

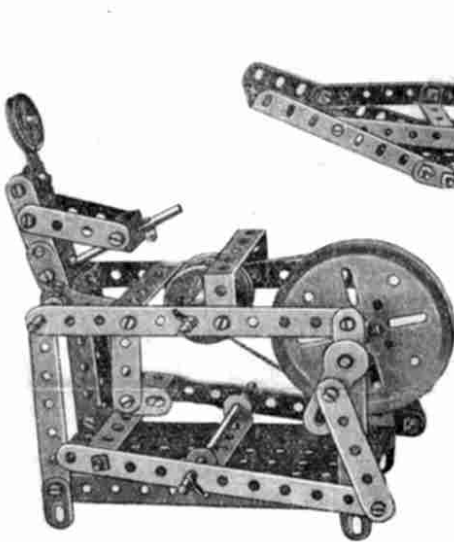


MECCANO

MAGAZINE

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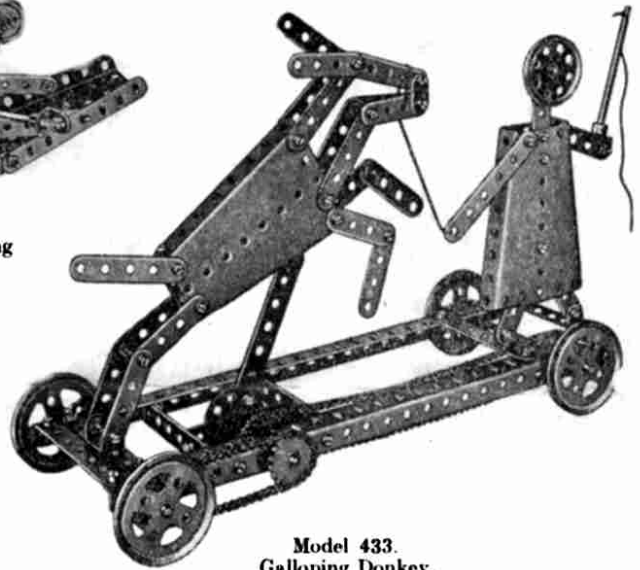
PUBLISHED IN THE INTERESTS OF
MECCANO BOYS.



Model 432. Knife Grinder.



Model 436. Rowing Boat.



Model 433.
Galloping Donkey.

The Lighter Side of Meccano.

Although Meccano is primarily engineering in miniature—and although the component parts of the system represent real engineering units and thus lend themselves more particularly to the building of models of engineering structures—a considerable amount of fun may be obtained by building models which are not directly connected with engineering. In No. 19 of the *Meccano Magazine* we illus-

trated in "St. George and the Dragon" a model which is a splendid example of extraordinary ingenuity displayed in the application of Meccano in a novel and unexpected manner. We have pleasure in featuring above three further models which well illustrate the lighter side of Meccano. They need no explanation and we have no doubt that many of our readers will take a pleasure in building

them and perhaps improving on them. In this connection there is excellent ground for our readers to apply their imagination to the invention of new models on similar lines. No doubt they will find the loose pulley (No. 22a) of considerable use in models of this type, for the three holes give a very realistic reproduction of a human face with a particularly ingenious expression!

Editorial.

Good News for "M.M." Readers.

For some considerable time a very large percentage of the thousands of letters which I receive from my readers have been urging me to increase the size of the "M.M." and to publish it more often. As has often been pointed out in the "Mail Bag" there have been many difficulties to be overcome in this connection. My readers will now be very pleased to know that for the last four months of the present year (September-December) we shall publish the *Meccano Magazine* monthly instead of bi-monthly, as at present. Possibly also it may have an increased number of pages but at the moment I cannot promise this definitely. The price will remain the same and I advise all my readers to send their

subscriptions or to place their orders for the Magazine immediately, as there is certain to be a very large demand.

A Gift for your Chum.

Would you not like to give your chum—either for Easter, birthday, or on some other occasion—a gift which will remind him of you for a whole year? You can do this by sending a subscription for the *Meccano Magazine* to be mailed to him regularly. I have arranged for this scheme to be put into operation immediately, and full particulars will be sent on application.

Instruction Leaflets.

As most of our readers know, instructions for building the special Meccano models of the Motor Chassis and the Loom are now available on illustrated sheets. These are

beautifully printed on art paper and show not only the complete models, but sectional photographs of all the essential details. The price of these leaflets is 4d. each, post free. A special leaflet giving full instructions for making and wiring the Meccano Charging Board, to enable the Meccano Motor to be run direct from the main (direct current only) is also available in the form of an illustrated leaflet. This costs 3d. post free.

Photographs and Articles Wanted.

As mentioned in the last issue of the *Meccano Magazine*, I am always pleased to consider paragraphs or short articles of general interest from my readers and to pay for such as are printed in these columns. The articles may be illustrated by drawings or photographs and need not necessarily be confined to Meccano or even to engineering subjects.

Editorial—(continued).

Nature-study, stamp-collecting, and the hundred-and-one other hobbies of boys all lend themselves to treatment in this manner. I feel sure that many of my readers will have had some interesting experiences in connection with their own particular hobbies which they can successfully set down on paper.

The Great £250 Competition.

The closing date for the great Meccano Competition is now drawing near and entries are arriving in large numbers each day. Every boy interested in Meccano should enter his ideas for new models and movements in this Competition, so that we may make them known to hundreds of thousands of other Meccano boys. Full particulars of the Competition are given elsewhere in this issue and if you have not already sent in your entry, do so without delay.

Meccano Rails, Points, and Crossings.

Elsewhere in this issue mention is made of the new Meccano Rails, Points, and Crossings. I wish that my readers could see the Meccano Factory where the workers are all kept busy and the machines are continuously stamping out hundreds of thousands of these Rails, to supply the ever increasing demand for British-made Rails. Meccano boys will easily understand why owners of Hornby and other trains prefer Meccano Rails, Points, and Crossings to those made on the Continent. They are built for hard wear and smooth running and in them is the same excellent quality of workmanship and material as is in Meccano itself.

The New Accessory Parts Lists.

I advise those readers who have not yet obtained a copy of the new Accessory Parts list to do so without delay. It has been reprinted in four-page form, instead of in one large sheet as hitherto and will be sent post free to any reader of the *Meccano Magazine* upon application.

The Life Story of Meccano.

In this issue appears the final instalment of the "Life Story of Meccano." This splendid account of the invention and subsequent development of Meccano, written by Mr. Frank Hornby, has been a feature of the *Meccano Magazine* since it commenced in No. 2 (November 1915). Although this final instalment marks the conclusion of an article in which the greatest interest has been shown, I am sure that all readers of the "M.M." will agree that the Magazine will not be complete without an article from Mr. Hornby's pen. I hope to persuade the inventor of Meccano to contribute a further series of articles shortly.

The Life Story of Meccano.

BY FRANK HORNBY.

(Concluded)

There are still other constructional toys, of course, in America but these are not exactly on Meccano lines and are not real engineering systems. They do not therefore, give us a great deal of trouble.



THE NEW MECCANO BUILDING, ELIZABETH, N.J., U.S.A.

A little while ago we purchased a very fine factory in the town of Elizabeth, New Jersey. This is a splendidly equipped building and might almost have been planned specially for our purpose. There will be no difficulty, therefore, in the future in properly attending to the assembling and distribution of Meccano throughout America from there. On this page you will find a picture of our new building, giving some idea of its size and importance. It has a floor space of over 36,500 square feet, is well lighted and heated and has beautiful maple floors. The building is about an hour's run from New York by train and has excellent facilities and conveniences for distributing our goods to all parts of the country.

I am sure that Meccano boys will be glad to know that the boys of America are as eager and enthusiastic as they are in this country in building Meccano models.

There are already a number of Meccano Clubs over there, run by enthusiastic boys and some of these Clubs are very successful indeed. Now that we have so much additional space and the proper facilities are avail-

able we shall launch the Meccano Guild in America, and I feel quite sure that it will be just as successful in the States as it has been in this country. You already know, of course, that there is an American edition of the *Meccano Magazine* circulating regularly among the Meccano boys in that country, and the full Guild programme will be announced in the columns of that Magazine in due course.

In these columns I have given the main facts in connection with the rapid rise to fame

of the Meccano hobby, and I trust that all my readers have been interested in them. There are many other interesting sides of our business with which it would be out of place for me to deal in the "Life Story of Meccano." These I shall make the subject of other articles for the *Meccano Magazine* at some future date.

The history of Meccano is not yet complete. In fact I feel that even now the hobby is still in its infancy and that the most interesting part of its career has yet to come. At the present time it is rapidly extending, and spreading its influence into the remotest countries in the world. Wherever it goes it secures and maintains its hold upon the affections of both boys and men. Every year in this country more and more boys become devotees to Meccano, realising its wonderful possibilities for providing both amusement and instruction and its great influence for good.

I think I am right in saying that the hobby itself has never been so rapidly developed and exploited as at the present time. New possibilities are being discovered almost every day; new parts are being added to the system; new models are being constructed, and we go from strength to strength. Nothing can stand in the way of the further development of Meccano and in the coming years I firmly believe it will be considered that no boy's education will be complete without a course of Meccano model-building.

(The End)

REDUCTION IN PRICES

OF

MECCANO OUTFITS AND HORNBY TRAINS.

Recent reductions in manufacturing costs have enabled us to make a number of reductions in the prices of our goods. Readers of the *Meccano Magazine* are advised to study closely the list of Revised Prices which accompanies their issue.

A complete up-to-date illustrated list of Meccano Accessory Parts may be had on application.

A new aero engine of 1,000 h.p. and weighing only 2,200lb. was shown at the Napier Works, Acton, last month.

Four aeroplanes in complete flying order were recently sold at Swansea for a total of £139 10s. One of the machines, with an 80 h.p. engine, was knocked down for £12 10s.

Suggestions by Meccano Boys.

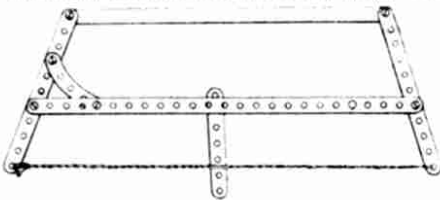
These columns are reserved for dealing with suggestions sent in by Meccano users for new parts, new models, and new ways of making Meccano model-building attractive. We are always glad to hear from any Meccano boy who has an idea which he considers will be useful to the Meccano system.

RAY H. BENNELL (Sutton).—We already list an eccentric (No. 130 in the Accessory parts list) that has an advantage over your suggestion in that it enables three different lengths of stroke to be obtained.

DENZIL MATKIN (Liverpool).—(1) The introduction of a circular saw is under consideration. (2) The winding of the coils is quite straightforward and should offer no difficulties if ordinary care is exercised. A thicker wire would not do, as the resistance offered would be too great for 4-volts.

(2, Albury Road, Newcastle.)—We cannot see any advantage in your suggestion for an eye-piece 2½" by ½". Have you found any use for this and in what way is it more adaptable than the one we list?

D. W. RICHARDSON (Hastings).—We doubt whether it would be desirable to include in our list of parts a 5½" metal saw. Regarding your suggestion for a circular saw, see reply to Denzil Matkin above. The



former may be purchased at any ironmonger's shop and a frame to hold it may be constructed as illustrated. Considerable power would be required to effectively drive the lathe. We shall, however, give it consideration.

H. R. PATTEN (West Drayton).—We shall give consideration to your suggestion for a flat and shaped radiator. Our difficulty, however, is to decide the correct size to be adaptable to the other Meccano parts. What would you suggest?

ARTHUR WORKMAN (Johannesburg).—We already include a roller (No. 106) in our list of parts.

BENJAMIN CORBYN (West Hartlepool).—The employment of flat Trunnions (No. 126a) gives a good balance to trucks, etc., and the introduction of a specially heavy plate solely for ballast purposes would not be justified. Suitable ballast can be procured locally. We do not advocate the application of Meccano parts to domestic use and are therefore sorry we cannot introduce the parts you suggest.

DONALD SIMPSON (Kelso).—The application of a 7½" strip has not yet become so universal as to warrant its introduction. Possibly in the future we may adopt it. The adaptation of the Hornby train to steam working is at the moment premature.

RUSSELL T. WHEELER (Abertillery).—The disadvantages of the hexagon nut are its bulk and consequent unsuitability for use in confined spaces and also the greater cost of its manufacture.

LESLIE KNIGHTS (Worsted, Norwich).—The simplest substitute for the pawl is made with a 1" fast pulley secured to a crank handle with a cord running over it and secured to a 5½" strip, loop fashion, with the strip fairly tightly fixed to the frame by lock nuts. See diagram "A" at back of complete Manual, page 129.

A. D. SMALLEY (Streatham Hill).—We are at present engaged on an improved clock movement. This will be published in due course in the "M.M." We do not propose introducing drawing books as you suggest, for squared drawing paper can be obtained from any dealer in artists' materials. Would not our face plate (No. 109) serve the purpose of your suggested sketch? The disadvantage of a friction drive is that it is not positive, for when any pressure is exerted slipping quickly occurs. The flanged wheel you suggest, with the boss inside and a hole in the rim to negotiate the set screw, is not a correct engineering principle.

MICHAEL D. TOOLEY (Colchester).—We already list a 1" Gear Wheel (No. 31) and have, as yet, found no use for your suggested reversed rack segment.

WM. STRUCKETT (Tonbridge).—The introduction of helical gears is under consideration. A motor car can only "free wheel," as you term it, when the clutch is thrown out or the gears are disengaged.

HERBERT MOSSMANN (Hammersmith).—We are unable to follow the application of the new part you suggest.

H. C. MORRIS (Bristol).—We are experimenting with a buffer which may be adapted to a wagon made with Meccano and when this is ready it will be announced in the "M.M." Your suggestion for a constructional Steam Engine is one which will require a great amount of consideration.

A Useful Wheel



We have a limited number of Meccano Part 19a, 3" wheel without collar and set-screw; price per set of four, 10d. (post free).

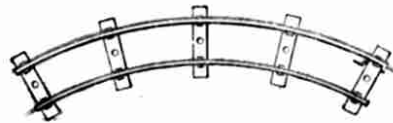
As we have only a small stock of these wheels on hand our readers are advised to take advantage of this offer before the stock is exhausted.

Meccano Rails, Points, and Crossings.

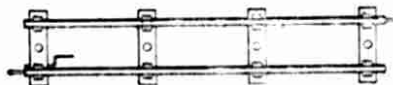
Several additions have recently been made to the existing Meccano Rails, Points and Crossings and a complete list will be sent on application.

Meccano Rails are greatly superior both in quality and appearance to continental-made Rails. The extra sleepers give an added steadiness to the track and the name of Meccano on each sleeper of Rails, Points and Crossings, stamps the genuine article.

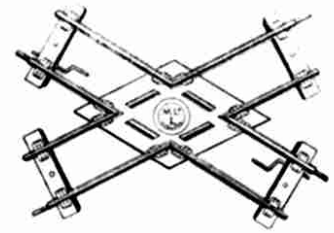
These Meccano products are made of the finest materials and hold together rigidly and strongly, for real workmanship is put into them.



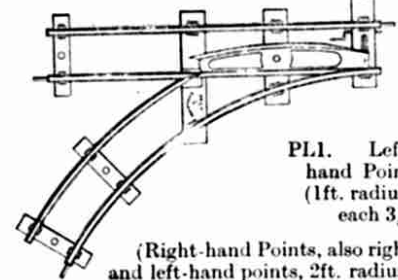
- | | | |
|----------------------------|----------|-------|
| A1. Curved Rails | per doz. | s. d. |
| (For 2ft. diam. circle.) | | 5 0 |
| A2. Curved Rails | " | 5 0 |
| (For 4ft. diam. circle.) | | |



- | | | |
|------------------------------|----------|-------|
| B1. Straight Rails | per doz. | s. d. |
| | | 5 0 |

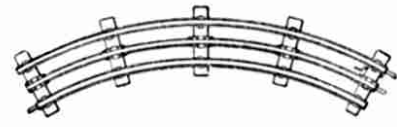


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|-------------------------------------|------|-------|
| CA. Acute-angle Crossings | each | s. d. |
| | | 2 6 |

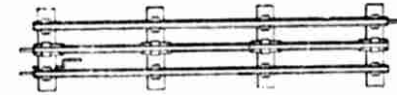


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|---|------|-----|
| PL1. Left-hand Point (1ft. radius) | each | 3 9 |
| (Right-hand Points, also right and left-hand points, 2ft. radius) | each | 3 9 |

Rails for Electric Trains.



- | | | |
|-----------------------------|----------|-------|
| EA1. Curved Rails | per doz. | s. d. |
| (For 2ft. diam. circle) | | 9 0 |
| EA2. Curved Rails | " | 9 0 |
| (For 4ft. diam. circle) | | |



- | | | |
|-------------------------------|----------|-------|
| EB1. Straight Rails | per doz. | s. d. |
| | | 9 0 |

SEND FOR COMPLETE LIST OF MECCANO RAILS, POINTS, AND CROSSINGS.

A. POOLEY (Cambridge).—A small alteration is being made to the Clockwork Motor by which it is given a much longer run.

KENNETH GOODING (Ashton-under-Lyne).—See our reply to Leslie Knights, re brake action.

W. PRINGLE (W. Stanley, Co. Durham).—We are afraid we could not spare valuable space in the "M.M." for the photographs you suggest. We appreciated very much indeed your kind wishes for the New Year.

H. M. HODGSON (Golder's Green).—We already list curved strips in two sizes, viz. 2½" and 5½". Are these the lines you suggest?

E. J. PRICE (Bexhill-on-Sea).—We shall introduce both a tank engine and petrol tank wagon this year. The date of issue will be duly notified in the "M.M." A two-speed clockwork movement for the Hornby train would have to be specially designed and would scarcely be justified for the purpose you mention. Electrical speed controls are always cumbersome and could not be employed efficiently with low voltage current. We hope to produce a design of a three speed gear box this year.

R. H. BAILEY (Chiswick).—We already list a 1½" strip. Would this not suit your purpose? We are introducing a ½" Rod this year.

ROBERT S. LITTLE (Smethwick).—A pointed spindle would not register any design. A description of a pen suitable for designing machines is given in our No. 3 Manual, Model No. 453.

GEORGE REYNOLDS (Moseley, Birmingham).—At least four such cells as you mention would be necessary to work a 4-volt motor satisfactorily. Each cell has a capacity of about 1.5 volts but they soon run down and the zinc rod deteriorates rapidly under the effects of the acid.

NORMAN STANFORTH (Dingle, Liverpool).—The bevel gears (No. 30) serve the purpose of your suggestion.

B. RUCK (Swansea).—We are now issuing "O" Gauge track with the third rail for electric trains and they are announced on this page. The whole subject of driving model electric railways from high power current is already under consideration. Our special screwdriver (No. 36a) would no doubt fill your requirements for a long screwdriver. Our experience has shown that nuts in awkward places can be negotiated fairly comfortably with this tool.

CHARLIE LITTLE (Blackburn).—The introduction of helical gears is under consideration. We are afraid that the construction of a steam engine is not quite as straightforward as you make out. We shall see what we can do to make the "M.M." lighter reading by the introduction of a jokes column, space and opportunity permitting.

I. H. DELACOUR (Brixton).—The present Manuals of Instruction are under complete revision. Many additional examples of the employment of the clockwork motor will be shown in the new edition.

I. W. WHITWORTH (Bradford).—The whole subject of electrically driven trains is under review and any developments concerning this subject will be communicated through the pages of the "M.M." We have already arranged to introduce various types of trucks for use with the Hornby trains.

K. POMEROY (Chelmsford).—Miniature lathe tools such as you suggest would only serve an ornamental purpose. We endeavour to adapt all parts to general use throughout the Meccano system.



The Secretary's Notes.

The success of the Guild movement continues in no uncertain manner and every week I have the pleasure of submitting to the President the names of new Clubs for affiliation. In this issue I am able to announce the affiliation of eleven new Clubs and I hope that any Meccano boys who live in the districts in which these Clubs are situated will give them their support by joining and attending the Club meetings regularly.

The new Club Membership Card, announced in No. 21 "M.M.," has proved exceedingly popular and the demand for it from affiliated Clubs has been so great that we have recently had to have a third reprint. Any Clubs who have not received their supplies of the card should, therefore, apply at once stating the number of members on their roll. Only one card is available for each member of an affiliated Club.

The time is now drawing near when those Club Leaders and Secretaries who look ahead will make arrangements for the entertainment of Club members during the summer months. When the fine evenings come, Meccano is naturally put on one side for the time being and a greater interest is taken in outdoor pursuits. This is only as it should be and cricket and tennis find many new recruits every summer. There is no more enjoyable method of spending the fine evenings than in enjoying one or other of these games. Our President is particularly keen on encouraging outdoor sports among members of the Guild and I hope to hear of the formation of many cricket and other teams among Meccano Clubs.

Attention has been previously drawn to the Inter-Club Competition which closes on the 31st of this month. Any Clubs who have not already sent in their entry should do so without delay. The cash prizes of this Competition make a valuable addition to Club funds and already a number of entries have been received.

Many of our Meccano Clubs successfully conclude their sessions with an Exhibition or a Concert. Not only does the work of organising and carrying through a good programme provide an interesting occupation, but the success of the effort gives pleasure to a large number of parents and friends, as well as to the members of the Club themselves. In this connection, as has already been announced in these columns, there is now available a short Meccano Play entitled *Nonsense Nana*, and I shall be very pleased to forward a copy of this play to any Club Leader who is arranging a concert.

Special Merit Medallions.

TWENTY-SEVEN AWARDS.

As announced in a previous issue of the Magazine, the awarding of Special Merit Medallions has been extended to members who do good Club work during the session in addition to those who give interesting Lectures. Consequently the number of Club members who have become eligible for these Medallions has increased considerably. Medallions have been awarded as follows for work during the past session:—

- B. Warburton : Liscard High School M.C.
 J. W. Gibbs and W. L. Edwards : Bromsgrove M.C.
 L. Hall and H. Sandall : Small Heath M.C.
 F. Coomb and A. Moore : Meads M.C.
 R. Hardy : New Brancepeth M.C.
 F. Hubball and A. Clements : Sparkbrook M.C.
 T. Sutton : Norwich Enterprize M.C.
 D. Boden : Dudley, M.C.
 C. Broughton : Thornton Heath M.C.
 G. W. Stevens and G. H. A. Murray : Jarrow-on-Tyne M.C.
 G. Henderson : Airdrie M.C.
 R. Coombs and W. Grindley : St. Mary with St. Gabriel M.C.
 L. Goldsmith : King Street M.C.
 H. Kilfoyle, Ruabon M.C.
 J. W. Mayhew and J. S. Kelsall : Kenyon Hall M.C.
 A. W. A. Dick-Cleland and W. B. Spiers : Kelvinside M.C.
 J. Reynolds : Heamoor M.C.
 H. Julian, South Wingfield M.C.
 E. Sykes, Malvern M.C.

Each of the boys mentioned above has served his Club in some special capacity. Some have given interesting Lectures, others have worked hard for the good of the Club during the entire session. In my opinion each has earned his award. Mr. Hornby, our President, sends to them his congratulations and in this I am sure all Guild members will join most heartily.

For the benefit of those who are not familiar with how these awards are made I would point out that each Club is allotted two Medallions for each Winter Session. One Medallion is



SPECIAL MERIT MEDALLIONS
(about half actual size).

given to the member who delivers the best paper to his Club, while the other is granted to the boy who has done the best work throughout the Session. In connection with the former the subject of the Lecture is left entirely to the boy, the choice in the past having included "Engineering," "Stamp Collecting," "Astronomy," "Electricity," "Boys' Hobbies," and "Woodwork." When the paper has been read at the Club meeting it is sent to me together with any criticisms the Club Leader may care to offer. The award of the Medallion for the session's best work is at the discretion of the Club Leader.

The Medallions themselves are very beautiful in design and finish, and each one is engraved with the name of the recipient. Naturally they are much valued by the boys who win them.

Further awards will be made at the end of the present session and, as the President is desirous of encouraging Club members to win these Medallions, I trust that all Club Leaders will let me have their recommendations as soon as possible.

I have pleasure in reproducing the photograph of some of the winners of these special Merit Medallions.



Master D. Boden (right) with his brother (who is also a keen Meccano boy, and anxious to win a Medallion). Both are members of the "Dudley Meccano Club." Master D. Boden was awarded the Medallion on the recommendation of the Club Leader for having done specially good work throughout the entire session.



Master L. Hall is an enthusiastic Meccano boy and won his Merit Medallion for good all round work during the last Winter Session.

Master H. Sandall was awarded a Special Merit Medallion for his lecture on "Cameras." The lecture was well illustrated by black-board drawings, and the audience was interested from beginning to end.



The Guild Recruiting Campaign.

SPECIAL AWARDS.

In No. 21 of the *Meccano Magazine* I announced that any boy who recruited six more members to the Meccano Guild (in addition to three which he recruits in order to win a Recruiting Medallion) would be entitled to have his Medallion engraved with his name and the words "Special Award." Many boys are endeavouring to qualify for this mark of favour and I have pleasure in publishing here a list of the boys who have recently had their Medallions so engraved:—

- N. Gobey, "Clovelly," Victoria Road, Cirencester.
 B. Warburton, 11, Brisbane Avenue, New Brighton.
 S. Elliott, 142, Beckton Road, Canning Town, London, E.16.

N. Bamforth, High Street, Codnor, Derby.
W. Barrett, 6, Irwell Street, Observatory,
Cape Town, S.A.
E. Littlefair, 4, Clare Street, Halifax.

Further awards will be announced in future issues of the "M.M." Particulars of the Recruiting Campaign, and a supply of application forms will be sent on request.

Club Notes.

NEW MALDEN M.C.—The Club Leader writes:—"The results of Club work are very good. The effect on the boys' work is marked: it certainly encourages them to tackle and master difficult problems. Co-operation in their work produces a wonderful spirit of comradeship and self-reliance—an important factor in a boy's life—and makes men of them." A successful exhibition and concert took place on January 18, and the Club has gained a valuable addition in the person of Mr. R. H. Docwra, who has been elected Assistant Leader. *Secretary*: Master S. B. Evans, 22, Howard Road, New Malden.

ST. PAUL'S (Hammersmith) M.C.—Re-opened on January 13 with a social at which all present enjoyed themselves. The past session included individual speed tests in building, and also team work, in connection with which prizes were given. Interesting lectures have been given on "Telegraphy," "Magnetism," etc., with practical experiments, and mechanical principles have been studied. A model of the Transporter Bridge, loaned from Headquarters, proved to be of much interest. The Club has decided to take part in the Inter-Club Model Competition. Any boys living in the vicinity of this Club and who have not already joined should see the Secretary without delay. *Secretary*: Master V. J. Scott-Warrell, 41, Bridge Road, Hammersmith, London, W.6.

NEW BRANCEPETH M.C.—Winter session opened on October 8 and model building has been the main factor of the Club work. Two competitions were held, Master W. Bell and Master J. James carrying off the prizes. The Meccano lecture "Lives of Inventors," delivered by the latter proved highly interesting. *Secretary*: Master E. Furby, 9, Unthank Terrace, New Brancepeth.

ST. CROFT'S M.C. (London, E.16).—Continues to make good progress. On model-building evenings the Club Leader gives marks for the models built and the member who receives 100 marks is "top" for the evening. This causes great fun and enthusiasm. It is hoped to hold a social at the close of the session. *Secretary*: Master E. Furby, 9, Unthank Terrace, New Brancepeth.

AIRDRIE M.C.—An exhibition held recently drew over two thousand visitors and was a huge success, both socially and financially. The general progress of the Club during the two winter sessions has been excellent and the Club continues to increase in scope and usefulness. *Assistant Leader*: Master G. Henderson, "Meadowfield," George Street, Airdrie.

CHURCH OF CHRIST S.S. M.C. (Oldham).—Membership is rapidly increasing. During the winter a number of interesting lectures have been given on constructional, mechanical and electrical engineering. The Club has enjoyed a very successful session, although it suffered in the early part, by the Secretary being indisposed. *Secretary*: Master M. O. Chapman, 264, Lee Street, Oldham.

ST. DAVID'S M.C. (Tonypre).—Excellent progress has been made and the membership continues to increase despite the fact that local conditions are not very favourable at the moment. At the conclusion of last session the boys built a Transporter Bridge from their combined outfits, and the model was exhibited in the window of a local Meccano dealer. All the members are very enthusiastic, and the Club Leader writes "I feel just as enthusiastic as the lads themselves." *Secretary*: Master W. Woolcock, 14, High Street, Tonypre.

LEAMINGTON M.C.—Carries on its work for the third winter and with even greater success than hitherto. The Club has now its Debating Society and its Meccano Minstrel Troupe, and it is hoped shortly to organize a Library and a Bank as well as a Summer Sports Club. Recently a very successful Exhibition of Models was arranged, and an entertainment was given by the Minstrel Troupe. Two farces entitled *Nonsense Nana* and *The Rival Barbers* were produced. The show was an unqualified success, the chief difficulty being to find room for the audience. Over 200 people were present, and a profit of £7 was made when all expenses were paid. The Club have arranged to repeat the performance early in March at the Home for Incurables and later again at a local Hospital. *Secretary*: Master G. Hare, 36, Willes Road, Leamington.

Clubs recently Affiliated.

Any Meccano boys living in districts where Clubs have recently been affiliated or are being formed, should communicate with the Secretaries at the addresses shown, with a view to joining these Clubs.

ST. FRIDESWIDES M.C. (London, E.14).—*Secretary*: Master L. Looker, 81, Abbott Road, Poplar, London, E.14.

GT. TOTHAM M.C.—*Secretary*: Master Donald Barber, Oak Cottage, Gt. Totham, Witham.

PARKSTONE CONGREGATIONAL M.C.—Under the enthusiastic leadership of Mr. R. S. Carille this Club has every prospect of success. There are 18 members at present ranging from 9 to 15 years of age, and they meet weekly from 6 p.m. to 8 p.m. It is hoped to hold an exhibition and concert very shortly and the Club also intends to compete in the Inter-Club Model Competition. *Secretary*: Master H. Morgan, "Clare Cot," Salterns Road, Parkstone, Dorset.

HIGHFIELD (St. Martin's) M.C.—This Club has been established in connection with the local Sunday School. A special feature is being made of essays in connection with which the Club Leader is offering prizes. The Club opened shortly after Christmas and already substantial progress has been made. *Club Leader*: Mr. J. H. Drewery, 1, Little Norton Road, North Wingfield, near Chesterfield.

KNUTSFORD LECTURE HALL M.C.—Chiefly owing to the exertions of Master L. Shepherd this Club was established in October last. There are now 11 members, and meetings are held regularly. *Secretary*: Master L. J. Shepherd, Grove Lodge, Knutsford.

SOUTH KIRKBY CHURCH M.C.—This is the second Club to be established in South Kirkby. Judging from the correspondence I have received there is every possibility of it developing into a really fine Club. *Secretary*: Master E. Papworth, Lydgate Hill Farm, South Kirkby, near Wakefield.

ST. JOHN THE BAPTIST'S (Toxteth) M.C.—Opened about two months ago, this Club is steadily growing and affiliation has been granted. Everything points to a successful future. *Leader*: Mr. J. S. Lewis, 37, Blythswood Street, Alburgh, Liverpool.

SITTINGBOURNE CONGREGATIONAL S.S. M.C.—Although the present membership only stands at 11, there is every prospect of an increase in membership in the future. To this end Meccano boys desirous of joining the Club should approach the Secretary without delay. *Secretary*: Master A. W. Goodhew, 11, Faith Street, Sittingbourne.

BROMLEY COUNTY SCHOOL (Boys) M.C.—Meetings are held in the classrooms of the Bromley County School for Boys under the supervision of the Headmaster. This is a School Club only. *Leader*: Mr. Reginald Airey, County School for Boys, Hayes Lane, Bromley.

HOLY TRINITY (Blackburn) M.C.—Successfully started under the leadership of a local engineer the second Club to be named "Holy Trinity Meccano Club" has come into existence. I hope it will prove as successful as the "Holy Trinity Meccano Club" which was established in Barnsbury, London, long before the organization of the Meccano Guild. *Secretary*: Master J. Catlow, 183, Whalley New Road, Blackburn.

NORMANDALE M.C.—This Club has been established and as soon as a little further progress has been made it will become affiliated. During the summer it is proposed to play tennis and cricket, and the members are in for an enjoyable time. *Leader*: Mr. Copland, Warren Vale, Normandale, Wadsley, Sheffield.

Clubs not yet Affiliated.

BEDFORD M.C.—This Club has only recently been established, and I hope soon to have the pleasure of affiliating it with the Guild. Good progress is being made and any boys living in Bedford who wish to join should get into communication with the *Secretary*, Master G. Allen, 12, Maryville Road, Bedford.

BISHOPS STORTFORD AND DISTRICT M.C.—When the membership of this Club increases and the necessary preliminaries are settled, affiliation will be granted. In the meantime the Secretary will be pleased to hear from any Meccano boys in the district. *Secretary*: Master K. M. Tate, "Saysbury," Hustock Road, Sawbridgeworth.

VICTORIA STREET M.C. (Hyde, Cheshire).—Good progress is being made and an interesting lecture was given recently by the Rev. S. R. Taylor on "The Meccano World." New members will be welcomed. *Secretary*: Master H. White, 15, Victoria Street, Newton, Hyde.

ROCK FERRY (Cheshire).—Master Kenneth Cooke, 56, Cavendish Drive, Rock Ferry, Birkenhead, is doing his utmost to found a Meccano Club in this district. Any boys interested should get into communication with him immediately, as he is anxious to commence activities.

Names Wanted.

Applications for membership of the Meccano Guild (as well as correspondents generally) should be careful to see that their full name and address is shown on their form of application or on their letters. I constantly receive forms and letters without names or addresses and it is, of course, quite impossible to deal with them for this reason.

At the present moment I have before me five application forms received during the last month with the following names, and I should be glad if the boys concerned would communicate their address to me so that I may deal with their applications for membership.

Ledger, E. (Grocer) ?
Highfield, R., 38, Milton Avenue ?
Jehand, Leslie C. Church House, ?
Banks, A., 18, Redstone Road, ?
Cole, E., "Camberra," St. John's Street, ?

A Happy Day for the "Airdrie Meccano Club."

To the scope and activities of Meccano Clubs there is no end. Some Meccano Clubs have Pierrot Troupes and Concert Parties, others have Debating Societies, or Stamp Collecting, Astronomical and Woodwork Sections. Outdoor work includes Football and Cricket Teams, and Rambling Parties. Meccano boys are not slow to respond to appeals for assistance for charitable objects and on many occasions during the last year considerable sums have been raised for Hospitals and other good causes.

Quite recently a number of the members of the "Airdrie Meccano Club" participated in the Centenary Procession which took place in that town. I am sure that all Meccano boys will be interested to see the above photograph taken on that occasion, and they will all wish that they could have cheered with the crowd of spectators when the exhibit of the "Airdrie Meccano Club" passed.



THE AIRDRIE MECCANO CLUB'S DISPLAY AT THE BURGH CENTENARY.

The display itself was very fine, being mounted on a lorry suitably decorated with a number of Meccano models. Conspicuously shown was a gigantic Eiffel Tower, a Roundabout and a Windmill, all worked by electricity. Four Club members in costume accompanied the models. Master G. Henderson, the builder of the Eiffel Tower, was dressed as an engineer (a part which he happily filled), while another Club member represented Meccano. A third was dressed as a clown and occasioned much amusement, while an Indian Chief (who seemed to be keeping guard over the sacred treasures of his domain) added a picturesque touch to the tableau.

The display met with tremendous enthusiasm and the Club Leader is quite justly very proud of his Club and the part they took in the Centenary Procession.

The Correspondence Club.

Guild members have long felt that they are members of a great brotherhood of boys, each having the same kind of thoughts, sharing the same pleasures and thrilled by the same ambitions. They long to know what kind of lives other boys are living, to tell them of their own schemes and ambitions, and to exchange notes about Meccano model building and the thousand-and-one other things in which boys delight. This desire is now made possible through the medium of our Correspondence Club, and any member who wishes to join should send for further particulars. To those boys who are studying a foreign language the Correspondence Club is of particular interest, for it is very often possible to find for them a correspondent in any country in which they are particularly interested. Those boys who prefer to correspond with Meccano Guild members abroad may be provided with correspondents in the Colonies or in the English-speaking countries. Many lasting friendships have been formed through the Correspondence Club and I sincerely hope that those members who are interested will take advantage of this opportunity of exchanging letters with other Guild members. Those who are interested should write to the Guild Secretary for further particulars.

Twelve Tons at One Bite!

A Giant Electric Shovel.

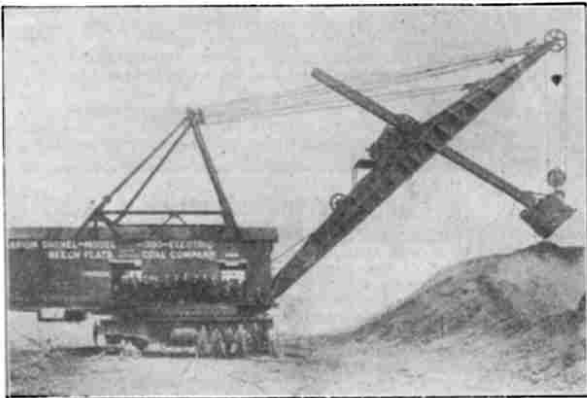
Twelve tons of earth at one bite! No, this is not the bite of a weird, prehistoric monster suddenly come to life again, but the capacity of a huge electric shovel recently installed in the iron-ore regions of Pennsylvania, U.S.A. This new implement is the largest type of shovel in the world and represents a type that will be of considerable service to engineers of the future. Its tooth-edged dipper is seven feet high and in its mouth four men could comfortably stand abreast. As it eats its way through an embankment, moving ahead day after day, it leaves behind a vast ditch with sloping sides, 206 feet across the top, 120 feet across the bottom and 65 feet high.

The handle of the dipper is 54 feet in length, the boom on which the handle works being 80 feet in length. The dipper and handle together weigh 25 tons. Although built on such giant-like lines, the shovel is not at all cumbersome as may be judged from the fact that only 40 to 45 seconds are required to complete one excavation.

These giant shovels will each dig out approximately 4,500 tons of earth in an eight-hour day. They show their superiority over the largest size of steam shovels in their longer reach, which allows them to work from one position all day. Although smaller shovels are able to make quicker bites, they lose time because they have to move ahead about twenty times a day to get closer to the work and so the loading track has to be relaid eight times a day.

Controlling the Giant.

The shovel weighs 365 tons but requires only one man to control its movements. He is housed in a cab 50 feet in length and 30 feet in width, and operates all the machinery of this Titan with the utmost ease and without even moving from his position. With one hand he controls the lever that hoists the boom. With the other he operates a lever that drives the dipper into the bank. With his feet he works pedals that swing the boom in one direction or the other. When the



THE 12-TON ELECTRIC SHOVEL.

boom has swung the loaded dipper to the point of unloading, the operator presses a button on the hoist lever which "trips the dipper," that is, the bottom of the dipper opens and the contents drop out. This electrical tripping of the dipper does away with the one man always necessary when steam shovels are employed. By means of another convenient lever, the operator causes the

shovel to move forward on the loading tracks to a new position.

The following comparisons make it easier to realize the gigantic scale on which this great shovel works. In less than a minute it gouges out eight cubic yards weighing 12 tons of the earth's crust. Thus every time the capacious dipper digs into Mother Earth it extracts enough material to balance an imaginary pair of scales against the weight of nine or ten motor cars! With seven bites it could fill the living room of an average house from floor to ceiling without leaving an inch of space! It excavates at one scoop as much as would fill three five-ton trucks and at a single bite it could lift sufficient coal to supply the families of most Meccano boys for at least a couple of years!

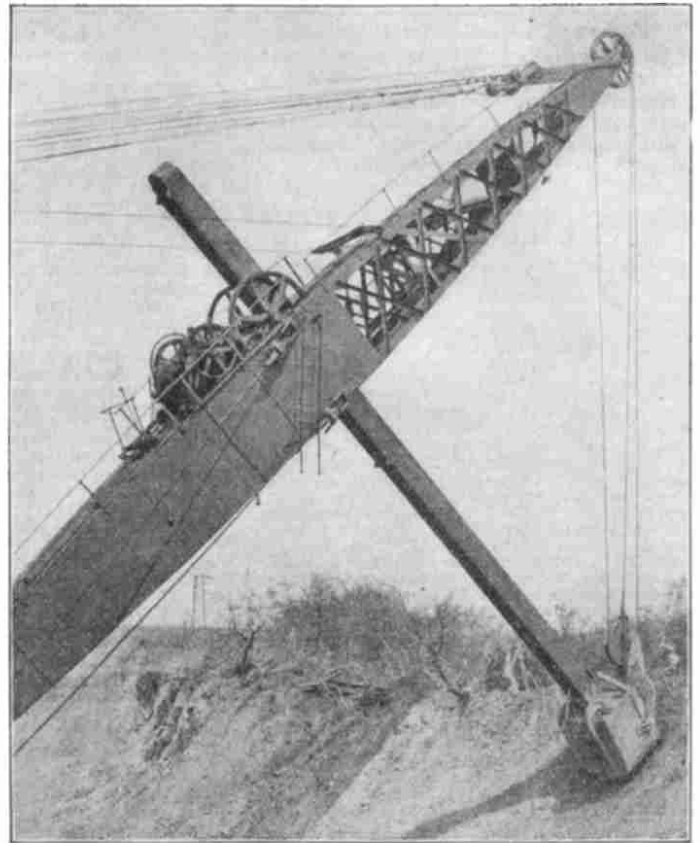
The accompanying photographs show the fourth shovel of this type to be manufactured. Its first week's work on an ore-bank at the Bethlehem Steel Company's works made clear the fact that it would repeat the records established by its three predecessors. The designers were especially gratified by its performance since there was a time, not many years ago, when shovels operating under any other power than steam were unthought of.

Carries its own Electrical System.

The motors operating the shovel receive power through a transmission line from a power plant, delivering electricity to the shovel at 4,000-volts. The shovel carries a miniature electrical system of its own and by means of this the electricity is transformed from alternating to direct current and is then supplied to the motors operating the various movements. Four motors perform the immediate driving operations. Two of 175 h.p. operate the hoist; one 105 h.p. motor takes care of the swing; and an 85 h.p. motor, mounted high up on the boom, thrusts the dipper into the earth.

Electric versus Steam Shovels.

A comparison between a 300 ton electric shovel and a 100 ton steam shovel shows that in a period of ten hours the electrical shovel, with its longer reach will deliver from 50 to 70 per cent. more tonnage than the steam shovel. For these reasons the electric shovel, despite its initial cost, is regarded as the shovel of the future. Not only does it embody great power, which is



THE BOOM AND DIPPER OF THE GIANT SHOVEL.

smoothly applied, but it is instantly and easily controlled and is very economical in operation. It is not surprising to find that the electric shovel has quickly become the successful competitor of the older type of steam shovel. Besides making one-man control possible, electric shovels have cut down the size of the crew to four men, as compared to the seven men required on a steam shovel. The crane man is entirely eliminated and even the size of the "pit-gang" has been reduced.

The electrical equipment of these giant shovels was furnished by the International General Electric Company of Schenectady, New York, and to this firm we are indebted for our illustrations.

The Meccano Manuals.



There are three Meccano Manuals of Instruction. Book No. 1 is the regular Manual which is included with the main Meccano Outfits and contains instructions for making 323 fine models. Price 2/6 (postage extra). Book No. 2 illustrates a large number of fine models and describes a series of simple scientific experiments. Price 1/3 (postage 2½d. extra).

Manual No. 3 contains illustrations and instructions for building a large number of entirely new and imposing models of great beauty. These include such interesting models as the Theodolite, Signal Gantry, Revolving and Hydraulic Cranes, Coal Cutter, Dredger, Travelling Gantry, and Twin Elliptic Harmonograph.

The price is 1/3 (postage 1½d. extra).

The Late Sir Ernest Shackleton

HIS LIFE OF GREAT ADVENTURE.

All Meccano boys read, with great regret, the news of the death of Sir Ernest Shackleton on the 5th January from heart failure. Sir Ernest died on board his ship the *Quest* off South Georgia on his way to the Antarctic, leading the Shackleton-Rowett expedition of exploration.

The expedition, which left this country in September last, is embarked on a voyage of discovery, and will cover over 30,000 miles. It is to visit various islands in the South Seas of which little is known and after searching for lost islands is then to explore the Antarctic continent. What visions this programme conjures up in every boy's mind and who does not wish that he could have been included in the crew of the *Quest*? To sail to those romantic lands, over the same seas as were explored by Captain Cook and many other famous pioneers, and finally to visit the baffling Antarctic. Those dark seas drew Shackleton's spirit as a magnet—and the very mention of the Antarctic reminds us of the tragic end of Scott's expedition, after successfully reaching the Pole in 1912, and of the solitude which is always associated with the spirit of Captain Oates, that "gallant English gentleman" who sacrificed himself in the vain endeavour to save his comrades.

The death of Sir Ernest—although a great blow and an irreparable loss—does not mean the abandonment of the expedition. It now proceeds, under the leadership of Sir Ernest's second in command—Commander Frank Wild—to carry out the plans originally made. The good wishes of every reader of the *Meccano Magazine* will follow the expedition on its long and adventurous voyage. All will eagerly await news of the successful accomplishment of its object and of the safe return of its members.

The Search for Knowledge.

Sir Ernest Shackleton was one of the greatest of the many illustrious explorers who have made the name of Britain famous and who have done so much by contributing new knowledge to British science and trade. Shackleton was a born leader of men. He constantly felt, and responded to, the call of the unknown. His main endeavour was to add something useful to the general store of human knowledge, a fact which is evident from the words he wrote on the eve of his departure from England in the *Quest* (September 17 last) when he said: "We may be only on the first rung of the ladder that

leads to perfect knowledge, but unless these first steps are taken there can be no advancement of human knowledge."

Twenty Years of Exploration.

Although only 47 years of age, no less than twenty years of Sir Ernest's life had been spent on expeditions to the Antarctic. He had already taken part in three Polar expeditions, two of which he had himself led. His first expedition was made in 1901 in the *Discovery* as third lieutenant to Captain Scott, when the latter reached within 450 miles of the South Pole. In his second expedition in 1907, Shackleton took command. On



For this photograph of the late Sir Ernest Shackleton we are indebted to Lady Shackleton. It is the most recent portrait of the famous explorer.

January 9, 1909, he reached a point only 111 miles distant from the Pole and here he hoisted the Union Jack given him by the Queen. The party were only prevented from reaching the South Pole by a shortage of food. "The knowledge that with another 25lb. of biscuits and 30lb. of pemmican we could have achieved the Pole was certain, but regrets were useless," wrote Sir Ernest. In this expedition Mount Erebus, the most southerly volcano in the world, was ascended for the first time. The mountain stands over 13,000ft. high and when the party reached a height of 5,900ft. they

found the temperature to be 50 degrees below freezing point! Here, for 30 hours, they were subjected to the rigours of a fearful blizzard. Undaunted, however, they toiled on to the summit of the volcano, where was to be seen a wonderful view of an active crater, half a mile wide and 800ft. deep. Volumes of steam and sulphuric gasses were being ejected to a height of over 2,000ft. above the crater.

The expedition also discovered eight mountain chains and surveyed over 100 mountains. New coasts and high mountains were located, while coal was discovered in the Antarctic continent. Some wonderful photographs were secured and a considerable amount of important information resulted. Another party from the same expedition reached the south magnetic pole for the first time in history. It is interesting to read that Sir Ernest wrote when at last he reached London: "Some of the experiences of our journey can never be effaced from my memory. It was during these periods that we learned that some Power beyond our own guided our footsteps. If we acknowledged this down among the ice—as we did—it is only fitting that we should remember it now when the same Power has brought us safely home."

(To be concluded)

Stainless Iron.

One of the most recent inventions is that of stainless iron. The new metal has all the tarnish-resisting qualities of stainless steel. As everyone knows, steel is a very hard metal and can only be forged with difficulty. The new rustless iron, however, can be easily forged and turned. The discovery is an important one, not only for use in engineering structures but more particularly for articles used in our homes. We feel sure that our readers' mothers will be pleased to hear of it, for by its use all such household essentials as door-plates, handles, knockers, fenders, fire-irons, stair-rods, and the widest possible variety of kitchen utensils (even including cooking ranges) will no longer require to be cleaned and polished!

A Successful Competition.

An interesting Competition was recently organized by Messrs. Arber & Company, 159, Roman Road, Bow, London, E. A representative from Meccano Limited, judged the models and there were fifty entries divided into the classes shown below. All the competitors evinced much enthusiasm and the models entered were of particular ingenuity. In awarding the prizes consideration was given to age, initiative, and clean work, and the Competition was so very successful that a second Competition is being held in the autumn.

Class	Winner	Age	Model
Class A	J. Carnell	12 yrs.	Travelling Revolving Crane
Class B	J. Nelson	13 yrs.	Crane
Class C	R. Wallis	12 yrs.	Motor Lorry
Class D	C. Brand	7 yrs.	Invalid's Chair

£250 in Prizes—Meccano Prize Competition.

CLOSING DATE APRIL 15, 1922.

All Meccano boys should enter the big Meccano Prize Competition, the closing date of which is now drawing near. There will be hundreds of prizes awarded including nine cash prizes to the value of £100, and Meccano Outfits to the value of not less than £150. As was the case last year, the Competition is divided into three sections:—

1. For boys under 10 years of age; 2. For boys between 10 and 14 years of age; and 3. For boys over 14 years of age.

In addition to the prizes mentioned above, the Meccano Guild is again offering three special prizes of £5 each in cash for the member of the Guild who gains the best prize in his section. There are no restrictions nor entrance fees. Any Meccano boy may enter and the competitor who sends in a simple model made with a No. 0 Outfit stands just as good a chance of winning a prize as does a competitor who sends in a complicated model made with a No. 6 Outfit.



It is important to note that the Competition will close on the 15th April, 1922 for entries from the United Kingdom and on the 31st May, 1922, for entries from the Colonies.

MECCANO



Our Mail Bag.

The Editor has a little talk in this column with his readers. Whether he has space to reply to them all here or not, he is always glad to hear from them. He receives hundreds of letters each day and only those which deal with matters which are likely to interest other Meccano boys 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.

G. YOUNG (Holyhead).—Thank you for sending us a copy of your school essay in which you speak so highly of Meccano; we hope it received full marks. The six entry forms for the competition are being sent you by separate post.

LESLIE BENNETT (Liscard).—We were glad to have your "riddle-me-ree," but we are afraid it is scarcely difficult enough to tax the brains of the bright boys who read the M.M. Try again!

L. FROST (Biddulph).—Your criticism that most of the models which appear on the front page of the M.M. are rather difficult for boys with smaller outfits is quite just. Simple models will appear from time to time, and we hope you will like the three which are on the first page of this issue.

JOSEPH FILES (Farnworth).—We were very interested indeed to hear of your Meccano Exhibition and to learn that last year you had 80 different models submitted. We hope this year's display will be equally successful.

N. A. GOBEY (Cirencester).—Even though you are destined to be a bank clerk it is early yet to say that Meccano has not played an important part in your education. The knowledge and insight into engineering matters which it has given you, and your work in connection with your "Grammar School Meccano Club" will some day prove of value to you, we prophesy. At all events we are pleased to learn that your No. 6 Outfit continues to give you as much pleasure as ever. You have our best wishes in your career.

J. F. MITCHELL (Brook Green, W.6).—We were interested to know that you and your friends appreciate the fact that old or damaged Meccano parts may be exchanged for new ones at half price. We wish as many boys as possible to know of this concession, for it is much more pleasurable to work with bright new parts than with rusty or damaged ones.

SIDNEY CONWAY (Trichinopoly).—We are pleased to have your interesting letter and to know something of the conditions under which you are living. Meccano evidently occupies a good deal of your own and your sister's time. We send our best wishes to both of you—and to "Zulu."

R. P. LAWRENCE (Nottingham).—You are quite right, writing in bed is a very difficult feat. We are interested to hear that the doctor approved your Meccano model and that it added to your comfort. We hope that you will soon be up and well again.

DOUGLAS IRVINE (Whakatane, N.Z.).—Many thanks for the interesting description of your trip to Auckland. We are sure you had an exciting time and we may be able to print your letter in full a little later.

Mr. C. F. D. HALL (Cambridge).—Our sorrow for your affliction is tempered by the knowledge that you derive so much happiness out of life. We know of many blind Meccano boys who all seem happy and seldom complain of what appears to be a hard lot. Blindness does appear to have a softening and humanising influence on those who are afflicted in this way and its influence seems to extend to all with whom they come in contact. We are always glad to hear from you.

Mr. E. A. BARLEY (Kegworth).—Your experience in connection with the Meccano competition that you organised in your School is by no means an unusual one. We can quite believe that the judging of 40 exhibits was a difficult matter. We trust that your forthcoming competition will be as successful as the last.

Mr. A. J. STOREY (Stoke-on-Trent).—We were most interested in hearing of your work amongst blind boys, and in knowing that the result of your experimenting with Meccano amongst them has been extremely gratifying from the educational point of view as well as that of interest to the boys. We shall be very glad to give you any assistance in our power in connection with this work.

J. E. MASON (Drighlington).—We have had so many requests for the story of Dick's visit to the Meccano Factory that we must certainly make an effort to publish it soon. Dick paid the visit and he enjoyed it very much; all that now remains is to write the story and to publish it.

Mr. J. M. FARISH (Dunstable).—My son has built a beautiful model of a Glasgow tramcar with winding staircase like a real car, and has had it nicely decorated with holly. He has also lighted it with fairy lights. His whole bent is for engineering and Meccano has been a great education for him. It gives us great pleasure to know of the enthusiasm of your boy for

Meccano, and the pleasure which he derives from it. There is no doubt that the experience which he is now getting will be of the greatest possible service to him when he commences his business career.

LESLIE G. PULLEN (Birmingham).—"I take great interest in engineering, and I long to be a gentleman like Mr. Frank Hornby." If you wish to follow in Mr. Hornby's footsteps, Leslie, you will have to work very hard, show undaunted courage in face of every obstacle, deal fairly and generously with all those with whom you are associated, have a friendly word for everyone, and do all the good you can. All this may call for great effort on your part, Leslie, but it is well worth the trying.

G. ROGERS (Smethwick).—"I am giving a conjuring entertainment shortly, and the children really believe I can do wonders. One boy has written asking me to produce a Hornby Goods' Train." We must congratulate you upon the intelligence of your audience. Judging from the remainder of your letter we have no doubt as to your ability to successfully perform the trick.

S. GRAHAM (Cambridge).—"John was always buying fish and chips. With every penny he could get, Now he buys Meccano strips, And has no cause to feel regret."

This was certainly a change for the better in John's habits, and both his digestion and his mind will share in the improvement. We have recorded you as our "million-and-first friend."

E. Houghton (Anerley).—It was too bad of your mother to forbid you to join the Guild because you are a girl. There are thousands of girls who use Meccano, and very many of them are members of the Guild. We have no doubt you will shortly overcome all her objections.

C. W. UDALL (Birmingham).—Congratulations on your winning a scholarship at the Birmingham Technical School. It is a good idea to couple up your models to the driving wheel of the sewing machine and then treadling it, so long as your mother does not object! It is much more fun introducing an electric motor, however, and we would suggest that you try it.

T. HAYWOOD (Parley).—We note that you think the "M.M." is rapidly improving. We shall continue to print illustrated articles on engineering topics and we have many new and attractive features in preparation to make our Magazine still more pleasurable to read.

S. SMITHERS (Maidstone).—Thanks for your suggestion for Meccano boys that they use Brasso for cleaning perforated strips, etc., when they get dull. There is no doubt that a little attention to the condition of Meccano parts makes a wonderful difference to the appearance of the built-up model.

A. M. EARLE (Southend-on-Sea).—Your poem concerning:—

"Perforated Strips are all slotted,
Angle Brackets are all dotted"
rhymes very nicely, but we fear the statements which it contains are not altogether truthful. The opening lines which we have quoted are not quite accurate, are they?

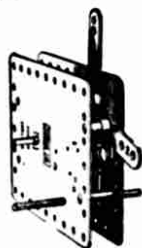
K. A. TAYLOR (Birkenhead).—"Meccano is a very fine toy,
Made only for a very good boy,
And when to bed at night he goes
He thinks the parts upon his toes
And thinks of Mr. Hornby."

We think that he would be better occupied going to sleep, Kenneth, but we can quite see that the poem would have been spoiled if he had done so.

A. MACARA (Gateshead).—"Since I received your Meccano Medallion nothing but promotion has followed me. I have been made organist at our church, and am now filling a man's place in the factory where I work, besides many other minor advancements." We hope Andrew, that this is an illustration of cause and effect and that good luck will continue to follow you.

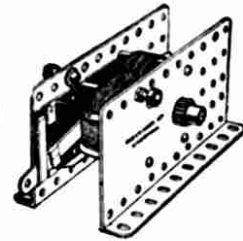
Meccano Motors.

All boys should add a motor to their Outfits, for it greatly increases the fun of the hobby and enables models to be operated in a realistic way.



Clockwork Motor. This is a splendid piece of mechanism, simple, powerful, reliable and free from danger. It is fitted with starting, stopping and reversing levers, and greater lifting power may be obtained by extra gearing made from Meccano parts.

It is easy to understand, and all its movements are fully explained in the instructions which accompany it. Price each .. 9/-



Electric Motor. The use of electricity exercises a great fascination for any intelligent boy, and this motor provides him with the means of running all his models by electricity. It is well designed, simple, strong and free from danger, and suitably

geared it has a lifting-power of more than 30lbs. It takes 4-volts and may be run either by an accumulator or direct from the main. Where the main current is alternating a suitable transformer may be used, but where a direct current is employed the motor may be run direct from the main by means of the Meccano Charging Board, which was announced in No. 21 of the *Meccano Magazine*. (An illustrated leaflet entitled "The Meccano Charging Board and How to Make It"—post free, 3d.—gives full details of this useful accessory.) The Electric Motor is provided with a reversing lever, starting and stopping mechanism. No more powerful or satisfactory toy electric motor has ever been designed. Price each .. 12/6

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