the box. The Flanged Sector Plate has the 2 extra diagonal slotted holes, as in MCS, and the small parts are in 2 packet (or card boxes) with M B and other wording on their lids. Also shown as a plug for the #2A Set, is the Crane opposite, with a chain drive to slew the jib.

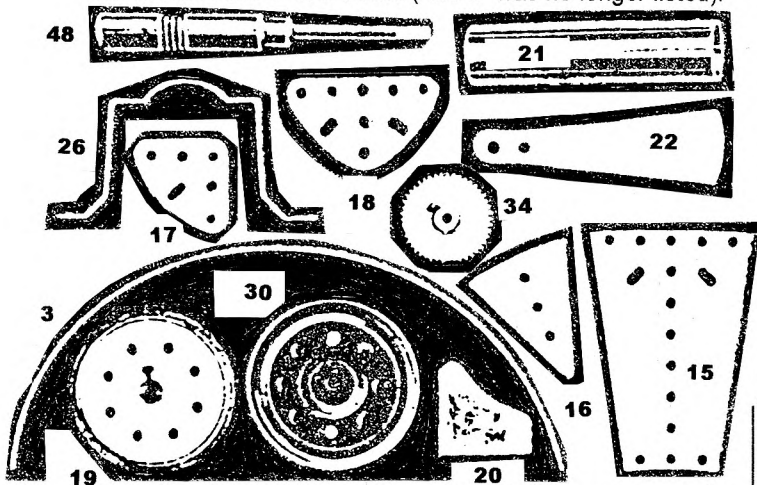
ELEVATED GIRDER CRANE



Between the Monroe manual and the Contents list in MCS, 20 new parts had been introduced, some of them quite specialised. They are all described below and again a PN indicates that the part is illustrated. (By this time most of the PNs had been changed.)

- Structural parts: a Flat Bracket (called a 1" Strip but with 1 round and 1 elongated hole); a Corner Batten Plate and T Batten Plate (#17, #18), in which the slot is neither ½" nor 1" from the corner hole; a V Plate (#16) which with only the 3 holes shown would seem to be of limited usefulness; and a circular Base Plate (#19) of about 3" Ø which appears to be flanged, but even in the largest set only one was included. There are also 3 Strips ready formed, the 12½" (#3) & 5½" Round Strips, and the Radiator Bent Strips (#26) which looks to be 15h long. As already noted the Flanged Sector Plate (#15) has the 2 diagonal slotted holes.

- Circular parts: a 1½" Pulley & 1½" Gear (#34), neither of which have any holes in the face; and a 3" Wheel (#30) with a formed rim of some sort, and a formed centre of perhaps 1" Ø - a tapped boss can't be seen but perhaps it's on the inside. Also 1" & 8" Axles (the 3" was no longer listed).



- Special parts: a Rudder (#20) which may have holes in it that can't be seen in the poor illustration; a Propeller Blade (#22) which scales at 4" long; and a 4" long Tube

(#21) of about 1" Ø, with no holes visible and of purpose unknown.

- A 'Wood Screw Driver' (#48); a 1" Spring, tension probably; and ½" Bolts (the shorter ones are listed as ⅝").

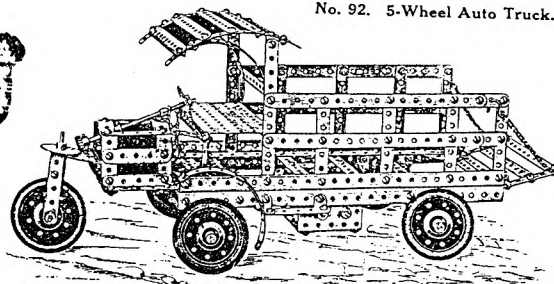
Mention is made in MCS of a 4½v motor, said to be similar to the 1914 ERECTOR one, and this may be the 'Speeder' which is in the ad on MCS p7, and is referred to in the #25 Leaflet above as 'a Wonder. Just the Thing for Running Your Models'.

Sets 10-3 didn't change a great deal between the time of the Monroe manual and the Contents in MCS, and #10, 20 and 25 didn't change at all. (In passing I was amused to note that the only difference between a #10 and a #20 was 2x2½" Strips and 2 N&B.) Minor changes were made to #50-#2, including one or two of the new parts. These carried over to the #3, and as well there were 12 of the Batten Plates and 2 Flat Brackets, but 14 fewer Strips, 6 fewer Angle Brackets and 20 fewer N&B. The new outfits 4, 5 & 6 had 6, 10 & 14 A/Gs respectively, and 175, 210 & 260 N&B. The parts in the #6 included 9 Flanged Plates, 5 of the 3" Wheels, 3 Pinions, and 2 of 1½" Gears.

4 straightforward but quite attractive #6 models are shown in MCS, including the Truck below. As well as its unusual steering, there's mention of a gearbox of some sort, although with the number of gears in the set, it can't have been very elaborate. The Radiator Strips are used at the front and rear of the engine compartment.



No. 92. 5-Wheel Auto Truck.

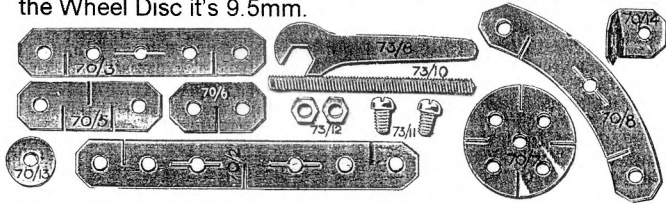


For gear box construction see Page 2, Fig. 13. Fork of front wheel uses a single bent strip.

The name of M B's manufacturer isn't given on any of its products, just references to The Master Builder at 468 Broadway, New York City. Kendrick pointed out that a logo (above left) looks like an acorn, and is often shown on M B leaflets, labels, etc, with the wording 'MFG CO. NY.' in it. He suggests checking to see if an Acorn Manufacturing Co. ever existed. I also have a note that M B was made by M. Gropper & Sons but I don't know where it came from. Kendrick also noted that there are similarities between M B and ENGINEERO (another old U.S. system that has Strips with diamond shaped holes and V notches in the sides between each pair of holes), and wondered if M B became ENGINEERO, possibly to avoid any risk of infringing Hornby's patent, or simply to give it a more distinctive appearance. Some of the parts in the simple models shown in MCS look alike, such as the 5*4 Flanged Plate and the 4-hole Wheel Disc, and apart from that the numbering of the smaller sets is similar, and so are some of the models. On the rather odd numbering of the sets, Kendrick noticed that the M B Price List in MCS shows that through #3, the set's number is its price in cents, or dollars for the #1 upwards. ENGINEERO used a similar system but stayed with cents, right through to #500 at \$5. It can't have easy selling a #1 M B set when the one smaller was a #50. The Engineero Co.'s address was 369 Broadway, New York City.

Märklin buys Trix News from Tony Matthewman that Märklin bought Trix last November. It is understood that constructional sets will continue to be produced, the present range perhaps, and possibly plus some of the small Unit packs that were so successful years ago.

MEX The parts that characterise MEX are easier to recognise than to describe precisely, and all those in the No.1 Set are shown below, at about 1/2-scale. The main thing is the narrow slots that run in from the edges, or out from either side of some of the holes. They of course allow 'half-joints' to be made. Also noticeable are the corners angled at 45°, like VOGUE but more so, with all 3 flats at the ends of equal length. The basic hole spacing is 13.0mm, though in the Wheel Disc it's 9.5mm.



The PARTS DATA (in mm) **STRIPS:** •hole pitch/dia, 13.0/3.6; •width, 13.0; thickness, .65 (typical); •angled corners. **THREAD:** 3.55 o.d.x.8 or 32 tpi. **NUT:** hex 6.4 A/F; **BOLT:** tapered cheesehead 6.2 Ø; both brass plated steel.

The Spanner hasn't been seen but otherwise all but the threaded parts are nickel plated, and are often found shiny and relatively rust free. The thread hasn't been positively identified but seems to be the same as that used in prewar TRIX. Roundheaded Bolts are shown in the Model Leaflet. The Washer is 13mm Ø and the hole in it is sometimes shown offset, as above; it is off centre in some actual parts too but I can't spot any need for an eccentric washer in the models in the No.1 Model Leaflet. The Threaded Rod is about 55mm long. The parts are quite well made, and the width of the slots generally ensures a snug fit for the mating part; sometimes though the joints are quite loose, and occasionally impossibly tight. The absence of a centre hole in the 3 & 7h Strips, and only having 3 holes in the Curved Strip, is a disadvantage in model building.

No names are given to the parts in the No.1 Leaflet but all have PNs. These run, with numerous gaps, from 70/2 to 70/14, and 73/8 to 73/12. Additional parts in the No.2 Set include a longer, '9h', Strip (shown in MCS Part 5); a yellow Pulley of about 1" Ø, with an eyelet at its centre; a black rubber, treaded Tyre of about 1 1/2" o.d. to fit it; and a longer, perhaps 90mm Threaded Rod. The yellow Pulley has only been seen in a photo but a similar red one, found with some MEX parts, is 26mm Ø by 4mm across the vee.

The SETS The No.1 contains 60 parts: 21 Strips including 3 Curved and 2x2h long; 4 each of Wheel Discs, Washers, and Angle Brackets; 3 Threaded Rods, 7 Bolts, 16 Nuts, and a Spanner.

The No.2 has an extra 20 parts including 4 Pulleys and Tyres; 2 (probably) 90mm Threaded Rods; at least 2 of the 9h Strips; and possibly 3 more Curved Strips (6 make a complete circle with a pcd that would suit the 9h Strip).

There is no evidence of any other sets.

The LEAFLETS The No.1 is a single sheet 330*350mm deep, folded into four, and the illustrations are B&W line drawings. Half of one side shows every one of the parts in the set full-size, plus some chat about how good the

BARROW (50 pieces)

4x70/2	4x70/3	6x70/5	1x70/6
4x70/7	2x70/8	4x70/13	3x73/10
	6x73/11	16x73/12	

WATER MILL (47 pieces)

4x70/2	4x70/3	4x70/5	1x70/6
3x70/7	2x70/8	2x70/13	4x70/14
	2x73/10	5x73/11	16x73/12

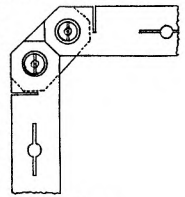
BOB SLEIGH (36 pieces)

4x70/2	4x70/3	4x70/5	2x70/6
1x70/7	2x70/8	1x70/14	2x73/10
	3x73/11	13x73/12	

system is with the slots and circular parts, and at only 6d. a set. SLOTS SAVE BOLTS. "MEX" MAKES MORE. The other half shows 5 groups of 3 or more simple models, that in each case can all be made at the same time from the No.1 Outfit. On the reverse are 19 models, each with a list of the parts needed for it. 3 of them are shown here and the Water Mill is the only one in which there is movement other than by pushing the model along. The small pulley on the top spindle appears to be made from 2 Washers locked against a Nut between them.

All I have on the No.2 Leaflet is that the inside contains No.2 models, as might be expected, but surprisingly, the No.1 Set Contents are illustrated on the outside. The box lid of the No.2 Set is shown in MCS and the label has a 'supermodel' of Tower Bridge on it.

HISTORY & an Evening of Model Making The Application Date for the MEX Patent (No.383585) was June 1932, and the applicant was Justin Strauss, a German citizen of Schonerstrasse 7, Nürnberg. As no Convention Date is given, the initial application seems to have been made here, and it's possible that there may not be an equivalent German patent. Apart from the slots, the other claim was that by angling the corners of the Strips at 45°, 2 Strips could butt against one another in one plane to form a 90° corner (opposite), and they could be locked in position by a suitable Strip. Although not stated the 3 flats at the end of the Strips must be of equal length if their end holes are to be at the standard spacing. In practice there is inevitably a few degrees play in the joint, and as well as that an extra Strip & N&B are needed at each corner. So it isn't surprising that no such corner joints are used in any of the No.1 models.



The first ad in G&T for MEX was in Jan. 1933 and shows 3 illustrations from the Patent under the heading 'Mex Makes More', with 'Entirely New British-Made Constructional Set' underneath. There was no name or address. The British Made is interesting because the No.1 Leaflet has 'Foreign' in the bottom righthand corner. The next ad was in May and under an illustration of all 60 parts in 'Outfit No.1' (as in the Leaflet), the 'Patentees and Sole Manufacturers' are given as W.H.Cornelius, 23 Paper Street, London, E.C.1. This firm handled a number of toy lines in the 1930s and later. The retail price was 6d. This advert was repeated through November, and then finally, after nothing in 1934, in June 1935. The No.2 Set was never mentioned so it's possible that it came after the date of the last ad.

When it appeared the MEX No.1 Set would have been in direct competition with the TRIX No.1 Set, which had already been on the market for at least a year, and at the time cost the same. (TRIX prices were increased in 1937, the No.1 to 7 1/2d., and I wonder if one factor was that by then MEX had finally disappeared.) The MEX and TRIX sets had much in common with 4 Wheel Discs in each, and though the TRIX outfit was smaller with 51 parts, it had perhaps a better mix with a few more N&B, 2 DAS, and the perforated Spanner that could often be used as a narrow strip. I made up the Barrow opposite to get some experience of MEX in action, and then I tried to make a similar model from the TRIX Set - out of my head because I couldn't find a comparable TRIX manual model.

To start with, the MEX version. The first thing was that 8 Bolts seem to be used against the 7 in the Set, and when the pair at the back of the body at the top were replaced by a Threaded Rod there weren't enough Nuts, so 2 had to be left off the front Threaded Rod. That didn't matter because although quite difficult to build up, the body was quite rigid once the N&B were tightened. One of the difficulties in the assembly was at the top corners where a vertical Strip was next to a half-joint - some of the Strips were very slightly over 13mm wide and in others the holes were not quite central, and in either case the holes didn't align well enough

to force a Bolt through if the vertical Strip was the wrong way round. Turning it over solved the problem in most cases but then it wasn't always possible to have the slots in the vertical Strips facing a particular way. That didn't matter in this model but it might well be a problem in a larger structure. This underlines how accurately the parts had to be made to make the system of half-joints work - everything would have been easier if the holes in the parts had been slightly larger, but that would have meant more play in those 90° corner joints. The next thing was that there was only one Nut available for each Bolt that held a Wheel Disc and so if it was tightened the Discs wouldn't turn. This was true of several of the models with wheels. The Threaded Rod which joined the handles at the top wasn't really needed, and removing it released the 4 Nuts needed as locknuts for the wheels. It also made the model look a bit less like a pram. It would have looked better still if the handles could have been at a slightly lower angle but the side of each Curved Strip had to lie against the side of the cross Strip, or alternatively each Curved Strip had to be rotated so one of the angled flats at the end of it was against the cross Strip - but then the minimum turn of 45° made the handles too low.

Everything was a lot easier with the TRIX, and a similar sized model was made, with much the same layout, although the front and back cross members at the top were just Threaded Rods because there were no Strips to spare, or N&B. Probably the MEX model was slightly the better looking even with the ends of the cross Strips sticking out, but where MEX really won was in the appearance of the shiny nickel parts against the dull, patchy looking TRIX.

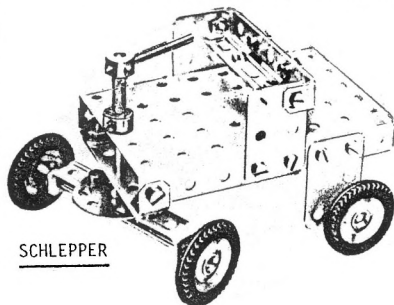
Among the 7 claims made for MEX in the G&T ads is 'Pliable steel strips easily bent to any shape'. The Strips I have are made of fairly soft steel and can be curved, but the slots have to be gripped in pliers to avoid bending at that point. A sharp bend at the end slots did produce some useful DAS and such bends could be straightened out, although to do so more than once would risk the metal breaking.

THANKS are offered to Roger Baker, Richard Gilbert, Malcolm Hanson, David Hobson, and Tony Matthewman for contributing the material used in this account.

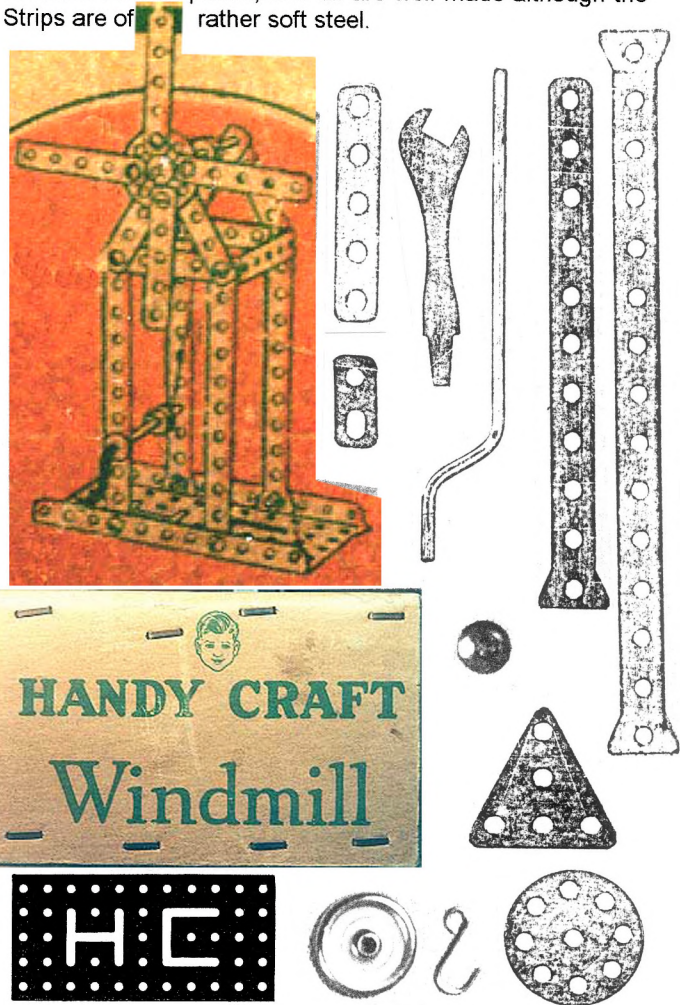
STOKYS UPDATE Tony Matthewman kindly sent some leaflets that he picked up at a trade fair early in 1996, and others from January of this year. Mostly nothing has changed since 1994, see 13/335. A 2*A4 colour brochure is identical, except for NEU on the '96 cover, and 96/97 on this year's; a 1996 export price list shows the same items at the same prices except that the small KP 11 set is slightly cheaper.

But one addition to the 1997 range is a Bridge Set, BK 01, at 98 French Francs. No details are given but its price suggests that it might be about the same size as the K1 set that was dropped some years ago. Also a number of packs of parts are shown on a separate sheet, but it isn't clear whether they are a new line. There are 23 in all, (perhaps 24 because one has a price but no other details) from item ET 01-1 to ET 54-1. Most are devoted to a particular type of part - thus packs of Strips, Plates, Tyres, Sprockets, etc. All are 10FR. (Swiss I should think), except 2 at 20 (Sprockets and the mystery one), and 2 large packs - ET 1000 at 220FR, with 1 each of all the 10 & 20FR packs), and ET 2000 at 200FR, with 3 each of the 8 packs that contain structural parts.

A couple of new points in both years. On a separate sheet about the motors, the speed range of the GM 01 & GM 10 motor/gearbox units is given as 100-200 and 20-40rpm respectively. On another sheet is an ad for the KP 11 outfit: it has enough parts to make either a 2-Wheel Luggage Barrow or the Tractor opposite.



HANDY CRAFT I mentioned the Strips from this small 1920s American system in 15/426, and now Richard Symonds has kindly sent photos and some details of a small set that came his way recently, and a few of the parts too for me to measure up. It is in a buff card box 10*6*3½" high with the name of the set - **HANDY CRAFT Windmill** - on the sides in green (below). The lid is printed in red and green, and shows a boy looking at a simple Windmill model (below) which seems to have just been created by a magician (or fiend). The wording says that as well as the featured model there are enough parts to make over 50 others. At the bottom is COPYRIGHT 1926, and the maker: The Hart & Cooley Co., New Britain, Conn., U.S.A. The manual is missing but the set itself is probably fairly complete and the most of the main parts are shown below, followed by some general notes. All parts unless otherwise stated are nickel plated, and all are well made although the Strips are of rather soft steel.



- A 5*11h Flanged Plate is painted a lightish red and flanged on the 11h sides. Some of the centre 3*7 holes are joined to make the initials H C.
- A pea green 8h Wheel Disc which scales at 37mm o.d. 4x1" Wheels, the centres of which appear to be pressed through with one face concave, and with rims formed into a thin 'tyre' shape.
- 2x3½" Axles, 4.00mm Ø, with neat ends finished with a small radius, and a Crank Handle 5" o/a with a ¾" shank. Cup-shaped Axle Stops of ½" Ø, upset at the centre with a square hole leaving 4 small tabs on the convex face which grip the Axle tightly. They are made of springy steel and have a blue look to them. In the Windmill they are used either side of the Wheel Disc to lock it to the Axle, and pairs back-to-back form small pulleys.
- A flat Wire Hook about 7/8" long. 8-32 N&B with square Nuts 8mm A/F and 2.6mm thick, and Bolts with 7.7mm Ø round heads, and ¼" u/h. A slightly unusually shaped Span'driver, about 2 7/8" overall.

The illustrations above include a 3*3h Triangular Plate which may not have been part of the Set. The only other parts known are the 1*5*1h DAS, a 7h Strip, and what looks like an Angle Bracket in the illustration of the largest No.4 set in MCS.

The MÄRKLIN Unimog and m100 Outfits These sets were mentioned briefly in 11/297: now more details are available from their manuals that Werner Sticht has kindly lent me.

The **Unimog** manual has 36 A4 size pages including the covers. The latter are bright red with a model from the set on the front, and another on the back, together with a PR - 65 844 Ok 1194 se. The text, limited to an index, introduction, and the names of the models, is in German, English, French and Dutch.

The Set Contents in the Manual shows 286 parts plus 544 N/B/W, with a fair selection considering that this is a theme set, although there's only one rigid Plate, 5*5h. Two parts new to me are #10013, a 3h Strip with the last 1/2" formed at an angle, used as the top bearing for the steering column, and #14026, a hollow Tyre with a deep tread whose inner and outer walls sit on 2" Pulleys. These parts were used in the 'Trac' theme set (11/297), with in that case, the Angled Strips forming the ends of the mudguards. Three of the black plastic parts that were used in the 'orange' theme sets from around 1980 are included: #11134, 5 1/2*2 1/2" Plate, for the rear load platform; #11141, 3 1/2*2 1/2" Flanged Plate, for the cab roof; and the seats (#11138).

There is only one gear, a Pinion which is used as a ratchet wheel. The only other 'brassware', apart from 6 Collars and a 1/2" Pulley, are 2 of Märklin's neat Universal Couplings. The PNs of some parts have been changed. The Pinion was 10725 and is now 10726; the current standard Bolts with the combined recessed/slotted heads are 14202,3,4 instead of 14002,3,4; the Grub Screw is 14223 against 14020. The Collar, Cord and Crank Handle, which were 11059, 11500, 11716, are now 11060, 11501, 11717.

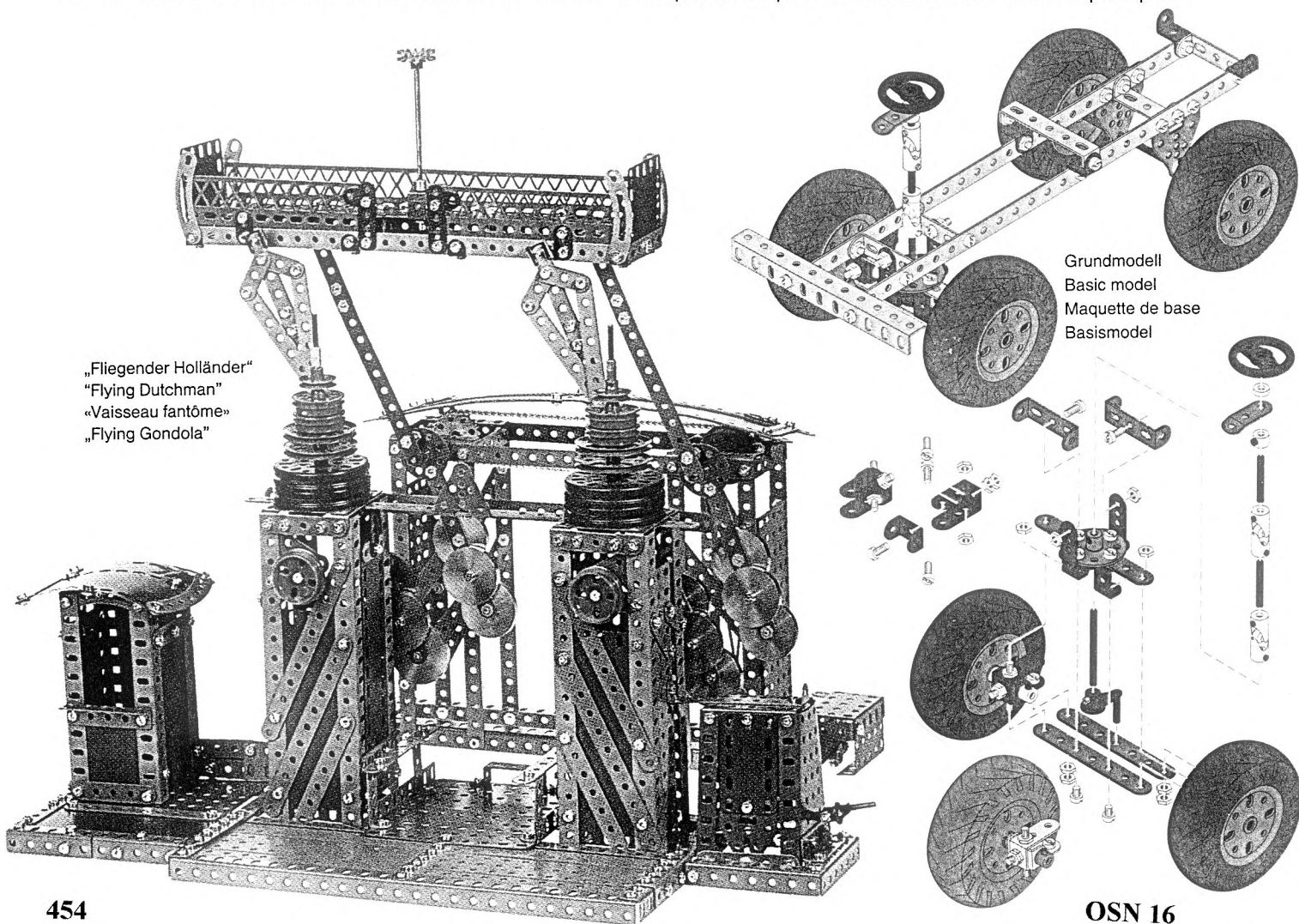
The step-by-step instructions include a new feature, at each step the parts of the model already completed are shown in various shades of grey, and the new parts are in full colour. Sometimes it's a help but for complicated structures it isn't always easy to distinguish between the different grey parts. The small size of the illustrations doesn't help, and it's particularly irritating when with a little more care, much larger ones could have been fitted onto the same pages.

Five models are shown, all with the same chassis and cab but

with different back ends. In fact 10 models can be made - with, as noted in OSN 11, two versions of each, one with the normal closed cab, and the other without the top of the cab, and with a different back to it. The chassis is quite simple and is provided with the steering (below) as its only mechanical feature. Peter Kessler told me that it is far too direct for the weight of the vehicle. In the drawings the steering column looks vertical but the top is actually offset sideways by 3 holes, hence the need for the 2 Universals. The chassis plus whichever cab has been chosen can then be fitted with: a load platform with low sides, that tips by hand; a wrecker crane that can slew and has a seat for the operator; an inspection platform on a cord operated scissors mount; the snow plough shown in OSN 12; or a forestry truck with a cord operated lifting platform at the front of the chassis, and a winch at the back. There's nothing about fitting a motor to the models and although all the MÄRKLIN sets are listed on the inside back cover, motors and other accessories aren't mentioned, even though the opposite page is completely blank.

The **m100** manual has similar red covers but the model on the front extends over onto the back cover. Of its 68 pages, 62-65 are blank. Text is again in the 4 Unimog languages. The PR on the back cover is 65866 M 11/94 au. Each of the step-by-step photographs show the model as it will be when that stage is complete, in full colour, using the parts shown alongside, with no exploded views, but with a few words of explanation when necessary. I found this rather easier to follow, although again some of the pictures could have been larger to advantage.

The m100 is a large outfit with a good selection of parts. Up to the mid 1970s the largest MÄRKLIN set was the #1014, with an add-on #1034 of about equal size. The 1014 had 432 parts + 528 N/B/W, and the m100 has 532 + 900 N/B/W. It's nice to see all those N&B. Apart from those, the m100 has more parts in nearly all departments, although the useful handfull of electrical parts that were in the 1014 are absent. But there are more Gears; more Tyres; Braced Girders, which weren't in the 1014; a few extra brassware parts; and more of the MÄRKLIN special Brackets. As a comparison the pre-1970 MECCANO No.9 had 686 parts plus



Most of the parts in the Set are standard MÄRKLIN. Points of interest are: • Two of the Unimog Tyres 14026 are included plus two standard 2" Tyres, 14050. In addition there are 6 each of the standard 1" and 1½" sizes. • The 1½" brass coloured counterweight Discs mentioned in OSN 11 are #11034 and appear to be about 6mm thick. • All the changed PN's noted for the Unimog parts apply, and as well the Coupling that was #11718 is now 11719; the 19t & 30t Pinions are 10720 & 10731 instead of 10719 & 10730; the small bevel is now 10831 against 10830; and the Worm, which was 10910, is 10911. As far as is known none of these changes represent changes to the parts themselves. For the Gears the last 2 digits used to denote the number of teeth but current lists still show the old number of teeth against the new PN's. I'm told that many MÄRKLIN parts are now sourced from Hungary, so that just might be an explanation for the changes.

10 models are shown in the Manual, 2 cranes, 3 fairground models,

2 heavy presses/punches, a lighthouse, a double-basculer bridge, and a beam engine. Most are fair models but intentionally or otherwise they have a rather (pleasant) old-fashioned (retro?) look to them. This is largely due to the limited use of plating, but also perhaps to the traditional red/green/blue Märklin colours. There are no vehicles among the models despite the 16 Tyres in the Set. No motor is included so nearly all the motions in the models are operated through Crank Handles. All the drives are straightforward with no mechanical complexity, and of the 17 Gears or Gear Rings provided, my count gives an average of 5 used per model, with a maximum of 8. In general few models, by the look of them, make use of the full potential of the Outfit and some look distinctly underdeveloped - the very rudimentary Thames Bridge is the worst, where of the over 500 major parts available, less than 200 are actually used. The 'Flying Carpet' fairground model shown here, and on the cover of the manual, is my favourite.

And 3 New Sets for 1995/96 Geoff Davison, Peter Kessler and Ernst Leuthold have kindly sent information on 2 sets that are intended for use with Märklin Maxi Gauge 1 trains, and a Lorry theme set with a cab based on a MAN design. The 'train' sets are #5629, Brücke, to build a simple Bridge 64cm long, and #1511, Spur 1 - Güterwagen, from which any one of four wagons, 28cm long, can be built.



5629 Geschenkpackung "Brücke".

BRÜCKE The Set contains 4x25h A/Gs, 48 Strips, and 80 N&B in standard colours, to make the straightforward Bridge above. 2 lengths of standard track are clamped in place, end to end, with 3h Strips. The 12 page A4 manual (#5629, PR 67144 O 01 95 se) also shows another Bridge with the bracing underneath. The step-by-step illustrations are of a reasonable size but still surrounded by much white paper.



9h long but with only 3 holes pierced; Wheel Sets with 8-spoked Flanged Wheels, pairs of Axle Boxes; backing Double Bent Strips for the Buffer Beams; Buffers; and Couplings. All apart from the red parts are shown black and most are probably plastic. Also in the Illustrated Parts are a black RH Bolt (#49419), perhaps ¾" long, which is used to hold the Coupling to the Buffer Beam, and 2 parts that look like a large Washer (#49422) and a large thin Nut (#49288). Both are black and 6 of each are in the set, but I can't spot them in the models.

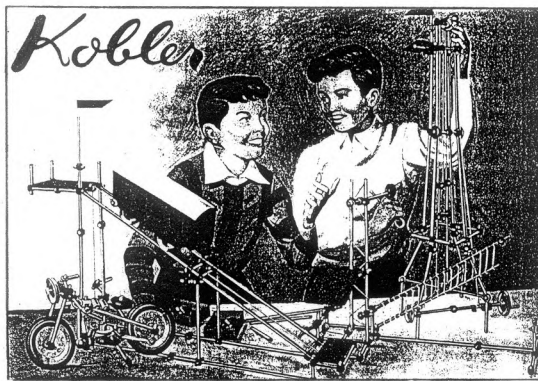
The manual, again A4, has 24 pages with a photo of one of the models, the Crane Car (truck) on the cover. The others are an Elevating Platform Car, a Hinged Cover Car, and a Snow Plow. All are simple but passable models and despite the tiny step-by-step illustrations (which typically occupy no more than 20% of the each page), look easily built. 4 introductory pages have large diagrams, mainly showing how to use parts that aren't in the set. The only novel feature is in the Crane which can be luffed by rotating the jib by hand, against the resistance of an Axle Rod sliding through 2 of the orange plastic MÄRKLIN Axle Stops. The counterweight (4 of the large Brass Discs, 11034) isn't shown on the manual cover or in some of the advertising material. The manual (PR 68 3820 Oy 08 95 ma) is item #1511, and like the Bridge manual, the text is in German, English, French & Dutch.

1085 Themenkasten LASTWAGEN As well as an ad & some notes on this set, I've also drawn on a detailed review of it by Charlie Pack in the Oct. 1996 S. California Club N/L. Unfortunately I'll have to reduce the picture & little detail will be visible. The main new feature is the Cab which is made from red painted metal pressings that bolt together, with a MAN logo on the radiator grille. The front bumper & mudguards, & the seats in the cab, are black plastic mouldings. The chassis side members are black 35h A/Gs, a new part of course. Wheels consist of new Tyres mounted on the standard red plastic 36mm Flanged & Grooved Pulleys at the rear and special Front Hubs. Steering is provided, with special Brackets to support the king pins, and leaf-type Springs are fitted front and rear, with simulated shock absorbers at the front. The back of the lorry seems to be made of standard parts in standard colours, and is raised by a Threaded Rod of about 6mm Ø, turned down to 4mm at each end, which runs in a Rectangular Coupling. Said Coupling is a 5/8" side cube tapped for the 6mm thread one way and the standard 5/32"BSW at 90°. The Threaded Rod is apparently not the old Lead Screw that was listed into the 1960s. The model below is about 50cm long, and in addition instructions are provided for an optional Snowplow or a Dump Truck. Charlie's main criticisms were that the cab lacks detail with no windshield for example; there's no gear reduction to the steering wheel; & the rear axles are not split. The model isn't motorised. Märklin have announced a new No.10851 Truck Extension Set which will allow a wider range of models to be made. In the U.S. the 1085 costs \$278 and the 10851, \$179.

GÜTERWAGEN This set includes about 37 Strips, 6 short A/G, 16 Flexible Plates, 3 Flanged Plates, and about 100 N&B, with all the parts in their normal colours. New parts (shown around the Crane above) are a red Flanged Plate, like the 11*5 pattern, but 19h long and 7h wide - it forms the base of all 4 models; red DAS Buffer Beams,



KOBLER The name of this Swiss system, made by Kobler & Co. of Zürich 6, was mentioned in 11/291, though misspelt there as KOHLER, and now Jeannot Buteux and Ernst Leuthold have kindly supplied more details in the shape of copies of an Instruction Booklet, a Price List which lists the Set Contents, and the covers of a later Manual. I also have details of the 2 relevant UK Patents, courtesy of David Hobson, which were applied for in 1948. The Price List is marked as No.1 and is dated 1948/49, so that agrees nicely. The Booklet is most likely from the same period, and on the cover Patents are said to be pending in Switzerland and abroad.



inimum, clamped together in various Unions, but the details are rather more ingenious than in some comparable systems. The 41 different parts include 18 different lengths of Rod, from 5 to 140mm; I don't have their precise diameter but they scale at about 4mm, or a little less. In what follows I've used my own English names for the parts rather the original German ones.

The 12 normal Rods have a groove at each end, and as well

there are 6 Tapped Rods, from 6.5 to 31.5mm, which are grooved at one end and bored and tapped at the other. The normal Rod and Clamp can be seen in Figs. 1 & 2, and the Clamp can take 2,3 or 4 Rods. The centre hole on one side of the Clamp is tapped to receive the Bolt which is long enough to engage one of the Tapped Rods (Fig.4). A Clamp can also be attached to the head of the Bolt, which has a groove in it for this purpose (Fig.5). Fig.6 shows a framework with the 2 cross members made from 2 Tapped Rods joined with a Clamp in the middle. Rods tapped at both ends, which would have avoided the need for the centre Clamp, weren't included in the system.

There were 3 other types of clamp. The 10mm Ø Round Clamp (Fig.7) allows Rods to be set at other than right angles to one another; the 20mm Ø Large Round Clamp (Fig.10) allows more Rods and is held by the lugs of the normal Clamp fitting into its 4 slots; and the Cross Clamp which is shown in Figs.9,15. An 8mm Ø Ring can also be used to link to 2 Clamps, as in Fig.8.

Next 3 parts that act as bearings. The 2-ended Bearing has a groove at either end (Figs.11,12); the Tapped Bearing is similar but with a tapped hole instead of the groove at one end (Figs.13,15); and the 4-sided Bearing (Fig.16).

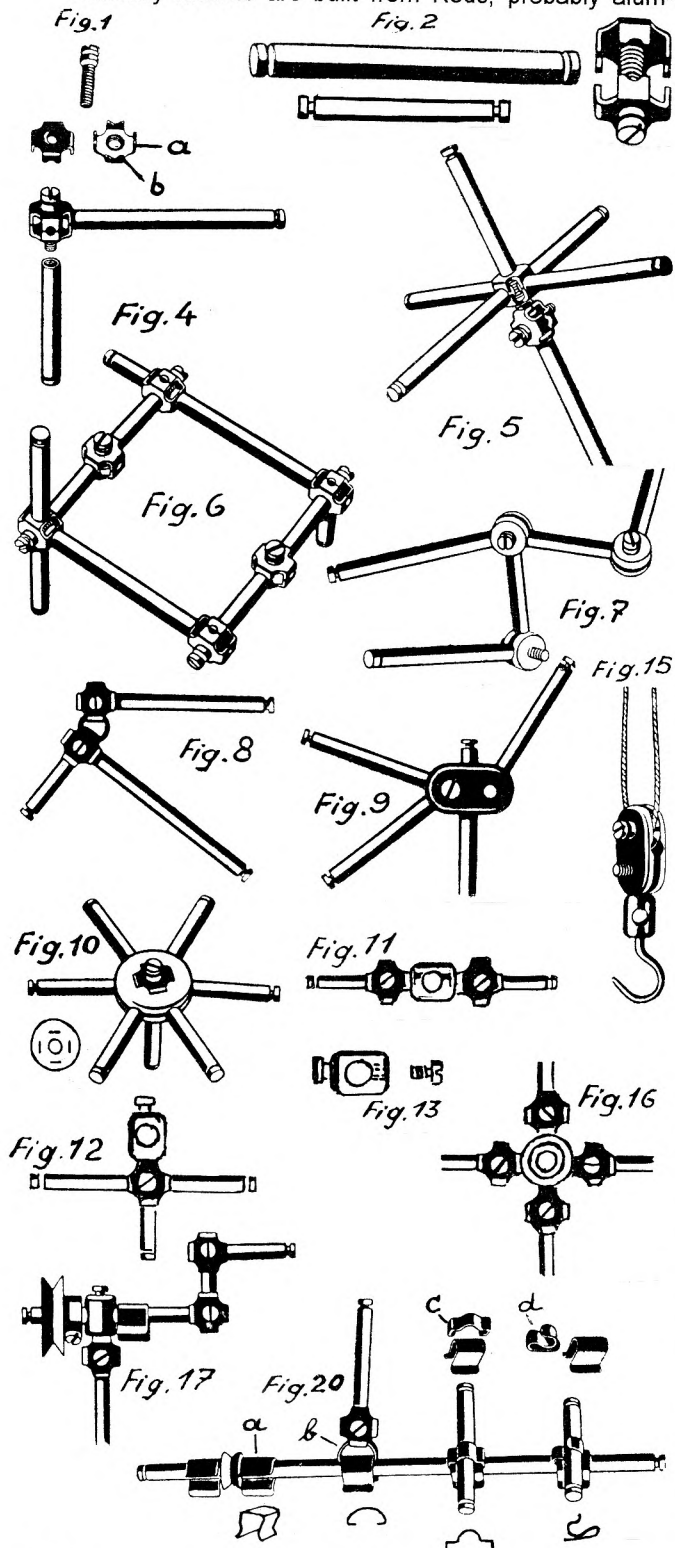
Normal Spring Clips are as shown in Fig.20a, but there are 3 other types as well which are held by being slipped under the Spring Clip. The Ring Clip can have a Clamp attached to it (Fig.20b); the Bearing Clip is shown in Fig.20c; and the Rod Clip (Fig.20d) provides another means of attaching a Rod to the Spring Clip.

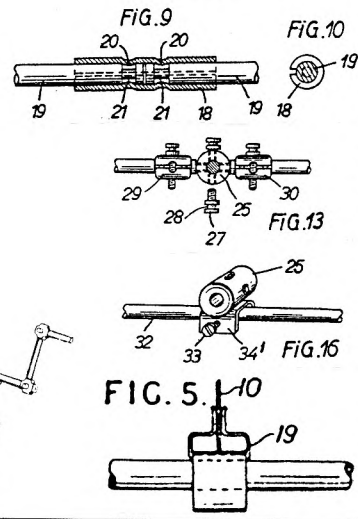
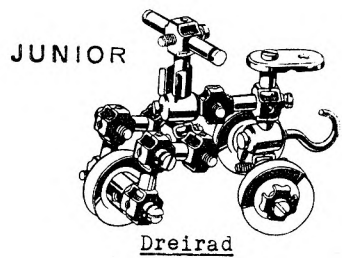
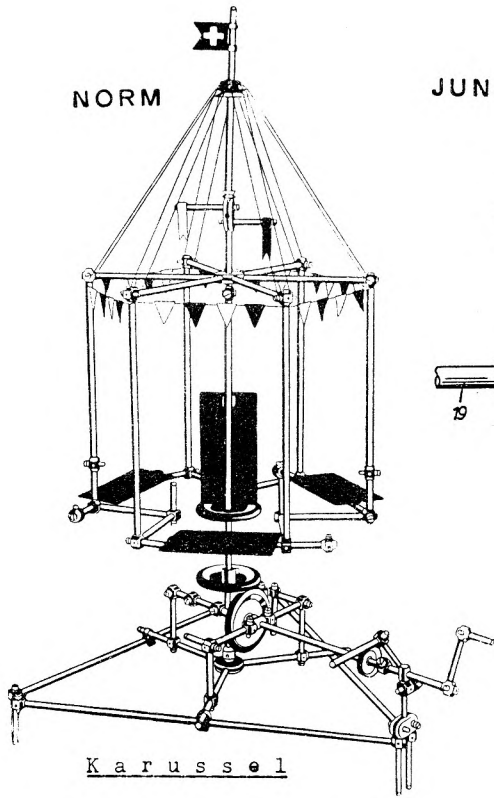
The Rod Clip has another use. The one size, 40*80mm, of Flexible Plate supplied has no holes in it but is fastened to Rods by sliding it into the lower part of a Rod Clip, which itself is held by a Spring Clip as before. Two Plates overlapped can be held by Rod Clips alone.

3 Pulleys of 10, 20 and 30mm diameter are listed, all but the 10mm with tapped bosses (Fig.17). The 30mm is sometimes shown with 6, 8 or no holes in its face, and there is a Tyre to fit it which looks like a thick rubber ring.

Other parts in the List are a Clamp Coupling Rod (below) that allows 2 Clamps to be joined side by side; a Hook which from Fig.15 has a threaded shank; a MECCANO #36 pattern Screwdriver; and a 2-ended Spanner which is shown in a set on the back cover of the manual - it has wide hex jaws, angled at one end, and perhaps wide enough to grip the Clamp, the only obvious use for it.

The Plates are thought to have been dark green and the Fittings black. PNs from 206 to 1240 were used, the first figure denoting the type of part, and all prefixed by 'D1-'.
The 3 Sets in the Booklet and List are called JUNIOR, NORM, and PLUS (their Swiss names). On the Price List it says the boxes measure 22*31cm - 'small box, large content' was the slogan - but the PLUS Set shown on the back of the later Manual looks bigger, more like 30*40cm, and has all the Pulleys and some of the other parts attached to a lift-out tray. The quantities of the parts that can be seen, like the Pulleys and Plates, correspond to those given on the Price List. There were 194 parts in the JUNIOR including 50 Rods and 2 Plates, and 522 in the PLUS, with 140





Rods and 6 Plates.
 Both the PLUS manual and the 6-page Leaflet are A4 size. The models in the Leaflet are a Tower, 2 Cranes, 2 Luggage Trucks, and the 3-Wheeler and Carousel shown opposite. The Manual's cover (on the facing page) shows the 2 boys with several models - a Motorcycle, a Funicular Railway, a Level Crossing Gate with Signal, and a Tower similar to the one in the Leaflet.

The Patents, Nos.673362 & 673457, are in the name of W.Kobler, a Swiss citizen of Huttenstrasse 42, Zürich, and were both dated October 27, 1948. No Convention Date is given. The first covers the rods, clamps and bearings, and one of the claims is that the method of clamping allows the axis of all the rods to lie in the same plane. Several types of clamp in the Patent weren't produced but most of them were only minor variants of those already illustrated. The one exception, although it isn't really a clamp, is the slit tube, Figs.9 & 10 opposite, to join two rods in line. The only bearings in the Patent are shown in Figs.13 & 16 (opposite): the first evolved into the 4-sided Bearing and the second, with the bearing attached to a clamp in some unspecified way, wasn't proceeded with.

The second Patent is to do with the clips and shows the types already described plus the one to hold plates, shown in Fig.5 opposite.

It isn't known how long KOBLER lasted but the Complete Specification for the Patent wasn't published until June 1952.

Correction At the top of p411 in OSN 15, Al Sternagle's address (for details of his *ERECTOR PARTS ILLUSTRATED*) was given incorrectly; it should have read: RD#2, Box 400, Hollidaysburg, PA 16648, U.S.A.

ITEMS FROM LETTERS

1. From David Hobson: • He came across ads in the *Boy's Own* of February and December 1921 for the **PA-DI-CA-CO** Gear Set that was included in MCS Part 5. Both are similar in style to the one in MCS but also include the words 'Something quite new'. and mention that they are for use with mechanical construction outfits. [I saw some of the gears recently courtesy of Geoff. Wright and the odd thing is that the Gear and Pinion meshed at centres of about .93", well short of the 1" MECCANO spacing. The measured DP was 39.5 for the 25t Pinion and 39.9 for the 50t Gear. Their bore was a tight fit on a MECCANO Axle and the bosses were single-tapped 8BA with roundheaded brass Set Screws. They are cleanly cast from a zinc alloy with integral bosses, and are all marked with the name and PN. Bosses have a slight taper from about .35" Ø to about .37". MCS shows 2 similar Mitre Pinions, 1G and 1H, and it's not clear how they differ - there was a 1H among the ones I saw and the only noticeable thing was that the boss wasn't tapped.] David wondered if the gears had been produced during the Great War for a particular purpose and the surplus were being sold off.

- Also in the December 1921 *Boy's Own* was a **KLIPTIKO** ad and the list of sets offered was the same as that given in 10/249, with the 7 complete sets 1-4, and the 5 Accessory Sets 0-04.
- **YUNOST'** sets were on sale in Moscow in the early 1990s and the parts in a set bought then are all steel except for the aluminium Flanged Plate.
- Among some early **ERECTOR** parts were a few **P31 Clips**, a little known part that only lasted for a few years after **ERECTOR** was introduced in 1913. It was intended to act as a Spring Clip but the ones found don't grip an Axle very well because they are a U shape in section with no waist, and are made from ordinary soft steel. They are 1/4" wide and 5/16" deep overall, with large radii at the ends of the wings. The illustration opposite came from a 1915 manual.

The Clips were in a **No.1 Set**, from about 1915 and the **label on the lid** has the normal large Railway Bridge and 2 boys, but the man on the left is not the one illustrated in *Greenberg*. He is an older figure with a bald head, bow tie, pipe, and his right hand is in his jacket pocket. It's a UK set with LONDON, ENG. inserted between the MYSTO MFG. CO. and NEW HAVEN, CONN., U.S.A. lines, so perhaps this was an export or UK peculiar label.

A **Part 1 Manual** that was probably with the Set, is interesting because it sheds some new light on how Gilbert sold his products here at that time. On the front cover is: THE MYSTO MFG. CO., NEW HAVEN, CONN., U.S.A., with underneath 22 HAMSELL STREET, LONDON, E.C., ENGLAND. Inside a 'Revised Prices for 1916' label has been stuck in, and another on the back cover, that shows the range of sets, has on it: BEDINGTON, LIDIATT & CO., Ltd., 2, New Zealand Avenue, BARBICAN, LONDON, E.C. | DISTRIBUTORS FOR The A.C.GILBERT Company, New Haven, Conn., U.S.A.

• There's a **Toy Museum** beneath Brighton Station (55 Trafalgar St., Tel. 01273 749494) which has MECCANO, MCS, and building sets on display. David mentioned specifically some 20 including an **ERECTOR** Hudson loco, and I've picked out the following new points.

A boxed set of **SPEDICON**, a name new to me. A Crane has been made up from the parts - aluminium Tubes or Rods with internally tapped ends, held together with Studs and N&B, and blue aluminium Plates. The names on the manual are Williamson-Pinney Ltd., & Chertsey Industries, both of Avenue Chambers, Bloomsbury, London WC1.

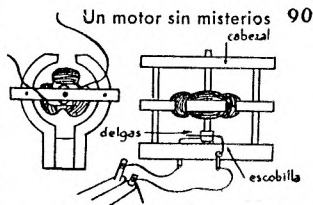
A **DAN DARE** small rocket with the windows on the nose-cone printed on in black/dull yellow, instead of embossed in the metal.

Some information on **PREMIER** from the manager of the Museum. It was made for Christie & Jay Ltd., the company named on the manual cover in MCS, by Morris Products, Jubilee Works, 39 Albion St., Dunstable. They started up in 1955 making stove enamel goods and kitchen toys, and the manual shown in MCS is believed to date from 1960. It had been thought that **PREMIER** was much earlier than that, even prewar.

2. Josep Bernal sent a copy of a 28 page manual for the Spanish Electrical Sets **ELECTROMECCANO** Nos.1 & 2.

U
P31

A fair range of experiments are shown, with permanent and electromagnets, bulbs and resistors, made up cells, and an electric motor. A No.3 Outfit is mentioned, to be ready shortly. Although certain specialised parts have to be assembled for the experiments, this isn't exactly a constructional system I think, so I won't go into more detail here. A box, from the manual cover, and one experiment are shown opposite. There's no indication of date except that it is said to be a toy of the atomic age. There's nothing on the manufacturer either - MECANO is included in the name of the small Spanish system MICRO-MECANO "GUINA" but there's nothing else to link the two.



Josep also sent a copy of the 12 page manual of another Spanish set, made by the well known firm Payá in 1962, called **CONSTRUCCIONES ELECTRONICAS**. It falls into the same broad category with electronic parts (transistors, capacitors, a coil, etc.) wired together on a chassis using special spring connectors. Details of 7 different simple morse and radio (I think) transmitters and receivers are given.

3. Ted Van Klink mentioned that there is a good, albeit slightly pricey, supplier of **TEMSI** in Toronto.

4. Sven-Ulrich Glage from Hamburg sent a list of his sets and the following names were new to me: - **DER JUNGE BAUMEISTER**; **EIFEL** (seems to be a Danish system of MECCANO or MÄRKLIN style, with the name on the Brackets); **FERMO** (German, the models are mostly built of triangular plates); **GA** (German, very simple with unusual parts); **GORDON** (most parts including Strips and Plates are brass plated, possibly an early East German system); **HERSA** (simple system, of small scale, made in Berlin immediately after WW2); **HW MAS-BAUKASTEN** (from the DDR firm that made DER JUNGE KONSTRUKTEUR); **LEICHTMETALL-KONSTRUKTIONS-BAUKASTEN** (aluminium parts similar to MÄRKLIN); **METABA** (German); **PICO ELEKTRIK** (looks like a 1970/80s version of ELEKTRO in MCS); **STUDIO ELEKTRIK**; **SV INGENØR**. He hopes to send more details in due course.

Other points: • On **AWS** (11/294), a later version of the set was sold with an updated manual containing additional models, and included in the set as new parts were 4 rubber Tyres. As far as is known none of the parts were coloured but there was an AWS clockwork motor which isn't mentioned in the manuals. • A **CONSTRUCTION JEEP** set that is different to the one in MCS and 14/373 - it is complete with a nice little tinplate Jeep, and the parts to build a Trailer and other models differ. It was made in Japan by Daiya. • An **INVENTRIX** outfit that was made in Germany in 1947/48 and has a clear resemblance to the Liverpool INVENTRIX in MCS. • A postwar **KONSTRUKTION** set which seems to be an earlier version of the system in MCS [and that in turn is thought to be earlier than the set described in 8/181]. • A **METALLO** set that seems to be pre-WW2 and Danish perhaps. It may be a 'new' system. • There was a German version of the **PHILIPS ME 1200** set described in MCS. • Two 1930s model plans for **HELLER MECHANIKUS** (15/415) are for model sailplanes made of aluminium that could really fly!

5. Photocopying tubular containers is always a problem and Kendrick Bisset has tried rolling the tube along to keep it above the moving light during copying. Rubber bands were put at either end to minimise slipping. The example he sent, of a GIRDER BILT tube, is very good indeed.

6. Don Redmond sent a note about research that he and

John Wapshott had done into the history of the Canadian **CASTLE BUILDER** system. The firm who made it, Castle Manufacturing Co. of Toronto, and its manager, Percy V. Jermyn, are listed in the city directory for 1917-18, but not before or after. A Jermyn family lived in Mimico, then a Toronto suburb, both before and after those years. The company's address was 69 Richmond St. East in 1917 and then at 80 Duchess St. As a working hypothesis Don suggests that Percy enlisted in 1914, was invalidated home and founded the business in 1917, and died of Spanish influenza late in 1918 or early 1919, whereupon the business ceased. The resemblance to certain U.S. systems of the time has still to be explained.

Don also wrote that a MECCANO enthusiast of his acquaintance saw a metal construction set in a carton marked **BARUM CHEZ** (or similar) in an antique shop in Marmora (north of Kingston, Canada). It had gone when Don rang but was apparently made in Eastern Europe and had E984 on the box. Contents may have included 2x2" & 4x1½" Pulleys with Tires, 4 Rubber Tracks, Plates, N&B, and a small manual. Don wonders if it was repackaged MERKUR.

7. Dennis Snowdon mentioned that he bought a new **No.0 ERECTOR Set**, just like the one shown in 15/411, with 1" Pulleys and the FO Plate, etc, from a shop in Stanhope in 1943 or 1944. It cost 2/6, the amount he got from a local lady for digging her garden. He later swapped it for some MECCANO parts and now wishes he hadn't.

8. A friend of Tony Matthewman has pointed out that the text in the MCS pages for **RODOPI** is not Russian but may be Bulgarian. Could well be because a map shows some Rodopi mountains in the south of Bulgaria, and though I couldn't find Bratsighovo, the manufacturer's town in MCS, there are several names thereabouts that end in 'ovo'.

9. Last year Richard Bartlett found some sets called **MECHANIC** on sale in Malta, and they are probably akin to WISDOM (see 10/238), though some of the colours of the parts are different, with air force blue Strips and white (plastic) Flexible Plates. The Flanged Plates are still metallic red. 3 sets were available, and the largest included the special Cab with the motor built into the lower part, as in the WISDOM No.6 outfit. [Roger Baker has also reported sets on sale in Kuwait for the equivalent of £4 up to £15.]

Richard has also found the remains of what was probably a **SCHEFFLERS** set (see 12/324). There was no box and as would be expected the manual didn't have a name on it. However its cover, Illustrated Parts, and Set Contents agree exactly with those in MCS/FB, and the maker, VEB Metallspielwaren of 9112 Burgstädt, is the same too. Another clue is the Windmill Sail which is parallel rather than the later tapered one shown in OSN 12. The 7 sets available are shown on the back cover and though they retain the unusual SCHEFFLERS set numbering, their prices are identical with those for the Sets 1-7 in the BURGSTÄDTER manual described in OSN 12 (and included in MCS pt.5). So that would seem to put its date at near the point the name changed, although prices may not have changed as quickly in East Germany as they did in the West. The manual's PR of KE 51 76 III-8-9 690 might indicate a date of the 51st week of 1976. That at least puts it earlier than either of the 2 possible analogous dates from the BURGSTÄDTER manual.

The major parts in the set have a dark grey, nearly black finish with a sheen to it, except that the Flanged Plates are dark blue and the 5h Ø MÄRKLIN-type (metal) Pulley is a dark red.

10. To add to what was in 15/424, Kendrick Bisset sent the following notes on the **STRUCTO** parts in his #2, 2A and 3 sets. • The A/Gs have round holes in one flange and 4.7*7.6mm slotted holes in the other. • Wagon Wheels are 1½" Ø, and have a very smooth tread, ⅜" wide. The ones in the #2 set have 6 spokes and are painted black; the others

are unpainted and have the 8 spokes shown in the manual.

- The Engine Crank is grooved, on the side opposite the crank projection.
- The Flexible Shaft Coupling is a spring a bit less than 1½" long and with an o.d. of .226". It fits tightly over the Shafts and so isn't fitted in the same way as the MECCANO #175.
- Windmill Cards are red, 1½"×1½" and have a simple line as the border with 'MADE WITH STRUCTO' inside.
- Shafts are between .160 and .164" Ø with most towards the upper value. All bosses and Collars are double tapped 6-32. The N&B are 8-32, and the Bolts have a shallow filister head.
- Some Strips have larger holes than others and there appears to be 2 standards, 4.3±.1mm and 4.4±.15mm. Possibly later parts had the second size.
- Strips, A/Gs, etc were all tin plated, and have gone grey. The cast parts are a dull to shiny grey, the colour of some of the zinc alloys used in model locomotives. N&B are shiny (nickel or chrome?) plated. [Kendrick went to some trouble in measuring the diameter of holes in a sizeable selection of parts using plug gauges and a calibrated tapered rod (a better version of the one mentioned in 4/74). He also measured the holes in some U.S. MECCANO Strips and found 4.35±.075. He sent me full details and some interesting comments, but unfortunately I haven't room for them in this Issue. His conclusion is that it seems appropriate to quote hole size to the nearest .1mm, but even with that degree of imprecision, care is needed in using hole size in identifying parts because of the tolerances and differences that can occur. (±.1mm = ±.004")]

On Threads (7/168, 8/203) he sent copies of pages from the 1914 American Machinists' Handbook. Those shown (with the initials used earlier in brackets) are Whitworth (BSW), B.A., International & French (Metric) (IFS), Löwenherz (Lhz), A.S.M.E., and American Screw Company. The International Standard for metric threads was adopted in 1898 and was effectively the then French Standard. Lhz was designed in 1894 and was said to be widely used as a fine thread in Germany for measuring instruments and similar work. A.S.M.E. stands for American Society of Mechanical Engineers and their standards were promulgated in 1907 as a series of 'standard' and 'special' sizes. With a few exceptions they correspond to the ANF & ANC sizes respectively and all the combinations of diameter and tpi used have already been given in OSN 7 & 8. The American Screw Company sizes are all within the A.S.M.E. and ANC/F series except 2-48, 5-32, 6-30, 12-20, & 14-18. The Angle of all the American threads is 60°. If anyone would like more details I can copy to them the 7 A4 pages that Kendrick sent.

Also an answer to **Query 10** (5/106) about where the name **LYONS**, used in connection with the METALCRAFT Spirit of St. Louis sets, came from. An outfit he acquired recently has a LYONS sticker pasted on the outside, and a flyer included in it (showing the range of sets) has a description of the Lyonsport Aero Club by Garvey Lyons. It is thought that his name started to be used after he became president of Metalcraft in 1928 or 1929.

On **BOOMTOWN** (15/422) Kendrick's Plates are painted a rich blue, though not as bright as the current MECCANO shade.

11. On **STRUCTO** (15/424), Richard Symonds sent a copy of a page from the 1921 No.93 Montgomery Ward catalogue; it shows a train set which includes a bridge made from what appear to be 2 STRUCTO Multi-Unit Girders and various Strips. The maker's name isn't given but perhaps Structo were using up their remaining parts in that way, after they had ceased producing constructional sets.

12. On **STABIL** Werner Sticht sent a translation of an announcement contained in a 1929 circular to German toy dealers from Walther & Co., the manufacturers. It says that for years they have produced coloured sets for export, but these have never been sold on the German market because no matter what paint, lacquer, or method of colour printing is used, damage to it always occurs when tightening the nuts and bolts. An unused coloured set looks very well, and so does the first model, but soon the appearance is spoilt by the deterioration of the parts. Without hesitation they recommend only the nickel version of their outfits. Werner asks if anyone has any information on these coloured sets or parts, which were possibly sent to markets in North or South America, or elsewhere, and may have been sold under names other than STABIL. [1929 was the year in which Märklin introduced their coloured parts - as noted in earlier Issues, STABIL metal parts remained nickel plated until the end.]

13. Late last year D.Courdoux wrote to the **METALLICO** agents in France, Italy and Holland, as listed on their boxes (see 13/336), asking about the availability of sets. Only one replied, Meridien Sarl of Dijon, saying that the constructional sets had been discontinued after a legal complaint by Meccano-France.

14. On the **MEK-STRUCT** Couplings shown in 12/310, Gordon Finch wrote that the ones he has are 13mm long, with the holes spaced 7mm apart and tapped 2mm or slightly larger.

EXTRA MCS SHEETS The Sheets listed here are available at 15p per Sheet plus postage. That makes £6.15 for all 41 Sheets.	DEN DANSKE INGENIØR: X1.1,2 [1] D.V.s INGENIØR: X1.1,2 [1] ERECTION: X1.1,2,4,5,5a [3] HANDY CRAFT: X1.4 [1] INGÉNIO: X1.2,5 [1] JOC MECANO: X1.1,5 [1] JUGA: X1.1,2 [1] KOBLE: X1.1,2,3/6,4/5,4a/5a [3] KONSTRUKTOR-III: X1.1,2/3/4/6 [1] KONSTRUKTOR MALYUTKA: X1.1,2,3/4/6,5 [2]	KONSTRUKTOR MEKNIK: X1.1,5 [1] LEONARDO: X1.1,7 [1] L'INGÉNIEUR FRANÇAIS: X1.1,2,5,7 [2] LYNX: X1.1,3e/4e/5c [1] MALY KONSTRUKTOR: X1.1,2 [1] MAYKO: X1.1,2 [1] MECCANICO: X1.1,2 [1] MEKOTRAX: X1.1,2,4/6,5 [2] MÉTAFLEX: X1.1,3/4,7 [2] MÉTALOR: X1.2 [1]	MÉTALU: X1.2,5 [1] MEX: X1.2a/4a/6,5 [1] MINITECH: X1.2 [1] OREGION: X1.1,7 [1] PYGMÉE: X1.7a [1] STERLING: X1.5,5a [1] STRUCTEX: X1.1,2 [1] TEST: X1.1,7 [1]
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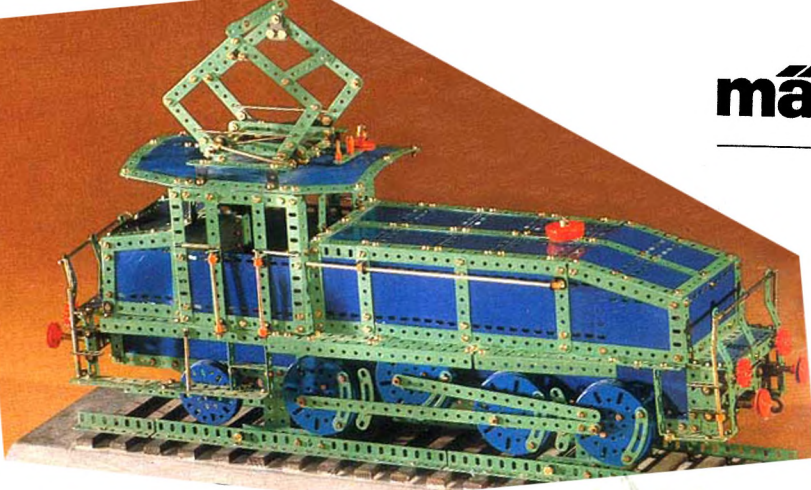
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Some of the
MÄRKLIN
'super' models.
See Page 433.



1001 E-Lok BR 160
Modell-Länge 72 cm



Großbaukasten
„Do-X“

1079

1003 Güterzuglok BR 050
Modell-Länge 165 cm



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