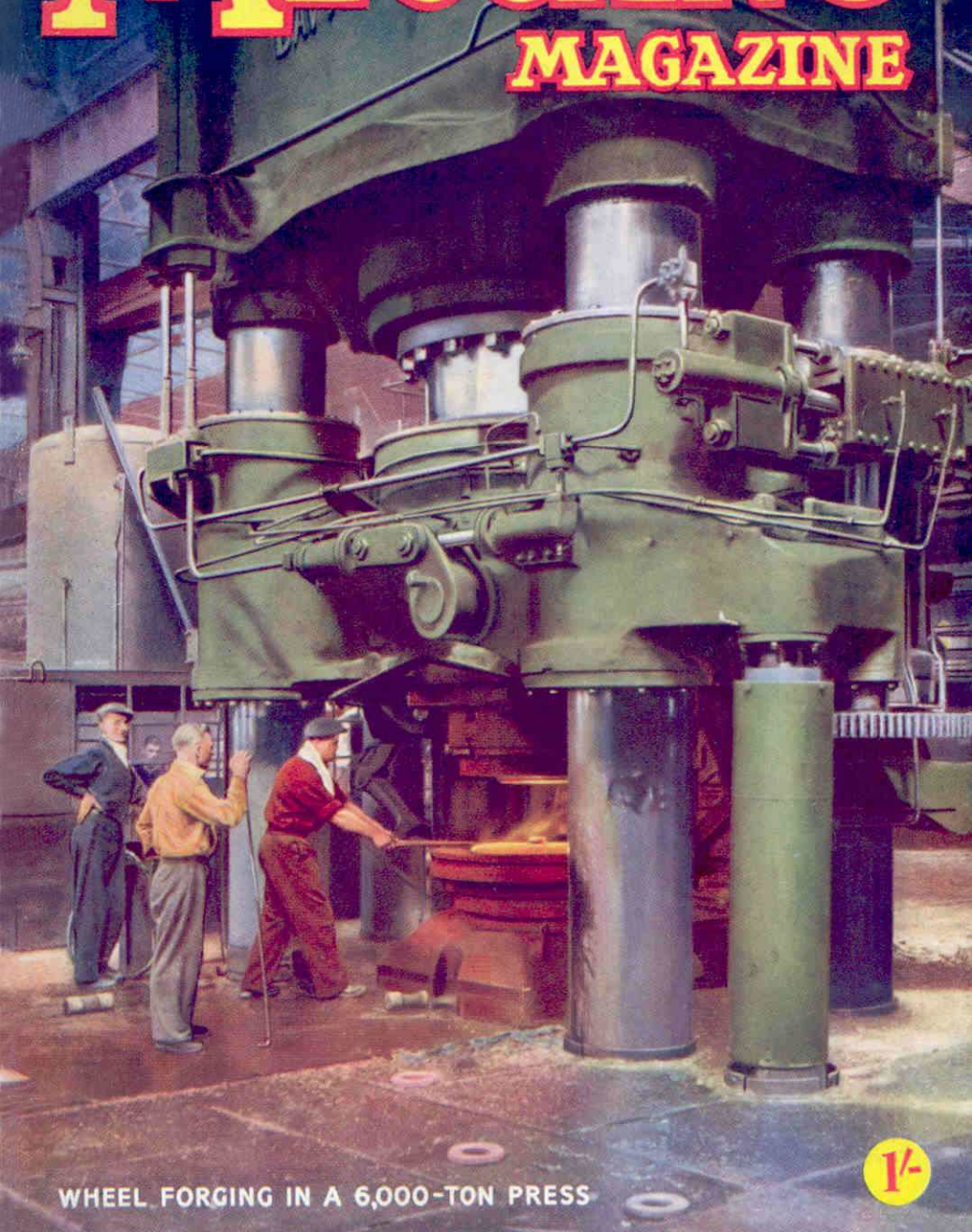


VOL. XXXVIII No. 2

FEBRUARY 1953

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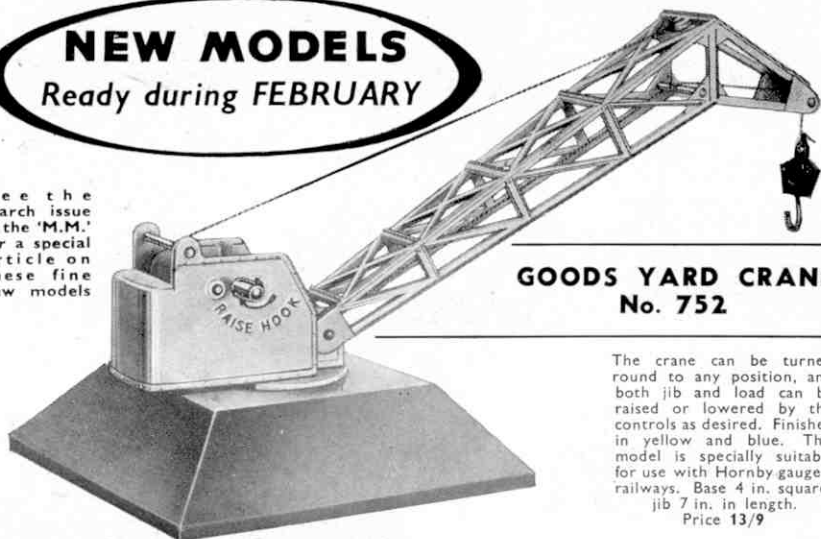
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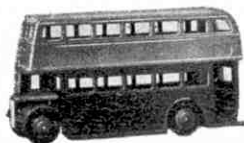
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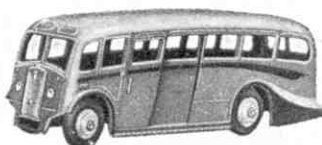
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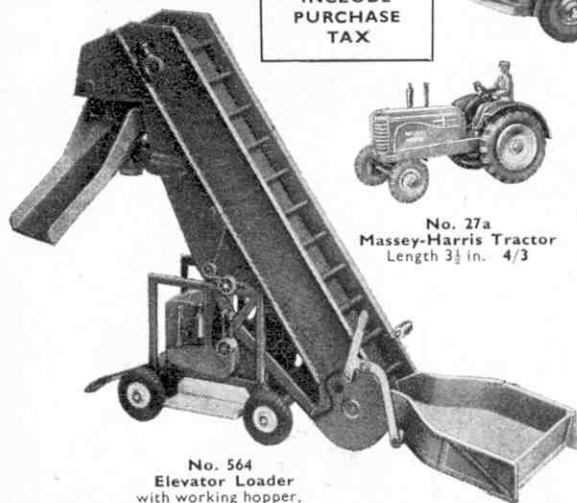


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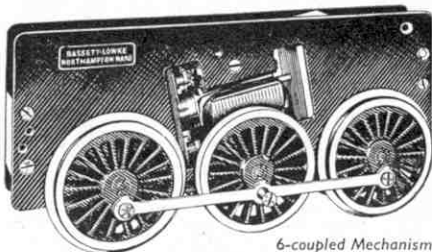
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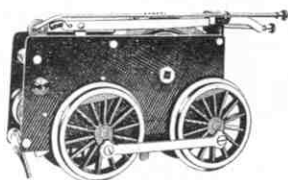
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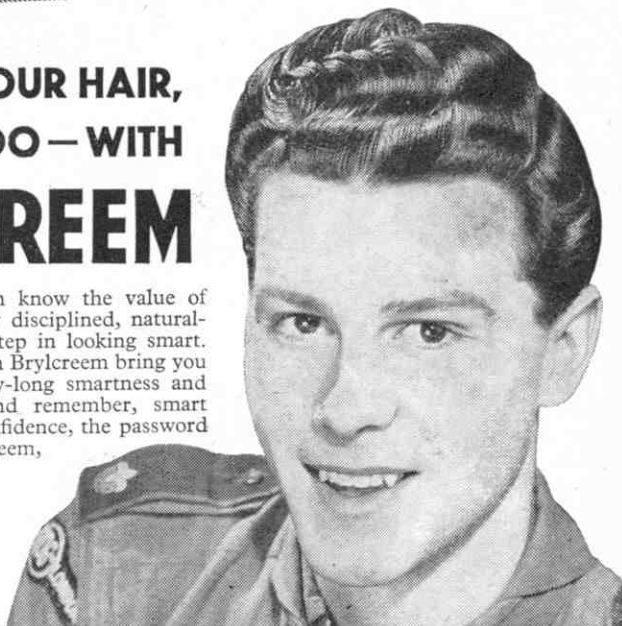
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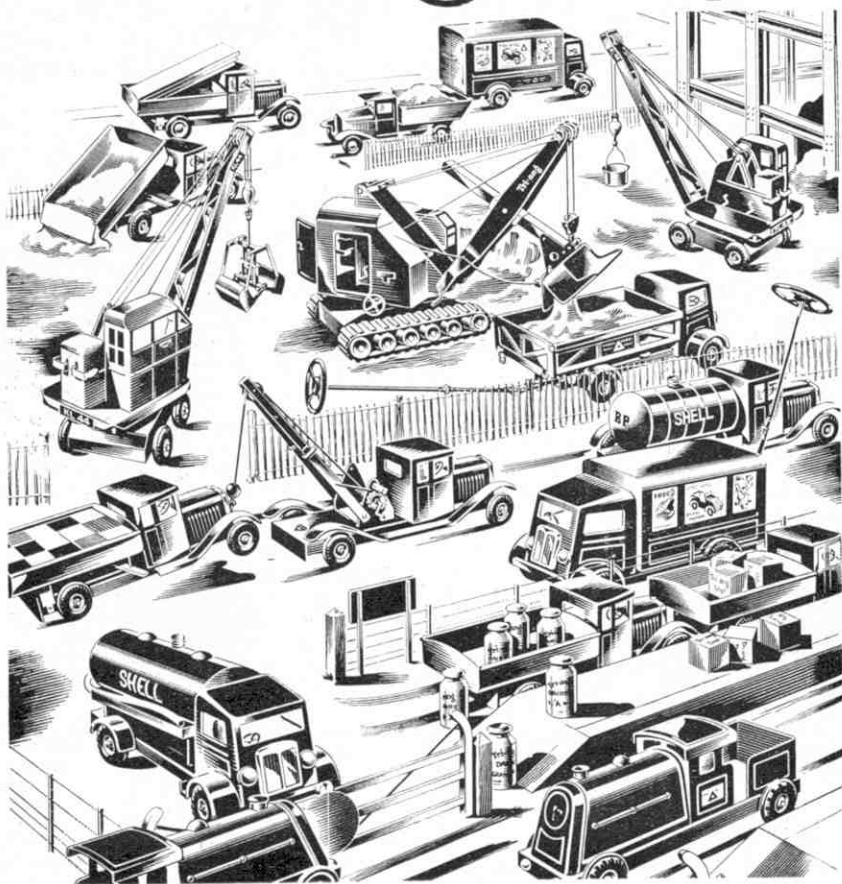
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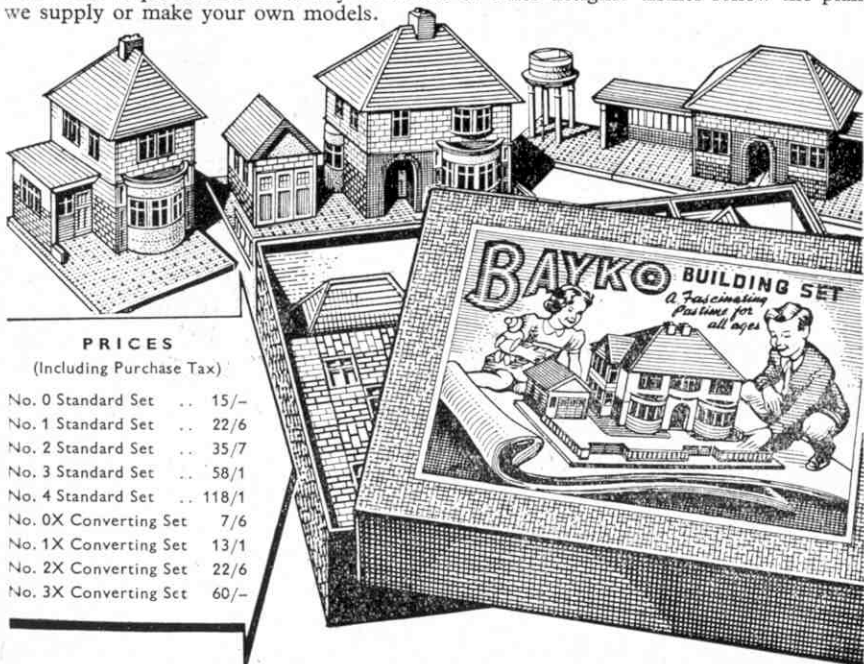
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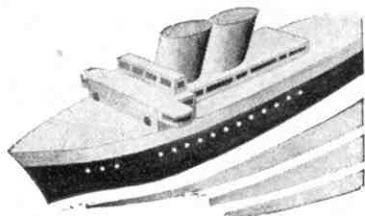
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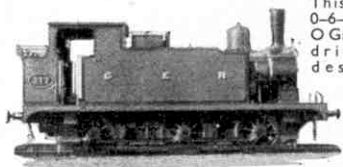
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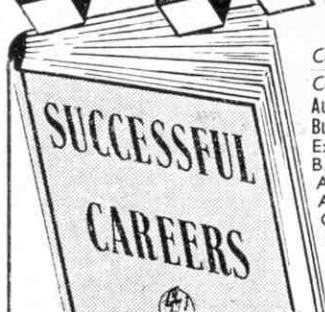
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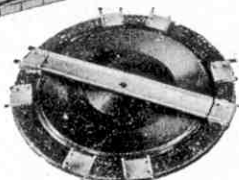
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Station No. 3
14/3



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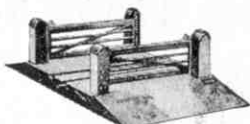
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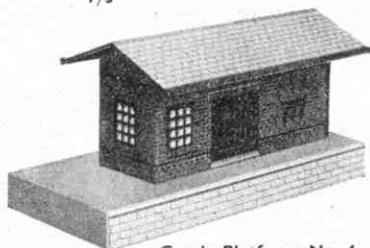
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MECCANO

MAGAZINE

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Vol. XXXVIII
No. 2
February 1953

A Winter Visitor

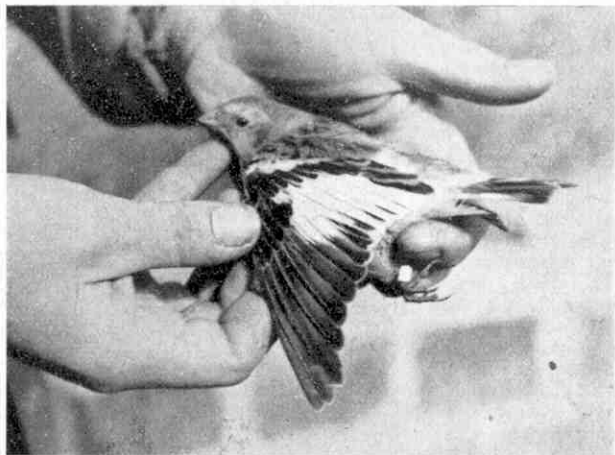
My picture this month shows a snow bunting, a bird that is only a winter visitor in Great Britain. Our English summer is too hot for it and in the spring it flies away northward. When we think of bird migration most of us have in mind the many birds of our countryside in summer that spend the winter in North Africa and other warmer regions. Here is one that finds our winter climate congenial and moves into the Arctic Circle for the summer.

On the outstretched leg of the bird there is a little light-tinted square. In many respects this is the most interesting feature of the photograph. Actually it is a metal ring bearing markings to indicate that the bird has been captured at a certain place and its presence has been recorded there. A bird ringed in this way is freed. Some day it may be caught again and then bird watchers will have gained a little more information about bird movements, a subject of perennial interest.

There are many stations in Great Britain and overseas where birds are caught and ringed, and next month's *M.M.* will contain a contribution on this very interesting practice.

There will be many other attractive articles in the March issue, some of them on topics that will be new to most readers. For instance, one of them will be concerned with the wonder metal titanium, which has been known for a long time, but is

only at the beginning of what may be a wonderful career in the service of man. Another will have something to say about the Avro Vulcan, and the March cover will be a really delightful picture



A snow bunting with one leg stretched out to show the ring by means of which it is hoped to follow its movements. Photograph by P. Clarke, Sheringham.

of this fine Delta aircraft in flight.

Have you any good ideas or strong feelings on any particular subject? If so look at page 81 of this issue, and make up your mind to become a contributor to the new feature on it. I cannot promise of course to print every letter I receive, or even to print the whole of any one letter, but anything likely to arouse keen discussion or to be of deep interest to other readers will surely find its way into the *M.M.*

The Editor

HOW THINGS ARE MADE:

Railway Wagon Wheels

By the Editor

SOME time ago I visited the works of Steel, Peech and Tozer Ltd., one of the constituent firms of the United Steel Companies Ltd., to see how railway wagon wheels were made. The process was a revelation. When I entered the enormous building in which the wheel mill is housed, I was greeted by the sight of giant steel ingots ready for transformation into wheels on the one hand, and on the other of serried rows of finished wheels cooling off after the heating and generally forceful treatment to which they had been subjected in their production. Beyond were great furnaces that sent out shafts of blinding light whenever their doors were opened; giant charging machines, running on rails, that handled white hot steel with unbelievable skill and dexterity, and two great presses in which the steel masses were shaped into the wheels themselves.

This sounds a little chaotic, but work in the wheel mill is far from haphazard. It is indeed wonderfully organised, with a carefully designed production line where movements are carefully timed. Each ingot or partially completed wheel is passed from one stage to the next at exactly the right moment. The flow continues without a hitch, and as I watched the operations I was fascinated by the speed and ease with which the huge masses of steel were transformed into the wheels on which wagons will roll, on our own railways and on lines in many overseas parts of the world.

Let us follow the process through to see

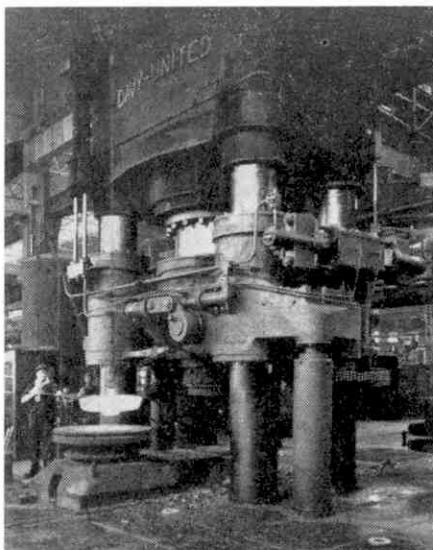
how this miracle of production is achieved. At the starting point are the steel ingots, laid out in rows for inspection, just as they have arrived from the steel melting plant. Any surface defects on them are burnt off, and then each ingot in turn has nicks cut in its circumference at just the distances apart to leave between each pair the right amount of steel to form a single wheel. The nicks are made with an oxy-acetylene flame, and making them is a preliminary to breaking the ingot into

the blocks that they mark out. To break them off a huge press driven by a 1,000 h.p. motor is used, its hard steel jaws pressing in remorselessly from the side, to shear off each piece in turn with a thud.

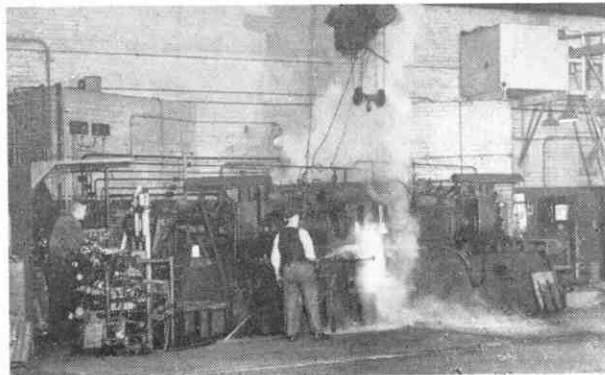
Before a wheel can be forged the metal of which it is made must be at a very high temperature, so the next step is to heat the blocks of steel. The furnace used is a long one through which the blocks pass on bogies. These are pushed through the furnace slowly, and the temperature of the blocks is raised gradually to about 1,200 deg. C., at

which they are kept until they are of even temperature throughout. The time they take to travel through the furnace is from five to seven hours, but there is a sufficient number in the furnace at one time to make sure that the flow of blocks for making into wheels is continuous.

It is now that the first charging machine takes a hand in the process, a steel hand at the end of a long arm. With its giant steel fingers, or grips, it seizes a block that has emerged from the furnace, swings



A wheel blank goes up from the die in which it was formed by the 6,000 ton press. An overhead crane takes it away for reheating and rolling.



In the rolling mill five rollers close in on the wheel blank to roll it to the correct diameter and thickness, and to form the tread and rim.

it round and holds it in a booth where fast-moving chains clean the top and bottom of the scale that forms when steel is heated.

The charger then lifts the block out of the de-scaling booth and runs forward to place it on one of the anvils of the wheel press itself. Down comes the press, first with a gentle squeeze that breaks away the scale from the side of the steel, and then with a more powerful one that compresses the steel into a flatter blank more nearly the size and character of the wheel that it is to yield. The scale loosened by the first gentle squeeze is blown away by compressed air.

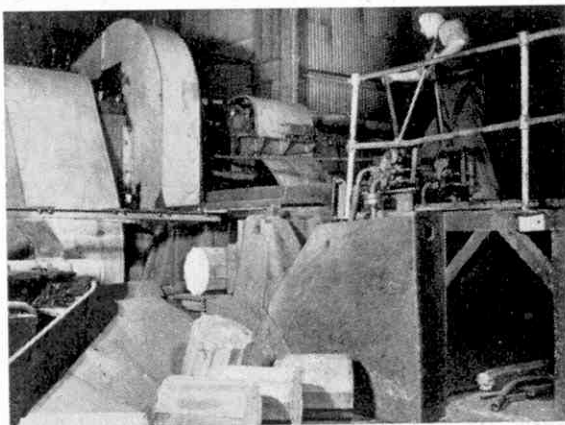
The wheel blank is formed in a ring in which it can be lifted above the anvil on which it has been formed. This slides away to the back of the press, a second anvil comes into position, and the blank is ejected from the ring to rest on it. This second anvil is a die in which the wheel is actually shaped, and it is in squeezing the steel in it that the full 6,000 tons pressure of the press is exerted. The press rises and the charge hand swings up in turn two steel cylinders, one a punch and the other a "drift," placing each in the centre of the wheel. In each case the press comes down again, the second stroke forcing the punch through the wheel to form the hole for the axle that will carry it

when it finds its way into a railway wagon. The "punching," which is red hot, is fished out from under the anvil with the aid of a long pair of tongs, and is swung sideways into a pit to cool off.

I got a real thrill from watching Jervis, the forgerman, and his capable team, as with steady rhythmic movements they swiftly transformed the blocks of white hot steel into wheels, apparently as easily as if they were made of butter. The right touch is given to the spectacle by the clouds

of steam that rise as the press makes its strokes, for the die in which the wheel is formed is filled with water from a hose pipe before the blank is dropped into it and water is played on the mass while the pressing is taking place.

When the wheel is shaped and punched, down comes a hook at the end of a long chain suspended from a girder crane high up in the roof of the building. The hook is guided through the hole in the centre of the wheel, which is then lifted up and carried on to the next stage. It has cooled somewhat by this time, and before anything further can be done with it it must be re-heated. So it is seized by a second charging (Continued on page 108)



Each of these portions of a steel ingot is destined to become a railway wagon wheel. They are broken off the ingot itself by a pressure of about 4,000 tons.

The World's Greatest Dog Show

By R. Tenent

HUNDREDS of our canine friends, from the large and powerful Mastiff to the tiny Chihuahua, the smallest breed in the world, are meeting at Olympia, London on 6th and 7th February for the famous Cruft's Dog Show.

Visitors from every land attend this exciting event. Its founder, Charles Cruft, a Londoner by birth, had his first glimpse of the dog world at the age of 14. On his way home from school one day he happened to catch sight of a notice in the window of a shop that sold dog cakes. The advertisement was for a lad to look after the shop and make up the ledgers. As he hated the idea of going into his father's jewellery business, Charles decided to apply for this job. He was taken on at once.

The boy showed great promise, even to the extent of introducing a special system of book-keeping which he had learnt at school. He made such rapid progress that it was not long before he suggested to James Spratt, his employer, that it would be a good idea to advertise for another lad to look after the shop so that he, Charles, could go out canvassing for orders.

At first Mr. Spratt objected that there was not really enough work for more than one assistant, but Charles replied: "If I could go out to see people instead of waiting for people to come and see me, we'd have work for half-a-dozen."

And so it was that young Cruft began to travel all over the country. His prophecy came to pass, for where dog owners in London had bought a pound or two of biscuits at a time for their pets, farmers and kennelmen further afield bought

them by the sackful. The young salesman was in his element, for he was making friends with dog owners and breeders everywhere.

By 1886 important breeders were worrying James Spratt to organise a dog show in London. The manufacturer was not keen, but his assistant, who had already made a success of such a show in Paris, was very glad of the opportunity. Six hundred dogs were entered and special arrangements were made by the railways for their transport. Never before had

dogs been given so much publicity as at that "First Great Show of All Kinds of Terriers."

In later years dogs came from everywhere to the show, and every breed was represented. Attractive posters were displayed, in the red and yellow colour scheme that is retained to this day, beautiful trophies were awarded to the winning dogs, and there were also prizes for stuffed dogs, and for dogs made of wood, china and so on. By 1891 the event was world-famous and had become known as "Cruft's Dog Show."

It was about this time that Queen Victoria entered some of her dogs at Cruft's. There were three Pomeranians, *Nino*, *Gena* and *Fluffy* and also a Collie that won first prize. The Queen had set her heart on the Poms winning, for she had bred them herself and brought the original one back from a holiday in Italy. But proud as Cruft was of the Royal patronage he would allow no favouritism, and of course the Queen respected his decision.

Queen Alexandra not only exhibited, but also visited the show in person.



A giant St. Bernard that received a welcoming pat from his friend Tony Forster, who was then three years of age, at Cruft's Dog Show of 1950.



Supreme Champion of the Show. This magnificent Bull Dog, "Noways Chuckles," won this award at Cruft's last year.

On one occasion when Her Majesty was inspecting the dogs, she was earnestly requested not to touch a bulldog that was noted to be savage. In fact, it was said, the beast had already bitten one visitor. The Queen answered by marching straight up to the dog and offering it a biscuit. Then, to everyone's horror, she bent down and gently patted the creature's head, murmuring as she did so: "Ah, but he will not hurt me!" And he didn't.

But Cruft never forgot the ordinary folk. In 1900 he organised a large section of his show as a gift class to benefit the wives and families of soldiers fighting in South Africa. Then, during the First World War, he introduced a special "dog heroes'" section, and one such famous exhibit was a cross-bred Collie that had kept its master alive after the sinking of H.M.S. *Formidable* in 1915. More recent heroes have been two famous Alsatian dogs, *Irma* and *Psyche*, renowned for their bravery in rescuing people from bombed buildings during World War II.

Cruft died in 1938, and the Kennel Club took over the job of organising the post-war shows. During the past few years each show has attracted over 50,000 visitors, who begin to queue up outside the entrance gates long before the official hour of opening.

Owing to the enormous number of exhibits, the modern Cruft's is divided into two sections. One day is given up

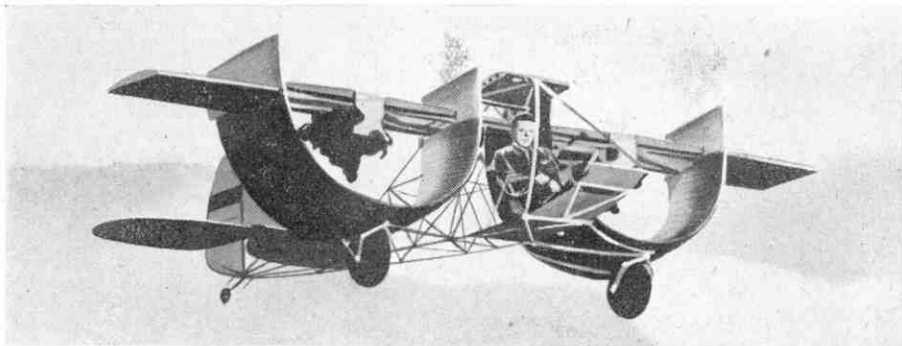
to terriers, hounds and toy dogs—some 2,500 exhibits in all. The other is devoted to Alsations, Spaniels, Poodles, Labrador Retrievers, Welsh Corgis, Boxers, Samoyeds, Chows, Bulldogs, and so on. As one spectator said of last year's show, "there was every size, shape, variety, dignity and impertinence of dog."

Each section has its great attractions, but perhaps the most exciting moment of all is when the judges assemble on the second day to decide on the Best Dog in Show. During the judging of this championship the great hall is packed with people and it is almost impossible to get near the judging ring. Visitors climb on chairs, on the counters of the stands, and even on dog kennels to try to catch a glimpse of the prize-winning dogs as they are paraded round the ring. For two years in succession the Supreme Championship went to a beautiful Cocker Spaniel—*Tracey Witch of Ware*. In 1952, however, a Bulldog called *Noways Chuckles* won this coveted award.

Other interesting exhibits of recent years have included an eleven-stone Leonburger, the pet of an ex-soldier and acquired while on war service in exchange for ten tablets of soap! In direct contrast there was a Papillon, popularly known as the Butterfly Dog, which weighed only 1½ lbs. To protect it from the cold, this tiny dog was brought to the show wrapped in a baby's shawl.



Golden Retrievers in the judging ring at Cruft's 1952 Show.



FEW of us would have predicted ten years ago that delta-wing aircraft would ever be more than interesting freaks. Yet to-day, as we saw in the December *Meccano Magazine*, the Royal Air Force is planning to re-equip many Fighter, Bomber and Flying Training Command squadrons with fast, formidable deltas such as the Javelin, Vulcan and Avro 707.

But deltas are by no means the strangest shapes seen in the sky today. Scientists, designers and enthusiastic amateurs are building almost every conceivable type of aircraft, from flying wings with no fuselages to flying fuselages with hardly any wings, in the age-old quest to travel faster, higher, more cheaply and more safely. Even our old friend the Flying Saucer is no longer just a music hall joke, but has been built in a serious effort to combine the high speed of a jet with the safe low speed of a helicopter.

The first flying saucer was built 40 years ago, when jet propulsion was merely a good idea, by a gentleman named G. Tilghman Richards. Known as the Lee-Richards annular monoplane, its fuselage was typical of most aircraft of its day; but its wing was perfectly circular, in the shape of a giant washer, with a diameter of 22 ft. It was built in 1913 and flown by the famous pioneer pilot, E. C. Gordon England, who found that it was stable, easy to fly, and had a remarkable range of speed. With an 80 h.p. Gnome engine, it could take off with a full load at only 30 m.p.h. and

reach a top speed of 85 m.p.h. It was therefore as efficient as any aircraft then flying; but further development was stopped in 1914 by the outbreak of war.

The idea was more or less forgotten until halfway through World War II, when the American Chance Vought company decided that a carrier-based fighter on the lines of the Lee-Richards would be just what the Admiral ordered.

With two 1,350 h.p. Twin Wasp engines, they calculated it would be able to land at a speed only 10 m.p.h. faster than that of an aircraft carrier, and so take most of the danger out of deck landing. And its

estimated top speed of 425 m.p.h. was much better than that of any orthodox fighter of that time.

To prove they were right, they built the incredible full-size, but low-powered, wood and fabric V-173 flying test model, shown in the upper illustration on the next page, which was even more of a flying saucer than the Lee-Richards, as it had no hole in the middle! It flew in 1942 and worked so well that, five years later, Chance

Vought completed the real XF5U-1 experimental fighter on the same lines, with two Twin Wasps. Its specially-designed propellers were hinged in the same way as the blades of a helicopter

rotor, so that as the fighter slowed down and dropped its tail, the blades moved forward at constant pitch and flattened out as they sped aft, making it possible for the aircraft to hover at very low speed.

The XF5U-1 never went into production, because the advent of jet-propulsion had

Strange Shapes in the Sky

By John W. R. Taylor

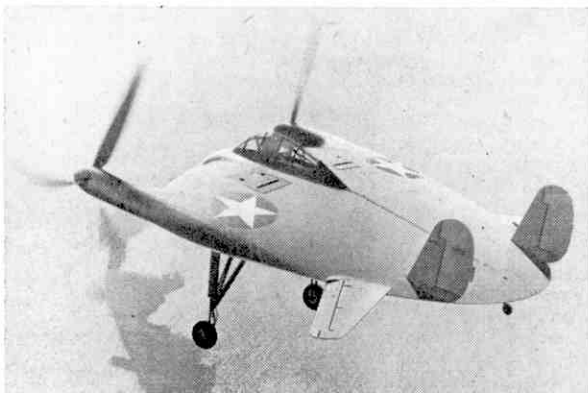
The picture at the head of this page shows the unique Custer "channel wing" aircraft. Illustration by courtesy of Alan Gilham.

by that time killed piston-engined fighters. But it proved the practicability of this method of achieving safe, low speeds and also paved the way for the revolutionary tailless F7U Cutlass naval fighter, which was described and illustrated in the July 1952 *Air News* and is certainly one of the strangest-looking aircraft in service to-day, as well as one of the most efficient.

Another aircraft on somewhat similar lines is the "Flying Flapjack" designed and built by Bill Horton in California. We know very little about this fantastic "home-made" aeroplane beyond what can be gathered from the lower photograph on this page. But the slots at the end of its wings contain telescopic wing-tips which can be extended to increase wing area for take-off and slow-speed cruising. Its two tiny propellers look inadequate for what is obviously a large aircraft; but a semi-delta of this type ought to be quite efficient aerodynamically, so news of its flight trials is awaited eagerly.

Another American experimenter, Willard Custer, has been working for years on a wing of a very different shape. He claims to have got the inspiration for his unique "channel wing" aeroplane, shown on the previous page, when he saw the roof of a

barn being lifted vertically by a gale! He knew that the problem of how to achieve safe, slow take-offs and landings was one of the most difficult in aviation, and decided that the answer was to find



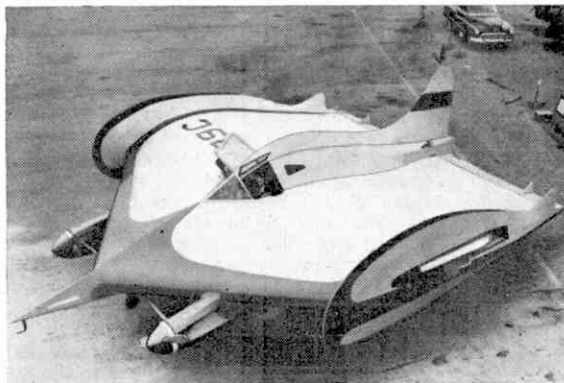
Not a "flying saucer," but the wood and fabric Chance Vought V-173 flying test model flown in 1942. Official U.S. Department of Defense Photograph.

some way of forcing sufficient air on to a wing while the aircraft was stationary to raise it vertically like the barn roof. He ended up by fitting two U-shaped wings to the stripped-down fuselage of a Taylor Cub, with an engine mounted inside the trailing edge of each wing.

All was ready for the first flight in December 1951. The pilot took his seat, started the small engines, and, as he opened them up, the propellers sucked air through the wings and the

whole aircraft began to rise steadily from the ground and hover. Since then, experiments have continued with considerable success, so the Custer "Channel Wing" is by no means as crazy as it looks, and may well rival the complicated, expensive helicopter in due course.

The French do not seem to have taken very enthusiastically to flying wings and deltas since the war, which is rather surprising because they have acquired a great reputation for pioneering revolutionary ideas. Nevertheless, they have produced a few odd aircraft in the last five



Another unusual aircraft, the semi-delta Horton wingless "Flying Flapjack," with telescopic wing-tips.

years, and at least two of these were built to test completely new theories on wing design.

First was the Hurel Dubois H.D.10 light 'plane, which is one of the most incredible aeroplanes ever displayed in public. A photograph of it appears on this page. Its wings are so long and narrow that they look like helicopter rotor blades, and it seems impossible that they can give sufficient lift or stability for safe flight. Yet I have seen the H.D.10 flying at White Waltham aerodrome, in Berkshire, where H.R.H. the Duke of Edinburgh learned to fly, and it not only handled well at high and low speeds but had a surprising rate of roll.

Secret of its success is the use of wide, aerofoil-section wing-bracing struts, which contribute a lot of additional lift. Wind-tunnel tests showed that the drag of a wing braced with struts of this type would be less than that of an unbraced wing. Monsieur Hurel also had a theory that the use of struts would enable him to make the wings longer and narrower—and more efficient—without increasing their weight; so that his machine would carry a much bigger payload than an orthodox aeroplane of the same power.

Fortunately he was able to find enough money to build the prototype H.D.10 research 'plane, which flew so well that the French Air Ministry became interested and ordered two big cargo-carrying aircraft on the same lines. The first of these H.D.31s should have flown by the time you read this, and performance estimates show that it will be able to carry three tons of freight or 36 passengers for 620 miles at 153 m.p.h., on two Wright piston engines of only 800 h.p., and take off with full load in only 600 yards.

Its appearance will be even more incredible than that of its small predecessor, because the wings of the H.D.31 will be 147 ft. 7 in. in span and only just over 7 ft. wide. In other words, they will be well over twice the span of the wings of a Canberra bomber, but only a little more than one-third as wide at the root end!

The other experimental wing being tested in France is fitted to the Rey R.1, and has been described, not altogether correctly, as a "flapping wing." What really happens is that the outer wings are hinged to the inboard sections through a series of rubber discs, so that they can move up and down to a limited extent. As a result, when the aircraft hits a gust in flight, the outer wings automatically "bend" and



The French Hurel Dubois H.D.10 research aircraft, which has exceptionally long and narrow wings.

enable the aircraft to ride the bumps smoothly and with no loss of control. It is an idea that could be applied to almost any type of aircraft, and the Rey is in all other respects a quite ordinary twin-engined low wing monoplane.

The three Leduc O.10 experimental aircraft that have been under test in France since 1949 are far from ordinary. In fact, they are the only aircraft of their type in the world, for they are each powered by a ramjet engine containing no moving parts. In appearance the Leduc O.10 looks a fairly orthodox jet 'plane, except that the two-seat cockpit is completely buried in the nose, which consists of a cone surrounded by a circular air intake for the engine.

Its ramjet engine can best be described as a stovepipe, built up of a series of five cylindrical ducts of increasing size, the leading edges of which are ringed with a total of 500 fuel injectors and burners. The fuel and air are mixed, burned and ejected from the aircraft's tail as a high-velocity jet—it's as simple as that, the chief snag being that the ramjet burns 250 gallons of fuel in about six minutes.

Another snag is that a ramjet only works when it is moving forward at about 200 m.p.h. Below that speed insufficient air is rammed into it for proper combustion. So the Leduc has (Continued on page 108)

Ten Thousand Miles Without a Stop

THIS is a story of wheels that ran for ten days without ceasing. There were four of them, the wheels of a Morris

a fork with two low built prongs that provide working platforms about 15 inches wide. When servicing was necessary the trailer was run on the track and the car was driven into the bay between the prongs, where it actually pushed the trailer, and was not hauled along by it.

Once safely in the bay it was a comparatively easy matter to change crews, fill up with petrol, renew oil and grease bearings. To change a wheel the appropriate corner of the car was lifted by block and tackle suspended from one of the gantries over the tender. To allow the rear wheels to be changed these were provided with

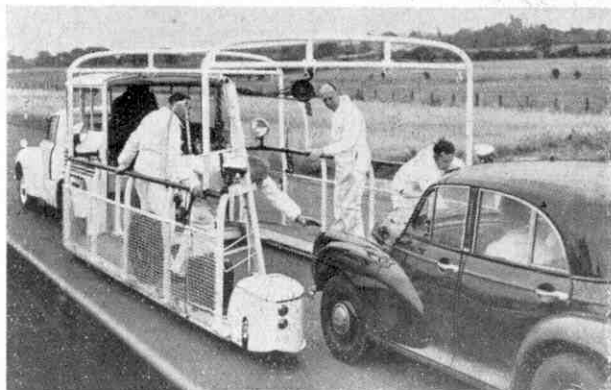
separate brakes, so that the one to be removed could be stopped while the drive continued through the differential to the one still on the road.

Minor, and they covered in that time a total distance of 10,148.3 miles. The car was supplied with petrol and oil, oiled and greased as it ran, and even the wheels were changed when necessary without stopping the car for a moment.

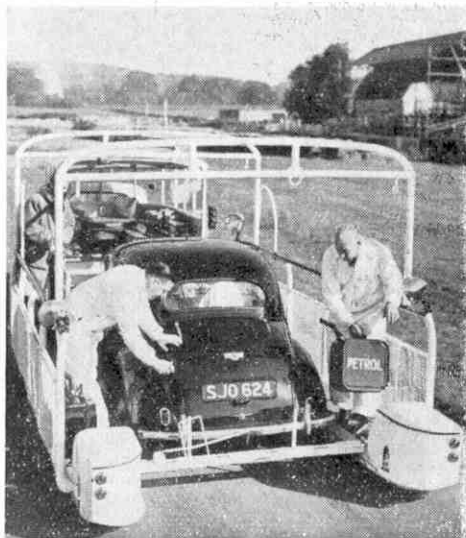
All this took place on the Goodwood Motor Racing Circuit. Motor manufacturers always test their cars thoroughly. Skilled drivers are sent out with them to cover great mileages on the road, but there are always breaks in running and it would be much more satisfactory if these could be avoided. This thought occurred to the Nuffield vehicles proving engineers, who realised that tests over a circuit where readings could be obtained constantly would be much more valuable, but here again, stoppages normally have to be made for refuelling and for maintenance work.

What was really wanted, they decided, was some form of non-stop run. So they planned and built a special vehicle to run with the car under test so that its oiling, greasing and other servicing could be carried out without stopping it.

What this is like is shown by the two pictures on this page. It is articulated, and its trailer in effect is



The Morris Minor driving into the bay of the service tender during its 10,000 mile non-stop run.



The car is now aligned in the bay and its tank is being filled with petrol. Photographs by courtesy of the Nuffield Organisation.



Driver Brooker at Euston after his last main line run on 24th October, 1952. The train is the 8 a.m. Blackpool - Euston. Photograph by R. F. Roberts.

Railway Notes

By R. A. H. Weight

A New Railway in Nottinghamshire

An important event last autumn was the bringing into service of a 7½-mile line that had been planned jointly by the former L.M.S. and L.N.E. Companies to serve a fine new colliery at Calverton, north of Nottingham, which is operated entirely by electric power and intended to work on a large scale, employing the most modern methods. The new branch connects with British Railways' Leen Valley lines near Bulwell. Considerable engineering work was involved, including the building of nine bridges and a new signal box of the latest type at Papplewick Junction. It is anticipated that over a million tons of coal per annum may be conveyed along the Calverton Colliery lines, which have been laid with double track, though on the occasion of the opening ceremony only one line was in use when the photograph on p. 67 was taken.

The officials and guests who travelled from London made a circular tour. The special train was hauled throughout from St. Pancras by class 5 4-6-0 No. 45267. The return journey was in the hands of the Eastern Region, first with B1 4-6-0 No. 61380 as far as Nottingham, Victoria, then after an interval a fast run to Marylebone with A3 Pacific No. 60052 *Prince Palatine*.

Trials with Track Recording Coach and Pneumatic Buffers

British Railways have brought over from France by train ferry a track-testing "detective" coach designed in that country having 16 wheels instead of the usual eight. It is 48½ ft. long and weighs about 50 tons. Inside, on a table somewhat similar to the equipment of a dynamometer car, stylus pens record on moving rolls of paper—by means of tensioned wires and pulleys connected to the axles, or feeler discs touching the inside faces of the rails—the relative levels in the track; any irregularities in level; accuracy of gauge width and curvature; and the distance travelled so that the location of any point needing attention can be noted immediately.

British Railways have for many years used the Hallade Track Recorder often called the Whitewash

Machine. This is a portable apparatus that can be taken into any coach or van for similar recording and testing, though the accuracy of this instrument is more limited as it is affected to some extent by the riding characteristics of the vehicle in which it travels. The French coach is specially designed for steadiness as well as for giving precise indications. A Swiss recording coach of a different type may also be tried here, which might be instrumental in maintaining the high standard of our permanent way.

Oil-pneumatic buffers are to be fitted experimentally to 250 13-ton freight wagons. This will reduce shock and provide greater security for contents during shunting operations and train movements. The new buffer is based on experience with aircraft landing gear, the compression of air by oil cushioning impact.

An Eminent Driver's Last Express Journeys

We owe much to the skill and alertness of drivers and motormen, particularly to those "kings of the road," the top-link men, but owing to lack of space can only refer to very few of them individually. It was my privilege when at Camden Motive Power Depot recently again to meet Driver Frank Brooker, who has nearly 50 years' service to his credit at that important shed outside Euston, and who is spending his last working months on light duties before retirement. He remembers the days of the Webb compounds, the small but tough 2-4-0s, the Precursors, the Cloughtons and many other now withdrawn types of locomotives, and has had charge of express trains for many years, working recently on long runs to Blackpool and Carlisle including some important locomotive exchange trials and specials.

The last recorded run behind him, logged by Mr. N. R. Harvey, was a typically enterprising performance down to Rugby with a 15-coach train on a damp wintry day. The engine, No. 46168 *The Girl Guide*, a modified Royal Scot, was not in the best condition, but high speed was maintained after Tring summit, with an average of 70 m.p.h. along the 39 miles between Cheddington and Welton. This Blackpool and Holyhead express was early by then, notwithstanding a slightly late start, and a relaying slack. A signal stop occurred outside Rugby, but the net time for the 82½ miles was less than 88 min. compared with the 93 allowed.

Another friend secured the photograph reproduced above after Mr. Brooker had reached Euston on his final long-distance run as driver.

Western Tidings

Class 2 light 2-6-0s, numbered in L.M.R. series from 46504-7 and upward, are being turned out from Swindon Works. Britannia 4-6-2s numbered 70026-8 were recently allocated to 36C, Cardiff. No. 70029 *Shooting Star* has been added to stock, together with 350 h.p. diesel-electric shunting locomotives, built at Derby and numbered 13000-4, and 0-6-0Ts 8497-9 and 9486-7, constructed by contract. A large number of reallocations of engines to different sheds took place at the end of 1952.

The British gas turbine express locomotive No. 18100 was engaged for three weeks' further trials over the steep gradients between Plymouth and Newton Abbot, hauling ordinary main line trains with loads specially increased. One day it was reported that a successful eastbound journey from Plymouth, with the surmounting of the severe Hemerdon climb so near the start, had been made with 17 bogies including six S.R. coaches next the engine. From about the end of November this locomotive was running over 600 miles a day, taking the 12.15 a.m. Paddington-

Plymouth newspaper express and the 7.15 a.m. Plymouth-Paddington, in the morning and then in the afternoon making a quick round trip to Swindon and back, leaving London at 2.15 p.m. and returning with the 4.20 from Swindon. No. 18000, the Swiss gas turbine locomotive, was then in Swindon Factory.

A prefabricated goods warehouse of a new type, prepared in sections at British Railways Exmouth Works, has been installed at Penzance.

The Latest Standard Mogul

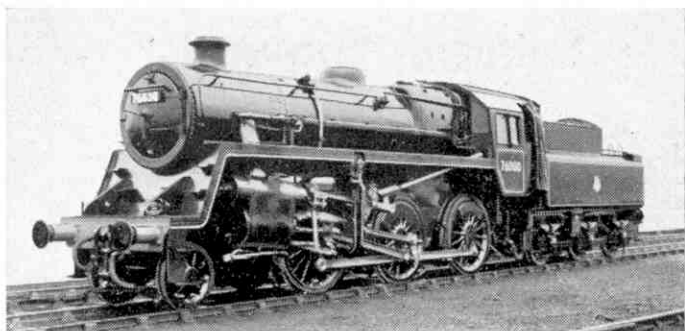
Twenty-five class 4 2-6-0s numbered 76000-24 are under construction at Horwich and Doncaster. The first five are intended for the Scottish Region, the next 15 for the Southern, and five for the N.E. Region.

As will be noted from the upper illustration on this page, the appearance is somewhat similar to that of other B.R. standard types. The boiler, pressed to 225 lb. per sq. in., follows the design employed on the L.M.R. class 4 Moguls. Many constructional parts are interchangeable with other standard engines. Cylinder diameter is 17½ in., with 26 in. stroke and the coupled wheels have diameters of 5 ft. 3 in., Walschaerts gear actuates 10 in. diam. piston valves.

A B.R. type 2 tender is fitted having water capacity of 3,500 gall. and holding six tons of coal. Roller bearings are provided for the tender axles and the valve gear return cranks. These new general service locomotives will be able to run over most British routes.

Somerset and Dorset Joint Line

This line was formerly a joint Southern and L.M.S. undertaking, taken over from the earlier L.S.W.R. and Midland companies, and is now partly in the Western administrative area operated by S.R. and L.M.R. locomotives and rolling stock. As for many years, old Midland engines or Derby types are still prominent. One of the typically Victorian Midland



No. 76000, the first engine of a new B.R. Standard 2-6-0 design, built at Horwich for a wide range of mixed traffic duties. British Railways Official Photograph.

0-4-4Ts, which was L.M.S. No. 1379 and is now rebuilt with Belpaire boiler and numbered 58072, was the locomotive in charge of the last passenger trains on the Bridgwater (North)-Edington branch on 29th Nov. last. The service had been operated for 62 years, but the amount of recent patronage did not warrant its continuance. During the summer season, 2-8-0s of the 7F S. and D. type took up to 10 bogies on Bournemouth-Bath through Midlands holiday trains over the steep joint line gradients.

London Midland Regional Notes

Britannia class Pacifics of the latest 70030-4 series now in hand at Crewe had begun to appear on the Euston main line during December.

Class 4 2-6-4Ts numbered 80048-9 built at Brighton were allocated respectively to 14B, Kentish Town and 24E, Blackpool. Nos. 80001-3, ex-Derby Works, were sent to be shedded at Polmadie or Motherwell, Scottish Region. No. 46158 *The Royal Regiment* is another taper boiler converted Royal Scot.

Reports from observers include news of further trials on fully braked coal trains with two class 5 standard 4-6-0s along the Midland line; double-headed Yorkshire coal trains bound for Crewe locomotive depot, in charge over the difficult Huddersfield-Stockport route of various combinations of engines, including

passenger or mixed traffic 4-6-0s, 2-6-0s, etc.; 2-6-2T No. 40033 working a special passenger (football) train from Hendon over the Metropolitan and Southern suburban lines in London to Dartford (Kent) and back; class 4 2-6-0 No. 43005 on the Cheddington-Aylesbury branch; and a Swedish Lloyd steamship company's boat train from St. Pancras to Tilbury headed by Fowler 2-6-0 No. 42839, the coaches carrying white headboards with black letters.

New C.N.R. Service

A new road-rail freight service is in use between Montreal and Toronto on the Canadian National Railways. C.N.R. motors haul loaded trailers to railway freight terminals for transport on flat cars to their destinations. On arrival the trailers are again motor-hauled to plants and warehouses, thus giving a door-to-door service.



Wrong line or, more correctly, single-line working on the new railway serving Calverton Colliery. The train shown is the special run in connection with the official opening. Photograph by T. G. Hepburn.

Satan in England

By Arthur Nettleton

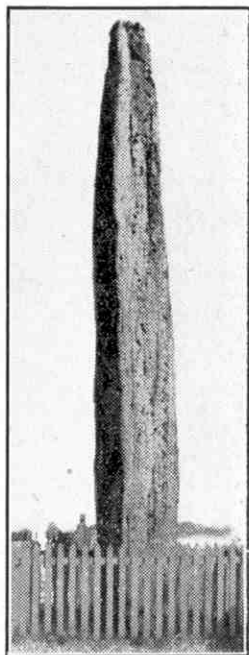
TOURING England with the Devil is not as impossible as it may seem, for scores of places and objects are connected with the Prince of Darkness in one way or another. The map is liberally sprinkled with features named after him, churches and bridges have Satanic legends, and reputed examples of his handiwork are pointed out in many parts of the countryside.

It is perhaps not very surprising that in distant times any wonder of Nature which could not be readily explained was attributed to the Evil One. Thus there are several Devil's Dykes—deep-cut channels in the landscape which Old Nick is said to have excavated. The best-known is the one near Brighton, which tradition says was made by him in order to admit the sea into the Weald and submerge the churches that stood there. But we are told that the plot was foiled by an old woman who put a lighted candle inside a sieve to represent the rising Sun. As the Evil One could only work at night, he had to retire and leave the dyke unfinished.

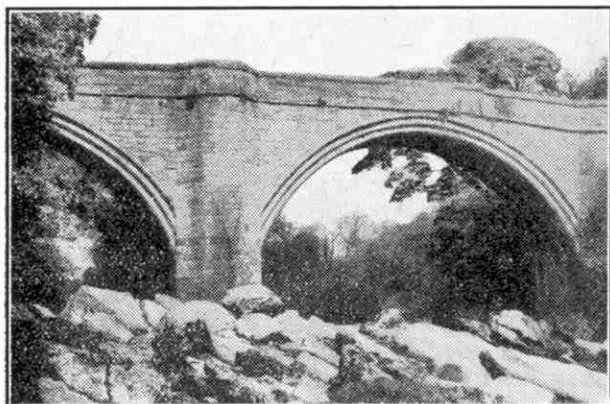
All the Satanic stories told in Britain indeed have one point in common—he is always outwitted in the end. The remarkable Devil's Bridge at Kirkby Lonsdale, for instance, is stated to have been erected overnight for a weary traveller who wanted to get across the River Lune. In return for the favour, he had to promise

that Satan would receive the soul of the first living thing to cross the bridge. But the traveller was as wily as Satan himself, and neatly turned the tables by sending his dog across before he stepped on the structure himself.

Historically this fine bridge is one of the oldest in Northern England. It dates from the 14th century, and is now preserved as an Ancient Monument. Wheeled traffic is no longer allowed to use it, a modern bridge having been provided a short distance downstream.



The Rudston Monolith, another Devil's Arrow. It rises to a height of 25 ft. and penetrates about the same distance into the ground.



A bridge alleged to have been built overnight by the devil to allow a weary traveller to cross the Lune. Satan made a bargain, but as usual was outwitted.

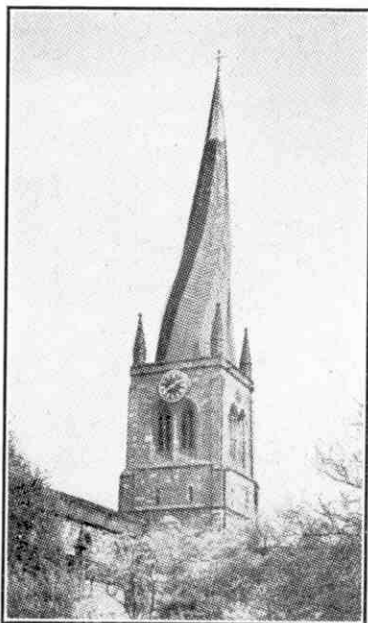
One of the most remarkable church spires in the country is said to owe its singularity to the Prince of the nether world. This is the famous crooked spire of Chesterfield Parish Church, reputed to have been twisted by him when he alighted on it and curled his tail around it! Frightened off by the singing of the choir, he departed hurriedly and in so doing gave the spire the curious appearance that it still possesses. It leans 7 ft. 10 in. to the south west, but expert opinion is that there is no

likelihood of its falling. Actually, the twist is caused by warping of the timber and by bad workmanship when the spire was built nearly 600 years ago. The lead covering, which is affected by variations in temperature, has also accentuated the fault.

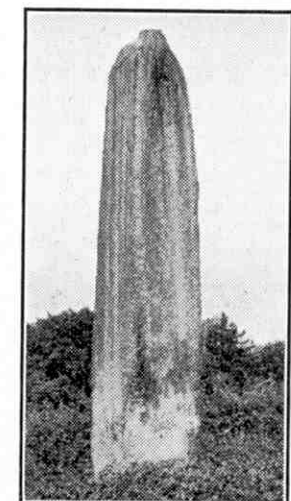
Yorkshire too can claim several Satanic souvenirs. There is a Devil's Elbow on the Pickering-Whitby road, a particularly treacherous bend on a difficult hill; but the most interesting curiosities associated with the Evil One are the large upright stones commonly regarded as Devil's Bolts or Arrows. One of these, 25 ft. high, stands in the churchyard at Rudston, in the East Riding. The story goes that it was hurled at the church by Satan in an attempt to destroy the building. Legend declares that he took the stone from Filey Brigg, and it is true that geologists have found that the Brigg and the Rudston monolith are made of the same kind of stone.

Three other alleged Devil's Arrows can be seen near Boroughbridge, where they alighted, according to legend, when Old Nick threw them at Aldborough Church. But in this instance his aim was bad, and the stones fell a mile short of their target.

Such legends apart, the biggest mystery today is how the massive pillars were erected by Man, without the help of lifting tackle. They date from the days of the Brigantes, and even today it would not be easy to set up such heavy stones. Excavations at the base of the Rudston Monolith have disclosed the possible



The twisted spire of Chesterfield Parish Church. There is a tradition that it owes its shape to the Devil, who twisted his tail around it.



One of the many Devil's Arrows. This one is near Boroughbridge, a mile from Aldborough church, which legend declares was its target.

method. This pillar goes as far into the earth as it extends above the ground, and it is believed that it was found lying flat. A pit was then dug beneath rather more than one half of the length, thus causing the stone to tilt automatically into an upright position.

It is said that you could furnish a house with objects named after Satan — Devil's Chairs, Devil's Frying Pans — a curiously shaped inlet crossed by a mass of rock, near Cadgwith, Cornwall, bears this name — Devil's Punchbowls, and so on. Reference to a good gazetteer will reveal many more.

The West Country has its Devil's Leap, near Penzance, with a story that Satan once stole the nets of the fishermen of Newlyn, so that he might catch a fine shoal of pilchards that he had spotted in the sea. But as he flew over St. Peter's Church the choristers saw him and began to chant the psalms. Alarmed by the music, His Satanic Majesty dropped the nets as he fled, and criss-cross markings on the rocks are pointed out today as having been made in this way.

A different kind of tradition concerns the Devil's Chair, a Shropshire oddity. The local legend is that Satan spends his spare time seated on this rock, for there is a belief that if the "chair" ever sinks into the ground England will perish. And that, of course, would please the Devil! So he sits there at night-time, pressing hard!

Devil's Leaps are fairly numerous, too. At some of the spots where he is supposed to have jumped, his footprints are pointed out, one such

place being the Devil's Rock, near Birtley Holywell, in Northumberland. One version of the story relates that he slipped while trying to leap across the Tyne, and was drowned when he fell into Leap Crag Pool.

Devonshire, however, contests that legend, the pretty village of Northend claiming to have his grave! It is marked by a stone just outside the church doorway, and a fund exists for its upkeep!

Fear of the Devil in comparatively recent centuries resulted in some strange customs, and a number of these have left their mark. At Dewsbury, Yorkshire, a "Devil's Knell" is rung on the bells of the parish church on New Year's Eve, one stroke being tolled for each year since the Birth of Christ. This tolling, which therefore automatically increases in duration year by year, is supposed to keep the Evil

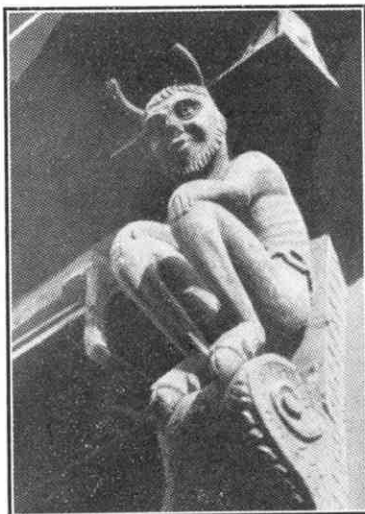
One away for another twelve months.

In Stonegate, York, is another odd souvenir associated with him. It is a Devil carved on the front of a former dwelling-house, now shop premises. The figure is shown in chains, the old-time idea being that when the real Satan saw how the tenants intended to treat him, he would not enter the house!

Another curious tradition about the Devil concerns a boulder outside the Angel Inn, Helston, Cornwall. Local folk say that it once blocked the entrance to Hell (hence Hell Stone or Helston) and that it was won by St. Michael in a fight with the Evil One.

Then there are the Devil's Quoits, near Stanton Harcourt, Oxfordshire, reputed

to have been used by him when he played quoits with a beggar. They are massive stones of unusual shape.



A Devil in chains outside premises in York. There his fate was supposed to scare away the real Satan.

A Far Eastern Memory How Meccano Helped in War Time

By Albert T. Mudge

TIME went very slowly while I was serving aboard H.M.S. *Tendos*, a small destroyer attached to the Far Eastern Fleet, during the late war. Our task at that time was to patrol the coast of Malaya and a large area off Java and Sumatra.

Evening after evening went by with nothing accomplished. When my messmates and I had finished our spell of duty we would come into our mess and read and re-read newspapers of months previous, or we would play cards or ludo, but we never did anything really absorbing or constructive. We soon got under each other's skin, and arguments would crop up every few days.

One day a Canadian joined our ship and was posted to my mess. We welcomed him and talked a lot during the first few days, but gradually we sank back into our old habits and irritability, and grouching began all over again.

Seated around the mess table one evening, John, the Canadian, asked "Have any of you worked with Meccano before?"

We all sprang to life, here was a new subject!

"Yes, I have," said one. Then another, and another, until we were all talking excitedly about Meccano sets of our childhood days.

"Would you start building now if an Outfit were

put on the mess table?" asked John.

"You bet," we all chorused.

John got up and went to his locker, and from deep down he produced a much-worn box and put it on the table. Opening it up was a delight, for inside was a pre-war No. 5 Outfit.

Out came the bits and pieces, and the large Instruction Manual, and soon we were all busy making a boat, a replica of the destroyer we were on. We were so intent on our task that we didn't notice the other two messes coming over, and soon with their "expert advice" a model was built and appreciated.

It was amazing how interested everyone became. There was no more grouching. Instead we discussed how to improve the models we were building, and even on watch in the middle of the night we talked Meccano and of what we would build the next day.

Gradually we began to return to a normal way of living with each other, and it was a Meccano Set that had brought us to do this. Some of us talked of getting our Outfits from home, but the suggestion was turned down in case the sets were lost on the way out. So we carried on, with what may have been the only Meccano Set in the Eastern Fleet, until one dark day our own ship was sunk—and our precious Meccano with it!

Engineering News

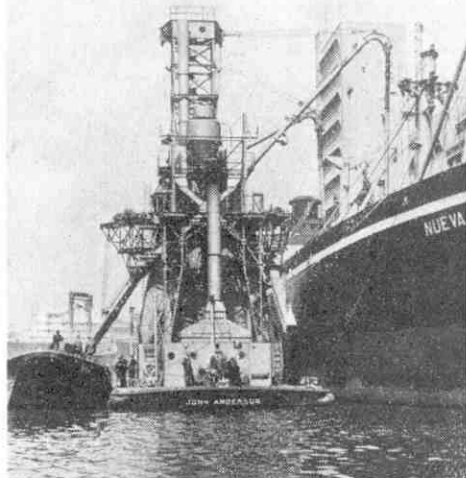
A Large Grain Discharging Plant

The illustration on the right shows the *John Anderson* floating pneumatic grain discharging plant unloading a grain ship in the London Docks. The *John Anderson*, which is named after the Chairman (now Viscount Waverley) of the Port of London Authority, is one of the biggest plants of its kind in the world, and is designed to transfer grain from the holds of ocean-going ships to lighters moored alongside at a maximum rate of 300 tons an hour. It was built by Simon Handling Engineers Ltd., Cheadle Heath, Stockport, who have also completed a second plant, the *Douglas Ritchie*, named after the Vice-Chairman of the Port of London Authority.

The plant is built on a steel pontoon measuring 82 ft. 3 in. long by 36 ft. 6 in. beam by 13 ft. 6 in. deep, and it is capable of being towed by tug to the most convenient point in the docks for the ship to be unloaded. Its engines, power generators and vacuum pumps are housed in the pontoon, together with tanks for ballast, water and fuel, and the rest of the machinery is housed in the superstructure. The main engine is a Ruston marine-type oil engine of 475 B.H.P. continuous rating, and the two generating sets, one of 70 and one of 35 Kw., are driven by direct-coupled marine-type engines. It is fitted with Simon vacuum pumps driven through reducing gear.

The grain is extracted from the ship's hold by suction nozzles, which mix it with a stream of conveying air drawn in by the pumps. (It is not sucked through in a solid mass, like water). Then it passes along telescopic suction pipes and manoeuvrable pipe booms to the grain receiver, where the air expands, loses velocity and allows the grain to fall. The air then passes through two cyclone dust collectors to the pumps, which exhaust to atmosphere.

The grain is discharged from the receiver by two tipper seals, which are devices for extracting the grain from the receiver without breaking the vacuum,



The *John Anderson* floating pneumatic grain discharging plant, unloading the S.S. *Nueva Fortuna* in the Royal Victoria Dock, London. Photograph by courtesy of Port of London Authority.

and falls on to two automatic weighers, each having a capacity of two tons per tip. Each weigher discharges into a hopper, which in turn feeds the grain to a bucket elevator. The two elevators feed it via spouts to central junction boxes, which are so arranged that the grain can be diverted to whichever overside shoot is required. Delivery can be made either all on one side or on both sides simultaneously.

The twin pipe booms and the telescopic nozzles can be slewed and luffed by an operator working controls in a cabin on the top of the superstructure.

A Novel Use for the Jeep

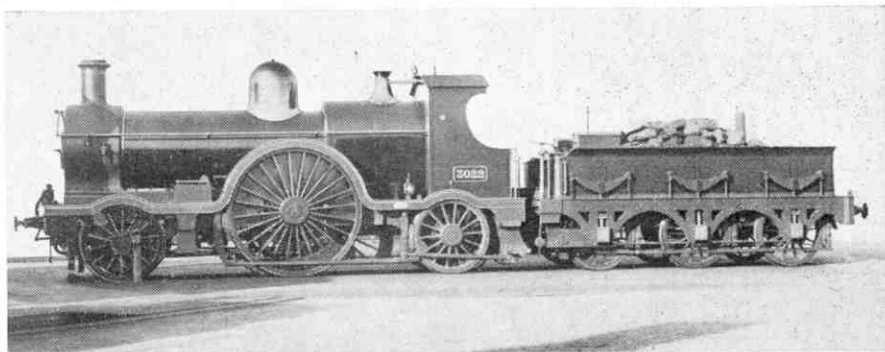
A novel use for the G.P. (General Purposes) vehicle, much better known as the Jeep, has been found at K.L.M.'s airport and headquarters at Schiphol in Holland.

A standard Jeep has been converted by the airline's engineers into a mobile loading ramp, and in the lower illustration on this page it is seen in action alongside an airliner. Its main feature is an endless belt conveyor mounted on a tubular steel frame, which is hinged from the extended rear part of the Jeep's chassis. The conveyor is driven from the chassis gear-box, and can be raised or lowered to the required angle by means of a hydraulic cylinder. When the Jeep is travelling to the scene of operations, the ramp is lowered down on to the bonnet.

This remarkable vehicle greatly assists the loading of luggage and some of the lighter items of air freight, and it can be driven across the tarmac from one aircraft to another with very little loss of time, a matter of great importance in the cargo handling department of a busy airline such as K.L.M.



A Jeep converted into a mobile loading ramp in use at K.L.M.'s airport at Schiphol. Photograph by courtesy of K.L.M. Royal Dutch Airlines, London.



More Engine Nicknames

By R. S. McNaught

LAST month I remarked on the part played by looks, good or bad, in the origin of locomotive nicknames. The stage was the source of a beautiful and complimentary nickname on the Great Central line, whose elegant new Atlantics were at once christened Jersey Lilies after Lily Langtry, a star of the West End who was the No. 1 Cover Girl of the day and who hailed from the Channel Islands. Even in their shabby black-painted old age, these beauties did not quite lose their elegant looks, although sadly marred by the loss of their original chimneys and domes. By way of contrast, on the Great Western, some strong looking 2-4-0s with outside framing assumed the name Barnum, but whether this was because they often worked trains conveying the big Circus with that title or not is not certain.

Nicknames due to special features are fairly common. The Cauliflowers have already been referred to as examples of this. Others came from the Great Northern which had its Long Toms, 0-8-0 mineral engines, and the G.W., which sported its Bicycles, which were built with outside broad-gauge wheels, etc., ready for conversion when standard gauge was adopted. In the north, McIntosh's pretty little 0-4-4 tanks for the Cathcart Circle were christened Threepenny Bits on account of their singularly small trailing wheels, and some later and much

larger Caledonian engines were called Greybacks after their fine blue livery gave place to L.M.S. nondescript grey-black. Besides the Highflyers mentioned in the first article the L. and Y. had Dreadnoughts, which were 4-cylindere 4-6-0's as solidly built as a man-of-war, and Sea Pigs, a class of mineral engines unpopular because of a patent corrugated firebox.

Both the Caley and the L. and Y. built a lot of small yard and dock shunters, some of which still survive, and these were the best-known of a genus that far and wide were called Pugs or, in Scotland, Puggies. The Midland design of compound, as it permeated all parts of the octopus-like London Midland and Scottish group, became known as Crimson Ramblers, a term which is of particular interest as it first of all denoted a feeling of scorn,

which soon turned to one of real respect, if not affection.

Names in which can be discerned a combination of looks and performance included Spinners, the lovely Derby single-wheelers, and Crabs, those capable Hughes-Fowler Moguls, which look awkwardly "all legs" but keep their grip on the biggest loads. Earlier on there had been the Crewe Fore-and-afts, which were double-ender compound tank engines with a notorious habit of surging forward by fits and starts.

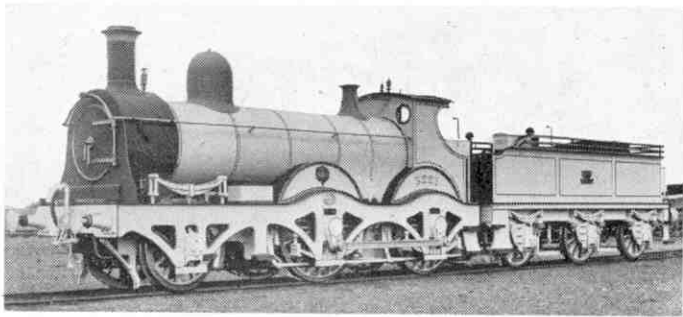
The illustration at the head of the page shows G.W.R. No. 3022, one of the large 2-2-2 G.W.R. engines that were nicknamed Bicycles on account of their large exposed wheels. These engines were built with outside broad-gauge wheels ready for conversion to the standard gauge when this was adopted on the G.W.R. This and the upper illustration on the opposite page are from British Railways (Western Region) official photographs.

In later times the case of the Tishies became well-known; these were standard Crewe-type express engines that had an unusual form of Walschaerts valve gear installed to actuate inside cylinder valves. They were contemporaneous with a racehorse that ran with a crossed-legs gait, and its name was singularly apt for these engines once you had seen them at work. The first of them was called *Bret Harte* and I fear the story that Crewe actually made some Tishy nameplates is too good to be true!

H u m p t y
Dumpty as a nickname was apt for some Great Eastern 2-4-0s, which were reboilered to look extremely top-heavy. Stratford produced some small 2-4-2 branch line tank engines with inordinately large windowed cabs, and these of course became Crystal Palaces. That company also owned a fleet of Gobblers, a tribute to their hefty appetite for coal.

Characteristic sounds also have been a fruitful source of inspiration. A good instance was the name Pom-pom for the Robinson 0-6-0s of the old Great Central. On the North Western, Webb's successful

small-wheeled 2-4-2 tanks, officially 4 ft. 6 in. double-enders, were always "Choppers," probably because of a characteristic sound. The much older Ramsbottom six-wheeled Special shunting tanks—those fascinating old girls with



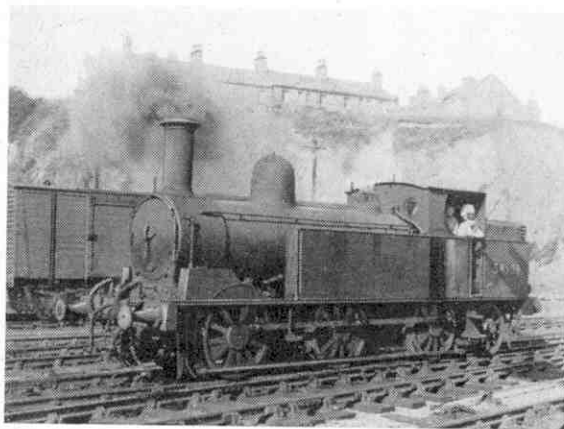
A Barnum 2-4-0 of the former G.W.R. These engines were notable for their sturdy outside framing, which retained many of the characteristics of earlier broad-gauge practice.

mighty domes and no cab—were referred to as the Screamers, and rightly so, for their whistles were atrocities. The Shrewsbury men also called them Tater-roasters, on account of certain footplate arrangements! Also in the sound category, Ragtimes and Jazzers speak for themselves: their rough-riding also probably made the names apt for these Gresley "Moguls."

Many nicknames have been derived from the locality in which the particular engines worked, but it is a tricky matter knowing whether, for instance, the L.S.W.

Ilfracombe Goods or the Caledonian Oban Bogies were genuine works labels, or subsequently came into use by the operating staffs. Other examples which the reader may care to identify are Wembley Tanks, Whitby Tanks, Skye Bogies, Aberdares, Metro's and Ardsleys.

It is perhaps natural that the commonest and by far the most expressive nicknames have been given to signify ability—or lack of it. Thus, a favourite was Jumbo for strong and willing workers. The prototype, it ought to be explained for the benefit of younger enthusiasts, was a famous Zoo and circus elephant that became a national figure. Several



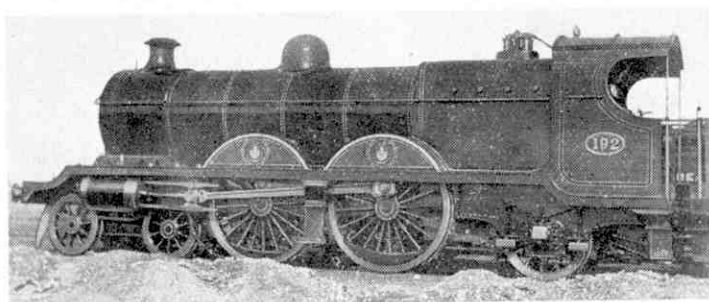
Mourner was the expressive nickname given to the Webb 0-6-2 coal tanks of the former L.N.W.R., one of which is shown above appropriately making its surroundings blacker. Photograph by J. P. Wilson.

companies had engines regularly named after him. Besides the two classes of North Western 2-4-0s, the Big Jumbos and the Little Jumbos, there were some strong Brighton goods locomotives, and up in Scotland the oldest class of Caledonian

A class of Stirling 2-4-0s on the old Great Northern were always called William the Conquerors, because the first of the series happened to be No. 1066. Also on the same line the earliest Ivatt Atlantics, later Class C2 on the L.N.E.R., were

Klondykes because the gold rush of 1898 was the main news of the day when they were being turned out; the only one to bear an official name was *Henry Oakley*, now preserved in York Museum.

Ironclads and Gunboats used to

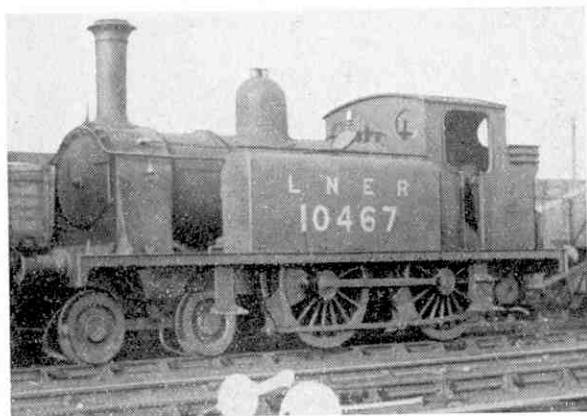


Great Central "Atlantic" No. 192, of the class known as Jersey Lilies owing to their graceful proportions. None of these elegant locomotives now remains in service. British Railways (Eastern Region) official photograph.

trundle South Eastern trains through Kent, while further west one could travel on dry land behind a Paddle-box, or on the line in company with a Steamroller. If your train was in charge of a South Western Greyhound you could expect it to get a move on, but it is puzzling to know what you could expect when it was behind a Grasshopper or Large Hopper, both Southern nicknames that share a certain ambiguity with the Drummond 0-6-0s, which were universally styled Black Motors. Some sister engines of the Black Motors went (Continued on page 108)

0-6-0, most of which are still going strong, were always Jumbos too. It is quite probable that other companies also boasted types so nicknamed. The name Bulldog in this connection does not imply the Swindon 4-4-0s, recently defunct, but a class of outside framed 0-6-0s that the Great Central took over when it extended itself from the original Manchester, Sheffield and Lincolnshire. Another similar class, but with smaller wheels, were referred to as "Bashers," which name, by the way, I have heard applied to the purely goods variety of the little Great Eastern "Jubilee" tanks, although they were mostly called the "Buckjumpers."

Sometimes one comes across an isolated locomotive built for some special purpose, and these oddities generally are spoken of by name rather than number or type. In this category Holden's Decapod, Fowler's Ghost and The Bug come readily to mind. The last named of these was Drummond's diminutive single-wheel inspection engine on the South Western. Another example is Big Bertha, the Midland 0-10-0 Lickey banker.



One of the diminutive 4-4-0 "Coffee Pot" engines of the former North British Railway. They were intended for light branch line and similar duties. Photograph by D. M. Craig.

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.

RAILWAY SIGNALS ON A CITY ROAD

Railway signals for road traffic are unusual, to put the case mildly, and those at Worcester shown in our illustration may be unique. They are at a point where a railway track crosses a road. Normally they are in the "off" position. Several freight trains pass over the road daily, and the signals, which are controlled by locked levers on the posts, are set "on" by hand when a train is ready to cross.

Drivers on the road take not the slightest notice of these semaphores. I imagine that those who notice them at all consider them to be part of some quaint archaic custom, as indeed they are. The traffic is finally stopped by a man with a red flag, who beckons the train over the crossing, and closes the operation by re-setting the semaphores at "off."

E. H. SARGEANT
(Birmingham).

THE AMERICAN CABOOSE

The caboose of an American train is a diner and sleeping place for its crew. It also gives a position from which a train can be seen along its entire length, and hot boxes and other troubles discovered. West of the Mississippi, where runs are longer and cities fewer, it becomes a sort of self-contained home for the men who run trains, and there a brakeman who is also a good cook is eagerly sought for.

The cupola is said to have been "discovered" by a conductor who on one occasion had to make do with an old box car that had a large hole in its roof. When he poked his head through the hole he realised the advantage of this new viewpoint and persuaded the authorities to provide a raised glass covering for it.

The first caboose used in North America was made entirely of wood, a form of construction that cost many a trainman his life when a pusher-engine put the back door where the front door was. So steel underframes came into use and then came the steel caboose we have today.

There are two classes of the modern American caboose. The lettering N.M. denotes comfort, pleasure and convenience for

trainmen. This type is fitted with a lookout on top of the roof, and it has bunks, a stove for heating and cooking and a tank for drinking and washing water. It is also fitted with small tool boxes in which red fuses are kept in case of emergency. The class N.E. has eight wheels and is longer than the N.M. type, but has the same conveniences.

The caboose carries a freight train conductor, who looks after checking of the freight, and two brakemen, who ride inside the caboose to take care of such routines as switching and flagging. The trainmen store their lunches in lockers below the cupola. An ice-box holds a good supply of food as well, and this is cooked on the stove.

As the brakemen often have to jump aboard as their train begins to move there are convenient rails and long grab irons at the ends for their use.

The caboose is sometimes called a crummy, and American railroadmen have many other humorous names for it. It has become part of American railroad legend, and the subject of poems and songs.

MICHAEL COLLINS
(New Baltimore,
Mich., U.S.A.)

A DERBYSHIRE LIGHTHOUSE

Derbyshire is one of the most remote of English counties from the sea, but it has a lighthouse, standing on a cliff. Its light is not a guide to shipping, but a memorial to the Sherwood Foresters who gave their lives in the first World War.

The tower, which stands on the edge of a quarry at Crich, near Matlock, is built of stone. At the top is a revolving electric lamp, and at night its flashing light can be seen from five counties. I have seen it from Burton-upon-Trent, which is 25 miles away.

Crich Stand, as it is called, is open to the public during the summer and it is well worth a visit, as some very good views can be obtained from the top on a clear day.

This memorial tower was built in 1922. It replaced an earlier tower built in 1851 that was struck by lightning in 1902, and was then closed to the public.

A. BOSTON (Pentrich).



A railway signal by the roadside. It protects a level crossing in Worcester. Photograph by E. H. Sargeant, Birmingham.



A lighthouse on land, but its light is a memorial to soldiers who gave their lives in the first World War. Photograph by A. Boston, Pentrich.

On the Road

By J. Dewar McIntock

NOT because I understand animals, but because I like machinery, I visited the Smithfield Agricultural Show at Earl's Court in December last. The way those stockmen prod and pummel the "beeves" fills me with admiration, but I was glad not to be there on the day when a bull broke loose and ran down one of the aisles . . .! A Fordson or Ferguson *perhaps*, but a ton of testy livestock—no, Sir!

Highlight of the Show for me was in fact a Fordson Major tractor—but one with a difference. All parts that would normally be pressed or cast in metal, such as wheels, tanks, cylinder block, axle casings, etc., were made in crystal clear plastic, and revealed perfectly the inner workings of machined parts which were in bright steel or alloy. Even the tyres were transparent, and concealed lights gave a wonderful Wellsian appearance to the whole thing.

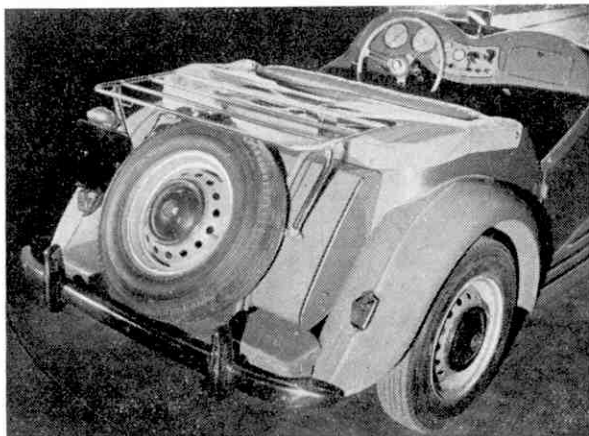
I loved some of the baby tractors, and I could just do with one in my garden. The tiniest is the Ransome, looking like a model of one of the biggest crawler types, and the little Bristol Type 22 took my fancy too.

Mechanically inclined folk like us were revelling in all kinds of machinery from hedge-trimmers to harvesters. But I must not be diverted from my proper subject. And in case anyone points a stern finger at the title of this feature and asks whether I am trespassing *off* the road, I would hasten to point out that tractors do a great deal of work on the highways and byways, and are nowadays remarkably versatile.

In that connection I may add that I saw a number of very attractive trailers designed for use with tractors. One of these was notable for its tubular chassis construction, this being an all-welded assembly and having an all-steel body mounted on it. The original type of design allows the chassis to be used as a skid in the event of wheel sinkage. Some of the wooden trailers were of fine traditional

construction, in polished natural timbers, however.

The snow-capped Morris Minor on the next page should serve as a reminder that modern cars, in the severe weather which heralded this winter and which makes us long for summer skies—unless we are really ardent winter swimmers, skaters, etc.—are astonishingly efficient pieces of machinery in all weathers. There is really no longer any excuse for such weird rites as taking out all the plugs and baking them in the oven, wrapping a rag soaked in boiling water round the carburetter,



An up-to-the-minute MG ready for export to America, where enthusiasts have a very high opinion of these sleek sports jobs, as well as of vintage cars.

winding the handle while somebody else presses the accelerator, etc. Those things properly belong to the twenties and earlier. Most modern cars warm up quickly, too, thanks to good engine and carburetter design. Thinner oils can be used in precision-built motors, and that helps all round. And interior heating has become so effective that I have known people go for a ride in the car to get really warm!

This is all partly an excuse for me to talk about a Riley 12 that I had last winter. It was a real vintage model—a 1927, in fact, and very upright and dignified. And that car, I think, taught me more about finesse in cold starting than I had learnt in 20 years of assorted motoring. With too little or too much flooding of the carburetter,

starting was quite impossible. One just had to catch the moment when fuel began to seep out of the float chamber, then leave the carburetter alone at all costs.

In every way, apart from that peculiarity, or peccadillo, or what you will, she was a

showroom condition, and I have contracted to borrow a few interesting up-to-the-minute cars as well, from time to time.

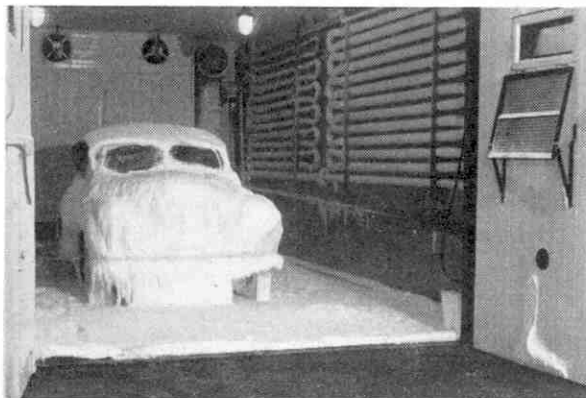
Before I leave this aspect of motoring I would like to add that the TD type M.G. Midget shown in this feature is among the few modern cars that combine the virtues of those "Two worlds." Perhaps that is why it is such a bountiful dollar earner! The Americans know good motors, even if they make some examples that are rather remarkable to our eyes.

Turning now to the commercial world, I feel I ought to say something about the Transport Bill, but I have no intention of inveigling myself in the political aspect. What is implied by the various tedious arrangements is that we shall once again see hauliers competing against one another. From the point of view of the transport student, or those who merely take an interest in transport as a hobby, this would mean more interest, because vehicle operators would be right on their toes, seeking the fastest and most handsome trucks, and no doubt painting them in eye-catching livery in many cases.

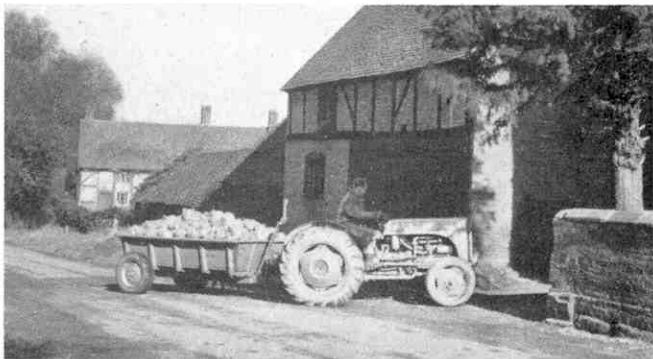
Returning to passenger-vehicle operation, do you know that a bus can be washed in a minute? Yes, the mechanical bus washer is revolutionising this side of the business.

wonderful old girl, which gives me my cue for saying that nobody should ever sneer or jeer at the old stagers—no, not even laugh at them, any more than one laughs at a venerable tank engine, or a steam tug. Those cars were built by men who loved their work, who worshipped machinery and learned their engineering the hard way. How otherwise could cars built in the early twenties be giving good service today, in many cases?

There are cars of two worlds—the old and the new—and they have little in common except that they are both worthy of our greatest admiration. Suppose one man has a Rolls Phantom of 1921 vintage, and the other a 1953 Jaguar XK 120. You will never convince either that he has the inferior motor car. And that is as it should be. Personally I hope to enjoy the best of two worlds. I have adopted another old Riley, which is in



A Morris Minor, snowcapped after five days in a freezing plant at the Morris works. There it has undergone an ordeal worse than any that Alaska can offer.



A sturdy steel tipping trailer hitched to a Ferguson tractor.

The World's Busiest Waterway



By W. H. Owens

A CRUISE by steam yacht around London's Docks, such as I made on a recent afternoon, is a trip crowded with interest for lovers of ships and the sea. For these lower reaches of the river Thames form the busiest and most cosmopolitan waterway in the world. You might describe them as a meeting-place of the oceans—a vast floating city of ships with a population that is always changing.

Every day of the year more than a thousand ships may be anchored in the Port, unloading or taking on cargo. Along the miles of quaysides within each dock system you will meet seamen of all the nations and hear every language spoken. In the dockside sheds and warehouses is displayed the natural wealth of the world—food of all kinds, wines, wool, timber, rubber, tobacco, minerals and a host of other essential commodities sent to us from overseas in exchange for British manufactured goods.

Even before we cast off from Tower Pier, in the Upper Pool, there is a good deal to see and on which to reflect. The wharves here are the oldest on the river, and they alone served London for centuries. It was along this short, crowded river frontage, dominated by the ancient Tower of London and the dome of St. Paul's Cathedral, that the city grew up so long ago, even before the Romans came. "Llyn-dyn" the earliest settlers called it, meaning "The Hill by the Pool."

Looking over the busy waters between London Bridge and Tower Bridge, it is interesting to recall how the bygone

merchant adventurers of England set out from the Upper Pool in Thames-built sailing ships to find new lands and chart unknown seas. These quaysides handled the first precious cargoes ever brought up the river—cargoes that laid the foundations of Britain's maritime trade and of a great Empire.

London's river became steadily busier and more important with the great expansion of maritime commerce that began in the age of the first Queen Elizabeth. But it was not until the eighteenth century that the serious congestion of Thames shipping decided the authorities to construct a system of enclosed docks further downstream, mainly along the north bank. The West India Docks were opened in 1802. Other docks followed until, in 1921, the huge project was completed with the opening of the fine King George V Dock, part of the important Royal group at North Woolwich.

So today there are five great dock systems spread out alongside 26 miles of the river, and extending from the London and St. Katharine group, within

the City area, down to the ocean passenger terminal at Tilbury. All are owned and administered by the Port of London Authority, which also controls the main river tideway. The Port of London, however, extends for almost 70 miles upstream from the Thames estuary to Teddington Lock, limit of the tidal waters of the river.

Just as soon as we pass under the raised

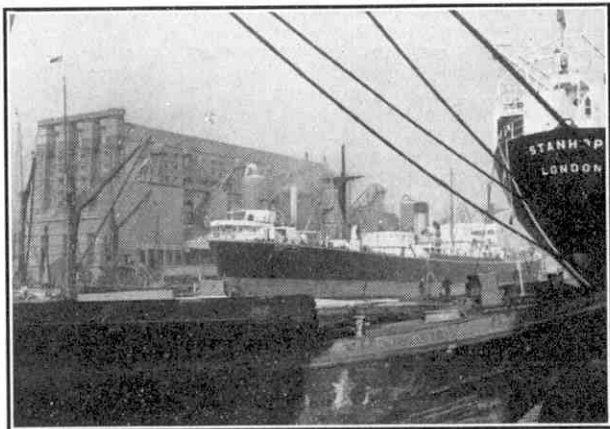
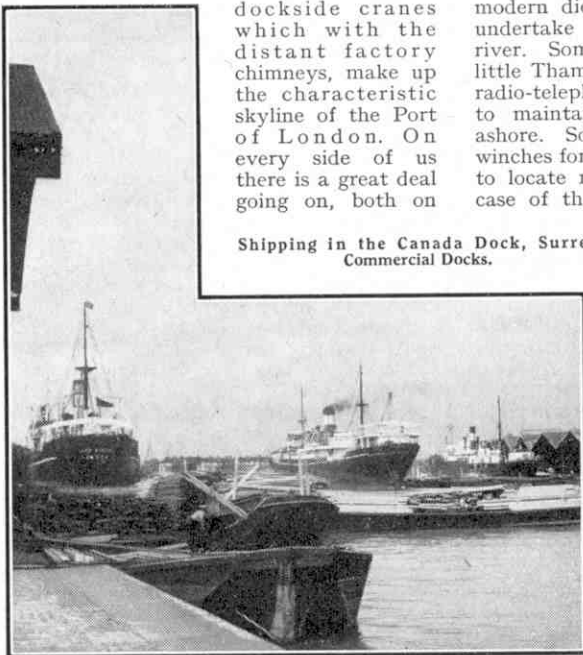
The picture at the head of the page shows the Pool of London, below Tower Bridge. From the busy waters of the Upper Pool, between Tower Bridge and London Bridge, pioneer merchant adventurers sailed to unknown seas in search of trade. Today the Port of London extends over 70 miles of the Thames Estuary and the river.

The illustrations to this article are reproduced by courtesy of the Port of London Authority.

arms of Tower Bridge into the Lower Pool, we see, on the north bank, the entrances to the London and St. Katharine Docks. To these docks, about 50 miles inland from the sea, come ships mainly engaged in the Continental and Mediterranean trades. Barrels are much in evidence within the docks area, since a feature of the traffic is the importation of wines from France, Portugal and Spain. There is much warehousing accommodation here too for such things as wool, spices, skins, ivory and Empire wines. Much of this merchandise is discharged from ocean-going liners in the Royal and the Tilbury Docks and brought up the river in lighters.

On towards Limehouse Reach we penetrate more deeply among the masts, funnels and tall dockside cranes which with the distant factory chimneys, make up the characteristic skyline of the Port of London. On every side of us there is a great deal going on, both on

Shipping in the Canada Dock, Surrey Commercial Docks.



The Central Granary, Millwall Dock.

the river itself and at the wharves. The Port is really one gigantic open factory which never shuts down.

From the deck of our own vessel it is a fascinating game to pick out some of the various types of craft which have business on the river. The P.L.A. itself, for instance, uses a harbour service fleet of modern diesel-engined patrol launches to undertake the day to day control of the river. Some of these launches, like the little Thames Police boats, are fitted with radio-telephone equipment enabling them to maintain contact with headquarters ashore. Some have electrically operated winches for hauling in the sweep wires used to locate river obstructions. And in the case of the new survey launches of the P.L.A., marine appliances such as echo-sounding apparatus and the Decca Navigator have been installed.

The familiar Thames barges and lighters, towed by steam tugs, have an important place in the pageant of the river. Great fleets of them link up the wharves, and the Pool of London, with the main docks lower downstream, because only the smaller sea-going ships can discharge their cargoes directly above Tower Bridge.

Rounding the bend into Limehouse Reach, the little

Regent's Canal Dock comes into view. It is one of the smallest and busiest of London's docks, with a significance that bears little relationship to its size. For this is the Port outlet of the Regent's Canal which, after winding round North London, links up with the Grand Union waterway system that serves the big industrial cities of the Midlands and the North. Any manufacturer whose factory stands on or near the Grand Union Canal thus has a direct link by water with the markets of the world and overseas sources of raw materials via the Thames estuary.

On either side of Limehouse Reach are two of the bigger dock systems—the Surrey Commercial Docks, which is the only group on the south bank of the river, and the India and Millwall Docks. The latter occupy much of the peninsula known as the Isle of Dogs, around which the Thames flows in a great horseshoe bend. The Isle of Dogs is so called, it is said, because the royal hounds attached to old Greenwich Palace opposite used to be kept there.

Surrey Commercial Docks are concerned mainly with the discharge and storage of timber from the Baltic, North America and elsewhere. Because of the seasonal nature of this trade the tramp steamer is commonly seen unloading in these docks; most ships discharge with their own gear, so the absence of mechanical equipment is in striking contrast to all the other docks of the Port which are so equipped on a generous scale. Greenland Dock, one of the eleven in this group, was a centre of the whaling industry well over a century ago.

An outstanding landmark of the busy India and Millwall Docks—which handle grain, sugar, fresh fruit and other imported foodstuffs—is the tall Central Granary, dwarfing the ships that lie alongside it. This is the largest bulk grain storage warehouse in the Port. Grain from different parts of the world is discharged by elevators and conveyors which feed it rapidly on to the ten spacious storage floors.

Leaving Limehouse Reach, we get a sudden and splendid view of Greenwich Park, rising steeply behind the Royal Naval

College buildings on the waterfront. Trees and grassy slopes seem a strange, but welcome, intrusion into the otherwise unbroken brick, steel and concrete of the river bank. Deptford, which immediately precedes Greenwich, has centuries of seafaring history. It is chiefly famous as the scene of the first Queen Elizabeth's visit to Sir Francis Drake aboard the *Golden Hind* on his return from his world voyage. The first dockyard for the British Navy was at Deptford too, in Henry VIII's



Great ships lying in the East Branch Dock, Tilbury, for loading and unloading.

reign, and many a famous wooden warship was built there during the Armada period.

Over on the north bank at Silvertown and North Woolwich much of London's heavy industry is concentrated, and here we come to the important Royal Docks. The three basins—formed by the Royal Victoria, Royal Albert and King George V Docks—have a total water area of 237 acres. This is the largest sheet of impounded dock water in the world, the docks being connected up by waterways and locks. Ships as large as the 35,677 ton *Mauwetania* can come up the river to discharge and load cargo here.

As we nose our way into the King George V Dock and steam slowly between the lines of ships berthed stem to stern, it is fascinating to read on their sterns the various home ports of the vessels. They come from the four corners of the earth, unloading their cargoes of food and precious raw materials to keep our factories going. And on the surrounding quaysides are some of the resulting products of the factories—motor cars and lorries, railway locomotives and rolling stock, (Continued on page 108)

From the Editor's Mail Bag

READING the many letters that readers send me is one of my greatest pleasures every morning, and I am sure that those who write thoroughly enjoy putting their thoughts on paper.

Their letters are often of real interest to other readers of the Magazine, for they tell me what they would like to see in the Magazine—and they are not slow to tell me what they have disliked in past issues!



D. A. Cook, Wimbledon.

Many letters show how wide is appreciation of the *M.M.*, and also of the Meccano Guild and the Hornby Railway Company, which are closely associated with the Magazine. Here is a bright example that reached me from A. J. Whitworth, Rugby:

"During a Christmas Rush I was working at the Post Office, sorting letters. We had sorted one van load of mail, and had just finished tying up the bags, when a little round box rolled out across the floor. We found inside a sparkling new Hornby Railway Company badge. We took it to the Supervisor.



A. S. McClymont, Ayr.

"Some poor youngster will be disappointed at Christmas when he misses this," he said.

"It will cost him 10d. to get another," said one of us, who went on to explain the way these badges were included with a document in a large envelope.

"The Supervisor glanced at his watch—the next train load would be in soon, and the 'Registered' had still to be dealt with.

"Open the last bag, tip out the packets, and we'll have a look for it."

"We all gathered round, searching through the packets for a large envelope, probably torn, with a Liverpool post mark.

"First time through—no luck; second time through—no luck.

"It can't have been in this bag," sighed the Supervisor.

"Wait!" I cried, eagerly seizing a torn envelope from the floor where it had fallen. It was what we were looking for!

"I think we all felt a real sense of happiness and content as we replaced in this the little box, with the H.R.C. certificate, and wound the envelope round with official sticky tape. Somebody was going to have a happier Christmas for the little trouble and time we had sacrificed."

A splendid gesture on the part of these hard-pressed Post Office workers!



M. Richardson, Tettenhall.

Readers will remember my invitation of last September to all who had made flights in Ansons to tell me about them. The response to this was surprising, letters coming in immediately from readers old and new. The younger readers were practically all members of Cadet Corps, like D. A. Cook, Wimbledon, A. S. McClymont, Ayr, M. Richardson, Tettenhall, and John Muir, Purley.

W. R. Cummins, West Worthing, describing himself as "an ardent reader of the Magazine," wrote to make ten suggestions for improving the *M.M.*, all very good. The last of these has a special interest for this page. "If copy of sufficiently high standard is available," he wrote, "the reader's feature should be

increased. Personally I should prefer this to be scrapped and two pages of letters substituted, in which readers would be able to state their views on any subjects."

Cummins' idea is excellent, and this page is the first of what I hope will become a regular series.



J. Muir, Purley.



Douglas Vespa Runabouts at Northolt airport. Photograph by courtesy of British European Airways.

Air News

By John W. R. Taylor

New Speed Record

A new world Absolute Speed Record has been claimed by Capt. J. Slade Nash of the U.S.A.F., who flew a standard North American F-86D Sabre jet fighter four times over a 3-km. course near Salton Sea lake, California, at an average speed of 699.9 m.p.h. This exceeds by 29 m.p.h. the old record established in 1948 by Major R. L. Johnson in an early F-86A Sabre.

The F-86D is a single-seat, radar-guided all-weather fighter, powered by a 5,700 lb. thrust General Electric J-47 turbojet and fitted with an afterburner, which was apparently used to boost its speed during the record attempt. It carried full offensive armament of 24 air-to-air rockets in a retractable launcher in its fuselage. The high-speed runs were made at a height of 100 ft. above the shore of the lake, which is itself 235 ft. below sea level.

Light Airport Transport

The 4 b.h.p. engines of the two little Douglas Vespa runabouts shown above at Northolt Airport contrast sharply with the 1,690 h.p. engines of a nearby B.E.A. Viking; but the Vespas share the Viking's reputation for reliability and usefulness.

The man on the solo machine carries Marconi walkie-talkie equipment to maintain last-minute contact between aircrew and airline ground staff as aircraft prepare to take off. He has to be able to move quickly between aircraft and airport buildings, and the Vespa has been chosen as a good means of achieving this mobility. The other runabout is a Vespa Commercial, used for last-minute light freight deliveries to aircraft, and transporting bottles for the bars of long-distance air liners. Other Vespas may soon enter service as light fire-tenders.

Canberra Progress

Both Short and Avro have flown the first of the English Electric Canberras

which they are building as part of the Government's super-priority production programme for these high-speed jet bombers. Simultaneously, the U.S.A.F. have placed a second production order for the B-57 night intruder bomber version of the Canberra, which is being built under licence in America by the Glenn L. Martin Company.

More Power for the Pacer

A 135 h.p. Lycoming engine is now standard equipment on the Piper Pacer, Tri-Pacer, Super Cub and PA-18-A crop-spraying aircraft. An increase of 10 h.p. over the previously-used 125 h.p. Lycoming means an additional 5 m.p.h. on the cruising speed of the Pacers, illustrated below, putting them in the 130 m.p.h. class. At the same time, loaded weight can be increased from 1,800 to 1,950 lb., enabling more petrol, luggage or passengers to be carried.

Boxed Brain Opens Parachutes

R.A.F. aircrews are being given a small barometric box which will automatically open their parachutes and release them from their ejector seats if they have to abandon their aircraft miles above the Earth. Made by the Irving Chute Company, the box is about the size of a packet of 20 cigarettes and contains a sensitive barometric bellows which measures air pressure and decides when it is safe to open the parachutes.

Up to now the pilot has had to do all this for himself at a time when he was being blown clear of an aircraft travelling at perhaps 600 m.p.h. If he were wounded, or lost consciousness in the "thin" cold atmosphere at great heights, or misjudged his speed and height when opening his parachute, the



Piper Pacer 135 and Tri-Pacer 135 light aircraft. "Tri" indicates tricycle undercarriage.

result could easily prove disastrous. In future, if he bales out high up, the box will release him automatically from his ejector seat and open his 'chute when he reaches 13,000 ft. If he is ejected below 13,000 ft. the box will delay the opening for a few seconds until he has dropped clear of the aircraft and slowed down sufficiently to survive the shock of the 'chute opening.

A New Shackleton

Latest version of Coastal Command's standard long-range anti-submarine patrol-bomber is the Avro Shackleton Mk.2, shown in the upper photograph on this page. More powerfully armed and better streamlined than the Shackleton Mk.1, it has two additional 20 mm. cannon in its nose, aimed by a gunner who sits above the bomb-aimer. The rear fuselage has been streamlined and now contains a look-out position, and the big radar scanner has been moved from the nose to a retractable "dustbin" behind the bomb-doors.

The Shackleton-Mk.2 has a wing span of 120 ft., is powered by four Rolls-Royce Griffon engines and carries a crew of ten.

North Pole Airline

Scandinavian Airlines System have carried out two exploratory flights between the United States and Scandinavia via the North Polar regions, to show the saving in distance and time that can be made by following a "great circle" route through the Arctic. On each occasion they used a DC-6B air liner, the first time with a crew of 11 and 23 passengers, and the second time with a crew of 13 and the same number of passengers. The flights began from Los Angeles, and were made to Copenhagen and Stockholm respectively, with stops en route at Edmonton, in Canada, and at the new £93,000,000 U.S.A.F. base at Thule, in Greenland.

If there are sufficient passengers in Northern Europe and Scandinavia who want to fly direct to the West Coast of America and the Far East by the quickest route, a regular service over this North Polar route may be started this summer.

Canada's First Jet Fighters

After three years' intensive flight development, the first squadrons of Avro Canada CF-100 jet fighters are coming into service with the R.C.A.F., and a production batch of three is shown in flight over N. Ontario in the lower illustration on this page.

The prototype of this fine two-seat, long-range,



Avro Shackleton with bomb doors open and radar extended. Photograph by courtesy of A. V. Roe and Co. Ltd.

all-weather fighter flew on 19th January, 1950, powered by two Rolls-Royce Avons; but production aircraft have two Avro Canada Orenda turbojets and correspondingly higher performance. Unusual deep fairings join the engines to the fuselage and are believed to contain fuel tanks. No details of the CF-100's performance or equipment may be given, but it is thought to be in the 650 m.p.h. class, carries search radar in its nose and has been modified to carry the latest and most formidable types of armament.

Aerial Search for Uranium

The Australian Bureau of Mineral Resources is using a specially-equipped Dakota to search 50,000 sq. miles of Northern Territory for uranium deposits. It is fitted with an instrument that, from 500 to 1,000 ft. above the Earth, can register radio-active radiations given off by uranium-bearing minerals, and carries in its crew a geophysicist of the U.S. Atomic Energy Commission.

Promising areas located by the Dakota will be checked immediately by a small 'plane, similarly equipped and flying at tree-top height. Closer inspection will probably be made with a helicopter.

Sabre Jets for R.A.F.

R.A.F. Fighter Command have received the first of between 300 and 400 F-86E Sabre jet fighters, with which they will re-equip until Swifts and Hunters become available. The Sabres are being built in Canada and have engines, radar and instruments supplied by the United States under the Mutual Defence Assistance Programme.

STOP PRESS: Since the item in this column about the Avro Canada CF-100 jet fighter was written, it has been announced that one of these aircraft has been flown faster than sound over Malton, Ontario, by the famous Polish test pilot Jan Zurkowski.



A formation of three Avro Canada CF-100s over Northern Ontario. Photograph by courtesy of Department of National Defence, Canada.

Round About York

A Railway Enthusiast's Holiday

By R. A. H. Weight

I SHALL never forget the excited anticipation I felt when, as a very young man, I was making my first journey on the former North Eastern Railway and approaching the great station in the famous city of York. I knew that York was not only an important junction and traffic centre approximately half-way between London and Edinburgh on the East Coast Route, at which the Great Northern engines handed over to the North Eastern Company's locomotives. It was also one of the best stations in England for seeing engines and rolling stock painted in the distinctive colourings of many of the original railway companies, which were swept away when grouping took place in 1923.

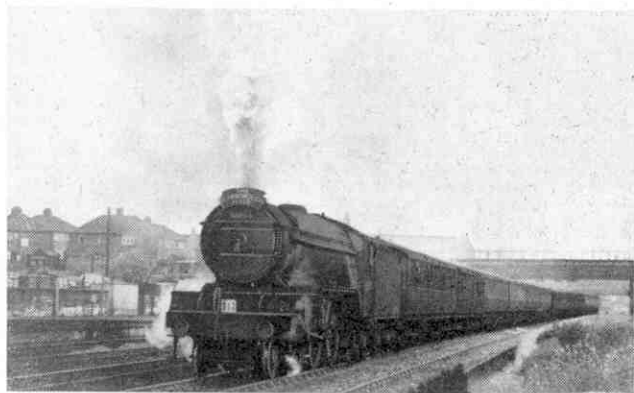
After the grouping L.N.E.R. stock predominated at York, but L.M.S. locomotives also were seen there with complete trains, as L.M.R. still are, together with G.W.R. and Southern sets of rolling stock. The station became busier and larger, its maze of tracks, its groups of signal boxes and batteries of semaphore signals seemingly more complicated. Now it is part of the North Eastern Region.

York station is built on a graceful curve that stretches away on the main line to the north. Today it is bigger than ever and one has to be increasingly alert at busy times in order to avoid missing the arrival or departure of particular trains that it may be interesting to watch. The signal boxes of the older type, including the huge "Locomotive Yard" cabin, have now gone, and so have the semaphore signals. Colour-lights with their associated masses of points and switches, literally by the hundred, control the area. Every signal and points movement is controlled electrically by small switches in the remarkable new

signal box, completed in May 1952, and whole routes across the series of tracks north or south of the station can be set in the same easy way.

This new box is 200 ft. long and is built on the roof, so to speak, of the Northern end of the platforms 13-14. It is so extensive and has so few windows that it doesn't look like the type of signal box we usually imagine. Within it is a mass of light indicators, control consoles and illuminated diagrams of all the lines and track circuits, divided into four big sections, each in charge of one man.

Immediately to the north of the York platforms the Scarborough line curves away to the north-east. This also is used by Hull trains and is traversed by heavy holiday traffic to and from the Yorkshire coast. There is a rather spectacular multiple crossing of tracks enabling



Green Arrow 2-6-2 No. 60870 makes a vigorous tart from York with the Scarborough Flyer. Photograph by C. Ord.

Scarborough line trains to run to or from the newer platforms, or to cross the main lines to use the goods roads further over on the west side, which avoid the station. Proceeding north on the main line, the large Clifton Locomotive Shed is seen on the down or west side. Then, after passing the large marshalling yards and noting the convergence of the goods avoiding lines, the branch to the Harrogate area goes off westward. About here, on the other side, one of the most impressive



views is obtained of York's magnificent Minster.

South of York, at what is known as Chaloners Whin Junction, the four-track Church Fenton route to Normanton, Leeds and Manchester diverges from the main line to Doncaster, the Eastern Counties, and London (King's Cross). The former route is used by L.M.R. and other long-distance trains running from the north to the south or west of England, as well as North Eastern trains between Leeds and York or beyond.

While at York about midday last September I saw the *Capitals Limited* on its non-stop London-Edinburgh runs pass through in each direction, as well as the northbound *Flying Scotsman*, with many of its passengers taking lunch, running on the through tracks between the lengthy main up and down platforms numbered 8-9.

The down and the up *Norseman*, conveying Norwegian boat passengers, called and changed engines. These twice-a-week expresses, like the daily summer Newcastle relief sections of the *Scotsman*, which I also saw up and down hauled by through-working A4 class engines, made fast non-stop runs between York and King's Cross. Other locomotives seen included Green Arrow 2-6-2s; various classes of Pacifics; and the rather handsome solitary inside-cylindrical rebuilt Hunt 4-4-0 No. 62768, *The Morpeth*, well maintained by Starbeck shed.

There were B1 and B16 4-6-0s, the latter being of the former North Eastern Railway mixed traffic design, Hunt 4-4-0s fitted with rotary-cam gear and poppet valves. L.M.R. classes were represented by Stanier 4-6-0s, also by a 2-6-0 of class 4

stationed at Selby. Then there were W.D. and O1 2-8-0s, together with the long-familiar J72 0-6-0 shunting tanks and some N.E.R. freight engines. All the operating was going quietly and smoothly.

Close to York station, and also to portions of the old city walls, which are still well preserved in places and rank highly among the many historic attractions of the city, the enthusiast will find the Railway Museum. This, in two sections, was established after the celebrations associated with the centenary of the pioneer Stockton and Darlington Railway in 1925. These included an amazing procession of old and new locomotives and rolling stock along the original route, which those of us who were privileged to witness will never forget!

The small York exhibits such as photographs, drawings, prints, models, maps, seals, small relics of equipment and other subjects of interest associated with the

beginning and early development of railways, are shown in a building separate from the near-by Queen Street section (once a locomotive fitting shop) in which are displayed larger and heavier items. These include a fascinating array of veteran locomotives, some old and diminutive coaches, signals, rails, and other engineering relics which have been in existence for over 100 years in some instances. The preserved locomotives include the primitive Hetton Colliery and *Agenoria* 0-4-0s; the N.E.R. "single" tank, *Aerolite*; G.W.R. 4-4-0 *City of Truro*; L.B.S.C.R. 0-4-2 *Gladstone*; G.N.R. Stirling 8 ft. 4-2-2 "single" No. 1; and the first G.N.R. Atlantic No. 990 *Henry Oakley*. All are representative of important phases and

The illustration above shows the maze of tracks at the south end of York station, the characteristic arched roof spans and, in the background, the venerable Minster. Photograph by E. Sanderson.



The North Briton near Copmanthorpe in charge of Gresley Pacific No. 60084 Trigo. The photographs on this page are by C. Ord.

running achievements in the past and are well maintained in their original colours. Admission to both sections is free during appointed hours.

Near the Museums we pass the Railway Institute built by the old N.E.R. containing lecture and concert hall, an enormous gymnasium, as well as accommodation enabling members of the staff to further their interests in various studies, sports or hobbies. There is a fine block of railway offices with a beautiful war memorial in front, erected in 1919. As part of the station block of buildings the Royal Station Hotel is a notable structure and landmark with attractive garden.

The 44 miles of main line northward from York to Darlington are splendidly aligned, presenting only slight gradients, with colour-light signals throughout and a good deal of four-track layout. Many years ago, the fastest timing in Britain, or in the British Empire, as then announced, operated in the southbound and rather easier direction. Then one express made the start-to-stop run in 43 min. and it was hauled by 4-4-0 and, later, 4-4-2 locomotives. Last summer, a whole string of fast trains was booked to cover this stretch, at average speeds from 60 to 63 m.p.h. start to stop, some carrying heavy loads and often improving upon the quickest British schedules of the kind.

Thus, going north from York on the *North Briton* Leeds-Glasgow express, A3 4-6-2 *Trigo* with 11 coaches, had half a minute in hand on the fast 44 min. timing without exceeding 73 m.p.h. On the heavy and very full *Heart of Midlothian* Anglo-Scottish express with 13 on, A2 4-6-2 *Bronzino* gave a brilliant run with speed rising almost to 80 m.p.h. on the level, stopping at Darlington in less than

43 min. This included a signal check, but the engine gained over 3 min.

Southbound from Darlington to York, V2 2-6-2, No. 60807, with the 9-coach Newcastle-Birmingham train, dashed along at between 74 and 82 m.p.h. after Northallerton until York was in sight, securing a stop right at the south end of the long platform No. 8 in no more than 40½ min. for 44 miles start to stop, so averaging 65 m.p.h.! The fastest booked time was then 42 min. Next morning in the *Tees-Tyne Pullman* behind *Dominion of Canada*, though travelling most steadily, speed was more than 80 m.p.h. for 21 miles north of York, the great station there being passed in the remarkable time of 37 min. from the Darlington start, at the usual cautious pace with a salute sounded on the chime whistle!



No. 60124 Kenilworth, a Peppercorn 4-6-2, speeds along a four-track section near York with the *Heart of Midlothian*, which provides an afternoon service between English and Scottish capitals.

White Hot Whip

Rolling Steel in the Looping Rod Mill



ONE of the operations that catches the eye of a visitor to a steel works is rolling bars in the looping rod mill. Here the "catchers" loop white hot steel rod around themselves with the same deceptive skill that cowboys spin lassos. Only the loops are of white hot metal travelling at 1,000 ft. a minute!

The pictures reproduced on this page were taken by *Pictorial Press* in a Sheffield works. The lower one shows a close-up of the looping operation itself. The catcher here catches a white hot bar as it shoots out from one set of rolls, and spins round on heel and toe, swinging the arc of steel in a loop out behind him. Then he feeds the metal into the guides to the next rolls, as seen in the upper picture.

Visitors often ask "What happens if he misses it?" The answer is that the roller hardly ever does miss it. When he does, then, as one of them put it, "you have red hot metal flying all over the shop." In point of fact it is

the catcher's mates who are exposed to more danger in this event than the catcher himself, for the metal will run straight past him. The most frequent casualty is for the catcher to singe his trousers by working "too close to the bull."

Teaching the skill is difficult, as the steel cannot be slowed down if it is to stay hot enough. Trainee catchers are normally allowed to "have a go" on the last length of steel coming through the rolls before lunch or knocking off time, so that if they miss it or "drop the catch," there is no following bar of hot metal to worry them, and production is not stopped while the runaway steel is guided back into the groove.

The head of the rolling team tests the work by holding a piece of dried pine wood against the white hot bar. This bursts into flames that light up the metal and reveal any flaws in the rolling.



BOOKS TO READ

"MODERN MOTORCARS"

By K. C. HUNT (Temple Press 3/6)

The modern boy's interest in motor cars is inexhaustible, no matter whether they are family saloons, racing and sports cars, or streamlined monsters built to travel faster on land than ever before; all are grist to his mill. He will delight in this book, which is packed with just the information he is likely to want on this subject. It describes the engine, chassis, brakes and other parts of a motor car, and the modern assembly line methods of motor car production. A special chapter on the important matter of fuels and oils is followed by others on British, American, Continental and racing cars.

The illustrations are an outstanding feature, and range from interesting photographs of early motor cars to striking views of famous racing cars of today. There are also pictures of engine units, including the new Rover gas turbine, and excellent sectional drawings to make clear the more technical parts of the text.

"ENID BLYTON'S ANIMAL LOVER'S BOOK"

(Evans 16/-)

An Enid Blyton tale is always interesting to a large proportion of readers of the *M.M.*, and the attractions of this one are heightened by its devotion to the creatures of woodland and field. Here is no straightforward and tame description of animals. Instead we see them through the eyes of Richard and Susan, who have newly arrived in the country after living in a town, and of their friend Zachary Boswell, a gypsy whom the animals themselves know and trust. So we get to know all these small creatures, learn about their secret ways, their strange habits and in many cases their industry and foresight, and also how to watch wild life without frightening even the most timid animal.

In addition to the stories there are many nature notes about the animals that appear in the books, with a selection of poems about wild life, and of course a large number of illustrations, including nine full-page colour plates.

"THE PICTORIAL ENCYCLOPÆDIA"

(Sampson Low, Marston and Co. Ltd. 15/- net)

The coloured cover of this book shows 21 pictures, ranging from harvesting, taking the Sun at sea, and ships old and new to volcanoes and the Grand Canyon of Arizona. This promises a wealth of information on a wide range of subjects, and on glancing inside it is clear that the promise will be fulfilled. The pages are large, and there are nearly 250 of them, almost every one full of pictures, many of them in colour. In addition there is just the right amount of reading matter to meet the needs of young Magazine readers.

The book is claimed to be the first of its kind that consists almost entirely of pictures, and many subjects have been successfully treated in this way that at first glance might have seemed too complex. As a result the encyclopædia is dull nowhere, even these difficult subjects becoming alive and attractive. The descriptions, whether they deal with the human body, the story of flight, animals of this and prehistoric ages, agricultural products, oil, minerals or any other of the many topics covered, are simple and clear.

The encyclopædia indeed provides a wealth of pictures and reading matter of a most interesting and informative kind.

"THE RAILWAY BOOK"

By STUART LEGG (Rupert Hart-Davis 12/6)

"The Railway Book" is an excellent title for some 250 pages of delightful reading. It is not a specialist's book, but is made up a collection of passages, some in prose and some in verse, that capture something of the tang and flavour of the writing produced by the impact of railways on affairs and literature. It is not necessary to read it straight through at one go. Many no doubt will do this and enjoy it, but it is equally good, if not better, to pick it up at any time and start reading anywhere in it.

The contents vary from observations on railways and travel in the earliest days, including Fanny Kemble's trip on the footplate of the *Rocket* in the company of George Stephenson, to more modern adventures with an ammunition train in Greece. Not all the stories are pleasant. Some deal with mishaps or collisions and there is an account of being snow bound on the Orient Express, but for lighthearted railwaying the account of an amateur railwayman's experiences in the General Strike of 1926 would be hard to beat.

There are no pictures. They are not necessary, because one can well conjure up in imagination the scenes described or the impressions given by this or that writer.

"ALL ABOUT PHOTOGRAPHY"

By ERIC O'DION
(Ward Lock 9/6)

The appearance of yet another textbook on photography indicates the great popularity of this attractive hobby. This one begins by describing how a photograph is made and goes on to explain the respective merits of plates and films; the importance of knowing about emulsions and the way they are classified; types of camera; lenses, filters and shutters; and estimating exposure.

Enthusiasts who want to do their own developing and printing are well catered for, with valuable data on dark room equipment, making and developing the negative, remedying faulty negatives, printing processes and enlarging. Other matters dealt with include the mounting of prints, making lantern slides, artificial light photography, photographing moving objects, and stereoscopic photography.

There are 30 excellent half-tone photographs and many explanatory drawings. The book ends with tables of weights and measures, and a good index.

"TALES OF THE NORTH COUNTRY"

By KATHLEEN FIDLER (Lutterworth Press 7/6)

This is the first of a series of books in which Kathleen Fidler, the well-known writer of books for children, will tell true stories of old times. Each book will cover a different region, and the nine true stories that make up *Tales of the North Country* cover the region Lancashire and Yorkshire to the Scottish border, including the Isle of Man.

We read of how, in 1643, the brave soldier Countess of Lancashire held Lathom House, her husband's castle, against the Roundheads, and of how the beautiful Fountains Abbey came to be built. Then there are the grand stories of how Blind Jack of Knaresborough overcame his blindness and had an adventure with Prince Charles; of smugglers in the Isle of Man, and of pirates who raided Whitehaven. We learn how the first lifeboat was invented, and of the invention of the Geordie Lamp, the first safety lamp for miners.

There is a coloured frontispiece and several full-page line drawings.

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 SKY AND ITS MYSTERIES"

By E. AGAR BEET, F.R.A.S. (Bell 15/-)

The growing interest in the development of rockets and space ships able to reach the Moon makes this new book on general astronomy very topical. It is the work of the Senior Science Master at the Nautical College, Pangbourne, and aims to give an outline of the whole field, so that the newcomers to this science may see clearly how it arose, what it is all about, and where unfinished problems lie.

The author tells how the science of astronomy grew up from the earliest times, and then describes the facilities available to the modern astronomer. Later chapters deal with the Earth and its satellite, the Moon; the Sun and all those bodies which, like the Earth, are attendant upon it, and the Stellar System. In the final chapter, on mysteries still unsolved, he discusses interesting theories that have not yet been, and perhaps never can be, fully confirmed.

There is a useful list of books for readers who wish to undertake some observations of their own, and over 30 splendid half-tone photographs, nearly 60 line drawings and a map of the heavens.

"LINES OF CHARACTER"

By L. T. C. ROLT and P. B. WHITEHOUSE (Constable Publishers 21/-)

The oddities and unusual features of certain routes, not all of them branch lines, have a great attraction for railway enthusiasts. Many of these lines of character, not all of them of standard gauge, have now closed down, but something of the enjoyment that the present-day enthusiast has missed by their departure can be gathered from the pages of this book on railway "byways." In it the reader roams over the four countries of the British Isles with the authors, who have interesting comments too on many of our main lines. Thus the Highland line from Perth over the Grampians to the Far North has a well-deserved share of attention. The special characteristics and extremes of railwaying in Ireland also are well brought out, and the authors' explorations end with a footplate trip on the one-month cattle special of the Tralee and Dingle line, which they describe as the most remote and spectacular railway by-way in these islands and in many respects the most extraordinary.

The many illustrations, most of them from photographs by Mr. Whitehouse, are certainly not the least of the attractions of this fine book.

"AEROMODELLER ANNUAL 1952"

(Model Aeronautical Press 10/-)

Here is the fifth edition of this now firmly-established Annual for model aircraft enthusiasts. Like previous volumes, it contains instructions for building a wide selection of models from far and near, with the usual excellent half-tone photographs and 3-view scale drawings. There are more general articles than hitherto, many of them included at the special request of regular readers. Some of the subjects dealt with in these articles are the construction of solid models; making glider winches; scaling-up drawings; the

£ s. d. of aeromodelling; your first engine; propeller selection, and scale power models.

A valuable new feature is an aeromodelling dictionary of terms in French, German, Swedish, and Italian—the languages of the leading aeromodelling countries. The many pages of sketch-book suggestions are also an innovation which should serve as an advanced or refresher course to all according to their present skill.

"RAILWAYS THE WORLD OVER"

By G. FREEMAN ALLEN (Ian Allan Ltd. 12/6)

With its nice big pages and plentiful illustrations, the reader of this book is taken on a tour of the world's railways by the Editor of *Trains Illustrated*. British railways and trains and the working of them of course are prominent

in it, but the railways of Europe, of the Empire and of the American continent also receive their share of notice. Besides a wide variety of general illustrations, there are sectional views and some coloured pictures that add to the interest and attractiveness of the volume.

A small point, but an important one—the pages stay put when they are turned over, so that one can derive full pleasure in reading it or in examining the illustrations.

NEW ADVENTURE STORIES

MALCOLM SAVILLE'S stories are written about real places, many of which he has explored with his family, and all reveal his love of nature and knowledge of our beautiful countryside. His new book *The Buckinghamians at Ravenswyke* (Evans, 8/6) relates the exciting adventures of Juliet and Simon Buckingham while investigating the mysterious disappearance of the father of their friend Charles Renislaui from his home near Whitby, on the very day they arrive to spend a holiday with the Renislaui family.

Six Against Mr. "X" by ARTHUR GRAHAM (Harrap, 7/6) is another fine story of country adventure. The "six" are three boys and three girls who, during a camping expedition, come across several cruel snares, and the thought of the suffering these cause so infuriates them that they take up the traps and fling them in the river. A malicious poacher, the mysterious Mr. "X," who has been doing a fine trade in snaring animals and selling their furs, tries to drive the children away by casting suspicion on them for a series of misadventures occurring locally. After an exciting time they succeed in tracking him down and effecting his capture.

Sword of State by AGNES FURLONG (Harrap, 7/6) concerns two Coventry schoolboys who spend their summer holiday helping a friend, who is an Egyptologist and author, to find the Coventry Sword of State believed to have been stolen from the house of a Mayor in the 15th century. Their friend discovers a sword beneath the rubble of a bombed site, but it is stolen from him, and suspicion points to someone who had worked with him in Egypt years before. The author has skillfully worked into this excellent story a good deal of local history and topography of the Coventry area.



Sunset on the Alps. A Lick Observatory photograph. This illustration is from "The Sky and its Mysteries" reviewed on this page.

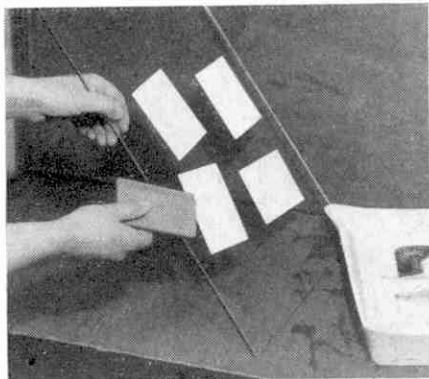
Photography

Making the Contact Print

By E. E. Steele

MAKING contact prints by artificial light is well within the scope of the snapshotter, and is a job ideally suited to the dark Winter evenings. Often referred to as "Gaslight" paper, contact paper can be purchased in small packets in a number of grades and sizes, and with either semi matt or glossy surface, the latter generally being used as it can be made to give a high gloss.

The paper is made in about five grades of contrast, so that it is a very poor negative indeed that cannot be made to give a good print. Very contrasty negatives, usually taken in brilliant sunshine and



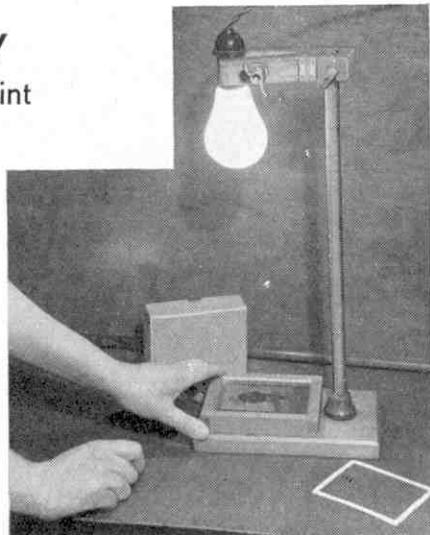
Squeegeeing wet prints on a sheet of glass.

probably over-developed, are best printed on soft paper, while those of normal gradation should be printed on normal paper. Very thin, under-exposed negatives make better prints on the contrasty grades. The soft grades are faster than the hard grades, and need less printing time.

Get everything ready before you start printing. A packet of gaslight developer should be made up according to instructions, and used at a temperature of about 68° F. A colder solution will give dull prints with greenish tones, instead of the beautiful bluish-black colour. The fixing solution also should be prepared according to instructions.

The exposure is made by placing the negative in a contact frame, with glossy side of negative to glass. A piece of contact paper is placed on the negative, glossy side to dull side of negative. The back of the frame is closed, and the print is made by exposing to the light of an electric bulb, say about 40 watt. It is convenient to have the printing light on some simple rig-up so that the light is always at a constant distance, making for greater accuracy in exposing. If a white border is required, a thin red celluloid mask is placed in the printing frame.

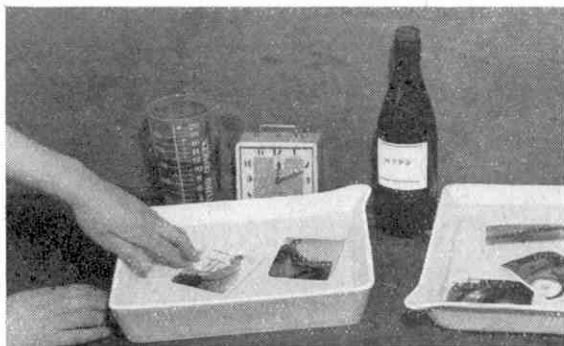
After printing, developing is immediately carried out in weak



Printing the negative. The illustrations to this article are from photographs by the author.

artificial light—a piece of yellow paper round the ordinary room lighting will usually suffice, contact paper being very slow. Sufficient exposure should have been given to enable the print to be fully developed in about 40 to 60 sec. If a print rushes up it has been over-exposed, and will be dull and muddy. A thin, weak print results from under-exposure of the paper, and may stain if kept too long in the developer in an endeavour to force up the picture.

After developing, quickly rinse in water and transfer to the fixing bath, where the print should be kept on the move for a few seconds to prevent stains. When all the prints are made, they should be washed for an hour, and laid on muslin to dry. If desired prints may be "glazed" by placing when wet on polished glass. Allow to dry after removing surplus water with squeegee. If the prints have a tendency to stick to the glass, a common fault, pre-soak for a short time in a glazing solution, such as "Bango," suitably diluted.



Developing the prints.



Club and Branch News



WITH THE SECRETARY

MERIT MEDALLIONS

I have been very pleased to note during the past year or so that an increasing number of Leaders are availing themselves of the Merit Medallion as a means of tangible appreciation of good work by members. I hope that a year hence I shall be able to report that still greater use has been made of this coveted award.

The following are the members whom I have had the pleasure of congratulating on winning the Merit Medallion during the past two years: BELGRAVE UNION (LEICESTER) M.C.—J. Aucott; D. Augrave; K. Brodie; M. Hudson; C. Jameson; B. Needham; R. Page; G. Penrose; M. Pole; R. Pole; J. Smith. BLYTH GRAMMAR SCHOOL M.C.—K. Doran. EXETER M.C.—Miss V. Butler; W. Bower; A. J. Chown; F. Howard; D. Mitchell; K. H. Strudwick; G. Torr; P. Wright. JUNCTION ROAD SCHOOL (BRENTWOOD) M.C.—T. Andrews; D. Fowler; S. Hull; T. Reader; J. Reeman; J. Uwins. MAYLANDS (WESTERN AUSTRALIA) M.C.—T. Coultas; I. Davies; R. Fletcher; K. Lewis. MEMOKA (MONSIEKENDAM, HOLLAND) M.C.—Piet Tijms. MILE END (PORTSMOUTH) M.C.—C. Crane; L. Edmunds; J. Elbro; R. Hector; B. Hillsdon; G. Kill; T. Homer; Mrs. Leggatt; J. Leggatt; P. Leggatt; K. Mills; A. Moyses; D. Vincent; A. Wickwar. ROYAL GRAMMAR SCHOOL (NEWCASTLE-UPON-TYNE) M.C.—B. Connett. SIR THOMAS RICH'S SCHOOL (GLOUCESTER) M.C.—K. N. B. Ricketts; B. R. Wignall. THORNTON GRAMMAR SCHOOL (BRADFORD) M.C.—B. W. Harrison; A. Hird; D. Moulson.

MECCANO CLUBS RECENTLY AFFILIATED

BLYTH GRAMMAR SCHOOL M.C.—Mr. N. L. Kellett, Grammar School, Blyth, Northumberland.
COPDOCK AND WASHBROOK M.C.—Rev. Paul A. Welsby, The Rectory, Copdock, Ipswich.

BRANCH RECENTLY INCORPORATED

NO. 541—HINDHEAD AND DISTRICT BRANCH—Mr. D. P. Lawson, M.A., "Tamar," Churt Road, Beacon Hill Hindhead, Surrey.

CLUB NOTES

EXETER M.C.—There has been a very satisfactory increase in membership. The new scheme of running the Club by a Board of Directors elected from the membership is working well. Models built recently have included a transporter bridge, racing car and a tractor. Club roll: 35. Secretary: K. H. Strudwick, 22, Water Lane, St. Thomas, Exeter, Devon.

BELGRAVE UNION (LEICESTER) M.C.—The outstanding recent event was Exhibition Day, which had been extensively advertised locally. The display was visited by about 1,400 people and was highly praised by the local press. A net profit of nearly £25 was made. Outstanding models included a 3 ft. elevator, models of Eiffel and Blackpool towers, the Skegness Wheel, and a 4 ft. 6 in. high mechanical man with talking

apparatus. There were several Hornby layouts, all with scenic effects, and a fine display of model aircraft. Club roll: 43. Secretary: C. S. Smith, 18, Doncaster Road, Leicester.

HOLLAND

BROEK M.C.—Regular meetings are now being held, and are devoted mainly to model-building. The Affiliation Certificate has been framed and occupies a place of honour in the Club Room. Club roll: 33. Secretary: P. Bakker, Zuideinde 231b, Broek in Waterland, Holland.

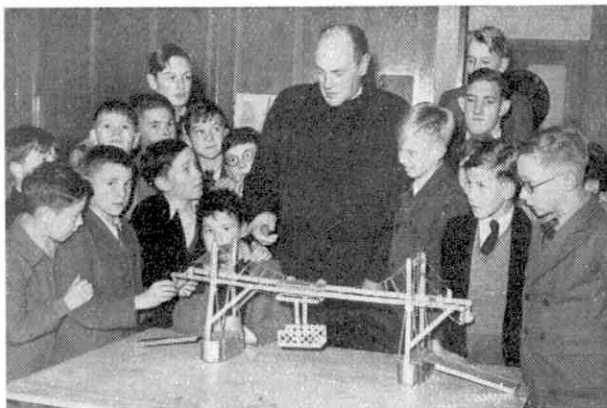
NIJMEGEN M.C.—At recent meetings model-building activity has been concentrated on the construction of a stone factory which, when completed, will be exhibited first in Nijmegen and later in neighbouring districts. Club roll: 20. Secretary: H. van Brienan, Barbarossastr 52, Nijmegen, Holland.

AUSTRALIA

MAYLANDS M.C.—The Club have been fortunate enough to obtain the use of a window in Maylands for displaying their models, and two excellent Meccanographs, with a background of coloured designs, were featured as the opening display. The Factions Exhibition was very successful. The models were displayed on tables and greatly interested the many visitors. The Exhibition was free, but collection boxes yielded a total of £1 13s. 8½d. The Club projectionists recently visited the projection room of a local cinema at the invitation of the manager. Club roll: 33. Secretary: Ian Davis, 40, Tenth Avenue, Maylands, Western Australia.

BRANCH NEWS

HINDHEAD AND DISTRICT BRANCH—Meetings have been devoted to the preparation of baseboards for the Club layout. Plans are in hand for a Club Exhibition during Coronation week as part of the celebrations in Haslemere. Secretary: B. J. Hinde, Hindhead Brae, Hindhead, Surrey.



Members of the Exeter M.C. crowd round the Dean of Exeter, the Very Reverend A. Ross Wallace, M.A., as he admires a fine model of a transporter bridge during a recent visit to the Club. Kenneth H. Strudwick, Secretary, is second on the left of the picture, which is reproduced by courtesy of the Express and Echo, Exeter.

Among the Model-Builders

By "Spanner"

A CASH REGISTER BUILT IN MECCANO

One of the most interesting and "off the beaten track" models that has come to my notice for some time is seen in the illustration on the right. It is a reproduction of a National Cash Register, and was built by Anthony Boyer, Guildford. The model was greatly admired by executives of the National Cash Register Company Ltd., London, and Boyer was invited to visit the Company's Offices with his model. The photograph reproduced on this page was taken on the occasion of his visit.

A COMPACT THREE-SPEED AND REVERSE GEAR-BOX

Motor vehicles are among the most popular subjects for Meccano models, and I receive many letters from readers seeking help in designing gear-boxes suitable for cars and lorries of various kinds.

One of the most important points in any mechanism designed for a model vehicle is that it should be as compact as possible, and the three-speed and reverse gear-box I am describing this month has been designed with this in mind. The gear selector mechanism of the gear-box is a particularly attractive feature that follows closely actual practice and permits a quick and positive gear change.

The complete gear-box is shown in Fig. 1, and an "exploded" drawing showing the arrangement of the shafts and the positions of the gears, is reproduced as Fig. 2.

The base of the housing consists of a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate, fitted along its sides with $4\frac{1}{2}''$ Angle Girders that are used to attach the gear-box to the engine unit. The bearings for the shafts at each end are provided by two $1\frac{1}{2}''$ Flat Girders bolted to the flanges of the Flanged Plate. Each set of Flat Girders is arranged so that the round holes overlap, and a Fishplate 1 is bolted to each of the lower corners. The angles of the Fishplates are adjusted so that a $\frac{1}{4}''$ Pinion placed on a Rod mounted in them will mesh accurately with a $\frac{1}{2}''$ Pinion on a Rod passed through the centre holes of the Flat Girders. A centre bearing consisting of a $1\frac{1}{4}'' \times \frac{1}{2}''$ Double Angle Strip 2 bolted to the Flanged Plate, is provided for the main shaft.

The primary shaft 3 is passed through the centre of the front set of Flat Girders, and it carries a $\frac{1}{2}''$ Pinion 4 and a $\frac{1}{4}''$ Pinion 5. The mainshaft is mounted in the centre of the rear Flat Girders and in the



Mr. P. A. Brown, Assistant Manager of the National Cash Register Company Ltd., London, admires an ingeniously constructed Cash Register that 13-year-old Anthony Boyer, of Guildford, Surrey, built from Meccano parts.

Double Angle Strip 2, and it is fitted with a $\frac{1}{2}''$ Pinion 7, a $\frac{1}{4}''$ Pinion 8 and four Washers. The mainshaft projects about $\frac{1}{2}''$ beyond Pinion 7, through Double Angle Strip 2 and into the bore of Pinion 5, so that it serves as an inner support for the primary shaft.

The layshaft providing "top" and "second" gears is a $3''$ Rod 9 fitted with a Collar, a $\frac{1}{2}''$ Pinion 10, a Coupling 11, a second Collar, and a $\frac{1}{4}''$ Pinion 12. The "bottom" and "reverse" gears layshaft is a $3''$ Rod 13, and it carries a $\frac{1}{2}''$ Pinion 14, five Washers, a Coupling 15, a $\frac{1}{4}''$ Pinion 16 and a Collar. The Couplings 11 and 15 are loose on their shafts, but they are held in place between the Pinions and Collars.

The reverse pinion is a $\frac{1}{2}''$ Pinion 17, which is free to turn on a $1\frac{1}{2}''$ Rod and is held in place by a Spring Clip. The $1\frac{1}{2}''$ Rod is gripped in the centre cross hole of a Coupling 18, which is screwed tightly to one flange of the Flanged Plate by a bolt that is used also to fix one of the Flat Girders in position.

The selector bars are $3''$ Rods 19, and each is gripped in one of the Couplings 11 and 15, but is free to slide in the slotted holes of the $1\frac{1}{2}''$ Flat Girders.

A bolt 20 is fixed by a nut in each Coupling, and a Driving Band is passed through the base of the gear-box and is looped round the bolts so that the tension of the Band tends to pull the Rods 19 against the outer edges of the slotted holes in the Flat Girders. Four Collars 21, each fitted with a $7/32''$ Bolt, are fixed as shown in Fig. 1 on the Rods 19.

The top of the housing consists of two $2\frac{1}{2}''$ Angle Girders connected by two $1\frac{1}{2}''$ Flat Girders, and it is fitted at one end with two Corner Angle Brackets 22. The gear-change lever, which is a $1\frac{1}{2}''$ Rod held in a

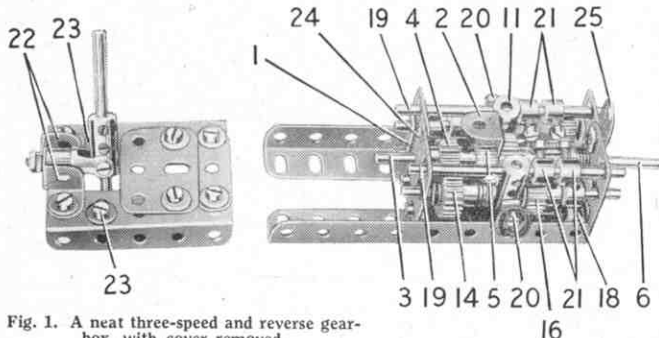
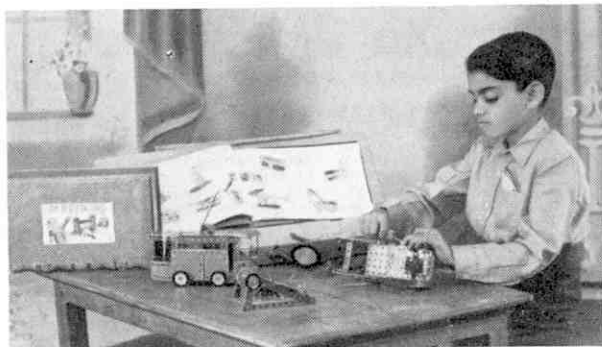


Fig. 1. A neat three-speed and reverse gear-box, with cover removed.



Ishwar Prasad Arundale, Baroda, India, is only eight years of age, but already he is a keen and successful model-builder. He is seen here at work on a model.

Coupling, is pivoted in the arms of a small Fork Piece. A Pivot Bolt is passed through the boss of the Fork Piece and the Corner Angle Brackets, and is fitted with lock-nuts. A Centre Fork gripped in the Coupling is arranged so that when the housing is in position its teeth engage between the Bolts in the Collars 21. Two $\frac{3}{8}$ " Bolts 23 are fixed in the $2\frac{1}{2}$ " Angle Girders, and the shanks of these Bolts engage in the gaps between the Collars 21 when each layshaft is in neutral.

The top of the housing is fixed in place by a bolt screwed into a Threaded Boss, held by a second Bolt passed through the Flat Girders at a point marked 24. The gear-change lever Pivot Bolt is passed through a Fishplate 25 before it is fitted with lock-nuts.

Bottom gear is engaged by sliding Rod 13 to the left (Fig. 2) so that Pinion 16 meshes with Pinion 7. Reverse is obtained by sliding Pinion 16 into mesh with Pinion 17, which is in constant mesh with Pinion 8. Second gear is obtained by sliding Rod 9 to the right, so that Pinion 10 engages both Pinions 5 and 7. When Rod 9 is moved to the left Pinion 12 is meshed with Pinion 8 to provide top gear.

A NEW USE FOR SPRING CLIPS

A fundamental feature of the Meccano model-building system is the adaptability of its various parts. Many readers have written to tell me of new and ingenious

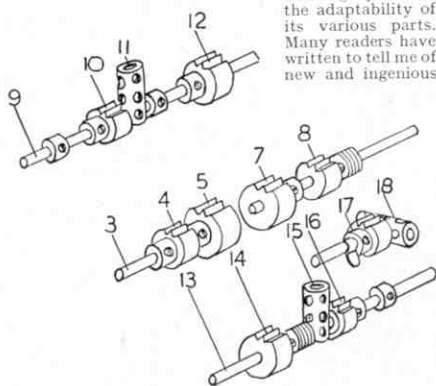


Fig. 2. These drawings show the arrangement of the gears and shafts in the three-speed and reverse gearbox seen in Fig. 1.

applications they have found for even the most simple parts, which at first glance might seem to have only a few obvious uses. A good example of this adaptability was brought to my notice recently by David de Wit, Blackburn, who sent details of a very neat independent suspension unit he has designed for the front wheels of a model vehicle. The main feature of the unit, which is shown in Fig. 3, lies in the novel use of Wit has found for Spring Clips.

The suspension unit for each wheel is assembled between two Flat Trunnions. In Fig. 3 one of the Flat Trunnions is omitted in order to show the details of the device clearly.

The Coupling 1 is fixed tightly to the Flat Trunnion by a bolt, and a Collar 2 is pivoted on a bolt passed through the apex hole of the Flat Trunnion. A $2\frac{1}{2}$ " Rod is gripped in the Collar, and carries a Coupling 3 fixed to it as shown. Two Spring Clips are arranged with their lugs inserted in holes in Couplings 1 and 3, and a $\frac{3}{8}$ " Bolt 4 serves to compress the Clips slightly and so hold them in position. The road wheel is free to turn on a Pivot Bolt screwed into Coupling 3. It is important to ensure that the Collar 2 pivots freely so that a smooth springing action is obtained.

When the essential working parts are in position the second Flat Trunnion can be added. It is held between two nuts on Bolt 4, and also by a bolt screwed into the Collar 2. A Threaded Pin 5 is passed through the Flat Trunnion and screwed tightly into the Coupling 1. This Threaded Pin is used to attach the assembly to a suitable swivel mechanism connected to the steering wheel, and it serves as the connecting link between the spring unit and the chassis. The Threaded Pin should be fixed as tightly as possible in the Coupling.

Fig. 3. A new use for Spring Clips is shown in this novel suspension unit for a car.

New and ingenious uses of this kind are of exceptional interest, and I am sure that most model-builders have discovered at least one example at some time during their activities. I am certain that these ideas would be helpful to other Meccano enthusiasts, and I hope that many readers will follow de Wit's example and send me details of their suggestions.

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REMOVING ROD AND STRIP CONNECTORS

The Meccano Rod and Strip Connector enables a neat connection to be made between a Strip and a Rod, and it is especially useful when a pivoted joint is required. The part is made so that when it is pushed on to a Rod, it grips the Rod tightly. To remove the Connector after use it is a good plan to fix a Pulley or a Road Wheel on the Rod to provide a good hold. It is then quite easy to twist the parts until the Rod and Strip Connector slides off the Rod.

The Great Meccano Competition

By "Spanner"

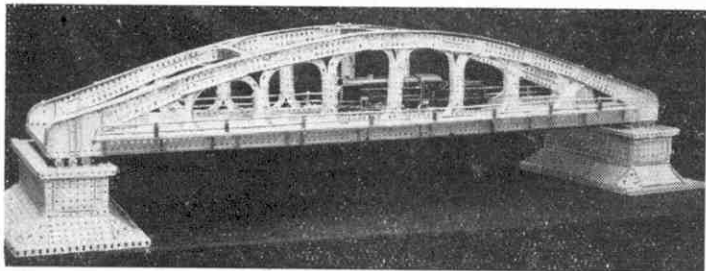
Questions and their Answers

ENTRIES for the great Meccano International Model-Building Competition are now arriving by every post and as the closing date of this greatest ever Meccano Competition draws closer, model-builders in all parts of the world are becoming increasingly excited in anticipation of the judges awards. I have seen many of the entries, but I cannot say anything about them yet, except that among them are models built by enthusiasts in India, South Africa, Argentina, Peru and many other countries. In fact, when the closing date arrives almost every civilised country in the world will be represented among the entries.

I have had enquiries from many enthusiasts who have not yet sent in their entries because they are not quite clear about some point or other. I have written to all who have made enquiries, but this month I am going to answer some of their questions here because the replies may be helpful to others. If any model-builder is still in doubt on any point he should write to me immediately to tell me about his difficulty so that I may be able to help him.

Under the conditions governing the Competition, which are stated in the Special Folder that is available free of charge from any Meccano dealer, a competitor is allowed to send in more than one entry if he so desires. If he takes advantage of this and sends several models, they will be grouped together when judging takes place, but each of them will be considered on its own merits. If only one of the models reaches prize-winning standard, any prize awarded would be on account of that model alone, and the others would be disregarded. On the other hand, if the models of a group are more or less equally good, a prize might be awarded to them collectively. It will be seen therefore that no competitor can qualify for more than one prize, no matter how many separate entries he sends.

Several correspondents have asked if it is permissible for two or more competitors to combine to pool their Meccano Outfits so as to be able to build a large and intricate model. I can say at once that this is quite in order provided that it is stated quite clearly on the entry that the model is the work of two or more competitors. It is important to note, however, that the model must be entered in the name of the oldest of the competitors concerned, and his age, name and full address must be stated on the back of each sheet of the entry.



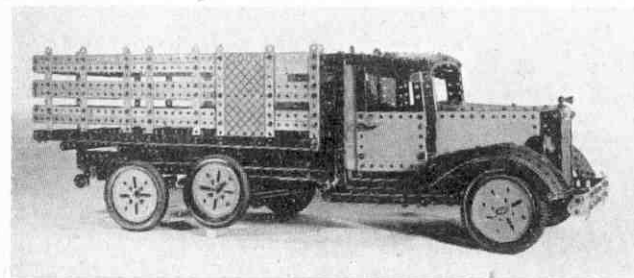
This shapely model of Nierendeel Bridge is the work of J. Willems, Antwerp.

Any prize awarded will be posted to this competitor, who will then have to make his own arrangements for sharing it with his colleagues. If these conditions are not fulfilled the entry will be disqualified.

I would also like to make it clear that any unsuccessful model in this contest will be eligible for entry in any Meccano competition of a suitable nature that may be organised in the future. But entries that win prizes in the International Competition will not be eligible for future contests.

Now a few words of advice on the preparation of entries for posting. If possible photographs or drawings should be sent flat in an envelope, and not rolled. Very large drawings should be folded. Some competitors have sent in huge drawings rolled up inside cardboard tubes a yard in length! These create quite a storage problem at Binns Road, but if a competitor thinks no other way is feasible by all means send tubes along. We will get over the storage difficulty somehow!

Finally, I advise all competitors to read the instructions given in the Competition Folder carefully before posting their entries. It would be disheartening for a really fine model to be disqualified simply because the competitor had failed to fulfil some small but essential condition. I wish you all the best of luck, and I can assure you that I am looking forward to examining the entries and describing the most outstanding ones in the M.M. in due course. These should provide a feast of good subjects for all keen model-builders.



A high-sided motor truck by Pablo Giese, Buenos Aires. It won a prize in a Meccano Model-Building Competition.

Meccano Competition Results

By "Spanner"

"Gadgets" Competition

THE results of the "Gadgets" Competition, which was announced in the September 1952 issue of the *M.M.*, are as follows:

First Prize, Cheque for £3/3/-: R. D. Tilney, Cambridge. Second Prize, Cheque for £2/2/-: D. M. Browne, Belfast. Third Prize, Draft for £1/1/-: K. W. Cameron, Kentucky, U.S.A.

Six Prizes, each of 10/6: R. Lubeseder, Alberta, Canada; D. C. Mead, Stoke-on-Trent; A. C. Rose, Birmingham 23; C. E. Wrayford, Bovey Tracey; F. G. Glass, Croydon; D. J. Keepax, Birmingham. Six Prizes, each of 5/-: J. H. Wigston, London N.W.11; S. C. Harvey, Sidcup; I. G. Trainer, Liverpool 10; L. C. Berry, Sittingbourne; P. Marais, Wynberg, C.P., South Africa; C. Burton, Calne.

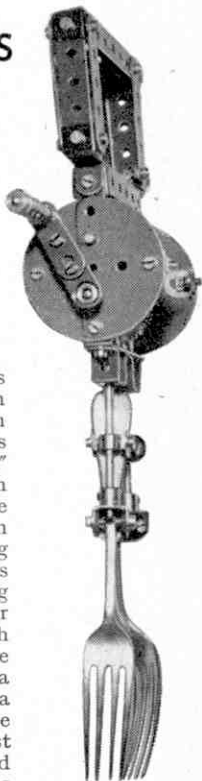
In this competition competitors were asked to try their skill in using Meccano to build up "gadgets" of all kinds useful in the home or workshop. A large number of entries was received, and competitors took full advantage of the scope this competition offered for the exercise of their ingenuity. The "gadgets" submitted ranged from an egg whisk sent by R. D. Tilney, Cambridge, which won First Prize, to a mouse-trap that won one of the smaller prizes for Ian Trainer, Liverpool 10. The egg whisk is shown in the upper illustration on this page. The whisks are formed by ordinary household forks, which are mounted so that they are easily

removable for cleaning after use.

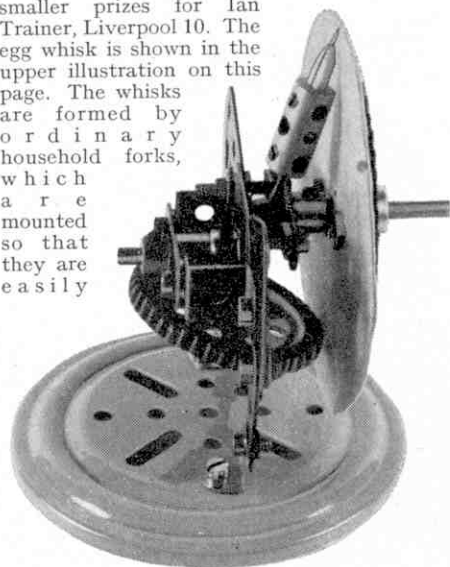
One of the most ingenious gadgets among the entries was a machine for re-conditioning fibre gramophone needles. It was designed and built by Desmond M. Browne, Belfast, and its details can be seen in the lower illustration on this page. It consists of a disc formed by a 4" Circular Plate to which is fixed a piece of fine sandpaper. The disc can be rotated by turning the Rod on which it is mounted. Bearing against the sandpaper is a 1½" Pulley fitted with a Motor Tyre, the Pulley being fixed on a Rod that carries a Coupling in which the needle is held against the sandpaper. This Rod is mounted at a suitable angle to give the required "point" to the needle.

As the Circular Plate rotates it drives by friction the Motor Tyred Pulley, so that the needle revolves on its axis against the moving sandpaper and thus is sharpened to a point of the required angle.

A gadget of a very different type, built by an older competitor, was an automatic timer, which gave a discreet "ding," that was calculated to save many a cake from fiery destruction, and the consequent disastrous effects on the temper of the cook! Dr. K. W. Cameron, who has been a Meccano enthusiast since his boyhood, and who is now at Homeplace Hospital in Perry County, Kentucky, is the builder of this useful gadget, and it won for him the Third Prize. I hope to be able to illustrate and describe this timer in the "Among the Model-Builders" pages of a future *M.M.*



An egg whisk designed by R. D. Tilney, Cambridge, who was awarded First Prize. The photograph was taken by A. J. R. Bennett.



This machine for re-conditioning fibre gramophone needles won Second Prize for Desmond M. Browne, Belfast.

New Meccano Model

Pedestrian-Controlled Stillage Truck



Fig. 1. The internal expanding brake fitted to the driving wheel of the Truck.

THE attractive model shown in Fig. 2 on this page represents a type of truck used in many factories and warehouses for the internal transport of goods. The truck is driven by an Electric Motor, and in actual practice the current supply is obtained from

a battery of accumulators. The goods to be carried are stacked on a special stillage platform fitted with runners or legs, and the truck is manoeuvred so that its chassis passes between the legs of the platform. The platform is then

raised until its legs clear the ground and the truck can then be driven to the required point for unloading. In the real machine raising and lowering of the platform is controlled hydraulically, but in the model these movements are operated by a ratchet lever and a system of Cords.

The chassis of the model is made by connecting two 9½" Angle Girders 1 to two 7½" Angle Girders 2 and 3. The Girders 1 are bolted direct to Girder 2, but they are connected to Girder 3 by Angle Brackets. A 1½" Angle Girder is bolted at each side to Girders 2 and 3, and two 3" Angle Girders 4 and a 3"×14" Flat Plate are bolted to each 1½" Angle Girder.

The raised platform section of the chassis is made by bolting 5½" Angle Girders 5 to the upper ends of Girders 4, and a 7½" Angle Girder is bolted across the ends of Girders 5. The top of the platform is filled by a 5½"×3½" Flat Plate, a 5½"×2½" Flat Plate and a 3½"×2½" Flexible Plate. These are arranged to leave a gap in one corner as shown in Fig. 4 to accommodate the ratchet control lever.

The motor unit is pivotally connected to the chassis by a Ball Thrust Bearing. The Toothed Disc of the bearing is bolted to the truck chassis, and the Flanged Disc is fixed to the flanges of an E20R Electric Motor. A Bush Wheel is attached to the centre of the and a 1" Rod held in the Bush Wheel is passed through the centre of the Bearing. A Collar is fixed on the Rod between the Flanged Disc and the Motor field magnet.

The truck driving wheel is carried by a special framework attached to the Electric Motor. The framework consists of a 3½" Strip 6 and two 2½" Curved Strips on each side, joined to the Motor sideplates as shown in Fig. 4. The sides are connected by a 1½"×1½" Double Angle Strip 7, and the bolts fixing this in position hold also Fishplates 8. The bearings for the driving wheel axle consist of Cranks 9 bolted

to Flat Trunnions fixed to the 2½" Curved Strips.

The driving wheel is a 2" Motor Tyre pressed over a Boiler End that forms also the brake drum. A 1½" Sprocket is attached to the Boiler End by ¼" Bolts, but is spaced from it by three Washers on each Bolt. The complete wheel is free to turn on a 2" Rod held in the bosses of the Cranks 9, and it is retained in position on the Rod by a Collar.

The brake is shown separately in Fig. 1. The back plate is a 2" Pulley and the shoes are 2½"×1½" Double Angle Strips

curved to fit inside a Boiler End. Each shoe is fitted with

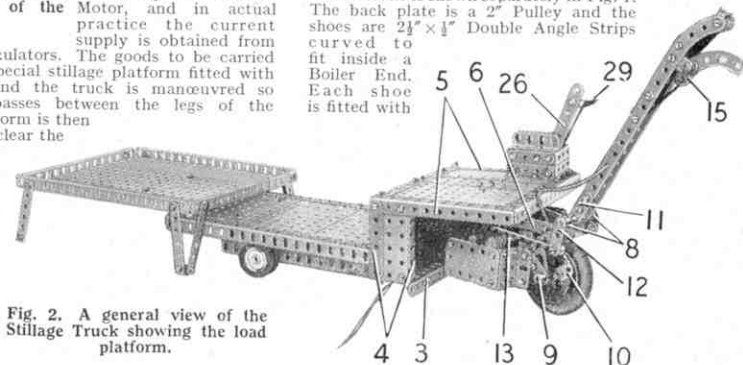


Fig. 2. A general view of the Stillage Truck showing the load platform.

an Angle Bracket, and the Angle Brackets are pivoted to the back plate by a lock-nutted bolt. The operating cam is a Collar placed between the free ends of the shoes. A ¾" Bolt is passed through a Fishplate 10 and is held tightly by a nut. The Bolt is then inserted in a hole in the back plate, fitted with a

second nut and screwed into the tapped hole of the Collar. The nut is tightened against the Collar to fix it securely on the Bolt, and a small rubber band looped round the free ends of the shoes serves to hold them against the Collar. The 2" Pulley is fixed by its set-screw on the front wheel axle.

The control handle consists of two 7½" Angle Girders extended by a 1½" Strip and a Crank 11 at one end, and by two 2½" Curved Strips and a Formed Slotted Strip at the other end. The handle is fixed by the Grub Screw in the Crank to a 2" Rod mounted in the Fishplates 8, and a

second Crank 12 is also fixed on the Rod. A Rod 13 is pivoted to Crank 12 by a bolt screwed into a Collar, and the other end of the Rod is similarly pivoted to a Bell Crank 14. The Bell Crank is loosely mounted on a ½" Bolt held by two nuts in a 1½" Strip, and the Strip is bolted tightly to the Electric Motor as shown in Fig. 5. A Double Bracket attached to the free arm of the Bell Crank engages the Electric Motor switch, so that when the handle is depressed the Motor drives the truck forward, and when it is raised the direction of the drive is reversed.

The brake is arranged so that it is "on" until the brake lever is lifted. The lever

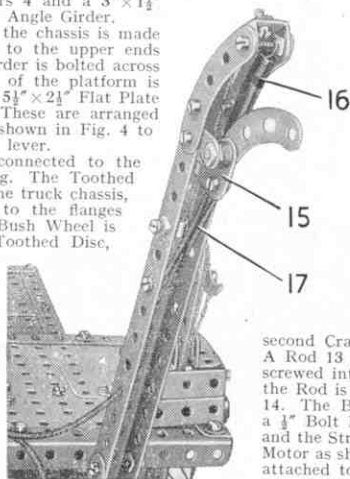


Fig. 3. A detail view of the control handle showing the arrangement of the brake lever.

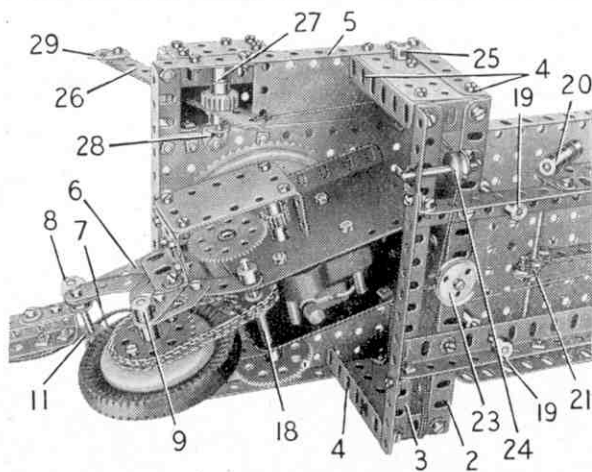


Fig. 4. The driving Motor and reduction gearing.

is a $2\frac{1}{2}$ " Stepped Curved Strip fitted with a 1 " Corner Bracket 15, and it pivots on a bolt lock-nutted to a Fishplate fixed to the main handle. The brake lever is connected to the Fishplate 10 by a length of flexible wire that passes through an outer sheath of Spring Cord. The Spring Cord is clamped in Collars attached by bolts to the front wheel framework and to the operating handle. The brake is held in the "on" position by a Tension Spring 16 bolted between the brake lever and the handle, and by a $2\frac{1}{2}$ " Driving Band 17, also attached to the lever and the handle.

The drive to the front wheel is transmitted from the Motor by a $\frac{1}{2}$ " Pinion on the armature shaft to a 57-tooth Gear on a $2\frac{1}{2}$ " Rod mounted in the Motor sideplates. This Rod is fitted also with a $\frac{1}{2}$ " Pinion that meshes with a 57-tooth Gear on a $2\frac{1}{2}$ " Rod 18. A $\frac{1}{2}$ " Sprocket on Rod 18 is connected by Chain to the $\frac{1}{2}$ " Sprocket on the front wheel. The driving Gears on each side are enclosed in housings made from $2\frac{1}{2}$ " x 1 " Double Angle Strips bolted to $2\frac{1}{2}$ " x $1\frac{1}{2}$ " Flexible Plates. A $1\frac{1}{2}$ " Angle Girder is bolted to the lugs at one end of each housing, and these Girders are used to attach the housings to the motor unit.

The chassis is fitted with a lifting platform made from two $9\frac{1}{2}$ " and two $5\frac{1}{2}$ " Angle Girders, and it is plated by three $5\frac{1}{2}$ " x $3\frac{1}{2}$ " Flat Plates. Four Rod Sockets are attached to the Plates, and each of them carries a $1\frac{1}{2}$ " Rod that passes through the chassis of the truck and is fitted with a Collar 19.

The lifting platform is raised by four levers, each of which is a Coupling 20 fitted with a 1 " Rod capped by a Collar. The levers are locked in pairs on $4\frac{1}{2}$ " Rods mounted in $5\frac{1}{2}$ " Flat Girders bolted to the chassis. The Rods carry Double Arm Cranks 21 between the Flat Girders, and these Cranks are connected together by a $5\frac{1}{2}$ " Strip attached by lock-nutted bolts.

The platform lifting levers are operated by a length of Cord tied to the Cranks 21. This Cord passes round a $\frac{1}{2}$ " loose Pulley 22 and a 1 " loose Pulley 23, both of which are free to turn on $\frac{1}{2}$ " Bolts lock-nutted to the chassis. The Cord is then taken round a $\frac{1}{2}$ " loose Pulley 24 mounted on a $1\frac{1}{2}$ " Rod that is held by Spring Clips in Angle Girder 3 and in an Angle Bracket bolted to Angle Girder 2. The Cord passes round a $\frac{1}{2}$ " fixed Pulley held on a $1\frac{1}{2}$ " Rod mounted in one side of the truck and in a Double Bent Strip bolted to the side. The Rod is held in place by a Collar indicated at 25 in Fig. 4.

The Cord is tied finally to the lower end of a lever 26, made from three $5\frac{1}{2}$ " Strips. These Strips are pivoted on a $1\frac{1}{2}$ " Rod fixed in a Double Arm Crank 27, and supported in an Angle Bracket 28. The Rod is fitted with a Ratchet Wheel, and a Pawl pivoted on a bolt lock-nutted to lever 26 engages with the teeth of the Ratchet. The Pawl is connected to a second Pawl 29 by a short length of wire, so that when the upper Pawl is lifted the lower one is raised clear of the Ratchet to release the lever and lower the lifting platform.

The lever 26 protrudes through a casing, one side of which consists of a Girder Bracket. This part is connected to two 2 " Strips by four $1\frac{1}{2}$ " x $1\frac{1}{2}$ " Double Angle Strips, and two 2 " Angle Girders are attached to the casing by Angle Brackets. The complete casing is connected to Angle Brackets bolted to the truck.

The trailing axle of the truck is a 5 " Rod free to turn in the Angle Girders 1 of the chassis. The wheels are 1 " Pulleys fitted with Motor Tyres, and they are fixed in pairs to each end of the 5 " Rod.

The stillage platform is built up from two $5\frac{1}{2}$ " x $3\frac{1}{2}$ " Flat Plates and two $9\frac{1}{2}$ " Strip Plates edged by $9\frac{1}{2}$ " and $7\frac{1}{2}$ " Angle Girders. It is supported by four legs, each of which is made from two 3 " Strips connected at their lower ends by an Angle Bracket.

If required, a list of the parts necessary to build this model can be obtained from *Informacion Service, Meccano Ltd., Binns Road, Liverpool 13.*

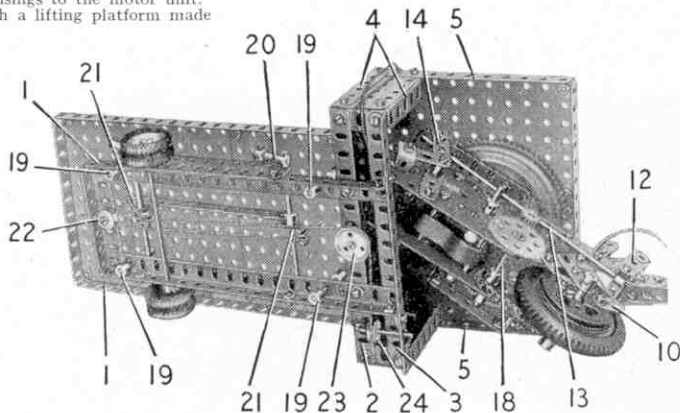


Fig. 5. This underneath view of the model shows the switch control mechanism and the layout of the Cord that operates the lifting platform.

HORNBY RAILWAY COMPANY

By the Secretary

THIS month I want to tell you something about the working arrangements on the Hornby-Dublo layout that is shown in the pictures on this and the next page. This system has been built up by *M.M.* reader Brian Baker, of Enfield, Middlesex, whom you see here at the control panel of his railway. The line is laid down on two adjoining baseboards which give a total length of 8 ft., with a width of 3 ft. or so. The railway is not a big one, but a remarkable degree of realistic effect has been packed into it. Not that the things are crowded together, they are not. But as the illustrations show, the track, buildings and other equipment that go to make up a complete system are carefully laid out so that the effect of plenty of space is attained.

The main line is oval in form, and is continuous in order to provide for the long runs that are to be expected when Hornby-Dublo 4-6-2 express locomotives form the principal motive power. Although the system is a continuous one, there is a working timetable so that stations necessarily change their identity as the journey progresses, a form of licence in operating frequently applied in miniature.



A view across the points near the principal station. A main line train is rounding the curve, while a goods train is shunting in the yard.

Running Trains to Time

There are two stations, both of which are Hornby-Dublo products, the one being the Through Station, while the other is an Island Platform, which fits into the scheme very well indeed as it is served by two tracks.

Because the layout is not a big one, and



Brian Baker with his Hornby-Dublo layout. The control panel is below the baseboard level. The illustrations to this article are from photographs by Graham Gillett, Cheshunt, Herts.

the actual distance between stations is short, the usual working arrangements require four circuits of the track to be covered between successive stops. This is quite a reasonable scheme, because it allows the effect of distance to be given when working trains.

The baseboards are comparatively narrow, so that the continuous main line runs close to the edge of them, and sidings and other subsidiary tracks are arranged within the main oval. This results in a compact system on which the operator can keep every move well under observation. This is important because in running trains to a definite system, whether they are worked to actual times or not, much of the smoothness of operation



Duchess of Atholl and her train running into the main station on the outer main track. The Tank Locomotive nearby is "filling up" from the Water Crane.

may depend on the exact position in which a particular engine or train is brought to a stand. Movements that involve one train waiting for another must be carried out carefully, the waiting train standing clear of any Points and so on that may have to be used by the moving train. Similarly, care is necessary in the movement of trains relative to Isolating Rails in sidings or loop lines.

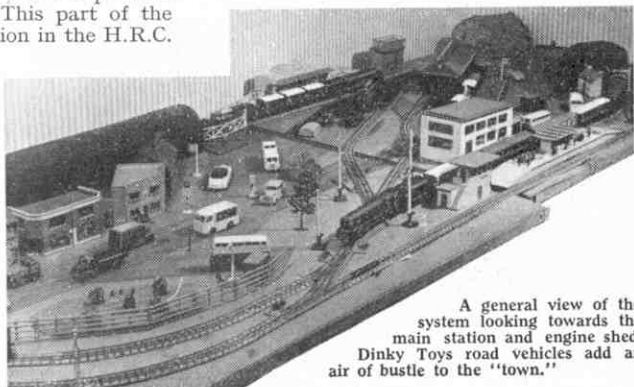
Again, any operations involving the changing of engines or the removal of vehicles from a train will involve steady control when Uncoupling Rails are to be brought into operation. When working to actual times it is advisable to allow plenty of margin for station work or wayside operations of this kind. The arrangement of the different movements and of the times at which they should be made requires careful preparation, and it is essential to see that all engines and items of rolling stock are in a definite position when the table begins. This part of the job is given special attention in the H.R.C. Booklet, with which members will be familiar. Copies of the latest revised edition of this are now available at 6d. each including postage.

Even if a railway is not run to a timetable it is a good idea to have a definite scheme of working. Some Hornby-Dublo owners have several different cycles of operations for their layouts, any one of which can be run through

when the railway is working. A definite plan of train running is much better than simply running trains anyhow, and in working out any particular plan of this kind it must be arranged that the completion of a cycle brings the engines and rolling stock back to their original position. It is not always easy to do this, but there is plenty of good fun to be had in working out the movements required. Some light

engine or empty stock working may be necessary in order to keep the whole programme going, but the keen operator will always try to keep such unprofitable movements to a minimum.

Referring again to the layout of Brian Baker, it is clear that the various items of lineside equipment have been modelled and arranged with care. Special attention has been given to the corners of the baseboard that are remote from the operator and these are occupied in a convincing manner by miniature hills. There is a long tunnel, too, on the main line and the track serving the inner face of the Island Platform runs through another tunnel on its own, the outer track passing outside it. Miniature buildings of other than railway character have been modelled successfully, the whole making up a realistic miniature township with roads along which Dinky Toys traffic runs.



A general view of the system looking towards the main station and engine shed. Dinky Toys road vehicles add an air of bustle to the "town."

Creating a Railway

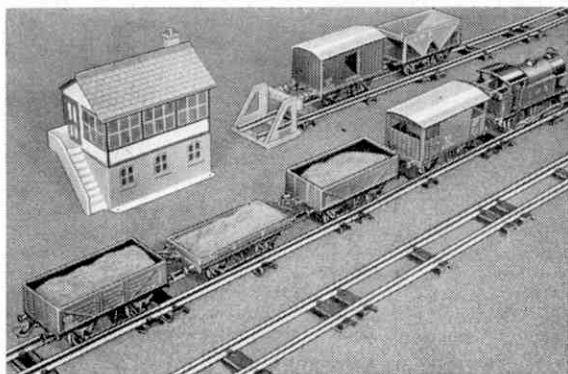
WHEN the Hornby railway beginner has become used to the management of his engine and rolling stock he feels the urge to do more than just run trains. In fact, he wants to run train services of the kind that he sees on real railways, and he begins to make plans with this in mind. As a rule he begins with his track layout, adding to it sidings for rolling stock or locomotives that are standing by, and then perhaps a loop line that provides a change of route for main line trains and also is a place where "up" and "down" trains can pass each other.

Buffer Stops should not be forgotten. They are needed to complete sidings, where they help to give the right atmosphere because they are familiar features of the real railway scene.

Stations for passenger trains and, if space allows, for goods trains too are needed early in developing a miniature railway. They make it possible for our trains to come and go from suitable points on the layout, where there are special arrangements for dealing with the traffic, instead of stopping just anywhere on the track. To stop trains in the station of course means having a suitable Brake Rail in the track near to the platform.

Next perhaps we think of Signals, and

these in turn suggest that a Signal Cabin is wanted, even if it does not really house a lever frame for operating them! Our lines must have Signal Cabins to make them look like real ones.



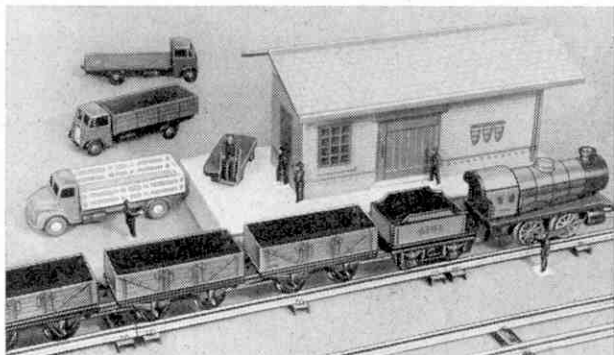
Here is a "ballast train" on a permanent layout being moved into position alongside a track that requires re-ballasting.

A goods train doesn't look right unless the wagons or vans carry something in them. Reasonably realistic loads are not difficult to find. One or two ideas on this subject were given in a recent article in these pages. Passenger vehicles cannot very well be "loaded," but we can people our station platform with the miniature figures of the Dinky Toys range, some of whom can be thought of as passengers. The more there are the better the scene.

Set No. 3 in fact consists entirely of Passengers, while Sets Nos. 1, 4 and 5 give us the Station Staff, the Train and Hotel Staff and the Engineering Staff respectively.

Each figure must be put in a suitable place, of course. What could be worse than putting the driver of Set No. 1 where apparently he would have to jump in the Guard's Van when his train starts?

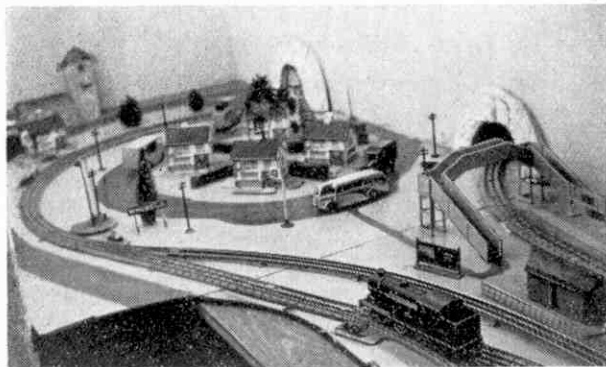
In addition to these miniature figures, Dinky Toys motor vehicles can play a great part.



A busy scene at the Hornby Goods Platform where good use is made of various Dinky Toys. The M0 Locomotive is ready to leave with its train.

Hornby-Dublo On A Shelf!

WE all know well the oval track on a rectangular baseboard that forms the basis of so many miniature railways. It is not always easy to find room for a



One end of the Hornby-Dublo layout of P. Wild, Matlock. This shows the twin tunnel mouths in the alcove referred to on this page.

railway of this shape, and even when a baseboard can be fitted into a room it often has to be a good deal smaller than its owner would like.

This sets a problem. One answer is to abandon the customary oblong board and to put the railway on a shelf. To be more exact, it should be carried on shelves fitted along the walls of the room. These of course must be fairly wide to give a good effect, and a fairly big room is a great advantage. It is surprising how extensive and satisfactory a layout can be when this ingenious way of getting over difficulties of space is followed, and the scheme has the further merit that the layout can so easily be given the air of a real railway.

Peter Wild, Matlock, whose Hornby-Dublo railway is illustrated on this page, has adopted this plan, and his railway looks real enough. It runs on shelves carried along two sides of Peter's bedroom, and except "on the shelf" it would probably have been impossible to create a layout of reasonable proportions in the space available.

Although the railway has for most of its length the appearance of an orthodox double main line the track is actually continuous, for the up and down routes open out and are joined to one another at each end of the layout by means of a

circular section. The diagram shows this arrangement, but in practice the fact that the track is continuous is disguised with some success, particularly at one end, where the railway runs into an alcove at one corner of the room. The alcove is narrow and in order to get in the full circle required to turn the main line back on itself the track is made to enter a tunnel tucked into the wall; it comes out again later looking as if it were on another track!

Trains look good when running on this layout, and there is plenty of scope for variety. There is one station on the line and opposite this there are two loop lines. These are used as goods sidings as a rule, but they can be used as routes alternative to the main track. The station serves a village situated partly inside the circular track near the tunnel mouths. The various houses there are served by a circular main road painted on the baseboard on which various Dinky Toys motor vehicles can be seen. Other buildings are placed outside the track by the alcove wall and they successfully fill up what might otherwise have been rather an awkward corner. Another road accompanies the railway track for some distance.

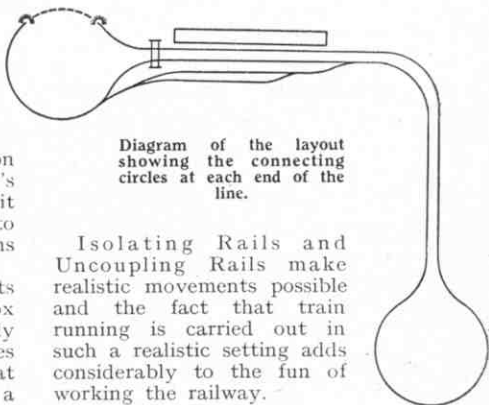


Diagram of the layout showing the connecting circles at each end of the line.

Isolating Rails and Uncoupling Rails make realistic movements possible and the fact that train running is carried out in such a realistic setting adds considerably to the fun of working the railway.

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Stamp Collectors' Corner

By F. E. Metcalfe

PAPUA-NEW GUINEA

DURING the next two years we shall see literally hundreds of new stamps for the British Commonwealth of Nations, but I shall be greatly surprised if we get a set that is more interesting than the one issued on 30th October last for the joint territory of Papua-New Guinea.

Some time ago I remarked how strange it was that the stamp issuing countries in the Pacific, such as Cook Islands, Niue, etc., were not more popular, as distinct from their mother country New Zealand, which philatelically speaking—and in every other respect—is popularity itself. One thing is certain, however. There was never any unpopularity about either the stamps of Papua or New Guinea, and I

understand that sales of the new set are exceeding all expectations. Dealers' initial stocks indeed are running down, but collectors need not worry about that, for there are plenty more in the Post Office at Port Moresby.

I really would like to illustrate all the set, and if I were able to do so, what a galaxy of interesting pictures would be presented! But we shall have to be content with one or two. Fortunately even a short set costing about a shilling will provide something very interesting for the junior, while a few shillings will buy an exotic picture gallery.

Before we discuss the new set in detail, let us consider the country itself, and mention a few points that will help us to write up our collection.

First of all, Papua and New Guinea are part of a large island that lies just to the north of Australia. The other portion, called Dutch New Guinea, belongs, as its name implies, to the Netherlands, but Indonesia is disputing this latter ownership, and there is a movement in Australia, which either owns, or has the mandate for the British portion, to buy the Dutch out.

As the stamp catalogue shows, Papua and New Guinea separately issued postage stamps until the last war caused them to join up politically, and now of course the merger has been consummated philatelically. British New Guinea first issued its own stamps in 1925. The design showed a native hut, and in 1941 these stamps were overprinted for air mail. Then we got the "Bird of Paradise" stamps, for this is a country where you can find those feathered marvels. In 1935 we got two more air stamps, one for £2 and the other for £5. Good gracious, I can hear someone say, whatever did they want stamps of



such high face value for? The answer is not that the authorities wanted to lighten collectors' pockets, but that away in the mountains gold had been found, and goods

could be taken by air in an hour or two that by land would take days. It is proof of the real need for such stamps that used copies are more plentiful than mint.

Papua, with the stamps first inscribed British New Guinea, made its philatelic debut as long ago as 1901. The design figured that native canoe called lakatoi—the one with those fantastic sails. Later stamps of the same design were issued, but these now gave the name of Papua. There was a lot of surcharging and overprinting before in 1932 we got just such another wonderful set as that now issued for the joint territories.

Came the war and in 1942 the Japs invaded the island. The military took over, and Papua and New Guinea became a joint administration. One could write a book about what happened in the next few years, but as most have read about it, it will suffice to say that the Japs were kicked out in 1945. From then until

now Australian stamps have been in use. The stamps with Port Moresby postmarks are much sought after and collectors are including them in their Island collections.

Now I really must get down to the new set that is causing such a stir. Alas for those who have to buy a full set, the face value is 39/11½d., but as there is a discount of 20 per cent. compared with sterling the net face value for us is only 32/-.

There are fifteen values, and as the designs are not described on the stamps, as is generally the case with stamps printed for the colonies, I had better say just what the pictures do represent, for some of them are quite complicated.

Here they are: ½d., Tree climbing kangaroo; 1d., Buka head dress; 2d., Native youth; 3d., Bird of Paradise; 3d., Native policeman (you would never have guessed that one); 3½d., Papuan head dress; 6½d., Kiriwina Chief House; 7½d., Kiriwina Yam House; 9d., Copra making (doesn't that look like one of those fancy musical instruments that are used on the music-halls?); 1/-, Trading canoe (that is the fantastic lakatoi I have previously referred to; was there ever such a romantic looking vessel?); 1/6, Rubber tapping (a beautiful design); 2/-, Sepik dancing masks; 2/6, Plumed shepherd (it wouldn't be wise for one of those sheep to run away, as those bows and arrows seem to mean business); 10/-, Outline map of territory of Papua and New Guinea; and 1/-, Native spearing fish (perhaps after all the shepherd was only going fishing).

Now isn't that a wonderful set? It is a pity that I haven't room to illustrate all of them. As for the stamps that are being shown here, I would like to draw your attention to the 2/6 value. Few of us knew that in this year of grace there were shepherds going round armed with bows and arrows.





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Mention the Meccano Magazine.

R. D. HARRISON
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For other Stamp Advertisements see also pages 102 and xv.

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Stamp Gossip

STAMP PUBLICITY

ALL kinds of computations have been made to try to find out just how many collectors of stamps there are in the world, but all that one can say with certainty is that governments feel that there are enough of them to make it worth their while to issue stamps with messages they wish to convey.

Take Portugal as a case in point. During 1952 the "1st Tropical Medicine Congress" was held in Lisbon. Not only was the country very proud of this meeting in its capital, but it was also anxious to give world-wide publicity to the idea. Which was the best way to do this? Why a set, of postage stamps. So eight stamps were prepared, most of them with designs as informative as the one illustrated, and see what a clear lesson that teaches.



KOREA

It must have given the western nations quite a surprise when they learned in the first instance that Turkey was sending troops to Korea. But it was no surprise to anyone, least of all to the British, to learn how well these troops fought, and now collectors are searching eagerly for used copies of the set of three stamps issued on 25th September last in honour of them.

A lot of used Turkish stamps are about, for business relations with this country are extensive, so it should not be hard to get this set complete, postally used.



SIXTY GUINEAS

"Gosh," many a young collector is going to say, "I only wish my stamp collection was worth half as much as that, let alone the catalogue of it." But we need not let such considerations interfere with the enjoyment of our hobby. Besides, this new sixty guinea book on King George the Fifth's collection is much more than a mere catalogue.

Most collectors know what an amazing collection was gathered

by His late Majesty. It actually comprises 330 albums, each bound in full red morocco and tooled in gold. The albums themselves must have cost a thousand pounds or more, and as for their wonderful contents, these are reputed to be worth over a quarter of a million pounds. In connection with the publicity in launching the book on the Royal Collection, one newspaper showed a picture of the stamp room, where all the volumes of stamps are housed. It certainly didn't look the most cheerful of places, but how soon one would forget that mahogany furniture whenever

the albums were opened and their treasures were revealed.

The book seems to be worthy of the marvellous collection, and we can all be pleased that its publication has been such a success. But sixty guineas! Just how many blanks could we fill up if we had such a sum to spend?



BE PREPARED

That's not a new stamp. Why has it been illustrated? I suppose more than one will comment on these lines about the illustration of the Australian "Boy Scout" stamp. But if those who do will take a good look at the stamp they will see that while an old design has been adopted, the face value has been altered and the dates have been changed, for this new 3d. stamp has been issued to commemorate the Pan-Pacific Scout Jamboree for 1952-3.

The stamps were issued on 19th November last and the Acting Postmaster General says that the reason for this prior release was to draw attention to the Jamboree, which was to be held at Greystanes, nr. Sydney, from 20th December to 19th January of this year. There should be quite a few used copies about; look out for the special postmark.

THE FIRST COLONIAL

Just as G.B. itself was the first with stamps bearing the Queen's portrait, so the Gold Coast was the first in the field among the colonies. Only a single stamp is concerned and if it only had a black centre it would have been quite worthy of the distinction. The design is the same as that of the 1d. value of the last KG VI set, with the Queen's portrait substituted for that of her father, King George VI. The stamp was issued on 19th December and other values are to be expected shortly.



A TIP

If you are a collector of KG VI stamps, don't overlook the postage dues, for at long last these appear to be growing as popular as ordinary postage stamps. They are very much scarcer, and while today most are very cheap, the real scarcity will soon affect prices.

The Commonwealth Catalogue mentions those varieties printed on rough paper during and shortly after the war. This paper is of the same kind as that used during the war for certain Hong Kong and Mauritius stamps. It is easy to recognise, for it is just as described, rough, and stamps thus printed are of great philatelic interest, whether postage dues or postage stamps.

LOOKING BACKWARD

It will not be long now before the Elizabethan stamps start to come out in goodish quantities, so next month I hope to keep my promise and complete my notes on how to set about forming an economical collection of stamps of the new reign. In the meanwhile, perhaps a glance back to see what has been happening to the final KG VI issues may help us to avoid some of the snags that are always waiting to trap collectors.

A good collection of KG VI issues will bring a better price today than a year ago. If you have one therefore don't be afraid that interest is going to die out and that the stamps will lose value.

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.

Railway Oddities

Railways, like most other things, have their oddities. For instance, look at the picture on this page. It shows a British Railways train the engine of which has a peculiar feature associated with its particular duty. How many readers can spot this—and explain it?

In our main competition this month we are dealing with such oddities as this. See what you can find out about them and then write out your answers to the questions, 10 in number, in the order in which they come.

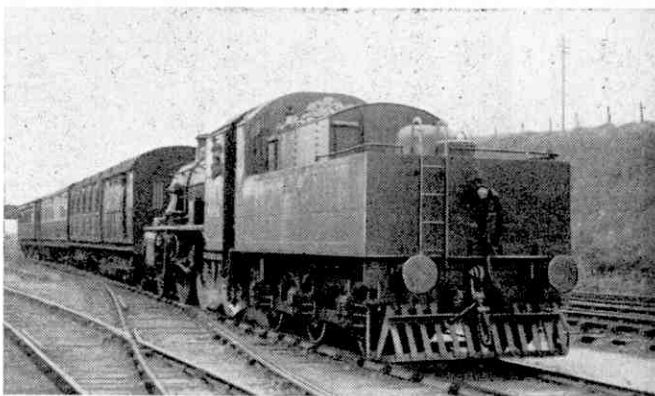
In your entry don't write out the questions, as some competitors have done in previous similar contests; just put down the number of each question, with your answer to it.

1. What is the peculiar feature of the B.R. engine in the illustration on this page? What does it do?
2. What was a "Diamond Stack"?
3. What do the initials S.N.C.B. and C.F.L. indicate?
4. Two famous British railway engineers had the respective initials I.K.B. and F.W.W. Where can their names, or these initials only, still be seen in stonework?
5. What are the American equivalents of the British Railways Goods Brake Van and Covered Goods Van?
6. What engines were known as "Paddleboxes"? Why?
7. Where in Great Britain do main lines cross each other on the same level?
8. Which British station incorporates what is known as "The Great Hall"?
9. What locomotive wheel arrangements are denoted by the following type names? "Mogul," "Consolidation,"

"Texas," "Santa Fe," and "MacArthur?"

10. Which is the longest railway bridge in Europe?

Send your entries to *February Railway Quiz, Meccano Magazine, Binns Road,*



Something unusual about this B.R. 2-6-0 is one of the oddities that provide our chief competition this month. The photograph is by C. Lawson Kerr.

Liverpool 13. Do not forget to include your name, address and age on your entry.

As usual there will be two sections, for Home and Overseas readers respectively, and in each prizes of 21/-, 15/- and 10/6 will be awarded for the best entries, with consolation prizes for other good efforts.

Closing Dates: Home Section, 31st March; Overseas Section, 30th June, 1953.

February Photographic Contest

The second of our 1953 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 his print must be stated exactly what the photograph represents, also his age must be given.

The competition will be in two sections, A for readers aged 16 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: *February Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13.* Closing dates: Home Section, 28th February; Overseas Section, 30th May.

Competition Results and Solutions

HOME

JULY 1952 CROSSWORD PUZZLE

1st Prize: J. B. Milburn, Harpenden. 2nd Prize: D. W. R. Ridgway, Walsall. 3rd Prize: L. N. Rainbow, Coseley. Consolation Prizes: G. B. Richards, Wallasey; D. G. Wayne, Cheltenham; B. J. Arthur, Bramcote; P. J. Brookman, Yeovil.

JULY 1952 HORNBY-DUBLO CONTEST

1st Prize: L. W. Chitty, Edgware. 2nd Prize: K. Holden, Belfast, N.I. 3rd Prize: T. Francis, Haslemere. Consolation Prizes: B. E. Champion, West Croydon; J. Eves, London S.E.9; G. R. Harris, Cheltenham; B. D. Castel, West Kilbride.

AUGUST 1952 PHOTOGRAPHIC CONTEST

1st Prize, Section A: P. J. Kerkhoff, Birmingham 13; Section B: S. Buck, Seascale. 2nd Prize, Section A: B. S. Ireland, Gosport; Section B: R. Baxter, Torquay. 3rd Prize, Section A: A. J. Potter, Ash; Section B: A. J. Caves, Wolverton. Consolation Prizes, Section A: J. Crawford, Darlington; A. R. Brown, Isleworth; A. W. Miller, Rutherglen; F. G. Reynolds, Sidcup; Section B: J. Larkham, Ringwood; K. Williams, St. Annes-on-Sea; R. H. Morling, Lowestoft.

AUGUST 1952 AIRCRAFT CONTEST

1st Prize: W. Vincent, Ilford. 2nd Prize: J. L. Balmer, Willington Quay. 3rd Prize: J. S. Roberts, Saffron Walden. Consolation Prizes: M. K. Craddock, Portsmouth; B. H. Croft, Pudsey; G. S. Orchard, Morecambe; M. Gilbert, East Cosham; D. Thompson, West Hartlepool.

AUGUST 1952 PASSENGER TRAIN CONTEST

1st Prize: R. P. Walford, Newton Abbot. 2nd Prize: B. J. Holden, Burgess Hill. 3rd Prize: A. Mayor, Kendal. Consolation Prizes: R. Francis, Crewe; K. Jones, Birmingham 22; N. K. Timmins, Newquay.

SEPTEMBER 1952 PHOTOGRAPHIC CONTEST

1st Prize, Section A: G. Ogilvie, Edinburgh 4; Section B: C. Hood, Preston. 2nd Prize, Section A: A. Marment, Ilford; Section B: C. H. Jones, Upton-by-Chester. 3rd Prize, Section A: P. Browning, Edinburgh 11; Section B: R. G. Ferguson, Edinburgh. Consolation Prizes, Section A: S. B. Marsh, London N.19; J. F. W. Paige, Chelsfield; T. B. Gorse, Bolton; D. R. Forsyth, Cheadle Hulme; A. J. Noon, Sutton; Section B: L. Gore, Bingley; I. D. Lowe, Musselburgh; B. Pridmore, Birmingham 18; J. Glenney, Selkirk; J. Price, Colwall.

OVERSEAS

MAY 1952 SKETCHOGRAMS CONTEST

1st Prize, Section A: S. Power, Bombay, India; Section B: B. G. Cleator, Sydney, Australia. 2nd Prize, Section A: P. E. Banks, Amsterdam, Holland; Section B: J. Woodhouse, Berne, Switzerland. 3rd Prize, Section A: P. Jackson, Naples, Italy; Section B: C. H. Kenton, Gibraltar. Consolation Prizes: Y. F. da Fonseca, Bad Godesberg, Germany; S. H. Walsh, Durban, S. Africa; V. Hodgson, Delhi, India; P. T. Tomlinson, New York, U.S.A.; K. L. Bonnar, Durban, S. Africa; G. Williams, Geraldine, N.Z.

MAY 1952 HORNBY LAYOUT CONTEST

1st Prize: S. T. Thomas, Dublin, Irish Republic. 2nd Prize: R. Pierrepont, Paris, France. 3rd Prize: K. Kershaw, Cronulla, Australia. Consolation Prizes: B. T. Norton, Lisbon, Portugal; J. Davies, Hanover

Germany; J. D. Ackers, Rangoon, Burma; M. M. Coles, Rotterdam, Holland.

JUNE 1952 PHOTOGRAPHIC CONTEST

1st Prize, Section A: I. H. Dahal, Colombo, Ceylon; Section B: H. Laine, Brisbane, Australia. 2nd Prize, Section A: C. H. R. Azva, Buenos Aires, Argentina; Section B: B. T. B. Pello, Oslo, Norway. 3rd Prize, Section A: V. A. Jibidar, Achimota, W. Africa; Section B: D. A. McKenzie, St. Albans, N.Z. Consolation Prizes, Section A: C. V. Sokolich, Auckland S.E.6, N.Z.; R. Kennedy, Auckland, N.Z.; V. Hlomador, Achimota, W. Africa; J. Andrews, Dublin, Irish Republic; Section B: Louis Dalzell, Chingola, N. Rhodesia; Leslie Dalzell, Chingola, N. Rhodesia; R. Lubeseder, Prairie Echo, Canada; C. Heyward Hastings, New Zealand.

JUNE 1952 GAMES CONTEST

1st Prize: B. Percell, Durban, S. Africa. 2nd Prize: H. P. Chinoy, Bombay, India. 3rd Prize: N. Harvey, Umtata, S. Africa. Consolation Prizes: B. Campbell, Naples, Italy; A. K. Addison, Rangoon, Burma; J. P. Vernon, Oslo, Norway.

JUNE 1952 GOODS TRAIN CONTEST

1st Prize: L. Simmons, Colombo, Ceylon. 2nd Prize: M. Houghton, Brisbane, Australia. 3rd Prize: J. A. Gomes, Bombay, India. Consolation Prizes: A. E. Russouw, Pietermaritzburg, S. Africa; C. A. Adams, Galway, Irish Republic; P. Stringer, Hastings, New Zealand.

SOLUTIONS

JUNE 1952 GOODS TRAIN CONTEST

1. Result showed 0-8-0s to be most popular. 2. Picks up or sets down wagons at yards and sidings along its route. 3. Wagons damaged and unfit to travel. 4. Pole with hook at end used to couple or uncouple wagons. 5. Open wagon with rail for tarpaulin sheet. 6. Toton-Brent. 7. By brakes on engine and in brake van. 8. Vacuum brakes on every vehicle. 9. Centre or rear. 10. Bottom doors for discharging loads.



Railway Wagon Wheels—(Continued from page 59)

machine, which turns it over into a horizontal position and pushes it into one of the bays of the re-heating furnace, the door of which is quickly closed. The door of another bay opens and the steel hand of the machine is poked into the unbearable glow to pick up a wheel that has completed its re-heating. This it carries to the rolling mill, swinging it round and placing it with uncanny precision on a mandrel that passes through its central hole.

When a wheel forging leaves the press it is a little smaller in diameter than is required, and it is too thick. It is brought to its final size and shape by the rolling mill in which it is now placed. There five rolls close upon it and combine to roll it to its correct diameter and thickness, at the same time forming its tread and rim. Water is sprayed on to the wheel during pressing to make sure that no scale is rolled into it.

All that remains to give the wheel its final shape is to press its boss or centre into a position relative to the tread that will give the web the desired conical shape. This process is graphically described as dishing it, and for the purpose a 1,500 ton press is used. Here, in the same movement, the maker's name and the cast number of that particular piece of steel are pressed into the web of the wheel.

When the wheel emerges from this the greater part of its journey is over. It is now moved by crane to the cooling bays, where it is examined for size and defects before going further for the necessary heat treatment and machining.

Strange Shapes in the Sky—

(Continued from page 64)
to be carried to its operating height on top of another aeroplane. But once the engine *does* start working it gives very high power, and one of the Leduc prototypes has attained 500 m.p.h. at a height of 36,000 ft., on only half-power.

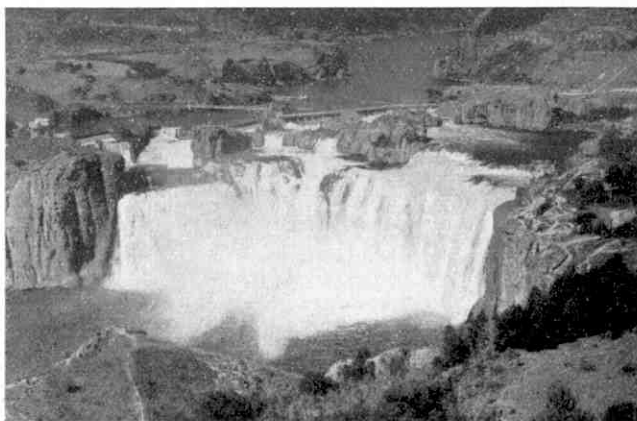
The test flights have been so promising that Leduc have now built a bigger prototype, designated Type 0.21, which has an undercarriage, and two additional turbojet engines mounted on its wing-tips, so that it will be able to take off under its own power. Like the type 0.10, the whole cockpit of the Type 0.21 is designed to drop away and descend by parachute if the aircraft runs into serious trouble, and it will carry guns. It can, therefore, be regarded as the world's first practical ramjet fighter and, as it is intended for supersonic flight, should be a most useful new weapon for the United Nations' armoury.

There are many other strange shapes in the sky today, including the 1,238 m.p.h. Douglas Skyrocket, shaped like a V.2 rocket with stub wings; the giant Hughes XH-17 tank-carrying helicopter, which looks like something from another planet; and the Fouga Gemeaux and Twin-Piper light planes, which have been made into twin-engined aircraft by joining together Siamese-twin fashion the complete fuselages of two ordinary Fouga Cyclopes or Piper Cubs respectively. Despite their vastly differing shapes, they have one important factor in common—all were designed and built as serious, practical engineering ventures, and one or two of them may well earn as important a place in aviation history as the Wright biplane or Gloster-Whittle E28/39 jet plane.

More Engine Nicknames—(Continued from page 74)

to the other end of the kingdom and on the Highland Railway became known as Barneys, providing yet another conundrum to most historians. And why were the sturdy little standard 0-6-0 shunting tanks of the L.M.S. called Jinties? What is a Jinty anyway?

So from the past, with its Tiny Tims, Black Pigs, Waterburys, Tennants, Austin Sevens, Beetlecruisers, Jinx's Babies, Straightbacks and Coffeepots, we come down to the days of Black Staniers, Spam-cams, and Streaks. What lies in wait for the new B.R. standard types? Will *Britannia* and her fellows, including



The spectacular Shoshone Falls in Idaho, which are named after a well-known Indian tribe. An article on famous falls, including the Angel Fall in Venezuela, the highest in the world, will appear in an early issue of the M.M. Photograph by Ewing Galloway, New York.

John Bunyan, really be known generally as the Bunyans, as seems possible? I know that the 4-6-0s with the prominent steps at the front end are already the Town Halls in some parts, and we may rest assured that the ingenuity of British railwaymen in nicknaming their engines aptly is by no means exhausted!

The World's Busiest Waterway—(Cont. from page 80)

all gleaming in the sunlight—awaiting shipment across the seas. Those familiar words "imports" and "exports" have a real meaning for the men who get their living loading and unloading ships on the Thames.

Much farther down the river lie Tilbury Docks, 26 miles from London Bridge and nearly the same distance from the sea. For these docks handle the big passenger liners that come in from the Far East and Australia. The huge floating landing stage, which is more than 1,000 ft. long and 80 ft. wide, is one of the most modern in the world, linked by covered gangways with the Customs' Hall and adjoining railway from London. Tilbury has no big warehouses, because the cargoes landed there, if not collected for immediate delivery by road or rail, are lightered up the river for storage at the London and St. Katharine Docks or the wharves of the Pool.

BACK NUMBERS OF THE M.M.

A few copies of the following issues are still available: 1951 February—June, September, October and December; 1952 January, April—August.

The cost per copy inclusive of postage, etc., is 11d.

Fireside Fun

"What's the matter, little boy? Are you lost?"
 "Yes, I am."
 "Dear, dear, how did that happen?"
 "I came out with grandma. I ought to have known better. She's always losing something."

Ship's Officer: "Now have you cleaned the deck and polished the brass?"

Seaman: "Yes, sir, an' I've just swept the horizon with my telescope."

"A flood is a river too big for its bridges."
 "Is it? Then I suppose a drought is a bridge too big for its river."

"Yes, my boys are happy. They whistle while they work."
 "You're lucky. Mine only whistle."

"A great traveller, are you? Been up the Rhine?"

"Yes, to the very top."

"Climbed the Alps?"
 "Every one of them."

"Seen the Lion of St. Mark in Venice?"

"Fed it."

"Sailed on the Black Sea, by any chance?"

"Filled my fountain pen from it."

"I hear you have taken up golf. Is it an easy game to play?"

"Not bad. Harder than hoeing turnips, but easier than digging potatoes."

Farmer: "If food gets short we can eat our forest preserves."

Visitor: "We're just as lucky in the towns. They're full of traffic jams, you know."

"Yes, that former cashier of ours will now be able to say a lot in one sentence."

"He never could. Why should he now?"
 "He's just started five years in gaol for embezzlement, hasn't he?"

"What happened after the accused gave you the first blow?"

"He then gave me a third blow, sir."

"A third? You mean a second."

"No, I gave the second one."

"Who was the greatest scoundrel ever known?"
 "That's easy. It was Atlas, who held up the whole world."

"I say, that's a real puzzle," suddenly exclaimed Johnny, who had just been stung by a bee.

"What is?" asked his mother.
 "If a bee settled on a nettle, would it sting the bee or would the bee sting the nettle?"

"Yes, she plays like Paderewski."
 "It doesn't sound like it, so what do you mean?"
 "Oh, I just mean she uses two hands."



"What happened to push-button Warfare, Joe?"
 (Reproduced by courtesy of "The Aeroplane.")

BRAIN TEASERS MORE BELOW THAN ABOVE

While excavating in a buried city an archaeologist found a marble sphere embedded in the earth. When he first saw it the top of the sphere was seven inches above the surface around it, which was level, and the part showing was three feet six inches across. From this he was able to gauge the size of the sphere. What was its diameter? S.W.C.

TRA-LA-LA-LA

There is a word of more than two letters of which la is the middle, is the beginning and is the end, but there is only one l and one a in the whole of it. What is the word? C.H.

SQUARING THINGS UP

Here is the beginning of a word square, that is a square of letters in which the letters of the rows in order make up the same words as those of the columns. Can you complete the square?

x	E	x	A	x
E	x	A	x	E
x	A	x	x	E
A	x	x	E	x
x	E	E	x	x

Now make up a word square of a horse's food, touch, a pipe and a stalk!

D.J.C.

MAGIC FROM ARITHMETIC

Ask a friend to open a book at one of its first nine pages, mark one of the first nine lines and note any one of the first nine words in the line. Then tell him to multiply the page number by two and add five, multiply what he gets by five and add the number of the line, multiply the result by 10 and add the number of the word, and finally subtract 250. Then ask him to tell you the result. From this tell him which word he has chosen. Can you find out how this is done?

ONE LETTER ONLY WANTED

Written on a blackboard were the fragments VE, FI, MI, TA, LA, SE, FO, BO, SI and WA. Can you find a letter that will make a complete word with each of these fragments?

SOLUTIONS TO LAST MONTH'S PUZZLES

The hero of our first puzzle last month did his blindfold typing very well, but he made one mistake—instead of typing the correct letters he typed the one to the right or left throughout. He meant to type "THE JUDGE GUIDED BY THE EVIDENCE RENDERED THE VERDICT FREEING THE MINER."

When trying our second puzzle did you realise that the window that would not let enough light through must have been diamond-shaped or triangular? In the first case the owner of the house simply opened it out into a rectangle, with sides passing through the points of the original diamond; in the second case he just converted the triangular window into a rectangular one with the same base.

Six weights would be sufficient to allow any number of pounds from 1 to 63 to be weighed. They are 1 lb., 2 lb., 4 lb., 8 lb., 16 lb. and 32 lb.



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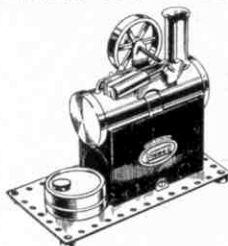
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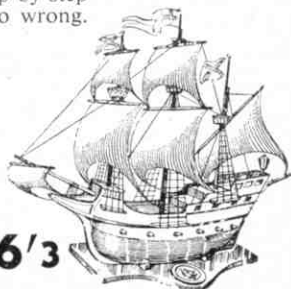


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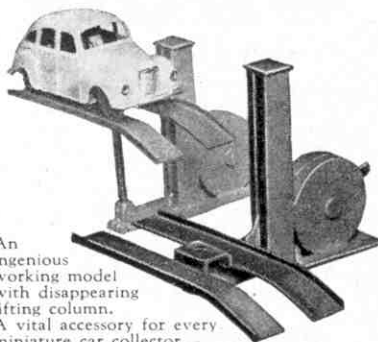
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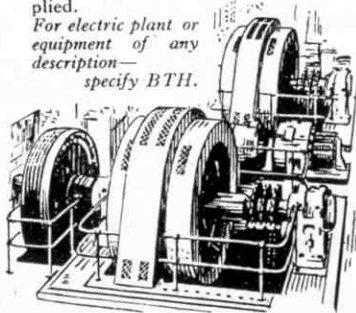
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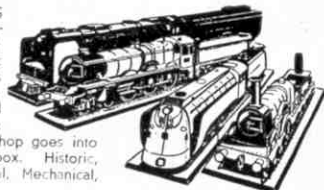
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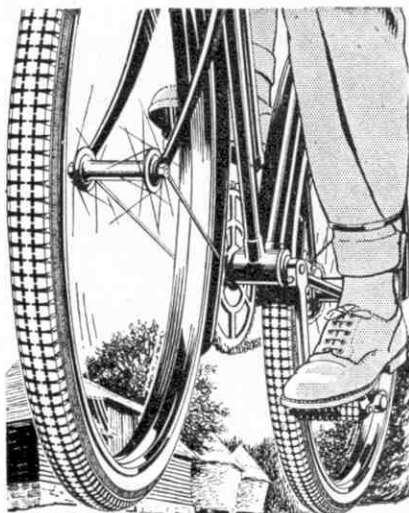
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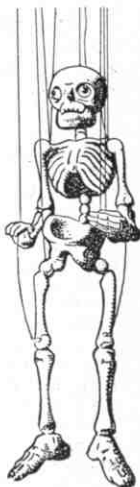
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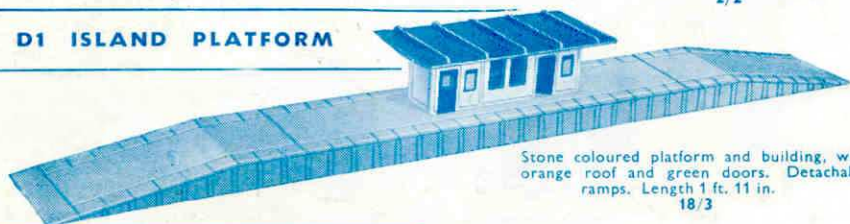
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