THE MODEL WORLD AT YOUR FINGERTIPS

MECCANO MAGAZINE

THE MODEL WORLD AT YOUR FINGERTIPS

PENELOPE'S FAB·1 DINKY

TABLE·TOP BATTLES

MECCANO ROBOT 'TEMPEST' PLANS

FEBRUARY 1967 TWO SHILLINGS

AVIATION PLASTIC MODELLING AEROMODELLING BOATS RAILWAYS RACEWAYS SCIENCE CYCLING PUZZLES COMPETITIONS

DISCOVER YOUR WORLD

Fascinating experiments that are fun to do at home

DISCOVER THE SECRETS OF THE WORLD AROUND YOU

The world is full of mysteries: you have the sort of enquiring mind that wants to find out about them. Now you can. New Experimenter Fun Sets bring you a wealth of experiments at 4/11d a set. There are 10 Experimenter Fun Sets for you to collect. Whether you want to be a detective, learn about plants, find out about temperatures, crystals, mirrors—there's a set for you complete with all the apparatus and everything you need—all for 4/11d.

TAKE A CLOSER LOOK AT THESE EXPERIMENTER FUN SETS

GET THIS SUPER LOOSE LEAF BINDER

for your growing collection of Experimenter Cards.

HERE'S THE FULL LIST OF THE FIRST TEN EXPERIMENTER

FUN SETS!

HEAT SLEUTH	MAGNET FUN
DETECTIVE	OPTICAL FUN
CRYSTAL FUN	PHOTO FUN
MIRROR MAGIC	SEED MAGIC
ELECTRO MAGIC	CHEMICAL MAGIC

LOOKING FOR MORE SCOPE?

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IT'S CHEAPER BY PLAYCRAFT RAIL

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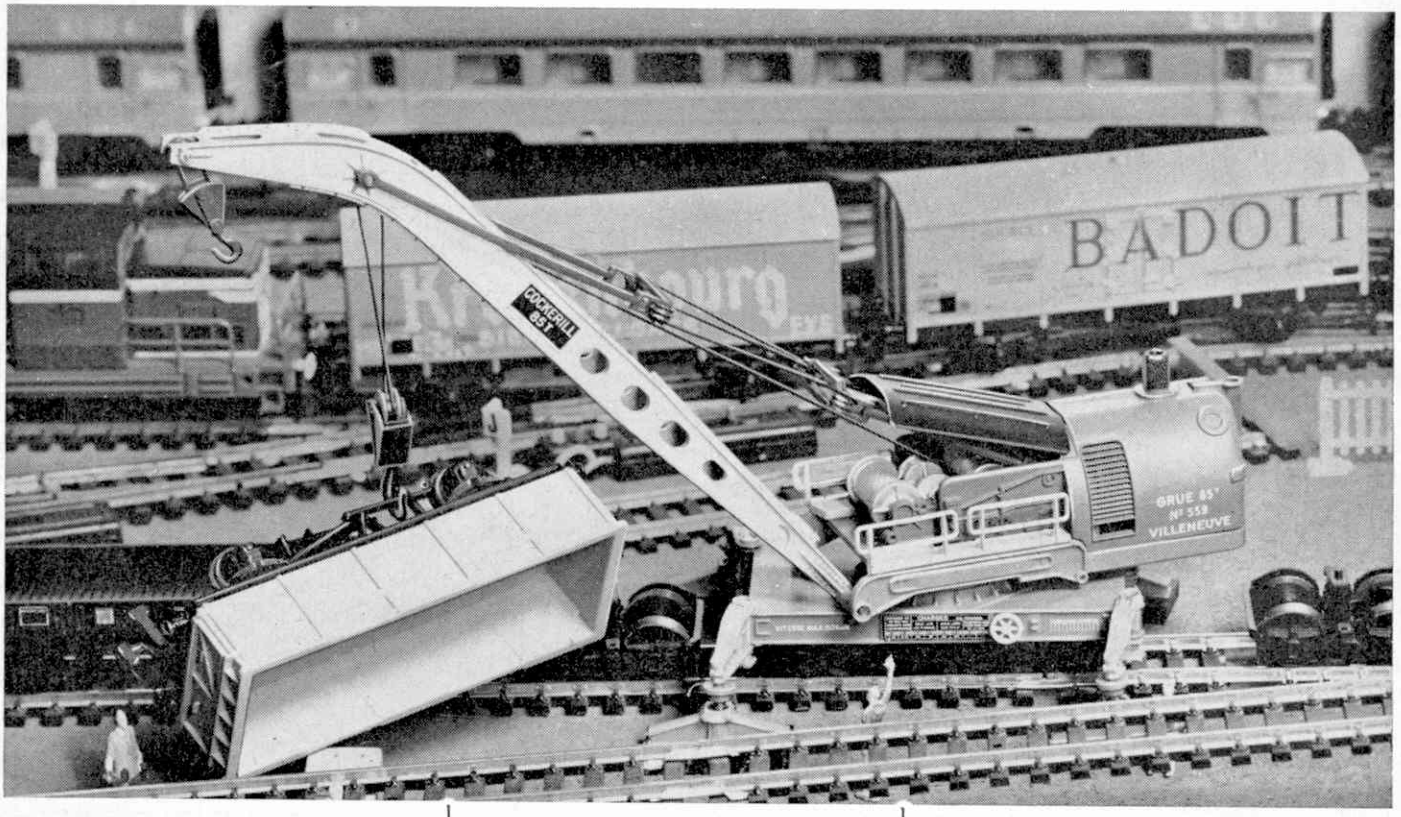
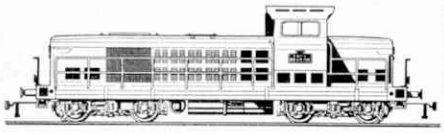
Build that big layout for a small outlay — today.



P.853.



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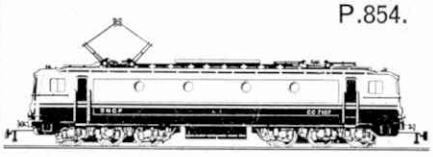
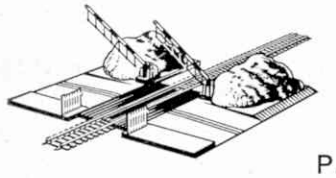




P.676.

P.335.

P.853. S.N.C.F. B.B. 66150 Diesel Loco, (8-wheel drive). Price 66/-

P.854. S.N.C.F. C.C. 7107 Electric Loco, (8-wheel drive). Price 70/-

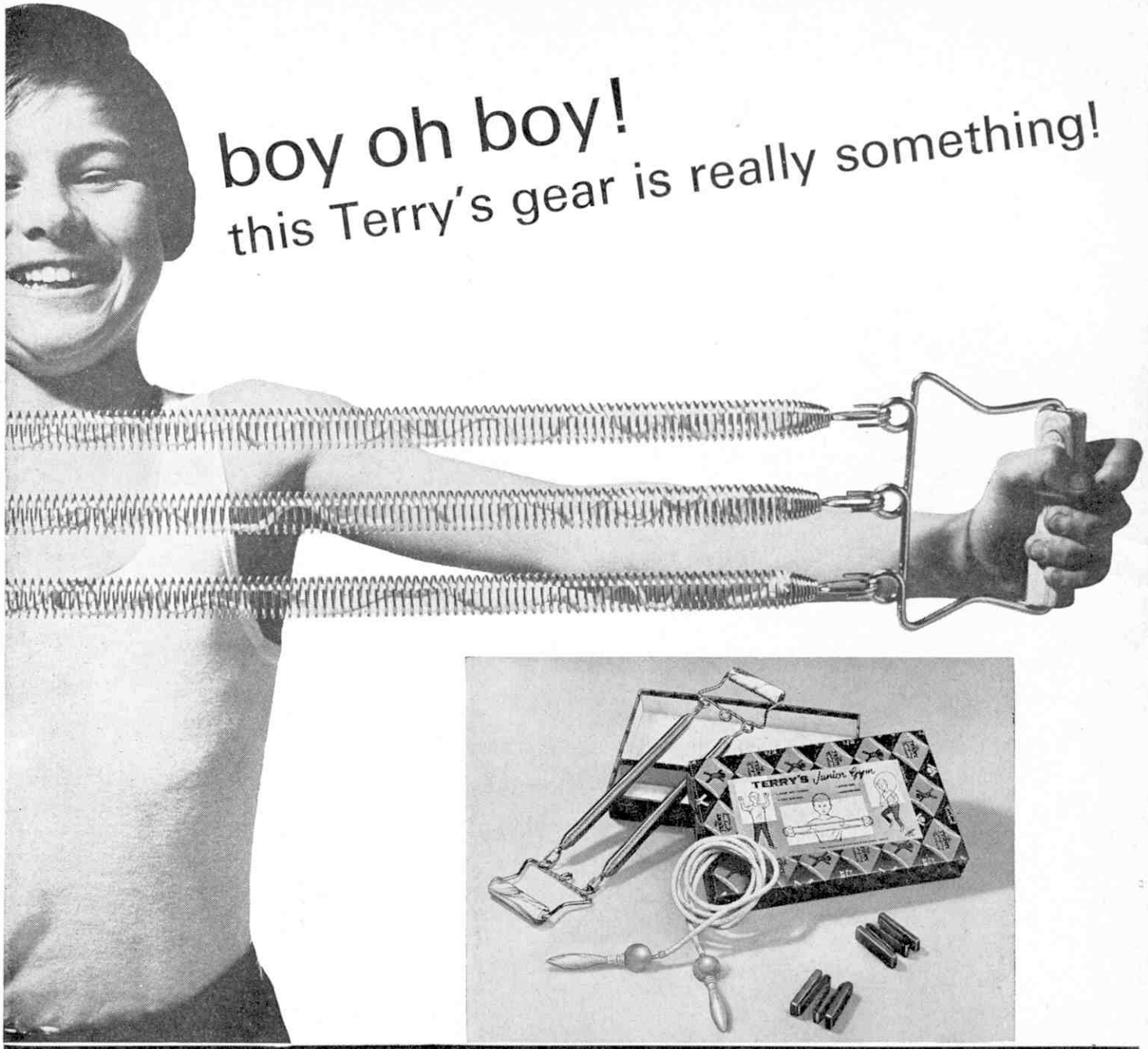
P.676. Power Operated Level Crossing. Price 27/10d.

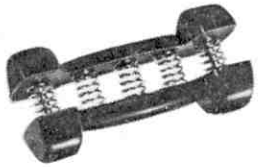
P.335. B.R. Restaurant/ Kitchen Car. Price 8/7d.

THE ONLY TRAINS WORTH CATCHING

Playcraft RAILWAYS

boy oh boy!
this Terry's gear is really something!

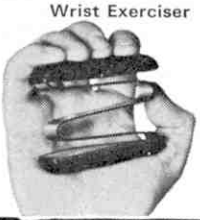




Dumb-bells

Five-in-one Combination

Wrist Exerciser



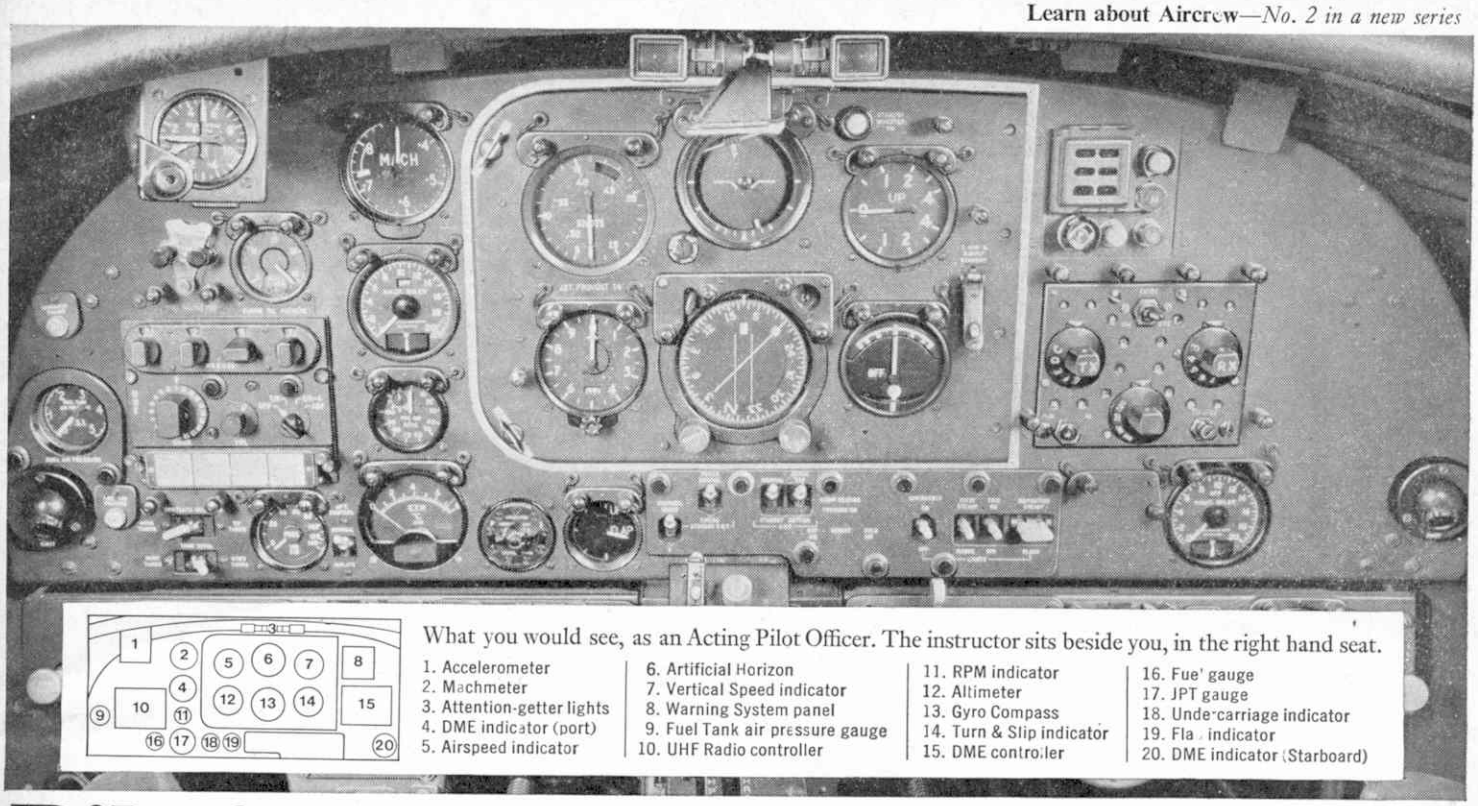
Pocket Grip

Everything springs from TERRY'S

HERBERT TERRY & SONS LIMITED · REDDITCH · WORCS

You can say that again! Really fine equipment, Terry's, every bit of it. All made to keep you fighting fit and healthy. Everything here to build up your muscles, strengthen your body. Exercise the Terry way and you do yourself a lot of good. And have fun doing it! Your sports shop is the place to go and see all this super equipment. (And take Dad with you!)

Steelstrand Exerciser (452.003) from **25/11**
Junior Home Gym (452.117) **35/4**
Dumb-bells (452.094) from **15/11**
Five-in-one Combination (452.076) from **43/-**
Wrist Exerciser (452.700) **3/-**
Pocket Grip (452.703) **6/6**



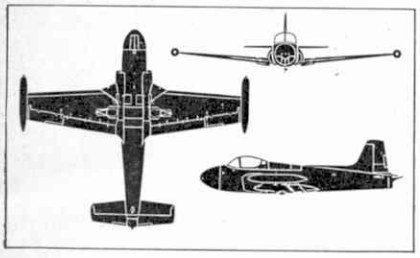
What you would see, as an Acting Pilot Officer. The instructor sits beside you, in the right hand seat.

1. Accelerometer
2. Machmeter
3. Attention-getter lights
4. DME indicator (port)
5. Airspeed indicator
6. Artificial Horizon
7. Vertical Speed indicator
8. Warning System panel
9. Fuel Tank air pressure gauge
10. UHF Radio controller
11. RPM indicator
12. Altimeter
13. Gyro Compass
14. Turn & Slip indicator
15. DME controller
16. Fue' gauge
17. JPT gauge
18. Unde carriage indicator
19. Fla indicator
20. DME indicator (Starboard)

Pilot's-eye-view of the Jet Provost

—*basic jet trainer of the Royal Air Force*

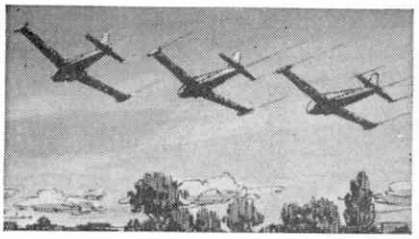
The first jet aircraft you fly in your R.A.F. pilot training is the Jet Provost 3. You fly the regulation 'circuits and bumps' and do some aeroba-



tics . . . and then go on to the more powerful Jet Provost T4, illustrated above, for instrument flying, night flying and formation flying. The T4. version is powered by a Bristol Siddeley Viper turbojet engine with a thrust of 2,500 lb, and it has a maximum speed of Mach .73. Altogether, you spend 45 weeks with Jet Provosts. At the end of that time, you are awarded your 'wings'.

Then you are ready to specialise: the Gnat advanced jet trainer for the man who is going on to fighters or bombers; for the Transport or Coastal man, the Varsity; and for the helicopter pilot—helicopters!

This could be your future. If you are interested in aeroplanes and flying and an adventurous life, you ought to consider a career in the Royal Air Force. The form is



that you will need five 'O' levels including English language and mathematics to enter the R.A.F. at 17½, but you can take a test at 16 to see whether you are likely to be accepted. Even if you are younger than 16, don't hesitate to send in the coupon for your free copy of *Aircrew*, giving all the facts.

To Group Captain
M. A. D'Arcy, R.A.F.,
Adastral House
(703JA1), London, WC1.
Please send me your free booklet Aircrew.

NAME .....

ADDRESS .....

.....

..... DATE OF BIRTH .....

The Royal Air Force

BOOKLIST OF CURRENT AND FORTHCOMING BOUND RAILWAY BOOKS

** Denotes a future title the price of which has not yet been determined.*

AUTHOR	TITLE	PRICE
Ackworth, W. M.	RAILWAYS OF ENGLAND	50/–
Ahrons, L.	BRITISH STEAM LOCOMOTIVES, Vol I 1825–1925	63/–
	BRITISH STEAM LOCOMOTIVES, Vol 2 1925–65 (by O. S. Nock)	75/–
Allen, Cecil J.	LONDON & NORTH EASTERN RAILWAY	50/–
	NORTH EASTERN RAILWAY	42/–
	TWO MILLION MILES OF TRAIN TRAVEL	42/–
Allen, G. Freeman	BRITISH RAIL AFTER BEECHING	63/–
Blower, A.	BRITISH RAILWAY TUNNELS	18/6
Casserley, H. C.	BRITISH RAILWAY LOCOMOTIVE NAMES OF THE 20th CENTURY	30/–
Casserley, H. C. & Johnston, S. W.	LOCOMOTIVES AT THE GROUPING	
	Part I Southern Railway	21/–
	Part II LNER	25/–
	Part III LMS	42/–
	Part IV Great Western Railway	*
Cooper, B. K.	ELECTRIC RAILWAYS	10/6
Cox, E. S.	BR STANDARD STEAM LOCOMOTIVES	42/–
	LOCOMOTIVE PANORAMA, Vol I	35/–
	LOCOMOTIVE PANORAMA, Vol II	35/–
Dendy Marshall, C. F. & Kidner, R. W.	HISTORY OF THE SOUTHERN RAILWAY Vol I	42/–
	Vol II	42/–
Denton, J. H.	BRITISH RAILWAY STATIONS	15/–
Dow, George	GREAT CENTRAL, Vol I 1813–1863	50/–
	GREAT CENTRAL, Vol II 1864–1899	63/–
	GREAT CENTRAL, Vol III 1900–1922	75/–
Dorman, C. C.	NORTH WESTERN ALBUM	30/–
	LMS ALBUM	*
Dunn, J. M.	REFLECTIONS ON A RAILWAY CAREER	25/–
Ellis, C. Hamilton	BRITISH TRAINS OF YESTERYEAR	30/–
	HISTORY OF THE LONDON MIDLAND SCOTTISH	*
	MIDLAND RAILWAY (Paperback)	10/6
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Gifford, C. T.	DECLINE OF STEAM	63/–
	STEAM 259	*
Holcroft, H.	LOCOMOTIVE ADVENTURE, Part I	35/–
	LOCOMOTIVE ADVENTURE, Part II	45/–
Howson, F. H.	LONDON'S UNDERGROUND	21/–
	WORLD'S UNDERGROUND RAILWAYS	25/–
Kichenside, G. M.	RAILWAY CARRIAGE ALBUM	50/–
Kichenside, G. M. & Williams, A. R.	BRITISH RAILWAY SIGNALLING	7/6
MacDermot, E. T. & Clinker, C. R.	HISTORY OF THE GREAT WESTERN RAILWAY	
	Vol I	63/–
	Vol II	55/–
Moody, G. T.	SOUTHERN ELECTRIC (4th Edition, including Bournemouth)	*
Nock, O. S.	BRITAIN'S NEW RAILWAY	35/–
	BRITISH STEAM LOCOMOTIVE 1925–1965	75/–
	CALEDONIAN RAILWAY	30/–
	FIFTY YEARS OF RAILWAY SIGNALLING	30/–
	GREAT WESTERN RAILWAY IN THE 19th CENTURY	30/–
	GREAT WESTERN RAILWAY IN THE 20th CENTURY	37/6
Nock, O. S.	HIGHLAND RAILWAY	35/–
	HISTORIC RAILWAY DISASTERS	42/–
	LONDON & SOUTH WESTERN RAILWAY	35/–
	SOUTH EASTERN & CHATHAM RAILWAY	30/–
	THE GREAT NORTHERN RAILWAY	35/–
Riley, R. C.	GREAT WESTERN ALBUM	30/–
"Rivington"	MY LIFE WITH LOCOMOTIVES	30/–
Ransome-Wallis, P.	LAST STEAM LOCOMOTIVES OF BRITISH RAILWAYS	55/–
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	HISTORIC WAGON DRAWINGS IN 4 mm SCALE	21/–
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Joyce, J.	MODERN TRAMWAY REVIEW	15/–
	TRAMWAYS OF THE WORLD	30/–
Pritchard, A.	HISTORY OF THE BUS & COACH	*
General		
Farquhar, W. G.	ENJOY EUROPE BY RAIL	25/–
Firth, Gay	ANTIQUES ANONYMOUS	12/6
Kaye, David & Tomalin, D. J.	ARCHAEOLOGY FOR THE AMATEUR	12/6
Mills, W.	DOWN THE GRID	12/6
	GOING, GOING, ALMOST GONE	12/6

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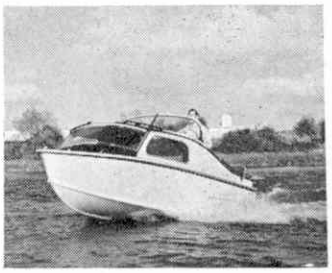


On the cover: The high performance Dolphin 16 Day Boat, built by Brooklands Aviation Ltd. at Northampton, uses outboard power up to 70 h.p.—top speed 27 knots. Photo: Brooklands Aviation Ltd., Marine Division.

Here are the names and addresses of the 230 lucky U.K. winners of the special Dinky Toy Competition that appeared in our December issue. If your name is on the list, be sure to write to us claiming *your* Dinky Zodiac! Names of overseas winners will appear in the March issue of M.M.

C G Abraham Cameron Road Bromley Kent. A Allen Stirling Avenue Leigh-on-Sea Essex. T M Allsop York Road Bridlington Yorks. M J Ashton Palmer Street Blackburn Lancs. D Ashworth Holland Street Liverpool 7. S Atwell Bassaleg Road Newport Mon. M Axford Chaucer Road Ashford Middlesex. C Baker Cold Blow Crescent Bexley Kent. G Baker Bush Road Norwich Norfolk NOR 36M. A Bassindale Kildare Crescent Rochdale Lancs. T Beales Edward Street Hebden Bridge Yorks. S Beaven London Road Kelvedon Essex. G Beavis Spearman Street Woolwich SE18. A Bell Rosebery Street Aberdeen Scotland. M W J Bennett Lower Wokingham Road Crowthorne Berkshire. P S Berry Walsham-le-Willows Bury St Edmunds Suffolk. D Bertioli Chislehurst Road Bickley Kent. C Berzolla Cresford Road Fulham London SW6. M D Betts Tetley Road Birmingham 11. K Booker Hill Top Close Loughton Essex. T P Bower Ellenbridge Way Sanderstead Surrey CR2-0EU. J Bower Cherry Way Upper Halliford Road Shepperton Middlesex. R Bradford Corse Staunton Glos. J C Brookes Belle Vue Road Quarry Bank Brierley Hill Staffs. I Broomhead Walton Back Lane Somersall Chesterfield. G Brown Police Station Dunblane Perthshire. J Brown Dorset Road Bridgwater Somerset. L Buck Henry Street Seaham Co Durham. R Buckmaster Dorset Avenue Welling Kent. B J Burgess Sapley Lane Overton Hants. C Butcher Shieldhill Falkirk Stirlingshire. M Butler Parkside Wimbledon London SW19. G Calvert High Street Foulsham E Dereham Norfolk. P G Carrick Oberon Drive Shirley Solihull Warwicks. T Chandler Kenton Lane Harrow Weald Harrow Middx. M Chester Foxt Stoke-on-Trent. D Clowes Washbrook Nr Ipswich Suffolk. N Coleman Windmill Road Polegate Sussex. M R Collinson Shenden Way Sevenoaks Kent. J P Cooke Almond Way Downend Nr Bristol. P Corley Woodberry Down Epping Essex. P Covington Cotswold Crescent Chelmsford Essex. K Cowley Brackyn Road Cambridge. A C Craddock Woodhouse Lane Bishop Auckland Co Durham. A Crofts Clarion Way Chadsmoor Cannock Staffs. P Dales Morecambe Road Higher Croft Blackburn Lancs. P Danaher Hall Mead Letchworth. N C Dando Roundhill Radstock Bath Somerset. A Denman Dominion Road Fishponds Bristol. M Dannatt Budby Crescent Welbeck Colly Village Mansfield Notts. K Darby Eastbourne Road Brighton 7 Sussex. G Davidson Cubert Road Croxteth Liverpool 11. J Davidson Pysart Fife Scotland. A N Davies Coxheath Maidstone Kent. B Davies Bowling Green Lane Cirencester Glos. J A Davies Willingham Close Leighton Road Kentish Town London NW5. R W Deakin Grindley Lane Blythe Bridge Stoke-on-Trent Staffs. T Digby Southville Close Feltham Middlesex. S Diplock Ashleigh Road Horsham Sussex. P Dore Rothbury Road Wymondham Norfolk. G Dormand Doncaster Gardens Northolt Middx. S J Draper Bridge Road Grays Essex. A K Driver Fairfax Avenue Hull Yorkshire. T J Dromgoole Sandy Lane Chester Cheshire. M Duncan King Edward Close Rainhill. P Dutton Cleaver Street Burnley Lancs. D S Eastwood Gipsy Lane Kettering Northants. A Edmondson Ennismore Street Burnley Lancs. K Ellis Mandale Road Bradford 6 Yorks. R Emery Vicarage Drive East Sheen London SW14. R Eumorfopoulds Tinsley Lane Three Bridges Sussex. S Farrer Priory Grove Ditton Kent. M A Fidler Bluebell Road Norwich NOR 66F. M Fitchett Margreave Road Chaddesden Derby. K Fitzgerald London Road Westerham Kent. B Foster Kingscote East Grinstead Sussex. D P Fox Bridle Road Shirley Croydon Surrey. S Fox Churchward Avenue Swindon Wilts. G Franklin Keal Avenue Glasgow W5. M Freeman Brandreth Avenue Dunstable Beds. P Freudlich Harsley Road Hartburn Stockton Co Durham. P Gardiner Bevin Road Hayes Middlesex. D Gaskell Birch Road Muyton Lancs. P D Gatty Jean Crescent Eltham London SE9. J P Gee Fourth Avenue Bridlington Yorks. T Gill Rawcliffe Grove Boothferry Road Hull Yorks. B Gillott Garnors Byford Herefordshire. G Goodman Deenis Estate Kirton Nr Boston Lincs. C R Green Widford Chelmsford Essex. P S Green Richmond Road Lincoln. P W Gribble Ruskin Road Carshalton Surrey. P Grimsdale Knole Lane Ecclesall Sheffield 11. W R Grisenthwaite Walton-Breck Road Anfield Liverpool 4. P S Gummow Northfield Drive Parkview Truro Cornwall. G Haffenden Withpitts Turners Hill Crawley Sussex. M W Halsall Harby Melton Mowbray Leics. M Hammond Everest Road Eltham London SE9. R Hammond College Road Harrow Weald Harrow Middx. D Hampshire Tinshill Thong Lane Netherthong Huddersfield. B Harbour Harley Walk Swinnow Leeds 13. R Hardy Alicia Gardens Kenton Harrow Middlesex. S Hardyman Ray Drive Maidenhead Berks. J Harkett Spearman Street Woolwich SE18. R Harris Strathmore Road Wimbledon Park London SW19. N Harvey Kenmore Avenue Kenton Harrow Middlesex. D Hatcher Windson Road Barton-Le-Clay Beds. P Hawkes Rushdene Crescent Northold Middlesex. R Hawtree Chatsworth Road Hayes Middlesex. N Hayes Silverhill Drive Denton Newcastle-upon Tyne 5. R Heeley Staithe Road Wisbech Cambs. D Hewer Colne Drive Harold Hill Romford Essex. R Higginbottom High Street Bugbrooke Northampton. R Higgs Evans Lane Kidlington Oxford. A D Hilder Aintree Lane Liverpool 10. G Hitche Edinburgh Way Banbury Oxon. R D Holmes Castlefields Road Rastrick Brighouse Yorkshire. W J Hopper Goodwin House Egerton Ashford Kent. C Hosie Silverton Avenue Dumbarton. R Howard Rolleston Road Billesdon Leicester. J Hughes Manor Way Bagshot Surrey. D Inett Haslemere Avenue Milton Stoke-on-Trent Staffs. T J Irving Boston Avenue Benton Newcastle-upon-Tyne 7. B Jackson Fairway Crescent Portslade Brighton Sussex. N Jacques Peckover Drive Pudsey Yorks. B Jamieson Uddingston Lanarkshire Scotland. D Jennings Leechcroft Road Wallington Surrey. G Jones Baker Street Waddesdon Aylesbury Bucks. H Jones Cheswardine Market Drayton Shropshire. S P Jones Jellicoe Road Ryde Isle of Wight. R Jordan Canterbury Road Margate Kent. D Joyce High View Rise Crays Hill Billericay Essex. M Keeley Woodsmoor Lane Stockport Cheshire. A Kett Green Street Chorleywood Herts. B King Ramsden Street Barrow-in-Furness Lancs. J M Kirk Brookside Brightons Falkirk Scotland. J Lamb Yardley Wood Road Birmingham 14. S Lambert Matlock Road Chaddesden Derby. A Lawrence Oaklands Road Hanwell London W7. J Lee Langham Godalming Surrey. N Lee Underwood Road Silverdale Newcastle Staffs. C Leeks Southdown Road Tadley Basingstoke Hants. P Leverkus Nunsgate Thetford Norfolk. A Lindsay Minard Crescent Dundee Scotland. M Lisser William Road Hitchin Herts. P Loft Petten Grove Orpington Kent. T Macario The Paddock West Cross Swansea Glam. G MacDougall Festival Avenue Thurmaston Leicester. I Malin Clovelly Close Ickenham Middlesex. S Mann Littleworth Farm Nr Warwick. A Marston Church Close Hayes End Middlesex. A Matthews Shakespeare Road Ilford Bournemouth Hampshire. P McCutchion Hillsboro Road Bognor Regis Sussex. P McClean Ward Avenue Redding Falkirk Stirlingshire Scotland. P Miles Sherwood Avenue Parkstone Dorset. D Millar Marion Street Splott Cardiff S Wales. M Millar Haslemere Road Southsea Hants. B Minton Alexandra Road Kings Hill Wednesbury Staffs. J Mitchell Micheldever Road Lee London SE12. M Morgan Harold Road Hastings Sussex. S Morgan High Street Portbury Nr Bristol Somerset. M Morris Grove North Cray Sidcup Kent. J Murdock Chillingham Alnwick Northumberland. A Napier Park Drive Spratborough Doncaster Yorks. K Newman Bowness Road Catford London SE6. S Nicol Hammersmith Road Aberdeen. D F Nolan Corinthian Road Chandlers Ford Hants. A Norfold Harvey Road Colchester Essex. J H W Norton High Street New Romney Romney Marsh Kent. J Orpen-Palmer Camden Road Sutton Surrey. N Oxley Woodcock Hill Kenton Harrow Middx. A Padley Lebrun Square Carlton-in-Lindrick Nr Worksop Notts. G R Palfrey West End Road Haydock Nr St Helens Lancs. K Paramore Querdale Road Bayston Hill Shrewsbury Shrops. D Parry Arrowhead Wych Lane Adlington Macclesfield. J D Patrick Swindon Road Cheltenham Glos. D Patterson Glendale Road Park Lane Estate Shiremoor Northumberland B Pearson Russell Hill Purley Surrey. C Pearson Clinton Crescent Hainault Ilford Essex. C H Perry Burtons Way Chalfont St Giles Bucks. T Pooles Benham Hill Newbury Berks. K Proctor Council House Harby Nr Newark Notts. A Quinn Burnsall Road Canley Coventry. A Raby Newbold Avenue Chesterfield. K Raper Childwall Park Avenue Liverpool 16. C Ray Furze-Hill Crescent Crowthorne Berkshire. S J Record Burnham Rise Emmer Green Reading Berks. P Rhodes Dickson Road Lyneham Chippenham Wilts. J Richards Glan-yr-Afon Gardens Sketty Swansea Glam. P Rippengale Rushdean Road Strood Kent. T Roadnight Green Lane Hillingdon Middlesex. T Roche Florence Road Bray Co Wicklow Eire. P Rogers Wimpole Road Barton Cambridge. A Rutter Bampton Court Corby Northants. M Saunders Ann Street Plumstead London SE18. A Senator Cornec Chase Eastwood Leigh-on-Sea Essex. J Simpson Marketstead Estate Kirton Nr Boston Lincs. S Simpson London Road Kilmarnock Ayrshire. P Skelding Penn Road Wolverhampton Staffs. A Slater Alfreton Road Underwood Notts. A Smith Falcon Road West Norwich Norfolk. A Smith Rosslyn Avenue East Barnet Herts. A P Smith Burnt Ash Lane Bromley Kent. C Smith Crowhurst Drive Braunstone Leics. P Snelling Withpitts Turners Hill Crawley Sussex. A Steward Newnham Road Cambridge. D Styles Chelmsford Road Sherfield Brentwood Essex. D Satman Hill Park Road Torquay. I Taylor Boundary Close Thilurst Reading Berks. M Taylor Bollin Avenue Winsford Cheshire D. Telger The Fairways Leamington Spa Warks. W J Thewlis Russian Drive Liverpool 13. P Thomas Rectory Road Orsett Essex. G Thurston Mendip Road Bushey Herts. D Tibbals Brockhill Crescent Brockley London SE4. M Tickner Cripplegate Lane Southwater Horsham Sussex. A Tongue Balmoral Road Enfield Middlesex. J F Wash Kimbotton Road Bedford. C Watkinson Royal Crescent South Ruislip Middlesex. I Walker Heygarth Road Eastham Wirral Cheshire. R West Tudor Road Canterbury Kent. A White Lynegrove Avenue Ashford Middlesex. D Whittaker Faircross Avenue Weymouth Dorset. B Whorton Winchester Street Overton Hants. G Wideman Humber Drive Upminster Essex. G Wilkinson Spring Gardens Mayman Lane Batley Yorkshire. J Williams Church Street Stratford-upon-Avon. C W Wint Welford Road Clarendon Park Leicester. S Woolley Freehold Street Derby. J Wright Bramley Avenue Sheffield 13. M Wright Deene Corby Northants.

The latest Frog plastic kit is a magnificent model of the North Sea Caistor lifeboat. Next month's plastic feature will deal with the construction and embellishment of the model, a photograph of which appears below.

THE MODEL MAKERS

BY BRIAN MONAGHAN

Mr. W. R. Mann, 47 years with the company, constructs a 7¼" gauge working steam model of the Battle of Britain class locomotive 'Sir Winston Churchill' for an American customer

WOULD you like a job building ships, trains, cars and aeroplanes all day long? You could if you worked for one famous British company. Bassett-Lowke Ltd. of Northampton are perhaps the most well-known constructors of hand-built precision scale models in the country to-day. But at one time every lad and his dad knew the company best for its model railways and equipment. From the shop-bought item to the many London exhibition layouts, from those working steam railways of stately homes to the travel agency windows, if it was good, you could bet your life it was made in the Northampton works. There is still a demand from all over the world for railway equipment on a made to order basis, but the big orders now are from industry. Power stations, complex manufacturing plants, ships, new housing projects, mining equipment, aircraft and cars, these are the subjects for the skilled craftsmen of to-day. At least 80% of the orders come from overseas. Indeed on a recent visit *everything* on the various shop floors was destined for some part of the Americas—dollars for Britain indeed.

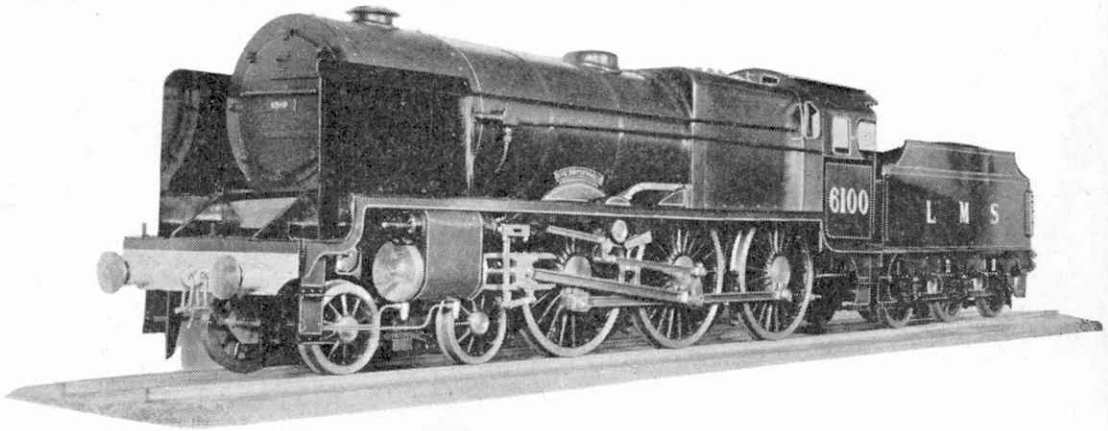
Fabulous craftsmanship and painstaking research are easily the two most important facts in professional model making. Did you know that certain popular metals cannot be used in model making because they 'powder' over over a period of time, while prime seasoned timber is an absolute must if warping, splitting and weeping are to be avoided. Surprisingly, plastics are still under consideration and are not used on a large scale as yet. Finish is almost everything on a model and I was told that oil based paints have always been preferred since they have that quality of 'wearability' which makes a model made fifty years ago as fresh and crisp looking as one straight out of the paint shop. Most parts are usually pre-painted before assembly and then oven dried. If you have trouble even painting the latest offering from Frog (as I do) you would be very impressed by the way parts are hand lined by the craftsman in the paint shop. Somehow after watching those chaps, my Doug. McHard kit conversions don't look the same any more. Extensive research is often necessary where the customer is not always able to supply the details himself. For example what would you do if someone asked you to build a rake of Pullmans as used on the Sir Winston Churchill funeral train? You would not find the information in a book that's for sure. With the full co-operation of British Railways the company sent a photographer to search for the various coaches used on the journey and when each was located it was photographed from a number of angles. Close study of the prints revealed that each coach was slightly different in some way. It is these slight differences that have been incorporated into making the most accurate models it is possible to make. There is a magnificent 'Battle of Britain' class locomotive 'Sir Winston Churchill' in gauge 'O' to haul the train and I would like to emphasise that it is a *working* model and not a museum piece. Sometimes, of course, information is so scarce that the builder has to rely on 'know-how' to capture the atmosphere and spirit of a project. Such is the case with a very fine model of the historic ship 'Great Western' now being built as part of a 'They-were-built-in-Bristol' series for the Bristol Museum. In the hands of a most senior and experienced craftsman this vessel will be rigged in the manner of contemporary shipping in view of the shortage of early illustrations. I was struck by what a fine subject it would make for a R.C. job, side wheels and all.

The mention of a ship model brings to mind the colossal twenty-one foot long, three-and-a-half ton 'Queen Elizabeth', built in 1938 for Cunard White Star in New York. This, I believe, is still one of the biggest ship

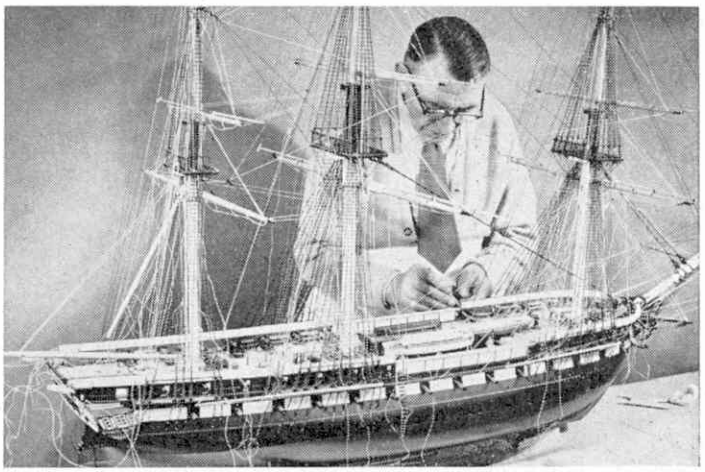
models ever built anywhere in the world and certainly the most impressive. During the last war the company built the ships of the Royal Navy a thousand times over—in miniature of course. These models were used for recognition training purposes, as also were the many models of tanks and armoured fighting vehicles in use by the Army. A great deal of top secret work took place. Personnel were sent on mysterious errands to equally mysterious government establishments, while in the works the code name for Operation Mulberry and the famous Bailey bridges was taking on its first significance for all. In an earlier war, 1914-1918, the company's entire production was given over to a manufacture of case hardened master gauges, made to a degree of accuracy which had been almost unknown in the country until that time, assisting greatly in the big munition programme of those years.

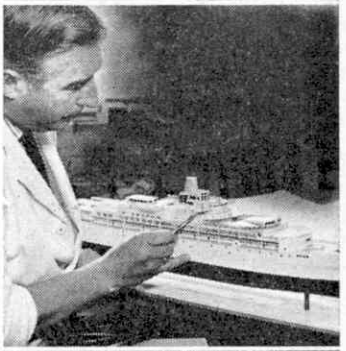
To-day most firms put out some sort of brochure or catalogue of their products, but the one first put on the market in 1899 by the young Mr. W. J. Bassett-Lowke, was, to coin a phrase, a 'smash'. Nothing like it had ever been seen in Britain before. Well illustrated and easily followed, it was instrumental in causing the rapid expansion which followed. Starting off with simple do-it-yourself working steam engines by 1902, a new works had been built for the manufacture of scale model railway components, and the famous Mr. Henry Greenly had been appointed a consulting engineer and designer to the company. From the Sultan of Turkey to Spanish Dukes the orders for complete model railways began to come in. A silver model table railway was made for the Maharajah of Gwalior in 1906, and the Prince of Wales purchased a working model electric lighting plant! Those-magnificent-men-in-their-flying-machines were honoured by exhibition of their 'craft (in miniature) in numerous exhibitions up and down the country. Local councils such as Rhyl, Southport, Blackpool, Port Sunlight, began to order architectural models or passenger carrying model railways. From the King of Siam in Bangkok to Pullars of Perth it seemed that everyone wanted the products of this unique British company. The 1914-1918 war put an end to most modelling activities, but the famous Ravenglass and Eskdale Railway was converted to fifteen inch gauge. By 1922 the very first 'OO' gauge model railway was placed on the market leading to the introduction of the well-known Trix-Twin trains some years later. Have you ever seen Queen Mary's Dolls' House? Inside it is the smallest model railway in the world built in 1924 by Bassett-Lowke. The many exhibitions for the inter-war years presented a magnificent series of models for the delight of the public. In 1929 a full size replica of the front of the 'Royal Scot' was constructed for the front of the Model Engineer Exhibition stand in London. This was to popularise the introduction of the new gauge 'O' model of the same name, retailing at—wait for it—£3 15s. 0d! Imperial Airways ordered publicity aircraft models. London Transport exhibited a working $\frac{1}{4}$ scale model of the underground system. Canadian Pacific showed a huge 'Empress of Britain' at the Lord Mayor's Show. A travelling post office was very much in evidence at the G.P.O. exhibit at Radiolympia, while the four British Railway Groups showed a massive model railway for the British Empire Exhibition in Glasgow. This latter railway featured complete main line trains, made up of the L.M.S. 'Coronation Scot', the G.W.R. 'Cornish Belle', the S.R. 'Southern Belle', and the L.N.E.R. 'Coronation'. Each train ran fifty actual miles in the course of each week of the exhibition. It was electrically operated and the points and signals were controlled by interlocked lever frames. In 1939 the company was mobilised for war.

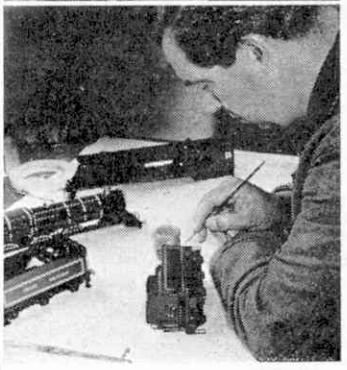
Since the war the company took the difficult decision not to produce over-the-counter railway equipment—a move greeted by howls of dismay in many quarters. The reason for this move was simply shortage of the right kind of labour and the very great demands of industry. To put it another way, people like Mr. W. R. Mann (forty-seven years service) master craftsman, just don't grow on trees. Do let me emphasise, however, that anyone can still have an item specially made to order, or an old model re-painted and re-lined with all the traditional skill if desired. Many gauge 'O' model railway enthusiasts from all over the world do manage to keep their elderly equipment on top line in this manner, defying the adage that 'Old locos never die, they only fade away'. With Bassett-Lowke still on the job after sixty-seven years it is interesting to wonder just what new models and equipment will be coming out of the workshops in 1999—early moon rockets perhaps?



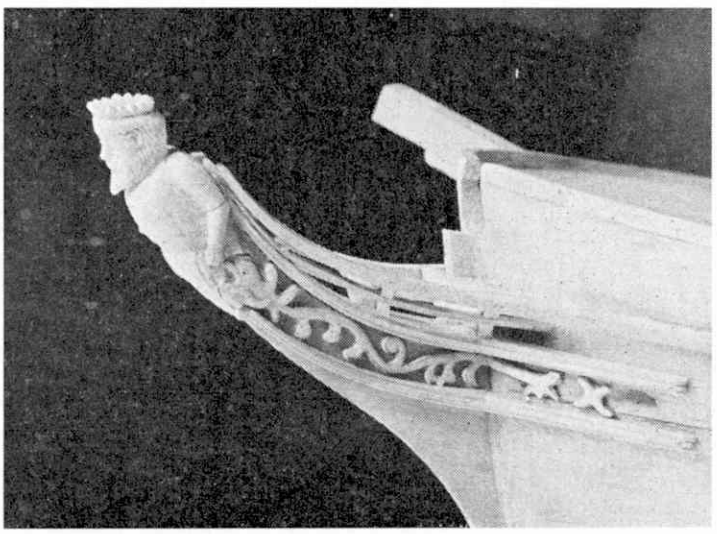
Typical of Bassett-Lowke's meticulous model engineering is this 7¼ inch gauge L.M.S.R. 'Royal Scot' locomotive







Above: making it look easy! Rigging a beautiful historic sailing ship. Above right: Mr. Peter Marshall completes a rake of Pullmans for the Sir Winston Churchill funeral train, for a U.S. customer. Right: applying the finishing touches to the 'Oriana'. Below right: part of the painting and finishing shop. Below: the figure-head of a sailing ship



Dolphin 16—Finishing and Painting

Those of you who have started building 'Dolphin 16' from last month's free plan will now be nearing the painting stage. A good paint finish depends largely on good preparation. This month Ron Warring describes the process and we illustrate it with photographs of our own 'Dolphin 16' under construction. Next month:—Fitting out with inboard or outboard power.

THE best method of finishing an all-balsa hull is to cover it with thin nylon—the type of material sold for covering model aircraft. Alternatively, you can cover the hull with heavyweight 'Modelspan'. Procedure is the same in either case.

First the whole hull, including the deck, cabin sides and cabin top, should be sanded down perfectly smooth with fine sandpaper. The time spent on this will be well worth it from the point of view of finished appearance. Covering can then be applied using photographic paste or white office paste (e.g. Gripfix or Bondfix).

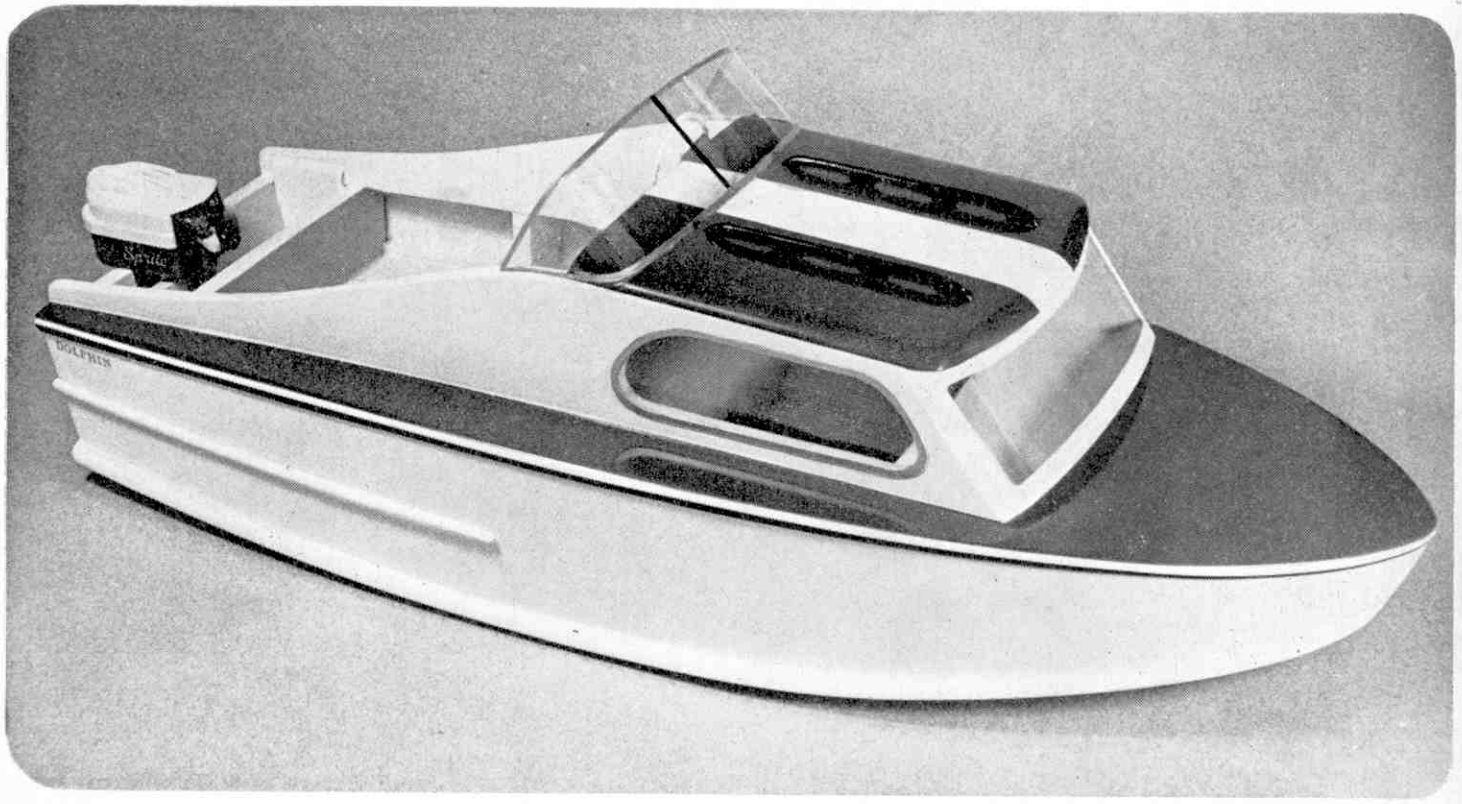
If using nylon for covering it is possible to cover the whole hull (sides and bottom) in one piece, if the nylon is thoroughly dampened first and then stretched in place. It will be easier to work with two pieces, however—one for each side and bottom, joining on the keel line. With tissue covering it will be easiest to cover in four pieces—one each for the two sides and two bottom panels.

In either case the whole surface of the hull to be covered must be coated with adhesive spread over it. Do not attempt to attach the covering to the edges only as this will only result in wrinkles. Then simply pull and smooth the covering in place.

The decks, cabin sides and cabin roof will also benefit from covering, using separate pieces of nylon or tissue for each, as this will give a much better paint finish. It is not *necessary* to cover these parts, however, You can just give them several coats of grain filler or sanding sealer, sanding down between each coat, if you prefer.

Almost any type of paint can be used to finish your model once covered—domestic enamel paints, model aircraft dopes or the new polyurethane paints. The latter are to be preferred as they give a high gloss and a most durable and waterproof finish. If your brush painting technique is poor, try using one of the aerosol type spray cans for getting a more 'professional' looking finish.

To conform to the full size boat, all parts should be painted. Typical hull colours are white or dark blue all over; or you can use a second colour for the bottom. Thus with a white hull,



1 Here's the hull ready for covering and painting. Go over the entire structure with fine sandpaper wrapped round a small wood block

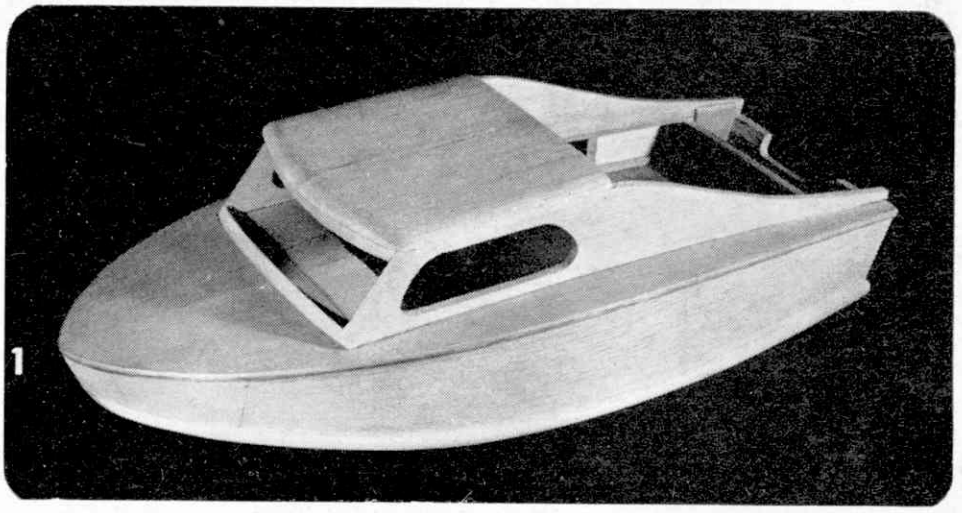
2 Now give the hull two coats of sanding sealer and allow to dry thoroughly

3 Gently rub down the sanding sealer with very fine sandpaper of No. 360 wet-or-dry paper (used dry)

4 Cover the whole hull with nylon or heavyweight Modelspan (model aircraft covering tissue). Lay the material over the hull and stick it in place with sanding sealer applied with a large brush *over* the tissue and rubbed *through* the pores, its a bit messy, but the resulting finish will be worth it!

5 Before painting the boat give the hull two more coats of sanding sealer and rub down with No. 400 paper until a silky-smooth finish is achieved. Paint the entire boat white, then, when dry, mask off the sides and cabin using Sellotape and paper. Spray the deck medium blue then remove the masking

6 Recess the window surrounds to the depth of the acetate sheet that you are using and cement the windows in position. Cut an 'overlay surround' in thin acetate, paint it silver on the outside surface *only* and then fix it to the window with film cement as shown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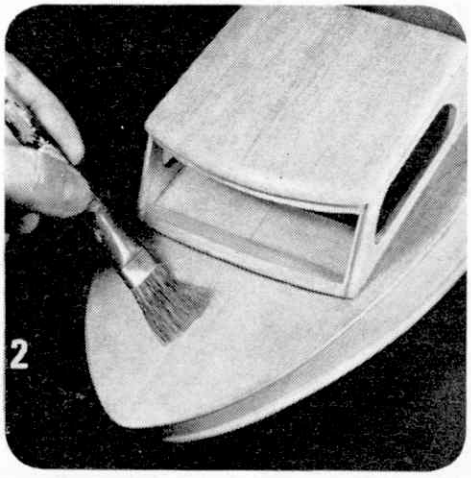
red, blue or green can be used as a bottom colour. With a dark blue colour for the sides a white bottom looks very smart.

Decks, cabin sides and cabin roof should be painted white. You can add your own ideas of colour scheming here, if you wish—such as a darkened cabin top colour or even a coloured deck with a white hull (*like ours, Ed.*).

Remember the insides of the cabin sides in the cockpit area should also be painted, together with both sides of bulkhead 6, the outboard well and the transom. The cockpit floor you can leave plain balsa. The face of bulkhead 3 *should* have a varnished mahogany finish, but this is difficult to achieve on balsa. If you stain the balsa with mahogany dye it will go too dark and streaky. It is best to cover this surface with a 'mahogany' paper—and you can often get enough as a free sample from a shop selling wallpapers!

Cabin glazing should be done after painting and finishing. Use clear acetate sheet for covering the cabin front and two side windows (neatest if cemented on from the inside, removing the cabin roof to do this). The windshield is bent to a curved shape by trial and error, fitting before being finally cemented in place.

The grab rails on the cabin roof are essential scale fittings. You can add any other fittings you like, such as cleats, fairleads, etc. Use commercial plastic fittings, as these are most realistic, and inexpensive.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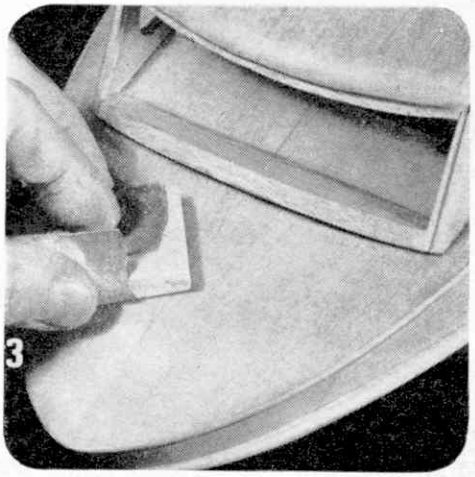
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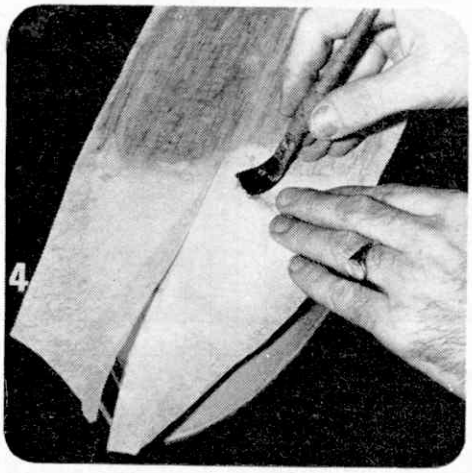
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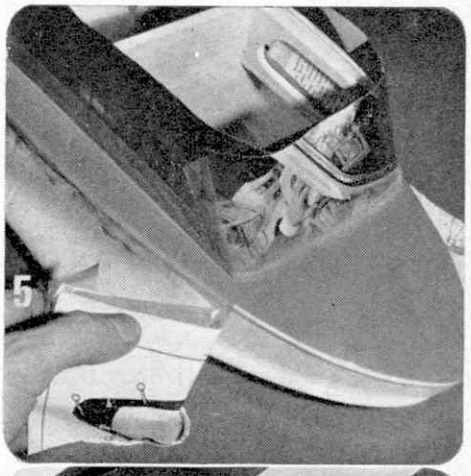
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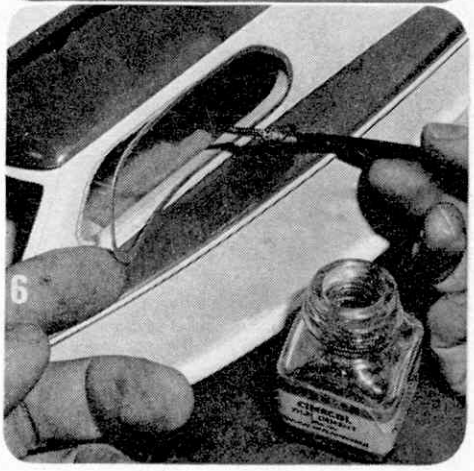
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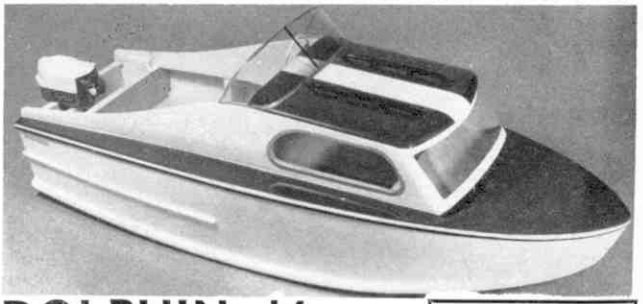

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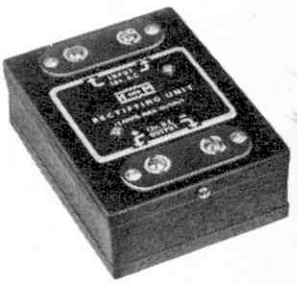

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Railway Notes

Midland Railway Survivor The last four survivors of the Midland Railway class of 1F 0-6-0 tank locomotives are soon to be withdrawn from the Staveley Iron Works, where they were engaged in shunting duties under the terms of the agreement made by the Midland Railway in 1886. The locomotives may be best known for their open back cabs, although many other locomotives of the same type were re-built with closed cabs. Now that they are to be replaced by diesel locomotives, a scheme has been launched to preserve No. 41804, shown in the accompanying photograph. If this is successful, the treasurer Mr. John Payn of 149 Montrose Avenue, Luton, Beds., said that it is hoped for it to be used on the Keighley and Worth Valley Railway.

Famous Nameboard goes to National Trust The nameboard from the station with the reputedly longest name in the world, LLANFAIRPWLLGWYNGYLLGOGERYCHWYRNDROBWILLLLANTYSILIOGOGOGOCH, is to be presented to the National Trust. The station was closed to passengers on the 14th February, 1966 and since then the nameboard has been in safe keeping.

New Rail-Air Terminal A new British Rail road-link for passengers travelling between Heathrow Airport and the West Country, South Wales, Bristol and the West Midlands will replace the present coach service between Slough and Heathrow. It will be served by up to 80 main-line expresses a day and trains will connect with a fleet of radio controlled luxury coaches operating a non-stop service to and from the airport. There will also be a new combined reception centre and waiting lounge on Reading Station staffed by air-link hostesses in distinctive uniforms.

'This big expansion of our air-link service,' said a Western Region spokesman, 'follows the tremendous popularity of the Slough airport link which was used by over 17,000 passengers during its first year of operation.'

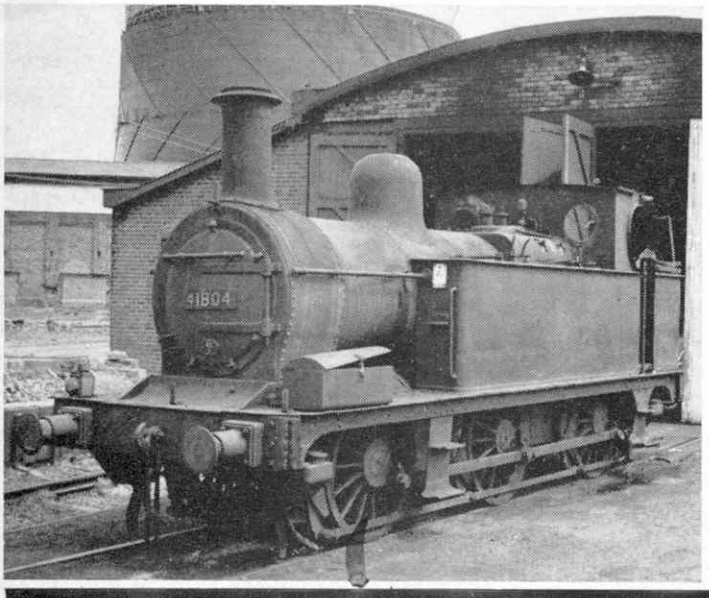
New Freightliner Terminal Freightliner trains connecting London and Merseyside have now started operating, each train consisting of 15 Freightliner wagons, a total length of 982 ft. The wagons have a compressed air braking system with disc brakes, and also roller bearing axles capable of sustaining high speed running over long distances. Between London and Garston they are electrically hauled at an average speed of 75 m.p.h. The Garston terminal includes a 1,000 ft. long concrete lifting area and two of the giant Drott Travelifts are used to handle the high capacity containers used on Freightliner Operations.

Startling Fare Reductions Cheaper fares, new bargains for the commuter and the Anglo-Scottish passenger and dearer fares for some were recently announced by the Scottish Region of British Rail. People from Glasgow's East End using Blue Trains for travel into the city centre, will benefit under an entirely new approach to fare pricing. Now, for the first time in Scotland, there is to be a 10-journey rail ticket from Shettleston, Carntyne, Garrowhill and Easterhouse, representing a saving for the commuter from Easterhouse, for instance, of 2s. 3d. a week, or more than £5 a year.

The familiar weekly season ticket, now costing 15s. 6d. and giving unlimited travel, will still be retained at these stations but the traveller who works on a Saturday morning will now be able to take advantage of a 10-journey ticket plus a cheap day return for the Saturday. Total cost from Easterhouse 12s. 3d.

Five Developments for West An assurance of British Rail's determination to boost their passenger and freight business in the West of England was given by Mr. L. W. Ibbotson, Chairman of the Western Railway Board and General Manager of the Western Region, when he gave brief details of five significant developments planned for 1967. They were:— More Motorail services to and from the West, operating over a longer season. A new fast morning and evening service between the West and London with cheap day return fares. New all-the-year round cars-by-rail-scheme for the West. More trains for the West of England air-link service to and from London Airport, and the provision of a Freightliner train terminal at Plymouth.

Keighley Preservation Society Formed in 1962, the Keighley and Worth Valley Railway Preservation Society hopes to acquire and re-open a five mile branch line running from Keighley to Haworth and Oxenhope. Five steam locomotives, one diesel and over a dozen carriages have already been assembled in readiness for the passenger service and these can be seen any weekend at Haworth Station in Yorkshire. The photograph shows class N2 0-6-2T and J52 0-6-0T shunting in Haworth Yard. Both locomotives are now re-painted in their former great Northern Railway livery.



Loco Spot

● Are you able to identify the class of locomotive from the accompanying photograph which shows only one or two of its most distinguishing features? The answer will be published in the next 'Railway Notes'

● December Solution: The picture of the locomotive in the December 'Loco Spot' was a Hymek Bo-Bo type 6 locomotive No. D7000. This class was built by Beyer Peacock and was introduced in 1961

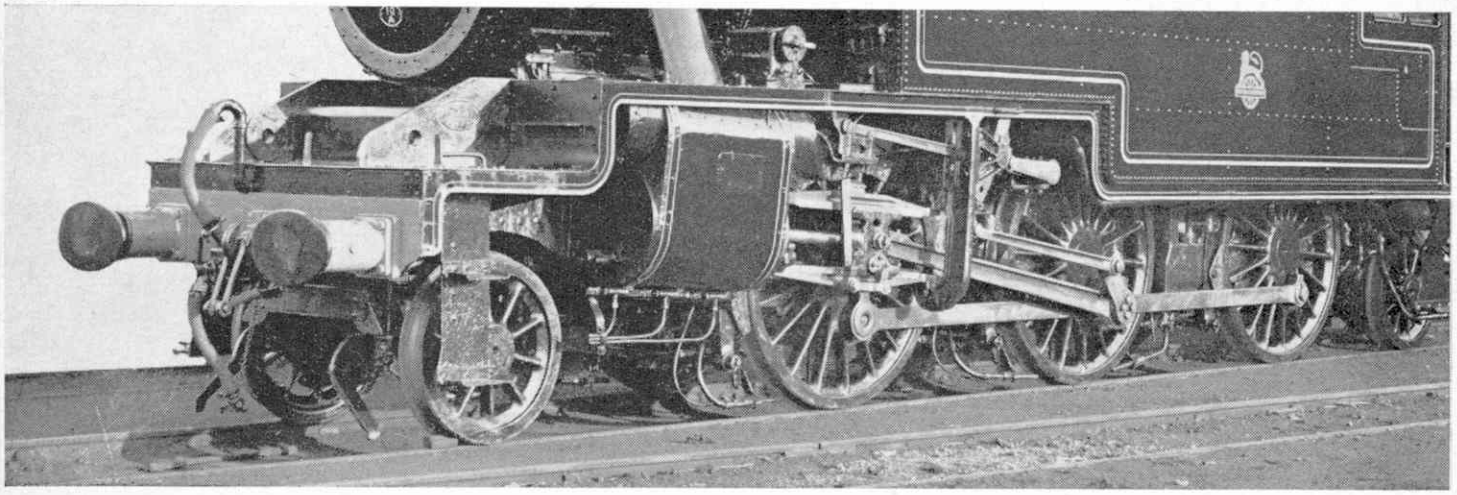


TABLE TOP BATTLES

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This is the first of a series of articles which will deal with the building of scale model military vehicles and equipment to form a Wargames Army. Wargaming, apart from being a fascinating hobby in its own right, enables military models to be used rather than stand around gathering dust. Detailed information on military vehicles is not always easy to obtain, but this is no drawback, as Wargames models can be as simple or as detailed as you wish. After all, a real-life general is not too worried about the look of his forces, so long as they win the fight!

THE Second World War is the one that will be dealt with mainly, as it represents the period when the greatest strides in the military vehicle field were made. The 00 scale (1/76) is, of course, the most suitable on which to base any collection. A complete range of vehicles and men is modelled by Airfix at very reasonable prices and this scale has the added advantage that, should you wish to incorporate trains, most model railways are also to this scale. Aircraft (at 1/72 scale) are reasonably close enough in size to be utilised as well. Wargaming rules can, like the models, be as basic or as complex as you wish. Later in the series we will be giving you a few ideas on which you can base your own rules. First however, let us have a look at the approximate type of formation that we will need to develop for the sort of game where the tank is the most important feature. We must at the outset, adopt a somewhat false unit, based on the establishment of a division but, of course, with considerably fewer men than a *real* division. Though, naturally you are free to adopt any size you wish, it has been found that a model division with six to eight tanks and fifty men is adequate. If you examine most of the currently available 00 scale models, you will notice that they are all vehicles that fought in Europe after the D-day invasion of 1944. It is interesting to note the actual size and make-up of the British, United States and German divisions at that time, so that you will see the type of vehicles required, and decide for yourself what size your own divisions will be.

The British and American troops were generally better equipped with transport, but suffered from the fact that the German tanks were superior to the American Sherman. Airpower was the deciding factor on the Allied side. *A British Armoured Division* comprised three tank regiments with a total of 190 Sherman tanks; three infantry regiments of about 800 men in each, all transported in halftracks (M-3 halftrack kit); carriers (bren carrier) and 15 cwt. trucks. Two regiments of artillery had a total of forty-eight 25 pdrs. which were either towed by the Quad Tractor or were self-propelled ('Sexton' will appear in a later article). One anti-tank regiment had forty-eight 6 pounders. Finally the division had detachments of Engineers, Signals troops, Reconnaissance, Transport and Medical services.

The *Infantry division* was formed from nine regiments of men, totalling about 7,200. These were transported by similar vehicles as described for the armoured division. When it was required that they should all be moved at once, extra transport had to be provided. The divisional artillery consisted of three regiments of towed 25 pounders having a total of seventy-two guns. Otherwise it was similar to the armoured division.

Commanded directly by the Army commander were *Independent Tank Brigades* of 190 Churchill tanks; these were used to support the infantry in

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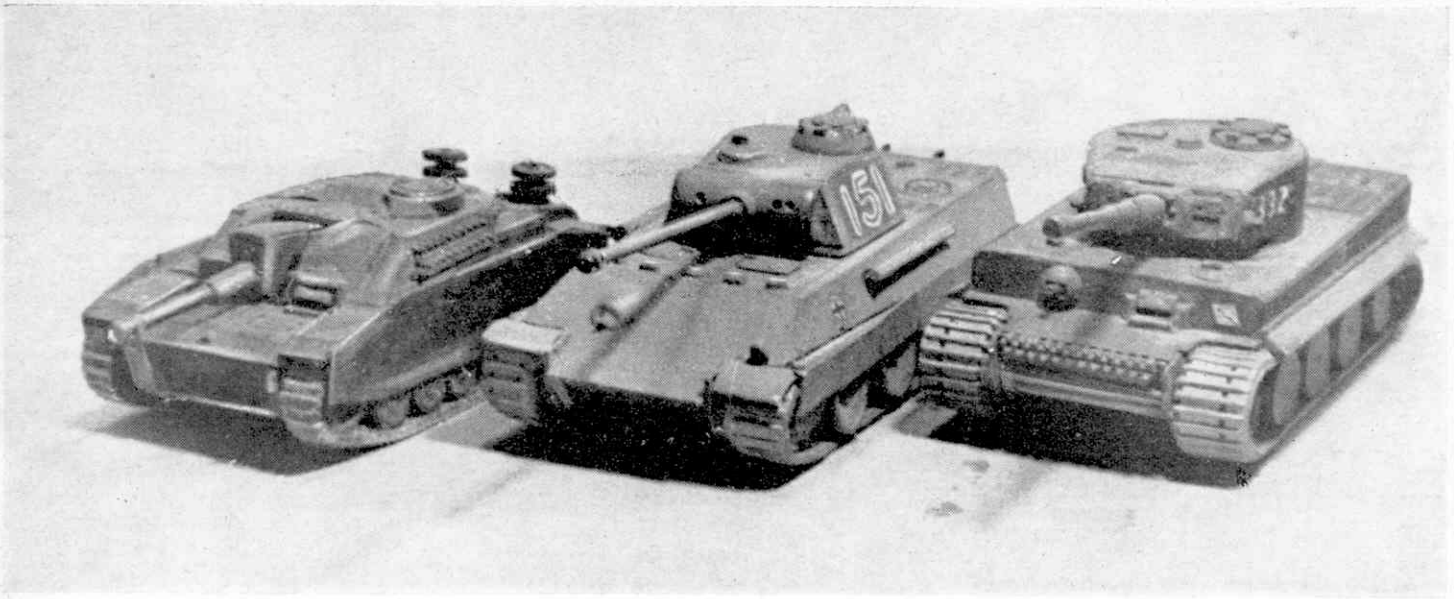

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1. A typical action scene from North Europe 1944. American infantry await the order to advance. They are using captured German half-tracks to supplement their own jeeps, Eager Beaver lorries and armoured cars. **2.** German Panzers; the 'Tiger', 'Panther', and assault gun 'Sturmgescheutz III'. **3.** An American GMC truck, an M3 half-track and a Dublo Dinky Austin lorry. The latter is in German hands. **4.** The British Quad and 25 pounder, Churchill tank, and Bren carrier towing 6 pounder anti-tank gun. **5.** A selection of the beautiful little Austrian made H.O. scale (1/90th) Minitanks. The plastic mouldings incorporate incredibly fine detail which just cries out for some hand paint work, and since most of the parts of these models simply clip together, they can easily be taken apart for painting. The tyres in particular are greatly improved by a coat of matt grey/brown paint. Just about everything (except the tracks) seems to work on these models—even the tiny machine gun on the tank turret rotates and elevates! Big surprise is the low price particularly for an imported line of such high quality. The Bridge Layer (top) with completely operating bridge, costs only 4s. 9d. The Chieftain tank 2s. 6d. The impressive tank transporter costs 5s. 3d. and the La Crosse Missile truck 3s. All come packed in attractive transparent moulded display cases, and an illustrated catalogue is available from the U.K. distributors, Model Hobby Products, Mebro Works, Cuckoo Hall Lane, London, N.9. Price 3d. in addition to which you *must* send a *stamped*, self-addressed foolscap envelope. **6.** The American Sherman tank was the main allied battle tank. It is accompanied here by the Roco model of the M-40 S.P. 155 mm. gun

attacks. *Medium Artillery Regiments* were also under Army command and were equipped with sixteen 5·5 inch howitzers towed by Matadors. The troops for the model division can be obtained by putting the heads of the 8th Army set onto the combat group or simply by using these figures without alteration, despite uniform difference for the European front.

American Armoured Divisions were formed with three Tank Battalions of Shermans, a total of about 186 tanks; three infantry battalions which had about 1000 men each, and were all transported by the M-3 halftracks or Jeeps; three artillery battalions were each equipped with twelve 'Priests' (which we will deal with in a later article). The division had all the usual other divisional troops. Their *Infantry Divisions* consisted of nine battalions of infantry which were transported in the same way as the armoured division, but in addition used the 3 ton GMC 'Eager Beaver' truck (we can use the under-scale ROCO-Peetzy model of this vehicle) and had eighteen 'Priests' and a similar number of 57 mm. anti-tank guns attached. They were exactly the same as the armoured divisions from here on but often their artillery battalions used towed 105 mm. howitzers instead of the self-propelled 'Priests'. The troops for the Wargames can be the 'U.S. Marine Corps set.'

While the German name for an armoured division will be familiar to all, a brief description of the *Panzer Division* will be appropriate. The main units were the two Panzer Battalions of 150 tanks, usually 'Panthers' or the 'Pz Kw IV'. These had four infantry battalions of about 1000 men each all transported in the armoured halftrack Sd Kfz 251. Unfortunately, we have no ready-made suitable models to represent these, so use 'captured' M-3's and the Dinky Dublo Austin Lorry (although obsolete, many of these Dinkys are still around). Forty self-propelled howitzers made up the three artillery battalions; while the one Panzer Jaeger battalion (anti-tank) was equipped with twenty-four assault guns and twelve towed or self-propelled 7·5 cm. anti-tank guns. (The German Armoured Car Sd Kfz 234 will represent the S.P. 7·5 cm. gun). The division then had all the other usual units similar to the British and American divisions.

The German mechanized infantry were known as *Panzer Grenadier Divisions* and were identical to the Panzer Division except that they had only one Panzer Battalion of assault guns instead of tanks. The infantry divisions were very poorly off, by comparison to their Allied counterparts, having to rely mainly upon horse-drawn transport to carry their six battalions. They also included an artillery battalion of twenty-four horse-drawn 15 cm. (6 inch) howitzers; but their anti-tank battalion used motor tractors to tow the thirty-one 7·5 cm. guns. Directly under Army control were *Independent Battalions* of 'Tiger' tanks and the heavy Tank-destroyer 'Jagdpanther'. These units had forty-five tanks in each, and were generally manned by the Waffen-SS, who were Nazi party members (unlike most of the ordinary German Wehrmacht soldiers.)

We will be covering all the equipment mentioned later in the series, but for those of you who wish to commence your study of armoured vehicles immediately, here are the names of some publications that will help you. The Royal Armoured Corps Tank Museum, which we will deal with later, produces the 'Illustrated Record of the Development of AFV's' an excellent series of booklets. The Curator will be pleased to send you a complete list of publications if you write to him. The address is Bovington Camp, Wareham, Dorset. 'German Tanks' by B. T. White published by Ian Allen Ltd. is a fine book available at your local bookshop. Finally Merberlen Ltd. of Hawthorn Hill, Bracknell, Berks, publish the Bellona Military Vehicle Prints. These are exceptionally useful as they are accurate drawings of tanks to OO scale. In addition to the drawings a complete technical specification and history are given, and the more recent issues include photographs of the actual vehicles. Other useful accessories are supplied by this firm, and a stamped addressed envelope to them will get you a complete list. Please remember when you are enquiring about books and information, to mention the Meccano Magazine. H.L.D.

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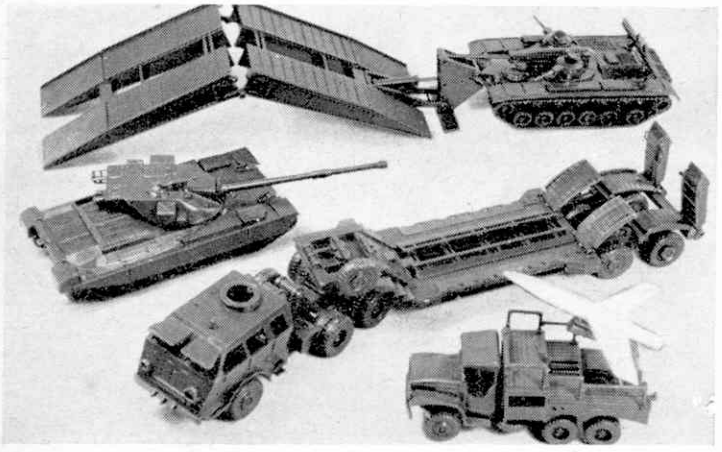

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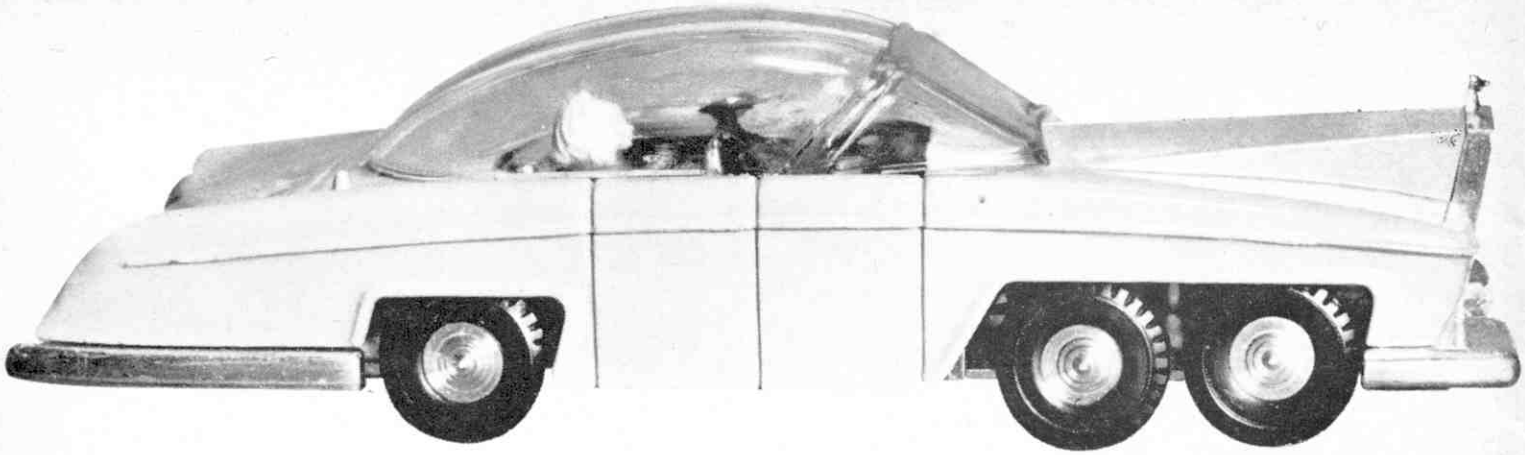


The Fabulous One

Dinky Toy News by Chris Jelley

A WORD of advice—Never make the mistake of thinking that you know everything. For the past six or so years I have been reviewing all new Dinky Toys for the Meccano Magazine and, in this time, I have seen so many innovations, gimmicks and new models, and have seen the die-cast modelling world as a whole make so many advances in design and manufacture that I had come to imagine I had seen just about everything. Nothing in this field, I thought, could surprise me—then along came Fab 1!

Fab 1, or to give it its official title, 'Lady Penelope's Fab 1', is the new Dinky model of the futuristic car owned by 'Lady Penelope Crighton-Ward' and driven by 'Parker' of the television puppet series 'Thunderbirds' (you must have heard of International Rescue!) It is, in my opinion, by far the best and most amazing toy ever to have appeared in the Dinky range or, for that matter, in any comparable range. It is, however, primarily a toy, a fact which I must stress to quiet the mutterings of serious scale model collectors, but it is a toy only because its prototype does not exist in real life. In all other respects, it's a top-quality, solidly-built model and is certainly an exact replica of the T.V. original. In fact, it's made by Dinky for Century 21 Toys Ltd., the 'owners' of the original.

But the simple fact that the new Dinky originated in a T.V. programme is a comparatively minor detail. Of far greater importance from the customer's point of view is the question, 'What special features does it have to recommend it?' Answer—'Plenty!'

Leaving aside the fact that its almost all-metal construction makes it basically very tough and strong, it carries—and shoots—a formidable armament! At the front a large rubber-tipped rocket fits onto a spring-loaded launcher, hidden beneath the bonnet and reached by hingeing down the radiator, while, at the back, four 'harpoons' fit into four separate launchers, arranged in two banks of two, which are also spring-loaded. Firing is simple. To shoot the rocket, press down on the front of the model; to shoot the right bank of harpoons, press down on the right-hand side of the model at the rear; to shoot the left bank of harpoons, press down on the left-hand side of the model at the rear; to shoot all the harpoons, press down the whole back of the model; to shoot both the rocket and all the harpoons together, press down the entire model. No problems here!

Regular 'Thunderbirds' viewers will have noticed that, besides its unusual general shape, the television show's Fab 1 has two unique features—twin front

wheels and transparent 'bubble' roof. Both these features appear on the Dinky version. The canopy, itself, slides open and closed and covers a gold-plated highly-detailed interior containing, like the original, an instrumented dash-board and a centrally-mounted steering wheel in front of a single driver's seat. Behind this is a full-width passenger seat and that isn't all! Two scale figures are included, a liveried chauffeur, unruffled, in the driver's seat and an elegant lady in full evening dress with 'fur' jacket sitting sedately in the passenger seat. Believe it or not, these figures actually look just like Parker and Lady Penelope! How's that for reproduction!

Other points of note are TRIPLE jewelled headlamps, suspension, 'FAB 1' number plates and authentic pink gloss finish. Overall, the model is a big 5 11/16 in. long by 2 1/10 in. by 1 1/2 in. high and, as a matter of interest, weighs more than a 1/2 lb. which is surely proof of its substantial nature.

When arming the model, i.e. fitting the rocket and harpoons, the model should be placed on a rigid surface such as a table or the floor and care should be taken that it is not pressed down while the rocket, etc. is being pushed home. The radiator, itself, acts as a sort of safety device and, as such, should always be in the correct upright position except when the rocket is being fired. If you follow these 'rules' you'll find that you can have great fun with the model for hours on end without any trouble.

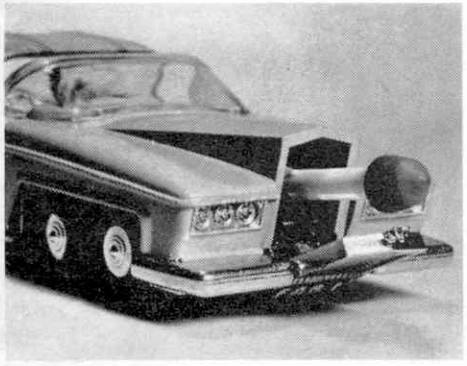
You may, in fact, be interested in the little game of skill I invented to test the accuracy of the main rocket. It consists simply of positioning several other Dinky Toys in various positions around the floor and trying to score direct hits on these from a set 'firing' position. Points can be awarded for hitting the models, the number of points depending on the size of the model under fire. The only thing to remember is that, as the model should not be held in the hands while firing, the target cars must be equidistant from the firing position. You'll be surprised how difficult it is to hit, say, a Mini Minor from half-way across a room!

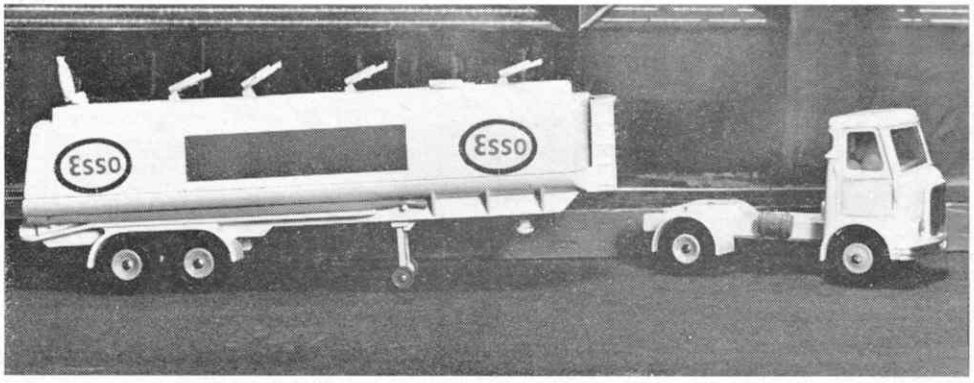
You will have gathered by now that I find Fab 1 particularly fascinating, and I could actually go on writing about it for some time. Space being limited, however, I must now pass on to the other Dinky Release—No. 945 A.E.C. Fuel Tanker Esso. This is not difficult to do, as the new tanker is an extremely impressive model, as well as being one of the largest Dinky Toys to be produced for quite some time. As the accompanying pictures show, it's an articulated unit consisting of a typical modern 'tank' towed by an A.E.C. tractor unit.

The tanker section itself is die-cast and sports eight road wheels, mounted towards the rear in pairs on twin axles. On their own, however, these would not prevent the front end of the tank from dropping when the tractor is uncoupled, therefore an additional pair of small jockey wheels are provided towards the front on a collapsible 'undercarriage' that folds away when the tractor is in position. On the top of the tank is a moulded catwalk incorporating six opening man-hole covers, while two lengths of hosepipe are carried on platforms built into each side of the chassis below the tank. The hosepipe is, of course, removable and plugs into a bank of little spiggots, below the nearside of the tank, which represent what, on a real-life tanker, are fuel outlet taps.

As previously mentioned, the tractor unit is based on a frequently-seen A.E.C. prototype, and it carries clear, very well-designed casting detail, particularly in the case of the doors and radiator grille. Jewelled headlamps are fitted, in addition to windows, seats and steering wheel, but perhaps the most impressive feature of all is the release mechanism for the trailer coupling. This consists of a spring-loaded hook, in a covered 'V'-shaped recess that clips onto a lug beneath the tank. It is disengaged by pressing a small moulded button on the off-side of the tractor chassis, which is designed to look like a small fuel or oil tank.

The actual coupling operation is performed simply by backing the tractor onto the trailer so that the lug on the trailer is forced up the 'V'-shaped guide, past the hook and into the recess. The model as a whole is finished predominately in white, but with light grey catwalk and manhole covers on the tanker and with grey chassis and interior moulding on the tractor. On each side of the tank are two large 'Esso' emblems separated by a long red panel. Across the entire back of the tank is a picture of a tiger's head with, above it, the advertising slogan 'Put A Tiger In Your Tank'. This gives the final touch to what, in my opinion, is an excellent scale Dinky Toy.





Motoring News

Nuffield Production in Turkey - New Traffic Signs Booklet

The British Motor Corporation has recently announced that a new company, jointly set up by itself and Austin and Nuffield Distributors in Turkey, will begin assembly of BMC Nuffield Tractors early this year. The tractors, in dismantled form, will be imported from this country and will be assembled at the new factory near Izmir, Turkey. Already, 1500 C.K.D. (completely knocked down) packs of the famous Nuffield 10/60 Tractor have been ordered for delivery to the factory in February.

Known as Sanayi Ve Ticaret A.S., the new company was actually incorporated in August 1964. The factory, located on a 1¼ million sq. ft. site, will have an initial capacity for assembling up to 13,000 Austin and Nuffield cars and commercial vehicles, as well as tractors, each year.

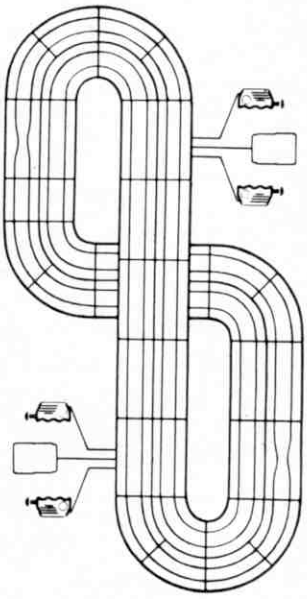
The RAC, which has for many years pressed for a better system of signposting in this country, has issued an up-to-the-minute booklet entitled 'Know Your New British Traffic Signs'. Twelve pages thick, it gives descriptions and meanings of all the new road signs recommended in last year's Worboys Report and has been prepared with the co-operation of the Ministry of Transport and H.M. Stationery Office.

Produced in an eye-catching style, the booklet also gives colour illustrations of 156 road signs and markings under seven separate headings: Regulatory, Warning, Directional, Light Signals, Road Markings, Informatory and RAC Temporary Signs. All are clearly printed and very easily understood.

It is interesting to note, incidentally, that all existing 'Regulatory' signs are scheduled to be changed by the end of the year and, within the next few years, most of Britain's 1,600,000 traffic signs will have been replaced by the new designs. This therefore makes the booklet more useful than ever. It is free to all RAC members from any RAC Office but, otherwise, costs 6d.

Chris Jelley

BE A CHAMPION!



Sets B and C combine to form this 4 lane layout. 28½ ft. of figure-8 track. Area of layout **76″ × 40″.**

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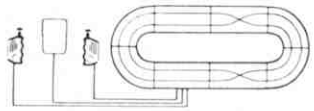
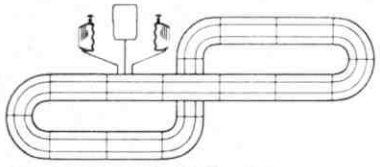
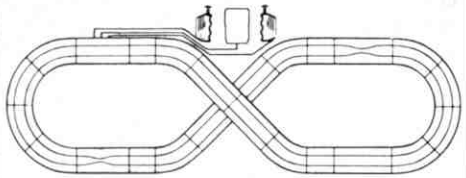


X.100 Set A. 81/- 6 ft. of track using small radius (Inner) curves and two cross-overs. Area of layout—36″ × 15″.



X.110 Set B. 101/3 12½ ft. of figure-8 track, using small radius (Inner) curves. Area of layout—66″ × 25″.



X.120 Set C. 131/9 16 ft. of figure-8 track, using large radius (Outer) curves. Area of layout—83″ × 25″.

CHAMPION Motor racing

TRADE MARK REGISTERED

CHAMPION! That's the electrically powered racing track system! Now you can hold exciting races with two or four cars zooming round—in your own home!

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There's a range of low priced accessories too! Bridges, crash barriers, cars and if any car part should wear out, you can easily replace it like a real mechanic from a whole range of spare parts! And Corgi Kits and figures are ideal background settings for your CHAMPION layouts.

Race along to your local toy shop now! Go CHAMPION!

X.350 E-Type Jaguar Sports. Length 4⅛″. 20/2d. Also hard top version.

X.361 Ferrari Formula 1. Length 4⅛″. 20/2d. Also in plated finish 21/3d.

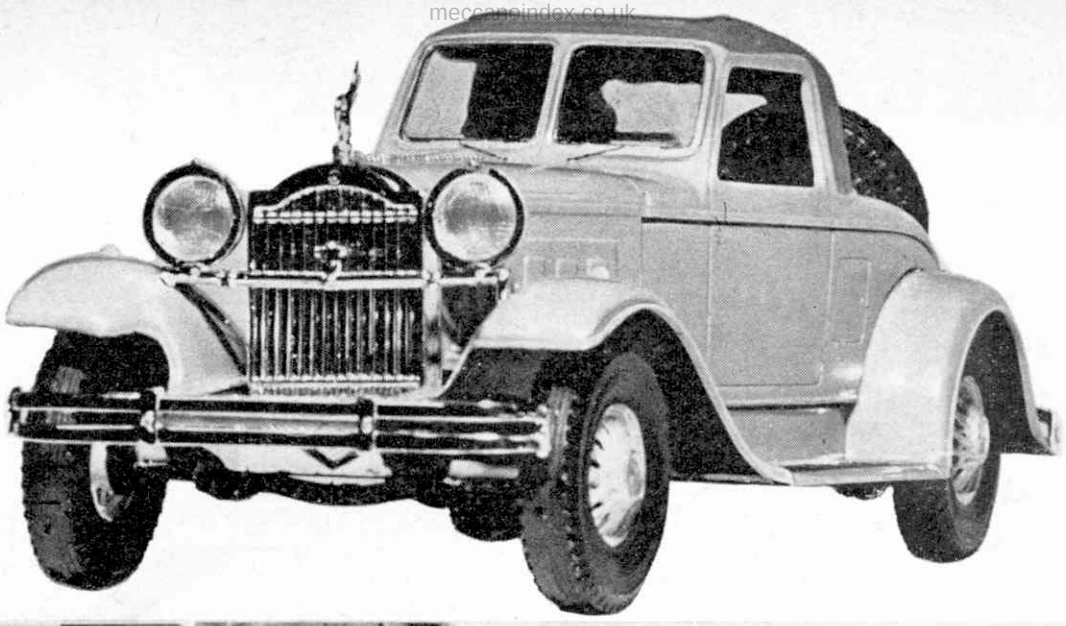
X.353 Mercedes 300 SL Hard Top. Length 4⅛″. 20/2d. Also open sports version.

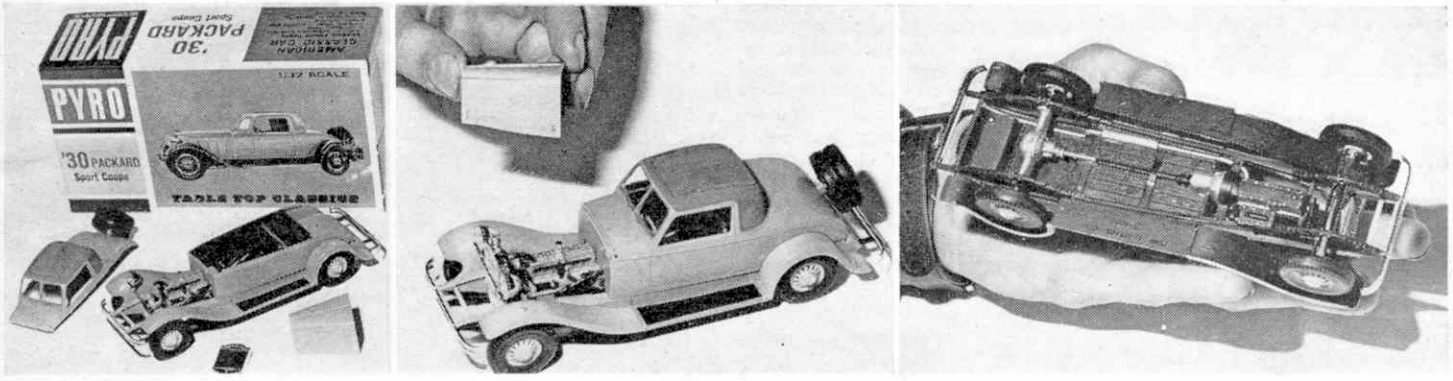
X.360 BRM Formula 1. Length 4⅛″. 20/2d. Also in plated finish at 21/3d.

GRAND PRIX RACING AT YOUR FINGERTIPS!

Playcraft TRADE MARK

See them all at your model shop!





Heading picture: this low angle shot really captures the powerful and impressive appearance of the 1930 Packard coupé. Above left: the top half of the body is a separate moulding from the bottom half, so there is ample opportunity for painting the interior. All the driver's controls are there, gear lever, handbrake, instrument panel—the lot! Centre: the removable bonnet conceals a complete and finely detailed replica of the famous eight-cylinder Packard power plant. Right: the underside is fully detailed, and deserves some care when painting. Matt black, with running gear, bolt heads etc. picked out in silver is a good scheme. Below: the rear aspect of the coupé is also ruggedly impressive. Punctures presented no terrors, with two spares!

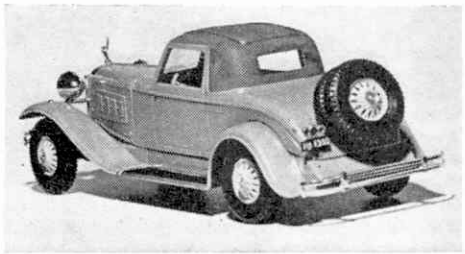
ask the man who owns one

JAMES Ward Packard, founder of the Packard Motor Car Company, was sitting at his desk one morning while his secretary opened the mail. One of the letters contained a request for the Company's sales brochure. 'Tell him' said Packard 'that we have no sales literature for our cars. Tell him—oh, tell him to *ask the man who owns one*'. That was back in 1902, but the phrase, carelessly uttered by the firm's founder, became the slogan of the Packard company for over four decades. The very name 'Packard' meant to Americans what Rolls-Royce means in Britain—the ultimate in automobile quality and comfort. Packard cars, like all American vehicles, were built large. Engines were eight or twelve cylinder side-valve units of five litres or more capacity. With such tremendous power to hand, a gearbox was hardly necessary, as the cars could be driven at a snail's pace on top gear, with vivid acceleration available when the right toe was depressed!

Many famous people in the American movie industry owned Packards during the 'twenties and 'thirties, and throughout the world Packard motor cars competed with Rolls-Royces as personal vehicles for heads of state and millionaires. An Indian Maharani is reputed to have sent one slipper to the Packard works, with the instruction that the upholstery of her new limousine should be precisely the same colour! This was indeed the golden age of the motor car!

But the golden age could not last for ever. World War II halted private car production and, when the war was over, the market for highly luxurious cars with specialist coachwork had practically disappeared. In 1954 the company was absorbed into the Studebaker concern but the take-over benefited neither party. The once proud and distinctive Packard, which had provided transport for Presidents and Emperors, tycoons and film-stars, became no more than a 'dressed-up' Studebaker with 'Packard' on the bonnet, and in 1959 even the name was finally dropped. It was indeed a sad end.

Despite the fact that the last car to bear the name looked like a chromium-plated vacuum cleaner, the classic Packards of the 'thirties have *not* been forgotten. How it would have pleased James Packard if he could have known that his 1930 Sport Coupé would be the subject of a Pyro plastic kit, 36 years after! The kit, one of the Pyro 'Table Top Classics' series is built to 1/32nd scale, and really does capture the magic of this long bonnetted beauty, as our photographs prove. Everything is there—the famous 'notched' radiator with its thermostatically controlled shutters, flanked by big headlights and topped by the enormous Packard 'bird' motif; the long bonnet and twin-panel windscreen, wide running boards, leather covered roof, twin spare wheels, and huge double bladed bumpers front and rear. That little door in the body side just in front of the rear wheel was for golf-clubs—they really knew how to live in those days!



The body and wings of the car are very nicely moulded in mid-grey, and the finish is so good that most people will prefer not to risk spoiling it with paint. However, quite a number of the small parts *do* require painting. The tyres should be matt black, the hubcaps, windscreen surrounds and door-handles etc., silver, the leather-finished top as lightly darker grey than the body colour, and the interior trim a semi matt brown. Running boards should be matt black with silver edging. Radiator, lamps and bumpers are in plated plastic.

Altogether, the kit goes together very well, and forms an atmospheric model of a very wonderful car. 1/32nd scale models, even of big cars, are not too space consuming, and if you are thinking of a collection, here are some of the others in the Pyro 'Table Top Classics' series:—

1930 Packard Boat-Tail Roadster.
1932 Lincoln Sport Convertible.
1932 Lincoln Dual-Cowl Phaeton.
1931 Cadillac Town Car.
1931 Cadillac Sport Phaeton.
1932 Pierce Arrow Custom Convertible.
1932 Pierce Arrow Sports Phaeton.

All are 1/32nd scale, and cost 8/8 each.

Building Bangthorn : Part

Any model railway is really only as good as its baseboard. A warped and droopy baseboard means deformed scenery, bad track alignment, and derailments galore—and that's no way to run a railway! In this, the second article in our railway modelling series, Mike Rickett describes how Bangthorn station was built on a firm foundation.

PART one of this series, in last month's issue, gave a description and outlined the advantages of the end-to-end branch line layout to be covered in the magazine during the next few months. We explained how standard Tri-ang Hornby equipment can be used to simplify the construction of such a layout and how a model railway of this type lends itself to confined spaces. This indeed is one of its greatest advantages for, whereas a continuous or oval layout would occupy the centre of a room, the end-to-end design is intended to be erected round the walls, leaving the centre of the room free.

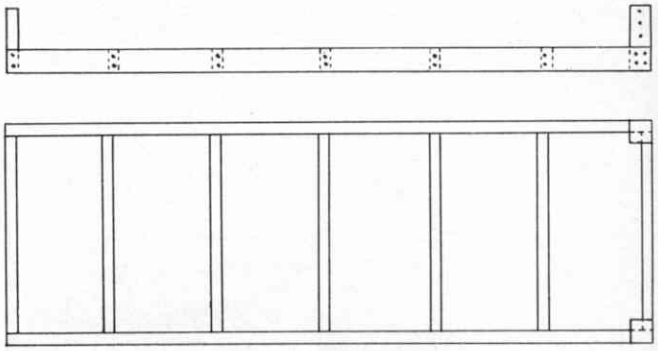
We felt that the space chosen, 10 ft. by 6 ft., represented an area that most enthusiasts would have at their disposal for a model railway, either in a spare room or a bedroom, and the layout is therefore designed for inside viewing so that the operator is situated on the inside of the 'L' on the layout.

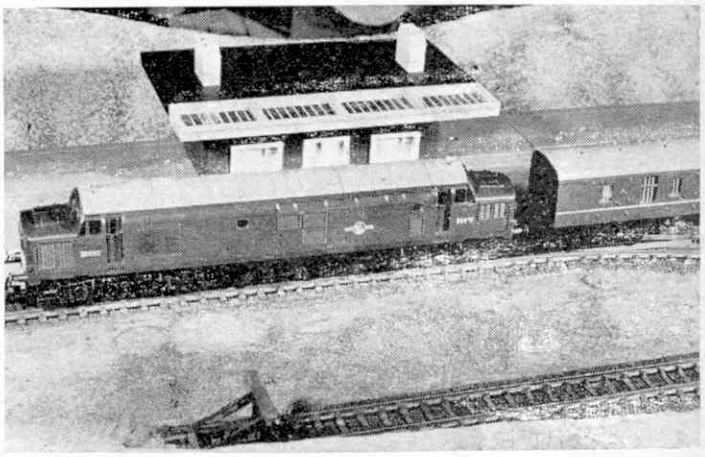
Tri-ang Hornby track and rolling stock have been used throughout and the reader will find that the construction of the layout, especially trackwork, is greatly simplified by the use of the Super 4 system, which is ideally suited to this sort of treatment.

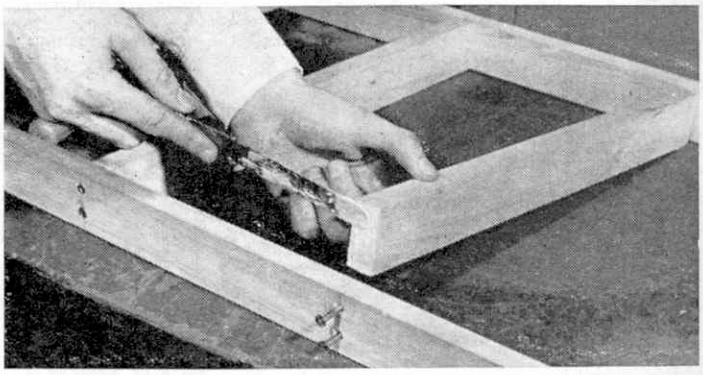
This month, we intend describing the construction of the baseboards for the station section which at 10 ft., forms the longest part of the layout. The traverser baseboard involves other equipment and will be dealt with next month. Most readers will be aware that it is not absolutely necessary to build a really substantial baseboard for Super 4 track because its tough construction does enable it to withstand quite rough treatment. This sturdiness is, of course, very necessary when track is laid on the floor or on a temporary surface, where components could become very easily damaged. For our layout however, although we shall be using ordinary Super 4 track, we have built a quite sturdy baseboard, not so much to protect the track, but more to afford protection to scenery and other line-side accessories. Another important reason is that the layout, being of a portable nature, does require a reasonably sound baseboard to allow it to be dismantled and erected repeatedly.

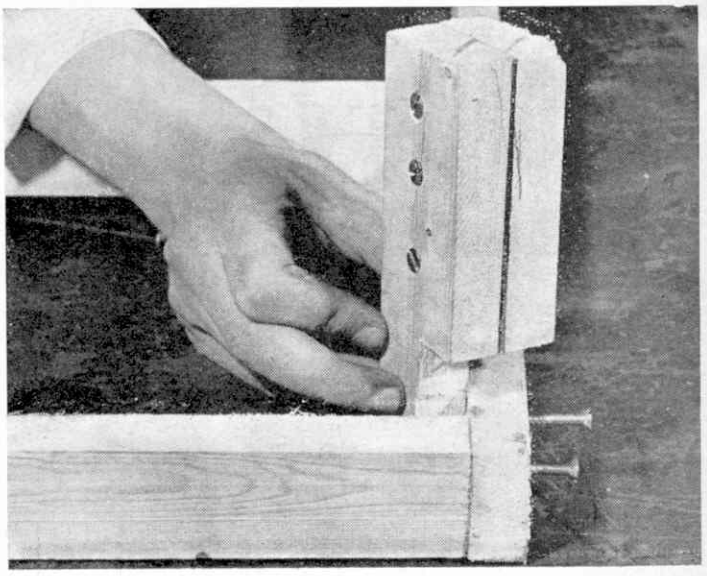
A portable layout of the type we have chosen does create a few difficulties in that the 10 ft. long station section is split into two 5 ft. by 18 in. sections which can be folded over when out of use. The legs are also easily detachable so that the complete unit, together with the storage section forming the other leg of the 'L' can be stored away in a relatively small space.

Included with this article is a drawing of the baseboard substructures and also a list of the materials you will require. Although a sheet of 8 ft. by 4 ft. softboard is shown on this list, you will not in fact require all this for the baseboard surface and a sheet only 6 ft. by 4 ft. would be quite adequate. The extra material that the 8 ft. by 4 ft. gives however, is useful at a later stage for

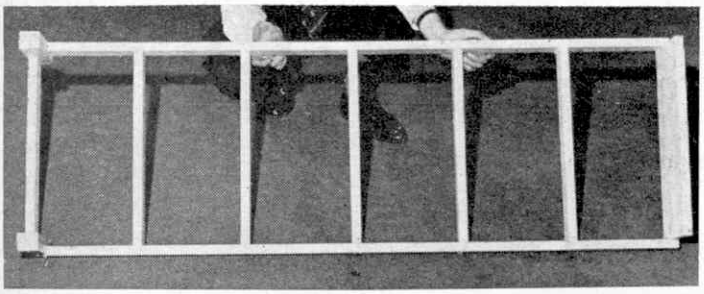


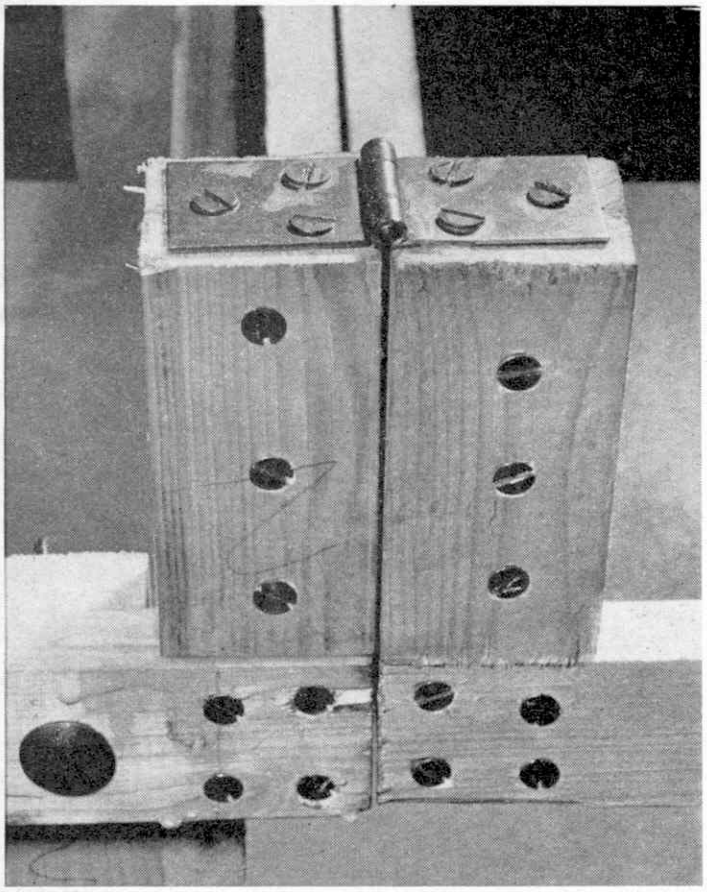


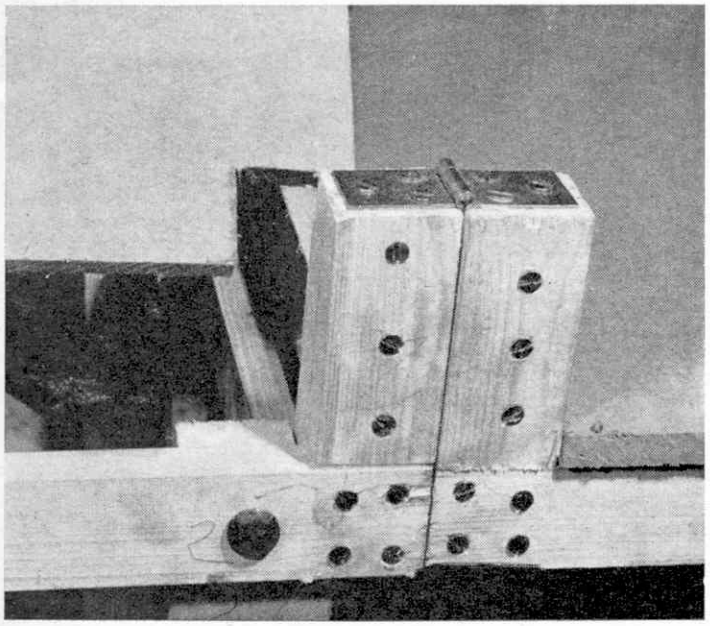




Two: Baseboard Construction







the construction of scenery and the extra expenditure in buying a sheet of this size is therefore well worth while.

Construction of the station baseboards begins with two 5 ft. long side members for just one of the two sections. These are marked at 10 in. centres along their entire length for the centre lines of the cross battens. Using a number 17 twist drill, two holes are drilled and countersunk at each of these markings. This is repeated for the other side member, after which both are laid on the floor or work surface, with the seven battens placed in their correct positions over the centre-line markings on the sides of the cross members. Transfer the positions of the holes on to the end of the batten by inserting a small drill and twisting so that it leaves a mark on the batten. These are then drilled with a $\frac{1}{16}$ in. pilot hole to help make the operation of screwing the members together a little easier. Repeat this procedure for the other six battens and then place one roughly in position at one end between the side members, spreading glue over the end of the batten and the inside of the side member. Screw this joint together with just one (for the moment) $1\frac{1}{2}$ in. gauge eight wood screw and repeat this, spreading glue and screwing together with only one screw, at the opposite end of the batten so that the two side members are joined together by one batten.

Place another batten in the middle of the side member, opposite the corresponding centre-line marks and screw and glue as outlined above. Do not as yet add the other end batten. Also, be most careful not to use pieces of wood that are twisted or warped, because they will introduce a twist into the baseboard, which will make both the hinging of the two sections and track laying much more difficult. Once all six 2 in. by 1 in. battens have been screwed and glued into the framework, a second screw can be inserted into each joint.

When adding these, first put one screw in an end joint, then another screw at the opposite end of the framework and on the opposite side, then add screws to one of the middle battens. This procedure minimises any chance of a twist occurring in the baseboard, and afterwards screws can be added to all the remaining joints.

The other end piece can also be added and this, you will note, is 6 in. high. The 6 in. high hinge blocks at the opposite end of the baseboard can also be built up from 2 in. by 1 in. wood, or, if you prefer, a 2 in. by 2 in. block of hardwood, I have used two pieces of 2 in. by 1 in. timber screwed together since this is more easily available. The rear piece of this block has an area of 2 in. by 1 in. removed, as you can see from the photographs, so that it fits on the end batten of the baseboard to lie flush with the end of the baseboard. The front piece of the block is also cut so that it lies flush with the side member. Two screws are used to hold the block unit on to the baseboard framework, and three screws are used to hold the two pieces of 2 in. by 1 in. timber together.

One of the most satisfactory glues which we used throughout, was the P.V.A. white adhesive, although of course any wood glue would do just as well. While on the subject, do not forget to glue the two pieces of timber forming the hinge blocks together, before screwing up.

The baseboard surface is really best left until the legs are in position, although you can of course cut it to the correct size with the pieces removed at two corners for the hinge blocks.

Next month we shall deal with the construction of the legs, traverser section and traverser mechanism.

Materials List for two Station Sections each 5 ft. × 18 ins.

2 × 1 in. Planed Timber
4 × 5 ft.
12 × 18 in.
8 × 6 in. (hinge blocks)

6 × 1 in. Planed Timber
2 × 18 in.

Baseboard Surface
$\frac{1}{4}$ in. thick sundealer or similar
4 × 8 ft.

Opposite page, top to bottom:

A scene on the finished layout, the new Tri-ang Hornby type 3 diesel electric locomotive can be seen near the station buildings. An impressive locomotive, this is a remarkably accurate model with really fine crisp detail. It also has the great advantage that it is ideal for layouts of the type under construction since it is quite suitable for both goods and passenger trains. The station buildings are also standard Tri-ang Hornby products and they give exactly the right atmosphere to the station section. The locomotive, R751, costs 55s. 9d.

One of the baseboard sections in the process of being glued and screwed into position. The end of the batten is given a coat of P.V.A. glue and fitted into the framework so that it can be screwed into position

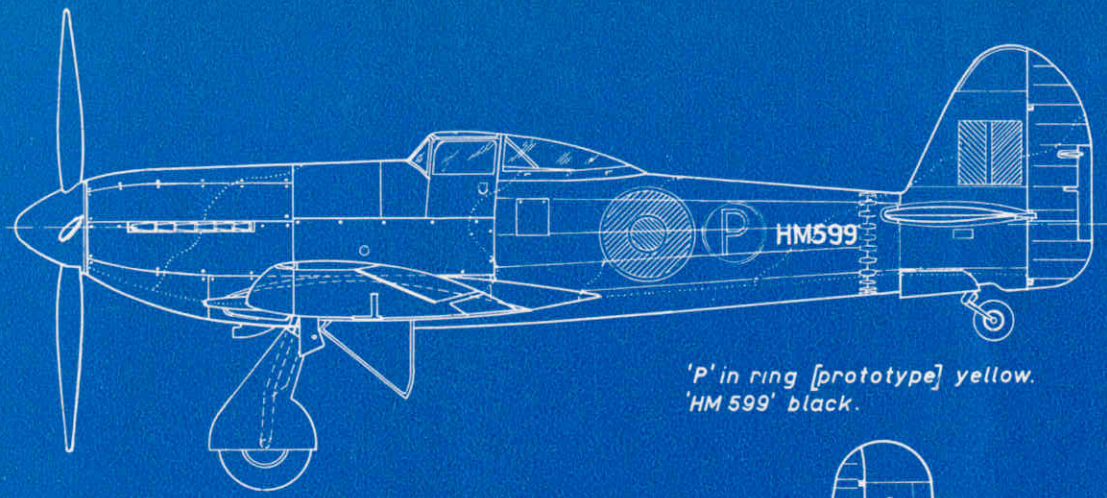
Showing the construction of one of the four hinge blocks. The inside corner of the baseboard is given a coat of glue before the block is secured with two screws

This page, top to bottom:

One of the completed station baseboard sections

When the hinge is attached to the top of the hinge blocks, the two station baseboards should butt neatly together as shown here

The baseboard surface being placed into position and showing the cut-out portion to allow for the hinge blocks

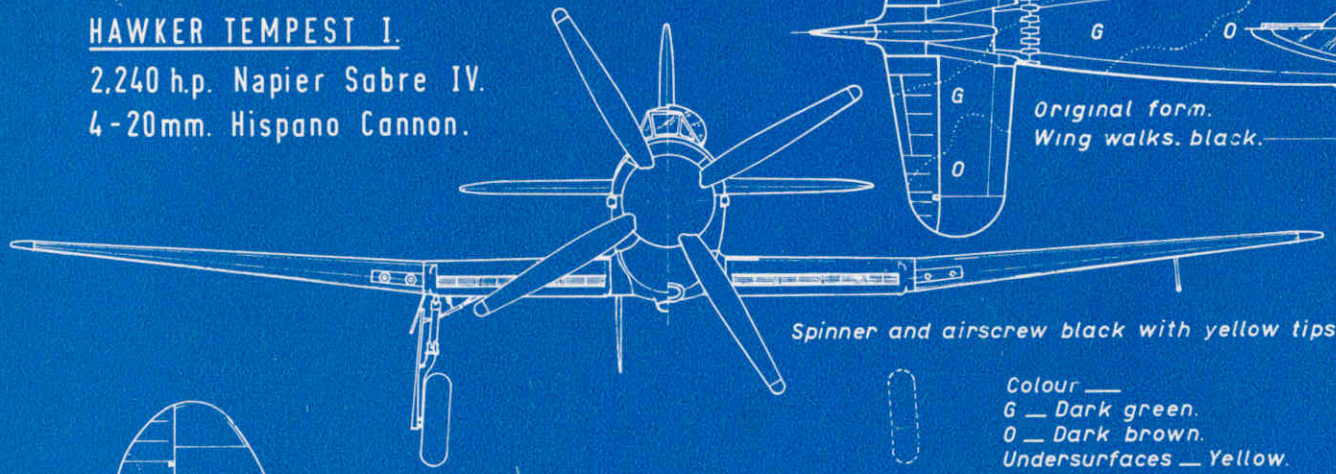


'P' in ring [prototype] yellow.
'HM 599' black.

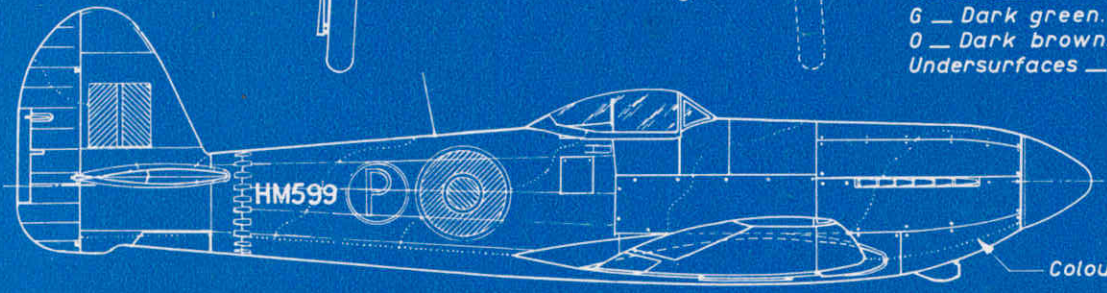
Original form with long canopy and projecting cannon.

HAWKER TEMPEST I.

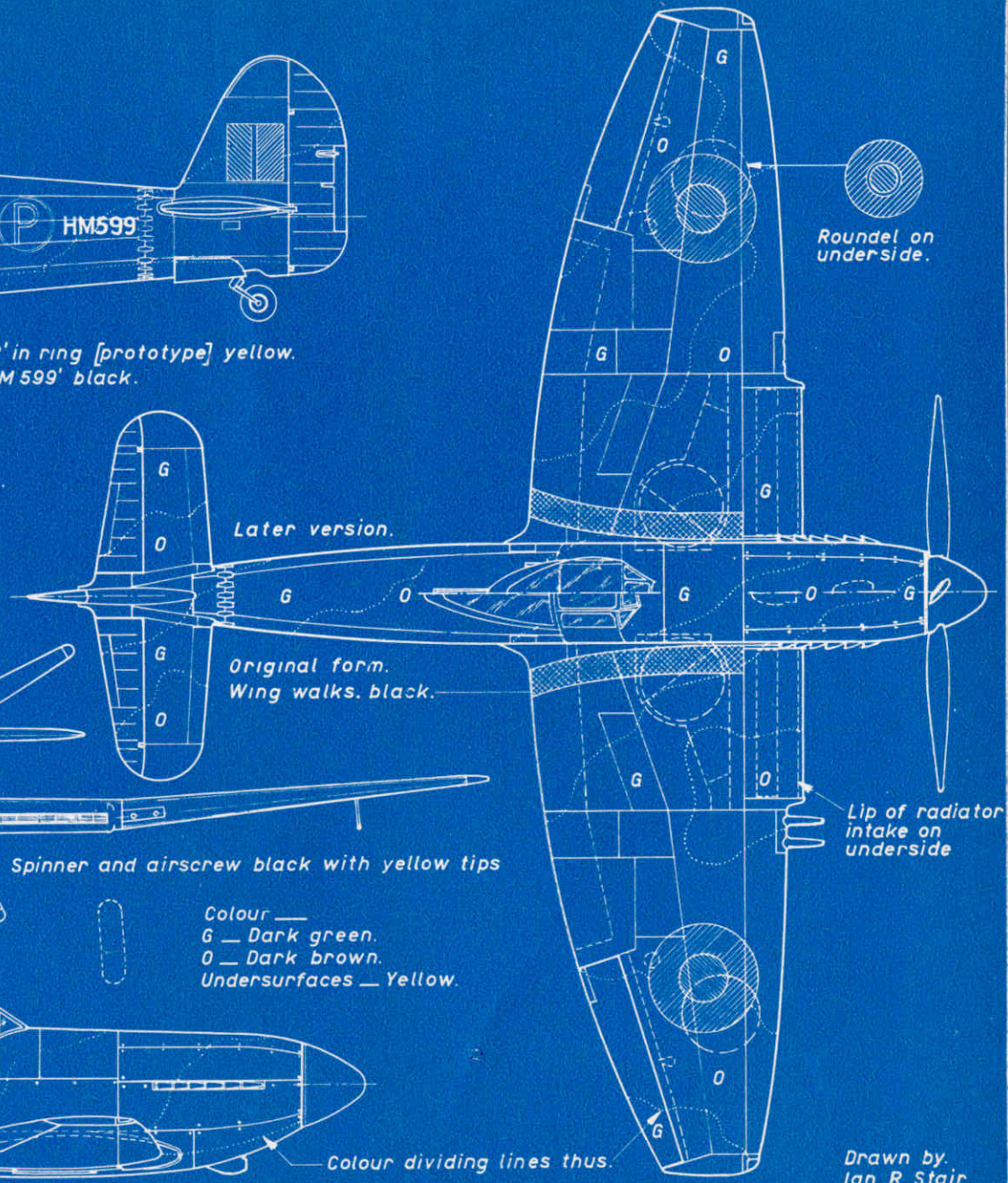
2,240 h.p. Napier Sabre IV.
4-20mm. Hispano Cannon.



Spinner and airscrew black with yellow tips



Later modification with bubble canopy.



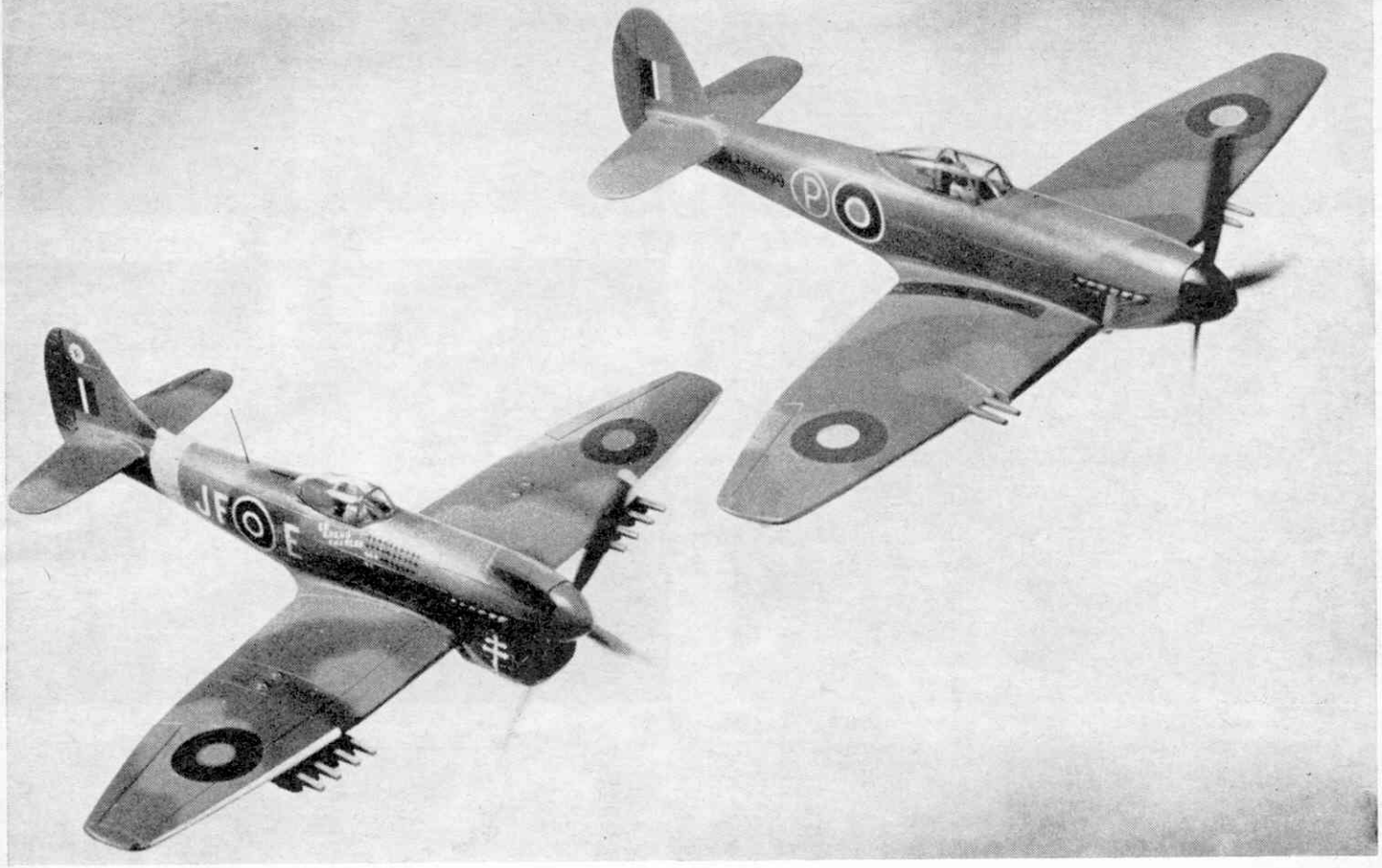
Colour —
G — Dark green.
O — Dark brown.
Undersurfaces — Yellow.

Colour dividing lines thus.

Drawn by.
Ian R. Stair.

Scale.
12" 0 1' 2' 3' 4' 5' 6' 7' 8' 9' 10'

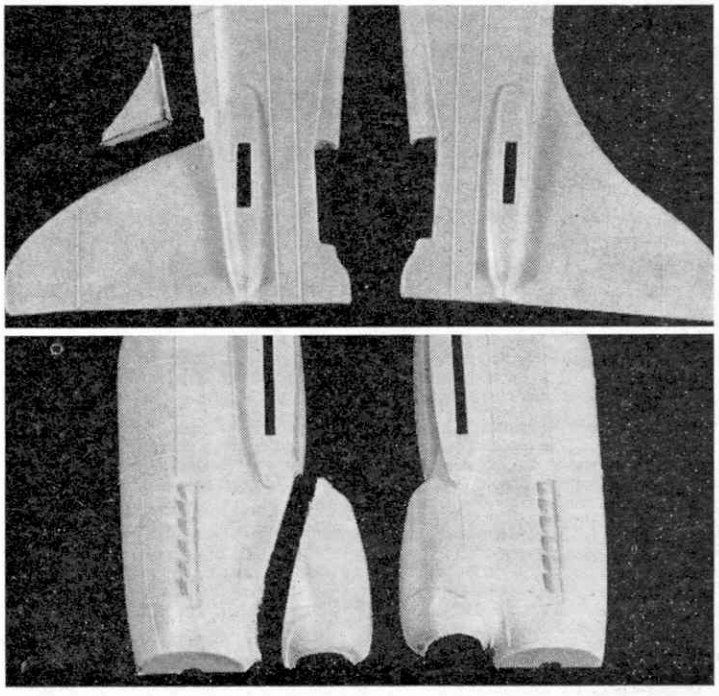
Hawker's Beauty



Plastic kit conversion addicts can have a field day with the latest Frog 1/72 scale Tempest V. There were numerous experimental revisions of the Tempest, any of which would make highly interesting model projects, but Doug McHard chose the very first Tempest I prototype, for this month's feature not only for it's sleek 'Spitfire-like' lines but also because it is a fairly uncomplicated conversion. Our heading photo shows the results of our labours 'flying' in formation with a Tempest V built straight from the kit, in the colours of French ace Pierre Closterman. The beautiful shape of the prototype was, as you can see, largely lost in the production machine, but there's no denying the bulldog-like aggressiveness of this classic aeroplane. John Taylor writes about it on page 24.

1 The fin must be cut down to remove the dorsal fairing. Use a knife or razor saw and restore the streamlined leading edge shape with file and fine abrasive paper

2 The 'beard radiator' must be sawn off, but be careful to leave the circular nose section un-cut



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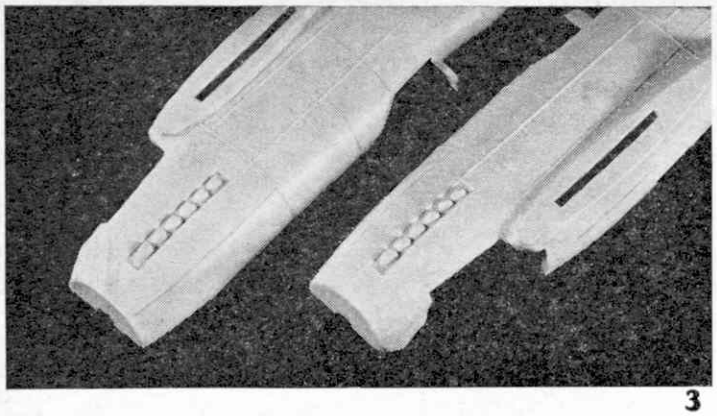

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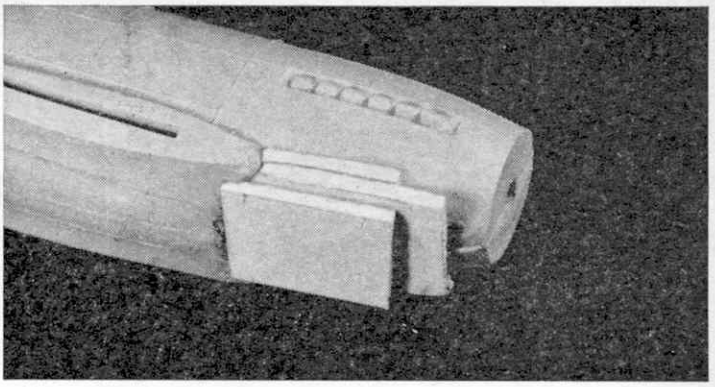

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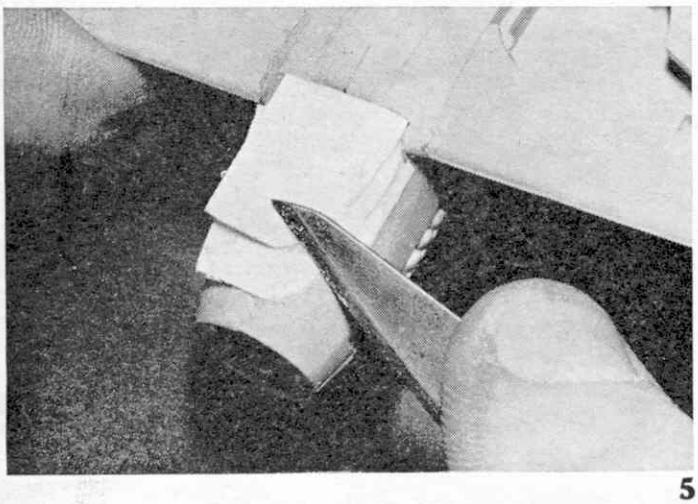

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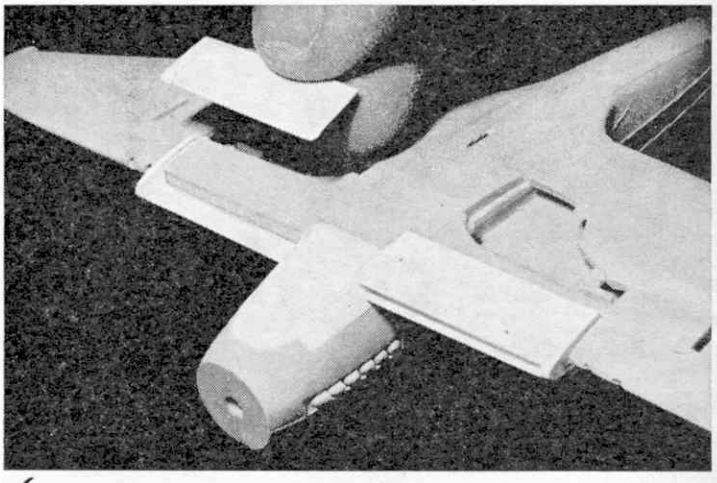

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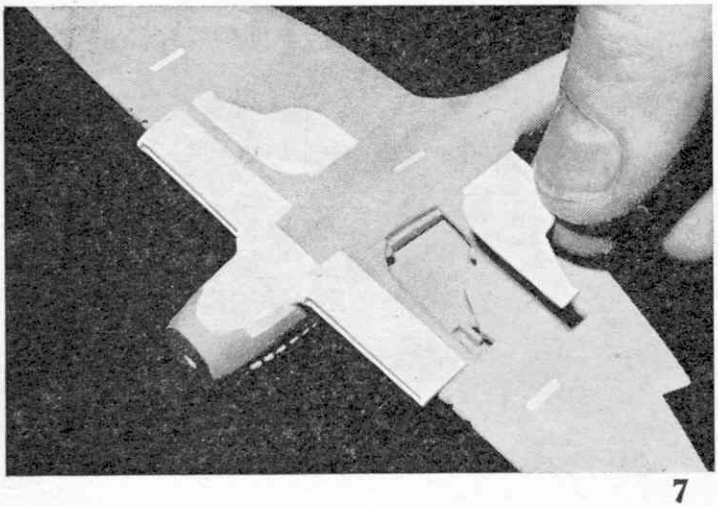

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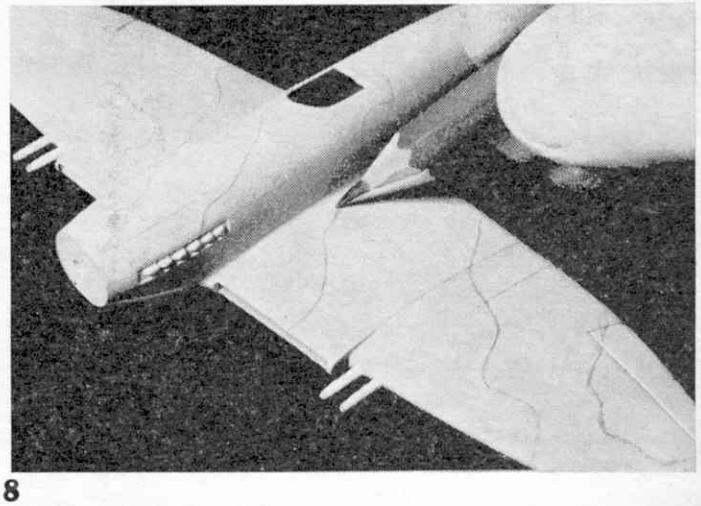


8

3 Cut away the remainder of the radiator side bulges and file the resulting cut-out to a 'square' shape

4 Cement the fuselage sides together and fill in the nose underside with small pieces of ☆ in. styrene sheet (Plastikard). We needed three small rectangles to do the job. Use a liquid cement such as Mek Pak rather than a tube cement and allow to dry overnight

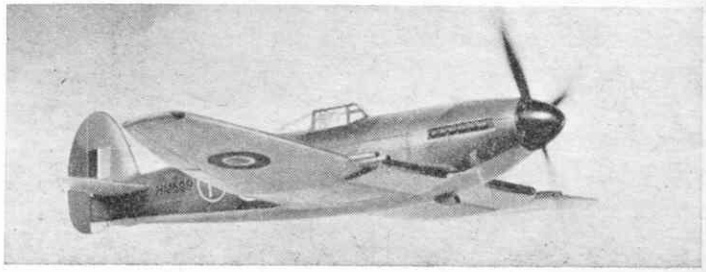
5 When you are sure the cement is *completely* dry (tube cement will take much longer than liquid), carve and file the nose to its new shape. Use body putty to fill in any gaps that remain after shaping.

6 The inner wing leading edges are now filed flat and the radiator divisions scored on the front face. The top and bottom of the wing radiators are cut from thin (20 or 30 thou.) styrene sheet and outer end plates cut to fit. The rear edge of the top radiator piece is filed to a feather edge to blend with the wing upper surface, but the lower piece is left un-tapered

7 Radiators and nose complete. A further refinement (if the wheels are to be 'retracted') is to cut a new wheel-well cover in thin styrene to replace the two-part covers supplied with the kit. Notice that the underwing slots for the external armament, and the fuselage slot for the stand have been filled in with styrene wedges and smoothed over. The inner end of the wing radiator is also 'faired in' with body putty. (Compare with photo 6)

8 The wing cannon barrels are made from the unused 'rockets' supplied with the original kit and the wing gun blisters must be cut off. After painting all the upper surfaces in dark earth, the areas to be coloured dark green are marked with a soft pencil. All undersides are painted yellow

Other points to note. A small air intake under the nose must be made from spare plastic moulding sprue. Our heading photo shows the modified model as the *first* prototype which had the original Typhoon-type long cockpit canopy. Details of cockpit moulding were given in the April 1966 Meccano Magazine for those who wish to duplicate our efforts. However, it would be equally correct to employ the hood supplied with the kit, since the prototype Tempest was later fitted with this. If this version is made, the cannon barrels should be omitted, and the small nose intake should be moved forward slightly. The registration HM 599 remains the same



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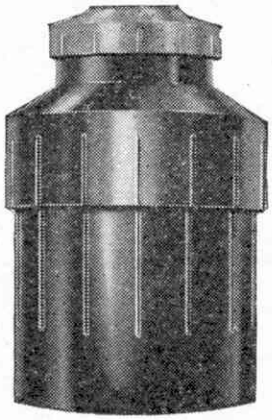

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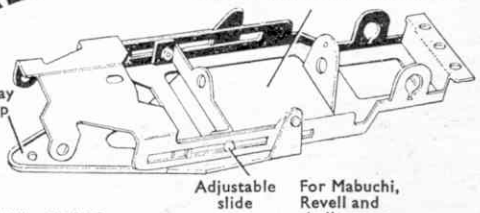

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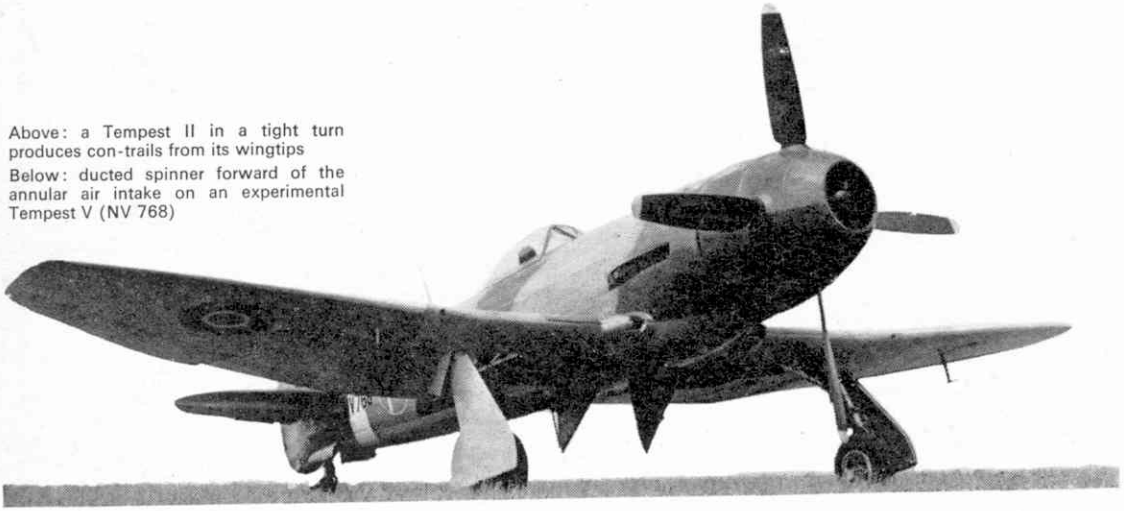
From Typhoon to Tempest

The Typhoon, a troublesome aeroplane at first, paved the way for its remarkable successor, the Tempest. This month, John W. R. Taylor describes the machines which caught and destroyed enemy flying bombs during the last exciting days of the piston-engined fighter.

Above: a Tempest II in a tight turn produces con-trails from its wingtips

Below: ducted spinner forward of the annular air intake on an experimental Tempest V (NV 768)



OF all the aircraft developed by the Hawker company during the 40 years when Sir Sydney Camm led its design team, only one suffered structural failure. This was the Typhoon single-seat fighter.

Unlike its predecessor, the Hurricane, the Typhoon had a more modern metal-covered semi-monocoque rear fuselage. The prototype took off for the first time on February 24, 1940, powered by a 2,100 h.p. Napier Sabre engine. A few weeks later, on May 9, while it was being flown by Hawker's Chief Experimental Test Pilot, Philip Lucas, the fuselage cracked open just behind the cockpit. Instead of baling out, Lucas stayed with the aircraft, which might have broken up completely at any moment, and landed it safely. His courage earned him the George Medal and enabled the cause of the failure to be determined quickly.

Unfortunately, this was not the end of the Typhoon's troubles. Persistent failure of the insufficiently-developed Sabre engine led to so many forced landings that pilots began to talk scathingly of 'Typhoon gliders'. Even worse, the aircraft showed a horrible tendency to lose its whole tail when dived at high speed and several pilots were killed when this happened.

Hawker's design team could hardly be blamed for this. Over in America the same thing was happening to Lockheed's P-38 Lightnings, for the same reason. The Typhoon was the first over-400 m.p.h. British fighter. In a dive, it reached 500 m.p.h., at which speed the airflow over the thick wing approached near enough to the speed of sound for the aircraft to run into 'sound barrier' problems. Shock-waves of air buffeted the airframe like blows from a mighty sledge-hammer until, eventually, the loads on the aircraft became so great that the tail snapped off.

By strengthening the rear fuselage, Hawker's made the Typhoon completely airworthy and it ended up as one of the most effective ground attack fighters of the war, sweeping a path through Northern France for the Allied armies in 1944-45. But Camm had realised as early as 1940 that the real answer to the problem was to fit a thinner wing, which would eliminate the shock-wave problems at the kind of speeds attainable with piston-engined fighters.

In technical terms, the Typhoon wing had a thickness/chord ratio of 18 per cent. This means that, at the point where the wing was attached to the fuselage, its thickness was equivalent to nearly one-fifth of the distance from the leading-edge to the trailing-edge. Camm's staff designed a new wing with a thickness/chord ratio of only 14·5 per cent at the fuselage end, decreasing to 10 per cent at the tip. Maximum thickness was five inches less than that of the Typhoon's wing.

A Mark II version of the Typhoon was designed to utilise the new wing and was submitted to the Air Ministry as Hawker's answer to the requirements of the official Specification F.10/41. On November 18, 1941 two prototypes were ordered, followed soon by a contract for four more and then by an order for 400 production models in August 1942, before even the first prototype had flown. There could be no better indication of the confidence the R.A.F. had in Hawker products or of how desperately the new fighter was needed.

To reduce the fire risk to the pilot, the Air Ministry had laid down some years earlier that all fuel should be carried in the wings of combat aircraft. However, the thin wings of the Typhoon II could not hold so much fuel as the thicker wings of the Mk. I; so an additional tank was installed in the fuselage, immediately behind the Sabre engine. It was soon decided that the two Marks were so different that the Mk. II ought to be renamed, and it became the Tempest.

Several different versions were designed, but the one that seemed to hold most promise was the Tempest Mk. I. This not only had the more powerful Sabre IV engine, but was fitted with new radiators, buried in the wing leading-edges, in place of the big 'chin' radiator of the Typhoon. Its engine could, therefore, be closely cowled, making it by far the most elegant of the Tempest family.

The Mk. II was designed around a 2,520 h.p. Bristol Centaurus radial engine, and the Mks. III and IV (which were not built) around Rolls-Royce Griffon engines.

In the event, the first prototype to fly, on September 2, 1942, was the Tempest Mk. V, HM595. This had the same 2,180 h.p. Sabre II engine, chin radiator, tail unit and cockpit canopy as the Typhoons then in production. Flight trials showed the need for a dorsal fin and increased tailplane area to 'balance' the longer nose; otherwise, the new aircraft proved every bit as good as had been expected. So, as the Sabre IV engine was giving trouble, the Air Ministry ordered the Tempest V into production instead of the Mk. I.

This was not so easy as it might have seemed. Britain's aircraft industry was so short of draughtsmen at the time that some of the design changes made in developing the Tempest from the Typhoon had been worked out by skilled craftsmen in the Experimental Workshops, without drawings to help them. They claimed that the result was a far better aeroplane; unfortunately, without a full set of drawings, it was almost impossible to build any more!

The only solution was to produce the missing drawings by taking measurements and other details from the prototype between test flights. Only one member of the design team could be spared to go to the production and test centre at Langley, in Buckinghamshire, for this job, and I was lucky enough to be chosen, although only twenty years old at the time. An Assistant Chief Draughtsman came to Langley once or twice a week to check progress and give me the benefit of his vastly superior experience.

In this way, all the necessary drawings were soon produced and the first production Tempest V (JN729) flew for the first time on June 21, 1943. The initial batch of 100 aircraft were each armed with four 20-mm. Hispano Mk. II cannon, the barrels of which protruded from the wing leading-edges, and were known as Tempest V Series 1 fighters. Later aircraft, with Hispano Mk. V guns fully enclosed in the wings, were designated Series 2. All had an improved, rearward-sliding canopy.

Top speed of these aircraft in level flight was 426 m.p.h., making them among the fastest of their day (faster than even the first Meteor jet-fighters). The Tempest I (HM599), which flew on February 24, 1943, was even faster, with a maximum speed of 466 m.p.h.; but the Sabre IV did not go into production and this version was abandoned. The first Tempest II (LA602) flew on June 28, 1943, and this version was built in considerable numbers, but was not ready in time to see any action in World War II.

The Tempest V, on the other hand, arrived in service at precisely the right moment. Fifty were delivered to Nos. 3 and 486 Squadrons in April 1944 and by mid-year No. 56 had also exchanged its Typhoons for Tempests. These three Squadrons made up the first Tempest Wing, based at Newchurch in Kent, under the leadership of Wing Cdr. R. P. Beamont, D.S.O., D.F.C., then one of the R.A.F.'s leading fighter aces and equally well known today as the man responsible for flight testing of the Lightning fighter and Canberra and TSR.2 bombers.

Initially these Squadrons flew their Tempests over Northern France, Holland and Belgium, leaving behind a trail of wrecked airfields, radar stations, rail targets, bridges and other objectives. Then the Germans launched their V-1 flying bomb attack on Britain and the Tempest Wing was switched to home defence.

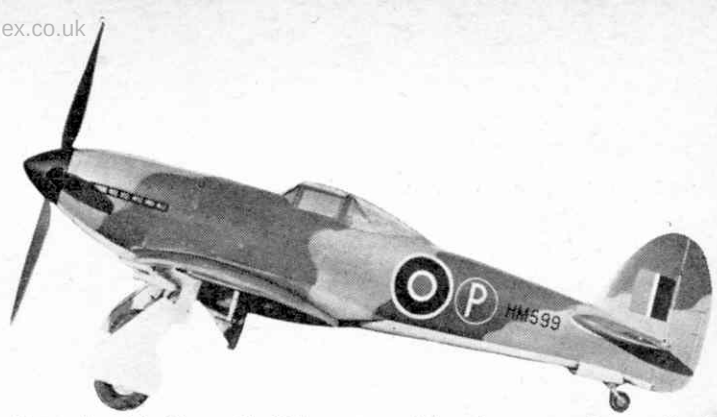
With an unrivalled cruising speed of 335 m.p.h., the Tempests needed to accelerate only a little to catch and destroy any V-1 spotted on its way to London. Between June 13 and September 5, 1944, eight Tempest V Squadrons destroyed 638 of the 1,771 flying bombs brought down by the R.A.F., Beamont alone claiming 32. Although the V-1's could not shoot back, the work was not without its hazards. Often the pilots had to fly through a cloud of flaming debris after their cannon-fire blew a V-1 to pieces, and we did not need to ask why when the Air Ministry requested us to coat the fabric tail surfaces of new Tempests with fireproof paint.

After the V-1's had been beaten, the Tempests were taken to France, where they achieved great success, not only in shooting up ground targets with guns, bombs and rockets, but in shooting down a number of the *Luftwaffe's* formidable Messerschmitt Me 262 jet fighters.

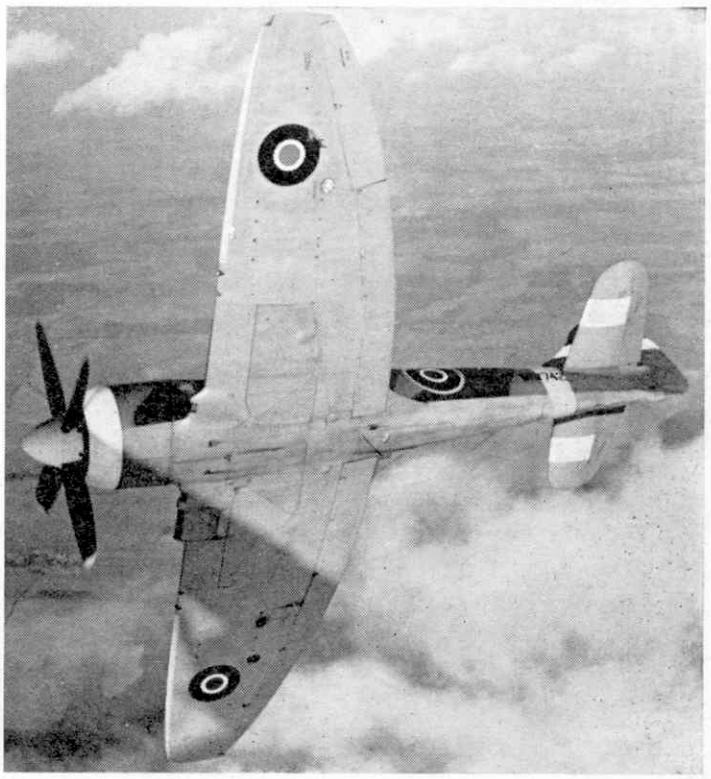
Only 805 Tempest V's were built, as many others were cancelled when the war ended. To them must be added 450 Tempest II's and 142 Tempest VI's which differed from the Mk. V in having a 2,340 h.p. Sabre V engine. All three versions remained in service for some years after the war. Many V's and VI's ended their days as target tugs and there were several experimental versions of the Tempest V, including one (SN354) armed with a pair of 40-mm. guns in underwing pods and another (NV768) with an annular radiator that made it look like a radial-engined aircraft.

Today, just two Tempests remain—a Mk. II in the R.A.F. Museum at Henlow and a Mk. V in the Skyfame collection—to remind us of the last great days of the piston-engined fighter

Data (Mk. V): Span, 41 ft. 0 in.; length, 33 ft. 8 in.; height, 16 ft. 1 in.; wing area, 302 sq. ft.; weight empty, 9,000 lb., loaded with two 1,000-lb. bombs, 13,540 lb.; max. speed, 426 m.p.h. at 18,500 ft.; climb to 15,000 ft. in 5 min.; service ceiling, 36,500 ft.; max. range, 1,530 miles.

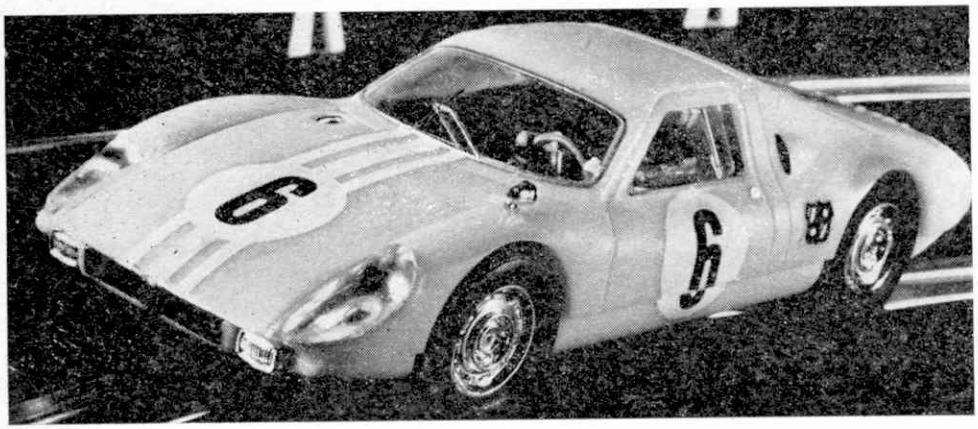


Above: the original Tempest I with long canopy. Below: the same machine now fitted with blister hood. Bottom: a fine underside view of a Tempest V showing the white identification bands (compare with photo on Facing Page)



THE POSH PORSCHE

The latest addition to the Scalextric Race-Tuned series, the Porsche 904 G.T.S. not only provides a hot and handsome racer for your Grand Turismo events, but, being in kit form, gives the opportunity to build a car that is just that bit different from all the others. To achieve this, a little care taken in assembling and finishing the model will pay dividends. The following photo-hints show how our Porsche went together. Don't forget that all Scalextric Race-Tuned cars must be driven with a Race-Tuned Hand Controller.



A The moulded parts of our kit were still covered with a thin film of mould grease. This must be removed, of course, before any painting can be done. Just rub the part gently with a rag and a little enamel thinners. It is very important to use only enamel thinners—other types may harm the polystyrene moulding.

B Fixing the windows into the body shell. Just a touch of Slater's Mek Pak, or similar liquid adhesive for styrene, with a fine brush, as shown here, will neatly 'weld' the window 'glass' in place.

C The headlamp recesses must be painted before the lamp glasses themselves are fitted. We painted ours silver, but it's perhaps more correct to paint just the circular lamp at the back of the recess silver, with the rest matt black. It's a matter of choice, really.

D TWO rear axles are supplied with the Porsche! One has a ratio of 3:1, the other of 3·66:1. The high ratio axle is most suitable for large layouts with long straights, whereas the lower ratio is best suited to small circuits. The axles can be changed over in a minute or so. The outer halves of the wheels are plated, and simply 'peg' into the inner halves. Tyres are of extra soft rubber for good adhesion.

E The axles run in special low-friction bearings, and simply 'snap' into locating slots in the car's underpan.

F The high-revving 12 volt motor is complete with pinion gear and leads already fixed in position. The whole assembly is a nice 'push' fit into its compartment.

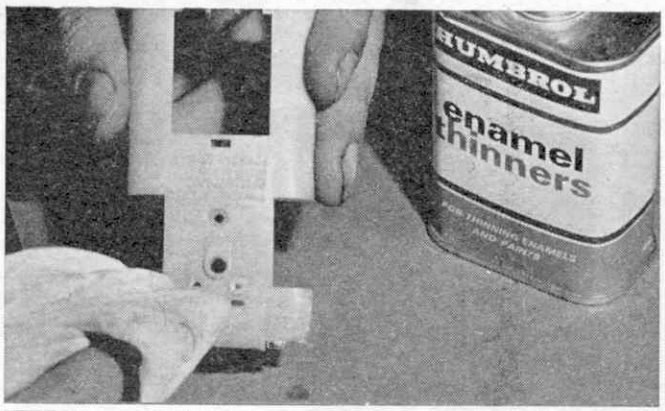
G & H Enough braid is supplied in the kit for TWO sets of pick-ups (two slot-guide blades (flags) are also provided, incidently). A hole is made in the end of each contact braid with a nail as shown in the photograph. The connection between braid and motor lead is made with a small round-head screw, which also secures the whole assembly to the chassis. Be sure to use the *small* screws for this job—the large countersunk ones are to secure the body to the chassis.

I The driver and cockpit interior must be painted before final assembly of the body shell. Matt black is best for the base, and the driver can really be 'dressed' to taste—ours has brown overalls, white helmet and gloves, and a pink face. Actually, we had to slice a little off the top of his head before he was comfortable in the low-slung Porsche!

J A very comprehensive transfer sheet is provided. (Don't be tempted to use them all—it would look awful!) The white discs are plain, and in two different sizes, and the racing numbers of your choice can be superimposed on them. Also on the sheet are flags, flashes, stripes, shields—take your pick. Careful use of transfers can make your car *different*.

Left: the completed Porsche taking a fast corner on a Scalextric layout. The lines of this car really do look fast—and handsome is as handsome does!

A



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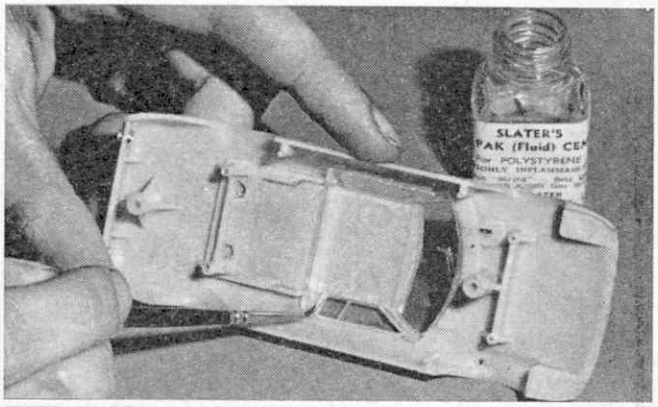

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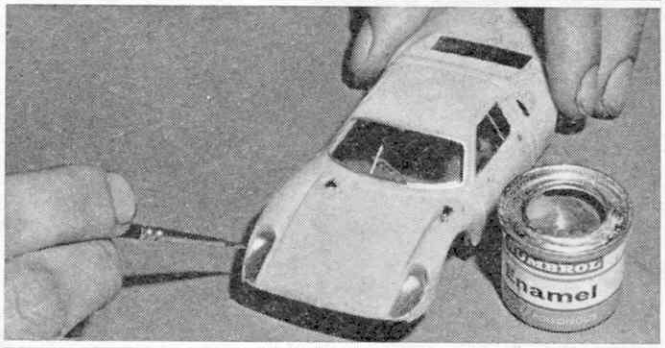

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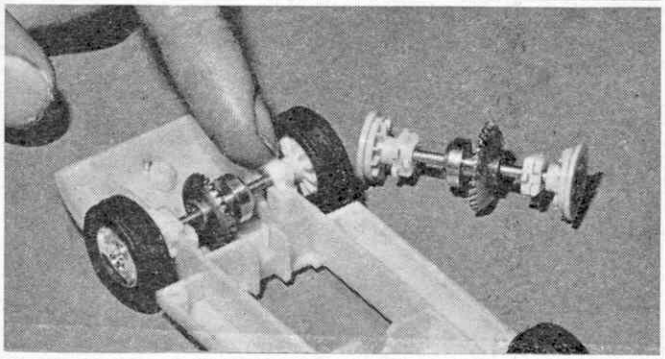

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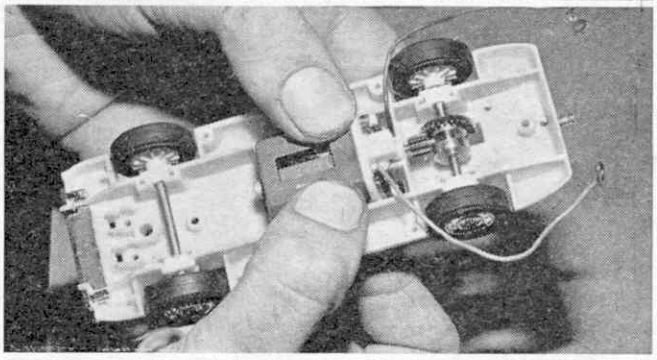

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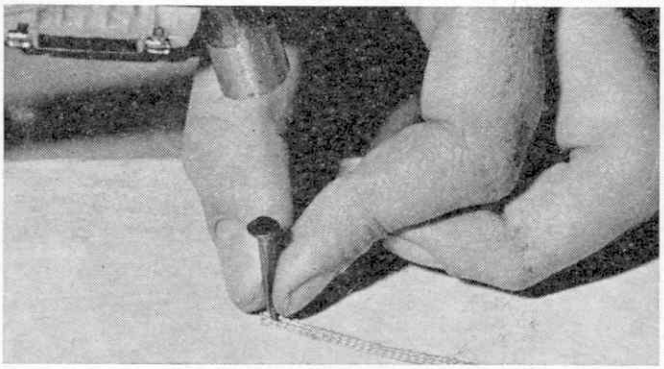

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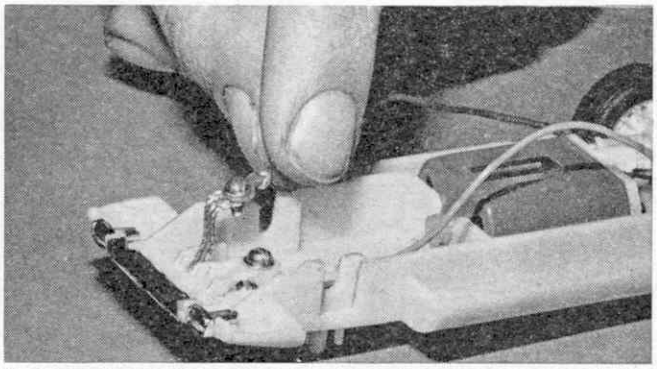

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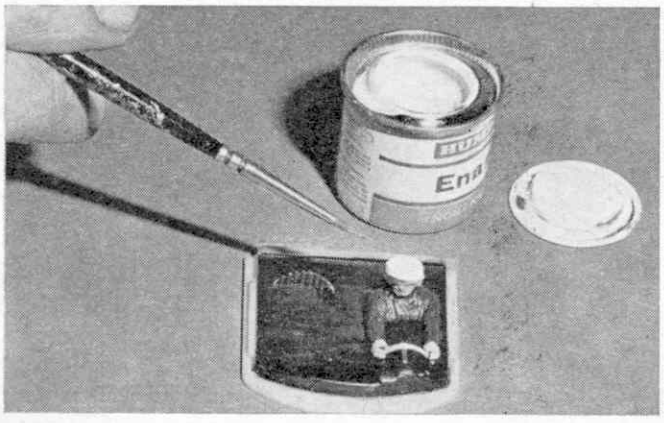

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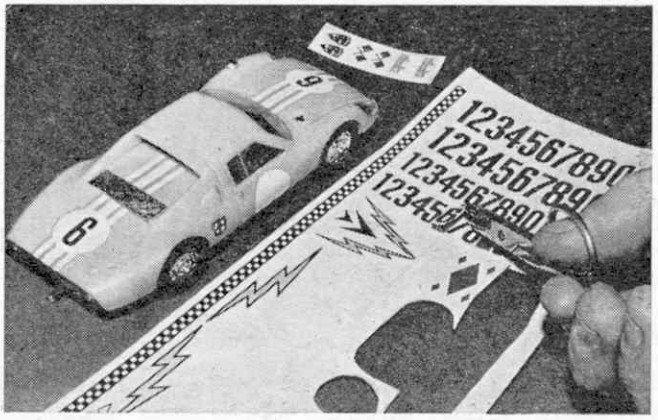

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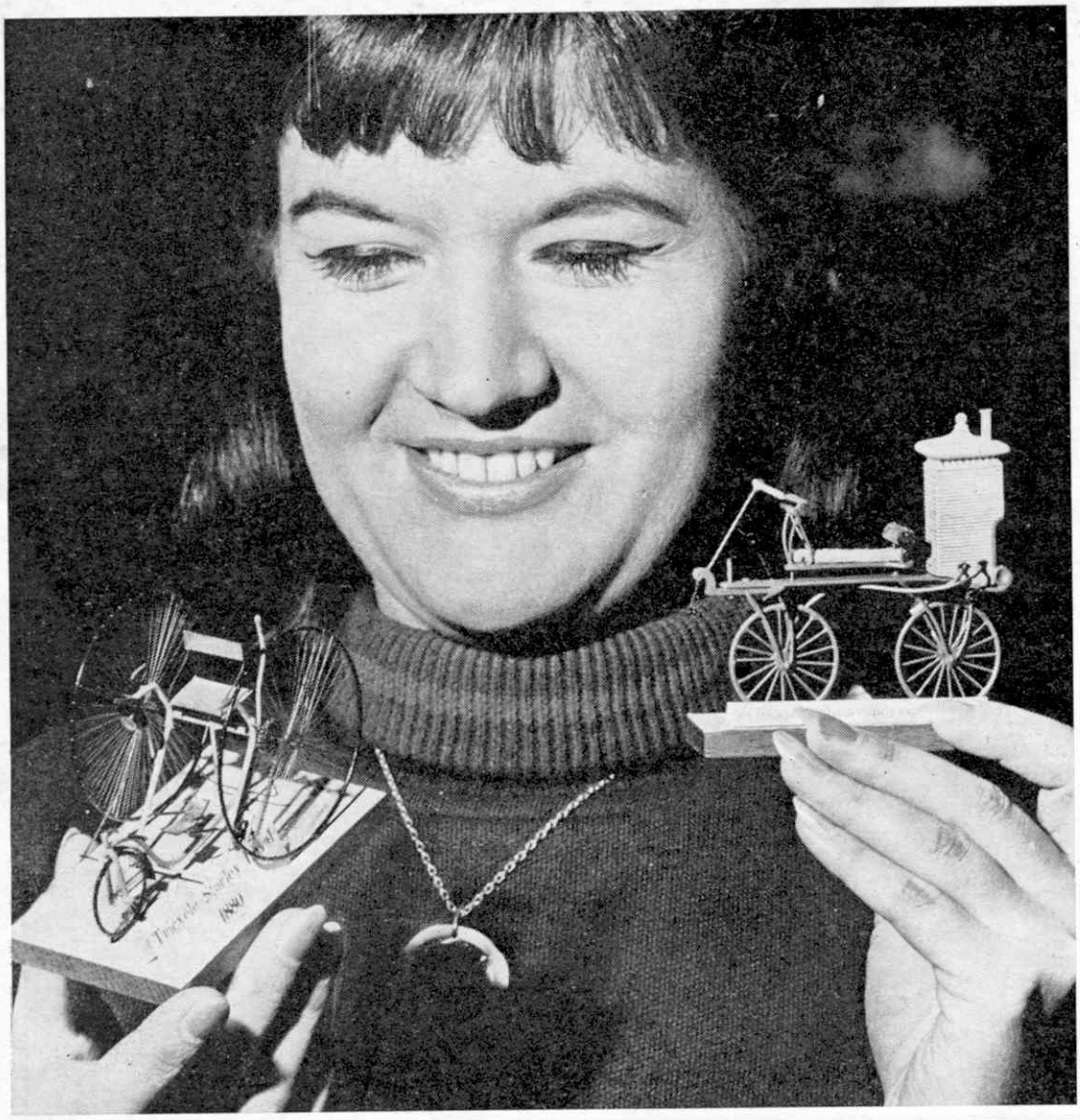
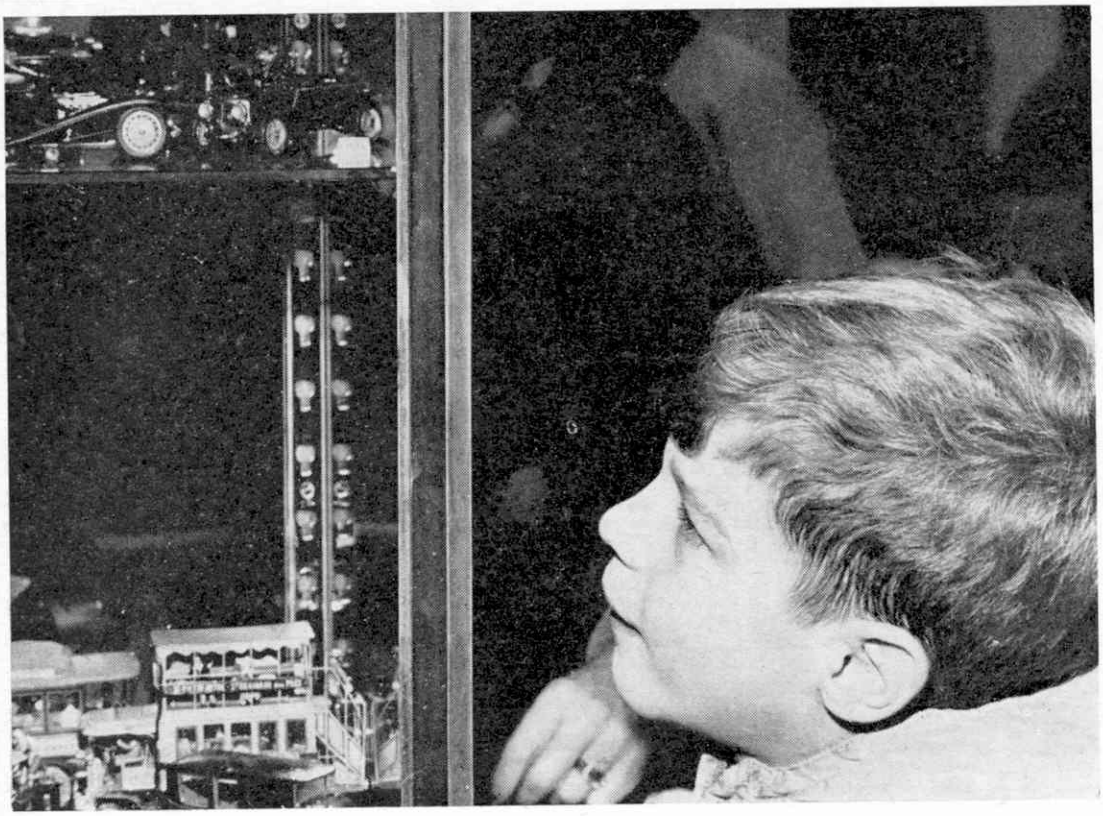


Left: Miss Liliane Duparez of Simca shows us Jean-Marie Broussard's beautiful little models. On the left is a Starley Royal Tricycle of 1880 and on the right a Raisiavaporianna Velocipede of 1818



THIS month I'm showing you a number of photographs taken by the editor, Mr. McHard on a recent trip to Paris.

Whilst in Paris, he happened to visit the Simca car showrooms and, much to his surprise, found a full-blown model car exhibition in progress, organised by the Simca people and the Mini-Auto club of France under the direction of their president, Jaques Greilshamer.

Wish I'd been with him, and I expect you will, too, when I tell you there were literally hundreds upon hundreds of models and old toys in various scales. Such goodies as old rare pre-war Dinkies and Tootsietoys, models by Gasquy of Belgium, J.R.D., C.I.J., Solido, Rami, etc., of France, Tekno, Budgie, Chad Valley Rio and many more, not to mention the dozens of one-off models—beautiful hand-built jobs with minute detail in scales of 1/42nd and 1/32nd—such as the model cars the young lady is holding and that old Paris double-decker and De Dion Bouton single-decker (incidentally, one of the oldest car names in automotive history — De Dion Bouton) in photograph 2.

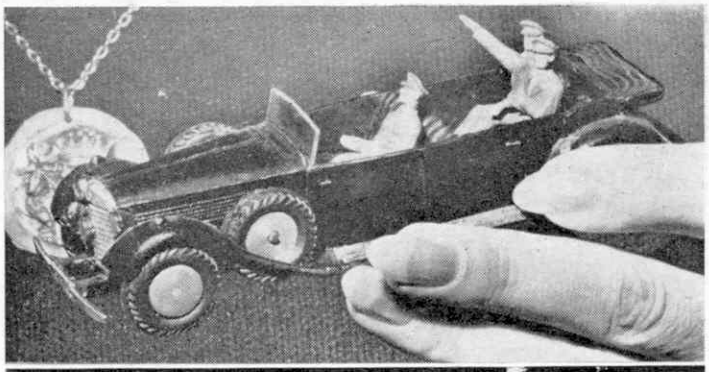
I can't identify *all* the models in the photographs, but I'll do my best to recognise most of 'em. Perhaps some enlightened reader can supply the rest of the necessary info'!

In photograph 1, that *big* Grosser Mercedes, complete with saluting Nazis (but, I notice, minus the standing figure of Hitler—wonder if he was lost or just thrown away?) is the now *very* rare pre-war model by Marklin, and very nice, too—an echo of last month's 'Three Pointed Star', eh?

Photograph No. 2 oozes with pre-war Paris nostalgia. Some big models of Paris public transport complete with atmospheric passengers.

In photograph 3, reading from left to right, top to bottom, is a Tatra saloon by the old Belgium firm of Gasquy. This is a rare and unusual model with very nice hub caps which are particularly lifelike. Judging by the photograph, it appears to be painted cream or a light colour. My specimen is in red and doesn't have such a good paint finish as the one in the photograph. The next model to the right of the Tatra and pointing front on is the beautifully cast Humber Super Snipe by Chad Valley of England. (They also produced a Hillman

Salon D'Automobiles miniatures 1966



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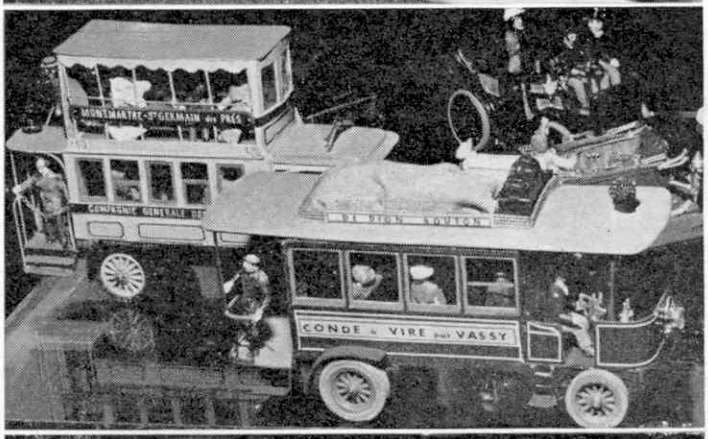

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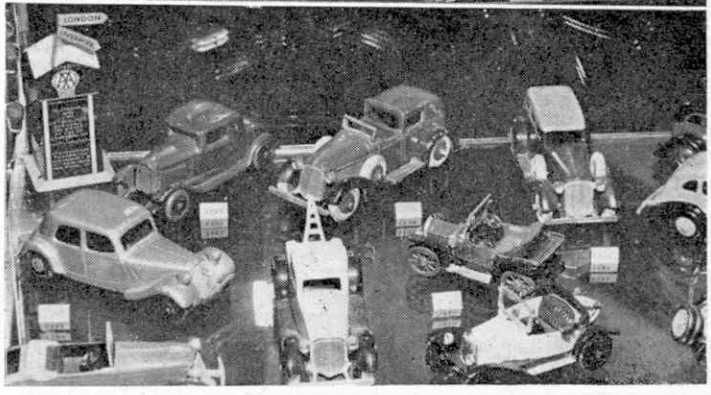


5

Minx, Sunbeam Talbot, Humber Hawk, Razor Edge saloon, traffic control car, police car, plus numerous commercial vehicles, including an excellent Commer Hands articulated lorry and a series of Guy vans around 1949-'50-'51.) As I say, this is a fine model of the Snipe. It had a clockwork motor, as did all in the series, detachable rubber tyres on plain hubs which were standard, and the base-plate—which was riveted on in the usual Dinky manner—bore the legend 'Humber Super Snipe. A Weekin toy by Chad Valley, made in England'. Immediately to the right of the Humber is the pre-war French Dinky Petrol Pump, known as the double petrol pump and numbered 49C. In line with this, and just peeping in, the police car, a Wolseley, by the now defunct Budgie Toys of England.

I can't place the two cars in the next line. No. 1107 looks like a French Dinky but isn't. Suppose it could be C.I.J. or J.R.D. Below this, with a keyhole in its side, is the Hillman Minx by Chad Valley. The No. 1115 is, of course, the exhibition catalogue number and *not* Chad Valley's. The Hillman is enamelled in a polychromatic finish, as were most of the C.V.s, and very fine they looked, too.

Behind this model is another pre-war French Dinky Petrol Pump, No. 49a Pump Colonne. With these is, I think, the Tekno Volvo P.V.544 No. 822. I may be wrong here because mine looks a little different with windows and black tyres. Anyway, this possibly is the early version.

The last line in this photograph consists of a Tekno M.G.TD, a Tekno 1949 Mercury saloon with wireless aerial you can move up and down, plus rather smart simulated cloth seats but no windows, and the Austin Taxi No. 36G, post-war issue of a pre-war casting by Dinky of England. It's one of *the* best Dinkies and the one model in the photograph you'll all recognise.

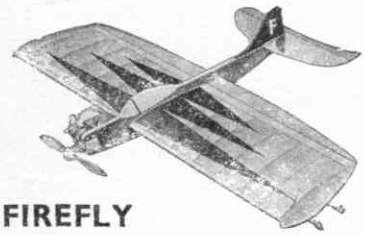
Photograph No. 4 consists only of pre-war Dinkies—just to make your mouth water! Again, from left to right, top to bottom, No. 24A, 'Bentley' ambulance (second type with filled-in windows and, possibly, the French version—i.e. made in France with British mould), No. 36E British Salmson two-seater (post-war type) and No. 30D Vauxhall—second type radiator. In the next line we have the Armstrong Siddeley saloon No. 36A, the Bentley two-seater coupe numbered 36B, the Humber Vogue saloon No. 36C and, just peeping in and attached to the Humber, the rare caravan No. 30G.

On the bottom line, from left to right, No. 39E, Chrysler Royal Sedan, 39A Packard Super 8 saloon, 36F British Salmson four-seater and, lastly, the Lagonda sports No. 38G. With the exception of the caravan, I'm sure the others are post-war reissues with a repaint job on the ambulance, Chrysler and Packard. Also, the Packard's wheels are engine-turned and non-original.

Photograph No. 5 shows some much revered and searched-for Tootsietoys. From the left, the British Dinky A.A. box with movable hinged signs, 'London, Liverpool, Glasgow'. No. 44A. Tootsietoy 1926 General Motors car, possibly a Chevrolet, but was also done in this series with various body styles as Cadillac, Ford and Buick. Next, from Tootsies, the Graham Paige Blue Streak series, their town sedan, a saloon with twin spare tyres and, just peeping in—reverse wise—another Graham and La Salle saloon. The next line contains a French Dinky KT type Citroen 11 BL (Maigret type), a Tootsietoy Graham Paige wreck truck and, to the right of this, an unknown old-timer and, facing the camera, a boat tail 5 CV Citroen of 1924 by R.A.M.I. of France (post-war and current). To the left of the wrecker is a Graham coupe. Though Dowst still manufacture Tootsies in Chicago, U.S.A., these truly great Graham models are now, of course, unobtainable.

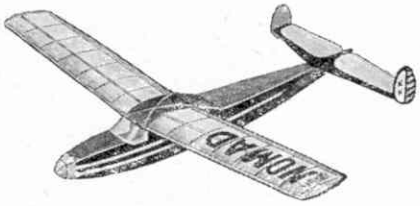
Collectors who can also write, please note that it would be helpful in future if all letters were addressed to me *via* Meccano Magazine in London, and *not* Meccano Ltd., Liverpool. Meccano Ltd. haven't complained, and they're always very helpful, but I'm sure they haven't time to forward all your letters to me. Also, please *don't* write to them about obsolete models. They don't have an old model or old catalogue in the place, not even for their own record; I know, I wrote them about this five years ago!

START OFF RIGHT with a KEILKRAFT model aircraft kit!



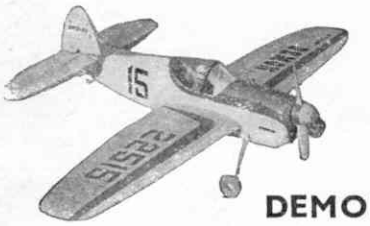
FIREFLY

Stunt model with "profile" type fuselage, specially designed for engines under 1 c.c. Kit contains die-cut parts. Wingspan 20 in. **19/9**



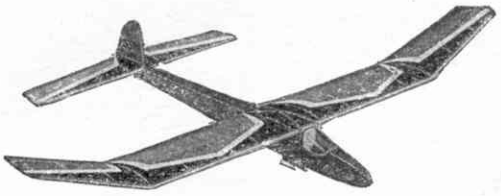
NOMAD

Beginner's model with fuselage parts, tailplane and fins in pre-cut, decorated sheet balsa. 20 in. span. **5/11**



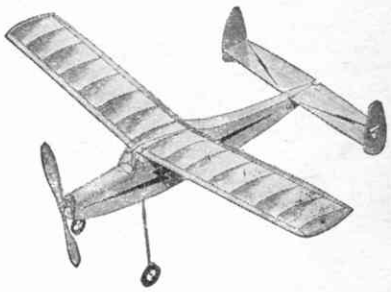
DEMON

Class A team racer to the new S.M.A.E. specification. Kit contains die-cut parts. For engines up to 2·5 c.c. Wingspan 30 in. **36/3**



CONQUEST

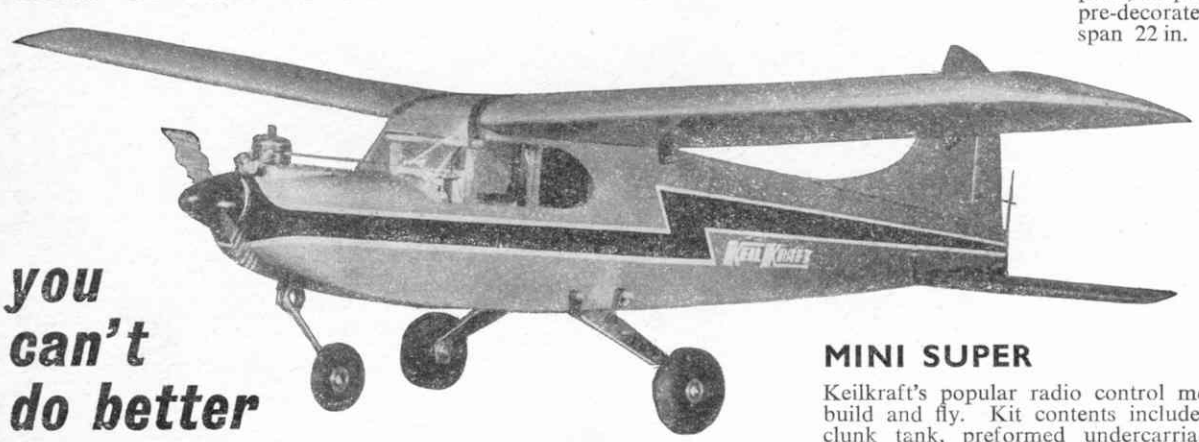
Towline glider for beginners, with a very good performance. Kit contains die-cut parts. Wingspan 30 in. **9/4**



GEMINI

Duration model with all fuselage parts, tailplane, and fins in pre-cut, pre-decorated sheet balsa. Wingspan 22 in. **10/-**

and when it comes to radio control



you can't do better than start off with a Mini Super!

MINI SUPER

Keilkraft's popular radio control model. A real pleasure to build and fly. Kit contents include—all parts pre-cut, metal clunk tank, preformed undercarriage, three sponge rubber wheels, pre-shaped leading edge section, full size plan and building and flying instructions. For 1·5 to 2·5 c.c. engines. Single channel or intermediate R/C. Wingspan 48 in. **£4. 18. 0**

KEILKRAFT

RIGHT from the start!

See this famous range at the local model shop

All these Keilkraft kits contain die-cut parts for speedy, accurate assembly, and full size plans plus building and flying instructions.

Building a Permanent Circuit Part Two

Last month we made the baseboard and laid the S.R.M. track in place. Now Godfrey Arnold describes the wiring of the power unit, television suppression and dynamic braking, and next month we start to add the scenery.

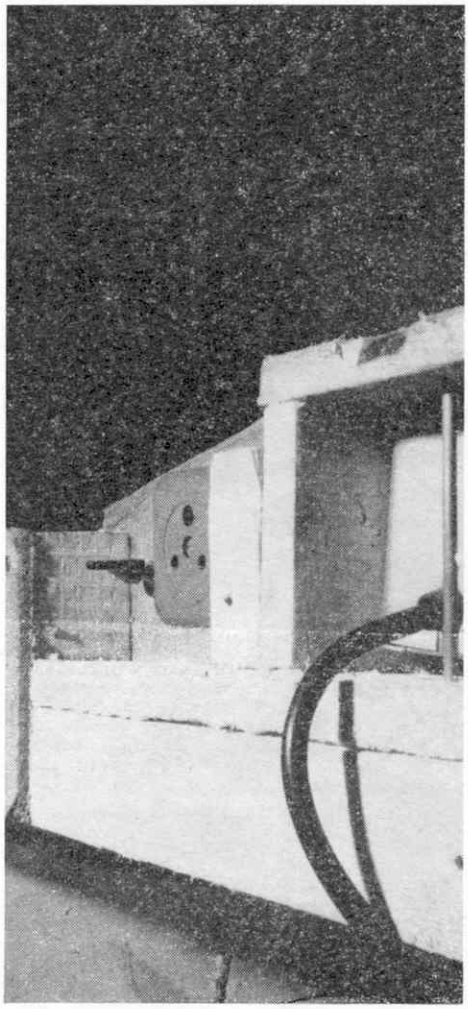
LAST month I showed how the circuit was prepared to a state where it could be raced upon. This month I will describe how it was wired up and made ready for the addition of scenery.

Most club tracks use 2 amp., 3 pin sockets for controllers, so it is convenient to use these yourself on any permanent circuit, and this also means that you are not limited to those controllers supplied in the set and dynamic braking can be used; a spare controller can easily be plugged in if one burns out, and racing is not brought to a halt.

The first job in fixing up the electrical side is to provide a container for the power unit where it can be retained snugly and yet have a certain amount of air circulation around it. The container illustrated is built of old crate wood and has a hole in the base to allow air to enter. Should circulation be limited too much, the thermal trip may well cut out at lower currents than normal and be slower to re-set. The container should be slightly oversize for the power unit, which can be retained by a few strips of foam rubber and a metal rod.

Once this is done a two inch high barrier can be fixed to the front of the layout stopping about four or five inches from the side of the power unit container. Panels for the sockets should then be recessed from the front so that when a lid is made for the circuit, later on, the sockets do not interfere. Britfix 99 or a similar contact adhesive is very good for fixing these smaller parts. The panels can now be drilled to accept the sockets and a switch at the power unit end, whereupon the circuit is ready for wiring.

Commence by cutting the leads off the controllers about six inches from the plug, which can then be inserted in the terminal section and the leads fed down through a hole drilled in the baseboard. A length of lead (household type 14/0076 flex is suitable) should then be joined on to the common lead, by soldering and insulating, then led, through a hole in the baseboard, to the earth terminal of one of the sockets. From here a lead should be taken to the other earth terminal and to one transformer terminal, either through a hole in the container or its base, enough 'spare' lead being left to allow the transformer to be withdrawn.

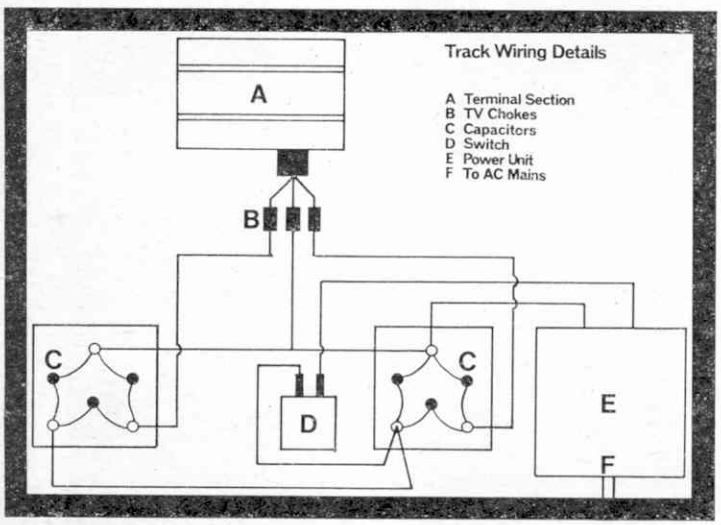


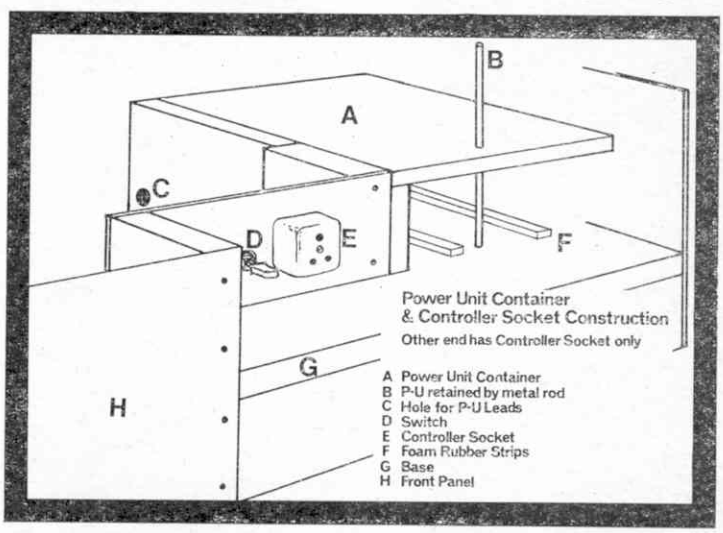
The two separate leads from the track plug should then be extended and joined to the respective neutral terminals on the sockets. A lead is then taken from one side of the switch to the other transformer terminal and the other side of the switch is connected to the two lead terminals. The switch is needed for racing in the way that I described in the July issue of Meccano Magazine and so should be mounted 'inboard' of the controller sockets, so allowing a race controller to stand between the two drivers and not get in their way when switching on and off. It is as well to suppress the track at this stage, rather than wait for complaints from television watchers. TV chokes are offered by V.I.P. and you should be able to obtain these from your model shop. One should be put in each lead where you join on to the track plug. Controllers can contribute a little to interference but most of this can be obviated by connecting 470 pF capacitors between the sockets, three being used per lane. All the wires dangling beneath the circuit should now be secured and the track is ready to go.

Before the track can be used you will, of course, need to fit 3 pin plugs to your controllers and you will also be able to use more advanced ones with built-in braking. There is nothing mysterious about dynamic braking and, as you now know how to wire your track for it, you might as well know how it works. Any permanent magnet DC motor is, if driven, a dynamo. A dynamo requires power to drive it and this is dependent on its output. If, therefore, the two 'output' terminals are directly connected, the output is increased to the maximum, and so the power required to drive it, so that, if the terminals of the motor in a moving car are connected, the motor instead of giving power to the wheels will absorb it with a consequent braking effect. Many controllers have this feature built in so that when the plunger is fully released braking is provided.

When you have built your track and wired it you will want to give it a thorough testing so that by next month you will be able to leave it alone long enough to start adding the scenery. Between now and then get yourself some corrugated cardboard, as used in some cartons, for this will be the first material required.

A view of the power unit container, showing the unit itself just visible on the right, and the controller socket and switch on the left. Compare with the drawing below right





POST BOXES– MANY AND VARIOUS

WHEN posting a letter or a post-card in a post-box (or pillar-box) have you ever wondered who invented them, and how people post their letters in other parts of the world?

In 'A Stamp Collectors Encyclopaedia', the late R. J. Sutton wrote, 'The first four hexagonal (six sided) pillar-boxes for the collection of mail were erected in Great Britain on the 23rd. October, 1852 in Jersey, as an experiment devised by Anthony Trollope, the novelist, then a G.P.O. surveyor in the S.W. district of which the Channel Is. formed a part. They had, however, been in use in France several years previously. (Pillar-boxes when first introduced into France were known as 'Vaudins' after the foundryman who made them.) There are now nearly 900,000 boxes of all types in use in the British Isles'. London's first pillar-boxes were erected between 1854 and 1857, (see illustration). They were painted dark green up to 1874, in which year, as an experiment, they were painted red.

Over 100 ancient post-boxes have been found by British Post Office workers, which were unknown by the record department of the G.P.O., one of them, 100 years old, was found 7,000 ft. up, near the Kashmir border on the edge of the Himalayas. It had been exported to serve a British Army Unit.

One of the first post-boxes to be erected in England, in 1857, is still being used in Spalding, Lincolnshire. (See illustration of Standard London Pillar-box, Period: 1857-59.) There is also a non-standard box in Cambridge, which has 75, lethal-looking spikes on top, the reason being that it stands close to a high wall and the spikes have been placed on top to dissuade anyone from using the box as a means of climbing over the wall. A small post-box was set in a wall at Wakefield, Yorkshire (on the corner of Cross-street) and dated 1809. It has now possibly been removed, as the house which previously belonged to the postmaster is to be demolished.

Of these historic post-boxes, the most popular is the six-sided one devised by Anthony Trollope, which was erected between 1866 and 1879. Some may be found fitted with flaps on the slits through which letters are posted, and crowned with large metal acorns. One box in Rochdale, Lancs. forms the base of a lamp-post and dates back to 1859. The slots in the majority of post-boxes are horizontal but there are some with vertical slots (see illustration of Non-standard Pillar-box, Period: 1856-60), they were made about 100 years ago and a few are still in use. One near Windsor has fluted sides, as shown in the illustration of the Non-standard box. The most famous example of this type may be found at Gosberton, near Spalding, Lincolnshire, and as previously mentioned was erected in 1857, only five years after Anthony Trollope introduced (in Jersey) the first post-boxes in Britain. When erected, the Gosberton postmaster is said to have received £2 a year for collecting the mail from it.

At Cranmere Pool on Dartmoor, there is a post-box (not an official one) which is six miles from anywhere. It can be regarded as in the centre of the Moor. In it is a 'Visitors' Book', supplied by the Western Morning News of Plymouth, and a rubber stamp. You stamp the envelope (not the stamp) and leave your letter in the box, taking any letters you may find and posting them in an official post-box. Quaint idea isn't it? There is also another box at Ducks Pool on the Moor, below a memorial to Mr. Wm. Crossing, author of many books on Dartmoor, and in a small cave at Fur Tor a tin box, also serving as a post-box may be found.

In 1947, for a 'Save the Victory Fund', a rum-tub was placed on board Lord Nelson's Flag-ship, H.M.S. Victory, which served as a mail-box. Special post-cards were issued showing H.M.S. Victory, and a special cachet or postmark was used.

In Australia there are some queer types of post-boxes. For example, in Queensland they may be found fastened to the front gate or fence of a house, and many boxes are miniatures of the actual house in which the owner lives. In the 'outback' (the back-country) of Australia, a termite's (white ants') nest or even bullock horns may be used. In the Singleton district of New South Wales, a wooden kangaroo standing six feet tall was erected at the gate of a house belonging to a grazier. Letters were put into its pouch and were collected by lifting up it's tail. The jaws of a bullock's skull which were fastened to a fence at Toopan, near Townsville, Queensland, once served as a mail-box. A small hole was left in the jaws through which letters were pushed, and it carried several letters.

Have you ever heard of a bird's nest being used as a mail-box? In the 'bush' near Condobolin, New South Wales, a very large nest made of clay and strengthened with sticks was once used, while biscuit tins, petrol drums, butter boxes and packing cases are often to be found at the front gate of isolated houses. A letter-box with a T.V. antenna was erected at the front gate of a house in West Heidleberg, Victoria, while in Sydney several boxes may be found with the slot in a vertical position; this was originally intended for horse riders, to enable them to post letters without dismounting.

The highest post office and mail-box in Australia may be found on Mount Kosciusko (named after the Polish patriot), in the Australian Alps, New South Wales, the height above sea level being 7,000 ft; it is actually 7,308 feet high and is called, 'Roof of Australia'. Mt. Kosciusko is a favourite snow and holiday resort and all letters posted by tourists during the summer season have a special postmark.

Did you know that in Siam (Thailand) the first post-boxes were made of sandalwood to give the letters a nice scent? This was to encourage the Siamese to write letters.

In Spain and some other countries one may find that most post-boxes are painted in the national colours. The Spanish ones are vivid red, yellow and red with bronze lion's heads. Letters are posted into their open jaws.

To quote a recent article in The Daily Mail, by Brian Saxton, 'A NEW pillar-box —square with a flat top—may soon be introduced by the Post Office'.

Mr. Saxton continues as follows, 'Postmaster-General, is studying plans for a new box designed by freelance design consultant Mr. David Mellor, 35, of Sheffield.

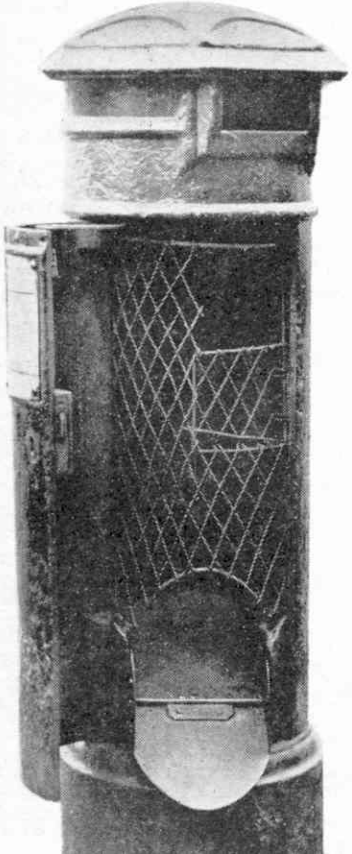
If accepted the new box will be the first breakaway from traditional cylindrical post-boxes since the present ones were designed in 1879. It is made from rectangular panels which are easily replaceable and is painted with a special weather-proof substance.

Postmen will find it easier to empty. It hangs over a pedestal so that a bag can be hooked underneath to collect the mail.'

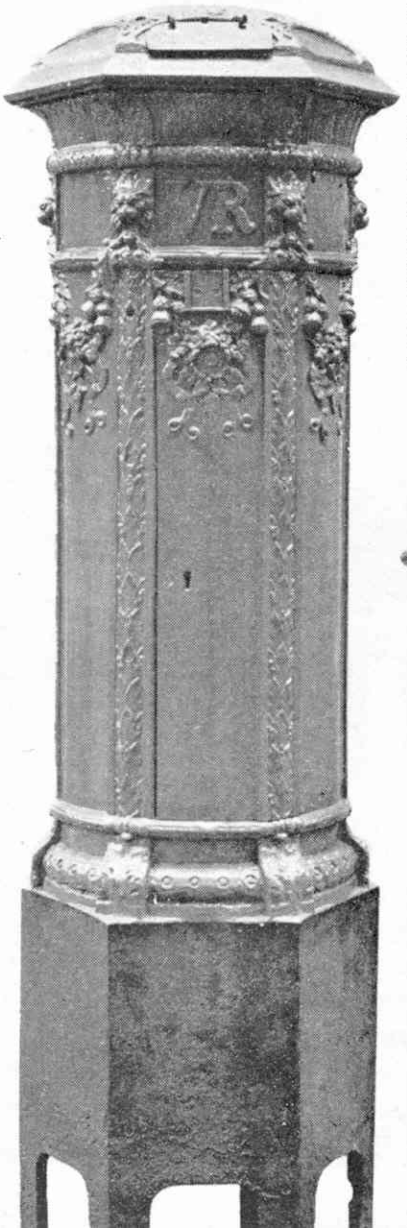
Much has been written about the collection and delivery of mail before post-boxes were invented, for example, 'People at Work', 'The Postman and the Postal Service'. A Ladybird 'Easy-Reading' Book, by Vera Southgate, M.A., B.Com., first published in 1965. Publishers, Wills & Hepworth Ltd. of Loughborough, Leicestershire. It is a concise reference book about the Postal Service from the King's Messenger to present methods.

G. H. Bishop

The 'Beckenham' type pillar box of 1859-66, from Newcastle-on-Tyne, showing clearly the interior fitting wire mesh and chute

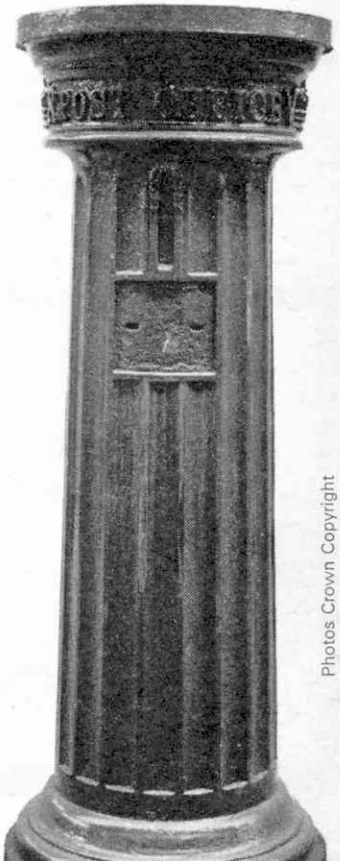


Standard London Pillar Box of 1857-59. Designed by the Department of Science and Art and manufactured by Smith & Hawkes. Note the heavy octagonal cast base



Another Standard London Box. The decoration is beautifully cast, and is typical of the period. This one is from Greenford Green in Middlesex

A non-standard pillar box of 1856-60. The letter slot is vertical, and the fluting of the pillar gives a somewhat classical appearance



USING YOUR MECCANO SLIDE RULE

For those readers who built this model (September 1966 issue of Meccano Magazine) and may still be puzzled as to how to use a slide rule, here are some brief notes as to what it will do and how to go about it.

Multiplication

(use the two bottom scales)
The rule is:—
(i) Set the 1 on the slide against the first number to be multiplied on the fixed scale.
(ii) Read off the answer on the *fixed* scale against the *second* number in the multiplication sum on the *slide* scale. Alternatively, move the cursor along until its line comes on the second number on the slide scale and read the number off the corresponding position on the fixed scale. This is, of course, exactly the same thing except that the cursor is used to 'mark' the position of the answer.
(iii) For repeated multiplication (i.e. more than two numbers), multiply the first two numbers as above, marking the position of the answer with the *cursor*. Then move the *slide* to bring the 1 on the slide scale against the cursor line. Move the cursor along to the next number in the multiplication sum on the *slide* scale and read off the answer on the fixed scale.

Example (see Fig. a). Multiply 2×3
Set 1 on the slide scale against 2 on the fixed scale. Move along to 3 on the slide scale and read off the answer on the fixed scale. Answer: 6.
It's as easy as that, once you have got the idea.

There is a small snag, however. The answer may come off the fixed scale—e.g. 4×5 would position the slide so that the '5' position comes well off the body scale.

In that case set the '*10*' of the slide scale against the first number instead of the '1'. The answer will then come on the body scale—see Fig. b.

Division

Division is easier. All you have to do is to set the divisor (number with which you are dividing) on the *slide* scale against the numerator (number to be divided) on the fixed scale. The answer is then read off on the *fixed* scale against either the 1 or the 10 on the slide scale, whichever comes on the scale.

Example: (Fig. c). To divide 8 by 4.

Set 4 on the slide scale against 8 on the fixed scale and read off the answer against the 1 on the slide scale.

Answer: 2.

When solving a sum involving both multiplication and division you can save a number of slide movements by alternating between multiplication and division, i.e. not doing all the multiplication first and then the division.

The two top scales

You can use the two top scales in the same manner for multiplication and division, this time accommodating answers up to 100. Primarily, however, these scales are for solving squares and square roots, when you can ignore the slide completely.

To find the *square* of a number set the cursor against the number on the *bottom* fixed scale and read off the answer on the cursor line on the *top* fixed scale.
Example (Fig. d) to find 4^2.

Set the cursor against 4 on the bottom fixed scale. Read off the square on the cursor line on the top fixed scale.

Answer: 16.

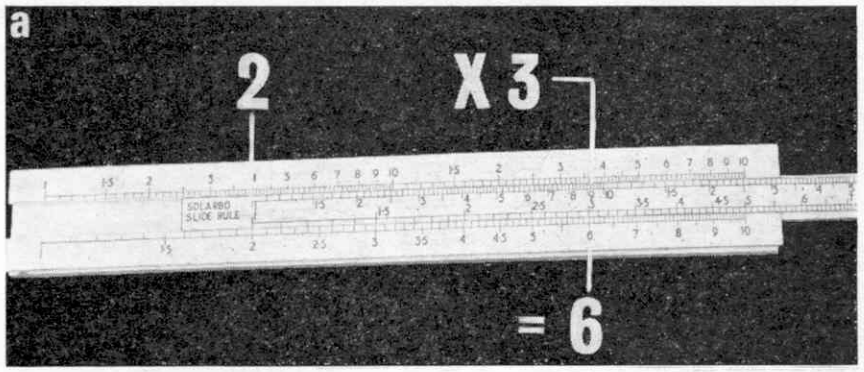
To find the *square root* of a number set the cursor against the number on the *top* fixed scale and read off the answer on the cursor line on the *bottom* fixed scale.
Example (Fig. e) to find $\sqrt{64}$.

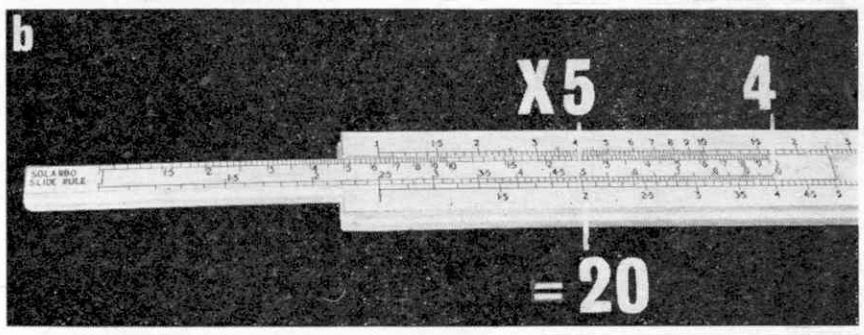
Set the cursor against 64 on the top fixed scale. Read off the answer on the cursor line on the bottom fixed scale.

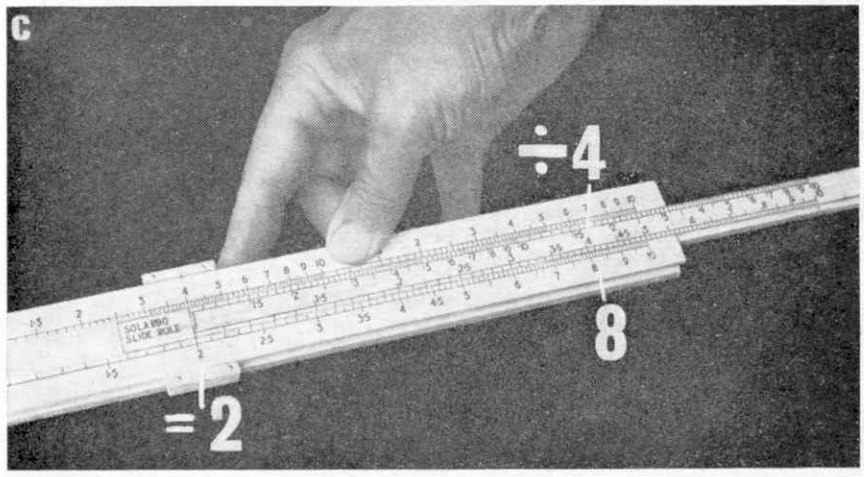
Answer: 8.

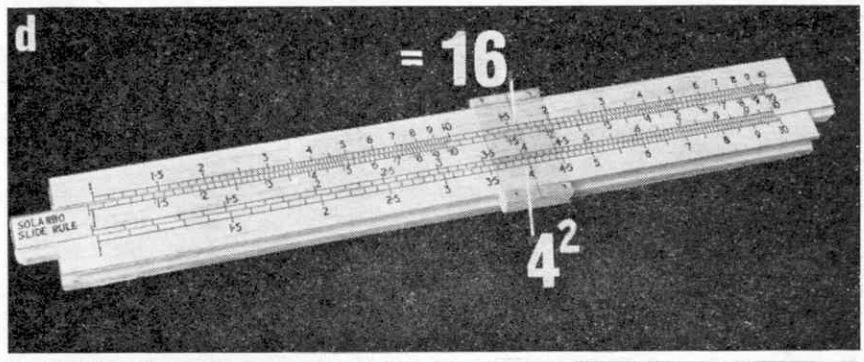
Note: instead of the cursor you can use the '1' or '10' mark on the *slide* to align corresponding values of the top and bottom fixed scales (squares and square roots), but this will not necessarily be as accurate as using the cursor.

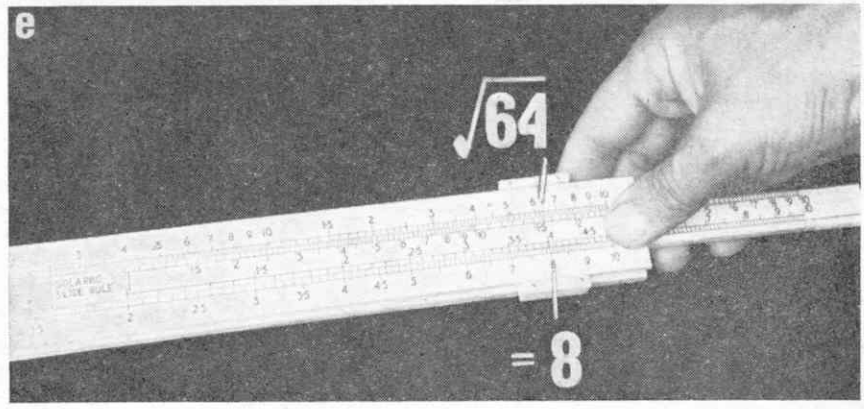
For the purpose of example we have only used simple numbers. The real value of a slide rule comes when dealing with awkward or fractional numbers, remembering that the scales are calibrated in decimal fractions. With a slide rule, for example, it is just as easy to work out $2{\cdot}2 \times 3{\cdot}8$ as it is 2×3.





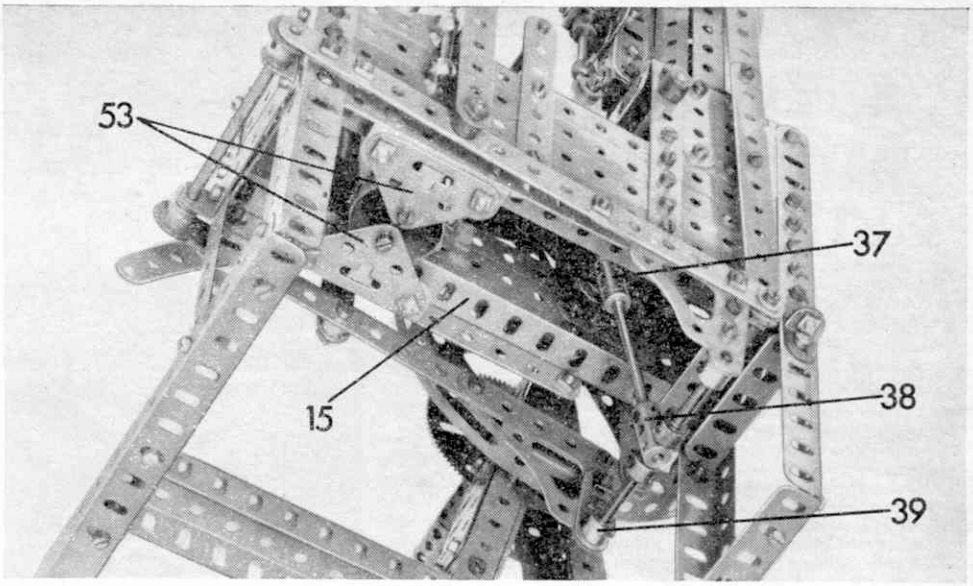






Steam for Ships

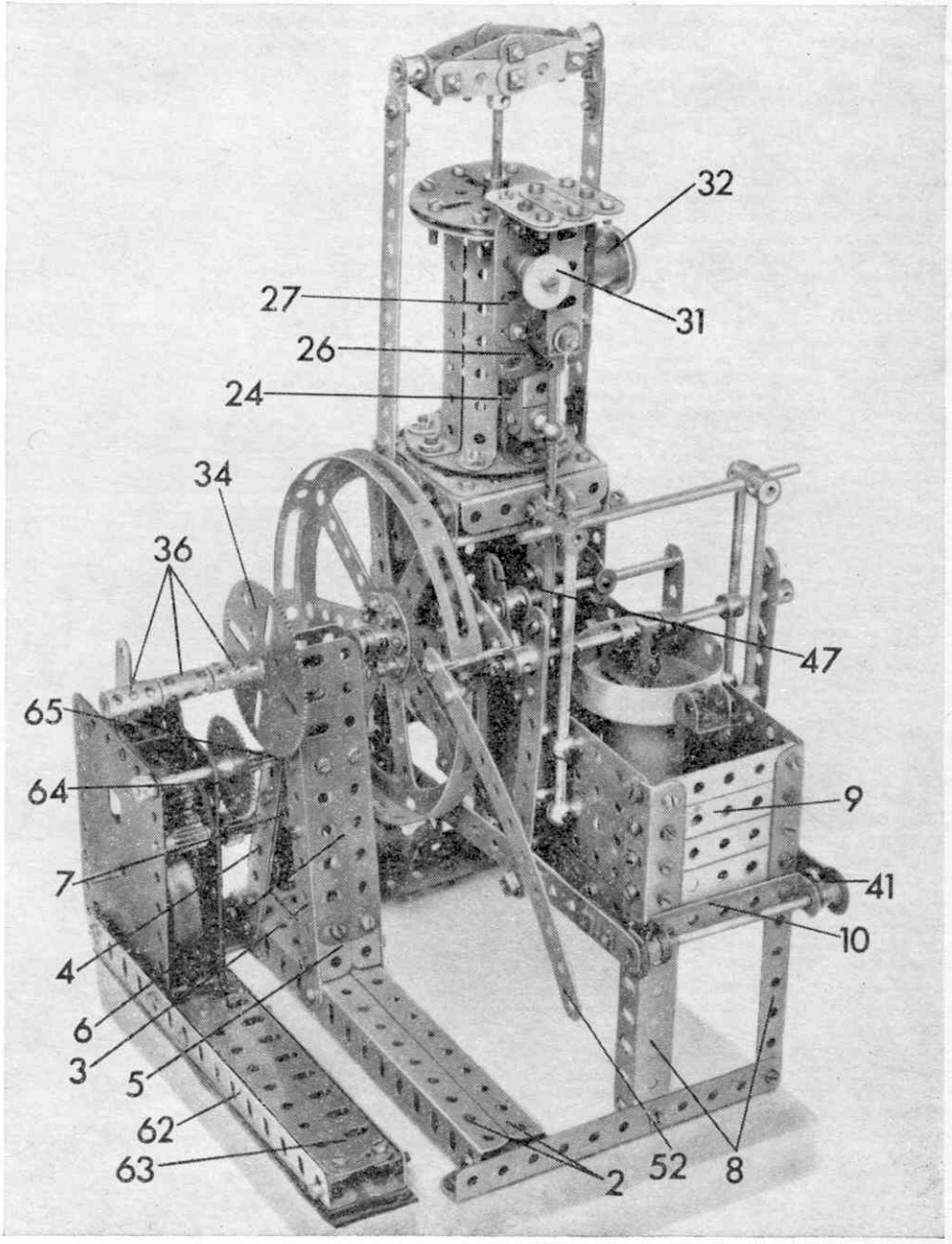
by spanner



IN 1812 Scottish inventor Henry Bell made maritime history by building the first practical steamboat to run successfully and regularly on any European river—the famous 'Comet' which plied between Glasgow and Greenock on the Clyde. This ship, tiny by modern standards with a length of only 40 feet and a beam of 10 feet 6 inches, was powered in its original form by a then-revolutionary three horse power steam engine driving four paddle-wheels, a number that was later reduced to two so as to increase speed and performance.

The engine, I hasten to add was by no means the first steam unit to be produced, but it was the first to combine simplicity and compactness with low-cost, reasonable power and comparative reliability. Perhaps the most important point of all, however, was its ability to be fitted into shallow-draft boats. M.M. reader Mr. Ian Sanders of Great Boughton, Nr. Chester, has built an almost scale model in Meccano of the engine from photographs of an original example now in the Science Museum, London. It not only looks like the original, but also reproduces all its basic movements. The accompanying illustrations show Mr. Sanders' actual model, motive power for which is supplied by a No. 1 Clockwork Motor, and you will note that it is built almost entirely from Strips and Girders. This results in greatly increased strength and rigidity, a fact which is worth bearing in mind for other models if you have sufficient parts at your disposal.

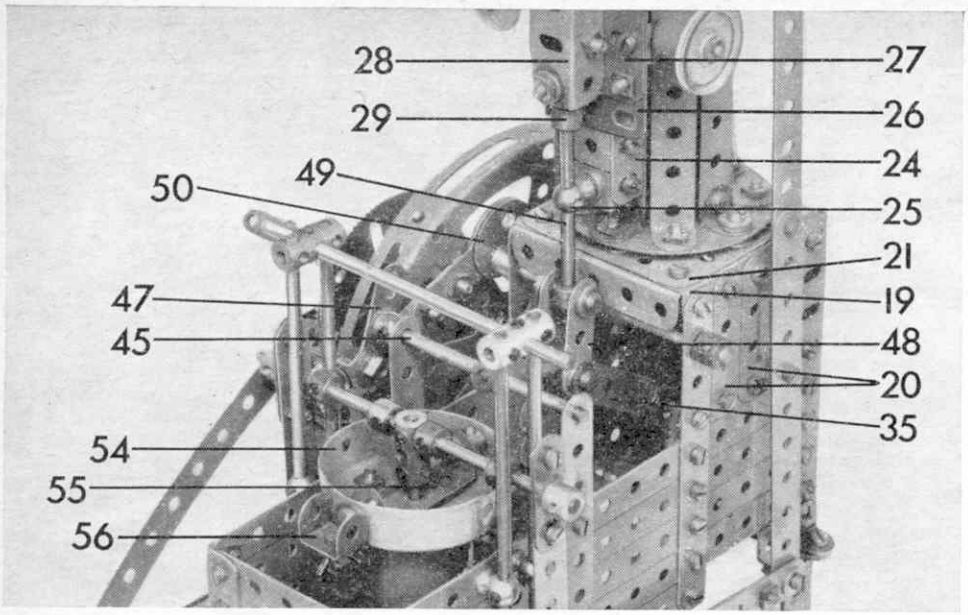
Before describing the model I should mention that Mr. Sanders has used in its construction two or three very old parts, the designs of which are slightly different to current versions of the same parts, as well as using a few Pulley bosses in place of Collars. Neither of them, however, causes any difficulty, and I mention them only to avoid puzzlement if you should spot them in the illustrations. I will point out the former parts as I come to them, but I will simply refer to the bosses as 'Collars'. The only other point to remember is that Mr. Sanders has used a wooden base rather than a built up Meccano base, therefore, I will incorporate the base in the description.

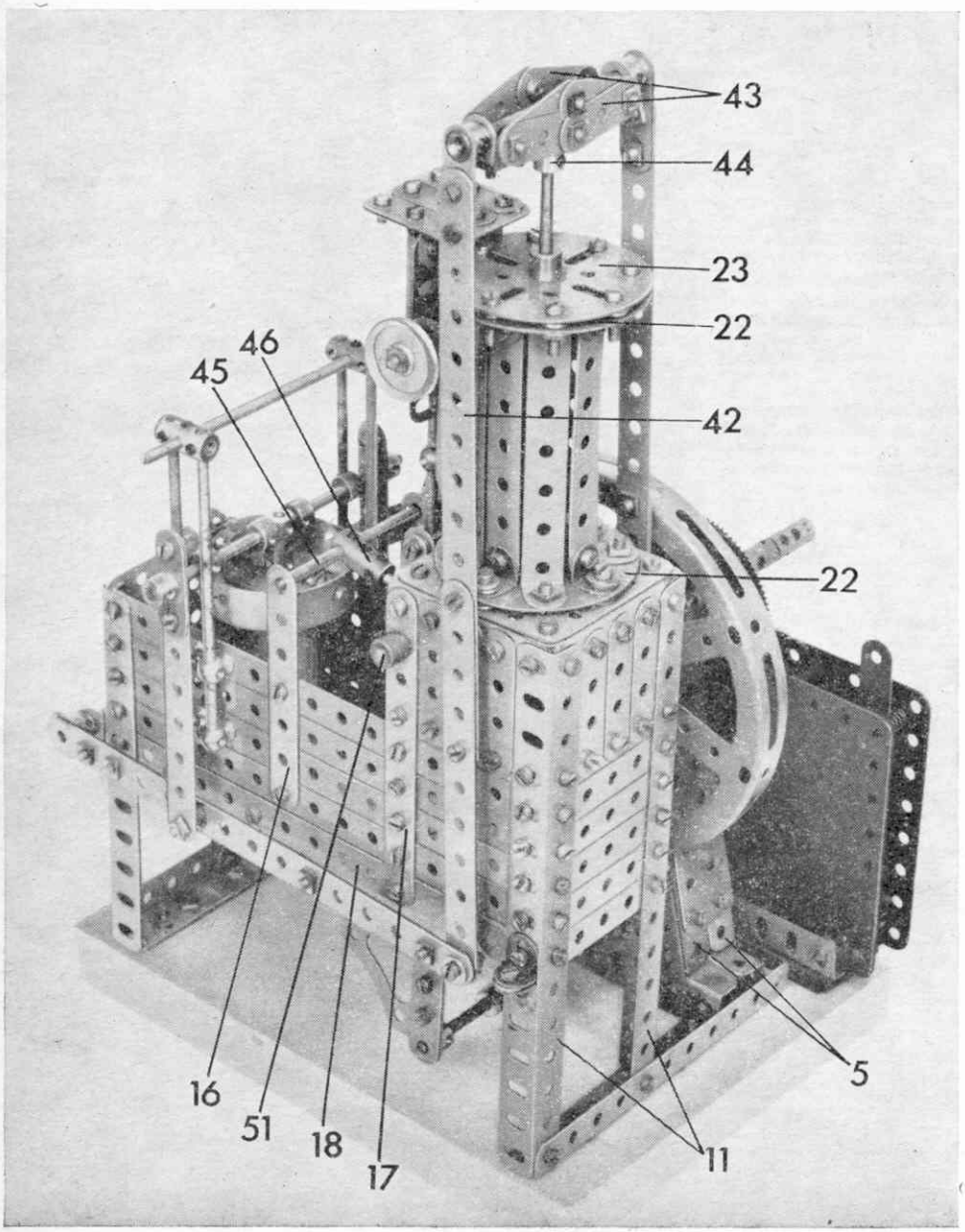


FRAMEWORK

Two 5½ in. Angle Girders 1 are connected by two 7½ in. Angle Girders 2, attached by Angle Brackets with their horizontal flanges uppermost and touching. Two 5½ in. Strips 3 and 4 are bolted to each Angle Girder 2 as shown, and a 3½ in. Angle Girder 5 is fixed to each of these Strips. Each pair of Angle Girders 5 is then joined by a 5½ in. Flat Girder 6, while a 1½ in. Strip 7 is bolted between Strips 3 and 4.

Bolted to one Angle Girder 1 are two 5½ in. Girders 8, which are connected at the top by five 2½ in. Strips 9, the bolts fixing the lowest of these Strips also holding a Double Angle Strip 10 in place. Bolted to the other Angle Girder 1 are two 7½ in. Angle Girders 11, these being joined, at the





top, by a 2½ in. Angle Girder and through their fourth holes down by a 1½ in. Strip which is connected to the 2½ in. Angle Girder by three 2 in. Strips 12. A further four 2½ in. Strips 13 and a 2½ in. Angle Girder are also bolted between Girders 11 as shown.

Girders 8 and 11 in both cases are now joined by three 7½ in. Strips 14 and one 7½ in. Angle Girder 15, all of which are joined by a 3½ in. Strip 16 and a 4½ in. Strip 17, the latter projecting one hole below Angle Girder 15. A 5½ in. Strip 18 is bolted between the lower end of this Strip and Girder 8, while a 2½ in. Angle Girder 19 is fixed between the upper end of the Strip and Angle Girder 11. Also bolted between this Strip and Girder 11 is a 2½ in. Strip, to which three 2 in. Strips 20 are fixed. Angle Girders 19 at each side are joined by another 2½ in. Angle Girder then a 2½ in. by 2½ in. Flat Plate 21 is bolted in place at the top.

FLYWHEEL AND VALVE GEAR

To complete the cylinder, two Face Plates 22 are connected by five 3½ in. by ½ in. Double Angle Strips and three similar compound Double Angle Strips obtained from 3½ in. Strips and Angle Brackets, then another Face Plate 23 is bolted to the upper Face Plate 22. The cylinder can now be fixed in place by bolting lower Face Plate 22 to Flat Plate 21. Before fitting one of the built up Double Angle Strips, the valve should be attached to the 3½ in. Strip. Two 2½ in. Angle Girders 24, arranged to form a 'U' girder are connected by four Double Brackets, to the lower of which a Handrail Support 25 is fixed and to the upper two of which two 2½ in. Flat Girders 26 are bolted. To these Flat Girders, in turn, are bolted two 2 in. Angle Girders 27 to one of which another 2 in. Angle Girder 28 is attached to enclose the resulting space. A large Fork piece 29 is fixed to Angle Girder 28.

A 1½ in. Angle Girder, to which three 1½ in. Strips 30, connected by a 1½ in. Flat Girder, are fixed, is attached to the top of the Flat Girders 26. Two ¾ in. Washers 31 and two Collars are mounted on a 1½ in. Bolt, which is then passed through left-hand Angle Girder 27 and the corresponding Flat Girder and is finally screwed into a Threaded Boss to hold the arrangement in place. A 1 in. Pulley with boss and a Chimney Adaptor 32 are then attached to right-hand Flat Girder 26 by an Angle Bracket, after which the completed valve can be bolted to the Cylinder.

The flywheel is represented by a Hub Disc 33, which is bolted to an 8-hole Bush Wheel mounted on a 6½ in. Rod journalled in the end holes of Strips 3 and 4 and corresponding Strip 14, being held in place by a Collar inside Strip 14 and a 2½ in. Gear Wheel 34 outside Strips 3 and 4. Note that the Bush Wheel is spaced from inside Strips 3 and 4 by four Washers. The Rod, incidentally, should project about half an inch through the inside holding Collar to allow a Double Arm Crank to be fixed on its end. This Double Arm Crank is extended a distance of one hole by a 2 in. Strip 35, bolted to the arms of the Crank, but, first of all, three Couplings 36 are added to the other end of the flywheel Rod. Two of the Couplings illustrated, by the way, are examples of the old parts mentioned earlier.

A ¾ in. Bolt is now passed through one end transverse smooth bore of a Coupling 37, two Washers are placed on its shank and it is then clamped by two Nuts to 2 in. Strip 35. The Coupling, which must be free to move, carries a 3 in. Rod in its longitudinal bore, on the other end of which another Coupling 38 is fixed. Held by Collars in the end transverse smooth bore of this Coupling is a 3½ in. Rod on the ends of which two Cranks 39 are mounted. Bolted to each Crank is a Corner Gusset that, in turn, is fixed to a 7½ in. Strip 40, to one end of which a Crank 41 is bolted. This Crank is another example of an old part in the original model and is mounted on a 3½ in. Rod journalled in the lugs of Double Angle Strip 10, two Washers being used as spacers.

At its other end, Strip 40 is lock-nutted to a 10½ in. compound Strip 42, obtained from a 7½ in. and a 5½ in. Strip, to the top of which another Crank is fixed. This Crank is mounted on a 3 in. Rod, carry-

Continued on page 45

HAVE YOU SEEN

NEW REVELL KITS

Two recent 1/72 scale Revell kits worthy of the plastic modeller's attention are the Heinkel He.219 and the Martin Marauder. The engines of the Marauder together with the four bladed propellers, are illustrated here and the extensive detail in depth of these twin row radial engines is typical of the rest of this pair of kits. They cost **8/6d.** each.

AIRFIX STIRLING BOMBER

Latest 1/72 scale aircraft kit from Airfix represents the Stirling, first four-engined bomber to serve in the Royal Air Force during World War II. The 270 part kit builds a really big model, measuring over 15 inches from nose to tail, and 16 inches wingspan. Special transfers and parts included in the kit refer to two actual Stirlings which operated in 1942 and 1943.

Also included in the kit is a very nice true scale replica of an RAF type David Brown tractor with four bomb trollies, complete with bombs—just the thing to add authenticity to a model bomber station. The Stirling kit retails at **11s. 6d.**

HISTORY OF BRITISH DINKY TOYS 1934-1964.

by Cecil Gibson.

Published by Model Aeronautical Press Ltd., 13/35 Bridge Street, Hemel Hempstead, Herts. **Price 15s. 0d.**
Size 8¼ in. by 5¼ in. 160 art pages, 72 photographs.

It had to come one day, and here it is! The very first book devoted to the history of Dinky Toys, and written specially with collectors in mind. In fact, this book is believed to be the first ever publication devoted entirely to the products of one toy factory. What is the fascination of old Dinkys, that they should enjoy such an enthusastic following? Partly, perhaps, it is nostalgia for the 'good old days' combined with the thrill and satisfaction of seeking out rare models, but it is also the attraction of the models themselves. Although the early Dinky Toys were, in many respects, cruder and worse finished than their present day descendents, they captured the spirit and 'atmosphere' of the vehicles of their time.

The author is an 'old hand' at model car collecting, and his enthusiasm for his subject and amusing yet informative style of writing combine to make the book almost as readable as a novel! Full tabulated lists are given of all Dinkys produced during the 1934/64 period (aircraft are not included), and these will prove specially valuable to serious collectors.

What a wonderful collection of model cars has left the Binns Road factory over the past thirty years or so! This book leaves one sighing regretfully over those departed legions of die-cast vehicles——the Royal Mail Van, the rather curious 'Streamline Saloon', the Packard Super Eight, the Ambulance, the beautifully cast Austin Atlantic Convertible, the Racing Car Set, with the Ferrari unaccountably in Argentinian colours, the Double-Deck Bus—all old friends, temporarily forgotten, but waiting only the opening of this book to be remembered again. Fifteen shillings is not much to pay for that privilege!

ATLANTIC WINGS

by Kenneth McDonough.

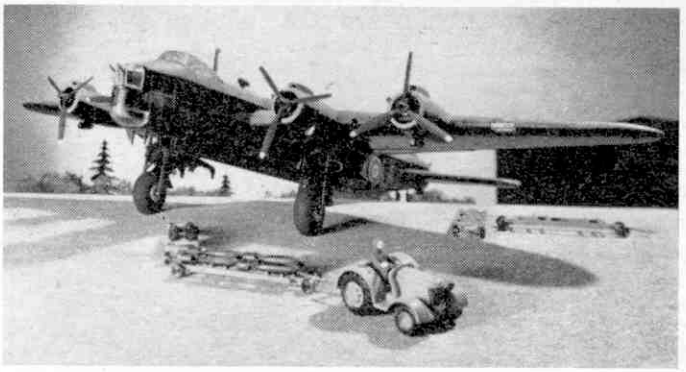
Published by Model Aeronautical Press Ltd., 13/35 Bridge Street, Hemel Hempstead, Herts. **Price £4 10s. 0d.** sterling. **$15** U.S. Dollars.
Size 11¼ in. by 8¼ in. 172 pages. Weight 41 ozs.
There are 20 colour plates plus two dustjacket paintings. 27 sketches, 21 half tone illustrations.
Appendices list all attempts to cross the Atlantic by aircraft and airship.

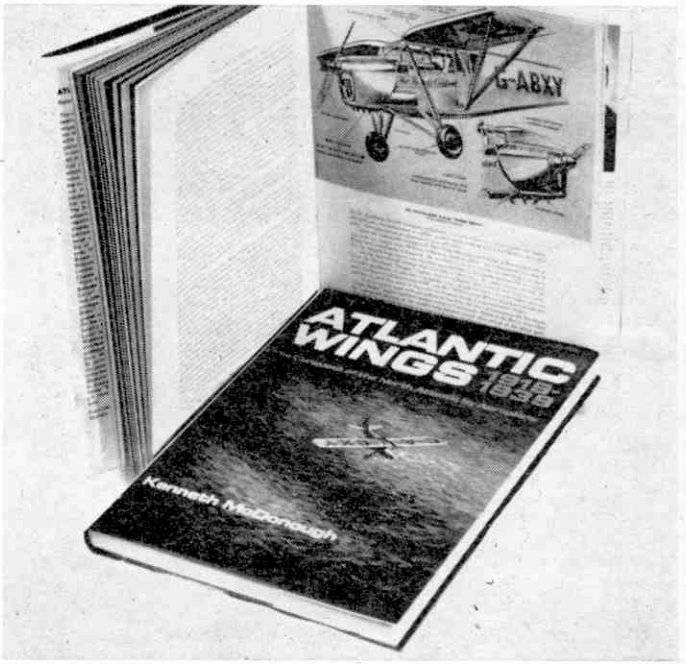
Start collecting your book tokens for this one, an absolutely magnificent volume, lavishly produced with the author's many superb full colour scale drawings and informative cut-away views beautifully printed on the finest art paper. Here's the exciting story of the aerial conquest of the Atlantic, a challenge that in its day—not so long ago—fired the imagination as space travel does today.

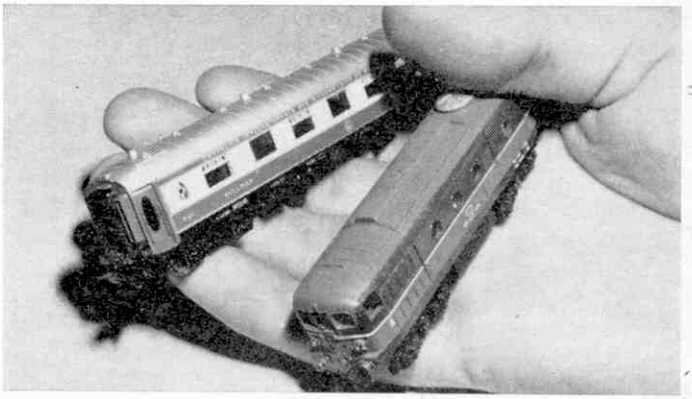
Kenneth McDonough's unique combination of talents as author, artist, historian and model maker are well blended here, and his book will appeal strongly to any aviation enthusiast whose own accomplishments or ambitions lie in any of these directions. We are pleased to be able to tell you that Ken will soon be a regular M.M. contributor. Next month sees the start of his highly detailed series on building a model of a World War I airfield. The original model was much admired on our stand at the Schoolboys and Girls Exhibition and we know it will be a most popular feature.

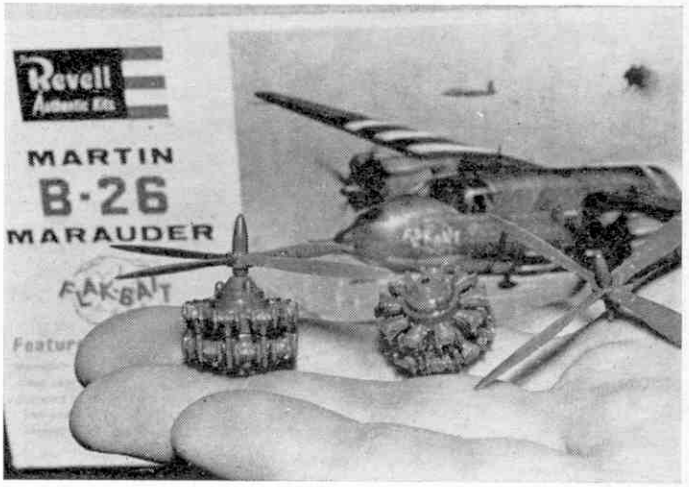
LIMA IS PRIMA!

One of the cheapest of the imported N Gauge (9 mm.) model railway systems is that of the Italian Lima company, and it's nice to be able to report that though comparatively cheap—it's by no means nasty. What's more the smooth running locos are excellent subjects for easy conversion to British outline, since the motors occupy only a small proportion of the body shells. The Bo Bo diesel shown in our photo employs a robust, quiet worm drive to one axle, the wheels of which are rubber tyred for extra adhesion. The remaining three axles are all ingeniously sprung and thus allow the maximum weight of the heavy, lead-filled loco to be brought to bear on the driving wheels. Provision is also made for another axle to be driven from the second shaft of the double-ended motor. The diesel costs 55s. and an electric outline loco is available with working pantographs for an extra 5s. The scale-length coaches are real masterpieces—fully lettered and glazed, and extremely free-running, they cost 12s. 6d. each. Very neat automatic couplings are fitted to all locos and railing stock. Goods stock and track is also available and details can be obtained from the British importer Messrs. Adur Models of John Street, Shoreham, Sussex.









There's quite a Sunday morning atmosphere about this picture. The owner of the 1800, who is just going to check the battery, has a new garage. His neighbour's is older, and is beginning to look grimy!

Lock 'em up

ALL cars should, if possible, be kept under cover when they are not in use. Constant exposure to the weather will destroy the paint finish and eventually corrode the body-work of any car, so the wise owner always tries to keep his vehicle locked away in a nice dry garage when he is not using it. Model cars, of course, live indoors anyway, so weather is no problem, but garages themselves make interesting models and no model roadway could really call itself complete without a couple of familiar 'lock-ups'.

The two garages shown in our pictures are built from Spot-On kits, and as you can see, they make very effective models indeed. Built to the same scale as the Spot-On cars (1/42nd) the kit represents a typical modern cast concrete garage to hold one medium sized car (plus all the usual extras like lawn mowers, deck-chairs, flower pots etc!) Construction only takes a minute or two, as the four walls simply push into slots in the base, and the roof, in turn, slots onto the walls. No adhesive is needed; in fact, the kit is assembled in much the same way as the real garage would be.

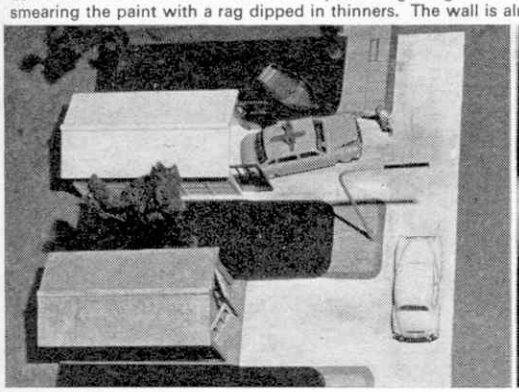
The pictures on this page show the two garages we built as part of a 'set piece', representing a short section of residential road. The right-hand garage just has the doors and window frames painted with plastic enamel, but the left-hand one has been 'weathered' all over—concrete rarely stays clean and bright for long, and we think you'll agree that the 'weathered' garage looks even more realistic than the 'new' one. The weathering process is very easy, and quite satisfying to do. Using an old and tatty brush, roughly spread grey enamel over the wall in question. Just 'blob' it, like spreading marmalade on toast. Then wrap an old cleaning rag round your forefinger, damp the end with a *little* enamel thinners, and smear the paint over the wall. As can be seen in the pictures, the result really does look like weathered concrete. Artistic types can add a little moss or lichen, or perhaps a few weeds growing round the base.

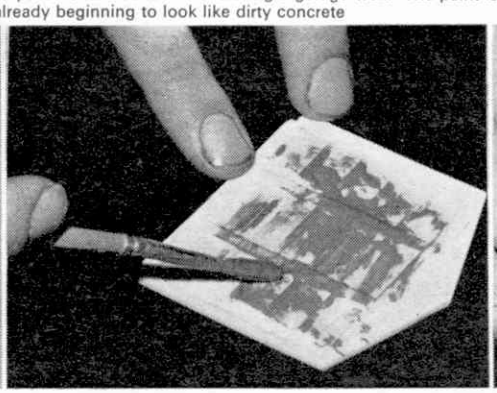
The rest of the scene was made up on a card base, about a foot square. The 'grass' is green flock paper, the pavements cut from grey card (an old office folder) with the individual flag-stones drawn on in pencil, and the fence cut from brown card with the boarding scribed on with a pen and ink. Those rather beautiful trees we borrowed from a model airfield which will be the subject of a series of articles in MM later this year. The modern lamp post was made in about ten minutes flat, using electrical flex bent to shape for the standard itself. The thick part of the base was represented by wrapping Sellotape round the flex and painting; the strip-lamp itself is also Sellotape, and is painted black along its top edge and left clear at the bottom. Quick, but effective!

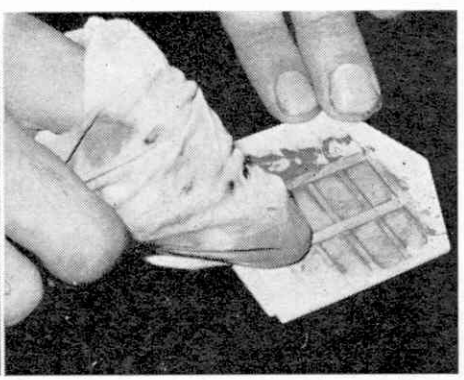
The cars are the Spot-On Morris Minor 1000 and the Austin 1800 with its rowing boat temporarily detached.

John Brewer

Left: an aerial view of the scene, clearly showing the grass and pavements. Centre: weathering a garage wall. The paint is spread on quite haphazardly with an old brush. Right: smearing the paint with a rag dipped in thinners. The wall is already beginning to look like dirty concrete







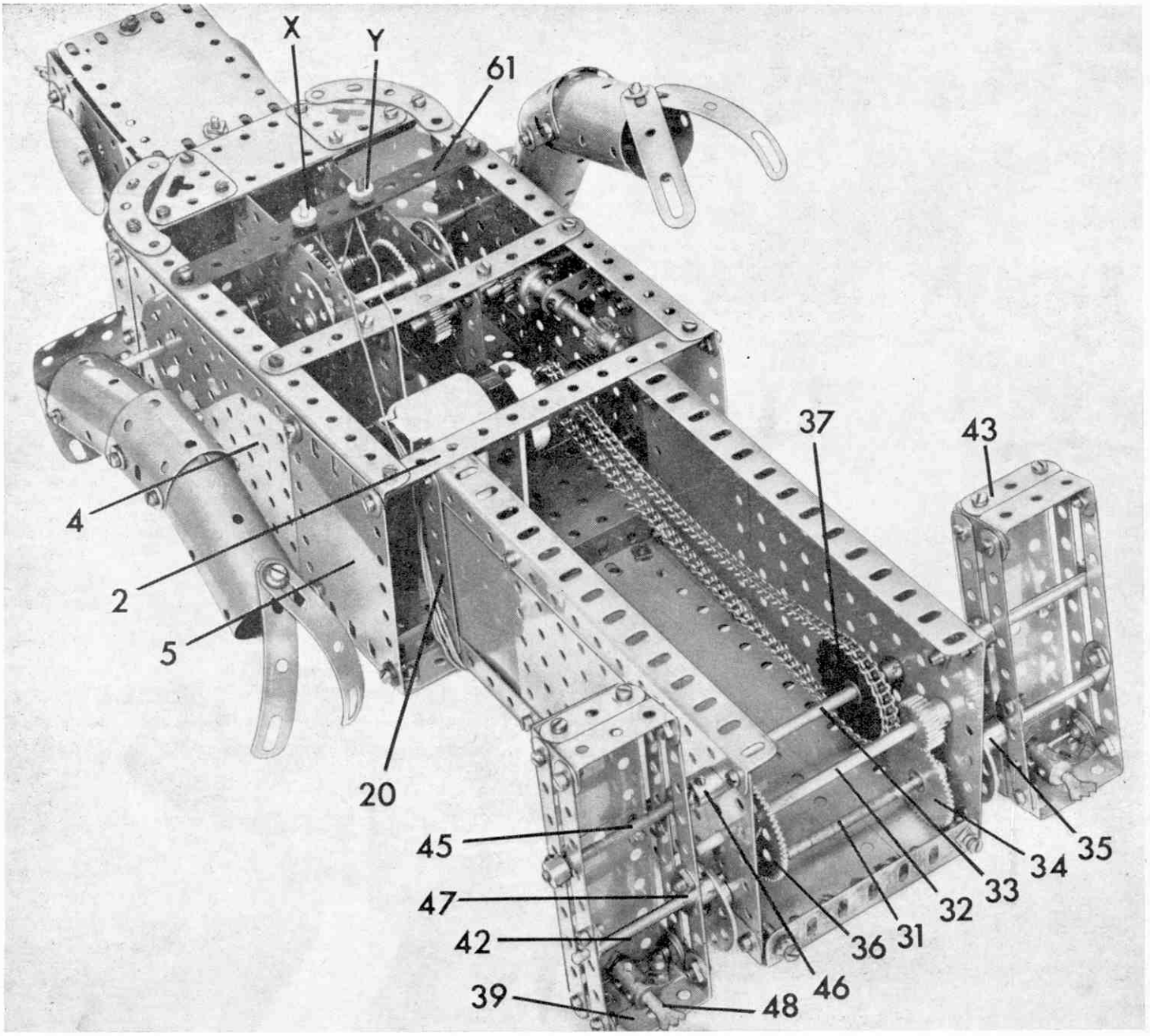
HERE'S HOPPY-THE ROBOT

Eyes aglow, Arms swinging, Head turning, 'Hoppy' perambulates in a most unusual manner. Build him with Spanner

SCIENCE fiction writers—those prophets of the mechanical age—have long foretold the existence of man-like machines, capable of movement and able to perform all sorts of physical tasks. In these days of automation the prophesies of science fiction are well on the way to realization. Already men in a wide variety of industries are being superseded by machines which are doing the job better, faster and at a greatly reduced cost, but as yet, none of these machines could, even by the widest stretch of the imagination, be described as 'human-looking'.

In spite of this, it is an easy matter to produce a man-like machine, or robot, as is proved by the fact that Meccano owners have been doing just that for close on half a century! It has been some considerable time, however, since we actually featured a robot in the 'M.M'., so I thought I would make up the deficiency this month with the typical example described below. Admittedly, it cannot do anybody's work for them, but it does walk, swing its arms and move its head, thanks to the Power Drive Unit it incorporates. The only thing to remember is that it does not walk like we do with two legs, but moves both feet forward together, while standing on its 'legs', then swings its body forward to repeat the movement. Construction should present no problem.

In this view of the model construction of the feet is clearly shown. Note that the back of the 'legs' has been removed to show the drive to the feet



BODY AND LEGS

To begin with, two rectangles are each built up from two 7½ in. Angle Girders 1 and two 5½ in. Angle Girders 2, then the rectangles are joined by two 5½ in. by 3½ in. Flat Plates 3 and 4, each extended by a 3½ in. by 2½ in. Flexible Plate 5. Note that the upper edges of Plates 3 and 4 are overlayed by a 3½ in. Strip 6. Bolted between Angle Girders 1 in each rectangle is a 5½ in. Strip 7 which is situated a distance of six holes from lower Girder 2.

The front of the body is now enclosed by another 5½ in. by 3½ in. Flat Plate 8, two 4½ in. Flat Girders 9 and a 4½ in. by 2½ in. Flexible Plate 10, this last edged by a 2½ in. and two 4½ in, Strips in addition to Strip 7. Bolted to top Girder 2, but projecting upwards, are a 2½ in. by 1½ in. Flexible Plate 11, two 1½ in. Corner Brackets 12 and two 2½ in. Stepped Curved Strips. A duplicate set of all these parts is bolted to upper Girder 2 at the back of the body, then a 3½ in by 2½ in. Flanged Plate 13 is fixed between Plates 11 and Corner Brackets 12 at each side, at the same time securing 2½ in. Strip 14 in position. A 2½ in. by 2½ in. and a 2½ in. by 1½ in. Plastic Plate 15 are bolted to each side of the Flanged Plate. These are curved to shape and are wedged behind corresponding Strip 6.

Two 7½ in. Angle Girders 16, connected by a 3½ in. Angle Girder 17 are bolted, along with two 7½ in. by 2½ in. Strip Plates and a 7½ in. Strip 18, to each lower Angle Girder 2, then Girders 16 at the sides are joined by a 3½ in. by 2½ in. Flexible Plate and a 5½ in. by 3½ in. Flat Plate 19. The upper edge of the Flexible Plate is overlayed by a 3½ in. Strip 20.

MOTOR AND DRIVE

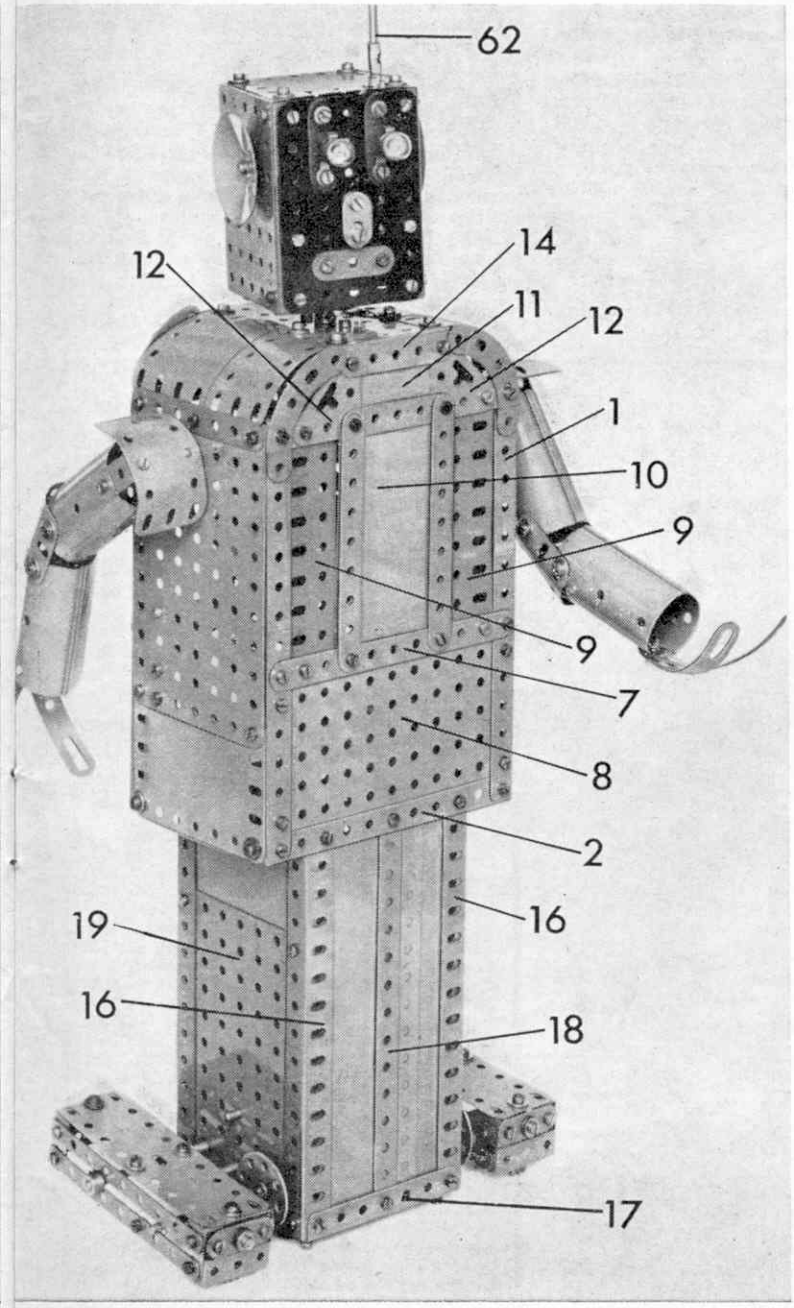
Fixed by Angle Brackets between upper Angle Girders 2 are two 3½ in. Strips, while another two similar Strips are fixed between Strips 7, also by Angle Brackets. Two 4½ in. by 2½ in. Flat Plates 21 and 22 are bolted to these Strips, as shown. A 3½ in. Rod 23 is journalled in Flat Plates 3 and 21, being held in place by a Crank at one side of Plate 21 and a ⅜ in. Contrate Wheel 24, at the other side, the latter spaced from Plate 21 by a Washer. A 3 in. Rod is journalled in Flat Plates 4 and 22, this being held in position by a Collar and a Crank 25.

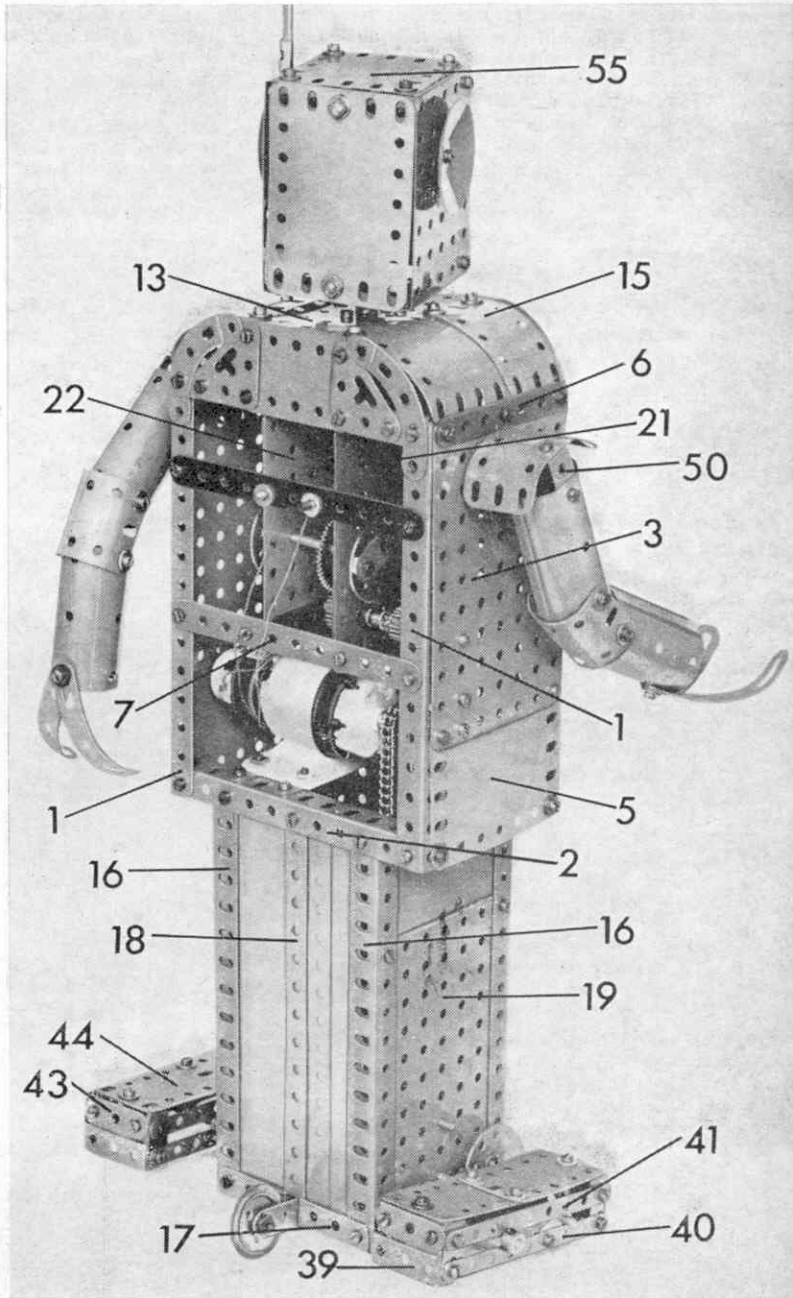
Lock-nutted to each Crank is a 2½ in. Strip 26, the other end of which is, in turn, lock-nutted to an 8-hole Bush Wheel 27, mounted on a 2 in. Rod journalled in Plates 21 and 22 and carrying a 50-teeth Gear Wheel 28. This Gear is in mesh with a ⅜ in. Pinion on a 3 in. Rod, held by a Collar in Plates 3 and 21, and carrying a ½ in. Pinion 29. Engaging with Pinion 29 is a ⅜ in. Contrate Wheel, fixed on the end of a 3½ in. Rod held by Collars in a 1 in. by 1 in. Angle Bracket bolted to Flat Plate 3 and in a ½ in. by ½ in. Angle Bracket bolted to Strip 20. Also fixed on this Rod is another ½ in. Pinion 30.

At this stage three 4½ in. Rods 31, 32, and 33 are journalled in Flat Plates 19 in the positions shown. Rod 31 carries a 50-teeth Gear 34 and is held in place by two 8-hole Bush Wheels to the face of each of which a Rod Socket 35 is fixed. Rod 32 carries a 60-teeth Gear 36 and is held in place by a Collar and a ⅜ in. Pinion, the latter in mesh with Gear 34. Rod 33, on the other hand, carries a 1½ in. Sprocket Wheel 37 and is held in place by a Collar and a 7/16 in. Pinion, the latter in mesh with Gear Wheel 36.

Two 3½ in. Strips are bolted between lower Angle Girder 2 to provide the mounting for the Power Drive Unit on the output shaft of which a ⅜ in. Sprocket Wheel and a Worm are secured. The Sprocket Wheel is connected to Sprocket Wheel 37 by Sprocket Chain, while the Worm engages with Pinion 30. At the top of the model, a Rod with Keyway is held by Collars in Flanged Plate 13, and in a Double Bent Strip bolted to the underside of

Meet the Mechanical Man—A self-propelled, walking robot driven by a Meccano Power Drive Unit. A rear view of the robot, showing the Motor mounting and construction of the 'legs'





the Flanged Plate. A ½ in. Pinion 38, fixed on the lower end of this Rod, engages with Contrate Wheel 24.

FEET AND ARMS

Both feet are similarly built so only one need be described. Two 1½ in. by ½ in. Double Angle Strips 39 are joined by two 4½ in. Narrow Strips 40, bolted to their lugs, at the same time fixing four Fishplates in position. These Fishplates are, themselves, connected by a further two 4½ in. Narrow Strips 41, at the same time bolting another two 1½ in. by ½ in. Double Angle Strips 42 between the sides and also fixing four Angle Brackets in place. These Angle Brackets are joined by two 1½ in. Strips 43, one at each end of the foot. A 4½ in. by 1½ in. Compound Flexible Plate 44 is built up from two 2½ in. by 1½ in. Flexible Plates and is bolted to Double Angle Strips 42.

A 2½ in. Rod 45 is located in the gaps between Narrow Strips 40 and 41, being held in place by two Collars. This Rod must, however, be free to slide in the gaps. The inside end of the Rod is then fixed in a Rod Socket 46 attached to Flat Plate 19. Two Fishplates 47 are bolted to each Narrow Strip 40 and are angled so that their circular holes coincide with the gaps between Narrow Strips 40 and 41. Passed through these holes is a 2 in. Rod which is fixed in Rod Socket 35 attached to the Bush Wheel on the end of Rod 31. Attached to forward Strip 43 is a Short Coupling in the longitudinal bore of which a Centre Fork 48 is held. At the rear of the body, a Single Bent Strip is bolted to Angle Girders 17 and a ½ in. Bolt, carrying a 1 in. loose Pulley with Rubber Ring, is held by two Nuts in the lugs of this Single Bent Strip.

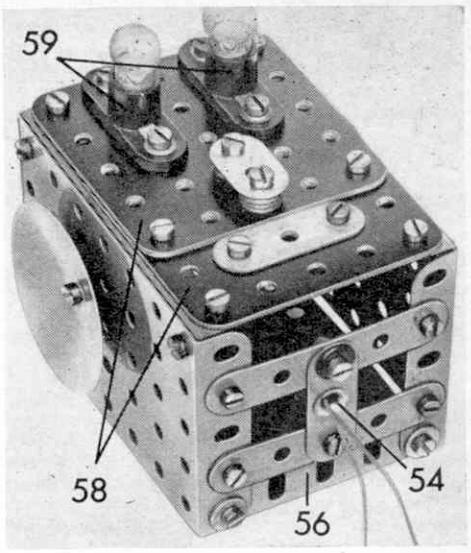
Two arms are each built up from two Cylinders 49 joined by a curved 2½ in. by 1½ in. Flexible Plate. A 1 in. by ½ in. Angle Bracket 50 and a Crank 51 are bolted to the upper Cylinder, while another curved 2½ in. by 1½ in. Flexible Plate is attached to Angle Bracket 50. Hands are provided by two Formed Slotted Strips 52, then the completed arm is attached to the body be securing Crank 51 on Rod 23, the other arm being mounted on the corresponding 3 in. Rod.

THE HEAD

Only the head remains to be built, and this is by no means difficult. Two 3½ in. by 2½ in. Flanged Plates 53 are joined at the bottom by two 2½ in. Strips, bolted between the centre holes of which is a Double Arm Crank 54, and at the top by a 2½ in. by 2½ in. Flexible Plate 55, the securing Bolts also holding a 2½ in. Angle Girder in Place. A corresponding 2½ in. Angle Girder 56 is bolted between the Flanged Plates at the bottom of the head, then a 3½ in. by 2½ in. Plastic Plate 57 is bolted to the vertical flanges of these Angle Brackets.

The face is provided by two 2½ in. by 2½ in. Insulating Flat Plates 58 overlapped three holes, which are bolted to two 3½ in. Angle Girders. Two Lamps in Lamp Holders 59 represent the eyes, while the nose is a Fishplate, attached to the Insulating Flat Plates by two ½ in. Bolts, but spaced from the Plates by four Washers on the shank of each Bolt. The mouth is simply a 1½ in. Strip, whereas the ears are each provided by a Conical Disc 60.

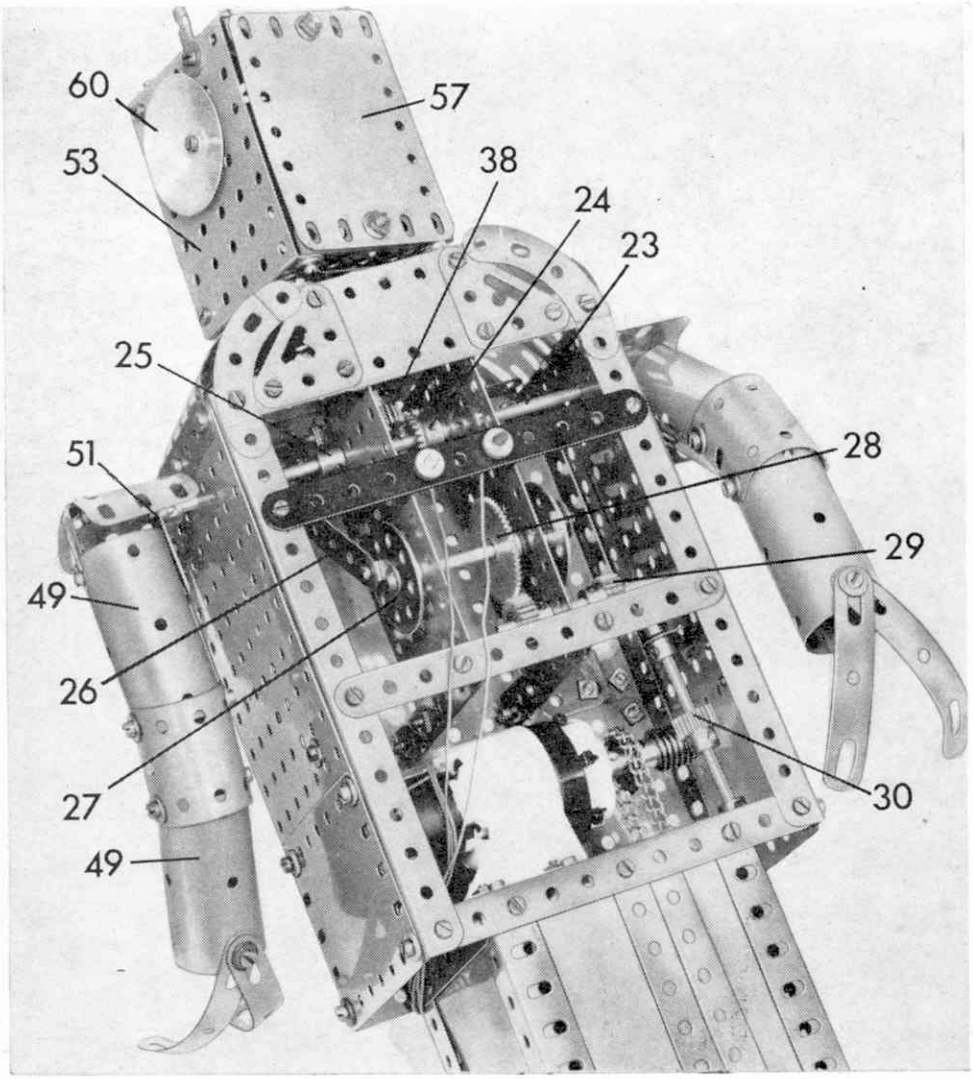
When completed, the face is fixed in position by bolting the 3½ in. Angle Girders to Flanged Plates 53, but before this is done the Lamp Holders should be wired in parallel. In other words, the upper terminals of the Lamp Holders are wired together,



A close-up view of the head

as also are the lower terminals, then two lengths of insulated wire are connected one to the upper terminal and one to the lower terminal of one of the Lamp Holders. These wires are passed through the boss of Double Arm Crank 54 and are threaded down the Keyway of the Rod with Keyway into the inside of the Robot, where they are connected to two terminals X and Y on a 5½ in. Insulating Strip 61, bolted to rear Angle Girders 1. Each terminal is obtained from a ½ in. Bolt, a Nut and a Terminal Nut. The head is then mounted in position by fixing Double Arm Crank 54 on the Rod with Keyway. An 'aerial' is provided by a 2 in. Rod 62 and is attached to the head by a Rod and Strip Connector bolted to left-hand Flanged Plate 53. Finally, the leads from the Power Drive Unit are taken to terminals X and Y, which also, of course, serve as the connecting points for the leads from the power source.

This view shows the mechanism transferring the drive to the arms and head

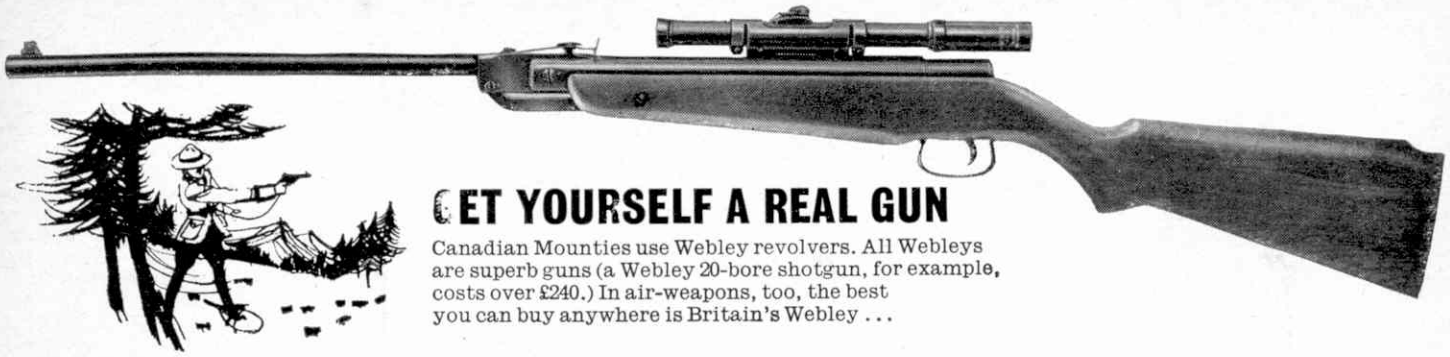


TIMING

Before the Robot can be operated the head, arms and feet movements must be synchronised. Cranks 24 and 26 and Bush Wheels 27 should be so positioned that when one arm is swinging forward, the other is swinging backwards. Also, when the right arm is in its forward position, the head should be turned to the right. It should be remembered that the feet do not move alternately but simultaneously in the same direction. Because of this, Rod Sockets 35 must be in identical positions in relation to the Bush Wheels. The exact timing for all movements, however, can best be obtained by experimenting.

PARTS REQUIRED

2 of No. 1b	1 of No. 27d	4 of No. 133
2 of No. 2	2 of No. 29	1 of No. 155
2 of No. 2a	1 of No. 32	4 of No. 179
12 of No. 3	202 of No. 37a	2 of No. 187a
6 of No. 5	180 of No. 37b	10 of No. 188
5 of No. 6a	48 of No. 38	1 of No. 190
8 of No. 8b	1 of No. 45	2 of No. 190a
4 of No. 9	8 of No. 48	1 of No. 191
4 of No. 9b	4 of No. 52a	2 of No. 194
2 of No. 9d	3 of No. 53	2 of No. 194a
13 of No. 10	2 of No. 53a	1 of No. 194b
17 of No. 12	12 of No. 59	4 of No. 195
1 of No. 12a	4 of No. 62	1 of No. 212
2 of No. 12b	1 of No. 62b	4 of No. 215
3 of No. 15a	2 of No. 63d	4 of No. 216
2 of No. 16	2 of No. 65	1 of No. 230
2 of No. 16a	1 of No. 70	8 of No. 235e
1 of No. 16b	4 of No. 90a	1 of No. 501
3 of No. 17	1 of No. 94	2 of No. 511
1 of No. 22a	1 of No. 95a	2 of No. 539
4 of No. 24	1 of No. 96a	2 of No. 540c
2 of No. 25	1 of No. 102	1 Power Drive Unit
3 of No. 26	2 of No. 103c	
1 of No. 26c	17 of No. 111a	
2 of No. 27	4 of No. 111c	



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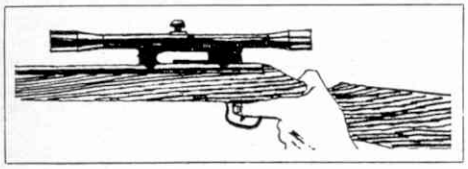

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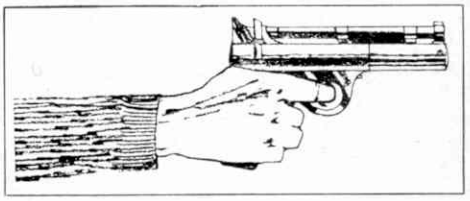

Shoot with safety Never point a gun, unloaded or not, at anyone. Never handle a gun before checking that it's unloaded. Always carry it so the muzzle is fully under your control. Never leave it where people younger or less responsible than you can meddle with it. Never leave a loaded gun unattended. Always make sure no-one is behind your target before opening fire.

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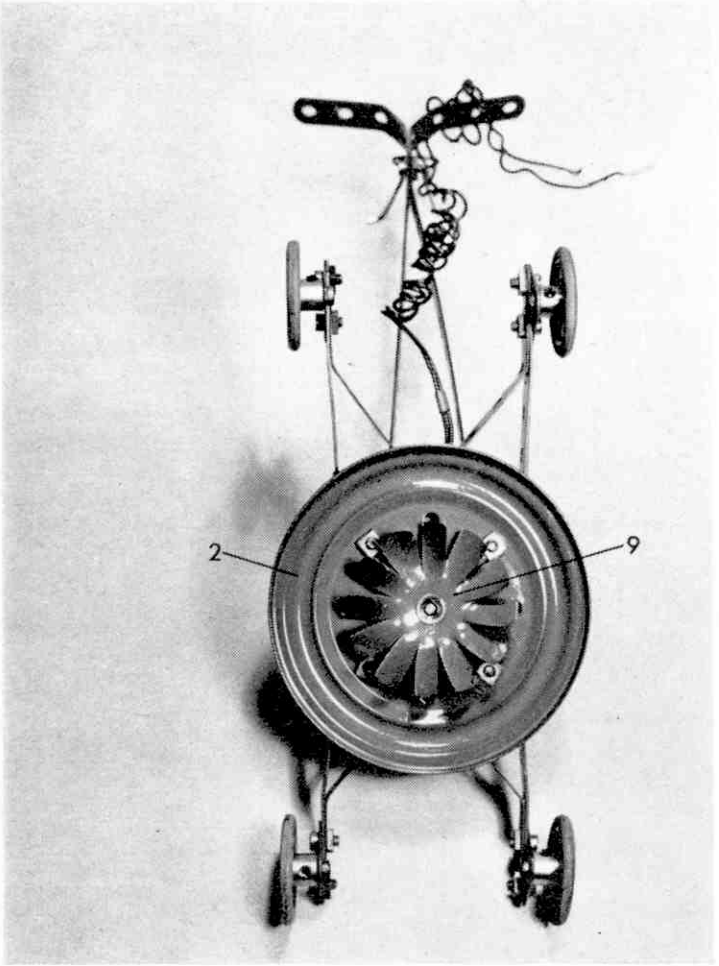
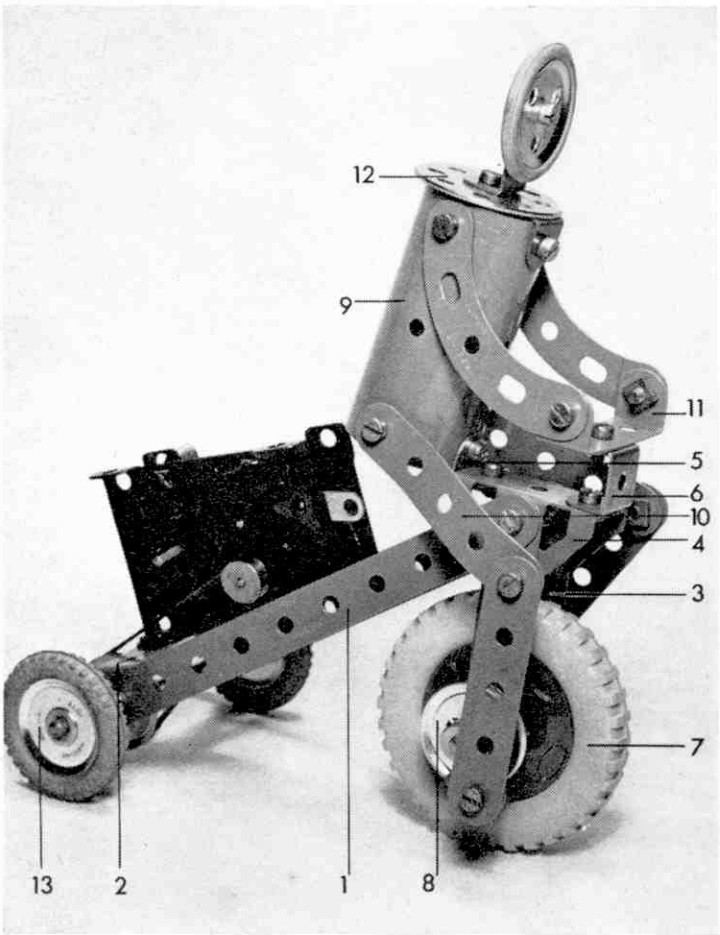
Three motorised models in Meccano by Spanner





NO mechanically-minded person can deny that building models with Meccano is not only educational, but is also great fun. Experience shows, however, that the enjoyment obtained from making static or even hand-driven models is much less than the enjoyment obtained from motor-driven examples. In other words, you can't beat building a model; motorising it, and watching it work away under its own power!

Meccano Limited manufacture several motors, both clockwork and electric, which are specially designed for use with the Meccano system. Some, of course, are larger and more powerful than others, but of particular interest to the younger builders are the small 'Magic Clockwork Motor' and the equally compact 'Emebo Electric Motor'. You will find both these units featured in the three simple models described below, the clockwork example in two of them and the electric motor in the third.

TRICK TRICYCLIST

Model No. 1 is a re-built version of the 'Trick Tricyclist' which appeared in the M.M. more than twenty years ago. I never could understand why he was described as 'trick' unless it's because he's learned the trick of pedalling away furiously when all the time his bike's really powered by a Magic Motor! To build it, two 5½ in. Strips 1 are connected through their second holes from one end by a 2½ in. by ½ in. Double Angle Strip 2. At its other end, each Strip 1 is bolted to a 2½ in. Strip 3, at the same time fixing a Trunnion 4 in position. Trunnions 4 are then joined together as shown, the securing Bolts also holding an Angle Bracket 5 and a Double Bracket 6 in place.

Journalled in the end holes of Strips 3 is a 2 in. Rod, carrying a 2½ in. Road Wheel 7 between the Strips. The Rod is held in place by two 1 in. Pulleys with boss 8, but note that one of the Pulleys is spaced from the appropriate Strip by three Washers. Before fitting the Pulleys, an Angle Bracket should be fixed to each boss, and this is done by placing the hole in one lug of the Angle Bracket over one tapped bore in the boss of the Pulley. A Nut is then placed on the Angle Bracket, to coincide with the holes, and a Bolt is screwed through the Nut into the boss of the Pulley.

Bolted to the vertical lugs of Angle Bracket 5 is a Cylinder 9 to which two bent 2½ in. Strips 10 are lock-nutted. Another 2½ in. Strip is lock-nutted to the opposite end of each Strip 10 and its other end, in turn, is lock-nutted to the free lug of the Angle Bracket attached to Pulley 8. Arms are provided by two 2½ in. Stepped Curved Strips joined by a 1½ in. by ½ in. Double Angle Strip 11, which is bolted to Double Bracket 6. The head is a 1 in. loose Pulley with Rubber Ring, attached to an 8-hole Wheel Disc 12 by a 1 in. by ½ in. Angle Bracket. The Wheel Disc is, in turn, fixed to the Cylinder, also by a 1 in. by ½ in. Angle Bracket.

Finally, a Magic Motor is secured with the help of an Angle Bracket to Double Angle Strip 2 and the Pulley on its output shaft is connected by a 2½ in. Driving Band to a 1 in. Pulley on a 3½ in. Rod journalled in the end holes of Strips 1. This Rod is secured by two 1 in. fixed Pulleys 13, each carrying a Motor Tyre.

PARTS REQUIRED

2 of No. 2	1 of No. 22a	2 of No. 90a
6 of No. 5	1 of No. 24a	2 of No. 126
1 of No. 11	36 of No. 37a	2 of No. 142c
4 of No. 12	30 of No. 37b	1 of No. 155
2 of No. 12b	3 of No. 38	1 of No. 186
1 of No. 16	1 of No. 48	1 of No. 187
1 of No. 17	1 of No. 48a	1 of No. 216
5 of No. 22		

WALKING BARROW BOY

Outfit No. 1 contains all the parts needed to build our second model which I have titled 'Walking Barrow Boy'. This name, incidentally, is quite reasonable when you consider that the model comprises a car or barrow which is pushed by a figure that actually walks. The barrow, itself, consists of a 5½ in. by 2½ in. Flanged Plate, to each side flange of which two 5½ in. Strips 1 and 2 are attached by one end. These Strips are 'fanned' outwards at their other ends, as shown, with Strip 1 being nearest the Flanged Plate. Strips 2 at each side are then joined by a 2½ in. Strip, attached to Strips 2 by Angle Brackets 3, after which a Flat Trunnion 4 is bolted to the end flange of the Plate to enclose the resulting gap. A Magic Motor is fixed to the underside of the Flanged Plate, while two Fishplates are bolted to its side flanges to provide bearings for a 3½ in. Rod 5, held in place by a 1 in. fixed Pulley.

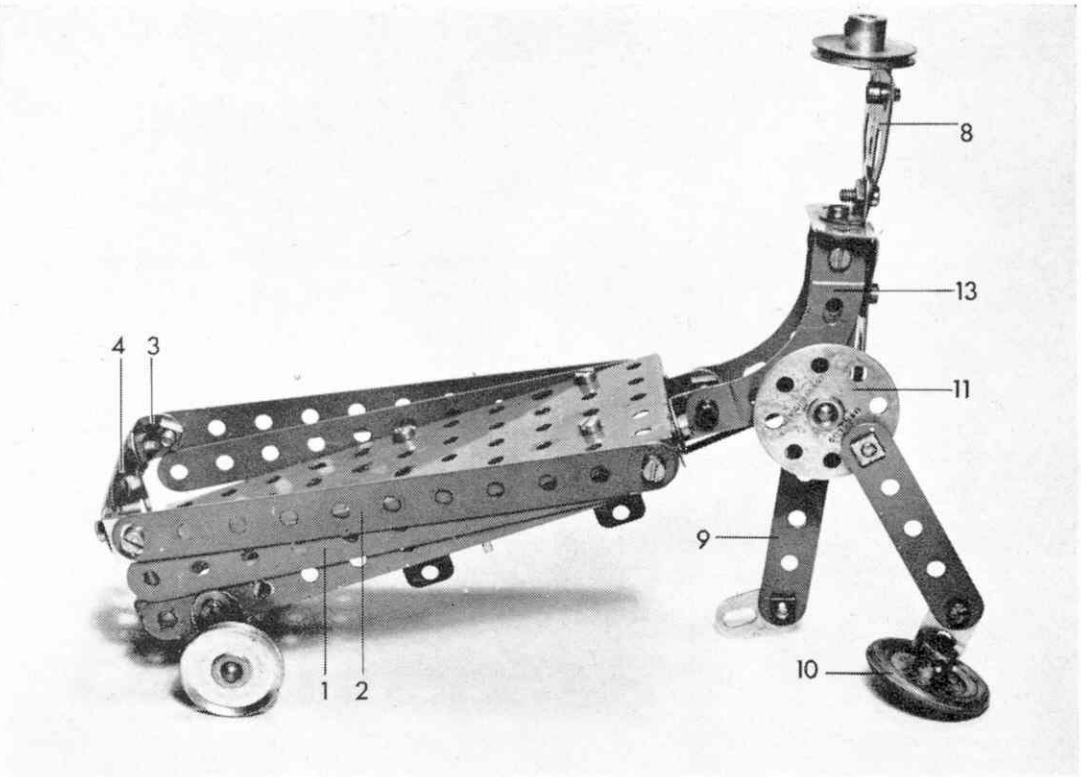
In the case of the barrow boy, two 2½ in. by ½ in. Double Angle Strips 6 are joined together to form a rectangular box, to the upper end of which a Trunnion 7 is bolted. A Flat

Trunnion 8 is attached to this Trunnion by an Angle Bracket, then another Angle Bracket is used to fix a 1 in. Pulley with boss to the top of the Flat Trunnion. The right leg is provided by a 2½ in. Strip 9, bolted to the corresponding Double Angle Strip, with a Fishplate acting as the foot. The left foot, however, is a 1 in. fixed Pulley with Rubber Ring 10, attached by a Fishplate to another 2½ in. Strip. At its other end this Strip is lock-nutted to an 8-hole Bush Wheel 11, mounted on a 2 in. Rod journalled in Double Angle Strips 6 and held in place by a ½ in. Pulley with boss 12. This Pulley, by the way, is not contained in the outfit, but is sold with the Motor.

As in the case of the Tricyclist, two 2½ in. Stepped Curved Strips 13 represent the arms, these being bolted to Double Angle Strips 6. Hands are provided by two Angle Brackets which, besides being bolted to the arms, are also tightly fixed to the Flanged Plate. Lastly, the Pulley on the Motor output shaft is connected by a Driving Band to Pulley 12.

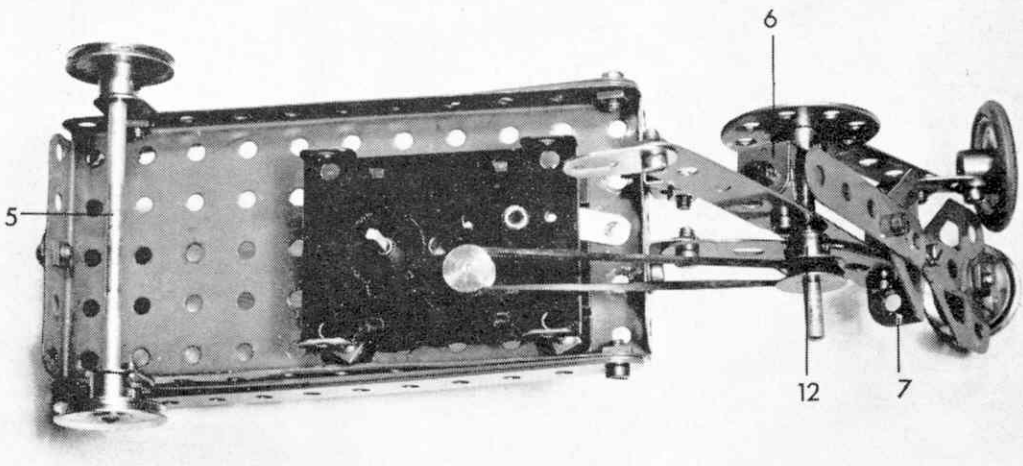
PARTS REQUIRED

4 of No. 2	1 of No. 23a	2 of No. 90a
4 of No. 5	1 of No. 24	1 of No. 111c
4 of No. 10	29 of No. 37a	1 of No. 126
5 of No. 12	29 of No. 37b	2 of No. 126a
1 of No. 16	2 of No. 38	1 of No. 155
1 of No. 17	2 of No. 48a	1 of No. 186a
4 of No. 22	1 of No. 52	1 Magic Motor



MOTOR MOWER

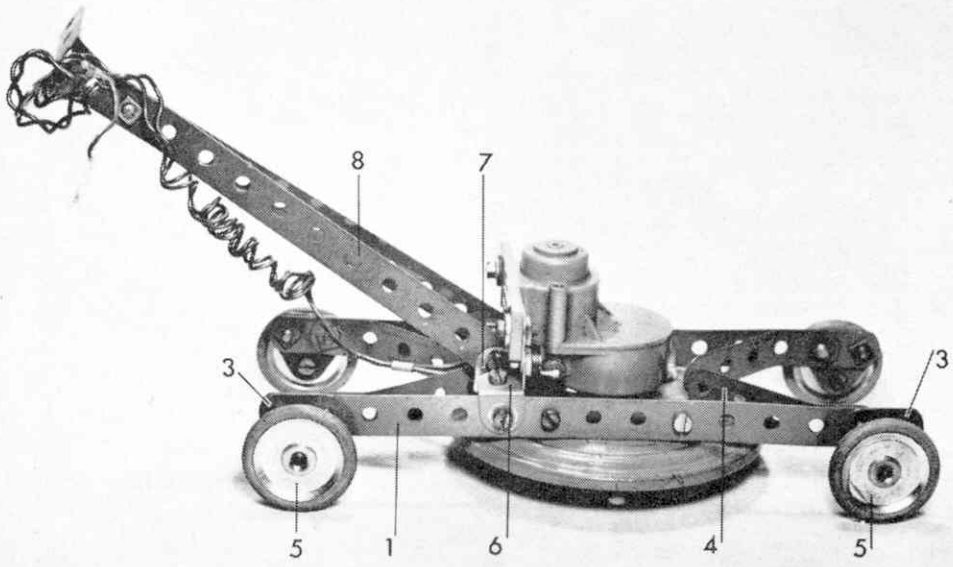
The last model, based on a rotary-type motor mower and powered by an Emebo Electric Motor is one which I found quite fascinating, although it is not built from any particular outfit. Two 7½ in. Strips 1 are fixed by Angle Brackets to the Flanged Disc 2 of a Ball Thrust Race by Angle Brackets. To each end of the Strips a 1 in. Triangular Plate 3 is fixed, at the same time securing a 2½ in. Strip 4 in position. This last Strip is bent inwards, as shown in the accompanying illustration, while a 1 in. fixed Pulley with Rubber Ring 5 is loosely attached to the Triangular Plate by a ⅜ in. Bolt passed through its apex hole and held in the boss of the Pulley by a Grub Screw.



Two Corner Angle Brackets 6, one left-hand and one right-hand, are now bolted to Strips 1 in the positions shown. An Angle Bracket 7 is fixed by a Nut and Bolt to the underside of the centre lug of each Corner Bracket, but is spaced from the lug by two Washers. A 7½ in. Strip 8 is bolted to the free lug of each Angle Bracket 7, these Strips being connected towards their other ends by a Bolt passed through their fifth holes. The ends of Strips 8 are bent outwards to form a handle. Fixed to the upper lugs of Corner Angle Brackets 6 are two Fishplates, to which an Emebo Motor is secured by ⅜ in. Bolts, with the output shaft of the Motor projecting through the hole in the centre of Flanged Disc 2. A Fan 9 is mounted on the end of the output shaft to act as the cutting tool.

PARTS REQUIRED

4 of No. 1b	25 of No. 37b	1 of No. 154b
4 of No. 5	10 of No. 38	4 of No. 155
2 of No. 10	4 of No. 77	1 of No. 157
4 of No. 12	4 of No. 111c	1 of No. 168a
4 of No. 22	1 of No. 154a	1 Emebo Motor
25 of No. 37a		



Among the Model Builders with Spanner

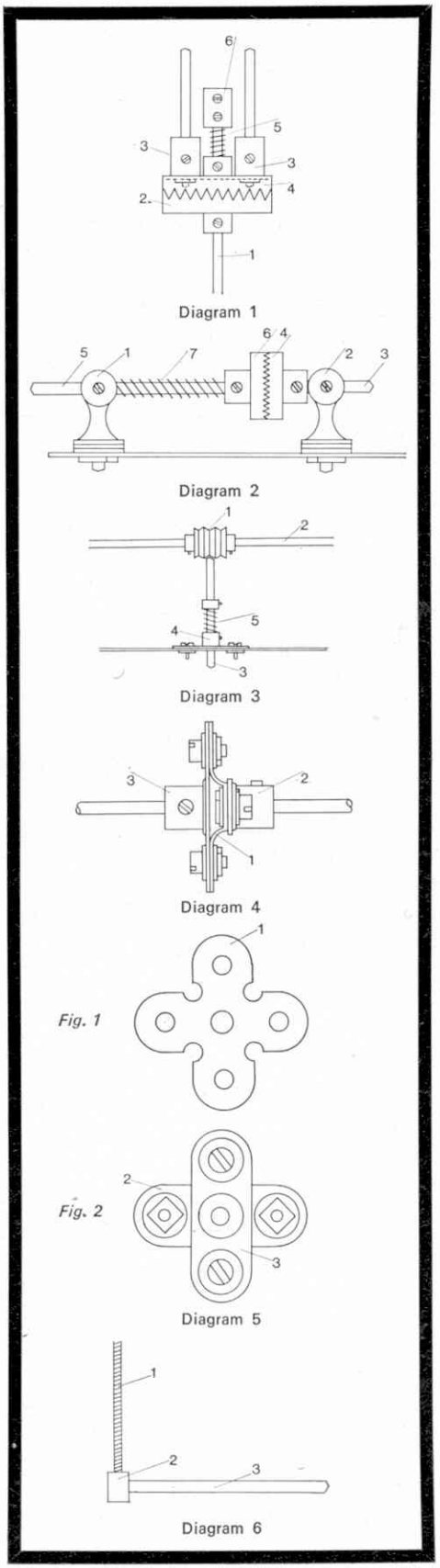
REGULAR readers of these pages will perhaps have noticed that, since we re-introduced 'Among the Model-Builders', I have devoted most of the allotted space to gear boxes and mechanisms which, although not complete models in themselves, were sufficiently self-contained to be incorporated as a whole in existing models. This month, therefore, I propose to feature two or three small units that will prove extremely useful in improving existing constructions, but which are not self-contained mechanisms.

Our first two offerings come from a very experienced modeller of longstanding, Mr. H. J. Halliday of London, S.E.15, and are both units specially designed for use with Meccanograph designing machines. The first (see diagram 1) is a modification to the type of 'crown head' found on Meccanographs in which the pen arm is given its oscillating sideways movement by the action of a built-up cam knocking against the pen arm. This system was actually used in the Spiralograph described in the M.M. last month, the 'cam' in that case being the two 8-hole Bush Wheels through the faces of which a number of Bolts were passed, the pen arm engaging with these Bolts. Mr. Halliday's modification greatly increases the fine, close-knit linework it is possible to produce as it allows a specific pattern to be drawn and then allows the pen to be moved without altering the setting of the model. The identical pattern can then be repeated, but in a different place, thus improving the whole effect.

To build the unit, the existing crown head or cam arrangement on the Meccanograph must be removed, leaving only the driven Rod 1. A 1½ in. Contrate Wheel 2 is then fixed tightly on this Rod, while eight Rod Sockets 3 are bolted to another 1½ in. Contrate Wheel 4. This latter Contrate is now mounted loose on the Rod, but is held in mesh with Contrate 2 by the action of half a Compression Spring 5, held on the Rod by a Short Coupling 6. Fixed in Rod Sockets 3 are a number of short Rods which replace the Bolts in the original crown head and which strike against the pen arm to provide the oscillating movement. The quantity and positions of the Rods naturally depend on the pattern you wish to produce, whereas the length of the Rods depends on the height of the pen arm.

How to use the modification is fairly obvious. Once the first standard pattern is finished, Contrate 4 is disengaged from Contrate 2 and is revolved a distance of one or more teeth. When the model is re-started, the pattern will be repeated, but in a slightly different position. In fact, Mr. Halliday sums up the matter admirably by saying, '. . . if the first design is left in place on the revolving table, and relative positions of Contrates 2 and 4 are altered each succeeding design with its slight variation will start in a slightly different place on the paper, and will build up into a design of close, fine lines, which can be terminated as soon as the design reaches the operator's satisfaction.' He went on to make the very important point. 'The pen, of course, should be removed from the paper while the Contrates are being altered, otherwise a 'drag' line occurs in the design.' A point which must be remembered.

Mr. Halliday's second mechanism (see diagram 2), in fact, could be used to overcome this problem, being chiefly designed to allow the pen of a Meccanograph to be moved clear of the revolving work table when the paper is being changed. In addition it can be used to increase the complexity of the pattern. A Handrail Support 1, carrying three spacing Washers, is fixed in the end hole of the pen arm, while another Handrail Support 2 is fixed in the fourth hole from the end. A 1 in. Rod 3, on which a ¾ in. Contrate Wheel 4 is mounted, is secured in the latter Handrail Support. Free in Handrail Support 1, on the other hand, is a 1½ in. Rod 5 that carries another ¾ in. Contrate Wheel 6 on its inside end with a Compression Spring 7 between the Contrate and the Handrail Support. The Compression Spring keeps Contrate 6 in mesh with Contrate 4.



The pen holder is, of course, fixed on the outside end of Rod 5. For a pen holder, Mr. Halliday used the boss from an old 2 in. Pulley which he bored out to fit a ball-point pen, and which was mounted on the Rod by means of a Rod Socket screwed into one transverse tapped bore of the boss. I imagine, however, that a Small Fork Piece mounted on the end of the Rod would be quite suitable.

Operation of the attachment is simple. When the paper is to be changed, Contrate 6 is disengaged from Contrate 4. The pen is then turned to the horizontal position, and the Contrates are re-engaged. In normal operation, of course, the pen is in the vertical position so, to increase the complexity of the pattern, just move it slightly away from the vertical by turning Contrate 6 round a couple of teeth. As with the crown head, the same pattern will be drawn, but on a different line.

POSITIVE GEAR CHANGE

On a different subject, one of the disadvantages of a Meccano gear box is that gear changes sometimes tend to be rather sloppy and also it is often rather difficult to hold a specific gear in mesh. Mr. T. Holland of Swinton, Yorkshire, has designed a simple and very useful mechanism (see diagram 3) that effectively solves the problem. It consists basically of a tension device acting on the sliding layshaft of the gear box. A number of ½ in. or 1 in. Pulleys without boss 1, one for each gear are, mounted free on the layshaft 2, being held in place by Collars. A Rod 3, the shorter the better, is then mounted loose in the boss of a Double Arm Crank 4 bolted to the frame of the gear box and a Compression Spring 5 is slipped onto this Rod to be held by a Collar. The end of the Rod simply engages with the Pulleys to hold the layshaft stationary. The Rod, however, must be able to slide from one Pulley to another, therefore, the Compression Spring must be adjusted so as to keep tension as light as possible.

UNIVERSAL COUPLING

Diagrams 4 and 5 on this page shows an extremely useful, if slightly unusual, small universal coupling which has been designed by Mr. C. R. Jacob, of Streatham Hill, London, S.W.2. As Mr. Jacob points out, the standard Meccano universal joint is far too long for some models and, in such cases, the item illustrated makes an excellent substitute. The only disadvantage—if it can be called a disadvantage—is that it is rather large in diameter, but this is far outweighed by its short length.

It consists quite simply of a piece of leather 1 cut to the shape shown in fig. 1 (diagram 5) and bolted between two Double Arm Cranks 2 and 3 arranged at right-angles to each other. To avoid the smooth bores in the bosses of the Crank being out of line or 'eccentric', however, it is advisable to assemble the unit on a Rod. The first Crank is mounted on the Rod to be followed by the piece of leather, two opposite lugs of which are then bolted to the arms of the Crank with a Washer between the bolthead and Crank and another Washer between the leather and Nut. The second Double Arm Crank is then added to the Rod and similarly bolted to the other lugs of the leather piece. The thickness of the leather, incidentally, should be about 2 m.m., but this measurement is not critical.

HINT FOR YOUNGSTERS

Lastly, this month, I should like to pass on a useful hint to young builders or newcomers to the Meccano hobby, which has been sent in by Mr. R. Lowe of Gorton, Manchester 18. Mr. Lowe writes, 'sometimes when building a model a Collar or Gear Wheel is required on a shaft which is very awkward to get at. I thought of a simple way to overcome this (problem) by using a Screwed Rod as shown in the diagram'. (See diagram 6.)

This solution of Mr. Lowe's is easy and effective. All you do is screw the Screwed Rod 1 into one transverse tapped bore of the Collar or Gear and, using the Rod as a handle, slide the part 2 onto the shaft in question 3. The Screwed Rod can then be removed or, if required, can be used to hold the part steady while the Grub Screw is tightened.

IDEAS STILL WANTED

Finally, I should like to remind readers that I am still only too pleased to receive any material for publication in these pages. Nothing is too insignificant for consideration so, if you have designed anything, no matter how small and simple, don't hesitate to send details to me, addressed to Meccano Magazine, Binns Road, Liverpool 13. After all, as I have said before, we can't feature an 'Among the Model-Builders' article every month without hearing from you, the model-builders!

Steam for Ships—from page 35

ing a 2½ in. by ½ in. Double Angle Strip to which two Double Brackets are bolted. Fixed on to the lugs of these Double Brackets are eight 1½ in. Strips 43, arranged as shown in two groups of four to represent the crosshead. A Double Arm Crank 44 is added to the underside of the Double Angle Strip and a 4½ in. Rod, free to slide in the bosses of upper Face Plate 22 and Face Plate 23, is secured in its boss.

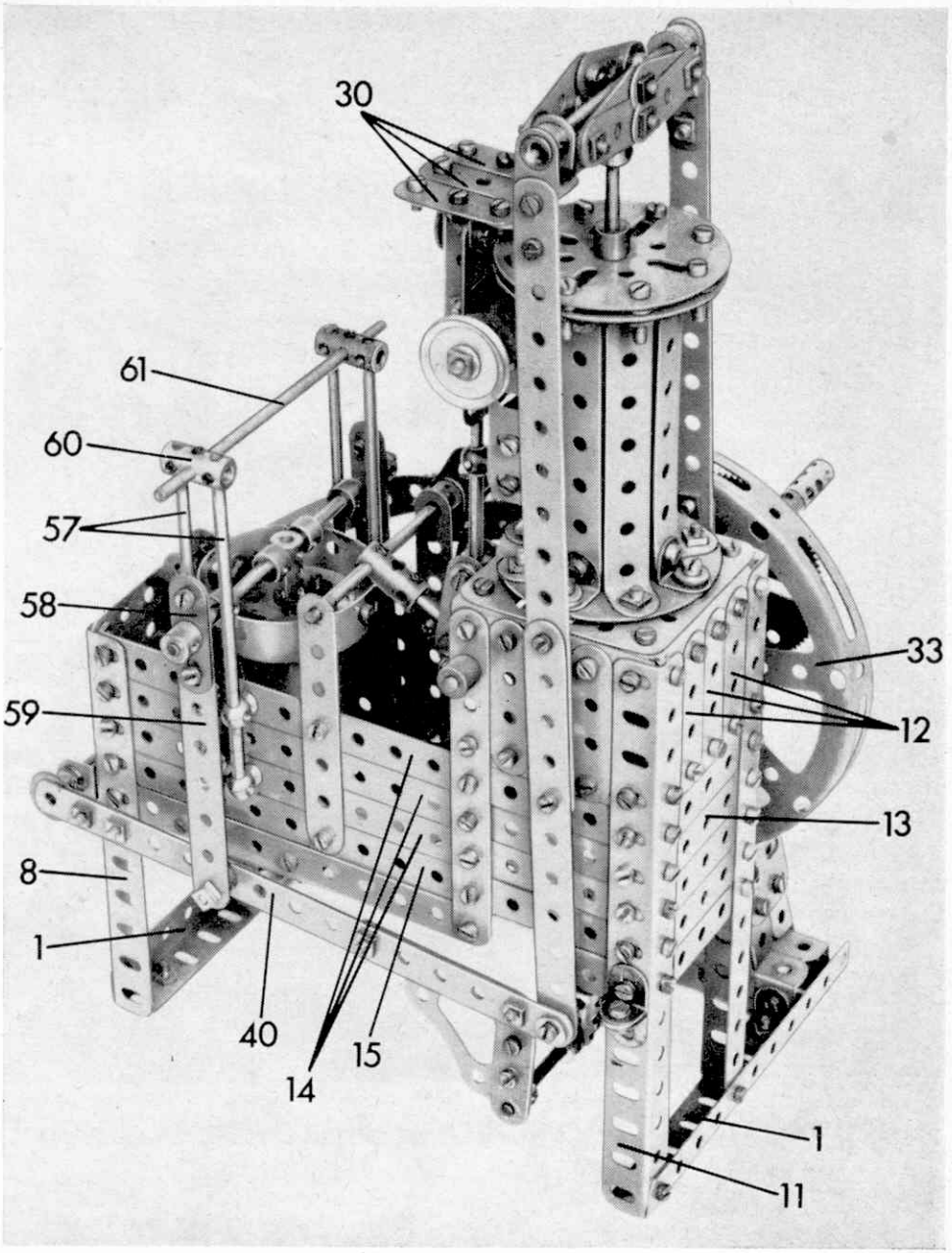
Journalled in Strips 16 is a 3 in. Rod 45 with a Coupling 46 in its centre and a Double Arm Crank 47 on one end. Fixed in the longitudinal bore of the Coupling is a 1 in. Rod, on the end of which a Collar is held by two Bolts screwed into its tapped bores. Each of these Bolts carries on its shank two Washers and a 1½ in. Strip 48 which must be free on the Bolt. At their upper ends, Strips 48 are joined by another Bolts/Washers/Collar arrangement, the Collar carrying a 3½ in. Rod 49, that slides in Handrail Support 25 and the boss of Large Fork Piece 29.

Lock-nutted to Double Arm Crank 47 is a 1 in. by 1 in. Angle Bracket, one lug of which is extended by a 2 in. Strip and a Single Throw Eccentric 50, the latter mounted on the end of a 3½ in. Rod 51 journalled in Strips 17 and held by a Collar. Bolted to the other lug of the Angle Bracket are two 1 in. by ½ in. Angle Brackets, to which a 5½ in. Curved Strip 52 is fixed. This represents what, on the original full-size engine, was the reversing lever, but it does not actually reverse the model.

MOTOR MOUNTING

Two 7½ in. Angle Girders 62 are joined by a 4 in. Flat Girder 63, attached by Angle Brackets, but note that the Flat Girder is positioned at one end of the Angle Girders. Bolted between the Angle Girders at their other end is a No. 1 Clockwork Motor with a ½ in. Pinion on its output shaft. In mesh with this Pinion is a 57-teeth Gear Wheel 64, mounted on a 2 in. Rod journalled in the Motor side plates and held by a Collar. Gear 64 is another example of an old part. Fixed on the end of the Rod is a driving pinion 65 from a No. 1 Clockwork Motor.

The completed engine is now screwed to a wooden baseboard with dimensions of approximately 9 in. by 7 in., remembering to leave sufficient room for the Motor mounting to be screwed alongside it. The mounting is positioned so that the driving pinion 65 engages with Gear Wheel 34, and is raised to the correct height by several strips of rubber packed beneath Angle Girders 62. These rubber strips also serve to reduce running noise enormously. I should imagine, incidentally, that the wooden baseboard used by Mr. Sanders could be replaced by a built up Meccano base. I leave this up to you to design, however.



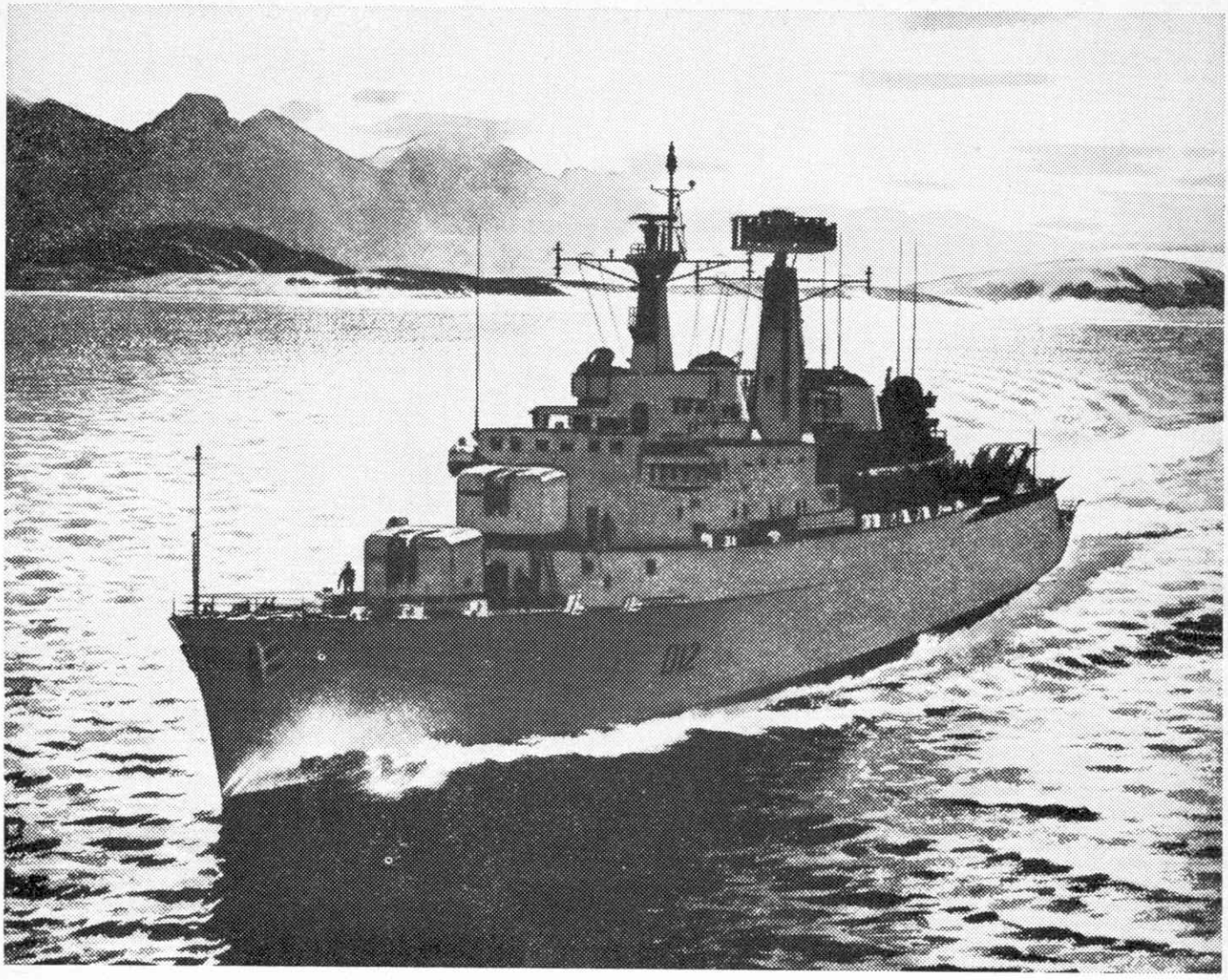
THE PUMP

Beneath the model, two 1½ in. Corner Brackets 53 are fixed one each to two 2 in. Angle Girders which are, in turn, fixed to Strips 18, then a Cylinder is attached to the Corner Brackets by Angle Brackets. Attached to the top of the Cylinder, also by Angle Brackets, is a Boiler End 54, across the inside of which a 1½ in. by ½ in. Double Angle Strip 55 is fixed by ½ in. Bolts, a Collar on the shank of each Bolt acting as a spacer. A Double Bracket 56 is added on the outside being attached by an Angle Bracket.

Sliding in the centre holes of Double Angle Strip 55 and the Boiler End is a 2½ in. Rod, carrying a Coupling at its end. A 5 in. Rod is loose in the upper transverse bore of this Coupling, but is prevented from sliding about by two Collars. The ends of the Rod are each located between two 4½ in. Rods 57, mounted in Handrail Supports bolted to Strips 14, then Double Arm Cranks 58, extended by 4½ in. Strips 59, are fixed in position, as shown. The lower ends of Strips 49 are lock-nutted, with ½ in. Bolts, to Strip 40, a Collar on the shank of each Bolt separating the two Strips from each other. The upper ends of Rods 57, on the other hand, are joined by Couplings 60, which are themselves connected by a 4½ in. Rod 61.

PARTS REQUIRED:

10 of No. 1b
8 of No. 2
4 of No. 2a
5 of No. 3
12 of No. 5
11 of No. 6
15 of No. 6a
8 of No. 8b
4 of No. 9
2 of No. 9b
7 of No. 9d
3 of No. 9e
1 of No. 9f
7 of No. 11
23 of No. 12
1 of No. 12a
2 of No. 12b
1 of No. 14
1 of No. 15
6 of No. 15a
4 of No. 16
1 of No. 16a
3 of No. 16b
1 of No. 17
1 of No. 18a
1 of No. 22
1 of No. 26
1 of No. 27a
1 of No. 27c
258 of No. 37a
237 of No. 37b
50 of No. 38
2 of No. 38d
1 of No. 48
2 of No. 48a
5 of No. 48b
17 of No. 59
6 of No. 62
5 of No. 62b
7 of No. 63
1 of No. 64
1 of No. 89
3 of No. 103c
2 of No. 103f
2 of No. 103h
2 of No. 108
3 of No. 109
2 of No. 111
14 of No. 111a
1 of No. 111d
1 of No. 116
1 of No. 118
1 of No. 130a
2 of No. 133
9 of No. 136
1 of No. 162a
1 of No. 164
1 of No. 216
1 of No. 1 Clockwork Motor
1 of No. 1 Clockwork Motor driving pinion



As this Royal Navy destroyer slips away at dawn

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Stamps News by F. E. Metcalfe

Child Welfare

Nowadays, postage stamps play a part, or rather a host of parts, which collectors in my early days would never have believed possible, and they are able to do so, because of their publicity attributes. Our own country, about which I will have more to say later on, has at long last realized this. But really up-to-date countries like Holland, caught on to all this years ago, with the net result, as the stamp catalogues show, that some really interesting stamps have been issued. Child welfare is considered very important in the Netherlands, and numerous stamps have been issued from time to time to give publicity (and perhaps to collect a little bit of cash for the Post Office welfare as well) and countries like Suriname have been brought in to the philatelic scheme of things, so last November a really interesting set of five stamps was issued, all bearing a small surcharge, which will go to further the object in view. I do wish there was room to illustrate all the five stamps, but the one I have picked out is intended to mark the end of Lent, when the children in Suriname really do celebrate it with a local custom of sprinkling around a harmless and easily removed (fortunately) purple dye.

Cyprus Excels

There was recently published in Italy a catalogue devoted exclusively to the stamps of Great Britain and the countries in Europe belonging to our Commonwealth. Amongst the now popular stamps in Europe, are those issued by Cyprus, and so the magnificently designed definitive issue which was released on November 21st, is being snapped up, not only here in Britain, but on the Continent as well. The stamps were designed and printed in Greece, and with no one design more interesting than the other, I hardly know which one to ask the Editor to illustrate. Better get the set for yourself, or as many values as you care to spend cash on. There is still much art in wonderful Greece.

New Zealand

I mentioned above how stamps are used as publicity for countless objects, and New Zealand, whilst never overdoing it (as alas so many countries do) is quite aware of the possibilities, and, no doubt with a double object in view, will issue a set of two stamps on February 2nd to mark the centenary of their Post Office Savings Bank. The 9d stamps depict two coins, and the 4d, well you can see for yourself. This will be a very popular issue and the N.Z. Post Office is to be thanked for making it one which all can afford to buy.

Umm al-Qiwain

And where on earth is that country? Well, stamp collectors know that it is one of the Arabian states, for it has been issuing some most attractive stamps, mostly on subjects which are of particular interest to the average Meccano Magazine reader. So I imagine that some readers will have already obtained copies of the "Satellites" issue when it came out last October. The set consisted of nine stamps, all showing a different type of satellite, and whilst a full set runs up to 19/- face, some dealers have short sets which are quite inexpensive. The stamps are very well designed and attractively printed in various colours, with a background of silver.

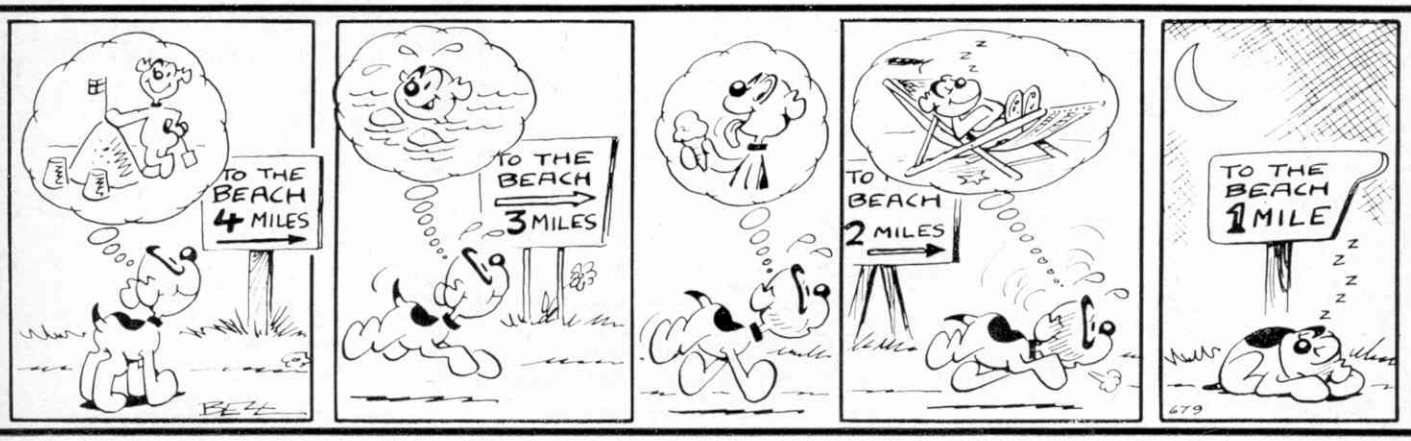
Watermark Changes

If you are trying to do without an up-to-date catalogue this year, either a Commonwealth, or a Gibbons, you may regret it later, for there is so much doing in the stamp world, that you will not only miss the thousands of price increases, but also the new varieties, some of which you may have and not be aware of the fact. For instance, Guyana and Lesotho (ex Basutoland) have recently overprinted their old stamps to mark their change of status. But some of the values exist in two watermarks, and in one or two instances one watermark is much scarcer than the others. You may have the scarce one and not know. Check up!

The Tip of the Month

Recently the Postmaster General gave brief details of all the new British stamps which are to appear during 1967. Now the interesting point about his statement is this. The change in policy which resulted in all the new special issues of British stamps, was initiated during the period when Mr. Wedgewood Benn, was P.M.G. He was then replaced. The query then arose, would the new P.M.G. follow the policy of the old, a policy which had resulted in such an increased interest in our stamps, that those already issued had simply shot up to prices out of all proportion to what they had been selling at previously, and which would be at least maintained, if the policy was continued. Well it is obvious now that no matter who may become the political head of the Post Office, the new policy will continue, and as now seems certain, not only will there be no fall in prices, but they may even go up further, for more and more new collectors are taking up British stamps, not only here at home, but overseas as well (see the Italian catalogue). So my tip is this, if you decide to collect British stamps, buy what you can as soon as you can. There is a great future for our postal issues. Of that I am quite sure. And so I make no apologies for referring to them again, as they are the centre of the picture, for an ever increasing number of stamp lovers.

CHIPPER



Sales

• Obsolete Dinkies, pre- and post-war. State requirements. D. Pinnock, 10 Hurstville Drive, Waterlooville, Hants.
• Red and Green Meccano for sale, new and used; S.A.E. Wanted: pre-war Meccano literature, Magazines, obsolete parts. 155 Nutfield Road, South Merstham, Surrey.
• Hornby Trains, Royal Scot and tank loco carriages, trucks, station signals, lamp standards, transformer, large layout of rails, gauge 0. L. C. Skinner, "Parkland", 25 Crown Road, Great Yarmouth.
• Meccano No. 10 in luxury cabinet, many extras, steam, clockwork and electric motors. Offers, Bindless, 55 Hawthorn Road, Bolton-le-Sands, Carnforth, Lancs.
• Hornby Dublo 2-Rail set, three locos, 30 ft. track, accessories. Cost £15. Offers.—Afford, 59 Park Town, Oxford.
• Three Meccano catalogues giving details of Meccano products 1937-39. Offers. Gamble, 46 Cycle Road, Lenton, Notts.
• Meccano Set 7, plus many additions, numerous gears, motor, etc.; cost £15; £8 o.n.o. Hall, Richmond Hotel, Pulteney Street, Bath.
• 63 Assorted Magazines about modelling, angling, electronics, etc., £3. Kodak 44A with flash, £2. German 150× microscope, 30s. Chemicals and apparatus, £3. Electronics components, £2. Obsolete German Diana Air Rifle, Mod. 20, 30s. D. Miller, 4 Ramsay Mill, East Kilbride, Glasgow.
• Hornby Dublo 3-rail equipment: type A3 power control unit, £1 10s. 0d.; T.P.O. Mail Van Set, 15s.; electrically operated points, signals, etc. S.A.E. for details. M. C. Sterratt, 13 Hiusioe Avenue, Bromley Cross, Bolton, Lancashire.
• Meccano No. 10, immaculate condition, for sale; offers, or will exchange for Hornby 00 two-rail. Deane, 32 Northcote Avenue, Sheffield, Yorks.
• 140 Beer mats, £1; 200 old train tickets, 10s. Dunstan, 46 Beddington Gardens, Wallington, Surrey.
• 50 different bus tickets, 2s.; also fleet lists of all main British bus companies, 6d. each. R. Kennard, 4 Lincoln Drive, Croxley Green, Rickmansworth, Herts.
• M.M.s, April 1960-February 1966, 9 missing; offers over £3. Pearks, Tillworth, Hawkchurch, Axminster, Devon.
• Red, Green and nickel Meccano parts; send for details. Quantity Meccano Magazines. Shaw, 117 Kingsway, Ilkeston, Derbys.
• Philips E.E.8 Kit, excellent condition, £3 10s. 0d. C. Nelson, Old Rossory Road, Enniskillen, N. Ireland.
• Hornby Dublo 3-rail, two engines, many extras, cost £40. S.A.E. for details. Slade, 12 Tynsall Avenue, Webheath, Redditch, Worcs.
• Stamps: 50 foreign, mixed, 4s.; World Cup 4d., used, unused; offers. S.A.E. Kenneth Wilson, 49 Medway Crescent, Gateshead, County Durham.
• Stamps: 2s. each, 100 different foreign, 50 Commonwealth, or 25 better Commonwealth; cat. approx. £1. Duplicates exchanged. Howitt, 7 The Drive, Lavington Park, Petworth.
• 0 Gauge Hornby Clockwork Trains, 5 engines, 15 carriages, complete tracks, etc.; seen London. Bel. 4210.
• M.M.s, 1942-48, bound, £4 10s. 0d. o.n.o.; many others, 1942 onwards. Many Buses Illustrated, from No. 56 onwards. Also Modern Railways, Railway Modeller, Railway Magazine, A.B.C.s and others; s.a.e. for list. 44 Morland Road, Kenton, Middlesex. Phone Wor 4714.
• Meccano Magazines, November 1921 to April, June 1923. Turner, 24 Argyle Road, Walsall, Staffs.

Wants

• Obsolete Dinkies and Tootsietoys, pre-1950. Single models or collections purchased. D. Pinnock, 10 Hurstville Drive, Waterlooville, Hants.
• Pre-war and pre-1952 cars and military vehicles (Dinky Toys). Please state condition and price required. Mills, Loretta Hotel, Llandudno.
• Good prices paid for obsolete die-cast models, Dinky Toys, Tootsietoys, etc. Also early clockwork toys. Will buy one or a whole collection. Dr. Gibson, The Green, Anstey, Leicester.
• Meccano Miniature engineer's oil can, made in copper, about 4 in. long. Good price paid. W. Jones, 295 Westbourne Grove, London, W.11.
• Grant McLellan, aged 3, wants a Dinky Ford Anglia 105E. Replies, 22 Turakina Street, New Plymouth, New Zealand.
• The following early issues needed to complete my collection of Meccano Magazines—Vol. 1, No. 1—1916; Vol. 2, Nos. 2, 3, 4, 5, 6—1917; Vol. 3, Nos. 8, 9—1918. Vol. 5 to Vol. 7, Nos. 16, 17, 18, 19, 20, 21, 22, 23, 24—1918-22 (I do have complete Sept. 1922 to Feb. 1935); need 1935, Mar., April, May, Sept., Oct., Nov., Dec.; need 1936, Feb., Aug., Sept., Oct., Nov.; need 1937, Feb., Mar., June, July, Oct. Also need complete years from 1940 to 1945 (bound preferred). Please state conditions and prices wanted. Frank Ajello, 312 N. Anaheim Blvd., Anaheim, California, U.S.A.
• Pre-war Railway Models, English or foreign. Anything considered. 14 Wren Avenue, Southall.
• Wonders of World Engineering, bound or unbound, fair condition. Tansley, 114 Baldwin, Oshawa, Ontario, Canada.
• Miscellaneous Chemistry Equipment wanted. Newport, 4 Old Park Ridings, London, N.21.
• Wanted, obsolete Dinky model buses and coaches. Tresise Bareppa, New Road, Swanmore, Southampton, Hants.
• Obsolete Dinkies and Corgi models. Details to S. O'Neill, 58 Harvey Road, Guildford, Surrey.
• Meccano No. 10, equivalent, or bigger stock. Send list. Sen, 44 Lambert Road, London, S.W.2.

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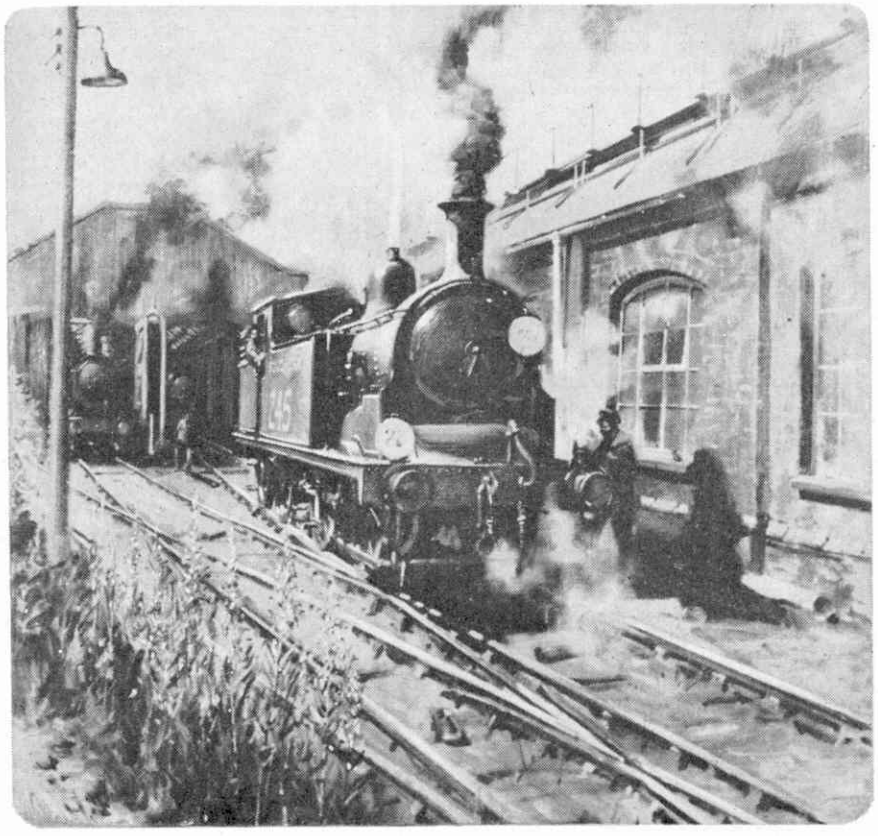

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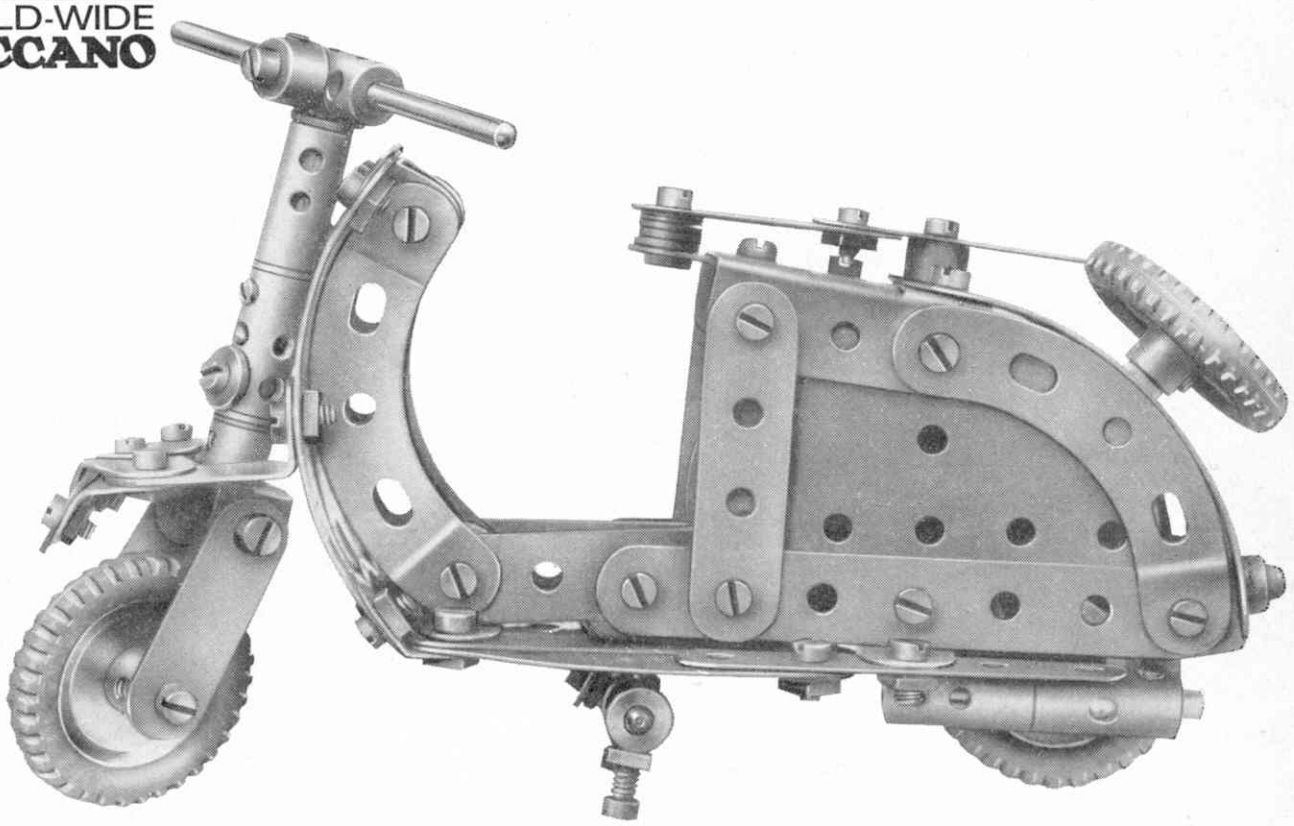

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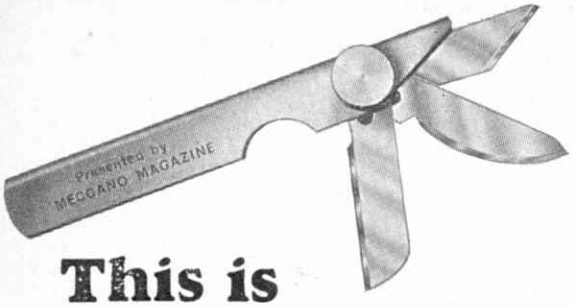

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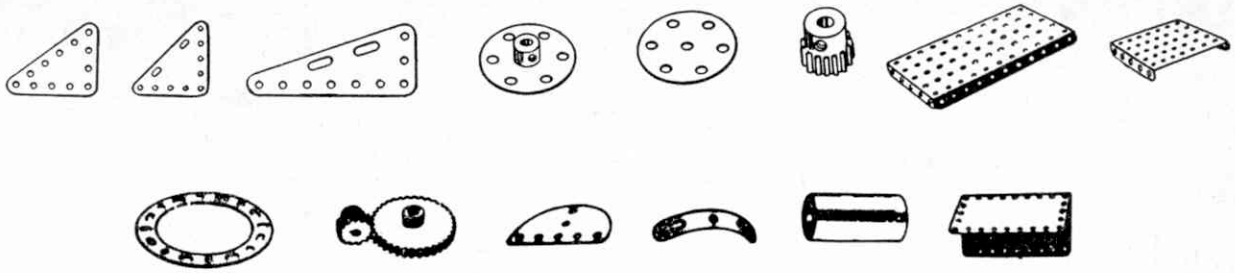

Dealers who specialise in Meccano spare parts

Listed below are some of the dealers who sell Meccano accessories and spare parts. This is intended to aid enthusiasts—and there are many of them—who constantly require additional spare parts for their Sets. All dealers can, of course, order Meccano spare parts for their customers, but those listed here are among our spare part specialists.

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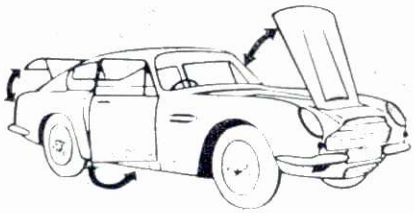

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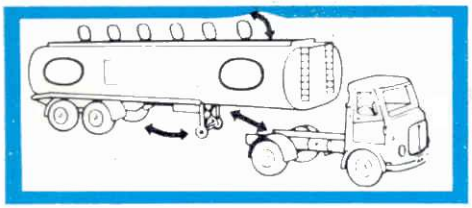

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