

VOL. XXXVII No. 11

NOVEMBER 1952

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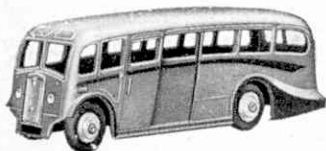
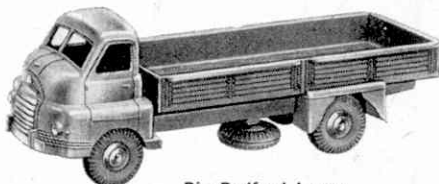
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6/10

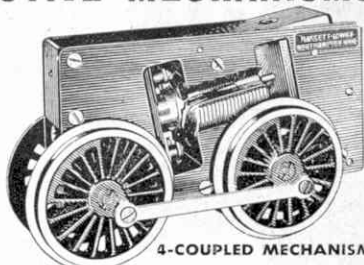
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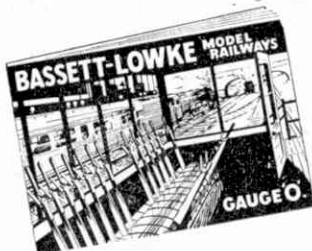


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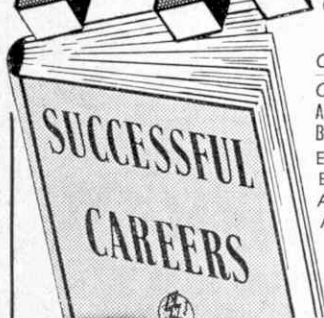
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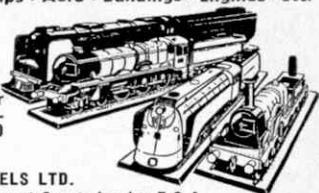
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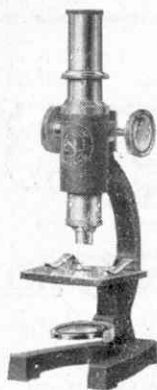
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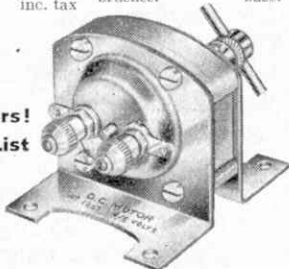
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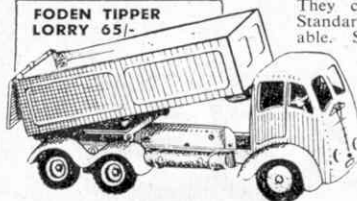
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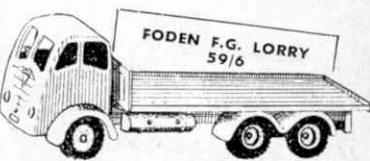
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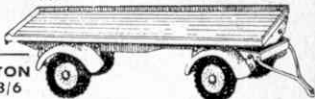


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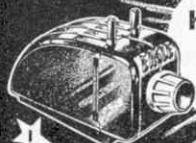
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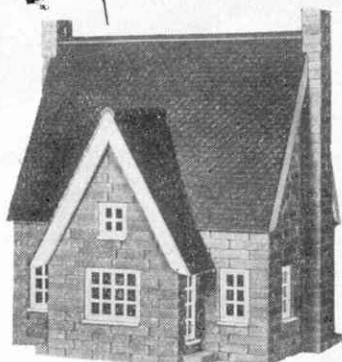
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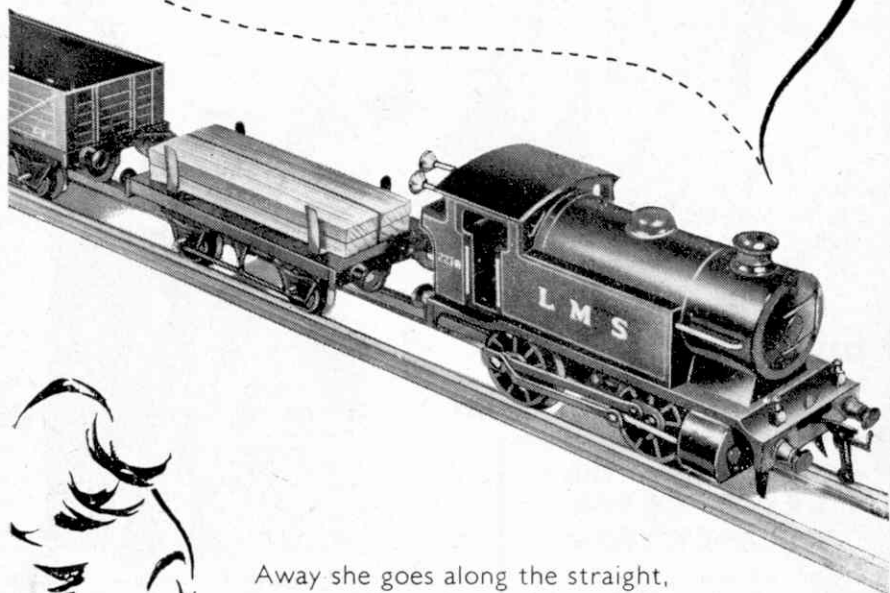
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MECCANO

MAGAZINE

Editorial Office:
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Vol. XXXVII
No. 11
November 1952

Brighter Times Ahead

November is an interesting month. It starts off with a bang on the Fifth, and a day or two after the bonfires and the fireworks comes the Lord Mayor's Show, the famous London street pageant that celebrates the coming of a new Lord Mayor of London. You will read about the Show on page 492, and I hope that this story will help those of you who have no direct knowledge of the display to understand something of the wonderful story behind it.

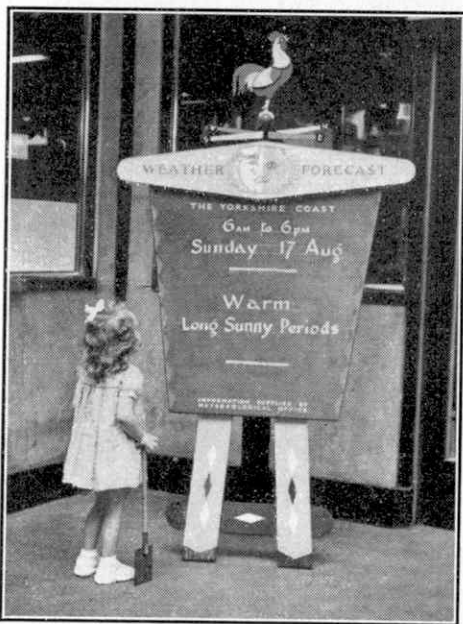
During November my mind is full of ideas for the December M.M., and this year you too will be thinking about it, as you already know that the issue will be a special one. It seems a long long time since there was a Christmas Number of the M.M., and I am sure that the revival of this feature of the years before the war will be greeted with enthusiasm. There will be 80 pages in it, against the 64 of most of the previous issues of 1952, and the brilliantly coloured cover will

have the real Christmas flavour about it, as indeed will many of the articles.

By the way, have you ever realised that there always seems something new to be learned about Christmas, although more must have been said and written about this great festival than about anything else for almost two thousand years? I hope that all of you will find something new about Christmas and its celebration in the special articles in the December M.M.

The price of this bigger and better Magazine, which will be ready as usual on 1st December, will be 1/-. If you have not yet placed your order for a copy make sure that you go early to your newsagent or dealer for one. If you delay you may

find that there is no copy left for you.



Brighter times are ahead also for this youthful passenger, who is eagerly scanning one of the boards installed last Summer at certain stations in the North Eastern Region of British Railways to give weather news from seaside resorts.

The Editor

A Giant Hydraulic Press

Forging Ingots up to 45 Tons in Weight

THE striking scene on our cover is part of a new heavy forge unit recently completed by Hadfields Limited, of Sheffield, at their East Hecla works. This unit is housed in a completely new building that covers an area of about 122,000 sq. ft. and consists of four bays. One of these is the forge bay, seen on the cover, in which are two large air hydraulic presses, one of 2,700 tons capacity and the other of 1,500 tons. The design and supply of these presses was entrusted to the Loewy Engineering Co. Ltd., to whom we are indebted for the painting from which our cover is reproduced.

In the foreground of our cover the larger press is shown forging an ingot. Some idea of its size is given by comparing it with the tiny figures on the left of the picture. The new forging unit indeed is capable of dealing with ingots up to 45 tons in weight, and the forgings produced may be up to 40 ft. in length. Rings up to 12 ft. across and sleeves up to 10 ft. in length and 6 ft. in diameter also can be forged.

Two of the remaining bays of the building are equipped with furnaces and plant for heat treatment and the fourth is a stock bay. Each bay is 386 ft. long; in the forge, furnace and heat treatment bays the height from the level of the floor to that of the overhead crane rails is 52 ft. and the crane span is 51 ft. 9 in.

As the giant forging presses and the furnaces of the new unit were to impose an enormous weight on the ground, the greatest care had to be taken in preparing the foundations of the new building. The floor was dug out to a depth of 3 ft. all

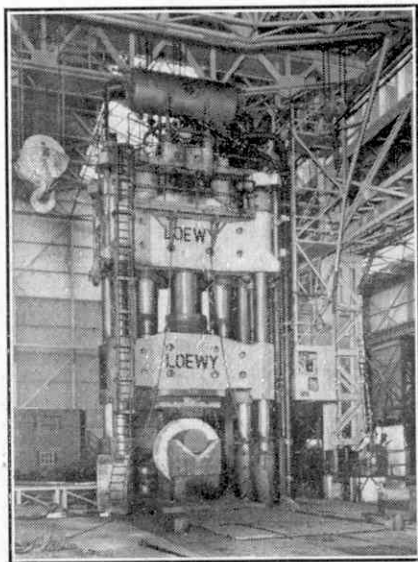
over, except in the area occupied by the foundations for the furnaces and the presses, where excavation was carried down to a far greater depth. Pre-cast concrete piles 25 to 30 ft. in length were driven into the ground to provide for the firm support of the building. The furnaces were given special foundations of reinforced

concrete, and those for the presses, also of reinforced concrete, were taken down to a depth of 40 ft. Finally the site was backfilled with furnace slack and a 6 in. concrete floor was cast in the stock, furnace and heat treatment bays. In the forge bay the floor consists of steel plates from 2 in. to 4 in. in thickness laid on sand.

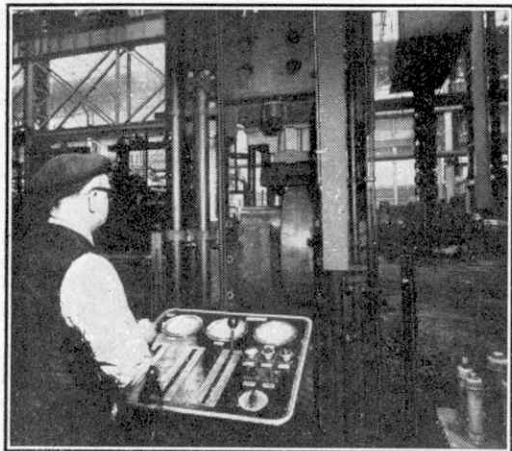
The new building is placed near the steelmaking plant of Hadfields Limited. Ingots to be forged are normally transferred hot from the melting shops in specially constructed covered bogies. They are immediately re-heated, then forged under one of the presses and taken hot

to the heat treatment bay for annealing. The plant includes eleven re-heating furnaces and nine heat treatment furnaces. These furnaces are in the furnace bay; the re-heating furnaces discharge into the forging bay, where the two giant presses are situated one at each end. The heat treatment furnaces discharge into the heat treatment section where the oil and water quenching tanks are placed. All the furnaces are gas fired. Both gas and air for the re-heating furnaces are heated before they reach the point where they meet and burn, and the temperature reaches 1,350 deg. C.

It is the giant presses that provide the most impressive and spectacular feature



Ring forging with the 2,700-ton Loewy press at the East Hecla works of Hadfields Limited, Sheffield.



The Press Control Panel.

of the entire plant. They work with almost unbelievable speed and ease. On both, when at full power, penetration speeds of 6 in. per second or more can be achieved, and for planishing and finishing operations well over 100 strokes a minute have been maintained. These high speeds are of particular importance in forging highly alloyed steels, where as much work as possible must be accomplished in each heating cycle.

The high speed at which the presses work has been made possible by the use of an air hydraulic accumulator station. In this station there is an accumulator with air and water bottles and five high pressure hydraulic pump units. It is housed in a two-storey brick building erected in the stock bay, and the size of the accumulator ensures a sufficient reserve of water to provide power for both presses working at high speed at full pressure. Four pumping units are normally in operation, the fifth acting as a standby, but the piping and controls are so arranged that any one of the units may act as a spare. The flow of water from the pumps to the accumulator, and from this to the presses, is automatically regulated to meet actual requirements.

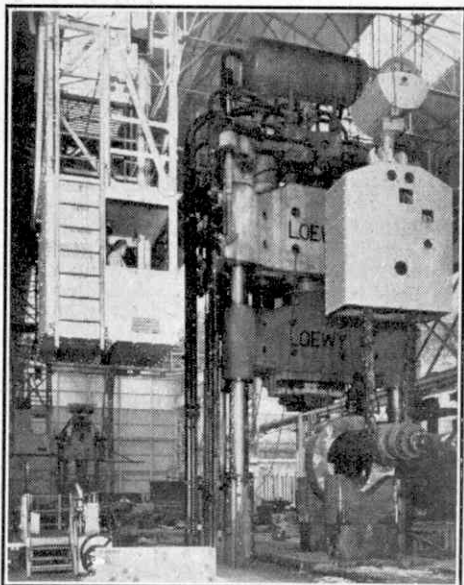
The 2,700-ton press has three cylinders. Either the centre cylinder, the two outer cylinders or all three cylinders together can be brought into operation, giving pressure stages of 900 tons, 1,800 tons or the full 2,700 tons. The operator can select any of

these pressures at will by means of a small hand lever on the controls during the working of the press. This flexibility allows for the greatest economy when working on light forgings that do not require the full power of the press, and smooth operation is ensured by the fitting of efficient shock absorbers.

The ease of control of the presses is an important factor in making them speedy in action. The main controls are operated by Servo valves that give finger-light sensitive control without effort on the part of the operator at the highest working speed. Idle movements of the presses are given by a special low pressure water system, so that the high pressure is used only during the actual pressing strokes.

Each press is provided with a moving table divided into three parts, which can be used separately or together in order to suit the particular forging work in progress. The crossheads of both presses have been made narrow to allow for a close approach of the handling equipment.

The heavy ingot and forgings require special means of (Continued on page 532)



The crane driver has a complete view of forging work in the press.

Curious Cargoes

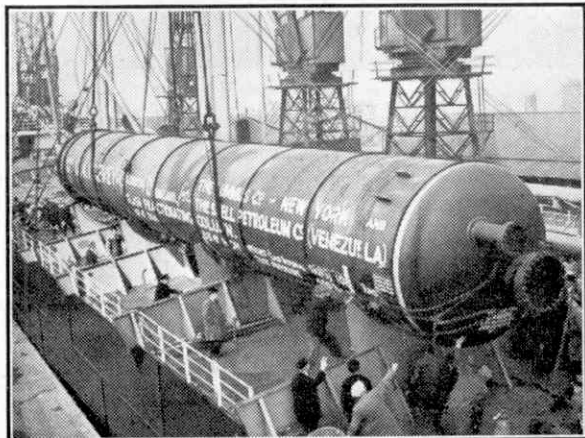
By Morrys Rodney

IT seems impossible to mislay an elephant, yet one was missing when a ship's cargo was recently tallied at a London dock. There were three elephants on the bill of lading, but only two were delivered over the side. A frantic search of the ship was ended by a harassed chief officer, who explained that the third elephant had failed to complete the voyage. He had succumbed to one of those strange maladies which afflict animals taken out of their natural environment.

Fortunately, these casualties are not numerous. Of the many thousands of animals shipped every year, from a £50,000 racehorse to a mischievous monkey worth a few shillings, comparatively few die on the journey. Long experience in their transport reduces insurance claims and finds them landed in excellent condition. Most animals are fully insured, and the premiums are considerably lower than they were when shipowners knew little or nothing about transporting animals by sea.

Showmen often use animal shipments for publicity purposes. But none of them has yet beaten the publicity which Barnum secured for *Jumbo*. This elephant, the original of all Jumboes, who gave his name to the Jumbo derrick, was a great favourite at the London Zoo. In those days elephant keepers were allowed to pocket the riding fees as their "perk" and child visitors were not the only ones who objected when his sale to Barnum was announced. Barnum cleverly worked on this angle, even after *Jumbo* had been deposited on board the *Assyrian Monarch* in the London docks. He allowed a prominent Society lady to visit the ship, in a last-minute effort to cancel the sale, but refused to allow *Jumbo* ashore. However, he relented enough to permit a supply of sweets for the voyage, and even arranged for daily bulletins on his health to be given. It was a pity that *Jumbo* was killed in an American train accident a few years later.

Among the many celebrated horses shipped abroad, either for racing, show jumping, exhibitions, circuses or stage performances, or simply for stud purposes, none attracted more attention than the Derby winner *Papyrus*. After his classic victory he had been matched for a race in America against a crack horse named *Zev*, and Steve Donoghue took him across to New York in the *Aquitania*. *Papyrus* proved a good traveller, but he was no mudlark and *Zev* beat him on heavy going



A gigantic fractionating column for an oil refinery is here seen being lowered on to the steel cradle on which it crossed the Atlantic. The four steel ramps seen to the left of the cradle are those on which the column was to be rolled into the water at Punta Cardon, where it was floated ashore. Shell photograph.

in a downpour. The *Aquitania* also carried another famous horse, a celluloid hero in the days of silent "Westerns." Tom Mix, a popular cowboy film actor, rode *Tony* about the decks of the *Aquitania* during the voyage, much to the delight of youthful passengers and his press agent. Rubber shoes got over any objections by the *Aquitania's* owners to horseplay on her decks.

Tropical fish, now so popular, are frequently carried by passenger liners. The first goldfish in America were shipped across the Pacific from Japan by a U.S. naval officer as a speculation. They laid the foundation for what has become a great industry, employing thousands of people. Tropical fish breeders in other

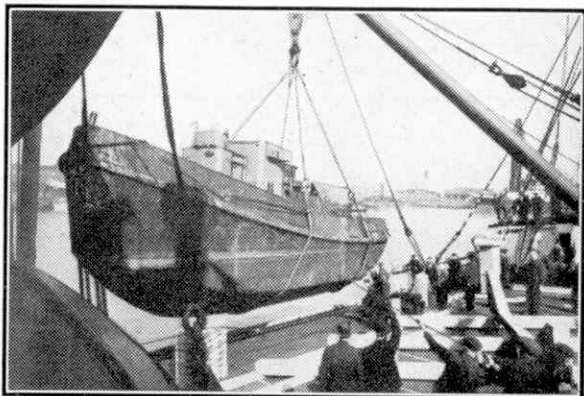
countries were not slow to follow suit, and are now competing with the American product, shipping large consignments to the United States. A few years ago rare varieties were caught in the Amazon and sent to an aquarium in Hamburg. Breeding was so successful that a shipment of 90,000, in about 40 different varieties, was sold to a New York aquarium. The liner *Washington* carried them in specially-fitted cabins kept at a temperature varying between 80 and 85 degrees.

Mention of fish recalls the difficulty of the London Zoo in supplying its aquarium with the right kind of water. Various experiments showed that water obtained from the Bay of Biscay was ideal, and thereafter regular supplies were arranged, carried in the water ballast tanks of cargo ships. The ships discharge the water into barges, which convey it to the Zoo by way of the Regent's Canal.

Another water cargo comes from the River Jordan, shipped all over the world for church christenings. Fresh water is also carried by oil tankers, after their tanks have been thoroughly steam-cleaned, to meet temporary shortages in places where normal supplies are difficult to obtain.

Before the days of refrigeration, ice cargoes were regularly imported into

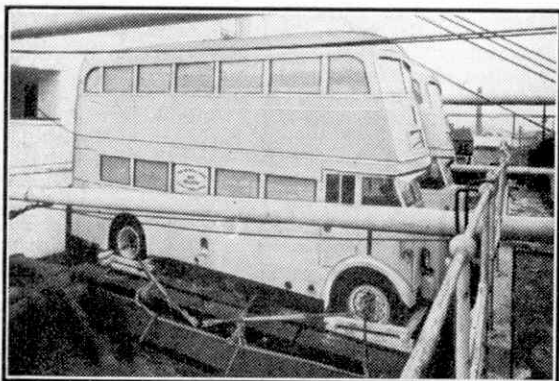
Britain from Norway and North America. The first cargo to arrive, well over a century ago, caused some bother over import duties. Being a novelty, it was missing from the Customs list of goods liable to duty, and the owners had to



One boat carries another. An 80-ton tug being hauled aboard a Clan Line ship, on the deck of which it was taken to Aden.

mark time while the matter was referred to high level for a decision. After serious consideration it was decided that the ice must pay duty. But when the warehouse was visited, to assess the amount to be levied, all that was left of the ice was a damp patch on the floor! It is a curious fact that a number of ships carrying ice have been destroyed by fire, started by spontaneous combustion among the packing materials. In recent years shipments of snow have been made from Norway to London for ski-jumping contests on Hampstead Heath.

An unusual bulk cargo is that of peanuts, which are shipped in huge numbers from West Africa to France. The French also go in for wine in bulk, special tankers being employed for this purpose between Southern France and North Africa. Wine is much cheaper to carry in bulk than in barrelled form, and can be handled far more rapidly. Occasionally, during their off-season, these wine tankers can be seen in British ports. They prove very handy for shipping raw cider juice from French ports.



Buses firmly secured on the deck of the Perthshire, ready for shipment to Cape Town. The illustrations on this page are reproduced by courtesy of the Clan Line.

The juice is discharged direct by pipeline from the ship to a large steel tank on the quay, and then transferred to road tankers for delivery to the manufacturer. Liquid gases, such as propane and butane, are carried in special tankers owned by the Shell Company and other concerns. Liquid ammonia is another bulk cargo where great care is needed.

A number of shipping companies deal in heavy-weight cargoes, notably the Clan

the ship arrived at Punta Cardon, Venezuela, where there were no heavy cranes available, the problem of how to discharge the column was solved in an ingenious manner. The *Loch Garth* got as far inshore as she dared, while the column was sealed and filled with compressed air. It was then loosened from its bed and allowed to roll over the side of the ship, with a drop of about 20 ft., into the sea, and was towed ashore.

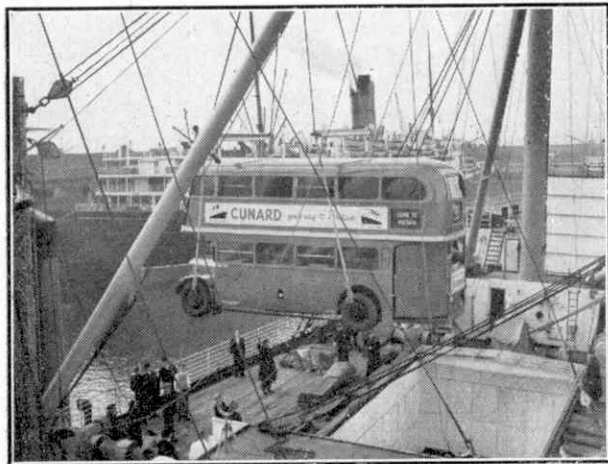
A different method had been employed with a much earlier moving job, the stone obelisk on the Thames Embankment known as Cleopatra's Needle, although it had no connection with that lady. A cylindrical wooden pontoon was first erected on the Thames, then shipped out to Egypt in sections, and there built round the obelisk, as this lay on its side in the sand. It was then rolled down to the sea over wooden launching ways, taken in tow by a steamer, and began the slow voyage to London. Bad weather caused the Needle to part from her escort, but the tow was renewed by a tug and eventually reached the Thames.

Another obelisk was loaded into the steamer *Dessouk* with a lot of trouble, a few years later, and can now be seen in Central Park, New York. Three others were shipped from Egypt, one each to Rome, Paris and Constantinople.

The Statue of Liberty, originally erected in Paris, was dismantled in 1885 for shipment to New York. It had been intended as a gift from France to mark the centenary of American Independence in 1876, but delivery had been delayed. While the statue was being packed into 214 cases, the French warship *Isere* went into dry dock and had huge holes cut into her plating to provide loading ports. Her arrival in America was greeted with great enthusiasm, and no time was lost in erecting the Statue on its prepared pedestal. A number of other statues, although considerably smaller, have been moved overseas.

Complete buildings also have been shipped abroad, notably historic dwellings purchased in

(Continued on page 532)



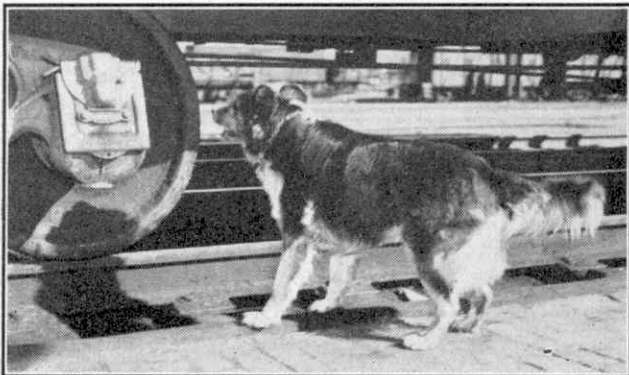
One of three London buses being loaded aboard the Cunard liner *Parthia* at Liverpool. The buses toured the United States and also visited Canada. Photograph by courtesy of the Cunard Steamship Co. Ltd.

Line and the Norwegian "Bel" ships, installing derricks to lift weights up to 200 tons. These cargoes include locomotives, lightships, tugs, trawlers, generating plant and heavy machinery of all kinds. The decks must be very strong, with the securing arrangements worked out to allow for the ship's motion in bad weather. In the past, before stability had become a science, several ships were knocked to pieces by heavy cargo coming adrift.

A particularly interesting job was carried out by the Shell Company, when shipping refinery equipment to Venezuela. A steel column, weighing 108 tons, looked like being a teaser, especially as it was more than 83 ft. overall. The Royal Mail Liner *Loch Garth* was chosen for the trip, a steel cradle being erected on her deck, to which it was firmly secured. At London the column was picked up by the 250-ton floating crane *London Mammoth*, swung over to the ship and gingerly manoeuvred into position. When



Queenie is a dog doing a man's job on the Chicago, Rock Island and Pacific Railroad. Let us tell you her story, as it appeared in the News Digest of that railway.



Queenie gives tongue when she finds an overheated axle on a freight car. She patrols the Trenton, Missouri, yard of the Chicago, Rock Island and Pacific Railroad on night shift, and detects leaks in the air lines of the braking systems as well as hot boxes.

ONCE Queenie was just another dog hanging around a railroad yard. You'll find dogs naturally gravitating into railroad circles, because of the kindness that has always been shown to them by railroad workers. Word gets around, you know, even in the dog world. Queenie must have heard of this, because she showed up in Trenton, Missouri, yards one day, was given food and a place to sleep, and has been there for three years now.

Queenie's speciality is finding hot journal boxes—heated axles—on freight cars. Her fame has spread from coast to coast. Although she's famous now you would never know it. She goes about her daily task of snuffing out defective journal

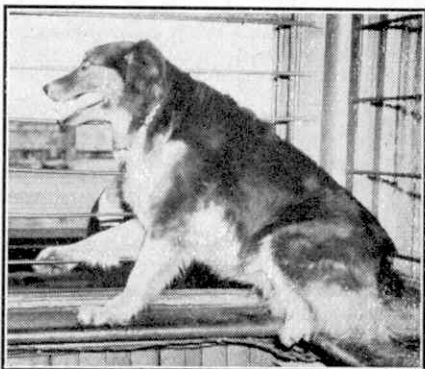
Queenie: The Hot Box Hunter

boxes as if nothing had happened. She hasn't asked for a rise or any special privileges either.

Rock Island yard workers at Trenton will tell you she is the most conscientious member of their force. The brown and white dog, of uncertain age and ancestry, is on the job voluntarily fifteen hours a day seven days a week. She's good on air brake inspection, too, say yardmen, being quick to detect the slightest air leak.

Queenie works with various carmen, but her favourite is August C. Kroeger. She trots ahead of Kroeger when he is inspecting trains, and when her sensitive nose detects a hot-box or air line leak, she signals by barking and stays where she is, like a bird-dog on a point, until he arrives.

She starts work regularly at four o'clock in the afternoon and stays with it until seven the following morning. Then she trots to the railroad station for her feeding by D. B. Shea, agent, after which she curls up for her sleep under a desk in the ticket office.



The Lord Mayor's Show

London's Famous November Pageant

By W. H. Owens

NO street pageant is so popular, or has had such a long and eventful history, as London's Lord Mayor's Show. On the 10th of the month vast crowds will again pack miles of city pavements to cheer the new Lord Mayor as he rides by in his state coach, drawn by six splendid bay horses, and for a few hours the misty November day will be brightened by a colourful spectacle that looks like an

march through the streets with bayonets fixed, but they must give due notice to the Lord Mayor beforehand.

Whenever the Queen drives into the City on official visits an interesting old ceremony takes place at the boundary, where she is met by the Lord Mayor. In handing to Her Majesty the City Sword, he temporarily surrenders his authority, and the royal car or carriage is free to proceed through his domain.

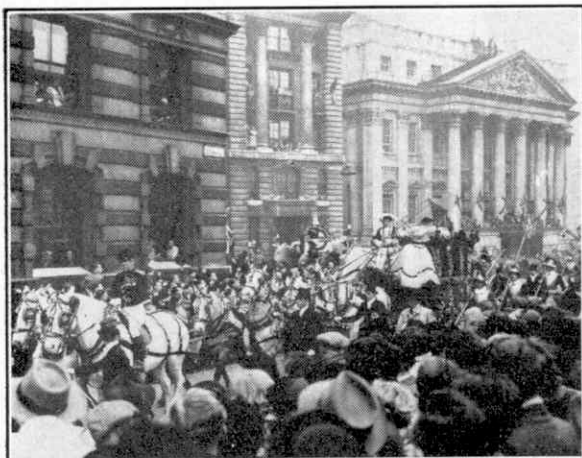
London has been ruled by Lord Mayors for nearly 800 years, although the full title was not used in the early days. Henry Fitzalwyn, the first Mayor, was unique because he held office for 26 years, until his death in 1215. In that famous year of Magna Charta, King John agreed that the City Guilds should elect their own Mayor once a year. But he made it a condition that the chosen candidate should be presented for approval before the King or his Justices.

That was how the Lord Mayor's Show began. At first the annual "riding" of the Mayor and his Sheriffs to Westminster, then separated from the

City of London by two miles of open country, was a small and stately horseback procession, accompanied by a few minstrels to provide suitable music for the occasion. But as the years passed, and the City grew more rich and powerful, it developed into a full-scale pageant in which hundreds of costumed horsemen took part.

Then, about 500 years ago, it was decided to stage the Lord Mayor's Show on the river Thames. The terrible condition of the London streets is said to have been the reason for the change, but whatever it was the great waterway provided a splendid background for so colourful a pageant. For long afterwards the procession continued to go all or part of the way by water.

In the days of the first Queen Elizabeth



The Lord Mayor's Coach passing the Mansion House during the Show of 1950.

old-time romance come to life.

For centuries London has acclaimed its First Citizen once a year, and in bygone days the Show was a much more elaborate affair than it is now. The procession is a symbol of the greatness of London, past and present, and a public tribute to the holder of the highest civic office in the world.

The Lord Mayor is not only the busiest of London's citizens, but he is also the most privileged. As Chief Magistrate, with his own police force, he has the supreme authority within the historic square mile of the City. He is also the Admiral and General of London, and no troops are allowed to pass through the City without his permission. Certain regiments are honoured with the right to

and the Stuart Kings the Show appears to have been devised on the most extravagant scale. Nothing indeed was spared to impress the people with the pomp and majesty of a great City. Old records tell of a hundred or so gaily

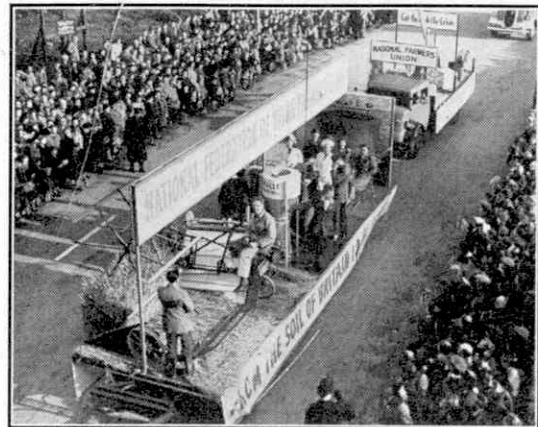
last stage of his journey. Ever since that time a carriage has been used instead.

The famous gold and glass coach, which is the centre attraction of the Show today, was built in 1757, nearly two centuries ago, and cost exactly £1,065 3s. 0d., a large sum in those days. It is decorated with eight wonderful figured panels, framed in carved and varnished woodwork. Curiously, it is not mounted on springs in the usual way, but is supported on thick leather straps and this causes it to sway backward and forward. It weighs nearly four and a half tons.

During the last century the procession was restored entirely to the streets, and in 1882 the route was shortened considerably when the Royal Courts of Justice were transferred to new buildings in the Strand, almost midway between St. Paul's Cathedral and Westminster Abbey. To-day the route is still arranged so that the Lord Mayor may pass through as many as possible of the electoral

wards into which the City is divided. It begins and ends at the Mansion House, his official residence, which stands opposite the Bank of England at the heart of London.

Just about a century ago, when the Lord Mayor's Show was in a period of decline, someone had the idea of introducing a series of set pageants (Continued on page 532)

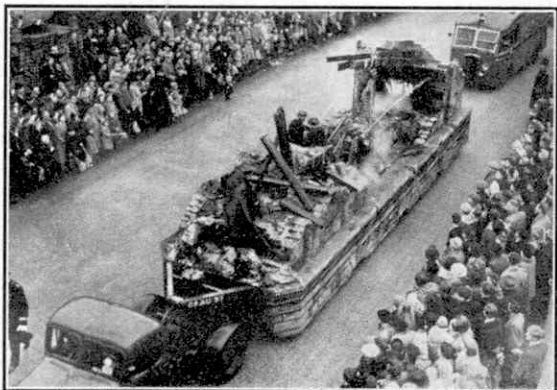


Agriculture and its progress through the ages was the theme of the Show five years ago.

festooned barges following the Lord Mayor in his triumphal progress up the river. There were bands playing, drums beating, horns sounding and guns firing, and with a good deal of popular rowdiness ashore the din must have been terrific. Lord Mayor's Day celebrations went on until well after dark, ending with fireworks displays and dancing along the river banks.

Cromwell and his Puritans objected to the Lord Mayor's Show, and for nearly two decades Londoners were deprived of their greatest annual holiday. Charles II revived it, but it was interrupted by the Plague and the Great Fire. After that time the Show gradually lost a good deal of its former grandeur, though it continued without further interruption except during the recent war years.

Even when the procession went by river, it was always the custom for the Lord Mayor to ride up to the Courts of Justice on horseback. But in 1711 Sir Gilbert Heathcote was thrown from his horse while on this



One of the tableaux in 1950 showed men of the N.F.S. putting out a fire. Recruiting for civil defence was the main topic of the Show in that year.

Would You Like to Fly a Comet?

By John W. R. Taylor

A YOUNG friend asked me recently how long it would take him to become a first-class airline pilot. Apparently he had just spent a day at London Airport, watching Comets, Stratocruisers and Constellations taking off for all sorts of interesting places, and had decided that that was what he wanted to do when he left school.

He seemed a little surprised when I answered, quite correctly, "a lifetime." So I hastened to explain that B.O.A.C.'s Comet pilots are not old men of 70; what I meant was that a pilot, if he is to remain first-class, never stops learning. In fact, B.O.A.C.'s most experienced captains, who a few years ago were flying 150 m.p.h. air liners along our Empire air routes, are now having to "go back to school" to learn the new technique of flying jet-powered Comets at more than three times that speed and at heights of up to seven miles.

This actually adds to the attraction of a pilot's job, because every few years he is given a newer and better aeroplane to fly, and between times there is a steady stream of new technical equipment to be mastered, all designed to make his job simpler, safer and of greater benefit to the 40 million people who now travel by air each year.



Capt. William Armstrong discusses his book "Pioneer Pilot" with the famous B.O.A.C. pilot, bearded Capt. O. P. Jones.

To give my young friend a better idea of the excitement and interest of an airline pilot's life, I lent him a copy of a new book entitled "Pioneer Pilot,"* written by Capt. William Armstrong, who recently retired to a ground position with B.O.A.C. after more than 30 years as an airline pilot. It is a good book, because it is sincerely written, with no trace of "line shooting" despite the fact that Capt. Armstrong, as the name of his book implies, was one of our earliest airline pilots and helped to build up the great worldwide reputation of British airways.

Like most airline pilots, he learned to fly with the R.A.F., or the Royal Flying Corps as it then was. The date was 1917, he was 20 years old and, because pilots were needed urgently on the Western Front, he had to make his first solo flight after only five hours instruction, during three of



The Slingsby Type 38 Primary Glider. Photograph by J. C. Reussner, Pickering. Reproduced by courtesy of "Flight."

* "Pioneer Pilot" by Capt. William Armstrong. Published by Blandford Press Ltd. Price 16/-.

which he was not allowed to touch the controls. Immediately after his wheels left the ground on that first solo, the engine of his stick-and-string biplane stopped, re-started, stopped again and then, just as a crash seemed inevitable, picked up so that he was able to complete his "circuit and bump." After five hours of this he was regarded as fully qualified, not merely to fight but to instruct other would-be pilots.

Things are very different nowadays, for the average young Service pilot has to complete nearly 250 hours instruction before he is considered sufficiently well trained to join an operational squadron.

Few people can afford training at a civilian flying club, because dual instruction on even the most elementary light aircraft costs £3 an hour. No pupil is granted a Private Pilot's Licence until he has completed 40 hours flying, of which 15 hours must be solo, unless he takes a special Ministry of Civil Aviation course, which reduces the total to 30 hours. In any case, the average cost of instruction to this standard is anything from about £100 upwards for flying fees alone.

Fortunately, young men are able to learn to fly for nothing if they are prepared to become R.A.F. pilots during their period of National Service. As they have to spend two years in the "forces" anyway, this course combines "business" with very real pleasure and opens up the possibility of a career in the air.

Let us assume then that you want to fly, cannot afford to join a club and decide to learn with the Royal Air Force.

Best way of starting is to join the Air Training Corps while you are at school, because you will learn many things that will be of great value to you later, and so gain a real advantage over your colleagues who start from scratch when they join the R.A.F. In addition, you will probably have an opportunity to learn gliding, which is not only a fascinating sport but an immense asset to any potential

"powered" pilot. In fact, gliding enthusiasts regard their sport as the only true art of flying, and have established impressive records to prove that it is no mere two-minute "up, circle and down" process.

There is not much danger in it, for you are unlikely to go more than three feet above the ground on your first "flight" and your forward speed will be nil. The reason for this is that 60 Air Force contingents of the Combined Cadet Force are being given Slingsby Type 38 trainers, consisting of an open framework glider of simple construction, balanced on top of a metal tripod. In operation, the whole thing is turned to face the wind, and the glider's controls become effective with only a light breeze blowing over the control surfaces. Cadets are thus able to get the feel of the joystick and rudder with only three feet of air beneath them. Later, the glider can be removed from the tripod and launched by catapult for short flights at up to 50 ft. altitude for basic air instruction.

If you show sufficient skill, you will be



An A.T.C. Cadet signalling the launching winch as the Slingsby Tutor glider prepares to take off. Air Ministry Photograph.

able to progress on to more advanced gliders and qualify for your A, B or C gliding certificates. Alternatively, you may be selected as one of the 300 lucky Cadets who win scholarships each year for free training up to Private Pilot's Licence standard at civil flying clubs. This would give you, literally, a flying start to your career.

For the present, though, let us assume that you join the Royal Air Force for your two years of National Service with no previous flying experience. You will



go first of all to an Initial Training School for 18 weeks. This will hardly be remembered as the most carefree part of your career, but it provides the groundwork which ensures that when you reach your operational squadron you are not only a good pilot but a first-class officer, able to display initiative and lead your men in action.

You learn a lot at I.T.S., including Commonwealth studies, mathematics, aeronautical science, R.A.F. law, drill and ground combat, navigation, meteorology, radio and the theory of aero engines. But it is not all sums and square-bashing.

Sport is greatly encouraged, and you will take part in leadership exercises such as guerilla attacks on a local village or organisation of an underground movement in an "enemy-occupied" town. You will leave I.T.S. with a well-deserved commission as Acting Pilot Officer, to start your flying training.

This opens with 12 weeks on de Havilland Chipmunks at a Basic Flying Training School, many of which are run for the R.A.F. by civilian companies. This is where you learn if you have what it takes to make a Service pilot, as the course covers dual and solo flying, complete with radio instruction and blind flying on instruments. If you emerge successfully, you pass on to an R.A.F. Advanced Flying Training School for 120 hrs.' flying on single-engined Harvard or twin-engined Oxford trainers to qualify for your "wings." This takes six months and is followed by final training at Advanced Flying School, on jet Meteor Mk.7s or piston-engined

Varsities, depending on whether you will be a fighter, bomber or military transport pilot.

By the time you leave A.F.S. you will be highly-trained in every aspect of operational flying, including aerobatics and air traffic control. All that remains is to learn the particular features of the latest Service Meteors, Vampires, Canberras, Lincolns, Shackletons, Hastings or Valettas at an Operational Conversion Unit, and you will become a proud member of a regular R.A.F. Squadron for the rest of your Service life.

While all this is happening, you will be able to study for your Commercial Pilot's Licence. But despite this, you will not be able to step into the cockpit of a Viking or Stratocruiser and fly a load of passengers to Paris or New York the week after you leave the Royal Air Force. Skill at aerobatics and

marksmanship are of limited use when one has to bring 50 passengers down in one piece on to an airport runway in a thick fog, and your airline will almost certainly send you to its own school and insist that you graduate to the next step of earning a Senior Commercial Pilot's Licence. Even that is not the top of the tree. After years of experience and study, you may qualify for an Airline Transport Pilot's Licence and be able to take command of a transatlantic air liner—and you will have to undergo yearly examinations to ensure that you remain competent in every way.

It sounds like a lot of hard work, and it is: but the reward is worth-while, not merely financially, but because of the life of adventure before you.

A scene typical of the adventure awaiting airline pilots. Camels, with their picturesque riders, passing a B.O.A.C. Comet jetliner at Khartoum airport on the U.K.-Johannesburg route. Photograph by courtesy of British Overseas Airways Corporation.

A New 100 ft. Fire Escape

Ladder Fitted with Loudspeaker Telephones

HERE is a fine new turntable fire escape, which has a ladder that can be extended to a length of 100 ft. in 18 or 20 seconds. One man can operate the ladder, as the controls are grouped together, and he can then talk to a fireman at the head of the ladder by means of loudspeaker telephone equipment. The fireman on the ladder in turn can give directions for placing him in the best position for rescue work, or for pouring water from a height on to a fire.

This splendid escape is now being produced by John Morris and Sons Limited, of Salford, on a Leyland Beaver chassis. It is fitted with every type of safety appliance that ingenuity and experience can suggest. For instance, there is one device that stops the extension or movement of the ladder immediately it encounters any obstruction. Another is a system of four jacks, at the rear of the vehicle, which gives stability and support when the ladder is extended. It is impossible to move the ladder at all until the jacks have been lowered to the ground and the escape is perfectly steady.

One of the most remarkable of these safety devices prevents the ladder from being extended beyond the safety limit at its various angles of elevation. This is an electrical installation that is governed by what is called the "field of operations indicator," which can be seen in the centre

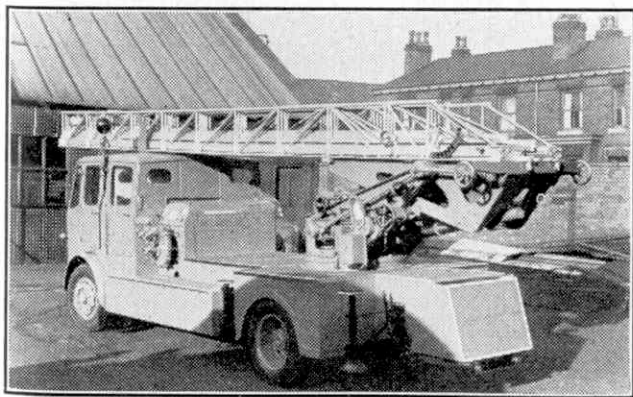


The operating controls of the Morris turntable fire escape ladder. In the centre is the special indicator that automatically stops operation when the ladder has been extended to its safety limit.

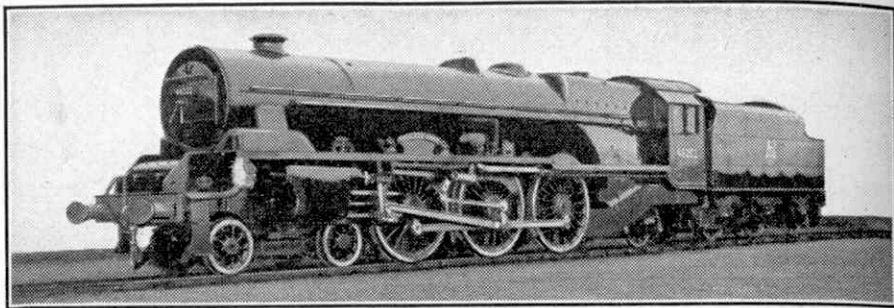
of our upper illustration. In it there is a small pivoted and extensible arm that reproduces all ladder movements in miniature, so that the angle of the ladder and its extension can be seen at a glance.

The arm of this indicator moves within the limits of a space that is bounded by a curved metal border graduated in degrees. Contact of the end of the arm with this border shows that the ladder has reached its safety limit of extension at the particular angle of elevation indicated, and the operating gear is automatically cut out as soon as it touches.

Behind the driver's cab is a compartment to seat a crew of four, and at the sides and rear of the platform are lockers in which hose, unions, tools and other equipment are stored. A self-contained Coventry Climax pump with a capacity of 350-500 gallons a minute is mounted amidships on the platform.



The new Morris fire escape on a Leyland Beaver chassis. Photographs by courtesy of Leyland Motors Limited.



Railway Notes

By R. A. H. Weight

New Testing Plant and Novel Boiler Trials

British Railways announce that a new wind tunnel testing plant is being built at Derby. This will be operated by a 50 h.p. motor drawing air through at varying speeds up to 100 m.p.h., in order to provide information for the design of locomotives, carriages, wagons and railway structures. Subjects to be studied will include train ventilation; dispersal of smoke and steam; wind resistance to wagons; extraction of smoke from engine sheds; and the cooling of diesel locomotives. Tests will be carried out with models where full-scale experiments are impracticable.

Ten of the class 9 heavy 2-10-0 freight locomotives of the new standard design intended for construction under the 1953 programme, to which I referred last month, are to be fitted with a type of boiler that has been tried successfully on the Continent. This was invented by an Italian and is called the Franco-Crosti. It is claimed to achieve considerable fuel economy. The design will allow the engines to be provided with either this or the orthodox type of boiler with only slight modification.

The Winter Train Services

Compared with last year, over 60 trains have been accelerated by from 10 to 61 minutes. New morning and evening expresses for business men are running between Euston, Liverpool and Manchester; also to and from King's Cross, Doncaster, Leeds and Bradford, the latter city being served directly via Leeds with no stop at Wakefield. Between the only intermediate stops at Hitchin and Doncaster, an average speed of over 58 m.p.h. is scheduled, the quickest of its kind since 1939. The two-hour Liverpool Street-Norwich *Broadsman* timing is the quickest ever on the G.E. Section, E.R.

There are also some faster London Midland long-distance services, while on the Western Region the summer accelerations of the *Cornish Riviera*, *Cornishman* and several other important expresses are being continued, as is the very smart booking of the S.R. *Atlantic Coast Express*. The *Golden Arrow* Pullman service to the Continent now goes down from Victoria in the afternoon and operates via Folkestone-Calais. The inward journey continues by way of Dover as before.

Through cross-country trains are running daily on

the Birkenhead-Kent and Sussex; York-Bournemouth; Cardiff-Sheffield and Newcastle; Birmingham-Ely and other useful services.

Western Tidings

New 0-6-0Ts received from contractors include Nos. 8487-92 and 9477-81. Class 3 2-6-2Ts Nos. 82011-17, built at Swindon, are allocated to the Southern Region together with the two that will follow them. Withdrawn 4-6-0s were Nos. 2906 *Lady of Lynn*, 2938 *Corsham Court* and 2954 *Tockenham Court* of the "Saint" 2-cylinder class, and 4-cylinder Star No. 4023. Nos. 6008 and 6016 *King James II* and *King Edward V* have been transferred respectively to Laira, 83D, and Wolverhampton, 84A.

Kings have been making some excellent runs on the *Cornish Riviera Express*, improving sometimes on the 4½ hr. timing non-stop from Paddington to Plymouth. When "logged" in August the relief train, often run on busy days, leaving London at 10.20 a.m. with the same timing provided some entertaining travelling with a 10-coach train weighing 345 tons all found. Castle No. 4037 *The South Wales Borderers*, after several slowings due to permanent way repairs or speed restrictions together with a passage of Reading station on the relief line, gradually won back almost to the fast schedule, passing Exeter, 173½ miles, in 179½ min. after a maximum speed of 78 m.p.h. on the descent beyond Tiverton Junction. This engine being overloaded

according to the standards laid down for severe grading west of Newton Abbot, a stop was made there to attach *Maindy Hall* as assisting engine to Plymouth, where the arrival was only 50 sec. late in spite of a signal slack approaching North Road.

On an up journey recorded by the same friend, No. 6023 *King Edward II*, with a 12-coach load from Newton Abbot on the afternoon express from Cornwall and Devon, gained time slightly on the rather difficult start to stop run from Exeter to Taunton, then gave a very spirited run over the next 76 miles to Bedwyn, passed in 77½ min. or 4½ min. under working time. Speed ranged between 39 at Brewham summit to several maxima of 72-73 m.p.h. Signal stops and slacks supervised after Hungerford, but thanks to a more liberal timing the arrival at Paddington was punctual.

A Stained Glass Train

M.M. reader B. J. Greenhill reports that at the time of writing the finishing touches are being put to a stained glass window in St. James's Church, Paddington, showing the *Cornish Riviera Express* at Paddington Station. This window and others replace those damaged during the war. They express the close connection existing between the Church and the

Princess Anne, L.M.R. No. 46202, reconstructed as a normal 4-cylinder engine from the former L.M.S. 4-6-2 Turbomotive, is seen at the head of the page. The position of the nameplates above the leading driving wheels and the intermediate step-down in the running plates are minor novelties for a London Midland Pacific locomotive.

British Railways Official Photograph.

Station, for the Vicars of St. James's have been honorary Chaplains to Paddington for something like a century.

A Veteran 4-4-0s Special

The fully-booked five-coach enthusiasts' special from Manchester to Hull and back, referred to last month, was sponsored jointly by the Stephenson and the Manchester Locomotive Societies.

No. 40726, the last survivor of the Midland Railway 4-4-0 Class 3P, built at Derby in 1902, was the motive power supplied for the journey to Cudworth, where No. 62360, a Class D20 4-4-0, a former North Eastern Class R, equally well groomed, took charge for the remainder of the trip to Hull, over the main line of the erstwhile Hull and Barnsley Railway. This line still sees a fairly heavy volume of freight traffic, but the passenger service to-day only consists of trains from Hull to South Howden.

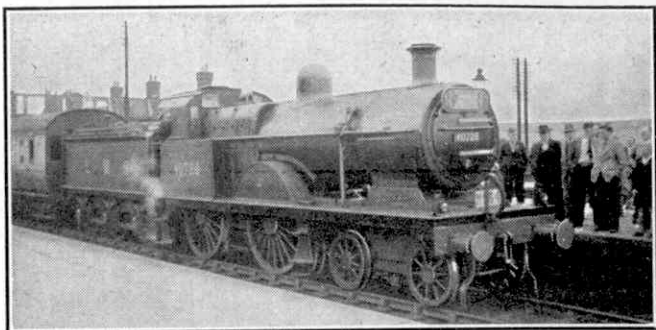
Owing to the condition of the roof and platform at Cannon Street Station, the original Hull and Barnsley terminus, the train was routed into Paragon Station, Hull. Special arrangements were made at Hull for visiting all three of the Motive Power Depots by bus.

The train returned by the same route and No. 40726 took over again from Cudworth and so concluded a very enjoyable day. (G. OATES).

Eastern and N.E. Regions News and Travels

New class 4 2-6-0s of L.M.R. type allocated to Yarmouth Beach, 32F are Nos. 43157-60. Diesel-electric 0-6-0 shunters recently placed in service were Nos. 12111, stationed at Stratford, 30A; 12112, at Hornsey, 34B; 12113-5 at Hull, Dairycoats, 53A. More EMI electric main line locomotives have been completed for the Sheffield-Manchester route, Nos. 26045 upward.

At Darlington I noted many six-coupled tank locomotives of large and powerful types including A5, A8, L1 and the L.M.R. class 4 Brighton-built



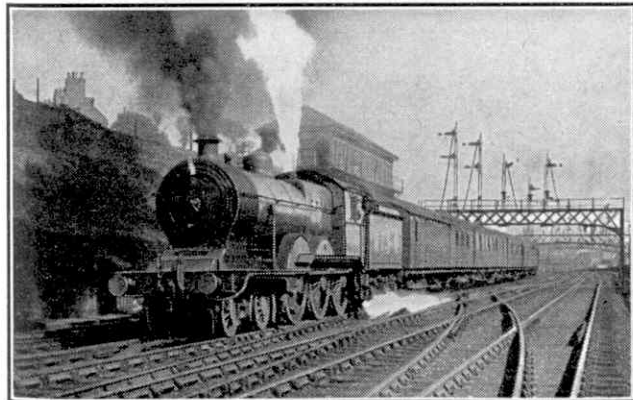
L.M.R. No. 40726, the last of the Johnson Belpaire 4-4-0s of the former Midland Railway, at Cudworth after running from Manchester with the special train for Hull referred to on this page. Photograph by Geoffrey Oates, Doncaster.

classes. A class 2 L.M.R. type light 2-6-0 was on the steeply-graded moorland route thence to Barnard Castle and Penrith. One of the powerful-looking Ministry of Supply wartime saddle tanks of which there are now 75, classed J94, No. 68027, was shunting at Darlington.

Going north by the *Queen of Scots* with 10 Pullmans weighing just over 400 tons, A1 No. 60139, *Sea Eagle*, in the able hands of Driver Highton and Fireman Hanson of Copley Hill, Leeds (37B) shed, gave a splendid run. This improved on the fastest timing of 3 hr. 25 min. from King's Cross to Leeds to the extent of more than 5 min., despite a signal stop, and five other slowings costing in all 9-10 min., so that overall nett time for 185½ miles was not more than 190 min. in spite of steep climbs and cautious running after Wakefield. Maximum speeds touched were 82, then 84 m.p.h. at different points, uphill work was first rate and the whole performance with this comparatively heavy train most inspiring!

I travelled back in equal comfort, with excellent food and service, by the up *Tees-Tyne Pullman*, an 8-car load weighing 330 tons. The quicker schedule for the longer non-stop run of 232 miles from Darlington to King's Cross was again improved upon considerably by streamlined Pacific, No. 60010, *Dominion of Canada*, ready for any demands, and

handled with gusto by Driver Springham, King's Cross. So fast was the initial travel that York, 44 miles, was passed in 37 min. and by Selby, 58 miles, the whole of a 5¼ min. late start had been recovered. Very gentle running followed through Doncaster station and yards, then mile-a-minute or faster travel until an easing took place south of Sandy, with a maximum speed of 82 on the G.N. Section. We stopped at signals 1¼ miles outside King's Cross. 230¼ miles from Darlington start in 229 min., actually arriving in the terminus 3¼ min. early. Allowing for out-of-course delays the nett time for the whole 232 miles was not more than 228½ minutes; the actual total time was 235¼ min. compared with an allowance of 245 minutes—an exciting and enjoyable run including an 83 m.p.h. average for 25 miles on the N.E.R.



An ex-Great Eastern 4-6-0 No. 61503, a long way from home, at Ferryhill Junction, Aberdeen. The train is the 10.10 a.m. from Aberdeen to Ballater. Photograph by C. Lawson Kerr, Glasgow.

Some Island Memories

By Bernard Llewellyn

IF I were a millionaire, I think I should spend a good deal of my life visiting islands—collecting memories of them, as one collects stamps, or matchbox labels, or the numbers of railway engines. But since I am no richer than the man next door I have had to make do with the handful of islands I have come across in my travels.

What is it about islands that captures the imagination? Is it thoughts of buried

Capri is about seventeen miles off the Italian coast—out in the glittering blue of the Gulf of Naples. I travelled there early one morning, leaving behind me the volcanic cone of Vesuvius, rising beyond the Neapolitan waterfront. I knew the island as the theme of a once-popular song, as the home of Gracie Fields, as the retreat of the Roman emperor, Tiberius. But after this visit I was going to remember it as the island of the Blue Grotto.

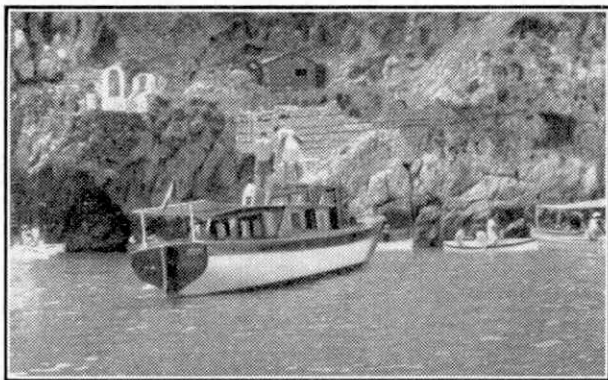
Two hours out from Naples we were entering Capri's little port of Grande Marina and looking up at the rocky cliffs, which rise 1,900 ft. above the encircling sea. We had reached the land of the Sirens; for all about here are the rocks, where, in olden days, those mythical beings are said to have lured mariners to their doom with their entrancing songs.

Immediately I landed I entered a motor launch for the trip along the coast to the Blue Grotto. It was a golden morning, and the water sparkled about us. Outside the

grotto it was necessary to transfer to a dinghy to enter, for the entrance is through a little hole in the cliff just above the water.

You must duck as you go in, and when you sit up again, you think you are in Looking Glass Land. It is fitting that Hans Andersen, writer of fairy tales, should have been the first to excite European travellers about this exquisite cavern. He called it "a fairy world The water below us was like a blue-burning fire, lighting up the whole." The dinghy floated on a surface of milky blue, and when the oars were dipped into it they came up silvered. It was lovely beyond belief. No wonder it is said that sirens once lived here, and that the wicked Tiberius used to bathe in the Blue Grotto with mermaids for company:

Oddly enough, one of my most vivid memories of Majorca in the Balearic Islands is of another cavern, one of the



On the Isle of Capri. On the left the entrance to the Blue Grotto can be seen, with little white dinghies about to enter. The illustrations to this article are from photographs by the author.

treasure and pirate haunts, of palm trees and of coral reefs? Or is it a vision one has of a lonely atoll in mid-ocean, with a Robinson Crusoe or a Swiss Family Robinson or a Robert Louis Stevenson starting afresh on the adventure of life? Whatever it is, the enchantment is nothing new. Centuries before the birth of Christ Chinese sages spoke of the Fortunate Isles in the Yellow Sea, where, it was said, the inhabitants had found the secret of immortality and lived for ever. But however carefully you search the atlas, you are not likely to find them!

Islands in the real world indeed are often disconcertingly like the mainland. Civilisation and all its paraphernalia are there to greet you. At any rate this is true of the four islands I am going to write about here. They all have charm and great beauty; but are all well known to travellers. Let us take the two nearer ones first—Capri and Majorca.

largest I have ever visited. You cannot really call it a single cavern: it is rather a whole series of limestone caves, known to tourists as the Caves of the Dragon.

They lie beneath the eastern end of Majorca, inland from Porto Cristo; and I entered them one hot July afternoon, glad to get away from the dust and the sun.

I saw on every side, as I trod deeper and deeper into the earth, the fantastic sculptures that dripping water had been fashioning through a thousand ages. Electric lights revealed a wonderland of rock staircases; quiet pools, where blind creatures lived; distant vaults; and a wilderness of stalactites and stalagmites.

But more was to come. With one of the many guided parties I descended through these limestone wonders until I thought I must have reached the floor of the Mediterranean. And then I found myself in a vast underground "concert hall." Rows of benches had been set on a rock slope which overlooked the inky waters of a great lake, and here, with hundreds of other visitors, I sat in the subterranean darkness and listened while a string orchestra crossed the lake in a floodlit boat. It was an unforgettable experience.

But Majorca, like Capri, has plenty to delight one above ground. There is Palma, the island capital, with its ancient trams and shady palm-fringed promenades; the massive cathedral fronting the bay; the cool interiors of the churches. For those who like bathing, there are the palm-studded beaches of Palma Nova



From the heights of the island of Hong Kong, one can look across the water to the mainland of China.

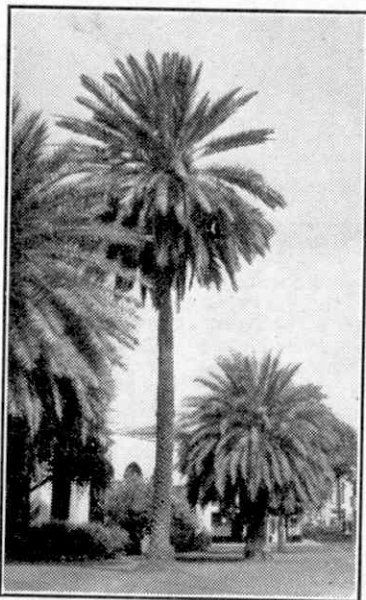
only a few miles away. Or you can take the coach or leisurely train to Soller or Porto Cristo, or some still remoter place where you can be alone with the sea and sunshine.

In a day or so you can explore Majorca pretty thoroughly. Outside the towns the roads are rutted and dusty. Summer travelling is hot work; and even in towns like Manacor, where the donkey carts lurch over cobbled streets, the light-coloured walls of the buildings fling the

sunlight at you. Here and there you may see a poster advertising a forthcoming bull-fight, which would remind you, even if you were deaf to the Spanish voices in the streets, that Majorca belongs to Spain, the land of the toreador.

And now we cross the world to an island off the China coast; an island with the beautiful name of Fragrant Harbour. It is better known by its Chinese name, Hong Kong; and the great natural harbour between the island and the Chinese mainland is one of the finest in existence, responsible for making Hong Kong one of the world's great trading posts.

When I lived in Kowloon, the New Territories under



Hawaiian palms, a tropical island scene.

British administration on the mainland opposite Hong Kong, I used to travel regularly by ferry across to the island. From time to time I took the funicular up the famous "Peak," which towers above the city of Victoria.

From the slopes of the Peak, where for many years the British colony has lived, you look down over the junks and steamers, the Kowloon wharves, the busy city and—beyond all these—the hills of China. From this height you can see the outline of the sunken ships in the harbour.

Tarmac roads link up the fishing villages and the beaches strung around the island. Bathing is excellent except when there are sharks about, which is not often.

In Victoria's shopping centres you can buy virtually anything: in the main cinemas you see the latest Hollywood films. But for all that, you cannot ever forget that it is an oriental city. Banners with Chinese characters flutter above shop doorways; stone stairs lead off into narrow alleys; and rickshaw boys are always running through the streets. For centuries this city has been what it is today ceasing to be: a main gateway into China.

Between China and the western seaboard of the United States are the Hawaiian Islands; and whether you cross the Pacific by boat or plane, it is an even chance you will make a call at Honolulu on the beautiful island of Oahu. My steamer arrived soon after daybreak one April morning, and moved in through the gap in the coral reef to the harbour.

To the romantically inclined, the Hawaiian Islands will always seem like paradise. They forget Oahu is the site of Pearl Harbour, the American Naval Base destroyed by the Japanese, which I saw through my binoculars as we approached. American influence is everywhere on the island. The limousines,

gleaming buses, street "cops," hamburger parlours; the dollar bills, the advertising. If Hawaii is paradise, it is an American version.

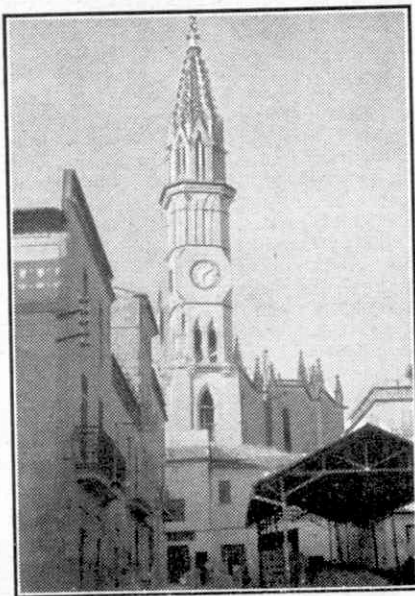
Living is comfortable and expensive. Next door to famous Waikiki Beach is the Royal Hawaiian Hotel, which some travellers claim to be the finest in the world. It is a haunt of film stars, and has private grounds which stretch to the sands of the Pacific.

The Islands have an air of gaiety. The people wear brightly coloured frocks and shirts, the gardens are rich with blossom and the restaurants are bright with lights and the strains of music. Even the sea changed colour continually as I sat watching it after a swim in Kailua Bay.

I have two outstanding memories of Oahu. There is the morning we set sail with leis, or necklaces of flowers, about our necks. As we moved out of the harbour we followed the custom and threw them overboard to show that one day we wanted to return. A trail of flowers bobbed up and down in the ship's wake.

The other memory is of a midnight snack with a friend in a coffee parlour overlooking the dark murmur of the waves on Waikiki Beach. We spent most of the time trying to convince ourselves we were really there at the "cross-roads of the Pacific." Outside the parlour we discovered a signpost set up near the beach; its arms pointing to all the corners of the world. There was no mistake. We were really standing at a cross-roads, surrounded by the sea.

And I knew, as I looked along the arms which pointed southwards over the illimitable expanse of ocean to magic names like Samoa, Fiji, Tahiti, that I should not easily lose my love of islands; and that however many I visited there would always be others still more enchanting beyond the horizon.

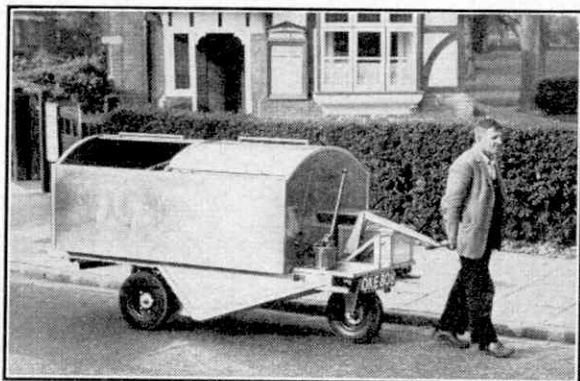


The tower of the cathedral rises magnificently above Manacor, on the island of Majorca.

Engineering News

A Useful Pedestrian-Controlled Refuse Truck

Among the interesting vehicles to be seen on our streets are various types of pedestrian-controlled trucks and delivery



The Manuletric Street Refuse Truck described on this page. It is a product of Sydney Holes Electric Vehicles, Withdean, Brighton, to whom we are indebted for our photograph.

vans operated by battery-driven motors. One of the best of these useful little vehicles is the Manuletric Refuse Truck seen in the upper illustration on this page. This is one of a range of vehicles manufactured by Sidney Holes Electric Vehicles, Withdean, Brighton, which are available in either 1 h.p. or 2 h.p. types.

The motor of this refuse truck takes current from 24-volt 125 ampere-hour accumulators, and drives the two rear wheels through helical gearing and a differential. A special feature is that the body is constructed throughout of aluminium alloy. Its lightness allows much thicker plates to be used in making it than if steel were used, and makes possible a vehicle of large capacity within the legal weight limit of 8 cwt., without batteries.

If the operator requires the truck to move forward, he pulls forward on the

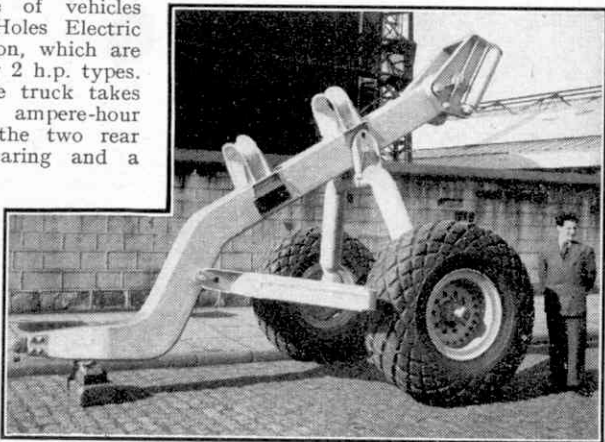
tiller, which releases the brakes and switches on the motor. To stop he pushes back on the tiller. If he prefers to walk after the truck instead of before it he just turns a wheel near the tiller through half a circle, and the control mechanism is then reversed.

Log Hauling the Modern Way

The curious device shown in the lower illustration on this page was an exhibit of R. A. Dyson and Co. Ltd., Liverpool, at the 1952 Commercial Vehicles Exhibition in London. It is known as a Husky Logging Arch, and is designed for carrying trees after felling and trimming.

In operation the Arch is hauled by a tractor, and can carry loads up to 8 tons. The logs are lifted by the Arch by means of a rope attached to a winch on the tractor used to haul it. The rope is led through guides and over a roller at the top of the Arch, and then is fastened to the log. The Logging Arch can be used also for hauling logs from points deep in the forest without lifting them.

The two giant tyres are protected from damage by two stout wings placed in front of the Arch. Many of these interesting vehicles are now in use in West Africa.



This photograph of the Husky Logging Arch, which has a carrying capacity of 8 tons, is reproduced by courtesy of R. A. Dyson and Co. Ltd.

BOOKS TO READ

"MODERN ACTION AND ADVENTURE"

By G. F. LAMB (Harrap, 9/6)

True stories of great adventure can be as thrilling as any work of fiction, and this is certainly the case with the eleven exploits related in this book. They are not ancient history either, most of the events having taken place during the past 10 years. The heroes of these achievements are men of widely different occupations and include sailors, explorers, salvage experts and mountaineers; some of them are Britons or members of the British Commonwealth, and others are Norwegians, Americans, Cretans or Russians.

Certain of the stories may seem rather extravagant and far fetched, as for instance the amazing feat of the young Norwegian Thor Heyerdahl and five companions in accomplishing a 5,000-mile crossing of the Pacific on their raft *Kon Tiki*. Then there is the grand story of how H.M.S. *Amethyst*, after being almost wrecked by gunfire from hostile shore batteries when over 100 miles up the great Yangtze

reached the open sea at dawn. Another chapter tells the story of the fourth and greatest of Admiral Byrd's expeditions in Antarctica, the two main objects of which were to sail as far as possible round the continent to map its coastline and to establish a base from which landplanes could make extensive exploratory flights over the mainland, the interior of which was still scarcely known. The hazards, setbacks and successes of this great American expedition are vividly described.

Other thrilling achievements related include the salvaging of gold from the wrecked R.M.S. *Niagara*, which struck a reef and sank in deep water off the coast of New Zealand in June 1940, with a sealed cargo of £2,500,000 in gold ingots; escapes by tunnel from the notorious Nazi prisoner of war camp Stalag Luft III; the story of how two British officers slipped into enemy territory and kidnapped a Commanding Officer; and the adventures of two young fellows who built a small sailing boat and successfully crossed the Atlantic Ocean in it.

The book is illustrated with maps and line drawings.

"THE MISSING CONSTABLE"

By TREVOR HOLLOWAY (Latimer House, 5/-)

The author of this excellent story is well known to regular *M.M.* readers. Here he breaks new ground, with a first-rate "thriller" that begins when a village police constable vanishes into the night without a trace, thereby creating a mystery that baffles even the best brains of the "Yard."

During an afternoon's fishing two chums, Bob Keen and Dick Westlake, recover from a stream a bottle containing a message. The information given starts an exciting chain of events that eventually land the boys in the clutches of a highly organised gang of coiners and forgers, who turn out to be the captors of the missing constable. Dramatic developments follow in quick succession before the three prisoners are rescued and a sinister fate overtakes the counterfeiters.

"THE A.B.C. OF RAILWAY PHOTOGRAPHY"

By O. J. MORRIS (Ian Allan, Ltd. 3/-)

This 32-page booklet is well named, for the author, railway photographer of 40 years' experience, deals step by step with the many elements that go to make

up a successful railway photograph. Appropriately, he begins with first principles and the simplest kind of equipment. After this more or less introductory section, film, filters and the mysteries of exposure and lighting are considered in a painstaking yet very readable manner. Camera angles and perspective are discussed and due regard is paid to the importance of the location of a train photograph. Focusing, the actual shooting of the picture and the art of printing round off a most instructive story.

As might be expected the book is well illustrated, not merely with "straight" shots of engines and trains, but also with pictures showing results of the use of various methods and materials, with good and bad demonstrated in equal measure. This pictorial analysis of faults and virtues should be very useful to readers.

"DEVELOPMENT OF THE GUIDED MISSILE"

By KENNETH W. GATLAND

(Published by Iliffe for "Flight" 10/6)

Kenneth Gatland, although still a young man, is one of the leading British experts on rockets and space travel. More important, he is able to describe all the varying types of rockets, missiles and space ships, and how they work, in the sort of language that the average reader can understand. The result here is the finest book on guided missiles so far published in Britain, full of interest for the novice, yet complete and accurate enough to form a valuable reference work for technicians.

Already, at the annual S.B.A.C. Flying Display at Farnborough, fantastic guided rockets have begun to appear among the exhibits of firms like Fairey and Bristol; and the Gloster Javelin radar-guided delta is half-way between the fighters of the last war and the uncanny, pilotless aircraft destroyers of the next decade. We can see in this book how they fit into the whole pattern of future development of piloted rocket interceptors, guided pilotless anti-aircraft weapons, air-to-air rockets, ramjet missiles, long-range supersonic rockets for war and peace, able to carry atom-bombs or research instruments, and, finally, space satellites and interplanetary rockets.

Development of the Guided Missile is illustrated with 45 first-class photographs and diagrams, many of which have never before been published, and an Appendix summarises all available information on the 90 powered missiles of which details have so far been released. It gives ominous warning of terrible things to come, unless we learn to apply the results of this costly development work to the benefit of mankind, through scientific research and, eventually, to the exploration of space. JOHN W. R. TAYLOR.

"TEACH YOURSELF MOTOR CYCLING"

By DUDLEY NOBLE

(English Universities Press, 6/-)

It is wisely pointed out in the preface to this work that no book can teach you *everything* about motor cycling; "only practice and experience can make you give instinctively the right answer in an emergency."

This book does not set out to give the "how and why" on any particular make of motor cycle. Its instruction therefore is in general terms, but is none the less valuable and practical. Indeed, the reader who studies it thoroughly will, at the end, have gained a very thorough knowledge of how a motor cycle works, how it should be ridden and how to take care of it.

Line drawings of motor cycle parts and of road signs illustrate the text.

On these pages we review books of interest and of use to readers of the "M.M." With certain exceptions, which are indicated, these should be ordered through a bookseller.

"THE BOY'S BOOK OF SOCCER FOR 1953"

Edited by PATRICK PRINGLE (Evans, 10/6)

Readers who are Association football enthusiasts will hail with joy the appearance of the eighth edition of this now firmly-established Annual. As on previous occasions it contains articles on famous clubs and players, and there are accounts of last year's Cup Final and of the U.S.A.-Scotland match at Hampden Park last May. There are also articles giving sound advice on such aspects of the game as trapping, the free kick, the work of the full back, and the art of dribbling.

Stories, a puzzle corner, and useful tables of Soccer records round off the text; and as usual the book is illustrated with many excellent photographs of famous players and of exciting incidents in some of the year's big matches.

"THE TWO LIEUTENANTS"By IAN SCOTT
(Harrap, 9/6)

This book continues the story of two young Naval Officers whose earlier adventures were related in *The Two Cadets* and *The Two Sub-Lieutenants*. They achieve the rank of Lieutenant for their final wartime activities, are trained intensively for a special assault job, and eventually take part in the capture of Rangoon and other operations against the Japanese, including a thrilling battle between destroyers and a powerful enemy cruiser. All the naval and military operations described actually took place during the war, and the author was closely concerned with them—in fact he commanded the final assault on Rangoon, effecting its capture in 33 hrs. His characters are based on people he knew and observed, although details of their personal and individual doings are, like their names, largely fictional. The result is a first-rate story of the Royal Navy in time of war.

The book is illustrated with line drawings showing dramatic incidents in the story.

"MODERN LOCOMOTIVES"

By BRIAN REED (Temple Press, 9/6)

Modern Locomotives is included in the Boys' Power and Speed Library and its 10 chapters cover just under 90 large pages. The first chapter tells us how a steam engine works and so answers many questions on this favourite topic. The author then passes to consideration of different types of locomotives and the reasons for their existence. The building of a steam locomotive provides more good reading, and then engine men and their duties, engine running and repairing are dealt with, while attention also is given to the layout and equipment of motive power depots and the provision of coaling and watering facilities. The important, but often little described subject of brakes also is well considered.

It will be seen that the steam locomotive is fully described, but always clearly and concisely. Electric locomotives and trains receive similar treatment, as does the diesel locomotive, a type that is much discussed today. Railcars and that most recent form

of railway motive power, the gas turbine locomotive, have chapters to themselves, in the course of which interesting comparisons are made between the gas turbine and the diesel. Finally, steam locomotives of special kinds, turbine driven, condensing, rack rail and fireless are referred to, and in this comprehensive survey the simplest form of motive power, the horse, actually finds a place.

The illustrations are good. They include interesting half-tones, while line drawings and diagrams allow the reader to follow the more technical sections of the text with ease.

"KNOTTING AND NETTING"**"PICTURE FRAMING"**By LESLIE WOOLLARD
(Foyle, 2/6 each)

It is astonishing how many different things one can do with string, from making those intriguing complicated knots and loops that the slightest jerk will immediately unravel to such articles as string bags and hammocks. *Knotting and Netting* is a revelation in this respect, and will delight every reader who likes to do things with string. Scores of knots are described, from the simple kind one makes in tying a parcel, to the elaborate Turk's Head knots used on rails, stanchions, etc., as a firm hold or grip. It explains how many practical and useful articles can be made, from a button or a braided belt to a hammock. There are 115 neat diagrams to illustrate the text.

In *Picture Framing* the author, at one time Editor of *The Craft Journal*, has provided a complete and concise reference book on this subject that every

handyman and amateur craftsworker should possess. He suggests how pictures can be better presented or provide a motif for room decoration, and how to frame any kind of picture from a postcard to a fine original. The types of tools and materials to use, and the processes involved are dealt with in detail, and many methods of frame decoration and finishing are described. The important matters of correct hanging and lighting are not overlooked. The book is illustrated with many excellent line drawings.

"THE ROCKET RANGE PLOT"

By JAMES M. DOWNIE (Warne, 7/-)

Here is an up-to-the-minute story of a plot to destroy a secret rocket range in the Australian plains by means of bombs shipped on board a schooner in a lonely bay in Palestine.

Nick Craig, his father and a young friend board this Australia-bound schooner in Poole harbour. Before the voyage is many days old they discover that they are in for a grim time. By a pre-arranged plan several of the passengers imprison the captain and others of the crew and take control of the vessel, which eventually reaches Palestine and takes on board the sinister cargo referred to above.

On arrival in Australia Nick and his party who, as one would expect, have fallen foul of the gang, are forced to dig their own graves—but to tell you any more would spoil this thrilling story for you.



John King, captain of Scotland, and Duncan Edwards, captain of England, shaking hands before the start of the Schoolboys' International match at Wembley, 1950. An illustration from "The Boy's Book of Soccer for 1953" reviewed on this page.

Glass Bulbs by the Million!

HAVE you ever thought how the glass bulbs of your electric lamps are made, or how many of these are needed? Most of us probably have some dim ideas on their production, but we are generally thinking still of men blowing glass bulbs at the end of long tubes, a process that is completely out of date. Like so many familiar things, glass bulbs for both electric lamps and radio valves are now made by ingenious machines that in this instance turn out their products in startling numbers—by the million, in fact.

are controlled by means of push buttons on remote control panels, and on these panels an accurate and instantaneous picture of the progress of events is presented to those in charge, who can see at a glance whether production is flowing smoothly or not.

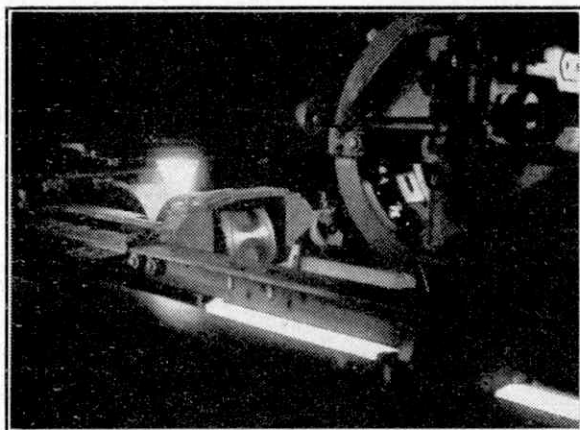
The starting point of this wonderful process is a tall mixing tower at one end of the main factory building. This is built of reinforced concrete and is 100 ft. high, and it is the only one of its kind at any glass works. All the raw materials

required reach it by rail, the wagons entering the works on a private siding, and with the exception of the sand, which is blown up by pressure, they are raised to the top of the tower by suction.

In the tower there are seven storage silos, extending from the top to the bottom, each of which is capable of holding 1,500 tons. The materials they store are taken mechanically from shelves at the top of their respective silos and pass down chutes to automatic weighing machines, from which they are discharged into a rotary mixing drum in the correct proportions to yield the glass required. There they are thoroughly blended and the mixture emerges into

canisters that travel on a roller runway to tip their contents into a hopper, from which they are fed into a furnace that melts them into glass.

The furnace is capable of turning out 150 tons of glass a day. It is fired by coke oven gas, which comes from the neighbouring Harworth Colliery, and to make the most economical use of this the incoming air is heated before it enters the furnace, the source of the heat being the waste gases. Heating of this kind is called regenerative. The melting is a continuous process. The glass passes through the furnace to the refining end, and finally to the fore-hearth. The temperature is carefully graded throughout, and when the glass is ready to leave the furnace it is at the exact temperature



A stream of molten glass passing between rollers that transform it into the thin ribbon running to the right. It is from this ribbon that lamp and radio valve bulbs are made at the Harworth Works of Glass Bulbs Ltd., to whom we are indebted for our illustrations.

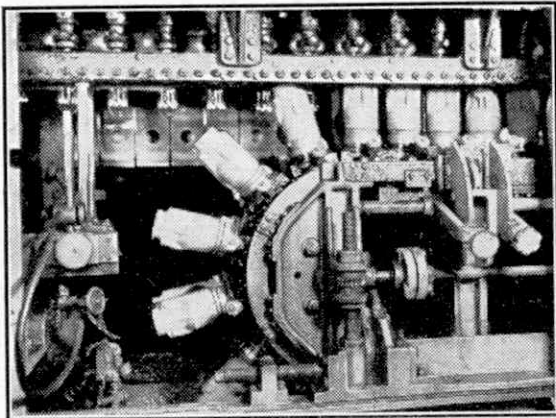
A new factory has been built at Harworth, near Doncaster, by Glass Bulbs Ltd., which is owned jointly by the British Thomson-Houston Co. Ltd. and The General Electric Co. Ltd., for making the bulbs required for Mazda and Osram lamps. In it there are two wonderful machines capable of turning out a million and a half a day. The whole process is entirely automatic. The soda ash, limestone, sand, feldspar and other raw materials required to make the glass are fed in at one end of the factory and there is a continual flow of bulbs from the other end, all ready for packing into cartons for despatch. The process indeed is a triumph of ingenuity and organisation.

Until this last stage is reached nothing is touched by hand. Most of the operations

required for the next process, its conversion into bulbs.

The glass emerges from the forehearth of the furnace in a glowing stream that flows down between two rotating water-cooled rollers. One of the rollers has a plain surface; the other contains pockets. From them the glass issues as a continuous ribbon that has small humps spaced along it, so that it looks like a larger scale version of the ribbon of "caps" used in toy pistols. It is from these humps that the bulbs are made, and the machine that produces these automatically is known as a ribbon machine.

From the rollers the ribbon of white hot glass is carried forward on a continuous belt of plates, which are called orifice plates because each has in it a hole, which comes accurately into position beneath a hump. As it moves forward on the plates the ribbon meets a continuous chain of blowheads that descend upon it from above, each pressing into the centre of a hump directly over a hole. A puff of compressed air from a blowhead causes each hump to be extruded, or pushed downward, through the hole in the plate,



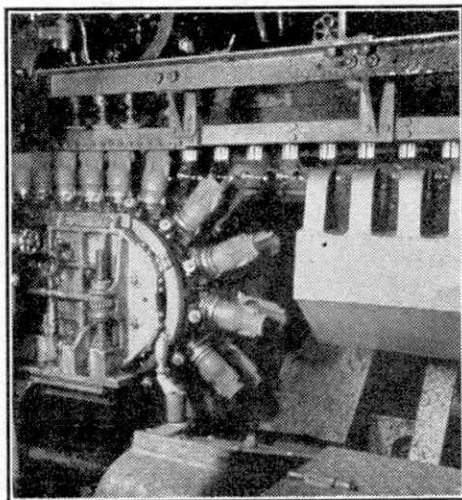
Puffs of compressed air blowing downward on the ribbon of glass form on it a series of bulbs, which are finally formed in the moulds that close around them and travel with them until the glass is set.

to form a glass blank that later will become a bulb. The blanks are increased in depth by successive puffs and this continues until they reach the split moulds in which the bulbs are formed.

The moulds are carried on an endless belt, and rise from below to meet the glass blanks. They close on these and begin to rotate, continuing to do this as they travel along. At the same time the air pressure increases so that the blanks are expanded or "blown out," to fill the moulds and take up the required shape. Then the moulds are automatically released and move away downward, to return to the underside of the moving belt.

A glance at the two illustrations on this page, which show the ends of the mould belt, will make this quite clear. Each mould is made in two sections, and these are automatically brought together to close over the glass blank, thus forming the space in which the glass is blown out to the required shape and size by the puffs of compressed air that it continues to meet in its passage along the machine.

Moulding the bulbs is a very delicate and precise operation, and for this reason the moulds are lined with cork. The heat of the glass transforms the cork into fine carbon, which readily absorbs water from cooling sprays that play on the moulds as they pass back under the machine. The water is vaporised when the moulds close over the hot glass in the moulding process, so that the bulbs are formed in a



The moulds of the ribbon machine are in two halves, which automatically open to release the bulbs when these are fully formed and set.

cushion of steam. This leaves them with a polished surface finish, a process in which the rotation of the mould helps.

It is fascinating to watch the "caps" on the glass ribbon being transformed into bulbs on this wonderful machine, orifice plates, blowheads and moulds all moving forward together, carried on their endless belts, which make their return journeys behind, above and below the ribbon of glass. When they reach the end of the machine the moulds open automatically, to reveal the bulbs, and the blowheads break contact with the glass ribbon, which continues to travel forward. Now it has the blown bulbs depending from it. Jets of cooling air play upon these and then they reach a point where each in turn is tapped off by the carefully timed stroke of a hammer. The speed of each of the different movements is carefully regulated so that every operation takes place at the right time. Plates, blowheads, moulds and hammer are always exactly in step.

The bulbs fall into the scoops of a rotary turntable, which tips them off on to a moving belt that carries them through a gas-fired annealing oven. The glass ribbon passes down to the floor below, where it is water cooled and later broken up, to be fed eventually into the mixing tower by a bucket elevator, so that it can be once more melted up in the glass furnace.

In the Harworth factory there are two of these remarkable ribbon machines, one in which the distance from centre to centre of the orifice plates is 3.9 in. and a smaller one in which this distance, or pitch, as it is called, is 3 in. The pitch naturally determines the size of the bulb. In all, seven different sizes of orifice plate are used, with rollers of two different depths of pocket. This gives the variations required to allow for the production of

all the sizes of bulbs required for lamps, and radio valves.

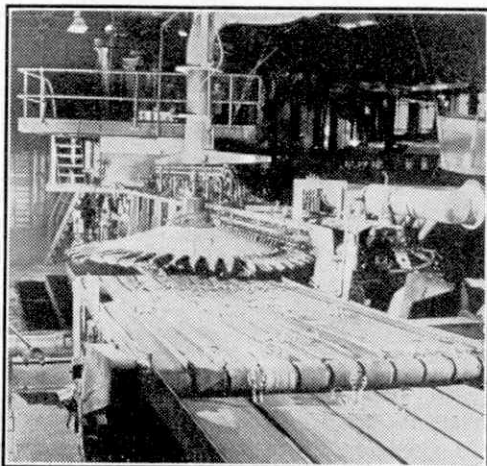
These ribbon machines are the only ones of their kind outside the United States. The speed at which they can work is astonishing. The larger machine turns out from 350 to 500 bulbs a minute in the sizes required for 75, 100 and 150 watt general lighting service lamps.

Working on a 24-hour continuous run gives a daily output of about half a million bulbs—and the second machine, making smaller bulbs, has an output twice as large! Little wonder that their output is sufficient to meet the requirements of all the lamp manufacturers in the British Isles, and to allow an ample margin for export to Europe and the Commonwealth.

Any interruption of the continuous flow

would involve wasteful and costly delay. For this reason emergency diesel alternator sets are provided to make sure that the machines will continue in action if the mains current supply is cut. Similarly, oil storage tanks have been installed so that the furnace can be oil-fired if for any reason the supply of gas fails.

After the bulbs pass through the annealing furnace they are cooled by puffs of air while proceeding on a conveyor belt to the packers, and five bulbs are picked off the belt ever 12 minutes for minute examination and measurement, in order to make sure that the product is perfect. All that then remains is to pack the bulbs into cartons, and to label and seal them. This takes place on two floors of the main factory building, from which the cartons pass on conveyors to the finished bulb store. There cartons ready for despatch are stacked on pallets so that they can easily be picked up and transported by means of battery-driven fork-lift trucks for loading into railway wagons in the siding that runs down one side for the full length of the store, or into road vehicles.



The glass bulbs are cut off automatically and delivered to the conveyor belts on which they are carried away.



What Happens when an Engine Fails?

By "Shed Superintendent"

ON rare occasions when an engine breaks down, bringing the train to a stand on the line away from stations, the passengers may be annoyed, not only at the stoppage but also at the inexplicable delay before the train gets on the move again.

It may be thought that the enginemen would be immediately occupied with repairs to the engine, like the Bold 'Prentice in Rudyard Kipling's *Land and Sea Tales*; but unless the defect is a simple one it is quicker to send for assistance, in this country, where stations and depots are no great distance apart. It is another matter, when a train stops in the wide open spaces abroad!

There are various strict rules to be observed, however. If assistance is likely to be secured from the station ahead, which may be a junction where a shunting engine is available, the fireman must walk there. He takes with him an official form completed by his driver, without which the signalman ahead is not allowed to admit a light engine into the occupied section in the wrong direction.

In every case, the guard must walk back and place detonators at $\frac{1}{4}$ -mile, $\frac{1}{2}$ -mile and $\frac{3}{4}$ -mile points in rear. Although the train is already protected by the "block system" of signalling, there is a risk of another train entering the section,

consequent upon a signalman's mistaken impression that the reason for his instrument showing "*Train on line*" for an exceptional period has merely been his failure to see it pass out of his section. When anything unusual occurs, the chance of a serious misunderstanding, and consequent accident, are greatly increased, and it is in the interests of safety that the train crew and the signalmen have to carry out the procedure laid down by regulations.

When assistance is to be obtained from the rear, the guard continues, after placing detonators, back to a signal box, and accompanies a following train or light engine up to the point where the disabled train is standing. Telephones by the lineside, or nearby public call-boxes, may be used by the train crew to give information of the failure, but one of them, fireman or guard, must personally guide any assisting engine to the spot.

The illustration accompanying this article shows two freight trains "in tandem;" the front one, having stopped with engine trouble, is being propelled by the second train. If an engine is rendered immovable by a serious defect, the engine of a following train may be used to pull the stranded train from the section, and Single Line Working is set up, until mechanics have arrived on the scene with equipment to enable them to deal with the repairs.

In the photograph above the leading engine has failed. It is being pushed, with its train, by the engine of a following freight train.

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

THE HUT IN THE MOUNTAINS

When climbing in the Wicklow Mountains I saw what at first appeared to be a small triangular-shaped cornfield far below. On closer inspection, through my field glasses, the "field" proved to be a conical shaped hut.

Later I came across another of these huts at a height of about 1,800 feet. It consisted of wooden poles forming a circle of about fifteen feet diameter at the base and tapering to a point about twelve feet above the ground. The poles were laced together with "bull wire" and then covered with dried rushes. An opening that served as a doorway was just sufficiently large to allow entry. There was no window.

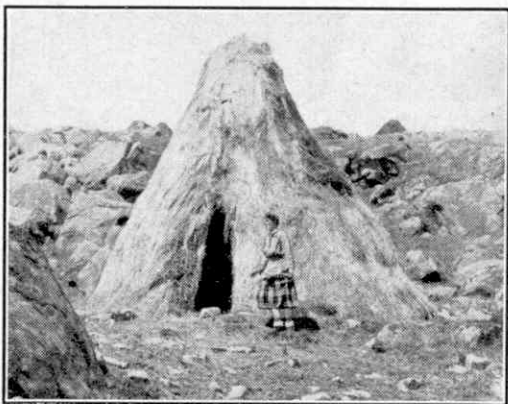
I assumed that these huts were built and used by local shepherds, but had this idea corrected very emphatically a day or two later when I asked an old shepherd about it. He looked me up and down, spat out contemptuously, and said: "What! Shepherds' huts? Those timbermen's contraptions? They are a fire hazard—no use at all." He left me standing perplexed, while he went into the ruins of an old mine where he was brewing a pot of tea.

He was right of course. The huts were built and used as shelters by the foresters who were engaged on the drainage and fencing of this wild area in preparation for forestry plantations. On one occasion I was glad of the solid protection they afforded when I was caught in a veritable blizzard.

H. ARNOLD (Dublin).

AN ARMILLARY SPHERE

During a school journey to Switzerland, we spent a day in the city of Geneva. On the outskirts is the vast Palace of the Nations, said to be the second



A forester's hut in the Wicklow Mountains. Photograph by H. Arnold, Dublin.

largest building in Europe. The largest is the Palace of Versailles, outside Paris.

The Palace of the Nations was originally built for the League of Nations, and was opened in 1936-7. It was handed over to the United Nations on the 1st August 1946 and is now the European Headquarters of that body. There are about a thousand people permanently employed there.

The large Ariana Park, in which the Palace is set, contains an ornamental pond, and it is the centre piece on this page. It is called an armillary sphere. In ancient times these devices were used to foretell the movements of the heavenly bodies. They consisted of a framework of metal bands—the Latin word armilla means a bracelet—each representing the path of a star group or planet.

Nowadays, celestial globes marked with the constellations on their surface are used to demonstrate the apparent movement of the stars, and armillary spheres are of ornamental interest only. The one shown is about eight feet in diameter. It was designed by the American sculptor Paul Manship, and is cast in bronze. Instead of the plain pattern of the stars, the fabled shapes are moulded on the surface. The Bull, Taurus, and the Ram, Aries, are seen centrally in the upper half of the photograph; Orion and the Dog, Canis Major, which contains the star Sirius, the brightest in the sky, are in the lower half, with the Serpent, Hydra, curving away to the left.

The sphere was designed as a monument to Woodrow Wilson, the United States President who took so great a part in the formation of the League of Nations in 1920. He is well remembered in Geneva, there is even a Quai du President Wilson.

A. T. GILL (Stanmore).



The armillary sphere in Ariana Park, Geneva. Photograph by A. T. Gill, Stanmore.



Big Bedford Lorry and Triple Gang Mower

FINE NEW DINKY TOYS



The Big Bedford Lorry, No. 522. The original of this recent Dinky Toys introduction is shown in the illustration below.

THE Big Bedford Lorry is now well-known to all readers of the *M.M.* who are familiar with its appearance and realise the sturdy and reliable character of this Bedford production. They will therefore be glad to find



The Big Bedford Lorry.

its best qualities admirably reproduced in the new Dinky Toy, No. 522, illustrated on this page. There are the same substantial chassis and the handsome cab, the latter with its correct and characteristic shape. How closely the model indeed resembles its original can readily be seen by comparing the two upper illustrations on this page, one showing the real Big Bedford itself, and the other its miniature in the Dinky Toys series.

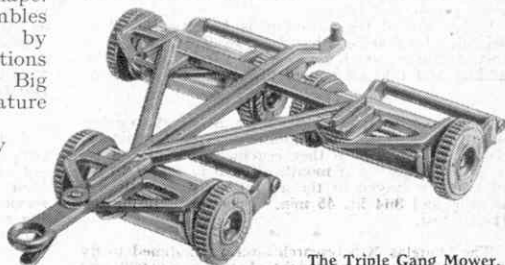
The sturdy appearance of the Dinky Toys Big Bedford Lorry is well brought out by the attractive colour schemes adopted for it. There are two of these. In one the cab and chassis are red and the body is brown, while the wheel centres are

stone coloured. In the other blue is the colour of the cab and chassis, and different shades of yellow distinguish the body and wheel centres. In each case the front bumper and the radiator grille are in aluminium colour.

Another newcomer that is a satisfying addition to the Dinky Toys range is the

Triple Gang Mower, No. 27j, a model of an entirely different type. With its three mowers fitted to cut a wide swathe this is an ideal trailer for the ever popular Massey-Harris Tractor, Dinky Toys No. 27a, which is just the thing for hauling it up and down the airfield or sports ground of a

Dinky Toys layout. Gang mowers were designed for cutting the grass in parks and on other large areas.



The Triple Gang Mower, No. 27j.



Britannia air liner over Filton airfield, Bristol, during maiden flight on 16th August last. B.O.A.C. have already ordered a fleet of these fine aircraft. Photograph by courtesy of Bristol Aeroplane Co. Ltd.

Air News

By John W. R. Taylor

The Bristol Britannia

The Bristol Britannia air liner, illustrated above, was designed originally to meet requirements of B.O.A.C.'s M.R.E. (medium-range Empire) Specification, and was an insurance against the Comet not being ready for service as soon as planned. First Britannias were to have four Centaurus piston engines and later ones Proteus turboprops.

By early 1950 it was obvious that the Comet was not only on schedule but a world-beater, and the Proteus had been developed to the stage where it offered increased range and payload for the Britannia far beyond M.R.E. requirements. Realising the possibilities, B.O.A.C. at once ordered 25 Proteus-engined Britannias for long-range, cheap-fare air coach service, in parallel with their Comet high-speed luxury services.

Now, less than three months after the Britannia's first flight on 16th August, it has already taken its place alongside the Comet as one of the finest products of the British aircraft industry, and many of the world's great airlines are considering it as a replacement for their out-moded piston-engined aircraft. This is hardly surprising, for it can carry 50 passengers, their luggage and six tons of freight for 4,000 miles, or up to 104 passengers for shorter distances, cruising at 360 m.p.h. This has enabled B.O.A.C. to plan a service from London to Tokyo over the North Pole, to save time and distance.

Wing span of the Britannia is 140 ft. Its all-up weight of 140,000 lb. is just 5,800 lb. less than that of a Stratocruiser, yet it requires only two-thirds of the landing and take-off run of this American air liner.

A Month in the Air

Two Lockheed T-33 Shooting Star jet trainers recently completed an endurance test at Wichita, Kansas, during which they remained airborne about 12 hours a day for a month. Flown in relays by 60 pilots, they stayed in the air for a total of 400 hr. 30 min. and 364 hr. 45 min. respectively during the 31-day test.

The Douglas X-3 research aircraft, designed to fly over 2,000 m.p.h. at heights between 200,000 and 300,000 ft., is ready for its first flight trials.

Aer Lingus Expands

Air travel between the Irish Republic and Great Britain has been so heavy this Summer that Aer Lingus, despite their purchase of four 40-seat Bristol Wayfarers, found it necessary to hire a Scottish Aviation DC-3 and Hunting Air Transport 32-seat Vikings to supplement their fleet of 12 DC-3s. The result was almost a 'bus service between the two capitals, totalling up to 19 return flights a day, including four of the popular cheap-fare *Starflights* each night. With their other routes, Aer Lingus operated a maximum of 650 flights a week between the Irish Republic and Great Britain.

Aer Lingus have also entered the aircraft manufacturing business, by accepting a large contract from Bristol to build Wayfarer components, the first time that such a licence has been granted to a company outside Great Britain.

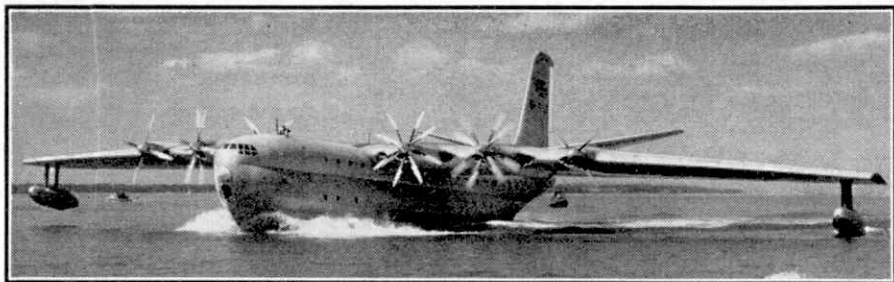
Helicopter "Captures" MIG-15

A Sikorsky H-19 (S-55) helicopter flew 35 miles behind Communist lines in Korea and brought back a downed MIG-15 fighter for inspection by Allied intelligence experts. Operating from a small island off the west coast of Korea, the H-19 flew to the crashed MIG, and a work crew dismantled the aircraft with hand grenades. It was then loaded in sections into the cargo hold of the helicopter, and flown back to base, despite heavy anti-aircraft fire which held a rotor blade.

Inspection in America of an earlier MIG-15, retrieved by the Royal Navy some time ago, has shown that it is of first-class design and construction, powered by an excellent copy of the Rolls-Royce Nene developing up to 6,750 lb. thrust. Top speed is 672 m.p.h., and it can climb in under six minutes to 30,000 ft., above which its performance is outstandingly good. Span of the wing is 33 ft. and it is swept back at 42 degrees. Armament consists of one 37 mm. and two 23 mm. cannon mounted under the fighter's nose.

Comet's Profit

B.O.A.C. gave the best possible answer to overseas critics, who claimed that jet-powered air liners would not be economical, by making a profit of £3,000 from their first month's operation of a weekly Comet service between Britain and South Africa. Among the reasons for the good start are that the Comet was thoroughly tested before entering commercial service, and that the jet service requires only three aircraft compared with six slower piston-engined air liners.



The Princess Flies

With little of the excitement and ceremony which marked the first flight of the Brabazon, its landplane counterpart, the giant Princess flying boat was launched on 20th August at Cowes, Isle of Wight, and made its first flight of 32 min. duration two days later.

The fact that the Princess will not now go into service with B.O.A.C. has tended to overshadow its importance. Not only is it the biggest all-metal flying boat ever built, with a wing span of 219 ft. 6 in. and weight of 140 tons, but it is still the only air liner in the world able to fly a non-stop service between Great Britain and the United States throughout the year. It was designed as the flagship of Britain's transatlantic air fleet, carrying 105 passengers in great luxury at a cruising speed of 380 m.p.h.

Now, because B.O.A.C. have abandoned flying boat operations, only one of the three Princesses originally ordered has been completed, and its future is undecided. It is powered by ten 3,200 h.p. Bristol Proteus turboprops. The second and third Princesses will be "cocooned" and stored in an advanced stage of completion until more powerful engines are available.

It is, however, significant that Britain's only flying boat operators, Aquila Airways, have received an important Government contract to fly troops out to the Far East. They have already proved their worth, using comparatively small Solents. With three Princesses, Aquila could carry as many troops in one year as nine large transport ships, with consequent considerable reduction in cost and time of travel, and vastly improved fighting strength of Army units overseas.

Above is shown the Saunders-Roe Princess flying boat. Photograph by courtesy of Saunders-Roe Ltd.

The novel train shown in the lower illustration is in service at Schiphol Airport, Amsterdam, where it takes visitors on a conducted inspection tour. Photograph by courtesy of K.L.M. Royal Dutch Airlines.

U.S Guided Missiles

As foreshadowed last month in my article on the Lockheed Starfire jet fighter, the U.S.A.F. is developing supersonic pilotless interceptors. First of these is the Hughes XF-98 Falcon, which carries radar equipment for tracking enemy aircraft after it has been launched in mid-air from a "mother-plane." A Falcon has already been air-launched successfully from a North American DB-25 (D=director aircraft).

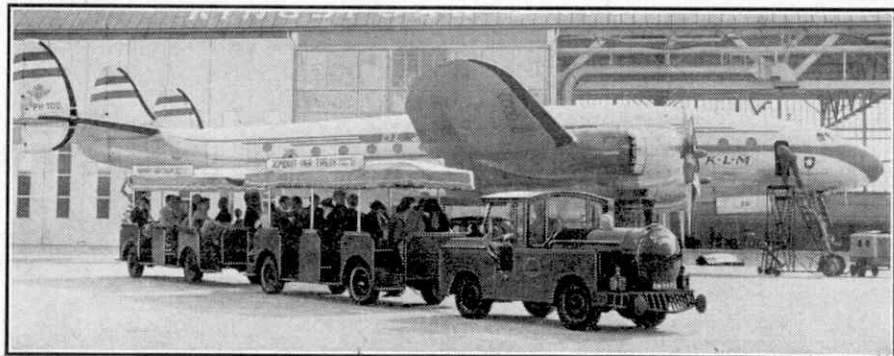
Soon to follow is the Boeing XF-99 Bowmark, which will be launched from the ground under radar control to intercept and destroy enemy raiders.

Schiphol Express

Seen below against a background of the biggest hangar in Continental Europe—K.L.M.'s "Kingsford Smith" hangar at Schiphol Airport, Amsterdam—is the Schiphol Express. The engine of this unique train, which takes visitors on a conducted tour of the airport, is a cleverly-disguised Jeep. There is plenty to see at Schiphol. As well as being the headquarters of K.L.M.'s great aircraft fleet, it has some very novel features of its own, including hangars named after aviation pioneers and road names like Navigators Street, Gyro Lane and Connecting Rod Street.

More Viscounts Ordered

British European Airways have increased their order for Vickers Viscount 701 turboprop air liners from 20 to 26, and have already taken delivery of the first of these aircraft. This brings the number of Viscounts definitely ordered to 48, including four for Aer Lingus, 12 for Air France, six for Trans-Australia Airlines and 26 for B.E.A. Further large orders are expected in the near future.



The Fairy City of Madurodam



BETWEEN The Hague and the seaside resort of Scheveningen, only a mile or two from the North Sea coast of Holland, there is one of the most remarkable cities in the world. It has crowded streets, motor highways with lots of traffic, mansions lining quiet canals, and modern buildings as well as ancient castles. There are windmills with whirling sails, a harbour full of shipping, and an up-to-date airport where planes stand waiting for permission from the Control Tower to take off.

These and many other features are all that we should expect in a Dutch town, but the aircraft have empty cockpits, on the bridge of the ocean liner in the harbour there is no one in command, and nothing is sold in the shops and houses. Churches, picture houses, trains, trams and schoolrooms are all empty. The whole scene in fact is lacking in life—except for giants walking about the streets like so many Gullivers in Lilliput.

This all sounds mysterious, but no doubt



Visitors to Madurodam admire a characteristic scene in rural Holland.

by this time every reader will have found the solution to the puzzle. Yes, the city is a miniature one, in which everything is only a twenty-fifth of the scale on which ordinary cities are built.

This fairy tale city is Madurodam. Its



On the left "the Convaiv arriving from London has just landed" at the airport of Madurodam. The roads of the city are busy too, as the scene below shows. For our photographs of Madurodam we are indebted to K. L. M. Royal Dutch Airlines.

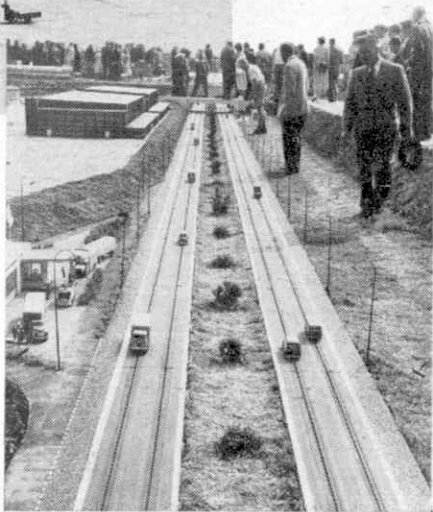
name honours the memory of George Maduro, a scholar of Leyden University who showed conspicuous bravery when Holland was invaded in 1940, and who later died in Dachau Concentration Camp. It was opened last Summer after two years of hard work and immediately became an outstanding attraction, 50,000 people visiting it during the first three weeks.

Madurodam is full of wonder for all who see it during the day, when they can examine closely its buildings, canals and railways, but in the evening, when darkness is falling and the lights are switched on, it becomes truly a fairyland. There are warming gleams from the stained glass windows of the churches, and from its old world houses and modern flats. The shop windows are brilliantly illuminated, and so are trains and aircraft, and the airport beacon flashes the code letters MA MA MA in green light.

Every corner of Madurodam is full of marvels. One of the most attractive of these is an electric railway laid out among hills and valleys, across bridges, through tunnels and past a picturesque village and an oil field where drilling is continually in progress. The trains stop for a moment at one of the modern railway stations near the large church, in the tower of which there is a magnificent clock that not only tells the time, but also shows the day and the month and the signs of the Zodiac. In the harbour radio-controlled

ships are moving and there is a lift bridge that anyone can operate.

Madurodam consists largely of donations from Dutch firms, large and small, who have contributed voluntarily because the city exists for a good cause. The entire



proceeds from the thousands of visitors who will come to it from all parts of the world are to go to the Netherlands Students' Sanatorium. It covers an area of 18,000 sq. yds., across the road from one of Holland's largest office buildings, the Head Office of K.L.M. Royal Dutch Airlines. Its airport indeed is the contribution of K.L.M. and resembles Schiphol Airport.

Madurodam has a real Burgomaster, who is none other than the Crown Princess Beatrix of the Netherlands. The Crown Princess is 14 years of age and takes her duties very seriously. In them she is assisted by a Deputy Burgomaster and members of the City Council, all of whom are schoolchildren.

Photography

Guy Fawkes Night

By Ernest E. Steele

MANY old customs become neglected and fall into disuse as the years roll by, but 5th November seems to be as popular as ever and is celebrated with enthusiasm alike in town and remote country village. Many excellent photographs have been taken on Guy Fawkes Night, using the old fashioned



"Penny for the 'Guy' "?"

flash powder, now superseded by the modern flash bulbs, which give a brilliant flash of very short duration.

Most of the more expensive modern cameras have synchronised shutters, which will operate with flash at all speeds. Some of the cheap ones, such as the simple box camera, are synchronised for one shutter speed, which may be the only speed of which the camera is capable, but the results are good. Of course the exposure will vary according to the distance from the camera, as in ordinary daylight photography. If the shutter speed is fixed the variation is taken care of by stopping down the lens. The bulbs, which are packed in units of four, contain a very comprehensive sheet of instructions, with tables for distances and exposures.

The bulb, of course, can be used only once, and is fired by small dry batteries contained in the special holder very much like an ordinary torch, the light being concentrated into a forward beam by a small silvered reflector. Least expensive of all is the "open flash" method. The bulb, in holder with reflector, is held in one hand while the camera is set to "Time." As the shutter is opened the bulb is fired by pressing the button on the battery holder, and the shutter is then quickly closed. The cheaper bulbs, P.F.14, cost 1/1 each, and it was



"Please to remember"

with the aid of these that I took the pictures reproduced on this page, using a simple apparatus to synchronise the shutter at 1/20 sec., the lens being stopped down to F/12, using Ilford F.P.3 panchromatic film.

Where photographs of fireworks are required the shutter may be left open, the camera being on a firm support, but attention should be paid to the type of firework used. Some of the pretty "fountain" types burn with a good deal of smoke that tends to swirl about and give a foggy result. If the fireworks are fastened to a post, correct focus may be obtained in the dark by having an assistant hold a torch in the position to be occupied by the firework. Collectors dressed as "Guys" can be "flashed" as the door is opened, the camera being previously focused and held at the ready. This should result in some interesting unposed expressions difficult to obtain by other means.



The "Guy" goes up in smoke.

1952-53 International Meccano Competition

How the Models will be Judged

By "Spanner"

THE announcement of the great Meccano International Model-Building Competition has created tremendous enthusiasm among model-builders all over the world. Letters hailing its institution and requests for copies of the special Competition Leaflet are reaching us in great numbers, and it is already apparent that a veritable flood of entries will pour into our Offices in Binns Road between now and 31st March next year.

Deciding on the merits of the models described and illustrated in these entries will provide a stiff task for the Competition judges, when they come to consider who are to be the recipients of the 400 or more Cash Prizes to be won in this greatest of all Meccano Contests.

Every competitor can be quite sure that his model will receive full and careful consideration, however, and that his chance of winning a prize is equal to that of any competitor. Fair treatment will be assured by a special system of assessing the merits of each model that is to be adopted.

The models will be judged by a panel of experts in Meccano construction, who have had a long experience in Meccano Competitions. Marks will be allotted to each entry according to the novelty of its subject, its constructional excellence, and its realism and neatness. Then the age of the competitor will be taken into account. By this means we shall ensure that although, for example, boys between 10 and 16 years of age will be competing together in Section B, the youngest of these will not be handicapped by their smaller experience, while at the same time care will be taken to see that the oldest competitors in each section are given full recognition for their efforts.

I strongly advise each competitor to study the judging scheme very carefully before finally deciding what he will build and starting construction. Choice of a really suitable subject can play a very big part in bringing success, for many marks can be won under this heading alone. But in making a selection it is

important to bear in mind the size of the Outfit, or the range of parts that the builder will have at his disposal for its construction. It is no use choosing a machine with complicated mechanism unless the competitor has ample parts available to build it well. A simple subject that is well within the scope of the Outfit available to him will bring better results, as it will be easier for the competitor to reproduce this correctly and so earn maximum marks under the heading "Realism."

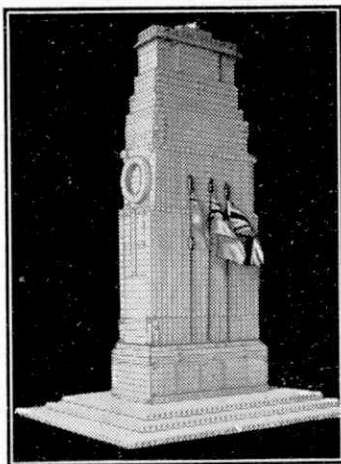
Those who have large Outfits of course should certainly make the most of them, but here again I advise a search for a really novel and

ambitious subject, for example, an industrial machine of some kind, in building which they can give full play to their inventive ability and skill in designing mechanisms.

Competitors may send more than one entry each if they desire to do so, and I advise everyone to avail themselves of this concession. If two or more entries are sent they will be grouped together, however, and will be assessed on their joint merits.

If possible all the entries from any one competitor should be sent together in one envelope.

Next month I shall have a few words to say about the preparation of the entry and points to watch in photographing models.



The Cenotaph built in Meccano. An excellent example of an architectural model by Derrick Holloway, Squirrels Heath, Essex.

Among the Model-Builders

By "Spanner"

A Compact 4:1 Ratio Gear Train

A 4:1 ratio gear train, which is very useful in many mechanisms, is quite easy to arrange using standard Meccano parts by adopting the following method of mounting the shafts on which the gears are fitted. Two $3" \times 1\frac{1}{2}"$ Flat Plates are fixed to a Flanged Plate, $1\frac{1}{2}"$ apart, as shown in Fig. 1. To each of these Plates a $1"$ Triangular Plate 1 is bolted, the bolts passing through the *second* and *third* holes along the top edges of the Plate. The Triangular Plates are spaced from the

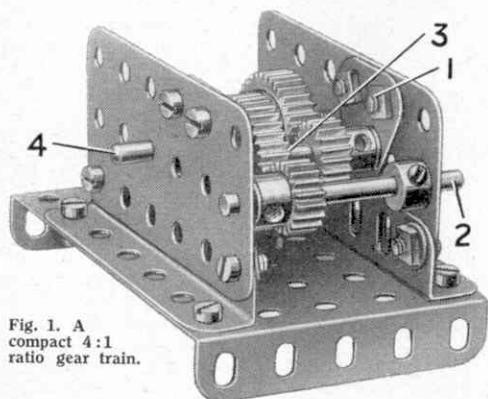


Fig. 1. A compact 4:1 ratio gear train.

Flat Plates by placing a Washer on each bolt.

The driving shaft is a $2"$ Rod 2, which carries two Washers, a $\frac{1}{2}"$ Pinion and a Collar. A $1\frac{1}{2}"$ Rod 3, carrying a $1"$ Gear and a $\frac{1}{2}"$ Pinion, is mounted in the apex holes of the Triangular Plates. A second $2"$ Rod 4 bearing two Washers, a $1"$ Gear and a Collar, which are placed on it in that order, is mounted in the *fourth* holes in the centre of the Flat Plates.

Pivot Bearing for Roundabouts

The device shown in Fig. 2 is designed for use in models, such as roundabouts, where a rotating structure has to be supported on top of a central column. The bearing consists essentially of two $1\frac{1}{2}"$ Contrate Wheels, the lower one, which is loose on the Rod 1, being bolted

to the central column, while the upper one, which is fixed to the Rod, is attached to the rotating structure.

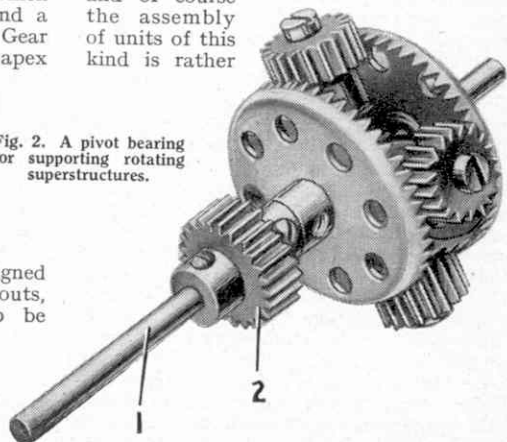
The teeth of the Contrates rotate in contact with four $\frac{1}{2}"$ Pinions, which are carried on $\frac{3}{4}"$ Bolts locked in the

tapped holes of a "spider" taken from a Swivel Bearing. The rotating structure is driven through a Pinion 2 fixed to the Rod 1 below the lower Contrate.

Flush-fitting Sliding Doors for Coaches

Readers often write to tell me of some particular problem of construction that they have met with in their model-building activities, and in most cases I am able to suggest either a suitable mechanism for their requirements or some alternative form of construction that will meet their need. For example, a reader who specialises in building detailed model vehicles wrote recently regarding a model of an under-floor engine coach he was assembling. As many readers will be aware, most vehicles of this kind are fitted with flush-fitting sliding doors, and of course the assembly of units of this kind is rather

Fig. 2. A pivot bearing for supporting rotating superstructures.



Michael Wilkins, Montevideo, Uruguay, a keen model-builder.

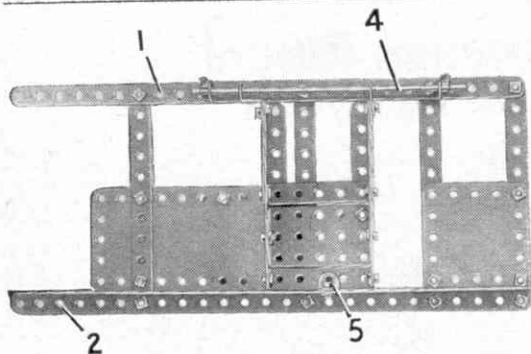


Fig. 3. A neat method of constructing a flush-fitting sliding door for a motor coach.

tricky as there must be no projections on either the surface of the door or the body panelling that will interfere with the sliding action.

One method of solving the problem is shown in Figs. 3 and 4, and I hope that other model-builders interested in vehicle construction will find it useful.

The section of the body panelling shown is assembled by fixing Flexible Plates to $5\frac{1}{2}$ " Strips bolted between a $12\frac{1}{2}$ " Strip 1 and a $12\frac{1}{2}$ " Angle Girder 2. The door itself consists of a $2\frac{1}{2}$ " x $1\frac{1}{2}$ " Flanged Plate and two $2\frac{1}{2}$ " x $\frac{1}{2}$ " Double Angle Strips, bolted at each side to a $4\frac{1}{2}$ " Strip. The window frame is formed by two $2\frac{1}{2}$ " Angle Girders 3.

At the top the door is supported by a $\frac{1}{2}$ " Reversed Angle Bracket



G. B. Thompson, Napier, New Zealand, a prize-winner in the Christmas General Model-Building Competition.

and a Fishplate, each of which is bolted to one of the $4\frac{1}{2}$ " Strips, and it is free to slide on a $6\frac{1}{2}$ " Rod 4. Rod 4 is held by Spring Clips in a $5\frac{1}{2}$ " x $\frac{1}{2}$ " Double Angle Strip bolted to Strip 1. The lower edge of the door is guided by a stop formed by an Angle Bracket 5 fixed to the Angle Girder 2. The door handle is a Pawl without boss fitted to a $\frac{3}{8}$ " Bolt, but spaced from the door by four Washers.

I am always glad to help Meccano enthusiasts in every way possible, and I hope readers will write to me whenever they find "snags" in the design or assembly of their models. Very often these problems and their solutions will be interesting to other model-builders, and whenever suitable examples come along I shall include them in these pages.

* * * * *

David Haire, Wolverhampton, makes a suggestion for a Cord tensioning device for use in small model hammerhead and block-setting cranes. Sometimes it is difficult to obtain sufficient tension

in the Cords controlling the movements of the crabs or trolleys along the booms of these models, without slipping, and

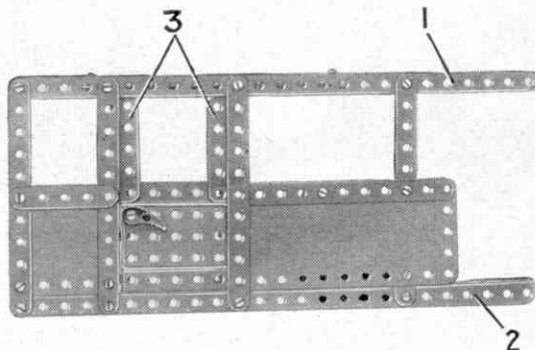


Fig. 4. The sliding coach door seen from the exterior.

Haire suggests a neat screw-adjustment with the aid of which the Cords can be tightened while they are actually in position.

The main component of the device is a Stepped Bent Strip, which is attached to the end of the crane jib by a long Bolt. A 1" Rod held in the jaws of the Stepped Bent Strip carries a $\frac{1}{2}$ " or 1" loose Pulley round which the crab operating Cord is passed. The Cord should be arranged and tied with the nut at the extreme end of the Bolt. Then by tightening the nut the tension can be adjusted to the right degree.

Another useful device in connection with some Cord arrangements, is to tie the ends of the Cord to a Rubber Driving Band. This will form an elastic link and will keep the Cord in tension, provided that it is correctly adjusted.

New Meccano Model

Farm Tractor and Hay Rake

THE realistic Tractor and Hay Rake that forms the subject of our new model this month is powered by a Clockwork Motor No. 1 that drives it at a good speed. The Hay Rake is fitted with a simple mechanism that raises and lowers the tines automatically as the model is driven along the ground.

The Tractor chassis is assembled from two built-up strips, each made from two $5\frac{1}{4}$ " Strips overlapped three holes. These strips are joined together by two $2\frac{1}{4}$ " \times 1" Double Angle Strips 1 and 2, and by two $2\frac{1}{4}$ " \times $\frac{1}{2}$ " Double Angle Strips 3 and 4. The Clockwork Motor is fixed to Angle Brackets bolted to Double Angle Strips 1 and 2, and a $2\frac{1}{4}$ " Strip on each side is bolted between the Double Angle Strips for bracing purposes.

The front axle is made by fixing a $3\frac{1}{2}$ " Strip to each side of small Fork Pieces 5. The axle pivots on a 1" Rod held by Spring Clips in a Trunnion bolted to Double Angle Strip 3, and in an Angle Bracket fixed to Double Angle Strip 1. The front wheels are

plate. The edges of the built-up plate are curved downward, and it is bolted direct to the rear set of 3" Strips and is attached to the front set by Fishplates. The exhaust pipe is a 2" Rod held in a Crank bolted underneath the bonnet, and it carries a Coupling and a Threaded Coupling.

The top of the radiator is made by bolting a $2\frac{1}{4}$ " \times $\frac{1}{2}$ " Double Angle Strip between the 3" Strips at the front of the chassis. A $2\frac{1}{4}$ " stepped Curved Strip is fixed to the Double Angle Strip, and the assembly is capped by a $1\frac{1}{2}$ " Strip curved slightly and held by a $\frac{1}{2}$ " Bolt that is fitted with a Collar to represent the radiator cap.

Two $2\frac{1}{4}$ " Strips are curved to the same radius as the $2\frac{1}{4}$ " stepped Curved Strip, and they are connected together by a 3" Strip at each side and by a similar Strip at the centre. The spaces between the 3" Strips are filled by two Tension Springs. This assembly forms the front of the radiator, and it is attached to the chassis and to the top of the bonnet by

Obtuse Angle Brackets.

Steering is controlled by turning a $6\frac{1}{2}$ " Rod mounted in two Angle Brackets bolted to one side-plate of the Motor. This Rod is held in place by Collars, and it carries at its lower end a $\frac{1}{2}$ " Bevel that engages a $1\frac{1}{2}$ " Bevel 13. Bevel 13 is free to turn on a $\frac{1}{2}$ " Bolt fixed by a nut in Double Angle Strip 2, and it is held on the Bolt by lock-nuts. A Fishplate is bolted to the $1\frac{1}{2}$ " Bevel, and a $3\frac{1}{2}$ " Strip 14 is lock-nutted to the Fishplate.

A Bolt is fixed by a nut in the slotted hole of each of the Cranks 6, and a Collar is screwed loosely on the bolt. The Collars are connected by a 4" Rod, and Strip 14 is pivoted on a bolt screwed into one of the Collars.

Each rear mudguard is a $5\frac{1}{4}$ " \times $1\frac{1}{2}$ " Flexible Plate attached to a similar Flexible Plate bolted across the rear of the chassis. The front ends of the mudguards are supported by Angle Brackets fixed to vertical $1\frac{1}{2}$ " Strips. The seat is made from two Flat Trunnions, and it is attached by Angle Brackets to a pillar made from two 2" Strips. The lower ends of these Strips are bolted to a Double Bracket fixed to the Flanged Plate 12. The coupling hook is a large Fork Piece placed on a $1\frac{1}{2}$ " Rod passed through the rear flange of the Flanged Plate. The Rod is fitted with a Compression Spring, and is held in place by a Collar.

The Hay Rake is assembled on a $5\frac{1}{4}$ " \times $2\frac{1}{4}$ " Flanged Plate 15, and the drawbar consists of two built-up angle girders. Each of these is made from two $5\frac{1}{4}$ " Strips, one of which is bolted direct to the Flanged Plate and the other is attached to the Plate by an Angle Bracket. The $5\frac{1}{4}$ " Strips are connected at their forward ends by a Double Bracket, and a $\frac{1}{2}$ " Reversed Angle Bracket is used to couple the Rake to the Tractor.

The rake tines are Formed Slotted Strips bolted to a $5\frac{1}{4}$ " \times $1\frac{1}{2}$ " Double Angle Strip. One end of the Double Angle Strip is lock-nutted to a Fishplate bolted to the Flanged Plate 15, and the other end

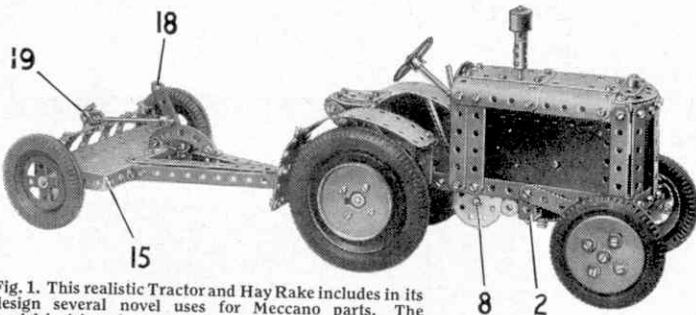


Fig. 1. This realistic Tractor and Hay Rake includes in its design several novel uses for Meccano parts. The model is driven by a reversing Clockwork Motor No. 1.

made by pressing 2" Motor Tyres over Boiler Ends. A Bush Wheel is bolted centrally inside each Boiler End, and the complete wheel is free to turn on a $\frac{1}{2}$ " Bolt. This Bolt is screwed into a Collar mounted between the prongs of one of the Fork Pieces 5, and is fixed on a 1" Rod passed through the Fork Piece. The lower end of each of the 1" Rods is fitted with a Crank 6.

The rear wheels are 3" Pulleys fitted with Motor Tyres, and they are fixed on a 5" Rod mounted in Flat Trunnions bolted to the chassis. The Rod is held in position by Collars, and it carries a $1\frac{1}{2}$ " Contrate 7.

A $\frac{1}{2}$ " Pinion on the Clockwork Motor driving shaft is meshed with a 57-tooth Gear on a $2\frac{1}{4}$ " Rod 8. This Rod is mounted in the Motor sideplates, and it carries a Coupling 9 loose on the Rod, and a $\frac{1}{2}$ " Pinion 10 fixed in place but spaced from the Coupling by a Washer. Pinion 10 meshes with a $1\frac{1}{2}$ " Contrate on a Rod 11, which is free to turn in Coupling 9 and is supported at the rear by a 1" Corner Bracket bolted to the flange of a $3\frac{1}{4}$ " \times $2\frac{1}{4}$ " Flanged Plate 12. The Plate 12 is fixed to Double Angle Strip 4, and is attached to the chassis by Angle Brackets. A $\frac{1}{2}$ " Pinion on Rod 11 engages the Contrate 7 on the rear axle. The brake and reverse levers of the Motor are each extended by a Rod held in a Rod and Strip Connector.

The bonnet is supported by three 3" Strips on each side, bolted to the chassis as shown in Fig. 1. The bonnet is assembled from six $2\frac{1}{4}$ " \times $1\frac{1}{2}$ " Flexible Plates bolted together to form a built-up $4\frac{1}{2}$ " \times $3\frac{1}{4}$ "

is supported by a $\frac{3}{8}$ " Bolt 16. This Bolt is fixed tightly to a Fishplate by a nut, and is passed through an Angle Bracket bolted to the Flanged Plate. The Bolt 16 is then gripped tightly in the lug of the Double Angle Strip by two nuts.

The wheels of the Hay Rake are fixed on 2" Rods mounted in the flanges of the Flanged Plate 15 and in Angle Brackets bolted underneath this Plate. Collars are used to hold the Rods in position, and one Rod carries a second Collar placed outside the Plate and spaced from it by Washers. A Bolt 17 in the Collar is arranged so that as the axle turns the Bolt engages the Fishplate on Bolt 16 and acts as a simple cam. This action raises the tines clear off the ground.

When necessary the tines can be held off the ground by operating a lever 18. This is a $2\frac{1}{4}$ " Strip lock-nutted to an Angle Bracket fixed to the drawbar, and it slides between two $2\frac{1}{4}$ " stepped Curved Strips also attached to the drawbar by Angle Brackets. A $3\frac{1}{4}$ " Rod is fixed in a Collar pivoted to the lever, and the free end of the Rod carries a Fishplate 19 attached by a bolt to a Collar. This assembly is slipped over a $\frac{1}{4}$ " Bolt that is held by a nut in the $5\frac{1}{4}$ " x $\frac{1}{4}$ " Double Angle Strip.

When the assembly is completed the No. 1 Clockwork Motor and the driving shafts and gears of the model should be lightly oiled to ensure that the mechanism is free running, and the bearings for Rod 11 should be lined up carefully so that the Rod is able to turn freely.

The hay rake is only one of many interesting farming implements that are used in conjunction with tractors, and we suggest that readers should try modelling some of these. Ploughs, harrows, hay carts and trailers are some of the good subjects to be found among farm equipment. Models of them are quite easy to assemble and do not require an extensive collection of parts.

Model-builders who are also Dinky Toys collectors will find the agricultural implements included in the Dinky Toys range useful as prototypes on which to base their models. For example, the many moving parts of the Massey-Harris Manure Spreader make

this an attractive subject for those who like plenty of "gadgets" in their models, and a well-built reproduction of this would look most realistic when hitched to the tractor described here.

At this time of the year farmers all over the country are busy preparing the land for next season's crops, and in most parts tractors are to be seen hard at work towing and driving implements of various kinds. Readers travelling through the country should be on the look out for new ideas for their models.

There is no doubt that agricultural machinery can be reproduced with a great deal of accuracy

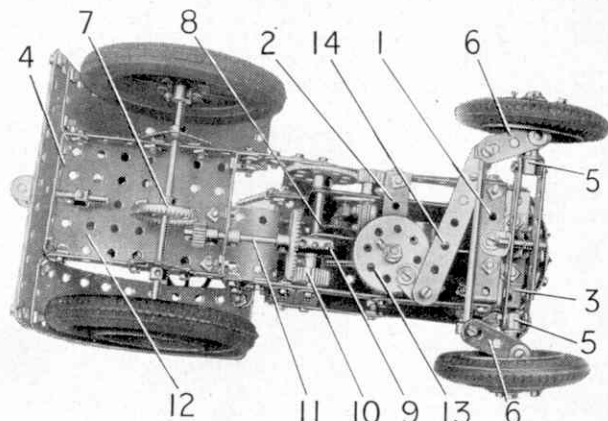


Fig. 2. The arrangement of the steering mechanism, and the drive to the rear wheels, are shown in this underneath view of the Tractor.

and realism with even a comparatively small Outfit. If a Clockwork or Electric Motor is available as a power unit it is fascinating to watch the machinery in motion, but careful choice in the selection of a subject can make even a simple hand-operated model attractive. For instance, automatic raising or lowering of the tines of the hay rake described above gives an air of realism even when the towing tractor is pushed or pulled along the floor.

Model-builders living in cities or towns who are considering agricultural implements or machines as subjects for their entries in the great 1952-53 Meccano International Model-Building Competition may well find a short trip in the country to study farming equipment at first hand well worth while.

Parts required to build model Farm Tractor and Hay Rake: 9 of No. 2; 3 of No. 3; 9 of No. 4; 6 of No. 5; 2 of No. 6; 3 of No. 6a; 6 of No. 10; 1 of No. 11; 21 of No. 12; 2 of No. 12b; 4 of No. 12c; 1 of No. 14; 1 of No. 15; 1 of No. 15b; 1 of No. 16; 1 of No. 16a; 4 of No. 17; 3 of No. 18a; 3 of No. 18b; 2 of No. 19b; 2 of No. 20a; 2 of No. 24; 1 of No. 25; 2 of No. 26; 1 of No. 27; 2 of No. 28; 1 of No. 30a; 1 of No. 30c; 2 of No. 35; 141 of No. 37; 10 of No. 37a; 51 of No. 38; 2 of No. 43; 2 of No. 46; 4 of No. 48a; 1 of No. 48d; 1 of No. 52; 1 of No. 53; 17 of No. 59; 3 of No. 62; 2 of No. 63; 1 of No. 63c; 4 of No. 90a; 6 of No. 111; 4 of No. 111c; 1 of No. 116; 2 of No. 116a; 1 of No. 120b; 1 of No. 125; 1 of No. 126; 4 of No. 126a; 1 of No. 133a; 2 of No. 137; 4 of No. 142a; 2 of No. 142b; 2 of No. 162a; 1 of No. 164; 1 of No. 185; 7 of No. 188; 3 of No. 189; 2 of No. 212; 6 of No. 215; 1 No. 1 Clockwork Motor.

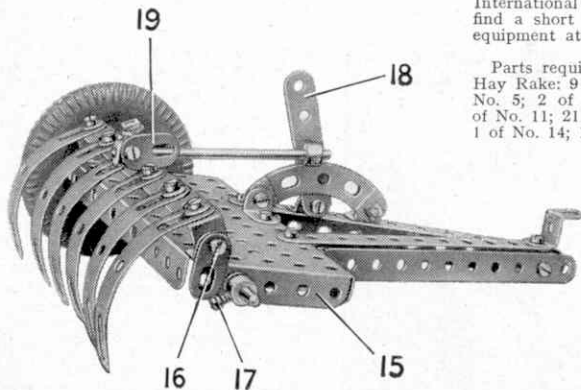


Fig. 3. One of the wheels is removed from the Hay Rake in this view in order to show the cam system that automatically raises and lowers the tines.

Meccano Boy Designs New Type Bus

Featured in T.V. Programme

A FEW months ago the name J. A. Lowrie, Stapleford, Nottingham, appeared among the list of prize-winners in a Meccano model-building Competition. He had won his prize with a splendid model of a motor coach, 3 ft. long and 9½ in. wide, and built to a scale of 1¼ in. to a foot. This was designed by Lowrie himself, and was remarkable for the great amount of detail incorporated in the chassis and fittings of the body. The model is shown in the lower illustration on this page, and we understand that it is designed to conform with Ministry of Transport requirements for this type of vehicle, a considerable achievement in a model!

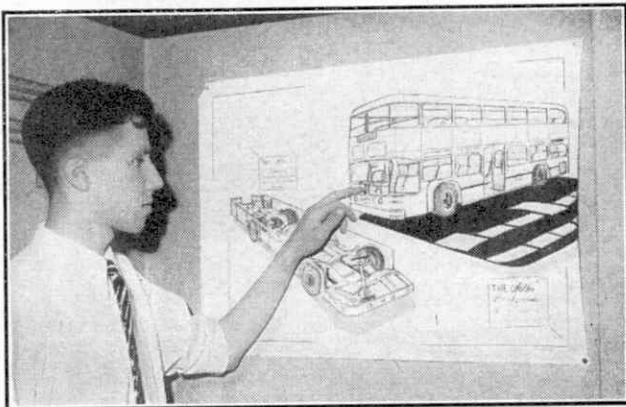
It is impossible to mention all the attractive features of the model, but the interior of the body includes 15 moquette seats, fluorescent lighting, carpets, flush sliding doors on the near side, an emergency door with folding steps for use on the Continent, cocktail bar, pantry, toilet and kitchen.

Among the chassis details are power-operated brakes, and twin horizontally-mounted driving units incorporating Meccano Motors, which are capable of driving the model at a speed of about 6 miles per hour.

Modelling buses, however, is by no means the extent of Lowrie's activities. His main interest is in the designing of new types of real vehicles and he has produced a new type of double-decker, which he calls "The Alba Bridgemaster." This he designed with a view to providing a double-decker with very low overall height, low unladen weight, high seating capacity and greater comfort and safety for the passengers. After considerable experimental work and study, Lowrie finally designed the Alba Bridgemaster, which fully complies with all Ministry

of Transport regulations for vehicles of this kind. Lowrie's design was recently accepted for inclusion in the well-known Television programme *Inventors' Club*, and in the upper illustration on this page Lowrie is seen with one of his drawings of the double-decker. The drawings show also an earlier chassis designed by Lowrie.

Eventually the Alba Bridgemaster, which has been examined by British Transport Commission experts and several private coach operators, will be available



J. A. Lowrie, Stapleford, Nottingham, points out features of his Alba Bridgemaster motor coach.

in both double-decker and single-decker types. The bus is of the low-bridge type, and is 27 ft. long, 8 ft. wide, and 12 ft. 1 in. high (laden). It has a wheelbase of 14 ft. 9 in., with front overhang of 5 ft. 6 in. and rear overhang of 6 ft. 9 in. on the double-decker type. The single-deck type is 15 ft. 6 in. with a front overhang of 4 ft. 9 in. and rear overhang of 6 ft. 9 in.

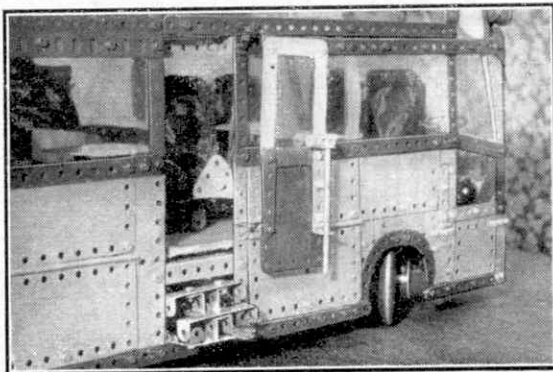
The unladen weight of the double-decker is 6 tons 15 cwt., and both models have a seating capacity of 66.

The bus is of steel and aluminium construction, with pillars, sole bars, waist, cant and crib rails of extruded Duraluminium. Diagonal bracing on the upper deck, and stout truss panels on the lower deck, together with an extruded Duraluminium deep section cant rail encircling the body, form a rigid shell.

The independent front suspension uses torsion bars and a sliding pillar arrangement and ensures perfect steering geometry.

Lockheed power-assisted steering and hand brake units are fitted. The engine is a modified A.E.C. 9.6 litre horizontal type and it drives through a pre-selector gearbox mounted as an integral unit at the rear. A flexible coupling transmits the drive to the axle.

A sunken gangway on the lower deck provides a flat floor, and the staircase to the upper deck is placed behind the driver, over the off-side wheel arch.



A view of the forward end of the motor coach with which Lowrie won a prize in a recent "M.M." model-building competition.



Club and Branch News



WITH THE SECRETARY

ROLL UP YOUR SLEEVES!

The long spell of indoor activity that characterises the Winter sessions seems likely this time to set up a new record for intensive model-building, thanks to the added zest given to this grand hobby by the great Meccano International Competition now in progress. Many Leaders have written to tell me of their members' resolve to have a shot at winning one of the excellent cash prizes offered in the special section for Club entries, and that enthusiasm among them is high. There should be a splendid crop of entries!

I suggest that the actual construction of competition models that it is decided to build during the present session be timed so that the work will be completed conveniently for them to be used in any Christmas exhibition that may be planned as the climax of the session. This will enable the models to serve a double purpose. It will also avoid the danger of not having the models ready in time for the competition—do not forget that a last-minute rush may mean poor work, and that would be fatal.

MECCANO CLUBS RECENTLY AFFILIATED

ST. MARY'S (EAST NEWPORT) M.C.—Mrs. Knowlden, "Braemore," 3, Norwood, East Newport, Fife.
BROEK (HOLLAND) M.C.—Mr. E. Smit, Schoolhoofd, Kerkeplein, Brook in Waterland, Holland.

BRANCHES RECENTLY INCORPORATED

NO. 539—FIVE DOCK (AUSTRALIA)—Mr. L. C. Haden, 16, Connecticut Avenue, Five Dock, Sydney, New South Wales, Australia.
NO. 540—SULLIVAN UPPER SCHOOL (BELFAST)—Mr. J. B. Hawthorne, Greenlaw, Knockbreda Road, Belfast, Northern Ireland.

PROPOSED BRANCH

WEST WORTHING—Mr. B. J. Edwards, 11, Station Parade, West Worthing, Sussex.

CLUB NOTES

MILE END (PORTSMOUTH) M.C.—The most exciting recent event was a visit to the Eastleigh Carriage Works, where members saw locomotives in various stages of construction and repair, and had great fun inspecting them and rolling stock. Some excellent photographs were taken. Mr. Bingen, Leader of the Maastricht (Holland) M.C., has visited the Club and given a very interesting illustrated talk on Dutch railways. Another Cycling Tour to the Camber Docks and Old Portsmouth was much enjoyed. Club roll: 44. Secretary: Mr. A. J. Nicholson, 213, Sultan Road, Buckland, Portsmouth.

HORNSEA M.C.—Indoor activities have included the operation of the Club railway, and in the Games section Mah Jongg and Bowls have been very

popular. Club roll: 15. Secretary: D. M. Stevenson, 29 Southgate Gardens, Hornsea, E. Yorks.

AUSTRALIA

FREEMANTLE DISTRICTS M.C.—Excellent model-building meetings of this recently affiliated Club have been held, at which the younger members have shown great promise of becoming expert model-builders. A visit to the Maylands M.C. was a great success. These two Clubs are in close harmony and a regular exchange of visits in the future seems likely. Club roll: 20. Secretary: B. A. Howe, 9, Phipps Street, Bicton, West Australia.

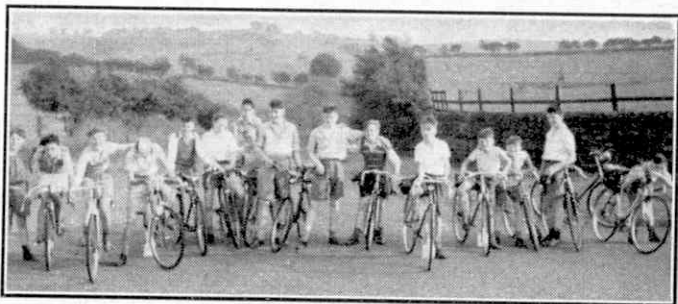
MAYLANDS M.C.—A Social and Film Evening at Perth Boys' High School, organised by the Local Clubs' Association, was attended by 11 members of this Club. Film Shows, at which the films are screened with the Club's 8 mm. projector, continue to be well patronised. At these shows the Factions run a sweet stall, the money received being paid into Club funds. The takings during two recent months totalled 24/11½ and 16/8 respectively. Cycling runs to popular hill resorts have been conducted almost every weekend. The Club has been visited by members of the Freemantle Districts M.C., who found much to interest them. Club roll: 34. Secretary: R. Fletcher, 10, Harrow Street, Maylands, Perth.

SOUTH AFRICA

CAPE PENINSULA M.C.—This enthusiastic Club, now in its second year, continues to make good progress, with model-building the main activity. A recent bridge-building competition produced some fine models. On another occasion each member was given a limited number of Meccano parts and told to build the best model he could with them, and some very ingenious results were attained. One evening, Mr. Spence, of the Model Engineering Club, gave a very interesting talk on *The Evolution of Steam*. Club roll: 18. Secretary: F. Korck, P.O. Box 719, Cape Town.

BRANCH NEWS

MILE END (PORTSMOUTH)—An interesting lecture on how a British locomotive works was given by a member. The talk by Mr. Bingen, of Holland, mentioned in the Mile End M.C. report, was greatly enjoyed. Other events have included a Hornby-Dublo Night and a Table Tennis Tournament. Secretary: M. Powell, 92, Renny Road, Fratton, Portsmouth.



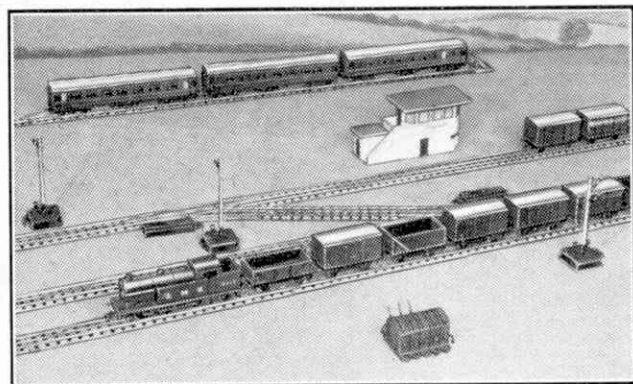
Members of the St. George's (Gateshead) M.C. on one of the Cycling Runs which are a very popular feature of this Club's Summer sessions. The Club was affiliated in July 1951, and its varied programme includes Model-building, Hornby Train operations, Games and, in the Summer, Cricket Matches.

HORNBY RAILWAY COMPANY

By the Secretary

Electrically Operated Signals are back!

IN your train watching expeditions I expect that most of you like to wait at the lineside within sight of a signal. It may be your favourite stopping place,



Part of a layout incorporating Hornby-Dublo Electrically Operated Points and Signals. The Signals, and the Points, are controlled from the group of Switches in the foreground. The wiring is carried under the baseboard.

because the signal will tell you when a train is coming, sometimes quite a little while before the train itself appears. Better still, if your observation post is near a signal box you may be able to see fairly clearly how the "boxman" goes about his job, and you may even hear some of the bell signals from the man in the next box in either direction.

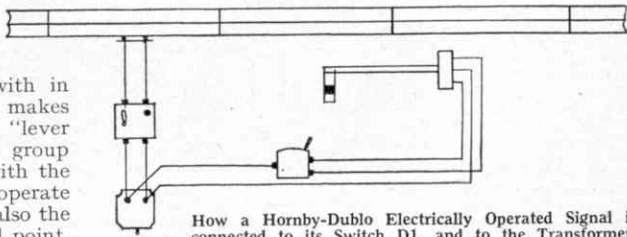
What fun, you may think, to be a railway signalman! Well, those of you who have Hornby-Dublo railways can now have the fun of acting as signalmen on your own layouts, without any of the hard work that is attached to the real signalman's job. The re-introduction of the Hornby-Dublo Electrically-Operated Signals, in addition to the Electrically-Operated Points dealt with in the *M.M.* in September, makes this possible. From the "lever frame," consisting of a group of Switches D1—those with the red casings—you can now operate not only the Points, but also the Signals from your control point.

Hornby - Dublo Electrically - Operated Signals are exactly the same in their arrangement of posts and semaphores as the familiar hand-worked ones. But there is a difference in their bases. An Electrically Operated Signal has a slightly broader and deeper base than usual in order to house the operating mechanism. The front face of the base has three terminal sockets for wiring up purposes, with the screw heads on the upper surface of the base.

A Signal is connected to its Switch in exactly the same manner as are the Electrically-Operated Points. The diagram on this page makes this clear. The centre terminal on the Signal base is connected

directly to one terminal on the Transformer. The other terminal on the Transformer is wired to the single terminal at the rear of the Switch, and the two Terminals at the front of the Switch are connected to the outer terminals on the base of the Signal.

When you have wired up correctly pull the Switch lever steadily towards you and the signal will go "off"; put it away from you and the signal arm returns to the normal position. Now you are your own Signalman, ready to control any train that may come along! But a word of warning—when operating the switches, move the levers gently; do not jerk them over.



How a Hornby-Dublo Electrically Operated Signal is connected to its Switch D1, and to the Transformer.

On Time!

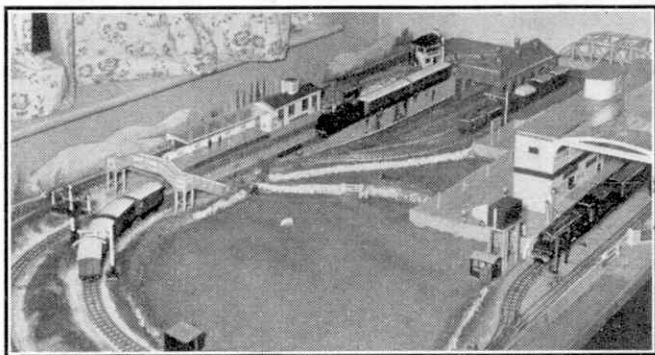
Good Work on a Hornby-Dublo Railway

HERE are two pictures of a Hornby-Dublo railway that is a good example of a well arranged simple system that runs to a timetable. This has been built up by Mr. A. K. Fullagar, of Leeds, and his son Peter, and naturally both of them enjoy not only working on the line, but also running trains on it.

The railway is laid on a baseboard, supported on trestles, and occupies a space about 9 ft. by 4 ft. 6 in. The main track follows the favourite oval form and for about half of its length consists of single track. It is doubled at each end of the oval system, and at one end this two-track arrangement carries the line past the station and approaches of "Bathampton." This is quite a busy place, with a goods platform and sidings, and there are two tracks, devoted to locomotive purposes, that lead into an engine shed. Apart from movements in connection with either the goods or locomotive sidings, the double track section through "Bathampton" is used as a run-round for the engines of

trains finishing their journeys there.

There is a station at the opposite end of the main oval. This is named "Scott Hall" and has one through road and one

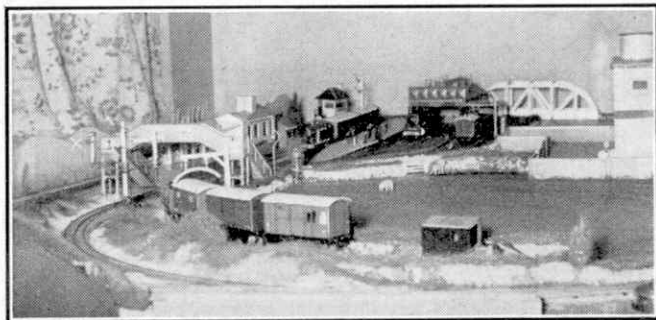


Both the stations and many of the lineside details on the Hornby-Dublo layout described on this page are shown here. This belongs to Mr. A. K. Fullagar, Leeds, and his son, Peter.

terminal bay. It is this station, with its all-over roof, that appears at the right hand end of the upper illustration. A train ready to leave is standing on the bay road, which of course can be used for departures as well as arrivals, according to the direction of the train concerned.

Although only one train can be run at once, the isolating arrangements on the railway allow three engines to be on the track and many interesting operations can be carried out by them, especially as Uncoupling Rails as well as Isolating Rails are a feature. Smart working is necessary, as in the timetable in use five minutes of actual time represent one hour of "Dublo Time."

The principal main line traffic is handled by a Hornby-Dublo *Duchess of Atholl*. Goods working is in charge of the standard 0-6-0 Tank.



A cross-country view showing the natural appearance given to the layout by the track-side banks and other details. The vans are standing in a siding that forms a useful shunting neck.

Loop and Branch Line in One

HORNBY-DUBLO layouts frequently include loop lines, which as a rule run parallel to one or other of the main running tracks. Occasionally, where space permits, loops of a more ambitious character are found. An excellent instance of this sort

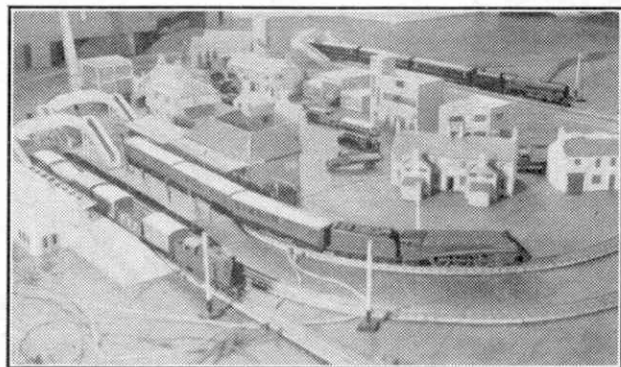
is the connection of the up and down main lines by Points placed to form a crossover.

The whole layout is divided into three main sections by the usual isolating arrangements. These are the inner and outer main tracks, and the outer loop or branch, and each has its own Transformer and Controller. As long as the necessary isolating conditions are set up, a train can run from any main section to another without difficulty. For the most part the layout is provided with Hornby-Dublo Signals and there is in addition at one end of *Crawford* station a dummy colour light signal which is quite effective.

Three Hornby-Dublo locomotives deal with the traffic, a *Duchess of Atholl*, a *Sir Nigel Gresley* and a standard Hornby-Dublo Tank

Locomotive. Three-coach trains are the rule for the express engines, and there are nine goods vehicles for the Tank Locomotive to deal with. Some of the wagons carry dummy loads.

The layout includes a miniature town, on which road traffic of course is provided by Dinky Toys.

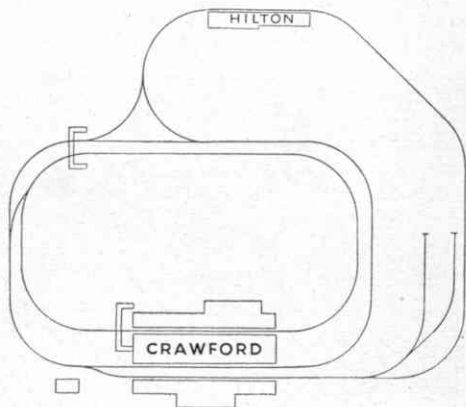


The train seen on the left of this Hornby-Dublo layout, built by C. P. Boocock, Bournemouth, is starting on a run over a long outer loop that will bring it to a triangular junction in the upper right hand corner.

of thing is the long outer loop shown in the layout diagram on this page, which represents the track operated by C. P. Boocock, of Bournemouth.

This is a development of the favourite oval, and for most of their length the main tracks follow the usual double line formation. There is one main line station, named *Crawford*. On the opposite side of the layout from this the outer main track throws off a branch that turns well away from the main part of the layout and curves round to another station named *Hilton*. It then follows a course roughly parallel to the main track, but at some distance from it, until it eventually comes alongside the outer main track, which it rejoins at *Crawford*.

This branch is the loop to which we have already drawn attention, an extensive one that in effect is a branch line providing a useful alternative route in running trains. It is particularly interesting that at one end it is connected to the outer main track by a triangular junction formation. We have previously dealt with such junctions and drawn attention to their usefulness in the *M.M.* Another valuable feature of the layout



The course of the outer loop of C. P. Boocock's layout can be followed easily on this diagram.

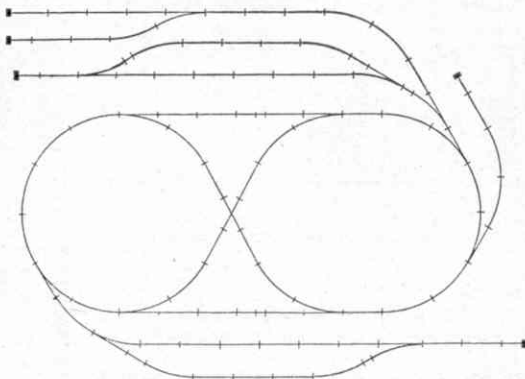
A "Go Anywhere" Hornby Layout

THE diagram on this page shows a Hornby track layout scheme developed by *M.M.* reader Francis Jowett, of Toronto, Canada, a veteran whose zest never flags and whose ingenuity never fails. The idea behind it has been to provide a railway with full possibilities for continuous main line running, and to incorporate also terminals where trains can be received and despatched in the appropriate manner. The system is planned for 2 ft. radius curves and points.

At first sight the layout looks fairly complex but, as is the case with most railway installations, it is really simple in its basic design. Actually it is a development of the familiar and popular oval track, incorporating a "figure 8" arrangement in the centre. The terminal sections branch off outside the main line and each includes a loop for running round purposes, so that arriving engines are not trapped behind the trains they have brought in. The loop lines of both terminal stations are formed in the same way and their construction is quite simple.

At one end of the main oval there is a short dead-end siding useful for rolling stock storage or for goods traffic purposes,

as our photograph suggests. In addition to the terminal loop in the upper part of the layout, there is a single track leading along the upper edge of the plan. In

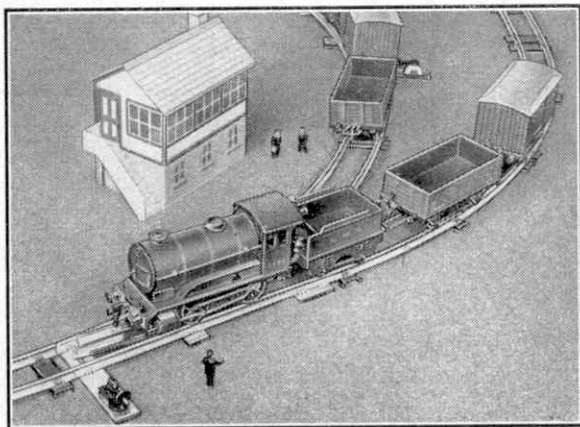


End-to-end as well as continuous running is possible on this layout devised by Francis Jowett, Toronto, Canada.

order to give the impression of a branch line "going a long way" a tunnel under a hill could be provided here. Alternatively this branch and the siding connected to it can be used for shunting.

Let us follow the running of a typical train. An engine in the upper terminal draws a passenger train on to the main line oval. It runs round the track twice and is then diverted by either of the right hand points over the centre crossing, so that it can run directly into the lower terminal. When the train has come to rest between the loop points, the engine is uncoupled, run forward clear of the points, and run round the train. It will now be ready to leave again, but will be running tender first. To avoid this it can be sent out on to the main track and turned by means of the crossing.

The crossing comes into action in many ways, as you can readily work out for yourselves. Clearly it is a great place for "spotters!"



Wayside shunting. The Hornby 501 Locomotive is bringing a Wagon and a Van from the short siding at the right hand end of the layout.

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Stamp Collectors' Corner

By F. E. Metcalfe

THEMATIC COLLECTING

AN American magazine printed details about a new form of collecting. Believe it or not, this latest cult has to do with the gathering of, well what? Simply those little labels that one finds stuck on those

triangular portions of processed cheese! Apparently there are over 30,000 different kinds. After reading about that form of human activity, let no one have a word to

say against the collecting of postage stamps for their pictorial attributes.

From the old stamp collector there has been a good deal of criticism about thematic collecting, and it is true that it has no connection with philately. We need not worry too much about that. What should concern us is whether we shall get a lot of pleasure out of our hobby. Apparently the thematists get that all right, so there is no reason whatever why we should not go ahead, if we are thus inclined.

I have never believed very much in the opinion that stamp collecting as such teaches us geography, etc. But I am sure that we can learn a lot if we collect stamps that have to do with a certain subject, which is all that thematic collecting consists of. As for the subjects available, they number hundreds and there should be no difficulty about picking one or two that have to do with some special interest that you may have.

For instance, a retired gardening editor, finding time heavy on his hands, formed what has become a famous botanical collection. Now many, both young and old, are interested in horticulture, and a collection on this subject can be gathered for a very small sum. But I'll have more to say about this in a minute, when I refer to the junior collection I mentioned last month. This had a lot of flower stamps in it.

Another collection that is famous has been formed by Cardinal Spellman of New York, with religious subjects as the theme. It can be seen that thematic collectors are plying their hobby in good company.

There are all kinds of subjects one can tackle, as I have already mentioned. A favourite one with M.M. readers would surely be trains. Scores of stamps are involved, from Albania, Argentina, Austria, Belgium, Bohemia, Bolivia, Brazil, Bulgaria, Cape Juby, Ceylon, Chile, China, Cuba and many other countries.

Now most of these stamps are cheap, and the fun lies in finding out details of the engines, etc. concerned.

Music is a major subject, which must have much attraction for many. Again we get a string of countries that will provide material, starting with Argentina and going right through the catalogue to Salvador and Slovakia. Russia has many stamps that come in here. There is room in this subject for much imagination. First we get composers themselves, and here a great gallery is provided. Next we get illustrations of various types of musical instruments, and even stamps actually showing portions of music itself. And don't forget the buildings, etc. connected with music and musicians.

Sports will be the big subject for most junior collectors, and here they can have a field day, for there are scores of suitable stamps from scores of countries. Association football, fencing, swimming, motor racing, ski-jumping, rugby, horse racing and cycle racing are all represented, with many others. It was in this field that the collection I mentioned last month was the strongest, and perhaps I had better get down to that collection before I use up all my space, for it can be a guide to many.

The owner is a youngster of 16, and he calculated that altogether he had spent about £6 over a period of two years. The album cost 18/6 and was of the loose leaf type. It had received a

lot of handling, but as its owner had taken the trouble to wash his hands before getting it out of the case in which it was kept, it was still spotless. In this it was perhaps unique for a junior collection!

Many subjects had been tackled, but botany and sport were the principal themes. As such a fine show at a low cost can be made with either, both of them are to be recommended, though all thematic collectors should try to pick on something that particularly appeals to them. Whatever it is they are bound to find some apt stamps. For instance this particular collector had a number of stamps headed "Contrasts." One pair in this section struck me particularly. One stamp showed a most imposing bridge, a triumph of engineering, and the contrast was a copy of the Bolivian stamp illustrated. Just look at the bridge on this stamp.

Another small sideline showed foreign stamps with British people depicted. Another—such irreverence!—illustrated "famous beards." Here Portugal provided some beauties.

How did this boy get to know about the stamps, you may ask. The use of a Gibbons "Simplified," or a Whitfield King general catalogue is the short answer, and he also had copies of dealers' illustrated lists that dealt with such stamps.

To conclude here are a few more subjects that may appeal to someone—monuments, birds, flags, paintings, centenaries, printing, fruits, aviation, ships, waterfalls, horses, animals in general, etc. Another is the postage stamp itself. With so many postal centenaries coming along, this will make a big group in time.



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PRINCE CHARLES

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Mention the Meccano Magazine.

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Stamp Gossip

"GOOD HEALTH"

PRIDE of place must be given this month to the 1952 New Zealand "Health" stamps. The popularity of these stamps has grown year by year, but without a doubt an all time record will be put up this year, owing to the attractiveness of the designs chosen. The one of the pair that carried the portrait of Prince Charles is illustrated here; the other one shows an equally pleasant picture of Princess Anne. There will be no need to urge collectors to buy these stamps for a good cause. They will be literally taken up in sheets.

Collectors are generally very much against stamps that have a premium attached to them, as have these "Health" stamps. If this is overdone by a post office, it can kill all interest. This happened with modern Belgian stamps, attractive enough, and eagerly sought once upon a time. But interest waned when set after set appeared with a huge premium, and now most British collectors leave them entirely alone. So much so, that one stamp shop I know, which a few years ago bought dozens of sets, does not even bother to stock them now. It is very different with the issue of a modest pair of stamps, once a year, like these of New Zealand. In fact it is so different that the idea is actually

welcomed. Good luck to your venture, New Zealand!



NARVIK

How this word rings in British ears! Although the stamp illustrated is a French effort, collectors in Great Britain are finding it of great interest. Narvik is the port in Norway that the Germans occupied early in 1940. All will remember how our light Naval forces engaged the Germans there, and how British and French troops landed and fought until in June Narvik was captured. Alas, all forces had soon to be withdrawn.

MALAYA

What a large handful of stamps we get if we try to gather up 55 copies! An awful lot isn't it? Yet that is the number issued on 1st September for the various Malayan States, five for each State. After the war it was proposed to merge ten of these states into one large one, or something like that, but the various rulers objected. Collectors, with whom these Malayan States stamps were not very popular, were pleased at the idea. The result was, however, that instead of about half a dozen, we get eleven, and that accounts for so many stamps when any change is made. A case of when father turns we all turn!

SCINDE DAWK

That's a funny name, but its meaning will be well known



to older collectors, if not to their younger brethren. Scinde District Dawk is the inscription to be found on the first embossed stamps issued in Scinde on 1st July 1852, and it on these three stamps that Pakistan commemorated by the issue of a pair on 14th August. As can be noted in the illustration of one of these latest commemoratives, in the top left corner there is a copy of the original Scinde Dawk. Camels and "planes" also are depicted, no doubt to emphasise the difference between the way letters can be carried now compared with a century ago, though camels are still used to-day just as they were when the first Scinde Dawk stamps were issued.

PAPUA—NEW GUINEA

We have been threatened for a long time with a set from this now united territory. Remembering the wonderful set issued by Papua, in 1932, collectors have been all agog to see the new issue. Well, they will not be disappointed, for the stamps are a wonderful lot. While all designs are different, quite a representative showing can be made for the expenditure of a shilling or two. Don't forget the wot things. At the moment the Australian pound is at a discount of 20 per cent.



The stamps will be priced in Australian currency, and as this may change one day, the point is to buy when the stamps come out. Secondly the stamps come into the Q.E. group, so all those who intend to make a "Queen" collection will need them. Issue day is 30th October.

NEWFOUNDLAND—CANADA

A young collector says that he cannot understand why, in the office where he has gone to work, they get letters from Canada bearing Newfoundland stamps. He says he was under the impression that Newfoundland stamps were finished with. The answer is that when Newfoundland joined up with Canada, the stamps of the Island became valid for use in Canada. There were a lot of Newfoundland mint stamps in collector's hands, and some of these—as happens in the U.S.A.—no doubt got into commerce. Apart from this, our correspondent may be surprised to know that it is still possible to obtain mint Newfoundland stamps at the Post Office (Financial Branch) in Ottawa.

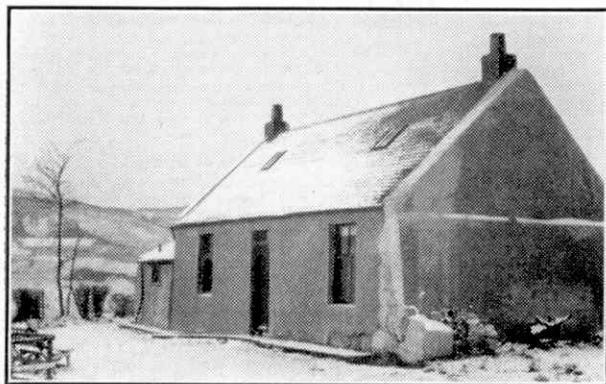
CORONATION STAMPS

There seem to be two camps among collectors regarding the stamps that should be issued by the Colonies for the Coronation. Most only want an odd stamp for each colony, but some, particularly in the U.S.A., where British Commonwealth stamps are second only to their own in popularity, would like a set of several values for each country. New Zealand seems to favour the latter, for there a set of five stamps will be issued.



Curious Cargoes—(Continued from page 490)

England by wealthy Americans. They were first photographed in their surroundings, while architects drew up plans of the whole structure. Numbers were assigned to each section of the house, and when it was dismantled these were labelled on to the packing cases. When re-erected in America nobody would suspect that the houses had travelled 5,000 miles



The highest house in Scotland which is regularly inhabited is said to be this cottage, situated 1,400 ft. above sea level, close to Wanlockhead, in Dumfriesshire. Winter snow often lingers long into Spring on these Border hills.

by sea. A much longer journey was made by Captain Cook's cottage, from Yorkshire to Melbourne.

In former days American shipowners did a thriving trade in the carriage of corpses. Many of the hard-working Chinese who settled on the North Pacific coast of America made enough money to retire to their homeland in comfort. Others made the money but died before they were able to spend it. Chinese regard burial in the land of their ancestors as a coveted honour, and it was not long before shipping agents were chartering space for the return journey, from California. These cargoes were by no means popular with seamen, and high wages had to be offered to man the ships. Indeed, at one period it was so difficult to find men that strong-arm methods were sometimes necessary to get them on board. Seamen so compelled to work their way to China were said to have been "shanghai'd," a term later employed to all those who fell victim to unscrupulous boarding-house keepers.

The Lord Mayor's Show—(Continued from page 493)

to represent art, industry, science, peace and commerce and other aspects of life in Britain. This innovation was an outstanding success and has formed the basis of the Show down to the present day.

Besides amusing and colourful tableaux introducing giants, fairies, dwarfs, demons and so on, displays by Britain's Fighting Services have taken an increasing part in the Lord Mayor's Procession. This year, once again, they will be joined by contingents of the re-formed Civil Defence and other Voluntary services. Although the Show draws on so much from past history, the organisers' aim is that it should reflect the life and state of the nation to-day.

We regret that we omitted to state that the illustrations to the article *Pottery for the Multitude* by Arthur Gaunt in our September issue were reproduced by courtesy of Doulton and Co. Ltd.

A Giant Hydraulic Press—(Continued from page 487)

handling, and for this three special overhead cranes have been installed in the forge bay. Two of these are of 75 tons capacity each, with separate 20 ton auxiliary lifts; the third is of 40 tons capacity, with a separate 10 tons lift. The driver's cab on each of these cranes is about 12 ft. above floor level, so that the operator has a full view of the forging movements.

GRASS

Where should we be without grass? It does not exist merely to be mowed or to be kept off, and its value goes far beyond looking well in the garden or elsewhere. It is tough stuff and has spread with man from one end of the Globe to the other. For instance, it has gone with the British railway engineers into distant Continents, where it holds together the embankments they have built, a task it can do better than any other plant.

Don't forget too that we live on grass, as the wheat and other plants that provide our flour and feeding stuffs are just highly developed members of the grass family.

HIGHESTS IN SCOTLAND

The cottage illustrated on this page is the "highest in Scotland," and the village of Wanlockhead associated with it is the highest in the country. Until the recent war there was a railway to it that created a notable record by climbing to a height of 1,408 ft., which gave it first place for a line of standard gauge, not only in Scotland but also in Great Britain. This line was dismantled during the war, and the record is now held by Druimuachdar.

This Month's Special Articles

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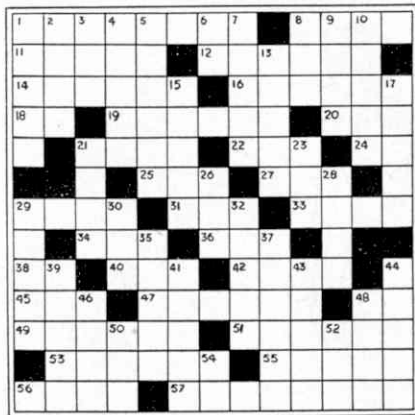
Competitions! Open To All Readers

Prize-winning entries in "M.M." competitions become the property of Meccano Ltd. Unsuccessful entries in photographic, drawing and similar contests will be returned if suitable stamped addressed envelopes or wrappers are enclosed with them.

An Interesting Crossword Puzzle

CLUES ACROSS

1. Plot (8)
8. Burden (4)
11. Steering adjustment (3, 2)
12. Sets in the ground (6)
14. Poetic name of Greek district (6)
16. Makes you sick (6)
18. London Midland (2)
19. Cask (6)
20. Poem (3)
21. Historical tale (4)
22. Explosive (3)
24. Royal monogram (2)
25. Sphere (3)
27. Natural moisture (3)
29. Fruit (4)
31. Short sleep (3)
33. They are small and pointed (4)
34. Heard when sheep are about (3)
36. Bone (3)
38. Guardian of the Law (2)
40. Place (3)
42. Relieve (4)
45. Series of years (3)
47. Scarcity (6)
48. Exists (2)
49. Dried fruit (6)



51. Guides (6)
53. Born in Britain (6)
55. Weird (5)
56. One who uses (4)
57. Closeness (8)
46. Yorkshire river (4)
48. Flower (4)
50. Title (3)
52. Before (3)
54. Direction (2)

CLUES DOWN

1. Country (5)
2. Standard (4)
3. Slang detective (3)
4. Raw hide rope (5)
5. Dye (6)
6. Aloft (2)
7. Choose (5)
8. Former British railway (3)
9. Of gas engine family (4)
10. Apart (5)
13. Correct (5)
15. Long for (5)
17. Corn goddess (5)
21. A thin slip (4)
23. Half a score (3)
26. Exclude (3)
28. Metal thread (4)
29. Plays tunes (5)
30. You do this to knuckles (3)
32. Many seaside towns have them (5)
35. Check accounts (5)
37. Beat (6)
39. Rowing catches (5)
41. Part of joint (5)
43. High gloss (5)
44. Animals (5)

This month we present another of our popular crossword puzzles. There are no traps in the clues, or alternative solutions, and every word, apart from names, can be found in a standard dictionary.

There are two sections in the competition, for Home and Overseas readers respectively, and in each prizes of 21/-, 15/- and 10/6 will be awarded for the best solutions. If necessary the

judges will take neatness and novelty into consideration when making their decisions. Do not cut out the diagram. Make a copy of it for your entry, and on the back of it write your full name, address and age.

Entries should be addressed *November Crossword, Meccano Magazine, Binns Road, Liverpool 13*. The closing date in the Home Section is 31st December, and in the Overseas section, 31st March 1953.

Motor Lorry Drawing Contest

In our second contest this month we give readers an opportunity of displaying their skill in drawing, and for our subject we have chosen a motor lorry. There is no restriction in regard to the kind of motor lorry that may be drawn, and the many types of these vehicles now in service should give competitors plenty of scope in making their choice. Colour can be used if desired to set off a good drawing, but it must be borne in mind that bright colours will not compensate for bad drawing, and the judges will take the merit of the drawing itself into account when making their final decision.

There will be the usual two sections, for Home and Overseas readers respectively, and in each the best entries will be awarded prizes of 21/-, 15/- and 10/6 in order of merit. Other good efforts deserving of recognition will be awarded consolation prizes.

The name, address and age of the competitor must be written on the back of each sheet of the entry, which should be forwarded in an envelope or wrapper addressed to *November Drawing Contest, Meccano Magazine, Binns Road, Liverpool 13*. The closing

date in the Home section is 31st December, and in the Overseas section, 31st March 1953.

November Photographic Contest

The eleventh of our 1952 series of photographic contests is a general one in which we invite readers to submit prints of any subject. Each competitor may submit only one photograph, which must have been taken by him, and on the back of the print must be stated exactly what the photograph represents; also his age must be stated.

The competition will be in two sections, A for readers aged 16 years and over, and B for those under 16. Each competitor must state in which section his photograph is entered. There will be separate overseas sections, and in each section prizes of 21/-, 15/- and 10/6 will be awarded. Entries should be addressed *November Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13*. The closing date in the Home section is 29th November, and in the Overseas section, 28th February 1953.

Competitors who desire their entries to be returned should note the paragraph at the top of this page.

Fireside Fun

"You're paid to guard my pheasants, aren't you? Where were you when the poachers got them?"

"Well, sir, I was singing at the village concert, and couldn't make out why they kept on calling for more songs from me."



"Whatever do people put buttons at the back for when I'm round here at the front?"

"This half-crown is the least change I have, conductor. Sorry I've no coppers."

"Don't worry, sir. You'll have 28 in a minute."

"Yes, I can trace my ancestors back to a family tree."

"Chase them, did you say?"

"No, trace them."

"But look here. Only two kinds of things live in trees, and you haven't any feathers, have you?"

The small country boy was shooting upward in an express lift in a giant skyscraper.

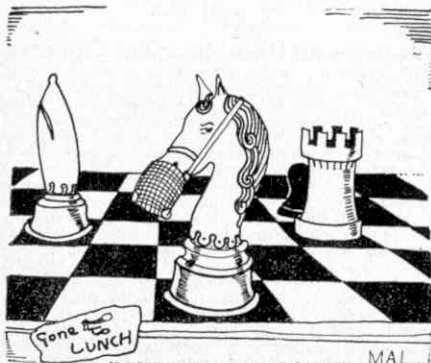
"Daddy," he asked fearfully. "Do the angels know we're coming?"

"Now, Jones, can you give me an example of an indirect tax?"

"Please, sir, the dog tax."

"How do you make that an indirect tax?"

"Well, sir, the dog doesn't pay it."



BRAIN TEASERS

WORK COMES INTO THIS

Here is a word square, the five words across being exactly the same as the five words down, in order. One letter is given for each word, but the remaining letters are represented by numbers. You should be able to puzzle out the correct words. Try it, anyway.

16	17	18	20	S
15	16	5	18	A
18	E	19	9	14
20	R	9	5	4
19	1	14	D	25

A FLY CRAWL

A fly stood on a clock, the face of which was two feet across. It was just half way between the 2 and the 10, and it wanted to reach a point half way between the 2 and 4. Don't ask me why! Perhaps there was another fly there. If the fly's speed, of crawling, not flying, is a yard a minute, how long would it take to complete this journey?



"Now what does a nice polite little boy say when I give him a penny for bringing me this nice parcel?"

"This little boy is too nice and polite to tell you, Auntie."

SHOOTS UP WHEN DOWN

Have you ever seen anything that grows to half as much again when it is turned upside down? There is such a thing. What is it? C.H.

SOLUTIONS TO LAST MONTH'S PUZZLES

The accompanying square shows the solution to the first of last month's Teasers.

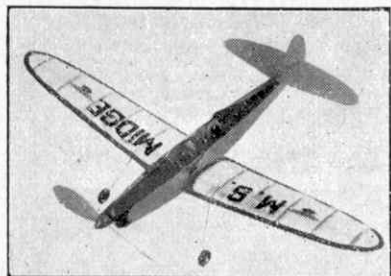
I wonder how many spotted the well-known piece of verse in our second puzzle. This of course was the first verse of *John Gilpin*, written by William Cowper.

The October orange seller appears to have started with 40 oranges.

Part of the confusion between John Smith and his brother Jim, who appeared in our fourth puzzle last month, was due to the fact that they are twins.

A	N	K	L	E
B	E	E	C	H
S	K	I	F	F
L	E	M	O	N
A	D	I	E	U

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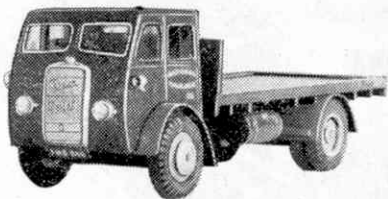
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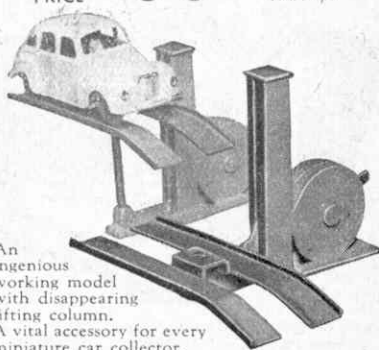
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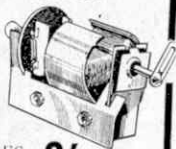
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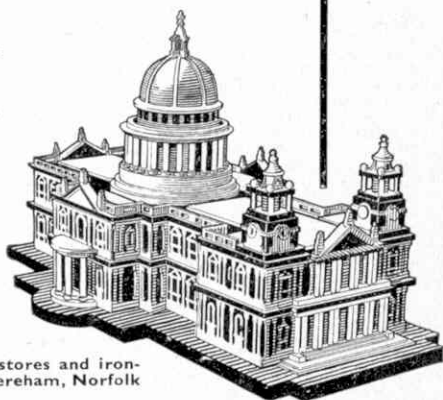


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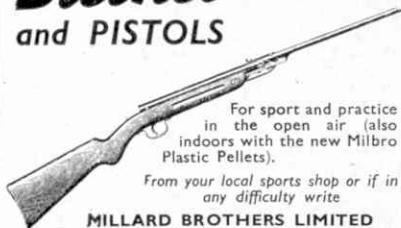
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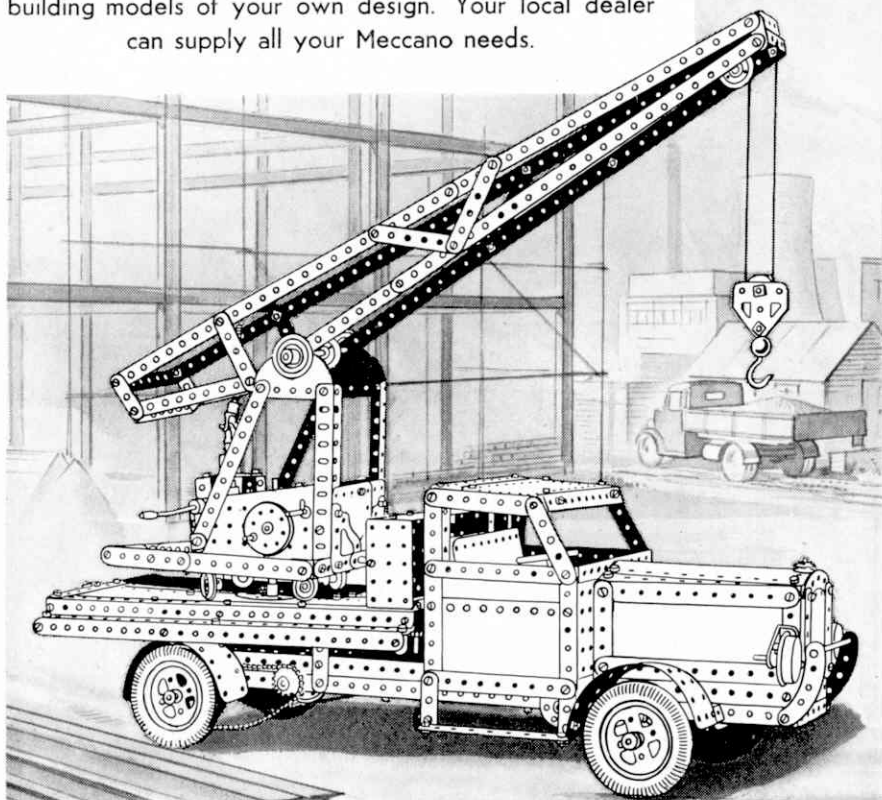
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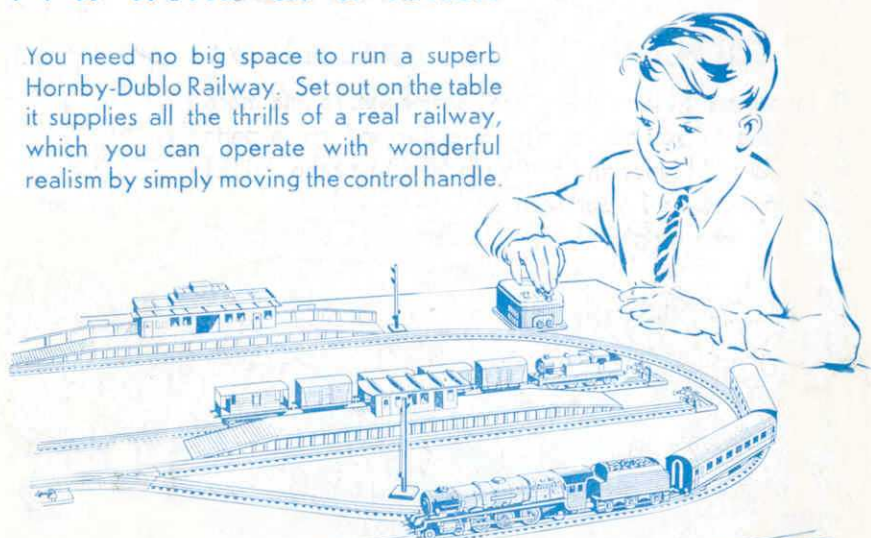
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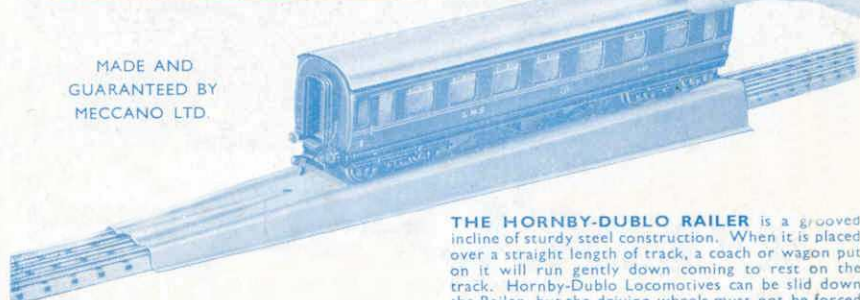
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