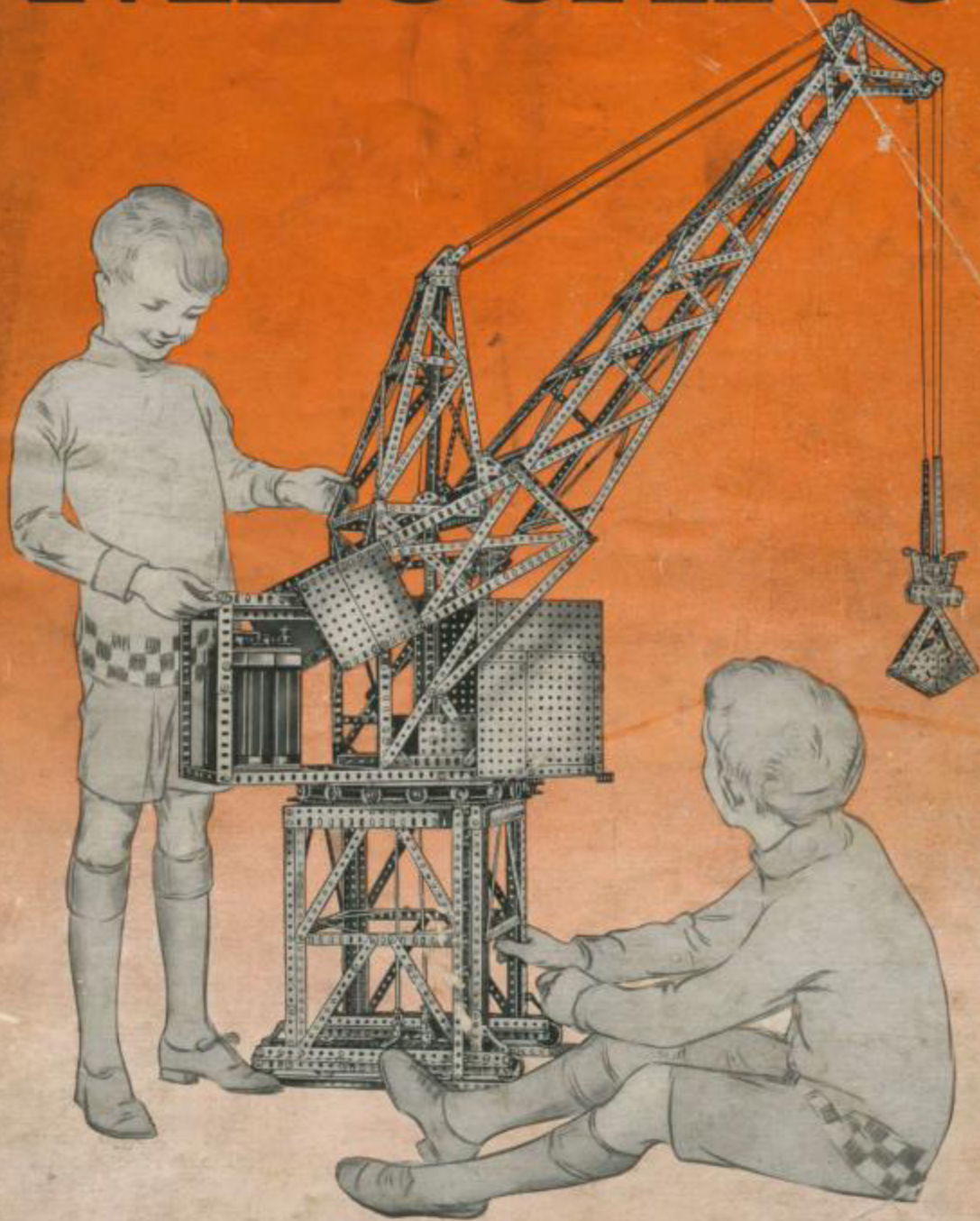


MECCANO



MECCANO

The Engineers of the Future

Year by year the world becomes more dependent on the engineer. In every phase of our daily life we make use of some kind of mechanical or electrical devices. They provide us with heat and light, transport us swiftly over land and sea and through the air, and generate the power to drive the machinery that enables industry to satisfy the world's needs. The demand is always for more power and greater speed, and there are endless possibilities in these directions for engineers of real ability and skill.

The greatest engineers of the past have been those who became interested in mechanical matters while they were boys, and continued and developed this interest throughout their lives. This is why the Meccano boys of to-day will be the engineers of the future. A Meccano boy begins to become an engineer from the moment he builds his first model.

Nothing to Study or Learn

The Meccano system is composed of more than 250 different parts, each of which serves a definite mechanical purpose. These perfectly finished steel and brass parts combine to form a complete miniature engineering system with which practically any mechanical movement can be reproduced in model form. There is no limit to the number of models that can be built with Meccano—Cranes, Clocks, Motor Cars, Ship Coalers, Machine Tools, Locomotives—in fact everything that interests boys. The most wonderful thing about Meccano is that while it is real engineering, it is fascinating and delightful, and so simple that any boy can join in the fun of building models without having to study or learn anything.

How to Begin

Meccano is sold in ten different Outfits, numbered 000 to 7. All the Meccano parts throughout the Outfits are of the same high quality and finish but the larger Outfits contain a greater quantity and variety of parts, making possible the construction of larger and more elaborate models. Each Outfit (except No. 000) can be converted to the one next higher by the purchase of an Accessory Outfit (see pages 16 and 17).

The Meccano Magazine

The Meccano Magazine is the Meccano boy's newspaper. It is published monthly, and each issue contains details of splendid new Meccano models and new ideas for operating Hornby model railways. Interesting model-building and other competitions are announced each month, and details of all new Meccano products appear in its pages. It is the official organ of the Meccano Guild and the Hornby Railway Company, which have thousands of boy members in all parts of the world. The Meccano Magazine appeals to every boy, for it deals with Engineering in all its branches—Railways, Aviation, Ships, Motor Cars, Hydro-Electric Schemes, Bridges, Cranes, etc. Specially attractive articles are devoted to Model Railways and Model Speed Boats, and Home Experiments in Electricity and Chemistry. Other sections deal with Books of interest to boys, Stamps, New Inventions, etc.

The Magazine may be ordered from any Meccano dealer or newsagent, price 6d. If it is preferred to have each issue sent direct, the subscription rates are 8/- for 12 months, or 4/- for 6 months, including postage.

The Meccano Magazine is the world's best magazine for boys.





New Meccano Products for the World of Boys

Meccano never stands still! There is always something new and interesting appearing to delight not only model-builders, but boys of all tastes.

The X Series Outfits. The X Series Outfits are now well-established favourites. The specially-designed strip that is the main feature of these Outfits gives a particularly attractive appearance to models.

Meccano Aeroplane and Motor Car Constructor Outfits. The Meccano Aeroplane Constructor Outfits and Motor Car Constructor Outfits have been extended and developed into a wonderful series.

The new Special Aeroplane Outfits contain additional and improved parts that enable realistic models of the latest type of aircraft to be built.

The No. 2 Motor Car Constructor Outfit has been improved, and the wide range of colours in which this Outfit and the new No. 1 Outfit are obtainable makes possible the construction of models in many different colour combinations.

Hornby Speed Boats. The original Hornby Speed Boat (now No. 3) that received such a joyous welcome when it appeared in 1931, has been joined by four other models. Two of the new Boats, Nos. 1 and 2, are smaller than the No. 3, but equally well designed and constructed. The two new large Boats, Nos. 4 and 5, are splendid examples of boat construction, and are certain to be great favourites.

Kemex and Elektron Outfits. The latest Meccano developments are the Kemex Chemical Outfits and the Elektron Electrical Outfits.

The Kemex Outfits contain the necessary apparatus and materials for performing a series of chemical experiments of great variety and interest. There are three of these fine Outfits, each one complete in itself, and provided with a book of instructions splendidly illustrated from actual photographs.

The Elektron Outfits provide all the necessary material for a progressive series of experiments in magnetism, frictional electricity and current electricity.

These are the finest Outfits of their kind that can be obtained, and they open up the way to new hobbies of fascinating interest.





Great Bridges of the World

The bridge is one of the oldest, if not the very oldest, of all engineering structures. Probably the idea originated either in a tree uprooted by the wind and thrown across a stream, or in a series of boulders occurring naturally across a river or stream.

The most familiar type of bridge is the arched bridge, which has been in use for more than 5,000 years. The most famous example of this type spans the harbour at Sydney, New South Wales. The overall length of this bridge is 3,770 ft. and the gigantic arch span is 1,650 ft. in length, and at its highest point is 437 ft. above high water level. An arched bridge of even greater span has been built across the Kill van Kull, a waterway leading into New York harbour. The main arch is 1,652 ft. 1 in. in length.

Two Famous Cantilevers

Another type is the cantilever, the most famous example of which is the Forth Bridge, completed in 1890. This has an overall length of 8,296 ft. The cantilever portion, 5,349 ft., consists of three double cantilevers towering to a height of 361 ft., and two suspension spans each 350 ft. in length. Another great cantilever structure is the Quebec Bridge across the St. Lawrence River, completed in 1917 after two disastrous accidents. This bridge has an overall length of 3,240 ft.; and the cantilever portion totals 2,830 ft., made up of two double cantilevers and one suspended span.

The largest suspension bridge in the world is the George Washington Bridge across the Hudson River at New York. This has an overall length of 4,760 ft., and the single suspension span over the river is 3,500 ft. long. The cable towers of this bridge are 635 ft. in height and the cables are capable of carrying a total load of 350,000 tons. The Tower Bridge across the Thames at London is the most famous of all opening bridges. The bridge is of the bascule type and the 200 ft. central span or main traffic deck is built in the form of two leaves that can be drawn up by chains operated by machinery inside the towers.

The wonderful possibilities of Meccano in the reproduction of giant bridges are shown in the illustration on the opposite page of a model of the Quebec Bridge. Every important feature of the original is incorporated in this splendid model, which is over 15 ft. in length.

The great bridge builders of the future will be recruited from the ranks of the Meccano engineers of to-day.

1. The Quebec Bridge over the St. Lawrence River, Canada.
2. Building Montreal Harbour Bridge.
3. The famous Forth Bridge, Scotland.
4. A constructional detail of the Sydney Harbour Bridge, New South Wales.
5. The arch of the Sydney Bridge almost completed.



MECCANO OUTFIT No. 000

Builds 162 Models

This Outfit contains a good selection of Meccano parts and is specially suitable for very young enthusiasts. An interesting feature is the inclusion in the Outfit of coloured cardboard parts, which enable a large range of bright and novel models to be built. Full instructions are given for building 162 fine models, a selection of which is illustrated on the left-hand side of this page. The range includes Trucks, Wagons, Aeroplanes, Levers, etc.

Price 2/6

MECCANO OUTFIT No. 00

Builds 189 Models

The No. 00 Outfit is an excellent Outfit with which to commence the Meccano hobby. A special Manual of Instructions is included in the Outfit showing how 189 splendid models may be constructed. A selection of these models is illustrated on the right-hand side of this page.

Price 3/6



Meccano Model of the Quebec Bridge



Constructional Engineering

When man first turned his attention seriously to building he used the natural materials that he found around him, such as wood, stone and clay. For many centuries stone and brick proved sufficient for all purposes, but modern requirements have led the constructional engineer to adopt as his working material first of all iron, and subsequently steel.

Steel provides the engineer with a material that is stronger than stone, infinitely more flexible and more shapeable, and capable of being incorporated into a structure at a speed that cannot be approached with stone or brick. The most striking examples of the substitution of steel for stone and brick are to be found in the so-called "sky-scrapers." These enormous structures depend for their strength upon a framework consisting of steel columns connected by horizontal steel girders, the whole being clothed in concrete.

The World's Tallest Building

Many remarkable feats in steel frame construction are on record. For instance, Murray Hill Building, Madison Avenue, New York, which has 29 storeys, was completed to a height of 359 ft. in 81 working days. The Paramount Theatre on Broadway, New York, which is the largest theatre in the world, was completed in less than a year. In this building 10,000 tons of steel were placed in position and secured by 400,000 rivets. The tallest structure in the world is the Empire State Building, New York, 1,248 ft., or nearly a quarter of a mile, in height. Probably this height will be exceeded before long.

Enormous quantities of concrete are used by the engineer in constructing dams for irrigation or for supplying the power for vast hydro-electric schemes. The Coolidge Dam in Arizona, U.S.A., is 250 ft. in height, 600 ft. in length on the crest, and contains about 200,000 cu. yds. of concrete.

The Meccano model of the famous Eiffel Tower is well known to model-builders all over the world. The Tower was erected by Gustave Eiffel for the Paris Exhibition of 1889. It is built of iron, and has a total height of 984 ft.

1. Aerial View of the Coolidge Dam, Arizona U.S.A.
2. Cardington Airship Mooring Mast.
3. World's tallest structure, Empire State Building, N.Y.
4. Goodyear Airship Hangar at Akron, Ohio.
5. The Eiffel Tower, Paris, 984 ft. in height.





MECCANO OUTFIT No. 0
Builds 343 Models

The No. 0 Outfit contains a splendid assortment of Meccano parts, and a special Manual of Instructions giving examples of 343 models that may be built. These models include Wheel Barrows, Potter's Wheel, Signals, Cranes, etc., and a selection of them is shown on the left-hand side of this page. Everything necessary for commencing to build immediately is included.
Price 5/-

MECCANO OUTFIT No. 1
Builds 573 Models

This Outfit contains a large number of Meccano parts with which a splendid variety of models may be built. The fine examples illustrated on the right-hand side of this page clearly show the possibilities of this popular Outfit. A big Manual of Instructions is included, showing a splendid range of 573 models that may be built with the Outfit.
Price ... 10/-



Meccano Model of the Eiffel Tower

This
Outfit
builds
629
models



This
Outfit
builds
629
models



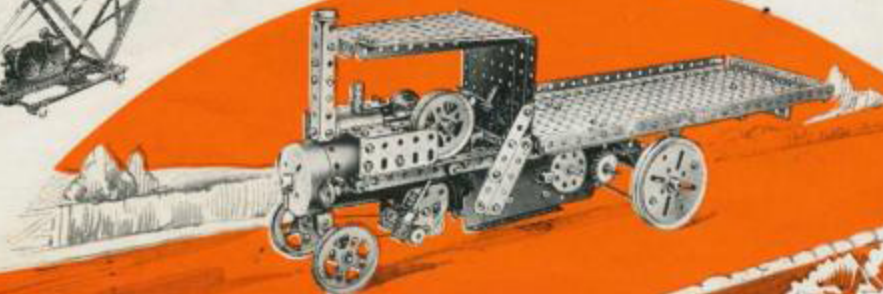
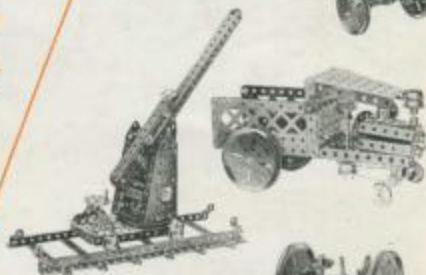
MECCANO OUTFIT No. 2

The fortunate possessor of a No. 2 Outfit is able to build up a big range of interesting models—large Cranes, Mechanical Hammer, Fire Escape, Motor Lorries, etc. Selections of these models are illustrated in the panels on the left and right hand of this page, and it will be seen that they are all designed on correct engineering principles. Full instructions for building 629 models are included.

Price 16/-

WEAR A "MECCANO ENGINEER" BADGE

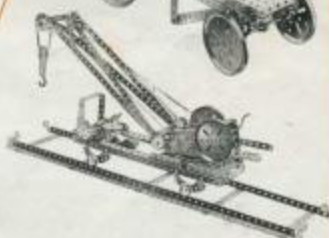
All keen Meccano model-builders should wear a "Meccano Engineer" Badge, obtainable from any Meccano dealer, price 2d., or direct from Meccano Ltd., Binns Rd., Liverpool 13.



This
Outfit
builds
687
models



This
Outfit
builds
687
models



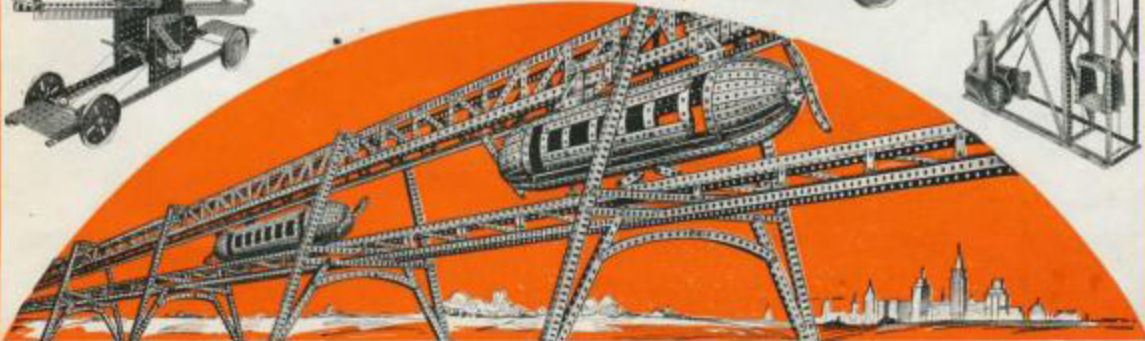
MECCANO OUTFIT No. 3

This excellent Outfit contains many advanced engineering parts, which make possible the construction of bigger and better models, such as Steam Wagon, Railway Break-down Crane, Fire Truck, Lathe, etc. A Manual of Instructions, included in the Outfit, shows how to build 687 models, and selections of these are reproduced in the panels on the left and right hand of this page.

Price 27/6

THE MECCANO GUILD

If you are not already a member of the Meccano Guild write for full particulars to the Secretary, Meccano Guild, Binns Rd., Liverpool 13.



Meccano Model of the Bennie Railplane



Monster Locomotives of To-day

It is little more than a century since George Stephenson, appearing before the Parliamentary Committee in support of the Bill for the Liverpool and Manchester Railway, was warned by the company's counsel not to state that his locomotive could travel at 20 miles an hour, lest he should be regarded as a lunatic. To-day we regularly travel long distances at speeds that reach 60 miles an hour and we grumble if the train is a few minutes late!

The L.N.E.R. *Flying Scotsman* runs the 392.7 miles from London to Edinburgh non-stop in 450 minutes at an average speed of 52.4 m.p.h., and the G.W.R. *Cornish Riviera Express* runs non-stop from Paddington to Plymouth, 225.7 miles, at an average of 57.1 m.p.h. The *Cheltenham Flyer* of the same company travels at an average of 71.4 m.p.h. over the 77.3 miles from Swindon to Paddington.

Modern Automatic Signalling

In the early days signalling was carried out by a system of flags. From this crude beginning has developed the present wonderfully perfect method of block system working, by which trains are guided and controlled throughout their journeys by a chain of signal boxes connected by telegraph and telephone. The G.W.R. have on all main routes a system of automatic train control that gives audible warning to the driver in the cab of the state of "distant" signals, and if a "distant" signal is passed at danger automatically stops the train before it reaches the next stop signal.

The splendid possibilities of Meccano in the building of locomotive models are well shown in the model of a "Baltic" type passenger tank locomotive shown opposite. The model is designed to a scale of 1 in. to 1 ft., and is 44 in. long overall. Among its special features are Walschaerts valve gear and brakes on all coupled wheels.

1. "Flying Scotsman" on the Border Bridge.
2. On the footplate of a G.W.R. locomotive.
3. L.N.E.R. High-Pressure locomotive No. 10000.
4. Close-up of Walschaerts Valve Gear.
5. A Southern Railway express at speed.
6. Locomotives in the erecting shops.
7. A Beyer-Garratt articulated locomotive.



MECCANO OUTFIT No. 4
Builds 753 Models

This fine Outfit contains a splendid range of Meccano parts with which an excellent variety of superb models may be built. The Manuals of Instructions included give examples of 753 models that may be constructed, and a selection of these is shown in the composite illustration on the left-hand side of this page.

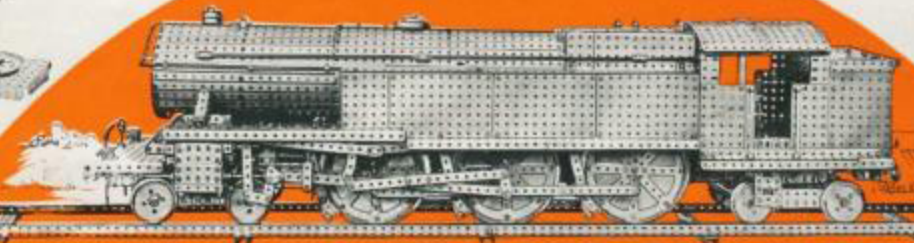
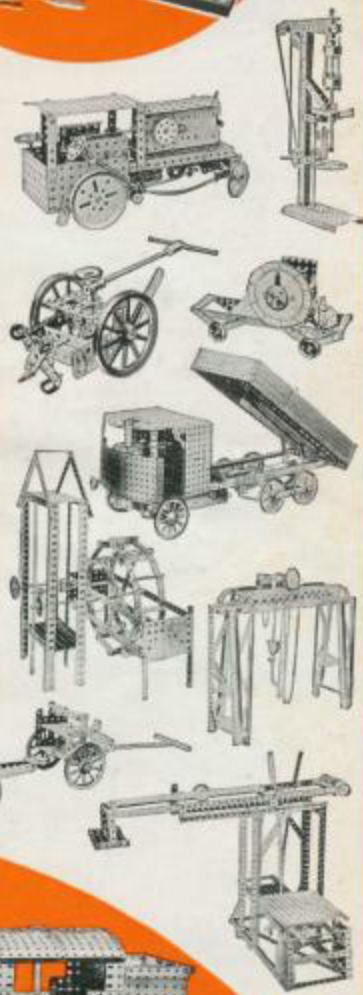
Price 52 6

MECCANO OUTFIT No. 5
Builds 798 Models

The building possibilities of this splendid Outfit are unlimited. The perfection of the fine types of engineering models that can be built may be judged from the examples illustrated on the right-hand side of this page. These are reproduced from the Manuals included in the Outfit.

Price (packed in strong carton) 70/-

Price (packed in enamelled cabinet) 100/-



Meccano Model of a Baltic Tank Locomotive



Giants of the Air

Man has always desired to fly as birds do, and in early times many misguided enthusiasts lost their lives in attempting flights, by means of improvised wings, from the tops of buildings. Successful gliding flights were made by Otto Lilienthal, a Berlin engineer, between 1891 and 1896.

The first flight in a power-driven aeroplane was carried out by the American Orville Wright in 1903, and six years later Louis Blériot flew across the English Channel. Air mail services that stretch right across the world are now in regular operation, and even light private machines have been flown from England to Australia in about a week. The non-stop flight record is 5,890 miles, set up by two French airmen in flying from the United States to Syria. The speed record is 430 m.p.h. and is held by Italy. The altitude record was gained for England by Flt.-Lt. C. F. Uwins, who reached a height of 43,976 ft. in a Vickers "Vespa" equipped with a Bristol "Pegasus" engine.

The Aeroplane of the Future

The aeroplane of the future will probably develop on the lines of the Cierva "Autogiro." This machine derives the greater part of its lift from four blades that are rotated above the fuselage by the airstream produced by the forward movement of the machine. The rotation of these blades ensures that the aeroplane cannot "stall," no matter how low its speed falls. The "Autogiro" can take off after a run of only 30 yds. It has no landing speed, and it may be landed vertically on to a space no bigger than a good-sized lawn. This makes the "Autogiro" particularly suitable for flying in mountainous country and also for use by beginners, as it completely overcomes the dangers usually associated with forced landings.

The "Autogiro" principle will probably be used with aeroplanes of the "all-wing" type, similar to the Westland-Hill "Pterodactyl," and it is possible that the rotors will be used only when taking off and landing, and will be folded back at other times. The aeroplane of the future will undoubtedly fly at great heights.

Splendid models of many different types of aircraft may be constructed in Meccano. A particularly fine British machine is the Armstrong Whitworth "Argosy," used on the Imperial Airways air route to Australia. A striking Meccano model of this machine is shown on the opposite page.

1. An Imperial Airways Armstrong Whitworth "Argosy."
2. The "Jaguar" engine employed on the "Argosy."
3. The fastest British seaplane, the Supermarine S6.
4. Controls of a giant air liner.
5. The Blackburn "Sydney" flying boat.



MECCANO OUTFIT No. 6

Builds 844 Models

Realistic working models of many of the world's most famous engineering masterpieces may be built with No. 6 Outfit, in addition to hundreds of others shown in the Manuals of Instructions. A selection of these splendid models is illustrated on the left-hand side of this page.

Price (packed in stout carton) ... 125/-

Price (packed in enamelled cabinet) 155/-

MECCANO OUTFIT No. 7

Builds 889 Models

This is a complete Outfit, containing all Meccano parts, etc., necessary to build each of the models in all the Manuals of Instructions. A few examples of the splendid models it builds are illustrated on the right-hand side of this page. An ideal present for a boy who intends to pursue an engineering career.

Price (packed in enamelled cabinet) 415/-



Meccano Model of a Three-engine Biplane



Engineering of the Future

The progress made in engineering during recent years has been so rapid that it makes one wonder what the next half-century will bring forth. Although there undoubtedly will be many improvements in structural engineering generally, it seems likely that the most outstanding developments will be made in regard to transport by land, sea and air.

The railway of the future probably will have only a single rail, on which will run streamlined mono-cars balanced by gyroscopes.

Air travel will be revolutionised. Private aeroplanes will be as common as motor-cars are to-day, and huge air liners, designed on the principle of the "Autogiro," will transport passengers and freight for thousands of miles over land and sea. The crossing of the great oceans of the world will be made safe by means of chains of floating aerodromes or seadromes at intervals of three or four hundred miles.

It seems certain that the motor-car has not reached its limit of speed. Probably it will not undergo any very startling changes in form, but its design will be steadily improved along the lines indicated by Captain Malcolm Campbell's "Bluebird."

By Rocket Plane to Mars?

Shall we ever be able to visit the Moon and our neighbour the planet Mars? It is impossible to say; but if such a journey ever is made it will almost certainly be in a car deriving its motive power from a series of rockets arranged to explode in succession at pre-determined intervals.

Such a car shot out with a speed of about 11 miles per second would escape from the earth and open the way for the exploration of the skies. Giant rockets sent up with lower speeds would circle the earth like miniature moons and might act as landing stages in the ocean of space.

1. Floating Seadrome for trans-oceanic Aircraft.
2. Gyroscopic Mono-Railway carried on overhead Track.
3. Rocket Plane for travelling to other Planets.
4. Land Car of the Future.
5. Helicopter Liner able to ascend and descend vertically.



MECCANO X SERIES OUTFITS

These Outfits
build a fine
range of
models



The Meccano X Series of Outfits gives an added interest to the fascinating pastime of Meccano model building. The main feature of the Series is a newly-designed type of strip $\frac{1}{4}$ in. wide, in various lengths and pierced with holes $\frac{1}{4}$ in. apart. The models made with these strips are extremely attractive and effective. The parts fit in with the regular Meccano system and can be obtained separately.

No. XI OUTFIT Builds 70 Models

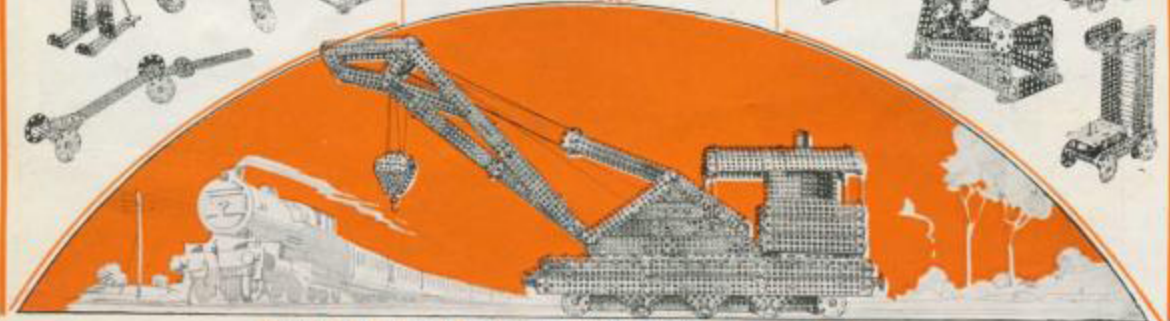
A fine range of sturdy models can be built with No. XI Outfit. Examples to the number of 70 are given in the illustrated Instruction Folder that is included, while keen model-builders will derive great satisfaction from building additional models of their own creation.

This Outfit is the finest value in constructional toys every offered to boys.
Price 1/3

No. X2 OUTFIT Builds 96 Models

The additional parts contained in No. X2 Outfit enable models of a bigger and better type to be constructed. The Instruction Folder that is included gives examples of 96, but scores of others can be built by any inventive boy.
Price 2/-

A Meccano X1A Accessory Outfit (price 1/-) converts a No. X1 Outfit into a No. X2.



Model of a Railway Breakdown Crane built with Meccano X Series parts

Prices of Meccano

Meccano Accessory Outfits connect the main Outfits from No. OO to No. 7. They may be well described as the stepping stones to bigger and better models. A No. OO Outfit may be converted into a No. O by adding to it a No. OOa Accessory Outfit, and a No. Oa Accessory Outfit would then convert the equipment into the equivalent of a No. 1 Outfit.

No. OOa converts a No. OO Outfit into a No. O	1/6
.. Oa O	1 5/6
.. 1a 1	2 7/-
.. 2a 2	3 12/6

POWER UNITS FOR

In order to obtain the greatest possible enjoyment from the Meccano hobby, the models should be set to work by means of one of the Meccano power units described here.

MECCANO CLOCKWORK MOTORS

These are the finest clockwork Motors obtainable for model driving. They have exceptional power and length of run and their gears are cut with such precision as to make them perfectly smooth and steady in operation.

X Series Clockwork Motor. A fine Motor specially designed to drive with ease any of the X Series models. It is non-reversing Price **2/6**

No. 1 Clockwork Motor. An efficient and long-running Motor fitted with a brake lever by means of which it can be started and stopped. It is non-reversing Price **5/-**

No. 1a Clockwork Motor. This Motor is similar in power and length of run to the No. 1 Motor, but is fitted with reversing motion. It has brake and reverse levers Price **7/6**

No. 2 Clockwork Motor. This is a Motor of super quality. An efficient governor controls the extremely powerful spring and ensures a long steady run at each winding. Brake and reverse levers enable the Motor to be started, stopped or reversed, as required. Price **10/-**

MECCANO ELECTRIC MOTORS

The five Meccano Electric Motors listed below have been designed specially to provide smooth-running power units for the operation of Meccano models. The 6-volt Motors may be operated either from a 6-volt Accumulator or through a Transformer direct from the mains, providing that the supply is alternating current. They cannot be run satisfactorily from dry cells. The 20-Volt Motors are most conveniently operated through a 20-volt Transformer from alternating current supply mains.

Each Motor is a highly efficient power unit and, with ordinary care, will give long and excellent service.

No. E1 Electric Motor (6-volt). Non-reversing Price **9/-**

No. E6 Electric Motor (6-volt). Reversing Price **15/6**

No. E1/20 Electric Motor (20-volt). Non-reversing Price **10/-**

No. E20A Electric Motor (20-volt). Non-reversing Price **16/6**

No. E20B Electric Motor (20-volt). Reversing Price **18/6**

RESISTANCE CONTROLLER

By use of this Controller the speed of Meccano 6-volt Motors may be regulated as desired
Price **3/9**



X Clockwork Motor



No. 1 Clockwork Motor



No. 2 Clockwork Motor

6-volt
20-amp.
Accumulator



No. E1/20
Electric
Motor
(20 volt)



Accessory Outfits

In this manner a boy who commences with one of the small Outfits may build it up by degrees until he possesses all the parts contained in the largest Outfit. An Accessory Outfit No. 000a is not supplied, but details of the extra parts required to build all the models in the No. 00 Manual will be found in the Instruction Folder included in the No. 000 Outfit.

No. 3a	converts a No. 3 Outfit into a No. 4	26/-
.. 4a 4	5 17/6
.. 5a* 5	6 55/-
.. 6a† 6	7 225/-

*Carton. †Enamelled cabinet.



DRIVING MODELS

Each of these units has side plates and base pierced with the standard Meccano equidistant holes, so that it can be built quite easily into any Meccano model.

MECCANO TRANSFORMERS

A Meccano Transformer provides a convenient and safe means of driving a Meccano Electric Motor from the mains supply where this is alternating current. There are six Transformers in the series, all of which are available for the following A.C. supplies:—100/110 volts, 50 cycles; 200/225 volts, 50 cycles; 225/250 volts, 50 cycles. Any of the Transformers can be specially wound for supplies other than these. When ordering a Transformer the voltage and frequency of the supply must always be stated.

No. T6 Transformer (Output 25 VA at 9 volts) for 6-volt Electric Motors. Fitted with speed regulator Price **21/-**

No. T6M Transformer (Output 25 VA at 9 volts) for 6-volt Electric Motors. This is similar to No. T6, but is not fitted with a speed regulator Price **16/6**

No. T6A Transformer (Output 40 VA at 9.3½ volts) for 6-volt Electric Motors. Fitted with speed regulator and separate circuit for supplying current for eighteen 3½-volt lamps Price **26/6**

No. T20 Transformer (Output 20 VA at 20 volts) for 20-volt Electric Motors. Fitted with 5-stud speed regulator Price **21/-**

No. T20M Transformer (Output 20 VA at 20 volts) for 20-volt Electric Motors. This is similar to No. T20, but is not fitted with speed regulator Price **16/6**

No. T20A Transformer (Output 35 VA at 20.3½ volts) for 20-volt Electric Motors. Fitted with speed regulator and output sockets for lighting lamps Price **26/6**

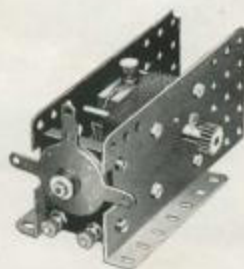
ACCUMULATORS

The 6-volt 20-amp. Accumulator is specially suitable for running Meccano 6-volt Motors and Hornby 6-volt Electric Trains Price **28/6**

The 2-volt 20-amp. Meccano Accumulator is supplied for converting 4-volt Accumulators to 6-volt **The price of the 2-volt 20-amp. Meccano Accumulator is 10/6**



No. E1 Electric Motor (6-volt)



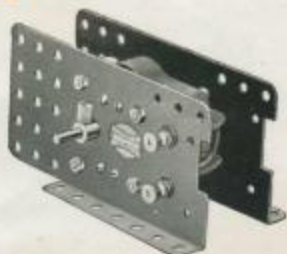
No. E6 Electric Motor (6-volt)



No. T20 Transformer



Resistance Controller



No. E20a Electric Motor (20-volt)

MECCANO CONSTRUCTOR

Meccauto

Every boy who is keen on model-building will ardently desire one of the fine Motor Car Constructor Outfits described on these pages.

Sports four-seaters, coupés, speed cars, and other perfect miniature reproductions of many different types of car can be built with these Outfits. All the models are driven by means of a powerful clockwork



No. 1 MOTOR CAR OUTFIT

A range of superb motor car models can be built with this Outfit. Look at the examples illustrated on this page, and think of the fun you could have building this and other types equally graceful and realistic.

No. 1 Outfit is available in four different colour combinations—red and light blue, light blue and cream, green and yellow, and cream and red. It is supplied complete with powerful Clockwork Motor... .. Price **14/6**

Built-up Models

Built-up models of motor cars made with No. 1 Outfit are available at the following prices:—

Road Racer ... **14/6** Sports Tourer (with hood) **15/-**
Sports Tourer ... **14/6** Saloon Coupé **15/6**

Choice Range of Colours

If extra parts in any of the colours mentioned above are required they may be purchased from any Meccano dealer. By adding separate parts in various colours you are able to construct models in a number of pleasing combinations, thus adding considerably to the interest.

In addition to the four standard colour combinations, the following No. 1 Outfit parts are available in the colours indicated:—

Body Sections: orange, yellow. Wheels: orange, yellow. Wings: orange, green.

IMPORTANT.—It should be noted that the No. 1 Motor Car Outfit parts cannot be used in conjunction with those of the No. 2 Outfit.

MOTOR CAR GARAGE

The Meccano Motor Car Garage provides accommodation for any Meccano model motor car or other car of suitable size. It is strongly built, with imitation rough-cast finish. Inside dimensions: Height, 5 in.; length, 13 in.; width, 7½ in.

Price **7/-**



Sports Tourer



*Sports Tourer
(with hood)*



Road Racer



Model of a Saloon Coupé built with No. 1 Motor Car Outfit

MOTOR CAR OUTFITS

538189

motor (included in the Outfit,) giving a long, speedy and realistic run on each winding.

The motor car parts are finished in rich enamel and nickel or chromium plate, the complete Outfits being masterpieces of miniature automobile craftsmanship. Make up your mind now to own one of these splendid Outfits!

No. 2 MOTOR CAR OUTFIT

Larger models of a superior type can be built with No. 2 Motor Car Outfit. They are all perfectly designed, beautifully finished, and the most attractive examples of constructional engineering ever produced. Their handsome and realistic appearance may be judged from the illustrations on this page.

No. 2 Outfit is available in four different colour combinations—red and light blue, light blue and cream, green and yellow, and cream and red. A powerful Clockwork Motor that gives a run of 150 feet on one winding is included ... Price 25/-

Built-up Models

Built-up models of any of the Motor Cars that can be made with No. 2 Outfit are available, if required Price 25/- each.

Choice Range of Colours

Extra parts in any of the colours mentioned above may be purchased from any Meccano dealer.

In addition to the four standard colour combinations the following No. 2 Outfit parts are available in the colours indicated:—

Body Sections: orange, yellow. Wheels: orange, yellow. Wings: orange, green.

MOTOR CAR LIGHTING SET

This Lighting Set enables the headlamps of Motor Car models built with the 1933 No. 2 Motor Car Outfit to be electrically lighted Price 2/6

It should be noted that the Lighting Set cannot be used with 1932 type Motor Car Outfit models unless the latest Headlamps (price 4d, each) and Instrument Board (price 6d.) are added.



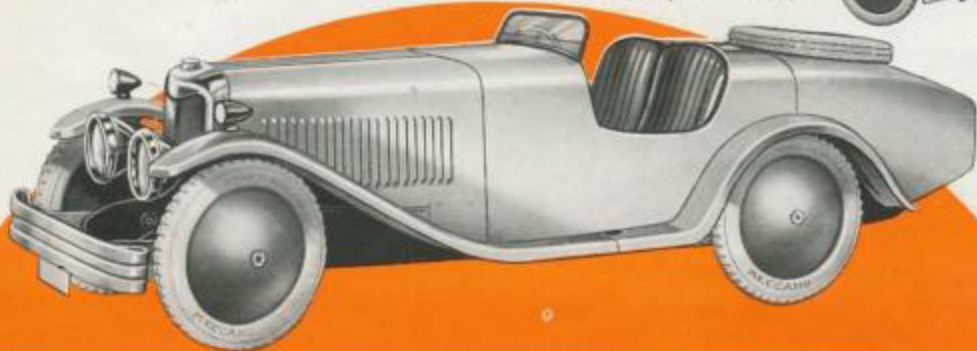
Light Six Speed Model



Grand Prix Special



Light Sports Two Seater



Model of a Sports Car built with a No. 2 Motor Car Outfit

KEMEX

CHEMICAL OUTFITS



KEMEX OUTFITS For Chemical Fun !

The new Kemex Chemical Outfits will provide many hours of fascinating fun. With the apparatus and materials contained in them a boy can make inks and soaps; dye wool, cotton and silk, and bleach fabrics that are already dyed; test foodstuffs for impurities; analyse air and water; grow crystals; write with electricity; smelt metals from their compounds; make invisible inks and a chemical garden; prepare gases, and perform a host of other interesting chemical experiments.

No. 1 KEMEX OUTFIT 130 Experiments

This Outfit contains a supply of specially selected chemicals, sufficient to perform 130 attractive and varied experiments. The apparatus provided in the Outfit includes Test Tubes and a Test Tube Holder, a Funnel, Filter Papers, and two Glass Delivery Tubes, with a simple and highly-efficient Spirit Lamp that makes the Outfit completely self-contained.

Price 7/6

No. 2 KEMEX OUTFIT 250 Experiments

This Outfit includes the whole of the contents of the No. 1 Outfit, and further chemicals that increase the range of experiments up to 250. The additional apparatus includes a porcelain Evaporating Dish, Special Test Tubes to withstand high temperatures, a handsome Test Tube Stand, and an Evaporating Stand.

Price 15/-

No. 3 KEMEX OUTFIT 350-400 Experiments

This is a splendid complete Outfit that provides a boy with all he requires to carry out between 350 and 400 experiments, and thus enables him to acquire a sound knowledge of the fascinating principles of chemistry. The Outfit includes the contents of the No. 2 Outfit, with additional chemicals and apparatus. The latter includes a gas-generating apparatus, consisting of a large Wide-necked Flask with Thistle Funnel and Delivery Tubes, and a Blowpipe and a Charcoal Block. These items open up a series of experiments of outstanding interest.

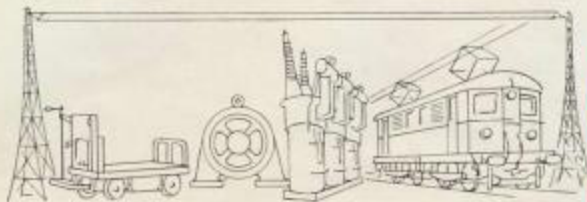
Price 25/-

NOTE. *Kemex Outfits are complete in themselves and there are no Accessory Outfits*



ELEKTRON

ELECTRICAL OUTFITS



ELECTRICITY !!!

The most wonderful force of the age

The Elektron Outfits provide the necessary material for a progressive series of experiments in magnetism, frictional electricity, current electricity and electroplating. They contain the parts required to construct a Reading Lamp, Electro-magnets, an Electric Bell, an Electric Telegraph, a Shocking Coil and Electric Motors, all of which can be worked from a Bichromate Cell built up from materials included in the Outfit.

Each Outfit is packed in a handsome box, and includes a Manual, splendidly illustrated with actual photographs, giving full directions and explaining every experiment in simple language.

No. 1 ELEKTRON OUTFIT

Magnetism and Static Electricity

The No. 1 Outfit contains two powerful Bar Magnets and a reliable Magnetic Compass, together with everything necessary for the carrying out of a series of fascinating magnetic experiments. In addition there are materials for experiments in frictional or static electricity, and for the construction of an Electric Compass and two forms of Electroscopes. There are also parts for constructing a splendid portable Reading Lamp.

Price 8/6

A No. 1a Elektron Accessory Outfit converts a No. 1 Elektron Outfit into a No. 2. Price 16/6

No. 2 ELEKTRON OUTFIT

Magnetism, Static and Current Electricity

The No. 2 Elektron Outfit contains all that is included in the No. 1 Elektron Outfit, with additional parts that enable a splendid series of experiments in current electricity to be performed. Among these are a Horseshoe Magnet, Coils and Yokes required for the construction of Electro-Magnets that can be used in building a real Electric Bell, and a Buzzer for use in an electric telegraph system. A specially-wound coil and other necessary parts are supplied for assembling into a Shocking Coil that will give hours of fun and excitement; and from other components two different working Electric Motors may be built. Electroplating is among the other fascinating experiments that can be performed with this Outfit.

Price 25/-



MECCANO CONSTRUCTOR

The Meccano Aeroplane Constructor Outfits described on these pages enable boys to design and build their own aeroplanes. A large number of different models may be built by varying the positions



Model of High Wing Monoplane



Model of Standard Light Biplane



No. OIP Aeroplane Hangar Outfit

No. O AEROPLANE OUTFIT

The parts contained in this Outfit enable an interesting range of aeroplane models to be built, including high and low wing monoplanes, seaplanes and standard light biplanes. All the parts are interchangeable. Price 5/-

Note. The parts in the Nos. O and OIP Outfits are smaller than those in the other Outfits in the series and are not intended for use with these Outfits.

No. OIP AEROPLANE HANGAR OUTFIT

This novel and attractive Outfit consists of the complete range of No. O Aeroplane Outfit parts packed in a No. O Aeroplane Hangar instead of in a carton Price 10/-

No. 1 AEROPLANE OUTFIT

Magnificent models of high and low wing monoplanes and interesting model biplanes representing standard types may be built with this Outfit. The biplanes include models based on the single-seater fighter type of military aircraft, and on the popular light aeroplane Price 9/-

Meccano Aeroplane Constructor Accessory Outfit No. 1a, costing 8/6, will convert a No. 1 Outfit into a No. 2.

No. 2 AEROPLANE OUTFIT

This Outfit enables a much wider range of models to be built, including triple-engined monoplanes and biplanes, and a racing seaplane of the type that was used in the Schneider Trophy Contests. A particularly interesting model is that of a giant Italian bombing machine, and there are also models of flying boats and amphibians. Price 16/6

Note.—Meccano Aeroplane Parts may be purchased separately. Ask for an illustrated list.



Aero Clockwork Motor No. 1



This long-running Motor is specially designed to fit into the fuselage of Meccano Aeroplane models made with No. 1, No. 2, No. 1 Special or No. 2 Special Aeroplane Outfits. It will rotate the propeller at high speed, thus greatly adding to the realism of the model.

Price 2/-

AEROPLANE OUTFITS

of the parts, which are all interchangeable on the famous Meccano principle. The parts in the Nos. 1 and 2 and the No. 1 Special and No. 2 Special Outfits can be used in conjunction with the standard Meccano parts.



Model of Low Wing Seaplane



Model of Light Biplane

SPECIAL AEROPLANE OUTFITS

The new Special Aeroplane Constructor Outfits have been designed to enable more realistic models of the latest types of aircraft to be built. They contain many new and improved parts.

No. 1 SPECIAL AEROPLANE OUTFIT

The parts in this Super Aeroplane Outfit will build over 20 realistic models of different types of aircraft. The range of special parts includes main planes fitted with ailerons, tail planes with elevators, movable rudder, radial engine cowling, etc.

The Outfit is available in three different colour combinations—red and cream, blue and white, and green and white ... Price **15/-**

A No. 1a Special Aeroplane Accessory Outfit, Price 11/6, will convert a No. 1 Special Aeroplane Constructor Outfit into a No. 2 Special.

No. 2 SPECIAL AEROPLANE OUTFIT

This is the finest and most attractive Aeroplane Constructor Outfit on the market. It contains a big range of aircraft parts, with which numerous models of practically any type of machine may be built—44 examples are shown in the Manual of Instructions. All the parts that are special features of the No. 1 Outfit are included, also a number of other parts of special design. As in the case of the No. 1 Special Outfit, the No. 2 is available in three different colour schemes—red and cream, blue and white, and green and ivory ... Price **25/-**

AEROPLANE HANGARS

These splendid hangars, with double doors, have been specially designed to house model aeroplanes.

No. O1 AEROPLANE HANGAR will accommodate one model made with the No. 0 or No. O1P Outfits. Length 11½ in. Depth 10½ in. Height 4½ in. ... Price **5/6**

No. O2 AEROPLANE HANGAR will accommodate two models made with the No. 0 or No. O1P Outfits. Length 21½ in. Depth 11 in. Height 6½ in. ... Price **7/6**

Aero Clockwork Motor No. 2

This is a more powerful Motor. In addition to rotating the propeller it also drives the landing wheels of No. 1, No. 2, No. 1 Special or No. 2 Special Aeroplane Outfit models, making the machines taxi along the floor in a most realistic manner. An adjustable tail wheel is supplied with the Motor. Price **4/6**



HORNBY SPEED BOATS



This is the Hornby Speed Boat Club Badge. It may be purchased from your dealer, price 6d.



Hornby Cabin Cruiser No. 5



Hornby Limousine Boat No. 4



Hornby Speed Boat No. 3



Hornby Speed Boat No. 2

The 1933 Hornby Speed Boats are the finest examples of miniature speed boat construction ever seen. Their remarkable performance, perfect design, and beautiful appearance definitely establish them as the leaders in their class.

When other boats are slowing up, the Hornby Speed Boats are still good for an exciting final dash. The special design of the propeller and the unique methods employed in the construction of the hull give each model exceptional speed and length of run. Every line and every feature of the Hornby Speed Boats emphasises their excellent qualities—power, speed and reliability.

Each Hornby Speed Boat in the series is available in three different colour combinations.

	Length	Beam	Price
HORNBY SPEED BOAT No. 1.			
Will travel over 100 feet on one winding ...	8½ in.	2½ in.	3 11
HORNBY SPEED BOAT No. 2			
Will travel over 300 feet on one winding ...	12½ in.	3 in.	7 6
HORNBY SPEED BOAT No. 3.			
Will travel over 500 feet on one winding ...	16½ in.	3½ in.	12 6
HORNBY LIMOUSINE BOAT No. 4.			
Will travel over 500 feet on one winding ...	16½ in.	3½ in.	15 6
HORNBY CABIN CRUISER No. 5.			
Will travel over 500 feet on one winding ...	16½ in.	3½ in.	16 6



Hornby Speed Boat No. 1

PENNANTS

Pennants for Hornby Speed Boats Nos. 3 and 4 may be purchased from any Meccano dealer. Price 2d. each.

MECCANO LIMITED, BINNS ROAD, LIVERPOOL, 13