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EDITORIAL

HA VE you ever asked yourself what is the difference between work and play? A correct definition is not quite so easy as one might imagine at first sight. To you boys, football is fine exhilarating play, but to the professional footballer it is very serious work. Building Meccano models, or running a Hornby train round its track, are delightful forms of play to all boys, but to the engineer or the engine driver, designing mechanical movements and driving engines are trying and exacting work.

Play and Work.

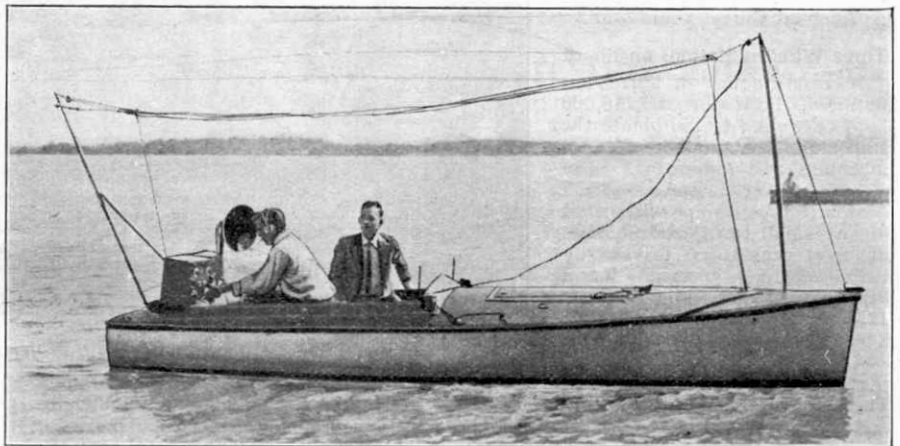
A young friend of mine whom I asked for a definition replied that play was something you liked doing, while work was something you had to do whether you liked it or not! There is probably more truth in that definition than there is in most off-hand opinions. If you take a lesson from a professional swimmer he is working whilst you are playing; yet you are both doing exactly the same thing. The only difference is that he is compelled to do it, whilst you need not swim if you do not wish to. If you dislike football and the school regulations compel you to join in the game, you are working whilst your companions are playing.

You will find the situation much the same when you start business. If your work does not interest you, and your mind is on other things, you will feel over-worked, hardly done by, unhappy and unsuccessful. If on the other hand you take a real interest in your work, if you put the same enthusiasm into it that in the

Which is Which?

Work the most enjoyable kind of play.

A Concert on a Motor Launch



The lucky owner of this launch and Radio Set is Master Fred Mueller, of Fort Worth, Texas, U.S.A. Every week-end Fred is out fishing on Lake Worth and at the same time listens-in to church services and sermons by Radio. The shores of Lake Worth are noted for their beauty, and a large number of people camp out for the week-end there. These campers are able to enjoy the broadcast, for Fred has fitted a loud speaker to his outfit, and entertains and delights large audiences.

American boys are erecting aerials and using their Radio sets under all manner of circumstances. We have already heard of the boy who erected an aerial on his motor car and also of the boy who listens-in to concerts, etc., whilst riding his bicycle around town. These original forms of aerials show the great interest of their builders in Radio, and give scope for endless experiment.

past you have put into Meccano model-building, Stamp-collecting, Photography, etc.; in short, if you make it your hobby, you will find it just as fascinating and absorbing as any other game or pursuit in which you have ever taken part. You will find the days pass pleasantly, and you will be happy and successful.

Enjoyment, enthusiasm and keenness are the key-words to success in everything, but most of all in business. Successful men never hanker after holidays. They take a rest for reasons of health sometimes, but they enjoy themselves too much at their work to think of wasting time playing.

Special Articles in this Issue:

- A Town that Travels
- Serial Story: "A Night at the Pool"
- Saving Lives at Sea
- Competition Results
- A Challenge to Meccano Boys
- The Men Who Gave Us Radio
- Guild Notes and News

A Town that Travels 6,000 Miles each Month

A TRIUMPH OF MODERN SHIP-BUILDING

We print below the concluding instalment of the article dealing with the super-liner, the "*Majestic*." Last month we described this wonder-ship and told of its theatre, hospital, palm-court and luxurious fittings. It carries over 4,000 passengers and a crew of 1,000, and practically every service required by a small town is to be found on board.

(Continued).

Electrical and Steam Heating

All the state-rooms and public rooms are heated by steam, and the first-class state-rooms by electricity also, the heat being regulated as desired by the passengers.

The splendour of the first-class accommodation is almost equalled by the second class, where a spacious lounge is panelled in light polished elm-wood. A smoke-room, drawing-room, and large dining-room are also provided, as well as many other conveniences. The third-class accommodation also is comfortable, and equal to that available for first-class passengers thirty years ago.

Three Wireless Stations on Board

A vast amount of current is required, both for the 16,000 lamps required to illuminate the ship and for a number of small machines and apparatus. The electric power installation will compare favourably with that of any small town, and consists of five generators driven by turbines. Each generator has a capacity of 288 kilowatts at 115 volts and runs at a speed of 2,000 revolutions per minute.

Another feature of great importance is the wireless service.

There are three separate stations on board, and the largest of these is powerful enough to keep in touch with both Continents during the whole of the voyage. The second station has a range of 800 miles and the third station is for use in cases of emergency. In addition, two of the ship's motor life-boats are fitted with wireless.

The Most Powerful Plant Afloat

In spite of her great size the "*Majestic*" is not clumsy by any means, for she can be manoeuvred with ease. She has a remarkable turn of speed, and while she can travel at 25 knots if necessary, she will comfortably average 23 knots. This fleetness is the result of exceptionally thorough research as regards the design of the ship in regard to such details as the shape of the hull and of the stern.

Motive power is obtained from great turbines of the Parsons type. They consist of one high-pressure, one intermediate and two low-pressure, two being used for driving ahead and four for driving astern. These turbines are necessarily very large, the low-pressure astern turbine, for instance, being over 20 ft. in length and weigh-

ing 375 tons. There are in all some 800,000 blades, the largest running to a length of 24 inches. The total available power is approximately 100,000 h.p., forming the most powerful plant ever installed in a passenger vessel. Steam

ment of the boiler casings. Instead of being situated centrally these are placed towards the sides of the ship, joining again above the upper rooms. This arrangement enables the centre of each deck to be kept clear. By standing at one end of the main saloon it is possible to obtain an unobstructed view for a distance of 250 feet.

The ship was originally designed to burn coal, but the White Star Line altered this in favour of oil fuel at low-pressure. With coal it would have been necessary to take in supplies at the termination of every voyage, but with the new system sufficient oil is carried for a double trip across the Atlantic. We can realise the space necessary to store this quantity when we learn that the liner burns about 5,700 tons of oil on a single trip.

Advantages of Oil Fuel

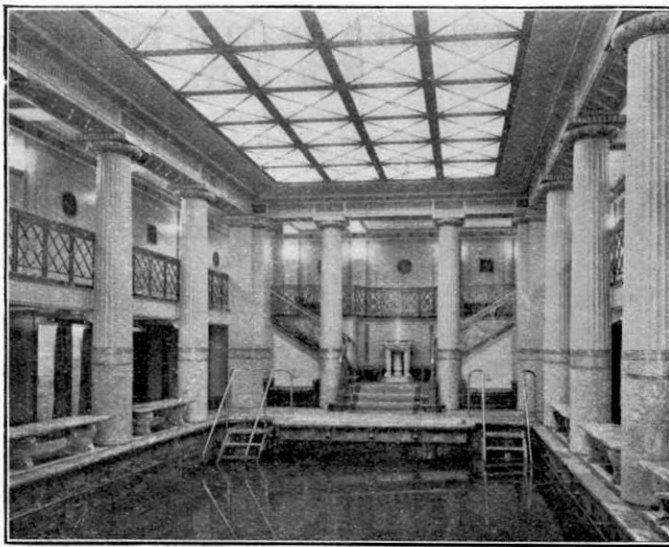
In deciding to use oil fuel, the White Star Line realised its great value as compared with coal. Not only is oil fuel less bulky than coal, but in the boiler-room there is a total absence of the smoke and dirt that accompanies coal-fired boilers.

Oil-fuel has many other advantages, one of the greatest being that, compared with re-bunkering with coal, the re-fueling of an oil-burning ship is a simple matter. Oil-tankers lie alongside the ship and the oil is pumped through a flexible pipe, direct into the liner's storage tanks. This not only eliminates the hundreds of labourers that are required for coaling a ship, but also renders it unnecessary to sheet the ship with tarpaulins to protect it from the dust and dirt that arise when coaling.

America to Compete with Britain

The "*Majestic*" is a striking illustration of the enterprise shown by our leading steamship companies. Their efforts to provide increased comforts and greater facilities for Atlantic travellers has resulted in each succeeding ship being larger and speedier than its predecessor. It is no exaggeration to say that the leading companies operating between Southampton and New York provide catering unsurpassed in the best hotels of Europe or America.

These improvements have led to the steamship companies concerned controlling practically the whole of the British-American first-class passenger traffic.

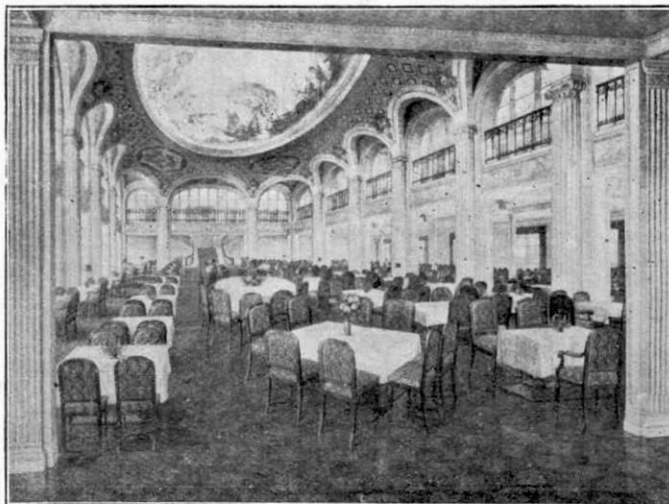


The Swimming Bath on board the "*Majestic*"

is supplied at a pressure of 260 lbs. per sq. inch by 48 water-tube boilers of the Yarrow type, having a total area of about five acres.

An Unusual Arrangement

An interesting feature, which has considerably added to the available space and comfort of passengers, is the arrange-



The Restaurant (First Class)

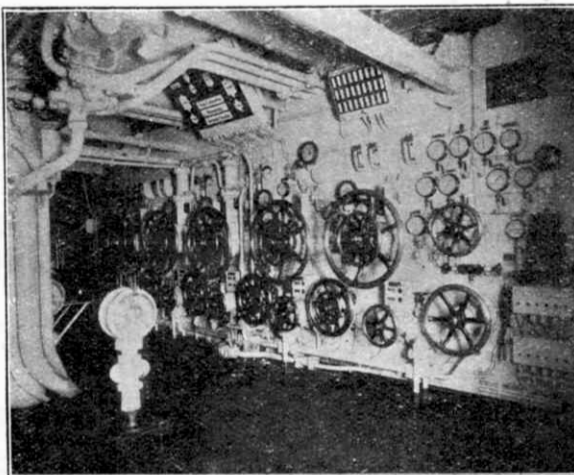
A Town that Travels—(cont.)

Whether or not this state of things will continue, remains to be seen. In this connection the Chairman of the United States Shipping Board speaking recently on the future policy of the Board, stated that it was their intention to retain the best of the former German liners. After these had been re-conditioned, he said, America would make a strong bid for the Atlantic traffic, now a monopoly of the British companies.

From Troopship to Liner

Before the war Germany was Britain's great competitor in the building of super-liners such as the "Majestic." After the armistice many of her best products were handed over to Britain and America as part reparation for shipping sunk by the German submarines. Of these historic vessels the second largest in the world is the "Leviathan," formerly the "Vaterland." As a troopship in the American service, the "Leviathan" on one trip transported 12,000 American soldiers to France.

The "Leviathan" is now being converted from a troopship into a luxurious liner, which the Americans hope will excel in luxury even the "Majestic."



The Starting Platform in the Engine Room

Will Larger Ships be Built?

Whether or not larger ships than the "Majestic" will be built in the future is a question that cannot at present be answered. Large ships become unwieldy in heavy weather, for they present a very large surface to the wind. They are not so economical as smaller vessels and there are many other considerations against building larger ships.

Alice-in-Wonderland could not grow any more because she filled the room and bumped her head against the ceiling. Similarly the size of large ships is limited by the available harbour accommodation. In England, France, and America it is not possible to deal with ships larger than the "Majestic." If it is decided to build still larger ships in the future, then special provision must be made in all countries, by deepening channels and by increasing the sizes of landing-stages, harbours, and docks.

THE END.

(For the photographs illustrating this article we are indebted to the courtesy of the White Star Line).

Improving the "M.M."

PRIZES FOR BEST SUGGESTIONS

In our last issue I drew attention to the large number of letters received from my readers criticising the contents of the "M.M." I mentioned that owing to it being impossible to increase the number of pages in the "M.M." space is not available for the inclusion of all the articles suggested by my readers. I should very much like to deal in each issue with Locomotives, Foreign Stamps, Nature Study, Photography, Conjuring Tricks, Sports and Hobbies, as well as the hundred and one other subjects that appeal to boys. Space forbids this, however, and I am only able to include such articles as will interest the majority of readers.

I have invited all readers to help me to obtain the information as to the subjects in which they are most interested. With this end in view the questions in the next column have been drafted out. I want every reader to send me a post-card answering these questions intelligently and thoughtfully. Hundreds of replies have already been received, but I would welcome thousands of further replies!

Every reply will be carefully scrutinized by the Editorial staff and the results tabulated. The contents of future numbers of the "M.M." will be based largely on the information these replies contain.

Those boys who want particular articles to be included in the Magazine each month should not only send in their own replies to that effect, but should also endeavour to get as many of their friends as possible to send in replies. The number of votes cast for any given subject will determine whether or not that subject will be included in future issues.

In order to encourage my readers to suggest original features that, in their opinion, will improve the "M.M." I am

offering a prize of a Hornby Train, and a second prize of a Zulu Tank Loco for the best replies to question No. 10.

It is not necessary to write out each of the questions. Simply place the number of the question before your answer. All replies should be received before 30th April and should be addressed "Improve," c/o The Editor, "Meccano Magazine," Binn Road, Liverpool.

Questions.

- Should we print short stories (similar to "How Jimmy Thornton Made Good" in the December issue) written by Meccano boys?
- (a) Should we include instead serial stories?
(b) If so, should they be stories of adventure or of school life?
- (a) Do you like the "Mail Bag" Column?
(b) Should we give it more space?
- Do you like the new Editorials, or do you prefer the old style of Editorial paragraphs?
- Do you consider four pages too much to devote to Radio?
- Do you like reading about Meccano boys and what they are doing?
- Do you prefer the inclusion of illustrations of new Meccano models such as were published on the front page of the "M.M." last year?
- Should we publish more articles of a general scientific nature, or should we have fewer of these articles and use the space for articles relating to Meccano?
- Which kind of Competitions interest you most?
- Can you suggest a novel feature for improving the "M.M."?

Interesting Paragraphs

Sir Martin Conway states that the Crystal Palace is 10 inches longer in summer than in winter. This change in length is due to the expansion of the metal framework caused by an increase in temperature, just as railway lines expand in hot weather.

Similarly the Eiffel Tower constantly varies in height and inclination, the latter due to the fact that in the daytime one side is warmer than the other. It is said that even the obscuring of the sun for a few minutes by a passing cloud is sufficient to cause a change in the length of the Tower.

Divers sent down to remove an obstruction in Lerwick Harbour found the timbers of an old ship. The divers brought to the surface four cannon which, although coated with rust and barnacles, were in a fair state of preservation. Each was over seven feet long, with a bore of about three inches. The timber brought up was found to be well-preserved oak.

In June 1640 four armed vessels of the Dutch East India Company fought a fierce engagement with ten armed Spanish ships at Lerwick. The wreck now found is apparently that of the Dutch warship "De Haan," which is known to have been sunk in Lerwick Harbour in the engagement mentioned.

Turkish firemen are very leisurely in their methods. A correspondent tells how he has seen them line up before burning houses, and there wait more or less patiently before beginning work with the hose, until the inhabitants paid them!

At one fire, though the fire was at its height and articles were being thrown out of a window to be caught by the firemen, the whole brigade stopped work to look at a picture of a pretty girl! After inspecting and commenting upon the picture, the firemen returned to their duties.

OUR NEW SERIAL

A NIGHT AT THE POOL

BY

Bernard Sexton



SYNOPSIS

Red Hawk and Wolverine, two young Mohawk Indians, are returning from a hazardous expedition. They are encamped on a sacred Indian mound, enjoying a supper of

trout, caught by Red Hawk in the neighbouring stream. The couple are in great danger, for they have followed for some days by hostile warriors of another tribe.

II.

"THERE are three warriors tracking us," said Red Hawk to Wolverine, examining the tracks.

Wolverene looked at the tracks. Some peculiarity in them puzzled him. "The trackers do not keep together," he said.

"That is true," answered Red Hawk. "My father told me of their custom before I came. The men of this tribe rarely hunt in packs. They are lone wolves, forest runners, and each one follows the enemy alone. If they come they will seek our scalps alone."

Red Hawk then revealed his plan. He knew of the existence of the celebrated Sacred Mound, and with characteristic audacity he decided that they would find a safe sleep at its base. Wolverine was a little scared at the suggestion, but Red Hawk, whose keen mind was already above the vulgar fears of the ordinary Indian, had ridiculed his comrade's fears and had persuaded him to follow. Wolverine did so, obeying the choice of Red Hawk as he had done ever since childhood.

It was already dark. The fish, deliciously cooked, were lying on some bark between the friends, and they ate. Wolverine gazed around somewhat fearfully. Above him and at his back rose the Sacred Mound. They were sitting in a little space under two oaks that overhung the brook. Across its murmuring waters they could see the trees of that vast forest through which they had come—a wilderness that stretched from the Atlantic Ocean to the western prairies.

"In the Long House at this hour the women are serving supper," said Red Hawk dreamily. "The old men are filling their stomachs and they are thinking of the tales they will tell the children before retiring to rest."

"Yes," responded Wolverine. "My mother is setting aside a bowl of berries for White Sparrow, my baby sister. I'm sure they're all laughing at her funny little face even now. And my father is maybe just coming in from the hunt.

It is the Leaf-Falling Moon. There will be much meat in the lodge. Ah, it is good. How long do you think—"

"Within ten suns we should be at home," answered Red Hawk. "We will be in time for the great autumn festivals. There will be many dances!"

"Yes, and there will be a big dance in our honour," interrupted Wolverine. "I will wear my new buckskin shirt and my new moccasins that mother began to make when I left. Oh, we will have a great time on our return! For fully five nights we will be sitting up all the night feasting. Then there will be a special feast given by the young men of our Totem"

listener. Among the Mohawks there were some magnificent orators, and he had listened to these mighty chiefs whose dignity and command of language were at a later time to impress both English and French emissaries.

Wolverene did not answer. Although his eyes were fixed on the fire he had not failed to notice that even while speaking Red Hawk had made a slight signal with his finger—a motion so insignificant that no one would have noticed it unless he had already known its meaning. But Red Hawk and Wolverine between them had a secret code, by which they could communicate with one another whenever they wished to convey information without sharing it with outsiders.

A moment later Red Hawk rose to his feet, stretched out his arms and yawned. Quite casually he stepped behind the trunk of the oak. A second later the darkness had swallowed him up. Wolverine remained motionless for a few seconds thereafter, seeming as though gazing into the fire. Then he gently stretched himself on the ground two yards from the fire. Lying thus half in the shrubbery his shadow became indistinguishable from the surrounding shadows. The fire died down and became a red glow. Wolverine still lay there as if asleep, but he was not asleep. He was listening with all his keen senses.

When Red Hawk stepped back once again into the shadow of the tree he stood for a few seconds entirely motionless, listening, his whole attention bent on the brook. Then, as lightly as the falling of a dandelion "clock," he stole through the woods up stream, keeping close to the bank. When he had travelled thus for fifty yards he came to a place where the brook made a bend. At

this point a tree leaned close down over the water. One of its limbs reached entirely across. With infinite caution Red Hawk crawled out on this branch and stretched his body out upon it. His two arms hung free and his face was turned up stream. He became part of the outline of the tree.

III.

The night was not entirely dark, although there was no moon. The large and brilliant autumn stars shone in the sky, and a little of their faint light penetrating the foliage, vaguely showed the passage of the stream. The minutes passed slowly

(Continued on next page.)



With infinite caution Red Hawk crawled out on the branch . . .

"It is well that we return having accomplished that which we set forth to do," went on the younger man. "We have seen the strangers who came in a great canoe over the salt water. Aye, we have watched them come and for the space of three suns. And we have heard the noise of their thunder-sticks!"

"What does it mean? Why has the Great Spirit sent the white strangers?"

"I do not know the will of the Great Spirit," answered Red Hawk. "I think the coming of these strangers is bad for the red men. It means much war."

Wolverene listened with great respect. Young as he was Red Hawk had attended many of the great Tribal Councils as a

A Night at the Pool—(cont.)

while the senses of the youth on the branch, strung to the highest tension, became concentrated in his eyes and ears.

A half hour passed . . . an hour . . . Then it seemed to him that

the outline of a tree a few yards higher up-stream, on which he had fixed his eyes, had become subtly different. A moving shadow had melted into it and had increased its bulk. . . . The shadow had attached itself to something below the tree and a little nearer.

. . . The shadow was a tree itself. . . . a tree that moved . . . upright. . . . The shadow suddenly became the outline of a man, stooping and watchful, creeping down the stream with perfect noiselessness. . . . He

stooped a little to go under the tree. At that moment some subtle sense in him impelled him to look upward. For a fraction of a second he found himself looking straight into a fierce face. Only for a fraction, for in the same moment a strong hand seized him by the top-knot and drew him up, while a second hand drove home the sharp knife.

Life passed out of the man with a faint gurgle. The bloody knife was withdrawn from his breast and swiftly passed around the scalp. Still holding the sagging body Red Hawk moved quietly down the bank in the direction whence he had come. He brought the body to the camp and set it up against the tree near which he had been sitting himself. Then he uttered a few soft words to Wolverene, who lazily rose and put wood on the fire.

Red Hawk did not come into the light. He crouched behind the tree in the dense blackness cast by its shadow. "One!" he said.

Wolverene sat opposite the body and when he talked he looked at it.

"Will there be others?" he asked slowly.

To anyone watching from the shadows it would seem that Wolverene was still talking to his friend across the fire.

"There will be others," answered Red Hawk. "You will sleep—as before."

"I obey," answered Wolverene. He rolled on the ground again. The fire began to die down. The flames, flaring up now and then threw fantastic shadows on the dead man who sat leaning against the tree. The red that ran down his face and the red that flowed from his breast did not appear any more than the warlike decorations of a savage on the war trail.

IV.

Red Hawk backed slowly away from the fire and stood upright. He raised his head and listened intently. There were many sounds borne to him on the night air, but to most of these he paid no attention whatever. He was listening for the unusual sound—the sound that by the

slightest variation from *what should be*, revealed that *it did not belong to Nature*.

At last he seemed to hear that which satisfied him. He began to move. With infinite caution he came to the edge of the brook and entered it. Like a drifting cloud-shadow he crossed, crouching low



A strong hand . . . drew him up.

all the time, and watching the opposite bank with the keenest apprehension. It took him half an hour to climb the bank. It took him an hour longer to crawl three yards away from the brook.

At this point the streamlet was lined with a hemlock grove, the great dark trees of which had covered the floor of the forest with a soft carpet of leaves. On this he crawled noiselessly until he was opposite to the camp-fire. Looking over he could see the dead man sitting by the fire, and on the other side of the fire, but almost completely enshadowed, the vague outline of Wolverene. From this hiding place it would seem as if one man was sitting up to guard the camp while perhaps the rest of the party slept.

Red Hawk drew himself behind a great hemlock and waited. So still was he and so shapeless that anyone approaching through the dark could but take him for a stone, such as is often found lying against the trunk of a great tree. There was absolute stillness in the forest, save for the skurry of some small animal now and then, or the distant bark of a fox. The little fire had become a red glow. The dead man sitting against the tree was almost merged in its shadow. Now and then the silence was broken nearby by some typical forest sound, such as the soft stalking of a predatory beast, or the splash of a musk-rat down stream.

(To be continued).



BRIGHT IDEAS

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

Jean Pelletier (Autun).—(1) We shall give consideration to your suggestion for a circular strip. (2) We cannot quite see what advantage would be gained by fitting a collar to our existing eye-piece. Perhaps you will write us again on this matter.

G. Lessens (Roubaix).—(1) We do not quite understand your objection to the present core in the Bobbin 301. What advantage do you consider a soft iron core possesses over the existing core? (2) We have under consideration the introduction of a transverse strip.

Gerald W. Lush (Bath).—The variety of lengths of threaded rods available obviated a joint such as you suggest. We fear that so fine an adjustment of the threads at the joint would be a difficult matter.

W. Scott (London, N.).—(1) We have in mind the introduction of single angle strips. (2) Your idea for springs of shorter length will be carefully considered.

Fred Woodcock (Salford).—Model No. 450, No. 3 Manual, illustrates a pulley-block similar to that which you suggest.

Allan Rickards (Colthurst).—(1) We are afraid it would be impractical to introduce curved braced-girders, in view of the varying diameters that would be required for different structures. (2) We should like to hear of any general uses for the $5\frac{1}{2}$ " triangular plate. (3) Models requiring longer strips than $12\frac{1}{2}$ " are so infrequently built that we do not consider your suggestion practicable.

M. Foy (Chalantre-la-Grande).—A fairly good representation of boilers and cylinders may be constructed from two face plates joined by double angle strips of the required length. The difficulty of curved plates is the standardisation of diameters.

M. Pierre (Amiens).—(1) A universal joint may be constructed from existing parts as in the Meccano Motor Chassis. Your suggested joint does not lend itself to mass production. (2) A distorted conratre wheel on the lines of your sketch might prove inapplicable to general use. (3) We think that a flattened centre portion in each rod would prove a hindrance rather than an advantage.

W. Brown (St. Helens).—Would not our present $5\frac{1}{2}$ " slotted strip serve the purpose of the run-ways you suggest? Alternatively, ordinary $3\frac{1}{2}$ " strips may be used flat-ways, spaced with washers to permit of the free action of the rod.

J. K. Hare (Henlow).—(1) See reply to W. Brown (above). Perhaps you could adapt this method to your model. (2) Any new part must be adaptable to general use to justify its inclusion in our list.

F. C. Button (Scottsdale, Tasmania).—Your suggested bush wheel, $\frac{1}{4}$ " across the edge, perforated equidistantly to take rods and fitted with grub screws, would certainly be costly to manufacture. Whilst admitting that it would make an admirable hub, we are afraid its cost and limited use will prevent its introduction.

M. Raynard (Marseilles).—(1) A toothed wheel similar to your suggestion may be constructed from rack segments secured to a face plate. (2) We have introduced a spring buffer which obviates derailment on impact.

Sidney Gough (Smethwick).—(1) We are already engaged on the subject of a sliding shaft. A groove is not practical on account of the smallness of the diameter of the rod, and a flat surface such as you suggest would prevent a smooth action in the bearings. (2) We have overcome the difficulty of the sliding gear by employing $1\frac{1}{2}$ " gear wheels, which give a fairly wide range. In this connection you will be interested to see the illustration of gear box in our Chassis leaflet.

D. R. Marshall (Leeds).—(1) The new flanged disc attached to the face plate gives a good representation of a loco driving wheel. (2) At the moment we do not contemplate manufacturing steam models and pistons and cylinders alone would be incomplete.

C. Terry (Ealing).—(1) The introduction of circular plates is under consideration. (2) The existing coupling lends itself to corner connections. (3) What are the particular advantages of an $8\frac{1}{2}$ " \times $6\frac{1}{2}$ " plate? We shall consider your idea for a screw coupling that gives a corner connection.

M. Pierre Conderoy (Cosne D'Allier).—(1) Your suggested hollow rod is on the principle of the sleeve. Up to the present we have not seriously entertained the inclusion of the sleeve as an accessory part. (2) Grub screws and set screws may be obtained as accessory parts from any Meccano dealer. (3) The latest type of sprocket wheels are all perforated similarly to the bush wheel.

S. Darby (Erdington).—We realised the weakness in continental rails, hence the additional sleepers in the Meccano Rails and Points.

The Men Who Gave Us Radio:

II. OERSTED, HENRY, FARADAY AND SOMMERING

This is the second of a series of articles that outline the development of Radio and briefly describe the researches of those scientists who preceded Marconi. Progress in all sciences is clearly traced by a study of the lives of the men who devoted themselves to investigation. The manner in which these men overcame their difficulties, and the little or no effects disappointment had upon their work, enables us to realise the nature of a true scientist. It is through the study of these early workers that Radio of to-day has been made possible.

Oersted

AFTER the work of Dr. Gilbert in connection with magnets, we do not find that there were any further advances until a discovery was made by Oersted, a celebrated Danish physicist. Oersted, Professor of Physics at Copenhagen, devoted a great part of his life to the study of electricity and magnetism. In 1820 he noticed that if a freely swinging magnet, such as a compass needle, were placed near a wire through which an electric current was flowing, it was deflected, or made to dip at one end (Figs. 1 and 2). Oersted thus showed that an electric current possesses magnetic properties similar to those of the ancient lodestone.

The principle is now used to detect the presence of electric currents, in the form of a "galvanometer." This instrument consists of a delicately-poised magnetic needle, placed in the centre of a hollow coil of wire. When a current is passed through the coil it affects the needle, just in the same way that Oersted's needle was deflected by the current in the neighbouring wire. The amount of deflection varies according to the strength of the current, and is recorded by a pointer which moves over a graduated scale.

Faraday

No further discoveries of importance in connection with magnetism were made until the work was taken up by Michael Faraday. Faraday was the son of a blacksmith, and was born at Newington Butts, London, in 1791. He was apprenticed to a book-binder when 13 years of age, and little did his master imagine that the boy was destined to become one of the most brilliant of British scientists.

Faraday devoted his leisure hours to science, however, and made experiments with an electrical machine of his own construction. In 1812 he was able to obtain admission to the chemical lectures of Sir Humphrey Davy, and later was engaged as his assistant at the Royal Institution. In 1827 Faraday succeeded Davy as Professor



Fig. 1

Normal Compass Needle

of Chemistry at the Royal Institution. Oersted had produced magnetism by electricity, and this suggested to Faraday the possibility of obtaining electricity from magnets, by reversing Oersted's experiment. Following this line of thought Faraday found, in 1831, that if a magnet be moved to or from a coil of wire, an electric current is produced in the

wire. He thus showed that there is a close relationship between electricity, magnetism, and motion. Bodies that are electrified and are in rapid motion, produce magnetic fields around themselves, while a magnet in motion has the power of creating currents of electricity in conductors that are close to it.

It is this discovery of Faraday's that forms the basis of Radio, for in an exactly similar manner when the waves of magnetic force, radiated from a transmitting station, encounter the wire

of an aerial and sweep across it, they induce in it minute electric currents. At the time Faraday made his discovery, Radio was, of course, quite unknown, and he could not have had any idea of using his discovery for communicating without wires. He simply laid the foundations, as it were, upon which succeeding workers erected the completed building.

In addition to other important discoveries arising from it, Faraday's work was of the utmost consequence to science in later years, for it was the means of leading another great scientist, Clerk-Maxwell, to investigate electro-magnetism with brilliant results, as we shall read later.

Henry

While Faraday was at work in England, another scientist, Joseph Henry, was studying electricity and magnetism in America. Henry



HENRY

Joseph Henry was born in 1799 in Albany, New York. He became professor in Mathematics at the Academy, and in 1846 was elected the first secretary of the Smithsonian Institution. To a large extent his researches in Electricity and Magnetism prepared the way for the inventions of Professor Morse. He died at Washington on the 13 May, 1878.

was apprenticed to a watchmaker and studied science as a hobby. Having saved sufficient to pay his fees, he took a course of instruction at the Academy, becoming (in 1823) Professor of Natural Philosophy at Princeton University.

Apart from his great services to the Smithsonian Institution, Henry's name is associated with the discovery of many electrical phenomena, including the relation between a number of coils of wire wound around an electro-magnet and the construction of a battery to work it. He also discovered a singular form of electrical induction by which a current of electricity, passing through one coil of wire, induces another current in a second wire near by, but not connected to the first coil.

Henry's researches in electricity and magnetism prepared the ground for Professor Morse, who, as we shall shortly see, invented one of the earliest practical systems of wireless telegraphy by "conduction."

Towards the close of the 18th century, the advances in electricity caused scientists to devote



Fig. 2

Compass Needle deflected by electric current

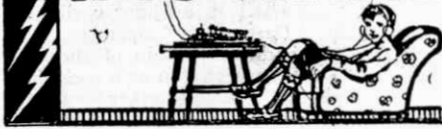
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FARADAY

Michael Faraday was born at Newington Butts, London, on the 22 September, 1791. He was one of the most distinguished chemists and natural philosophers of the 19th century. For some time he acted as assistant to Sir Humphrey Davy, with whom he travelled on the Continent. On returning to this country Faraday carried out experiments which ultimately led to the discovery of the condensation of gases in liquids by pressure. He died at Hampton Court, 25 August, 1867.

RADIOGRAMS



The time is not far distant when passengers undertaking long railway journeys will be able to enjoy selections of music, concerts, etc., from the Broadcasting Stations.

Twenty-three years ago the first experiments in wireless telegraphy at sea were carried out on a Cunard Liner. A new era in the history of wireless communication with ships at sea commenced last month, the ship chosen for this first demonstration being the Cunard liner "Berengaria."

This new era commences with the introduction of the Creed instrument, which makes possible automatic reception and transmission of messages at very high speeds. This will prove a great advantage to the trans-Atlantic liners, which, in addition to publishing wireless newspapers, also transmit a vast number of private messages for their passengers.

The Secretary of the Airdrie Meccano Club writes that the Club is having very fine results with a four-valve Radio Receiver recently installed. A short time ago the members heard a concert transmitted from the north of France. The voices of the singers were very clear, and even the piano could be heard quite plainly.

It is rumoured that Senator Marconi will shortly make another cruise in his yacht "Elettra," with the object of experimenting with a new apparatus he has invented for cutting out interference and "over-hearing" in radio telephony.

The staff of Leicester Gaol and some of the prisoners recently "listened-in" to a musical programme broadcast from Birmingham. This is the first time that a wireless demonstration has been given in a gaol and it was much appreciated, especially by the prisoners.

The Men Who Gave Us Radio—(cont.)

some time to endeavouring to use this new force for communication between distant places. Their efforts were directed to two methods—with and without wires, with the former of which we are not at the moment concerned. The development of the latter method may be conveniently divided into three stages, Conduction, Induction and Radiation.

We have already mentioned that current electricity is obtained from batteries or cells that consist of copper or zinc, immersed in an acid. Each of these metals gives a different kind of current—copper gives a positive and zinc a negative current. If you look at any electrical apparatus, such as an electric bell or an electric globe, you will see that two terminals are provided to accommodate the two wires, carrying the positive and the negative current. These currents cannot be made to do work

"LISTEN-IN"



GUARANTEED

THE MECCANO

RADIO RECEIVER NO 1

For Broadcast and Morse Reception

The Meccano Crystal Receiving Set is a piece of scientific apparatus with which anyone may spend hours of delight and enjoyment "listening in" to broadcasting stations and other telephony transmissions.

It has been thoroughly tested and has received with great clearness music and speech in London, Birmingham, Manchester, and elsewhere, up to distances of 33 miles from the broadcasting station.

Low in cost and complete in itself, ready to be connected to any aerial, the Meccano Radio Receiving Set will provide hours of fun and entertainment.

PRICES:

MECCANO No. 1 CRYSTAL RECEIVING SET, complete	55/-
MECCANO AERIAL SET (including antenna, lead-in and aerial wires and insulators)			12/6

A splendid booklet, "The Meccano Crystal Receiving Set," explaining how easy it is to receive broadcasting, will be mailed free on application.

Address ; Department R1, MECCANO LTD., BINNS RD., LIVERPOOL.

separately, but must both be used together. For this reason it is said that "a circuit must be completed" to allow a current to flow through the battery to enable an electric bell to be rung. The circuit is completed, through the bell and through the lamp, when the "bell-push" is pressed or when the light switch is "on." Then, and only then does the current flow, because it is able to find an unbroken path along the wire, through the bell or lamp, and back to the battery along the other wire.

Sommering.

In the early days of the telegraph it had been found that, just in the same way, two wires must be used in order to actuate the instrument. In 1811, however, a German scientist named Sommering, who was experimenting with a form of telegraph, suggested using water in place of wires to conduct the current. He found

that if each wire was interrupted by a tub of water, the current was conducted to the instrument just as though wires had been used all the way.

This was one of the earliest methods proposed for communication without wires, but the difficulty was that the signals ceased when both wires were dipped into the same tub. As two separate bodies of water are not often to be found together in natural conditions, Sommering believed his suggestion to be impracticable. As a matter of fact, had he been able to use a more delicate instrument for recording the signals, he would have noticed that a minute current did cross the water, even when both wires were introduced into the same tub.

NEXT MONTH
STEINHEIL, MORSE & LINDSAY

Radio Replies



C. R. King (Acton, London, W.3.)—A licence for the reception of broadcast costs 10/- and is obtainable from any Post Office. It is not necessary to approach the British Broadcasting Company in any way.

J. Moxham (Preston).—You have certainly misunderstood the advertisement as regards being able to receive in England concerts, etc., broadcast from Paris and New York upon a Meccano Crystal Receiver. Broadcast has been received perfectly on Crystal Receivers installed within the usual radius from each of the above-named centres.

P. Maitland (Chester).—It is not possible to gain perpetual motion from an electric motor that drives a dynamo and by using the current thus made to drive the motor. One reason only why this is impracticable is that perpetual motion should last for ever, and both machines would wear out in a very short time.

C. Trotman (Brighton).—The Meccano Set will receive on wave lengths from zero to approximately 1,000 metres.

N. Reynolds (Middlesbro').—The concerts broadcast from Newcastle are not connected with the concerts that are broadcast from Marconi House. Anyone at a distance of 20—25 miles from Newcastle or London with a Meccano Receiver and a good aerial can hear either but not both.

T. Williamson (Darlington).—The Meccano Crystal Set gives perfectly satisfactory results within a normal range. The addition of a low frequency valve amplifier would not increase the range but would only strengthen the signals received.

D. Davies (Great Yarmouth).—As you are situated 100 miles from a Broadcasting Station a Crystal Receiver would not be serviceable for the reception of broadcast. It would enable the reception of code signals from ships at sea, however, and telephony within a range of 10—20 miles from Paulhan, the Air Station in Norfolk. Within this radius you should be able to hear the operator in conversation with aeroplanes on the cross-Channel route, and also in conversation with the Air Station at Croxford.

L. C. Dennis (London, W.11).—You would probably be able to receive broadcast on a large indoor frame aerial with a Meccano Crystal Set, in view of the fact that you are so near a Broadcasting Station. From what you tell me of the distance of your house from Marconi House, I think you would obtain better results with an aerial formed of wires strung across the room.

H. G. Chick (Barry).—In order to receive broadcast from London, Paris and New York, it would be necessary for you to employ a four or five Valve Set.

S. Marsh (Bradley, Staffs.).—If your difficulty in regard to aerial and earth wires is that of connecting them to the Meccano Receiving Set, we would mention that the terminals on the Set are clearly marked "Earth" and "Aerial."

N. G. Pagam (Johannesburg).—You would not, of course, be able to receive broadcast from Cape Town at Johannesburg because the distance between the two places is over 1,000 miles. We are afraid that you cannot expect to hear anything interesting in the way of broadcast, unless there are amateur stations in your district. At the moment, we have no information on this point, but are making enquiries from our South African Depot.

F. Hulatt (Lambeth, S.E.1.).—It is not clear what type of condenser you contemplate making. Is this a blocking condenser or a variable condenser? We shall be pleased to give you further information on hearing from you.

A. Johnson (Liverpool).—As we do not know the particular type of varnish you are using, we cannot give you any information regarding thinning it. If the solvent is methylated spirits, you should add more methylated spirits, or if alcohol—which is the solvent for shellac—you should add more alcohol.

N. Wilson (Stalybridge).—In regard to your aerial you will gain better results by having the two wires more than two feet apart. Your spreaders should be at least 5 ft. in length. Your aerial is not high enough to be efficient, and we suggest that you raise it at least 10 ft. at each end, and, if possible, make it longer. If you follow these instructions you should have no difficulty whatever in receiving broadcast from Manchester.

R. F. Archer (Greystones).—At present we have no knowledge of any Broadcasting Station in Ireland. In order for you to receive Concerts, etc., broadcast from London and Paris, it would be necessary for you to employ a Valve Set, as telephony can only be received with a Crystal Set at distances up to about 20 miles.

S. Thompson (Glasgow).—(1). A condenser may be made with sheets of mica and pieces of tin-foil. The more numerous these are, the greater will be the capacitance. (2). This is determined by the circuit used and the purpose for which the receiver is employed.

Saving Lives at Sea

One of the greatest benefits that Radio has conferred upon humanity is the possibility of communicating with ships at sea. Not only is this a commercial advantage, enabling messages to be sent by passengers on the high seas to stations on land, but it has been of inestimable benefit in cases of emergency or disaster at sea.

Already thousands of lives have been saved by the fact that by wireless, ships in distress were able to call other ships to their assistance. No more famous example of the benefit of Radio in this connection could be given than the case of the "Volturno," which (on the 9th October, 1913) caught fire in mid-ocean.

A Famous "S.O.S."

The "Volturno," a British steamship, was carrying over 600 emigrants from Rotterdam to New York when fire broke out. The flames spread rapidly through the hold, explosion succeeding explosion.



Photo by courtesy]

[Cunard Co. Ltd.

A gale that was raging at the time prevented the passengers taking to the boats, and many lives were lost in the attempts to escape by these means.

The captain of the "Volturno" ordered the wireless operator to send out "S.O.S." calls for help. The Cunard liner "Carmania," receiving the call, steamed full speed to the rescue, repeating the "S.O.S." to all vessels within her range. Ten vessels in all responded to the call. They stood by the burning ship but were powerless to help because of the furious gale. Boats were launched but were staved in. Rafts were lowered but could not combat the fury of the waves.

In the meantime the wireless operators of the ships that were standing by, were in close touch with the operator on board the "Volturno" and pointed out that it was impossible to effect a rescue until the sea calmed. At last there came this despairing message from the "Volturno." "For God's sake help us, or we perish."

Oil on the Troubled Waters

In the meantime the "Carmania's" operator had been calling far and wide "Is there an oil-tanker boat in the neighbourhood?" At last a reply came from

the "Narragansett," which promised to "be with you with oil at 6-0 in the morning."

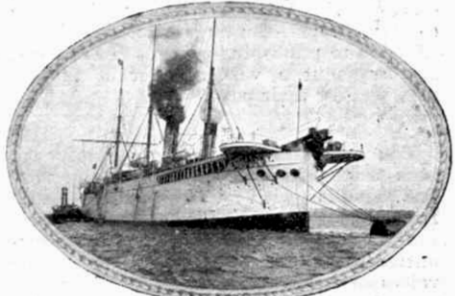
"Can you make it an hour earlier?" queried the "Carmania's" operator.

"Yes," replied the captain of the oil-tanker, "I will be with you at 5 o'clock."

By daybreak the oil-tanker was in position and pumped out tons of oil upon the sea, thus calming the waves. This action enabled a flotilla of boats to surround the "Volturno," and the work of saving the passengers proceeded apace. Of these 521 were saved, all of whom owe their lives to wireless.

Our illustration shows the Marconi cabin on board a Cunard liner, similar in detail to that on board the "Carmania." The apparatus shown is a Marconi 5 k.w. spark transmitter with a coil emergency set. The receiver is a multiple tuner and the old form of magnetic detector, which in the modern ships is now replaced either by a crystal or a valve detector.

A Famous Cable Ship



In next month's issue of the "M.M." we shall publish a short account of the famous cable ship "Faraday," illustrated above. If you have not yet placed a regular order for the "M.M." with your dealer do so without delay, or order direct from this office. The price is the same in either case, 6d. for six issues or 1/- for 12 issues.



The installation of the stations at Cardiff and Glasgow will probably complete the chain of broadcasting stations that will be proceeded with at present.

The Cardiff Broadcasting Station is now in nightly operation on a wave length of 353 metres, the call-letters being 5 W A. Transmission commences at 6.30 and continues until 10.0 p.m.

The Sunday concerts from the Hague are still being continued, but it is not contemplated that the Thursday evening concerts will be resumed.

The call-letters of the Birmingham Broadcasting Station have now been changed from 2 W P to 5 I T.



The Secretary's Notes

The activities of the Clubs in general have been very varied and considerable during the Second Winter Session. Undoubtedly enthusiasm for Club work continues to grow, as is evidenced by the fact that the membership of nearly all Clubs shows large increases. Although several Clubs closed the Session with an Exhibition, Concert, or Social, the majority have decided to continue in Session during the Summer months. This is an excellent decision, for it gives an opportunity for forming Cricket or Rambling Clubs by which the members not only may continue to enjoy the Club fellowship, but also are kept together, ready to commence the First Winter Session in September.

Last year we introduced a Club Membership Card, and this has been in very great demand. Will Club Leaders and Secretaries please note that my stock of these Membership Cards is now entirely exhausted and that further supplies will not be available until the Autumn. In the meantime I shall be pleased to receive any suggestions for alterations in the form or design of the existing Membership Card.

To "lone members" of the Guild, the Correspondence Club offers a splendid opportunity for making friends with some other Guild member. Many lasting friendships have been made through this channel, and thousands of Guild members have been placed in touch with other Guild members in all parts of the world. In almost every country in the world there are Meccano boys eager to correspond with other Meccano boys.

At present I know of several American Meccano boys of 10-12 years of age who are desirous of being placed in touch with Meccano boys in England. Any Guild member of 10-12 who is desirous of corresponding with an American boy, or with a boy in any other part of the world, should ask me for particulars of the Correspondence Club.

M CLUB NOTES G

St. John the Baptist's (Toxteth, Liverpool) M.C.—Has concluded a very successful session which included a lecture on "Wireless" by the Club Secretary, who brought his Wireless Set for the occasion. The lecture was greatly enjoyed, and secured Master Adams a Special Merit Medallion. Secretary: Master W. H. Adams, 11, Ballington Street, Liverpool.

Central Secondary School (Sheffield) M.C.—The programme for the Second Session included visits to local Printing Works and Railway Carriage Works, Wireless Demonstrations, Lectures and Model Building. Good progress is reported in every direction. Secretary: A. S. Taylor, Fern Lea Villas, 19, Roach Road, Eccleshall, Sheffield.

Bradford Wireless M.C.—Meetings are held every week at Drummond Road Schools, and the present membership stands at thirty. The Club Leader has presented the Club with a two-valve Set and broadcast has been well received from 2ZY Manchester, 5NO Newcastle, and 2LO London. Secretary: L. Jowett, 19, West Park Terrace, Four Lane End, Bradford.

Sparkbrook M.C.—The Club has been divided into four sections, under which arrangement considerably better progress is made. An interesting Lantern Lecture was given recently, and a Concert and Exhibition have been held. Secretary: F. J. Hubbard, 71, Turner Street, Sparkbrook, Birmingham.

1st Herne Bay M.C.—The Club is proceeding very satisfactorily. The two Meccano Lectures "The Story of our Ships" and "Lives of Inventors" were both greatly enjoyed. All the members are keen and enthusiastic. Secretary: C. W. Russell, 4, Clifton Villas, South Road, Herne Bay.

Wisbech M.C.—The membership is increasing and the Club is making good progress. Exhibitions are held frequently, and the Meccano Lecture "The Story of our Ships" was received with enthusiasm by the members. The Club may produce the play "Nonsense Nana" in the near future. Secretary: S. Ketteringham, 99, Norwich Road, Walsoken, Wisbech.

South Kirkby M.C.—Towards the end of the Second Session a very successful "At Home" was held, at which was a fine display of models. A sketch entitled "The Judge" was performed, and proved highly entertaining and amusing. The usual Club work is being carried out with enthusiasm. Secretary: J. Williamson, School House, South Kirkby, nr. Wakefield.

Butt Lane Council School M.C.—The Second Winter Session commenced on 12th January, and meetings have been held regularly throughout the three following months. Competitions have been held from time to time, and the Session has been very enjoyable. Secretary: P. Ray, 147, Congleton Road, Talke, Staffs.

Stanley Road (Worcester) M.C.—This is one of the most flourishing of our Meccano Clubs, and the progress made has been steady and continued. The enthusiasm of the boys never flags, and it is evident in all the Club work. The Club accounts show a good balance on the right side, and the Club membership is increasing. Secretary: R. J. Greenway, 173, Wylde Lane, Worcester.

Luton M.C.—The very interesting programme arranged for last Session included Lectures and Papers by members, a Wireless Demonstration, and a Bazaar. The latter was held in connection with the Church, and a very fine display of models was given by the Club. Secretary: W. Humby, 34, Adelaide Street, Luton.

Grimby Central M.C.—The Club membership is increasing and many interesting Lectures, including "Wireless" and "Locomotives" have been given during the past Session. A model of the Transporter Bridge was loaned from Headquarters to the Club, for a demonstration and talk by the Leader. Towards the end of the Session a very successful Exhibition was held. Secretary: Leon Whiten, 53, Torrington Street, Grimby.

Southall M.C.—Making excellent progress, and membership growing every week. A Club Competition was held recently in the Public Library, when some splendid models were exhibited. The models were divided into three classes, and Mr. Jensen, engineer of the Maypole Works, judged the exhibits. Prizes were awarded as follows:—Class 1, Master Carpenter (Railway Crocodile Lorry), Master Carr (Gramophone). Class 2: Master Bradley (Railway Tank Engine), Master Gale (Planing Machine). Class 3: Master Watson (Motor Cycle and Side Car), Master Arnold (Motor Chassis). Secretary: R. Watson, 2, Waltham Road, Southall.

Westview M.C.—The enthusiasm of the members of this Club increases rapidly. New attractions and hobbies are constantly being introduced, the latest being Stamp-collecting. The members are fortunate in that the Leader of this Club, Mr. Cousins, has a splendid collection and is an ardent philatelist. A novel Exhibition, held during the Second Winter Session, was the Nottingham Goose Fair in miniature. A very creditable display of models was given, including Cakewalks, Try-your-Strength Machines, Coconut Shies, Mountain Railways and Swings. Interesting Competitions have been held also, and altogether the Club is a very alert and progressive one. Leader: Mr. H. Cousins, 494, Mansfield Road, Sherwood, Nottingham.

Clubs Recently Affiliated.

Combe St. Nicholas (Chard) M.C.—Formed last November, this Club has only recently become affiliated with the Guild. It is connected with the Combe St. Nicholas School, and is under the direction of the Headmaster, Mr. F. H. Wheaton, and at present there are sixteen members. The Leader of the "Chard" has taken a keen interest in the formation of this Club. Secretary: A. Long, Combe St. Nicholas School, Chard.

King Edward (Birmingham) M.C.—This Club was established by the members, and when meetings were being held regularly they obtained an adult Leader. Affiliation was then granted, and I have no doubt that the Club will make excellent progress. Leader: Mr. I. McMaster, King Edward School, Birmingham.

United Schools (Melton Mowbray) M.C.—Connected with a Boys' Class at the Wesleyan Chapel in Melton Mowbray, this Club has already made good progress and the membership is rapidly increasing. Leader: Mr. C. R. York, Danetree Cottage, Welby Lane, Melton Mowbray.

Clubs not yet Affiliated.

Purley M.C.—Meetings are held every Monday, and when the Club comes under the guidance of a responsible adult, it is hoped to affiliate it with the Guild. Secretary: J. Telford Haywood, The Anchorage, Brighton Road, Purley.

Bombay (India) M.C.—This Club, whose members are keen and enthusiastic, will probably become affiliated in the near future. Secretary: K. R. Dholoo, Lentin's House, Foras Road, Tardec, Bombay.

Meccano Club Leaders

No. 1. Mr. F. W. BULL
(Leamington M.C.)



Mr. F. W. Bull is the energetic Club Leader of the very successful Leamington Meccano Club. This Club, which has 38 members, was affiliated with the Guild early in January 1920. The Club's Minstrel Troupe has been very successful, and is a great asset in raising Club funds. Under the active leadership of Mr. Bull the Club has taken up Radio. Many of the members possess Receiving Sets, some of which have been constructed by themselves.

Kenyon Hall College M.C.—A very interesting series of Lectures have been given in connection with the Club programme, including: "Mining" (G. R. D. Grattan), "The Steam Engine" (Arthur Morgan), "Bridge Building" (Ronald Lydiatt), "Cotton Spinning" (J. C. Brindley), "Chemistry" (Stanley E. Wood). In a Lecture on "Indian Curries," F. Osborn Sefton, after having described how curries are made, demonstrated the use of the same by making, in Indian fashion, sufficient curried rice to provide a good supper for all the house, to the intense enjoyment of everyone. The Kenyon Hall M.C. are to be congratulated on their excellent series of lectures. Secretary: Master J. W. Mayhew, Kenyon Hall College, Kenyon, nr. Manchester.

Victoria (Glasgow) M.C.—A "Visitors' Night" is held occasionally in connection with this Club, on which occasion friends and parents of members visited the Club. Interesting Lectures included such subjects as "Ship Construction" and "How Ships are Driven." Recently a Whist Drive and Dance, held in order to raise funds, realised sufficient to purchase a No. 5 Outfit for the general use of the Club. Secretary: Ian Kerr, 57, Victoria Park Drive, Whiteinch, Glasgow.

Third Photographic Competition Results

First Prize :



Photograph by]

[Master F. Done

"A Wintry Sky"

It certainly seems that each Photographic Competition is destined to be a greater success than the last, and to bring specimens of work of increasing merit. The entries I have received for the Third Photographic Competition, the subject of which was "A Winter Scene," prove beyond doubt that among Meccano boys are to be found photographers sufficiently expert to obtain really fine out-of-door pictures, even during the dull days of winter when the light is admittedly none too good for photography.

The past winter has been of a notably mild character, and in many places until the middle of February there was no snow. This fact did not deter one competitor, however, who liberally besprinkled his "scene" of a (Hornby) train accident with whitening, giving a very realistic representation of a blizzard!

Master F. Done, of Northwich, who has been awarded the first prize, contributes an excellent picture in which bare trees

Second Prize :



Photograph by]

[Master Webb

"Hawarden Gardens in Winter"

Third Prize :



Photograph by]

[Master C. McCusker

"After the Snowfall"

are silhouetted against a wintry sky and reflected in a lake. Master Webb, of Stockport, winner of the second prize, brings out to the best advantage the effect of the snow-laden branches of the fir trees in Hawarden Gardens. The third prize has been awarded to Master C. McCusker, Thornaby-on-Tees, whose line of gaunt trees stretching away into the distance form the only relief in a white landscape, with an impression of miles of snow-covered land laying beyond.

Famous Hidden Treasure Story

Heads List of "Six Best Books for Boys"

Results of our Recent Competition

THE entries for this Competition were very numerous, and it appears to have been one of our most popular Competitions. It is very evident, from the post-cards received, that adventure stories easily hold first place in the heart of the modern boy. "Treasure Island" heads the list of favourites, but "Robinson Crusoe" comes a very good second with only 30 votes less, "Tom Brown's School-days" is not far behind, whilst "Coral Island," "Swiss Family Robinson," and "The Fifth Form at St. Dominic's" follow in the order mentioned.

I have pleasure in announcing that Master B. J. Riordan, of Belfast, is the winner of the Competition, and the prize, a No. 1 Hornby Train Set, has been despatched to him. The second prize (Meccano Clockwork Motor), has been awarded to Master L. Elledge, of Wolverhampton.

For some time I have been in doubt as to the type of books that appeal most to boys of to-day, and I therefore looked forward to the results of this Competition with more than usual interest. It is interesting to find that adventure stories have proved to be the favourites, with school stories a good second. The fact that Robert Louis Stevenson's "Treasure

Island" comes out "top of the poll," will not surprise those who have read this enthralling adventure story. Incidentally it may be mentioned that "Treasure Island" is now to be seen at one of the leading theatres in London, with the well-known actor, Mr. Arthur Bourchier playing the part of Long John Silver.

It will be noticed that the most popular books are stories that have been favourites for many years—indeed many of the competitors' fathers will remember some of the books referred to as being favourite books when they were boys! It is gratifying to know that these old favourites have not been excluded in favour of the more recent adventure stories which, however thrilling they may be, sometimes seem to lack the atmosphere of genuine adventure.

IMPORTANT NOTICE.

We are constantly asked to supply back numbers of the "M.M." We print only sufficient copies to fill our regular orders, and back numbers cannot therefore be supplied. In order to prevent disappointment our readers are advised to place a regular order, either with a Meccano dealer or direct with us.

Have you Sharp Eyes?

A Challenge to Meccano Boys

We have always maintained that among Meccano boys are to be found the sharpest and most intelligent boys in the world. We were very surprised, therefore, a short time ago, when in conversation a gentleman maintained that Meccano boys had no more intelligence than any other kind of boys!

As he claimed that he could submit a test that would demonstrate his contention, we, of course, accepted his challenge at once, and invited him to send along his suggestion. It is so long since we heard from him that we had concluded that he intended going no further with the matter, but we have now received a drawing from him, which we must confess is both singular and puzzling. It is a picture of a locomotive, and nothing seems right on it, except that there is no doubt that it really is meant to be a locomotive! Our friend writes to say that he is prepared to give a handsome prize to the Meccano boy who will specify every error that he has made in his drawing, and our readers can accept our word for it that this will not be too easy a task.

The drawing is now in the hands of the block-makers, and we shall be able to reproduce it in the next issue of the "M.M." The fair name of a million Meccano boys is at stake, and we want the help of every reader to ensure that the Meccano reputation for intelligence and sharpness is maintained.

OUR MAIL BAG



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

L. Show (Rugby).—We may resume the featuring of a new Meccano model in each issue a little later. Why not enter your suggestions for the improvement of the "M.M." in the special Competition now running?

A. Ritchings (Putney).—We are afraid we cannot tell you much about Irish terriers. Why not consult a local dog fancier? One of our young friends, who has a dog of this breed, calls it "Meccano," and it is always healthy and lively. You might try re-naming yours!

L. Goodman (Stepney).—"Every day in every way the 'M.M.' gets better and better." It is also going to get bigger and bigger, Leon. We are still considering a drawing competition.

R. J. Peace (Halifax).—Perhaps it was "absurd" to ask you if you still read the "M.M." However, we know now that you are a regular reader, and we hope to hear from you often.

R. Gandey (Wainscott).—You carry with you our best wishes for your success in Canada. We hope to find you a suitable correspondent in this country.

Rev. D. W. Robson (Chesterfield).—"My boys and myself are too much interested in Meccano, and in your fine Magazine, for us to cease taking it in." We thank you for your kind communication, and we are gratified that Meccano has brought additional pleasure to your home.

B. G. Papaconstantino (Athens).—We quite believe that few boys understand the theory of Relativity, and the great difficulty is to explain it in simple language to boys who have not yet acquired a knowledge of the numerous and powerful forces that are operating in our universe. All this, however, will probably not deter us from making the attempt some day.

P. Harthill (Wolverhampton).—Thank you for your nice group photograph, Philip. Your combined smiles come like a ray of sunshine to us. Father certainly looks a little stern, but being a father ourselves, we know why! Mother is just mother, and you are all lucky children.

J. Locke (Victoria, B.C.).—"I got a bike the other day and I like it. I fell off it the day before yesterday and now I can't ride it. Darn!" You shouldn't say that, Junior! We hope the bruises are all healed up now and the bandages off; but go carefully in future. We think we shall be able to use your riddle.

M. Dohrn (Auckland, N.Z.).—Your letters are always interesting, and some day we may be able to publish some of your descriptions of life in Auckland. We look forward to receiving photographs of local subjects that you will no doubt take with your new camera.

Ernest Taylor (Northenden).—

"Each Outfit is with pleasure filled
And so is the Meccano Guild,
And now I shout with happy glee,
Meccano is the toy for me."

Your Headmaster sent us your little poem, the last verse of which we quote. It is a commendable effort, and we have no doubt you gained full marks for it. We should like to hear from you and to know how you are progressing with Meccano model building.

J. E. Goran (Melrose).—"How can a person run through a book without making a hole in it? And how can a person stand sitting in a chair?" These problems are getting the better of us. Can anyone help us?

John Railton (Blyth).—

"Weeping Willie Dadd
Was always very sad
Until Meccano he did get
And now he's very glad."

You have given us Willie's life story in a nutshell, John! That kind of thing is happening daily all over the world, hence the extraordinary success of Meccano.

C. Channon (Wellington).—Occasionally we have been a little late in issuing the "M.M.," but we are making such arrangements with our printers as will ensure prompt publication in future. You will presently see even further improvements in the "M.M."

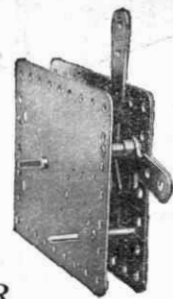
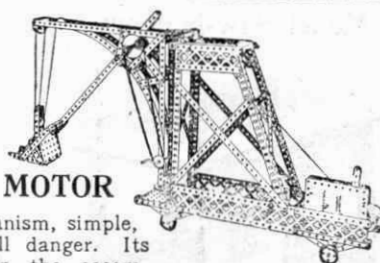
E. J. Pearce (Bristol).—Your poem on the joys of Meccano, composed after the style of Longfellow's "Hiawatha," is very good indeed, but a little too long to print here.

Drive Your Models
With Your Own Power

MECCANO CLOCKWORK MOTOR

This is a splendid piece of mechanism, simple, powerful, reliable and free from all danger. Its adaptability is strikingly shown in the accompanying illustration of the Mechanical Navy, one of the many models into which it may be built. It is fitted with starting, stopping, and reversing levers, and all its movements are fully explained in the instructions that accompany it.

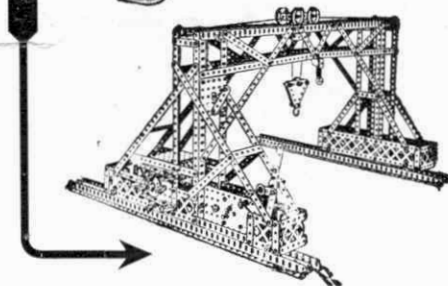
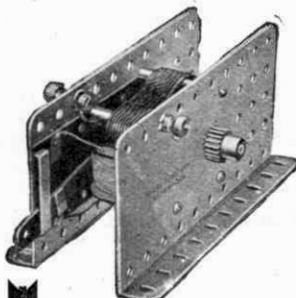
Price ... 9/-



MECCANO ELECTRIC MOTOR

The Meccano Electric Motor is strongly made, and has been specially designed to build into Meccano models, as is shown in the accompanying illustration of the Travelling Gantry. It is the most reliable and powerful model electric motor made, and when suitably geared will lift over 30 lbs. dead weight. It may be run by a 4-volt accumulator or, by employing the Meccano Charging Board and 4-volt accumulator, direct from the main, where the current supplied is direct. It is fitted with reversing motion and stopping and starting controls.

Price ... 12/6



The King and the Meccano Motor Chassis

The British Industries Fair held recently in London was a very wonderful exhibition. Hundreds of stands displayed the very latest novelties in toys and other lines that will shortly be put on the market.

H. M. the King, and his party, were very interested in the various stalls and were very keen upon learning all there was to know about the various exhibits. Of course, Meccano Ltd. were represented, and His Majesty stopped to admire the Hornby Train Pullman set that was merrily running around its track at the time of his visit. The King, however, was more especially interested in the model of the Meccano Motor Chassis, of which he expressed his appreciation. The various points of its realistic mechanism were demonstrated to him by the representatives on our stand.

G. Hopkins (Upper Parkstone).—Thank you for your neat letter which, for a beginner, is very nicely typed. We hope you will keep well and strong and not have to go to the hospital any more. We shall always be pleased to hear from you.

J. F. Harris (Tuchbrook).—It was bad luck to be taken ill just as you were about to launch on your business career. Undoubtedly Meccano played a strong part in restoring you to health. We hope soon to hear that your recovery is quite complete, and that you have taken up work in real earnest.

J. Smith (South Shields).—We are pleased to see your interesting photographs, which we should like to keep by us. We have many interesting articles on famous engineering wonders waiting their turn to appear in the "M.M."

Meccano Competition at Malta

A very successful Meccano model-building Competition has been held at Malta, and a large number of enthusiastic Meccano boys took part. The Competition was judged by Capt. L. C. Humphreys, A.S.C., himself an exponent of Meccano, and the names of the prize winners were published in the local press. The models submitted were many and varied, and several of the entries showed particular ingenuity and constructive skill.

It gives me great pleasure to see the names of several of my young friends among the winners, and I heartily congratulate them upon their successes. The following are the names of the winners of first prizes:—

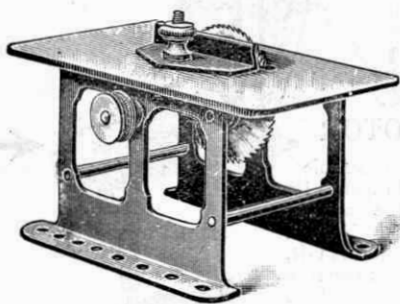
Section A. Tom Calman (Deck Chair).
" B. Edward Bonnici (Motor Omnibus).
" C. Alec Issigorins (Lathe).

W. G. Miller (Westcliff-on-Sea).—We are very glad indeed to know that Meccano has been such a help to you, and that you consider the hobby has played a big part in securing for you the position that you hold. We very much appreciate your promise and your good wishes.

H. Ray (Tettenhall).—Most boys are very fond of Red Indian stories, and you must surely be the rare exception which proves the rule. We hope that "A Nigh at the Pool" will cause you to change your mind.

H. Atkins (Letherhead).—"I was grieved to hear of the untimely end of my subscription. The coroner brought in a verdict of 'Death through Neglect' and severely censured the subscriber, who promised that it should not occur again!" A promise is a promise, Harry, and your good name has now no stain on it. You will receive the "M.M." regularly for a year.

Model Saw-benches



We have a number of model saw-benches suitable for use with electric motors or vertical steam-engines. Our stock is limited and readers are advised to take advantage of this offer immediately, as the stock will be quickly exhausted.

Model saw benches as illustrated, each 4/- (postage 7d.).

New Meccano Parts



- 116 Fork Piece ... each 3d.
- 117 Steel Balls, 3/8" ... per doz. 6d.

A Useful Tool



Our illustration shows a type of screw-driver useful for reaching bolts in inaccessible places on models. For this reason the blade has been made so that it may be passed through the standard Meccano hole to reach bolts so placed. We are disposing of these screwdrivers whilst our stock lasts, at the special price of 10d. each, post free.

Sale and Exchange

Small advertisements are inserted in these columns at 1/- per line (average seven words to the line), or 10/- per inch (average 12 lines to the inch). Cash with order. Rates for larger space quoted on application. Address your letter to Advertisement Manager, "Meccano Magazine," Binns Road, Liverpool.

10/6 FOUNTAIN PENS, twelve only left, 1/9 each, post free. Box No. 21, c/o "Meccano Magazine," Liverpool.

HORNBY TRAIN SET No. 1 PASSENGER complete with rails, etc., post free 25/-. Meccano No. 2 Outfit, 10/6, post free. As new. Box No. 29, c/o "Meccano Magazine," Liverpool.

CLOCKWORK MOTOR 5/- Clark, The Retreat, Ulpha, Broughton-in-Furness.

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

3 JAMAICA PICTORIAL FREE to all buyers of Packet No. 444 who ASK FOR APPROVAL SHEETS. The packet contains 55 BRITISH COLONIALS, including Malta (War Tax), Gibraltar, Bechuanaland, Cayman, Morocco Agencies, "China" on Hong Kong, Bhopal, etc. Price 6d., postage 1 1/2d. (abroad 5d.).

FINE SERIES OF APPROVAL SHEETS. Several sections. Suit all classes of collectors. Write for a selection and say what countries interest you.

Exchange desired with collectors and dealers abroad. Collections and duplicates bought or exchanged.
F. C. ROWE, 86, Alma Road, Bournemouth.

MECCANO, cost £3. £2 or nearest offer. Taylor, 5, Greenfield Street, Birkenhead.

SPLENDID WORKING MODEL, comprising Beam Engine, Lathe, Drill and Mechanical Blacksmiths, length 43", breadth 15 1/2", height 17". Complete with 4-volt motor, particulars and prices on application. All Meccano Outfits, spare parts in stock. J. S. Saville & Co., Meccano Dealers, 12, Otley Road, Headingley, Leeds.

FORTH BRIDGE MECCANO MODEL, sent assembled or in parts. Cost 33/-, price 15/-. No. 3 Outfit, 15/6 post free. Never used. Box No. 35, c/o "Meccano Magazine," Liverpool.

BRITISH EMPIRE. ALL MINT.
Australia, King's Head, new colours, 1 1/2d. and 2d. the pair, 4d.
Fiji, new Scripts, 1/2d., 1d. and 2d., set of four, 5d.
Ireland, Maps, 1d. and 1 1/2d., the pair, 3d.
Malta, Queen, 1/2d. green (Cat. 6d.) 3d.
St. Helena, pictorials, 1/2d., 1 1/2d. and 2d., the three, 5d.

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

Please note the address is 82, Marchmont Street, and not 92, Marchmont Street, as given in the last number of the "M.M."

MECCANO ELECTRIC LOCO in working order. Cost over £2, price 20/-. Sixteen Electric Rails for same, cost 16/-. price 7/6. Covered Luggage Van, 2/6. Box No. 22, c/o "Meccano Magazine," Liverpool.

SPLENDIFEROSUSH! Complete instructions for recharging flash-lamp batteries, 7d. post free. Every sixth applicant has his money returned with the instructions. G. Hare, 36, Willes Road, Leamington Spa.

25 GOOD STAMPS, Catalogued 7/6. Price 6d. post free. Lewis, 362, Wavertree Nook Road, Liverpool.

SETS UNUSED SETS

F R E E Fine Set of AUSTRIA (high values), Set REAPERS (Hungary Pictorials), Set RUSSIAN (surcharged), Set POLAND (unused), and a set of GERMANY (used), together with a collection from Spain, Litwa, Finland, Roumania, etc. POST CARD asking for APPROVALS brings this WONDERFUL PACKETS.

N. M. PATERSON, 19, Dorset Avenue, RUSHOLME, MANCHESTER.

FREE. NINE AIRMAILS to purchasers of stamps to the value of 1/-. Every stamp different. 100 varieties, 5d.; 500 for 2/9; 1,000 for 7/6. *20 Bavaria (1920 opt.) (cat. 24/10), 9d.; *20 Hungary Tanacs opt., 6d.; *14 Fieldpost in Italy, 7d.; *14 Polish Silesia, 7d.; *100 Poland, 2/-; *50 Danzig, 2/-; *5 ditto, 100 to 1,000 M., 1/-; *4 Lettland Red X (printed on banknotes), 6d.; *2 Lettland Airmails 1/-; *3 Lithuania Airmails, 9d.; *5 Austrian Airmails, 9d.; *5 Russia Soviet (1st issue rare), 1-40 R., 1/6; *6 ditto, 100-1,000 R., 1/-; 5 Soviet Jubilee opt., 1/6; *11 Jugo on Bosnia Pictorials, 1/3; *7 Lettland Pictorials, 1/-; *19 Carinthia I., opt. (cat. 18/-), 2/- *Denotes Mint.

Postage extra. See last month's bargains. Overseas Orders welcomed. H. Llewellyn, 41, Dereham Road, Norwich (Member I.P.S.)

50 French Cols. 9d.	50 Portugal Col. 9d.
100 U.S.A. ... 1/-	40 Belgium ... 1/-
150 Germany 1/-	50 Railway ... 1/-
150 Austria ... 1/-	50 Poster ... 1/-
150 Hungary 1/-	50 Entire Cards 1/-
50 Czecho-Slov. 1/-	50 War Envs. 1/-
50 Roumania 1/-	300 Postage ... 1/-
50 Sweden ... 1/-	600 Postage ... 5/-
40 Italy ... 9d.	500 Revenue ... 5/-
40 Bavaria 9d.	1000 Revenue 17/6

Postage Extra.

Fine selections ready in separate countries.

J. Russell, Chetwynd, Shanklin Drive, Westcliff-on-Sea.

For Sale, **MECCANO CLOCKWORK MOTOR**, in perfect working order. Price 7/6. Frank Fitzgerald, Newtown Butler, Co. Fermanagh.

When replying to advertisements in these columns, please state that the advertisement was seen in the "M.M." By so doing you will help us.

BOYS You are not alive if you do not know what can be done with SECCOTINE. Make your models. Mend your books. Affix tyres to bicycles with it.

GIRLS Dress dolls. Make new hats and repair old ones. Mend house shoes. Patch clothes. Fix drawings to prevent rubbing. Put rings on curtains without sewing, etc., etc.

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The best general adhesive the world knows. Sticks wood, leather, bone, paper, etc., objects large or small.

Firmas (Heat Seccotine) for glass, china, delf, etc. Articles joined with it can be boiled without coming asunder. Regd. Trade Mark. Tubes 6d.

Registered Trade Mark.

Tubes 4 1/2d., 6d., 9d. Everywhere.

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IN THE HOUSE Ladies can do a thousand things in the house with it. Silks, Satins, Laces are renewed with a weak solution. **WRITE TO THE WORKS FOR A FREE BOOKLET**