MECCANO MAGAZINE

Spring 1981 Vol. 66 No. 1 £1



The shape of things to come—

revealed inside, the 1981 Meccano and Dinky ranges



Britain's biggest and best range of construction kits

MECCANO MAGAZINE

Vol. 66 No. 1 Spring 1981

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Front cover: Impressive view of a heavy-duty tanker, just one of the realistic models from the new Truckerfleet Action Set which will be available early this year. More on this and other Meccano developments underway are detailed in an article beginning on page 4.

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WELCOME to the new-look Meccano Magazine! Quite apart from the fresh design of front cover, more modern type-style and headings plus a more varied spread of articles inside, I'm delighted to bring you the 'good news' in the form of features outlining the exciting new Meccano and Dinky Toys ranges for 1981. It's very much a case of 'where to begin'—there's so much happening!

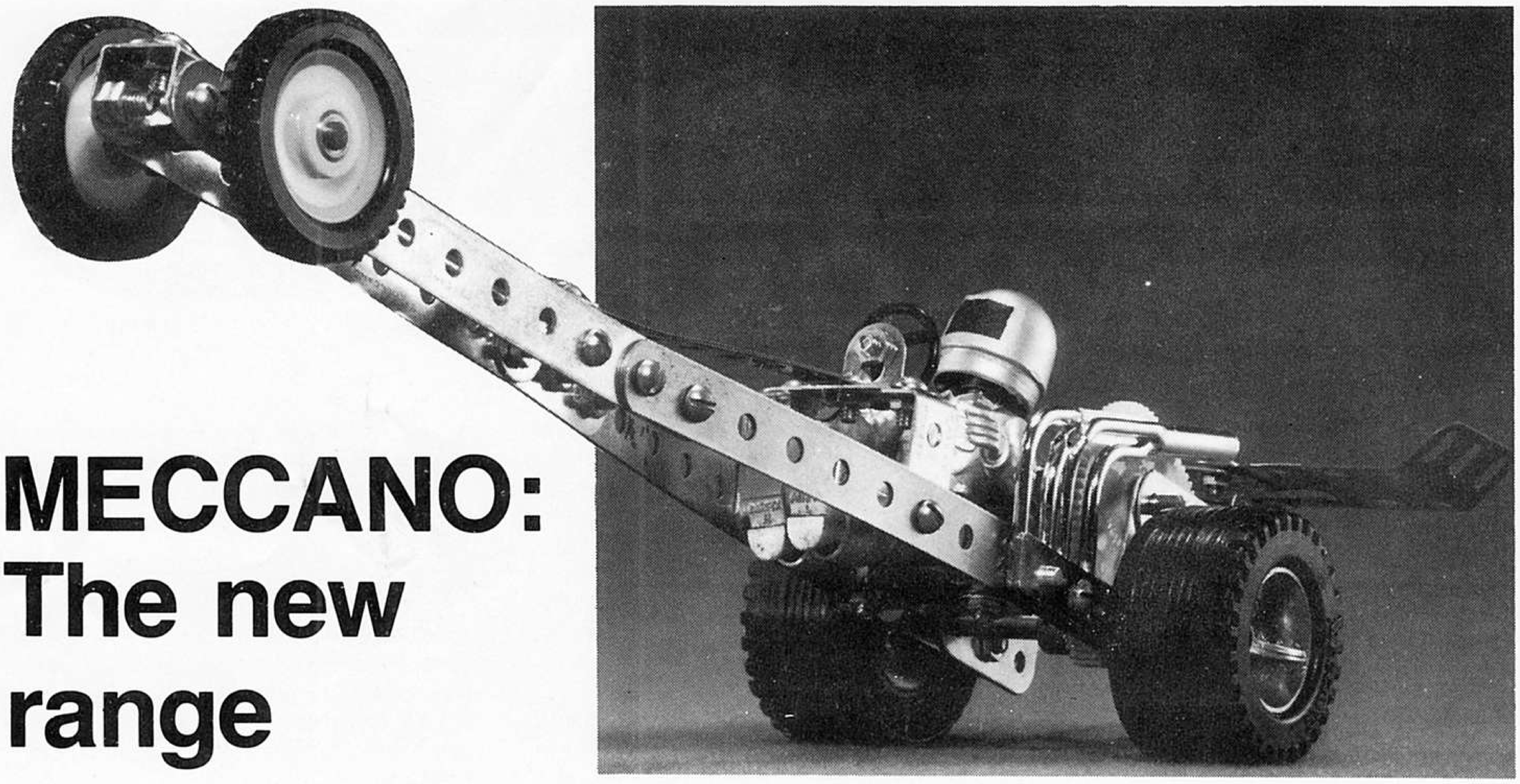
The more varied spread of articles in this issue reflect the fact that most Meccano enthusiasts readily point to other side-hobbies. These are frequently allied to other Binns-Road products; Hornby Trains in both gauges, old Dinky Toys etc; and indeed many other fascinating products of a wide range, the whole combining under the umbrella term of modelling interests. Pre-war toys, tinplate, die-cast models, lead soldiers etc. are today much sought after as collector's items and rightly so as we may never see their like again. The story behind these is every bit as interesting as the products themselves and this issue includes features on Hornby Dublo and pre-war Astra Models. Subsequent issues will carry articles on 0-Gauge, model guns etc. Hope you like them.

'The most successful branded toy of all time', a definition that can only be applied to Meccano and a veritable barrage of new Meccano and Dinky Toys products are revealed in this issue to emphasise the point! Exciting Hyperspace, Truckerfleet and 1000-5000 main outfits combine with Sprint Motor-powered Action Packs and further introductions to the other ranges, to make up what must be the most comprehensive line up of new Meccano enthusiasts are further heartened by the news oa a range of 50 Accessory Packs plus eventual full spare parts availability from specialist outlets. The similarly exciting Dinky Toys introductions for 1981 are given a separate feature on pages 17 and 18.

M.J.W.



Stationmaster Raoul Bois of Hardgate, Duntocher, Scotland, is seen here with his latest Meccano model, an Austrian 2-8-4 Locomotive. One of a lucky minority of enthusiasts able to combine business with pleasure, Raoul has had a lifelong passion for trains and recalls the time as a boy in Middlesex when he couldn't get to sleep at nights unless he could hear shunting operations in the nearby rail yard! His interest in Meccano had similarly early beginnings and model locomotives have featured prominently in his work ever since. The photograph above, reproduced by courtesy of George Outram & Co. Ltd., Glasgow, shows Raoul on the platform of his station at Bearsden, Glasgow with his locomotive which formed the basis for a feature in the local evening paper.



MECCANO: The new range

A dramatic view of the Super Dragster Action Pack powered by the new wind-up 'sprint' motor.

IN January 1901 Frank Hornby was granted his first patent for the construction system that was later to be named 'Meccano'. Eighty years on, almost to the day, an entirely new range of Meccano is revealed which, whilst continuing and extending the integrity of Frank Hornby's original concept, provides a fresh and exciting outlook to the most successful branded toy of all time.

THE closure of the ailing Binns Road factory in Liverpool marked a watershed for Meccano, providing a unique opportunity to take a fresh look at the product, its market and trends in the hobby and toy fields. Considerable research into these areas has resulted in the development of the new range, which will be unveiled to retailers and international buyers at toy fairs in London, Nurnberg and throughout the world, starting in late January. The new range will be available to the buying public from February onwards.

Development of the 1981 range, involving the design of new sets, components, instruction booklets and packaging was undertaken by a newly formed team of product engineers, modelmakers, artists and graphics designers, led by Chris Hood, Airfix's Head of Development. An inestimable contribution, however, has also come from many Meccano practitioners and enthusiasts throughout the world, whose advice, suggestions and direct participation have greatly influenced the development programme. Their joint efforts have produced a range that not only presents an interesting and lively image to the young, first-time buyer, but also appeals to the more technical inclinations of the Meccano purist.



Chris Hood, Head of Development at Airfix Products puts the finishing touch to one of the models from the new Truckerfleet Action Set.

CORE SETS

Meccano's greatest strength has always come from the variety and versatility afforded by the basic sets, a fact that has certainly been recognised in the development of the 1981 range. The philosophy behind the core sets is to provide the basic components to construct models and mechanisms of varying levels of complexity that utilise the technical and functional ingenuity of Meccano to reflect real life situations. The new series of four core sets, completely novel in terms of contents, are, through the selection and colours of parts and choice of subject matter, developed to produce a good balance between technical achievement, aesthetic quality and realism in the end result.

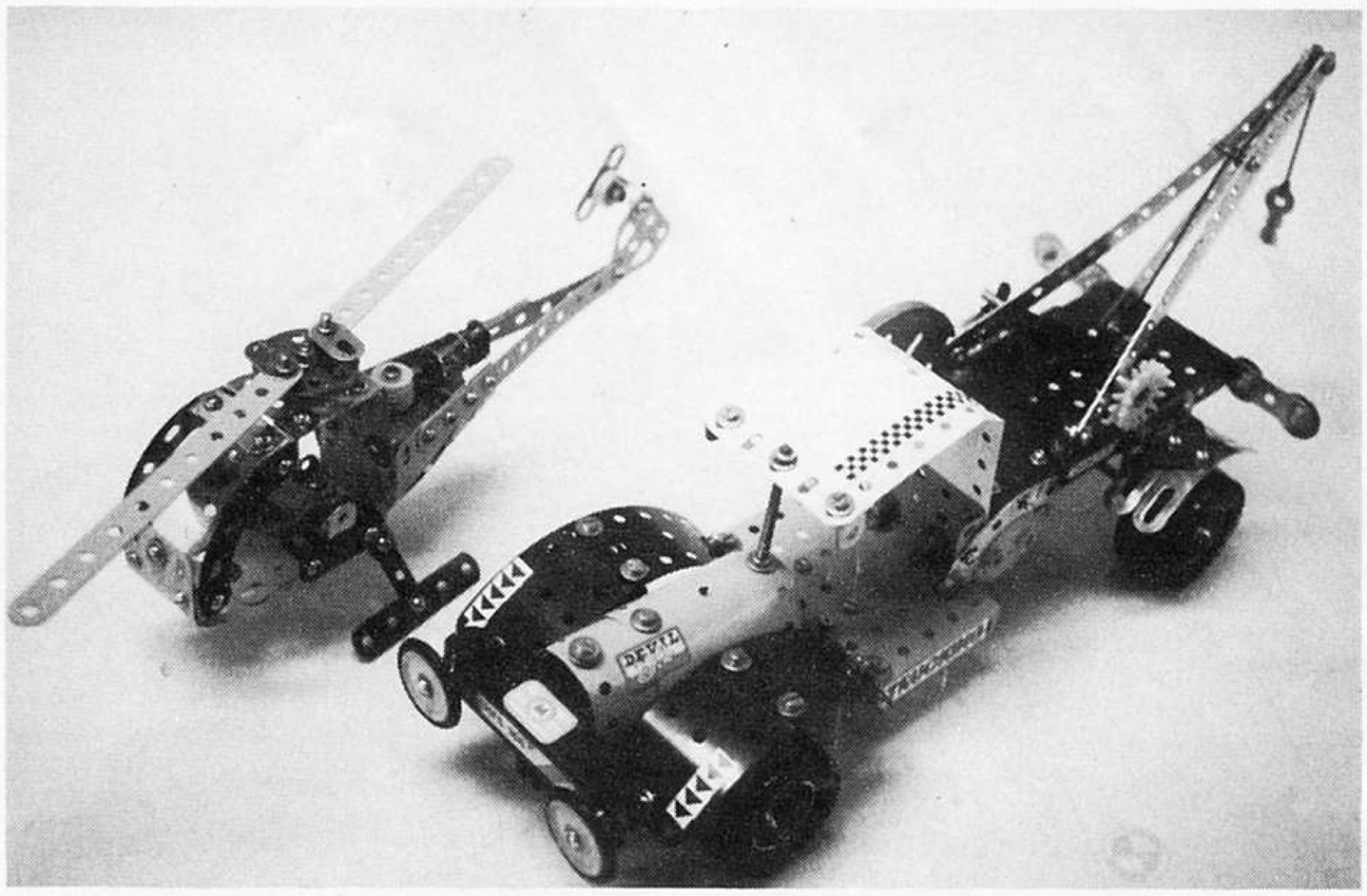
The first pack, the 1000, is seen predominantly as a confidence-building starter set. A helicopter, sports car or dockside crane are typical of the simple but attractive models that can be constructed from the selection of strips, plates, pulleys and the useful helping of fishplates, angle brackets and other linking pieces. A full-colour booklet gives clear step-by-step instructions in six languages for the assembly of five models plus a compendium of further 'ideas' pictures. Motorization in the 2000 set enables the young engineer to build powered wreck trucks, stock cars and suchlike. Again, full-colour step-by-step instructions are provided for a number of models as well as a selection of more ideas. The 3000 and 5000 sets (the classification system allows for further developments in the range), intended for the

more ambitious would-be engineer, provide unlimited opportunities for imagination, ingenuity and pure engineering skill. The 4.5 volt battery pack, used previously in the Meccanoids Set only, lends greater power and mobility to models from the 2000, 3000 and 5000 sets than the more bulky 3 volt box utilised in the old range. A new, stylised road wheel is also introduced to give more realism and superior traction than its predecessor. The contents of all the new sets are contained in durable, pre-formed plastic trays—1 in 1000, 2 in 2000, 3 in 3000 and 4 in 5000—with clear snap-on dust covers. These provide a neat solution to the age-old problem of everyday parts storage and give the boxes a firm, chunky look. The 3000 and 5000 boxes, produced from reinforced cardboard, are of a suitcase-type construction and include strong plastic carrying handles.

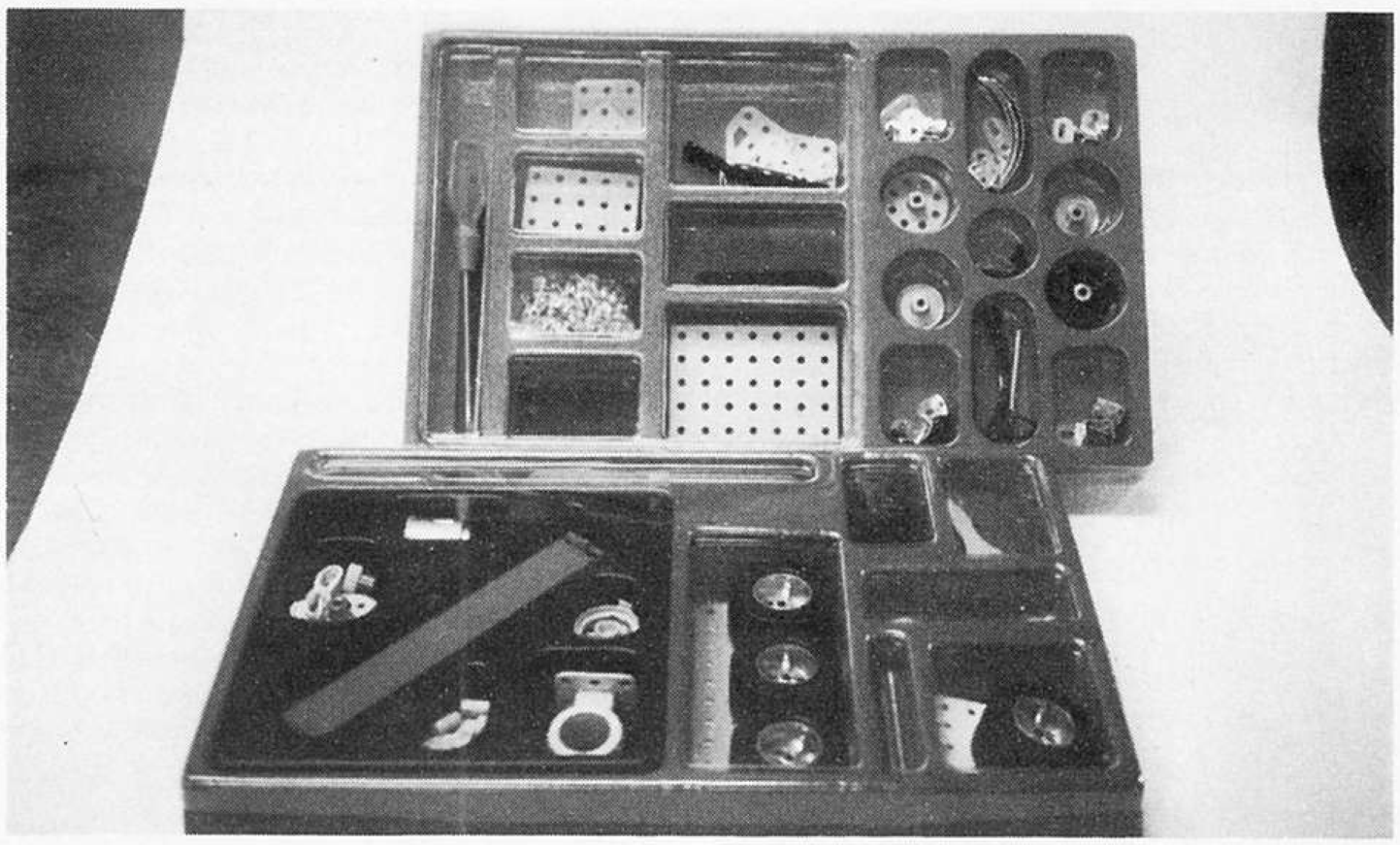
TWO NEW ACTION SETS

A highly successful tradition of thematic construction sets is continued with two new outfits now named Action Sets, designed around exciting play situations. The first of these, Truckerfleet, builds into a range of rugged, continental-style lorries that include petrol tankers, flat-bed vehicles, tip-up trucks and artics. Purpose-designed components in the set include a radiator grille, bolt-on cab roof, pre-formed interior and new heavy duty tyres that fit standard 1" pulleys. An interesting choice of self-adhesive decals is included for the finishing touches.

The second new Action Set is called Hyper-Space. This follows on from the immensely popular Space 2501, but in a scale more in keeping with the current vogue in space and science-fiction films. Again, many special parts such as rocket guns, solar panels, spacemen and a mission control centre are included to add an extra dimension to the fun value and realism of the set. Both Action Sets feature full-colour instruction booklets, highly individualistic packaging and the pre-formed storage trays and lids used in the standard sets.



A helicopter and wrecker truck are examples of the type of models that can be built from the 1000 and 2000 sets. Below left, the new sets are packed in pre-formed plastic trays with clear snap-on lids. These are the trays from the 2000 set, with samples of the contents.

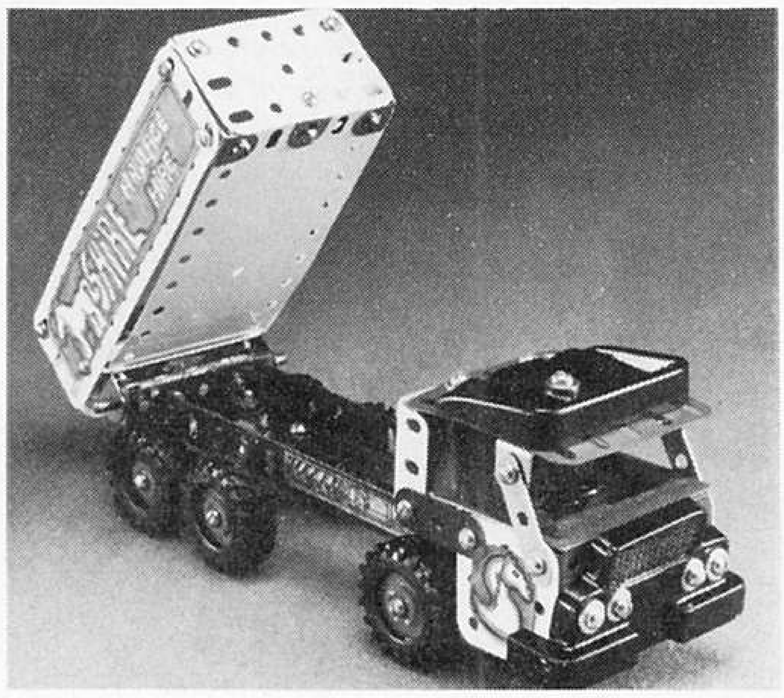


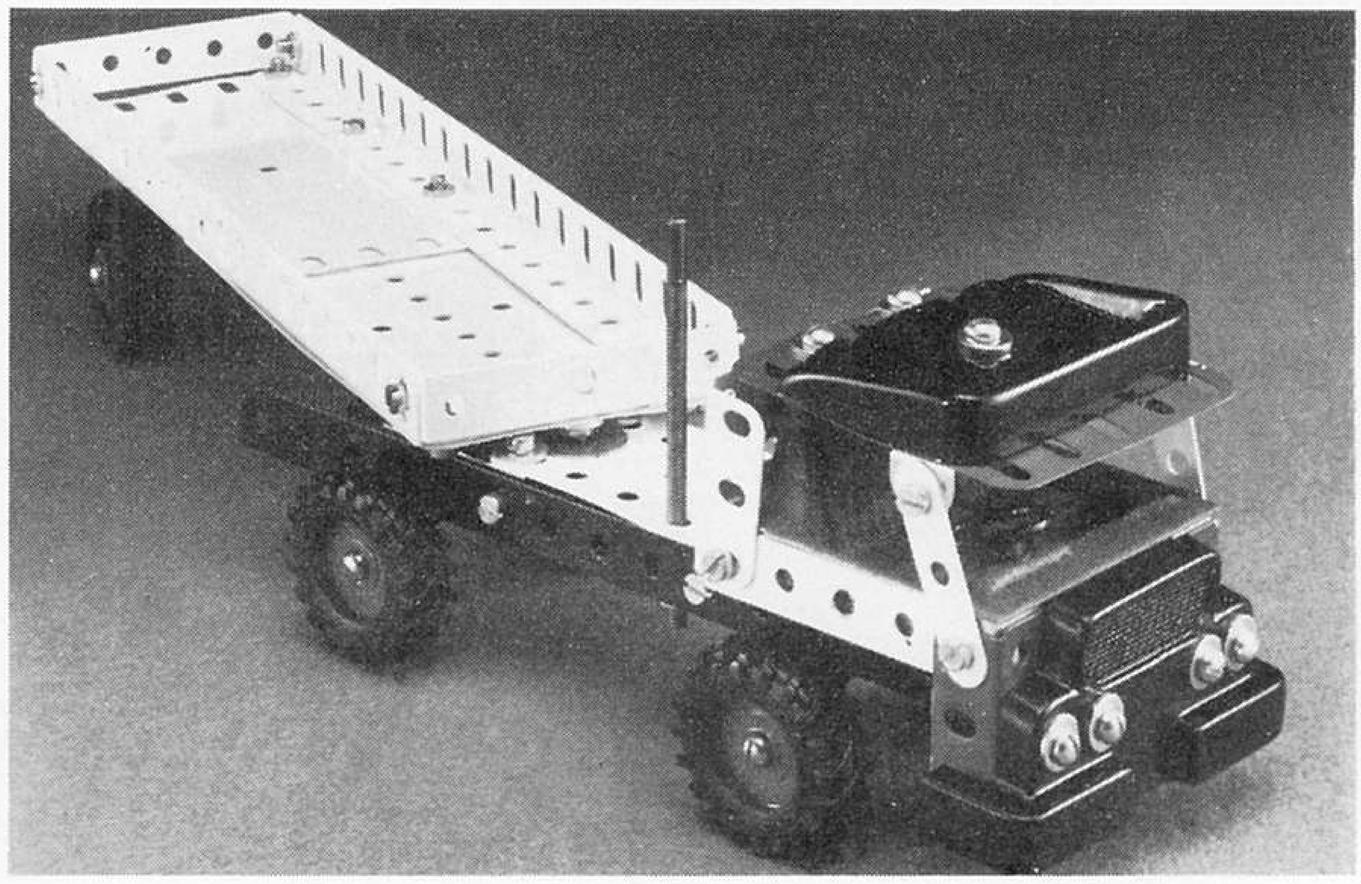
Realistic trucks made from the Truckerfleet Action Set. Purpose-designed components include a sturdy grille, bolt-on cab roof, pre-formed interior and new chunky tyres.

MORE ACTION PACKS

An entirely new concept of low priced easy-to-build, high play value items, Action Packs were launched in September 1980. The market response to these packs exceeded all expectations with the result that stocks were sold out within weeks of their introduction, a situation unprecedented in the difficult climate of the toy market in 1980. 1981 sees a considerable expansion to the Action Packs range with the addition of a third price of £3.95 to complement the £1.95 and £2.95 ranges introduced last year, and the long-awaited launch of the 'sprint' motor models. New space vehicles, a road grader and prairie train are some of the items in the new series. In addition, a breakdown truck and two surrealistic 'dune buggies' are introduced to the £1.95 category, whilst a set of farm implements and a new tipper truck will be available at £2.95. Several improvements to existing items are made to simplify construction and give better play value to the finished toy.

A new idea in assembly instructions has been developed for the first three groups of Action Packs by a leading firm of graphics consultants with a strong reputation in the field of





semi-technical D.I.Y. publications. Appearing on the rear of the new-look packs, the exploded view details are intended to provide a simple and colourful reference to the construction of the model, and follow extensive research into the different levels of ability of first-time buyers.

SPRINT MOTOR

One of the most dramatic innovations in the 1981 Meccano range must be the introduction of the clockwork 'Sprint' motor. A dragster, racing car and 'wheelie' machine propelled by the high-torque motor form the 1981 range. With easy-to-follow assembly instructions, the parts make into lasting models which provide many hours of fun and excitement. The packs come complete with racing stickers, special wheels and a plastic injection moulded racing driver. As an extension of the Action Packs concept, the 'sprint' motor items are expected to be a resounding success in 1981.

ACCESSORIES

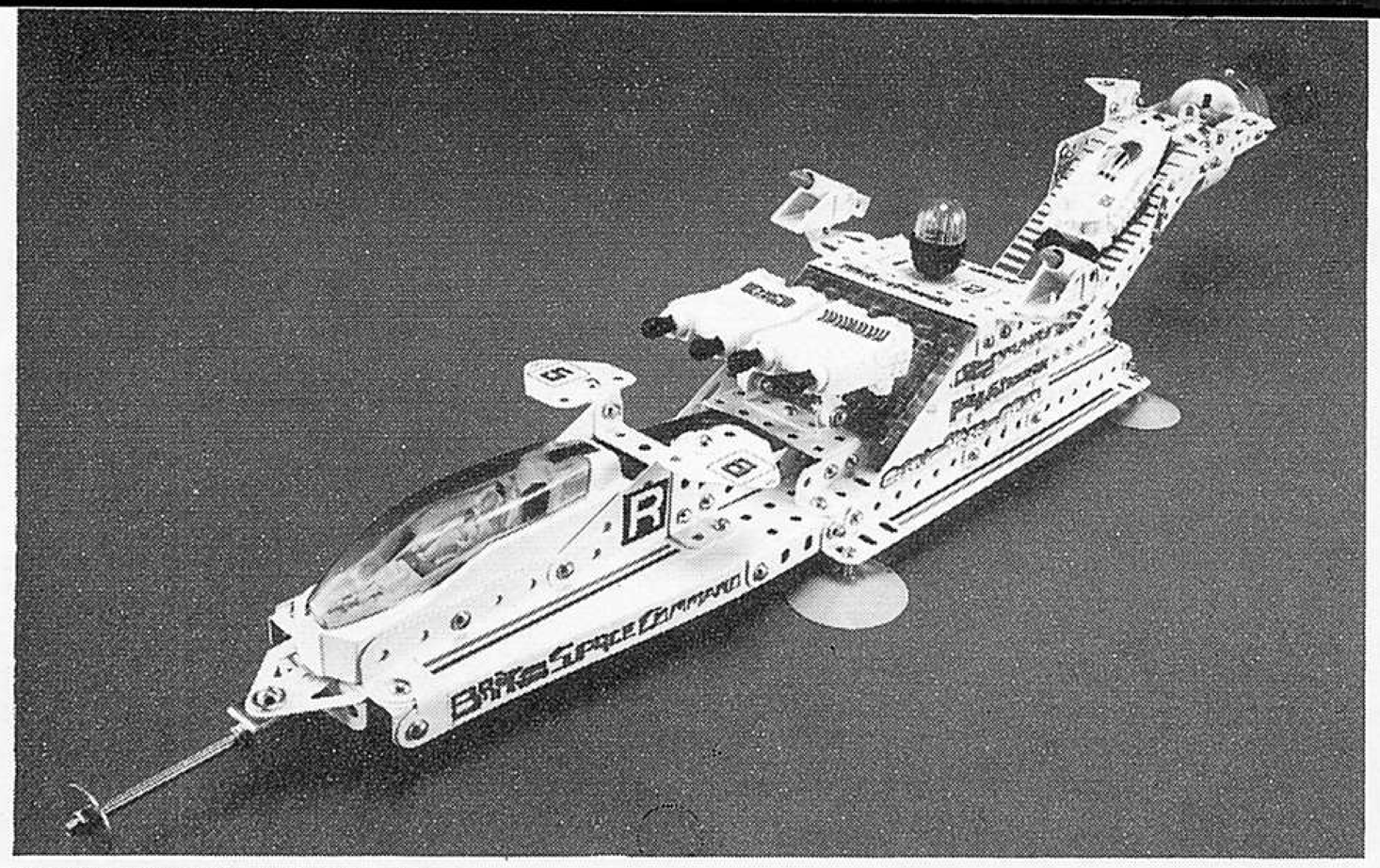
Most Meccano modellers will be interested to learn of the plans for accessory parts in 1981. Since, above all, Meccano is a total construction system, the availability of a comprehensive range of accessories is of paramount importance. In particular, the consumer must be able to extend his collection both in terms of adding basic components and obtaining those parts that are not included in standard sets.

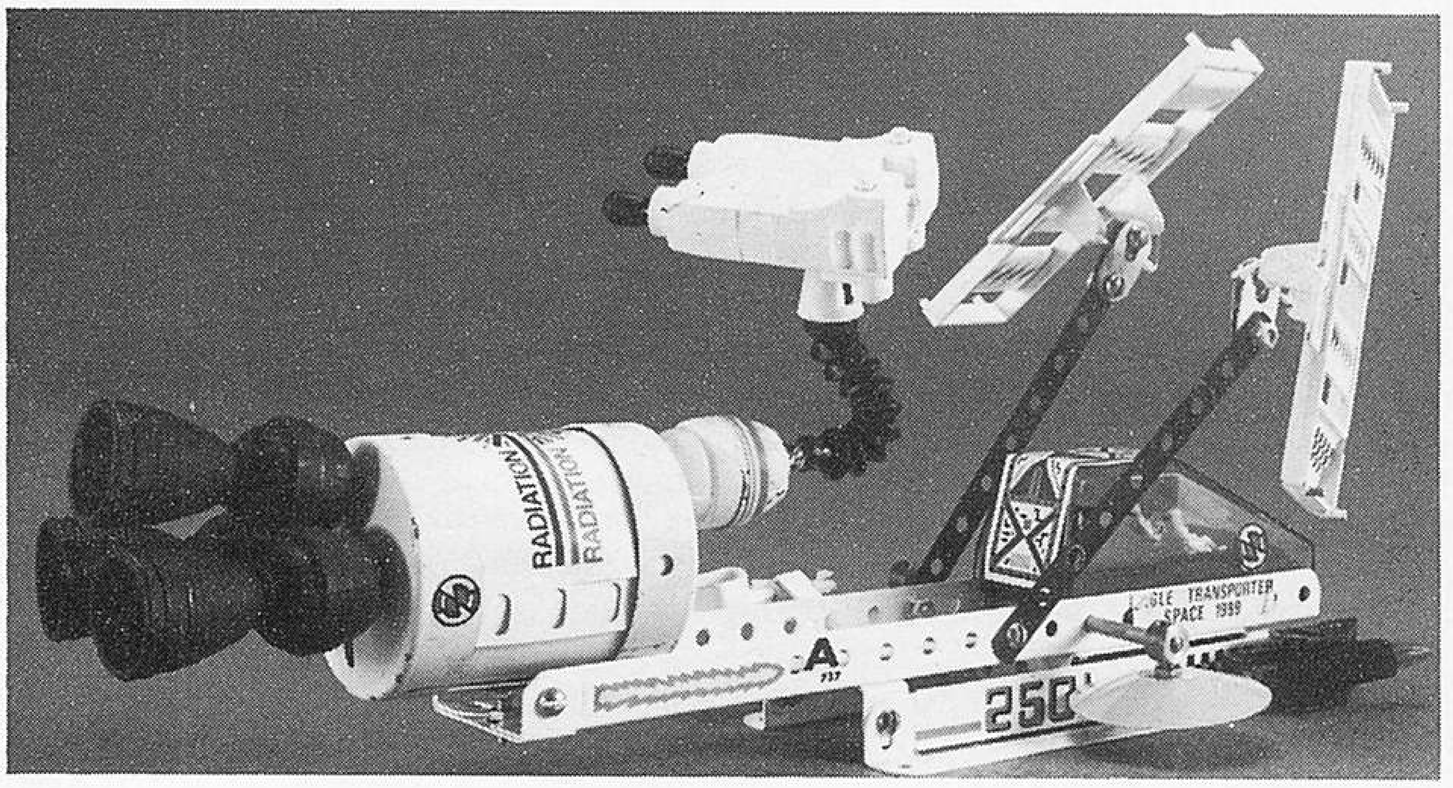
A new range of 50 accessory packs will be introduced early this year, comprising carefully selected combinations of components forming a logical sequence of extensions to any Meccano set. At pocket-money prices, these will be widely available from Airfix stockists. The popular Magic Clockwork Motor, 6 Ratio Gearbox and D.C. Motor, 6 Ratio Gearbox and Universal Coupling, 1.5-4.5 volt Motor and 4.5 volt Battery Box will also be available as carded accessories. A wide range of the more exotic parts will be obtainable from specialist outlets.

A BRIGHT FUTURE

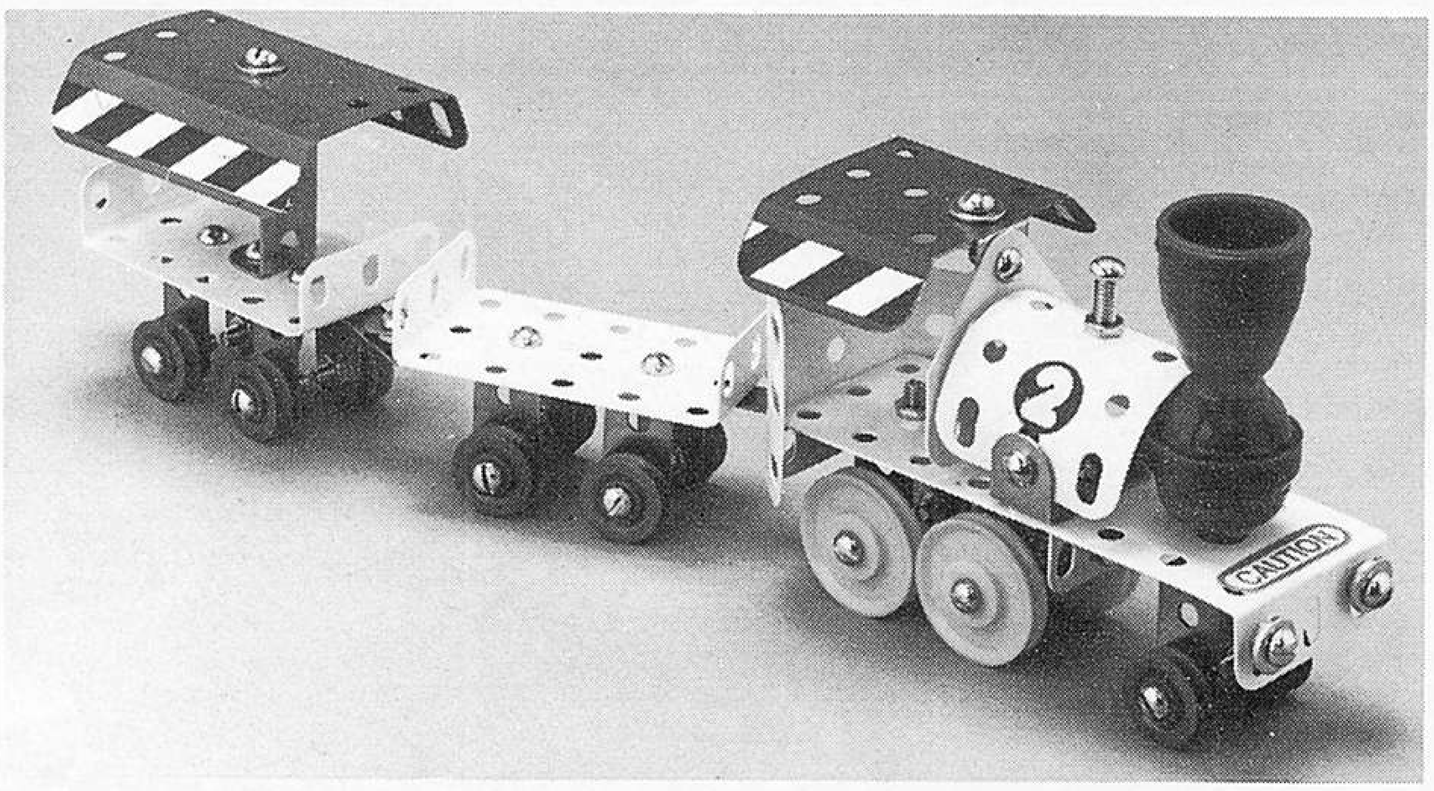
Meccano's new range has created a stir in the toy trade. Important buyers who have already had sneak previews of the range are enthusiastic about the prospects for Meccano in 1981, having given unanimous approval to its new image and new products. We at Airfix are looking forward to a record year. Already, developments for 1982, 1983 and beyond are well advanced with more Action Packs, more Action Sets, and the addition of allied and new technologies to the Meccano system.

It is perhaps a fitting tribute to the genius of Frank Hornby and his brilliant invention that a product that has performed such an important role in the lives of so many millions of people over the years can generate the excitement and enthusiasm that those associated with the product now share some eighty years on. The refreshing outlook of Meccano's new range ensures a bright future indeed.

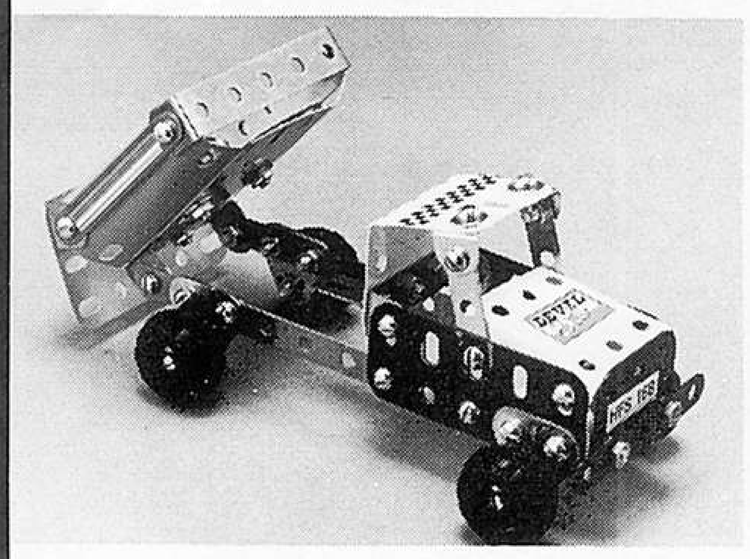


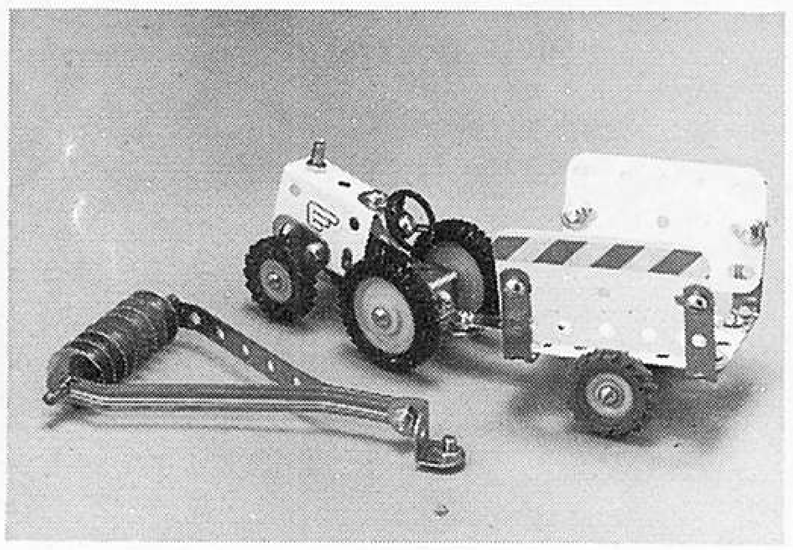


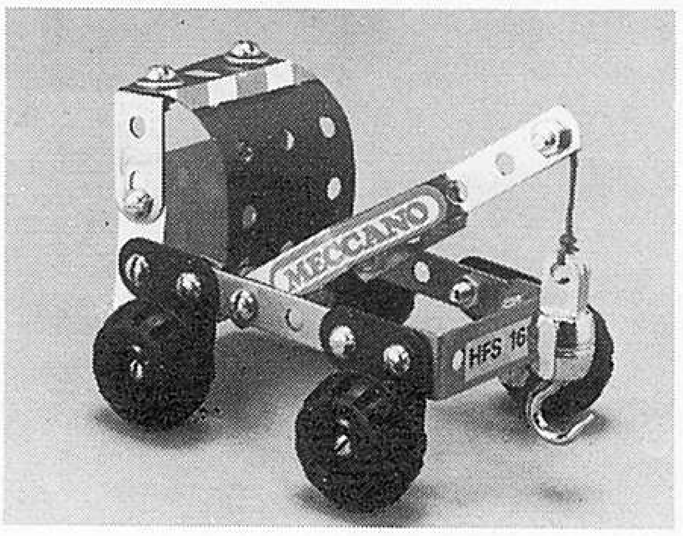
Unlimited imagination is the keynote to the brand new Hyper-Space Action Set. Two of the models for which full-colour step-by-step instructions are provided are shown above.



New additions to Action Packs: the delightful Prairie Train, a sturdy Dump Truck, the Farm Set consisting of an attractive tractor with open cart and harrow, and a simple Breakdown Truck.



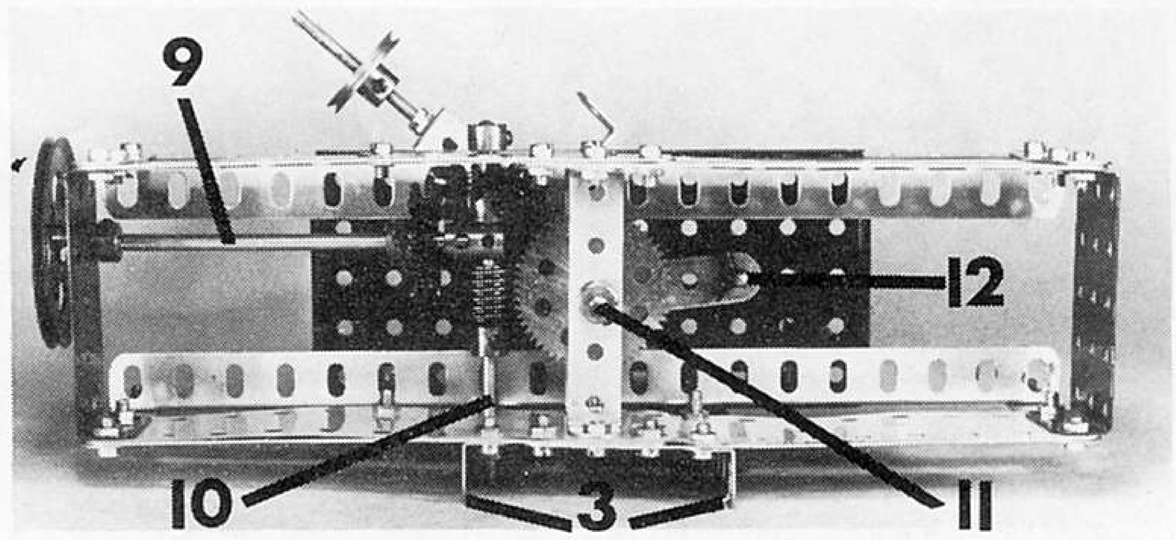


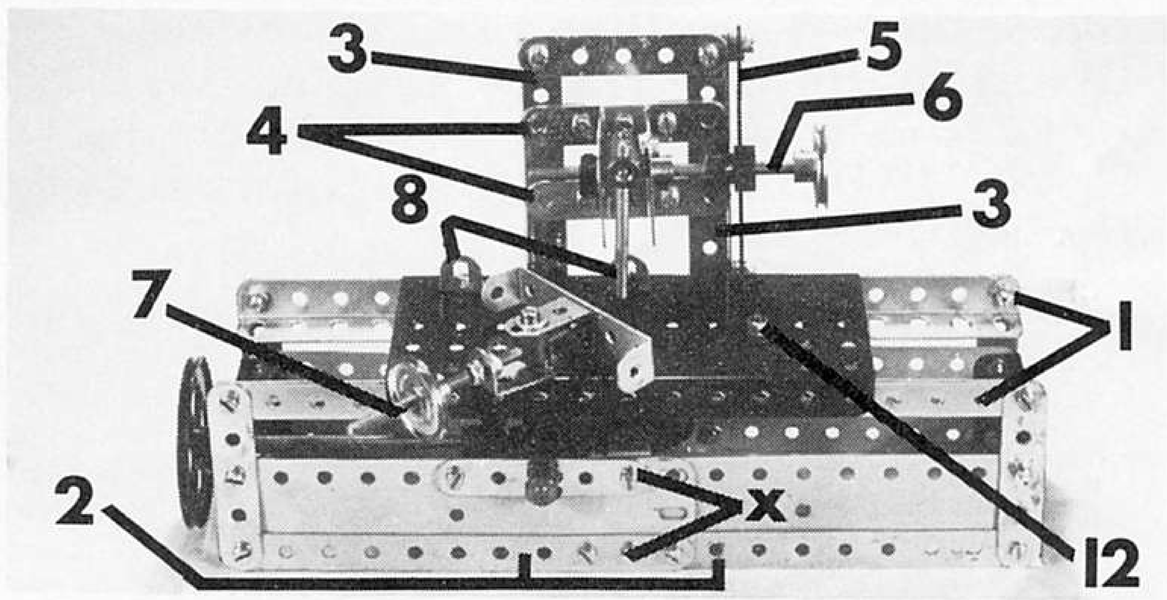


TAYLOR'S TEKNIKIT

A year or two ago, Mr. Harold Taylor of Huddersfield, inspired by the Theme Set idea, developed for his own interest a 'Machinery Multikit'—a set of standard parts specially chosen to enable interesting machine models to be built. Machines, after all, make perfect Meccano subjects and Harold proved the point by designing several excellent working models for the 'kit'. We saw them and liked them. We thought you would like them too. The exact number of parts required will vary from model to model, but all the models can be built from the contents of 'Taylor's Teknikit' as we have named it. The 'kit' is not commercially available, of course, but a list of the contents is given below for those who wish to collect the parts. This time we feature a:

PLANING MACHINE





CONSTRUCTION of the Planing Machine is best commenced by assembling the bench, the front and rear of which are similar and consist of (in each case) a 9½" Angle Girder 1, connected via 2½" Strips at each end to two 5½" Strips 2, overlaid three holes and edging two 5½" x 1½" Flexible Plates as shown. The two sides are connected by two 2½" x 1½" Flanged Plates and two 2½" x ½" Double Angle Strips, lugs facing down and fixed via Bolts marked X in the illustrations.

Two vertical 5½" Angle Girders 3 are connected by a 2½" Strip at the top and the rear 5½" overlaid Strips 2 at the bottom rear of the bench. Note that these Girders 3 are not bolted to the rear 9½" Angle Girder 1. A sliding carrier sub-assembly is then built, composed of 2½" Strips 4 bolted to each end of a Channel Bearing, Fishplates being used to the rear of each Strip to provide a channel via a spacing Washer on each Bolt shank. To the right hand vertical 5½" Angle Girder 3 a Rack Strip 5 is firmly attached using for spacing purposes, two Washers on each of the fixing ½" Bolt shanks. A 3½" Axle Rod 6 is journalled in the sides of the Channel Bearing and carries a Spring Clip, Washer, a Coupling, a Collar and a 19t ½" diameter Pinion which engages with the teeth of the Rack Strip 5, after insertion of the carrier between the Girders 3 by temporarily removing the top 2½" Strip. A 1" Pulley fixed to the right hand extremity of Rod 6 forms an adjustment wheel by means of which the height of the carrier can be altered. The planing tool is represented by a 2" Rod held in the end transverse smooth bore of the Coupling.

The sliding work table is represented by a 5½" x 2½" Flanged Plate fitted over the vertical flanges of the 9½" Angle Girders 1. A clamp for the work is fitted and this consists of a 3" Screwed Rod 7 held by lock-nuts in the small lug of a 1" x ½" Angle Bracket fixed to the large Flanged Plate. A 2½" x ½" Double Angle Strip held by another 1" x ½" Angle Bracket is supported by a Threaded Boss, the transverse tapped bore of which engages the rear portion of Screwed Rod 7. An adjustment wheel is represented by a 1" Pulley fixed via its Grub Screw to the forward portion of Screwed Rod 7. Readers who wish to maintain the highest modelling standards may prefer to dispense with the Grub Screw and secure this Pulley by tightened lock-nuts instead, this method protecting the Screwed Rod's threads. Note that the clamp is shown turned to one side in the illustration to show the detail more clearly, in use it is turned 90 degrees to the work table when the work is gripped between the clamp's 2½" x ½" Double Angle Strip and two ½" x ½" Angle Brackets 8.

The work table is made to slide to and fro by means of a mechanism built up as follows. A 4½" Axle Rod 9 is journalled in the left hand 2½" x 1½" Flanged Plate and a Short Coupling mounted on a 3½" Rod 10. The Rod 9 carries a 2" Pulley, a Collar and a Multi-Purpose Gear Wheel which engages with a similar gear on Rod 10. Rod 10 in turn carries a Worm Gear and two Collars for fixing purposes, and its journal at the front is overlaid by a 2½" Strip as shown. The Worm Gear engages the teeth of a 57t 1½" Gear Wheel held on a vertically mounted 2" Rod 11, journalled in the centre holes of the two 2½" x ½" Double Angle Strips connecting the front and rear halves of the bench. This Rod 11 is held by a Bush Wheel above, and a Collar below. A 2½" Strip lock-nutted to the Bush Wheel is connected to a Threaded Pin 12 secured to the underside of the work table, and held in place by a Spring Clip. Thus when the Pulley on Rod 9 is turned, the required motion of the work table results.

PARTS REQUIRED

4 of part no.	2	2 of part no.	35
10 of part no.	5	38 of part no.	37b
2 of part no.	8a	48 of part no.	37c
2 of part no.	9	19 of part no.	38
4 of part no.	10	3 of part no.	48a
2 of part no.	12	2 of part no.	51
2 of part no.	12b	1 of part no.	52
1 of part no.	15b	5 of part no.	59
2 of part no.	16	1 of part no.	63
2 of part no.	17	1 of part no.	63d
1 of part no.	20a	1 of part no.	64
2 of part no.	22	1 of part no.	80c
1 of part no.	24	1 of part no.	110
1 of part no.	26	2 of part no.	111
1 of part no.	27a	1 of part no.	115
2 of part no.	27f	1 of part no.	160
1 of part no.	32	4 of part no.	189

TAYLOR'S TEKNIKIT

CONTENTS LIST

Part No.	Qty	Part No.	Qty
2	4	53a	2
3	2	59	6
5	10	62	1
8a	2	63	1
9	2	63d	1
10	4	64	1
11	2	80c	1
12	8	108	2
12b	2	110	1
15b	1	111	2
16	3	111a	2
17	2	111c	6
18a	2	115	1
20a	2	125	2
22	3	126	2
22a	2	126a	2
24	2	133a	2
26	2	160	1
27a	1	188	4
27f	2	189	4
32	1	190	2
35	2	194a	2
37b	64	194c	2
37c	64	214	2
38	30	230	1
43	1	231	1
48a	6	235a	2
51	1	235d	2
52	1	235g (1½" N.S.)	2

MECCANO—A NEW ROLE IN EDUCATION

IT is important for an industrialised country to ensure that there is an adequate supply of well-qualified and capable engineers, applied scientists and technologists. It is now realised that it is also important—from time to time—to ask the questions; 'What motivates young people, boys and girls, to have the ambition to become qualified in these fields?' 'What fires their imagination and stimulates their initial interest?'

By Gren Viles*

Over the years the readers of Meccano Magazine have been inspired and intrigued by their practical experience of 'engineering-in-miniature.' Partly as a result of their interest in designing and building in Meccano many were able to at least place a foot on the first rung of a ladder which, thanks to determination, has often led to a productive and rewarding professional career. I count among my colleagues many who have shared this early enthusiasm and have turned it to good account later in life. They would have been impressed, as I was, with details of the 'Super Models' featured from time to time. These examples were particularly striking due to their size, or their complex mechanisms, or their ingenuity. The Magazine has also provided well-written, authoritative articles on outstanding achievements in engineering and technology—from the latest developments in transport to walking draglines.

NEW DEVELOPMENTS IN EDUCATION

Meccano is now playing an increasingly important part in the development and running of new courses in technology in our schools. In particular, we now find Meccano being used, in conjunction with electrical, electronic and other components, in the Control Technology Courses now being offered in many schools. Work on pneumatics is also included and specially developed kits of equipment to cover these three aspects of the work have been available to schools for some time. This equipment, including Meccano, enables the students to combine theory with practical applications, at all stages of the courses.

CONTROL TECHNOLOGY

The course—Control Technology—is now proving very popular in those schools which have introduced it, leading to a qualification at GCE 'O' level or at CSE. Many schools offer the course to both boys and girls, with encouraging and significant results. In my work as an examiner for the GCE Board, in this subject, I am encouraged by the keen interest usually shown by students in mechanical and other principles. Indeed what better way of really understanding the principles of physics than by means of practical applications. In this way the concepts and principles become homely and familiar.

The Course has clear Educational Objectives and these were originally stated as:

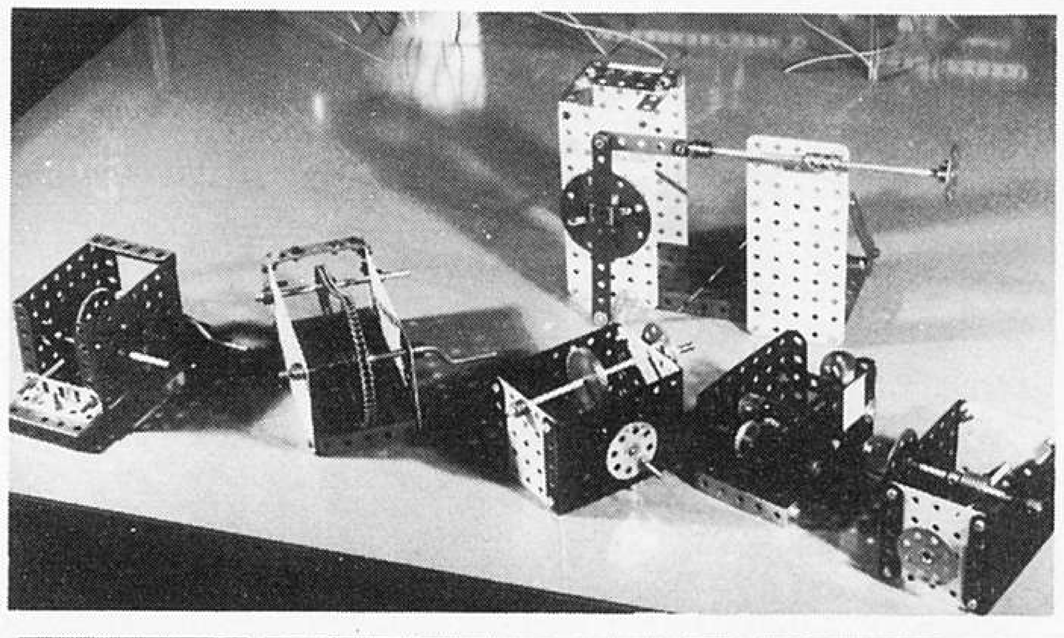
1 To provide sufficient background knowledge to enable pupils to solve complex problems involving the making, control, and automation of devices.
2 To encourage them to think creatively and to produce original, imaginative work.
3 To promote the ability to analyse what is involved in a new situation.
4 To promote the ability to select and apply principles, methods, and procedures, and to conceive probable solutions.
5 To promote the ability to synthesise and, thereafter, to plan and possibly to construct a device.
6 To promote the ability to recognise the limitations of a design, and to modify or suggest modifications to it.
7 To give pupils confidence in using unfamiliar and possibly complex equipment.
8 To encourage pupils to record their work in a clear fashion, including successes and failures.

THE PLACE OF PROJECT WORK

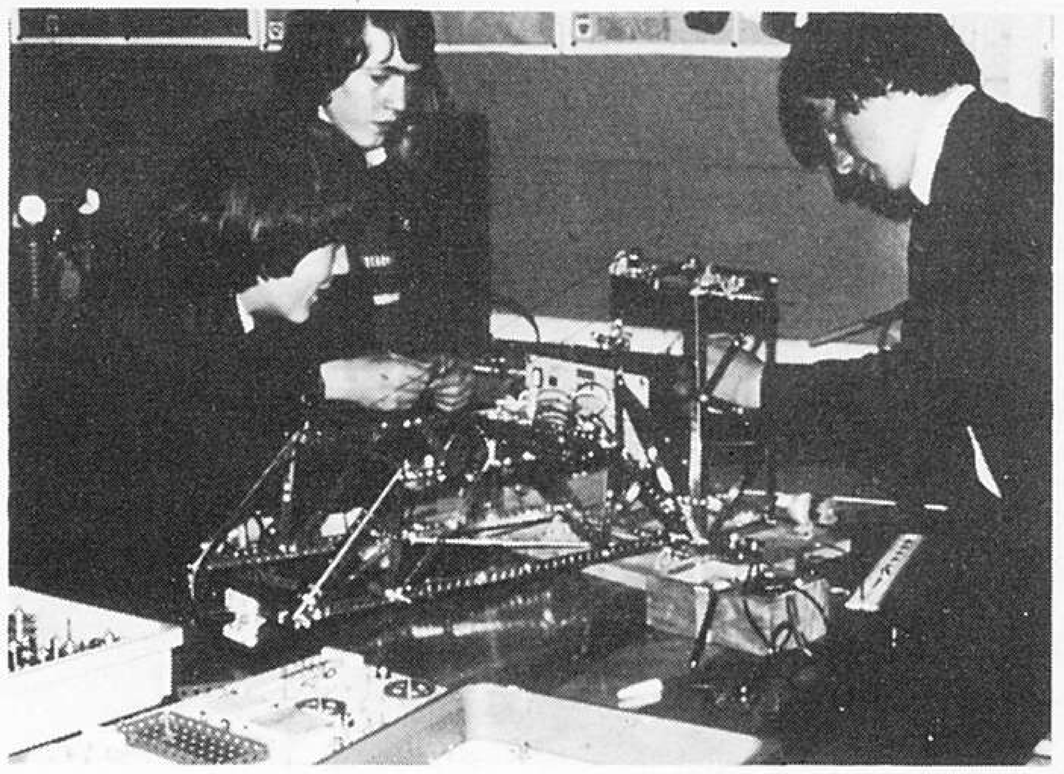
The students work through a series of practical assignments, during the course, combining the theory with applications in a sequential manner. These assignments are divided into programmes, such as 'Structures,' 'Gearing,' 'Motion,' 'Electrical/electronic Control,' 'Logic Circuits,' 'Pneumatic Control.'

From time to time they are asked to design and build a Mini-Project to fulfill a specific requirement, such as the motorised load-lifting 'device' shown in the accompanying photograph, enabling them to investigate the lifting power with varying voltage and current, and different gear ratios. It is in the final stage of the course that the students are asked to design and build a Major Project. The choice of topic is usually decided by the individual student and often reflects his (or her) personal areas of special interest. The project should, however, involve the application of knowledge and principles from several sections of the course itself.

These Major Projects are carefully assessed for examination purposes in accordance with the clearly defined aims of the course. Considerable use is often made of Meccano, together with other materials and components, in many of these Projects. Credit is given for evidence of originality and initiative, the logical develop-



A range of units, illustrating gear ratios and drives used in one school.



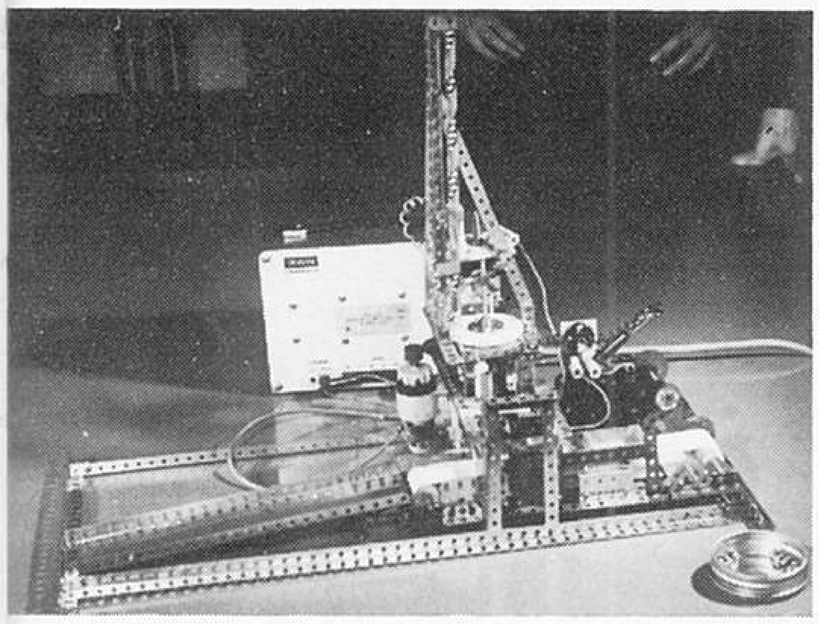
Pupils demonstrating a model of a lifting bridge over a canal. The bridge is operated automatically by an approaching ship.

ment of designs, testing and modification, consideration of alternative solutions, competence in physical assembly, along with the assessment of other criteria.

PROBLEM SOLVING

It must be stressed that in this Course the student is expected to work to an agreed Project Brief, which for a successful solution will involve appropriate control principles. The emphasis is therefore placed on problem solving, using the resources available, rather than on simple model-making.

The Control problems tackled range very widely and show great variety in nature and sophistication. Many students make use of



electronics in conjunction with electro-mechanical or pneumatic systems.

Recent projects have included: Automatic Drinks Dispensers, offering alternative 'beverages'; Coin operated Vending Machines of various types; Automatic and Remote-controlled Vehicles of all kinds; Programmed machines and 'devices', which carry out a range of operations in pre-determined sequence; Sophisticated Games of Chance—Electro-mechanical and Electronic; Alarm Systems of all kinds, using a variety of sensors; Monitoring and Control Devices using a variety of transducers; Projects involving Counting, Sorting, Packing, Identification of Items; Automatic Control of Model Lifts and other Materials Handling Equipment.

THE ROLE OF MECCANO

If you consider most of the examples in the list above, it becomes obvious that Meccano can make a most useful contribution in much of the design and construction. Meccano enables 'mock-ups' to be constructed fairly quickly, modifications to be made readily, testing and further development as time and ability permit.

The essential spirit of these courses, and this approach to learning, can, perhaps, be best summed up under these headings:

1 Acceptance of a challenge.
2 The development of problem-solving ability.
3 The ability to 'think in three dimensions'.
4 The sequential acquisition and application of knowledge.
5 No fixed upper limit to design-ability, ingenuity or knowledge.

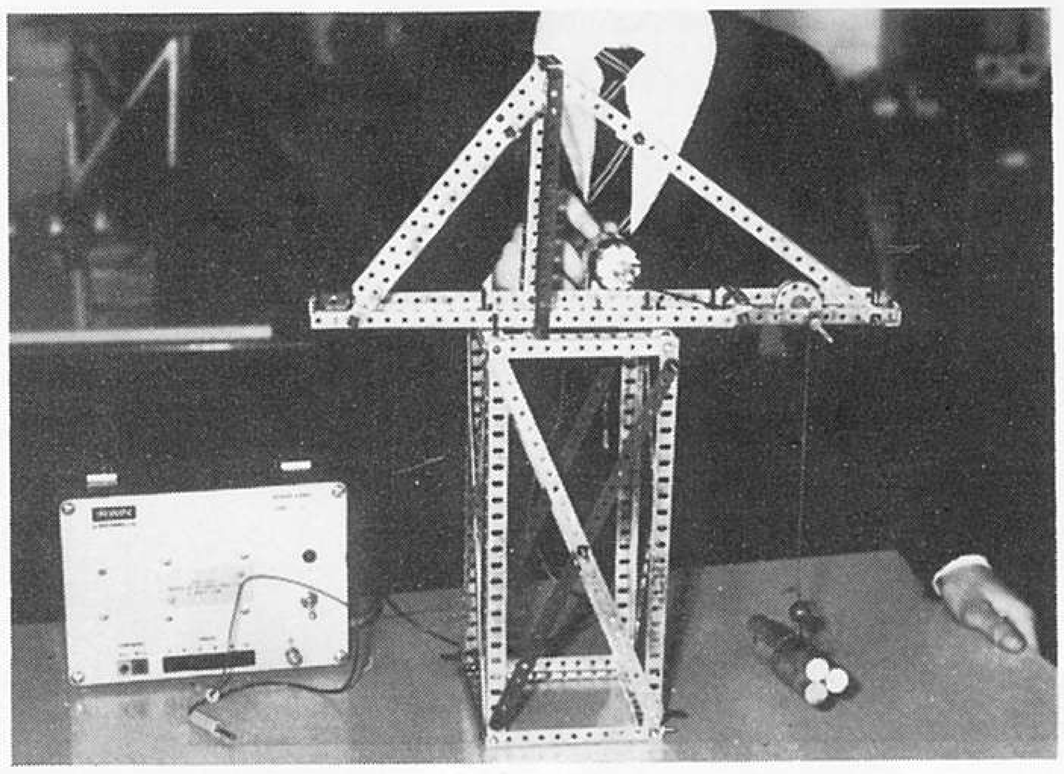
With this last point in mind it is perhaps significant that The National Centre for School Technology, Trent Polytechnic, recently displayed at a National Exhibition, a Meccano Model Crane, controlled by a Microprocessor, which carried out a complicated programme.

THE FUTURE

A recent publication by The Department of Education and Science describes some successful examples of work in Craft, Design and Technology in schools. The example which illustrates the developments in Technology concludes with this statement:

Right, a 'lifting device' built by a pupil as a Mini Project (see text).

Below left, a ball-bearing counting and 'batching' device, constructed by a student as a Major Project.



'Although highly structured in the early stages, the course offers pupils experience of thinking and making, through the solving of design problems characteristic of the technological changes in modern life.'

Further information about courses of this kind in schools can be obtained from: G. Shillitoe, Director, The National Centre for School Technology, Trent Polytechnic, Burton Street, Nottingham NG1 4BU.

Further information about the equipment for the Control Technology course can be obtained from: Economatics Ltd., 411 Petre Street, Sheffield, S4 8LL.

*The author of this article is Consultant in School Technology in association with The National Centre for School Technology.

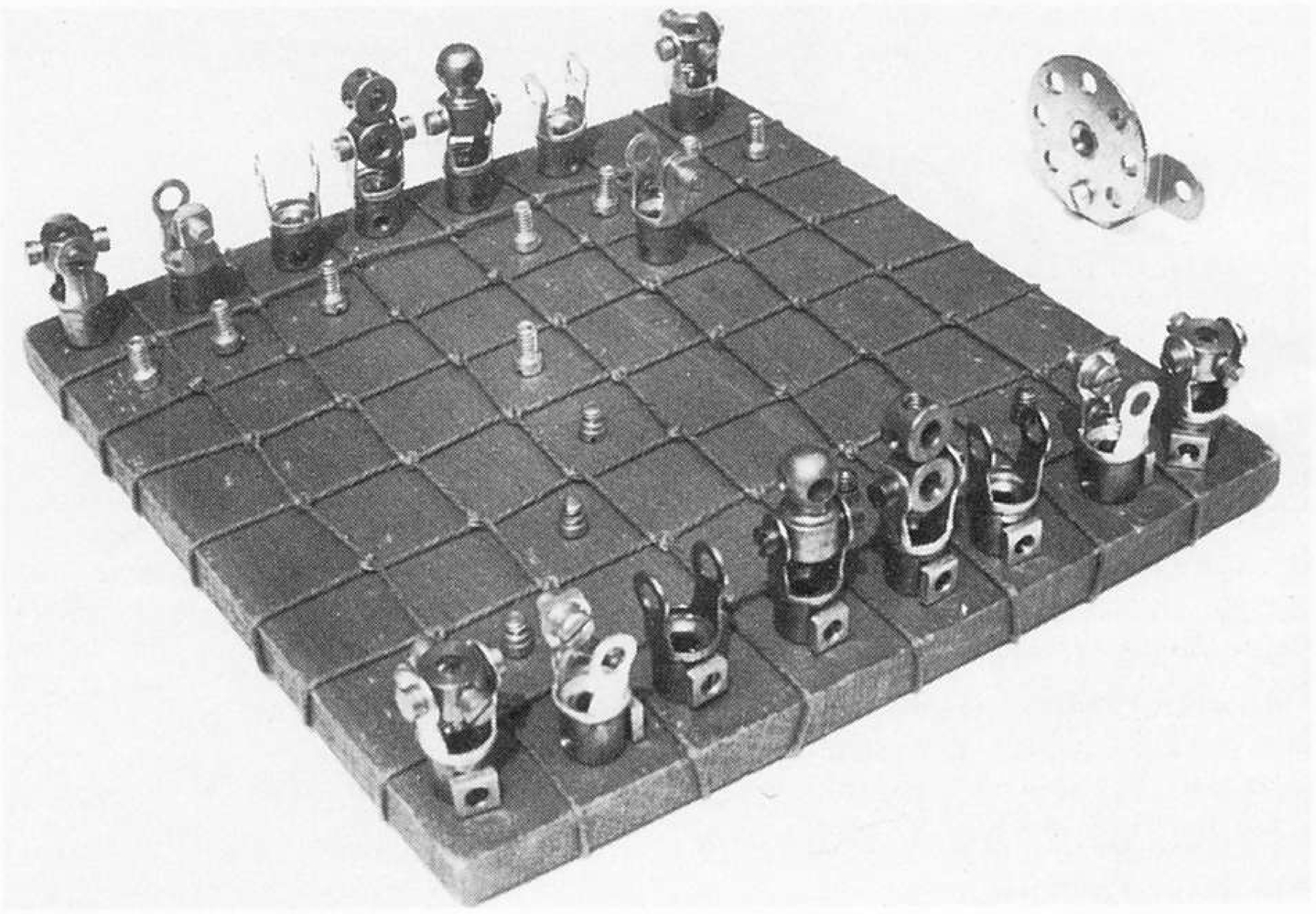
Winner of the MECCANO 'BAKER'S DOZEN' COMPETITION held at the 1978 Henley exhibition

THE rules of the competition were simple, to use only thirteen standard Meccano parts, plus Nuts and Bolts, to make a model. The winning entry by Alan Partridge, was, of all things, a complete set of Chessmen, with Chess Board and even a representation of a Chess 'Clock'. Here's how Alan managed this extraordinary feat!

The parts used were:—

13 Bolts
13 Nuts
8 Universal Couplings
2 Handrail Couplings
1 Designing Table (Obsolete part no. 107, which included a Bush Wheel)
1 Hank of Cord
1 Double Bent Strip

Examination of the accompanying photograph will reveal the manner in which the Universal Couplings were taken apart and the constituent components arranged among the remainder of the Meccano parts to represent the Chess pieces. The Hank of Cord was carefully strung around the Designing Table to mark out the squares, and the Bush Wheel was unscrewed from the underside of the Table and fastened to a Double Bent Strip to represent the Clock dial. The 'white' pieces are distinguishable from the 'black' by a Nut affixed to the boss of each by Grub Screws.



Twin Disappearing Guns

An advanced Meccano Model designed and described by Joseph Manduca, A & C. E.

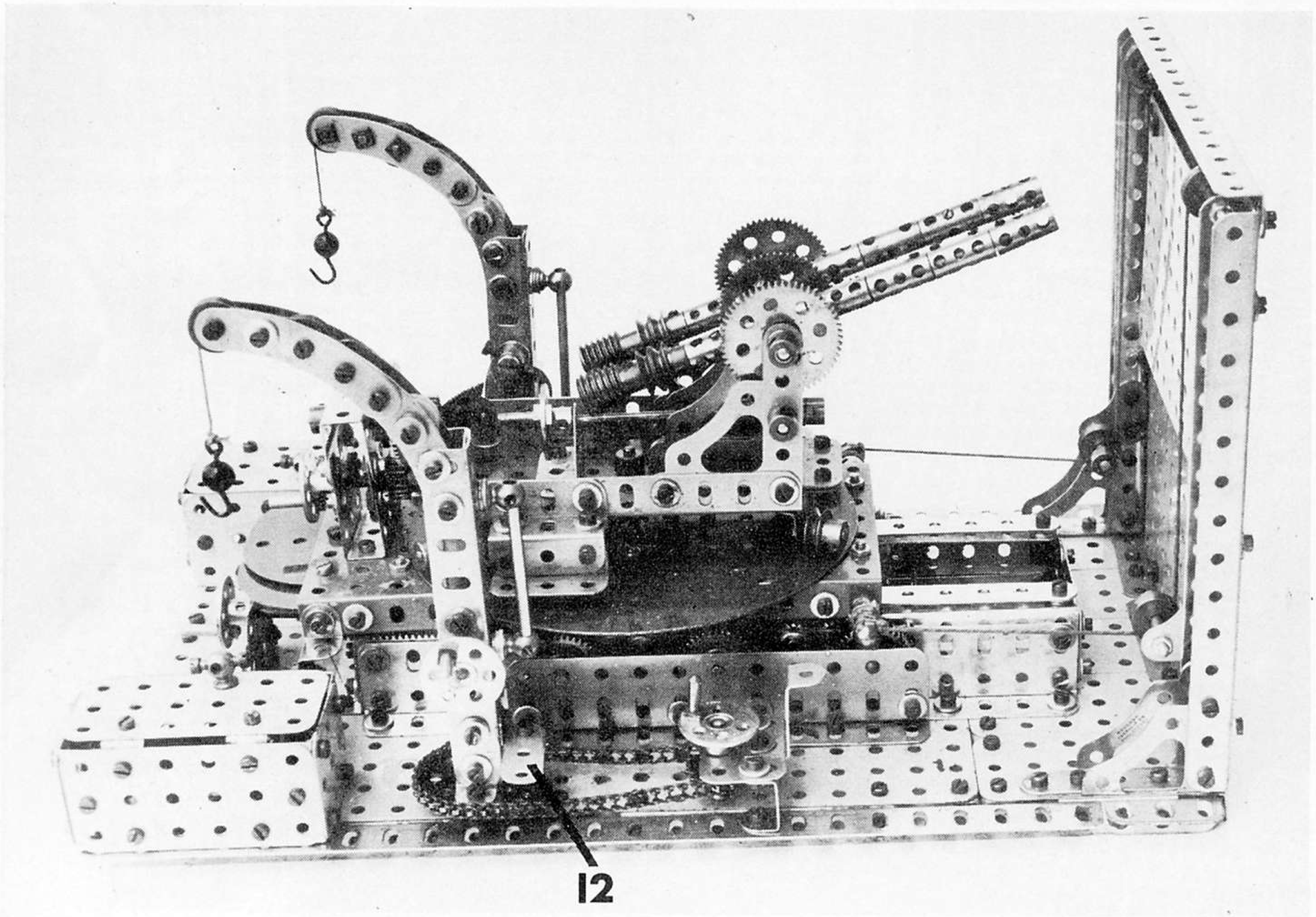


Fig. 1.

This Meccano model is based on camouflaged guns located in strong natural defences such as a cave. When the guns are loaded they move forward and the screen lowers itself to permit the barrels to protrude. After 'firing', the guns recede and the defensive screen rises.

THE BASE (FIG 2)

The base consists of six 5½" x 2½" and five 3" x 1½" Flat Plates fixed together by widthways-running doubled 7½" Angle Girders, (in 'T' formation). At each short side single 7½" Angle Girders are used and along each long side, 3½" and 2½" Angle Girders fitted between the widthways-running 'T' Girders, hold a 12½" and a 1½" Angle Girder butt-joined.

LOWER GUN PLATFORM (FIG 2)

Two 9½" Angle Girders 1 and two 2½" Angle Girders 2 are fixed to form a rectangle in the centre of the base six holes from the rear. These four Girders are extended upwards by Flat Girders of corresponding lengths and the two 9½" Flat Girders are surmounted by two more 9½" Angle Girders, elongated hole flanges facing in. These flanges support 9½" Strips 3, separated by two Washers on each fixing bolt shank.

TRAVELLING MOVEMENT (FIG 2)

A small Bush Wheel is fixed on a 3" Rod 4 which also carries a Collar and a 19t ½" Pinion. This Pinion drives a similar gear fixed to a 6½" Rod 5 which carries three Worm gears which engage the teeth of three ¾" Pinions mounted

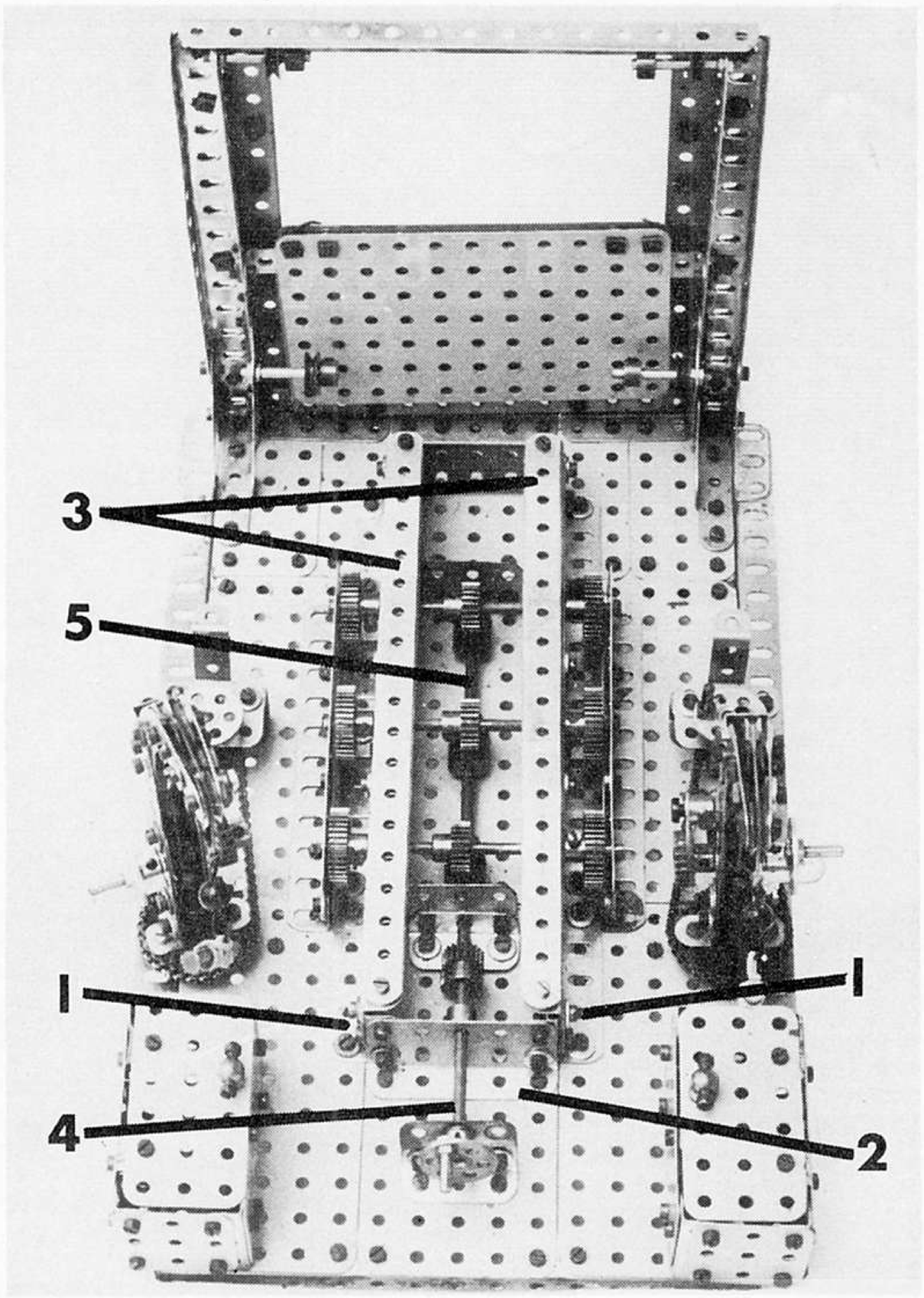


Fig. 2.

above them on transversely mounted 4" Rods. Each end of these three 4" Rods carries a 1" Gear wheel and is further journalled in the round hole sides of two 5½" Flat Girders held by two 5½" Angle Girders fixed to the base.

THE SLIDING BASE (FIGS. 3, 4 & 5)

This is made simply of three 3½" x 2½" Flanged Plates held together by a 6" Circular Plate and two 6½" Rack Strips along the flanges. A Bush Wheel is fixed to the centre to serve as a pivot for the gun slewing and an extension consisting of three overlapped Semi-Circular Plates is provided at the rear. Six Slide Pieces are attached to the Flanged Plates via Threaded Pins, these Pieces engage the 9½" Strips spaced by Washers mounted atop the 9½" Angle Girders of the lower gun platform mentioned earlier. The 6½" Rack Strips should then be found to engage the teeth of the six 1" Gear wheels.

The gearbox on this sliding base, (figs. 4 & 5), consists of two Channel Bearings joined by 1½" Flat Girders on the inside edges. A small Bush Wheel on a 1½" Rod also carrying a 19t ½" Pinion, drives a 50t 1¼" Gear wheel 6 on another 1½" Rod which has a 7/16ths" Pinion fixed to it. This engages the teeth of a 3½" Rack Strip that has previously been formed to a curve mounted at the rear of the gun carriage, construction of which will shortly be described. The sliding base is completed by the addition of built-up steps at the rear and the fixing of Threaded Bosses to each front corner; these support lock-nutted Handrail Supports, (fig 1).

Fig. 4

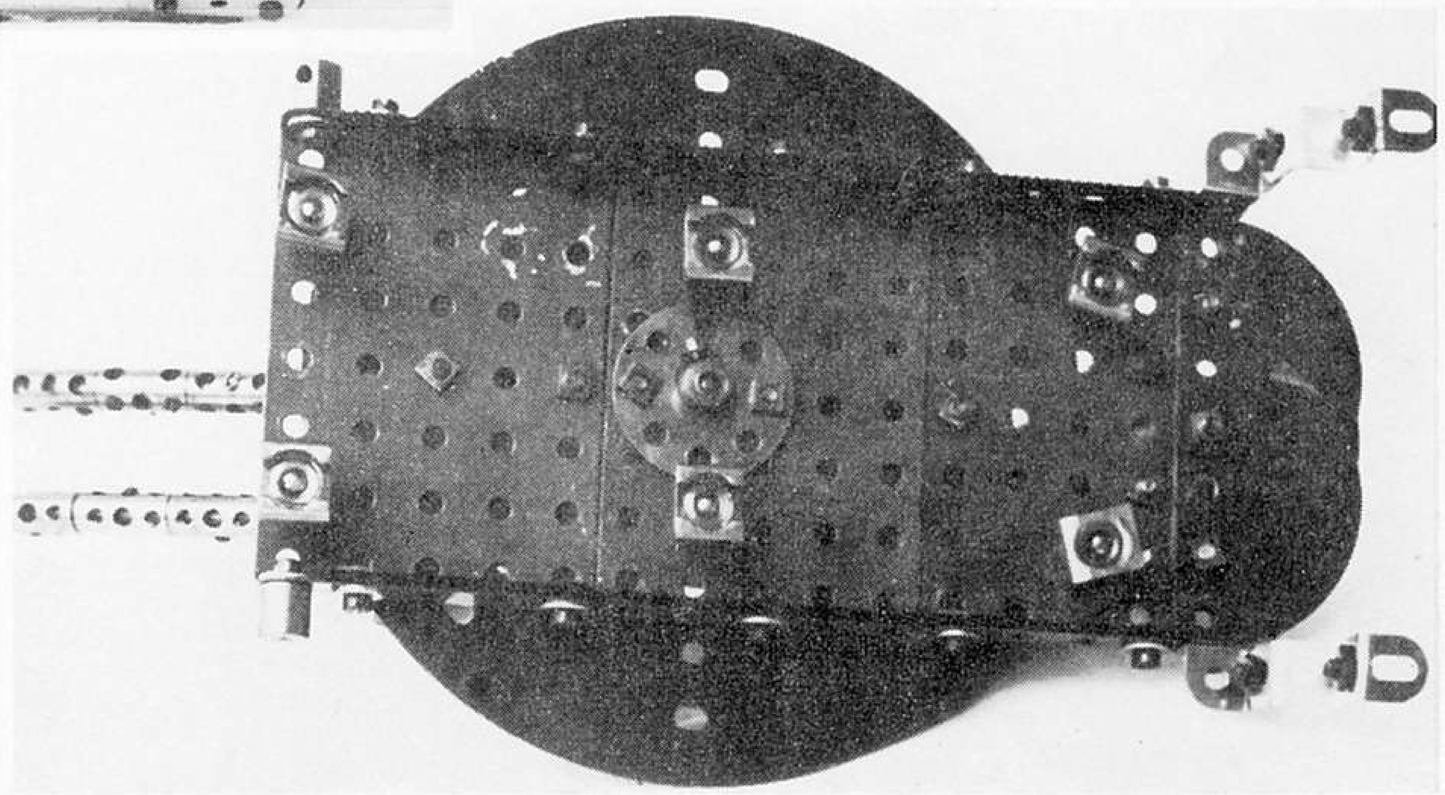
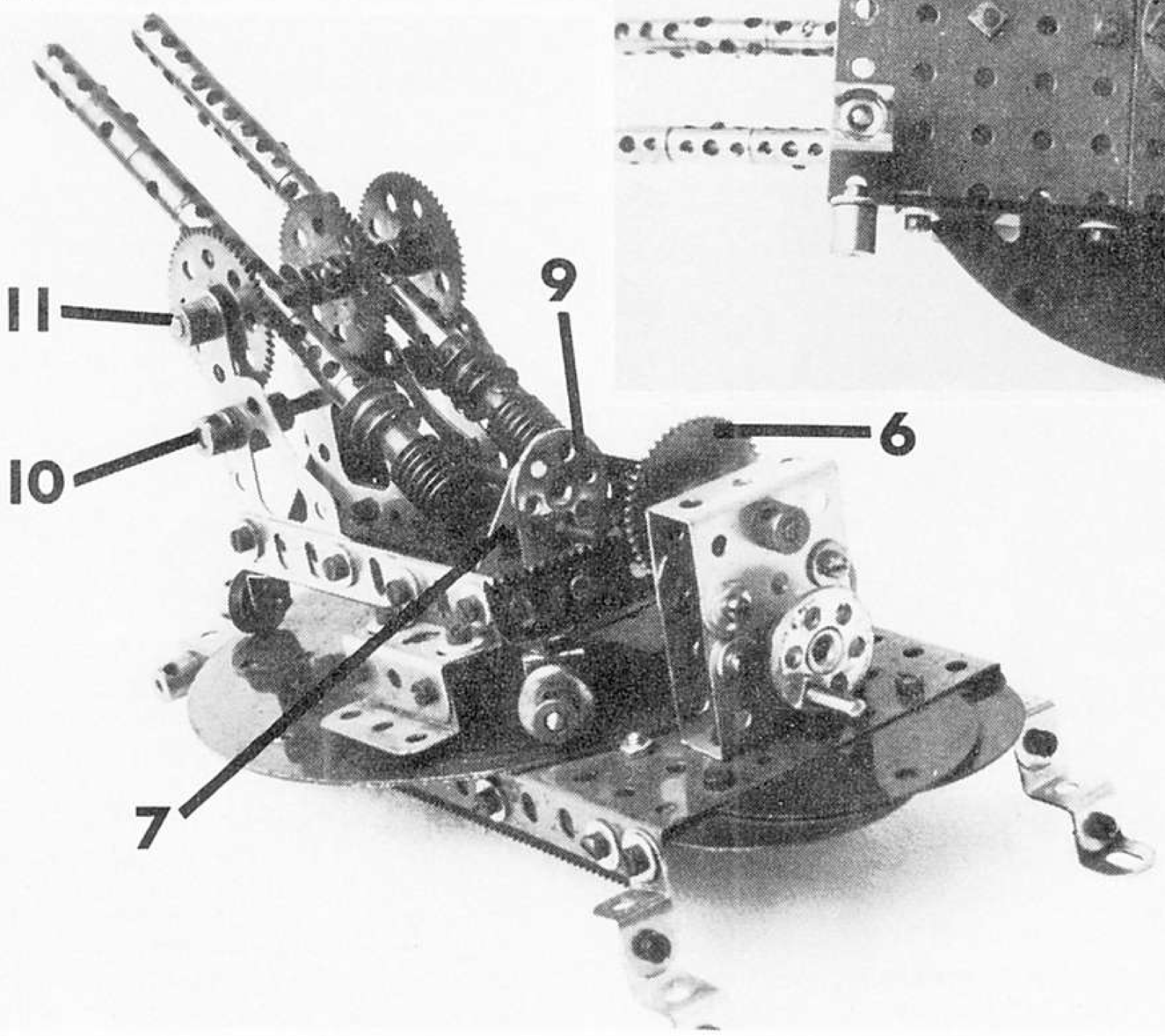


Fig. 3



THE GUNS (FIGS 4, 5, 7, 8 & 9)

The gun base is a 4½" x 2½" Flat Plate which is extended at the front by a 1½" Flat Girder on which is fixed a Trunnion. Two 4½" Angle Girders along the sides each carry Corner Gussets (long edge facing up and to the front), and steps comprising three 1½" Angle Girders. A Trunnion 7, and two further Corner Gussets 8 held at the base by two 2" Angle

Girders are attached, and the Rack Strip mentioned earlier is curved to a radius of 2-¾" and mounted via Obtuse Angle Brackets to the rear of the 4½" Angle Girders. A small Bush Wheel 9 is fixed on a 3½" Rod which powers via a Worm gear, a transversely mounted 3" Rod 10 journalled in the Corner Gussets and carrying three 19t ½" diameter Pinions and two Collars.

Each Pinion meshes with a 57t 1½" diameter Gear wheel mounted on another 3" Rod 11 journalled in the top holes of the Corner Gussets. Each of the two gun barrels consists of six Couplings, a ½" Pulley with boss, a ½" loose Pulley, (preferably brass) and a Worm gear. The Rod 11 supporting the barrels passes through the centre transverse smooth bore of the fifth Coupling from the front end. The gun base pivots around a central 2" Rod and is supported by four loose ½" Pulleys held by Collars on Threaded Pins affixed to Angle Brackets mounted at each corner.

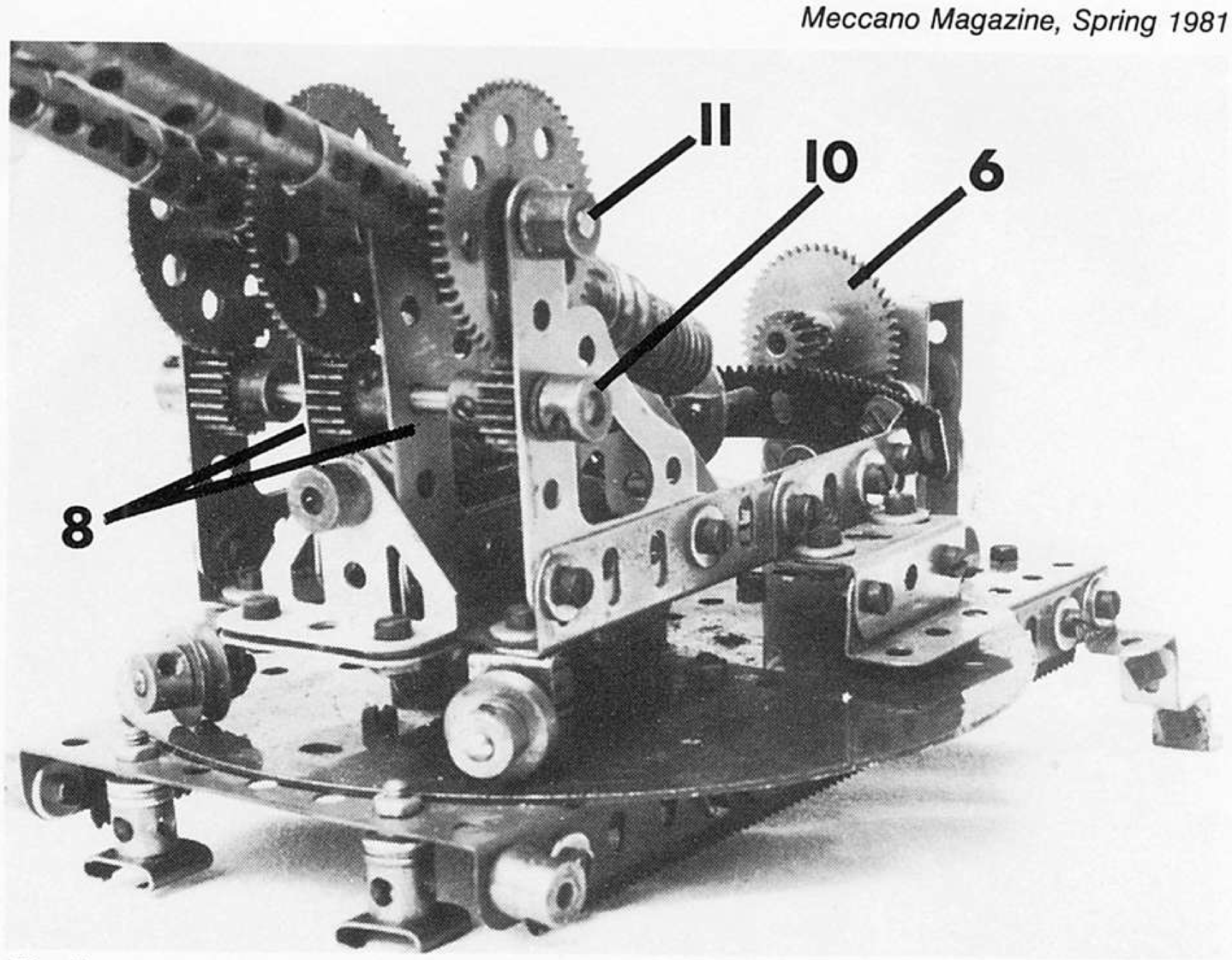


Fig. 5.

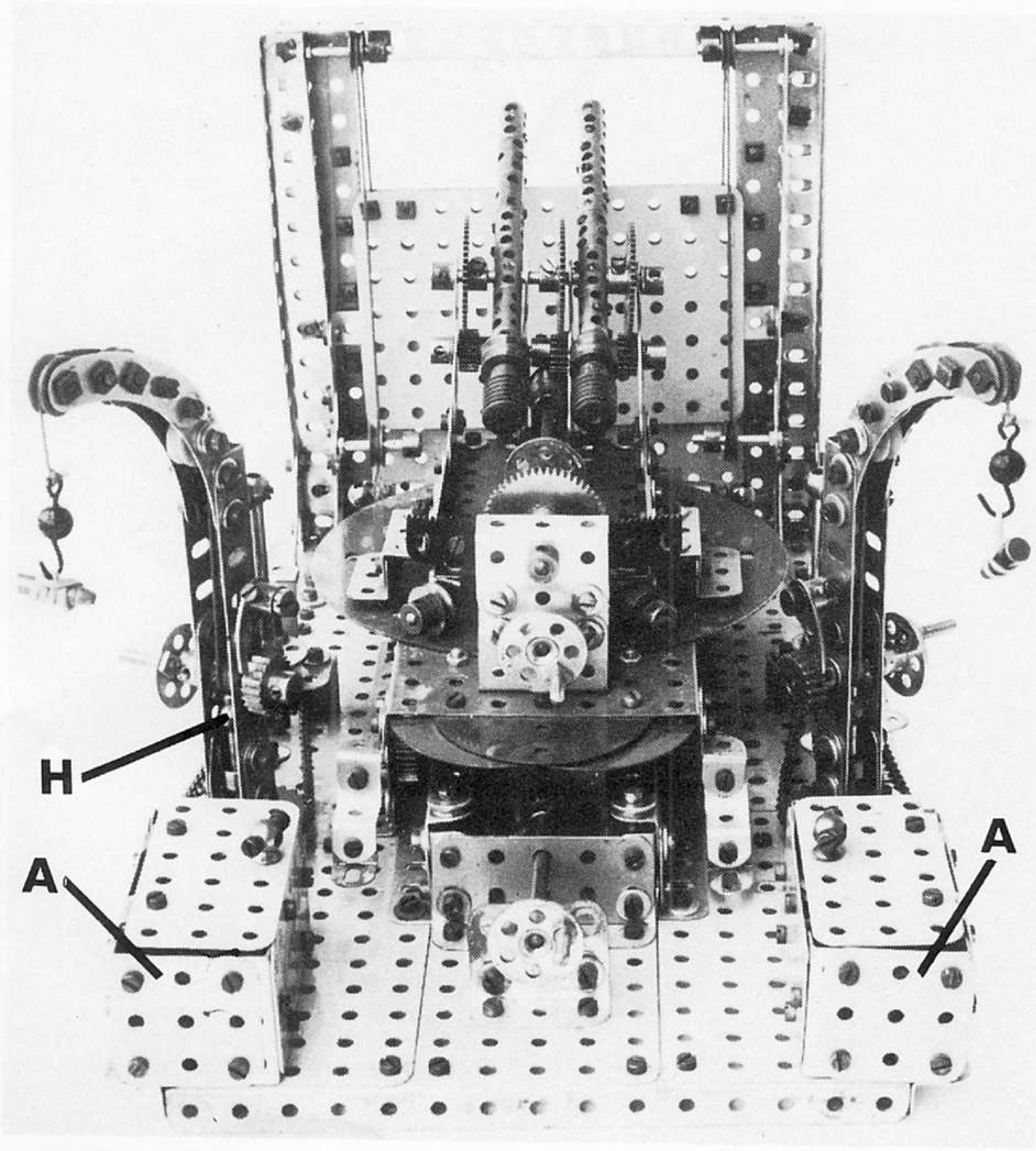
AMMUNITION BOXES (FIGS. 1, 6, 7 & 8) (Marked 'A' in the illustrations)

These consist of 3" x 1½" and 1½" x 1½" Flat Plates connected by 1½" Angle Girders at the corners and secured to the base by 2" Angle Girders. The lid in each case consists of a 3" x 1½" Flat Plate held by Hinges and a handle to each lid is formed by a Handrail Support holding two Bolts in its tapped bore. The lower threaded portion carries a lock-nutted Fishplate which engages the lug of an internally-mounted ½" x ½" Angle Bracket.

THE CRANES (FIGS. 1, 6, 7 & 8)

The sides of each crane are composed of two 4½" Angle Girders and four 2½" Curved (not stepped) Strips. The 4½" Angle Girders are located round hole flanges together and held by the threaded shanks of two Handrail Supports, these parts also holding between them a 2" Rod. The 4½" Angle Girders are fixed by 1" x ½" Angle Brackets to a 1½" Sprocket Wheel minus set screw. This pivots around a 2½" Rod held in a Crank below the base. The Rod passes through a Handrail Support (marked 'H' in the illustration fig. 6), and a Collar, the threaded shanks and bores of which are utilised for fixing purposes. A platform is represented by a 1½" Strip 12 (fig. 7) fixed by an Angle Bracket to the rear of each crane. 1½" Strips are attached to the inside edges of the 4½" Angle Girders to provide round hole journals for a 1½" Rod carrying a small Bush Wheel and a Ratchet forming the winding drum to which the cord is attached. The cord is fed over three ½" Plastic Pulleys which rotate about the shanks of long Bolts, arranged so as to impart a taper to the jib. Pawls and Loaded Hooks complete the cranes, which can be swivelled via Chain around their 1½" Sprocket Wheel bases fed from a ¾" Sprocket fixed in a 'seat' (figs. 7 & 8) with a small Bush Wheel acting as handle.

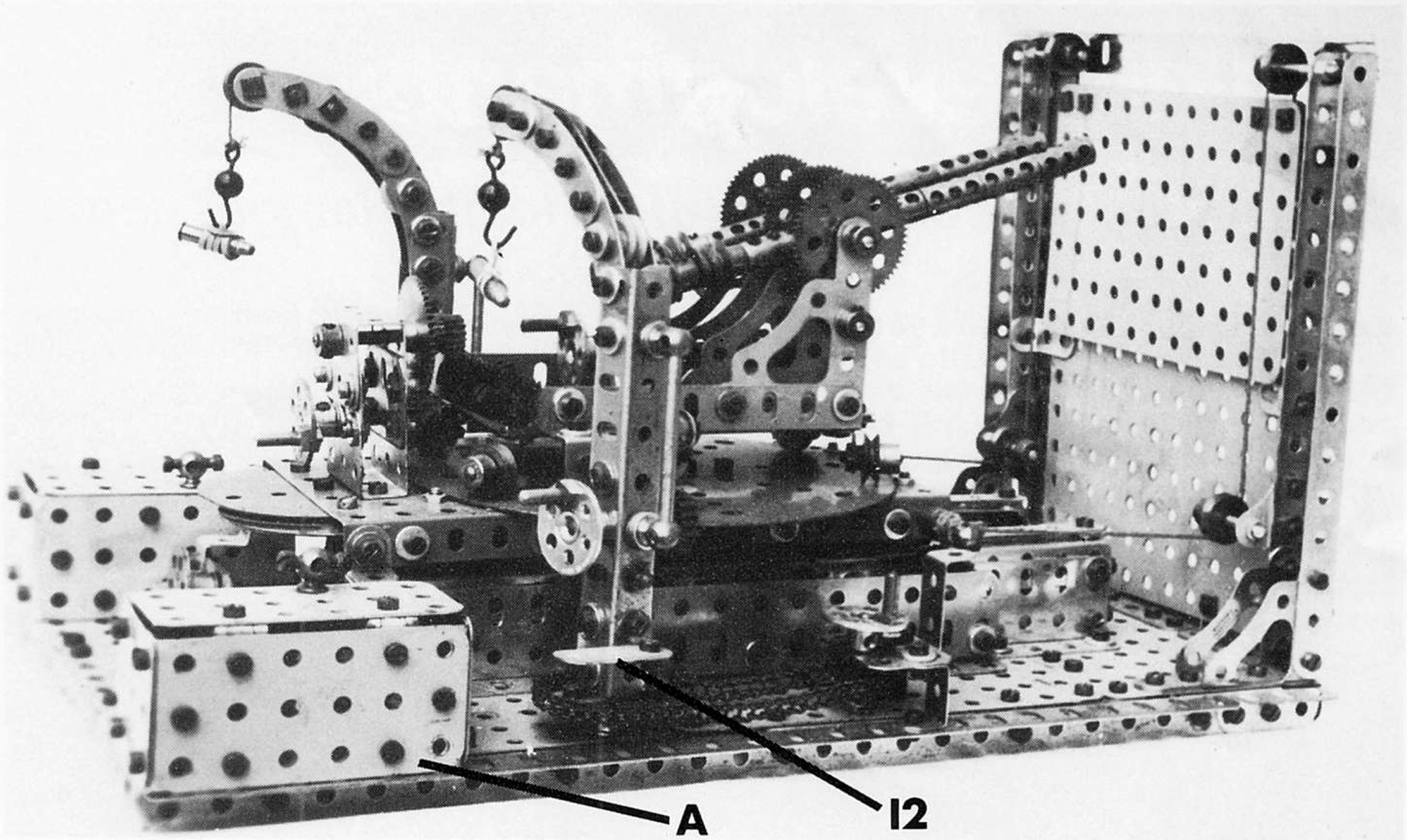
Fig. 6.

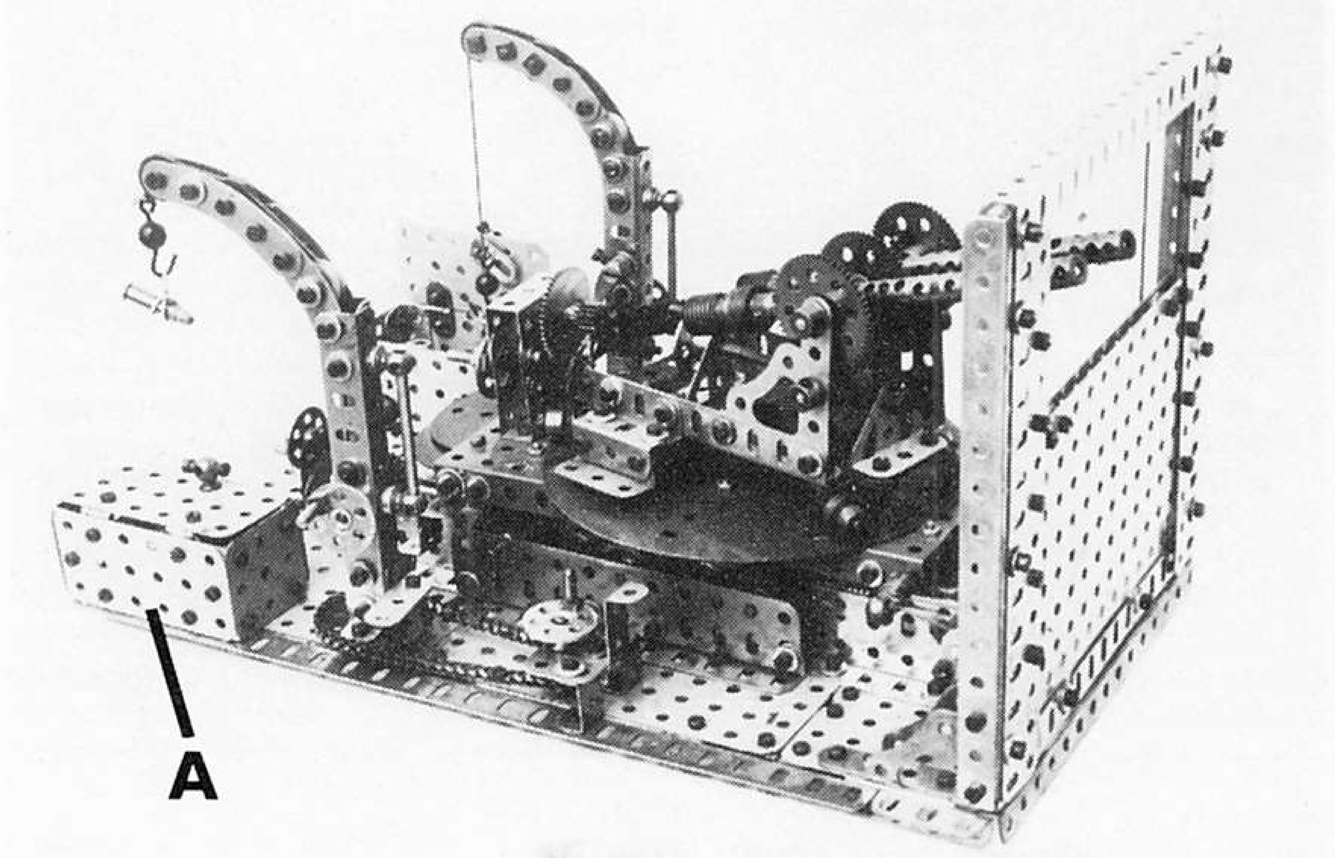


THE SLIDING DEFENCE SCREEN (FIGS. 2, 6 & 8)

Right hand and left hand Flanged Brackets are overlapped and placed at each side of the front of the base, and two 2" and one 2½" Angle Girders are joined end to end between them. A 5½" x 3½" Flat Plate is secured to these short Angle Girders and the Flanged Brackets are extended upwards by four 7½" Angle Girders, two each side. These are connected at their top ends by a 7½" Angle Girder. The sliding screen is composed of two 5½" x 3½" Flat Plates bolted together but separated by Washers to enable it to slide down over the bottom Plate. ½" loose Pulleys on the plain portions of Long Threaded Pins guide the cord from the top of the sliding screen to the Handrail Supports held in the Threaded Bosses at the corners of the sliding base (fig. 1).

Note; spacing Washers are employed for the non-standard meshing of ¾" Pinions with Worms and the 7/16ths" Pinion with the Rack Strip at the rear of the gun base.





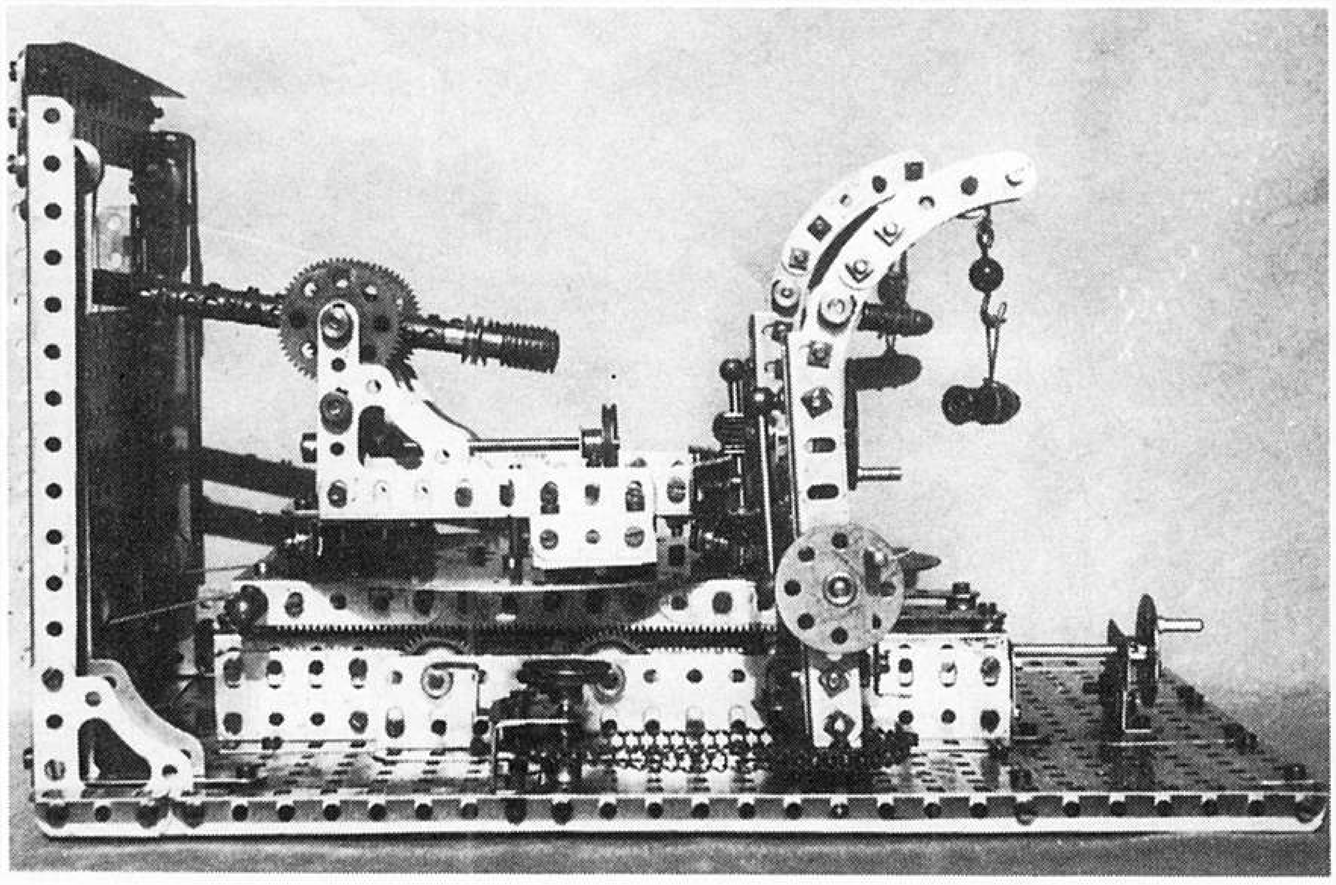


Fig. 7, above

Fig 8, left

Fig 9, below, left

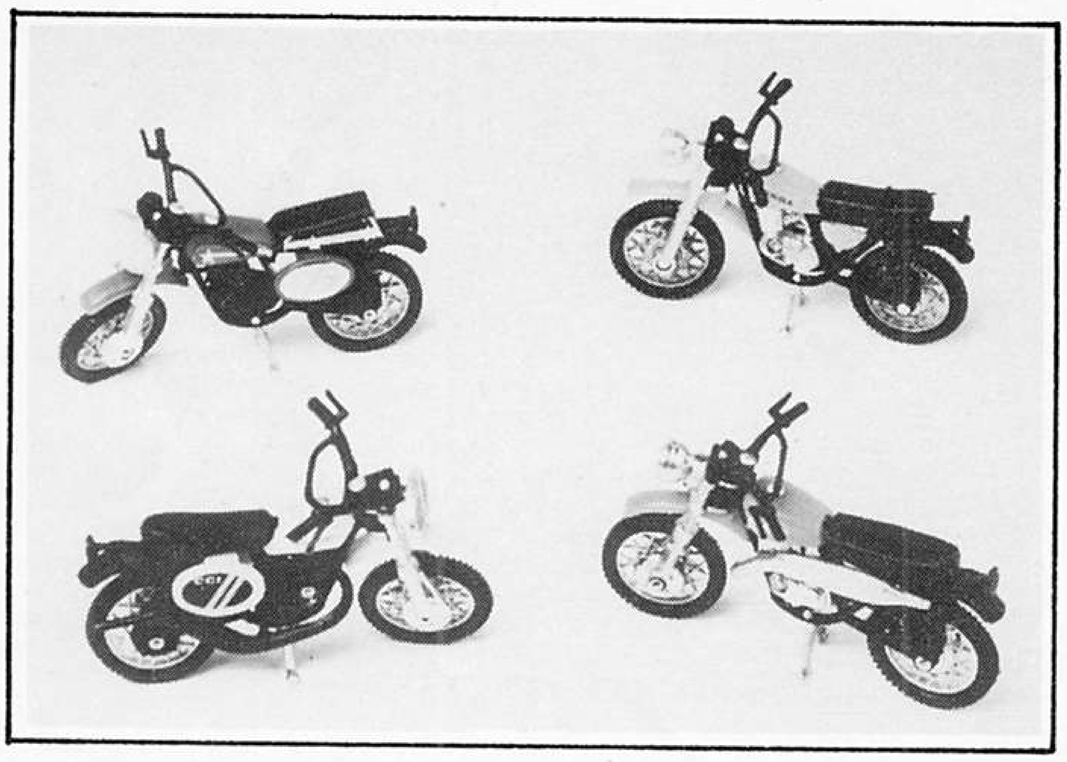
PARTS REQUIRED

2	of part no.	1a	2	of part no.	57b
5	of part no.	6a	21	of part no.	59
2	of part no.	8	2	of part no.	62
4	of part no.	8a	12	of part no.	63
11	of part no.	8b	2	of part no.	64
2	of part no.	9	8	of part no.	69
6	of part no.	9a	6	of part no.	70
4	of part no.	9b	11	of part no.	73
2	of part no.	9d	4	of part no.	74
8	of part no.	9e	8	of part no.	90
22	of part no.	9f	19"	of part no.	94
2	of part no.	10	2	of part no.	95a
4	of part no.	11	2	of part no.	96a
18	of part no.	12	2	of part no.	103
6	of part no.	12b	2	of part no.	103a
2	of part no.	12c	2	of part no.	103f
1	of part no.	14	8	of part no.	103h
3	of part no.	15b	2	of part no.	103k
1	of part no.	16	4	of part no.	108
2	of part no.	16a	1	of part no.	110
3	of part no.	16b	2	of part no.	110a
4	of part no.	17	2	of part no.	111
7	of part no.	18a	4	of part no.	111a
6	of part no.	23	7	of part no.	111c
2	of part no.	23a	4	of part no.	114
10	of part no.	23b	17	of part no.	115
1	of part no.	24	4	of part no.	115a
3	of part no.	25	2	of part of	124
6	of part no.	26	2	of part no.	125
1	of part no.	26c	2	of part no.	126
1	of part no.	27	2	of part no.	133a
3	of part no.	27a	10	of part no.	136
6	of part no.	31	2	of part no.	139
6	of part no.	32	2	of part no.	139a
349	of part no.	37a	1	of part no.	146
331	of part no.	37b	2	of part no.	147
207	of part no.	38	2	of part no.	148
2	Yards of part no.	40	1	of part no.	154a
6	of part no.	50	1	of part no.	154b
3	of part no.	52a	2	of part no.	160
3	of part no.	53	3	of part no.	214
1	of part no.	53a	7	of part no.	518

Dinky Developments

Chris Anderson looks at the future for this famous name

DINKY Toys will go into 1981 with the largest new product release schedule ever undertaken by the company. It will involve the release of more than 50 brand new items including two exciting new sub-ranges. There are 24 new pocket money toys at 59p, briefly described in the last issue of Meccano Magazine, and a range of constant 1/43rd scale models featuring popular European cars. In addition there will be three versions of the Ford Granada, and two new items in the ever popular Convoy range.



Four detailed motorcycles are included in the low-priced Dinky range. Clockwise from top left, a Yamaha, Honda, Kawasaki and Suzuki. All have revolving wheels, working support and handlebars.



Distinctive display stand for the new 'mini' Dinky range.

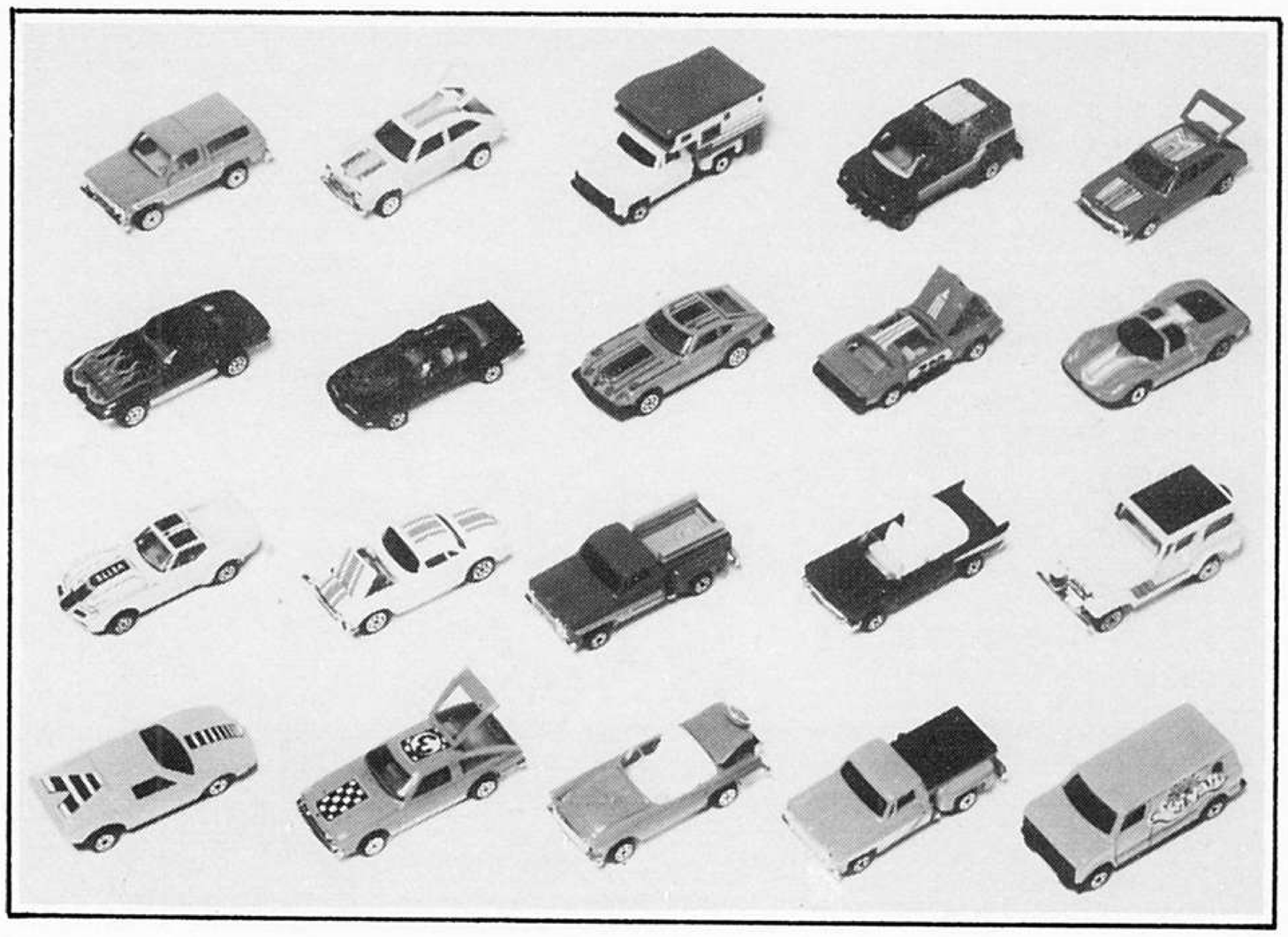
Dinky are now moving into the lucrative lower priced sector of the die-cast market with a range of 24 items all priced at an easy-to-afford 59p. It should be remembered that Dinky Toys were first put on the market 46 years ago as pocket money toys, and now the Brand is back there with probably the lowest priced products of their size. The range is made up predominantly of cars, most of these having working features such as opening boots and bonnets, as well as detailed engines and interiors.

An integral part of their appeal will be the high gloss colour schemes and bright decal treatment. The cars included in the range go from a highly customised American sports car to a Toyota Celica and a Chevette Hatchback. To back up these are a number of vans, pick-ups, jeeps and even a superb camper. These are all finished to the same high standard as the cars. There is also a fine range of four detailed motorcycles. It is the first time that bikes of this size—they are over 7.5 cm long—have been available at such a low price. The models are of a Honda, Kawasaki, Yamaha and Suzuki. There are already plans to expand this product range with a further 12 releases in the early part of 1981 including several new space items.

Dinky are also leading the way into a new sector of the UK die-cast market—that of the constant scale model. The scale chosen for this range is 1/43rd, slightly smaller than traditional Dinky. These are made to exacting specifications and will be available from the end of January. All the items will be sold in alternative colour schemes, and packaged in a distinctive new style of window box. Six different models will form the initial relsease, these being all well known European cars, such as the ever popular Citroen 'Deux Chevaux' 2CV that is currently something of a cult car in the UK. The Dinky model will be available in two different versions, one with the sunroof open and the other with it closed. Another Citroen featured in the range is the new Visa, already popular on the continent and sure to catch on in the UK this year. From Italy is the Fiat Strada, 'handbuilt by robots', and an Alfa Romeo Alfetta GTV, available either in bright red or yellow. A beautifully finished BMW 530 and a Peugeot 504 complete the first six cars in this range.

These will be followed in February by a further three items, still in 1/43rd scale, comprising a detailed model of the Ford Fiesta and a Renault 14, both models featuring opening

An impressive array of the 20 car/truck items in the range, many having working features and all being attractively finished.



doors: an eyecatching version of the Alfasud in Martini racing livery completes this trio. A further three cars will be available in May, one of these being launched to coincide with the announcement by Talbot of its new top of the range car, the Tagora. A VW Golf in British School of Motoring livery, and a Renault 5 with opening doors will complete the series.

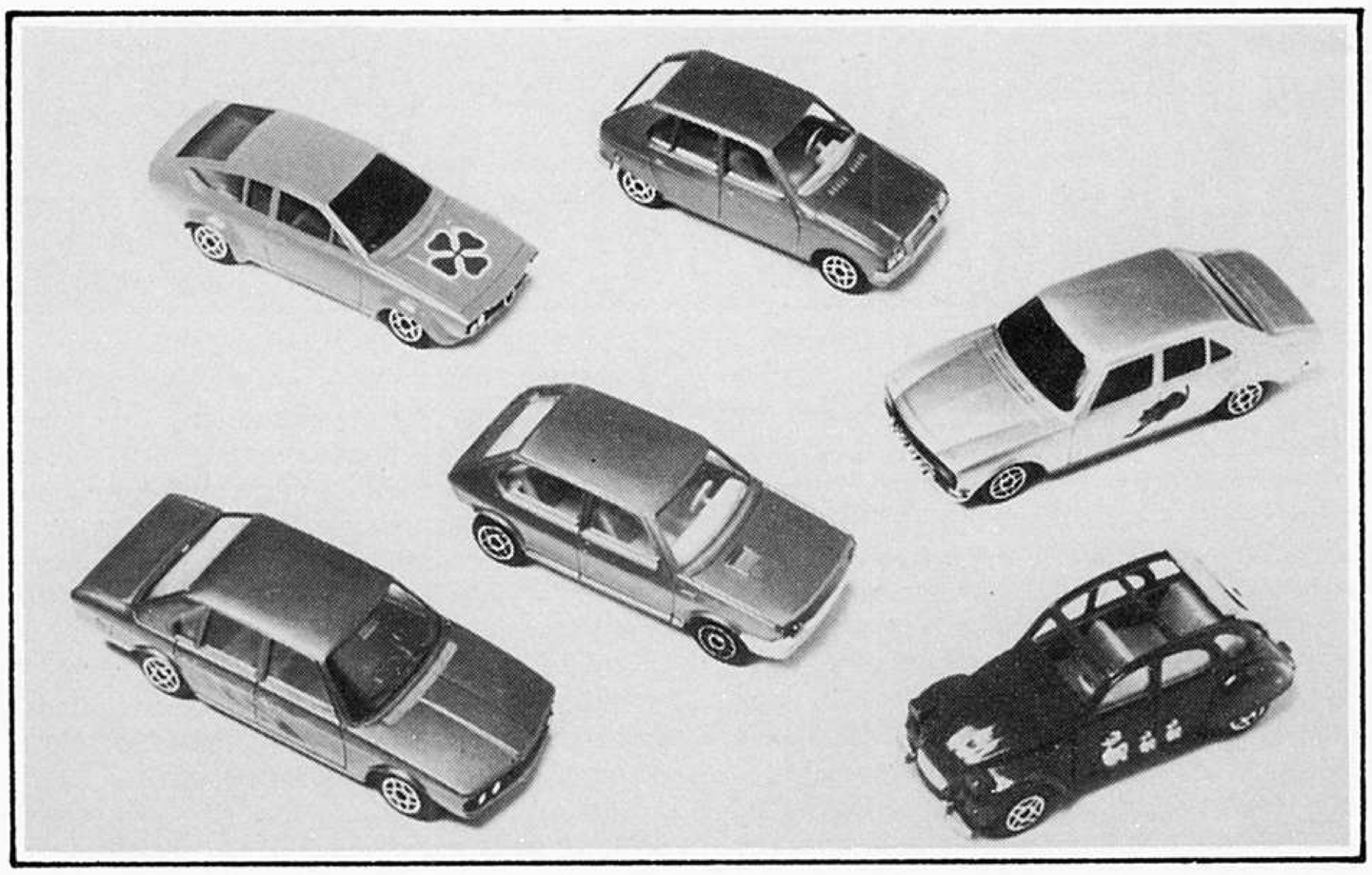
Due to a new manufacturing process Dinky are able to sell these models at a retail price of under £1.50. This is indeed significant in the forward development of Dinky as in 1980 the cheapest comparable die-cast had a recommended price of £1.75, and such items will undoubtedly be £1.99 by the end of this year.

The emergence of the Ford Granada, designed and developed at the Liverpool factory, will be welcomed by enthusiasts and collectors and will be available in three different versions, a standard saloon, a Fire Chief's vehicle, and a special 'Polizei' version to cater for the many overseas Dinky followers. All these variants will have opening doors, full suspension and highly detailed interiors. There will also be two new items in the Convoy range, a cement mixer and a Pickfords removal van.

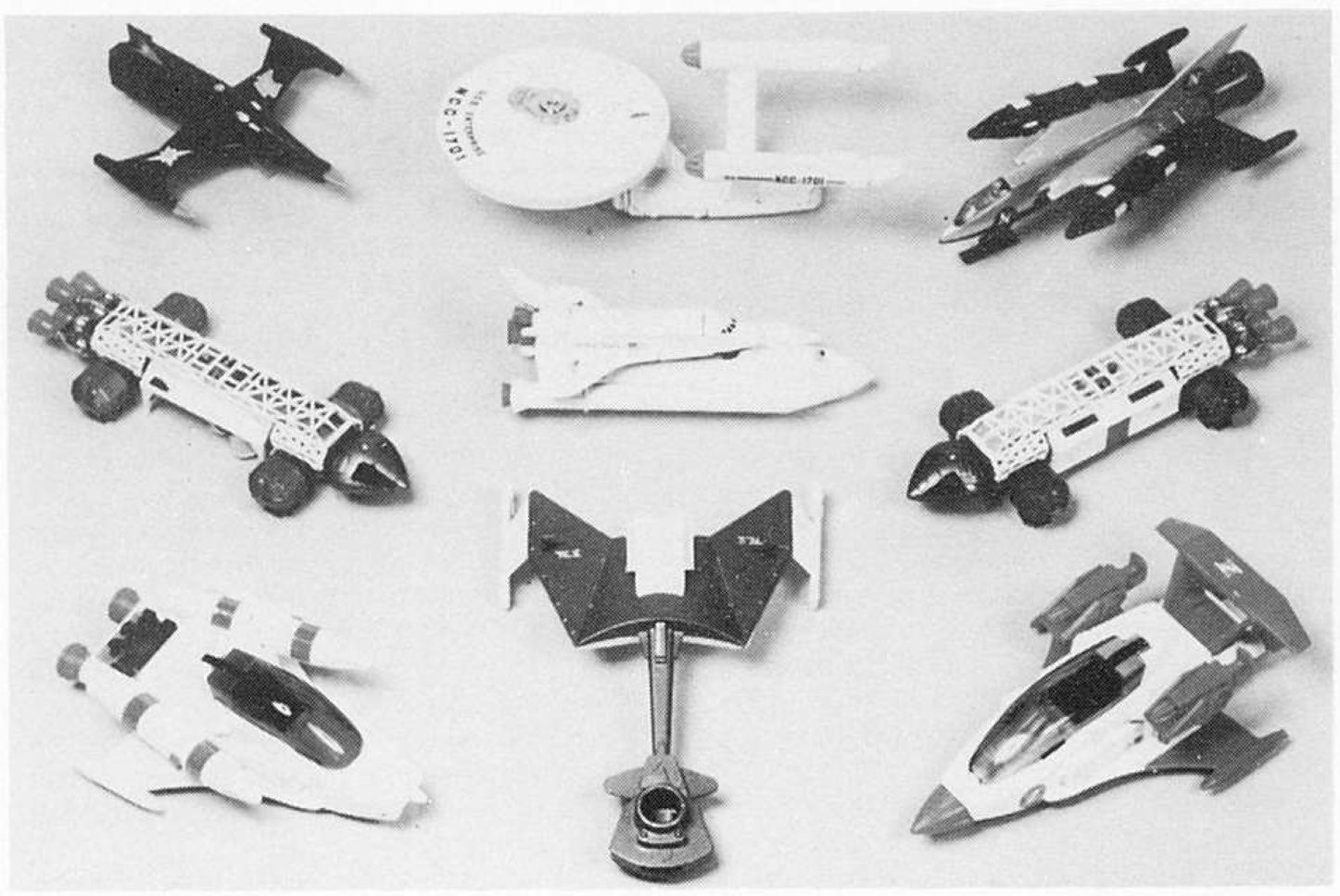
Dinky will be adding to their already extensive space range a model of the Nasa Space Shuttle, the original of which is due for launching in March. Just like the real craft, the model has detachable booster rockets and fuel tank as well as opening cargo doors which reveal a miniature laboratory pack.

All these items add up to a formidable expansion of the Dinky range in the first half of 1981. Space, traditionally the stronghold of the company in the die-cast market will continue to be developed through the eighties. The existing items have been updated with exciting new colour schemes and will be manufactured to a higher standard than ever. Dinky's plans for the year are just the first in a long-term programme extending into the middle of the decade and beyond.

This will ensure that Dinky remains at the forefront of the model scene with the sure knowledge that today's products will be tomorrow's collectors pieces.



Above, the first six in the new range of 1/43rd scale die-cast cars and, below, the famous Dinky space range which includes the American shuttle craft (centre item).



IN RETROSPECT

From the Meccano Magazine January 1946

On the Road To-morrow

I wonder how the post-war world upon which we are entering will differ from the old days. Probably there will not be a great deal of change at first, but changes are sure to follow as attempts are made to adapt the knowledge that has been gained during the war. To take one example, what will the motor car of tomorrow be like? Already descriptions of the first post-war products of many famous firms have appeared. In general appearance these do not differ very greatly from those we saw on the roads six years ago, although of course they all include some improvement or additional gadgets that add to their efficiency, and to the comfort of driver and passengers. For instance, built-in jacks seem to be universal, and those who have had to change a tyre on a dark night in pouring rain will know how much that means!

But what readers of the '*M.M.*' will be interested in most is the further prospects of the motor car. Will the engine be pushed to the rear, with the disappearance or reduction of the bonnet, which looms so large in many makes, especially certain American cars. More use will be made of light alloy metals, which have been developed so amazingly during the war, and an interesting pointer is the appearance in this country and in France of designs for what may be called a 'People's Car.'

We have also been threatened with the atomic power car, while the jet propulsion engine also may be applied to road vehicles. These are questions for the future, and for a few years at any rate our roads should not look very much different from today.

'With the Editor'

* * *

The First Post-War Continental Services

A service between London and Paris, via Newhaven and Dieppe, has been in operation for some time, having been the initial post-war ordinary passenger link with the Continent. 'Atlantic' engines generally haul the boat train between Victoria and Newhaven, as in the days before 1939.

There are many specials and vessels running, in connection with leave or demobilisation for Forces' personnel, to and from Folkestone and Dover; nevertheless the restoration of a public Anglo-Belgian service on 22nd October last, the first of its kind using one of the famous Kent ports since 1940, was a notable occasion.

Following a naming ceremony at Victoria, in which the Belgian Minister of Communications took part, 'Merchant Navy' No. 21C 17 '*Belgian Marine*' worked the inaugural boat express to Folkestone and made a fine run, gaining 5 min. on schedule and averaging fully 70 m.p.h. between Tonbridge, passed slowly, and Ashford. The load was about 340 tons, including three Pullman cars, the whole in gleaming new paint. Usually a 'Schools' class 4-4-0 is employed for this duty, which operates three times a week in each direction.

In the years prior to the war at least two vessels sailed daily between Dover and Ostend, the Belgian port now again concerned, and it is hoped in time to resume that frequency when Dover is not so fully occupied with Services' traffic, subject to Continental conditions becoming more normal.

In November it was the turn of the L.N.E.R., Harwich, and the Netherlands authorities to celebrate the re-opening of the Parkestone Quay (Harwich)-Hook of Holland service. The beautiful train specially built for that run shortly before the war, with its cheerily lighted restaurant and saloon cars, was all ready at the customary platform at Liverpool Street to make the opening evening run to Parkestone, headed by a smart green locomotive of the new Thompson 'B1' class, No. 8304 '*Gazelle,*' which lately had been the Royal engine at Cambridge. On account of limited accommodation and the shortage of food and living quarters in Europe, there are still certain restrictions on bookings from here to the Continent.

'Railway Notes'

The Springbok Service

The through mail and passenger service to South Africa inaugurated by Imperial Airways in 1931 and operated with Empire flying boats until 1940, was restored by British Overseas Airways on 10th November last year. The present service is operated once a week each way jointly with South African Airways, with Avro 'York' transports.

Each 'York' has accommodation for 12 passengers in addition to mail and cargo, but at present only sponsored passengers will be carried, as the service is so limited. The fares are £167 single and £301 return. The route is from Hurn, through Castel Benito in North Africa, Cairo, Khartoum, Nairobi and Johannesburg, the journey being scheduled to take 68 hrs. 40 min., although the actual flying time is only 32 hrs. 25 min. for a distance of 6,835 miles. The return journey takes 62 hrs. J.W.R.T.

'Air News'

* * *

'Radar' Increases Safety at Sea

An interesting post-war application of 'Radar' is to be seen in the 'electronic navigator' for use on ships. This is a device that is capable of detecting in fog, darkness and storm, the position of any above-water obstacles such as rocks, icebergs, wrecks, or other ships, at distances up to 30 miles, according to their size and shape. The distances and positions of such objects are shown on a viewing screen, in correct proportions, and their size can be measured by reference to a number of concentric rings super-imposed on the screen.

The apparatus uses a rotatable aerial, which is placed on the top deck of the ship. It works rather like a lighthouse or searchlight, only instead of sending out a beam of light it transmits ultra short radio waves in rapid succession. When the waves strike an object, no matter of what material it is, the beam is broken up and scattered. Some of the scattered waves are reflected back rather like sound echoes to the aerial on the ship, which picks them up and transmits them to amplifier. After amplification the echoes or reflected waves appear as bright spots of light on the face of a cathode ray tube something like those used in television receivers. The image thus formed gives the operator a radar picture of the obstacle, and the concentric rings engraved on the tubes indicate its distance from the ship and the direction in which it lies.

Fire Detection in Motor Buses

A novel fire detection and extinguishing system for use in motor buses has been introduced in America. It comprises a number of specially designed flame detectors, which are fixed at possible danger points about the engine. If from any cause a flame occurs these instruments instantly light up a red warning lamp fixed on the driver's dashboard. The driver then pulls a handle, and a cloud of compressed carbon dioxide gas is released under the bonnet, which effectively smothers the flame. The gas is odourless and non-poisonous and does not harm the engine.

'Engineering Notes'

* * *

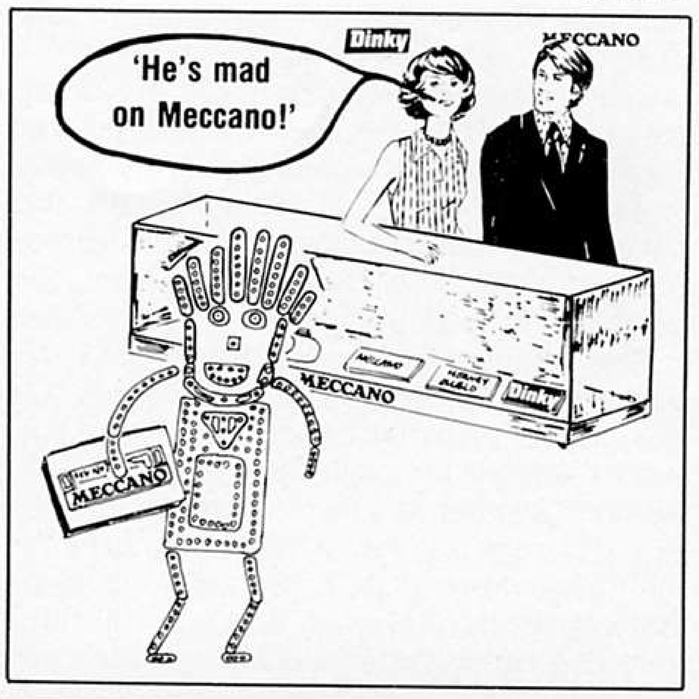
'Sunderlands' for the Argentine

The launching of the 'Sunderland' flying boat *'Argentina'* on 1st November 1945 by Sra. de Dodero, wife of the chairman of the shipping line Compania Argentina de Navegacion Dodero, marks a fine beginning for Short Brothers' post-war export business.

Four of these civil 'Sunderlands' have been ordered and will be used to operate services up the River Plate to Corrientes, and also, eventually, from Natal to Bathurst. They are equipped to carry 40 passengers in luxurious cabins, and have five additional seats in the refreshment compartment on the upper deck, which may be used as ordinary seating accommodation on crowded routes. The interior of the aircraft is decorated with pale blue washable Vynide, with upholstery, curtains and carpets to match. Each passenger has individual lighting and ventilation, in addition to the normal cabin-heating system. The civil 'Sunderlands' have a maximum speed of 240 m.p.h., and a range in still air of 2,500 miles at a speed of up to 200 m.p.h. Fully loaded they weigh 60,000 lb., which includes more than a ton of freight or mail.

All four 'Sunderlands' will be flown out to Argentina by B.O.A.C. crews.

J.W.R.T.



In View

A TRACTION ENGINE MISCELLANY
By Ronald H. Clark, M.I. Mech. E.

Published by Goose & Son Ltd. Warner House, Folkestone, Kent, England. Price £10 net.

IN 'Meccano Magazine' for October 1980 the Editor, in his 'North-West Frontier' article, discussed the increasing importance of accurate prototype information for Meccano modellers. This is a theme which has always been close to my heart and it is my pleasure, now, to review a book which provides exactly that sort of information.

Steam Traction Engines must surely be amongst the most popular subjects in the whole of the Meccano hobby. The prototype offers a beautiful opportunity to design and experiment with reciprocating motions of all sorts, with the bonus of fascinating driving gear trains and linkages; and the whole thing is topped off with a unique sense of combining decorative effect with engineering design.

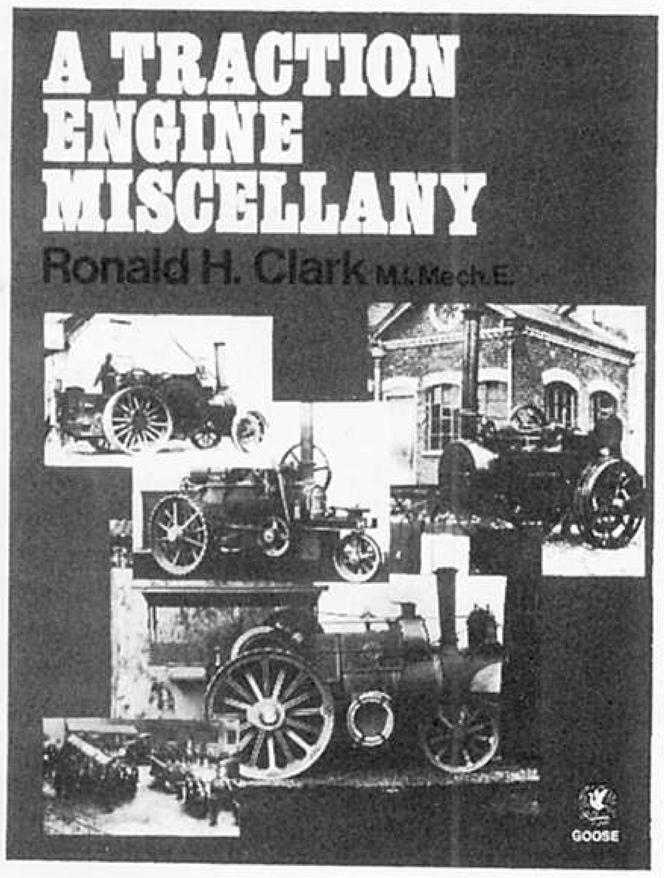
Yet these special qualities are easily missed in Meccano models. Many years ago I concluded that this is because each engine manufacturer developed features which have both technical and visual peculiarities which Meccano modellers would seldom take the trouble to investigate. Old instructions manual models carry an awful responsibility here, (I find the 'official' models dreadful, without exception). The fact that a Fowler, for example, looks so magnificently purposeful is due to the precise relationship of the shape and proportion of the various parts. Why is it difficult to capture, especially, the rakish elegance of a Burrell? The answer is in the subtle off-set of many of the dimensions, with very little apart from the chimney actually in the middle! It is elusive problems like these and many others which this book resolves through its nearly-350 excellent photographs, diagrams and general arrangement drawings.

Ronald H. Clark is one of the great authorities and the book does the subject full justice. It is, I presume, primarily intended for the live-steam enthusiast with many sectional drawings of steam passages; but the basic information is everything the Meccanoman wants. It is a little short on ploughing engines and steamrollers, but compensates by being long on all manner of unusual and interesting variations on the traction engine. The author deals with all the known firms, with examples, and lots of detailed dimensions. He takes a strong line on feet and inches, with not a millimetre in sight. The overwhelming mass of the book is wonderfully instructive data; but, I suppose, to justify the title 'Miscellany,' there are a handful of short stories which, I must confess, are not greatly to my liking, though appearing in the guise of steam reminiscences.

Taken altogether, for the Meccano enthusiast an indispensable book which underlines, once again, the need for, and satisfaction of, correct prototype information.

ALF REEVE

(Since this review was prepared notification has been received that the book is now out of print. However it is well worth looking out for a second-hand copy. ED.)



REPRINT CATALOGUE OF MECCANO PRODUCTS, 1933

T. E. E. PUBLISHING. Available through M.W. Models, 4 Greys Road, Henley-On-Thames, Oxon. Price £1.50 plus postage.

Another booklet in the growing list of reprints of vintage Meccano literature. The text is always useful and interesting but the reproductions of the illustrations, particularly where boxed items, such as the Meccano outfits, are concerned does not always do full justice to the originals. This is obviously because of expense in production; nevertheless it is good to be reminded of the pre-war golden days of the hobby.

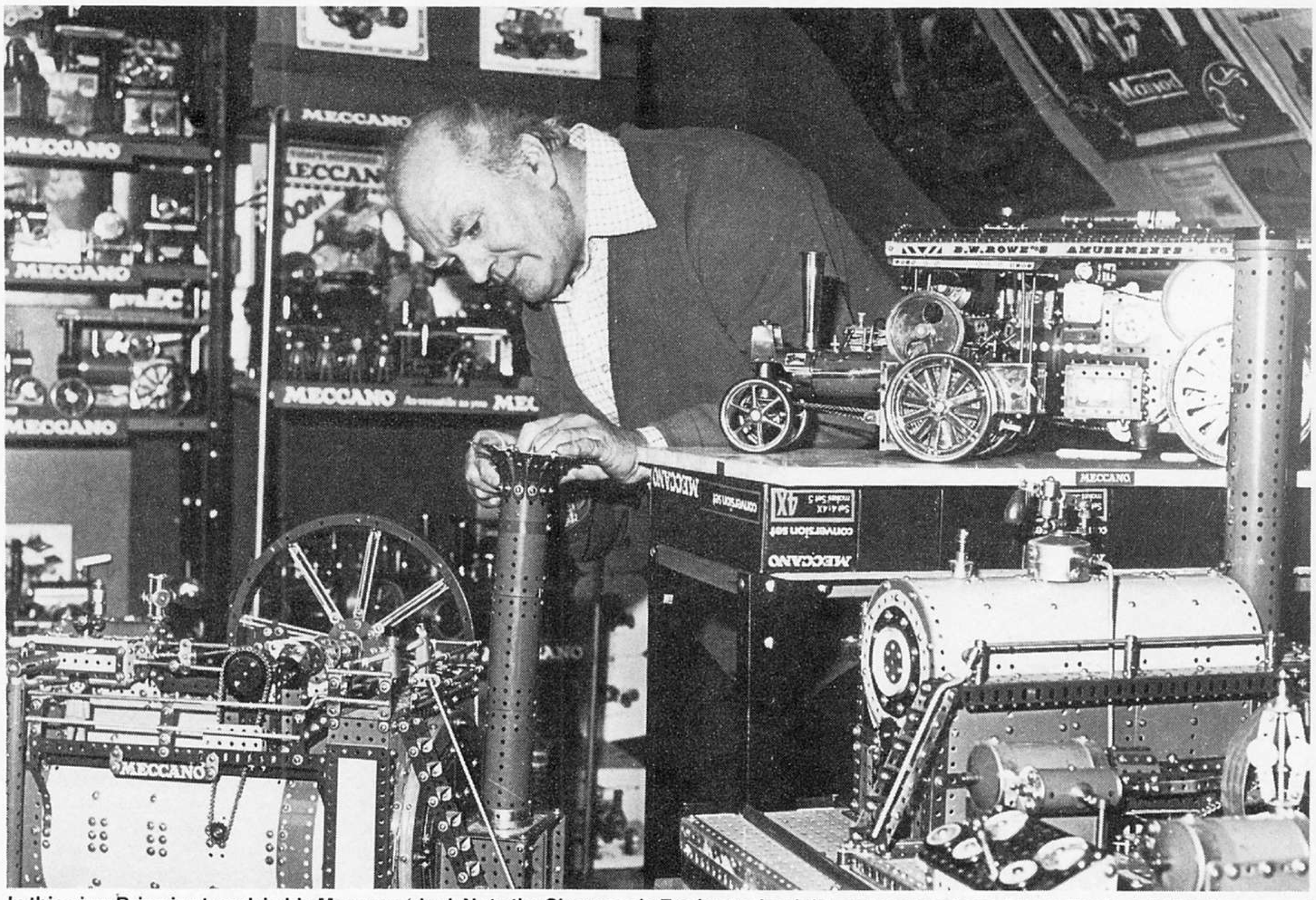
The year is 1933. The cheapest Meccano set is 2/6d (12½p), the most expensive 415/- (£20.75), 'packed in beautifully enamelled cabinet with lock and key.' Recalling that a working man was lucky if he got £3 a week wages it is understandable that the prices of Meccano products were actually going to go *down* by 1937. The range of the products is terrific; Meccano itself is in its last year of dark red/green, Chemistry sets, Electrical sets, Motor car and Aeroplane Constructor sets, Speed Boats and Hornby 'O' Gauge Trains. There are ill-starred items like the Countryside sections (for the trains) and the slightly ridiculous X-series Meccano, (I write from genuine childhood disappointment!). There are too, the original Dinky Toys but called, here, 'Modelled Miniatures.'

For those who need references for historic data, or for those who are after a bit of nostalgia and find original literature beyond their pocket, this is good value.

ALF REEVE

Advanced Meccano enthusiast BRIAN ROWE gives an account of his

50 Years With Meccano



In this view Brian is at work in his Meccano 'den'. Note the Showman's Engine to the right, and the two large Steam Engines in the foreground.

(Photograph reproduced by courtesy of Western Morning News Co. Ltd.)

'LOOKING back, little did I realise the year 1929 was to become a milestone in my life, the effects of which remain with me to this day. It was the year I was given a small Meccano set, and from little acorns . . .

My first acquaintance with the products of Binns Road was as a schoolboy on a trip from my home town of Buckfastleigh in south Devon to visit an Aunt in Totnes. She was a school Headmistress with very fixed ideas on how a boy's mind should be developed and could readily appreciate the educational value of a No. 0 Meccano set I'd set my heart on in a local toyshop window. This, the only Meccano dealer in Totnes at that time had the unforgettable name of Paul Pinch and his shop window was always a feast of Hornby and Meccano, plus the odd wireless set and other electrical goods (he was an electrician by trade). Binns Road products had pride of place in his display with working models and Hornby layouts a year-round attraction. My first Meccano set lay propped in a corner of the window price 5/- (25p), and contained such delights as a plum red base plate, dark green strips and a square tin in which nestled nuts, bolts and other sundry pieces.

This was purchased on the occasion of my birthday by my Aunt with the proviso that I should 'start building from the front of the Instructions Book at model No. 1—and don't drop any nuts and bolts on the floor'!!

My excitement knew no bounds from that day on—I knew there were spare parts to be had, but 2d and 3d in those days was beyond my resources so Christmas was eagerly awaited for the gift of a 2" Pulley and a small tin of Nuts and Bolts. Luckily my Father was always sympathetic to my constant demands for more stock and very gradually my collection increased in size until I was able to build models from the No. 3 Book. Father encouraged me to study each individual part and design my own models so later on I found myself increasingly adept at utilising the various applications of each component. This in turn led to an increasingly demanding eye for scale proportions and attention to detail. West Country people seem to have an inherent skill in this direction, coupled with a love of colour and no shortage of patient endeavour. This may account for my love of the Fairground, strong connections with Cornish mining engineering and an attraction to all things steam.

The '30's saw me at Ashburton Grammar School where I won my first prize of 2/6d at a Hobbies Exhibition with my hand-driven Meccanograph. I was later told my model gained this prize because all the parts were well chosen, fastened together tightly and worked together properly. This was a great encouragement at the time and led to my trying so far as possible to maintain these qualities in every model I made from that day to this.

I left Grammar School in 1938 and joined the RAF as an apprentice Aero Engine Fitter during which time I missed the 'Blue-Gold' Meccano period. This, to all intents and purposes, was an 'economy' step by Binns Road—the gold-finished strips soon scratched and it is rare to see any of these in good condition today. The war years saw me in various parts of the country including South Wales but there was no time to pursue my hobby until my medical discharge in 1945. Returning to Devon I once again recovered my box of Meccano, but sadly to relate, wartime evacuees had played

havoc with my collection. I was obliged to wait until 1946/7 for the first opportunity to replenish my stocks; it was a poor time for spares availability because with export all the rage, Meccano were hard put to supply the home demand.

Gradually though, my outfit 'recovered', to the extent that I was able, in 1952, to enter my first official Meccano competition with a model of an LMS Stanier Pacific Locomotive, aptly named the 'Duchess of Devon' and this gained me second prize. This modest success spurred me on and I became dedicated with a desire to build bigger and better with novelty forming the keystone of all my efforts. Next followed a Planing Machine which was described in detail in the October 1952 'MM' with my production line now geared for greater output. Early in 1953 i entered five models for the International Model Building Competition in the 'MM', to my delight, I carried off the first prize in the senior section. One of the models I submitted, a working duplicator, is shown in the New Cavendish Book 'The Products of Binns Road'. It was about this time that my only visit to Binns Road took place. It was in the Autumn of 1953 when I met Frank Riley—the then Editor of Meccano Magazine and also the late Norman Tudor (Spanner of the time) for a conducted tour of the factory.

Letters came to me from all over the world including one from a Saudi Arabian Prince who wished to know if I could build him a duplicator for his personal use! I began making Showman's Traction Engines and Fairground Rides to indulge my love of these machines, and these models were featured in the 'MM' throughout the '50's and '60's. These culminated in my giant Fowler 'Supreme', thought by many to be out of proportion in some respects—and I agree with these comments!

At this time I was Manager of five Railway Bookstalls covering Exeter, Newton Abbot, Dawlish and Teignmouth where I was able to spend some of my time admiring many of the fine steam locomotives which passed through these stations. One day the Chief Mechanical Inspector asked 'Why not build some of the GW Locomotives in Meccano and display them outside your Bookstalls at Exeter and Newton Abbot?' My employers, Messrs. Wymans, were also enthusiastic about the idea so this was the start of my 'Railway Workshop'. Soon my production line was turning out such models as 'City of Truro', 'King George V', 'Lord of The Isles', (broad gauge) and 'Tiny', the last original broad-gauge engine which stood on its plinth on the down platform at Newton Abbot station.



Brian's incredible 'Evening Star' 2-10-0 Locomotive.

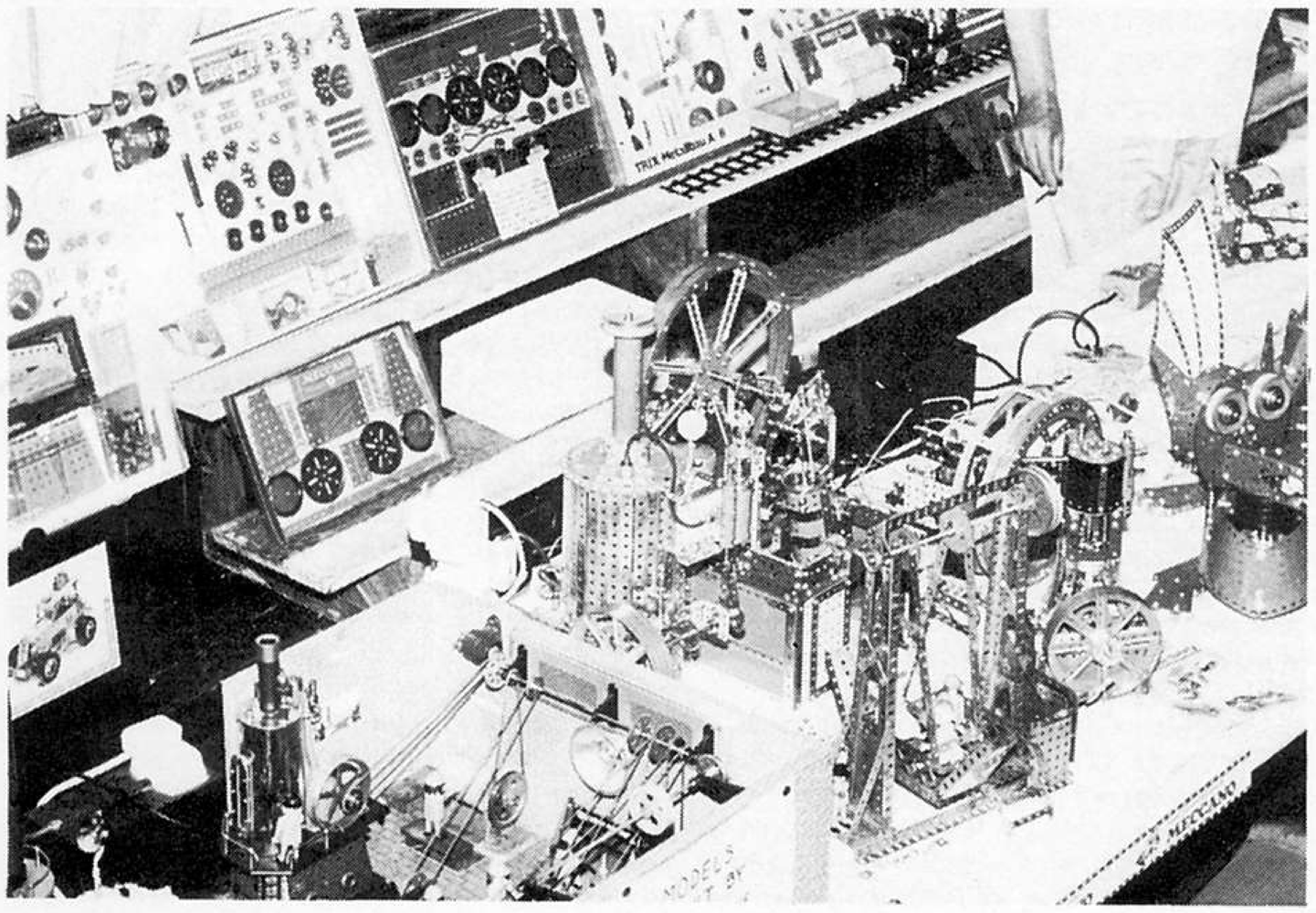
Following after these were 'The Great Bear', the only GWR Pacific Locomotive 'County of Devon' and even a working model of Brunel's Atmospheric system of the old South Devon Railway. This, for a short time, carried passengers along the sea wall between Exeter and Newton Abbot until it was finally scrapped as a fiasco. The original 'City of Truro' made a visit to Devon on a special excursion in May 1957 and my eight-foot Meccano model preceded it by several days at the Newton Abbot bookstall. Rapturous youngsters were photographed sitting in the tender of my model whilst the real thing simmered a few yards away. The two bookstalls at Exeter and Newton were in constant use as Meccano display areas and some actually on the stalls, such as a Funicular Railway which delivered books from the top of the incline to the bottom pay desk. No Christmas ever passed without some Meccano model embellished with coloured lights being on view to the public gaze, to the obvious delight of all!

Nationalisation introduced a different class of locomotive to the West Country and the Britannia class 'Vulcan' was modelled and exhibited. During the early sixties, the last steam loco to be turned out from Swindon, a massive 2-10-0 named 'Evening Star'—came on to western metals and I then decided to draw up plans to see if I could create a model worthy of the last steam loco to be built in Britain. This led me into a great deal of research as at the time it was by no means certain if Meccano could successfully complete such a large envisaged model. It was decided to go ahead and build 'The Star', but a few non-Meccano parts would have to be incorporated to maintain correct proportions. The resulting twelve foot model was described in the June 1970 'MM' and this was the culmination of my steam locomotive building. It was duly photographed but never left my modelling shed—it was too big to move safely, even to take across to the Station only a few yards from my house!

With the passing of steam from British Railways, except for special excursions—I was relieved to learn that the original 'Evening Star' was to be preserved but my Meccano model was destined to be dismantled and the parts dispersed to my storage cabinets for future use in other constructions. I then decided to explore another favourite subject, old Cornish Beam and Whim Engines, Mill Engines, and even copies of vintage toy engines culled from the pages of old catalogues. And so production centred on old Bing and Marklin products, even a copy of the current Willesco twin cylindered mill engine. The fascination of the Fairground also stirred my imagination still, and as a result the 1975 Henley Meccano Exhibition saw me with my model 'Marenghi' organ and a scenic Showman's Engine. The organ was named 'The Meccano Music Master' and was fitted with flashing coloured lights, taped authentic music, a working Bandmaster with baton, drums, cymbals and even a xylophone.

During the past ten years my time has been absorbed by my mobile exhibitions of Meccano models, my steam engine collection and vintage Hornby and Meccano including old literature and price lists etc. I attend Model Engineering exhibitions, Fetes, Traction Engine Rallies and Agricultural shows. My estate car is always

Part of Brian's display in Launceston, Cornwall, Autumn 1979.



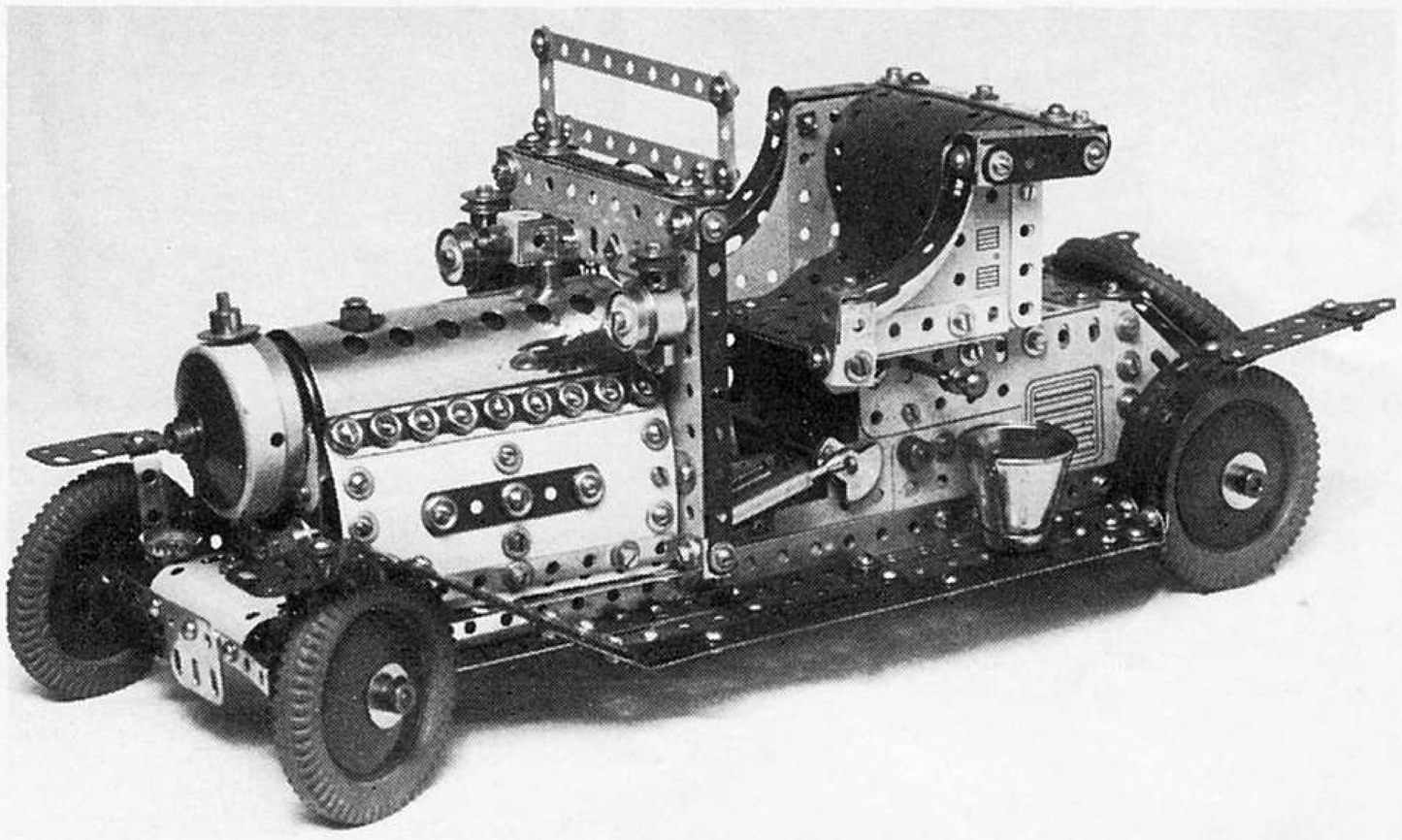
packed to the roof with models and all the ancillary equipment one needs to give a worthwhile display. My model fairground has been featured on Westward and BBC TV as has also my vintage Meccano displays and steam-driven workshop. The organisers of the various exhibitions know me well and always allow me a generous area in which to 'set-up'. This is usually several trestle tables with a mains electric supply and water for the 'workshop' driven continuously by the Willesco unit which incorporates a constant feed pump to maintain power throughout the show. Plenty of Meccano streamers, shelf cards, box lids are employed around the stand and the whole effect is one of colour, motion and music, plus the aroma of hot oil and steam! Marvellous for youngsters and grown-ups alike!

My next Meccano show for 1981 will take place at the seat of Lord Clifford of Ugbrooke House, Chudleigh, Devon and will run from May to September. This stately home has only been opened to the public since last year and is situated in a beautiful part of Devon approx. eight miles from Exeter on the Torbay road. As well as a comprehensive display of static Meccano models—I shall personally be in attendance at peak times with several working models including the following:—

1. Showman's scenic road Locomotive 'Big Bertha' constructed from Red/Green/Yellow/Black Meccano with all Brass items polished and lacquered.
2. Meccano steam car in Red/Green/Yellow colours. Fitted with working differential clutch and correct steering. Polished brass Headlights and other fittings.
3. Giant Big Wheel driven by a Mains motor with coloured lights.
4. Several animated models constructed from all the colour variations in the Meccano system from the thirties to date.
5. A working Fairground Organ in the course of being built.

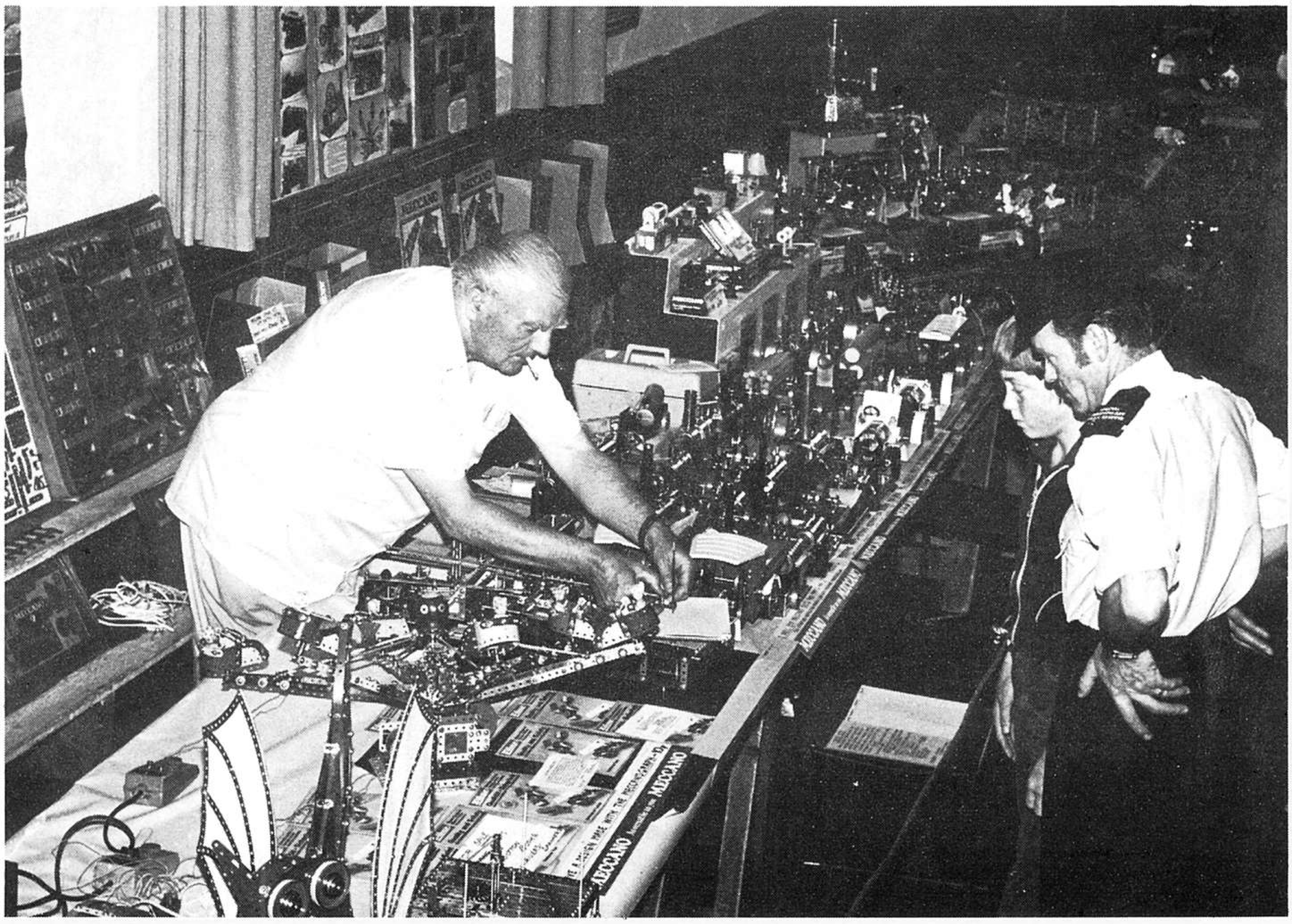
To sum up, my approach to Meccano model building has remained constant from my formative years—a dedication to the product. Meccano has been and still is, unsurpassed by any competitor. It is well-made, probably too well made in this changing world, I have come across parts manufactured over 70 years ago and been able to incorporate them in my work without hesitation.

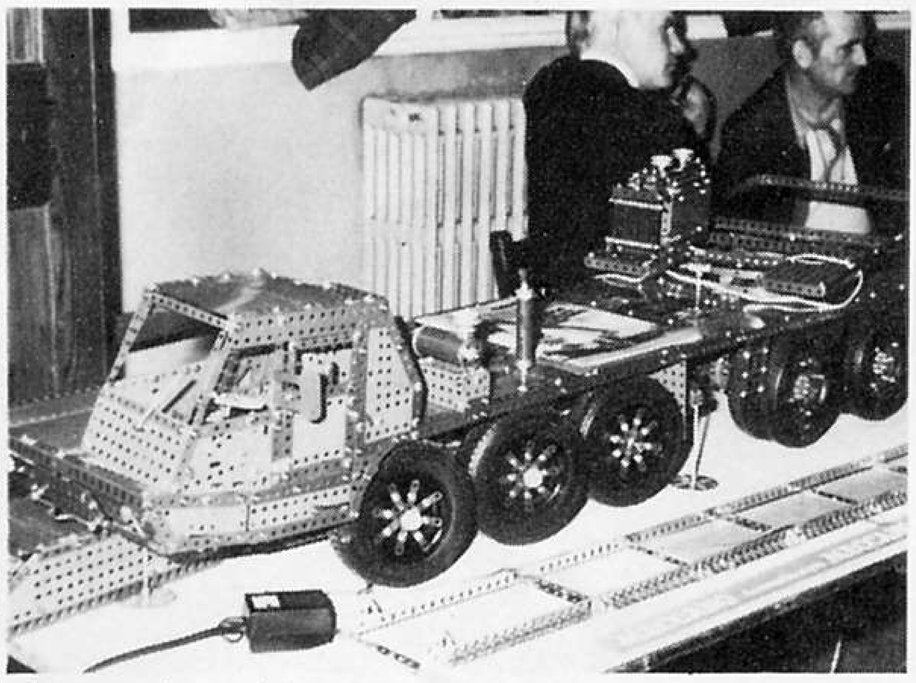
My satisfaction is derived from the seemingly endless questions I'm asked regarding my hobby, and a sense of fulfilment when I have completed a visually attractive model that works and works well. I still even today, add to my collection of Meccano which I now value at several thousand pounds. I revel in the acquisition of a rare component found in a pile of rusted and bent parts, it can be likened to the thrill of the chase, sometimes to faraway places, this makes it all worthwhile. So, thank-you, Frank Hornby, you helped shape my life!



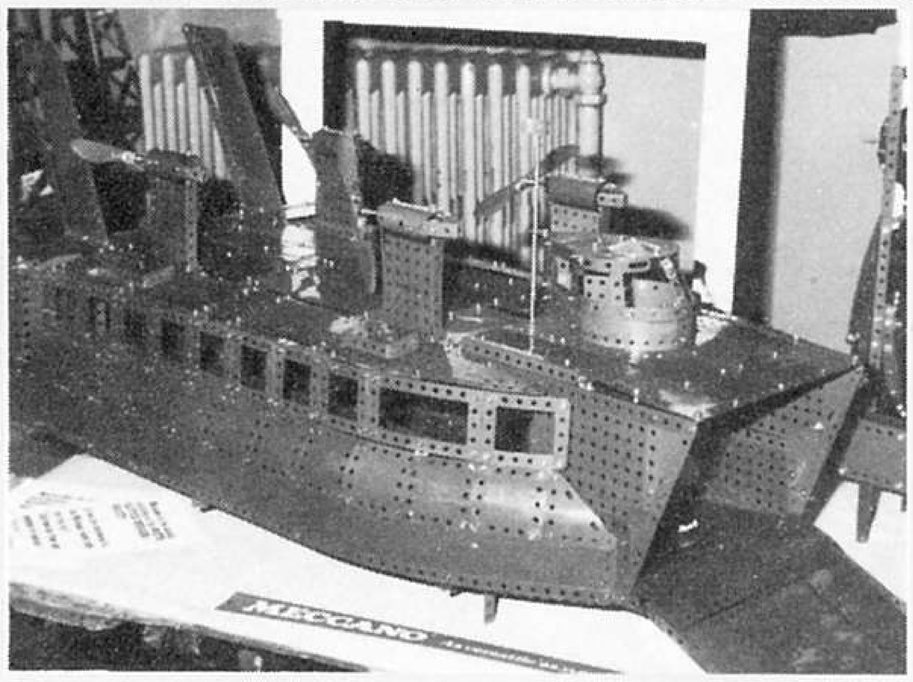
Above: Meccano Steam Car. This uses the Meccano Steam Engine, (previous pattern-without whistle). Fitted with gearbox and differential, the model employs a chain drive to the rear axle and access to the fuel tray is facilitated by the removable front number plate and bumper unit.

Below: A typically large and comprehensive display by Brian, all the more remarkable as it is all the work of just one man. In this view we can see Meccano working display models, old Meccano products, Hornby tinplate and a selection of Steam Engines.

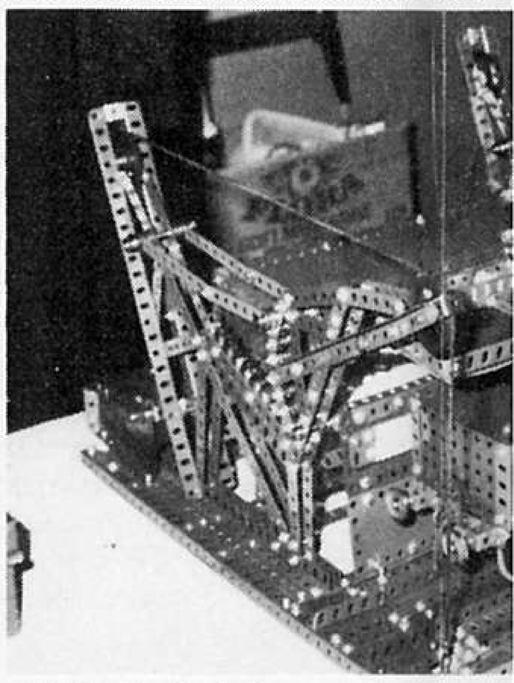




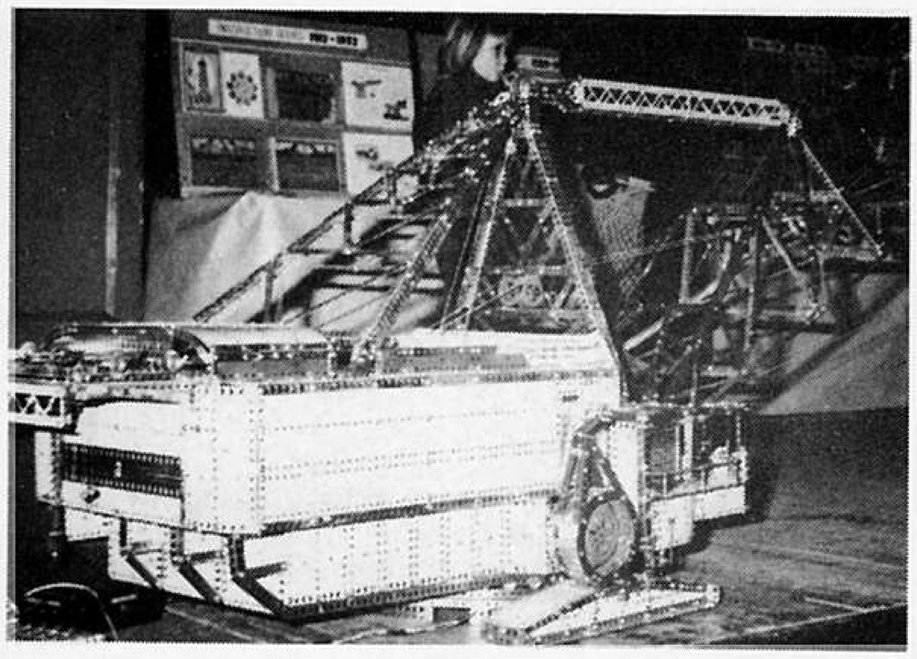
Large-scale modeller Raymond Stephens presented this 6 feet long Grove 1150 Crane Carrier finished in red and green parts, three axles were powered by one motor.



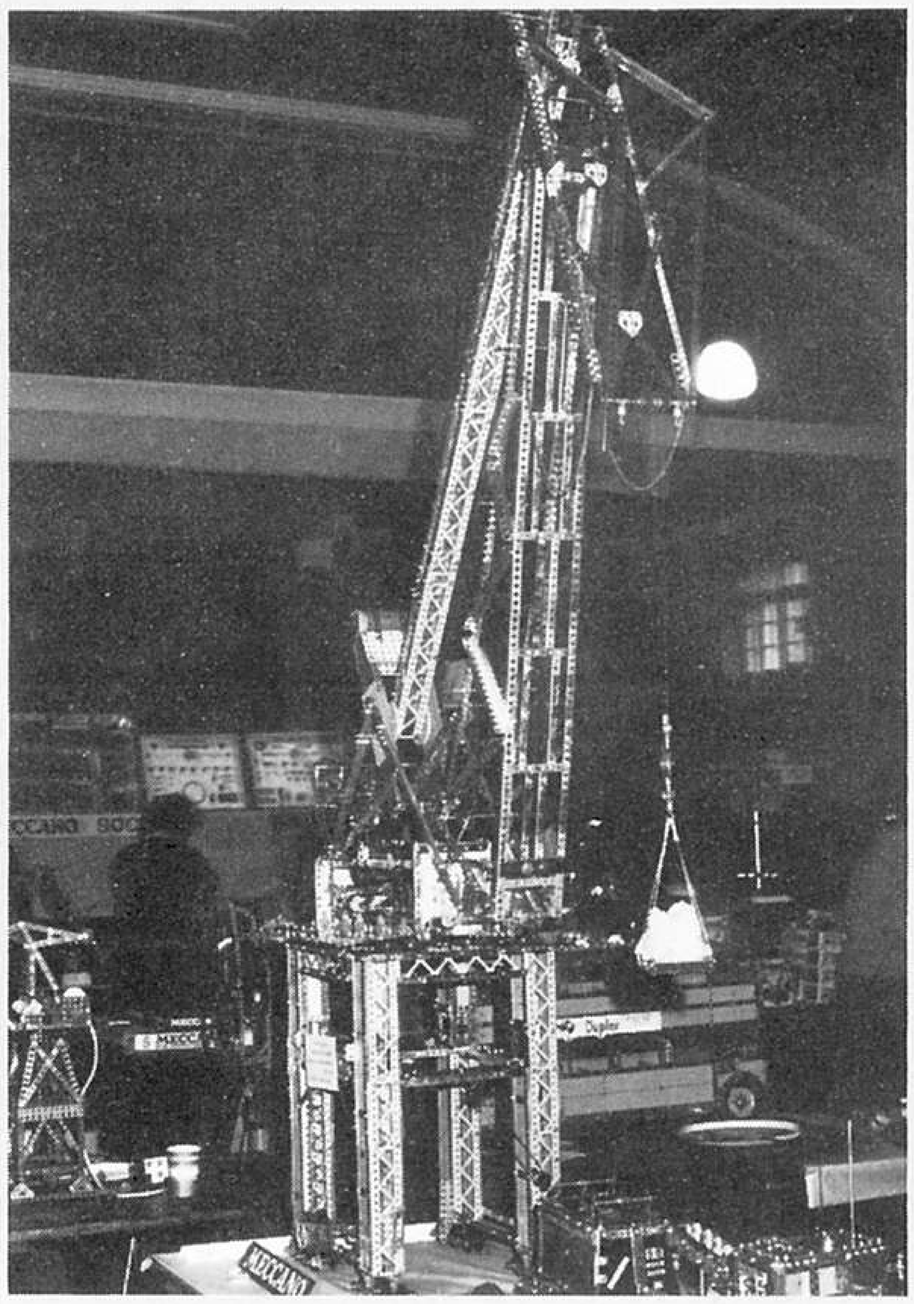
Revolving radar dish, propellers and an opening door are just a few of the features incorporated in Frank Beadle's SRN6 Hovercraft.



Bill Butterfield showed this fine ver Tipping Device, incorporating all th counterpart.



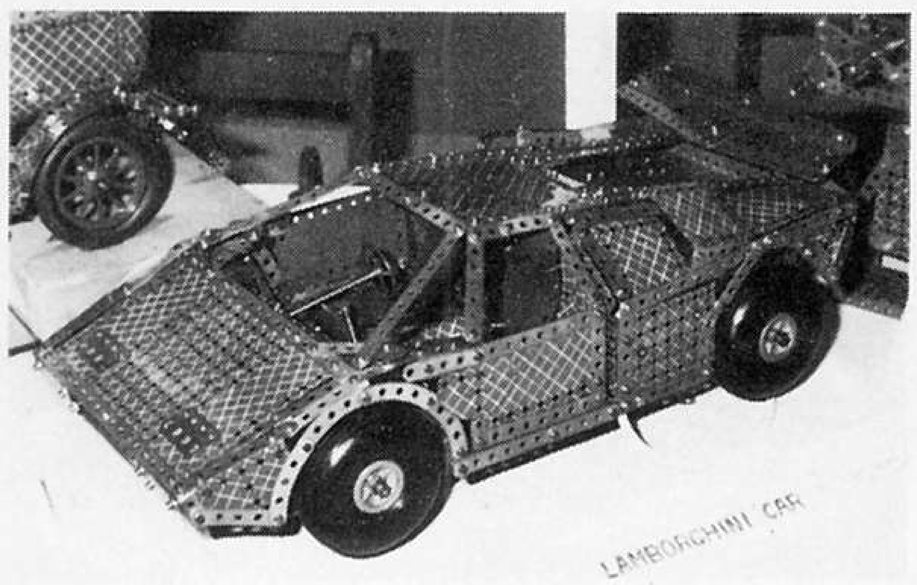
The largest model in the show was undoubtedly Joe Etheridge's 12 feet long Ransomes & Rapier W1400 Dragline Excavator. Weighing 125 kg, no fewer than eleven motors powered its many movements.



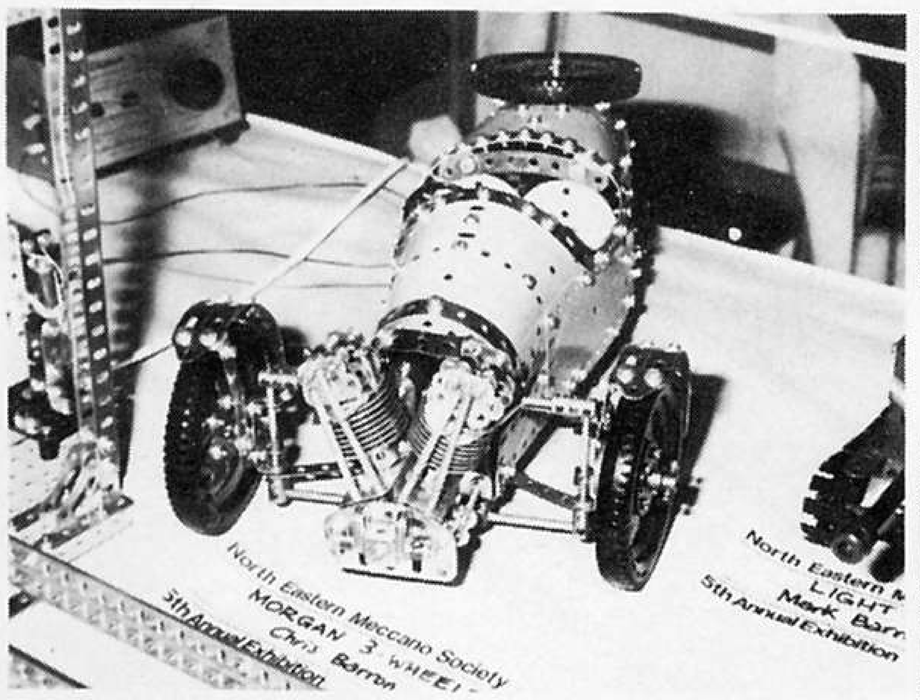
This six feet high level luffing Crane was the remarkable work of 12 year old Robert Anderson and was augmented by a superb heavy duty Recovery Truck with extending jib, front winch, suspension and a 2-speed gearbox.

Scen at Darling 198

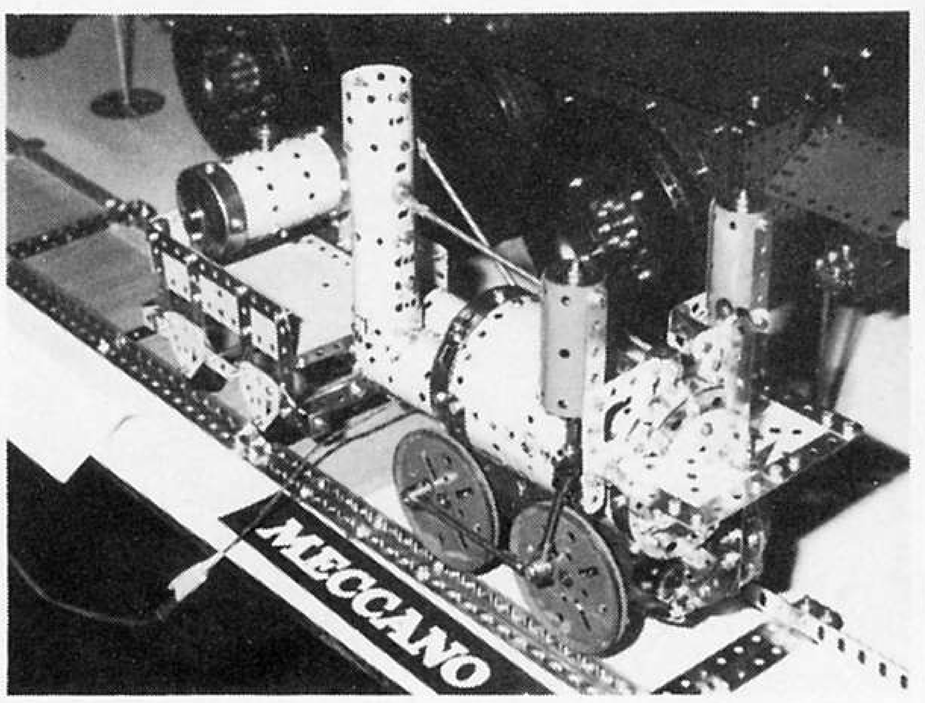
A look at just a few excellent models o North Eastern Mecc Annual Meccano E in Darlington on No



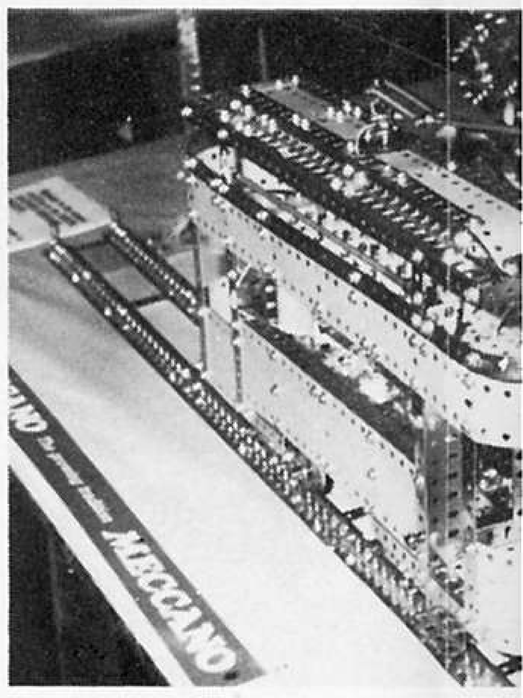
The Blue/Gold criss-cross plating of a bygone era makes a distinctive cladding for Frank Beadle's Lamborghini sports car.



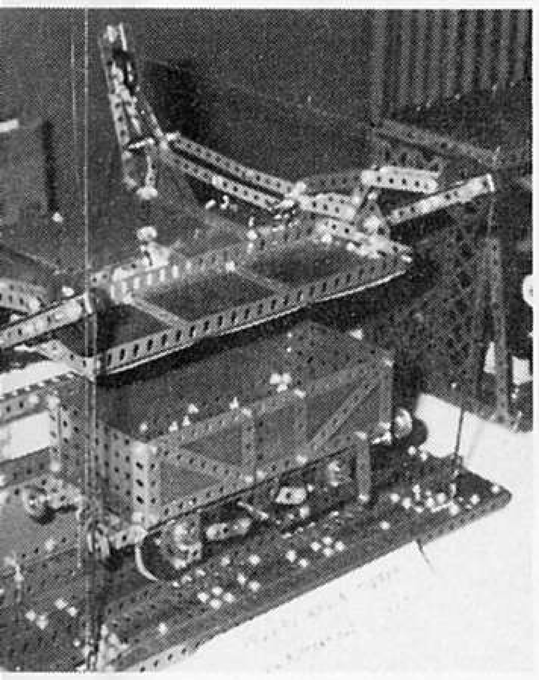
Chris Barron built this extremely neat model of a Morgan three-wheeler car with engine detail and driven by a PDU.



Traversing along a six feet length of track, the 'Sans Pareil', built to a scale of 1:13.5 by Ron Barnby.



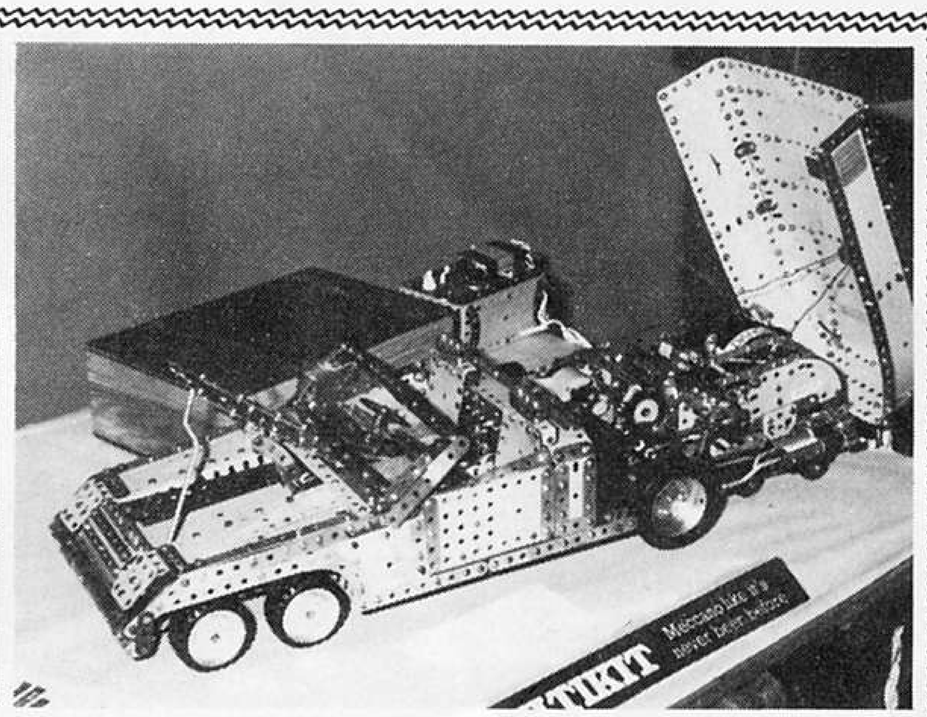
A working Tramcar by Chris Barron, f it sported a realistic trolley pole pow



this fine version of a Railway Wagon
rating all the actions of its full-size



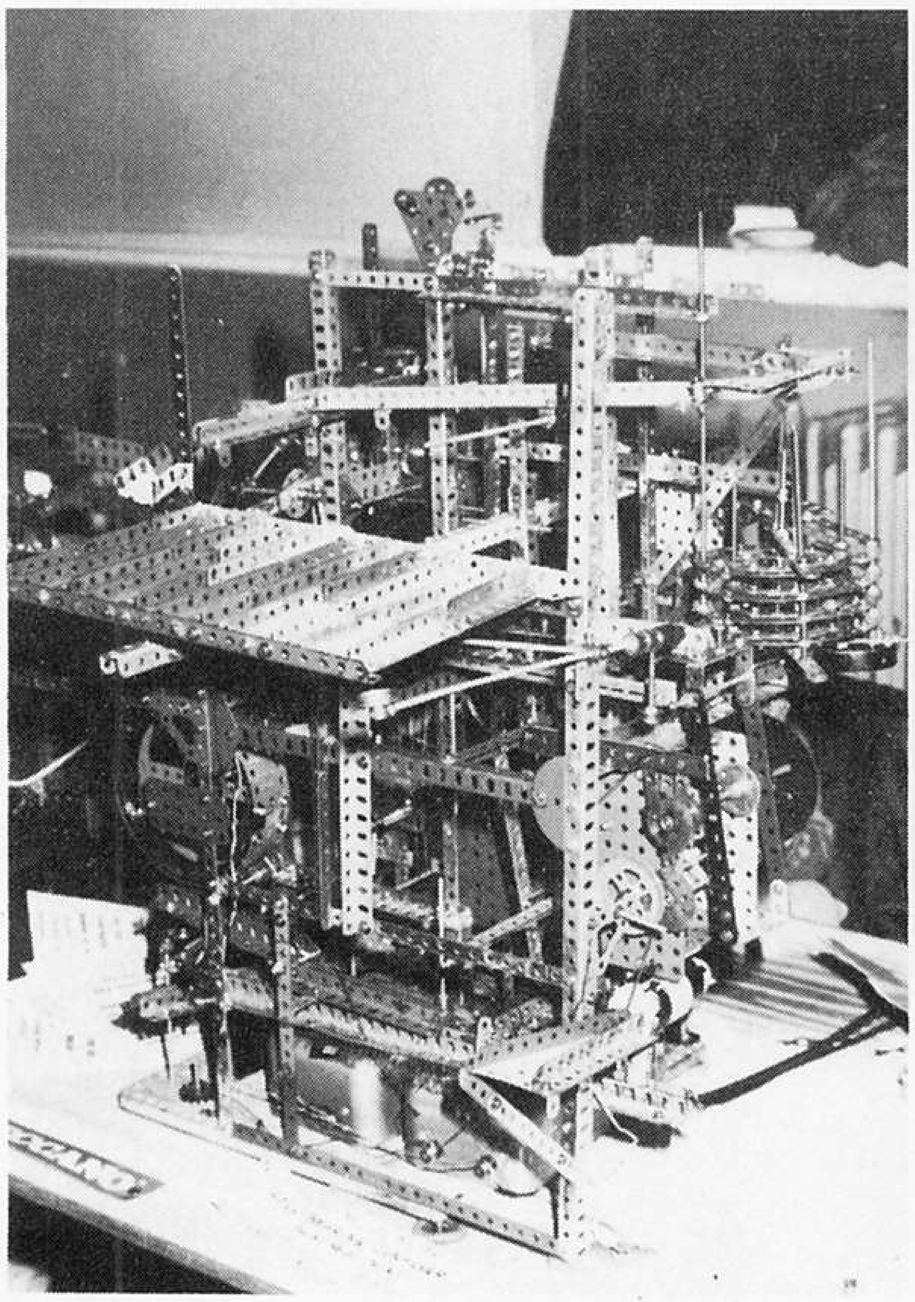
Thirty realistically-operating oars and even a device to 'furl' the sail, both features making for a highly unusual exhibit, an Ancient Greek Warship by Dennis Wright.



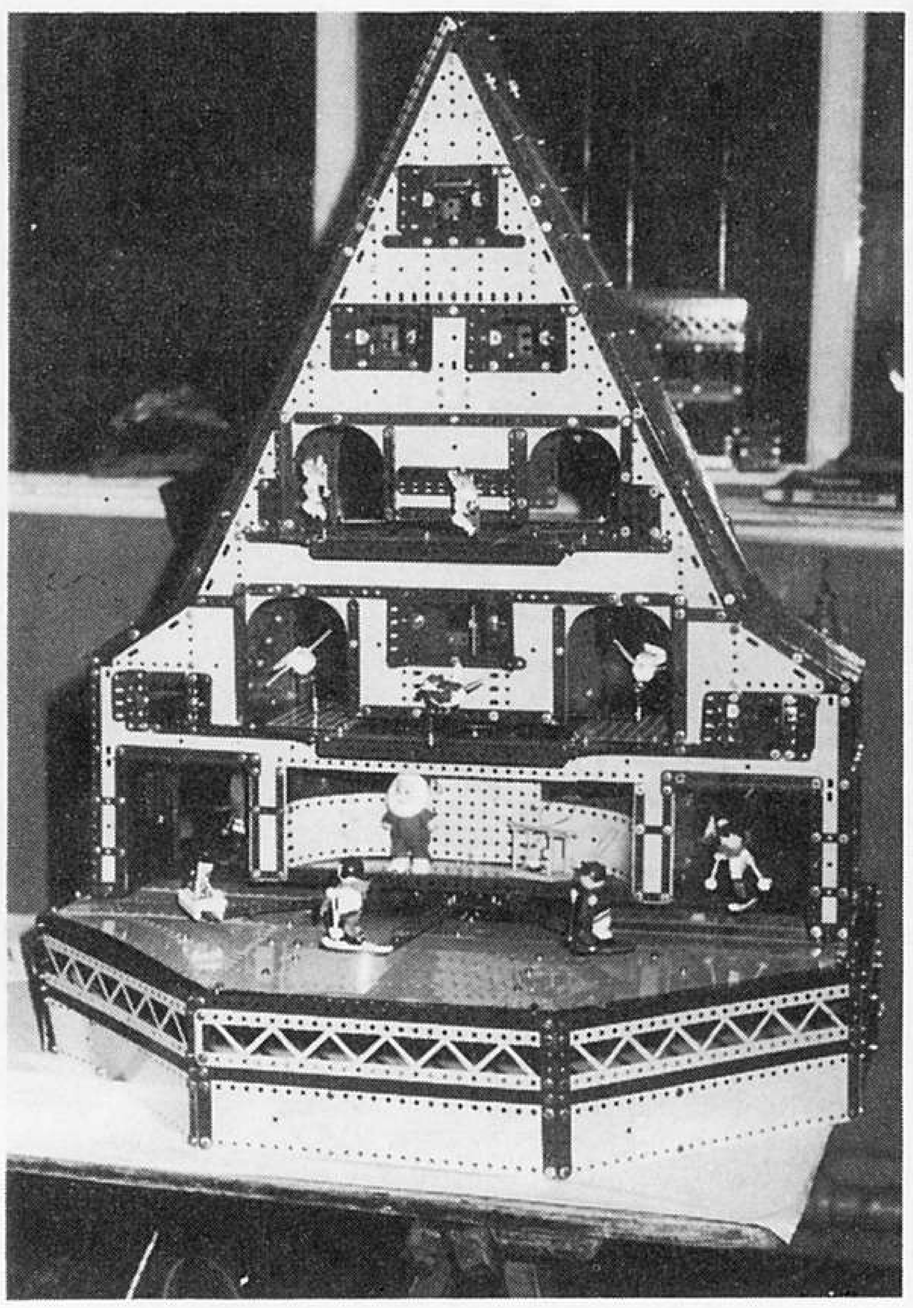
A beautiful and compact model of a unique original, the Panther Six sports car. By Nicholas Forth, it featured a powerful motor, four-speed gearbox, power steering and working lights.

cene at ington 980

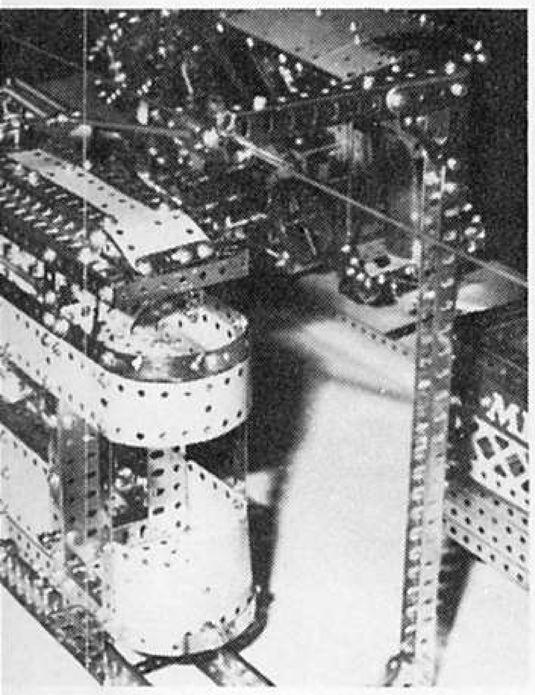
t a few of the many dels on view at the n Meccano Society's cano Exhibition held on November 15th.



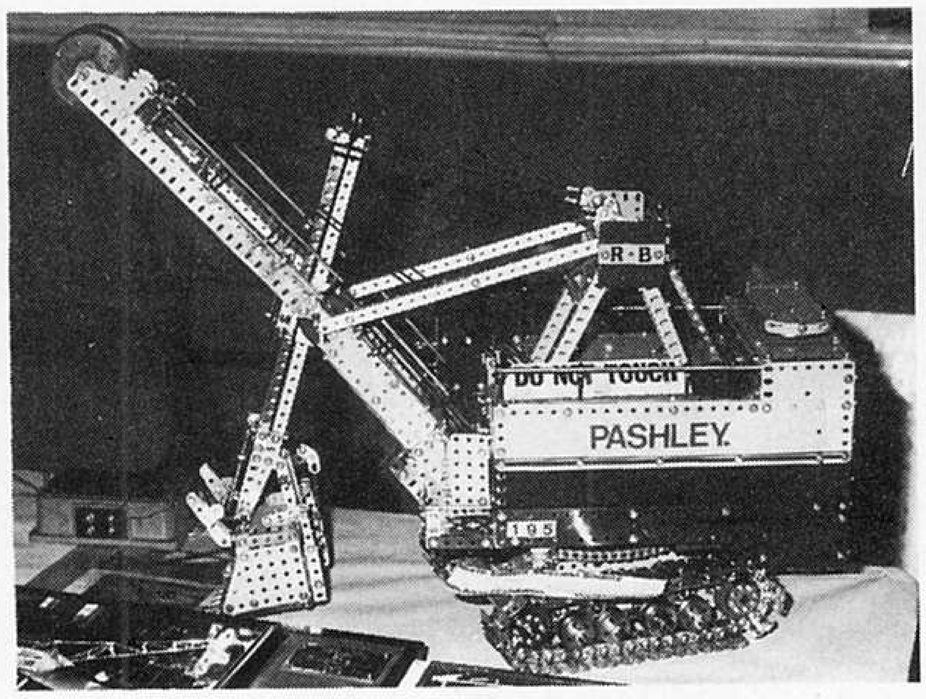
Bryan Reay in his usual baffling style produced this 'Ball Bearing Confuser' which also confused any onlookers attempting to follow the tortuous path of its captive ball-bearings!



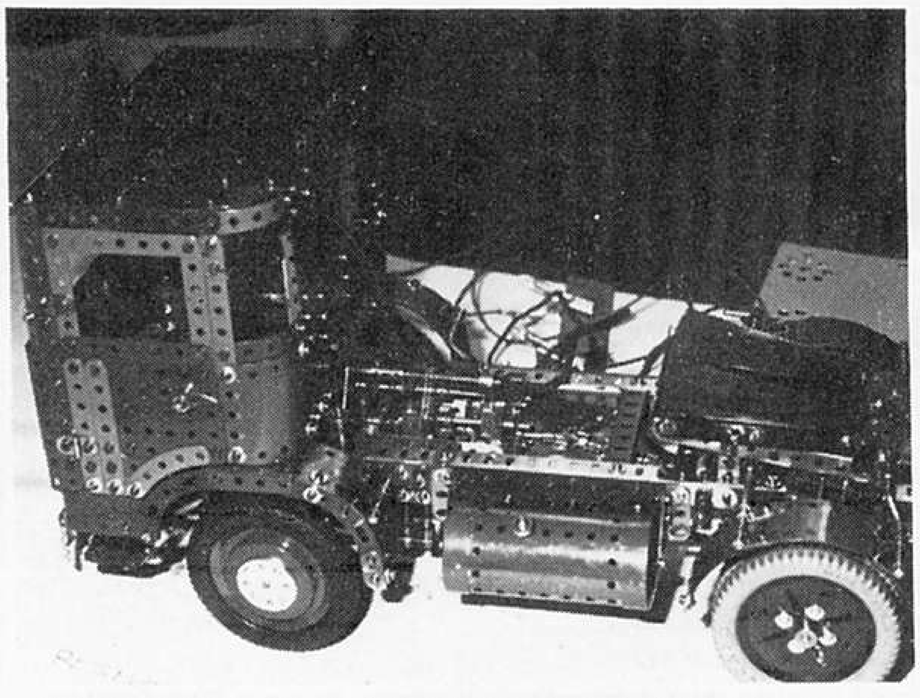
John Russell's version of Dr. Keith Cameron's Christmas Chalet added a Seasonal note both aesthetically and musically—it incorporated a musical movement!



hris Barron, finished in current colours
lley pole power pickup.



Displaying the highest standards of construction, a Ruston-Bucyrus 195 Face Shovel by Mike Pashley.

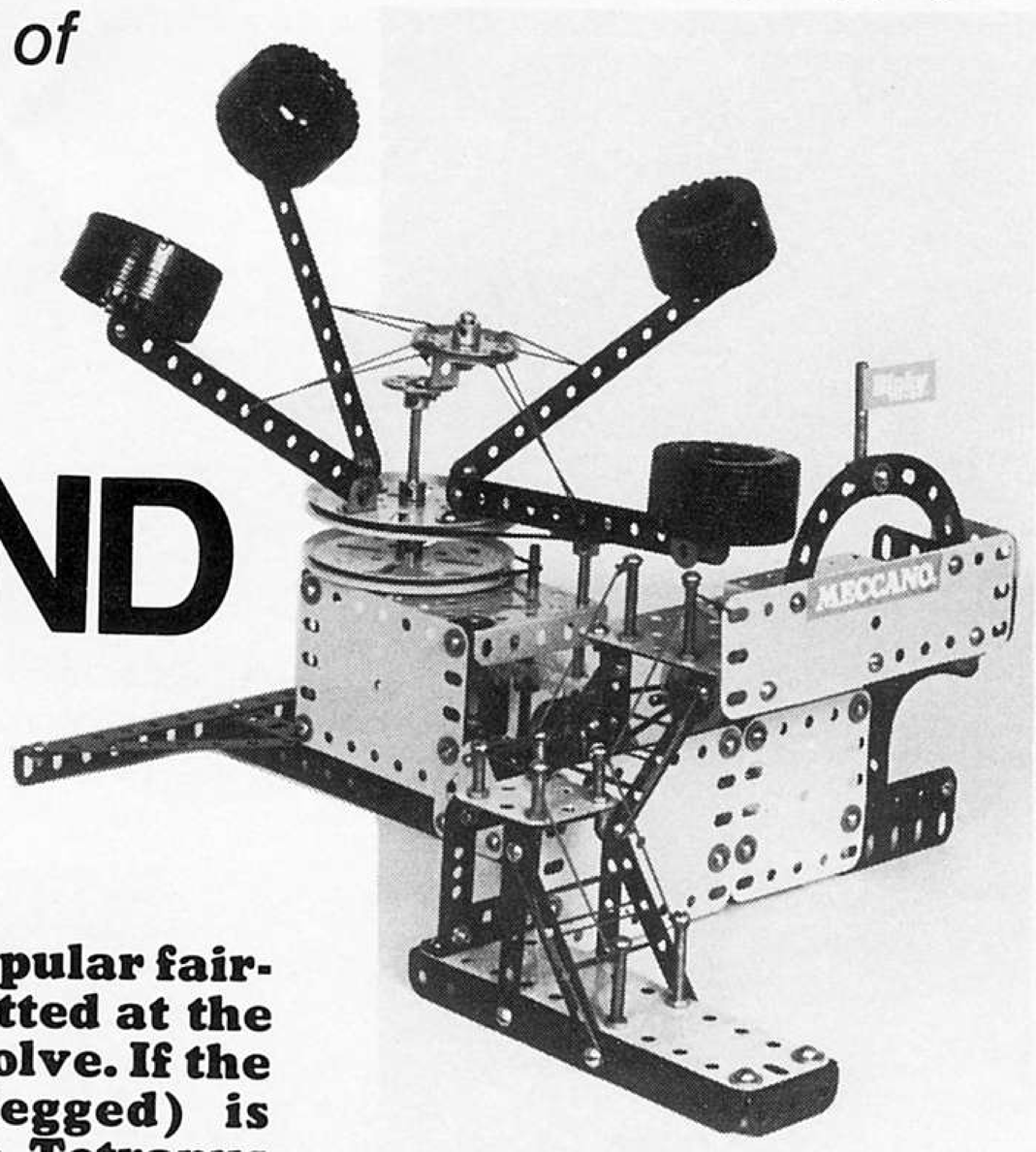


Alf Dean's tractor unit of his renowned ERF 'B' series, incorporating highly realistic trailer connection, 4-speed box and red and green livery.

Meccano Magazine, Spring 1981

A new model using the contents of Meccano Outfit No. 4,

OCTOPUS FAIRGROUND RIDE

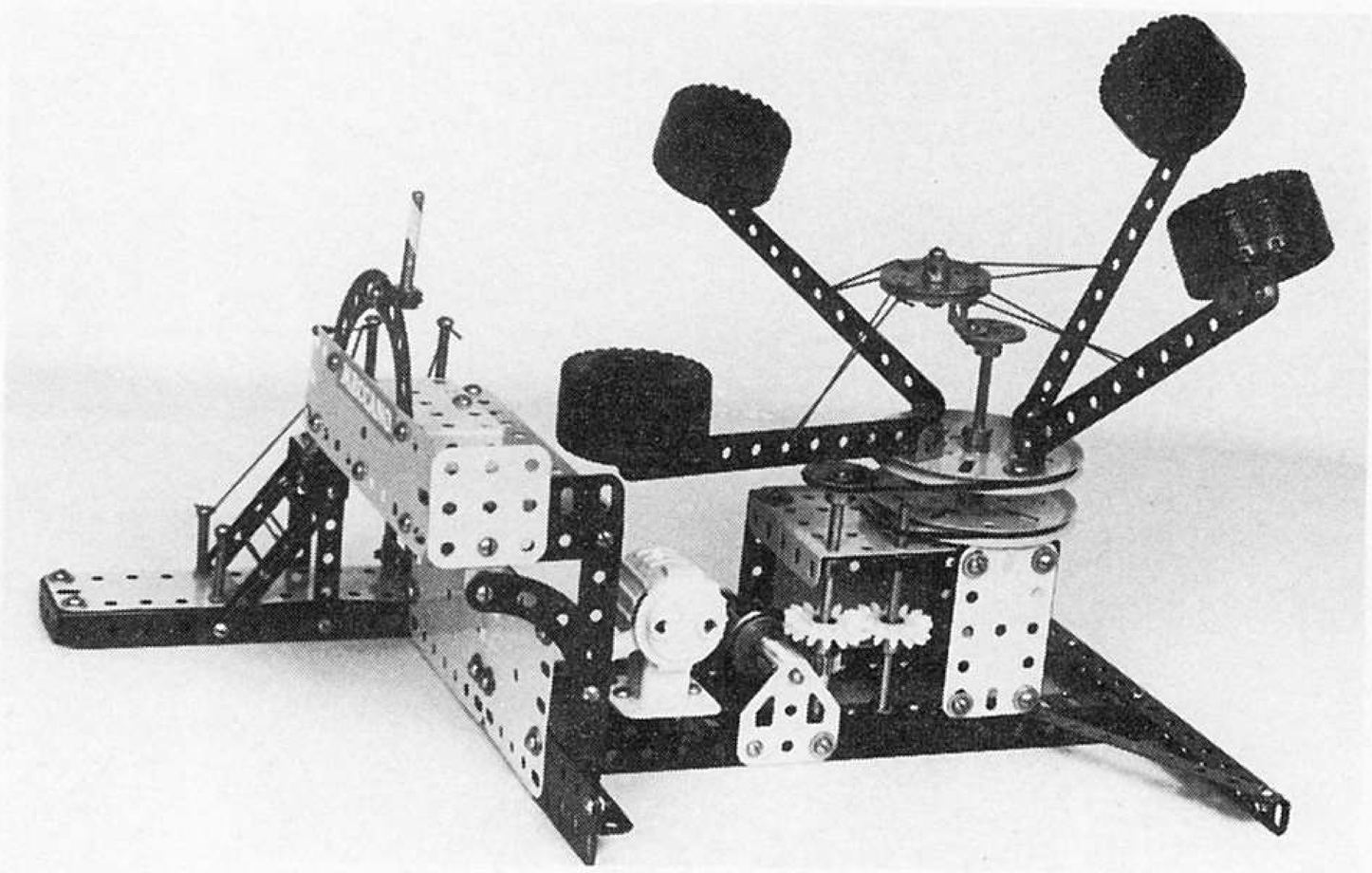


designed and described by Dr. Keith Cameron

Fig. 1.
Above: A general view of the Octopus Fairground Ride described by Dr. Cameron.

THIS is a fully operational model of the popular fairground machine with a set of chairs pivotted at the ends of arms that rise and fall as they revolve. If the meaning of 'octopus' (Greek = eight-legged) is strictly followed, this model should be a Tetrapus (four-legged). Those who wish to add four legs to their model can easily do so with a little extra expenditure. The basic mechanism using a 11053 'Crane' motor powered by a Battery Box will drive the chairs fast enough to provide any imaginery 'occupants' with adequate vertigo! The mechanism is adapted from a description in the Meccano Magazine for January 1953. In the constructional account, 'front' refers to the part of the model toward the elevated platform. 'Right' and 'left' are as viewed from the front as in fig. 1.

Fig. 2.
Below: The right/front/side of the model.



THE BASE, Figs 3 & 4

A parallel pair of 9½" Angle Girders 1 are bolted front and rear to another pair of 9½" Angle Girders 2 and 2A. The rear Girder 2 is fixed with its slotted hole flange down and braced by diagonally placed 4½" Narrow Strips. The front 9½" Angle Girder 2A is bolted with its slotted hole flange facing upward and with eight free holes to the left. Four 2½" x ½" Double Angle Strips bolted to the first pair of 9½" Angle Girders 1 support a 3½" x 2½" Flanged Plate 3, (fig 7). Note the positioning of these Double Angle Strips. A Flat Trunnion is affixed to each 9½" Girder 1, a 2½" Perforated Strip 5 is bolted across the Girders 1, and another 2½" Strip 4 is bolted to the top face of the right hand 9½" Girder 1 as shown, (fig. 5). This converts the elongated holes into round ones which allow the rotation of Rods used later in construction. A Channel Bearing supporting a 11053 'Crane' motor is also fixed to the right hand Girder 1.

THE MECHANISM Fig. 7

The main shaft is a 4" Axle Rod 6 journalled in the 3½" x 2½" Flanged Plate 3 and lengthened below by a Long Threaded Pin attached by a Rod Connector. A Nut is secured on the threaded portion of the Pin, this plus a Washer bear against the 2½" Strip 5 in its centre hole. On the portion of the Rod 6 above the Flanged Plate 3, the following are placed: Three Washers, a 3" Pulley boss upward and fixed to the Rod, two more Washers, another 3" Pulley boss downward and loose on the Rod 6, yet another Washer and a Collar. The upper 3" Pulley before being fixed in place should have ½" x ½" Angle Brackets bolted to the four outer round holes, the lugs directed as shown. The top of the Rod 6 carries a 1" Bush Wheel to which is bolted a ½" Reversed Angle Bracket. A 1½" Pulley 7 rotates freely between Washers on a ½" Bolt lock-nutted in the top hole of the Reversed Angle Bracket. 5½" Strips lock-nutted at one end to the Angle Brackets carry at their other ends, ½" x ½" Angle Brackets in the case of two, and Double Brackets in the case of the other two. The Brackets support the 'chairs' which are represented by hard Plastic Tyres free to rotate on ½" Bolts that pass through one of their holes to be lock-nutted to the Brackets at the outer ends of the 5½" Strips.

THE GEAR AND PULLEY DRIVES Figs. 5 & 6

A 6" Driving Band on the motor output shaft drives a 1" Pulley on a 3" Rod 8 journalled in tha apex holes of the Flat Trunnions bolted to Girders 1. The Rod 8 also carries a Worm gear,

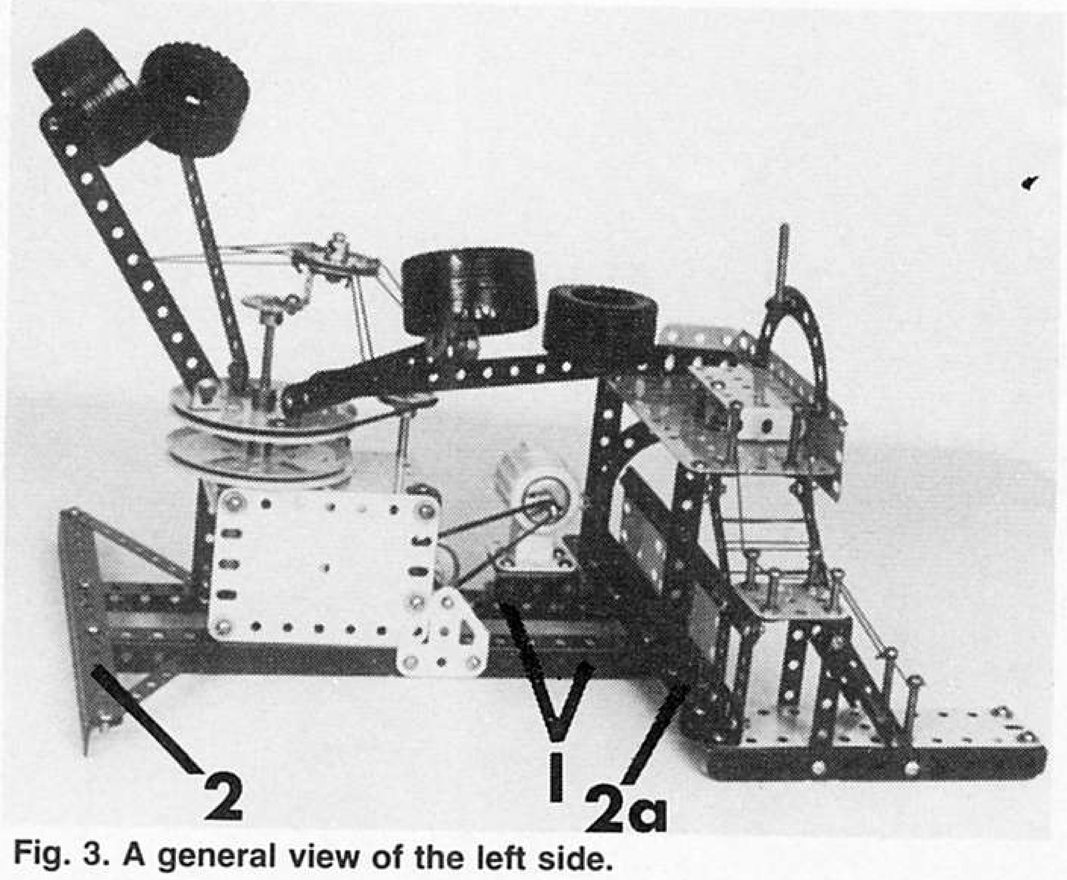


Fig. 3. A general view of the left side.

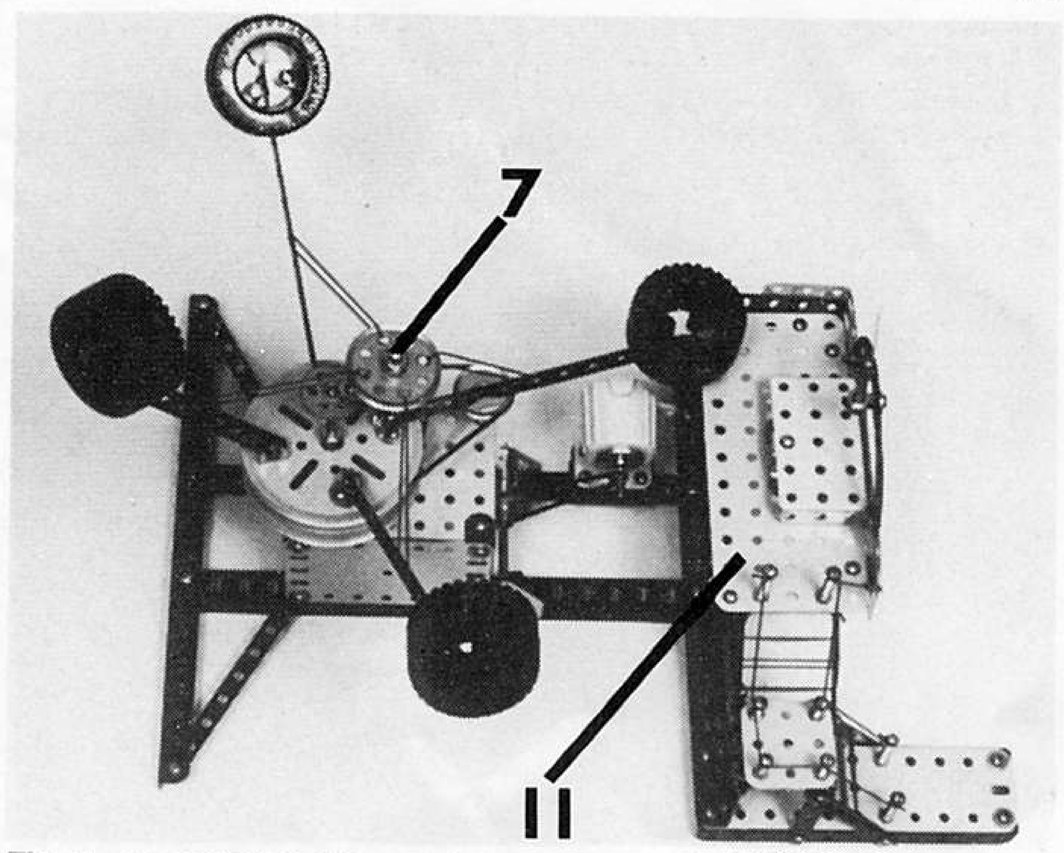


Fig. 4. A semi-plan view, note arrangement of 1½" Pulley 7.

Washers and a Spring Clip. The Worm gear meshes with a 19t ½" Pinion fixed to a vertical 4" Rod 9 journalled below in the 9½" Angle Girder 1 overlaid with 2½" Strip 4, and above in the Flanged Plate 3. The Rod 9 also carries Washers, two Collars and a Multi-Purpose Gear wheel which drives a similar Gear on a vertical 3½" Rod 10 journalled in the same manner as the Rod 9 and 1" (two holes) behind it.

The 4" Rod 9 has a 1" Pulley fixed boss down at its upper extremity, and this drives the upper 3" Pulley via a 10" Driving Band. The 3½" Rod 10 carries Washers and two Spring Clips and drives the lower (fixed) 3" Pulley via a 6" Driving Band around its upper end. Cords connecting the 5½" Strips and the 1½" Pulley 7 can now be added, making sure that the 5½" Strips in their lowest position clear the 1" Pulley atop the 4" Rod 9. Fill in the sides with a 3½" x 2½" Flexible Plate and a 2½" x 1½" Plastic Flexible Plate bolted to the 2½" Double Angle Strips. Lightly oil and check out the mechanism for correct running.

PLATFORM AND STAIRWAY, Figs 9 & 10

A 5½" x 2½" Flat Plate 11 is supported at its rear corners by the lugs of 3½" x ½" Double Angle Strips bolted to the front 9½" Angle Girder 2A. The Plate 11 is supported at its right hand edge by a 2½" Stepped Curved Strip bolted to the right hand 3½" x ½" Double Angle Strip and to a 1" x ½" Angle Bracket, this Bracket also carrying a 2½" Flat Girder 12 and a 1½" x 1½" Flat Plate 12A. Along the front edge of the Plate 11 is a 5½" x 1½" Flexible Plate connected by corner angle brackets and supporting two 2½" stepped curved strips in the form of a semi-circle, the top centre Bolt holding a Collar in which a 1½" Axle Rod is fixed to carry a suitable emblem or flag.

A 2½" x 1½" Flanged Plate 14 is bolted to a Double Bent Strip fixed at the front centre of the Plate 11 to provide an elevated section for passengers entering and leaving the chairs. The upper section of the stairway consists of two 2½" Narrow Strips fixed above to a 1½" x ½" Double Angle Strip at the left hand of the Plate 11, held by two 1⅛" Bolts. The intermediate stair platform is a 1½" x 1½" Flat Plate with a 1½" Angle Girder 15 fixed along its rear edge by lock-nutted ¾" Bolts. To the free flange of the Girder 15 are bolted a 7½" Strip 16 which projects horizontally to the right, and the rear 2½" Narrow Strip and two 2" Strips which are fixed below to the 9½" Angle Girder 2A.

A 1½" x 1½" Double Angle Strip 17 fixed to the front of the Flat Plate has a 2½" and a 3" Narrow Strip bolted to its lugs arranged as shown, bolted below to 5½" Angle Girders which are affixed to the 9½" Angle Girder 2A and have a 5½" x 1½" Flexible Plate across their flanges. Further 1⅛" Bolts are lock nutted at the bottom of the stairway. Cords are strung around the tops of the ¾" and 1⅛" Bolts to represent handrails. Cord is also strung through the holes in the Narrow Strips to represent the steps, but note the method of string-

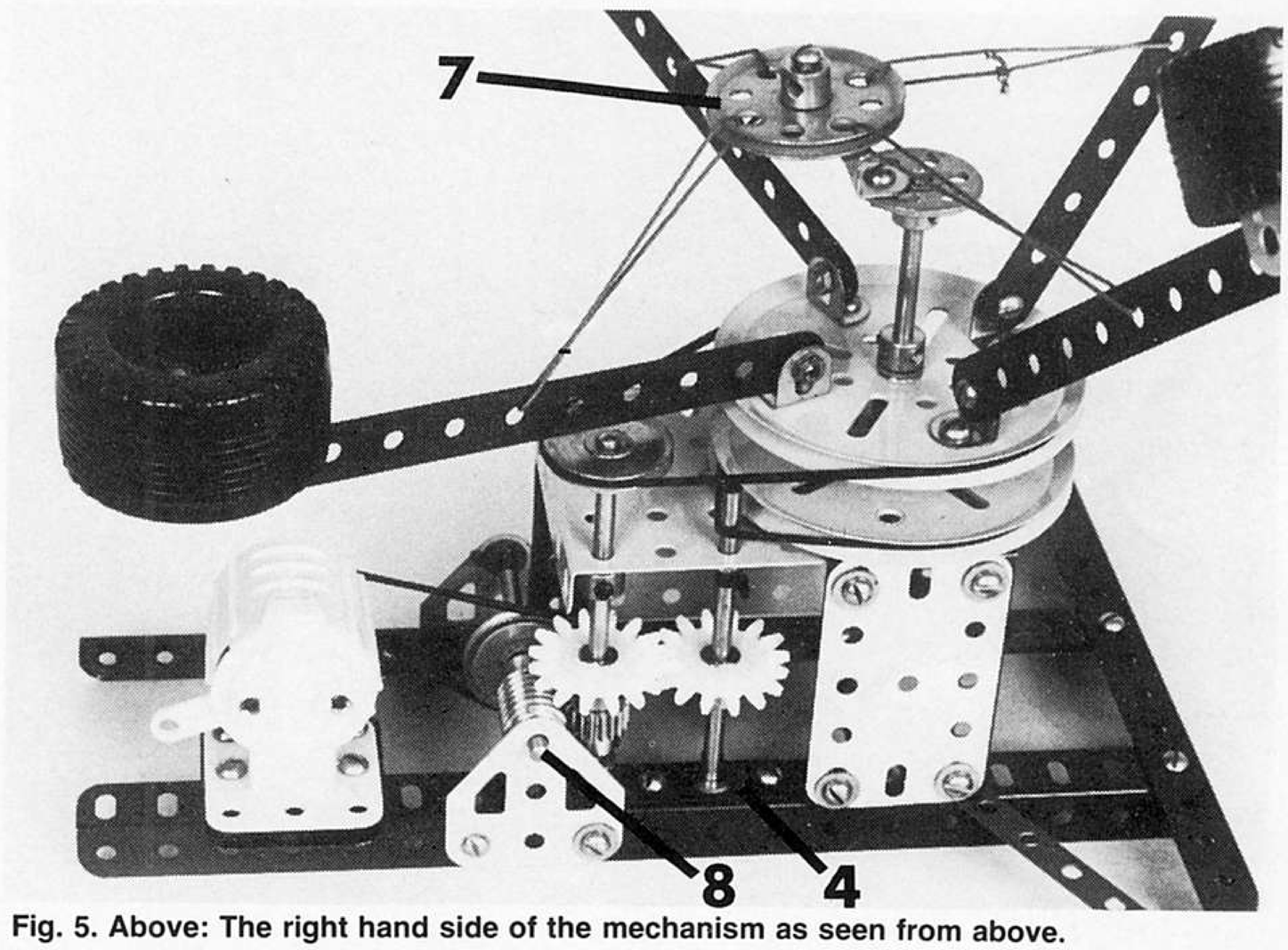
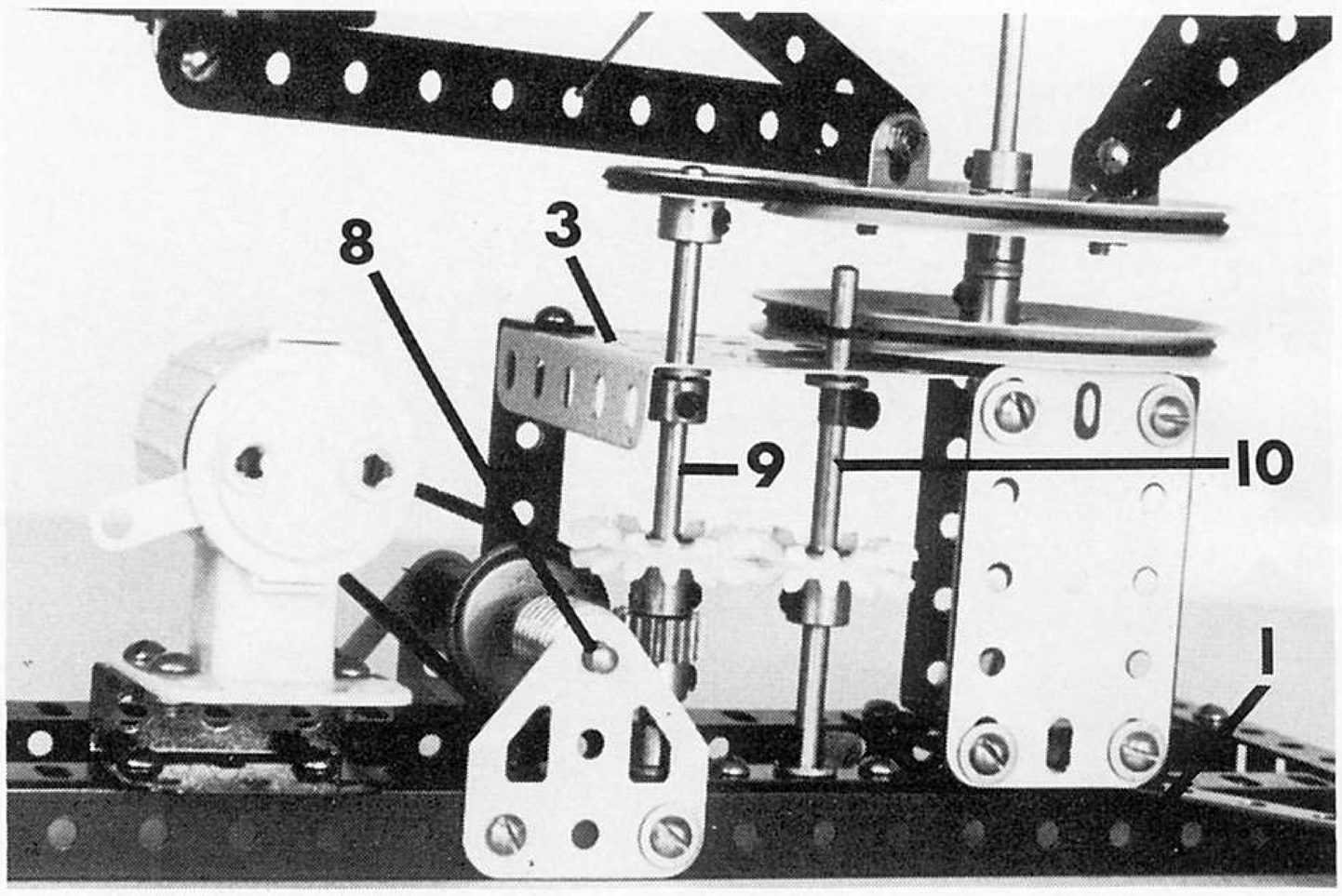


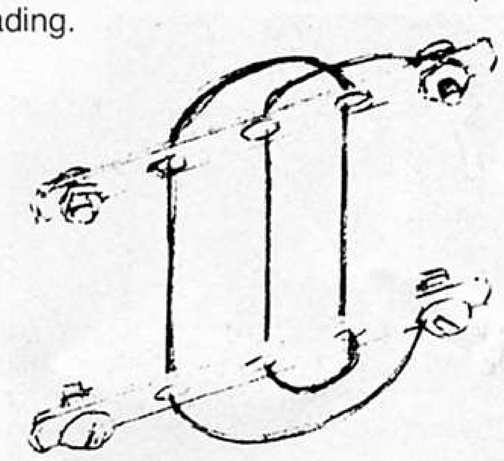
Fig. 5. Above: The right hand side of the mechanism as seen from above.

Fig. 6. Below: Arrangement of the driving gears and pulleys.



ing depicted in the diagram. Any other method results in un-professional looking sloping strings. Bolt Flexible Plates to the 7½" Strip 16 to complete the model.

Diagram. Method of threading cord through strips so that it lies parallel from strip to strip. Another length of cord is treated in the same way but tied under the upper bolt heads to give a doubling and more solid appearance. The loops in actual practice are pulled tight; they are shown loose to make clear the sequence of threading.



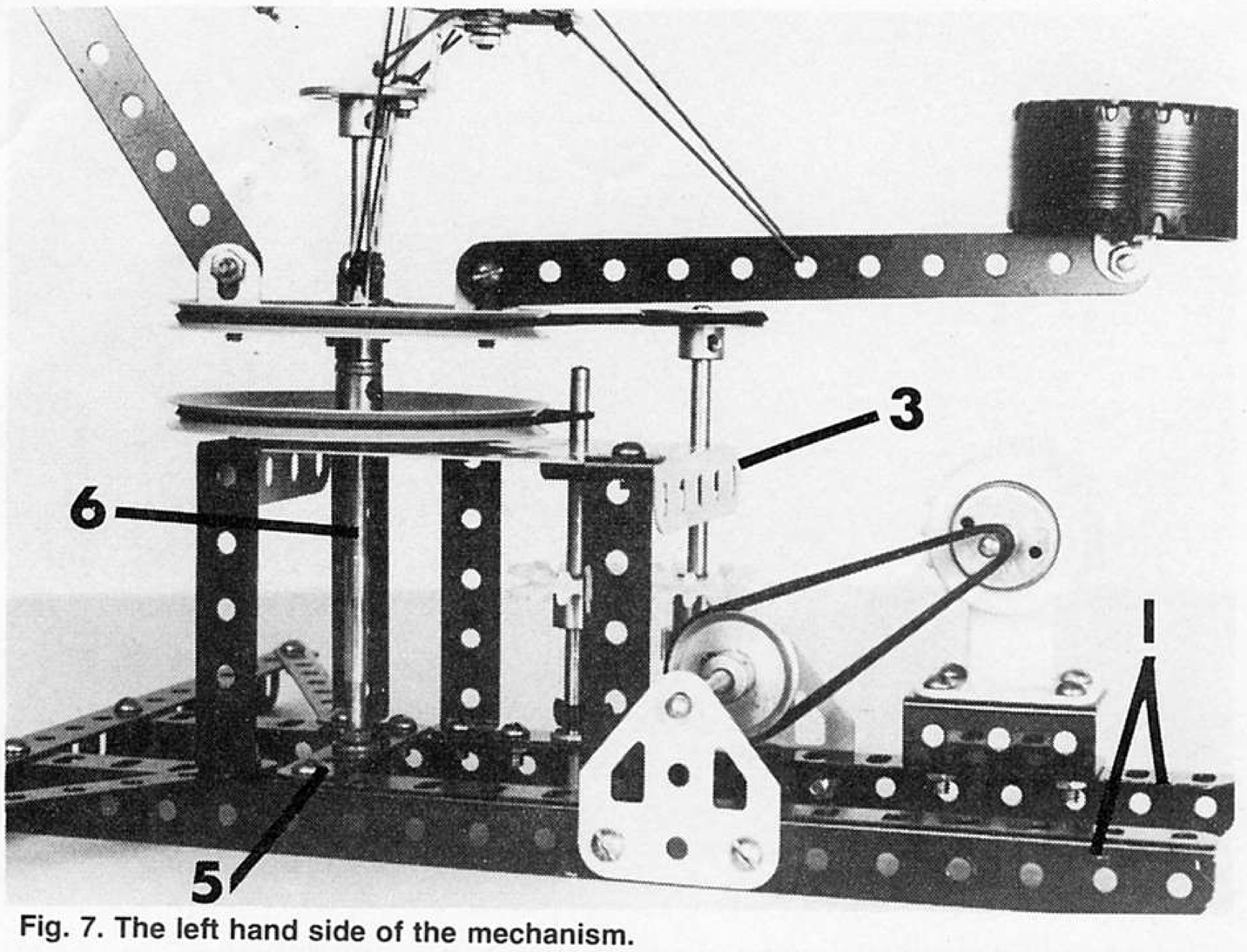


Fig. 7. The left hand side of the mechanism.

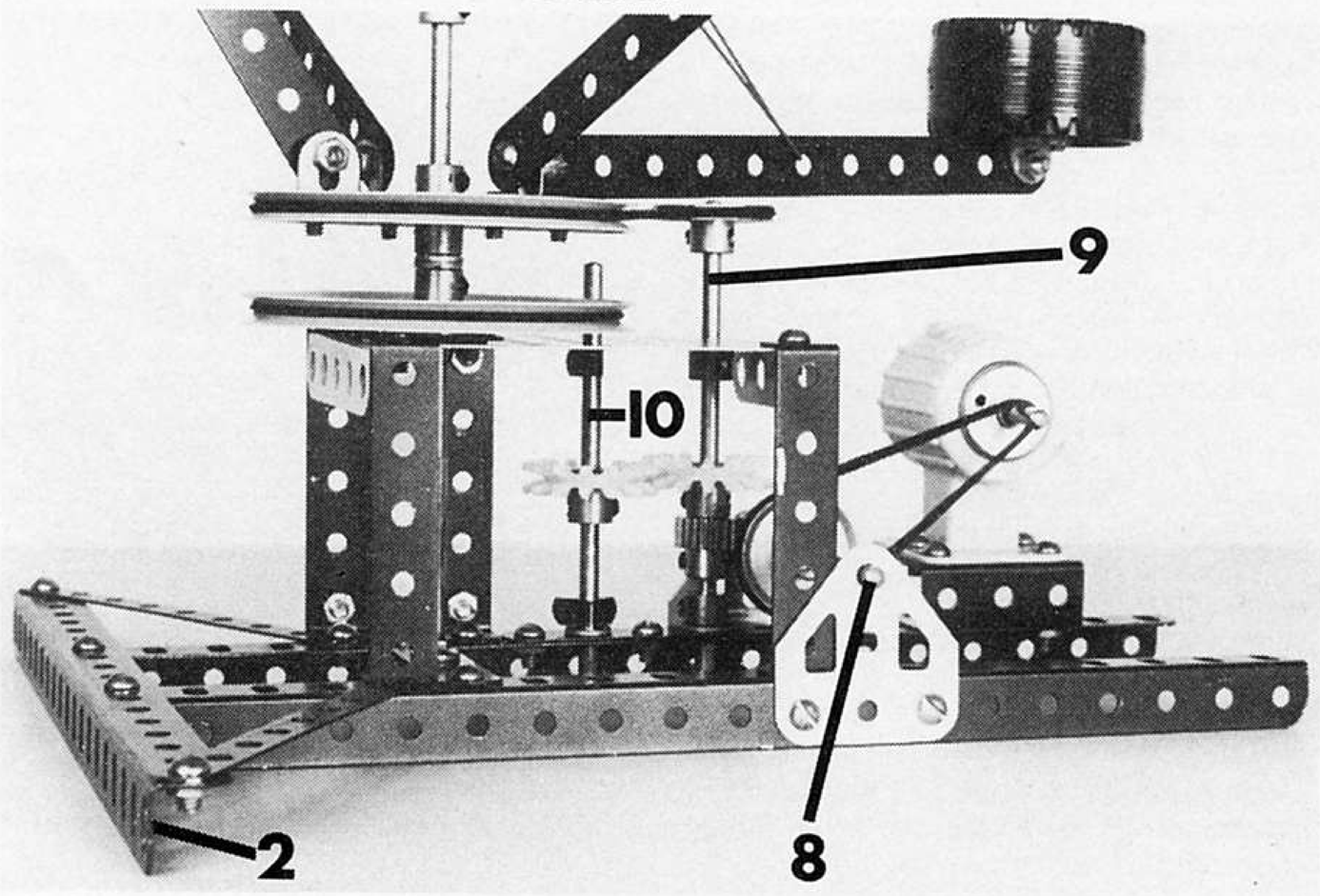


Fig. 8. The 5½" Strips forming the Octopus Arms must clear the 1" Pulley on Rod 9.

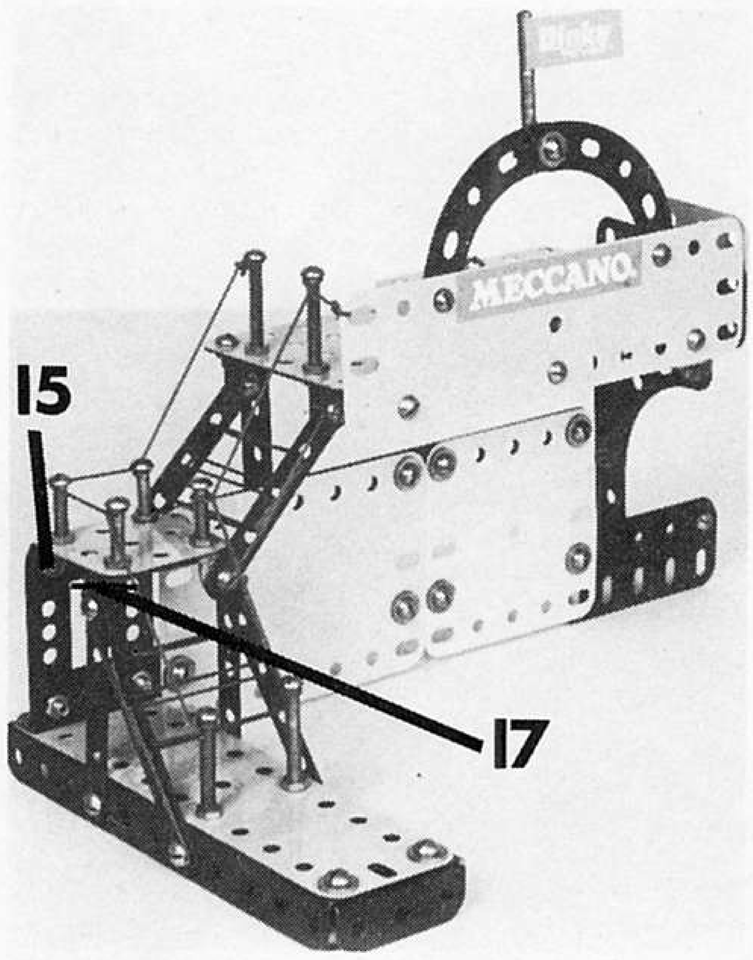
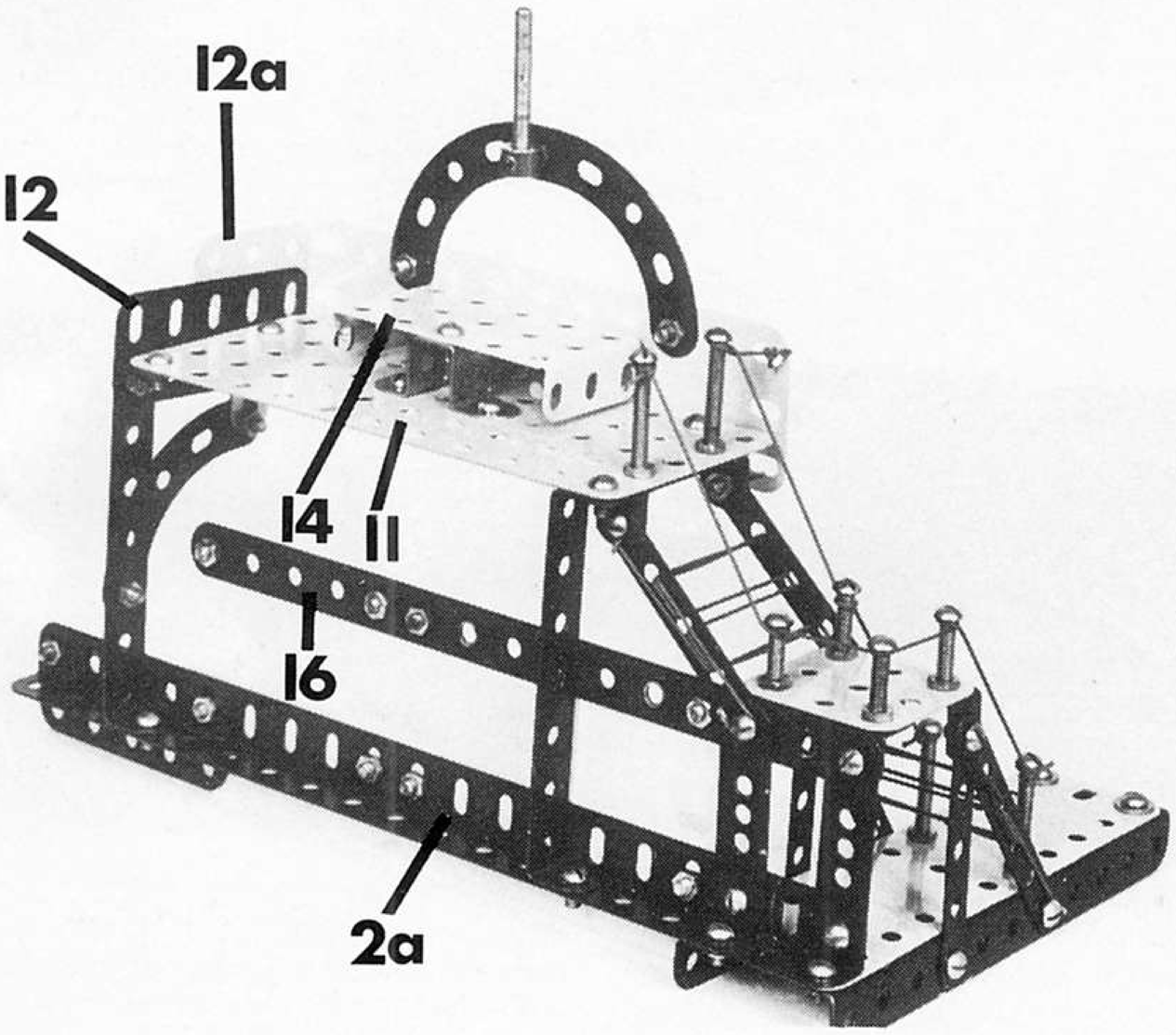


Fig. 9. Above: A front view of the platform and stairs, separated from the rest of the model.

Fig. 10. Below: A rear view of the platform and stairs.

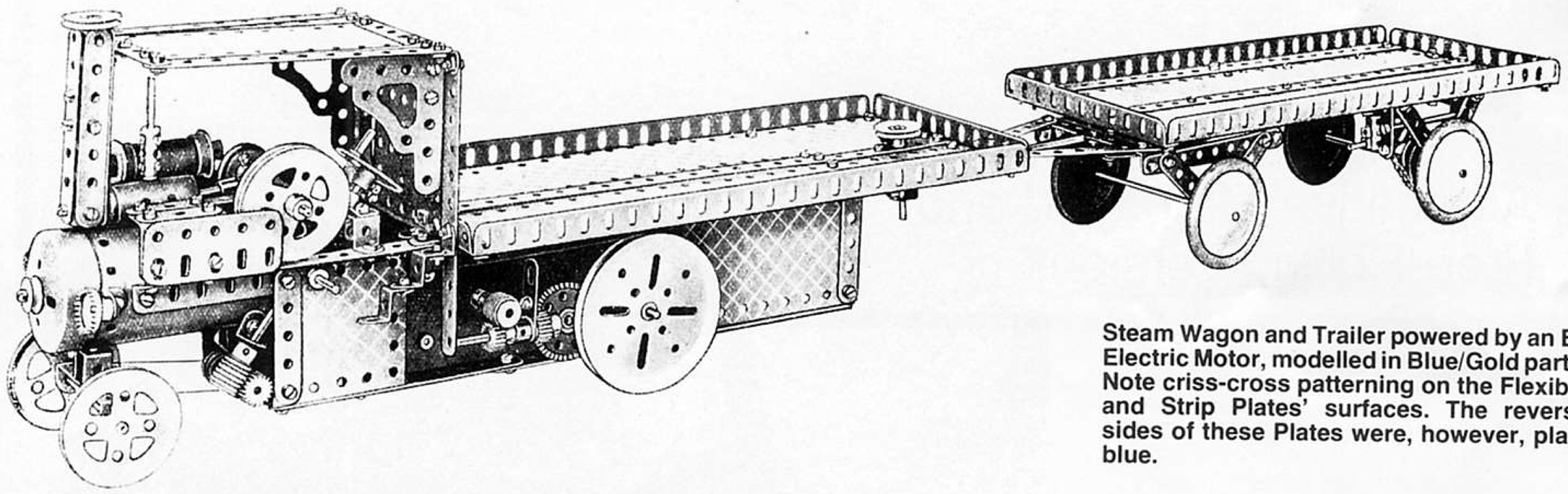


PARTS REQUIRED

1 of No.	1B	1 of No.	51
4 of No.	2	1 of No.	53
2 of No.	5	4 of No.	59
2 of No.	6	1 of No.	70
4 of No.	8A	2 of No.	74
2 of No.	9	3 of No.	90A
2 of No.	9F	2 of No.	103F
2 of No.	11	4 of No.	111
1 of No.	11A	5 of No.	111A
6 of No.	12	4 of No.	111D
2 of No.	12B	1 of No.	115A
2 of No.	15B	1 of No.	125
1 of No.	16	2 of No.	126A
1 of No.	16B	1 of No.	154A
1 of No.	18A	1 of No.	154B
2 of No.	19B	1 of No.	160
1 of No.	21	2 of No.	186A
2 of No.	22	1 of No.	186B
1 of No.	26	2 of No.	189
2 of No.	27F	2 of No.	190A
1 of No.	32	1 of No.	194
98 of No.	37B	1 of No.	194A
120 of No.	37C	1 of No.	213
38 of No.	38	4 of No.	235
1 of No.	40	2 of No.	235A
1 of No.	45	2 of No.	235D
2 of No.	48	4 of No.	187C
4 of No.	48A	Motor and Battery Box.	
2 of No.	48B		

Alf Reeve says . . .

BLUE/GOLD RULES OK!



Steam Wagon and Trailer powered by an E6 Electric Motor, modelled in Blue/Gold parts. Note criss-cross patterning on the Flexible and Strip Plates' surfaces. The reverse sides of these Plates were, however, plain blue.

IN December 1934 'Meccano Magazine' announced the new colours for Meccano, they were to be Blue and Gold. I have no idea from whence the idea for these colours came, but I have often thought that blue was very much a '1930's' colour. Many of the great speed machines were blue; the Schneider Trophy winner, the 'Bluebird' racing car, the great Locomotives, even the prototype Spitfire was coloured blue. Ettore Bugatti was a friend of Sir Nigel Gresley and suggested the streamlined locomotive front to him, did he also suggest the colour we associate with his magnificent cars? Whatever the reason, clearly Meccano was not going to miss this trick!

Blue and Gold Meccano parts, in good condition, look marvellous. Unfortunately, the gold finish is so easily damaged that, when knocked about, it is possibly the worst colour of all; though a bit of wax polishing will do wonders for old blue Flexible Plates. You will no doubt have guessed by now that I am a partisan, I love Blue/Gold. I was brought up on it, as it were. My first large Meccano set was a No. 7, given to me at Christmas 1937 and it cost the princely sum of 30/- (or £1.50 if you must), and I was told it was the present of a lifetime. And so it was, because I still use the remaining parts. From that moment until after war broke out in 1939, (when, of course, we *all* grew up, or thought we did), every penny saved saw me at the Meccano shop buying spare parts. I even managed a 3rd prize in beautiful Blue/Gold in 1940, all of which brings me to my main point . . .

My wish to identify myself in the foregoing manner is prompted by the disquieting observation that it has been suggested in recent times that Blue/Gold was dropped in 1937 and replaced by Red/Green. This is not so, and I would like to put the record straight before the myth is taken for truth. I suspect that much confusion stems from GMM's 'Development of the Meccano System', a book currently available (from MW Models). This is an extremely valuable work which no enthusiast should be without, but I have found that it is not 100% reliable.

For example, of Strip Plates, (page 35) it says, 'after 1938 the 12½", 9½" and 7½" sizes were merely longer versions of the Flexible Plates'. As the Strip Plates have always been of heavier gauge metal, this statement is clearly incorrect. The notes on colour are also misleading. I do not dispute that Liverpool may well have experimented with alternative colour schemes and the odd set of different colours may have escaped onto the market—it is well known that all sorts of variations occurred to the colours of the Hornby Trains of the period, but my main contention here is that the regular colours, for the home market at any rate, were Blue/Gold/Red until production ceased during the war.

There were two main periods, 1934 with sets A-L, and 1937 sets 0-10. There were minor colour changes; eg the earlier Trunnions were gold, later red; the tinplate Road Wheels were red with gold hub discs, later white and red; Flanged Wheels were brass, later red; certain other wheels very rich blue, later red. The 1937 sets were, incidentally, the cheapest ever in real terms, but inflation set in early in 1938. I got mine just in time!

The evidence for the Blue/Gold scheme continuing until 1941 is substantial. Apart from the many enthusiasts who, like myself, were there at the time, there are the manuals, the advertising handbooks and above all the Meccano Magazine. Had any drastic change of colour been contemplated by Liverpool during the years 1934-41, you can bet your life that it would have been shouted from the rooftops via the 'MM'! But, nothing came until 1945 when we got the 1941 manuals, kept in store for happier times, and issued with the new sets after the war. Stuck into these is a buff-coloured slip explaining that 'Wartime conditions . . . have made necessary certain alterations. On the new Meccano . . . the diagonal lines . . . are omitted'. It doesn't actually say that the colour scheme had gone Red/Green, but the inference is clear. Remember that the manufacture of all metal toys ceased in 1941.

Two other interesting items may be cited. First, when the Flexible Plates originally appeared they were in fibre. This was superseded by tinplate, the distinguishing feature of these early examples being their sharp square corners which would project beyond the radius of a Strip with unpleasant consequences. These were not changed to the more familiar radiused corners until 1938, yet in the new form they were of course, still in blue. Secondly, in 1939, two supplementary leaflets to the standard manuals were published, printed in blue. These extended, for example, the 7 set to 27 models from the original 25. These new models are all clearly in Blue/Gold.

Finally, it is worth remembering that Meccano (France) retained the Blue/Gold scheme, in slightly different shades, for many more years—until the change, in fact, to Yellow/Silver.

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MECCANO SPARES (new), Free list. Send s.a.e. to Mr. C. Archer, Cleveland Meccano, P.O. Box 3 Guisborough, Cleveland. TS14 6TE.

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SET 5 MODEL

Ford Bronco Service Vehicle

By Dr. Keith Cameron

Alternative Motorised and Free-Rolling versions

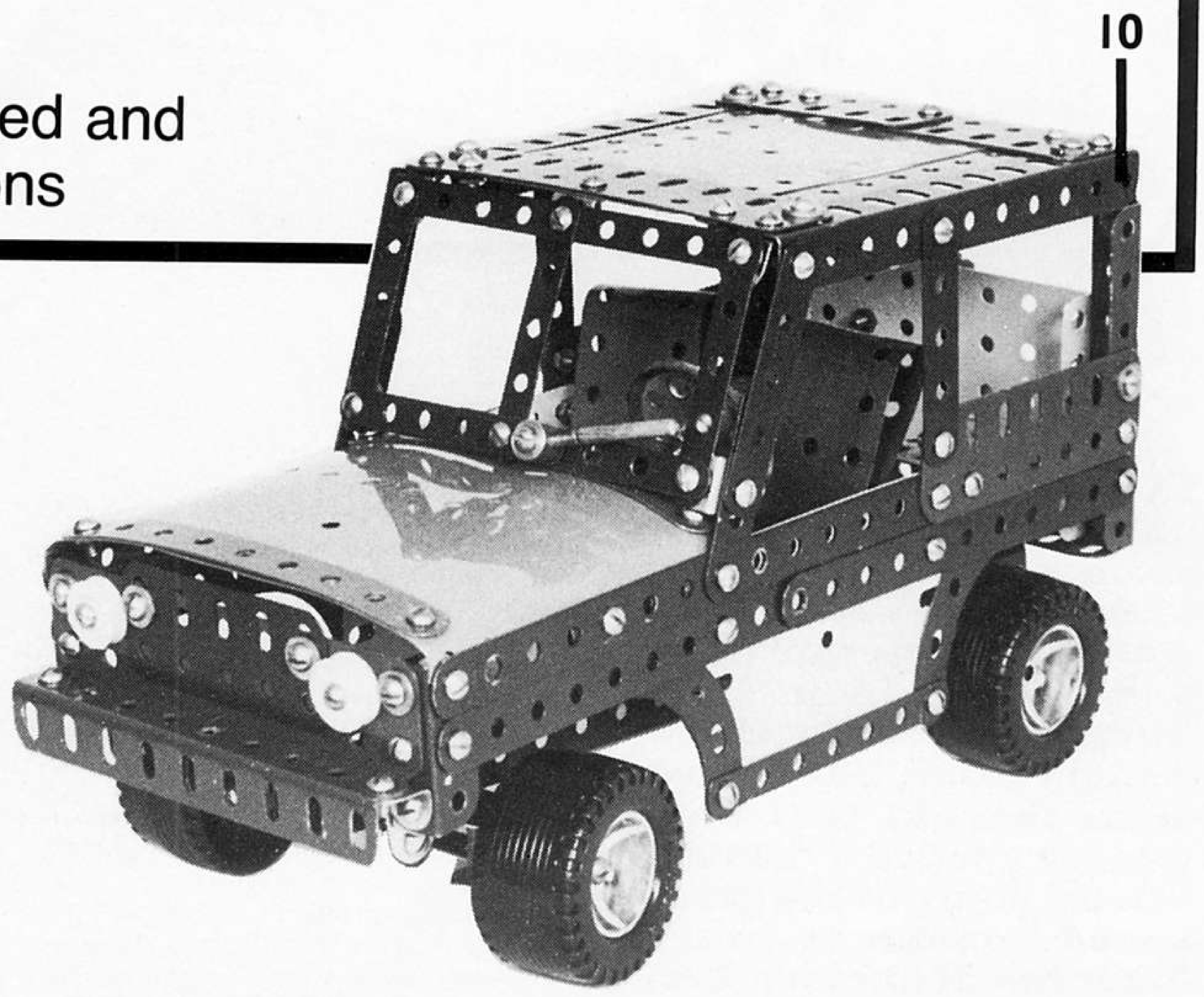


Fig. 1. Forward nearside ¾ view of the Ford Bronco Service Vehicle fully described by Dr. Cameron.

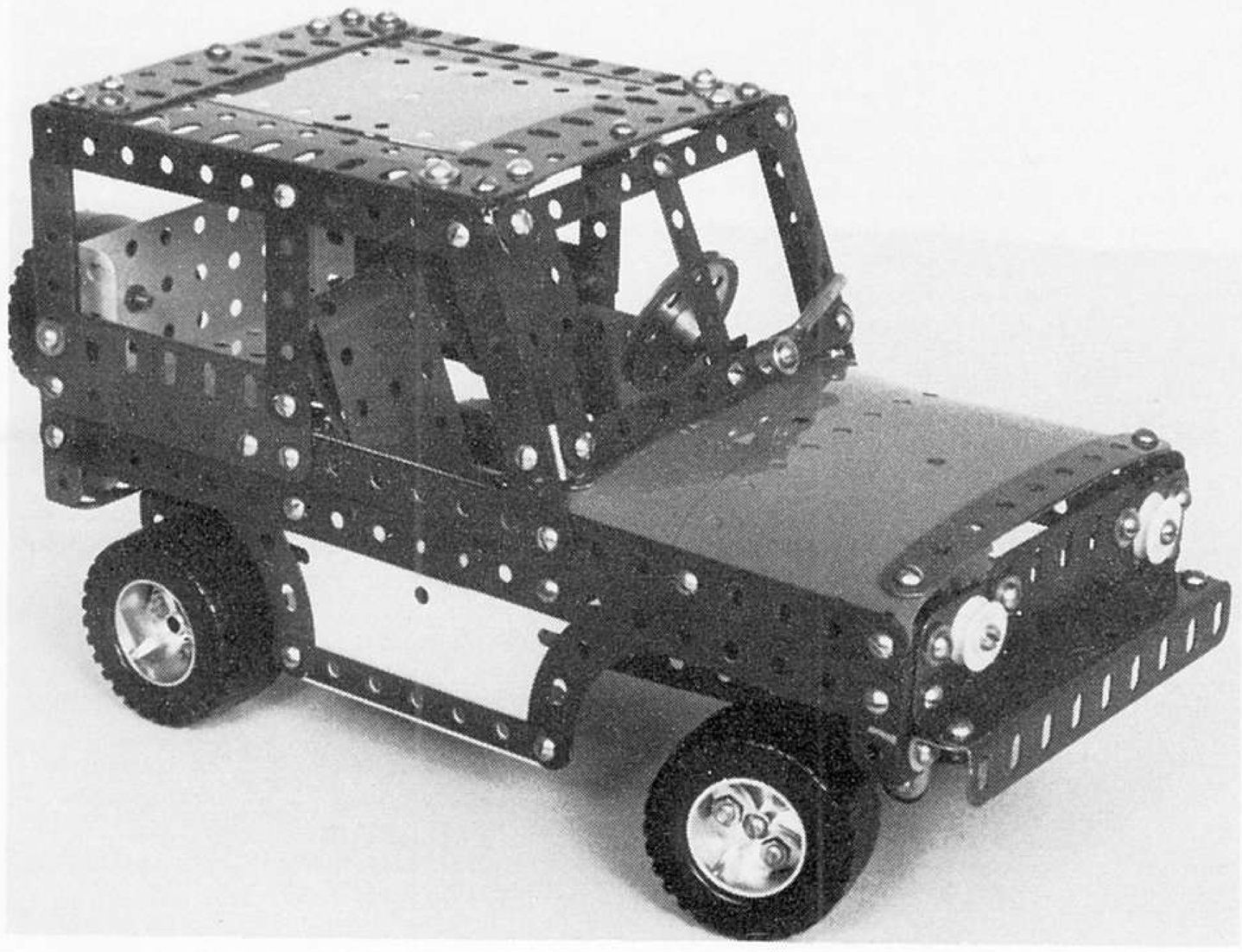
CHASSIS, Figs. 5 and 6

Construction of the model is best commenced with the chassis which consists of two 9½" Angle Girders 1 bolted to a 5½" x 2½" Flat Plate 2 via the girders' first and sixth slotted holes from the rear. A 3½" x ½" Double Angle Strip 3 connects the converged forward ends of the girders 1, as shown. The front axle, (Fig. 7), is a 2½" Flat Girder 4 bolted via its slotted holes and two ½" x ½" Angle Brackets to the third holes of the girders 1. Completely assembled Road Wheels are mounted on 1⅛" Bolts lock-nutted to the centre holes of ½" Double Brackets 5, the Bolt shanks also securing Corner Angle Brackets by their slotted holes. The round hole lugs of the Corner Angle Brackets are connected by a 2½" Narrow Strip. The right hand Double Bracket 5 is free to swivel around the shank of a further 1⅛" Bolt lock-nutted in the end round hole of the 2½" Flat Girder 4. The left hand Double Bracket 5 is fixed to a 2" Screwed Rod by locknuts against its upper lug. This Screwed Rod passes through the left hand end hole of the 2½" Flat Girder 4 and through the centre round hole of a 1½" Flat Girder bolted to the right hand 9½" Angle Girder 1. The Screwed Rod carries at its upper extremity a lock-nutted Multi-Purpose Gear Wheel 6.

The steering column, (Fig. 6), is represented by a 3" Axle Rod carrying a 1½" Pulley at its upper end forming the steering wheel, a Collar and a Multi-Purpose Gear Wheel. The Rod is journalled in the lugs of a 1½" x ½" Double Angle Strip held on a 1½" Flat Girder which by means of a Fishplate, is secured at an incline to a Channel Bearing fixed to the right hand 9½" Angle Girder 1. Two Washers are used on the shanks of each of the Bolts marked X in Fig. 6 to space the 3" Axle Rod and thus give the correct mesh between the steering column Multi-Purpose Gear and the similar gear 6.

The rear axle for the non-motorised version (Fig. 4), comprises a 4" Axle Rod carrying two Road Wheels and simply journalled through two 1" Corner Brackets bolted to the 9½" Angle Girders 1. The seats, (Fig 5), are represented by 5½" x 1½" Flexible Plates formed as shown and held above a 3½" x ½" Double Angle Strip 7 by ½" Bolts secured by lock-nuts. The Double Angle Strip 7 is fixed to the 9½" Angle Girders 1 by a Double Bent Strip on each side.

Fig. 2. Below: Offside ¾ view. Use of the recently introduced 'low profile' Road Wheels lends much to the model's realistic appearance.



THE BODYWORK, Figs. 1 and 8

The sides are each composed of a 7½" Perforated Strip 8 lengthened by a 3½" Flat Girder overlapping two holes; and two 5½" Perforated Strips also overlapped two holes and fixed to the Strip 8 via a 3½" x 2½" Flexible Plate in the centre and a 1½" Angle Girder at the front. To the 7½" Strips 8 are also affixed two 5½" x 2½" Plastic Flexible Plates (overlapping two rows of holes) and formed to the shape of the bonnet.

The rear Bolts holding the 5½" x 2½" Plastic Plates also hold the windscreen sides, each comprising a compound 3¼" Strip made by overlapping 2½" and 2" sizes. At the rear of each bodywork side a 3½" Angle Girder is fixed

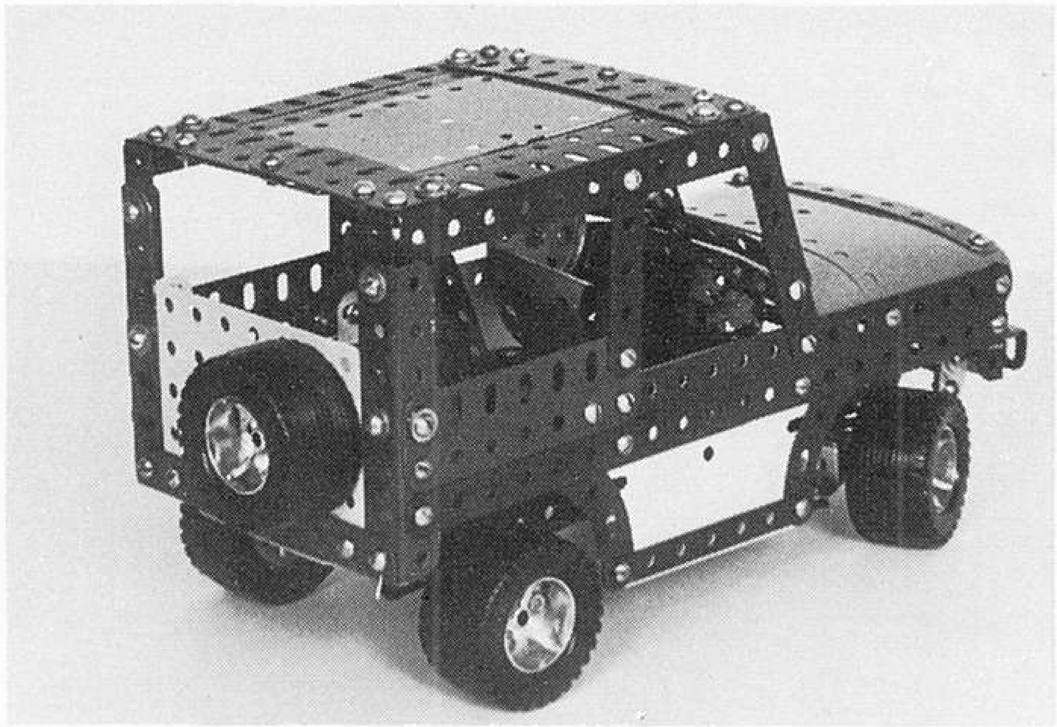


Fig. 3. Rear of the model showing roof and back panel detail.

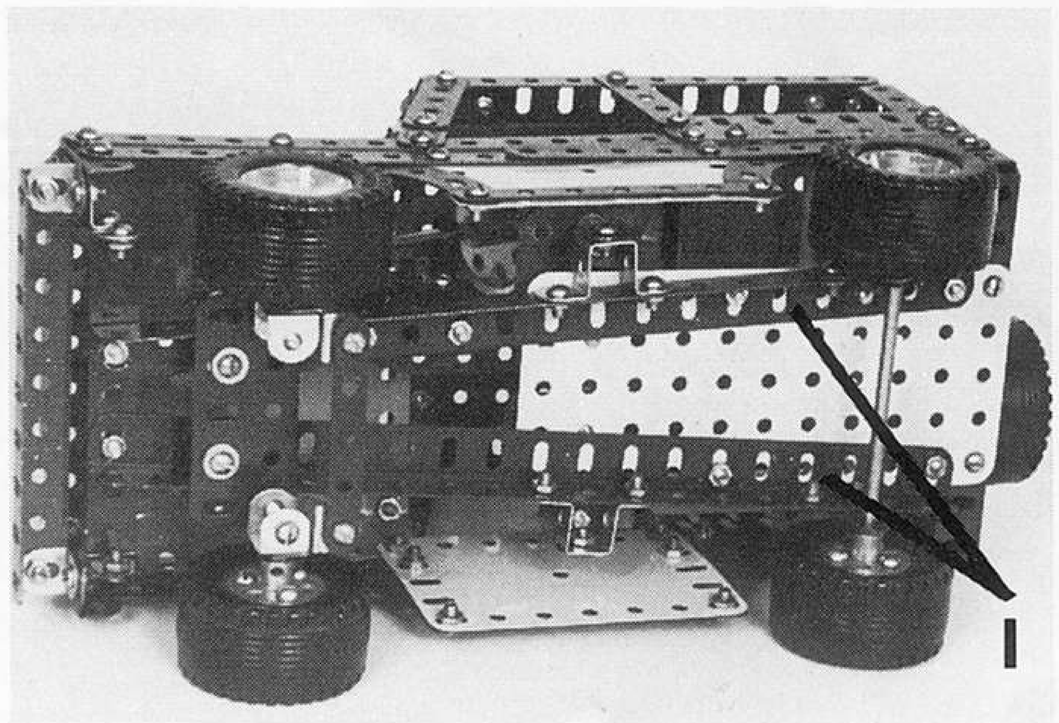


Fig. 4. Underside of non-motorised version. Note convergence of Angle Girders 1.

vertically and extended upward by ½" by a 2½" x ½" Double Angle Strip. The 3½" x 2½" Flexible Plates forming the main side panels are augmented by 2½" Stepped Curved Strips forming half wheel arches, and 3½" Narrow Strips lining the lower edges as shown. The radiator grille is represented by a 2½" Flat Girder bolted to a 4½" Flat Girder, bolted to the 1½" Angle Girders at the forward edges of each of the two sides. ½" Pulleys held on the shanks of ½" Bolts form the headlights. The bumper consists of a 4½" Angle Girder fixed via ½" x ½" Angle Brackets to the lower holes of the vertical 1½" Angle Girders. To these holes are also fixed to the rear, ½" x ½" Angle Brackets carrying Fishplates 9, round holes facing down. The roof is made from a 5½" x 2½" Plastic Flexible Plate edged by 5½" Strips, connected in front to a 4½" Flat Girder and at the rear to a compound 4½" Flat Girder formed by overlapping two 2½" Flat Girders one hole. The roof is fixed to the body by 5½" Angle Girders 10, connected to the lugs of the 2½" x ½" Double Angle Strips at the rear and to the compound 3¼" Strips forming the windscreen frame at the front. The door frames are represented by 2½" Strips. The windscreen is completed by fixing three vertical 2½" Narrow Strips above to a 4½" Narrow Strip, and below to a compound 4½" Narrow Strip formed by overlapping two 3" Narrow Strips three holes; the whole being held in place by Obtuse Angle Brackets (angle reduced to 120 degrees) above, and ½" x ½" Angle Brackets below, secured to the compound 3¼" windscreen sides. A Long Threaded Pin held in a Collar bolted as shown represents a wiper blade.

The bonnet's front and rear edges are strengthened by 4½" Perforated Strips slightly curved as shown. The rear is filled in (Fig. 3), by a 3½" x 2½" Flanged Plate bolted to a horizontal 4½" Angle Girder secured to the lower holes of the rear vertical 3½" Angle Girders. On the inner side of the 3½" x 2½" Flanged Plate a rear seat composed of a 2½" x 1½" Flanged Plate and two 1½" x 1½" Flat Plates is attached by 1" x ½" Angle Brackets. On the outer surface a 'spare wheel' is bolted.

ASSEMBLY

This is accomplished by four Bolts, two Bolts hold the Fishplates 9 to the lugs of the 3½" x ½" Double Angle Strip 3, and two more Bolts attach the rear horizontal 4½" Angle Girder to the last row of holes of 5½" x 2½" Flat Plate 2.

MOTORISED VERSION Fig. 9

To accommodate the motor and gearing, the rear seat must be removed from the body. One

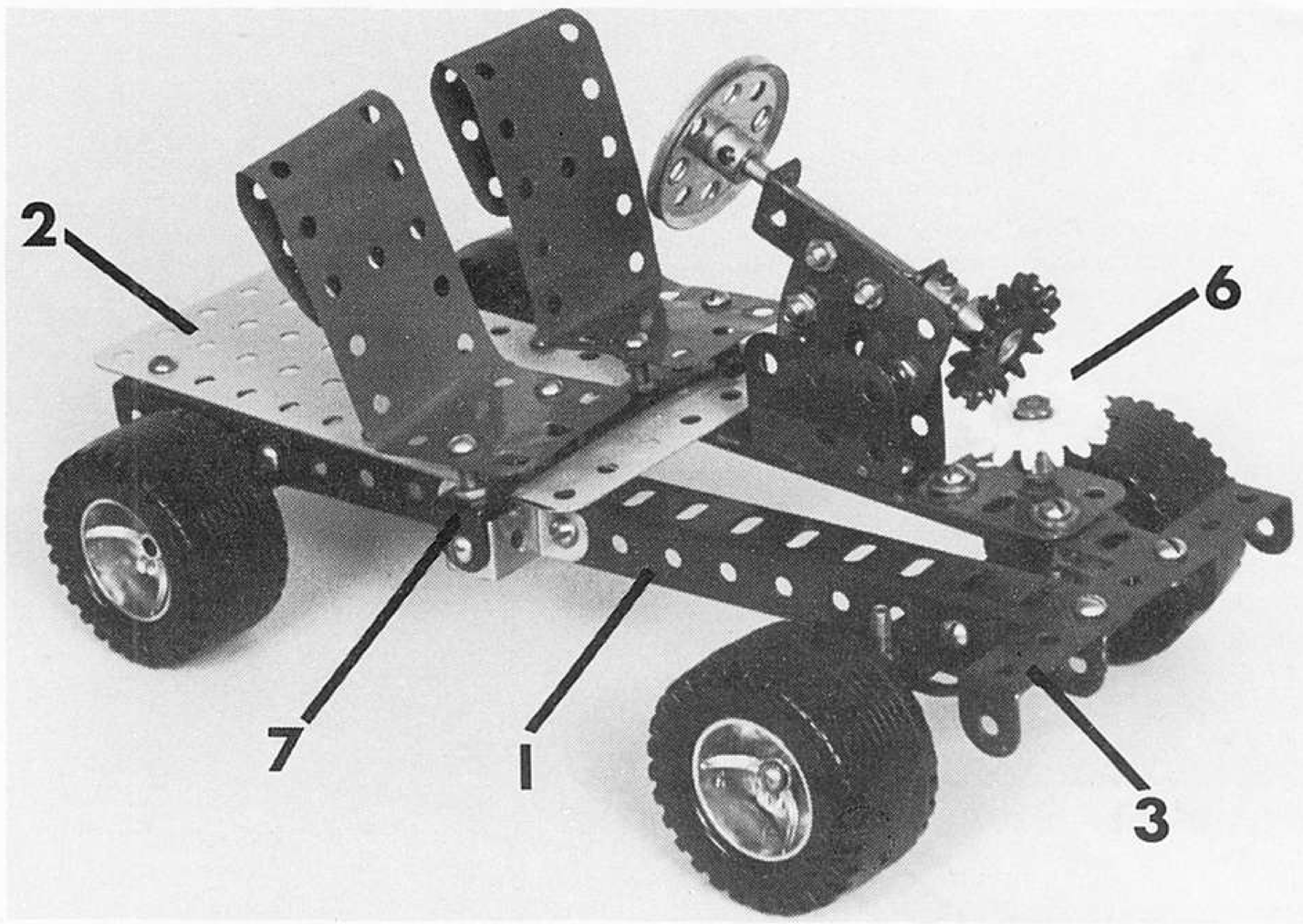
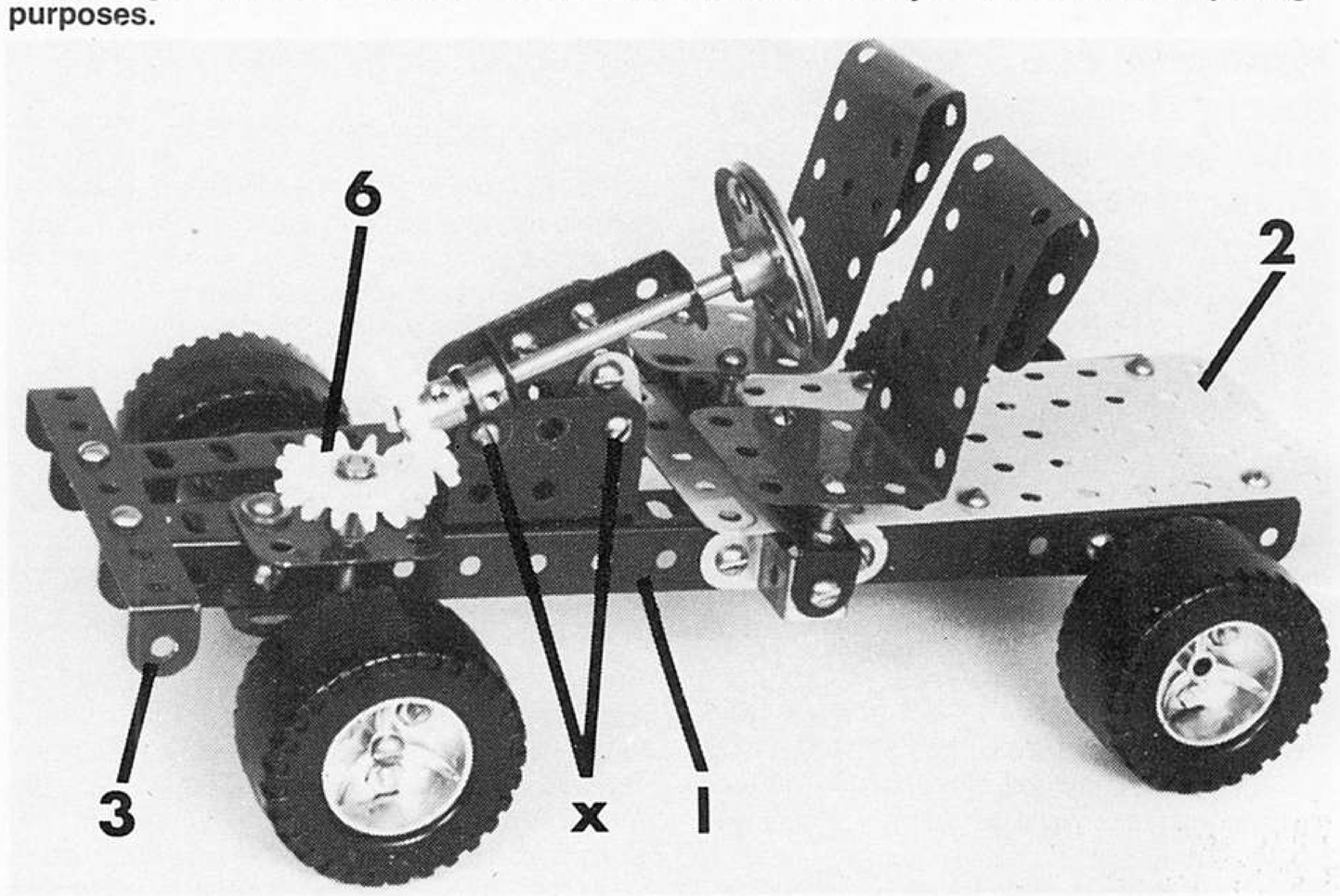


Fig. 5. The bodywork has been removed in this view to show the steering and seating detail. Multi-purpose Gears of different shades have been employed for contrast.

Fig. 6. Right hand view of the chassis. Bolts marked X carry two washers for spacing purposes.



of the Double Bent Strips holding the 3½" x ½" Double Angle Strip 7 is replaced by a 1" x ½" Double Bracket 11. The 5½" x 2½" Flat Plate 2 is removed from the chassis and its place is taken by a Semi-Circular Plate attached at the fifth holes from the rear of 9½" Angle Girders 1, the main curved body of the Plate facing forward. A 2½" Axle Rod 12 is journalled in the centre hole of the straight edge of this Plate, and in a Double Bent Strip bolted to its upper surface. Below the Semi-Circular Plate the Rod 12 carries a Worm gear, above the Double

Continued on Page 29

MECCANO AND THE HISTORY OF AVIATION

Part 4 (b)

Meccano models of aircraft of the period 1914 to 1918

By Brian Williams

Photographs by David Grace

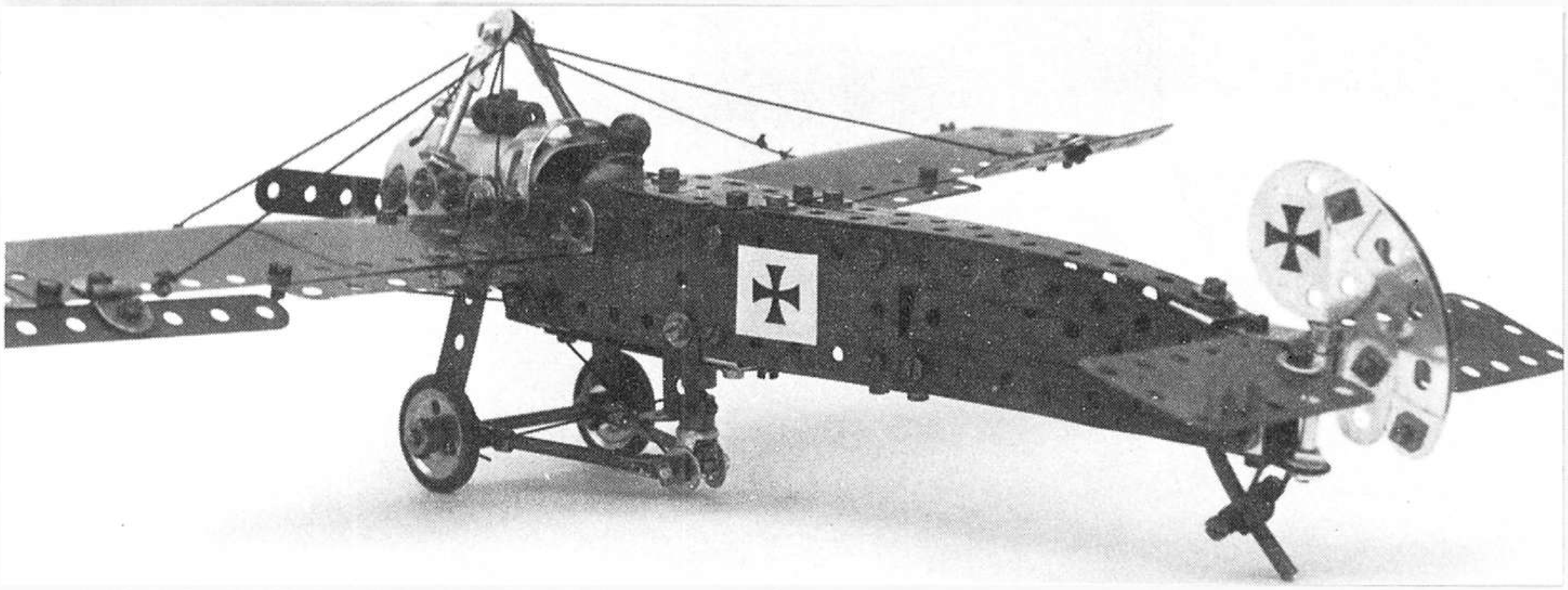


Figure 8: Three-quarter rear view of the Fokker 'Eindekker'.

THE writer has been unable to find any examples of or references to models of the period 1914 to 1918 in Meccano literature available to him, which is admittedly incomplete, with the exceptions noted below; and any information on this period would be much appreciated.

The exceptions are several models of aircraft of the period illustrated in a short series of articles by Roger Le Rolland which appeared in the 'Junior Meccano Engineer' and 'Meccano Engineer' between December 1974 and June 1976. The models included the Sopwith Camel, Fokker Dr.1 Triplane and Vickers Vimy, amongst others, and the writer is indebted to Roger Le Rolland for the articles referred to, which provided the inspiration for the present series.

From the foregoing historical background covering the period 1914 to 1918 it will be seen that there is a wide choice of aircraft types and subjects for models to represent the period, and many of these include a number of interesting features.

The models chosen to illustrate this article are the Fokker E series 'Eindekker', shown in Figure 8, and the Voisin LA 3 which appears in Fig. 9. The Eindekker was selected because it is of some historical importance, being the first operational aircraft to be fitted with a machine gun synchronised to fire forwards through the propeller disc, although in all other respects it was an unremarkable aeroplane.

The Voisin was chosen because it is one of the lesser-known aeroplanes of the period and has some unusual features, including a 'quadricycle' undercarriage. In spite of its somewhat archaic appearance the Voisin, in several versions, was quite successful as a bomber in the early stages of the war and was used by other Allied air arms in addition to the French Aviation Militaire.

FOKKER EINDEKKER

The *Eindekker* illustrated in Fig. 8, is a simple model, to a scale of approximately 1/24th, having a wingspan of 16½" and a length of 13½". The fuselage sides consist of 5½" x 1½" Flexible Plates, the rear portion consisting of 5½" Strips, 5½" Curved Strips and 3½" x 1½" Triangular Flexible Plates. The sides are spaced apart by 1½" x ½" Double Angle Strips. The upper portion of the engine cowling is a U-section Curved Plate formed into semi-circular cross-section, and the lower cowling is made from 2½" x 1½" Flexible Plates overlapped.

The tail is joined by Angle Brackets and Fishplates. A Right Angle Rod & Strip Connector forms a horizontal pivot for a 3½" Rod on which the elevators are mounted by further Right Angle R & S Connectors. Spring Clips on the Rod prevent excessive movement of the elevators. The underside of the fuselage consists of a 3" x 1½" Perforated Plate forming the cockpit floor extended rearwards by a 5½" and a 2½" Strip. One of these extends ½" beyond the fuselage sides and carries in its end hole a vertical Long Threaded Pin forming the rudder post. The rudder (the Eindekker had no fixed fin) consists of a Wheel Disc, a 2" Strip and doubled 2½" Cranked Curved Strips.

Each wing is built up from a 5½" x 2½" and three 2½" x 1½" Flexible Plates, extended at the tip by a 2½" x 1½" Triangular Flexible Plate. The ailerons are 3½" Strips hinged to the wing trailing edge by Hinges.

The engine mounting plate is a 6-hole Wheel Disc, fixed to the cowling. Short Couplings or Threaded Bosses are bolted to the lower three holes of the Wheel Disc, as shown, to represent the lower engine cyclinders. The upper portion of the cowling extends over the engine, the cowling flange consisting of three Fishplates bolted in an arc and secured by two Angle Brackets. The Cabane is represented by two Long Threaded Pins fixed to Obtuse Angle Brackets as shown in the illustration (Fig. 6) which carry Rod & Strip Connectors at their top ends joined by a ½" Bolt: the cords which brace the wings are secured to the Bolt.

The Undercarriage: A 1" Rod held in a Rod Socket secured to the under-side of the fuselage carries a Small Fork Piece at its lower end: Rod & Strip Connectors are bolted to the arms of the Fork Piece and carry 2" Rods fixed to the undercarriage spreader bar (a 3½" Rod) by further Rod & Strip Connectors.

The machine gun is represented by a 1" Rod held in the longitudinal bore of a Coupling bolted to the top of the engine cowling: the muzzle and foresight are represented by a Cord Anchoring Spring. The sprung Tailskid is a simplified version of that fitted to the B.E.2a described and illustrated in Part 3: the main component being a Flexible Coupling Unit.

VOISIN LA3

The *VOISIN LA3* is also to approximately 1/24th scale, having a wingspan of 23½" and overall length of 15½". Construction of the

fuselage was commenced with the floor, which consists of a 2½" x 1½" Flanged Plate and a 5½" x 1½" Flexible Plate overlapped 2", and curved upwards at the front. Each side of the fuselage consists of a 2½" x 1½" Flexible Plate and a 3½" x 1½" Triangular Flexible Plate, strengthened by 3½" x 1½" Strips and a 2½" Curved Strip, and fixed to the floor by Angle Brackets. The nose of the fuselage is built up from a 1½" Angle Girder, a 1½" Flat Girder and two 1" x 1" Angle Brackets. A portion of a damaged 2½" x 1½" Transparent Flexible Plate has been used to represent the wind screen. The bolts holding the 1" x 1" Angle Brackets to the fuselage sides also carry Right Angle Rod & Strip Connectors which carry 1½" Rods forming part of the gun mounting.

At the rear, the fuselage sides are joined by a 1½" x ½" Double Angle Strip. A 1½" Strip is bolted by means of an Angle Bracket to the 2½" x 1½" Flanged Plate, and this together with the Double Angle Strip supports the propeller shaft, which is a 3½" Rod. The engine cowling is a 5½" x 1½" Plastic Plate bolted to the fuselage sides. The radial engine consists of an obsolete Flanged Pulley Wheel and a 6-hole Bush Wheel, six Collars bolted to the Bush Wheel representing the engine cylinders. (A radial engine, due to the fact that the cylinders surround the crankshaft, in practice must have an ODD number of cylinders to achieve a feasible firing order: the arrangements commonly used were 5, 7, or 9 cylinders).

The assembly is loose on the 3½" Rod but is prevented from rotating by a ¾" Bolt fixed to the rear of the fuselage and projecting through one of the holes in the Flanged Wheel and between adjacent Collars on the Bush Wheel.

The lower wings each consist of two 5½" x 2½" Flexible Plates, with the wing leading edge reinforced by 9½" Strips. The upper wing centre section is a 5½" x 2½" Perforated Plate to which are bolted 9½" x 2½" Flexible Plates, the leading edges again strengthened by 9½" Strips.

The outer struts between the wings are 3½" Screwed Rods: the inner interplane struts are 3" Narrow Strips fixed to the upper and lower wings by Angle Brackets, the rearmost of which have Rod & Strip Connectors bolted at the same points. The Rod & Strip Connectors carry the tail booms, which are 8" Rods, to the rear ends of which Right Angle Rod & Strip Connectors are fitted. The pairs of 8" Rods are connected by a vertical 4½" Strip, on which the rudder is located by means of Hinges.

The gun mounting is a 2" Threaded Rod fixed to the side members seen in Fig. 7 (October 1980 Issue); carrying a Threaded Boss retained by nuts, to which is fixed a Short Threaded Pin on which the gun is pivoted. The gun itself, which represents the French Hotchkiss machine gun, is assembled from a 1½" Rod held in the longitudinal bore of a Coupling: at the rear a short Threaded Pin carrying a Collar is also held in the Coupling. A Fishplate is gripped tightly between the Coupling and the Collar and carries a black ½" loose Pulley representing the drum magazine. The butt of the gun is represented by a Clock Kit Pallet Pin secured in one of the tapped holes of the Collar.

To complete the model, dummy operating cables are run from the elevators to the cockpit, and cord bracing is added between upper and lower mainplanes and also between the tail booms, as shown in the illustrations.

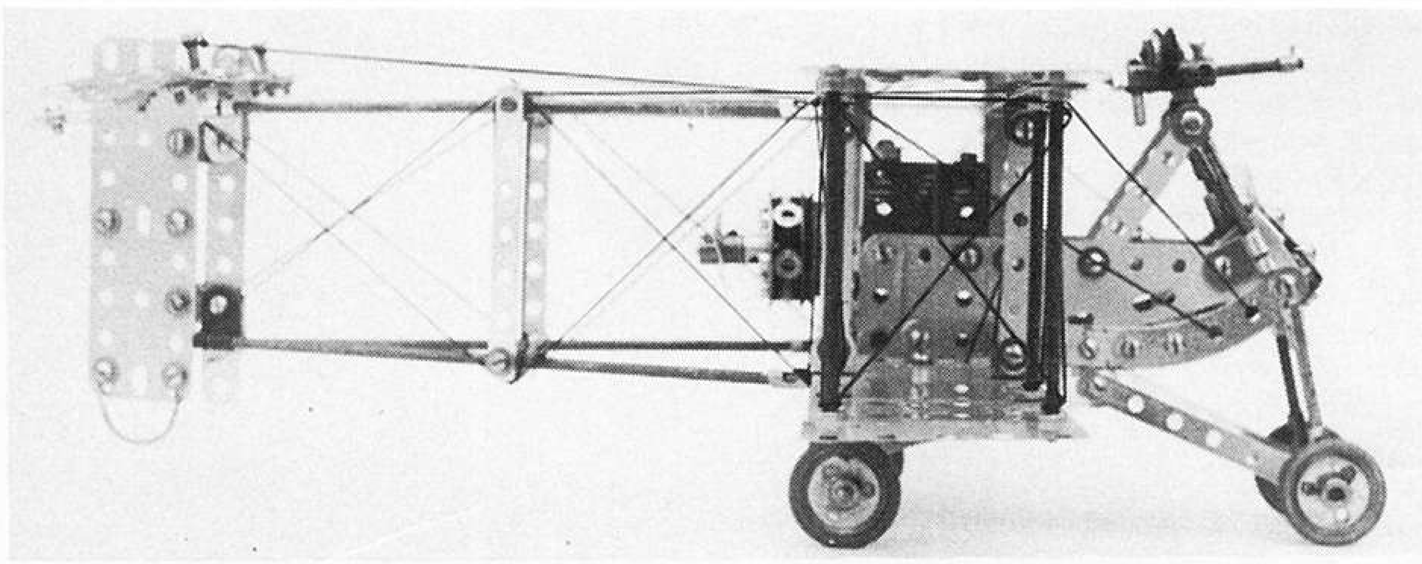


Figure 9: Another view of the Voisin LA3, in which the radial engine can be seen.

FORD BRONCO SERVICE VEHICLE *Continued from Page 27*

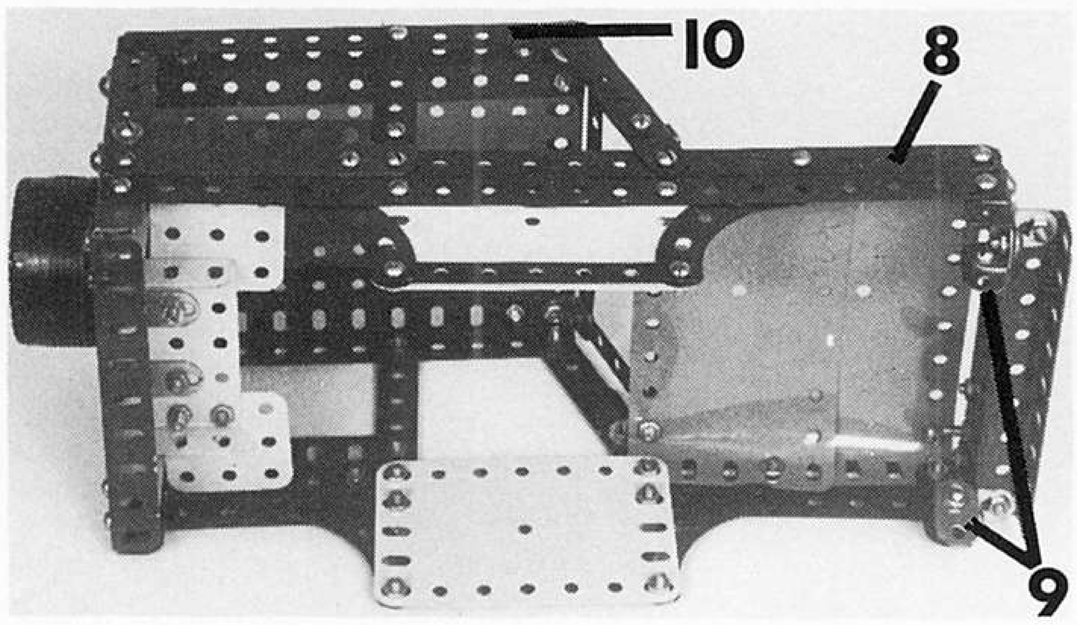


Fig. 8. The bodywork separated from the chassis.

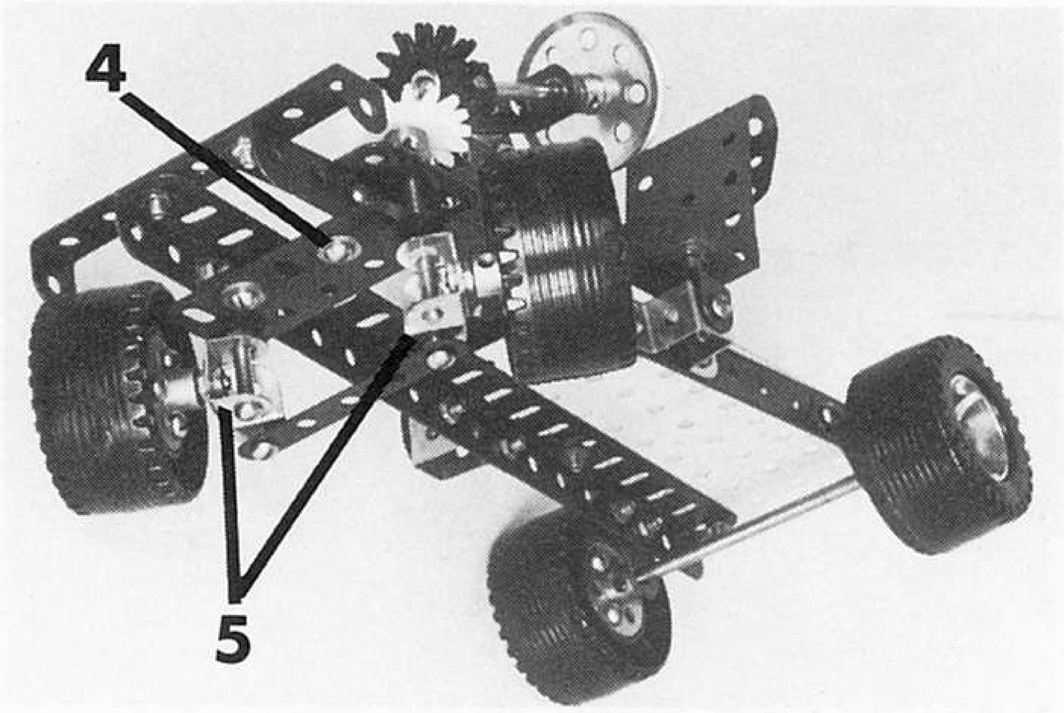


Fig. 7. The front axle arrangement. A small drop of oil on all moving parts will assist smooth operation.

Bent Strip is fixed a Collar and a 50t 1½" diameter Contrate. The Worm gear engages a 57t 1½" diameter Gear Wheel on the rear axle. A 11053 'Crane' motor is bolted to a 2½" x 1½" Flanged Plate which is mounted at a slant, held in front by 1" x ½" Angle Brackets, at the rear by 1½" Narrow Strips bolted to the lugs of a 2½" x ½" Double Angle Strip fixed across the rear holes of the 9½" Angle Girders 1. The motor is thus tilted to allow its front to clear the Contrate wheel and to give a good mesh between the Contrate and a 19t ½" diameter Pinion on the motor output shaft. A 1½" x 1½" Flat Plate is bolted via its centre row of holes to the rear 2½' x ½" Double Angle Strip to provide a fixing surface for the body.

PARTS LIST: includes parts for motorised and non-motorised versions.

2 of No. 1B	8 of No. 12	130 of No. 37B	1 of No. 81	2 of No. 190A
6 of No. 2	2 of No. 12B	168 of No. 37C	2 of No. 103C	3 of No. 194E
2 of No. 2A	3 of No. 12C	40 of No. 38	2 of No. 103D	1 of No. 214
4 of No. 5	1 of No. 15B	2 of No. 45	4 of No. 103F	4 of No. 235
2 of No. 2	1 of No. 16A	1 of No. 48	2 of No. 103H	2 of No. 235A
2 of No. 8A	1 of No. 16B	3 of No. 48A	17 of No. 111A	2 of No. 235B
2 of No. 9	1 of No. 21	2 of No. 48B	3 of No. 111D	2 of No. 235D
2 of No. 9A	2 of No. 23	1 of No. 51	1 of No. 115A	2 of No. 235G
2 of No. 9B	1 of No. 26	1 of No. 53	2 of No. 133A	1 of No. 11053
2 of No. 9F	1 of No. 27A	3 of No. 59	1 of No. 154A	5 of No. 187C
4 of No. 10	2 of No. 27F	1 of No. 70	1 of No. 154B	
2 of No. 11	1 of No. 28	2 of No. 74	1 of No. 160	Connections
1 of No. 11A	1 of No. 32	4 of No. 90A	2 of No. 189	for Motor

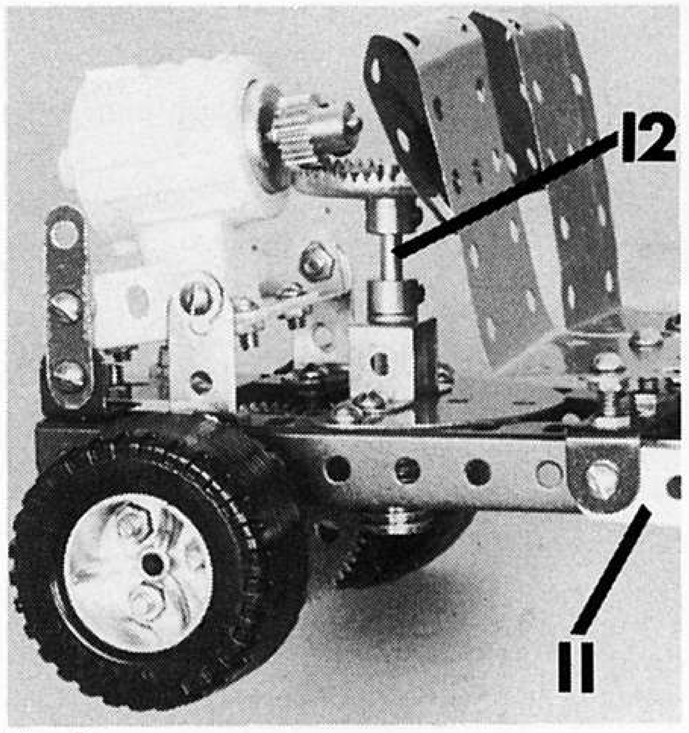


Fig. 9.
This view shows the modifications that must be made in order to incorporate the electric motor and drive mechanism.

Meccano Magazine, Spring 1981

Tony Homden, President of the Holy Trinity Meccano Club, talks about his interest in

ASTRA MODELS

THE advertisements published in the Meccano Magazine during its many years of existence are a vital source of information to the serious collector of Meccano, Hornby and many other related products. Accurate dating of new Meccano parts introduction, for example, can be made from them, and frequently the advertisements are, in their own right, as interesting to the collector as the magazine's main features.

Many manufacturers besides Meccano Ltd. used the Meccano Magazine pages to promote their products and as a result the modern collector of many vintage toys has a useful reference in his quest for further information.

One toy maker who made extensive use of the magazine was Astra Pharos Ltd. of Shepherd's Bush, London, and their advertisements appeared regularly from the early 1930's up until the mid-1950's. The name 'Astra Pharos' can be roughly translated as 'Star Light', and refers to the fact that the original models were all illuminated using bulbs and batteries, which was fairly novel at that time.

The history of the company is not very well known. Although I have been able to build up a sizeable collection and to piece together some facts, more information is still sought to complete the story. In this series of articles therefore I will give the story as I know it but in no way should this be taken as the definitive history.

It was in 1929 that Astra Pharos Ltd. was formed by a Mr. Charles P. Freeman; and toy making continued (except for the war years) until 1955 when the dies and stock-in-trade were sold off to Wendall Toys of Blandford Forum. They continued production for a short time under their own name. 'Astra' however, remained in business as specialist diecasters until 1974 when they went into liquidation. 'Wendall' closed down in 1968 and do not appear to have manufactured 'Astra' models in any quantity. I have some of their products in my collection and they appear to be assembled using odd bits and pieces from different models and are very poorly finished.

Let us go back though to the early days and to one of the first Astra advertisements in the May 1933 'MM'. This depicts a searchlight of very simple design, consisting of a lead alloy 'projector' mounted on a cast iron base housing a flat battery. A 2" diameter convex lens concentrates the light from a small bulb into a beam, but the amount of light scattered is considerable and the range quite short. This model is shown in fig. 1 with a 50p piece to give an indication of scale. The oval shaped section to the front of the base took the original nameplate which has silver lettering on a black ground as siin in fig. 3, but the later, red disc with white lettering nameplate was used leaving 'vacant' area around it.

In the 'MM' for October 1933 a further searchlight was advertised which was a considerable improvement on the earlier one. An attempt had been made to produce a realistic looking item bearing some resemblance to the prototype. This searchlight was the first in a series which continued right through the years until toy production finally ceased. Generally known as the round based searchlight it is one of the most commonly found Astra models today. Fig. 2 shows a version from 1936 which is finished in khaki colour, but the majority were painted dark green. To the left of the projector can be seen the elevating mechanism which consists of a pressed steel wheel with a plain steel disc on its inboard end, this disc is clamped between the edges of two larger steel discs which in turn are lock-nutted to the projector. A simple reduction gearing is thus obtained and the projector may be elevated by turning the small wheel. The bent steel bracket in which the projector is mounted is loosely riveted to the base and is hand-rotatable to train the beam. The small wheel seen to the right of the base is the on-off switch and completes an earth path from one of the battery terminals through the casing to the bulb. This switch is used on many other 'Astra' models and sometimes has the later, round trade mark label affixed to it.

During 1934 yet another searchlight was added to the range, this had a projector diameter of five inches and was called the 'Giant'. As in the first model no attempt was made to copy a prototype, and although an elevating wheel was fitted, the light beam could only be trained around by rotating the entire model as the projector support bracket was solidly rivetted to the base. This new model marked the division of Astra searchlights into two main types, those with lenses fixed in front of the bulb, and those with plain glass but a polished concave reflecting mirror behind the bulb.

The 'Giant' searchlight was available in either khaki or light grey finish, and early specimens feature the oval shaped trade mark plate rivetted to the base.

By 1937 this model was superseded by the 'Super Searchlight', this had a smaller (4") diameter projector mounted on a cast iron base, modelled to reproduce simple prototype features such as steps and a handrail. A 'geared' elevating mechanism similar to the

Fig. 1. The very early type of Astra searchlight described by Tony Homden.



Fig. 2. A round based searchlight, vintage 1936.



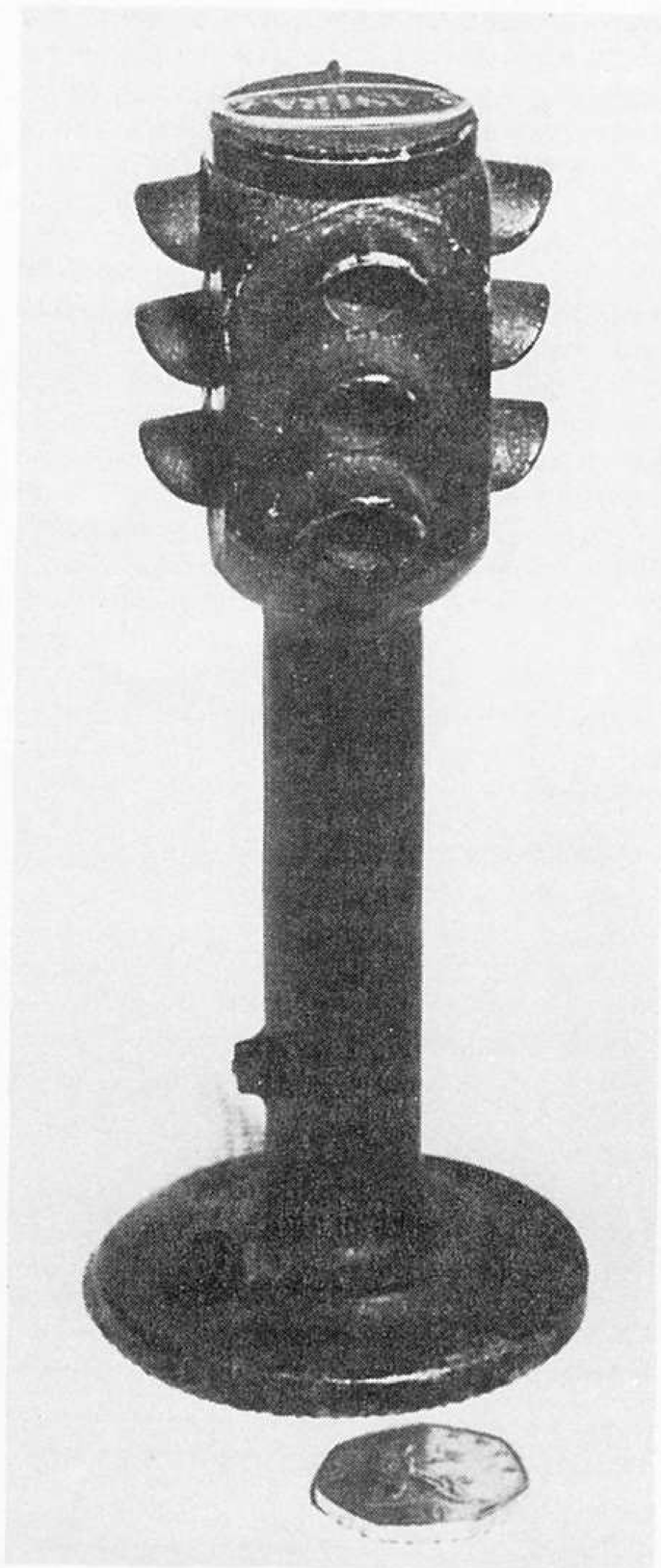


Fig. 3. This traffic light employs strips of coloured celluloid to give correct colour sequencing with only one clear bulb.

round-based searchlight was fitted, and the beam could now be trained without the necessity of moving the whole model. Colours available were khaki or dark gloss green.

Also at this time the 'Standard Searchlight' was introduced, this was simply the projector and mounting bracket of the round-based searchlight, mounted on a cast iron rectangular base which has a set of steps moulded in one end. The original version was not fitted with elevating gear but later models have the 'round-based searchlight' gear.

Producing a 'new' model in this fashion was the beginning of what was to become a common practice for Astra, to take parts from different models and combine them with new components or bits from other models. Very little attempt was made to produce scale models based on actual prototypes and one wonders sometimes if the designer of these early searchlights had in fact ever seen a real one!

C. Lucas of Liverpool, in the March 1935 'MM', advertise a 'Robot' which is in fact a traffic light! This was the first of a very long run of such items produced by Astra for use both with model cars and model trains. This early version featured three coloured bulbs mounted at the top of a hollow column which also contained a penlight battery.

A simple rotatary switch on the rear of the column illuminated the bulbs in sequence. A number of different versions of this model were made, some with two sets of bulbs set at right angles, some with plain black columns, and some with white rings around the columns.

Astra never solved the problem of correct colour sequencing in these models. It was impossible to get the red and amber lights to illuminate together!

Fig. 3 however shows a very rare, early Astra traffic light which not only overcame the sequencing problem, but had lights facing in four directions. In this model a single clear bulb is contained within a movable shutter inside the head casting. Holes arranged at intervals in the shutter line up with holes in the head of the column corresponding to the position of the various lights. Coloured celluloid is fitted inside the shutter, red at the top, then amber and green, thus by turning the dial at the top the correct lighting sequence can be obtained.

Perhaps the rarest of all Astra models are those shown in fig. 4, reproduced from the December 1936 'MM'. On the right is a double aspect traffic light of the type previously



Fig. 4. An advertisement from the December 1936 Meccano Magazine, showing many rare Astra products. The author is a keen collector of such models and would welcome correspondence from anyone with further information.

described with separate coloured bulbs for each function. The 'Set of Floodlights' with battery holder is extremely rare and as yet has not been seen 'in the flesh' by the author. Similarly the 'Petrol Pump' and 'Waterline Set' have not yet been seen although I do have one of the small lighthouses shown in the set. The Waterline Set was intended for use with the model harbour which consists of a painted plywood base on which is mounted a cast iron jetty, at the ends of which are illuminated beacons. A movable swing bridge and two extension pieces complete the model which measures 12" x 12" without extensions fitted. Several varieties of the harbour were produced and fig. 5 shows another type which clearly illustrates the beacons at the jetty ends.

The lighthouse in the advertisement is shown again in fig. 6 along with two smaller versions. Again, a 50p piece is used to give an idea of scale. The large lighthouse is a fine model and contains a penlight battery in the column controlled by a switch in the base. Both of the smaller lighthouses are powered by external batteries, the left-hand one being fitted with a sub-miniature bulb, while the other uses a standard bulb which accounts for its rather squat appearance. The tops, doors and windows of all three models are picked out in gloss red, the columns are 'stone' coloured and green 'seaweed' adorns the bases.

The lighthouses in the fig. 4 advertisement 'Waterline Set' are similar to the small one in fig. 6, except that they are not fitted with bulbs, being solid at the top.

The petrol pump is known to have been made in a variety of types similar to the styles of different petrol companies, but so far none have been seen.

This completes my review of Astra products up to 1937, in my next article I shall cover the introduction of guns and the further development of searchlights. Any reader who can shed further light on the history of the company or knows of other early products not already mentioned, is cordially invited to write to me either direct to 36 Wilmington Close, Woodley, Reading, Berks. RG5 4LR; or care of the Meccano Magazine. All correspondence will be acknowledged.

Fig. 5. Cast iron jetties on a plywood base, Astra products were made to last, as the good condition of this harbour model clearly shows!

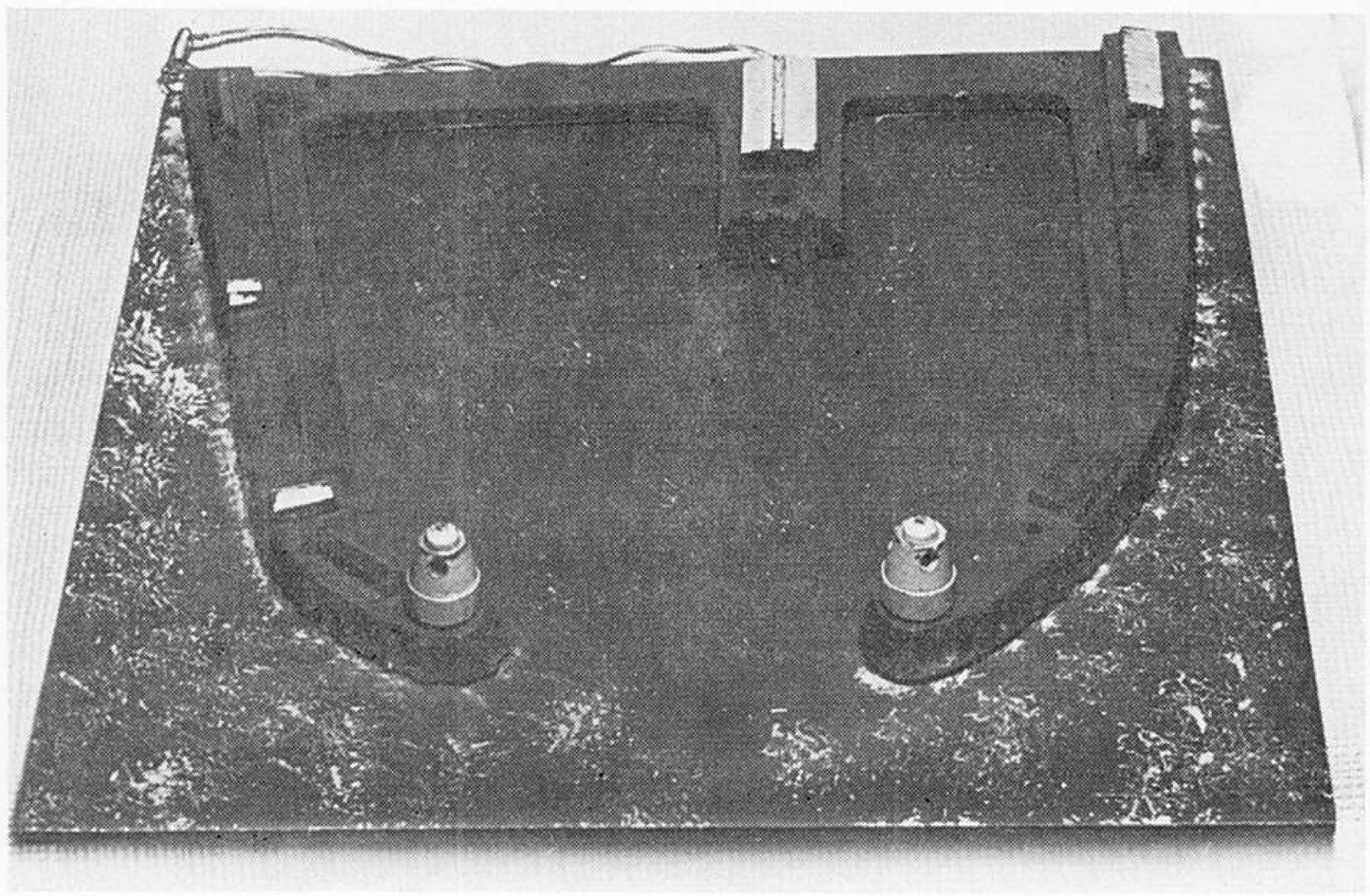


Fig. 6. Three lighthouses from the Astra range.



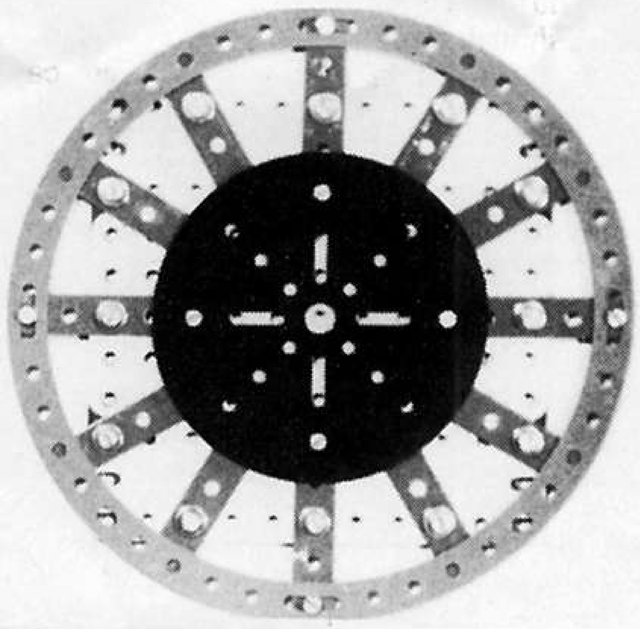
AMONG THE MODEL-BUILDERS

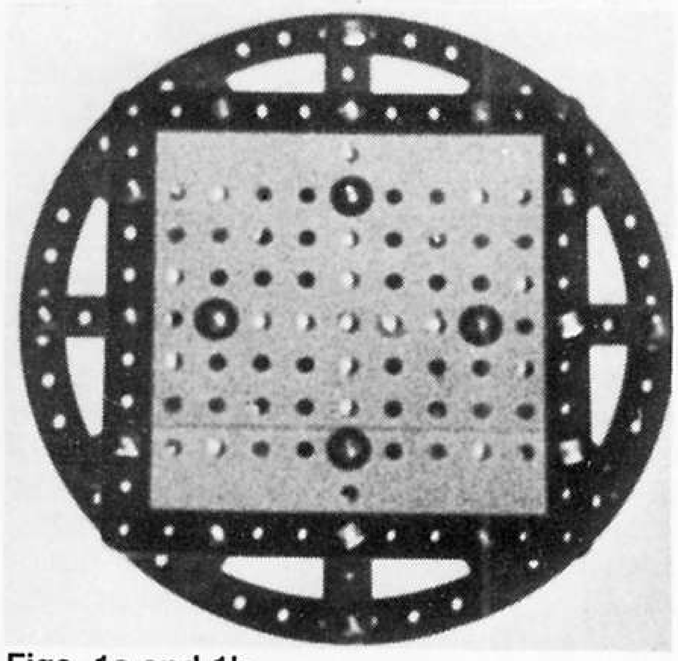
with 'Spanner'



MECCANO CLOCK DIAL PLATES

HUNGARIAN enthusiast Andreas Konkoly has recognised the difficulty which some constructors experience in making a really satisfactory 12-division clock dial with Meccano parts. These parts in actual fact lend themselves most easily to eight section dividing. The following are some examples devised by Mr. Konkoly.





Figs. 1a and 1b.
This method employs a 5½" square formed by one 5½" x 3½" Flat Plate, edged by two 5½" x 1½" Flexible Plates and bordered by four 5½" Strips, held in a Circular Strip. Strips radiating from a central overlaid 4" Circular Plate are held by Bolts in suitable holes in the 5½" Strips.

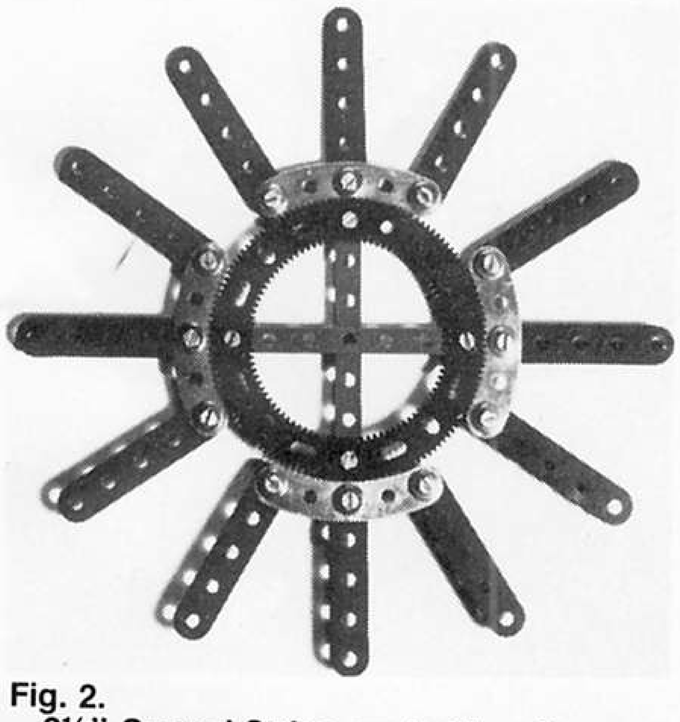
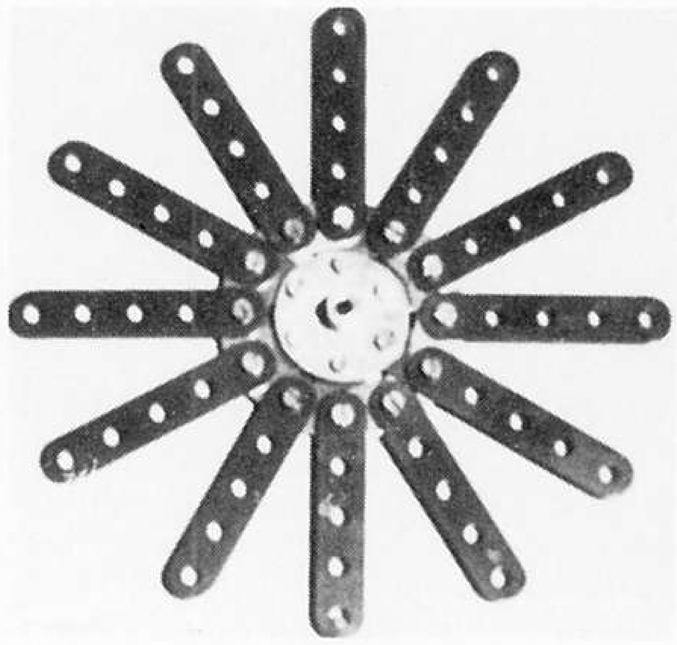
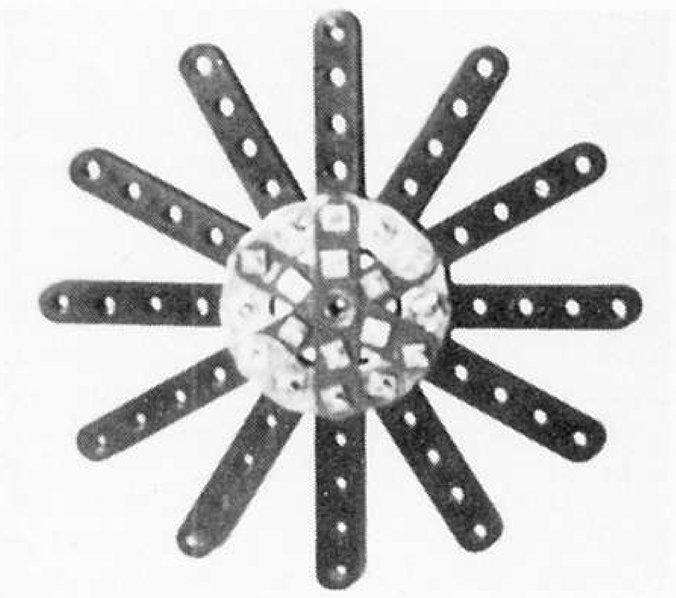


Fig. 2.
2½" Curved Strips are held on the outer perimeter of a Gear Ring by crossed-over 4½" Narrow Strips. The centre and end holes of each Curved Strip hold 2½" Strips as shown.





Figs. 3a and 3b.
Three 2½" Strips are laid over the centre of a six-hole Bush Wheel, their ends carrying interlocking Fishplates which carry at their connections, outward radiating 2½" Strips. The overlaid 2½" Strips themselves are similarly extended making for a total of twelve divisions.



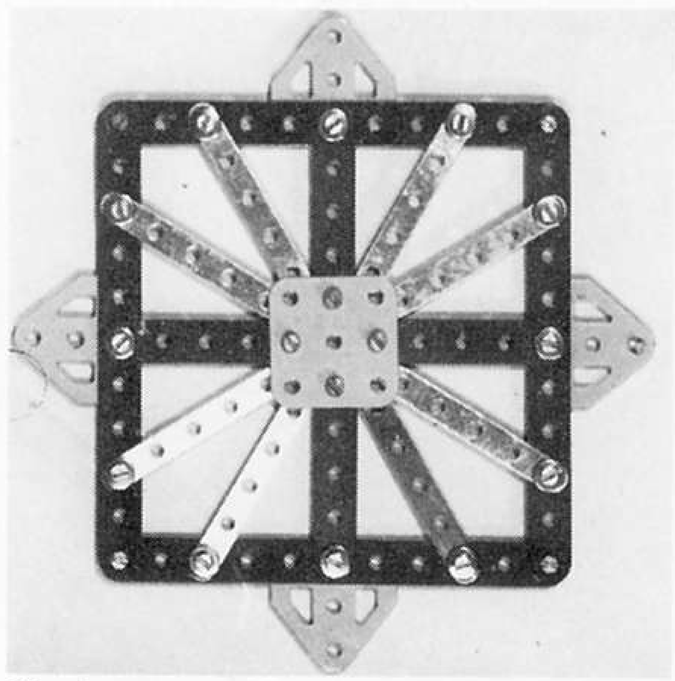


Fig. 4.
This uses another 5½" square of Strips, but in this case further 5½" Strips are crossed over in the centre and overlaid by a 1½" x 1½" Flat Plate. 2½" Narrow Strips are arranged as shown and connected to the side 5½" Strips. The Flat Trunnions shown are for decorative effect only.

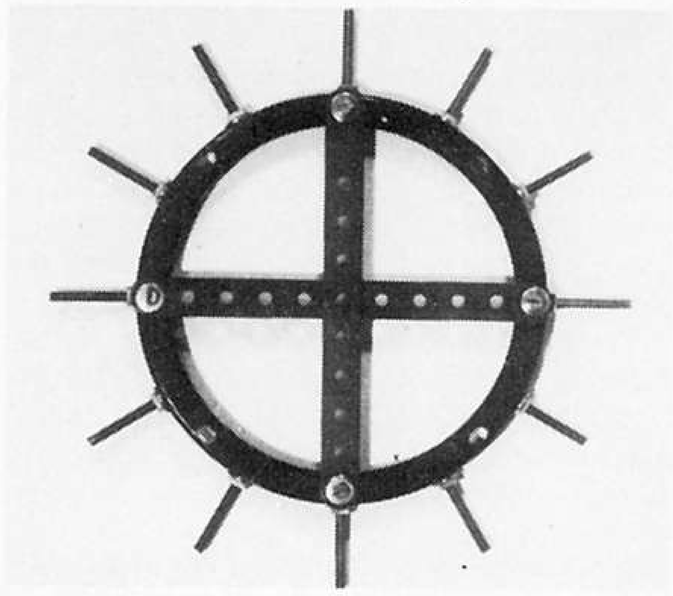


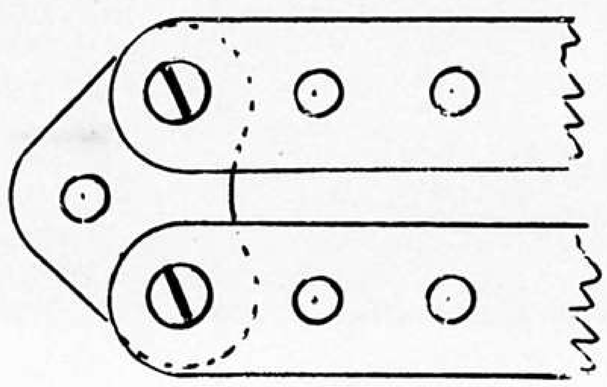
Fig. 5.
This modern-looking design is the simplest; 1⅛" Bolts are located through holes in the rim of a Circular Girder, the slotted portions being used to achieve the correct spacing for the remaining Bolts. The crossed 5½" Strips shown are purely decorative and are not essential to the construction.

Fig. 6.
Left: Andreas is as much 'at home' on TV as in the 'MM'! This is a photograph taken of his recent interview on Hungarian Television.

NON-STANDARD SPACING ARRANGEMENT

IN a follow-up to his contribution, (see October 1980 'MM'), Mr. Bert Halliday of London has suggested the following arrangement by means of which, the correct spacing for use with the built-up Screwed Rod and Multi-Purpose Gear can be achieved.

With the Screwed Rod unit, (built-up into a 'Rack Strip' by use of Washers and Hexagon



Nuts), located down the centre line of whichever Strip applies, a further parallel Strip connected by 1" Corner Brackets as shown, provides the seat of the correct spacing necessary to achieve correct meshing of the Multi-Purpose Gear. How the Screwed Rod unit is fitted to the Strip chosen is left to the modeller's discretion, but in my demonstration unit with the use of non-plastic Slide Pieces, either unit could be made to slide along whichever Strip applies, while the other remained in a fixed position. The ends of my Screwed Rod unit were 'capped' with Screwed Rod Adaptors, the plain portions of which were fixed in the untapped transverse bores of the Slide Pieces.

GEARLESS REDUCTION MECHANISMS

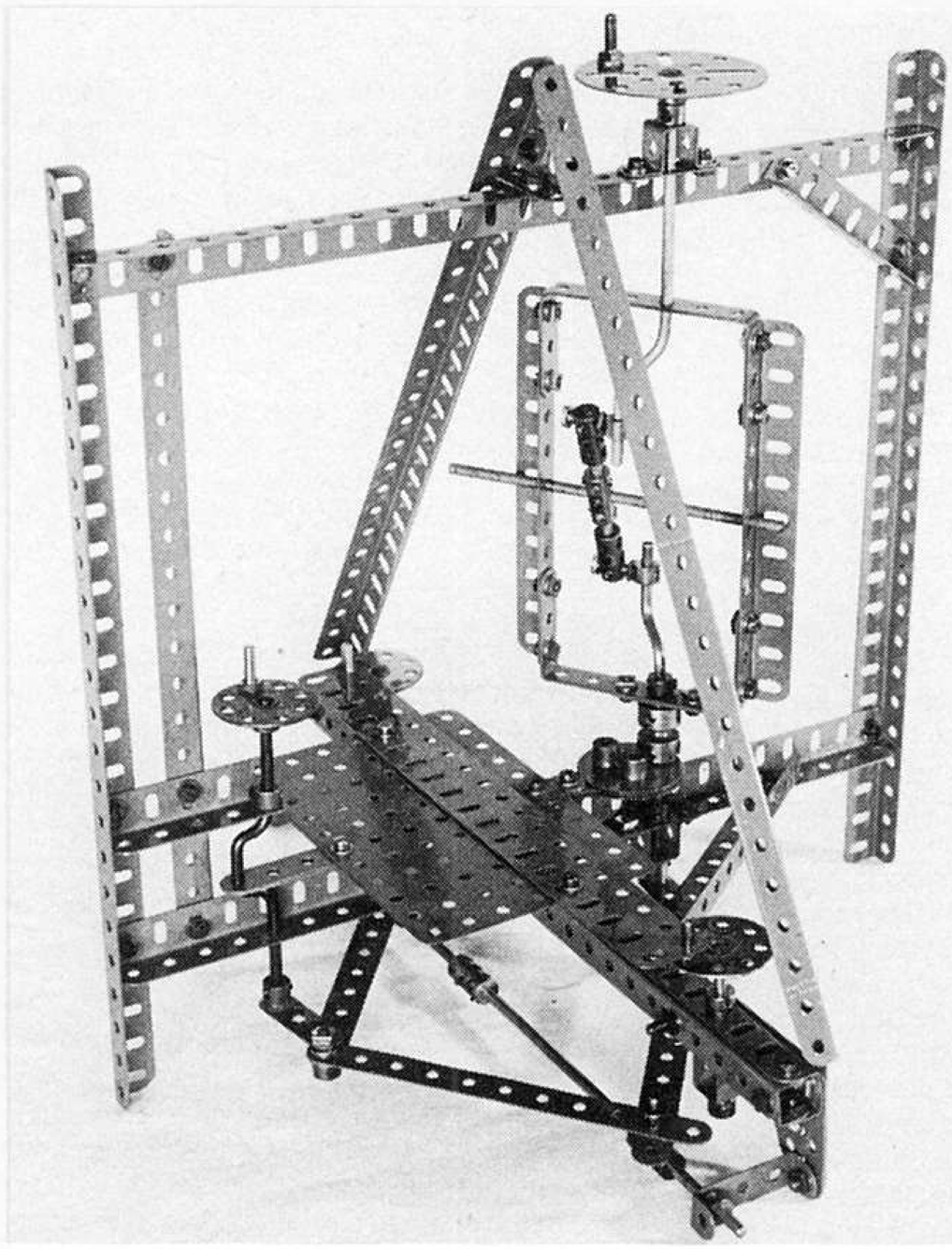
A master of the offbeat and unusual side of Meccano modelling, Steve Tonkin of Bristol has forwarded details of a device which can be constructed in two alternative versions to provide either 2:1 or 3:1 gearless reductions.

'It should be said at the outset, (says Mr. Tonkin), that the mechanisms described here are of no use. They are academic exercises only, but as the object with Meccano is to relax and have fun, their existence is justified.

The main mechanism described provides a 3:1 reduction between rotating input and output shafts, without using toothed parts or relying on friction drives. A modification simplifies the mechanism, which then gives a 2:1 reduction.

Fig. 1 is a general view of the 3:1 version. The frame must be constructed very rigidly, all right angles are braced and the bottom cross girder is of box-section using four 12½" Angle Girders to maintain freedom from torsional compliance.

The heart of the mechanism is the rectangular 'cage' formed by two 3" x 1½" Double Angle Strips and two 5½" Angle Girders. The input and output ½ shafts of this cage are 3½" Crank Handles arranged with their cranked portions inside the cage as shown. These handles use a rocking, sliding, cross-shaped assembly to connect them. In the Couplings at each end of this rocker-arm assembly, Long Bolts or Pivot Bolts are passed straight through the end transverse smooth bores and into the tapped holes of Collars which are permitted to rotate freely on the Crank Handles by a Nut on the threaded portion of each Long Bolt or Pivot Bolt. The result is that if the cage is held still and one ½ shaft turned, the other ½ shaft will rotate in the opposite direction. Thus the cage behaves in the same way as a differential.



Left:
Fig. 1: The 3:1 version of Mr. Tonkin's gearless reduction mechanism. Note that the framework has to be constructed very rigidly.

Below left:
Fig. 2: Underside view of the 3:1 version, showing the 1:1 linkage.

Below, right:
Fig. 3: The 2:1 version of the mechanism, (1:1 linkage removed and lower ½ shaft locked).

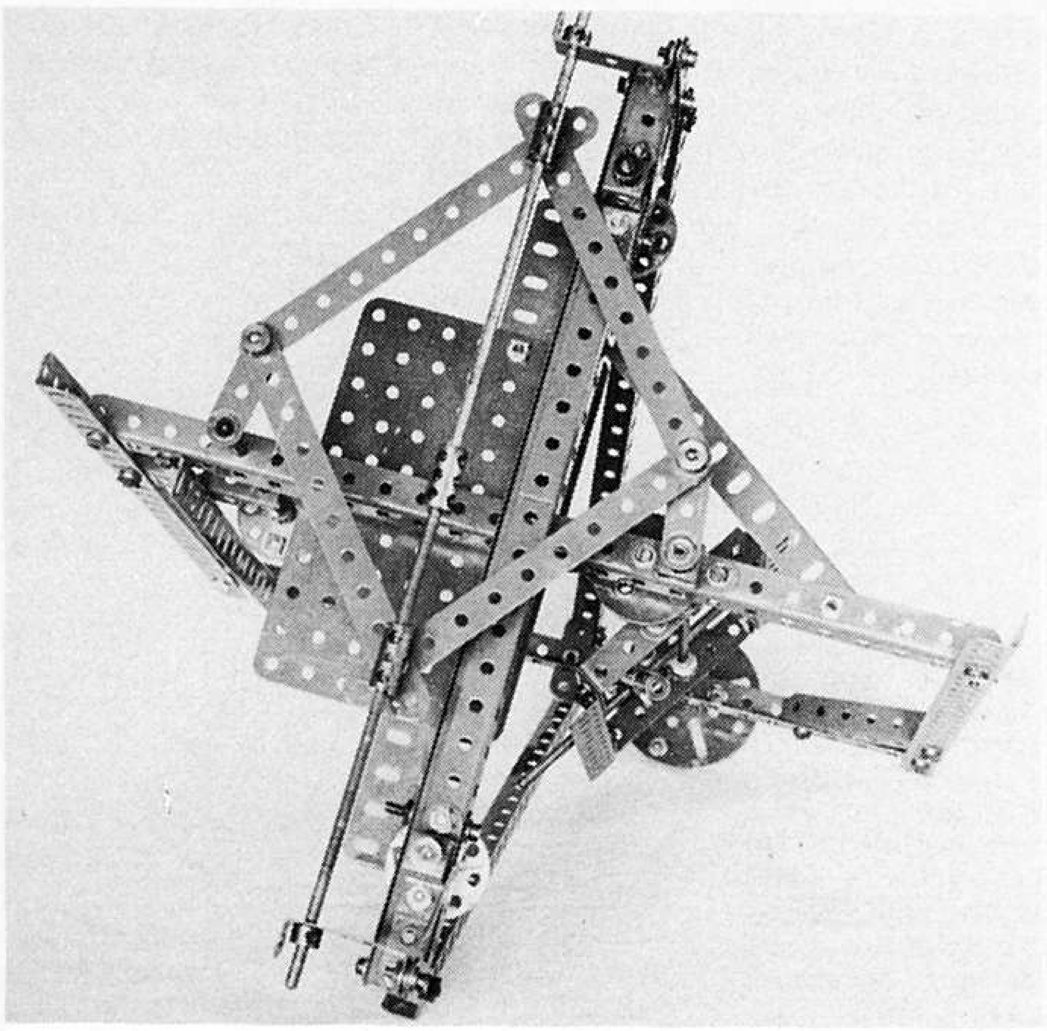
Photographs kindly supplied by Alan Partridge.

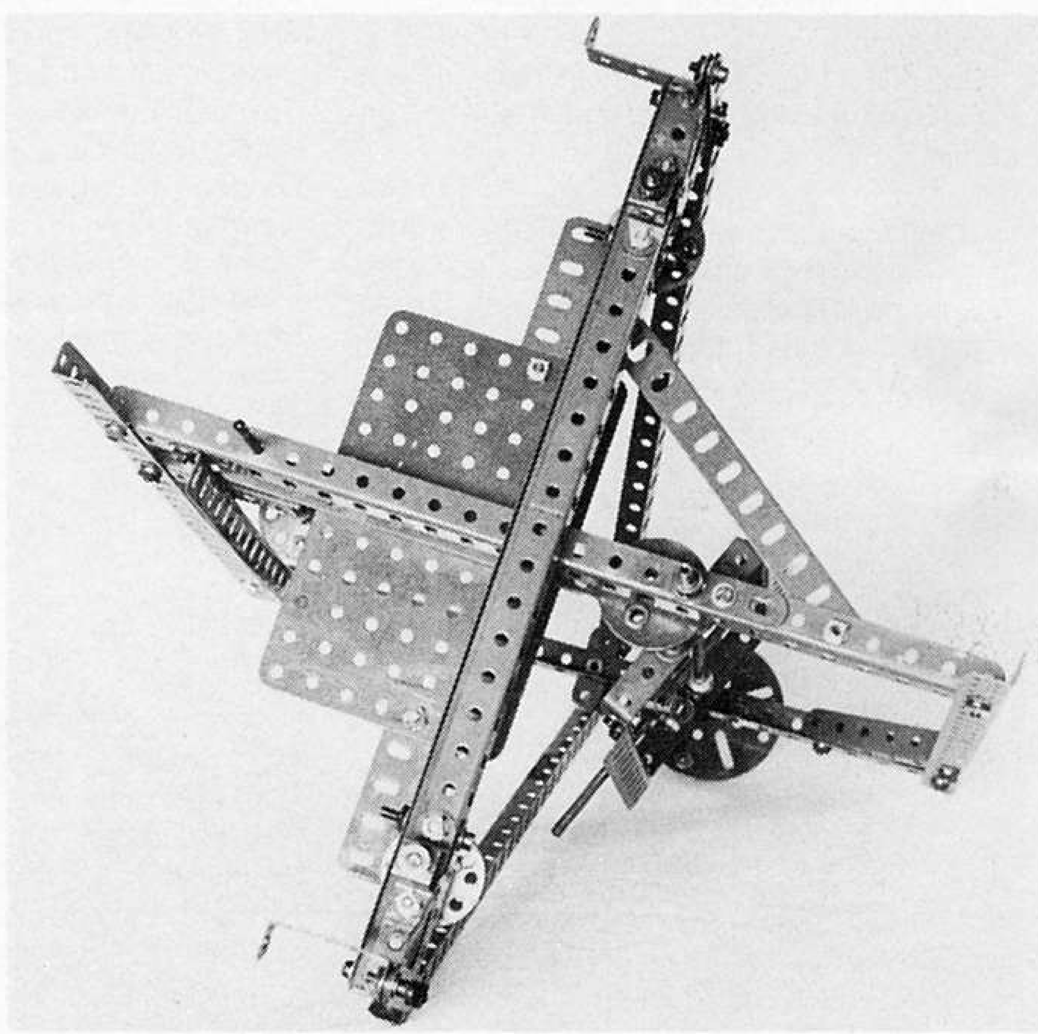
The differential cage is mounted so that the input handle, to the top right of fig. 1, drives one ½ shaft. The output handle, a Crank Shaft carrying a Bush Wheel and Threaded Pin at the far left of fig. 1, is coupled to the cage by a locomotive coupling rod mechanism which for the sake of rigidity is represented by a 5½" x 3½" Flat Plate extended to each side by 9½" Flat Girder as shown, all overlaid on a 5½" Strip which connects the cranked portion of the output shaft to the ½" Throw Eccentric mounted at the bottom of the cage lower ½ shaft by a Socket Coupling. To prevent 'dead' spots, two idler cranks formed from Bush Wheels carrying Threaded Pins, (extreme foregound and extreme rear in fig. 1) are pivotted at the ends of the cross 9½" Flat Girder.

The output shaft to the extreme left of fig. 1, is further connected to the lower cage ½ shaft by a 1:1 mechanism as shown in fig. 2. In this the drives are taken by Cranks at 1" throw, please examine the illustration closely to follow construction.

Re-iterating, we have a differential in which one ½ shaft is turned by the input, the cage turns with the output, and the other ½ shaft is coupled 1:1 to the output. The result is that the output turns at 1/3rd the input speed. This is not difficult to show theoretically, but if you are not versed in the art, build it and see.

If we omit the 1:1 mechanism of fig. 2 and lock the lower ½ shaft the input/output ratio will be 2:1, as in fig. 3.'





Meccano Magazine, Spring 1981

The HORNBY DUBLO story

by Michael Foster

NOBODY has ever claimed that Meccano were the first in the '00' range of Model Railways, but today, with nostalgia creeping in, many people think that they were the best. The Company kept very close contact indeed with the German Toy Manufacturers and, indeed, the Marklin Company held a considerable number of their shares in the late twenties.

Frank Hornby himself, must have seen and considered the Table Railways introduced in 1921, and realised with the success of the Twin Train system (Trix) manufactured initially in Germany for Bassett-Lowke that something was going to have to be done. Indeed, Marklin had their own '00' scale models also well and truly launched onto the market by 1936. In Great Britain, '00' scale modelling was purely for experts with a lot of patience as they were making their own track with outside 3rd rail and, in general, using six volts as the power supply.

One of the great successes of Meccano was the incredibly close contact it kept with its customers.

> "Dealers in toys woke up to the fact that a new era in toys had commenced; the boys were no longer content to play with something that gave pleasure for an hour and was then thrown away, which broke even before it had ceased to have the power of giving pleasure; that boys had brains and could be interested in things which stimulated serious thought and which called for powers of invention and ingenuity, hitherto stifled through lack of an outlet."

This is literally as true today as when this sentence was first written by the inventor of Meccano in his Editorial in the 2nd Meccano Magazine in November/December 1916! The Company actively encouraged letters and, indeed, the Meccano magazine at one stage was printed in 17 different languages and sent literally all over the world.

As they had been beaten by their competition with the introduction of '00' scale models, Meccano were able to sit back and assess the strengths and weaknesses of their competitors system and, at the same time, listen to what was required from their customers. A criticism of the early Twin Train Railway was in some people's eyes the lack of realism in the outline of their locomotives. Indeed, a few years earlier Meccano had introduced their Modelled Miniatures—Dinky Toys—and were building up a world-wide reputation as quality diecasters. They used all their skill and experience in this in making the moulds of their locomotives and the first announcement appeared in the September 1938 Meccano Magazine. The Company used their 'Meccano Magazine' as a good chef uses his menu, i.e. letting his customers know of the delights shortly to come before them. Train sets came onto the market towards the end of 1938, but were not readily available until the early months of 1939.

Sir Nigel Gresley had just been given the honour of having his 100th Pacific Engine named after him and was, in many respects, the hero of the hour. There were both electric and clockwork versions of his loco with articulated teak coaches and the famous 0-6-2 tank. This latter locomotive, through various modifications, was still in production and a very good seller right at the other end of the scale in 1964. But for the war, who knows what might have happened in Hornby Dublo because their acceleration through the months of 1939 was quite incredible. New tank wagons appeared in March, cattle, meat, fish vans and the teak horse-box were advertised in April and were available in May and June.

Advertisements in July showed the City Station and the Engine shed, although in point of fact, these were not officially announced until December 1939, together with electric points and signals. In September the High-Sided Wagons and the High Capacity Brick Wagons were introduced.

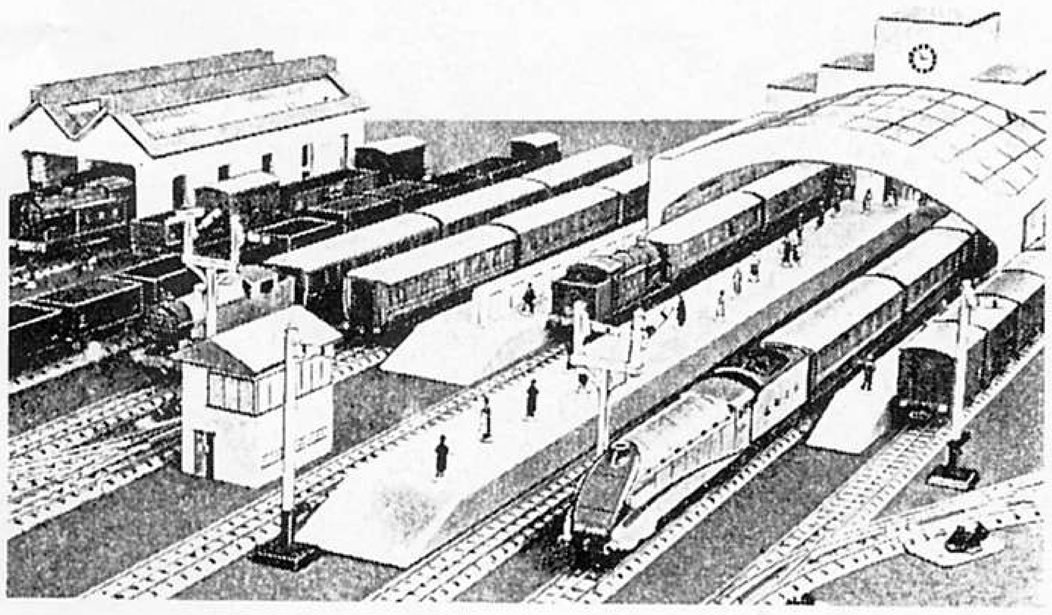
The 0-6-2 Tank locomotive was available, clockwork or electric, in the four liveries of the main companies, but only teak coaches were available. An interesting facet of a 'supply and demand" situation, was a firm in Manchester offering litho coach papers to be stuck onto the side of the teak coaches to convert them into the groups not represented, i.e. LMS, GWR and SR.

In the early part of 1939, the 'Duchess of Atholl' 4-6-2 LMS non-streamlined locomotive was shown and, indeed, some of the pre-War literature showed this much photographed model, but alas, it was never introduced and in December 1939, in one of the many items of literature put out by the Company, it stated:

'We had planned to produce this as a beautiful Hornby Dublo reproduction of the LMS Princess Coronation Class locomotive and, indeed, it is already very near completion. Unfortunately, the War has compelled us to hold up production and to turn our machines onto other work.'

It is fascinating to read contemporary issues of the Meccano Magazine which came out every month through the War and must have been a very high source of morale and inspiration to countless thousands of people. It followed the success and failures and, as usual, was bang up to date with technical information and news of the War and even in April 1944, a whole article stating the Nation was waiting on tip-toe for the invasion of the European Fortress. D-Day wasn't until June!

In April 1946, Dinky Toys reappeared with the Lagonda and the Jeep and I am sure prior to that stores and warehouses were ransacked and train sets which had been held for the duration of the War were released, but very few were available. It is hard for us to imagine the scarcity of materials at that time, both paper and metal, and it was not until December 1947 that their reintroduction was announced. However, it was not until the late summer of 1948 that one could buy the 'Dutchess of Atholl'

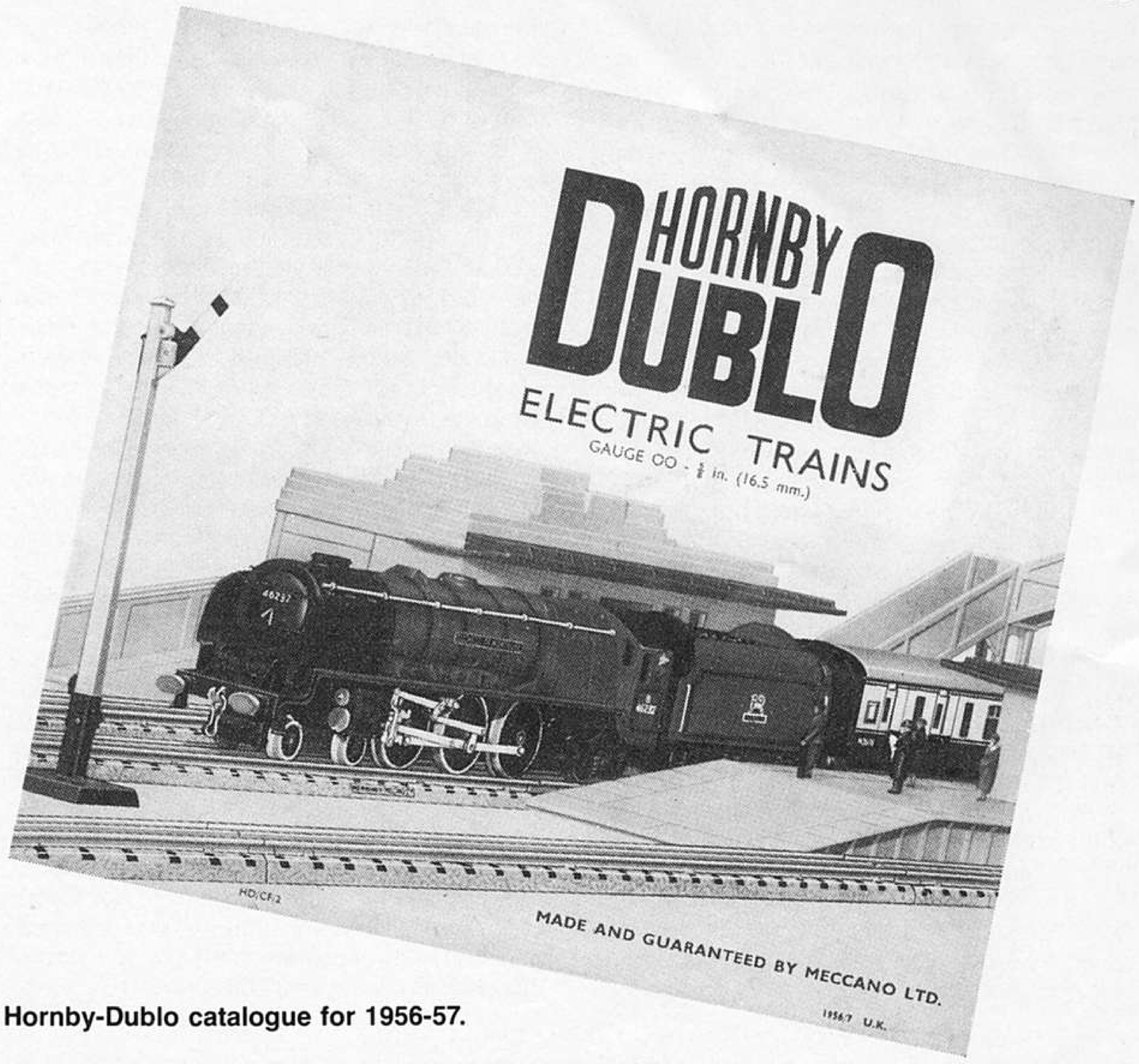


'A realistic terminus, yard and engine shed. The station is particularly effective, with its passenger platforms, accommodation for perishable traffic vans, and carriage sidings outside the actual building.' Meccano Magazine 1940.

locomotive or the remoulded 'Sir Nigel Gresley' with the open valve gear. Like an engine starting on a cold morning, the production of the company coughed and spluttered dependent on the availability of raw materials and indeed, in 1951 very nearly faced a close down, partly due to the priorities of the Korean War and subsequent shortage of materials. After the Second World War, new couplings appeared which were designed by Sydney Pritchard of Peco Ltd and one of the main features of these was the uncoupling rail introduced in December 1949 and consequent realism of operation. The diecast mainline station, island platform, etc, appeared in September 1950 and earlier that year Meccano, as always in the lead in the technical sense, were the first to fit television and radio suppression to their models.

An article in the December 1951 Magazine stated that replacements and spare parts were still not easily available as total production was being used to make new sets for other boys and it was not until September 1952 that the electric points were re-introduced. However, the clouds rolled away and in the spring of 1953 the 'Duchess of Montrose' and the 'Silver King' locomotive were announced and again sales built-up to their peak in the late 'fifties and early sixties.

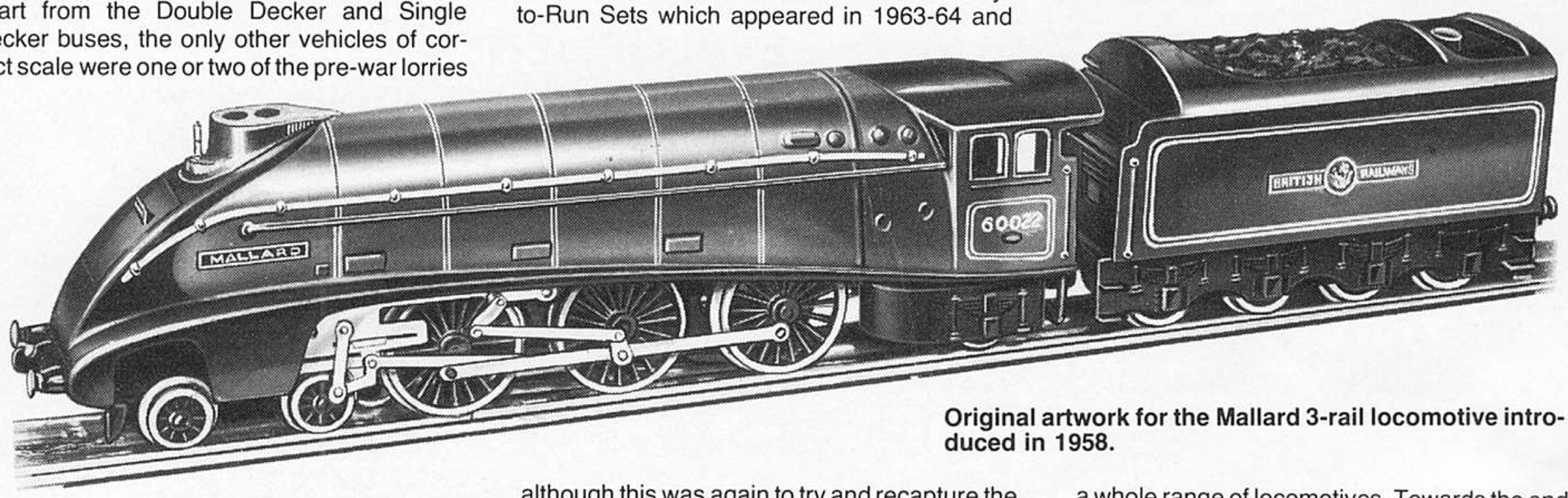
However, we go too fast ourselves. In November 1954, the 2-6-4 Tank locomotive appeared with the tin printed Surburban coaches, the latter planned and drawn pre-war, which were followed by the transparent windowed coaches two years later. In January 1955 questions were asked why not a turntable—why not indeed! Two years later to the day in January 1957, the first one was introduced. As I mentioned, the Meccano Company were exceptionally good at squeezing the last drop of interest and anticipation out of their customers and many suggestions were reprinted with 'who knows' after them. Such a case happened in August when they were talking about coaches in Great Western and Southern Region livery and in October 1957 the 'Bristol Castle' arrived followed a couple of months later by the first of the Dublo Dinky Toys series. It was very difficult to get scale vehicles to go with Hornby Dublo trains and apart from the Double Decker and Single Decker buses, the only other vehicles of correct scale were one or two of the pre-war lorries and the No. 35 series which included the Austin 7. In February 1958, the first of the Super Detail Wagons arrived and heralded a whole new era. I have heard many fellow collectors commenting 'Ugh! Plastic rubbish' and indeed, to the mature enthusiast some of the plastic models on the market in those early years left something to be desired, but as I said, this was to the mature enthusiast. The plastic train sets available were designed for the younger operators and fulfilled their objective admirably. As to 'plastic rubbish', well just a minute; there were 17 highly detailed separate drawings for the bulk grain wagon alone and the moulds were made by what was by reputation the finest toolmaking company in the British Isles—British Industrial Plastics.



Hornby-Dublo catalogue for 1956-57.

The detail required by Meccano was, in many cases, unrealistically intricate for their market. The fantastic concern that their models looked life-like was incredible and the number of trial moulds they made to simulate coal is apparently beyond count. One of the schemes being that no straight line of coal must be longer than 5/32 of an inch! Another point was reference to the rivets which appeared on the wagons and engines and in one particular case some 3,000 rivets were jig-bored and measured 0.056" wide. Look at the 0-4-0 Ready-to-Run Sets which appeared in 1963-64 and although this was again to try and recapture the young enthusiast, there are over 700 rivets detailed on this particular model—I know because I've counted them. Indeed, it was shortly after this in April '60 that the ICI Chlorine Tank Wagon first arrived with super-detailed brake gear and was highly praised in the Trade Press at the time.

In December 1958, following a three page article on the full size Bo-Bo Diesel locomotives in an earlier issue of the Magazine, the Hornby Dublo version came out and this was the first model locomotive with a Polystyrene body and was the subject of much controversy with apparently heated management discussions—the main argument being the possible insufficient weight and consequently bad adhesion. This was one of the reasons why rubber tyres were fitted to the traction wheels, which, on the 3-rail design was acceptable provided the track was clean, but it did have quite severe problems on anything but the shiniest track when the 2-rail version was introduced later and caused its withdrawal in 1962. Again, Meccano were by no means first in the introduction of a 2-rail system, but theirs was announced in April 1959 with an almost incredible list of new products in both rolling stock and buildings, new stations, engine sheds, as well as a whole range of locomotives. Towards the end of 1960 saw the introduction of the Super Detail coaches, as well as the Co-Co Diesel with a diecast body and the 0-6-0 diesel shunter. It was also the era of endurance tests with a standard production 'Bristol Castle' locomotive running an actual 153 miles in four days.



Original artwork for the Mallard 3-rail locomotive introduced in 1958.

In September 1961 the French Hornby-Acho models first appeared with their Bo-Bo locomotive and coaches and their own range grew up and was in production until 1973. Most people have, in some cases, grudgingly admired the technical expertise of the French but I don't think it is for me to say which of the two systems were better. The French motors were exquisite, but there again so they should be because

they had not only the experience of the Meccano Company in England to go on, but also their very strong European competition. In March 1961 the Pullman cars appeared, followed in October by the 'Barnstaple' West Country Class locomotive. Reading the Meccano Magazines from now on, one can see to a certain extent the gradual decline in the Hornby Dublo line beginning, although obviously this was not noticeable at the time. It is the age old problem of what does one make next?

Indeed, the models which followed from October 1962 are now probably the most highly prized of all, other than pre-war Hornby Dublo and there were such items as the Southern Electric Set, the Super Detailed Restaurant Cars, the 6-wheel passenger brakes, the Hopper Wagons, and finally towards the end of '64 the track cleaning wagon. There is an interesting story concerning this last-mentioned item in so much that a Triang track cleaning wagon was used to clean the track of the Meccano Company's exhibition layout in their London showroom in Conduit Street. Apparently this was seen one morning by one of the directors who, having been told by the assistant that a track cleaning wagon must be used on a model railway, insisted that one be introduced into the Meccano range. A model was hastily put into production, the technical side based almost exactly on that introduced many years earlier by Mr Wills of Wills Fine-Cast Ltd and housed in a 16-ton mineral wagon. 839 of these were actually sold and there was 1,700 left in stock at the time of the takeover. Apparently, it was not that effective compared with the wide felt band of the Triang model, and so was almost immediately discontinued and never appeared on any stock sales list of the Triang Company in the middle and later 60's.

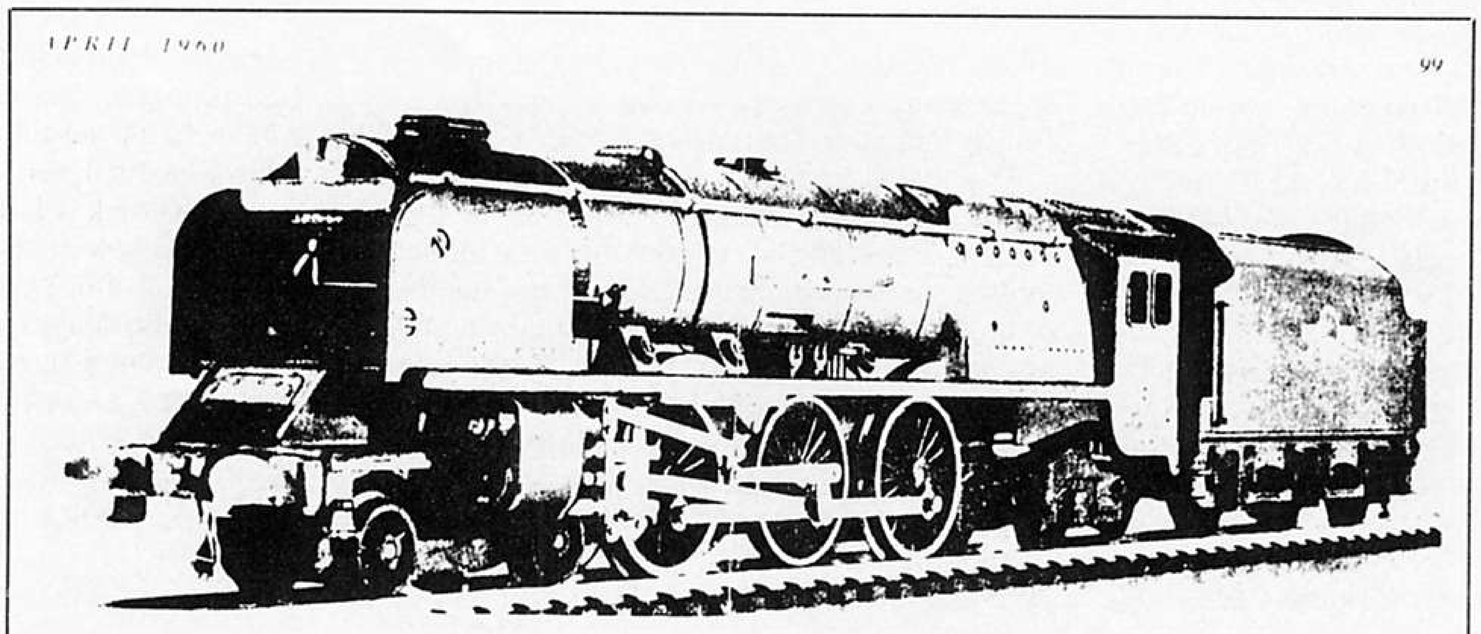
At the time of the introduction of 2-rail, Meccano stated that they would continue with 3-rail manufacture which for a short time they did, but relatively low sales just made it uneconomical and in September 1964 Messrs Beatties were advertising that they had literally bought the complete 3-rail stock of locomotives.

1964 regrettably saw the end of the Meccano Company as it then was, the result of having found the market changed for its three main product ranges. Triang model railways and to a certain extent, Playcraft sold through Woolworths, creamed the younger enthusiast sales, while on the other end of the scale greater variety was required amongst the locomotives and the rapid rise of the white metal kit manufacturers must have had some effect. Indeed, before the War it was possible to buy the Hornby Dublo chassis separately, although to my knowledge never advertised as such, but after the War this was cancelled as a matter of policy and only complete models were sold.

In the early 60's the choice from both Meccano and other manufacturers was too wide and so literally everything had to be sold and all the chassis' were available separately. Lego plastic building kits also took a lot of the younger Meccano constructors interest, particularly as this, from my memory, was the time of the lead paint scare on models and the danger of metal toys, etc,—strange, when one considers people had been using it perfectly safely for 60 years or more and generations of our engineers had their interest aroused with Meccano and I am glad to see it is coming back so strongly. The other main product range—Dinky Toys—were having to cope with the arrival of Corgi models—'the ones with the windows' as they were originally advertised—as well as diecasts from Lesney.

The Hornby Dublo models are now purely for collectors and those steam railway enthusiasts who want a three dimensional reminder of the glories of an era which, rightly, will not fade and die. Hornby Dublo models are no more, but their products are still available, manufactured as Wrenn Railways by George and Cedric Wrenn. We live in rapidly changing times and the technological acceleration is almost frightening. It's only understandable that methods, techniques, etc developed over these last few years should lead to improvements which can be incorporated constantly in the models. So well were the Hornby Dublo models constructed that with proper maintenance and care there is no reason why they should not only last your lifetime but also your children's lifetime and serve as a reminder of the models that pioneered today's superb railway products.

How Railway Modeller readers heard about the introduction of the 2-rail system.



HORNBY-DUBLO DEVELOPMENTS

AS readers will know, the extensive programme announced last year by Meccano Ltd. was only completed in the early months of this year, and the last two new two-rail locomotives did not appear for review purposes until February.

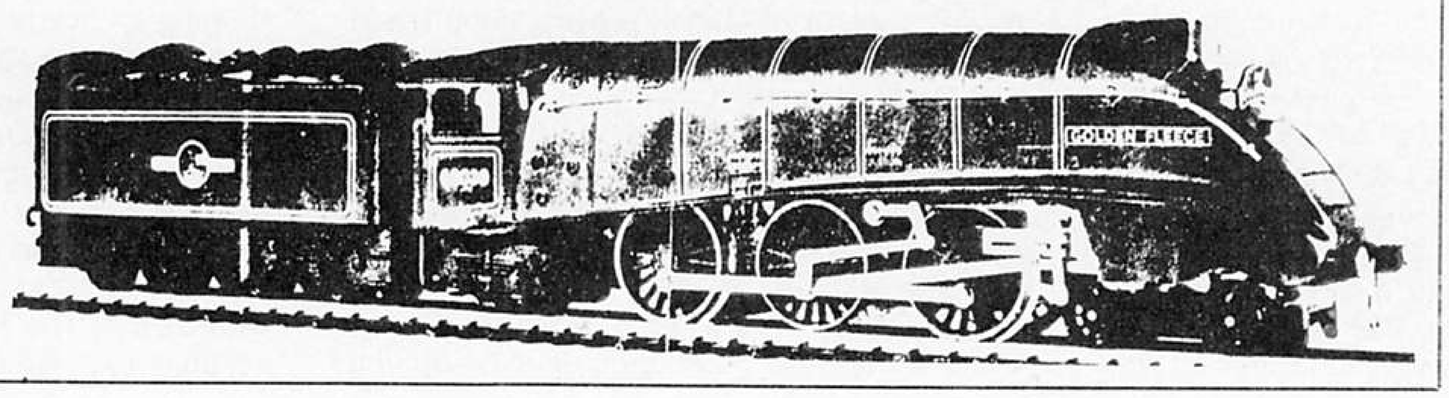
Of these the "Golden Fleece" is our old friend the ex-L.N.E.R. A4 with another name and number, but the "City of London" is a new model with a redesigned chassis, modified body and plastic-bodied tender on a diecast underframe. There is a great deal more detail than on the previous Pacific. The safety valves are fitted in the improved roof, finer handrails are fitted, and to cap it all there is an L.M.S. maker's plate on the tender. The chassis is fitted with the original large-diameter armature and it does appear that Meccano Ltd. are keeping this motor in their original locos as standard an excellent thing for those lucky few whose layouts are large enough to accommodate the long trains a Hornby-Dublo Pacific can tackle. There is, moreover, ample space for extra weight in the body should the enthusiast wish to increase the adhesion, though, as with the three-rail Pacifics, there is plenty of power for all normal requirements. The top armature bearing is now of the oil-retaining pattern on the "City"; the A4 remains as before.

Further news concerning the 1960-1 programme is to hand, perhaps the most interesting of which is that the old favourite ex-L.N.E.R. N2 0-6-2 tank is to be available in two-rail. We can also now reveal that the Lacdle mentioned last month is to be the S.R. rebuilt West Country class, one of the most powerful and attractive of modern designs, extensively used on all classes of trains on the Southern Region. A new ring field motor is to be fitted to the "Castle" and 2-8-0 as well as to the new Co-Co and 0-6-0 diesels, which it is claimed will give a high torque at all speeds with freedom from magnetic locking. It will have improved brushgear, giving longer life, and oil-retaining armature bearings. It will also incorporate a very rigid construction providing proper shrouding of all vital parts, thus preventing any ingress of dust, fluff, etc., perhaps the most common cause of poor performance in model locomotives.

In the rolling-stock field the most interesting features are the new coaches. In addition to the corridor brake 2nd mentioned last month there will be corridor compos, a passenger brake van and a compo sleeping car, all with metal sides, moulded ends, underframe details and roof overlay. There will also be a range of three all-plastic Pullman cars: a brake 2nd, an all-2nd and a kitchen 1st. Except for the obvious cases of the van and sleeping car all are to have full interior fittings. In the S.D. range there will be a four-wheeled S.R. utility van, a most valuable addition to one's stock, particularly where platforms are restricted and space does not permit a bogie luggage van. Another useful addition will be the six-wheeled United Dairies milk tank, the first ready-to-run milk tanker with the right number of wheels. The Lowmac machinery truck, Blue Spot express fish van and I.C.I. caustic liquor bogie wagon are also to be included, the last four being scheduled for 1961 deliveries.

The most interesting feature of the new stock is the fact that we now have three interesting potential trains, a parcels train comprising the passenger brake and four-wheeled utilities, a milk train (possibly headed by a rebuilt West Country) and an east coast express fish headed by the A4.

On the accessory side 1961 will see the introduction of a large terminal or through station kit with an overall roof spanning three tracks, while the two-rail track system is to incorporate a very large number of different pattern isolating rails and a power supply kit. All this adds up to a very interesting programme indeed from Meccano



PROTOTYPES

Bernard Dunkley

ANOTHER BIG ONE

FOLLOWING the description of a giant excavator in the preceding Prototypes article, the subject this time is a massive crane, another claimant for the description 'biggest in the world', and, surprisingly, from the same stable as the DEMAG excavator.

MAMMOTH AFLOAT

In the preceding article in this series, I described the biggest hydraulic excavator in the world, even though, in these days of rapid technological development it is very dangerous to claim such a superlative because there is always a design team somewhere trying to go one better than any existing example of engineering achievement.

The 'biggest in the world' claimant this time is the self-propelled floating crane YD-171 which the U.S. Department of the Navy has in operation at the Long Beach Naval Shipyard.

Fig. 1.



FLOATING CRANE YD-171

The photograph (fig. 1) shows how the YD-171 dwarfs all its surroundings and the paraphernalia of the Long Beach shipyard.

The crane has not been at Long Beach for all of its eventful life. In fact it was built in 1941, during the Second World War, in Germany, by the same firm that more recently built the big hydraulic excavator described in the preceding 'Prototypes' article—DEMAG AG.

Four cranes of this type were built. One was destroyed at Hamburg. YD-171 was used by the German Navy in Germany and occupied Denmark. It was frequently bombed, and at the end of the war it was captured with the other two similar cranes by the allied forces. One of the three cranes was assigned to each of the three allies, Britain, the USA and Russia. The Russian crane was transported overland to an undisclosed destination behind the iron curtain, the British crane regrettably capsized and sank in a storm while in transit across the English Channel, and the YD-171, the crane allocated to the USA, was dismantled and taken to America at considerable expense. The boom, counterbalance and other superstructure were stowed aboard US ships, and the huge pontoon was towed across the Atlantic Ocean and through the Panama Canal, the whole operation taking three months.

The crane became operational at Long Beach in December 1948 after reassembly and extensive tests.

CRANE OPERATION

The YD-171 can obviously be modelled at various degrees of complexity, but all modellers will wish to incorporate the proper jib and boom movements. Fig. 2 shows quite clearly the geometry and movements of the crane. The two main hoists are level-luffing.

The three-storey machinery house mounted on the back of the main frame carries 400 tonnes of balance weights in its lower section. There is also a 200 tonne counterweight at the butt of the boom.

The driver's cab, just visible in fig. 1, is located just below the main boom pin for maximum visibility. Quarters for the crane's crew of 13, including galley and mess rooms, are contained in the pontoon.

FACTS AND FIGURES

Apart from the balance weights mentioned above, the pontoon contains 750 tonnes of quartz as after ballast. The crane is propelled by three Voith Schneider constant-speed 540 kw a.c. electric motors driving vertically mounted variable-pitch propellers. One unit is located in the middle of the bow and two units in the stern. The crane cruises at about five knots.

Power for the propulsion units comes from three diesel-driven generators. General Electric (GE) diesel engines were installed in place of the original German units in 1969. An auxiliary diesel-driven generator supplies power for lighting, heating and auxiliary machinery.

The slewing rate is one revolution in ten minutes. The main hoists can lift about 390 tonnes, and the crane has such an exceptional

radius of operation that it can lift 350 tonnes at a radius of 114 feet from the centre of rotation and 40 tonnes at a radius of 210 feet.

So there you are! Again we have a massive piece of machinery to contemplate as inspiration for an hour or two of happy modelling. There is some intricate girder work in the boom and jib for those who go way beyond set 10 dimensions. In fact this looks like a prototype absolutely made for Meccano modelling and offering quite a challenge to one and all.

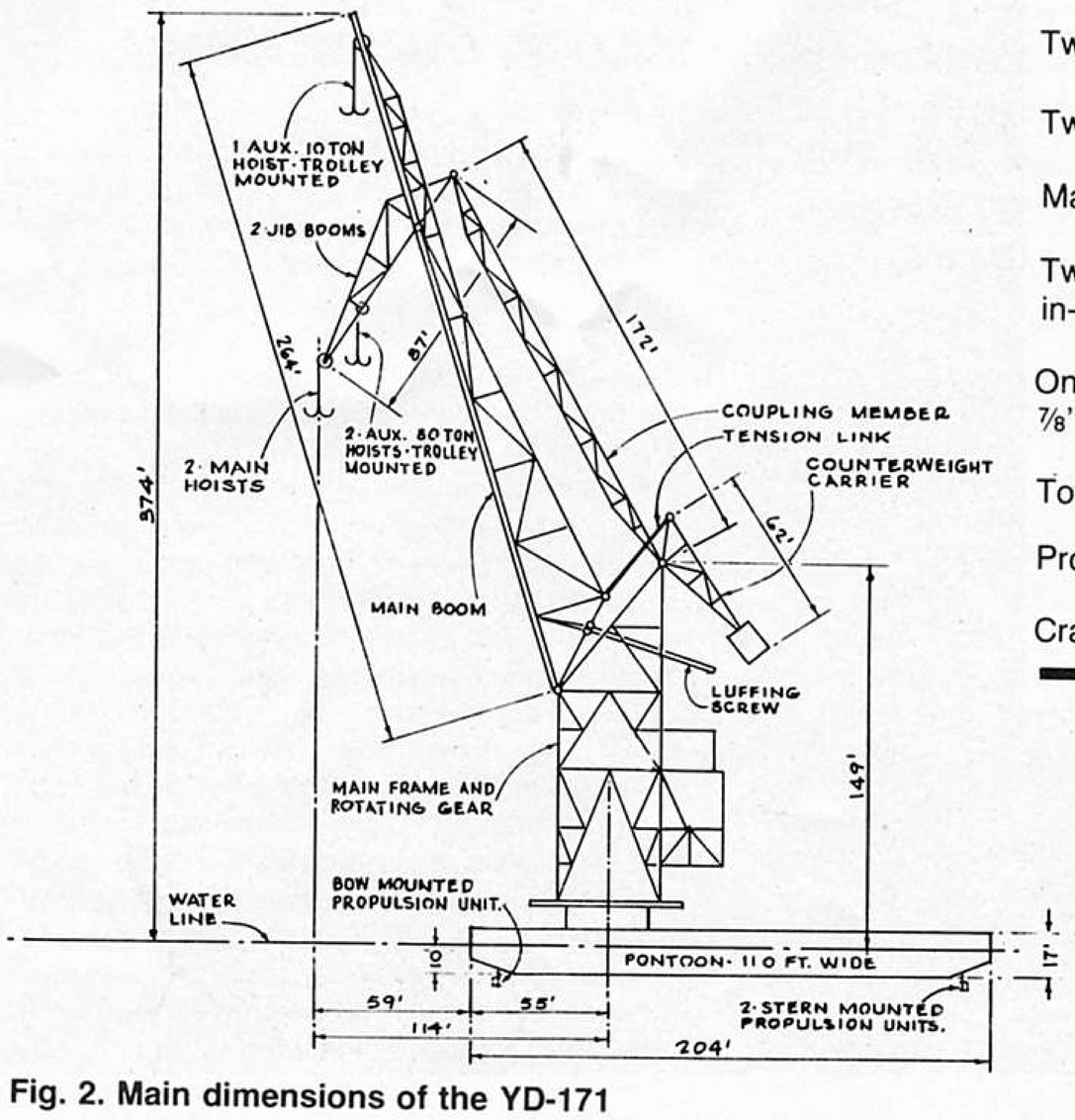


Fig. 2. Main dimensions of the YD-171

TECHNICAL DATA YD-171

Three diesel engines, each 750 rpm 1200 hp, fuel 210 gal. per hour at 100% load, fuel tank capacity 10,000 gal.

Three main generators (air cooled) each 1062 kva, 850 volts, 50 cycle AC.

Auxiliary diesel generator (312 KVA).

Two auxiliary air compressors for main engine starting power.

Two main hoists, 193 ton capacity each, with 2800' of 1⅞" wire.

Main drums 10' diameter, length 13'.

Two auxiliary hoists, 33-ton capacity each with 1558' of 1¼" wire. Each trolley in-haul 395' of 1⅜", out-haul 455' of 1".

One auxiliary hoist, 11-ton capacity, with 1170' of 1" wire, trolley in-haul 395' of ⅞" wire, out-haul 690' of ⅞" wire.

Total wire rope used, 11,681' over 2.2 miles.

Propulsion units can operate with two main engines.

Crane operation can be performed with one main engine in operation.

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200	197	220	153.5ft	98.5ft
100	98	110	193ft	138ft
50	49	55	212ft	157ft

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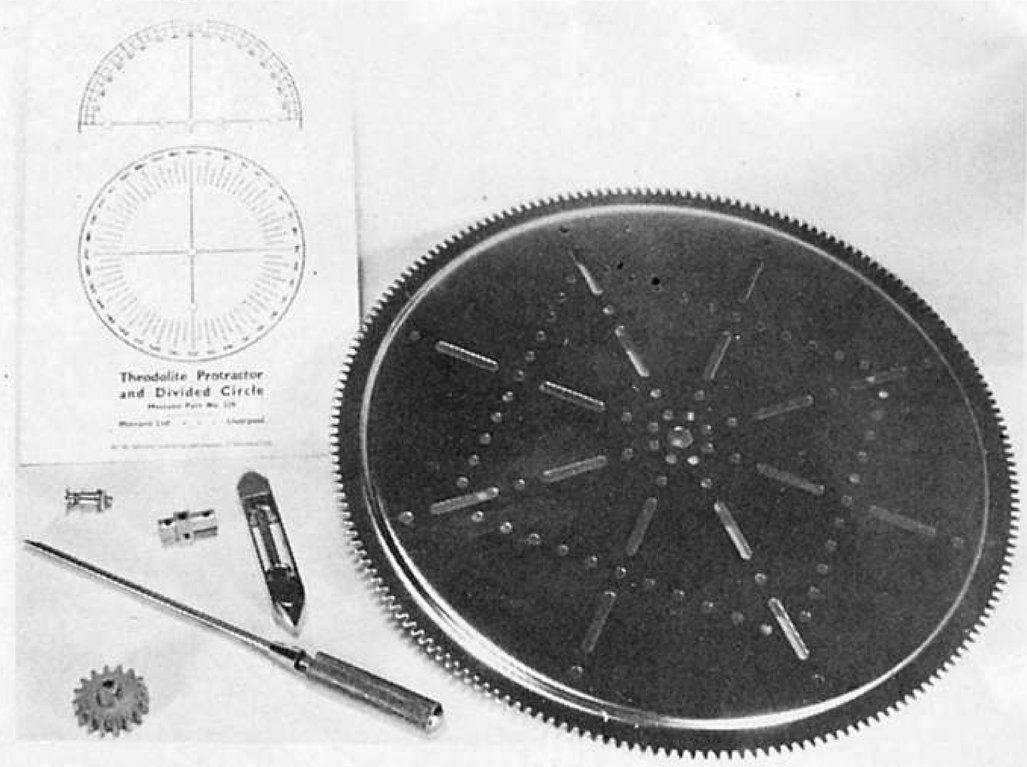
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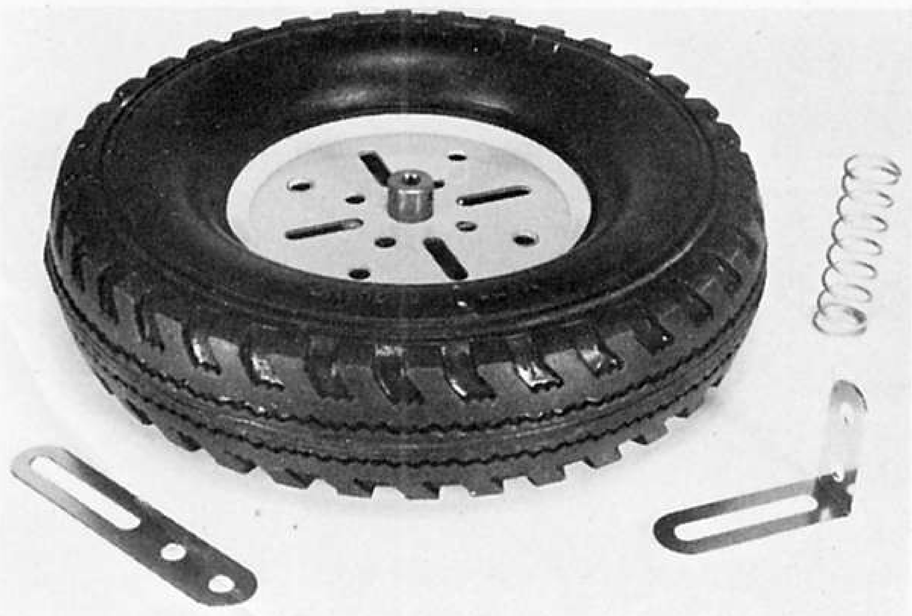
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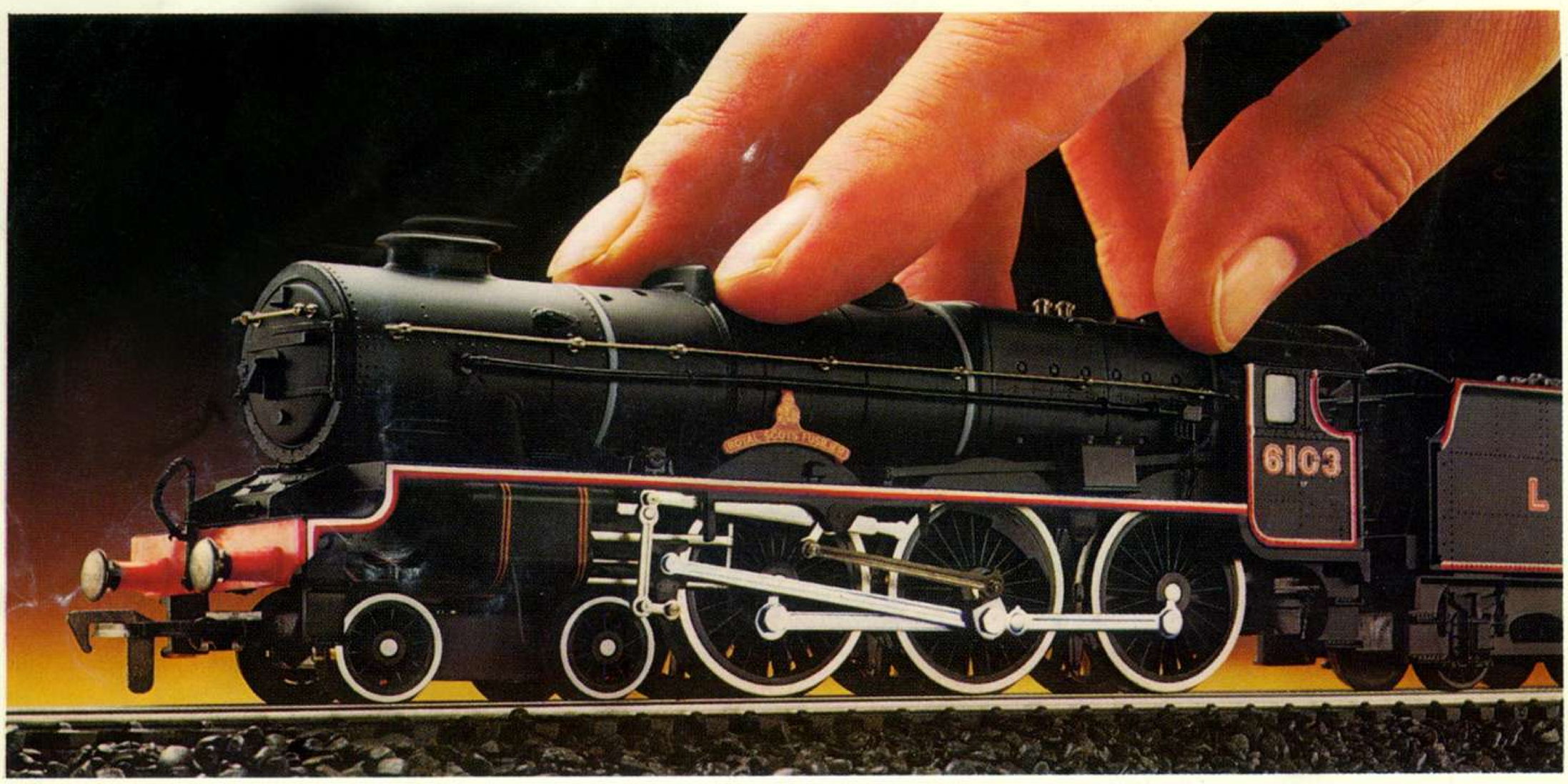
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WHY GO TO ALL THAT DETAIL?

It wasn't simply because we are Airfix and we've always believed our models should look like the real thing.

We had also unearthed some interesting facts: The first was that model trains are the country's fastest-growing hobby amongst children and adults.

From ordinary folk to Bishops and Dukes, people are giving in to that suppressed urge to run a railway.

They have been pleading — or in some cases, praying — for far more authentic models than they had been offered in the past.

Some had even taken to modelling Continental Railways because they believed that European models were superior to British. Bad show that.

The second was that modern children demand detail and accuracy to a degree that may surprise you.

And, thirdly, train sets are bought by fathers, and fathers told us that they expected to get as much fun out of them as their sons.

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THE LMS ROYAL SCOT SET— EUSTON-GLASGOW CIRCA 1945

The Royal Scot set is typical of GMR. It is as close to the real thing as we can get it.

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Coupled together, it's a stunningly accurate model of the 'Royal Scot' as she pounded up from Euston to Glasgow around 1945.

GMR SETS — EVERYTHING BUT THE PLUG

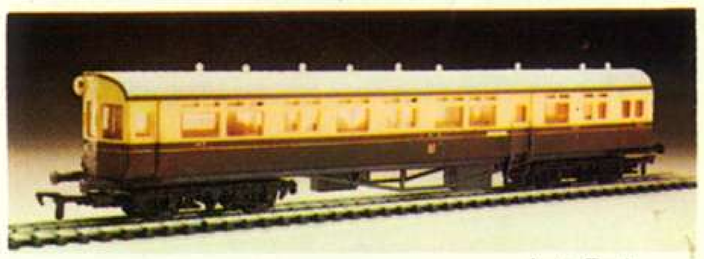
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