



MECCANO MAGAZINE

PUBLISHED IN THE INTERESTS
OF BOYS

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MONTHLY



EDITORIAL

NEXT month the "M.M." will appear in an entirely new dress, for it will be contained in a coloured cover.

It will include all the usual features, which have made it so popular, and there will also be one or two important new features.

Good
News

These, I have no doubt, will meet with appreciation, and will add considerably to its value and reputation.

I find that most of my readers are very interested in books, and this is only what I expected, for to intelligent boys books are

A Bookshelf
Column

the source of much knowledge. In some we read of the adventures and brave deeds of such men as Drake and Raleigh, who did so much to make our country what it is to-day. In others we read about the great discoveries of science. We learn of the pleasures of the telescope and of the wonders of the microscope, with hosts of other amazing things in the realms that lie between. "Of the making of books there is no end," said one of our wise men, and we realise this when we visit any public library and see the thousands of volumes on the shelves, each book only waiting to be opened and read to give up the knowledge it contains.

It is impossible for anyone to read more than a fraction of the books that are published, and much time can be lost in reading books that do not matter.

A Guide to
Good Books

As I am most desirous of encouraging a taste for good reading amongst Meccano boys, I have arranged to start a Bookshelf Column in our next issue. In this column we shall review new books and other publications suitable for boys. I strongly

advise each reader to read this column with care, for it will not only keep him in touch with the latest literature published for his benefit, but will also guide him in the choice of additions to his bookshelf.

Another new feature in the July issue will be a column for stamp collectors. This will be conducted by an expert who has made the subject his special study for many years. Pursued in a haphazard, unmethodical manner, stamp collecting gives no pleasure whatever, and is soon

A Stamp Col-
lector's Column

abandoned. If followed intelligently, systematically, and under proper guidance, however, this fine hobby is most pleasurable and instructive, and in many cases may even be profitable. My stamp-collecting readers will undoubtedly find our new column of very great service to them.

As I remarked in our last issue there is a very insistent call for more Meccano models, with full descriptions and illustrations, and we have some wonderful material available for this feature. In this issue

More Meccano
Models

we commence with instructions for building the Meccano Crystal Radio Receiver. This article will be followed by instructions for building the wonderful Meccano Loom, the Motor Chassis, a Grandfather's Clock that keeps perfect time, and made entirely with Meccano parts, and later by a new model of the High-Speed Ship Coaler.

The first few models which we shall illustrate and describe will be of the bigger type, although well within the capacity of any Meccano boy. Later, however, we shall commence the description of a series of new models of a simpler type, that any boy will be able to construct with the smaller Meccano Outfits.

As most of the models dealt with will not be included in our regular Manuals, I strongly advise all Meccano enthusiasts to carefully keep their copies of the "M.M." by means of the serviceable binder described on another page.

The Meccano Smile



Our photograph is of Master John Potts, a happy Meccano boy at his home in Queensland. The model shown in the photograph is of a locomotive he has just finished constructing.

John is a keen Meccano enthusiast, as are hundreds of other Overseas boys, and he devotes a great deal of time to the invention of new models.

He is a typical Australian boy, with a smile as sunny as his native climate, and is happy because he has learned that perseverance, determination, and cheerfulness are the stepping-stones to success in Meccano model building, as in real life.

Good Things Coming

The following articles will appear in future numbers of the "M.M." Every Meccano boy should place a regular order for the "M.M." with his dealer or direct with this office.

The Men Who Gave Us Radio.
Meccano Boys' Hobbies :—
An Adventure in the Tree Tops.
Holiday Essay Competition.
Stamp Collector's Column.
A Monster Dredger.
A Unique Coaling Plant.
New York's New Bridge.
A Message from Dr. de Forest.
Photographic Competition.
1,000 k.w. Radio Valve.

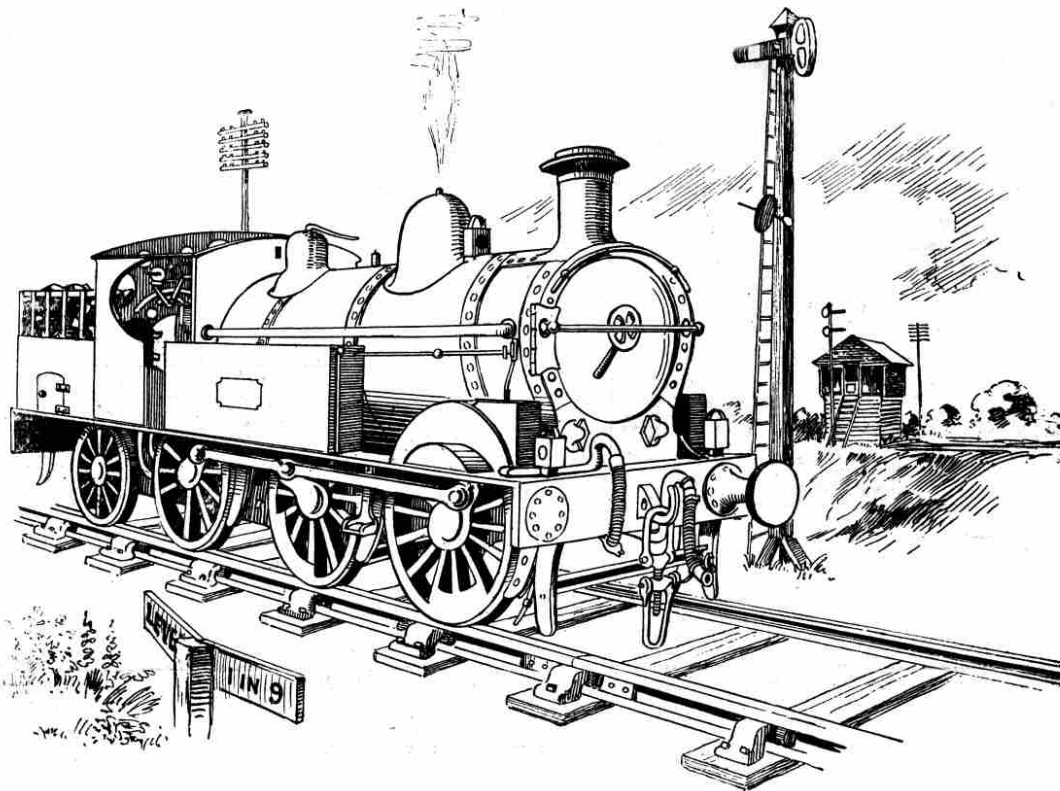
A CHALLENGE TO MECCANO BOYS

Have You Sharp Eyes?

IN last month's issue I announced the fact that a challenge had been offered to Meccano boys by a certain gentleman, whose opinion it is that Meccano boys have no more intelligence than any other kind of boys. This gentleman has submitted the accompanying drawing of a locomotive in which he has purposely made a number of errors. He is giving a handsome prize to the Meccano boy who specifies every mistake that he has made in the drawing.

If every error is not pointed out, the prize will go to the boy who lists the greatest number of errors. I shall supplement the gift by giving a second and third prize in order of merit. Entries must be received by the 30th June (abroad 31st August). Each error pointed out should be numbered, and the total given at the foot of the list. The mistakes should be described as briefly as possible.

Already a large number of readers have responded to this challenge to the fair name of Meccano boys. I want all readers of the "M.M." to enter for this competition at once, so that their entries may be received before the closing date. The result will be announced in our July issue, and the result of the entries from abroad in the September issue.



Our New Serial



This is Jack Bulmer, the hero of our New Serial

Our new serial, "Bulmer's Father," will commence in the next issue of the "M.M." So many articles are claiming immediate attention that it has been crowded out this month.

The July "M.M." will include also several new features and will be packed from cover to cover with articles that are of greatest interest to all Meccano boys. If you have not already placed a regular order for the

"M.M." you should do so without delay, either with your Meccano dealer or direct with this office. The price is the same in either case, 6d. for six issues or 1/- for twelve.



BRIGHT IDEAS

These columns are reserved for dealing with suggestions sent in by Meccano users for new parts, new models and new ways of making Meccano model-

building attractive. We are always pleased to hear from any Meccano boy who has an idea which he considers will be useful in the Meccano system.

J. Hernsley (Littlehampton, Sussex).—Suggestions for new parts should be accompanied by instances of their application. We should be interested to hear any uses you have found for 12½ curved or slotted strips.

T. H. Oddie (Carranballac, Victoria).—(1) We are interested in your various suggestions, but it would have been helpful if you had mentioned their applications, particularly those of the rack-rod and cog and pinion and gear combined. (2) See our reply below to G. Hare re sliding action.

J. Candler (Tuke Hill, S.W.).—Your sketch does not convey any information as to the utility of the part you suggest. Perhaps you would explain this a little more fully.

D. Markham (Leyton).—We do not advocate the bending of the strips except to fairly wide radii. In our revised models we endeavour to eliminate such mutilations.

M. W. Dolman (Newark).—We hope to introduce a grappling hook very shortly.

G. Burgess (Adelaide, Australia).—As the capacity of the spring of the Clockwork Motor is so small, we scarcely think any great advantage would be derived from introducing a different type of governor.

G. Hare (Leamington).—At the moment we are engaged on a suitable sliding action.

F. Ellis (Farnborough).—Regarding your suggestion for twin flanged or pulley wheels, why not secure two of either of the existing wheels to the axle of your model? A permanent twin wheel has no function apart from the example you mention.

H. W. Bird (Ulverston).—Evidently you do not read the "M.M." regularly, Harold, otherwise you would have seen the articles on engineering feats and achievements that we publish from time to time.

D. M. Tucker (Leyton).—We shall shortly introduce a swivelling crane for use with Hornby trains.

Cuthbert Knowles (Keighley).—What special object would there be in adapting the eye piece to take the rack strip?

C. Wilkinson (Appleton Wiske).—We are introducing a 5½ flanged disc shortly, and later separate sections that may be superimposed to give a wheel of larger diameter.

G. Taylor (Deganwy, N. Wales).—Your suggested cross-over switch may be adopted later.

I. Moore (Belfast).—In the Meccano Chassis Leaflet we illustrate a motor car spring constructed from Meccano parts.

Robert Mowbray (Old Trindon).—See our reply (above) to G. Taylor, re switch.

A. E. Schull (Newcastle-on-Tyne).—(1) We propose introducing a signal similar to that you suggest. (2) Your idea for fitting hinged sides to the trucks is interesting, and we shall go into it. (3) In view of the recent re-grouping of the railway system we do not consider it advisable to elaborate too much on individual colouring. (4) We keep adding to the variety of our trucks each year, and some of those you mention are already on our list.

Arthur Perry (Northwich).—Unfortunately we have abandoned the flat type of screwdriver which you suggest should have a hole at the back to fit the nut.

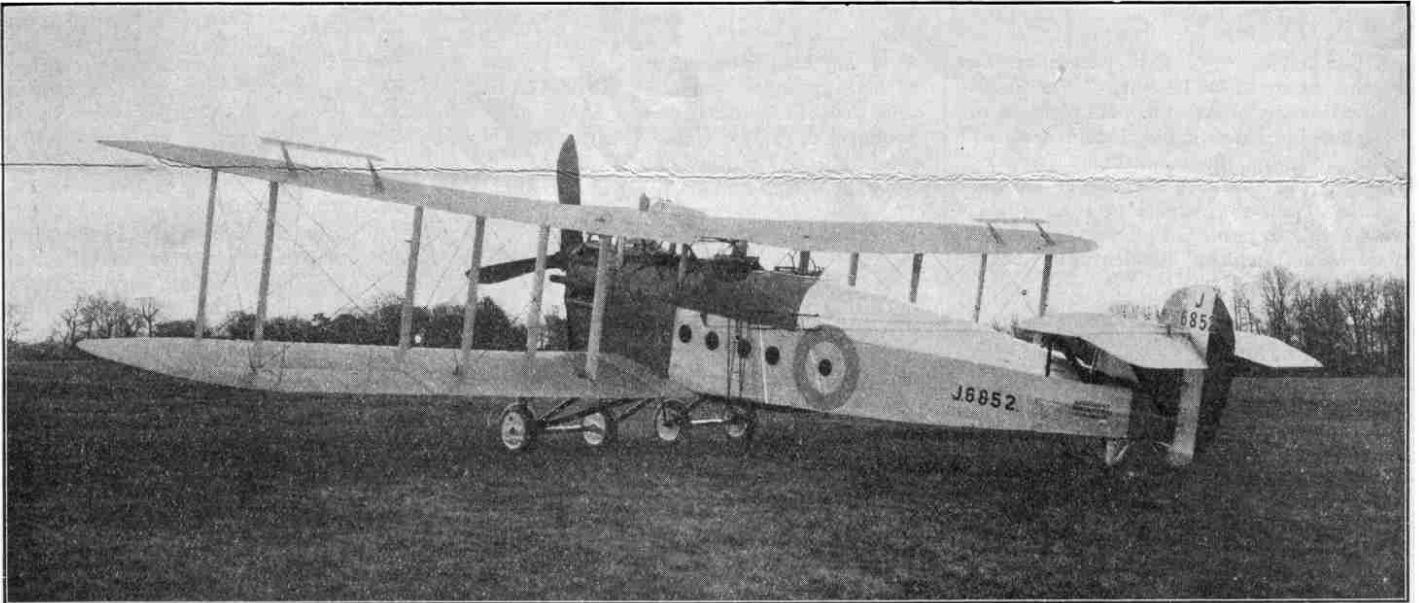
F. Palmer (Portsmouth).—(1) See our reply (below) to A. Hardie re cylindrical plates. (2) The cord may be secured to the crank handle by giving it two or three turns round the handle finishing off with two ordinary half hitches.

A. Hardie (Aberdeen).—The introduction of cylindrical plates is as yet premature. In the meantime we are endeavouring to obtain information as to their application to general use.

Leslie Thompson (South Petherton).—The double cross-over point is an accessory that we may introduce in due course.

A Giant Bomber

New Aero Engine with Power Increased 100-fold



By permission of]

[A. V. Roe Ltd.

The largest single-engined aeroplane in existence. The metal Avro into which the 1,000 h.p. Napier "Cub" has been built.

In our last issue we gave some interesting particulars of the new 1,000 h.p. Napier "Cub" engine, and we now have pleasure in illustrating above the Avro bombing aeroplane into which this engine has been fitted.

This giant bomber is the largest single-engined aeroplane that has yet been constructed, and as such it is an object of great interest to which the eyes of the world are turned.

Air Power Will Count

Interest in these "giants of the air" is occasioned not only because of their immediate commercial use, but also because of the future purposes for which they may be employed in war. It has been stated repeatedly that the next war will be a "war in the air," and it is therefore not surprising to find that many nations are closely following every development in aeronautical engineering. There seems but little doubt that any nation possessing a large number of well-designed aeroplanes will be a power of account in any future hostilities.

Wonderful Progress

Great strides have been made in the last few years in the building of large aeroplanes, and in the development of aero-engines. At the commencement of flying in 1908 the largest aeroplane in existence was fitted with a 40 h.p. engine. As the engines of most other planes were then only of about 20 h.p., this 40 h.p. engine seemed to be a tremendously powerful piece of mechanism.

Six years later at the time war broke out, engines of from 80-100 h.p. were often used, whilst the faster planes, employed for "speed-work," were equipped with

engines of from 160-200 h.p. At that time it was thought that the h.p. of these so-called powerful engines would never be surpassed. During the war, however, fighting planes of 300 h.p. made their appearance, and large bombing planes were equipped with engines of 500 h.p. or even 750 h.p.

Britain's 4,000 h.p. Aeroplane

With the introduction of the 1,000 h.p. Napier "Cub," even these high figures were exceeded, and to-day there are in existence giant aeroplanes (driven by several motors) developing over 2,000 h.p. In Germany, for instance, a monoplane of 2,400 h.p. is being produced, and in the United States a hydroplane of 3,600 h.p. is now being constructed.

Britain is not behind in this race for super-planes, however, and tests are now being made with an even more powerful aeroplane, the engines of which it is anticipated will touch 4,000 h.p.!

The Caproni Hydroplane

In this connection it is interesting to recall that in 1921 a 4,000 h.p. hydroplane, designed to carry 100 passengers, was constructed by Caproni in Italy. Unfortunately this giant was accidentally destroyed some weeks after its first trial flight.

Its tremendous power was obtained from a group of eight motors, each of 500 h.p. The dividing up of the power of aeroplanes in this way leads to many complications, and what is particularly difficult is the efficient controlling of so many units.

Developing a New Field

Until the Napier "Cub" was produced, the largest single aero-engine did not exceed 750 h.p. This seemed to be the

limit of power available, unless more than one motor was used, as in the Caproni hydroplane. For this reason the production of a 1,000 h.p. motor opens up an entirely new field in the forward progress of aviation. It is interesting to know that the engine was constructed to the order of the British Air Ministry.

One of the most surprising features in regard to this wonderful engine is the fact that it weighs only approximately 2,000 lbs., this being about 2 lbs. per h.p.

It is, perhaps, not very difficult to construct a single aero-engine of 1,000 h.p., but it is difficult to design so powerful an engine that will be so light in weight and yet strong and reliable. The weight of the engine has a very important bearing on the carrying capacity of the aeroplane, and for this reason only, the 1,000 h.p. Napier "Cub" is remarkable, and everyone interested in engineering will congratulate the designer and manufacturers upon their achievement.

Giant Bomber's 144 miles per hour

In its first flight the giant bomber, to which the experimental "Cub" was fitted, took off in the surprisingly short distance of 130 yards. It climbed rapidly and landed without incident some 15 minutes later. In more recent tests at Southampton the machine has attained the remarkable speed of 144 miles per hour, and was manoeuvred with ease. The trials were entirely successful, and proved the immense advantage of such a machine fitted with a powerful and efficient engine. The machine's performance won the commendations of Sir Geoffrey Salmond and of other officials from the Air Ministry, who were present at the demonstration.

(Continued on page 11)

Largest Cable Ship Afloat

The Recently-Launched "*Faraday*"

IN our last issue we gave particulars of the famous cable ship "*Faraday*," now being broken up. Its place is to be taken by a new cable ship, at present being built by Messrs. Palmers Ltd., of Jarrow. By the courtesy of Messrs. Siemens Ltd., the owners of these ships, we are able to publish a photograph of the new vessel which, incidentally, bears the same name as its predecessor.

A Life of Adventure

As is only to be expected, during half a century's laying and repairing cables in all parts of the world, the "*Faraday*" has had many adventures.

In December 1895 she left London for Para, where she laid a cable up the River Amazon. The voyage was full of incident, the ship running aground on numerous occasions owing to the shallowness of the river. It was during this expedition that several newly-formed islands were discovered in the River Amazon.

The "*Faraday*" in an Earthquake

A most alarming incident occurred in 1906, whilst a cable was being laid in South American waters. The ship called at Valparaiso to coal, and whilst thus engaged the great earthquake took place. Although badly shaken, the "*Faraday*" was uninjured, and eventually was able to proceed to another port for coaling and to be dry-docked for examination.

Not the least exciting of her adventures occurred during the war, for in 1918, when the enemy submarine activities were at their height, the "*Faraday*" was engaged in repairing Atlantic cables. She ran many risks from the submarines, and on one occasion was absent from England for 6½ months, during which time all operations had to be carried out without showing any lights.

The Largest Cable Ship

The new "*Faraday*," launched on 16th

February last, is one of the largest vessels of her type afloat. Her length is 415 ft. and breadth 48 ft. and she has a gross tonnage of 5,375 tons. Constructed of steel, she is equipped with the latest appliances for laying and repairing cables,

Steam is supplied by three boilers which, it is interesting to note, burn oil fuel. About 1,500 tons of oil are carried, this being sufficient for a voyage of 10,000 miles.

Cables are Expensive

Laying cables is a costly business, but cable companies are able to afford the outlay, for they reap a rich harvest from the services they render.

In 1861 The American Telegraph and Cable Company enquired from Messrs. Siemens their price for supplying two Atlantic cables. The estimated price exceeded one million sterling, and this information was cabled to America. Within a few days a reply was received, "Make and lay two cables. Fifty thousand pounds deposited

on account at your bankers."

Mountains Below the Sea

These two cables were laid in 1881, and during the work a range of submarine mountains was discovered in the Atlantic Ocean. At this point the water became less deep, varying from 1216 fathoms to 620 fathoms in a distance of a little over one mile. This shallow region is now known as the "*Faraday Hills*."

Cables link up continent with continent and make it possible to keep in touch with events in all parts of the globe. They permit of a rapid interchange of news between the countries of the world, and even Radio has not eliminated them. There are still many circumstances in which cables are used in preference to Radio. Cable ships such as the new "*Faraday*" are important units in the vast and complicated commercial system by which we live.

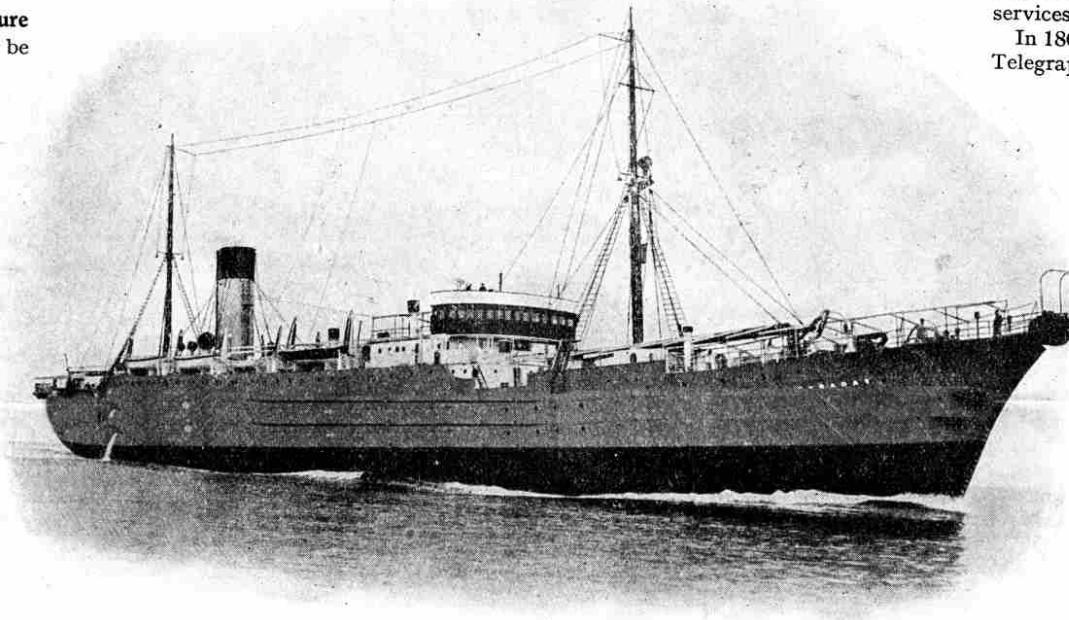


Photo by
courtesy]

The New Cable Ship "*Faraday*"

[Messrs.
Siemens Bros. & Co. Ltd.]

and her four cable-tanks are large enough to contain the whole length of a trans-Atlantic cable.

At the forward end of the upper deck is a large steel house, containing a suite of rooms for each of the officers. There is also a drawing office, above which is situated the navigating bridge with chart-room. The ship carries a crew and cable staff of over 150, and five lifeboats are provided, also two motor boats fitted with special mechanical davits.

The machinery for paying-out the cable, and the instruments for registering its pull and other important details, are located at the bow of the ship.

Fuel for 10,000 miles

The vessel is fitted with twin-screw triple-expansion engines developing nearly 3,000 h.p., and has a normal speed of about 12 knots. The engines are also so arranged as to be capable of working at very low revolutions in order to drive the vessel, when necessary, at the low speed of about ½ knot.

Improving the "M.M."

By THE EDITOR

THIS Competition has been extraordinarily successful, and I have been inundated with entries. Every entry has been carefully considered, and the results have been classified, with a view to finding the opinions of the majority of our readers, on the contents of our pages.

The Prize Winners

The best list of replies and suggestions for improving the "M.M." was sent in by Master C. W. Maxwell Reekie, of 7, Rousley Avenue, West Didsbury, Manchester, and to him the first prize of a Hornby Train has been despatched. The second prize of a Zulu Tank Loco has been awarded to Master L. O. Marsden, 29, Dering Road, South Croydon, and I congratulate these two ardent competitors on their well-merited success.

"More Meccano Models"

Many novel suggestions were submitted in the competition, and it is significant and satisfactory to note that a very large number of our readers make insistent demands for "more Meccano models."

As is announced in this month's Editorial, I am making arrangements to immediately give effect to these demands. Illustrated instructions for building the Meccano Crystal Receiver (No. 2) appear in this issue, and we have hundreds of new models that we shall describe and illustrate in future issues.

Good Things in Store

Many readers ask for more scientific articles, and I am able to announce that I have made arrangements with a well-known writer to contribute a regular article of this nature, as space permits. Articles from his pen will include such subjects as "The Spider as an Engineer," "A Voyage to the Moon," "Marvels in a Drop of Water," "How and Why a Bee Stings," "Giant Monsters of the Past," and many other wonderful articles that are of the greatest interest to all intelligent boys.

Famous Engineers

I have been much impressed by the number of requests for articles dealing with the lives of Engineers and of Inventors, and I hope shortly to be able to announce a series on these lines. In these articles we shall describe the difficulties and dangers that engineers have had to face in the past, and show how perseverance and determination enabled them to triumph over all obstacles.

These are just a few of the good things in store—there are many more to come, and the "M.M." will continue to improve and to increase in size, maintaining its claim to be the paper for Meccano boys.

A Journey through Space

Scores of other good suggestions have been carefully noted and many of them will be reflected in our future issues. I

have dealt with a few of the more interesting in the replies below, and in these I feel you will all be interested.

Some of the suggestions cannot be adopted, however. For instance one from a Tyneside boy, who seriously suggests that the "M.M." would be improved if the Editor takes a trip, "leaving the Earth in a gigantic special rocket, visiting the planets and cool stars!" I fear it would have to be a very "special rocket." Although I have often seen the sunrise on the mountains of the Moon, and have seen the polar regions of the planet Mars with my telescope, I would give a good deal if I could have a near view of the "cool stars" to which my young friend refers. But I should want to be quite sure that I could get back to Earth again, so that I could describe these wonders of the heavens to the readers of the "M.M."

Thank You!

Well, boys, the competition was a great success, and I wish to thank those who wrote to me for the helpful spirit they showed. It is very encouraging for an Editor to hear his readers' views, for editing a paper is something like broadcasting—you never see your audience. This is very different to speaking or lecturing to a hall-full of people, who may applaud or laugh when you make a humorous remark—or perhaps throw things at you when they get desperate!

Replies to Suggestions

R. E. T. Leeman (Pangbourne).—We have arranged to start a Stamp Column, and this will commence in our next issue.

John W. Leighton (Burnley) and many others.—We are giving consideration to the suggestion to include with the "M.M." a photograph of the same size as cigarette cards, depicting Meccano models, and other similarly interesting subjects.

W. Lane (Kanturk).—We shall add four more pages to the July "M.M." and shall continue with 16 pages until further notice. Photographs of the Meccano Works have already appeared in the "M.M." and short plays are loaned by the Guild.

B. Bruce (Derby).—We shall endeavour to introduce electrical problems when space permits.

F. Foster Langley (Buxton).—We have already dealt with the manufacture of Meccano in the serial "The Life Story of Meccano," which ran through many issues of this Magazine.

A. Longley (Glasgow).—A page of formations obtainable with the Meccano Rails, would only be repeating the information contained in the special Rail Formation Leaflet (price 4d.) which gives a large number of diagrams.

Arthur W. Gaskins (Gorton).—We do not see how a list of Meccano models sent in by winning competitors would improve the "M.M." Arthur, as a full list of prize winners and their models is published every year.

Harold Vlies (Manchester).—We hope sometime to print a series of articles "How Things are Done" in accordance with your suggestion, which we consider a very good one.

H. Carter (Stoneycroft).—We have already arranged to include nature articles in our pages.

C. Gregory (Reading).—We fear we could not increase the "M.M." to 24 pages at present, even if we increased the price to 3d.

E. Richardson (Louth).—Thanks for your suggestion for a column dealing with Meccano boys' pets, such as rabbits, dogs, and pigeons. We shall endeavour to give effect to it at a later date.

J. D. Maybury (Kenmare).—We may be able to print one or two astronomical articles in the near future. We have been endeavouring to do so for some months, but have been unable to find space for them.

P. I. Hall (Lancaster).—Your suggestion that we should print a "Meccano Annual" every year would scarcely improve the "M.M." Peter, nor is your suggestion to print every Meccano boy's name and address practical. To do this would require thousands of pages, and the cost of printing it would be enormous. Who would read it through, when it was printed?

J. Roberts (Co. Kerry).—We shall introduce a Painting Competition, at some future date.

H. E. Jones (Shipbourne).—We fear we cannot devote six pages to Radio at present, much as we should like to do so.

T. Perkins (Bradford).—Photographs of engineering appliances already appear in our columns, and many readers use them as ideas for models, which they enter in the big £250 Competition.

D. Cayley (Devon).—We think the majority of enthusiastic Meccano boys are fully acquainted with mechanical movements, and therefore a competition on the lines you suggest would scarcely be of general interest.

E. Knights (Chelmsford).—Articles dealing with Meccano boys' hobbies are now in hand. The first article, on photographing birds, will appear very shortly and will be followed by others.

D. Maish (Sheffield).—Your suggestion for articles dealing with the history of the Steam Engine is a good one, and will have consideration.

F. Pandale (Southport).—Articles on ships and locomotives have already appeared in Nos. 30 and 31. We have in hand a series of articles dealing with famous bridges.

T. Griffiths (Swansea) and others.—Next winter we shall probably run a Puzzle Corner with "really good, hard puzzles."

J. Madden (Melrose).—We do not think your suggestion for a News Column would be of interest, as we rather imagine most Meccano boys obtain this information from the daily newspapers.

E. Becker (Deptford).—We feel sure that your suggestion that readers of the "M.M." should make a drawing of Mr. Hornby, as each imagines him to be would certainly "afford much amusement," particularly to Mr. Hornby! But would it improve the "M.M."?

W. Gorton (Stalybridge).—We fear that your suggestion that we should devote two pages each month to publication of an Encyclopædia "dealing with every subject from A to Z," would not find favour with most of our readers.

V. Bennell (Willesden).—We may publish articles dealing with pets in the future, but as we have had no experience of keeping lions, we shall not be able to include any hints in this direction, as you suggest!

B. W. Smith (Grantham).—We already have a Correspondence Club in connection with the Meccano Guild, Bert, and we would suggest that you write to the Secretary for full particulars if you are interested.

L. Miller (Cap d'Ail, France).—We fear your suggestion that we should print coupons in the "M.M." would not meet with general satisfaction, as most of our readers keep their Magazines, using the "M.M." binder. They do not therefore wish to cut or mutilate the pages in any way.

T. C. Rogers (Liverpool).—Your suggestion that we should include chemical experiments and formulae sounds too much like school. Next Winter we may be able to include some interesting chemical effects, suitable for demonstration at Christmas parties, along with other conjuring tricks.

D. J. Gillan (London).—We shall consider your suggestion to publish articles on famous inventors and their inventions. In this connection we would mention that the Guild loans a Meccano Lecture to affiliated Clubs, on the "Lives of Inventors."

J. Dean (Ashington).—Your suggestion has already been dealt with in the "Life Story of Meccano," which ran over several issues of the "M.M." We may perhaps publish this as a booklet some time in the future.

F. Brewin (Chesterfield).—We fear we should not be justified in devoting a page in each issue to comic pictures. We prefer to leave this feature, which we do not think appeals to many Meccano boys, to papers specially catering for this class of reader.

Hill View, Holt (Trowbridge).—The cost of printing the illustrations in the "M.M." in colours places your suggestion completely out of court. Colour printing is a very expensive process.

L. Tivey (Melbourne, Derbys).—We endeavour to cater for those readers of the "M.M." interested in photography by special competitions. We may be able to find space for a regular column on photography at some future date, and will bear your suggestion in mind.

HOW TO MAKE

A Crystal Receiving Set

WITH

MECCANO

THE construction of a Crystal Receiving Set with Meccano parts is just as easy as is the construction of any of the hundreds of Meccano models, that boys all over the world build every day. A Meccano Receiver not only gives great pleasure by providing constant entertainment, but from it may be obtained a sound knowledge of the principles of radio reception.

The parts necessary to construct this set may be obtained complete in strong carton, price 15/-. Those boys who already possess some of the necessary parts may complete their set by purchasing the other parts separately, at prices shown elsewhere in these pages.

Experimental Licence Necessary

It is important to remember that, in common with other receivers of the constructional type, this receiver may, at present, only be used with an experimental licence. Negotiations are now proceeding between the British Broadcasting Company and the Post Office, however, with a view to the issuing of a special licence under which these sets may be used.

The Meccano Receiver consists of three sections (1) Detector (2) Inductances and (3) Tuning Condenser, and is suitable for the reception of telephony and Morse code signals. The wave length is approximately 300 to 500 metres, but this may be varied at will by tuning. The limits of 300 to 500 metres may be increased, if desired, by adding more inductance discs.

The distance at which a crystal set will receive broadcast depends largely upon the nature of the country in which the receiver is situated, and the distance from the broadcasting station. With a good aerial broadcast should be easily received up to 20 miles from a broadcasting station. Morse signals may be received up to and exceeding 100 miles.

Assembling the Detector

The Detector is made by securing a single bent strip (23 Fig. A) and a flat bracket (24) to the mounting board; this forms the bearing for the detector arm (29). To the upper end of a 1" angle bracket (26), bolted to the board as shown, is bolted the cup (4) holding the crystal.

The detector arm (29) is then placed between the faces of the bent strip (23) with which it forms a universal joint, thus allowing the arm to be moved, until the best position is found on the crystal for the fine contact wire called the "cat-whisker."

The oscillations induced in the disc (39) are rectified by the Meccano Crystal, a new highly sensitive substance giving

Mounting the Inductances

To one corner of a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Special Fibre Plate (30) are attached two trunnions (31) one on each side of the plate as shown. At the upper corresponding corner of the same plate are attached the inductance discs (38 and 39) by hinges, so arranged that the discs may be brought together as closely as possible.

Two terminals (33 and 34) are connected in the two top holes of the outer corner of the plate (30), and a second pair of terminals (35 and 36) are connected lower down.

Condenser

The condenser comprises the fixed and the movable portions. First assemble the fixed portion (Fig. C) by connecting eight $2\frac{1}{2}''$ triangular plates together at the lower end by a 2" threaded rod (14). These plates are spaced by inserting two nickel washers between each plate, and clamped at each end by a washer and a nut. At the upper end a 2" threaded rod (14A) is used.

Before threading the rod through the plates two Triangular Fibre Plates are placed between each pair. They are spaced apart by a nickel and brass washer, so that the upper spacing is uniform with the lower, and clamped together in the same manner as the lower end. It will be noticed that in these Triangular Fibre Plates one of the corner holes is cut out, to enable them to clear the washers on the rod (14) in order to make a better electrical contact.

The triangular plates may now be fastened in position between two $2\frac{1}{2}'' \times 1\frac{1}{2}''$ angle strips (5 and 5A). A $2\frac{1}{2}''$ strip (17) is bolted at the top, with a spacing washer at each end, and extra nuts (15) are threaded to both ends of the rod (14 and 14A) to centralise the plates. The strips (5 and 5A) are then secured to the board at 6 and 6A by two No. 6 B.A. bolts, with an insulating fibre bush between each angle strip and the board.

The movable portion (Fig. D) is composed of seven triangular plates threaded in a similar manner to those of the fixed portion. They have two nickel spacing washers at the top and bottom, but no Triangular Fibre Plates are used. This movable portion is then passed between the apertures between the plates of the fixed portion, connected to the $1'' \times \frac{1}{2}''$ brackets (7 and 7A Fig. A) and lock-nutted on the outside of the same brackets.

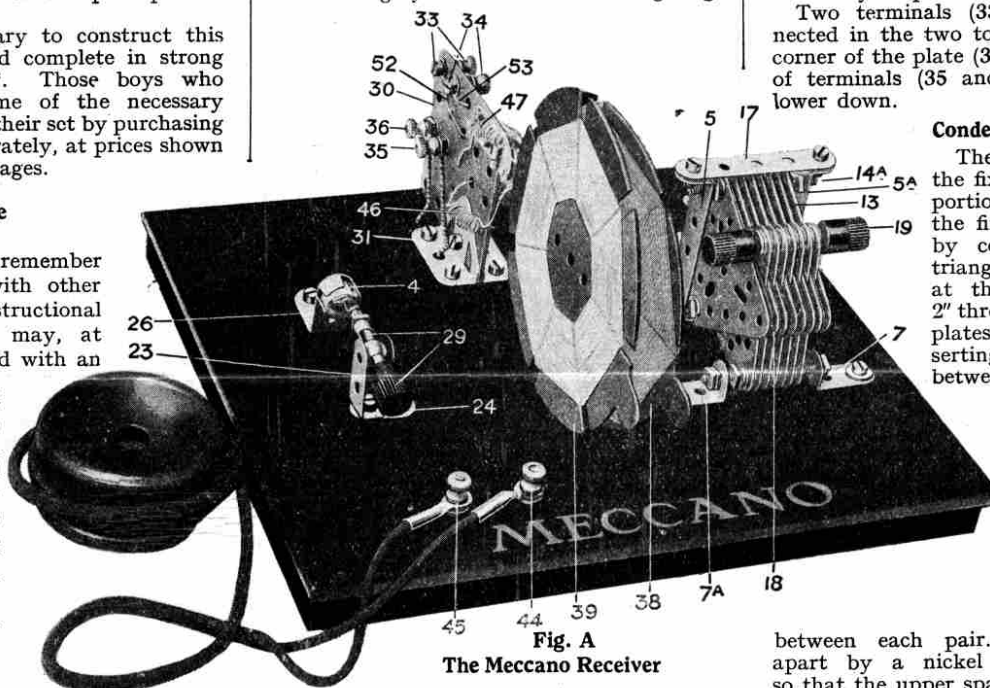


Fig. A
The Meccano Receiver

results considerably more efficient than those given by any other crystal. Not only may signals be received from greater distances with the Meccano crystal, but the signals are also very much clearer and stronger than when the other crystals are used.

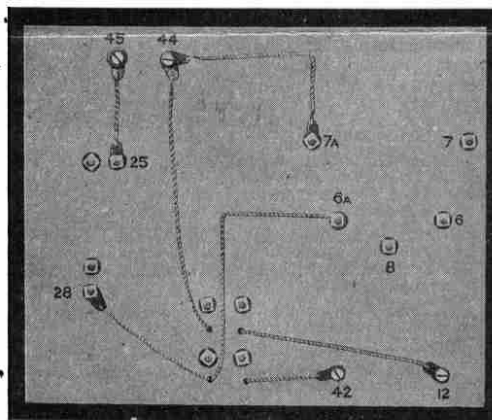


Fig. B
Underneath View of Mounting Board

(Cont. on next page)

*Or with 2000 ohm single telephone receiver, 25/-

A Meccano Crystal Receiving Set (cont.)

The insulating handles (19) may now be screwed on; these allow of the position of the movable portion being varied without causing the contact of the operator's fingers to interfere with signals received.

Wiring

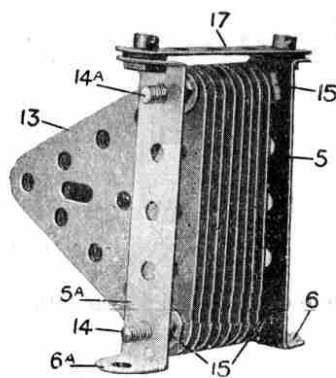
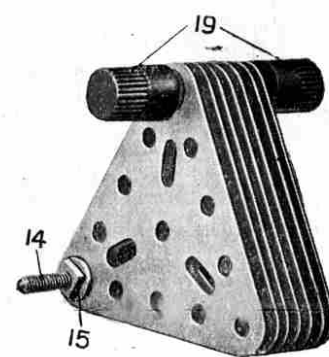
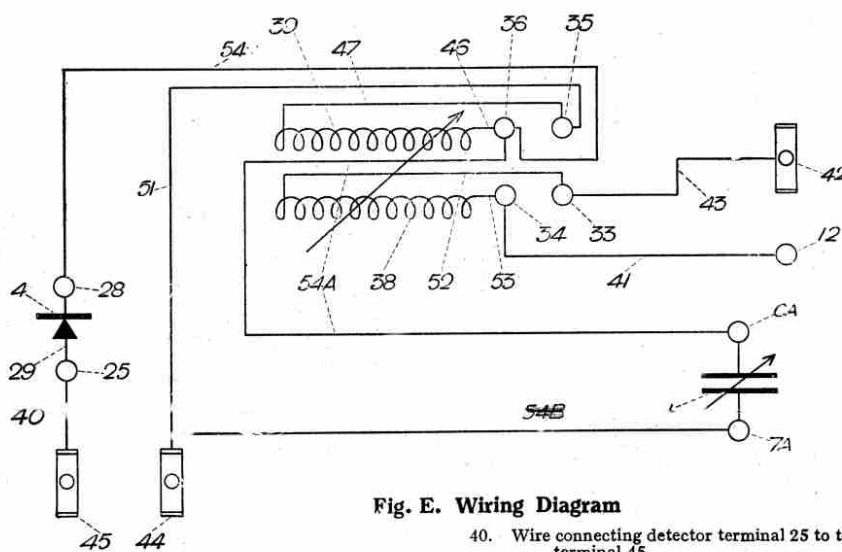
The wiring will be made clear by reference to Figs. A, B and E, and by remembering that Fig. B is an underneath view of Fig. A. From the aerial terminal 12 the wire 41 (Fig. E) carries the oscillations to the terminal 34 and from there through one end (53 Fig. A) of the winding of the disc (38) through the winding to terminal 33 by the other end 52, and thence by the wire 43 to the earth terminal.

The impulses are induced from the disc 38 in the winding of the second disc (39) and carried through one end (47) of the wiring to terminal (35) and the wire (51) to the 'phone terminal (44). Thence through the other end (46) of the disc (39) to terminal (36) and wire 54 to the Detector terminal (28) through the crystal and detector arm (29) to terminal 25 and by wire 40 to the 'phone terminal (45). Another wire (54A) from terminal (36) also carries the impulses to the condenser (6A), thence through the condenser to 7A and by wire (54B) to the 'phone terminal (44).

Operating the Receiver

Having assembled the receiver and connected to aerial and earth wires, the movable portion of the condenser should be placed in about the centre of its arc of movement, and the inductance discs (38 and 39) brought close together. At the same time the detector arm should be gently moved, so that the "cat-whisker," or copper wire contact, selects the most sensitive point on the face of the crystal.

The "cat-whisker" should press only lightly on the crystal, the pressure being varied by the insulated handle of the detector arm, which allows a very fine adjustment to be made. When the most sensitive point is reached, the discs or the condenser (or both) should be moved until the signals or telephony are heard at maximum strength.

**Fig. C. Fixed Portion****Fig. D. Movable Portion****Fig. E. Wiring Diagram**

- 1 & 7A. Condenser terminals.
12. Aerial terminal.
25. Detector-arm terminal.
28. Detector terminal.
29. Detector arm.
4. Crystal and cup.
35 & 36. Terminals for inductance disc 39 and connections.
33 & 34. Terminals for inductance disc 38 and connections.
38 & 39. Inductance discs.

40. Wire connecting detector terminal 25 to telephone terminal 45.
54A. Wire connecting condenser and inductance discs.
42. Earth terminal.
43. Wire connecting terminal 33 to earth terminal.
44 & 45. Telephone terminals.
46 & 47. Winding of inductance disc 39 connected to terminals 35 and 36.
51. Wire connecting terminal 35 to telephone terminal 44.
52 & 53. Winding of inductance disc 38 connected to terminals 33 and 34.
54. Wire connecting terminal 33 to detector terminal 28.

Meccano Radio Parts

		s.	d.
403	Insulating Triangular Plates, 2½" (for Condensers) ...	each	0 1
404	Insulating Handles ...	"	0 3
405	Brass Washers, 1/32" ...	doz.	0 4
406	9" lengths 22G Bell Wire with Tags ...	each	0 2
407	Inductance Discs, hinged (Wave length approx. 500 metres) ...	pair	4 0
407a	Inductance Discs, hinged (not wound) ...	each	1 0
408	Single Telephone Receivers (2,000 Ohms) ...	"	10 0
409	Detector Arms, complete ...	"	1 0
410	Crystals, mounted (complete with clips No. 411) ...	"	1 6
410a	Crystals, mounted only ...	"	1 3
411	Clips for Crystals ...	"	0 3
412	Mounting Boards ...	"	5 0
413	Condensers, complete ...	"	5 6

414	Detectors, complete, as contained in outfit of parts RS2 ...	each	3 0
415	Inductances, complete ...	"	5 6
421	Sliding Contacts with Rods and Brackets, complete ...	"	4 6
422	Sliding Contacts only ...	"	1 6
423	Pointers for Sliding Contacts ...	"	0 4
424	Rods, 5/32" Whitworth thread at ends ...	"	0 4
425	Brackets for Sliding Contacts, right ...	"	0 3
425a	Brackets for Sliding Contacts, left ...	"	0 3
441	Detectors, complete, as fitted to Meccano C.R.S. No. 1 ...	"	4 3
442	Detector Rods ...	"	0 3
443	Sleeves for Detector Rods ...	"	0 6
444	Cat Whiskers ...	"	0 1
445	Ball Brackets with 6 B.A. Screws ...	"	0 4
446	Plain Brackets ...	"	0 2
447	Glasses for Detectors ...	"	0 4

448	Caps for Detector Glasses, Crystal Ends ...	each	0 4
449	Caps for Detector Glasses, Detector Ends ...	"	0 4
461	Inductances, complete with scales ...	"	4 6
462	Inductances, wound ...	"	2 3
463	Inductance Tubes ...	"	0 4
464	Ends for Inductance Tubes ...	"	0 6
465	Stay Bolts for Inductance Tubes ...	"	0 4
466	Metric Scales ...	"	0 6
467	Special Insulating Washers ...	doz.	0 6
481	Hexagonal Nuts, tapped, 5/32" Whitworth thread ...	"	1 6
482	Small Terminals, 5/32" Whitworth thread ...	each	0 2
483	Large Terminals, tapped, 5/32" Whitworth thread ...	"	0 2
484	Bifurcated Rivets ...	doz.	0 2
485	Indication Labels (Phone, Earth and Aerial) ...	each	0 1

Next Month we shall list Special Meccano Radio Parts in Brass and Fibre.



F. Williams (Warrington).—At the present time the most powerful Radio Station is the Sainte Assise in France, but the most powerful Broadcasting Station is the Westinghouse at Newark, New Jersey. In answer to your second enquiry, messages from Sainte Assise are received at Saigon in Indo-China, a distance of 8,000 miles.

B. Thomas (Manchester).—We do not supply indoor aerials, but these simply consist of winding the necessary aerial wire on a light frame-work—the larger the framework the better. An article on aerials will appear shortly in the "M.M."

H. E. Pelling (Guernsey).—A Crystal Set is generally regarded as being satisfactory for the reception of telephony up to 15 or 20 miles. Even though the Meccano Receiving Set has received broadcast perfectly at 33 miles from Manchester, you would not be able to receive from Paris, Amsterdam, or London.

A. Boscow (Warrington).—It is impossible for us to state the wave-length of your set, but judging from the particulars given this should be capable of receiving on wave length up to 1,000 metres. You would require a special and costly instrument known as a "wave-meter" to find the exact wave length obtainable.

W. Gordon (Stalybridge).—It is interesting to know of what your set is made and to have further particulars of the wiring. Your sketch is not really a very clear one, but we have no hesitation in saying that with the wiring as shown the set will not work.

E. Austin (Atherstone).—Full instructions for the construction of a Buzzer are to be found on page 9 of the Meccano Electrical Manual (1/8, post free).

J. Davies (Cardiff).—We suggest that you should see that you have a good earth connection. A water pipe is the best form of earth connection, and the pipe should first be scraped bright and clean, and the wire firmly clamped. Gas-stove pipes are not suitable for making earth connection, for the red lead in the joints often causes a break in the electrical contact.

J. T. Fawkes (Cheadle Hulme).—Manchester Broadcasting Station commences to send out messages at 5.55 p.m. each evening.

T. Brown (Glasgow).—A Crystal will remain serviceable for a considerable time. If it should be lost or have to be renewed, however, a new Meccano Crystal may be obtained at a cost of 2/6.

G. Thompson (Birmingham).—An ordinary telephone receiver is not suitable for Radio reception owing to the fact that it is not sufficiently sensitive. For the best results we recommend the Meccano Telephone as supplied with the Meccano Receiving Set.

W. E. Dowding (Upper Eastville, Bristol).—The wave length is the distance from the crest of one wave to the crest of the following wave, whether the waves are waves in water, air, or ether. The statement that "a message was received on a wave length of 360 metres" means that the individual waves composing that message were each separated by 360 metres. In the longer wave lengths the distance separating the individual waves is measured by miles.

K. Miller (Haslemere).—The cost of the Meccano Aerial Set complete is 12/6. A good illustration of an aerial is to be found in the Meccano Radio booklet.

A. Fawcett (Balham).—The British Station at Carnarvon transmits direct to Australia—a distance of 12,000 miles, but it is not as powerful a Station as the Sainte Assise in the sense of its equipment.

B. Jones (Barnmouth).—If you erect a double aerial, the two wires should be separated by spreaders made either of bamboo or wood, at least 5 ft. in length, and if possible at an elevation up to about 40 ft. An article will shortly appear in the "M.M." dealing with the erection of aerials.

How to Obtain the "M.M."

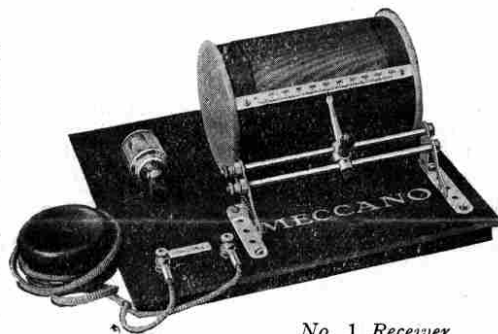
The "Meccano Magazine" may be obtained from your regular Meccano dealer, or direct from this office (post free). The price is the same in either case, 6d. for six issues, or 1/- for twelve issues. The "M.M." is issued on the 15th of each month, and you should place a standing order to ensure regular delivery, for, as a rule, back numbers cannot be supplied.

Listen-in with a Meccano Receiver

No. 1

Meccano Crystal Receiver

With a good aerial this set will receive telephony up to about 25 miles from a broadcasting station, and Morse signals up to, and exceeding, 100 miles. The set, which may be used with a broadcasting licence obtainable from any Post Office at a cost of 10/-, will receive on wave lengths from zero to approximately 1,000 metres.



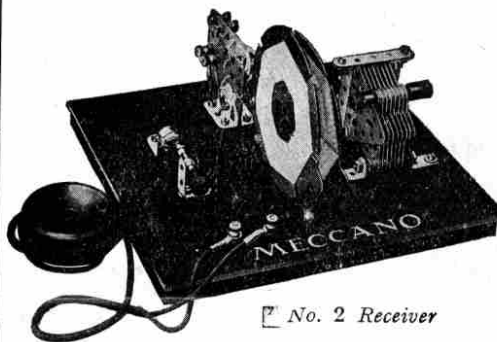
No. 1 Receiver

R.S. 1—Receiving Set complete, tested and guaranteed, price	32/6
Compulsory Broadcasting Fee	7/6
	40/-

No. 2

Meccano Crystal Receiver

This set is of the constructional type and is specially adapted to the requirements of those who wish to carry out simple experiments. Its range is the same as that of No. 1 set described above, and it receives on wave-lengths of approximately 300-500 metres. It may only be used with an experimental licence, which costs 10/- and is obtained from the Postmaster General, London.



No. 2 Receiver

R.S. 2—Complete Set of Parts, in strong carton, including single telephone	25/-
2,000 ohms resistance, price	15/-
R.S. 2a—Complete Set of Parts, in strong carton, without telephone, price	15/-

MECCANO LIMITED BINNS ROAD LIVERPOOL



In connection with the efficiency of crystal receivers over long distances, it may be mentioned that the opera, broadcast from Covent Garden recently, was received with a Crystal Set at Southport.

Master Guy Hare, the energetic Secretary of the Leamington Meccano Club, regularly receives London broadcast on his Crystal Receiver.

Good transmission from amateur stations is to be heard every night in London, Manchester, Liverpool and elsewhere. Some of the musical items are very good and compare favourably with items from the Broadcasting Stations.

A wireless lighthouse, recently erected on Inchkeith (Firth of Forth, Scotland) is specially designed for use in fog.

The transmissions from the lighthouse are concentrated in a beam that carries for about 100 miles. As the beam passes each point of the compass it gives a different and distinctive signal. It is of service only to vessels equipped with suitable receiving apparatus.

A radio rescue was effected recently when the "City of Honolulu" caught fire off the coast of California. The ship was 670 miles off land when the fire broke out, and after three hours it was found necessary to abandon her.

Radio signals had carried the message of distress far and wide, however, and ships of every description were rapidly racing to the scene. Fortunately the sea was calm, and the rescuers found all the passengers and hands in the lifeboats, watching the ship go to her doom.

A Message from Sir Oliver Lodge

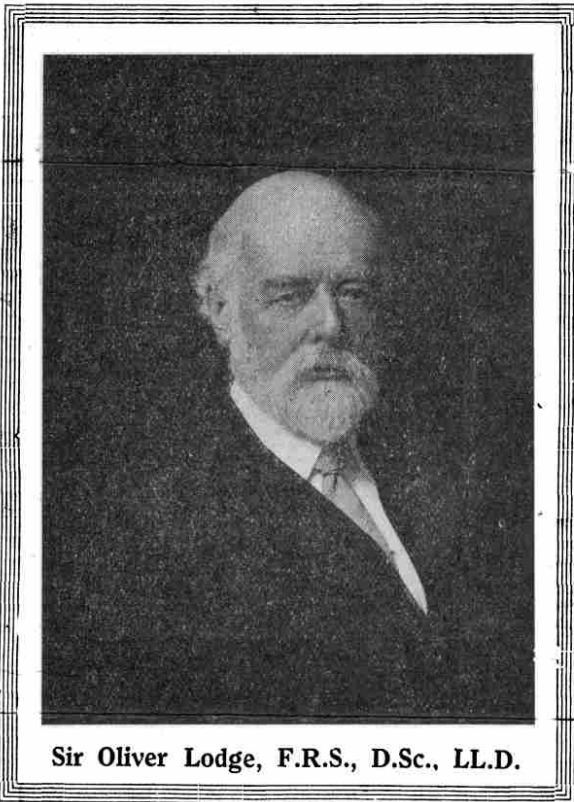
to Readers of the "M.M."

NORMANTON HOUSE,

LAKE,

SALISBURY.

Telegrams:
"LODGE, NORMANTON, AMESBURY."
Station for Goods: AMESBURY.
Telephone: 42 AMESBURY.



Sir Oliver Lodge, F.R.S., D.Sc., LL.D.

Dear Sir,

In reply to your request I send you a photograph which was taken at midnight in his laboratory by Mr. A.A. Campbell Swinton, F.R.S., who is a considerable authority on Wireless, and who is acquainted with some of my early work in that direction.

I had no idea in the '80's and '90's of last century that the subject would develop so rapidly as it has. The theoretical aspects of it intensely interested me. The present mode of harnessing electrons has rendered reception much easier, and could have been anticipated. And the transmission of the human voice over great distances is a surprising achievement.

Your readers are to be congratulated on being able to make use of these discoveries; and perhaps some of them will be able to do work which will lead to still further improvements, the ultimate end of which no one can foresee.

Yours faithfully,

To the Editor of the
"Meccano Magazine."

We have pleasure in publishing herewith a facsimile of a letter received from Sir Oliver Lodge, F.R.S., in response to our request that he would send a message to Meccano boys through the columns of the "*Meccano Magazine*."

Sir Oliver Lodge was one of the earliest workers in connection with Radio. As early as 1894 he experimented with Hertzian Waves and was able to detect wireless signals at 150 yards distance. He is regarded as one of the foremost authorities on the ether, and has recently answered an American scientist, who explains the phenomenon of Radio on the assumption that the ether does not exist. Sir Oliver frankly disagreed with the American, and stated that "to deny the existence of forces that we cannot perceive, is stupid." He further pointed out that "one cannot really think of Radio waves without some medium for their conveyance."

Sir Oliver Lodge was President of the Physical Society of London 1899-1900 and President of the British Association 1913-14. He received the Rumford Medal of the Royal Society, and the Albert Medal "as a Pioneer in Wireless Telegraphy." We believe that this message from so eminent a scientist will be of the greatest interest to our readers.

The Men Who Gave Us Radio

Owing to the large demands on our space in this issue, the instalment of "The Men who Gave us Radio" is held over until our next issue. In it we shall describe the invention of the telephone by Graham Bell, the work of Professor Trowbridge, and a brilliant prediction of Clerke-Maxwell. It is the fourth instalment of a serial article dealing with the work of scientists who contributed to the invention of Radio. Order your July "*M.M.*" early, if you have not already done so.



The Secretary's Notes

Guild members are located in all quarters of the globe, and each feels that he has many friends among fellow members of the Guild. It is interesting to know we are thus represented far and wide, and I look forward with confidence to the time when Meccano Clubs will exist in every country. There are many difficulties in the way, however, which you boys perhaps do not appreciate. The greatest difficulty, of course, is that of language. Where English is not universally spoken it necessitates the printing of the Guild literature in different languages—as well as making special badges and medallions.

The Guild Abroad

All this takes time and much labour, but we are steadily progressing to this great end, and our Clubs in Africa, Australia, New Zealand, Ceylon, India, Dutch East Indies, and Iceland are firmly established. These Clubs are doing good work, and more recently-established Clubs in Holland and Italy give promise of considerable success. A great impetus has been given to the Guild abroad by the movement being taken up in France, and I feel that we are well on the way to a fulfilment of my ambition.

During the Summer the indoor activities of the Clubs are necessarily suspended and the majority of Clubs follow outdoor pursuits, as detailed in previous issues of the "M.M." I think this plan is highly commendable, for it keeps the members together in happy companionship, and maintains their enthusiasm for the Club in readiness for the following indoor Sessions.

I have been pleased to note that the majority of Club Secretaries gave effect to my recent announcement, when sending in reports at the end of the second Winter Session. There are still some Secretaries, however, who send in reports written on both sides of the paper in very illegible writing. Others include a casual paragraph on the Club in a lengthy letter dealing with other subjects.

I would, therefore, again point out that it will help me considerably if reports are written on separate sheets of paper, on one side of the paper only, and are as concise as possible. Any Secretary who is in doubt about his report should approach his Leader on the subject, for these reports are important, and in some cases are the only means I have of judging a Club's work and progress.

Club Activities in Summer

Club Notes

Club Notes

Club Notes



CLUB NOTES



Holy Trinity (Blackburn) M.C.—A successful Exhibition was organised recently at which the Meccano play "Nonsense Nana" and "Billy Bunter's Treasure" were produced. Both the Exhibition and the two plays were very successful, and the members hope that a similar function will be organised next Session. **Secretary:** Master J. Catlow, 183, Whalley New Road, Blackburn.

Victoria (Glasgow) M.C.—Has just completed a most successful Session of indoor work. An Exhibition held towards the close of the Session proved both a social and financial success. Interesting visits have been paid to the Glasgow Central Fire Brigade Station, a local Foundry, Electrical Works, Gas Works and Shipbuilding Works. **Secretary:** Master Ian Kerr, 57, Victoria Park Drive South, Whiteinch, Glasgow, W.

1st Herne Bay M.C.—Still making progress, although the small membership curtails the activities of the Club. A small Exhibition was held recently at which Mr. Russell, the late Club Leader, was present to award the prizes. **Secretary:** Master C. W. Russell, 4, Clifton Villas, South Road, Herne Bay.

Meccano Club Leaders

No. 3. Mr. STUART H. WILSON



Mr. S. H. Wilson decided to start a Meccano Club while he was in the army. By the end of 1918 the "Holy Trinity Meccano Club" was inaugurated. This Club was the first to be affiliated with the Guild and is the oldest of our Clubs. It is interesting to learn that Mr. Wilson possesses one of the original "Mechanics Made Easy" Outfits which came on the market about 1900, and was the name under which Meccano was then known. Although his first Meccano Outfit was a No. 1, Mr. Wilson has since gradually increased his set, until now it is about equal to several No. 6 Outfits!

Den Haag (Holland) M.C.—Has made excellent progress. Recently an Exhibition was held, extending over a fortnight, and at this some very excellent models were on view. These included Eiffel Tower, Factory, Giant Auto Swing, Cake Walk, Drop Hammer, etc. All the members are keen and enthusiastic, and it is hoped to accomplish great things next Winter. **Secretary:** Mr. H. C. van der Sluis, 54 Ant. Duijck Straat, Den Haag, Holland.

Wisbech M.C.—The Savings Bank recently introduced has been well supported. An Exhibition and a Social both proved most successful. Some splendid models were exhibited at the former function, and the judge experienced so much difficulty in awarding the prizes that he appealed to the spectators to vote. The prizes were awarded to Masters S. Kettering (Motor Bus), L. Stables (Swing Bridge), and C. Royal (Railway Wagon Swivel Crane). **Secretary:** Master S. Ketteringham, 99, Norwich Road, Walsoken, Wisbech.

New Malden M.C.—Continues to flourish and progress. In addition to increasing the membership to 50 the Club has now a Meccano Crystal Receiving Set of which the members are making good use. The Club has been divided into two sections, (1) Boys under 12 years of age, and (2) Boys of 13 and over. During the Second Winter Session an Exhibition, followed by a series of short lectures was held, at which a large gathering of parents and adult friends attended. Over £2 10s. 0d. was collected towards a Summer outing to some place of engineering interest. Two Football Matches have been played between this Club and the "Claygate Meccano Club," and after the games musical evenings have been given. **Secretary:** Master A. Barnwell, Coombe Wood Nursery, Kingston Hill, Surrey.

Holy Trinity M.C.—The chief feature of the past Session was the commencement of a Radio Section. The construction of two Receiving Sets was commenced and one has been finished, Meccano Radio parts being used in the work. The fact that the Club is in possession of an Experimental Licence will enable this set to be used to advantage. Visits to several works have been made, and visits to "The Times" Printing Works; Royal Mint; the London General Omnibus Co.'s Works at Chiswick, and Pascall's Chocolate Works, are to be made during the Summer. It is hoped to organise the 5th Annual Exhibition next Session, and several London Clubs have promised to co-operate. **Secretary:** Master Stanley Bone, "The Rosary," Kents Hill Road, North Benfleet, Essex.

Invercargill M.C. (New Zealand).—At an Exhibition held recently there was a fine display of Meccano models. The members are all keen and enthusiastic, and are doing their utmost to make their Club more widely known. The Club Leader is helping to form other Clubs, and shortly I hope to be able to affiliate Clubs at Lime Hills, Woodlands, and Christchurch. **Secretary:** Master M. Ridger, Alice Street, Gladstone, Southland, New Zealand.

Wisbech M.C.—Meetings are being held during the Summer and a Cricket Team has been organised. Visits to local places of interest are also being arranged, and it is hoped also to organise a few rambles. **Secretary:** Master S. Ketteringham, 99, Norwich Road, New Walsoken, Wisbech.

New Malden M.C.—Many of the members have delivered Lectures to audiences of both boys and adults on such subjects as "Wireless," "Electric Motors," "Ships," "Motor Bicycles," "The Great Eastern," etc. Interesting visits have been paid to Leyland's Motor Works, Engineering Exhibition at Olympia, Portsmouth Dockyard and the Southampton Docks. **Secretary:** Master A. Barnwell, Coombe Wood Nursery, Kingston Hill, Surrey.

Gulgong M.C. (Australia).—The Club Leader writes: "The Club is keen, active, and interested. The training the boys are receiving is calculated to make them morally sound and useful citizens. It is a pleasure for me to act as their Leader." The Club is indeed making rapid progress. **Secretary:** Master N. E. Wallis, "Yarrawin," Gulgong, New South Wales, Australia.

Southall M.C.—It is hoped to obtain a Club-room in connection with one of the local schools for next Session. During the Summer a number of outings have been arranged, although indoor Club work has been suspended. **Secretary:** Master K. Watson, 2, Waltham Road, Southall.

1st Ceylon M.C.—Recently a stall was organised by the members of this Club in connection with the Dharmaraja College Fancy Fair and in conjunction with this the sum of £6 was handed over to the Fund. **Secretary:** Master B. K. Billimoria, Dharmaraja College, Kandy, Ceylon.

Church of Christ M.C.—The past Session has included Lectures, two Model Competitions, and also a Concert and Exhibition. A Cricket Team has been organised for the Summer months. **Secretary:** Mr. Chapman, 264, Lee Street, Oldham.

West View M.C.—During the past month members of this Club have been taking full advantage of outdoor sports, and several practice cricket matches have been played. In a recent "Fox and Hounds" run the foxes completely outwitted the hounds. Lectures and Model Building are being arranged for when the weather proves unfavourable for outdoor sports. **Leader:** Mr. H. W. R. Cousens, 494, Mansfield Road, Sherwood, Nottingham.

Clubs Recently Affiliated

Triangle (Coventry) M.C.—This Club was formed at the beginning of February and became affiliated shortly afterwards. Already good progress has been made and a new Club-room has been obtained. **Secretary:** Master R. Mayell, "Zolo," Crescent Avenue, Coventry.

House (Guernsey) M.C.—Is formed in connection with the Elizabeth College, and meetings are held every week. Excellent progress has already been made. **Secretary:** Master H. Griffith, Elizabeth College, Guernsey, Channel Islands.

Leckhampton M.C.—Formed during the Christmas holidays, affiliation was granted in April. An interesting Exhibition of Meccano work is to be held in connection with the Church Bazaar at the end of May. **Secretary:** Master B. Rhodes, Cotswold View, Charlton Lane, Leckhampton, Cheltenham.

OUR MAIL BAG



In this column the Editor replies to letters from his readers, from whom he is always pleased to hear. He receives hundreds of letters each day, but only those that deal with matters of general interest can be dealt with here. Correspondents will help the Editor if they will write neatly in ink and on one side of the paper only.

M. Buring (Launceston, Tas.).—We are glad to see that after five years of model building you are as keen as ever on Meccano, and that in fact you are suffering from "Meccanitis." The word "bonsa" with which you describe the "M.M." is new to us, but it sounds good!

D. Nyes (Darjeeling).—Thanks for your article on Darjeeling. This is good, but photos are not sufficiently clear to allow of reproduction. If you can send us better ones we shall be able to publish your article.

P. Jones (Smethwick).—Your suggestion for a special Meccano badge, with sides measuring 2½" and a fastening to fit cycle handlebars, shall have consideration.

H. E. Jones (Shipbourne).—Many thanks for your suggestions and criticisms. Your last remark that you "would not be an Editor for £100 a week" shows us that you appreciate the many difficulties that we have to face.

F. Williams (Warrington).—We think you could scarcely call "A Night at the Pool" a "blood-and-thunder" story! At any rate a very big number of boys have written in to say how much they have enjoyed reading it. We hope you will like our new serial "Bulmer's Father." Your list of suggested contents is on good lines, and will be considered.

Dickie Jones (Churchdown).—We are pleased you are getting along so well with your correspondent in France. We wonder how she will translate into French your own characteristic phraseology! Your life appears to be full of happiness and holidays.

A. H. Lambley (Morton).—Thanks for your suggestion that we include photos of engineering subjects with the "M.M." suitable for keeping in albums. We shall consider this.

G. Burnham (Barnet).—If you will read our Editorial in this issue you will see that we intend to carry out the suggestion that you and many other boys have made.

A. Taylor (Lincoln).—We feel quite sure that you can make models sufficiently good to stand a chance of winning a prize in our Best Model Competition. We advise you to persevere with the tractor on which you have spent so much time. Perhaps the suggestion we have sent to you by post will help you.

R. Peace (Halifax).—Your solution of Master Cawley's hidden word riddle is correct. We are glad to know that you consider the "M.M." is perfect in its present form. We shall go on improving it, just the same!

L. C. Edwards (Hull).—As you say, this would be a monotonous world if we all thought the same! Judging by the entries to the "Improving the 'M.M.'" Competition there is not much danger of this. If we adopted every reader's views, each issue would be the size of a Family Bible! Thanks for your own well-considered suggestion.

W. Cowlishaw (Swindon).—We are glad to receive your first letter and we hope to hear from you often. We were interested in reading the poem that won for you a first prize of a Meccano Outfit.

H. Atkins (Leatherhead).—We are so busy working on the "M.M." in 1923 that we have little time to speculate what it will look like in 1970. We are certainly planning ahead, but not so far as that. Sorry we addressed you incorrectly in our last letter.

M. I. Rowlands (Corwen).—Your solution of the cipher message was correct. Mr. Hornby had no difficulty in deciphering your message: "Bibbgy fbitfs bre qmfwy pg fbitfs fbit fs ns Gsbot lpsog" and he thanks you.

C. Brearley (Leeds).—Asks us if we can tell him the difference between the "M.M." and a stoat. Just as we are deciding to give it up, he tells us on the next page that it is quite easy, "because the latter's totally different!" Who would be an Editor?

R. Pearce (Halifax).—You have deciphered G. Orton's code message quite correctly. Here is your own. "Bar uncl n qan rsvy taby n rinu loabue ez lns." We hope other Meccano boys will not find it too difficult.

J. Simpson (Bradford).—
"A cheerful old bear at the Zoo
Said: 'I never have time to feel blue,
When it bores me, you know, to walk to and fro,
I reverse it, and walk fro and to.'"
We have often seen him pacing his cage, and now we know the reason why!

New Rolling Stock

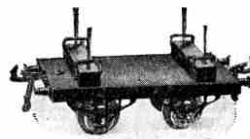


We are pleased to announce that the range of our Clockwork Train Rolling Stock and Accessories is being considerably extended, and many good things are in store for owners of Hornby and Zulu Train Sets. Supplies of the four wagons illustrated below are now ready and may be procured from any Meccano dealer.

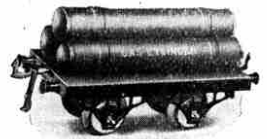
Further accessories will include Lamp Standards, Signals, Turntables and many additional types of Rolling Stock, full particulars of which will be announced in the "M.M." in due course.

The whole series, when complete, will comprise the finest selection of rolling stock obtainable.

ASK YOUR DEALER TO SHOW YOU THESE NEW LINES.



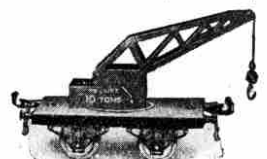
No. 1 Lumber Wagons,
each 2/6



Gas Cylinder Wagons,
Finished in Red, each 4/-



Side Tipping Wagons,
each 3/6



Crane Trucks,
each 4/6

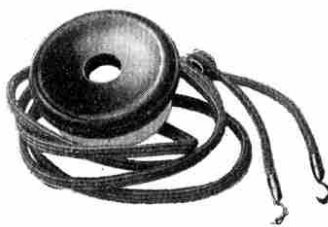
Send for list of Train
Accessories and Rails,
Points and Crossings.

MECCANO LTD.

BINNS ROAD

LIVERPOOL

Telephone Receivers



We have a limited number of single telephone ear-pieces similar to the illustration, of which we are disposing at 10/- each, postage 1½d. These telephone ear-pieces are of 2,000 ohms resistance. They are of the highest grade of British manufacture and give loud and clear reproduction, free from distortion. They are suitable for use with any receiving set, and are useful as additional 'phones to enable a second person to listen in. They may be converted into a double head 'phone by attaching two together with a metal band, or with a 12½ inch Meccano strip.

Those desirous of acquiring a high-grade telephone are advised to take advantage of this opportunity, as our present stock is limited and will soon be exhausted.

A Giant Bomber—(cont. from page 3)

Dignity and Impudence

As a contrast to this large bombing aeroplane may be mentioned the glider, fitted with an engine of only 15 h.p., that successfully crossed the Channel and returned to France on the 5th May last.

These two types of aeroplanes, of 1,000 h.p. and 15 h.p. respectively, show that development is not only being made by the production of engines of increasingly high power, but that progress is also being made in the opposite direction. Every increase in the efficiency of the aeroplane itself enables lighter engines to be used, for greater constructional strength is obtained by improving the design, thus allowing the weight of the structure to be cut down to a minimum, consistent with safety.

In the other direction, that of pilotage, our increased knowledge of air-currents and other matters of vital importance to airmen, enables greater advantage to be taken of existing circumstances. One immediate result of this is that it has been proved possible to "glide" across the Channel and back to France. The wonder of such an achievement is evident from the fact that if an aviator had put forward such a proposal only a few years ago, he would have been looked upon as being more fitted for a lunatic asylum than for the pilot's seat of an aeroplane!

THE END.

Small Advertisements

Small advertisements are inserted in these columns at 1/- per line (average seven words to the line), or 10/- per inch (average 12 lines to the inch). Cash with order. Letters to Advertisement Manager, "Meccano Magazine," Binns Road, Liverpool.

FOUNTAIN PENS (British Made) complete with filler and box, marked 10/6. Our price 1/9 post free. Box No. 21, c/o "Meccano Magazine," Liverpool.

SIXTY DIFFERENT STAMPS FREE to applicants for approvals. All 1d. each. Send postage. Cox, 135, Cambridge Road, Seven Kings.

NEARLY 50,000 STAMPS SOLD, send now for 1,000 assorted, 1/- North Bros., 37, Bostock Avenue, Abingdon.

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My No. 1 Packet contains twelve different **BRILLIANT MINT BRITISH COLONIAL STAMPS**, including Bermuda tercentenary issue; British Somaliland, Fiji, Kedah, Palestine, Mauritius, &c., &c. Price only 7½d. Post Free.

ASK FOR MY PRICE LIST.
ALEC KRISTICH (Member N.R.P. No. 279), 82, Marchmont Street, Russell Square, London, W.C.1.

Packet of 60 Greek Stamps, 2/-. Approvals sent.
P. DROSSOS. 2, St. Denis Place, Athens.

FREE! SET 14 PICTORIALS (catalogued 2/9) to applicants for cheap approval sheets enclosing 1½d. postage.
Powell, 73, Bond Road, Surbiton, Surrey.

O.K. 20 DIFFERENT UNUSED STAMPS FREE to genuine approval applicants.
Kraus, 137, Cheapside, London.

HUNGARY 10 (PICTORIALS), GERMANY (10), AUSTRIA (10). Postcard asking for approvals, to Paterson, 19, Dorset Avenue, Rusholme, Manchester. Exchange wanted with readers abroad.

100 DIFFERENT STAMPS FREE!
including many mint, British Colonials, War, etc. Send no money, just a Postcard, and request our approvals (clients abroad 6d.).
Lisburn & Townsend, 166, Islington, Liverpool.

CUT THIS OUT

"Meccano" Pen Coupon. Value 3d.
Send 5 of these coupons with only 2/9 direct to the Fleet Pen Co., 119, 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.

No. 6 MECCANO OUTFIT for sale (owing to death of owner). A few parts missing, but additional parts (including pulleys, couplings, cloth roller, etc.) to the value of £1 18s. 6d. Best offer. Box 6, "Meccano Magazine."

ACCUMULATORS. 2-volts price 7/3, postage 1/-; 4-volts 9/9, postage 1/-; 6-volts 20/-, postage 1/6; 8-volts 30/-; 12-volts 45/- F. Barling, Stowting, Ashford, Kent.

SPLENDIDFEROSUSH CALLING! HELLO, EVERYONE!

Wonderful Crystal Receiving Sets, guaranteed to hear broadcast music clearly for 35 miles, although on most of them 2 L.O. has been heard (about 95 miles away). Price complete, 5/- Foreign, 6/- Seimens Headphones, 32/- extra.
G. Hare, 36, Willes Road, Leamington Spa.

WANTED. Articles and photographs of general interest, suitable for publication in the "Meccano Magazine." Accepted contributions will be paid for at our usual rates and will be returned if unaccepted, if stamped addressed envelope is enclosed. Although every care will be taken of same, no responsibility can be accepted for lost or mislaid manuscripts.
THE EDITOR, "Meccano Magazine," BINNS ROAD, LIVERPOOL.

Magazine Binder



In response to numerous requests we have introduced a spring-back binder for *Meccano Magazines*. The binder has a strong stiff back, covered with imitation leather, tastefully tooled. It takes a large number of copies and keeps them neat and clean. In black, lettered gold. Price 3/- each, post free.

Photographers!

Make your season successful by using



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for any model can be made with Plasticine—in 16 Colours. By mixing, various kinds of Marble can be imitated. Plasticine has scores of uses besides modelling. Let us tell you of some. Specimen Box of 5 Colours, The Rainbow, Post Free, 1/2.

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A NEW SUIT made in all wool cloth in many designs and all the popular shades for 75/-; on easy terms 8/6 monthly. Write now for Free Patterns and Self Measure Form. Also Raincoats, Boots, Costumes, Coat Frocks, Watches, Rings, &c., on easy terms from 4/- monthly. Write to-day for illustrations and price-list. Foreign applications invited.
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Tubes 4½d., 6d., 9d. Everywhere.

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