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in photographs of buildings.

The Rapid Rectilinear

The rapid rectilinear or double lens is a great improvement on the single lens. As shown in Fig. 3 it consists of two single lenses fitted in a tube at some distance apart with a stop between them.

This lens, which is commonly spoken of as an "R.R." lens, is suitable for all kinds of work and is quite free from the distortion of the single lens. There is also the advantage that these lenses work well at F8 and are therefore appreciably more rapid than single lenses.

Yet another point about the "R.R." lens is that its two components can be used separately, each forming a single lens of about twice the focal length of the complete lens.

Anastigmat Lenses

The third and best type of lens is the anastigmat, of which there are many patterns. These lenses generally consist of a number of separate glasses, which may

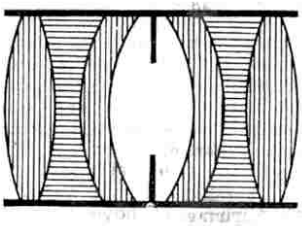

Fig. 4. Anastigmat Lens

be all cemented together or some of which may be separated by an air space.

An anastigmat lens is free from all distortion and is considerably superior to the "R.R." lens in fineness of definition. These lenses are expensive but are well worth the money, as although an "R.R." lens will do many kinds of work practically as well as an anastigmat, yet for certain work the latter is undeniably far superior.

Some anastigmats are "convertible," that is to say the component lenses can be used separately, but many of them can be used only in their complete form.

In addition to the perfection of image that it gives, the anastigmat has the great value of permitting the use of extremely large apertures. Whereas the maximum aperture of the "R.R." lens is F8, anastigmats may be obtained to-day to work perfectly with a stop as large as F2.7.

The question of lens speeds will be dealt with in a subsequent article.

Wide Angle and Telephoto

There are other types of lenses used for special purposes. These include wide-angle lenses, which take in a wider view than the normal lens and are mostly used for architectural work in confined situations; portrait lenses, which are used by professional workers but are not likely to be of much interest to amateurs, and telephoto lenses used for obtaining large images of distant objects.

We have now dealt briefly with the various types of cameras and lenses, and next month we shall deal with the different forms of shutters and show how the exposure problem may be simplified.

Fifteenth Photo Contest

Among the large number of letters we receive every day from our readers there are always several that give an account of some favourite pet, and in many cases this description is accompanied by one or more photographs. It is evident that those of our readers who possess cameras are keen on taking photographs of their pets, and as we wish to encourage this enthusiasm we are announcing this month, as the subject of our Fifteenth Photo Competition, "MY FAVOURITE PET."

We use the word "pet" in its widest possible sense and entries may consist of photographs of any animal in which the competitor is specially interested. More than one photograph may be submitted by a competitor if desired.

Prints may be of any size and made by any process and the work may be done by the competitor himself or by a photographic dealer. In the event of a tie for a prize preference will be given to prints that have been made by the competitor himself, and therefore every entrant must state on the back of his print by whom it has been made. In addition each print must bear the name, address and age of the competitor, clearly written.

The competition will be divided into two sections A. and B., for competitors of 16 and over and under 16 respectively. Four prizes are offered—Photographic Goods to the value of £1/1/- and 10/6, to be chosen by the winners, as first and second prizes respectively in each section.

Closing date 30th May (Overseas: 30th September).

Rajar Roll Films

The popularity of the roll film increases steadily year by year and appears likely to continue to do so. The film is the vital unit of the amateur's equipment and if it is defective good photography is impossible.

"Rajar" films possess all the qualities that are necessary for successful work. In the first place they are extremely rapid, thus enabling the most inexperienced amateur to obtain good negatives even in a comparatively poor light. In addition these films give excellent colour correction, and are probably as free from the tendency to curl as any roll films can be. All the standard sizes are manufactured and there is a "Rajar" film for every camera. An interesting and well-illustrated booklet dealing with these films will be sent (post free) on mentioning the "*M.M.*" by Messrs. The Amalgamated Photographic Manufacturers Ltd., of Soho Square, London, W.1.

Electricity—(*cont. from page* 241)

in each keyboard at the correct time.

The fact that the messages are received ready printed on strips of paper tape results in saving the time that would otherwise be occupied in writing out the messages, for all that has to be done is to cut up the tape into short lengths and gum these on to telegraph forms ready for delivery.

There is no necessity for all the senders and receivers to be working during the whole time. For example, in a station equipped with a sextuple set the day may commence with only one or two sets working, and then, as the volume of traffic becomes greater, the other sets are put into operation one by one until all sets are working. While the Baudot apparatus is fairly robust, and most of the moving parts are made of very hard metal, it is usually necessary to employ a skilled mechanic to attend to the various adjustments that become necessary from time to time.

NEXT MONTH:—

The Wheatstone Automatic System

L.M.S. Locomotive Contracts

In addition to the order for five 4-4-2 passenger tank engines for the London, Tilbury and Southend services, which the L.M.S. have awarded Nasmyth, Wilson and Co. Limited, of Manchester, the same firm has now received an order for ten 0-4-4 passenger tank engines, of the existing Caledonian type. These latter are intended for the Cathcart service (Glasgow).

* * * *

Is Electrification Justified?

Speaking at Torquay recently Sir Felix Pole, general manager of the G.W.R. said that electrification was put forward as a cure for everything on the railways. "For the last two years," he added, "I have had a committee at work trying to discover places where the traffic would justify electrification. So far we have not been able to produce a scheme, and the best information I get rather tends to make me believe that to a very large extent the idea of the electrification of railways is not well founded."

* * * *

New Style Train Signals

An electric-lighting scheme, with four-colour lamps, is being installed on the Southern Railway to speed up the train service. A new method of signalling by coloured lights will be used on the sections that are being electrified.

The old semaphore signal with its upright and dipping arm, will be superseded by a much shorter post carrying four electric lamps placed on a level with the eye of the engine-driver. A red light will be the warning to "stop"; a yellow light, "proceed," prepared to "stop;" two yellow lights, "proceed, signal ahead is showing yellow light;" and green, "proceed at speed." Hitherto it has only been possible to signal "all clear" and "stop" but it is hoped that the new arrangement will result in obtaining the greatest possible acceleration from the electrification.

* * * *

Telephoning to Trains

Recently there have been considerable developments in Germany in perfecting telephones on trains, and within the next two or three months the first through service of trains fitted with telephones will run between Berlin and Hamburg. It is intended also to instal the new telephone system on trains travelling on other main lines, such as Berlin–Munich, Berlin–Stuttgart, Berlin–Frankfort, and Berlin–Hanover.

Travelling on these main-line trains, passengers will then be able to hold direct telephonic communication with any telephone subscriber in any part of Germany. It will also be possible for a passenger on the train to be "called up" by any telephone subscriber and for telephone communication to be established between passengers travelling on different trains. The train telephone will be of particular service to business men, of course, who will be able to keep in touch with their office or headquarters and thus advised of latest market prices, and other information that it is essential for them to have without delay.

* * * *

Locomotives without Fireboxes

Fireless locomotives are being tried-out on Continental Railways. These locos. are of novel design and at present are being used on small-gauge railways for short runs. Some weigh about 28 tons, and are capable of hauling ten wagons, each of 21 tons, over a total distance of about seven miles. They are driven by an ordinary steam engine and coupling rods, the steam being supplied from a boiler acting as an accumulator. The water in the boiler is heated by passing steam into it through an external source, raising steam temperature to, say, 200° Centigrade at a pressure of perhaps 150 lb. per square inch. When the pressure is relieved by the operation of a valve, a large amount of steam is generated at somewhat lower pressure, and the process goes on till the pressure drops to, say, 30 lb. per square inch, when it is no longer sufficient to drive the engine. The locomotives are useful for shunting and similar purposes, their great advantages being that they are less costly to run, and that their upkeep is less than that of locos. of the ordinary type. The largest fireless locomotive yet built weighs 57 tons and carries 21 tons of water under pressure.

* * * *

An Early Telegraphist

The L.N.E.R. in their search for old railwaymen who worked on the Stockton and Darlington Railway before 1863, have traced one survivor in America. This is Mr. J. H. Pickering, of Kansas City, who was instructed in telegraphy under George Stevenson, and who remembers "Locomotion No. 1."

* * * *

War-time Locos.

During the last two years of the war, over 500 heavy goods locos. of Great Central 2-8-0 type were built for service with the army in France. After the war most of these were lent to British Railway Companies for a year or so, after which they seemed to disappear! Less than 100 were bought by the Great Western, London and North Western and Great Central lines. Now 125 have been bought by the London and North Eastern Railway. Where are the others?

Ten 2-6-0 fast goods locos., built about three years ago at Woolwich Arsenal by the Government, have been bought by the Southern Railway. The locos. are identical with those running on the South Eastern and Clapham Section. Some 30 more are to be purchased and some are to be converted to correspond with the 2-6-4 tank locos., which were developed from the same design.

Ten Government locos. have been sold to the Great Southern Railway of Ireland, and are being altered to the Irish gauge. Six others, bought by the Metropolitan Railway, are being rebuilt in Manchester as 2-6-4 tank locos.

* * * *

New G.W. Locos.

Within the last few months Swindon works has turned out 20 heavy goods tank locos., 2-8-0 type, five 0-6-2 passenger tank locos. of a new design, and is now building another series of 2-6-2 passenger tank locos. for service in hilly districts.

Many locos. from the small amalgamated railways are being equipped with G.W.R. standard boilers, cabs, etc.

* * * *

Averaging 75 m.p.h.

We hear so much about the fine work performed by the four-cylinder "Castles" and "Stars," that the older engines are "pushed out of the picture." Yet many of them can put up a fine show when called upon, as is evidenced by the fact that one day, late last year, a two-cylinder "Saint" class engine, 4-6-0 type, left Swindon for London at the head of a train composed of eight coaches, weighing about 300 tons. On the 77 miles journey, eleven minutes were regained and the journey, start to stop, was done in two minutes over the hour, representing an average speed of nearly 75 m.p.h. The train was the 12-15 p.m. up-Bristol express, and the loco. 2998 "*Ernest Cunard*," built in 1902. These engines are the fastest on the line, although they cannot haul the same loads, and keep up to time whilst doing so, as the four-cylinder engines.

New Grain Elevator

The Great Western Railway Company will shortly bring into use at Cardiff Docks a floating pneumatic grain elevator which has been built by Messrs. Simon Ltd., of Manchester. The plant, which embodies the most up-to-date improvements in equipment of this description, will be capable of discharging grain at the rate of 120 tons per hour. It has been so designed that it will be able to work on the offside of ships and discharge to quay across the deck of a ship or into lighters alongside. If necessary, these operations can be carried on simultaneously.

The hull of the elevator consists of a steel pontoon, and the machinery erected thereon includes, in addition to the engines and suction pumps, an independent electric generating set for power and lighting. Apparatus is also provided for automatically weighing the grain while it is being discharged. From the point where the grain is discharged to the quay a new portable conveyor, which has been constructed in conjunction with the elevator, will take the grain into the warehouse and deliver it to the warehouse conveyors.

* * * *

Engines Wash Themselves

At the L.N.E.R. King's Cross Locomotive Depot, where the "*Flying Scotsman*" and other "Pacific" Locomotives are housed after their run from Scotland, an ingenious washing out appliance has been installed. By a system of pipes, filters and pumps the steam remaining in a large locomotive, instead of being let out to waste, is condensed into water and used, under pressure, to wash out the 3,800 ft. of internal pipes. Soot, scale and fur quickly collect in the interior of a locomotive, and the cleaner she is kept on the inside, the more power is obtained.

Recent tests extending over three days have proved the efficiency of this hot washing plant, which has enabled the largest locomotives in the world, the "Pacifics" used on the L.N.E.R. main line to Scotland, to consume only 46 lbs. of coal per mile against a higher figure previously.

When locomotives wash themselves out by their own steam in this way, it also means a great saving of time as the old method was to wait until they were cold before they could be touched. Every day, scores of locomotives are cleaned out at King's Cross, the average time taken being about twenty minutes.

* * * *

Order for Germany

A contract for 15 heavy main line locomotives for the Union of South Africa Railways has been awarded the German firm of Maffei, Munich.

Building "Baltics" at Horwich

In connection with our special article last month on Baltic Tank Locos. we now learn that the L.M.S. works at Horwich are nearing the completion of the series of twenty 4-cylinder superheated passenger locomotives, numbered 10455–10474. These engines are generally similar to those of the same class previously built, with the following exceptions :—

The boiler is identical with that fitted to the "Baltic" tank engines, but has 29.6 sq. ft. of grate area as against the 27 sq. ft. of the earlier series.

The bogie wheelbase and front portion of engine frame has been extended to coincide with practice on the "Baltic" tank.

The cab roof has been modified to conform to the Midland loading gauge.

For the time being these engines are being turned out painted plain black with the number in small figures on the cab sides, but it is intended that they assume the standard red passenger engine livery of the Company in due course.

On the completion of the above, Horwich will proceed with the construction of twenty 4–4–0 compound passenger engines of Midland design, identical with those which have just been turned out from Derby works, *i.e.*, having the shortened chimney, dome and cab, to enable the engines to run on any part of the system, and 6 ft. 9 in. coupled wheels instead of the 7 ft. of the earlier engines.

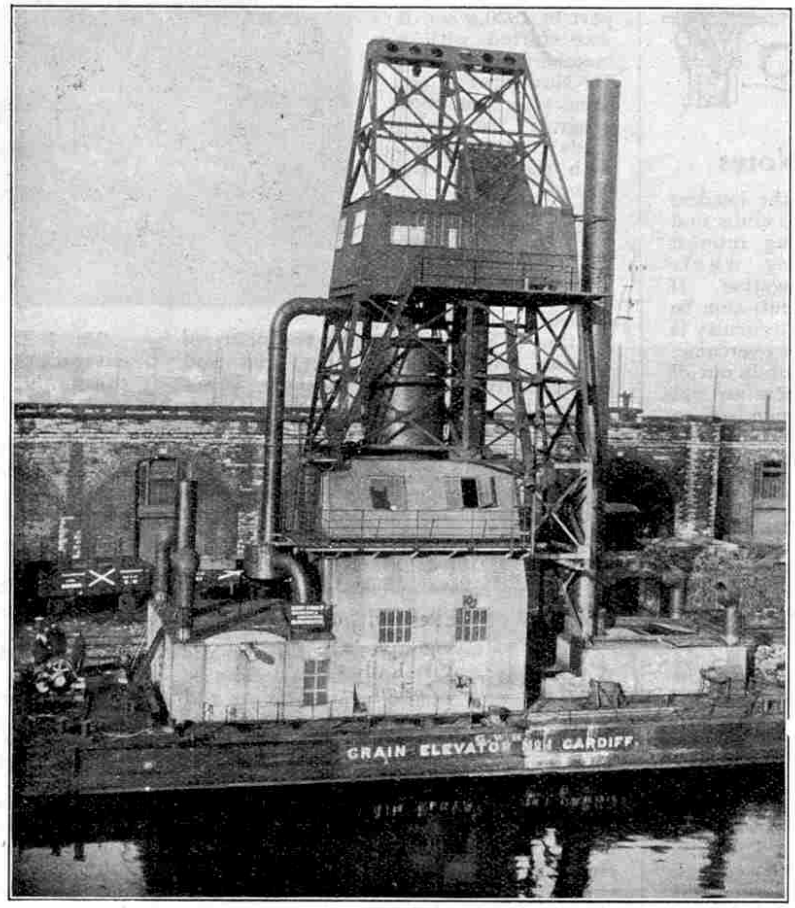

Photo courtesy] [*G.W.R.*

General View of the New Grain Elevator at Cardiff Docks

A 50-ton Load

An interesting load was dealt with recently by the G.W. Rly. at the arsenic works, Danygraig, Swansea. The load consisted of a rotary calciner of a total weight of 50 tons, consigned to the South Wales Portland Cement Company, Penarth. It measured 62 ft. long and 7 ft. in diameter. After being dismantled it was loaded on a "crocodile" wagon, two check wagons being necessary.

* * * *

New Steamers for Channel Islands Service

The "*St. Helier*" the second of the G.W. Co's new steamers for the Channel Islands service, has been successfully launched at Clydebank. With the sister ship "*St. Julien*," she will be available for the summer holiday traffic to Guernsey and Jersey.

* * * *

More Locomotives for South Africa

The order recently placed by the Rhodesian Railways with Beyer, Peacock and Co. Ltd., of Manchester, for four "Garratt" locomotives has now been increased to twelve. The locomotives will have a tractive effort of approximately 35,000 lb., with a maximum axle load not exceeding 13 tons.

* * * *

20-ton Coal Wagons

The 20-tonner coal wagons mentioned a short time ago in the "*M.M.*" appear to be rapidly increasing in numbers. They are seen regularly at Newport, Barry, Port Talbot, Swansea and Milford Haven, and they are giving excellent results. The reconstruction of the tipping appliances at the Bristol Channel ports is making good progress, and it is stated that the use of the new wagons will be considerably extended during the present year.

* * * *

Building Locos. in Australia

The Western Australian Minister for Railways recently stated that during the next two years it is intended to construct at least ten new locomotives at the Midland Junction workshops. Orders have been given for the extra plant required, which will cost £91,000. It is expected that the cost of construction will be about £190,000. The locomotives will be similar to those ordered in England on which the Federal Government had asked £21,900 duty.

* * * *

New Wagons for Egypt

A contract for 1,000 covered wagons for the Egyptian State Railways has been divided between the Metropolitan Carriage Wagon Co. Ltd., of Saltley, Birmingham, and the Ringhofer Works of Czecho-Slovakia.

THE MECCANO GUILD

The Secretary's Notes

During the summer months the Leaders of some of the smaller Meccano clubs find great difficulty in maintaining interest and keeping their members together. If a cricket club can be formed the difficulty is fairly easily overcome, but in many cases a cricket club is out of the question, either because there are not sufficient players among the members or because the club funds are not able to meet the necessary outlay for materials, not to mention the probable additional cost of hiring a field. A cycling club is a fairly good substitute for a cricket club, but for various reasons some Meccano clubs find it impossible to run even this section. In such cases the task of the Leader is not easy, but at the same time it is by no means hopeless.

Summer Difficulties

The Leader of a certain club in the south of England found himself faced with a problem of this kind and he solved it by collecting his members every Saturday afternoon and taking them for rambles to various places of interest in the neighbourhood. This particular Leader, however, was wise enough to realise that boys do not care for walks just for the sake of walking, and that some object must be provided in order to arouse interest. He therefore planned his walks carefully with this object in view. He provided himself with one or two books dealing with the locality and by studying these, together with a large-scale map, he acquired a really surprising amount of interesting knowledge which he was able to impart to his members, during the rambles, in a chatty manner that never failed to hold their attention. Quite apart from the fact that by these methods this club was successfully steered through a very trying period, there was also the good result of opening the eyes of the boys to things of great interest which they had never considered seriously because they were too familiar and close at hand. The Leader of this club told me that often a boy would exclaim : " Why I have passed this old place scores of times on my way to school, but I never knew before that there was anything interesting about it ! " I strongly urge Leaders of small clubs to give this plan their serious consideration. Of course, if a Leader has any knowledge of Botany, Geology, Birds, etc., his task is easier, but even if he has no particular leaning in these directions he can, by a little study, provide himself with material amply sufficient to enliven a number of summer rambles.

Rambles with an Object

However carefully club plans may be laid, they are always liable to be upset, perhaps at the very last moment, by rain. This invariably results in a general feeling of disappointment, and unless alternative plans have been prepared for such an emergency the position is a little trying. Something must be done and done quickly, otherwise the members will drift away feeling thoroughly disgusted. For such an emergency I should like to suggest a plan tried by the secretary of the Handsworth (Birmingham) M.C. In this case the trouble was not rain but the last-minute failure of a lecturer to turn up. The secretary promptly rose to the occasion. He prepared a number of slips of paper and wrote on each one a certain subject, such as " Gas," " Music," " Broadcasting," etc., and then placed all the slips in a hat and shook them up thoroughly. Each member then drew a slip, and whatever subject was written upon it he had to speak on for from three to five minutes. As may be imagined, many of the members drew subjects of which they had no knowledge whatever, but they all entered into the spirit of the thing. Of course, nobody tried to be very serious in his miniature lecture, and the result was to provide an hour or so of thoroughly lively amusement. This experiment was so successful that the Handsworth Club intend to repeat it before long.

A Suggestion for Wet Weather

Looking back over the past Session I feel greatly encouraged by the steady growth of the Guild membership and the progress made by the newly-formed clubs. Not only has excellent work been done in the club room, but also outdoor sports have been more successful than in any previous year. Football in particular has made great strides, and club teams have won a good percentage of their matches and have proved themselves thorough sportsmen. Many clubs brought the Session to a close with a Social, a Concert or an Exhibition, and at the same time elected a committee to arrange the club activities throughout the summer. Judging by the programmes already to hand, the next two sessions promise to be thoroughly enjoyable, especially if we are favoured, for a change, with a really good summer.

Guild Growing in Strength

I have never ceased to urge upon Leaders and secretaries the necessity for obtaining the greatest possible publicity for their clubs and I am glad to be able to report a considerable improvement in this direction. Last year almost all Meccano clubs, even the very small ones, held one or more exhibitions, many of which were exceedingly successful from every point of view. There was a great demand for models to be loaned from Headquarters for these exhibitions and I received many letters describing the interest these big models aroused among visitors. In the case of two or three clubs I was unfortunately unable to arrange for the desired models to be built in time for their exhibitions, and I wish to emphasise the fact that in order to make certain of a model from Headquarters at least three weeks' notice must be given. It is interesting also to observe that clubs are taking more trouble to obtain short notices in the local newspapers, and I now receive newspaper cuttings regularly from all parts of the world dealing with the doings of Meccano clubs. Another feature of the past year was the great increase in the number of clubs taking part in local shows, bazaars, etc. At many of these functions the Meccano stalls proved remarkably successful.

Clubs and Publicity

Stationers' School M.C.

Our illustration shows a group of members of the Stationers' School Meccano Club, London. This club dates back to the early part of 1920 when it was started with a membership of eight. By November of the same year such good progress had been made that affiliation with the Guild was granted.

The members have always been keenly interested in model-building, and also have made the utmost of their favourable position in regard to seeing the sights of London. Already visits have been paid to the South Kensington Museum, Tower of London, Mint, General Post Office, " Daily Mail " printing works, and more recently Marconi House, where members were shown an interesting film demonstrating the wonders of high-speed wireless photography.

Mr. J. D. Carey, the Leader, is a most enthusiastic and untiring worker and is constantly arranging new educational visits or other pleasant surprises for his members. The secretary, R. S. C. Greenway, has rendered very valuable assistance to the Leader and has done a great deal to raise the club to its present state of efficiency.

CLUB NOTES

Marsh Street (Walthamstow) M.C.—Have held their Exhibition in conjunction with the Congregational Church Bazaar, but a full report is not yet to hand. Great interest was taken in a competition in which the Leader selected a model from those within the scope of a No. 0 Outfit and members were allowed one minute to study the model and then had to construct it. Other activities include Lectures and Discussions on "Steam Engines," "Trams v. Buses," and impromptu speeches by members. Club roll: 18. *Secretary*: C. W. Redfern, 33, Church Hill Road, Walthamstow, London, E.17.

St. Marks (London, S.E.) M.C.—Meetings have been interrupted by the influenza epidemic but members are now all well again and club activities have recommenced. It is hoped shortly to visit the Central Telegraph Office, Bryant and May's Factory and other places of interest. Club roll: 22. Average attendance, 15. *Secretary*: G. C. Green, 21, Hafton Road, Catford, London, S.E.6.

Accrington M.C.—Two excellent lectures have been given by Mr. Rawson, the President, and Mr. Whipp, on "Gas" and "Motor Cycle Engines" respectively. On certain specified evenings members take their Hornby Trains to the club room and combine to make an elaborate layout. Club roll: 27. Average attendance 17. *Secretary*: V. Waterhouse, 45, Ramsbottom Street, Accrington.

1st Herne Bay M.C.—Negotiations have taken place for the club to have a stand at the Herne Bay and District Horticultural and Industrial Society's Spring Show. Prior to the show it is proposed to hold a Model-building Competition, and the models built are to be exhibited on the club's stand together with the Motor Chassis lent by Headquarters. After the show a grand "Jollity Night" will be held. Club roll: 19. Average attendance: 12. *Secretary*: C. W. Russell, 4, Clifton Villas, South Road, Herne Bay.

Holy Trinity (Blackburn) M.C.—The Exhibition held in aid of the local Sale of Work was a great success and the proceeds amounted to £6. Valuable assistance was given by Mr. Moulding, who helped the members in every possible direction. Model-building Competitions are the chief feature for the immediate future. Club roll: 29. Average attendance: 21. *Secretary*: H. Jepson, 11, Pine Street, Blackburn.

Garstang M.C.—A new Leader is urgently required, and in the meantime H. O. Irvin, the secretary, is doing his best to keep the club going. Several interesting and exciting Table Football and Tennis contests have taken place and weekly Painting Competitions are also helping to keep the members together. Club roll: 10. *Secretary*: H. O. Irvin, Sunny Bank, Garstang.

Buckfastleigh M.C.—Have not been able to hold meetings recently owing to being without a room, but members hope to obtain suitable accommodation very soon. Club roll: 34. *Secretary*: H. J. Parsons, Bell Cottage, Fore Street, Buckfastleigh.

St. Mary (Newington Butts) M.C.—To test the members in building Meccano models with accuracy and speed several novel competitions have been held, in which models were printed on paper and each member given one to construct. A Model Railway section has been opened in charge of the Rev. Rham, the Vice-President, and another interesting feature is a special Social Department for ex-members who are unable to attend regularly owing to evening classes and business. Arrangements are being made for Lantern Lectures and Visits to Works and other places of interest in and around London. Club roll: 139. Average attendance: 68. *Secretary*: Mr. C. Curle, 37, Pullens Flats, Peacock Street, Kensington, London, S.E.11.

Redruth M.C.—It is intended to continue club meetings throughout the summer and to have outings when the weather is suitable. Physical drill is now a regular feature in the programme. Two Lectures were recently given on "Motors" and "First Aid," and the members were keenly interested. Club roll: 36. Average attendance: 22. *Secretary*: L. Trenberth, Tunnel Stores, Redruth.

St. Mary (Bourne) M.C.—Owing to members finding it too expensive to run a Cricket Club, a Cycling Club is being formed, and arrangements are being made for Picnics and if possible a Camp. The club Football Team so far have won six matches out of eight. Club roll: 19. Average attendance: 14. *Secretary*: D. L. White, Rosedale, Stoke, Andover.

Meads (Eastbourne) M.C.—A Concert was recently held and proved a great success, the hall being absolutely filled. Another event of interest was a "Social" at which prizes were awarded by Mr. Adams, the President, for the best models made during the session. Mrs. Bradford presented the prizes to the following: L. Crose, first prize; H. Bradford, second; and V. Bradford, third. Several dialogues were given by Mr. Taylor, and the Rev. M. R. Kingsford gave a lecture on "Our Colonies." Club roll: 19. *Secretary*: A. A. Moore, 7, Rodmill Road, Eastbourne.

Handsworth (Birmingham) M.C.—A novel feature was adopted by the secretary when a certain lecturer was unable to come at the last minute. He prepared several slips of paper by writing on each a certain subject, such as "Gas," "Music," "Evils of Broadcasting," etc. The slips were then put in a hat and each member drew one and had to speak for from three to five minutes on the subject drawn. This caused great amusement and it is proposed to try the idea again soon. Club finance is very sound and a small banking account has been opened with the Birmingham Municipal Bank. Club roll: 24. Average attendance: 20. *Secretary*: N. J. Robertson, 30, Hinstock Road, Handsworth Wood, Birmingham.

Ellesmere Port M.C.—Recently held a Social in Watkins Café at which 63 persons were present. Many good games were played and prizes were awarded for competitions. S. Caveny and R. Lawley did excellent work and the evening was voted a great success. Other activities include Lectures and a Fancy Dress Dance. Club roll: 22. Average attendance: 16. *Secretary*: W. H. Hope, 41, Princess Road, Ellesmere Port, Cheshire.

Meccano Club Secretaries

No. 2. B. Warnock.

Bertie Warnock is the Secretary of the Loanhead Boy Scouts' M.C. and it was through his efforts that the club was started in March 1924. Such good progress was made that affiliation with the Guild was granted in the same month. Meetings are held in the Boy Scouts' club room and all the members are keen and enthusiastic.

The Rev. W. Warnock, B.A., father of Bertie Warnock, has been Leader of the Loanhead Club for some time and has always shown genuine interest and enthusiasm in promoting the welfare of the Meccano Guild.

Bearwood M.C.—Are unfortunately still without a Leader. A special Railway Night was held when all the members brought their Meccano Sets and Hornby Trains and built a large railway track all round the room, with five separate sidings. Further activities included a Lantern Lecture on India by a local gentleman and a debate on the "Meccano Magazine," in which all articles were thoroughly discussed. A wireless set is to be fitted up in the club room. Club roll: 30. Average attendance: 28. *Secretary*: C. White, 72, Katherine Road, Bearwood, Birmingham.

Boroughmuir School (Edinburgh) M.C.—Arrangements are being made to visit the following places of interest:—Observatory, "Scotsman" Office, Haymarket Junction, Gasworks, Rubber Mills, and if possible Rosyth Dockyard. It is also proposed to re-visit the Fire Station and Telephone Exchange. Mr. Erskine, the Geography Master, gave a most interesting lecture on "Birds and Seals of the Antarctic," and other lectures dealt with "Wireless and the Crystal Set" and "Bridges." The Jazz Band has been augmented and promises to make a "big noise" when called upon! Club roll: 41. Average attendance: 34. *Secretary*: J. D. Watson, 1, Alvanley Terrace, Edinburgh.

Rosyth M.C.—Marked progress has been made since Mr. G. A. Cook took over the Leadership. The club has been divided into two groups named "Hornby" and "Zulu" respectively, with the object of arranging group competitions and testing the members' knowledge of Meccano and engineering. It has been decided to print a weekly bulletin called "Progress" and to publish at the end of each session "The Rosyth Meccano Magazine." Club roll: 10. Average attendance: 7. *Secretary*: E. T. Hunter, 79, Admiralty Road, Rosyth.

Ruislip Common M.C.—Owing to the illness of the Leader and most of the members meetings were temporarily abandoned, but now all are well again and prospects are bright. Present activities include a Miniature Railway Layout, Lectures and Model-building. Club roll: 6. *Secretary*: L. Ive, Chestnut House, Ruislip Common, Middlesex.

Luton M.C.—It has been arranged for members to bring their own programmes on club nights, so that it may be seen which are the most popular evenings. Several very interesting models were constructed at a recent Model-building Competition, marks being given for accuracy. Club roll: 28. Average attendance: 20. *Secretary*: L. Goldsmith, 69, Tennyson Road, Luton.

St. Barnabas (Barnetby) M.C.—Members are busy preparing papers to compete for the Special Merit Medallion. It is proposed to hold a Whist Drive and Dance in aid of the club funds. The fifth anniversary of the club was held on the 17th March last. Club roll: 23. *Secretary*: R. H. Ward, Laurel Villas, Victoria Road, Barnetby.

South Park (Ilford) M.C.—The second winter session has proved highly successful and the club have a good cash balance in hand. In a recent discussion to decide the relative popularity of Meccano and Fretwork, Meccano won by 11 votes to 7. Club roll: 30. Average attendance: 20. *Secretary*: N. Tweddell, 103, Braemore Road, Seven Kings, Ilford, Essex.

Newcastle-on-Tyne M.C.—Mr. H. Scott, the President, has kindly offered to the members a new club room furnished with a bookcase, cupboard, tables and forms. The Special Merit Medallion has been awarded to H. Cummins for the best all-round club work. Club roll: 23. Average attendance: 20. *Secretary*: J. Stoddart, 71, Walker Road, Newcastle-on-Tyne.

St. James Choristers (Exeter) M.C.—Affiliation was granted last month. Members have just completed a Meccano Tower which is to be displayed in a local shop window. It is proposed to construct a model of the Exeter Cathedral Tower. Cricket and Cycling figure in the summer programme. *Leader*: Mr. M. C. Hodder, 60, Elmside, Exeter.

West View (Nottingham) M.C.—At a general meeting held at the close of last session it was decided to carry on during the summer with Cricket, Rambles, Trips with a Camera and Picnics. Arrangements are being made to visit engineering works and to carry on indoor pastimes in wet weather. A feature of interest recently introduced is a "Police Court," in which members take the parts of the respective officials. Various charges are tried and there is full scope for spontaneous humour. Other activities include Lectures on Wireless, Book Binding, Hosiery and Stamps. Club roll: 28. Average attendance: 28. *Leader*: Mr. H. W. R. Cousens, 494, Mansfield Road, Sherwood, Nottingham.

India

Delhi Childrens' M.C.—An exhibition was held in connection with the National Baby Week in which the club were allotted a stall for exhibiting Meccano goods and models. Nearly 50,000 people visited the show and the Meccano models were greatly admired. The Viceroy of India and Lady Reading both took special interest in the models of a Tram Car and an Automatic Weighing Crane, and remarked on the excellent constructional work done by the club members. Meetings have been held in the premises of the Commercial High School, with a very satisfactory attendance, and Model-building has been the chief feature. Mr. A. P. Mitra built an Inclined Delivery Chute from a No. 4 outfit and explained all the parts, and Mr. K. R. Bansal gave a lecture on "The Indian Railways." Club roll: 25. *Leader*: Mr. R. Raman, Childrens' M.C. Charkhe Walan, Delhi, India.

Calcutta M.C.—Splendid progress has been made and it is hoped shortly to increase the membership. Radio Evenings, Musical Soirees, Model-building and various other attractions have made the club very prominent in the city. Two No. 4 Meccano Outfits have been purchased for general use in the club. Club roll: 32. *Secretary*: A. N. Roy Chowdhry, 35/2 Beadon St., Calcutta, India.

Ceylon

1st Ceylon M.C.—While the secretary was away at the Imperial Jamboree, last year, the club unfortunately did not prosper and many of the old members have left. It will shortly be completely re-organised, however, and fresh activities commenced. *Secretary*: B. K. Billimoria, Dharmaraja College, Kandy, Ceylon.

New Zealand

Wisemans (Auckland) M.C.—Is now the largest Meccano Club in the world, having a membership of 660. Affiliation with the Guild was granted in March. At the first meeting held last December, Mr. F. Wiseman, the President, was in the chair and the attendance was 150. It was impossible for all the members to be present as some of them live a considerable distance away from the club. The Rev. Calder, Auckland City Missioner, addressed the meeting on "Cleanliness of Thought and Habit, Truthfulness, Patience and Perseverance." Mr. McPherson, late of Glasgow, spoke on his experience in the "Clubland" of Glasgow, and this item was greatly appreciated by the members, who are looking forward to another visit from him. Mr. Wiseman offered ten splendid prizes for a Model-building Competition.—*Secretary*: Mr. W. S. Weaver, 170, 172 Queen Street, Auckland, New Zealand.

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All Brandes products carry our official money-back guarantee, enabling you to return them within 10 days if dissatisfied. This really constitutes a free trial. Brit. Manuf. (B.B.C. Stamp)

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–for Young Bill

The fever of the experimenter has fired young Bill's ambition. In the picturesque vernacular of our American friends he's "cottoned on to the hull bunch"—vacuum tubes, hook-ups, new wave bands, right down to the last binding post. He tunes in the distant stations now with his *Matched Tone* Headphones, and is content. They bring in the faintest signals, their delicate supersensitivity making them unexcelled for long range telephony.

And the *Table-Talker* is just fine. To his credit, Bill refuses to acknowledge the family's praise. "It's not me tinkering about," he says, "the *Table-Talker* always came through as if you were actually in the studio, and with no scratchy notes." *Ask your Dealer for Brandes.*

Table Talker
42/-

Matched Tone Headphones
20/-

May Puzzle Competition

Palindromes

POSSIBLY the first thing my readers will notice on this page is that there is no Cross Word Puzzle this month. I have come to the conclusion that we have had about enough of these puzzles, at any rate for the present. At the same time I feel sure that my readers would be disappointed if I did not provide them with some knotty problem to worry out during the month and therefore as a substitute for Cross Words I am introducing a type of puzzle known as the "Palindrome."

A Palindrome is a sentence that reads the same either forward or backward. An excellent example is the alleged first sentence spoken by Adam to Eve, "Madam I'm Adam." It will be seen that this sentence is exactly the same whether read forward or backward. Another well-known Palindrome is the sentence said to have been spoken by Napoleon, "Able was I ere I saw Elba."

The invention of a Palindrome is by no means easy but it is an interesting and even exciting pastime. I am offering three prizes for the best three specimens sent in—Meccano Goods to the value of £1/1/–, 10/6 and 5/– respectively. Competitors may submit more than one sentence if they wish, and the only condition is that each sentence must read *exactly* the same from either end. Entries must reach this office on or before 30th May.

During the year I intend to introduce quite a variety of puzzle competitions in order that every reader may find something to interest him. I hope that readers who wish any particular type of puzzle to be introduced or to be kept going will write and let me know, and I shall also be glad to have criticisms from readers who may not be interested in any particular form of puzzle published. This "Puzzles" page is already very popular but I want to make it even more so, and I can only do this if readers will let me know their likes and dislikes.

Puzzle No. 87.

A Square Word Puzzle :—

1. A wild animal.
2. A volcano.
3. A Latin word meaning "against."
4. Something that refreshes the ground.

* * * *

Puzzle No. 88.

My first is almost worthless,
My second is indefinite,
My third is light, round and spongy,
My whole is a poor creature.

Puzzle No. 83.

Harry pointed to his bookcase which contained the nine handsome volumes of an encyclopædia that his father had given him for a birthday present. "That is very funny" he said.

"What do you mean ?" asked his sister.

"Well," replied Harry, "I put the nine volumes on the shelves anyhow this morning before I went to school, intending to put them in their proper order when I came home, and I was just going to do so when I made a curious discovery."

"I don't see anything unusual about the books," said his sister.

"Look again," said Harry. Volumes 6, 7, 2 and 9 are on the top shelf and volumes 1, 3, 4, 5 and 8 on the shelf below, and these figures, written as a fraction, $\frac{6729}{13458}$ equals $\frac{1}{2}$.

"That is so," said his sister, "but it is just chance. Can you re-arrange them to equal $\frac{1}{2}$?"

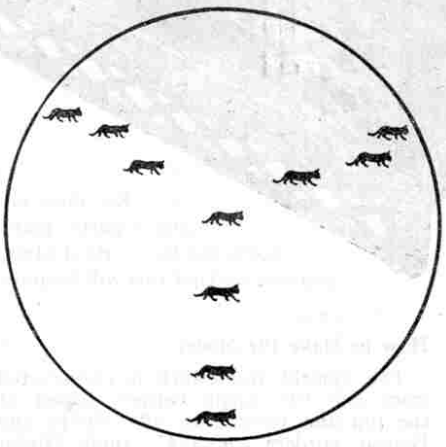
"I can easily do that," said Harry. "I can make them equal $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{7}$, $\frac{1}{8}$ and $\frac{1}{9}$."

Harry thereupon did so and his sister admitted that he was right. How did he do it ?

* * * *

Puzzle No. 84.

A certain old man kept ten black cats as pets. He found that these cats were always quarrelling and fighting among themselves and he determined to separate them. He therefore drew a circle and placed the ten cats inside it as shown in the diagram below. He then drew three other circles inside the large one in such a manner that no cat could reach another cat without crossing one of the circles. How did he do it ?



* * * *

Puzzle No. 85.

A Boy Scout was standing on the platform of a railway station one day and he noticed that the number on a certain engine contained four figures. The first and the last figures were the same, and when multiplied together they gave the two middle figures. Also the sum of the two middle figures gave the first and last figures. What was the number on the engine ?

* * * *

Puzzle No. 86.

By placing the vowel "I" at the proper points in the following diagram a sentence can be made. The end of a line does not necessarily mean the end of a word.

B L L S S T
L L L V N G
W T H J M S
M T H N T H
S B G C T Y

Answers to Last Month's Puzzles

No. 77.

No. 78. The hidden flowers are : Pink ; Larkspur ; Buttercup ; Snapdragon ; Cowslip ; Primrose ; Speedwell ; Snowdrop.

* * * *

No. 79. 54 and 45 miles.

* * * *

No. 80. 19 men, 1 woman, 80 children.

* * * *

No. 81. The word can be found 1,200 times.

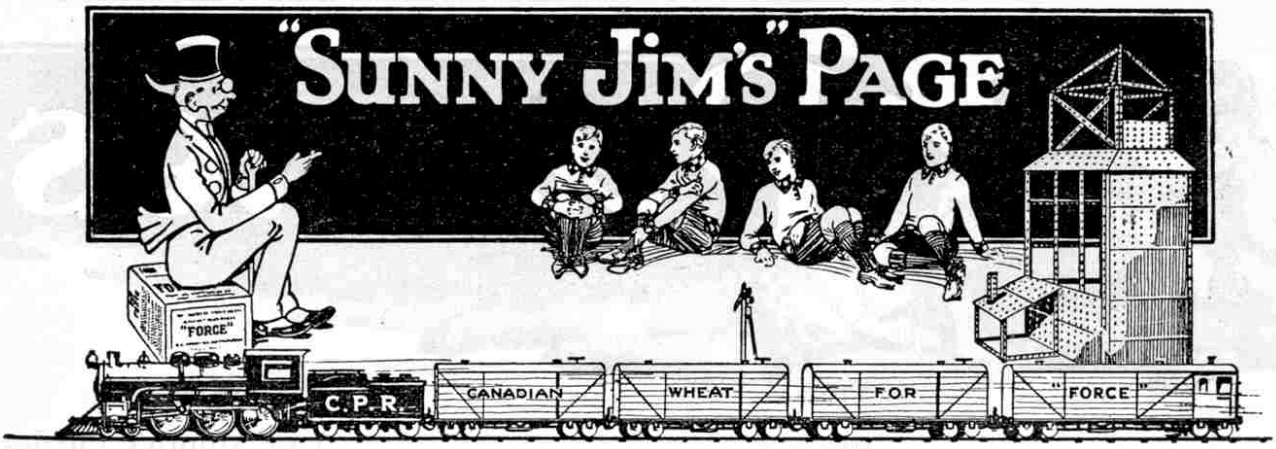
* * * *

No. 82.

3	20	7	24	11
16	8	25	12	4
9	21	13	5	17
22	14	1	18	10
15	2	19	6	23

Puzzle No. 89.

If 16 is added to 13 times a certain number, the result is the same as if 16 is taken from 29 times the number. What is the number ?



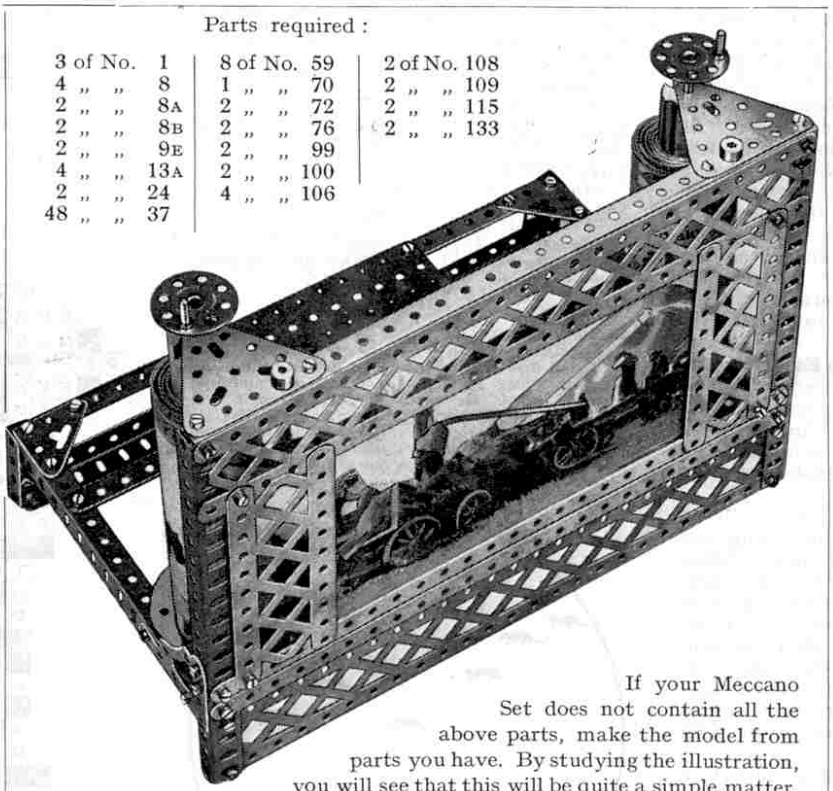
MAKE "FORCE" PANORAMA WITH MECCANO

Entertain your boy and girl friends with this wonderful "FORCE" panorama. You can make it from your Meccano set. Write to us for the panoramic picture strip. We will send it to you if you will enclose 6d. (with a "FORCE" packet top) towards the cost of it. This is surely the next best thing to a real cinema! Turn the handle and you unfold to your audience a wonderful panorama of the boundless wheatlands of Canada, where "FORCE" comes from. Here you see the scenes of ploughing, harvesting, threshing and all the other busy processes connected with the production of wheat for "FORCE." Let us imagine you are ready to commence:—

Down go the lights and your audience sits expectantly awaiting the thrilling moment when the pictures commence. You light up your stage and commence to turn the handle. Before them your audience will see first of all the ploughing. The great power driven ploughs will move across the scene to be followed by fields of ripening wheat; and so we move into the next scene. Now it is summer time and in the distance we see the reaping machines. Across the picture moves a procession of reapers and binders; and then we come to the shocked wheat ready for carrying to the threshing machines. Next come the heavily laden carts, and here is the wonderful scene of threshing. The grain is put into sacks, loaded into carts again, and off it goes to the elevators which line the railway siding. Here we find the train ready to complete the final stages of the journey. Elevators and siding give place to more fields of golden grain, and at last the "FORCE" mill comes into sight. Here the wheat is unloaded, cleaned and put through that wonderful process which turns the grains of whole wheat into crisp, nourishing and appetising flakes of "FORCE."

Parts required:

3 of No. 1	8 of No. 59	2 of No. 108
4 „ „ 8	1 „ „ 70	2 „ „ 109
2 „ „ 8A	2 „ „ 72	2 „ „ 115
2 „ „ 8B	2 „ „ 76	2 „ „ 133
2 „ „ 9E	2 „ „ 99	
4 „ „ 13A	2 „ „ 100	
2 „ „ 24	4 „ „ 106	
48 „ „ 37		



If your Meccano Set does not contain all the above parts, make the model from parts you have. By studying the illustration, you will see that this will be quite a simple matter.

How to Make the Model

The upright framework is constructed from two 9½″ Angle Girders joined at the top and bottom by 12½″ Strips and Braced Girders. A 12½″ Angle Girder is bolted in the fourth hole from the bottom of each of the upright members, at the rear of the lower Braced Girder. The platform, constructed from another 12½″ Angle Girder connected at each end to a 7½″ Angle Girder, the other ends of which rest upon the 12½″ Girder bolted to the upright framework, is supported at the rear by two 2″ Angle Girders which in turn are bolted to a further 12½″ Girder forming a base. The drums upon which the panoramic views are wound consist of two Meccano Wood Rollers butted together and secured to an 8″ Axle Rod by Collars and set-screws. A Face Plate is mounted at the base of each drum to support the scenes as they are rolled up. Two 2½″ Triangular Plates bolted to an Angle Girder secured to the top of the upright frame and 2½″ × 2½″ Flat Plates bolted in the front corners of the platform, provide suitable bearings for the drum shafts. Two further 8″ Rods are journalled in the fourth holes from the ends of the horizontal 12½″ Girders in the upright frame, and form guides round which the views are led from the rollers.

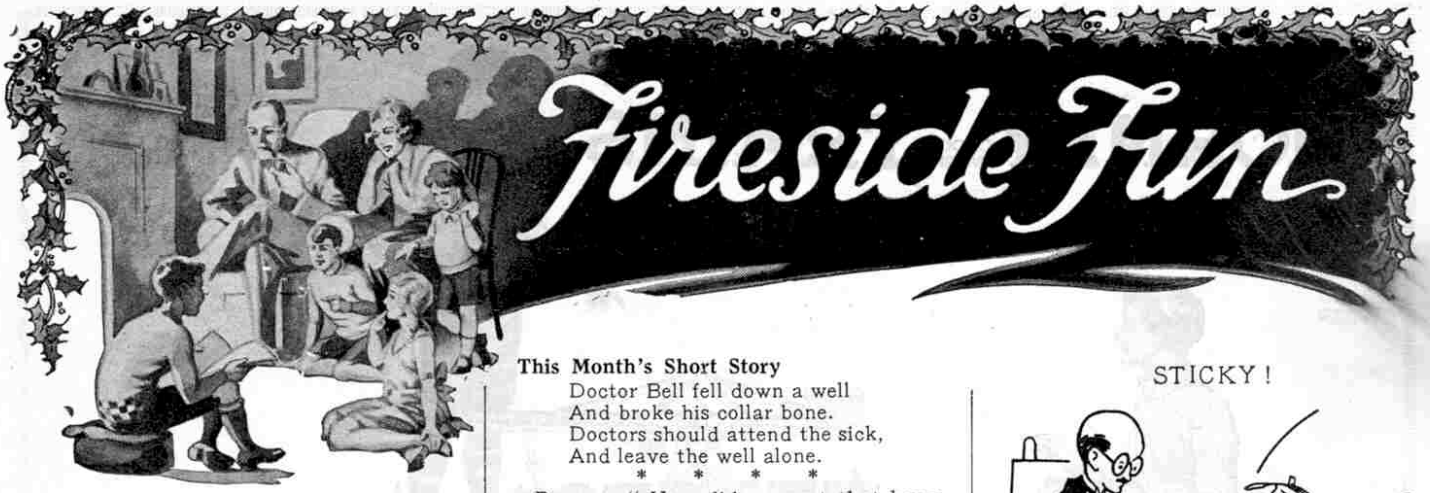
A 5½″ × 2½″ Flat Plate bolted at the back of the platform and further supported by a 12½″ Strip secured between the side 7½″ Girders forms a stand for a lamp, which illuminates the scenes as they pass from one roller to the other.

A bicycle-lamp, or pocket flash-light will serve this purpose quite well, or even a candle is sufficient. The effectiveness of the display is very much improved if a large sheet of cardboard is bolted to the face of the upright frame, and having a small piece cut away in order to reveal the pictures only. In this way, when the model is viewed from the front, nothing can be seen of the lamp, but only the illuminated scenes, and in a darkened room the result is very striking.

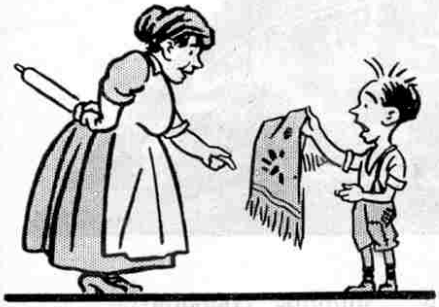
Still further fun may be had from this model if the rollers are driven by a clockwork or electric motor, and no doubt many Meccano boys will fix up such an arrangement.

When sending for panoramic picture strip (it is 16 ft. long) address your request with 6d. and one "FORCE" packet top, direct to—

SUNNY JIM (Dept. M.C.8),
197, Great Portland Street,
LONDON, W.1.



HIS EVIDENCE



Mother: "I don't believe you have washed your face after all."
Son (indignantly): "But mother, look at the towel!"

* * * *

Farmer (to small boy in tree): "Look here, my lad, what are you doing up there?"
Small boy: "Please sir, one of your apples fell down and I'm trying to put it back!"

* * * *

Lady (to tramp): "A great strong man like you ought to get work."
Tramp: "Madam, I'll tell you my misfortune. I'm an unhappy medium."
Lady: "Whatever do you mean?"
Tramp: "I am too heavy for light work and too light for heavy work!"

* * * *

Customer: "I want a dress to put on round the house."
Shop Assistant: "How large is your house, madam?"

* * * *

THE MILKMAN'S TROUBLES!

Mrs. Smith: "Why are you so late with the morning milk nowadays?"
Milkman: "Well you see, ma'am, the law only allows us 25,000,000 bacteria to the gallon, and you wouldn't believe how long it takes to count the little beggars!"

* * * *

Millionaire (addressing meeting of students): "I wish to emphasise that the whole of my great success is due to one thing and one thing only—pluck, pluck and again pluck."
Student (at back of hall): "But how are we to find the right people to pluck?"

* * * *

Small Child: "Mother, if I died should I go to Heaven?"
Mother: "Yes, dear."
Small Child: "But suppose I died because a big bear swallowed me, would he have to go too?"

This Month's Short Story

Doctor Bell fell down a well
And broke his collar bone.
Doctors should attend the sick,
And leave the well alone.

* * * *

Brown: "How did you get that lump on your head?"
Smith: "Appendicitis operation."
Brown: "But what had that to do with your head?"
Smith: "They ran short of ether and hit me over the head with a hammer."

* * * *

Nervous Passenger (to captain): "What would happen, Captain, if we struck a large iceberg?"
Captain: "The iceberg, Madam, would pass along as if nothing had happened."
Nervous Passenger: "Thank you Captain, you have relieved me very much!"

* * * *

SOME BIRD!

The old lady had been given a parrot that had come from Africa, and she was proudly showing it to her gardener. "Do you know," she said, "this parrot has come all the way from Africa, and it is so intelligent that when it sings 'Home, Sweet Home,' tears run down its cheeks."
"Yes, mum," replied the gardener, "I know those African parrots well. I had one some years ago, and it used to whistle 'The Village Blacksmith' so realistically that streams of sparks used to fly from its tail!"

* * * *

Bobbie: "Please can I change my name to-day, mother?"
Mother: "What on earth for?"
Bobbie: "Because Dad says he will whip me when he gets home as sure as my name's Bobbie!"

* * * *

Family Cat (inspecting new mouse trap): "I wonder if that is a labour-saving device for my benefit, or whether I am going to lose my job!"

* * * *

George: "Do you know why cats are so musical?"
John: "I haven't the least idea."
George: "Well, my grandfather says it is because they have so many violin strings curled up inside them."

STICKY!

Teacher: "What is a compound word?"
Boy: "Two words joined together so as to make one."
Teacher: "Give me an example."
Boy (after prolonged thought): "How would 'molasses and me' do?"

* * * *

First boy: "It says in this paper that a codfish lays more than a hundred eggs at a time."
Second boy: "What a good thing it doesn't have to cackle for each one!"

* * * *

Diner: "Here waiter, I thought I ordered a chop?"
Waiter: "Yes sir, there it is."
Diner: "Oh, you surprise me, I thought it was a crack in the plate!"

* * * *

She: "How is your bachelor friend going on?"
He: "When I saw him last he was mending very slowly."
She: "I did not know he had been ill."
He: "He hasn't, he was darning his socks!"

* * * *

OBVIOUSLY!

Teacher: "In which battle did General Wolfe, on hearing that victory was won, cry, 'I die happy.'"
Tommy: "I think it was his last battle."

* * * *

Tommy (looking up from his book): "Mother, Robinson Crusoe must have been a contortionist."
Mother: "Whatever makes you say that?"
Tommy: "Well, it says here that after he had finished his day's work he sat down on his chest!"

* * * *

Bilious Individual (to chemist): "Will you give me something for my head?"
Chemist: "I wouldn't take it as a gift."

* * * *

Q. When is an umbrella like suet?
A. When it is dripping.

* * * *

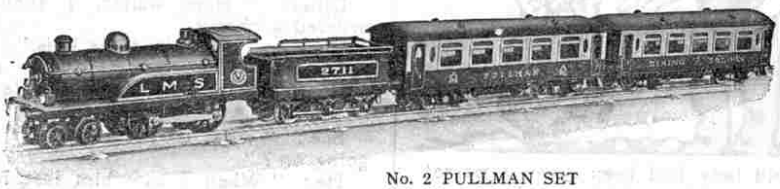
Q. Why must a fisherman be wealthy?
A. Because his is all net profit.

HORNBY CLOCK WORK TRAINS

THE TRAINS WITH THE GUARANTEE

YOU can have any amount of fun playing with a Hornby Train. Shunting, coupling-up the rolling stock and making up trains will give you hours of pleasure. Hornby Trains are beautifully finished, strongly made, and will last for ever. One of their most valuable features is that all the parts are standardised, and any lost or damaged part may be replaced with a new one.

Every train is guaranteed, and you are therefore sure of satisfaction if you buy a Hornby.



No. 2 PULLMAN SET

No. 2 Pullman Set

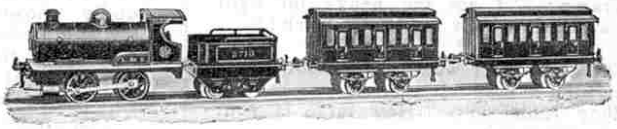
The No. 2 Loco with Tender measures 17 in. in length. The Loco is fitted with superior mechanism and the accurately-cut gears ensure smooth running. Loco, Tender and Coaches are superb in appearance and finish, enamelled in colours and stoved at a high temperature to ensure durability. The Loco is fitted with reversing gear, brake and governor.

Gauge 0 in colours to represent the L.M.S. or L.N.E.R. Companies' rolling-stock. Each set contains Loco, Tender and two Coaches, with set of rails to form a circle of 4 ft. diameter. Price 60/-.

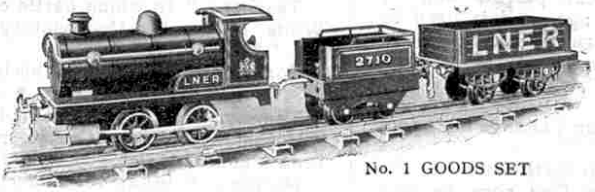
No. 1 Passenger Set

The Loco is fitted with reversing gear, brake and governor. Loco, Tender and Coaches are superb in appearance and finish, enamelled in colour and stoved at a high temperature to ensure durability. The doors of the Coaches open.

Gauge 0 in colours to represent the L.M.S. or L.N.E.R. Companies' rolling stock. Each set contains Loco, Tender, two passenger coaches and set of rails consisting of two straights and curves to form a circle of 2 ft. diameter. Price 30/-



No. 1 PASSENGER SET



No. 1 GOODS SET

No. 1 Goods Set

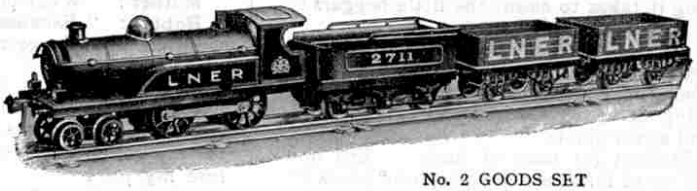
Gauge 0 in colours to represent the L.M.S. or L.N.E.R. Companies' rolling-stock. Each Loco is fitted with reversing gear, brake and governor. Each set comprises Loco, Tender, one Wagon, and set of rails as in the No. 1 Passenger Set. Price 22/6

No. 1 Hornby Loco	Price 15/-	Hornby Passenger Coach	Price 5/-
" " Tender	" 2/6	No. 1 Hornby Wagon	" 2/6

No. 2 Goods Set

Gauge 0 in colours to represent the L.M.S. or L.N.E.R. Companies' rolling stock. This set contains Loco, Tender and Rails as in the No. 2 Pullman Set, and two Wagons. Loco fitted with reversing gear, brake and governor. Price 37/6

No. 2 Hornby Loco ...	Price 22/6	Hornby Pullman or Dining Car ...	Price 15/-
" " Tender	" 3/6	No. 2 Hornby Wagon	" 2/6



No. 2 GOODS SET

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MECCANO LTD., BINNS ROAD, LIVERPOOL

ROLLING STOCK AND ACCESSORIES

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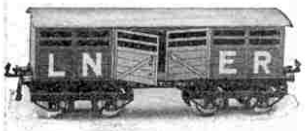

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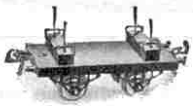

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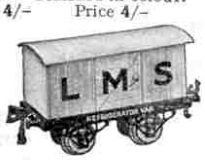

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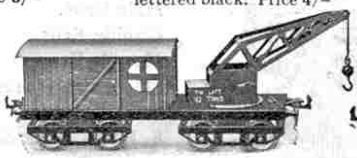

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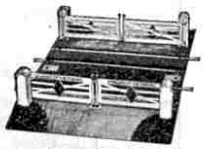

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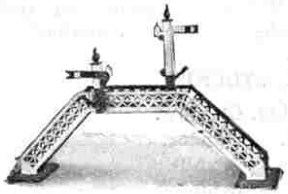

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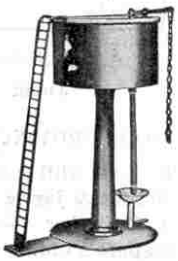

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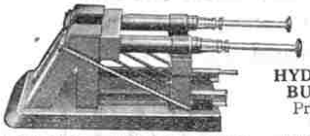

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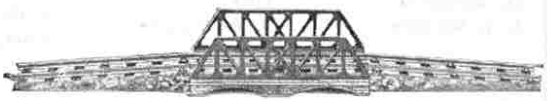

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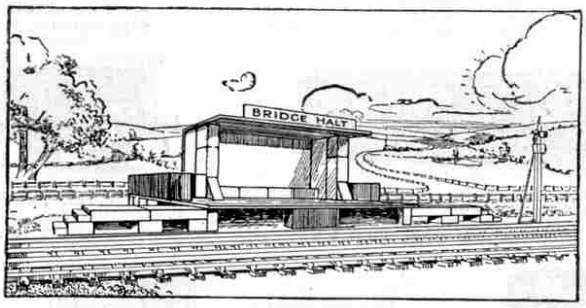
5/–	,,	12	,,
10/–	,,	18	,,
17/6	,,	49	,,
37/6	,,	71	,,



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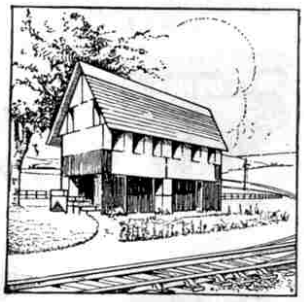

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"TUDOR BLOCKS"

Box 1.	6 Models ...	3/6
,, 2.	12 ,, ...	7/6
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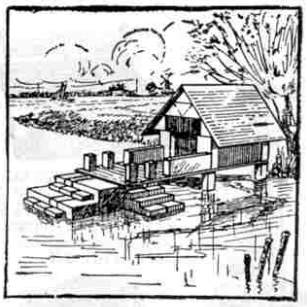

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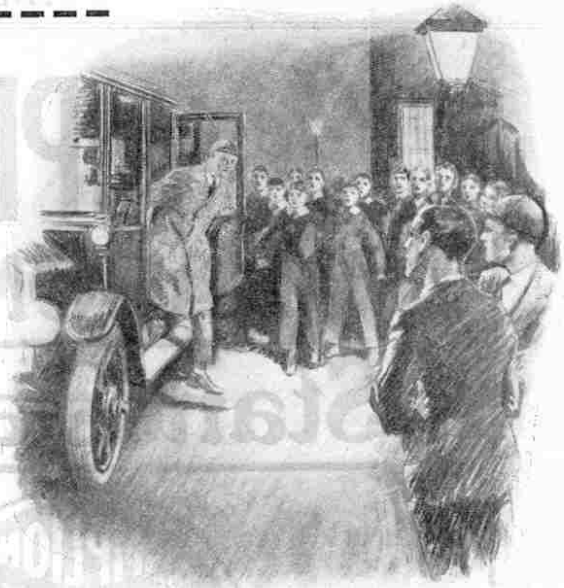

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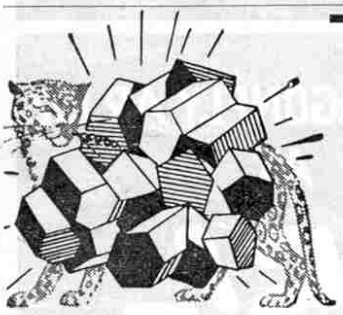

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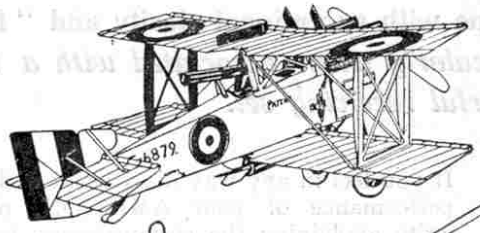

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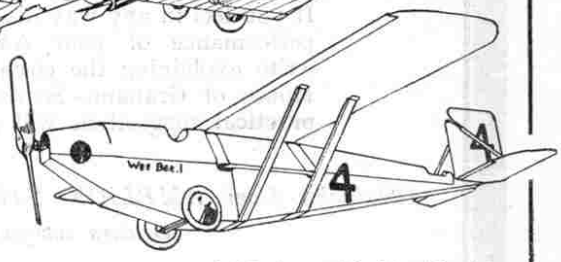

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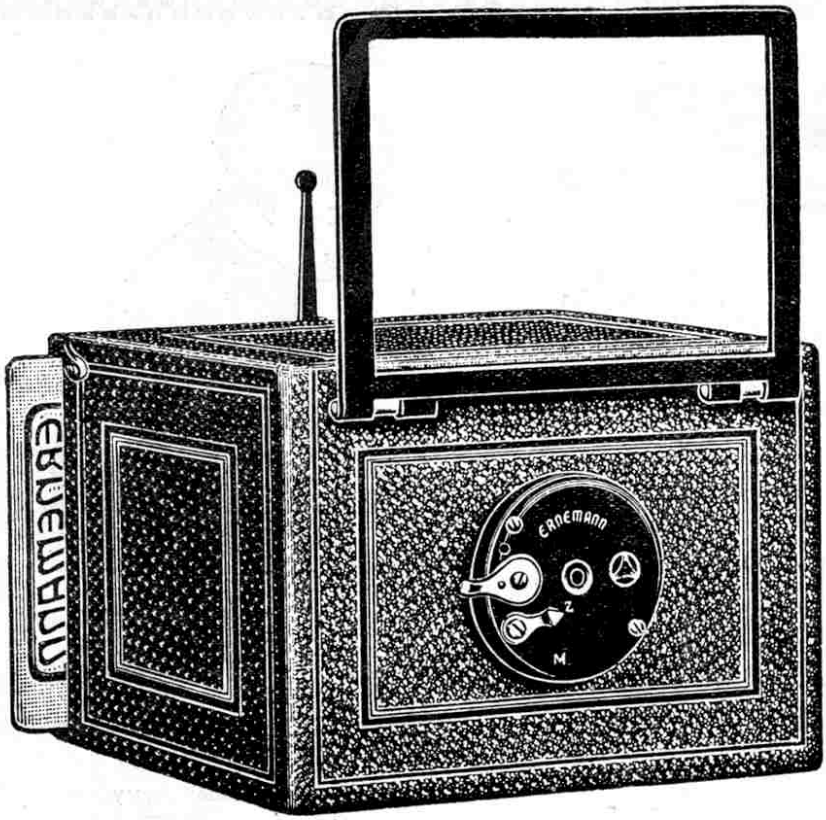

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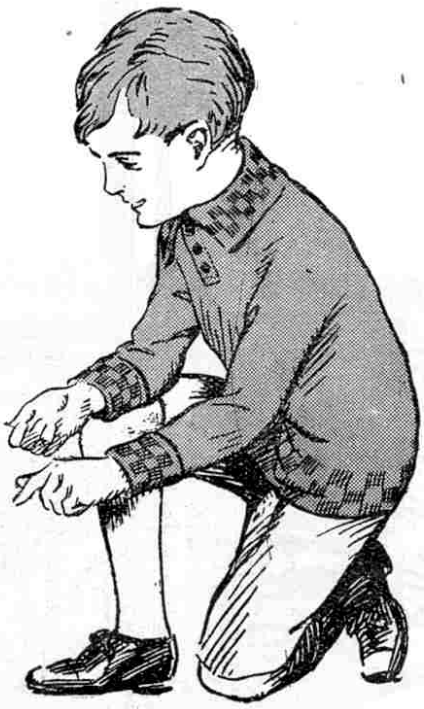

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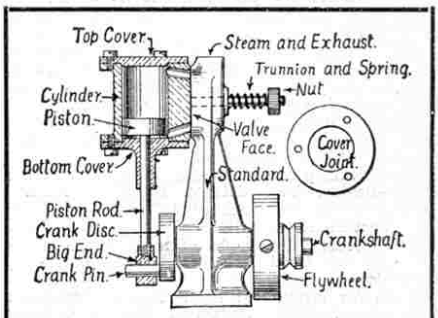
GREENS **(Dept. N.), 65, Long Acre, London, W.C.2.**



"Thank you for sending the S.T. Boiler. The engine, bought at Wembley, was soon coupled up and ran perfectly. My little boy was so pleased to see that it was powerful enough to drive a Meccano Crane."

Thus writes a customer. Above is the drawing sent with the instructions for building and we *guarantee* the engine will work.

S.T. Engine Parts ... 5/-
Finished Boiler 8/- } *Post Free*

Send stamp for list 12M or 6d. for complete 80-page catalogue.

Stuart Turner Ltd.

HENLEY-ON-THAMES

MODELSHIPS' FITTINGS
Send 6d. for Scale Drawing of Splendid Ocean Liner and List of Realistic Fittings. **A. Rodway, 102, Long Street, Birmingham**

Readers' Sales and Wants

If you have anything to sell or wish to buy anything take advantage of the service offered by a small advertisement in these columns.

The "*M.M.*" is read by approximately 100,000 people every month. It circulates in every country where the English language is spoken. If you wish to sell your duplicate stamps, your rabbits, or your tools, or to purchase a loud speaker, a steam engine, a model yacht, or a hundred-and-one other things, you will be able to do so through the columns of the "*M.M.*"

The rates are one penny per word, with a minimum of 1/- (cash with order).

Your advertisement must be received before the 10th of the month for insertion in the following month's issue.

If a Box Number is used, 4d. should be added to cover the cost of postage of the letters to the advertiser from this office. The letters will be posted one week after the advertisement appears, and a second batch a month after the advertisement appears. They will be sent more frequently if additional postage is included with the advertisement.

IMPORTANT.—Advertisements dealing with any article in the Meccano catalogue cannot be accepted.

PLEASED ADVERTISERS

We are getting far more enquiries than is usually the case. N. & Co.

I find your periodical very satisfactory. W.D.Ltd.

The business resulting from the February advertisement was so good that I had to miss your March issue—in fact, replies are still coming in. E.W.P.

I am satisfied with the results of my previous advertisement. H.J.H.

The small space we had with you brought in a fair number of replies. H.P.Ltd.

From my second advertisement in your paper I obtained about one hundred and twenty replies—including thirty-two from abroad. I shall have no hesitation in coming to you again next season. S.H.C.

We have received quite a number of orders for our apparatus this morning as a result of your advertisement. P. & T.Ltd.

I am a confirmed advertiser now in the "*M.M.*" and so far have had very satisfactory results. A.W.N.

We have no hesitation in asserting that our clients are convinced that your Magazine is one of the best pullers in which they advertise. B.D. & Co. Ltd.

READERS' SALES

(*Rate:* 1*d. per word, min.* 1/-).

For Sale. 100 copies Smallholder, 350 Hobbies, 70 Handicrafts, including hundreds of Fretwork designs. What offers for lot or part.—Thompson, 183, Broomhill Road, Old Whittington, Chesterfield.

Twelve good assorted Indian Empire Stamps 2/3.—M. Samuelson, Staplefields, Steyning, Sussex.

Wanted "Meccano Magazines," Numbers 1 to 34. Clean copies required. What offers?—Apply Box No. 501, "Meccano Magazine."

Lincoln Stamp Album for sale, value 6/6. What offers.—Bayley, Yule Cottage, Headcorn, Kent.

Copies of "Chums," "Scout," "Meccano Magazine," etc. What offers.—D. Pritchard, Hollies, Carmarthen.

256 different Photographs of footballers, etc., in two albums. Good condition, 7/6.—Crossland, Fauvel Road, Glossop.

Briton Air Pistol, cost 10/6. New at Christmas. What offers?—Willie Ballantyne, Mosside Cottage, Bathgate, Linlithgowshire, Scotland.

For Sale. 444 Cigarette Cards, 6d. dozen.—S. Forbes, 17, Kilnburn, Newport, Fife.

Cigarette Cards and Albums for sale, six Albums holding 200, 1/6 with cards, one holding 400, 2/6 with cards.—Hills, 45, Bell Street, Henley-on-Thames, Oxon.

Sale. Volume Chums, unbound, 6/6. Also Primus Motor, nearly new, 7/6.—Box No. 504.

Horizontal Steam Engine, slide-valve cylinder. As new. Cost 30/-. Will exchange for good Air Rifle.—Evans, Bryn Fawnog, Maenan, Llanrwst.

Steam Engine for sale, fitted with whistle, reverse and starting tap. Cost 36/-. For 15/-. In good order.—Box 503, this Office.

For Sale. "Popular Wireless," Nos. 88-100, 4 -. "Popular Music," Nos. 1-35, 6/-. A huge Portable Magic Lantern, complete in case, with slides also in a case, as new. What offers. Foreign Stamps, cheap, breaking up my collection.—E. Heffer, 85, Northgate, Wakefield, Yorkshire.

Wanted complete sets Cigarette Cards, 1/- set.—Send particulars Box 505.

SMALL ADVERTISEMENTS

(*Rate:* 1/- *per line*).

CINEMA FILMS, 100 ft. 1/-, 1,000 ft. 6/-, delivered.—Phillips, 64, Ewart Street, Brighton.

KODAK USERS. Album of Enlargements Free. Partics. Harlows, 4, Liardet Grove, S.E.14.

Aquarium Fish; Axolotli; Plants; Weed; Beetles; Snails; Mussels, etc.—Rose, 15, East St., Tonbridge.

Patents, Trade Marks, Inventions. Advice Handbook and Consultations free.—B. T. King, Regd. Patent Agent, 146a, Qn. Victoria St., London, E.C.4.

THE WIRELESS INSTITUTE holds examinations and awards certificates and medals to wireless amateurs. Write—Dept. M, 74, Hendford, Yeovil.

MAIL ORDER ADVERTISING, for 7/10 inclusive. Sell your goods to eager provincial buyers through 56 influential newspapers. Prospectus: Central Press, (Series Dept. 55), 190, Strand, London, W.C.2.

POWERFUL HORSE SHOE MAGNETS guaranteed to lift one pound weight. Finished bright red, 2/3 each, Postage 3d.—Batesons' Sports Depôt, Blackpool.

SILKWORMS' EGGS, 1/- 100. Living Stick-Insects, very curious, harmless. Eggs, 6d.; Young, 1/-; Medium, 2/6; Adult, 5/- doz. Postage 4d. Living Cocoons.—Rose, 15, East Street, Tonbridge.

TOWNSEND WAVE METER No. 3. R.A.F. type serial number 1937 with readings from 300 to 1,200 meters and 1,000 to 4,000 meters. Switch for lamp buzzer and off. Price 30/-.—Box No. 502.

WHY PAY HIGH PRICES for Correspondence Courses? When you can have any course from me, however famous, at from 50%—300% of original cost.—R. Clemoes, St. Budeaux, Plymouth.

L.M.S. AND L.N.E. ENGINES. Small Photographs from 1½d. Lantern Slides, 6d. List and Sample Print, 3d.—E. Ashworth, 151, St. Andrew's Road South, St. Annes-on-the-Sea.

MAKE GRAMOPHONES. Our 64-page Catalogue tells you for **3d. how to do it** and what accessories to choose. **Motors** in **25** sizes, from **9/-**; Tone arms, **4/-**; Speakers, **2/-**; Headphones, **10/6** pair; Cabinets from **9/-**. Gramophones from **25/6**. Carr. paid. **The Regent Fittings Co., D. 78 120, Old St., London, E.C.1.** Established 21 years. Telephone: Clerkenwell 2923.

THE AUTOMATIC PEA REPEATER

The most reliable pistol on the market. Takes 25 shots at one loading, best black finish, each in box with instructions and supply of ammunition, post free **2/6**.

R. DILNOT, 125, Chiswick High Rd., London, W.4

MECCANO MAGAZINE

Registered at G.P.O., London, for transmission by Canadian Magazine Post.

EDITORIAL AND ADVERTISING OFFICES :—

BINNS ROAD, LIVERPOOL.

Telegrams: "Meccano, Liverpool."

Publication Date. The "*M.M.*" is published on the 1st of each month and may be ordered from any Meccano dealer, or from any bookstall or newsagent, price 3d. per copy. It will be mailed direct from this office, 2/- for six issues and 4/- for twelve issues.

To Contributors. The Editor will consider articles and photographs of general interest; payment will be made for those published. Whilst every care will be taken of those submitted, the Editor does not accept responsibility for any loss or damage. A stamped addressed envelope should be sent where the contribution is to be returned if unacceptable.

Binding Cases. Spring-back Binders to take a number of "*M.M.'s*" are supplied, covered with imitation leather and lettered in gold, price 3/- each (post free).

Meccano Writing Pads. Fifty sheets of tinted bank paper, each printed with Meccano boy at head, 1/- (post free) large size, and 6d. (post free) smaller size.

Advertisements

Readers' Sales and Wants. Private advertisements (*i.e.*, not trade) are charged 1d. per word, minimum 1/-. Cash with order. Editorial and Advertising matters should not be dealt with on the same sheet of paper.

Small Advertisements. 1/- per line (average seven words to the line), or 10/- per inch (average 12 lines to the inch). Cash with order.

Display. Quotations for space bookings, and latest circulation figures, will be sent on request.

Press Day, etc. Copy must be received not later than 10th of each month for publication in following issue. Half-tone blocks up to 100 screen.

Proofs of advertisements will be sent when possible for space bookings of not less than half-an-inch.

Voucher Copies. Sent free to advertisers booking one inch or over. Other advertisers desiring vouchers should add 4d. to their remittance and should order voucher copy at same time.

Remittances. Postal Orders and Cheques should be made payable to Meccano Ltd.

Obtaining the "*M.M.*" Overseas

Readers Overseas and in foreign countries may order the *Meccano Magazine* from regular Meccano dealers, or direct from this office. The "*M.M.*" is sold Overseas at 3d. per copy, or mailed (post free) direct from Liverpool, 2/- for six issues, or 4/- for twelve issues.

IMPORTANT.

Overseas readers are reminded that the prices shown throughout the "*M.M.*" are those relating to the home market. Current Overseas Price Lists of Meccano Products will be mailed free on request to any of the undermentioned agencies. Prices of other goods advertised may be obtained direct from the firms.

CANADA:	Meccano Ltd., 45, Colborne Street, Toronto.
AUSTRALIA:	Messrs. E. G. Page & Co., 52, Clarence Street, Sydney, N.S.W.
NEW ZEALAND:	Messrs. Browning Ifwersen Ltd., P.O. Box 129, Auckland.
SOUTH AFRICA:	Mr. A. E. Harris (P.O. Box 1199), Textile House, Von Brandis St., Johannesburg.

FACTORY TO RIDER

Packed Free. Carriage Paid. *Fifteen Days' Trial* **£4 19s. 6d. CASH or 2/6 WEEKLY.** Prompt delivery. Buy direct from Factory. Save Dealers' Profits. Factory Soiled and Second-hand Cycles CHEAP. Juveniles' Scooters stocked. Tyres and Accessories at popular prices. Satisfaction guaranteed. Write for **Free List** and *Special Offer* of Sample Bicycle.

Est. 32 Yrs. **Mead CYCLE COMPANY, Inc. Dept. B911 BIRMINGHAM.**

CUT THIS OUT. 'Meccano' Pen Coupon, Value 3d.

Send 5 of these coupons with only 2/9 direct to the **Fleet Pen Co., Fleet Street, E.C.4.** You will receive by return a splendid British 14-ct. Gold Nibbed Fleet Fountain Pen value 10/6 (Fine, Medium, or Broad Nib). If only 1 coupon is sent the price is 3/9. 3d. less for each extra coupon up to 4 (Pocket Clip 4d.) Satisfaction guaranteed. Your own name gilt letters, either pen 1/- extra. **Lever Self-Filling Model with Safety Cap, 2/- extra.**

POSTAL TUITION IN BOOK-KEEPING, FRENCH, SPANISH, COMMERCIAL LAW, Etc., WITH OR WITHOUT EXAMINATIONS IN VIEW; also all Subjects for MATRICULATION, UNIVERSITY DEGREES, SECRETARIAL AND ACCOUNTANCY EXAMINATIONS. Nominal Fees. Instalments Accepted. Distance no Drawback. Applicants should mention Subjects required. Prospectus Post Free.

The Principal, TUTORIAL SERVICE COLLEGE, 183, Fulham Palace Road, Hammersmith, W.6.

RIDE A

FAIRYCYCLE

Regd. Trade Mark

It's Great Fun!

PRICE NOW

49/6

ONLY

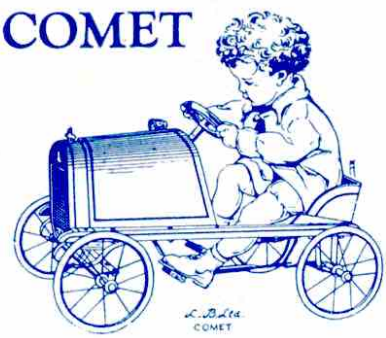
The Manufacturers are giving the public the benefit of reduced costs due to larger production.

If only you had a **FAIRYCYCLE** just think what fun you could have, and what splendid **exercise** you would get in riding it.

The FAIRYCYCLE is a **real** Cycle—not a make-believe. It is **beautifully** constructed, **runs** with remarkable ease, and is **safe** because the low riding **position** makes it easy to control. **And** it is BRITISH.

BE SURE YOU RIDE A FAIRYCYCLE

The COMET



This natty little racing model is the very thing for the youngsters. It is built for sturdy boys and girls, and will stand any amount of rough wear. The double crank movement makes it very speedy.

¶ Look for the Triangle Trade Mark on all these toys

The PEDAL FAIRYKAR

Regd. Trade Mark

Baby will love this Pedal Fairykar. There is nothing to beat it. It is beautifully painted a bright red with nickel-plated handle bar and stem, rubber pedals, etc. A splendid health-giving toy.

OBTAINABLE FROM ALL GOOD TOYSHOPS

Sole Manufacturers:

LINES BROS. LTD., 9, FORE STREET, LONDON, E.C.2

Make this Summer the Best You've Known!

Just come along to Holborn and take a look round Gamages! . . You'll declare it to be an afternoon WELL SPENT, and what's more, you'll see all those things you've been wanting for so long but have been unable to get elsewhere. Whether it be Fishing, Cricket, Tennis, Cycling, Chemistry, Photography you'll find

All Your Requirements for Summer are at

GAMAGES

Among the departments to interest *you* are Photographic and Optical, Sports and Games, Cycling, Fishing and Guns, Scouting, etc., and, of course, the Zoo You never saw such a collection of good things as are on show at Gamages!

Cricket Balls

The "Referee" (Regd.) A fine quality match ball. Perfect in shape, unbeaten in quality. Hand-made. Price **11/6** Post free. Also The Special Crown, extra special match ball. Full size **12/6** each.

FULL SIZE CLUB BAGS

The very thing for a Junior Club. Strong Brown Canvas, whole cut, double handles, two straps and buckles, top lock and key, good lining. Size 36"×12"×8" **12/6**
Strong Carpet Bag, full size, double handles, lock and key, two end straps, strong lining, leatheroid bottom. Size 36"×12"×5". Price **18/6**

Gamages "Referee" TENNIS BALL

A good medium priced ball, very suitable for Junior Clubs, covered good strong cloth, cemented and sewn. Price **13/6** doz. Post 9d.

CRICKET BAT OIL—in Tins

7 oz. Tin, each **8d.** Pint Tin, each **1/9**
Quart Tin, each **3/-** Carriage extra.

THE BEST BOOTS FOR BOYS ARE THE FAMOUS "A.W.G." 14/9

THE FAMOUS "A.W.G." CRICKET BATS

For boys and youths.
Rubber and cane handles.
No. 4 ... ... **10/6**
No. 5 ... ... **11/6**
No. 6 ... ... **12/6**
Postage 6d.

FORCE CRICKET BATS

As illustrated. Every bat autographed and tested by Jack Hobbs of Surrey XI. fame.
Size 4 ... ... **17/6**
Size 5 ... ... **19/-**
Size 6 ... ... **21/-**

Uppers of the finest quality Stout White Canvas, stout ⅜" Butt leather soles, heavily stitched, splendid wearing and very comfortable. Boys' sizes 2, 3, 4 and 5 per pair **14/9**
Men's sizes **16/9**
Also in cheaper qualities, **12/9** and **10/9**, post free.

STRONG BATTING GLOVES

Featherweight, good tan cape, hair stuffed fingers, strong elastic.
Youths' size, per pair ... **4/6**
Men's size, per pair ... **5/6**

THE "SCHOOL" TENNIS RACQUET

Very strong and serviceable, strung red and white with double centre mains, hollow wedge and double gut bound shoulders. Price **12/6** Post 6d. ... ...

THE "CHAMPION" TENNIS RACQUET

With ordinary or round handle, strung with good quality red and white gut, double centre mains, reinforced oval wedge, silk and gut bound shoulders. Price **17/6** Post 6d. ... ...

Cricket Kit!

This is the best equipment of its kind on the market, yet prices are low. Visit us to see the value offered.

WICKET KEEPING GLOVES

Special Tan Cape Gauntlets, very strong and serviceable for the wicket keeper Well ventilated rough palm.
Youths' size, per pair ... **8/6**
Men's size, per pair ... **8/11**
Postage 6d.

LEG GUARDS

Youths' Strong White Drill Leg Guards, 14", per pair **6/6**
Boys' size, per pair **5/9**
Postage 6d.
Very superior quality, 10 Rib Leg Guards in White Canvas, per pair **10/6**
Postage 6d.

SHIRTS

Well made, very comfortable and smart in appearance. All sizes, in white matt.
Prices **6/6 5/6** and **4/6**

CRICKET TROUSERS

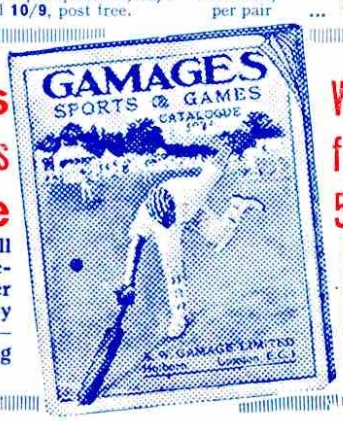
Youths' White Cricket, made from thoroughly shrunk cloth. Side straps and permanent turnups. Sizes to fit boys from 10 to 18 years in three qualities.
Per pair. **18/6 15/6** and **10/6**

STRIPED BLAZERS

In various colours. All-wool flannel to fit ages 4 to 18 ... **14/6** each

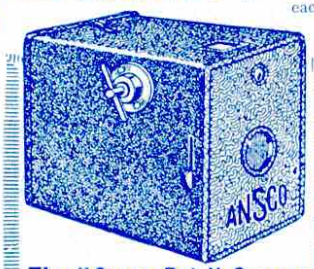
Gamages Summer Sports Catalogue

is now out! In it you'll find every possible requirement for every Summer Sport under the sun. No boy should be without a copy—it's the finest guide to buying you can possibly have.



WRITE TO-DAY for this Splendid 50-page BOOK

Beautifully illustrated, with a coloured cover, it is no trouble at all to obtain. Just write and ask for a copy (a card will do) and we will send you one per return—QUITE FREE!



The "Seven Bob" Camera

Daylight Loading Roll Film Camera, 2⅛"×1⅝" (Standard Vest Pocket Size) film. Covered black leatherine, splendid lens, Dimensions 2⅛"×3½"×4⅛". Price **7/-** Post free.
Films 1/2 per spool of eight (any make).

A. W. GAMAGE LTD., HOLBORN, LONDON, E.C.1

City Branch: BENETFINKS, CHEAPSIDE, E.C.2.

PUBLISHED BY MECCANO LTD., BINNS ROAD, LIVERPOOL.
Printed by Stembridge & Co. Ltd., Albion Street, Leeds.