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MECCANO MAGAZINE

1/3

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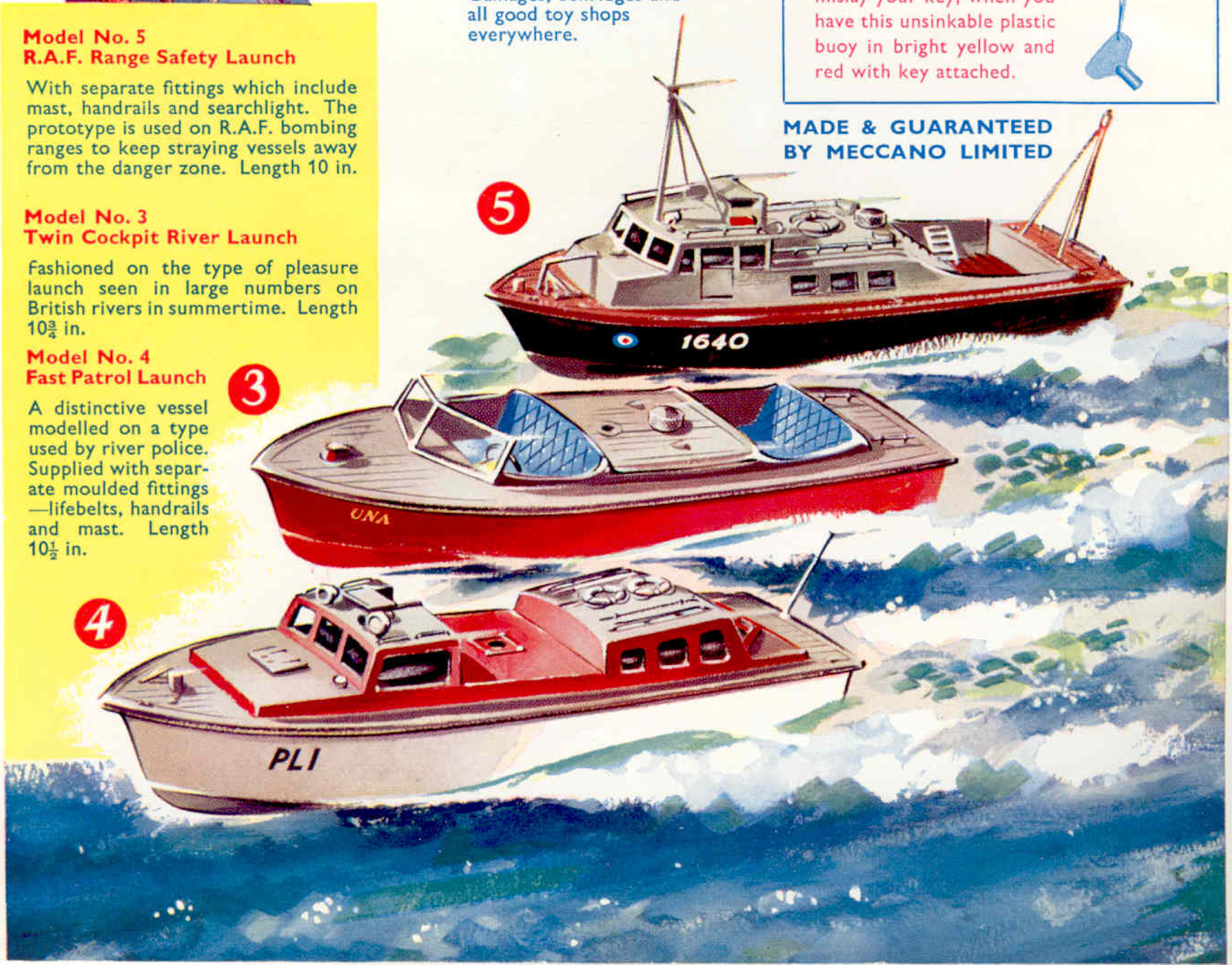

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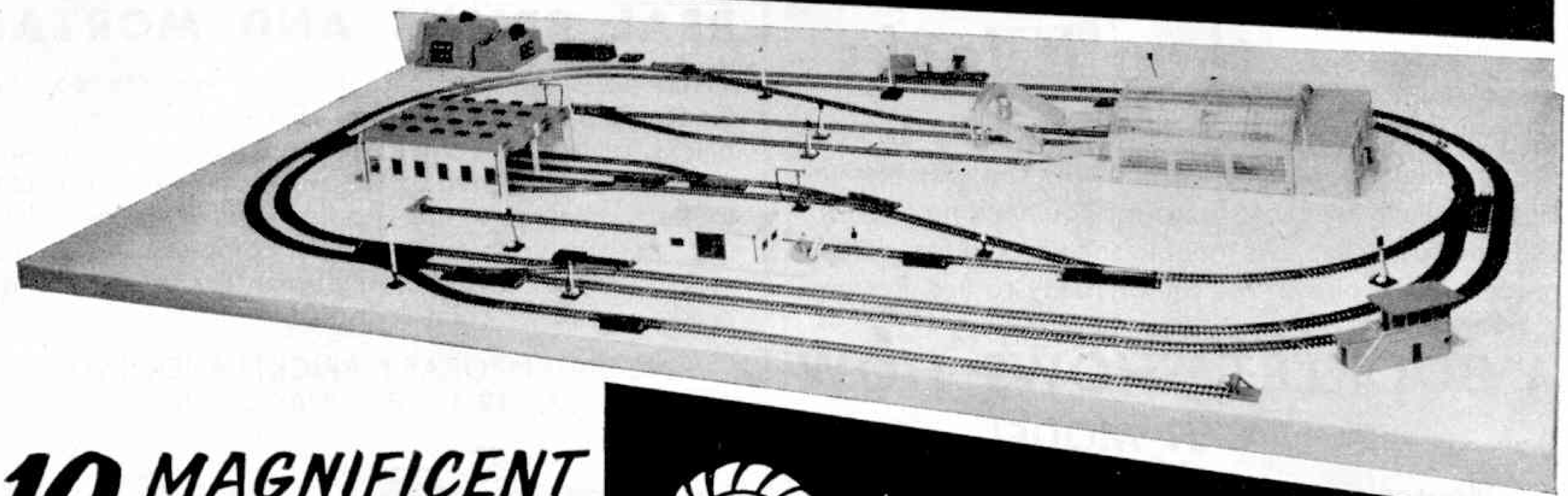

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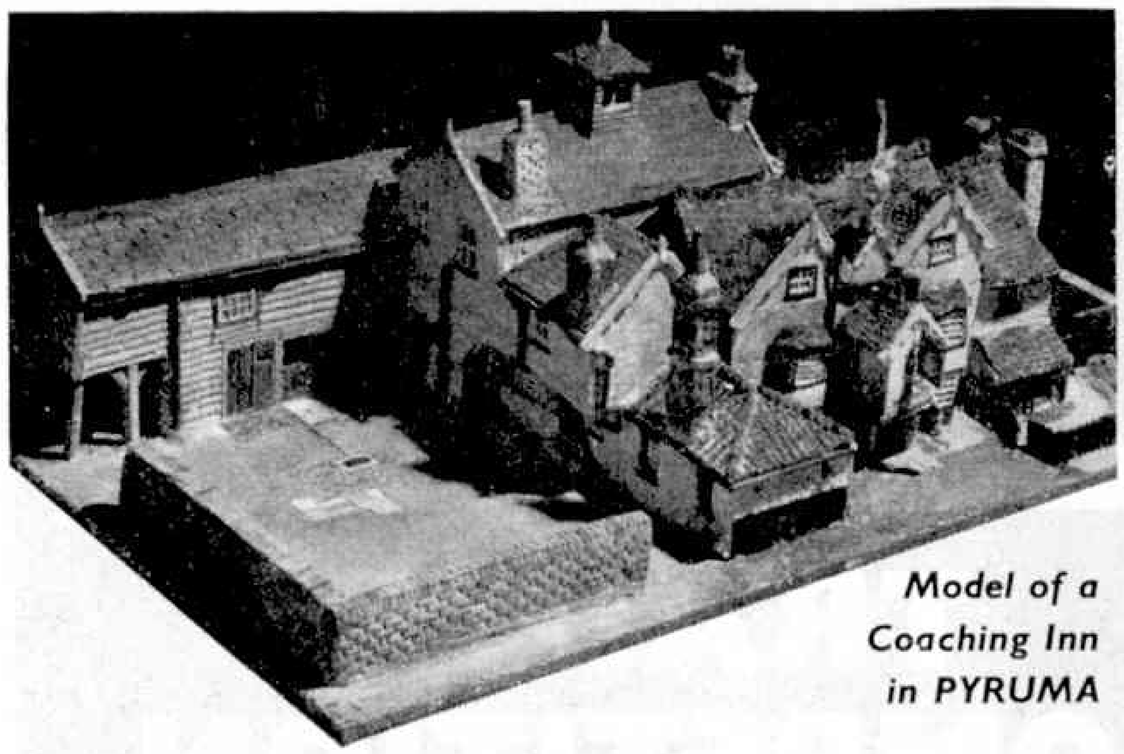

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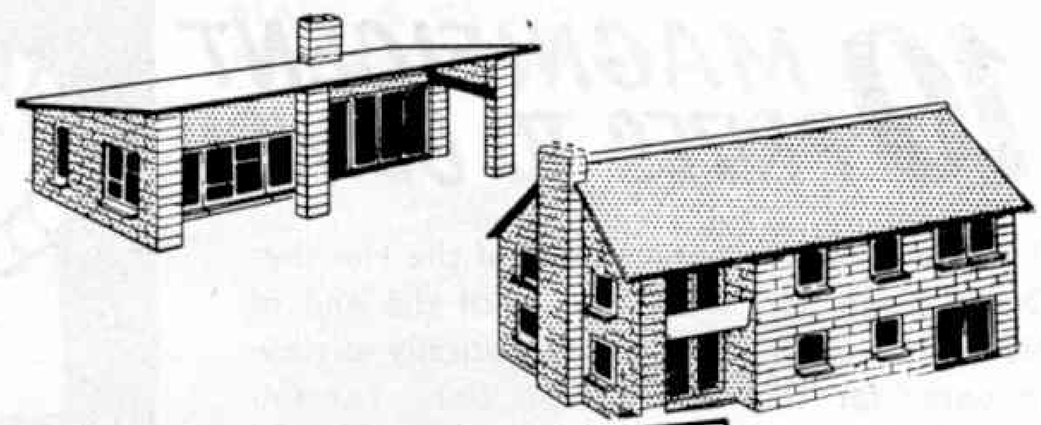

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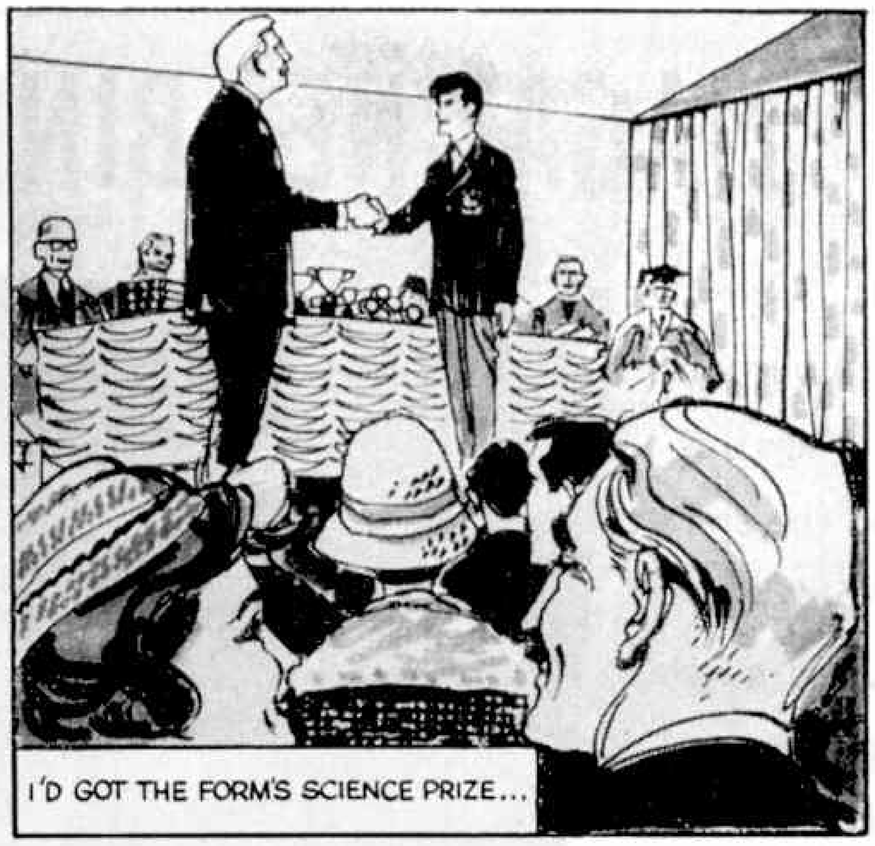

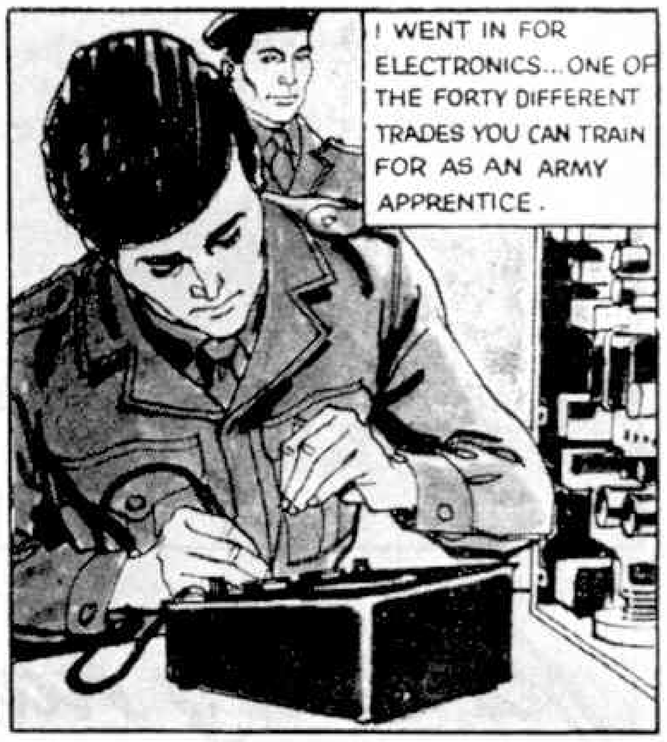

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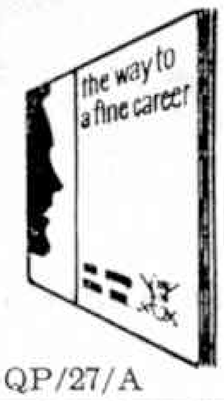

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MECCANO MAGAZINE

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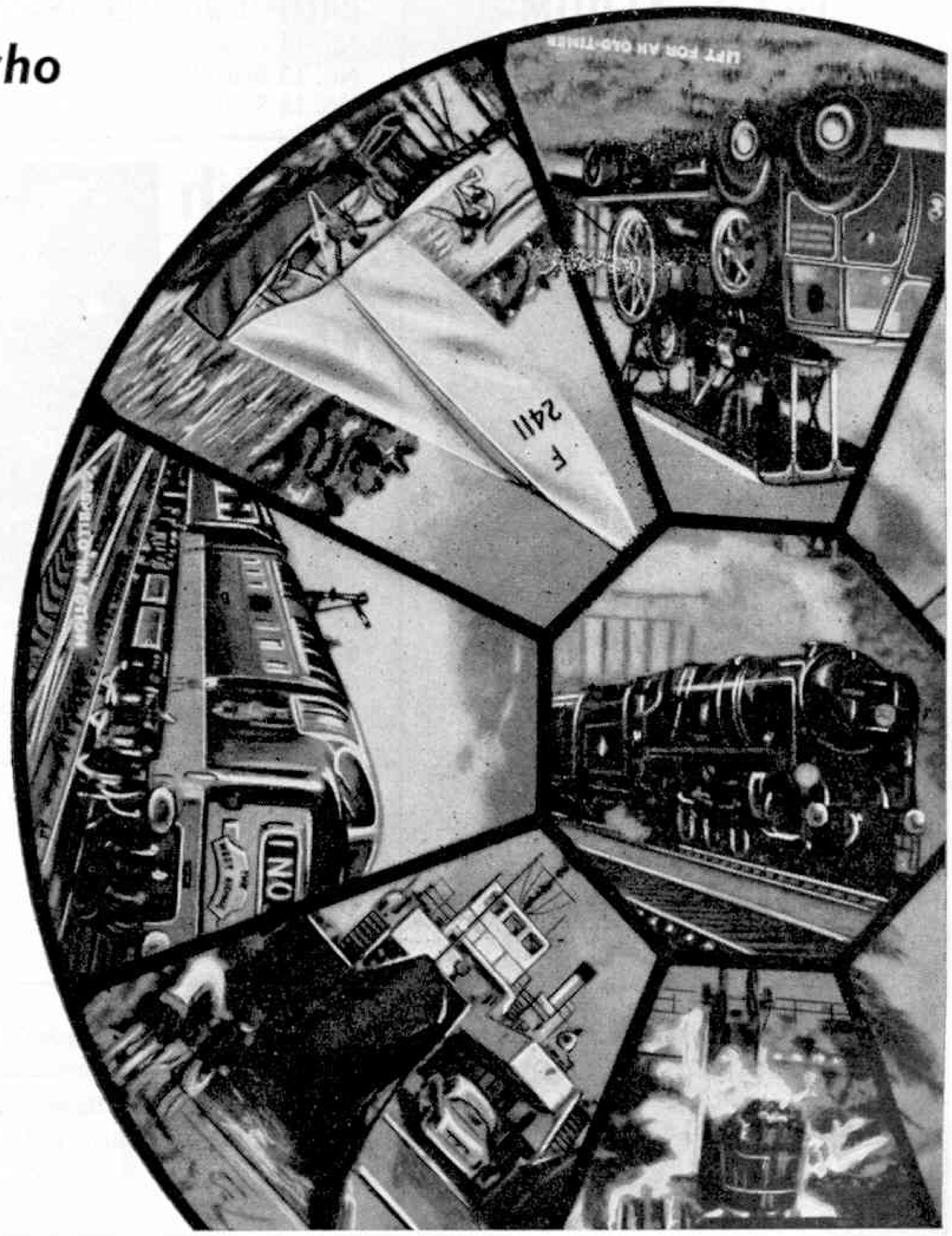

MECCANO MAGAZINE

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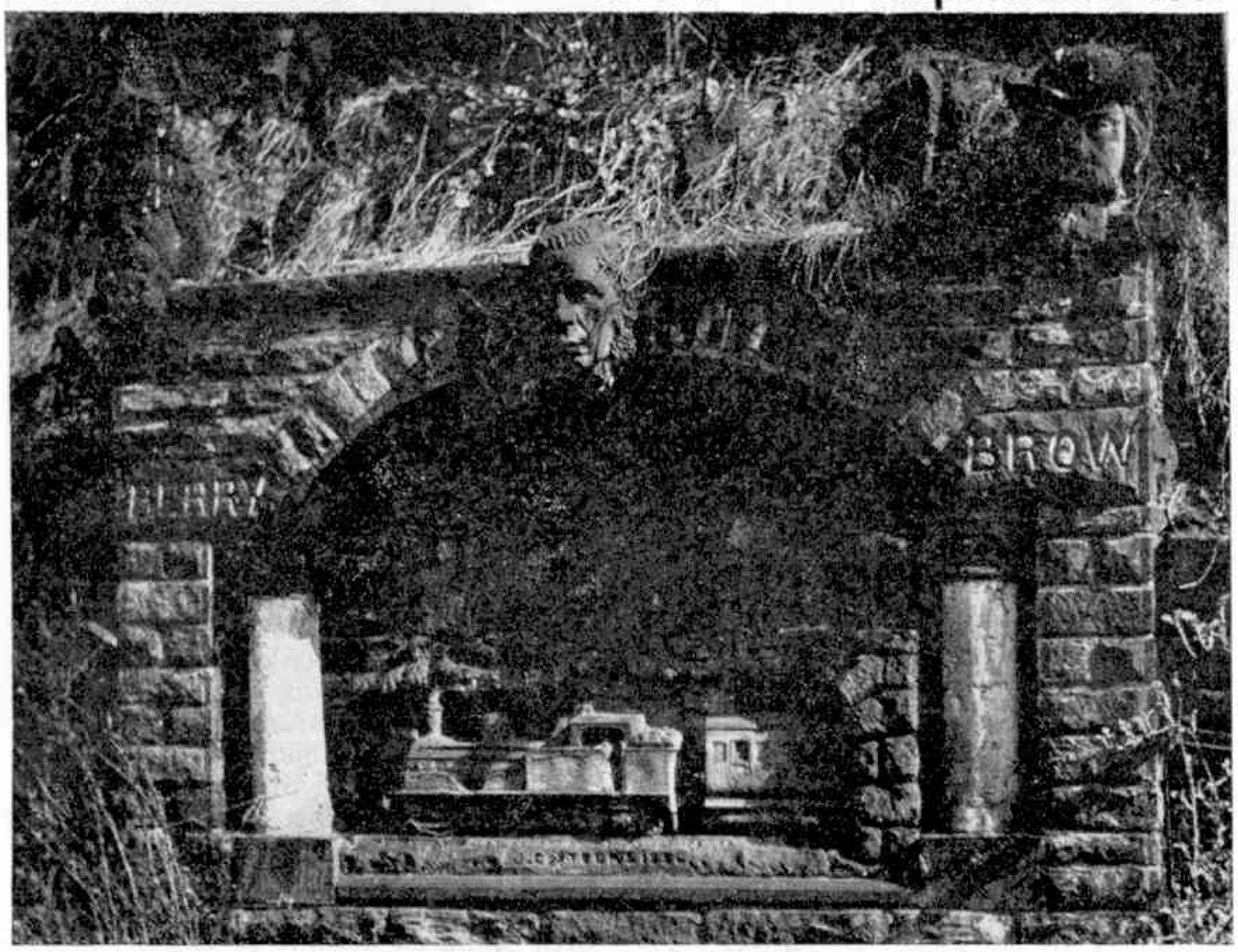

MUCH that has been familiar to the traveller by train will disappear under Dr. Beeching's plan to re-shape the railways. Take, for instance, the display of sculpture which is shown in this month's editorial picture. A tribute to fine workmanship, it will cease to be seen by passengers between Huddersfield and Penistone when Berry Brow Railway Station is closed under the re-organisation scheme. The picture has been sent to me by Mr. Ivan E. Broadhead, of York, who tells me that the sculpture was the work of a Mr. J. C. Stocks, in 1886, when he was only eighteen years of age and was working for his father as an apprentice. The tank engine and coach, the tunnel through which they are passing, and the base, are all carved from one piece of rock, brought from a local quarry at Honley. Inevitably, this unusual piece of work has suffered from the ravages of wind and weather, but considerable detail still remains, and one can still make out the engine driver and passengers in the coach. The heads are of John Milton, on the left, William Shakespeare, on the right, and, in the centre, a Mr. Swithenbank, who was Permanent Way Inspector at Berry Brow when this rock face cameo was created.

I am frequently informed in correspondence how Meccano is used in industry to help solve problems, and the latest instance of this comes from the Fraser Label Co. Ltd. of London, who are specialist printers of all types of self-adhesive materials and, in particular, in the cutting and printing of self-adhesive labels. One of the Directors of that company, Mr. J. McKay Fraser, tells me they recently required a specialist attachment for two of their printing machines, and it was suggested to them by their Print Manager that the complete answer would be for them to make use of some parts from a Meccano Set. "We purchased one set at a total cost of 28/6, from which we produced the specialist parts required for each of the two printing machines", writes Mr. Fraser. "The result has been 100 per cent successful". Mr. Fraser adds that they were more than delighted since they had been quoted a figure of £25 for each part by a firm of engineers—which shows just what one can accomplish with Meccano. **THE EDITOR**

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OUR FRONT COVER

Air-minded readers in particular will be interested in this month's front cover which is from a transparency by Mr. Cyril E. Wilson. It shows a two-ton plastic moulding machine, made in Switzerland, being loaded at Basle Airport on to a "Carvair" car-ferry aircraft for shipment to England. This aircraft can carry five cars and 22 passengers, or four medium-sized cars and two tons of freight, plus passengers. Motorists using this air ferry, which flies from Southend to Strasbourg, Basle and Geneva, arrive at their destination in a little over two hours—a journey which previously took two days by road. It is possible to have lunch in England, afternoon tea in Switzerland, and dinner in Italy by using this car-ferry for a Continental motoring holiday.

HIGHLIGHTS IN THE ALUMINIUM STORY

ALL the striking new uses of aluminium in architecture and sculpture, as well as in engineering, seem today a fitting reminder of two young inventors born 100 years ago—two youths who changed the history of aluminium by discovering the modern process for extracting it. The 18 ft. "Winged Figure" on an Oxford Street store, the aluminium "Stag" in Victoria Street, London, the plaques of aluminium on *Golden Arrow* Pullmans and the 1,000 sq. ft. "Relief" in aluminium at King's College, Newcastle—all these are examples of "arty" uses of the metal which began just 80 years ago when Eros, in Piccadilly Circus, became Britain's first aluminium statue.

From the new Hillman Mini to the extensive use of aluminium in the newly-opened New Zealand House, the upward surge goes on, the ever-widening appreciation of a metal which is light and does not rust. While other common metals like tin and lead are likely to be limited in supply in the future, aluminium from vast resources of bauxite ore comes in ever-increasing tonnages.

To match the many interesting uses of today is the story of a half-century struggle to win "silver from clay", as it was called when it cost £50 per pound of metal. It is a story rarely given in text-books, and certainly ignored where British aluminium enthusiasts made truly spectacular efforts to produce it — near Birmingham, and on Tyneside. This British chapter is "played down" in American and French books, while with typical British modesty we make no reply. Yet, when all aluminium was liberated by use of dangerous sodium rather by an electric current, as today, this British process was on the greatest scale, exceeding production in France, where the sodium process first began.

By

Maurice Schofield, M.A., B.Sc., F.R.I.C.

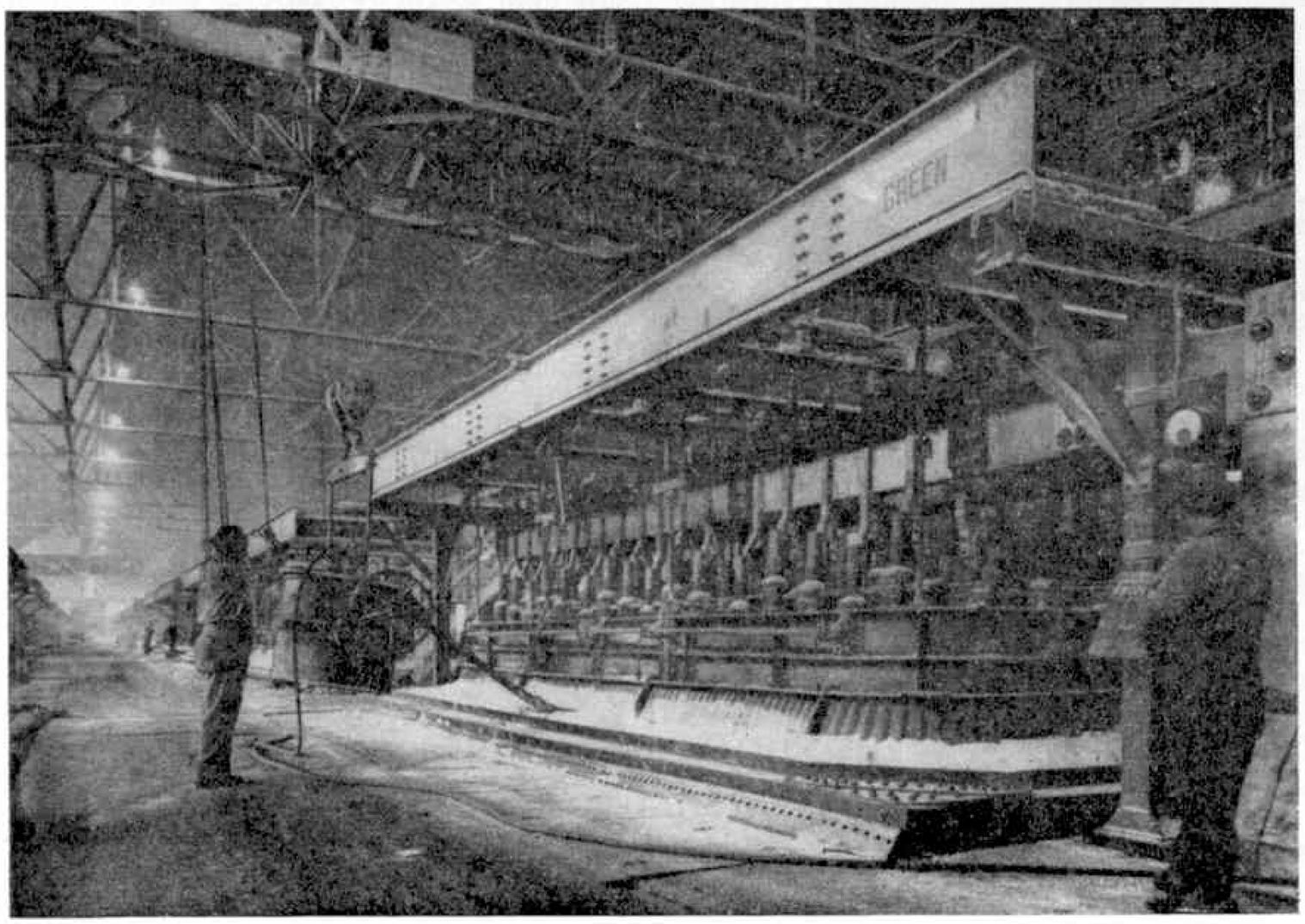
Humphry Davy first enabled aluminium to be made when he discovered those powerful active metals, potassium and sodium. Yet Davy himself, "full of the odium of discovering sodium" when he outwitted French chemists, failed to prepare pure "aluminum", as he intended to call it. So the chemist Wöhler, the same Wöhler who gave a Customs officer a piece of potassium in place of a fee, first liberated aluminium by heating potassium with aluminium chloride. Substitute sodium for potassium, and one arrives at the only successful aluminium process for the 30 years from 1856 to 1886.

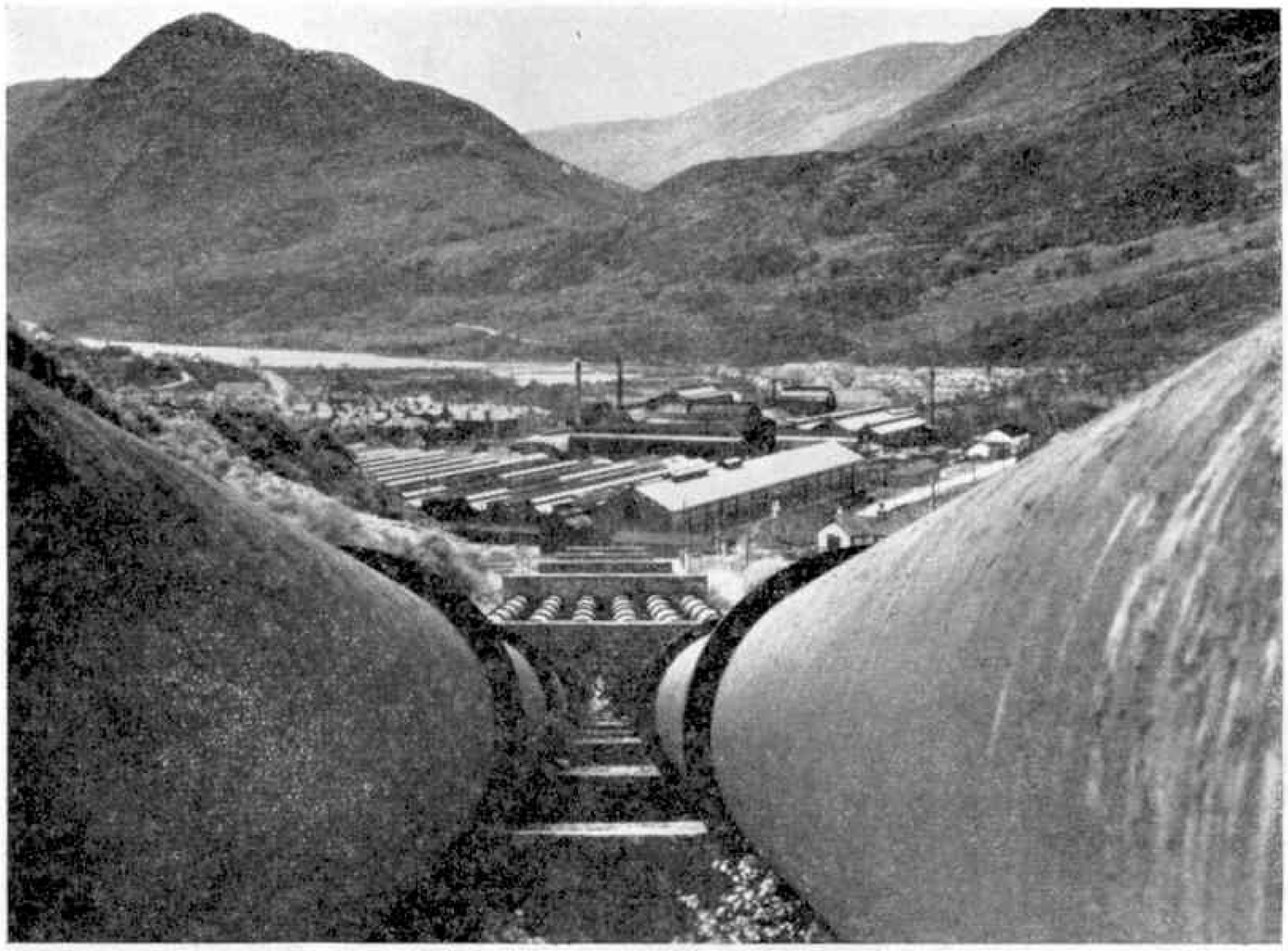
Eros has withstood London's atmosphere for 80 years. It is composed of 3¾ cwts. of aluminium.

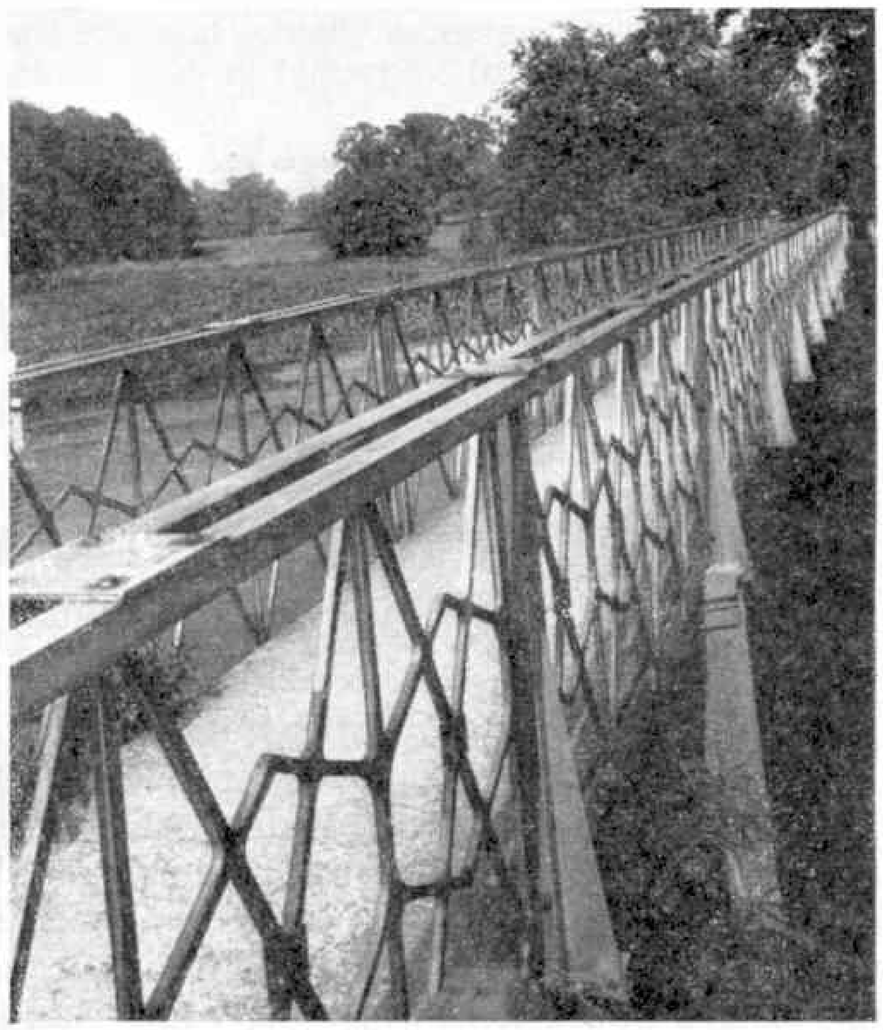
It all began with St. Claire Deville, a French professor who squandered his own money on his craze for aluminium-making, but then got complete financial backing from the Emperor Napoleon III. This monarch became as enthusiastic as Deville over "silver from clay". He saw possible uses for helmets, cannon wheels and other military equipment, and although he had a breast-plate made of it, the first aluminium article produced in this craze of the 1850's was a baby's rattle for the Crown Prince Imperial. Then on to aluminium dishes and spoons—in place of "common" gold for French State banquets—to aluminium jewellery, which included a watch-chain presented to the King of Siam on a visit. Just 100 years ago the first aluminium statue came with the Diane de Gabies, now in the Louvre, in Paris.

From the late 1850's up to the discovery of the modern process in 1886, the vigorous reaction between sliced sodium metal and aluminium chloride was the process used first in France and then, on a greater scale, in Britain. Deville, with his funds to which no limit was set, was able to be first in the field, using small factories at the outset until, at Salindres, came the full-scale attempt. His efforts brought down the price of sodium metal from 30 shillings an ounce to five shillings—a reduction which later appeared insignificant when Hamilton Castner, a young American working near Birmingham, made sodium at a shilling a pound! This was the crowning achievement of that

Vacuum suction of molten aluminium from a 100,000 ampere electrolytic cell at Lochaber.







Left: An unusual view of the pipelines which lead to the Kinlochleven Aluminium Works. Right: This footbridge near Alcester is made of aluminium.

former use of sodium for aluminium-making; that it began a sodium industry which today produces half a million tons of that soft, silvery metal, known to every chemistry student as one to be kept under oil because of its explosive reaction with water.

From France the scene changes to England, where a more extensive and efficient version of Deville's process became established, thanks to Castner coming to this country from New York, where his prowess as chemist was unappreciated. Deville had demonstrated his process in London; Michael Faraday had exhibited a specimen of the new metal at the Royal Institution, and Napoleon III had sent a sample to Professor Pepper, at the Polytechnic, for showing "to the great delight of the curious".

In 1860, the craze for "silver from clay" had penetrated to Tyneside where the Bell brothers, chemical manufacturers, operated a small factory for a few years. Yet, only two tons a year of aluminium was made, because of the bogey of having to use sodium metal, which was still so expensive. At Battersea a chemist named Gerhard also ran a small works until, in 1863, he too closed down.

Later, on Tyneside, came the most spectacular and dangerous aluminium-making, a process guaranteed to give a heart attack to any factory inspector of today. Huge five-pound blocks of sodium metal were forced by hand "dippers" below a molten bath of aluminium fluoride, with flames, smoke, and toxic fluoride fumes shooting out in what must have been the most hazardous trade then known!

All this growing, intense effort to produce cheaper aluminium by modifying Deville's process came to a climax between 1877 and 1890, at Oldbury, near Birmingham. Here grew up what was rightly claimed "the largest aluminium works in the world"—for that era at any rate. Enter on the scene a curious enthusiast in James Fernley Webster, one-time farmer who suddenly turned to industry by some whim still not traced. Webster was "a gifted amateur", as we say today; a man with little or no technical knowledge but who learned as he went on.

He set up first in a Birmingham suburb named Hollywood; later, in his huge factory with a row of immense sodium stills and aluminium furnaces, he outbid many a scene from that other Hollywood! Sir Henry Roscoe, who became a director, described in a lecture in 1899 the remarkable scene at its zenith. The company had coaxed Hamilton Castner from his small sodium works near Waterloo Bridge to come and produce sodium on a big scale in the Midlands. He did this in a long line of 20 huge, egg-shaped stills fitted with still-heads, the retorts being lifted by hydraulic cranes when replaced by ones with freshly-charged caustic soda and charcoal-plus-iron mixture. The sodium was sliced in a tobacco-cutting machine, reacted with vast quantities of purified aluminium chloride in furnaces, and aluminium was produced by the ton.

"From Sunday night to Saturday afternoon" the sodium stills and aluminium furnaces were worked continuously, the metal being produced, in the end, at sixteen shillings a pound.

Young Castner, indeed, founded a British sodium industry, producing all the important derivatives known today, mainly because, when the new aluminium process burst in the news reports, there was a vast surplus of sodium metal. No partners in chemical history can compare with the expert chemist Castner working with the amateur Webster, that man who would nonchalantly take a handful of sovereigns from his pocket, toss them into molten aluminium and make gold-alloy cigar-cases (one sample of which is now in the Birmingham Museum).

In 1886, in the midst of this large-scale aluminium-making in the Midlands, came the ominous report which Castner first assessed as a new process which would render Deville's process obsolete. A young chemistry student at Oberlin College surprised his chemistry professor, a man named Jewett (trained by Wöhler and hence interested in aluminium) by walking into his study to show him a handful of aluminium beads or "buttons" he had prepared by use of an electric current. These metal beads, now preserved in a magnificent casket as "Aluminium Crown Jewels", represented a break-through—a banishing of the expensive sodium process used in France and Britain.

Hall's story, with his success where his "prof." had failed, seemed like so much fiction. Then came a remarkable coincidence that a second youth, born in the same year, in France, should independently discover the same process. Paul Héroult was for ever "broke", always trying to raise money, even on one occasion pawning an aluminium bar, which was a personal souvenir from Deville. The pawnbroker thought it was silver, but on learning that it was aluminium gave two francs for it. Héroult inherited a small tannery in 1885, one which had a small engine working a rough dynamo, and this became the key to his success, for he used it to generate current for his aluminium experiments.

He had seen in shops on the grand boulevards some aluminium coffe-pots and jewellery; hence his impulse to join

(*Continued on page 381*)

CYCLISTS STORM THE THREE PEAKS

By

HENRY NORTH

ON a Sunday afternoon last September I stood among a crowd of people near the railway station at Horton-in-Ribblesdale, in the West Riding of Yorkshire, staring hard at the road. Good-natured policemen were keeping the tarmac clear; a television photographer had settled happily on the roof of his vehicle, left hand clutching a cine camera with an impressive zoom lens while the other hand reached for some sandwiches.

Young men and women wearing arm bands consulted notebooks and stop watches. A tape was laid on the road. Reporters shuffled the leaves of their notebooks. Meanwhile, low clouds moved thickly across the sky, or wrapped themselves like grey shawls round the summits of Ingleborough, Penyghent and Whernside, the Three Peaks of Yorkshire, each standing over 2,000 feet above sea level.

At 2.20 p.m. there was a tremor of excitement in the crowd. A cyclist flashed into view and crossed the tape with such assurance and ease that he might just have trundled his machine on to the road. In fact the cyclist, Harry Bond, had just completed what is claimed to be the world's toughest cyclo-cross in record time. Behind him lay a gruelling 25-miles course which included the summits of the Three Peaks. Mud-spattered but cheerful, this 23-years-old Eccleshill plumber had covered those miles in 3 hours 20 minutes 8 seconds—12 minutes ahead of his nearest rival, team-mate John Rawnsley.

Harry Bond, record-holder in the annual Three Peaks cyclo-cross. All the illustrations to this article are by Henry North.

The start of a Three Peaks cyclo-cross. The riders stay in formation for a short distance on their outward journey through the village of Horton, where the race begins and ends.

Imagine setting off on a cross-country race with a bicycle, and you have some idea of what is involved in the comparatively new sport called cyclo-cross. Remember, though, that there are few level miles on the Three Peaks circuit, and that it is not always possible to ride. A competitor might have to shoulder his machine one-fifth of the way.

I shall be at Horton-in-Ribblesdale again on the last Sunday of this month, watching the third cyclo-cross to be organised in these parts by the Bradford Racing Cycling Club. It attracts top cycling talent from all parts of the country. Fifteen of 25 miles consist of unmade roads, tracks and fells.

In 1962, Bond carried his new 21 lb. machine for about five miles, and during the race he sustained himself by eating three bars of chocolate, two bananas and two pears. Some cyclists carry patties of cold rice pudding to take the edge off their appetites and to avoid "hunger knock" or its more serious successor, which they name "bonk", and which can reduce a cyclist to prostration.

Hunger, which may tend to be ignored in the excitement of the race, during which a cyclist could lose 7 lb. in weight, is only one problem to be overcome by the cheerful young men who pedal over the peaks. Cramp may strike on some lonely mountain side, although when it is likely to be caused through excessive sweating salt

Mrs. Anne Renshaw, one of only two women to complete the Three Peaks circuit on wheels.

tablets can be taken to ward off the complaint. There are rough places where a cyclist's jaws chatter like castanets, and where a slip might mean a gashed limb, or a crazy slide with the bicycle on top.

This cyclo-cross has a graceful, even sedate, start with the competitors cycling two abreast on the dale road through the village. Although the race has begun, they keep formation to avoid traffic chaos. But once the wheels have reached a rough lane leading to the flanks of Penyghent, then it is every man for himself. The lane, part of the Pennine Way, Britain's longest continuous footpath, is stony and rutted; machines and men can take a serious buffeting.

Last year, John Black of Lancaster, who eventually came in third, damaged the front wheel of his machine on this Penyghent stretch. The accident happened when he was half a mile from Horton on the return journey, for the same route is used up and down the first of the peaks. He might have given up then, but such is the spirit of these cyclists with amateur status that he picked up his machine and ran to the village, where a spare wheel was available.

A Morecambe competitor, Ian Craig, who was fourth, lost the back tyre of his cycle when he was half way up Penyghent, with the race only a few miles old. He picked it up and slipped it back in place, but it came off again. Once again, the spirit of the cyclo-cross proved to be something much stronger than mere rivalry and another cyclist, who had decided to give up, promptly handed Craig his machine. Craig continued to the summit of the mountain, and when, on the way back, he reached the spot where the accident had happened, he found that the stranger who had loaned him his cycle had now had Craig's own machine repaired. They exchanged again, and Craig went thankfully on.

From Penyghent summit, at 2,273 feet, to the dale road there is a rough, steep descent during which a cyclist cannot afford to relax for a moment. At the road again he can pedal rapidly to the head of the dale, which is reached in little over a quarter of an hour if he keeps up a speed of around 20 m.p.h. The temporary rest from battling with ruts, bogs and steep gradients ends when he prepares to climb Whernside, the second peak, its topmost crags being 2,414 feet above sea level. Whernside, which is like a huge whale in form, is the highest of the mountain trio, and actually occupies second place in the list of high-spots for the whole of Yorkshire.

The track to the foothills is rough. It passes under one of the lanky piers of Ribblehead railway viaduct. At Whernside itself, a cyclist slips from his machine, hoists it to his shoulder, and staggers up the steep gradient, which is seamed by rain (there are about 70 inches of rain a year in this district) and dotted with old thorn trees. The competitors see the tarns which, when springtime comes, will echo to the laughing cries of nesting gulls.

Downhill lies Chapel-le-dale, with Ingleborough (2,373 feet) looming beyond —the last major obstacle to be overcome. Whernside's slopes are only just rideable. At the bottom, a little road work can be undertaken before the muscle-stretching climb up through the limestone crags of Ingleborough to the grassy summit plateau from which, on a day other than cyclo-cross day, visitors may well find a thrill in seeing such features of the northern landscape as the gaunt mountains of the Lake District, or shimmering Morecambe Bay. Now twenty miles lie behind the cyclists and already they have been on the move for more than two and a half hours.

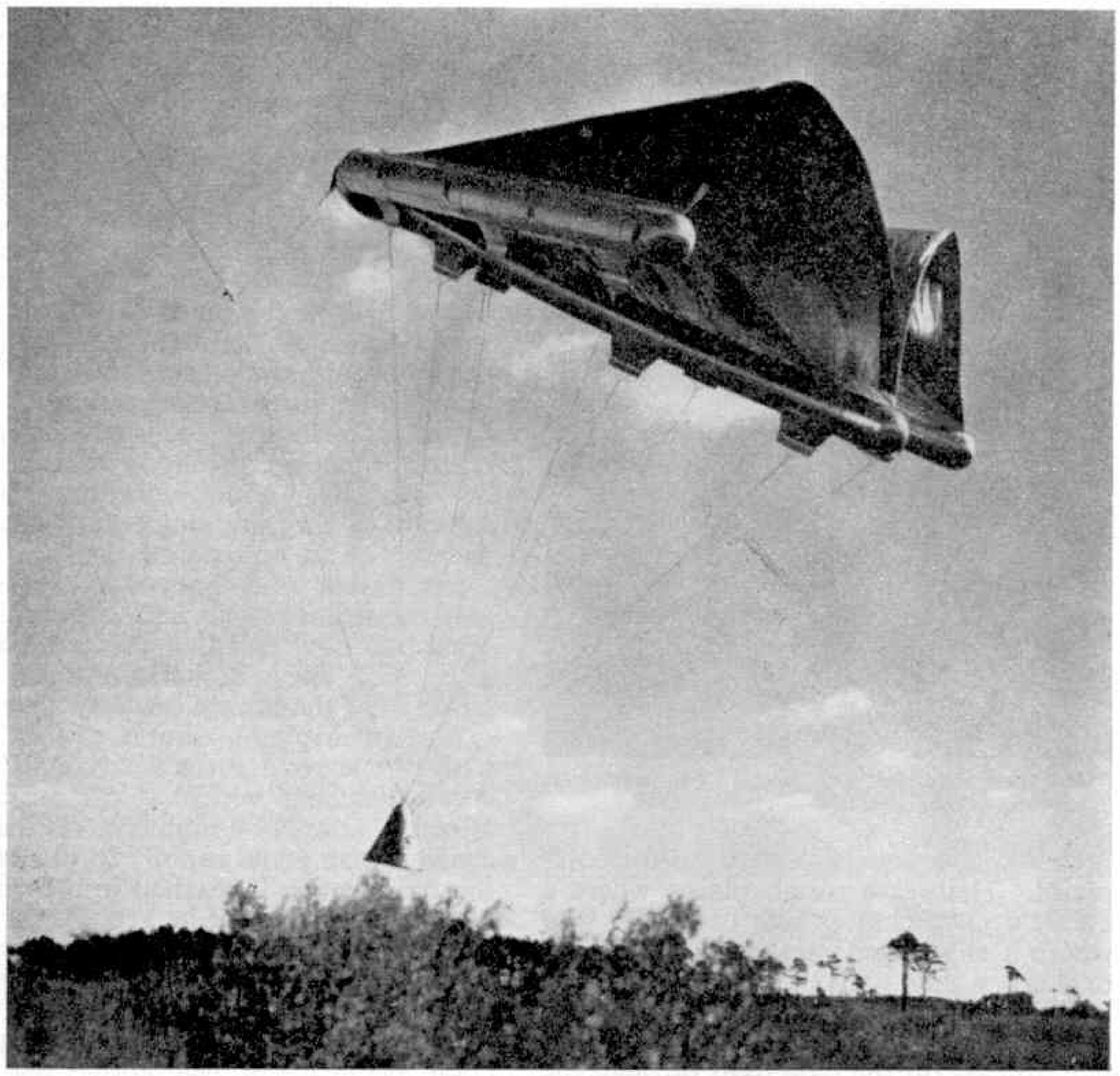
Thankfully they reach the Ribblesdale road at Selside, with the opportunity of a fast finish, but there can be misfortune even here. When the first cyclo-cross was

(*Continued on page 399*)

Right: Competitors in the Three Peaks cycle race pictured on the rough lane from Horton to Penyghent. Below: In this duel on the slopes of Ingleborough John Rawnsley, winner of the first of these arduous contests, and second to the tape last year, is on the left.

SPACE NOTES

Landing Gemini: Plastic Wing To Aid Re-Entry



This striking picture shows a model of a Gemini capsule landing under a Rogallo wing.

THERE is no doubt that of the last phases of a flight into space, those of lining up the craft prior to firing and the actual moment of firing are the most crucial. All who heard the landing by Major Cooper of his Mercury capsule must have been surprised by the precision with which he landed his craft—those with more technical knowledge were astonished!

There is no doubt that the return is the most dangerous part of any flight into space. A wrongly-timed firing of the retro-rockets can place the "splash" point hundreds of miles away from the scheduled landing area, and a wrong entry angle can turn the vehicle into a meteorite. It seems unlikely that there will be any more Mercury flights, and the next piloted satellite will be the Gemini two-man vehicle.

Technically, the re-entry problems will be similar to those of Mercury, although Cooper's magnificent effort will give a great deal of comfort to pilot and passenger in the Gemini. Only in the terminal phase will there be a radical difference. Mercury landed by parachute, whereas Gemini will use a Rogallo Wing. This is a plastic wing which folds up and when deployed opens up into a kite-like wing. The capsule hangs underneath and the pilot can glide and choose his landing point within a certain limited area.

NEXT MAJOR STEP

Looking back over the last five years of Space Notes I see that trips to the moon, living on the moon, and allied topics have featured in them quite frequently. I make no apology for the fact that such items will appear even more regularly in the future for, having put man into orbit, a moon landing becomes the next major step. The only firm project so far is the American Apollo. This was announced by President Kennedy in May 1961 and a great deal of the technical man-power of the U.S.A. is now channelled into making the moon-landing a reality.

By
J. HUMPHRIES,
B.Sc.(Eng.), A.M.I.Mech.E.,
A.F.R.Ae.S.

WASTEFUL METHOD

The most obvious way of getting to the moon is to take-off from the earth, journey straight to the moon and straight back. A little thought shows that this would be a most wasteful method; it would involve landing on the moon the complete vessel required for the journey between the two bodies plus the earth-landing vehicle. A tremendous saving in weight can be achieved by using orbital techniques.

There have been some changes in plans since Apollo was originally conceived, but the present scheme which involves orbits around both earth and the moon is unlikely to be radically altered. The sequence is as follows: the space-craft comprising a command unit, a service unit and a lunar excursion unit with three astronauts is launched into a parking orbit around the earth by means of an Advanced Saturn. The third stage of the large booster is then used to send the three units on a lunar trajectory. During the flight, course correction is applied by means of the rocket motor in the service unit which also slows the three units down at the end of the journey and puts them into orbit 100 miles above the moon's surface. Flight time between orbits is about two and a half days. The landing unit, known as the lunar excursion module (LEM) with two men on board, disconnects from the other units and is put into an elliptical orbit with the same period as that of the two other units. The perigee is ten miles, which allows the astronauts to survey the landing site. If all is satisfactory, the LEM is brought to a hover over the site, and landed. After about a 24-hour period of exploration and scientific tasks, the top part of the LEM takes off, leaving the landing legs and lower fuel tanks behind. After rendezvous and transfer of the two

astronauts back into the service unit a return trajectory is entered, using the service unit propulsion system, the rest of the LEM being left in lunar orbit. Towards the end of the return journey, the crew transfer to the command module which lands in the conventional way after jettisoning the service unit.

TESTING SPACECRAFT

Returning to the present, we see in the third illustration a simulator which is capable of testing, on earth, complete spacecraft under the conditions to be found in space. This stainless steel vacuum chamber is 47 feet high and 25 feet in diameter in its lower part. As well as being pumped out to simulate the vacuum of space it also contains 131 arc lights arranged to act as a mock sun. The brilliance of these lights can be varied to represent journeys either towards or away from the sun. Space is, of course, black, and heat which is radiated in space continues to travel and is not radiated back. This was a major problem in the design of the chamber. It was solved by lining the chamber with a hollow aluminium structure through which liquid nitrogen is passed, the inside face being painted dull black. The liquid nitrogen is stored in a 28,000-gallon tank which is sufficient to allow complete space journeys to be simulated.

We continue our survey of the solar system with a look at the most spectacular planet, Saturn, which circles the sun at a distance from the sun ten times greater than that of the earth. It is comparable to Jupiter in that it is a large planet, being a little smaller and less dense—the density is only two-thirds that of water. Several theories as to its structure exist. The most widely accepted is that it consists of a rocky core 28,000 miles in diameter, an ice layer 8,000 miles thick and a hydrogen–methane atmosphere. On this theory the gravity at the ice surface would be 2.7 times that of the earth's surface. The escape velocity is 16.2 miles per second, compared with that for earth of seven miles per second, so that construction of an escape vehicle would be a major project. Although the rings of Saturn, consisting of millions of particles, are unique, they will be of no use to future astronauts. But her nine satellites—in particular the largest, Titan—may be of use as refuelling stations.

Getting to Saturn with present propulsion systems is quite out of the question, the round trip for a minimum energy orbit being of the order of a quarter of a century. Thus it will be necessary to "drive" all the way and such trips wait for the development of large lightweight nuclear-power plants.

It is difficult to foresee man's flight to Saturn, but instrument-carrying vehicles should be on their way within twenty years.

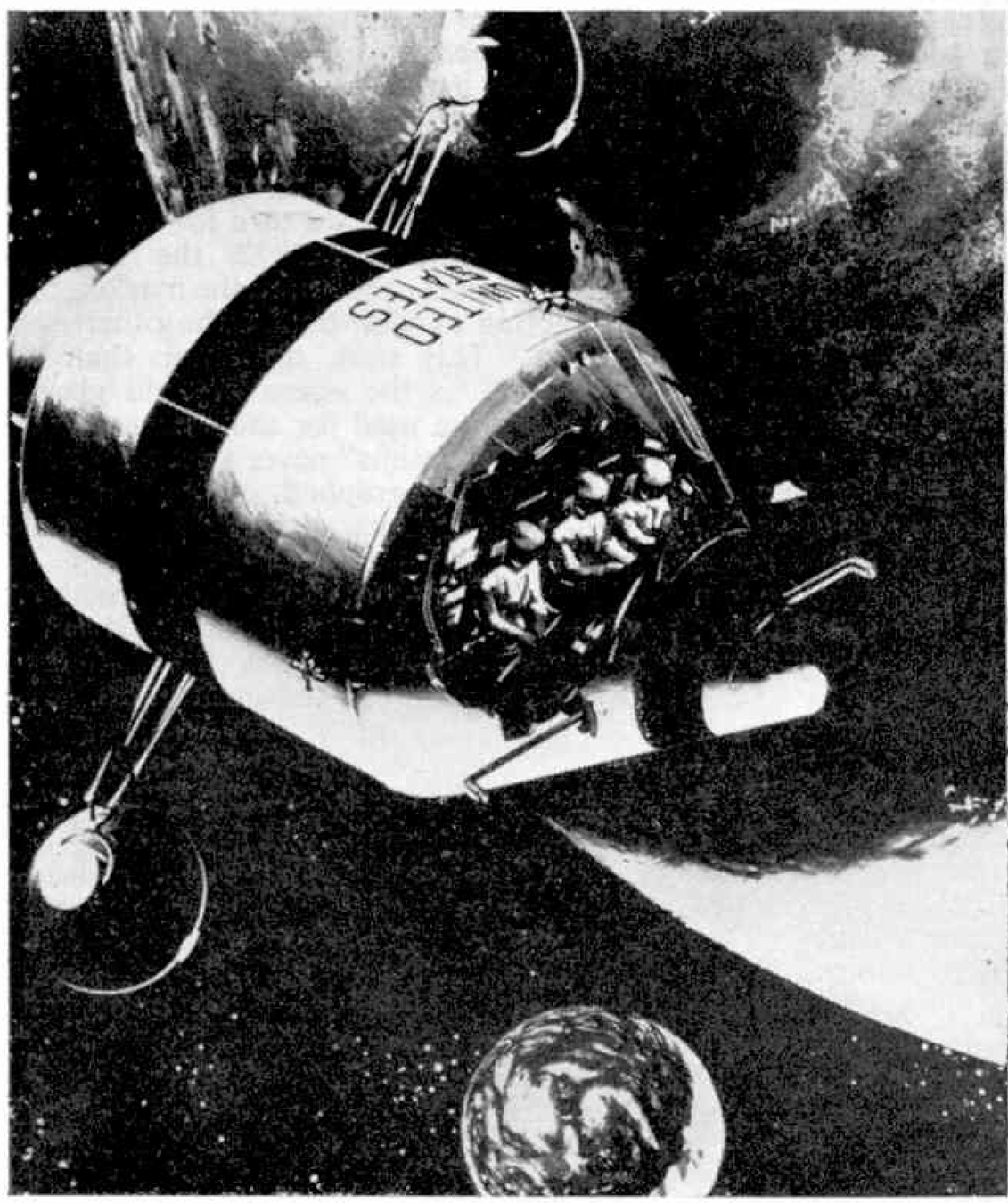
NEW LONDON TRANSPORT PUBLICATION

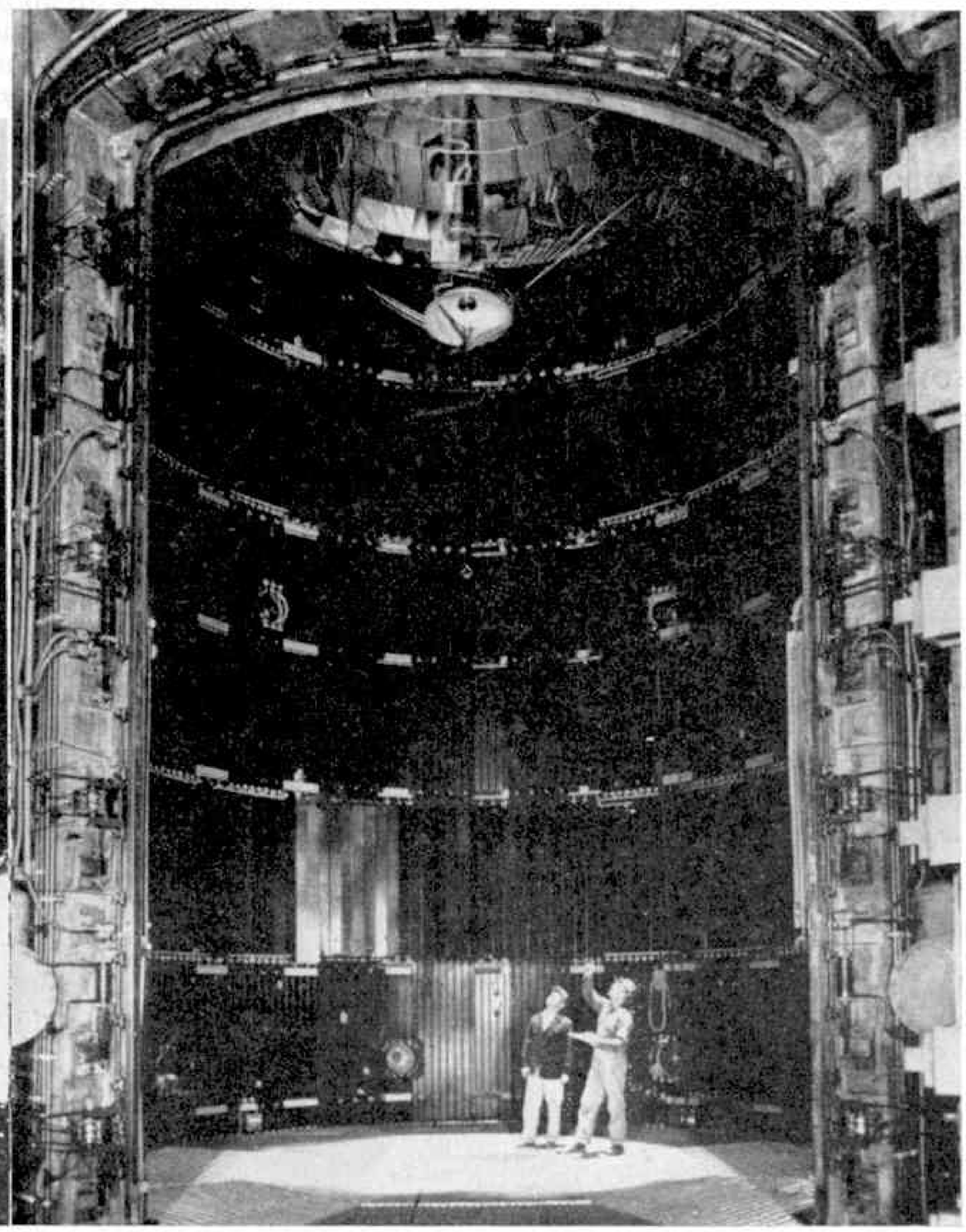
How The Underground Works (London Transport, 5/–), is a specially interesting official publication that tells the reader exactly what its title says. The London Transport network forms the world's most extensive urban passenger transport system, and as such the special nature of its equipment and the intensive use to which it is put is of particular interest, even in these days when so much is taken for granted.

The London Underground can claim to be the oldest system of its type in the world, the first section having been opened just 100 years ago. In successive chapters the construction of underground systems is dealt with, then come details of the track in use. Next are covered signalling and communications, so vital in the safe working of an intensively-operated system. Passengers will be more concerned with the chapters on rolling stock and stations, while power supply operation and traffic will have a special appeal for the more technically minded.

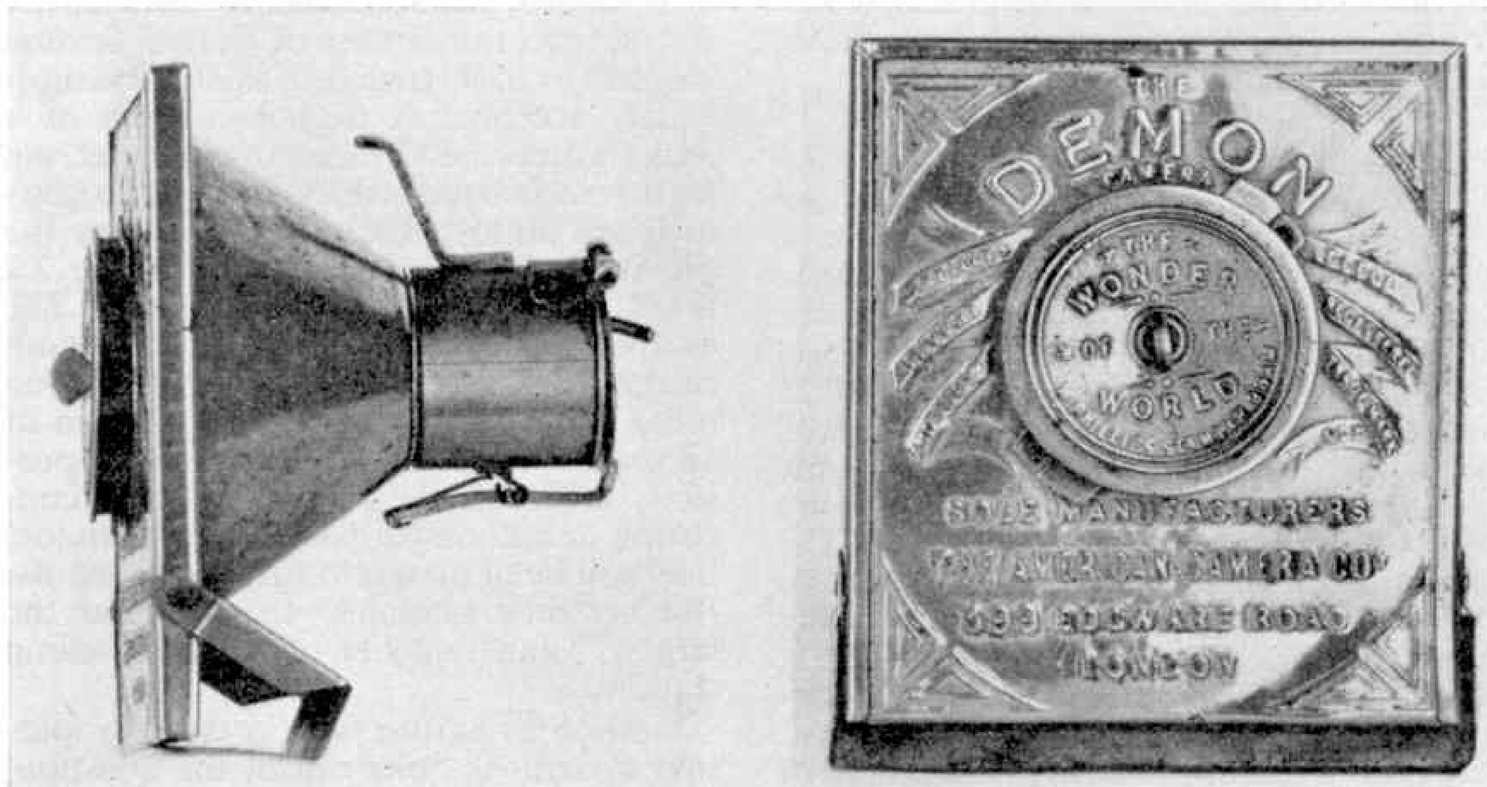
The organisation and management of the huge staff required on such a system is a subject in itself and, after a chapter dealing with possible developments of the present system, the book concludes with an appendix giving some interesting statistics. The text is well supported by illustrations and diagrams.

Below: An Apollo service unit and lunar landing unit in orbit. Right: Space simulation chamber for testing satellites at the Jet Propulsion Laboratory at California Institute of Technology. All the illustrations are by courtesy of N.A.S.A.





SECRET CAMERAS OF THE PAST CENTURY



Two views of the Demon Detective Camera made by the American Camera Company, London. The picture shows the side view (left) and the back. All illustrations are by courtesy of the Kodak Museum.

THOSE of us who own 35 mm. cameras may sometimes wonder at the excellent results obtained with something we can slip into a pocket or handbag. But do you know that over a hundred years ago, there were much smaller cameras invented, mainly for taking pictures where photographers were not supposed to be working.

By

LESLIE HUNT

In the year 1856 a Thomas Skaife produced a "Pistol Camera" with elastic bands working a spring shutter. With a one-inch lens the "Pistolgraph" was only three inches long and 1½ inches wide, taking plates of 1½ inch diameter, sensitised with collodion in an inflatable bag. Just as Skaife was about to photograph Queen Victoria, an over-vigilant policeman, suspecting attempted assassination, seized Skaife and made him open his "Pistolgraph", completely ruining his experimental "snapshot".

Eight years later, in France, an incredible camera, with all the intricate processing procedures carried out within the instrument, was invented by a man named Dubroni—a century before Polaroid developing and printing as we know it now. This Dubroni camera took a two-inch square picture and a pipette carried and removed the solutions from within the tiny mechanisms.

The following year C. Piazzi-Smyth, Astronomer-Royal for Scotland, smuggled a "secret" camera into the Great Pyramid and, on 3-inch by 1-inch microscopic slides, successfully photographed the interiors. Bryce of Edinburgh thereupon designed a greatly-improved version of this camera which took four plates, operating in rapid succession, giving a very sharp negative.

To meet the huge demand for miniature cameras required by "the law" and also used, of course, by those "on the other side", a Birmingham man sold a camera built into what looked like an ordinary watch, in the days when gold and silver watches were worn by both sexes. The men sported elaborate chains from one side of the waistcoat to the other; the ladies usually had their watches pinned to their dresses on smaller chains.

Under pretext of winding the watch, pictures 2 inches by 1½ inches could be taken, sometimes in circumstances which later proved the undoing of those who were unaware of the "snap". Unfortunately blackmail took a turn for the worse, especially when, in 1872, the "Opera-Glass" camera came on to the market, one half acting as view-finder, the other as a camera. This took no fewer than 50 plates and as the opera or field glasses could also be used for their normal purposes, the "victims" never knew how they had been photographed. A "hat" camera with 2½-inch lens also achieved some success.

The police now demanded something which could not be identified by the underworld and Thomas Bolas offered two innovations to the authorities. The

The "Kruegener" book camera is shown on the left, and below is a picture of the "Presto", which appeared in 1899. It took four plates 1.2 inches square or 30 mm. roll-film.

A product of 1906 was the "Ticka" watch camera, seen here.

first was a cigarette box which could be placed on a table or ledge of a theatre-box and operated on the delayed-action system. The other was a book which could be used as a camera while being carried under the arm or even as one read and turned the genuine pages. The Germans were quick to improve upon this and put a lens into a false binding of a pocket book-diary so that, as the policeman asked questions and wrote the answers down, the notebook was taking pictures in close-up through the relentless "eye" in the binding.

Soon we had the photo-album camera which was used indoors to photograph those who did not wish the police to have their pictures on their files. In the next years came the walking-stick camera, the telescope-camera and even one which worked when an umbrella was opened.

In 1887, a Berlin firm brought out a really workable camera with the lens in the winding knob of a watch, and the negatives of 4 by 15 millimetres were first-class. Photo-revolvers now had a turn and both police and criminal used this invention—to photograph and to frighten. (As recently as 1938, the New York police proved to a jury how they had been compelled to kill a wanted man—and showed the pictures taken by the gun which actually caused the crook's death.)

Top-hat cameras came back into fashion, although one had to be careful about the placing of the hat so that nothing obscured the lens. Then came the tiniest of cameras, included in a man's cravat, the front of a lady's handbag, or in a tie-pin or brooch. One which had a good run

(Right) This composite picture based on the "Ticka" camera shows how closely it resembled a watch. In the top portion can be seen a spool, and the strip across the centre shows contact prints made from negatives. A roll of negatives is shown at the foot of the picture.

involved a series of dry plates carried round the neck inside the remainder of the tie. Then came what was believed the best yet—a camera in a round box which could be carried in a special pocket with the lens positioned through a false waistcoat-button. The 6 by 4.5 centimetres plates were circular.

The famous firm of Kodak gave considerable thought to really practical cameras for the growing enthusiasm for taking snaps and in 1895 produced their first "pocket" model, the inventor of the "red window" which protected the film receiving no less than 40,000 dollars for his idea. France came out with a new binocular camera and in London the Demon Detective Camera was quickly followed by the "Kombi", which combined a camera and graphoscope and could take either plate or roll-film. Then came a new book camera, the "Kruegener" and, in 1899, the "Presto". In 1906 the "Ticka" watch-camera introduced casettes for 25 exposures only $\frac{7}{8}$ inch by $\frac{5}{8}$ inch.

In August, 1914, Kodak paid out the amazing sum of 500,000 dollars for the rights of H. J. Gaisman's latest idea which gave the "Autographic Kodak" to the world. Now one could actually write—on the film itself—the details of the snapshot, with a special pencil attached to the camera. Your notes about the place, people, etc. then appeared on the negative and print. Unfortunately, the first World War came along and, when it ended, camera enthusiasts had other ideas. The Gaisman invention was withdrawn from sale in 1934.

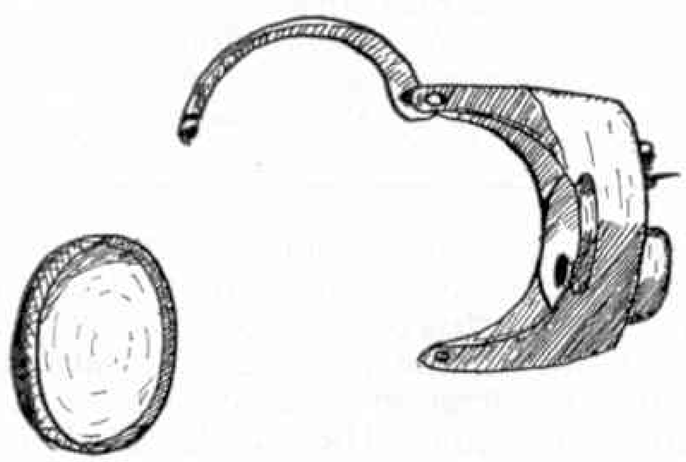
It was during the 1914–18 war that 35 mm. cameras made their appearance and quickly rumours spread that enemy agents were using these as eyes in ventriloquist's dummies, or as fobs on watch-chains. In point of fact, there was actually a call for something large, not small, as aeroplanes were taking part in war for the very first time and pictures of enemy troops and gun positions were wanted by both sides. Huge, clumsy cameras, held over the sides of slow-moving aeroplanes and in great balloons, took very clear shots of the front lines and made it possible for accurate maps to be drawn up.

After World War One many new miniature cameras were marketed, the Leica, and cheap models such as the "Foth Derby", which sold at under £7 in the nineteen-thirties, the famous Ensign "Midgets" at £2 10s., and then match-box cameras such as the "Petite". The Leica, though, kept its place in competitive trading and—as you doubtless know—was the camera used by the man who smuggled micro-filmed documents from Turkey to the Nazis in "Operation Cicero".

Today, the inventive Germans are designing tiny models once more, and one has been produced recently in an ordinary ring, taking shots on a circular piece of film the size of a sixpence. Each of the four exposures is 3.5 millimetres in diameter but can be enlarged eighteen times —to $2\frac{1}{2}$ inches—with no appreciable loss of sharpness.

The front of this "ring" is only about

(*Continued on page 402*)

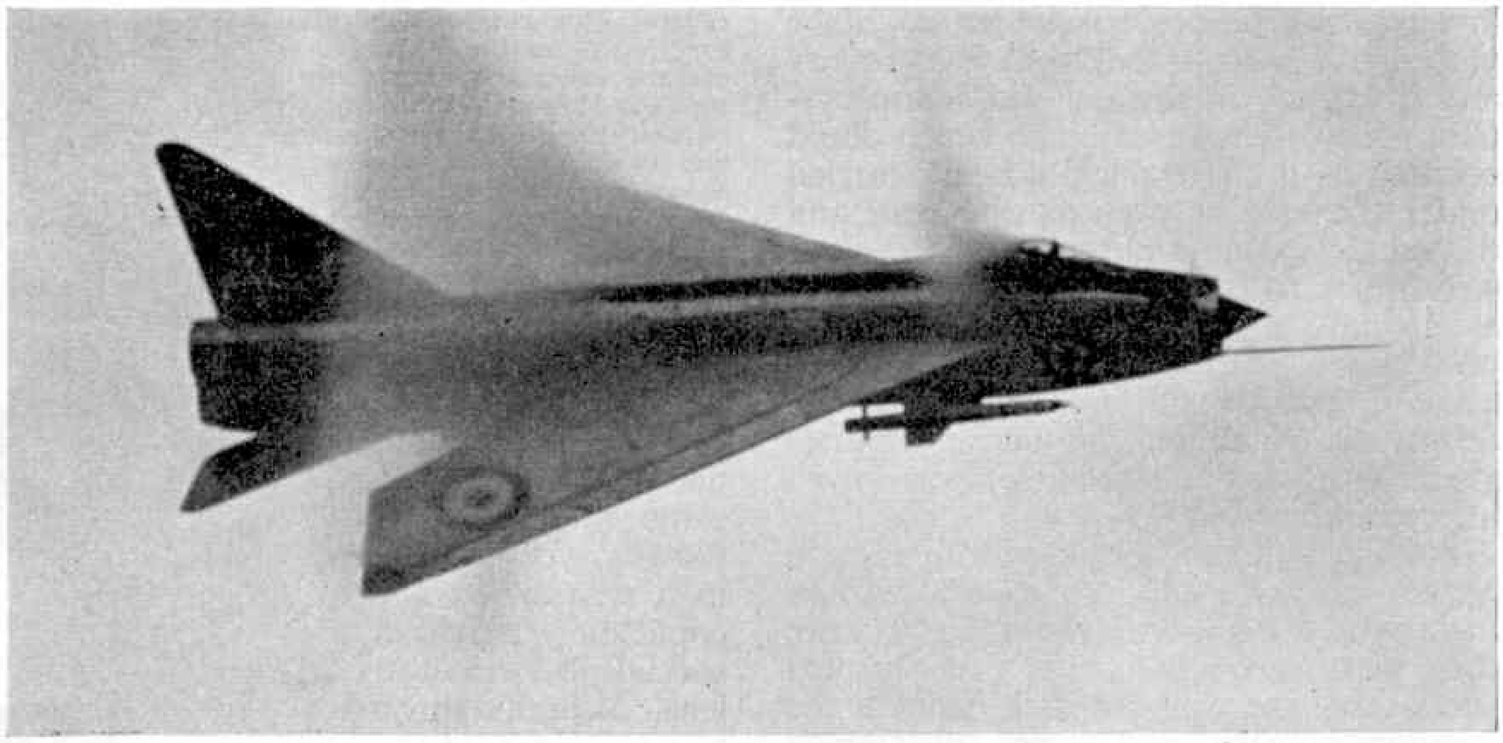


(Left) The line drawing, by Neil Hunt, is of a ring camera of 1960 which takes shots on a circular piece of film the size of a sixpence. The photograph below it is of a watch camera known as the "Stirn".

AIR NEWS

By John W. R. Taylor

FROM BRUSSELS TO PARIS IN TEN MINUTES



This picture shows the shock-waves on a Lightning fighter of No. 74 Squadron R.A.F., during fly-past at just below the speed of sound.

ACCORDING to a useful little table in my pocket diary, the distance from Brussels to Paris is 169 miles. So Bernard Neefs, chief test pilot of Avions Fairey, set a record that will take some beating when, on the eve of this year's Paris Air Show, he made the journey in under ten minutes.

I had not met Bernard Neefs since 1960, when I watched him perform almost unbelievable aerobatics in the tiny 100 m.p.h. Tipsy Nipper lightplane at the Venice Air Show. Now, he spends his time testing the 1,450 m.p.h. Lockheed F–104G Starfighters which Avions Fairey is building in partnership with another Belgian company, S.A.B.C.A., and Fiat of Italy.

It was an F–104G that he used to set up his new Brussels–Paris record, timed officially at 9 min. 55.7 sec. He began by flashing at low level past the timekeepers in the control tower at Brussels Airport and then climbed steeply to a height of 35,000 feet in only 45 seconds. Levelling out, he flew for 3 min. 50 sec. at twice the speed of sound, and then began a gradual descent at subsonic speed towards Le Bourget Airport, Paris, where the second set of timekeepers clocked him as he passed low over the runway.

VISIBLE SHOCK-WAVES

As at most present-day air displays, pilots were not allowed to fly faster than sound during their demonstrations in Paris this year, to prevent possible damage to buildings from the shock-waves created at supersonic speeds.

Most of us have heard the "sonic booms" created by such shock-waves, and even felt them as aircraft have passed overhead; but it is not often that shock-waves can be *seen* as clearly as those in the photograph of a Lightning fighter of No. 74 Squadron which appears at the top of this page.

It is not necessary for an aircraft to fly at, or above, the speed of sound before shock-waves appear, because the air flowing over the curved top surface of the wing, or over the cockpit canopy, accelerates to supersonic speed while the forward speed of the aircraft is still subsonic. This particular photograph was, in fact, taken while the Lightning was flying just below the speed of sound. The shock-waves became visible because the air was very damp at the time.

Although the shock-cones look solid, they were probably hollow and were caused by spontaneous condensation of the water vapour in the airflow, following a rapid change in pressure. In the case of the forward cone, the airflow had to accelerate to pass over the cockpit canopy. As it did so, the pressure fell, causing further acceleration until the airflow became supersonic. The air slowed down again to the speed of the aircraft just behind the canopy, which explains the sudden ending of the shock-cone. The rear cone was formed in the same way just aft of the thickest portion of the wing.

An interesting fact about these visible shock-waves is that they duplicate almost exactly the shock-waves produced on models of the Lightning in the British Aircraft Corporation's wind tunnels at Warton, near Lytham, Lancashire. There could be no better proof of the value of wind tunnels in helping aircraft designers and engineers to work out the best possible shape for an aeroplane long before it flies.

WORD OF WARNING

A notice published recently in the South African magazine Wings *states, "Pilots intending to night stop at Mtwara, East Africa, are advised that damage has recently been caused to aerodrome equipment by lions which frequent the aerodrome at night".*

AN OLD FRIEND

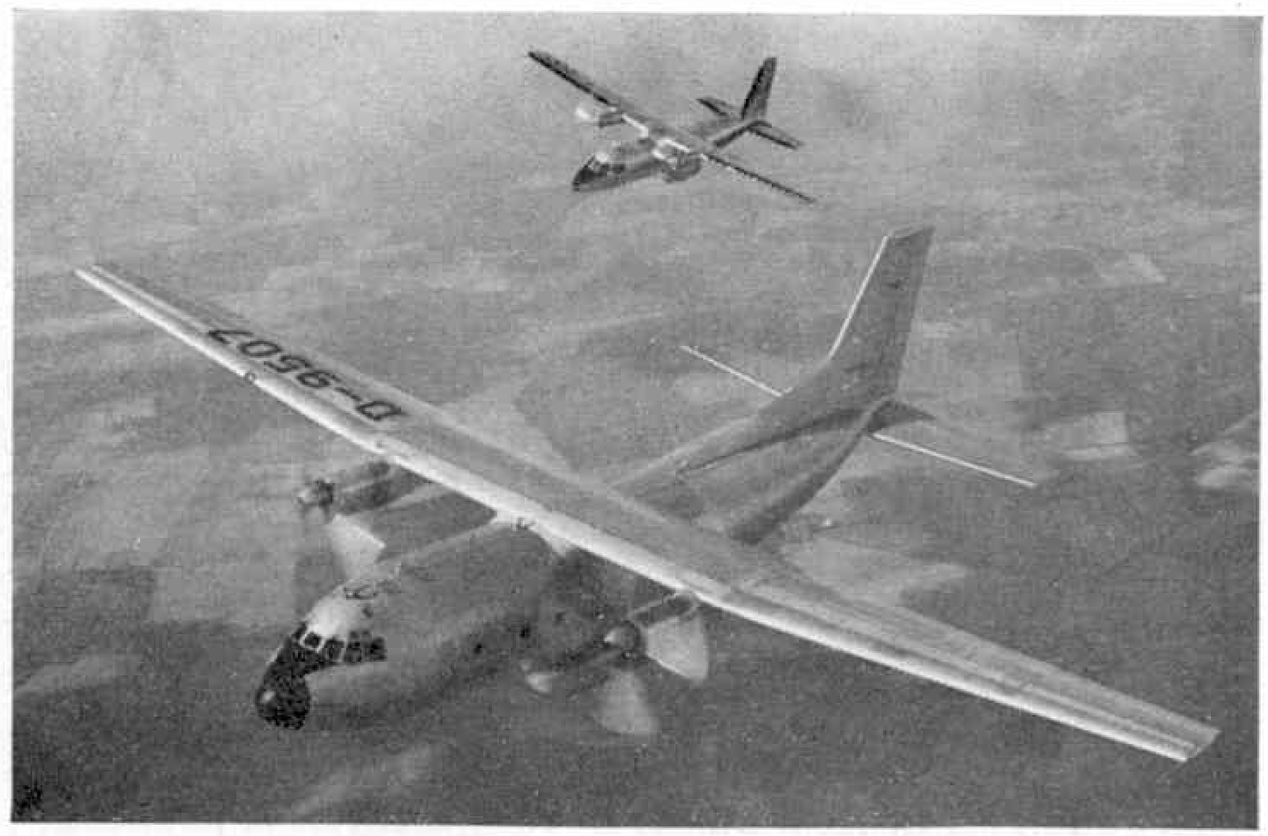
Spotters in Britain and other parts of Europe have been rubbing their eyes in recent months, unable to believe at first that they had glimpsed a genuine Republic

This machine, one of the 15,300 Thunderbolts built by Republic Aviation Corporation for allied forces during World War II, has been on a flying tour of NATO bases.

P–47D Thunderbolt flying overhead. Yet it has been no optical illusion, for one of these great fighters of World War II has been on a flying tour of NATO bases in Western Europe.

The Thunderbolt is shown in the lower photograph on page 370 with its pilot, Glenn Bach, who flew fighters of this type on many wartime missions and is now chief production test pilot of Republic's twice-the-speed-of-sound F–105 Thunderchief.

The F–105 is the U.S.A.F.'s modern counterpart to the P–47 and the two aircraft have much in common apart from the fact that they are both Republic designs. For example, the Thunderbolt is the biggest and heaviest single-seat, single-piston-engined fighter ever built, while the Thunderchief is the most powerful and heaviest single-engined combat aircraft of any kind.



Right: The French-built prototype of the Transall C–160 (foreground) seen in flight with a Nord 262 light transport. Below: A Westland Wasp helicopter lands on a rolling platform at the Royal Aircraft Establishment, Bedford.

MISSED THE BOAT

When the frigate H.M.S. *Puma* left Rio de Janeiro, Brazil after a three-day courtesy visit, one of her crew arrived late and missed the boat. At once, the Brazilian Navy Minister came to the rescue by offering to fly the sailor out to the ship in one of the Westland Whirlwind helicopters operated by his Naval Air Arm.

Complete with his luggage, the sailor was soon speeding in pursuit of the *Puma*, which was overhauled off Cabo Frio, some 75 miles east of Rio, after an hour's chase. The sailor was lowered to the deck by the 'copter's rescue winch. We can only guess what kind of reception awaited his airborne arrival.

FRANCO-GERMAN TRANSPORT

A few months ago, I told you in *Air News* about the Breguet Atlantic anti-submarine aircraft, components of which are built by the aircraft industries of four NATO nations in Europe. On this page you see a picture of yet another of the aircraft which are now being produced internationally on the continent. It is named the Transall C–160, indicating that it has been developed by a "Transport Alliance" of three German companies and one French company. The first prototype, which flew on February 25 this year, was assembled by Nord-Aviation from major components built by all four partners. The second prototype was assembled in Germany by "Weser" Flugzeugbau and flew on May 25. Both aircraft took part in the Paris Air Show, taking off together.

The Transall C–160 looks rather like a twin-engined Lockheed Hercules and is much the same size as the American machine, with a wing span of 131 ft. 3 in. and length of 105 ft. 4 in. But its loaded weight of 114,650 lb. is much less than that of the Hercules, and it is able to take off and land in under 500 yards. Thus it can carry its payload of up to eighteen tons into short airstrips in front-line areas.

Like the Breguet Atlantic, the Transall C–160 is powered by two Rolls-Royce Tyne turboprops, built in France by Hispano. In this case, they are Tyne RTy.20's, each developing 5,665 h.p. They enable the aircraft to carry 90 passengers at up to 375 m.p.h. Vehicles can be loaded by means of a ramp under the rear fuselage, which can be opened in flight for air dropping equipment and supplies.

CHALLENGE ACCEPTED

Some time ago, when one of Russia's giant Tu–114 turboprop airliners flew to New York, the Soviet Union challenged the ability of any U.S. transport operator to fly a non-stop U.S.–Moscow service. On May 19 this year, the VC–137C special-missions version of the Boeing 707–320B airliner (illustrated in the July *M.M.*) picked up the gauntlet. On a routine trip, carrying the chairman of the U.S. Atomic Energy Commission from Washington to Moscow, the VC–137C did the journey non-stop in 8 hr. 38 min. 42 sec. The previous record for the 5,004-mile route was held by the Tu–114, which had taken some twelve hours to cover the distance. When the VC–137C landed in the Russian capital there was sufficient fuel in its tanks for another 1,000 miles flying.

ROCK-'N-ROLL TEST RIG

The lower illustration on this page shows a Westland Wasp helicopter about to land on a platform which can be rocked and rolled to simulate the movement of a ship at sea. Such tests, made at the Royal Aircraft Establishment, Bedford, were very necessary, as the primary duty of the Wasp when in service will be to operate as an anti-submarine helicopter from tiny platforms on frigates of the Royal Navy. To make this possible, all kinds of special equipment, including a new type of undercarriage, have had to be evolved for the little 'copter.

Following tests on the rock-'n-roll platform, the Wasp was sent for trials at sea on the Tribal Class frigate H.M.S. *Nubian*. More than 200 landings were made in all weathers, and all were successful.

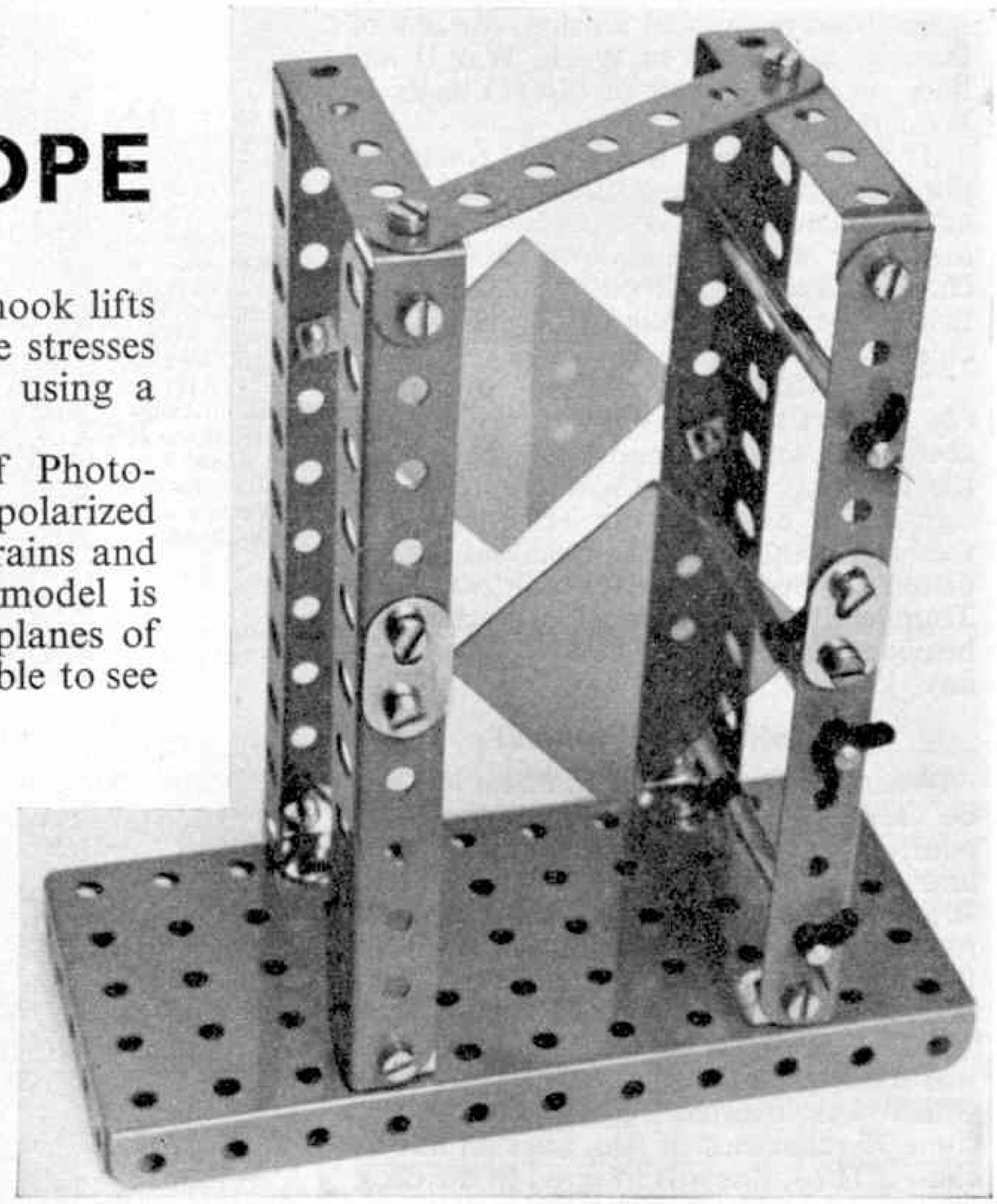
A MECCANO POLARISCOPE

WHEN a steel beam is loaded and bent, or a crane hook lifts a heavy load, stresses and strains are set up. These stresses and strains can be seen and accurately measured by using a Polariscope

Last month, in the article "The Phenomenon of Photo-elasticity", we saw how engineers and scientists use polarized light and plastic scale models to study and measure strains and stresses in engineering structures. When the plastic model is placed between two polarizing filters set so that their planes of polarization are at right angles to each other, it is possible to see

By J. A. FROST

stresses in the model appearing as black lines or fringes. The denser and more numerous the black lines, the greater the stress or strain. Scientists often use monochromatic light for their measurements—that is light of one colour only, but when strained models are examined in white light (daylight or ordinary electric light) which consists of light of all colours

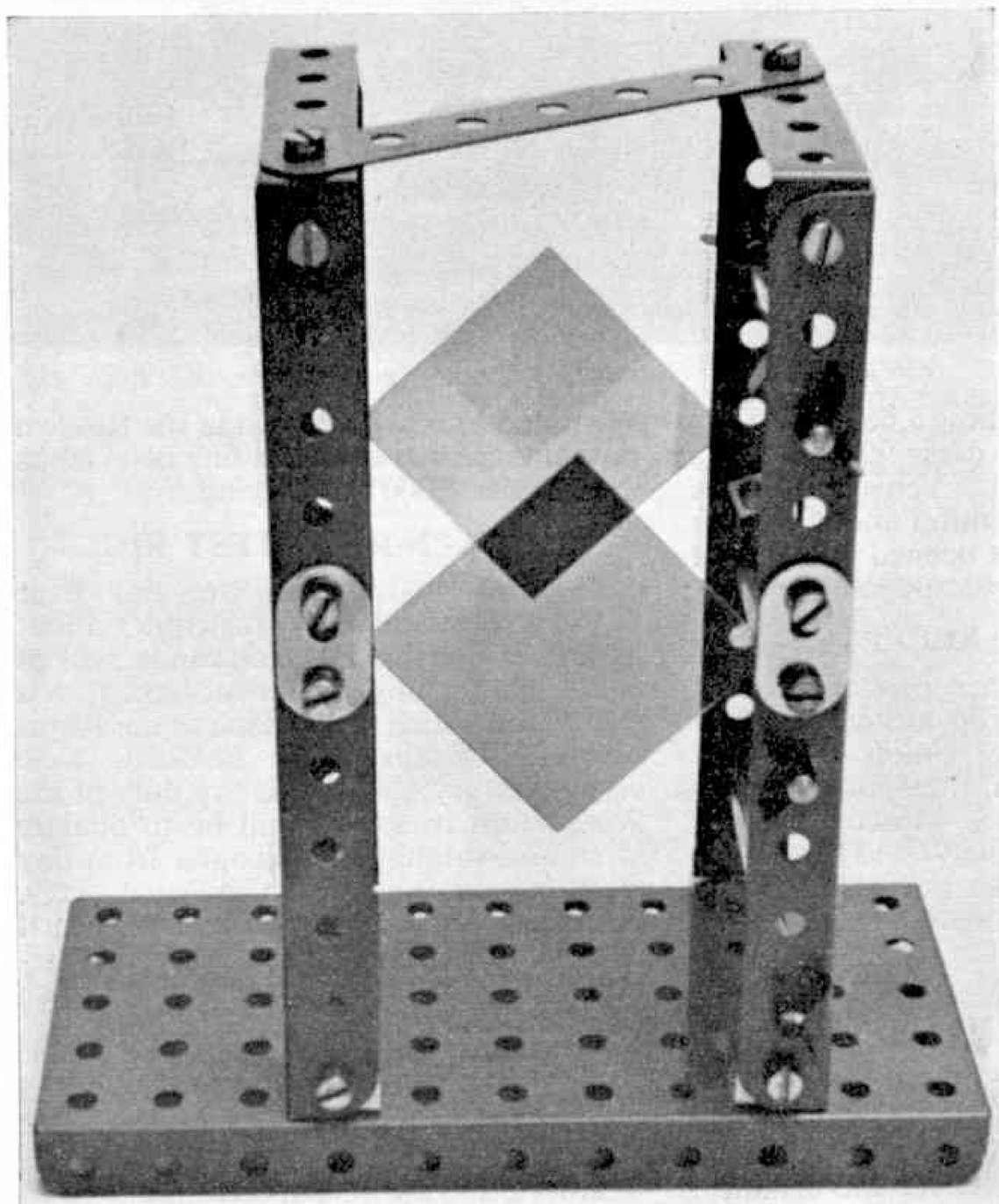


of the spectrum, then it is often possible to see coloured bands, intense reds and blues at the points of greatest stress.

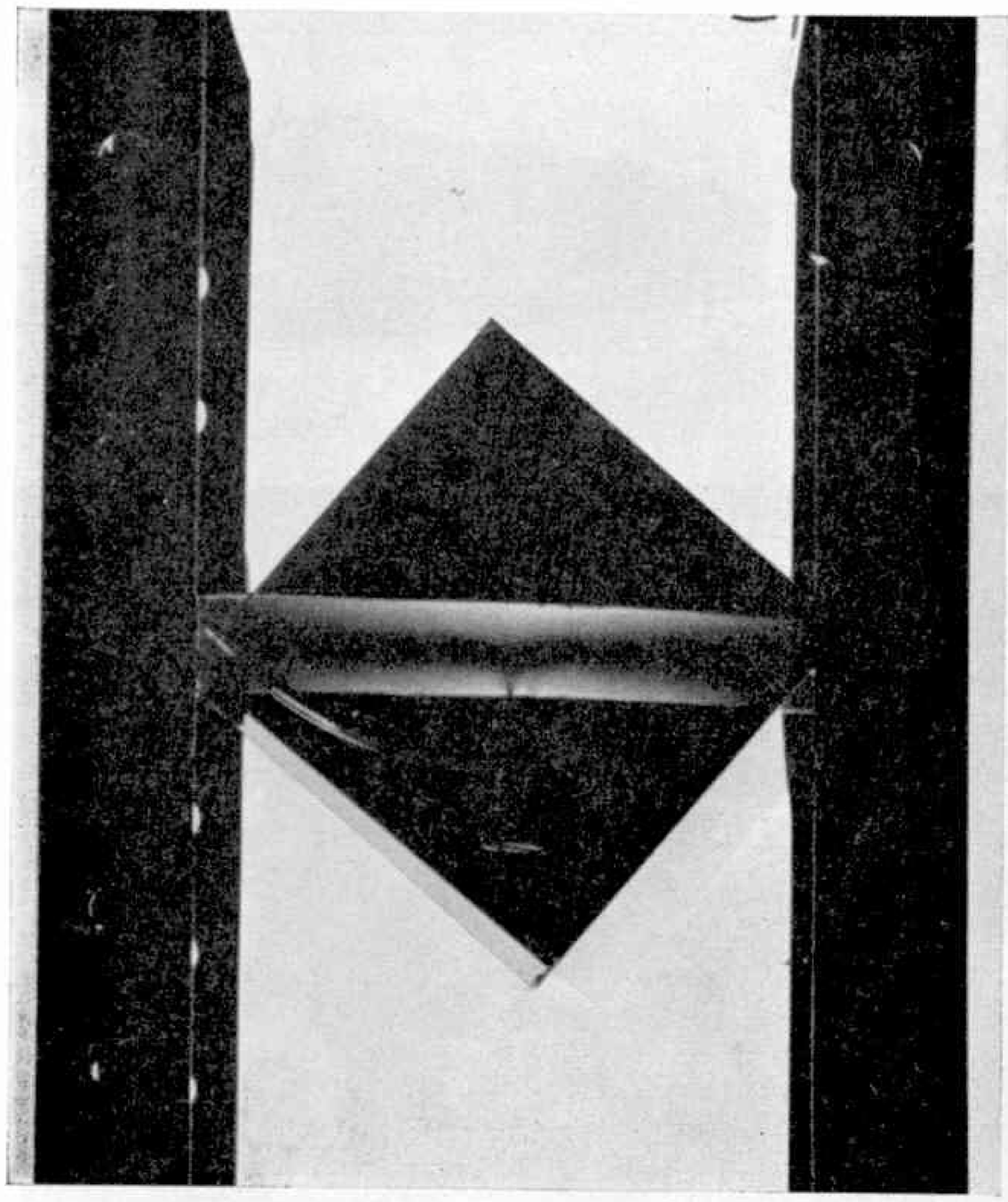
A simple Meccano Polariscope is easy to construct and it is equally easy to make up your own plastic scale models to examine in the Polariscope.

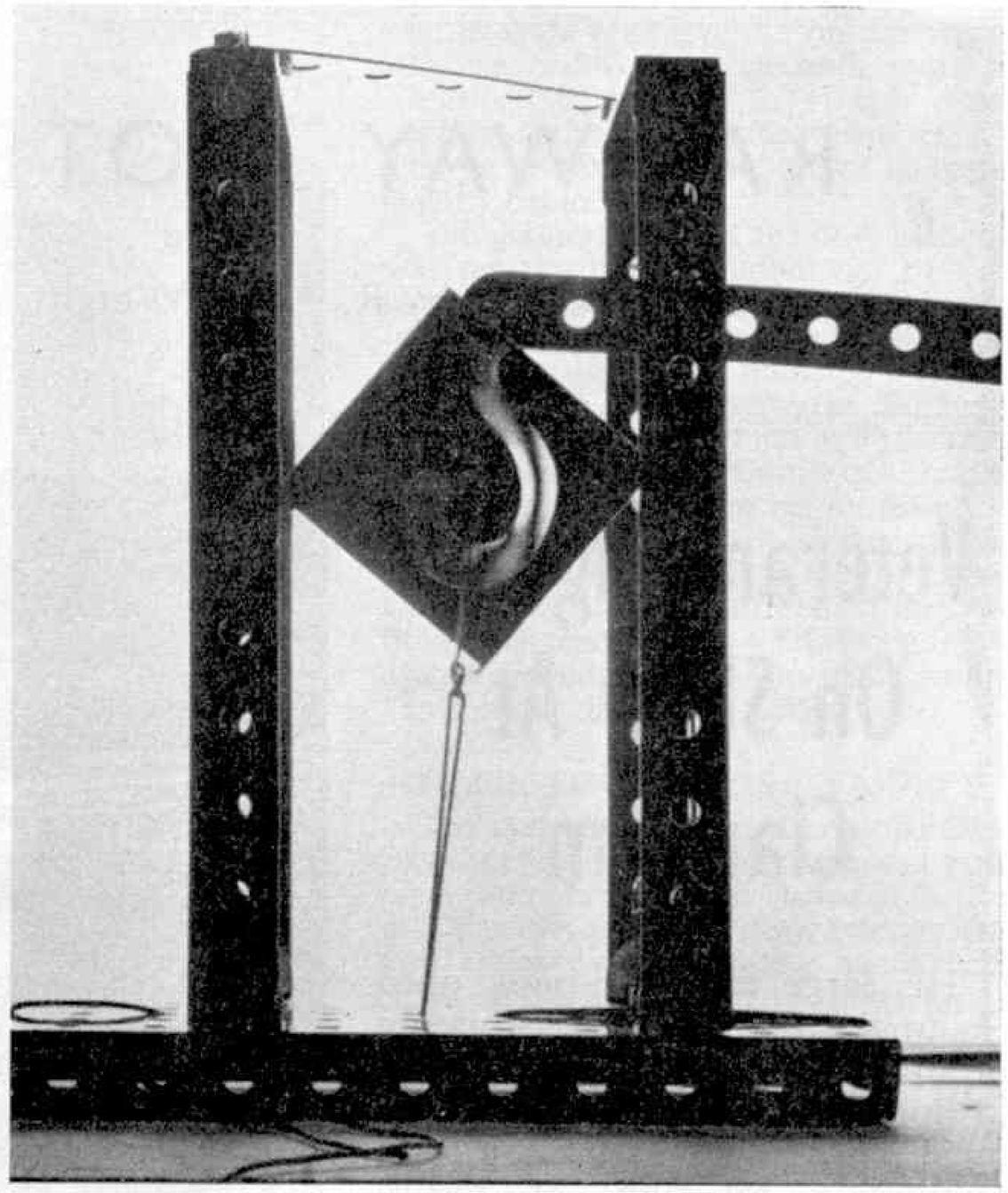
The Meccano Polariscope is shown clearly in our two first illustrations. It consists of four $5\frac{1}{2}''$ Angle Girders bolted on to a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate by means of Angle Brackets. A space of four holes is left between the Angle Girders, as shown. The Angle Girders are strutted across their top ends by two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips and one 3″ Perforated Strip, thus making the structure very rigid and able to withstand the stress which will be applied to the models. Several 3″ Axle Rods can be inserted through the Angle Girders as shown and secured at each end by a Spring Clip. The Axles are used as an anchorage for models under test or to carry a lever (a $5\frac{1}{2}''$ Perforated Strip) used for testing crane hooks.

The polarizing filters used in the Polariscope are two $1\frac{1}{2}'' \times 1\frac{1}{2}''$ pieces of special thin plastic materials (I can help you to obtain these, as stated at the end of the article). The filters are held in place in the frame by their edges under lightly screwed down Fishplates. To assemble the filter system, first clean the two filters carefully with a clean soft cloth, taking great care not



Two views of the Polariscope made from Meccano by the writer of this article. Notice (left) how the filters take on a darker shade when one is viewed behind the other.





Above: A plain straight beam under test in the Meccano Polariscope. The beam is stressed in a Formed Slotted Strip as described in the text. Note the points of stress where the edge of the bolt bites into the beam. Right: A model of a crane hook design being tried out in the Meccano Polariscope. The stress patterns appear in the curve of the body of the hook. This is the place where the hook will break when overloaded.

to scratch their surfaces. When held up to the light they appear a pale grey colour. If one is now placed behind the other, and both are looked through, they appear a darker grey. Keeping them one behind the other, hold one still and turn the other. In one position the light will be completely cut off and the filters will look black. This is the position where their planes of polarization are at right angles.

Keeping the filters in the same position relative to one another, mount them on the Polariscope frame as shown screwing down the Fishplates lightly to hold them in place. The Polariscope is now ready for use.

Several transparent plastics can be used for making models to be examined in the Polariscope. Perspex is one of the best of these and suitable small pieces can be obtained from most model and hobby shops. Flat Perspex Sheet $\frac{1}{16}$ inch thick is very suitable. This can be cut easily into appropriate shapes with a metal-cutting hacksaw blade or, if you want to cut curved shapes, an ordinary fretsaw or an Abrafile can be used. The models can be finished off, if necessary into the exact shape desired with a medium-toothed file. It is unnecessary to polish the edges after cutting as all the models are made so that the strains are viewed through the polished faces.

Start with a simple model such as a plain straight "steel" beam. Cut a piece of Perspex about 4″ long and $\frac{1}{4}$″ wide from a $\frac{1}{16}$″ thick sheet. Slide the piece through both slots of a Formed Slotted Strip. Put a $\frac{1}{2}$″ Bolt and nut in the centre hole and screw up the Bolt until it is pressing very firmly into the beam.

Stand the Polariscope on a table in front of the window, or in front of a table lamp at night. Hold the model in the space between the filters, and examine it through the filters.

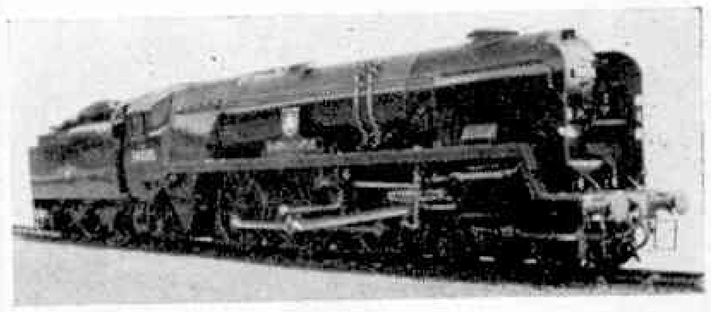
You will see a thick black band denoting strain in the middle of the beam. Where the edge of the Bolt bites into the beam, notice there are one or two strained areas showing that neither the Bolt nor the beam is perfectly flat. Try variations of the simple beam. For instance, cut a round or V-shaped groove in the position opposite the Bolt and study the changes in the stress patterns. If you do this you will see how grooves in the surface of a beam weaken it and how the sharper the groove the more stress there is concentrated in it. Knowing this, an engineer designing a piece of equipment tries to avoid sharp bends or undercuts on that part of the machine likely to be subjected to much stress. Any grooves or dents in the smooth curve of a crane hook, for example, will weaken it considerably.

It is easy to make a simple flat crane hook from $\frac{1}{16}$″ Perspex. Drill a hole in the top end of the hook and bolt it loosely to the end of a $5\frac{1}{2}$″ Perforated Strip. Mount the $5\frac{1}{2}$″ Strip on the Angle Girders by means of a 3″ Axle Rod passing through the third hole from the end of the Strip. Keep the Strip in the

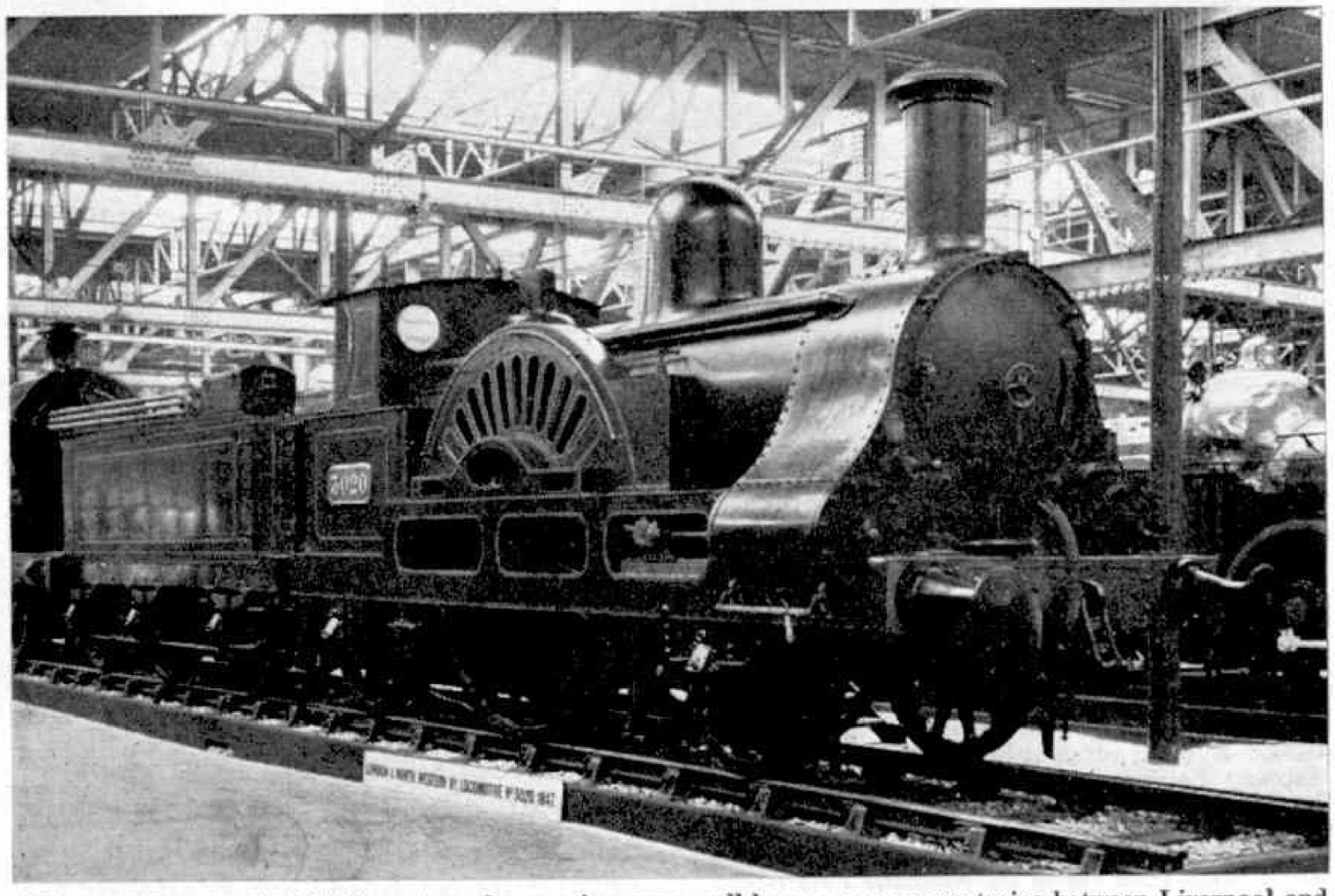
(Continued on page 402)

RAILWAY NOTES

Contributed by R. A. H. Weight



Veteran Engines On Show At Clapham



"Cornwall", an ex-L.N.W.R. veteran locomotive, once well-known on express trains between Liverpool and Manchester, is shown in the Museum of British Transport in this official B.R. photograph.

THE large extension now open to the public at the Museum of British Transport at Clapham in South London presents, among much else, a fascinating and representative selection of twelve famous and historic locomotives. Most of them gleam in the bright liveries of their original company owners, and are beautifully lined and finished.

They include a 2–4–0 and 0–6–0T in Great Eastern blue; Midland Compound No. 1000 superbly turned out in crimson lake; the ex-London and South Western, South Eastern and Chatham and Great Central *Butler Henderson* 4–4–0s in their varied shades of green. Contrasting in colour are the little "yellow" London, Brighton and South Coast Terrier tanks *Boxhill* and the lined black representatives of the former London and North Western, 2–4–0 *Hardwicke*, which made an extremely fast Crewe–Carlisle run during the "Race to Aberdeen" in 1895, and the astonishing old 2–2–2 *Cornwall* illustrated on this page.

Cornwall is a unique veteran, built in 1847 with a single pair of driving wheels of 8 ft. 6 in. diameter, and was shown at the London Great Exhibition of 1851. After modification and renewals, it hauled expresses between Liverpool and Manchester for many years, mainly on the route of the pioneer all-steam railway between those cities, opened in 1830, where the *Rocket* triumphed. In 1925, although retired from service some time before, but fortunately preserved, *Cornwall* ran under its own steam in the magnificently-organised Centenary Procession of locomotives and rolling stock along the course of one of the world's first railways, from Stockton to Darlington. It appeared also at the Liverpool Centenary Railway Exhibition in 1930. I attended, and well remember, both those memorable events.

Another veteran is the small Furness Railway No. 3 "Coppernob", a Bury 0–4–0 bearing air raid scars from Barrow-in-Furness. This is 117 years old!

There are also smaller narrow gauge, replica, model and sectional locomotive exhibits, together with many nameplates, pictures and relics covering a wide range of designs and periods.

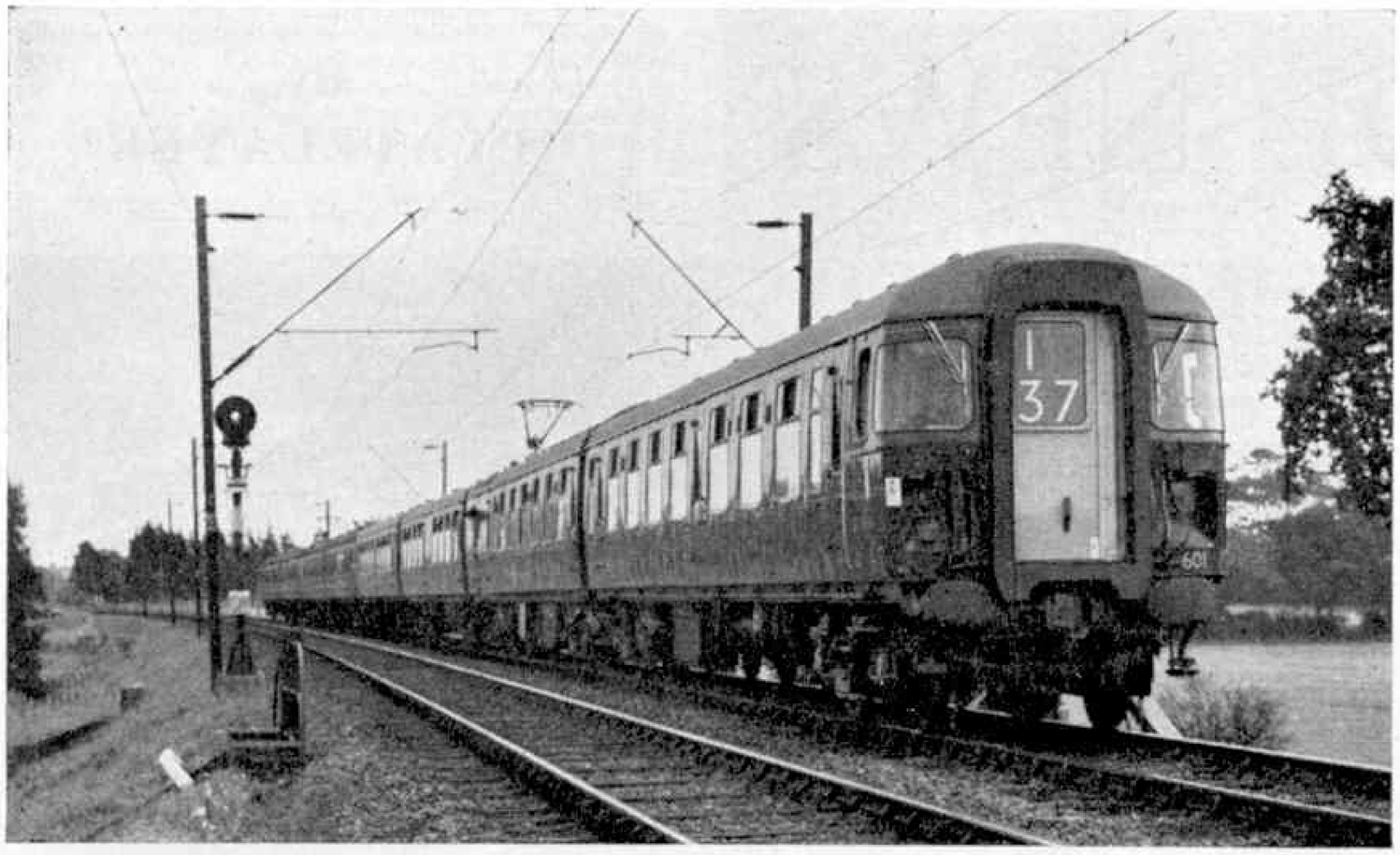
The carriage exhibits, particularly the beautifully-appointed Royal Saloons built at Wolverton Works, L.N.W.R. in the Victorian–Edwardian eras to form part of the West Coast Route Royal trains for day and night use, are a joy to behold. Representative examples of old as well as more modern saloon, Pullman, sleeping, dining and buffet cars are also well worth examining, together with some earlier-day wagons, postal sorting vans, miscellaneous items, models and replicas.

Also included in this newly-opened building, formerly a vast London Transport bus garage, is a splendid collection of historic London and provincial omnibuses, tramcars and trolley buses—horse, electric or motor — together with associated smaller items.

The museum is close to Clapham Common Underground Station (Northern Line) and is well served by bus routes. It is open from 10 a.m. to 5.30 p.m. each weekday, admission for adults being 2s. 6d., and for children 1s. 6d., with special arrangements for parties. I strongly recommend a visit!

G.E. SPEED AND COMFORT

The high-powered, overhead wire, multiple-unit electric train service between Liverpool Street and Clacton-on-Sea, Essex, which was fully developed for this season's timetable, is undoubtedly the fastest of its kind in Britain, and probably in the world. Never before have such high speeds, some averaging well over 60 m.p.h., between stops so close together been scheduled and achieved to such an extent, many times a day. Running hourly for most of the day, with extra morning and evening journeys, the quickest trains are allowed 86 minutes each way for 70 miles including five stops; and alternately



A G.E. Line train of new electric rolling stock on the run between Clacton and Colchester. B.R. (E.R.) official photograph.

92–93 minutes with eight stops. There are additional trains on Saturdays and quite a good Sunday service.

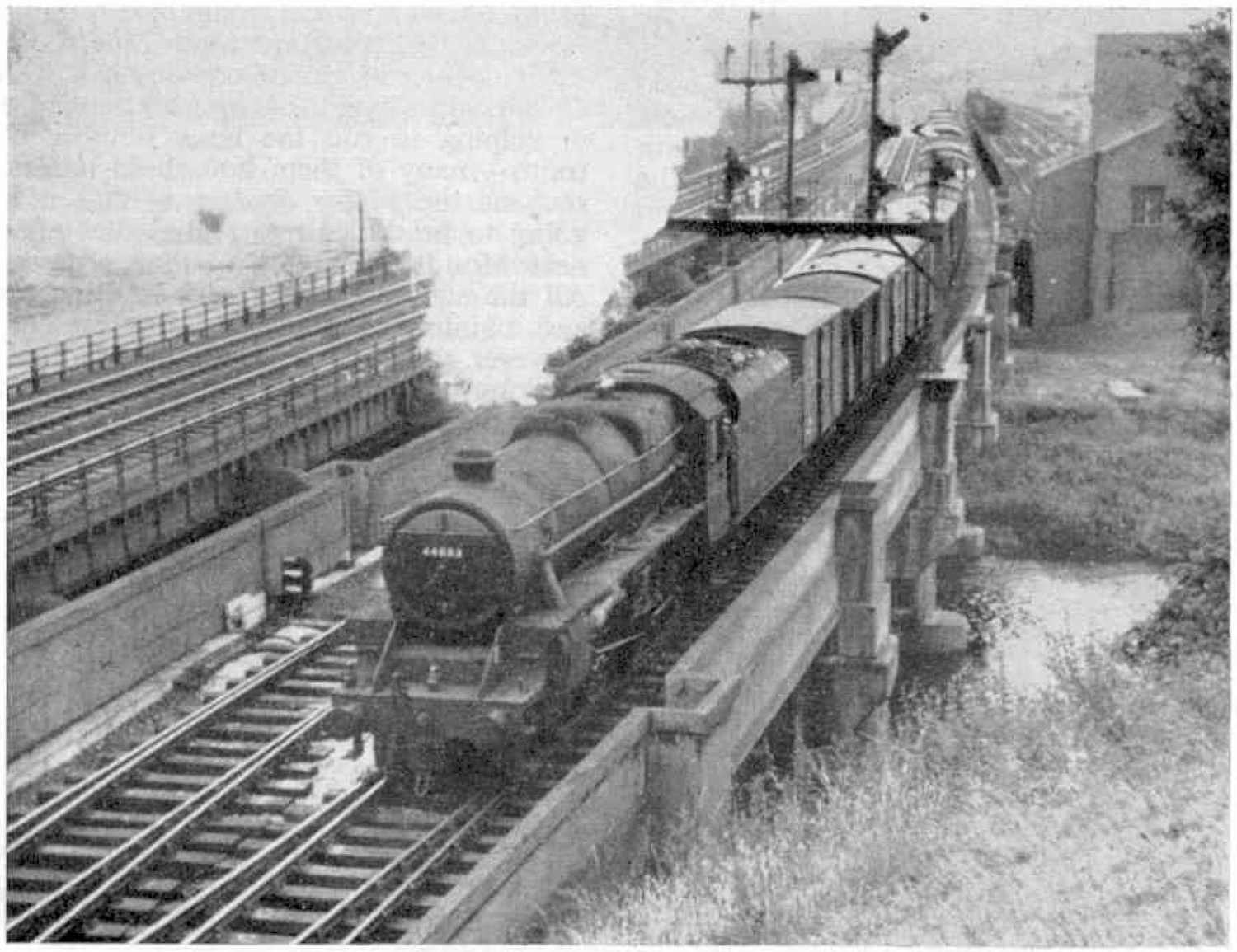
I went down from Liverpool Street in one of the "slower" ones, calling at Shenfield, all stations from Chelmsford to Colchester, and then, after leaving the Norwich main line via the new burrowing junction, at Thorpe-le-Soken. Speed on the gradual rise through the outer suburbs increased from 70 to 75 m.p.h., dropping only to 69 on the final pitch at 1 in 85 after an easing through Brentwood. Shenfield was reached before time, 20¼ miles in 21½ minutes. Exciting short start-to-stop sprints in about booked time now ensued over up-and-down grades, such as: Shenfield–Chelmsford, 9½ miles in 8¾ minutes, maximum 86 m.p.h., Chelmsford –Hatfield Peverel, 6 miles, 6 minutes, maximum 90. There was a short signal stop before Witham and a severe slowing approaching Colchester, with intervening maxima around 75–80 m.p.h. before and after the short stops at Kelvedon and Mark's Tey. By halting only briefly at Colchester we regained most of the two minutes' lost time; then after getting up to 75 m.p.h. on the pretty, rather winding and hilly, branch, we were punctual at Thorpe. Here the front section of four coaches was detached and left first to traverse the single line to Frinton and Walton-on-the-Naze, as is now customary. Finally we were half a minute early into Clacton.

The handsome maroon rolling stock, with the letters GE in front of the coach numbers, consists mainly of four-car sets comprising driving trailer, motor coach including guard's and luggage compartments, second class coach and composite driving trailer. The vehicles are very comfortable and spacious, well heated, lighted and ventilated. First and second class compartment or open saloon accommodation is provided, and running is steady on Commonwealth bogies.

The front four-coach set for Walton-on-the-Naze was as described. The rear one, for Clacton, included a Griddle buffet car instead of the second class trailer. Meals suitable for short journeys are available at reasonable prices, such as the speciality slice of Angus steak cooked to order and served with fried egg and toasted bread, at 3s. (which I sampled). Teas and refreshments are served at any time on the majority of trains.

Each motor coach is fitted with four 282 h.p. traction motors, giving a total h.p. of 1,128 per four-coach set, or 2,256 h.p. on the down journey just described.

Freight for the North. An L.M.R. class 5 4–6–0 No. 44883 is heading out of Carlisle in this photograph by A. F. Smith.



The two-car sets attached at busy times also provide 1128 h.p. As on our return run, we had a 10-coach train south of Thorpe, this provided 3,384 h.p. After waiting arrival and attachment we left Thorpe a minute late, and Colchester slightly behind time.

The greatest thrill of the day, perhaps, was the terrific start uphill out of Colchester followed by a steady 80–90 m.p.h. over easy grades, making the 13-mile dash to Witham stop in 11¼ minutes; it is only allowed 11½! Then came the Witham–Chelmsford run, nine miles in 8½ minutes as scheduled, with a maximum of 87 m.p.h. There was a signal stop before Shenfield and some reduced-speed running, partly on local line from Seven Kings to Forest Gate in the London suburbs, but Liverpool Street was reached only a few seconds late after a splendid round trip made with a "half-price" day return ticket.

L.M.R. LOCOMOTIVE VARIETY

The majority of express and main line passenger trains on most trunk and principal routes between St. Pancras or Euston and Carlisle, as well as some intermediate and freight workings, are handled by Type 4 diesel locomotives. Smaller Type 2 and Type 3 diesels, together with multiple-unit diesel sets are also prominent on various sections of the former L.M.S. system, part of which, in Yorkshire districts, is now under control of the E. and N.E. Regions. There are numerous diesel shunting engines and there are, of course, electrically-operated services.

However, steam is still considerably in evidence over a wide area. In the Carlisle–Whitehaven neighbourhood, for example, I saw one large Stanier 4–6–2 and two Royal Scots. (*Continued on page 402*)

TRACKSIDE NEWS

By "PLATELAYER"

THE station with the longest name in Great Britain—and in the world as far as I know—is to be found in Anglesey. It is, of course, Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogogoch, known locally as Llanfair P.G. This 58-letter name can be translated into English as "Church of St. Mary in a hollow of white hazel, near to a rapid whirlpool and to St. Tysilio's Church, near to a red cave."

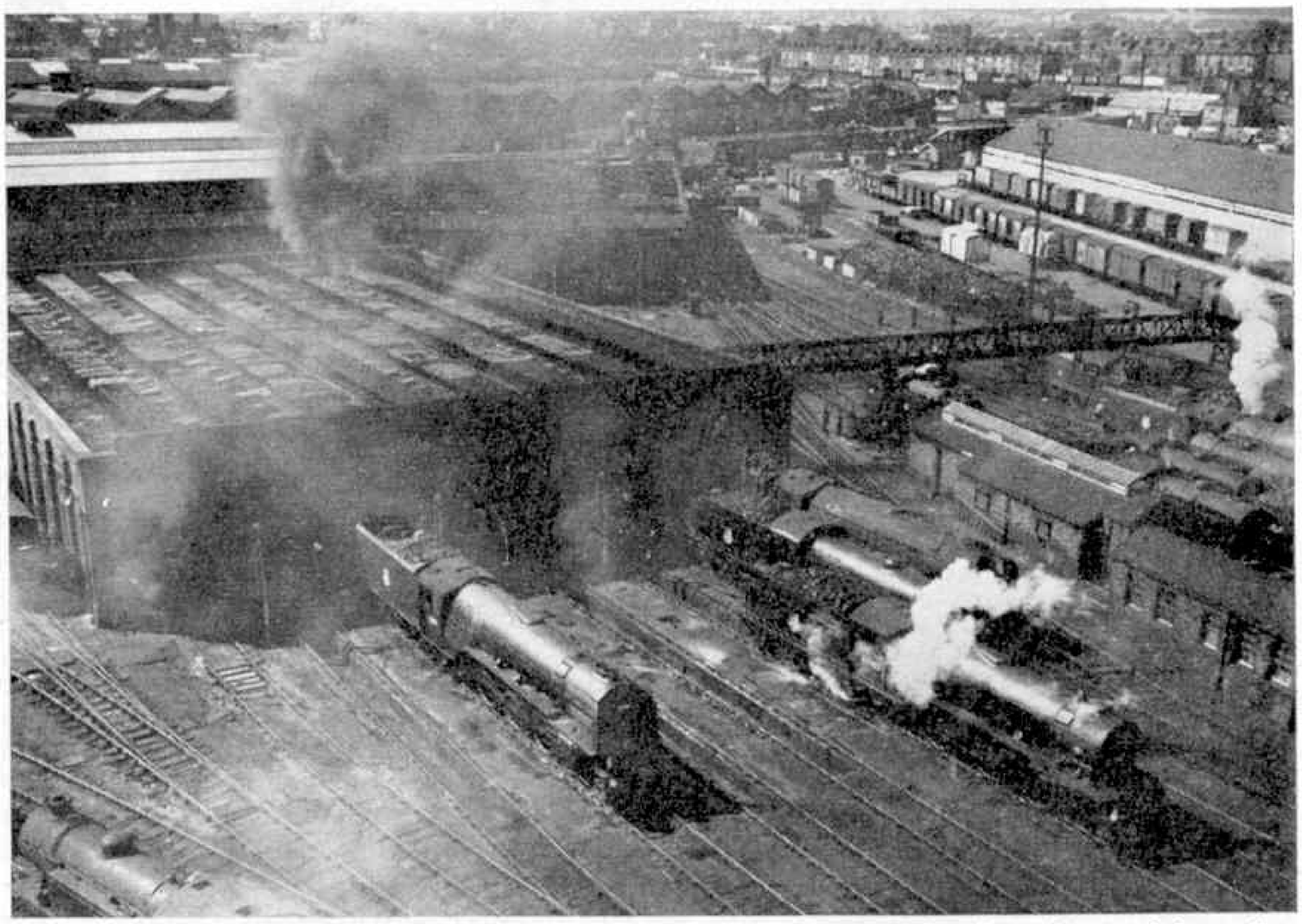
Llanfair, now on Dr. Beeching's list of stations to be closed, had, in the 1850's—during the lifetime of the old Chester and Holyhead Railway—the dubious reputation of having the worst passenger accommodation on the line. One night it caught fire, but, according to one authority, it was just allowed to keep on burning, and no one attempted to stem the flames!

British Railways are selling souvenir platform tickets at threepence each which bear the full name of the station. During the first fifteen months of their availability about £1,400 came from the sale of some 112,000 of these platform tickets, or more than £24 for each of the 58 letters in the station's name.

Applications for these tickets have been received from all parts of the world. Now that Llanfair Station is threatened with closure it may not be long before the opportunity to obtain souvenir platform tickets is gone forever.

* * * *

The Locomotive Depot at King's Cross, known for generations as "Top Shed", was closed on Monday, June 17 after more than 100 years of operation. Mr. G. F. Huskisson, the Traffic Manager of King's Cross, sent the following letter to Mr. H. R. Billing, the Depot Master:



A general view of King's Cross Motive Power Depot, in the days of steam, taken from the top of the coaling plant. Locomotives stand outside the main engine shed, waiting for their next turn of duty. Photograph by courtesy of British Railways.

"Dear Mr. Billing, The closure of King's Cross "Top Shed", which is scheduled to take place on Monday, June 17 brings to end an era in locomotive running work on the East Coast Main Line.

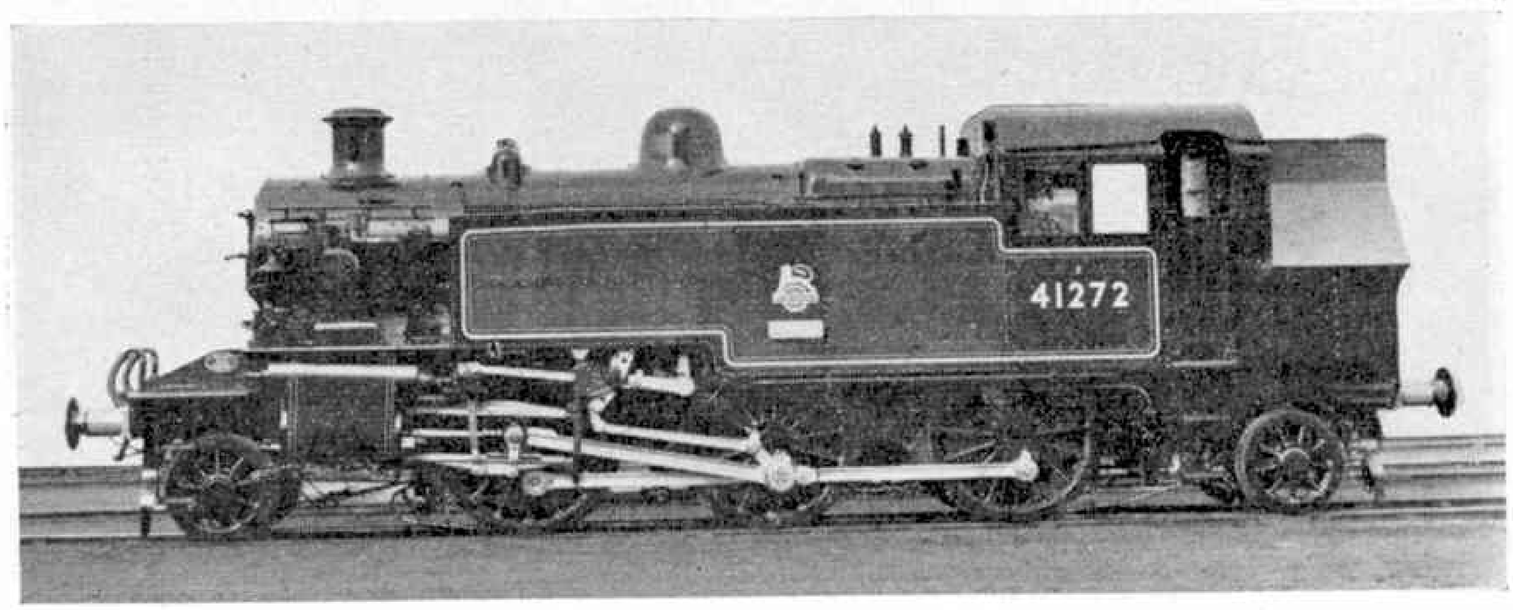
"King's Cross engine crews and King's Cross engines have for so long been engaged in helping to run the large number of trains—many of them household names, such as the *Flying Scotsman*—that it is going to be difficult to realise that after next Monday this will no longer be so. All the staff concerned, drivers, firemen and maintenance staff need have no fear, however, that their deeds will be forgotten. As long as people still talk about steam trains the glorious records of King's Cross men and locomotives will be remembered with pride by all who were concerned with them.

"Progress moves on and much as we may regret the closing of "Top Shed" on sentimental grounds, we are now in an exciting new era when diesel locomotives are putting up new records which will stand comparison with and indeed, in many respects, will improve upon the results of the old steam engines.

"In sending our very best wishes to the staff Mr. Morris, the District Running and Maintenance Engineer and I are confident that the best traditions of "Top Shed" will be preserved by both the train crews who will continue to operate from King's Cross, and the maintenance staff who will maintain the diesel fleet at Finsbury Park Depot. Our thanks are due to you and all your staff for what has been achieved in the past—good luck to you all in the future. Yours sincerely, G. F. Huskisson."

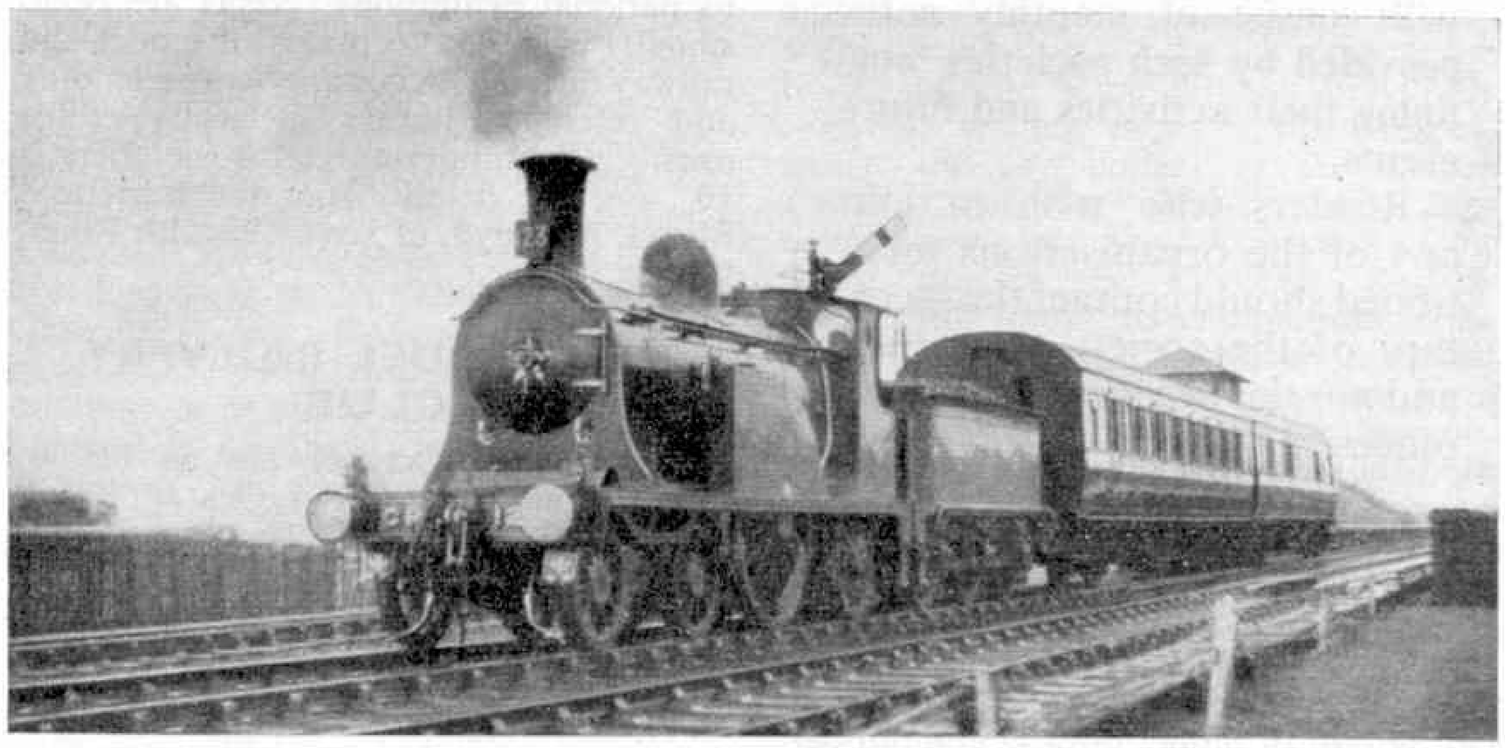
* * * *

One of the illustrations to this month's "Trackside News" shows a preserved locomotive which is a survivor from the old Caledonian Railway. This engine,



On September 20, 1950, Crewe Works completed its 7,000th locomotive, illustrated on the left. This engine was designed by H. G. Ivatt, in 1946, for the London, Midland and Scottish Railway Company. The class was continued after nationalisation, in 1948, under British Railways until 1952, when it was superseded by the almost exactly similar New Standard 84000 class. These Ivatt locomotives were introduced mainly for branch line work.

In the top picture on the right you see the signal at Bathampton referred to in this month's "Trackside News." Below: Ex-Caledonian Single No. 123—now preserved—is pictured here leaving Muirkirk with a Branch Line Society Excursion to some of the Ayrshire mineral lines. Illustration by David Cross.



restored to its original splendour, is numbered No. 123, and is currently employed hauling enthusiasts' "specials".

On these duties, No. 123 has operated for the most part on Scottish Region metals, although it has been seen as an exhibit, not in steam, at various centres south of the Border. This month however, south-country enthusiasts will have the opportunity of seeing the locomotive at work for it is planned to use it, together with the restored L.S.W.R. T9 4-4-0 No. 120, to run a special excursion from Victoria Station, London, through to Sheffield Park on the Bluebell Railway on Sunday September 15th. The train is to leave Victoria at 11.15 a.m. arriving at Sheffield Park at 1.10 p.m. The return journey will begin at 4.35 p.m. and finish at Victoria at 6.30 p.m.

No. 123 is famous for the part it played in the railway race to Edinburgh from London in 1888. Constructed by Neilson & Co., in 1886, it was used from about 1905 to work the Caledonian Railway directors' saloon, but as late as 1930, as L.M.S. No. 14010, it was put back into regular traffic between Perth and Dundee. It was withdrawn in 1935 and very fortunately preserved.

The locomotive passed into British Railways hands on nationalisation, and was restored to working order in 1958.

* * * *

The Western Region of British Railways recently installed in their Cardiff headquarters a new wagon control system, known as Continuous Progress Control (C.P.C. for short.)

It is operated by a specially-designed computer and its purpose is to reduce to a more economic level the vast fleet of wagons owned by British Railways. A reduction of 4,000 railway wagons in the number normally needed to cater for traffic on the Cardiff district is the computer's latest achievement.

This cut in requirements at Cardiff results entirely from the improved, and more scientific, methods for the distribution of wagons made possible by the accurate and comprehensive data which the computer is able to amass. Most essential among this data is up-to-the-minute information of the actual whereabouts of every wagon in the area, whether empty or loaded, static or mobile, and its type.

* * * *

"Looking through the *Meccano Magazine* my attention was immediately drawn to the 'Trackside News' feature. In these days, it is good to find a magazine that realises there is more to Britain's railways than the trains that operate over them," writes Mr. R. E. Toop of Bath.

Mr. Toop, a keen railway enthusiast, many of whose pictures have been published in the *M.M.* provides the illustration, at the top of this page, which has an interesting bearing on signalling. He writes: "A signal favoured by the old G.W.R. for use in a confined location is one where the arm is centrally pivoted. I am sending you an illustration which depicts a signal of this type at Bathampton, a junction east of Bath, where a line from Westbury, in Wiltshire, meets the main Paddington to Bristol line. This kind of signal is also to be found at a number of Western stations where platforms are sufficiently long to allow two trains to draw in one behind the other, and it is usually situated under the station roof."

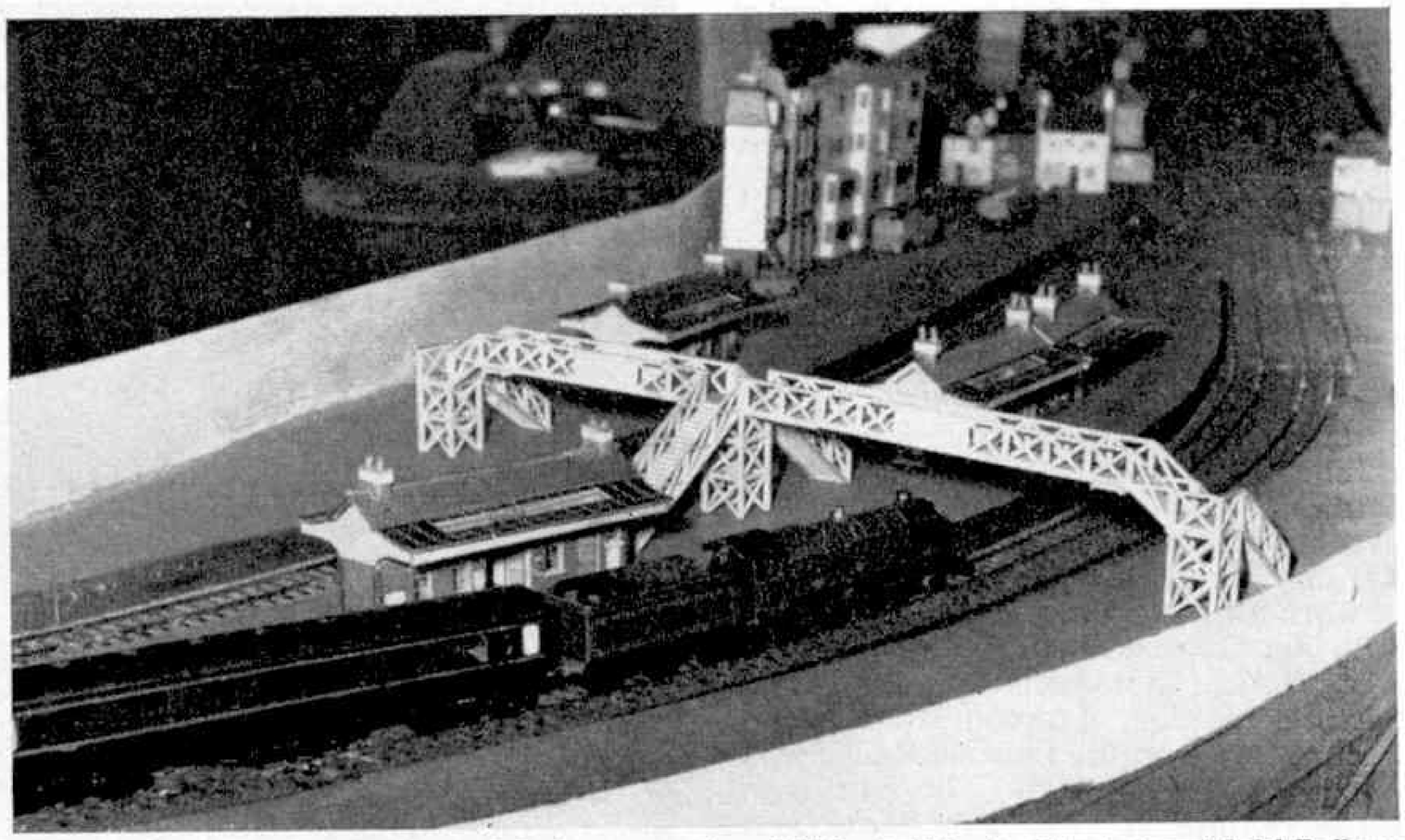
* * * *

British Railways (Scottish Region) camping coaches have proved more popular than ever this year. Up to mid-July, with some three months of the season still to run, almost 800 bookings had been made, which was greater than the total booked for the whole of last year.

The coaches are situated in lovely spots such as Lochailort, Corpach, Glenfinnan, St. Monance and North Berwick. They offer an ideal, carefree holiday with ample accommodation and facilities for four to six people, and are let on a weekly or fortnightly basis from mid-March to mid-October.

In a different vein Scottish Region are playing an important part in Scotland's growing motor car industry. Car bodies from the Pressed Steel Company Limited's factory at Linwood are regularly conveyed by rail to the Rover Works in Birmingham. The bodies, for 3-litre Rover cars, are pressed and assembled from home-produced steel strips, loaded on to flat wagons and carried south at express train speeds. It is, as it were, a 300-mile extension of the Pressed Steel Company's production line.

ROUND THE SOCIETIES



This illustration shows part of one of the layouts at the exhibition held by the Birmingham Model Railway Club at the Midland Institute, Birmingham, in late August. A Hornby-Dublo Castle locomotive heads the train. The coach is by Exley, the bridge by Airfix and the station buildings are by Superquick.

WE present on this page a new series which we feel sure will appeal to all who are interested in railway, and model railway, clubs and societies. It will consist of monthly notes provided by such societies, outlining their activities and future events.

Readers who wish to join any of the organisations mentioned should contact the secretary of the society concerned and *not* the *Meccano Magazine* offices.

ILFORD JUNIOR MODEL RAILWAY CLUB

Minimum age for membership, 13.

Meetings—Friday at 7.30 p.m., at 36 South Park Drive, Seven Kings, Ilford. Full library of model railway and railway books and magazines available for reference. The large layout on loan to the club was scrapped recently to give space for historical railway models featuring the L.N.W.R. in the Liverpool district. Until this project is finished, not much operating is possible, but some "Test Tracks" are in position through a 12 ft. long model town on which proprietary models can be run. Inquiries to Mr. J. K. Nelson, of 36 South Park Drive, Seven Kings, Ilford. (Tel. SEVen Kings 9751.)

EASTHAM AND DISTRICT M.R.C.

Members meet each Monday at St. Gabriel's Church Hall, Aldersbrooke Road, Wanstead E.11 (101 bus to the door) where a series of track nights, practical nights, talks, demonstrations, and film shows are organised. Three layouts are at present under construction—TT, 00 and E.M. gauges. The 00, the largest and the most popular layout, is built to Hornby-Dublo wheel standards. All three layouts are regularly exhibited at events ranging from local charity shows to national exhibitions. Visits are occasionally arranged to places of model and railway interest. A comprehensive lending and reference library is available for members. Minimum age for members is 16. Further details from the Secretary, Mr. G. R. Lloyd, of 32a Goldsmith Road, Leyton, E.10.

THE MODEL RAILWAY CLUB

Fixtures for October are as below: Oct. 3: Track night (S.R.); Oct. 10: Track night (G.W.); Oct. 17: Rummage Sale; Oct. 24: Track night (L.M.S.); Oct. 31: Members' photographs—arranged by Mr. F. G. Cockman.

Inquiries to the Hon. Secretary, Mr. D. A. Boreham, of 135 Mandeville Road, Northolt, Middlesex. All meetings are held at the club's headquarters, Keen House, Calshot Street, London N.1.

ROTHERHAM MODEL RAILWAY CLUB

Meetings are held on Thursdays at the club rooms in Lyme Street (Masborough Garage Yard), Rotherham where visitors are always welcome. Track nights are held on the first Thursday of the month, when the 0 and TT gauge layouts are in operation. A new 00 gauge layout is under construction. Some time ago, with a view to constructing a model of Rotherham Station, a start was made on collecting information about the Sheffield and Rotherham Railway as it was when opened in 1838. The project was suspended when the club had to vacate the rooms then occupied. Since moving to the present premises, the members have concentrated on the construction of layouts of a more popular nature, but interest in the original idea has not been lost, and the club would still welcome any further information on the subject. Hon. Secretary, Mr. A. Bradbury, of Lyme Street, Rotherham.

ELIZABETHAN RAILWAY SOCIETY

Arrangements for the next two months include:

September 1: Trip to Swindon Works and Shed/Eastleigh Works; Sept. 2: Indoor meeting at the Elizabethan Rooms, Stanton Hill, near Sutton-in-Ashfield, commencing 7.30 p.m. Programme—Colour slide show from the "Railway Roundabout" series; Sept. 19: Open night—Model Railway Section; Camera Club; Historical Section.

October 6: Trip to the Liverpool area, visiting many of the depots, as available; Oct. 7: Exhibition preparation; Oct. 11: From 6.30 p.m. until 9.30 p.m. at the A.T.C. Hall, Sutton-in-Ashfield, the 1963 Railway Exhibition. Admission 1/6, juniors (under 16) 1/–. Everyone welcome; Oct. 12: From 11.30 a.m. until 6.30 p.m. as above. Working model layouts, large scale model exhibits, colour slide shows throughout, 1,000 photographs, bookstall, prize draw, historical exhibits; Oct. 17: Open night—Model Railway Section; Camera Club; Historical Section. Secretary, Mr. R. A. Kirk, of 59a Hartley Road, Kirkby-in-Ashfield, Notts.

NORTH LONDON MODEL RAILWAY CLUB

This club meets at 7 p.m. every Friday on the top floor of the new Aldenham Boys' Club, 93 Highgate Road, N.W.5, overlooking Kentish Town Loco Depot. Work is in progress on the two club layouts which are built to 00 and TT gauges. The club also proposes to begin work on a tram layout, which is to be built to 4 mm. scale. The minimum age limit for junior members is 14, and they should contact

the Secretary, Mr. K. W. West, of 62 Woodsock Crescent, Edmonton, London N.9.

HOME COUNTIES RAILWAY SOCIETY

A "Mendip Railtour" will take place on October 6 when a special train will depart Paddington at approximately 9 a.m. hauled by a L.M.R. Jubilee, for Bristol. The *Bristolian* timings have been asked for. A visit to St. Phillips Marsh Depot will be made while at Bristol. Two 51xx 2–6–2 tanks will convey the train on to Yatton, and the route will then follow the Cheddar Valley branch to Wells and Shepton Mallet. A 30-minute stop will be made at Cheddar for photographic purposes. On connection with the West of England main line at Witham, a fast run will be made to Westbury. There, the train will reverse for the final leg of the journey. Hauled by an Un-rebuilt Battle of Britain, and a named B.R. Standard class "5", the train will then run over the Great Western line to Salisbury, where a connection will be made with the Southern Railways' West of England line for a fast run to Waterloo. Estimated return arrival is 6.30 p.m. Tickets for this tour are available from the Assistant Secretary, Mr. P. Bonney, of 119 Harvist Road, London N.W.6. Fares will be: adults 50/–, children 25/–. Children under 16 must be accompanied by an adult.

MERSEYSIDE MODEL RAILWAY SOCIETY

This society is now making preparations for the biggest and most comprehensive model railway exhibition ever to be held in the Merseyside area. It will take place at the Bluecoat Chambers, School Lane, Liverpool 1, in October, and will include fourteen working layouts. The society has six layouts under construction at its headquarters in Birkenhead; the gauges of the layouts are 0, E.M., TT, 00, HO American, and a 4 mm. scale, 9 mm. narrow gauge. There is also the possibility that a branch of the society devoted to 2 mm. scale will be formed in the near future.

The society is currently inviting a limited number of new members, and all who are interested should contact either the Hon. Membership Secretary, Mr. M. A. Adams, of 120 Waterpark Road, Prenton, Birkenhead, or attend personally at the society's headquarters, 102 Chester Street, Birkenhead.

WESTERN MODEL RAILWAY SOCIETY

The society's permanent headquarters, at 265 Horn Lane, Acton, London W.3 adjoin the main line station, overlooking the West of England main line. An 00 layout is under construction in 2-rail universal track suitable for fine-scale and most proprietary models, and short test tracks are available in 0, 00 and TT gauges. Facilities include a lathe and an extensive library. Recent activities have included visits to the Pendon Museum and Model Railway, Didcot and Oxford Locomotive Depots, an auction, and shows of coloured slides and films including Will Hay in "Oh! Mr. Porter!" Further meetings of all types are being planned. Meetings are held on Mondays and Thursdays (except public holidays) from 7.30 p.m. and there is a limited number of vacancies for members. Further details may be had on application to the Secretary, Mr. D. B. Kevan, B.Sc., A.R.I.C., of 53 Woodhall Gate, Pinner, Middlesex.

WIMBLEDON MODEL RAILWAY CLUB

September 11: Track Night. The Club's well-known "Havoc" layout is being further developed to incorporate a branch line to "Chaos". Sept. 25: A talk by Mr. T. Clyde-Britten, illustrated with photographs of the period, "R. E. L. Maunsell and his Locomotives". Hon. Secretary, Mr. Leslie C. Pickering, of 6 Mortlake Terrace, Kew, Surrey. (Tel. Richmond 0283.)

BIRMINGHAM MODEL RAILWAY CLUB

Forthcoming programme: September 5: Track night. A real running session for all to enjoy; Sept. 11: Talk and demonstration by the Chairman, Mr. Jack Williams, on "Automatic Train Control"; Sept. 19: Jumble Sale; Sept. 25: Track night. Let's have some *complete trains* running, chaps. Meetings held at St. Thomas's School, Granville Street, Holloway Head, Birmingham, commencing at 7.0 p.m. and terminating at about 9.0 p.m. New and prospective members are most welcome. Secretary: Mr. G. L. Cowmeadow, of 52 Coleshill Road, Sutton Coldfield, Warwickshire.

TYNE–TEES LOCOSPOTTERS' CLUB

The Tyne–Tees Locospotters' Club (affiliated to the Ian Allan Locospotters' Club) cordially invites inquiries for membership from railway enthusiasts living in the counties of Cumberland, Durham, Northumberland, Westmorland and Yorkshire. Minimum age for membership is 12. A very full programme of visits to British Railways' Motive Power Depots and Works is arranged throughout the year. Full details from the Regional Secretary, the Tyne–Tees Locospotters' Club (MM), 37 Bevan Court, West Farm Avenue, Longbenton Estate, Newcastle-upon-Tyne 12, on receipt of a large stamped addressed envelope.

LEICESTER SOCIETY OF MODEL ENGINEERS

The following $3\frac{1}{2}'' \times 5''$-gauges track events are planned—September 7: Public running 2.30 p.m. to 6.30 p.m.; October 5: Public running 2 p.m. to 6 p.m. There will be a Visitors' Day on Sunday, September 1 from 11 a.m. onwards. Hon. Sec., Mr. B. H. Newman, of 8 Farmway, Braunstone, Leicester.

CROYDON MODEL RAILWAY SOCIETY

The Croydon Model Railway Society will be holding its annual exhibition at St. Augustine's Hall, St. Augustine's, S. Croydon on Saturday, October 5 from 11 a.m. to 8 p.m. At least four working layouts, together with many static models and trade show cases, will be there. It is hoped to keep admission charges down, 1/– for adults and 6d. for juniors. At the Society's Club Room on Purley Oaks Station there is great excitement, due to the installation of electricity instead of gas-lights, under which the members have had to work for over ten years. Minimum age for club membership is 14, and prospective new members will be welcome at the Club Room, No. 1 Platform, Purley Oaks Station any Wednesday from 8 p.m.

RAILWAY BOOK REVIEWS

The **Locomotives of the South Eastern Railway** by D. L. Bradley, is another of the now-familiar Railway Correspondence and Travel Society publications dealing with locomotives. Like its companion books by the same author, previously reviewed in these pages, entitled respectively *The Locomotives of the London Chatham and Dover Railway* (*M.M.* September 1960) and *The Locomotives of the South Eastern and Chatham Railway* (*M.M.* July 1961), its compilation is the result of much careful research in official records. The three books together form a complete record of the steam locomotives that have served the lines in the South Eastern corner of England for well over a century.

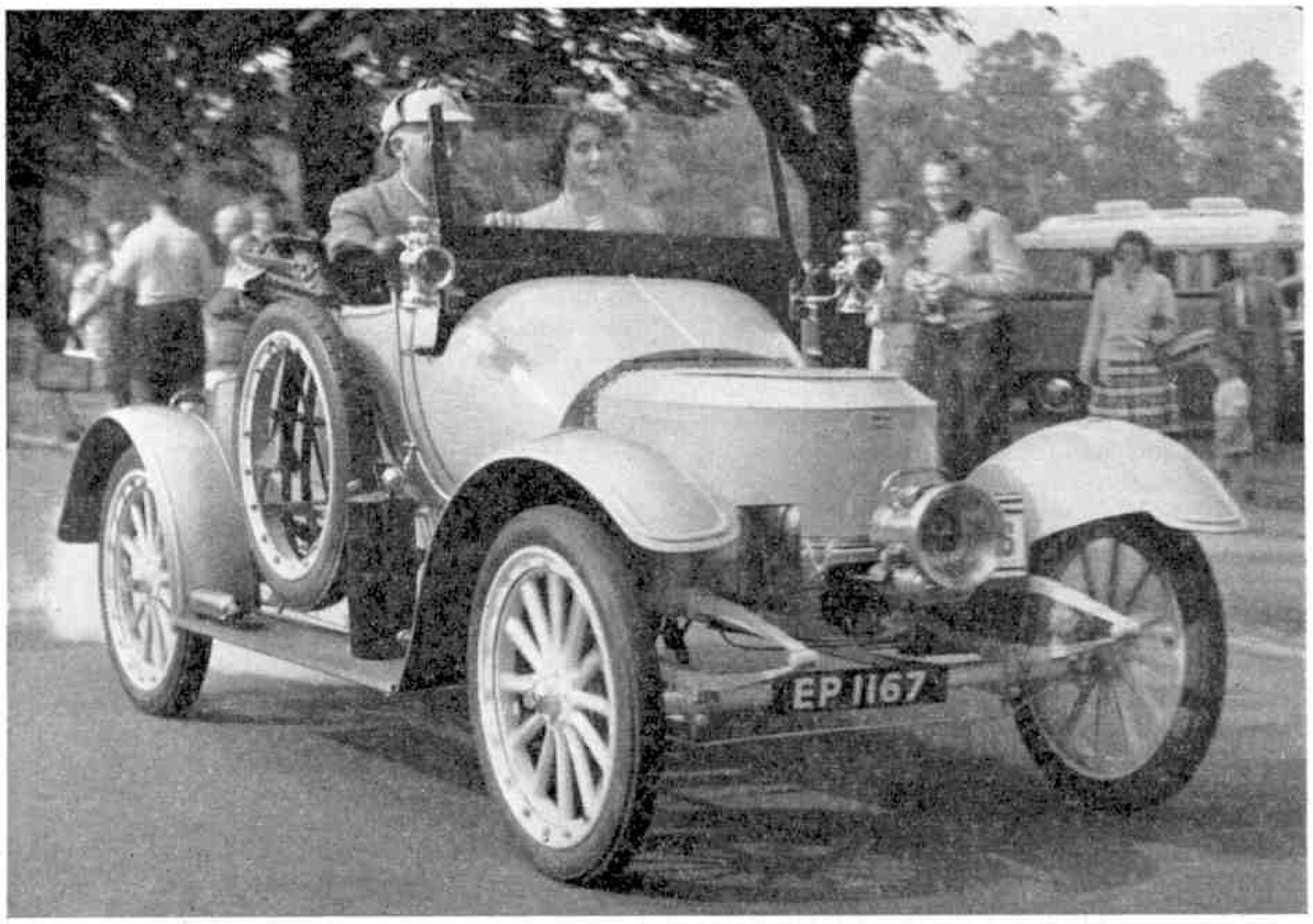
The "Chatham" and the South Eastern Railways were for years fierce rivals, but finally their differences were composed by their fusion from January 1 1899, under the Managing Committee of the South Eastern and Chatham Railway Companies. So it was that the initials S.E. and C.R. became familiar until the inclusion of the combined system in the Southern Railway group. Nowadays, of course, this is part of the Southern Region of British Railways.

In the present work, there is much of interest in the text and in the numerous illustrations, quite apart from the lists of numbers, dimensions and so on of the different engines dealt with. Cramptons, Bury engines, Little Sharps and Ironclads are only a few of the names or nicknames of the many engines we encounter, while the work of Locomotive Superintendents such as Cudworth and James Stirling naturally form a large part of the narrative. Locomotive colour schemes, several summaries and various appendices complete a fascinating story.

Copies can be obtained at 20/– each, including postage, from the Hon. Assistant Publications Officer, Mr. N. J. Claydon, 19 Dene Court Road, Olton, Solihull, Warwickshire.

THE STANLEY STEAM CAR

Described by M. Brown



The Stanley "Steamer" pictured at the Veteran Car Club Rally at Harrogate last year. This is the 10 horse-power model. At the wheel is Mr. Edgar Kendrew.

POWER, speed, simplicity, silence—all these virtues were claimed for the Stanley Steam Car, which was undoubtedly the best known automobile using steam as a propulsive power, and which certainly had the longest production run of any steam car. This American vehicle was produced in two basic models, 10 h.p. and 20 h.p., over a period of nearly 30 years, the actual company being in existence from 1896–1927. Distribution was world wide, and in this country a nail-manufacturing firm, W. Galloway and Company, of Gateshead, acted as agents for the whole of the British Isles and the Dominions in the years leading up to the first world war.

The Stanley brothers, of Boston, Massachusetts, were originally photographic plate manufacturers but their inventive turn of mind led them to construct a steam car for their personal use. It may seem odd in these days that steam should have been considered as the prime mover, but in the early days of the motor car opinions were almost equally divided between the virtues of steam and those of internal combustion, particularly in America.

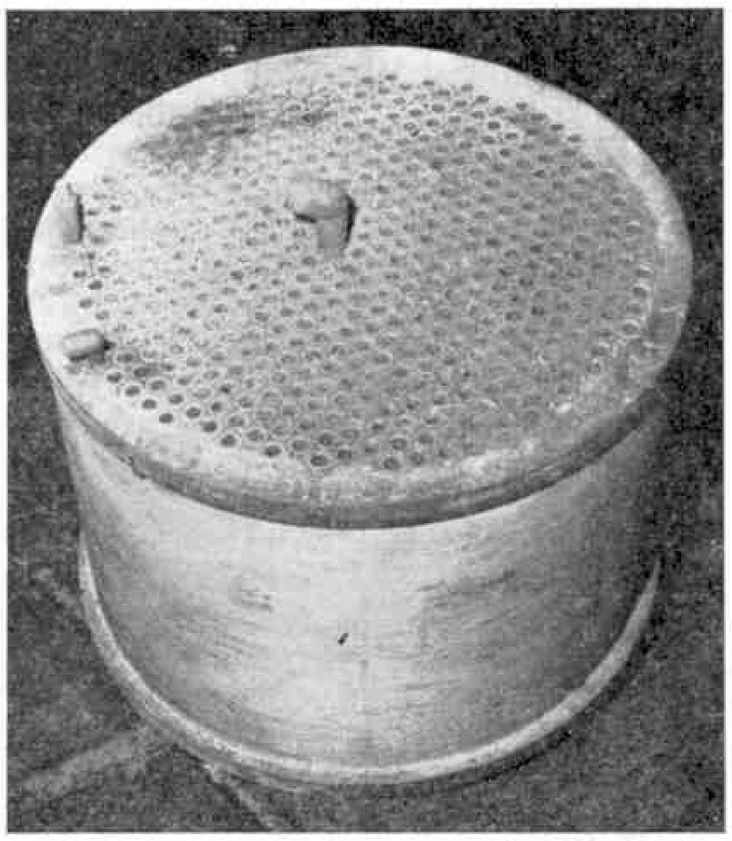
The prototype was so successful that it was decided to go into commercial production with the 10 h.p. model. The design was a very simple one: the chassis consisted of two tubular steel axles bearing cycle-spoke wheels, with two stout hickory poles as side members; the body was suspended over the axles by full elliptic springs, very supple, and of generous dimensions. Outwardly the vehicle had a typical voiturette appearance, carrying four seats, the two front ones being "occasionals". The car was steered by a tiller from the elevated position of the rear seat.

The works of the cars altered little during the whole of the production run except in the size of the boiler and cylinders. They fell simply into three sections:

(a) The boiler and burner, which produced and stored the energy.

(b) The engine which did the work.

(c) The auxiliary equipment, consisting mainly of feed pumps, which supplied the boiler with water, the burner with fuel, and the engine with oil.



The boiler of the Stanley Steam Car showing fire tubes and the shell, which is bound with piano wire.

The boiler was of the fire tube variety consisting of a vertical thin steel shell with end plates. These end plates were reamered out on the taper, and the copper tubes expanded at each end, forming a stay. There were 474 tubes in the 10 h.p., and 736 tubes in the 20 h.p., giving 66 sq. ft. and 104 sq. ft. respectively of heating surface.

The shell was bound round with steel piano wire under tension (as in the barrels of heavy naval guns), to give great strength and flexibility.

These boilers were designed to work at the high pressure of 500 lb. per square inch, and, in fact, under test this was increased to over 1,000 lb. before collapsing tubes caused the steam to be released. It was claimed to be impossible to burst a Stanley boiler, although the fear among many people—including many authorities responsible for bye-laws and local legislation—of a possible burst boiler was a factor against the continuing commercial success of steam cars in general.

The engine was a straightforward, two-cylinder design following standard locomotive practice. It was very compact, and it could easily be lifted by one hand. All bearing parts were carried on ball bearings, and all the motion ran in an oil bath. Although small, the engine was rugged,

and gave no trouble even after prolonged and constant use.

This engine was flexibly suspended at the piston end, the spur wheel on the engine shaft engaging directly with the teeth of the differential ring on the back axle. This method was near ideal, cutting out all the losses in efficiency connected with the usual methods of intermediate transmission.

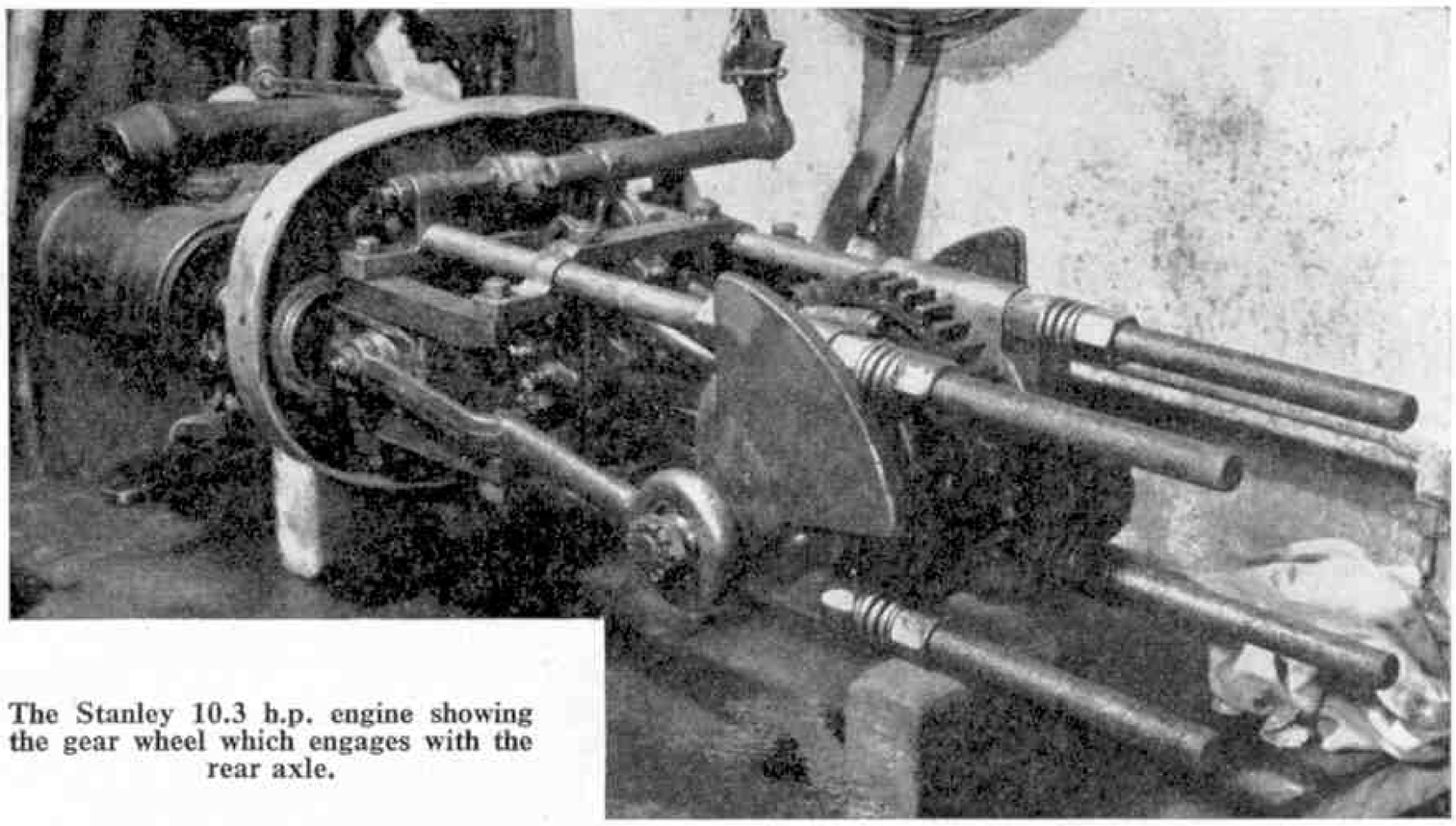
A variable steam cut off was fitted in later models, the valves being normally timed to cut off the steam supply at a quarter of the piston's stroke.

The burner was pressurised in the same way as a blowlamp, the flame apertures being of the slotted variety. The diameter of the burner casting was slightly larger than the base of the boiler. Petrol burners were originally fitted, but, in this country, a Mr. Jack Robson, of Galloways, patented a paraffin burner. The former, however, had cleaner burning characteristics and was easier to maintain, with none of the unpleasant "creep" and smell of paraffin.

Steam, after leaving the boiler, was superheated in a tube coil in the hottest part of the burner flame, and passed through a heavily-lagged delivery pipe to the engine.

The car was mechanically robust, the engine in particular hardly ever needing any attention. The feed pumps needed an occasional check-over, and, of course, the boiler needed care, and sometimes required replacement at the then not inconsiderable cost of £50 in this country.

The main snag with a steam car using a fire tube boiler was the time required in getting up steam from cold. For a car in constant use, the pilot light was often left on overnight to keep the water in the boiler hot for a reasonably quick getaway in the morning.



The Stanley 10.3 h.p. engine showing the gear wheel which engages with the rear axle.

The car illustrated here belongs to Mr. Edgar Kendrew, of Nunthorpe, near Middlesbrough, and has been restored to first rate order after having been located by him in a shockingly poor state near Stratford-on-Avon.

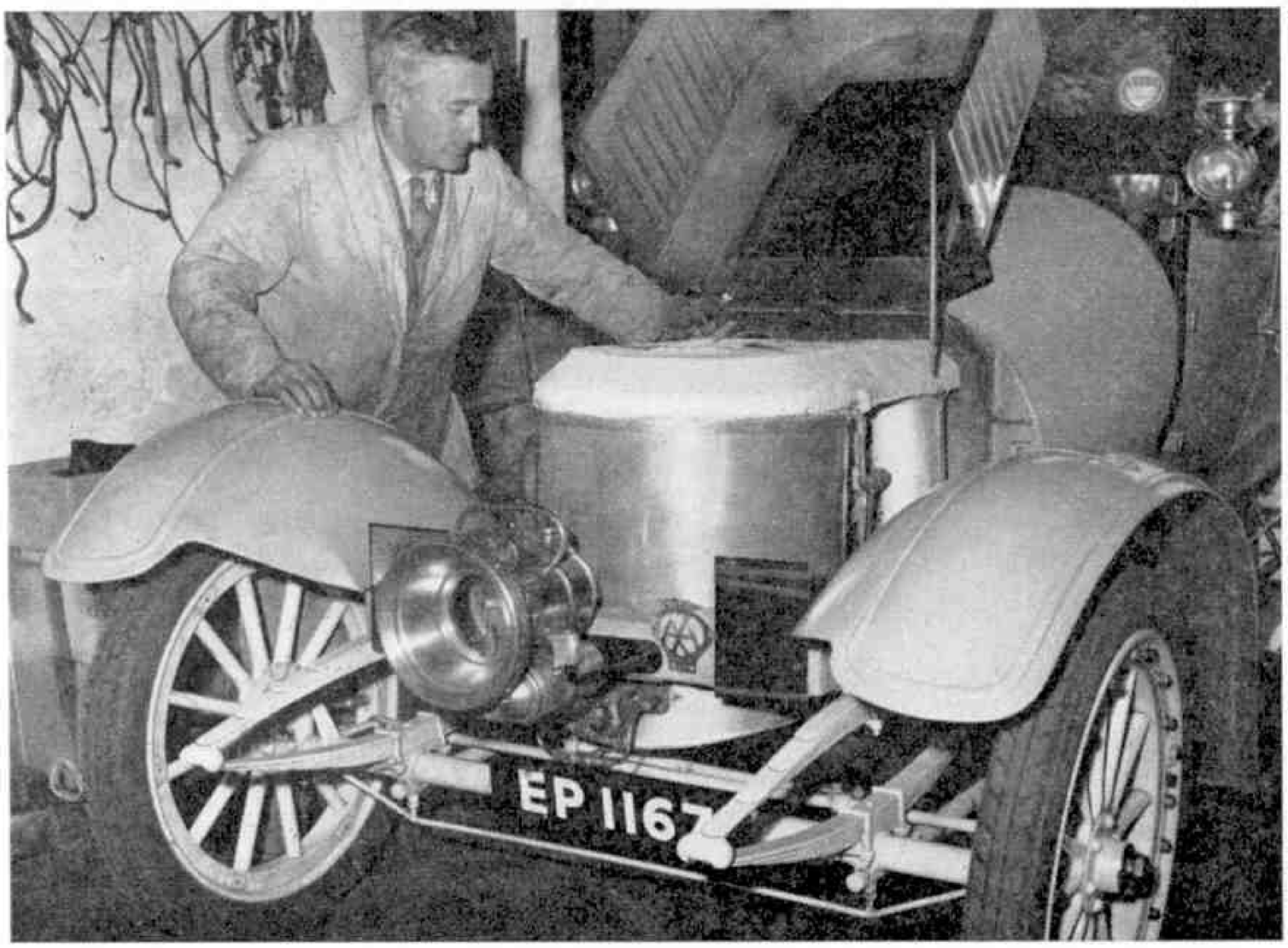
* * * *

A totally different set of skills from those required in normal driving is called for in operating a steam car. A hand regulator is used instead of a foot throttle to control the speed of the vehicle, and it must always be borne in mind that the power is made and stored as steam for use in reserve. It is necessary to conserve pressure, anticipate the type of country to be traversed, and keep a weather eye open for sources of water (the consumption of water being approximately one gallon per mile).

No one who has either driven one, or been driven in one, can dispute the fascination afforded by these vehicles, and it is interesting to consider whether, in the light of modern technical knowledge, a machine could be built to compete satisfactorily with the present day internal combustion car.

Suffice it to say that there is still a small body of enthusiasts continually experimenting with the application of light steam power to the automobile, and rumour is persistently rife in America of interest by certain sections of the motor industry in steam as a propulsive power.

Mr. Kendrew makes adjustments to the boiler feed "automatics". The raised bonnet shows the lagged boiler in position. All the illustrations to this article are by courtesy of M. Brown of West Hartlepool.



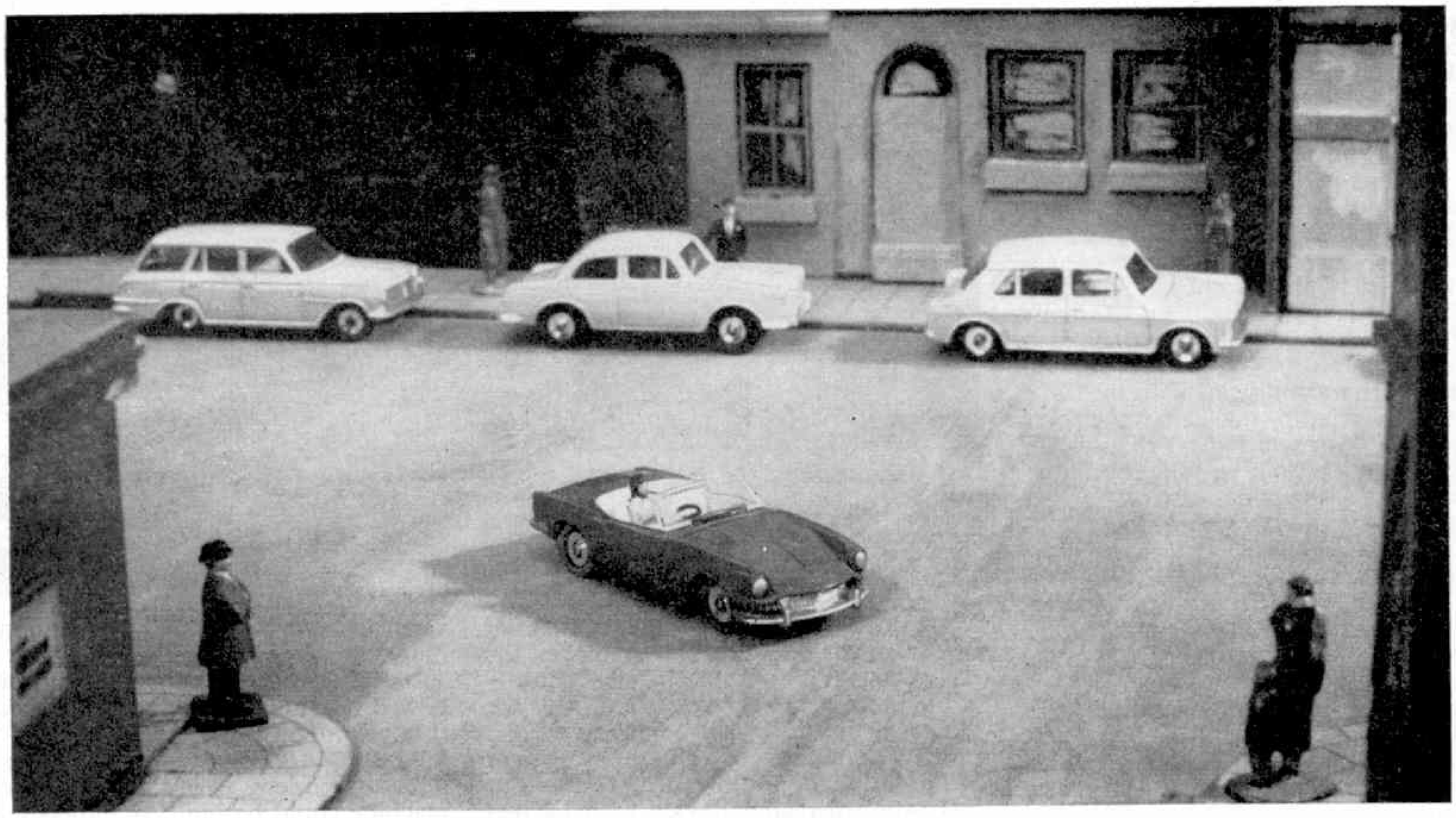
Highlights in the Aluminium Story—

(*Continued from page 363*)

in the craze for silver from clay. Hall and Héroult naturally fought battles over rights or priority in this new process—"most of the shots going wild on account of the long range over the Atlantic", as they afterwards said when joining forces.

Today, we see the vast development of aluminium production by the Hall–Héroult process which absorbs millions of kilowatts in modern cells using 100,000 ampères as current. In Canada and the United States enormous hydro-electric power is available as an essential, with geography itself changed, when a whole river was reversed! In Britain, a more moderate energy is available in Scotland only, with huge pipe-lines marking the scene of aluminium-making today. Yet, in Britain, we still have one historic memento in Eros, still withstanding London's atmosphere after 80 years. When Eros was taken down for cleaning, a few fragments of metal, taken as drillings from one of the statue's wings, were carefully analysed by the latest techniques.

The problem is: from what source came that metal laboriously won by the sodium process? One would like to believe that the aluminium came from that dour struggle of James Webster at his zenith in the eighteen-eighties.



Two More "Winners"—Spitfire (With Lady Driver) And Saloon With Opening Boot And Bonnet

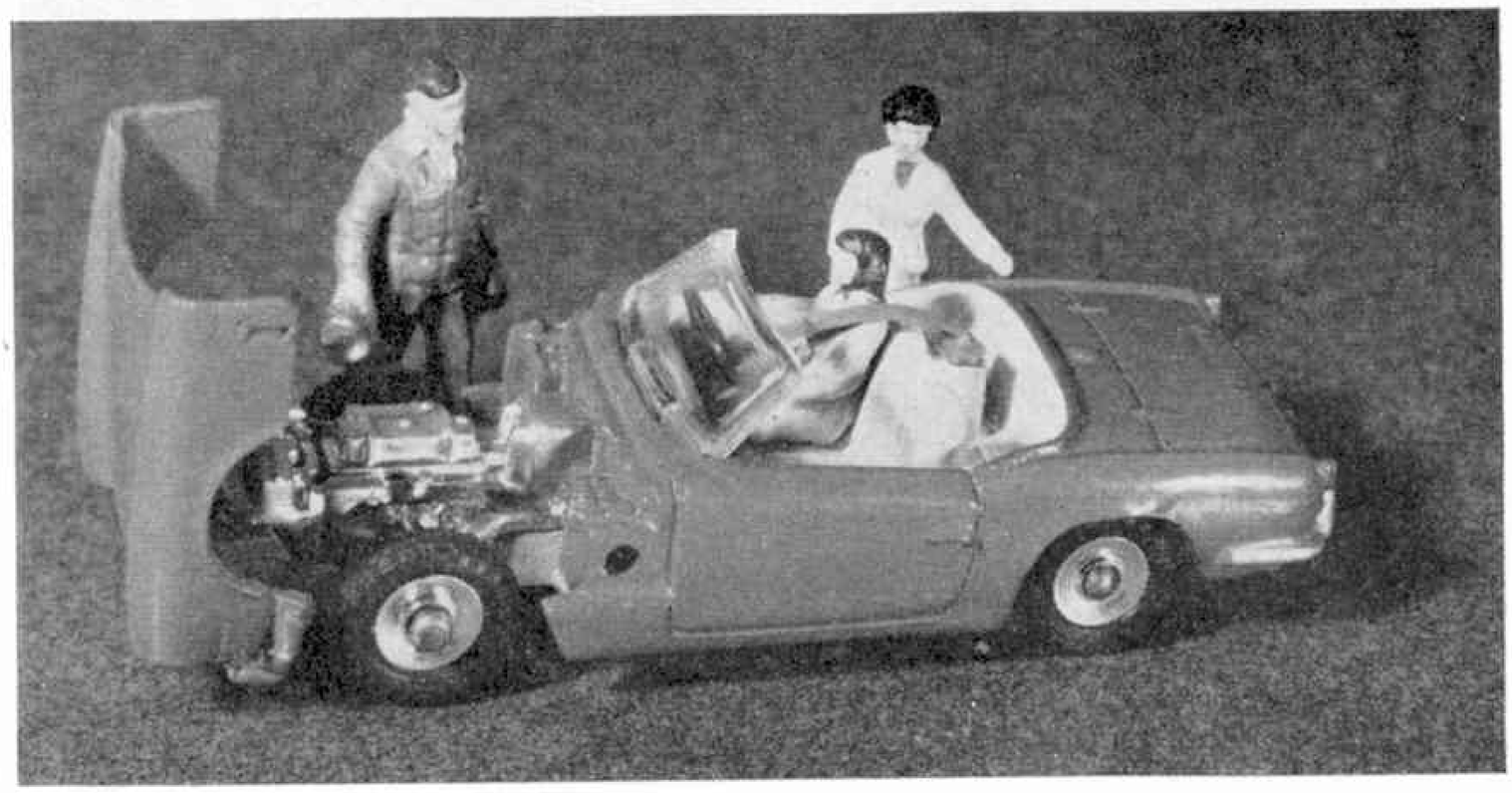
SEPTEMBER will go down in my memory and, I hope, in yours, as a bumper month for collectors, and many of you will surely regard it, as I do, as the most exciting month since Dinky Toys began. We are presenting two superb new models, and my difficulty is to know which to mention first, since both have so many attractive features. I think, I should perhaps begin with the Triumph Spitfire (Sales No. 114) which creates a precedent for Dinky Toys in being the first of our models ever to have a lady driver.

Dinky Toys News

By The Toyman

This model presents another Dinky Toys "first", because the driver has a removable safety belt. Many of you will know that Dinky Toys are used by organisations up and down the country to demonstrate road safety, and the introduction of a safety belt into a Dinky Toys model helps to emphasise this important point.

In this close-up of the Triumph Spitfire you can clearly see the manner in which the bonnet and wings fold inward to reveal the engine unit. The safety belt for the driver is detachable. The two figures standing by the car are from the Dinky Toys Service Station Personnel Set.



With its lady driver sitting cool and composed at the wheel, the Dinky Toys Triumph Spitfire takes a corner in a city street. The cars in the background are (left to right), the Vauxhall Victor Estate Car, Volkswagen 1500 and the Morris 1100 Saloon.

Our miniature driver wears a head scarf and the safety belt unclips so that the figure of the driver can be removed from the car if necessary. With its gleaming red gloss finish this fascinating little car has an opening bonnet which swings back, complete with the wings—just as it does in the real car—and when the bonnet is lifted you have revealed a fully detailed engine. The model has, of course, all the other Dinky Toys features such as Prestomatic steering, four-wheel suspension and well-detailed interior fittings and, since it is a coupé, it is fitted with a windscreen as well.

It is the fourth sports car to be introduced into the Dinky Toys series in recent times and I have no doubt that it will prove just as popular as its three predecessors the "E" type Jaguar, the M.G.B., and the Austin Healey Sprite.

By now, many of you will have seen the Spitfire on the roads in this country and it is certainly the type of car which will attract a wide following. Since you will doubtless want the salient points of the actual car I present them here. Manufactured by the Triumph Motor Co. (1945) Ltd., of Coventry, it is powered by a 4-cylinder, o.h.v. engine of 1,147 c.c. capacity which develops 63 b.h.p. With a top speed of 93 m.p.h. and a cruising speed of 80 m.p.h., the Spitfire is not quite as fast as Triumph's other well-known sports car the T.R.4 but it is an excellent vehicle and already very popular with sports car drivers. Overall dimensions are: length 12 ft. 1 in; width 4 ft. 9 in; height 3 ft. 11½ in; wheelbase 6 ft. 11 in.

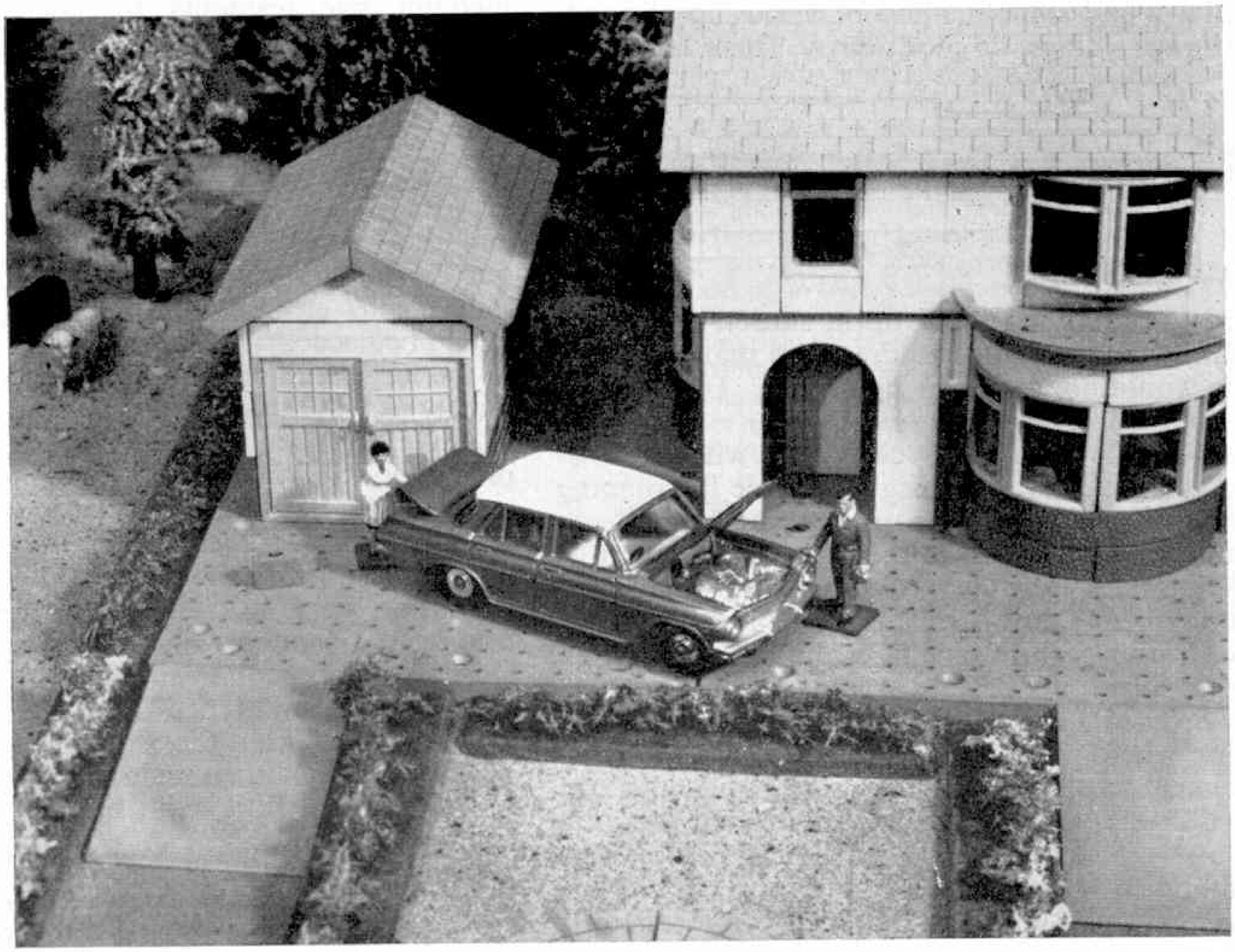
Our second model this month comes along as the result of many requests by our Dinky Toys enthusiasts in Australia. What is it?—Australia's "own" car, of course, the Holden Special Sedan! It is a happy coincidence that this opulent-looking car comes into the Dinky range in a year which sees Meccano Limited celebrating its jubilee of trade in Australia. Yes, goods made by Meccano Ltd. were first sold in that part of the world within four years of the formation of the company by the late Frank Hornby, the inventor of Meccano, soon after the start of the century, and this link, spanning 50 years, was commemorated on the Meccano stand at the Melbourne International Trade Fair held earlier this year.

Back to the Holden! This is a real product of Australia and is certainly the outstanding car in that country, although, of course, other cars are produced out there under licence, in the same way that some British cars are produced under licence in places other than our own island. Dinky Toys enthusiasts who are skilled in scenic work—and there must be very many of them—will doubtless find it quite an exciting exercise to devise a typical Australian scene for their new Holden model.

Manufactured by General Motors—Holden's Pty. Limited, who have premises in Brisbane, Sydney, Melbourne, Adelaide and Perth, the prototype Special Sedan is powered by a 6-cylinder o.h.v. engine of 138 cu. ins. capacity which develops a gross power output of 75 b.h.p. at 4,200 r.p.m. Transmission can be either manual or automatic, as required but, in both cases, there are three forward gears and one reverse with, in the case of the former only, a hydraulically-operated clutch. The automatic transmission is of the General Motors Hydra-Matic type which I have mentioned in the past. Approximate overall dimensions are as follows: length 14 ft. 9 ins; width 5 ft. 8 ins; height 4 ft. 10 ins; wheelbase 8 ft. 9 ins; front and rear track 4 ft. 6½ ins.

Now let me hasten to describe our model Holden, numbered 196 in the list. In addition to what might be called Dinky Toys "standard extras"—Prestomatic steer-

(*Continued on page 403*)



Top: The Holden Special Sedan, which is almost part of the Australian landscape. This well-appointed car is now represented in the Dinky Toys range, and you see the miniature in the illustration on the left, where husband and wife are depicted preparing for their holiday The house and garage are constructed from Bayko.

LINESMAN continues his series "FROM THE TRAIN SET ONWARDS"

HOW TO DESIGN YOUR STATIONS

READERS will have realised that the end to end layouts described in my article in last month's *M.M.* are really only as interesting as their stations, and it is therefore essential that the features they contain should be as diverse as possible.

To assist any interested reader to choose the correct type of station for his own requirements I have included four drawings of different stations. I will describe the merits and demerits of each individual one, and leave the final decision to my reader.

The design of stations (and, indeed, of layouts) is a highly personal thing, and I would not presume to know the requirements of each of my readers, although any one of the four plans may be followed if required. I would, however, recommend that the reader attempts to design his own station, using mine as a basis or general guide.

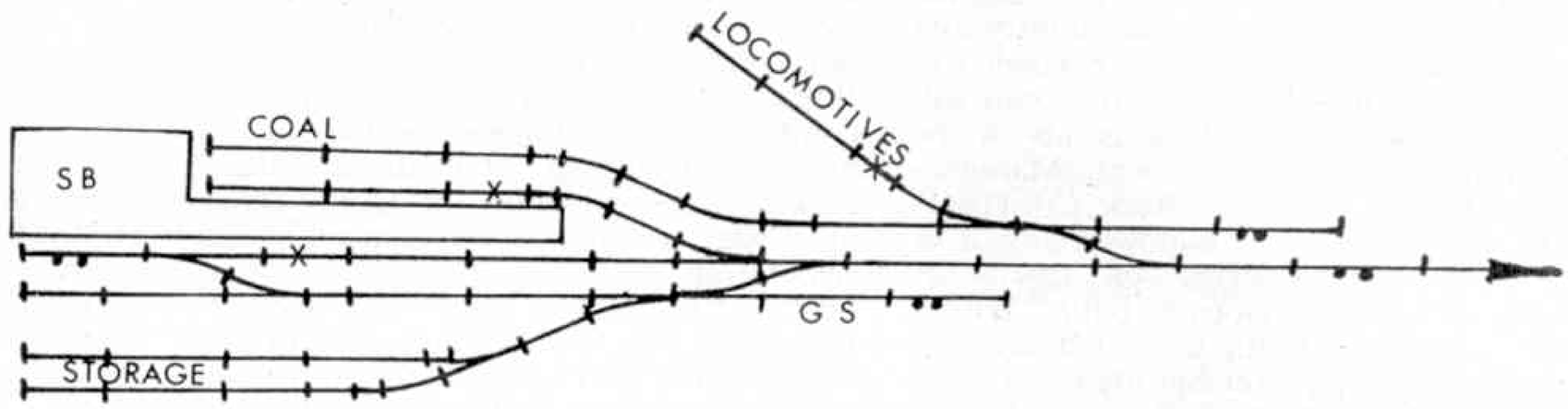


DIAGRAM 1

The essential features of any station are the main platform roads, the run round (if terminal station), and some method of disposing of goods trains by means of goods storage sidings, or goods bays. These important features will, of course, vary according to the size of the station concerned. A large through station, for instance, would require more than one platform road, but alternatively would not require a run round. The location of these features on your plan will decide the arrangements of all other ancillary track, such as head shunts; back shunts; crossovers. Among the more important facilities of a station is the locomotive shed, and although not an essential feature, this must be placed within easy reach of the main platform road, unless the station concerned has a Crewe-like complexity, when it will be found more convenient to place the locomotive shed away from the station.

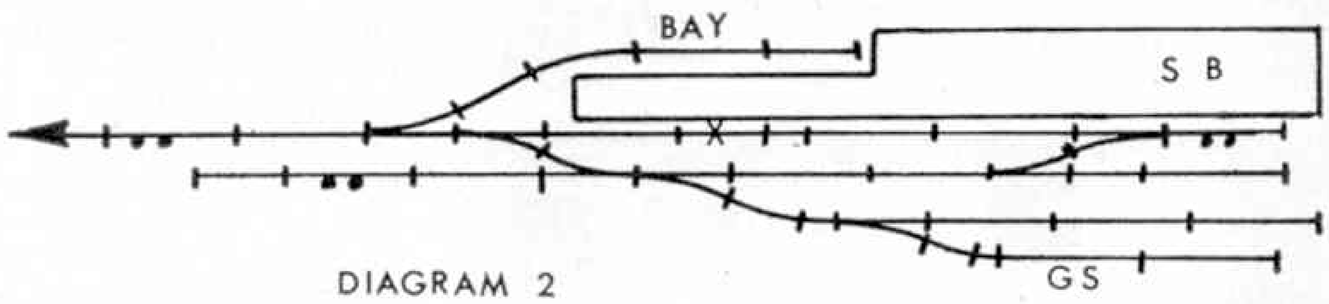


DIAGRAM 2

Diagram 1 shows a comprehensive terminus station with two platform roads, one with a crossover making it suitable for running round a train. The other platform road is in the form of a bay and is intended to be used for local or push-pull trains. The main platform face is probably long enough to accommodate the larger four-coach, or even five-coach trains; this, however, would be its limit. The coal siding alongside the bay should lead to interesting shunting movements, since the goods storage sidings are on opposite sides of the station. The locomotive shed is within easy reach of both platform faces, making it a simple matter to back a locomotive on to the head of an outgoing train. Readers will note the positioning of the two head shunts, one by the engine shed for storage purposes, and one by the goods yard for shunting. This station would make an ideal medium size terminus for most layouts.

Diagram 2 shows a slightly smaller station with fewer facilities, but which is as equally interesting as the previous one. If this station were built at one end of a layout and the larger terminus shown in our first diagram were built at the other end, no locomotive shed would be needed as the existing one in the larger terminus could legitimately serve both stations. This is quite in accordance with the prototype, and could be seen on many a rural branch line a few years ago. This station only makes provision for one passenger train at a time, as it has one platform face. The operator will, therefore, have to exercise discrimination as to the number and type of trains he can allow to enter the station to avoid blocking the main track. This requires a little skill, but can be most enjoyable.

A point that must be remembered on all stations that include run-rounds is that a full straight rail *at least* must be

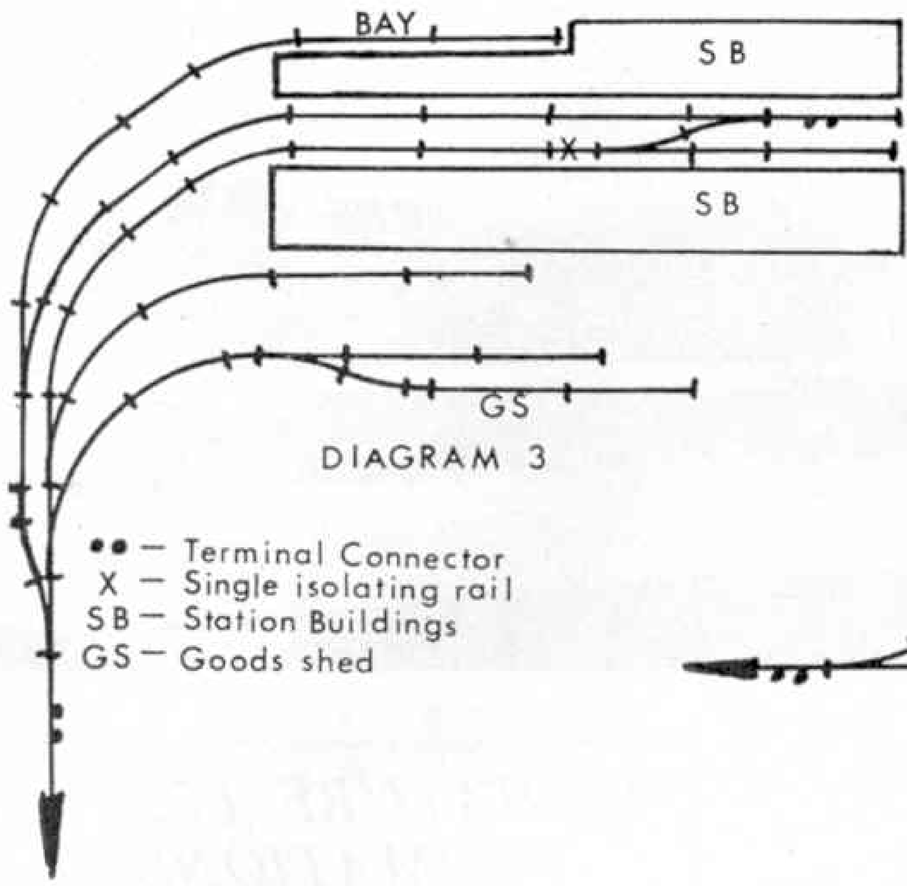


DIAGRAM 3

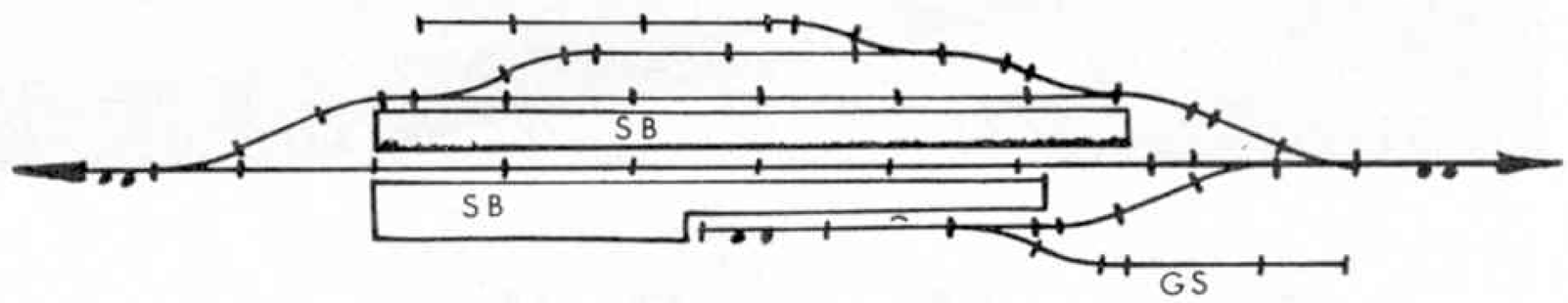


DIAGRAM 4

fitted in front of the run-round, otherwise the locomotive will be unable to reverse far enough to be able to negotiate the run-round. Another tip which the reader might find useful is to leave sufficient space in the siding formed by the run-round for a spare coach, which may be subsequently used when lengthening a local train. A head shunt has also been included on this plan to aid shunting between the two goods sidings.

Diagram 3 shows a station bent into the shape of an "L". This could replace the terminus shown in Diagram 1 should the space at the reader's disposal be more suited to this type of station. It includes all the facilities present on the other termini, except for a locomotive shed; this could be a disadvantage if the station at the other end of the layout does not include one either.

For those among us who are able to indulge in luxuries, I include a through station, which may be used either in between two reverse loops or between two stations placed well apart. It would also be suitable for inclusion in the continuous type of layout. The station includes a bay for the local passenger trains, and in this respect can be used as a terminus. A goods loop and siding are shown on the opposite side of the layout; shunting however can only take place when the line is clear for long periods. An improvement on the design would be the inclusion of a back shunt.

The wiring for all four stations is once again shown for the Simplec points, and is in diagrammatical form. The full wiring would depend largely on the remainder of the layout.

It will be seen that on Diagrams 1 and 2 pairs of Simplec Points are laid throat to throat, and the terminal connector that would normally have been placed between them is in the adjacent siding. This is only possible with Simplec points, and is further proof of their versatility.

LETTERS TO THE EDITOR

Sir—I have recently become re-acquainted with the *M.M.* after a lapse of over 30 years and am delighted to observe the high standard of its contents and presentation. It is pleasing, too, to discover several old regular feature titles still in use. My earliest recollection of the magazine takes me back to the early twenties when it cost 2d. and had no coloured cover. I believe that my very first copy described the Meccano crystal radio set, which I seem to recollect was produced in two specifications.

My Meccano experience started during the days of the first world war and I was the proud owner of one of the first Hornby trains—when they had three link couplings. Altogether your products—Meccano, trains and the Magazine—had an immensely formative influence on permanent features of my life. I now have charge of the Spares Department in a large and old established engineering works, and railways remain my principal outside interest. My greatly valued, twelve-years-old, outside garden model railway (based on Welsh narrow gauge practice) possesses one wagon mounted on an original pair of Hornby cast lead Mansell wheels dating from their introduction at 4d. per pair on an axle!

In 1946 I was one of the founder members of the Huddersfield Railway Circle, now numbering some 60 members.

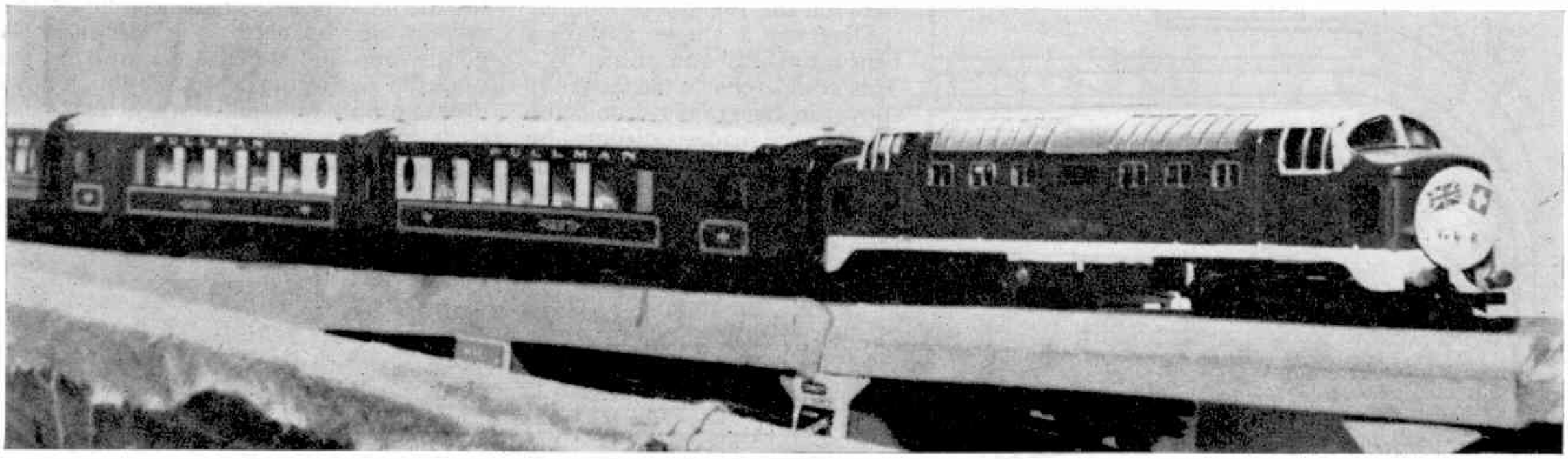
Very best wishes for the future of the *M.M.*—William B. Stocks (Huddersfield)

Sir—I have a little item of news that you may be interested in—I am an amateur astronomer and about eighteen months ago we had a hobbies exhibition here in Gisborne, so I entered an astronomical display which was highlighted with a good Meccano model of an Orrery showing the movements of the sun, earth and moon. The model ran right through the whole week of the exhibition and attracted a lot of interest, with the result that there were many inquiries from people wanting to learn something about astronomy. We have since that time set up an Astronomical Society in Gisborne with over 40 members.

I am really grateful to Meccano for the part it has played in the success of my display. I have built some fine models with Meccano in the past, including a rotary newspaper printing press.—Archie N. Brunton, Gisborne (New Zealand).

Sir—I was very interested in the article about microtomes for section cutting. (July *M.M.*) I made one many years ago, rather more elaborate than the two described in the article. In mine, the return of the razor carriage was made to advance the projection of the wax by means of cams (threaded pins on a face plate). This made it like a small bacon slicer and rapidly produced a series of sections of a uniform thickness, from which a selection could be made. Two other uses of Meccano were a turntable for ringing microscope slides with shellac, and varnish to seal them, and also extension rods to manipulate the controls of the microscope from my position behind the camera focusing screen, a distance of about 7 feet. The total length of this photomicrographic outfit, camera, microscope, condensers, fluid filters and oxy-hydrogen lime jet, was over 12 feet.

In the early days of Meccano, when I was in my mid-teens, I had a Maltese Cross movement from a well-made toy cinema projector. I utilised this, along with a considerable amount of Meccano, to make a full-size projector which took standard 1,000 ft. reels. The biggest snag was that in those days I had no electricity on tap, making illumination quite a problem. One interesting solution was the coupling of two mirrors (concave), one about 2 inches in diameter and the other about 5 inches. These were mounted in a Meccano frame in such a manner that any movement of the small mirror was reproduced in the larger. In use, the large mirror was set to fill the rear condenser lens with sunshine, the small mirror throwing a small, intense spot on some reference point. It was the duty of the person controlling the apparatus to keep this spot steady, thereby compensating for the sun's movement. By this means we got a good picture in broad daylight.—George H. Cheetham, Edinburgh 7.



Mixing Your Pullmans With Standard Stock

MINIATURE TRAIN FORMATIONS

By S. F. Page

A QUESTION that often arises relates to the mixing of Pullman Cars such as Hornby-Dublo model numbers 4036 and 4037 with, say, a rake of maroon-finished standard corridor stock, or Western Region stock forming the main complement of the train, since it is generally believed that Pullman Cars are not mixed with normal train stock.

This is not completely true, for Pullman Cars can be attached to a normal scheduled express to convey special parties which might not be travelling the full distance.

Following a journey with a party which I made last year, such a train has been introduced as required into the summer timetable on my L.N.E.R. Hornby-Dublo layout, which has been referred to in previous articles.

An example is given below in detail.

The 9.30 a.m. express from Longdon to the north makes its first stop at Newborough. One of the large firms having a factory in the Newborough area has arranged for a special party of visitors to be transported from Longdon to Newborough Junction in two Pullman Cars to be attached to the rear of the 9.30 train. The cars have to be detached at Newborough and pulled into another platform.

After the factory visit is over the party is taken by road to a point some miles nearer Easthyde Station, and it is from here that they will board the Pullman Cars which are then hauled into Newborough Junction in time for attaching to the 5 o'clock southbound express.

To help in making such special workings on your layout, the main train movements are set out below:

Special Part Working

At Longdon—

9.00 a.m. Two Pullman Cars are attached to the rear of the empty stock. Haul into Longdon Station with a steam locomotive 0–6–2 Tank, number 2217.

9.23 "Deltic" diesel loco backs on to the head of the coaches.

9.30 Train departs. 0–6–2 Loco returns for next duty.

10.45 Train arrives Newborough Junction Platform 1. 0–6–0 Tank loco waits in Platform 2 road to take over Pullman Cars. These are pulled into Platform 2 where the party detrains.

10.55 Express departs for the north. Pullmans are hauled to a carriage siding to await later use.

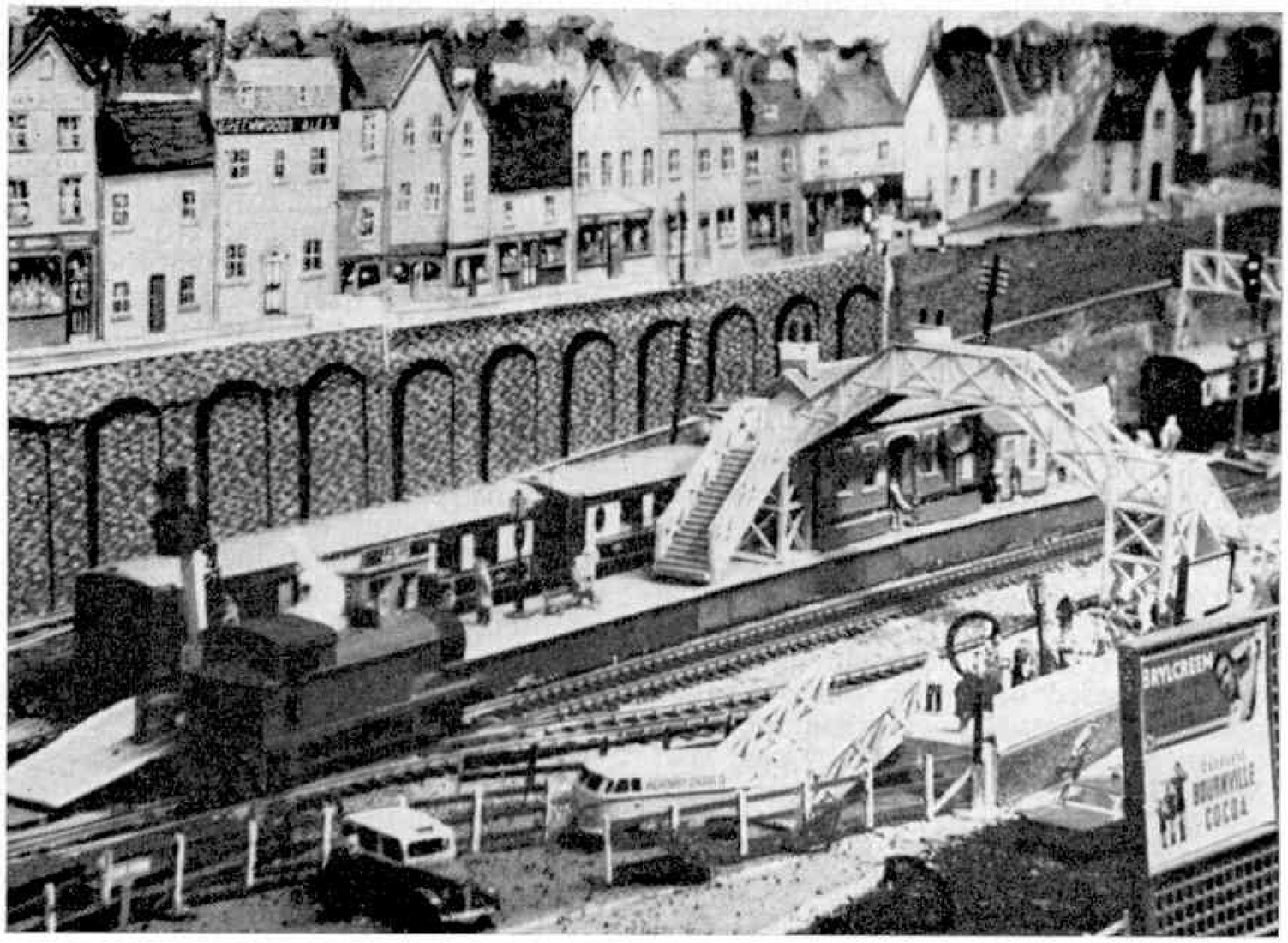
2.30 Pullmans are hauled from carriage siding by 0–6–0 Tank loco to Easthyde Station.

3.40 With party of visitors aboard, the train departs from Easthyde.

(*Continued on page 399*)

The illustration at the top of the page shows a V.I.P. train photographed behind a Hornby-Dublo Co–Co Deltic and comprising two Pullman Cars and a Brake/Second. This special train bears a large headboard on the locomotive.

Below: An 0–6–0 Tank Locomotive moving out of Platform 2 road to connect with the two Pullman Cars that have been uncoupled from the northbound express (seen moving away on the right).



The 1963 B.R.M., pictured here with Graham Hill at the wheel, follows monocoque ideas. The complete car weighs less than 1015 lb. The illustration appears by courtesy of "Motor Sport."

New B.R.M. Is Clark's Most Promising Challenger

ROAD AND TRACK

By Jerry Ames

THE fastest 1½ litre Grand Prix Formula One machine during the first part of the season was without question Jim Clark's Lotus 25. Jim's skilful driving, plus the monocoque Lotus with its small, accurately streamlined body and low, overall weight, provided him with a handsome lead in the World Championship at the half-way stage. Not only did he win four championship races in a row—the Belgian, Dutch, French and British Grands Prix—but led most races from start to finish, often in pouring rain, and that is something unique in motor racing.

It is interesting to note that Jim Clark still insists on using the old German-built ZF five-speed gear box, rather than place his trust in the new six-speed unit available. He heeds the old racing maxim—only rely on fully-tested components.

At the time of writing, the foreign challenge to Clark seems to have wilted away. Ferrari's new V–8 is sadly down on power on the road, and Enzo Ferrari will not race it until it gives 200 b.h.p. on the road. His new cars are ready and waiting, but the small chassis will not house the present V–6 fuel injection engine, so John Surtees must wait until Monza, on September 8, when the engine should give full power.

Surtees confirmed that Ferrari wrote off the 1963 season weeks ago as far as championships are concerned, especially as his second driver, Willy Mairesse, is recovering from severe burns sustained when his Ferrari caught fire at Le Mans.

With a body length of 13 ft. 1 in. the Renault R.8 provides 4/5 seats and 11 cubic feet of luggage space. Its maximum speed is 83 m.p.h.

The stand-in driver, Scarfiotti, badly injured his knee in a high speed crash on wet roads during practice for the French Grand Prix; he has now announced his retirement.

The other Italian team, the A.T.S., is still sorting out handling problems, nor are the modified V–8 engines, now with more power and fuel injection, yet satisfactory.

Power losses are another of this season's problems. It is not generally known that only one V–8 Coventry Climax engine actually topped 200 b.h.p. This was the guinea pig test unit that was later raced by Dan Gurney in the Brabham, and went so well. Now it has mysteriously lost its full punch and like all the other Coventry Climax engines is giving a maximum of 190 b.h.p; despite this, the lightweight Brabhams are proving themselves a force to be reckoned with.

Clark's most promising challenger is Graham Hill in the beautifully constructed 1963 B.R.M., but it should be noted that this car, first raced in the French Grand Prix at the end of June, had not then been fitted with the new, more powerful B.R.M. engine. However, as soon as its handling is more fully developed, the 1963 power unit should be ready, probably in time for the Italian Grand Prix, on September 8. The present engine is giving 194 b.h.p. at just over 10,000 r.p.m.

The 1963 B.R.M. follows monocoque ideas, using a single duralumin skin into which is riveted a rigid centre construction, also forming the base of the driving seat and with special compartments to take flexible rubber fuel tanks. The complete car weighs less than 1,015 lb. much about the same as the Lotus 25, and is some 15 lb. lighter than the latest Cooper. In the construction of the new B.R.M., Chief Engineer and Team Manager Tony Rudd has sought inspiration from aircraft fuselage practice, but a veritable trellis-work of tubular framing attached to the centre monocoque section is required to house the rear engine, transmission and suspension.

(*Continued on page 402*)

WORKING TRACTION ENGINE WITH EMEBO MOTOR

Spanner writes for The Young Model-Builder

THE small, yet very realistic, model Traction Engine shown in the illustration at the foot of this page is powered by a Meccano Emebo electric Motor which is concealed in the body and drives the engine and rear road wheels through a pulley and sprocket-wheel system.

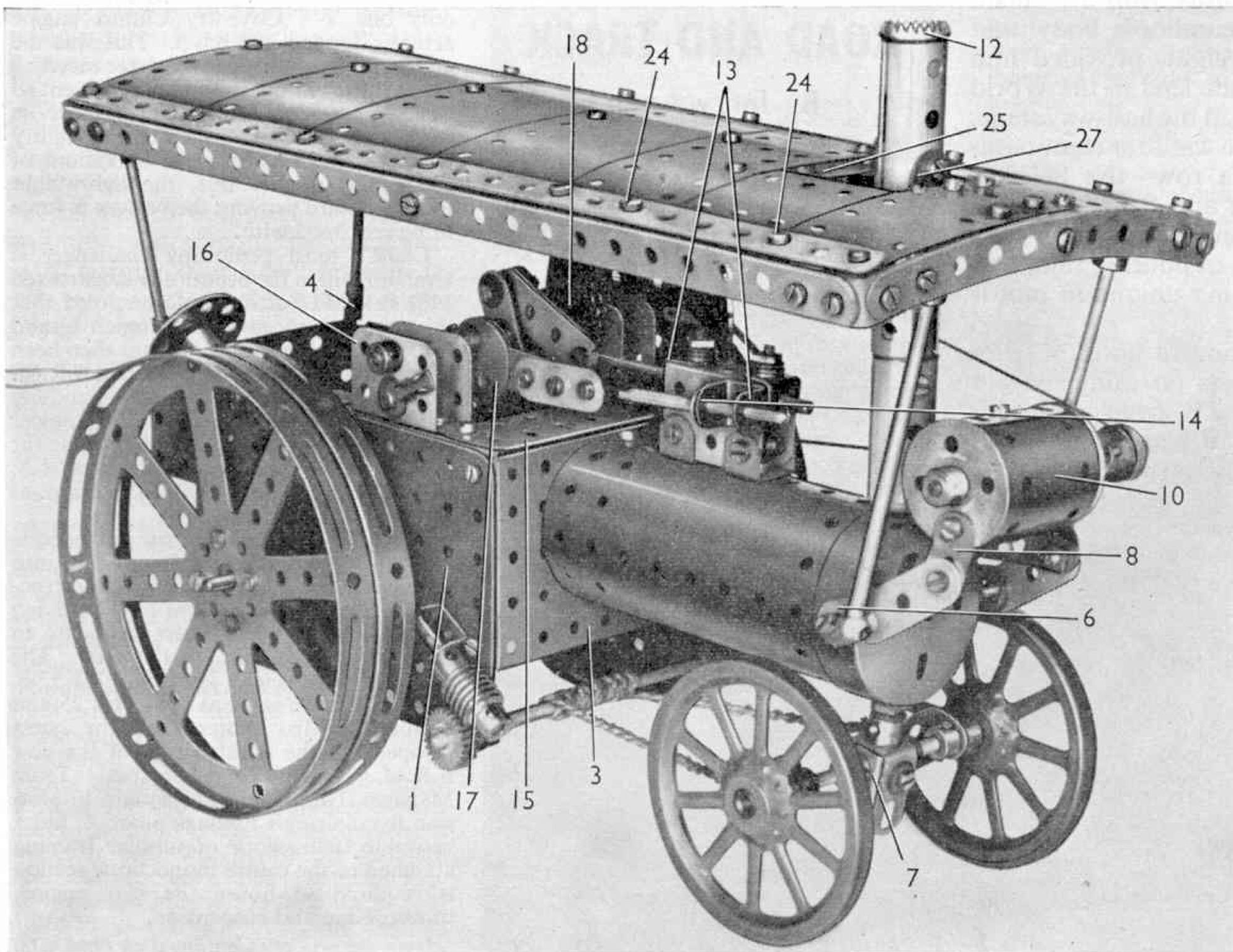
CONSTRUCTION OF THE BODY

Two $5\frac{1}{2}'' \times 3\frac{1}{2}''$ Flat Plates 1 are bolted to a $3\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate 2 and they are connected by another $3\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate 3. Both Plates 1 are extended two holes at the rear by a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate and these, in turn, are joined by two $3\frac{1}{2}'' \times 1\frac{1}{2}''$ Triangular Flexible Plates arranged so as to form a $3\frac{1}{2}'' \times 1\frac{1}{2}''$ rectangular plate. The upper bolts also hold a Rod and Strip Connector 4 and the lower ones hold a $3\frac{1}{2}''$ Angle Girder in position. Another $3\frac{1}{2}''$ Angle Girder is fixed to Plate 2 by Bolts 5 and two $3\frac{1}{2}'' \times 2''$ Triangular Flexible Plates are bolted to this in such a manner as to make a $3\frac{1}{2}'' \times 2''$ rectangular plate. A further $3\frac{1}{2}''$ Angle Girder is now bolted to the top of this plate with its upper flange pointing rearwards to form a shelf with the bottom flange of the first Angle Girder, and it is also attached to Plates 1 by Angle Brackets.

THE BOILER

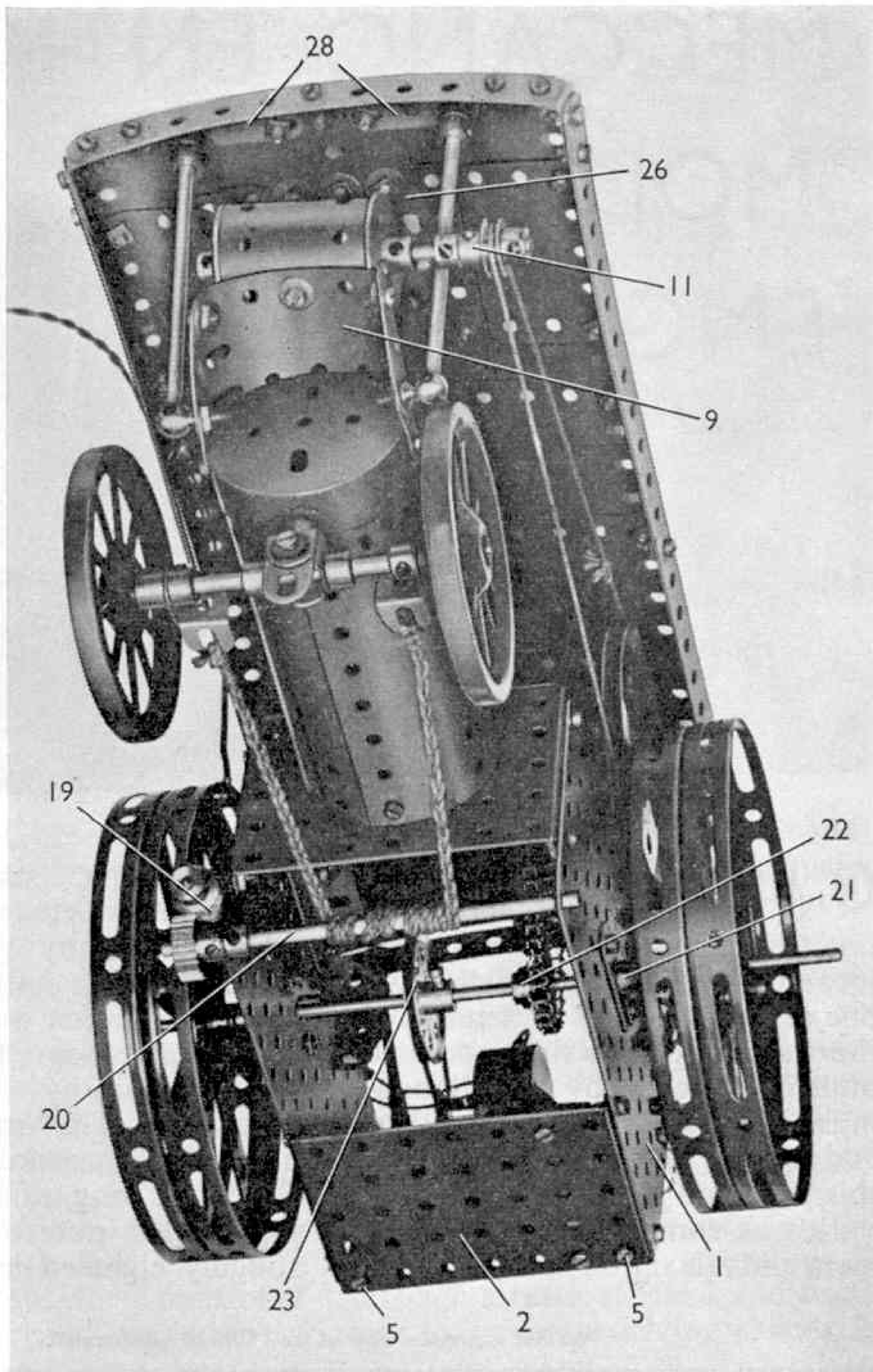
This section is very easy to build. A Boiler End is fixed to one end of a Boiler, two diametrically opposite bolts also holding Fishplates 6 in position. At right angles to these bolts, a further bolt holds a Chimney Adaptor in place, and, diametrically opposite, a $\frac{3}{4}''$ Bolt, carrying a Large Fork Piece and two Washers with a nut between them, is fixed. A Double Bracket 7 forms the bearing for the front axle.

A $1\frac{1}{2}''$ Strip is joined to each Fishplate 6 by a Handrail Support



A small Traction Engine operated by an Emebo battery-driven Motor concealed in the cab.

An underneath view of the Traction Engine showing the steering arrangement and the drive from the Emebo Motor to the rear wheel axle and the crankshaft.



passed through one end hole. In the other end hole, an Obtuse Angle Bracket 8 and a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate 9 are bolted. The dynamo mounted at the front end of the boiler, consists of two $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates 10 bent round two $1\frac{1}{8}''$ Flanged Wheels, which carry a $3\frac{1}{2}''$ Rod fixed tightly in their bosses. It is bolted to Plate 9. A $\frac{1}{2}''$ Pulley with boss 11 is mounted loosely on the Rod between two Collars. A long chimney is built up from three Sleeve Pieces which are joined together with the help of Chimney Adaptors and $\frac{3}{4}''$ Bolts. A $\frac{3}{4}''$ Contrate 12 is bolted to the top Chimney Adaptor with a $\frac{3}{4}''$ Bolt.

The valve gear on top of the boiler consists of two Double Brackets to which an inverted Channel Bearing is fixed. The valve rod guides, two Angle Brackets 13 and an Angle Bracket with a Double Bracket 14, are bolted to the Channel Bearing. After this the completed boiler is connected to the body by passing two $\frac{3}{8}''$ Bolts through Plate 3 and into Threaded Bosses. The Boiler is then bolted to these through their transverse tapped bores.

THE CRANKSHAFT

A $3\frac{1}{2}''$ Angle Girder is bolted to each of Plates 1 and these are joined by a $3\frac{1}{2}''$ Flat Girder 15. To each of the Angle Girders a Channel Bearing 16 is fixed and a 2″ Rod is journalled in each of these, one being kept in place by Collars and the other by a 3″ Pulley and the Sprocket Wheel 18. On one of the Rods a Single Throw Eccentric 17 and a Double Arm Crank is fixed and, on the other a 1″ Sprocket Wheel 18 and another Double Arm Crank. The Cranks are at the end of each Rod, parallel to each other and are connected by a $\frac{3}{4}''$ Bolt carrying two 2″ Strips, five Washers and three nuts. The order of these on the Bolt is as follows: a Washer held tightly against one Crank by a nut, another Washer, one of the Strips, a further Washer, the other Strip, yet another Washer, a nut held tightly against the other Crank, the Crank and, finally, the last Washer held against the Crank by a nut.

The Eccentric is extended by a $1\frac{1}{2}''$ Strip lock-nutted to a Rod and Strip Connector which carries the $2\frac{1}{2}''$ valve rod, as shown. The piston rod is 3″ long, and is fixed in a Rod and Strip Connector held between the 2″ Strips on the $\frac{3}{4}''$ Bolt, by a lock-nutted bolt.

STEERING AND WHEEL ARRANGEMENTS

The steering column, represented by a $6\frac{1}{2}''$ Rod, is journalled in two Double Brackets attached to the off-side Plate 1 of the body and is held in position by a Collar and a Worm 19. The Worm meshes with a Pinion on a $4\frac{1}{2}''$ Rod 20 held by the Pinion and a Collar in Plates 1. A length of plaited Cord, wound several times round this Rod, is tied as shown, to two Corner Angle Brackets on the front axle, which is a $3\frac{1}{2}''$ Rod held in Double Bracket 7 by Collars. Two 3″ Spoked Wheels form the front wheels and the Corner Angle Brackets are held loosely against these by Collars.

The Steering Wheel is an 8-hole Bush Wheel with a $\frac{1}{2}''$ Bolt as a handle. Each rear wheel is comprised of two Hub Discs with a hub consisting of an 8-hole Bush Wheel. These wheels are mounted on the 8″ Rod that forms the rear axle. This is passed through the centre holes of the Plates 1 and journalled in the bosses of Double Arm Cranks 21 fixed to the Plates. Collars hold it in place. In addition to the wheels this Rod also carries a 1″ Sprocket Wheel 22 and a $1\frac{1}{2}''$ Pulley 23. A length of Sprocket Chain connects Sprocket Wheel 22 with Sprocket Wheel 18.

THE CANOPY

Construction of this part of the model is quite straightforward, and details can be seen clearly in Fig. 1 on the opposite page. Working forwards from the rear end, the Plates used are four $5\frac{1}{2}'' \times 2\frac{1}{2}''$, one $5\frac{1}{2}'' \times 1\frac{1}{2}''$, five $2\frac{1}{2}'' \times 1\frac{1}{2}''$ (one of these is marked 25) and another $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate. The two hidden $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Plates are underneath the two Plates shown and are held by Bolts 24. The hole through which the chimney protrudes is edged by two $2\frac{1}{2}''$ Stepped Curved Strips 26 and it is attached to the canopy by an Angle Bracket 27. The canopy is edged by two $12\frac{1}{2}''$ Strips.

The edges of the canopy consist of two $12\frac{1}{2}''$ Strips and two $5\frac{1}{2}''$ Curved Strips, joined at each corner by a $1'' \times 1''$ Angle Bracket and connected to the canopy proper by Angle Brackets.

The canopy is connected to the body and boiler by two $3\frac{1}{2}''$ and two $4\frac{1}{2}''$ Rods, Cranks 28 being used to hold the front stays to the canopy and Rod and Strip Connectors to hold the rear stays. The lower ends of the stays are fixed as shown.

THE POWER UNIT

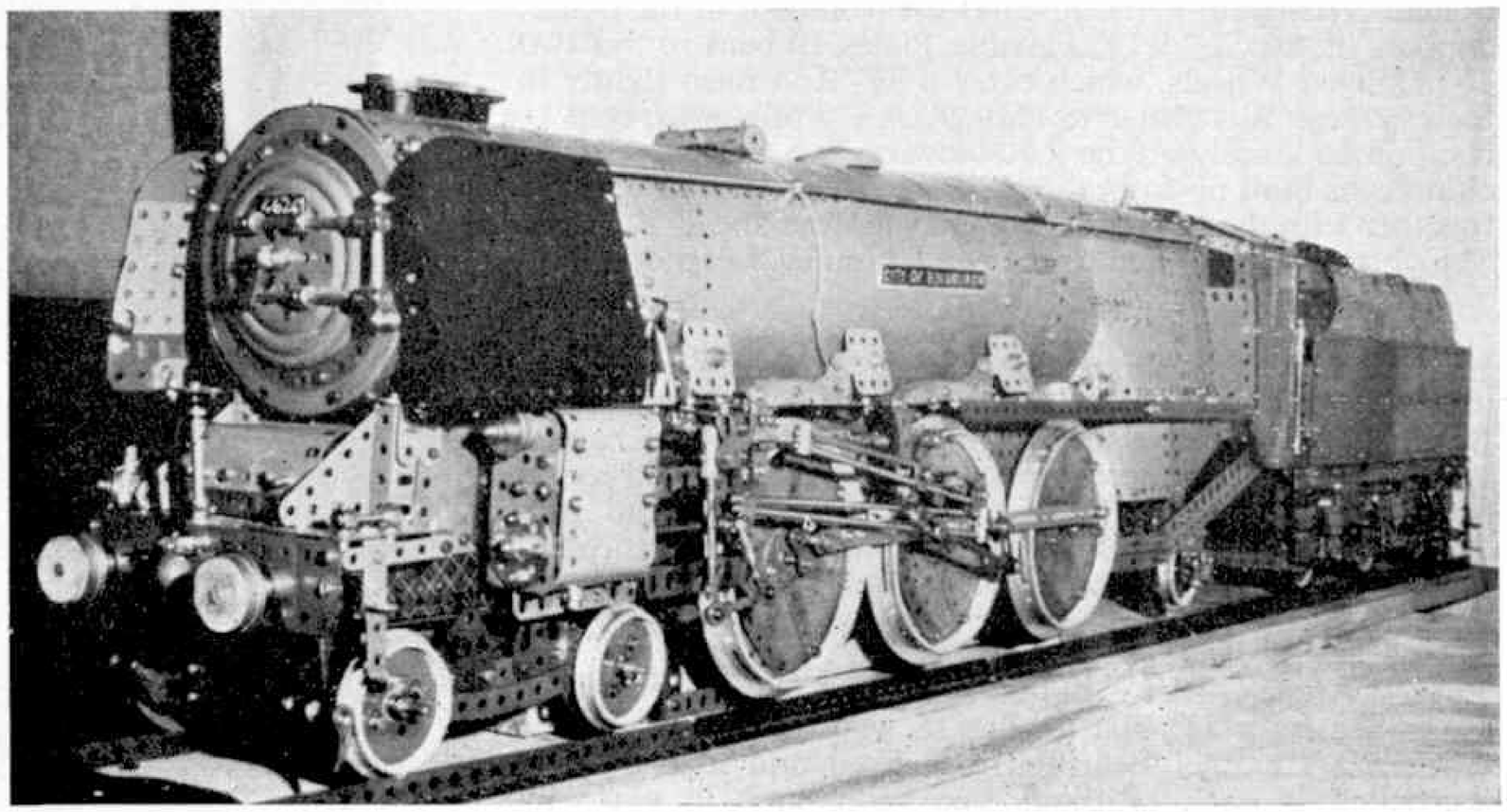
An Emebo Electric Motor is bolted firmly to Flanged Plate 2, and a Driving Band passes from a $\frac{1}{2}''$ Pulley on its spindle, around the $1\frac{1}{2}''$ Pulley 23 on the rear axle. When the axle rotates, power is carried to the crankshaft by the Sprocket Chain connecting Sprocket Wheels 22 and 18. Thus the crankshaft and valve gear are realistically operated.

Parts required to build the Traction Engine: 4 of No. 1; 2 of No. 6; 3 of No. 6a; 5 of No. 9b; 3 of No. 10; 6 of No. 11; 14 of No. 12; 4 of No. 12a; 2 of No. 12c; 1 of No. 13a; 1 of No. 14; 3 of No. 15a; 2 of No. 16; 1 of No. 16a; 3 of No. 16b; 2 of No. 17; 2 of No. 19a; 1 of No. 19b; 2 of No. 20; 1 of No. 21; 1 of No. 23a; 3 of No. 24; 1 of No. 25; 1 of No. 29; 1 of No. 32; 148 of No. 37a; 140 of

(*Continued on page 402*)

MECCANO ENTHUSIAST'S HUGE MODEL ENGINE

Overall Length 5 ft. 8 in.



A giant model of the Pacific type locomotive "City of Edinburgh" built by Mr. George Cheetham. Some details of it are given on this page.

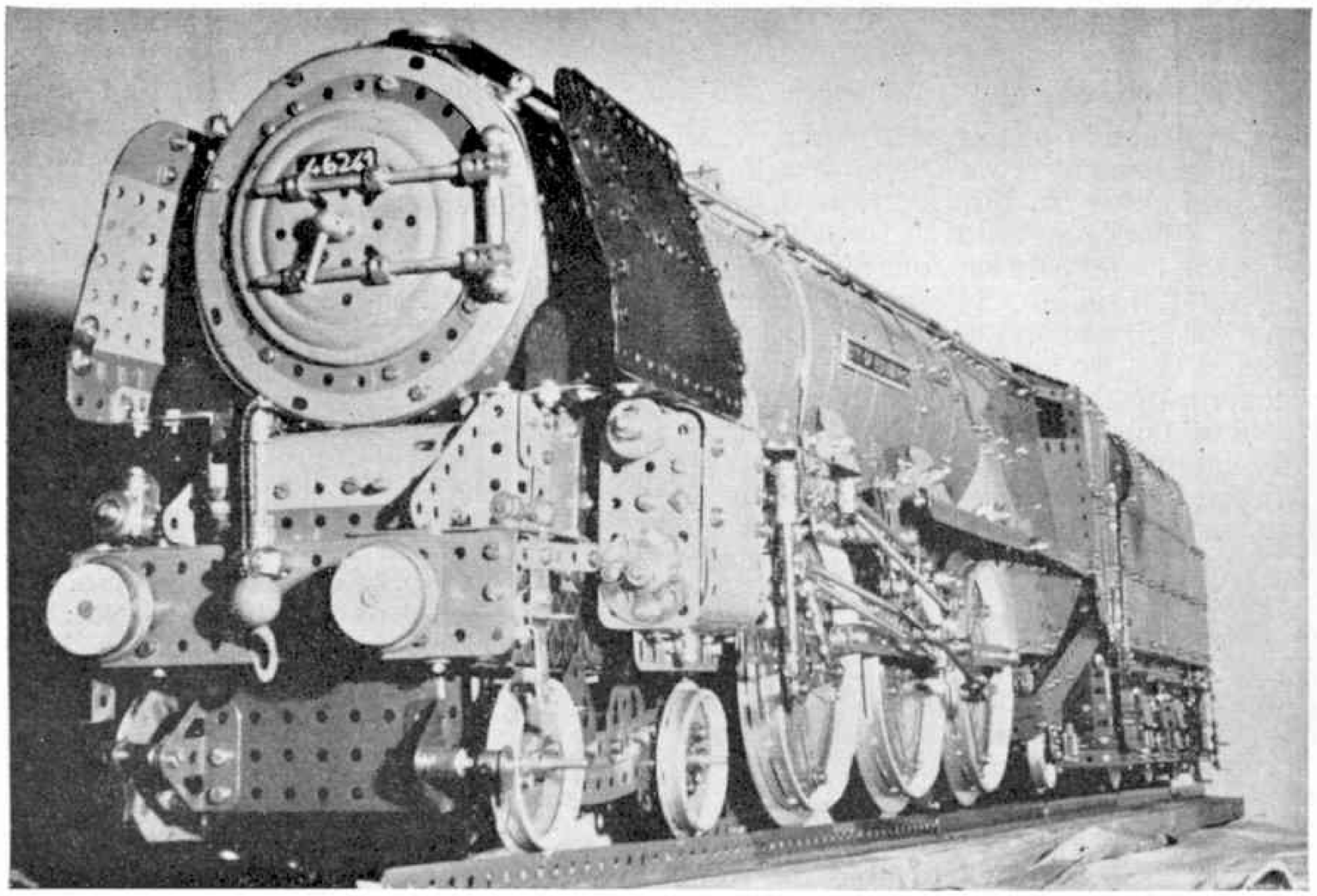
ONE of the attractions to be seen in Princes Street, Edinburgh last Christmas, was a giant model locomotive which was on display in one of the big stores in that famous thoroughfare. This fine model was built in Meccano by an Edinburgh musician, Mr. George Cheetham, and various views of it are shown on this page and the following one.

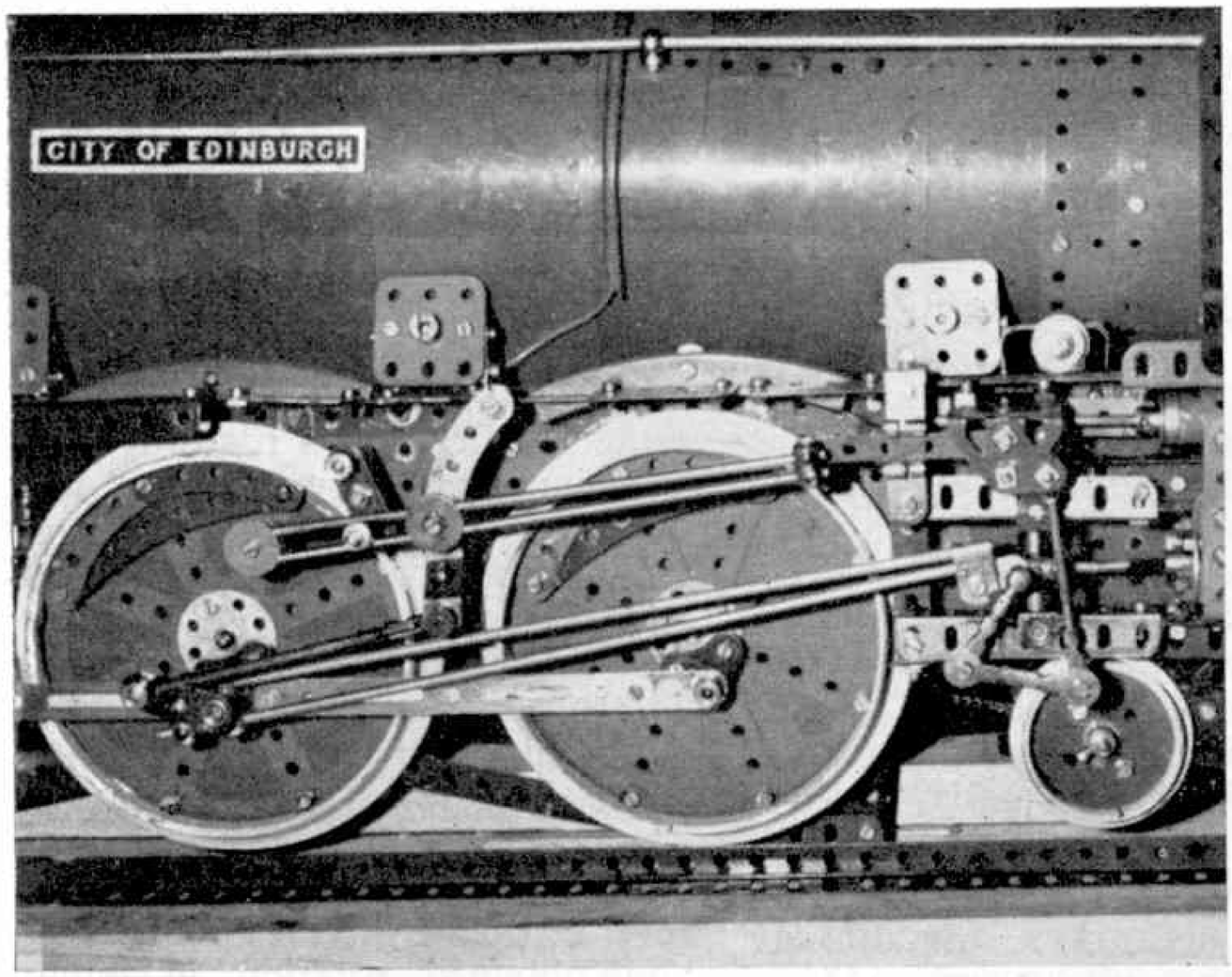
Just as some people find enjoyment and relaxation in such pursuits as gardening, stamp collecting, photography, etc., Mr. Cheetham, who for many years lived in Blackpool, has found that for him there is no better way of spending a few carefree hours than in building model railway engines with Meccano. The model described here, which measures approximately 5 ft. 8 in. long, and includes more than 1,400 nuts and bolts, took roughly eighteen months of spare time work to complete. It is, as railway enthusiasts will realise, based on the Pacific type locomotive No. 46241 *City of Edinburgh*.

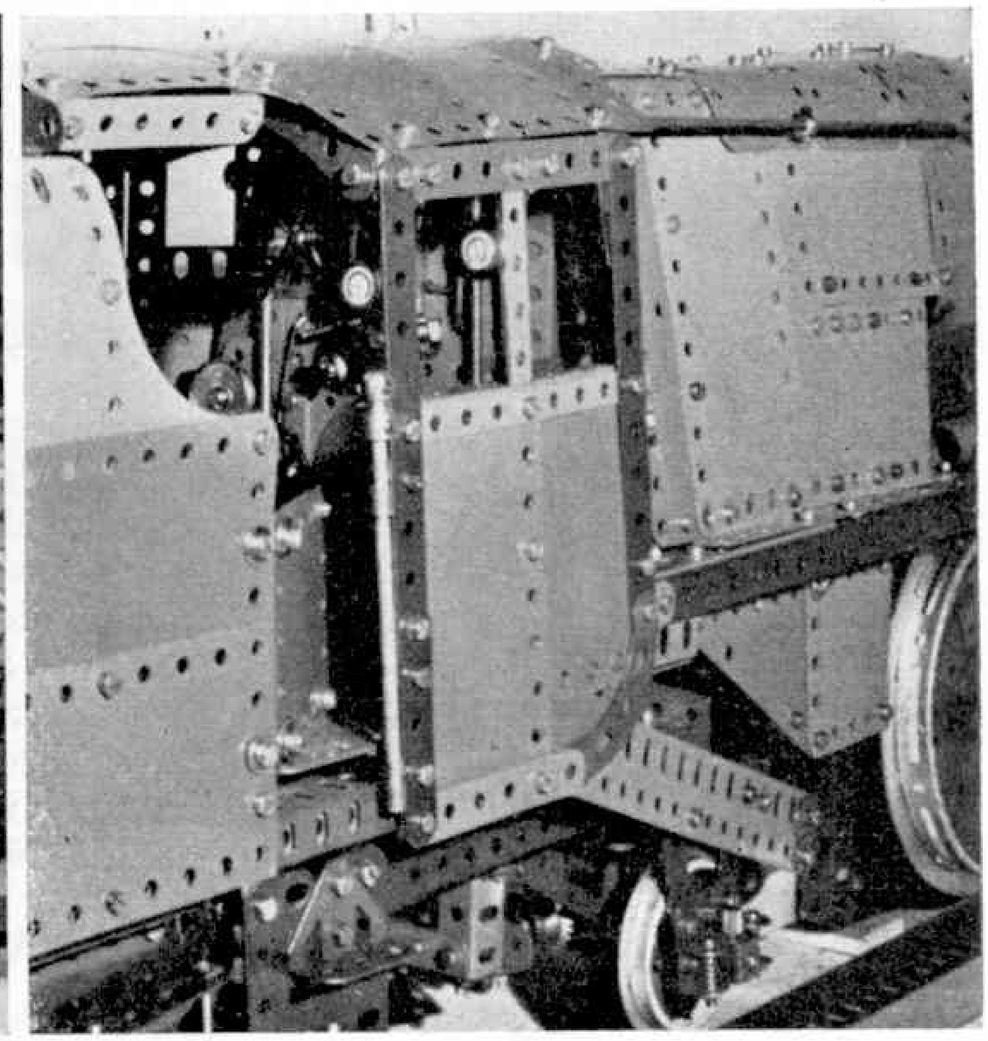
Meccano model-builders will notice that Mr. Cheetham has used Rods instead of Strips in reproducing the valve gear motion. This form of construction made it possible to taper the connecting and radius rods. The expansion link consists of three $2\frac{1}{2}''$ Curved Strips bolted together at the ends, with spacer Washers between. The two inner Strips are bolted at their centres to a Threaded Coupling, which is fixed to a Rod journalled in the frame, while the outer Curved Strip has a Slide Piece without boss that slides freely up and down the Curved Strip. The whole link pivots on the free Rod.

The radius rod consists of two converging Rods giving a taper formation, the wider end being secured between two $\frac{3}{4}''$ Washers. At a point about a third from this end the Rods are again secured between two similar Washers through which pass a long Bolt secured into a nut inside the Slide Piece. Space is left between the nut fastening the rear Washer and the Slide Piece to enable

Another impressive view of the "City of Edinburgh".







(Above left) A close-up of the valve gear of the locomotive. (Right) A peep into the cab revealing the realistic fittings.

the radius rod to pivot, thus making the die block. The front and the longer end of the radius rod is pivoted on one end of a 3½″ Narrow Strip (No. 235b), and the other end of this Strip is slotted in a Strip Coupling. The slide for this Strip is made from two opposed Right Angle Rod and Strip Connectors. The Strip Coupling forms the top end of the combination lever, and it is pivoted to a Trunnion that is carried by two Slide Pieces on a Strip attached to the frame. This construction reproduces the characteristic rocking follow-through movement of the valve spindle as the Slide Pieces carry this spindle.

The other and wider end of the radius rod forms a slot for a long Threaded Pin fixed to the end of a Crank. This Crank, along with its counterpart on the other side, is fixed to a Rod that carries inside the frame a 1″ Gear rotated by a Worm fixed on a Rod extending through to the cab, where control of forward, reverse and gradation of cut-off can be carried out. The full travel from one end of the expansion link to the other takes about 14 revolutions of the hand wheel in the cab, and this Rod has been coupled through extensive gearing to the small amount of turn needed to control the Electric Motor switch, thereby similating correct motion with visual appearance of the valve gear.

The Electric Motor used to drive this huge model is geared down through a ratio of 500:1 and transmits to the centre driving wheel axle.

MECCANO AND ME: ANOTHER REMINISCENCE

I AM an Afrikaan-speaking retired farmer. When I was eleven years old, way back in 1920, I first saw a Meccano set, owned by our neighbour's son; it was a No. 2 Outfit, I remember. There and then I became interested in Meccano, but it was only three years later that my dad bought me a No. 4 Set as a Christmas present. Was I proud of that set? Later, I bought a Clockwork Motor out of my savings, and in the following years I spent many a happy day with my set. I once entered a model-building competition of the *M.M.* and received a certificate of merit, which I still have today.

In 1927 I left school, went to an Agricultural College and, in 1930, started farming. I had to pack my set away, because there was not much time for a farmer to play around with Meccano! I married in 1934, but never had a son to play with my Meccano set—we were blessed with five daughters. However, I kept my set intact and, in 1955, retired from farming owing to a spell of ill-health.

Having plenty of time on my hands then —and also having a few more pounds in my pocket than in 1923—I bought myself a No. 10 Set, and started building big models. I took out my old set, painted all the parts to match and added them to my new outfit. During the following few years I purchased more and more new parts, including two Electric Motors so that, today, my set has more than double the amount of parts contained in a No. 10 Outfit and is worth at least £100.

Now, at the age of 54, I still build models to pass the time, and am a regular subscriber to the *M.M.* I started as a subscriber in 1923, and still have those magazines, but after 1928 I stopped the subscription, resuming again in 1955.

Photography is also one of my hobbies, and I have quite a few nice coloured slides of models I have built. Among them is a windmill which was more than six feet high, and a blocksetting crane the arm of which measured more than five feet.—Mr. D. P. De Wet, Caledon, South Africa.

BOOK REVIEW

The BP Book of World Land Speed Records (Herbert Jenkins, 10/6) details every official land speed record since their beginning in 1898, and gives excellent descriptions, with coloured illustrations, of the vehicles used. There is a large cutaway plan of Donald Campbell's famous *Bluebird* which was wrecked on the Bonneville Salt Flats three years ago but has since been rebuilt. The book includes a short general history of the world land speed record.

The text as a whole is a treasure house of interesting facts. For instance, did you know that 100 m.p.h. was exceeded as far back as 1904 when Louis Rigolly achieved a speed of 103.56 m.p.h. in a Gabron-Brillie, or that the first six records were captured by *electric* cars?

WITH THE SECRETARY

Club and Branch News

CLUB NOTES

UNDENOMINATIONAL SCHOOL (WORCESTER) M.C.—This club meets on alternate Tuesdays for an hour, 1.30 to 2.30 p.m., as a school activity. Additional model-building is done by half the club who stay to school meals and come together afterwards. The club was introduced as an experiment and has proved most successful, the boys responding very enthusiastically. Already an interesting variety of models have been completed, and some will be illustrated in a later *M.M. Secretary:* Robert Bromage, 14 Humber Road, Ronkswood, Worcester.

WELLINGTON SECONDARY MODERN SCHOOL (BURY) M.C.—The enthusiastic members of this club are at present constructing a double-decker bus in Meccano. They now have a No. 7 Outfit, four No. 1 sets, two No. 1a sets and a large box of spare parts collected over the last twelve months. There is a small but steady nucleus of members and there are several other members who attend quite regularly. *Secretary:* Mr. Barry Senior, 53 Woodman Drive, Bury, Lancashire.

NORTHERN NIGERIA

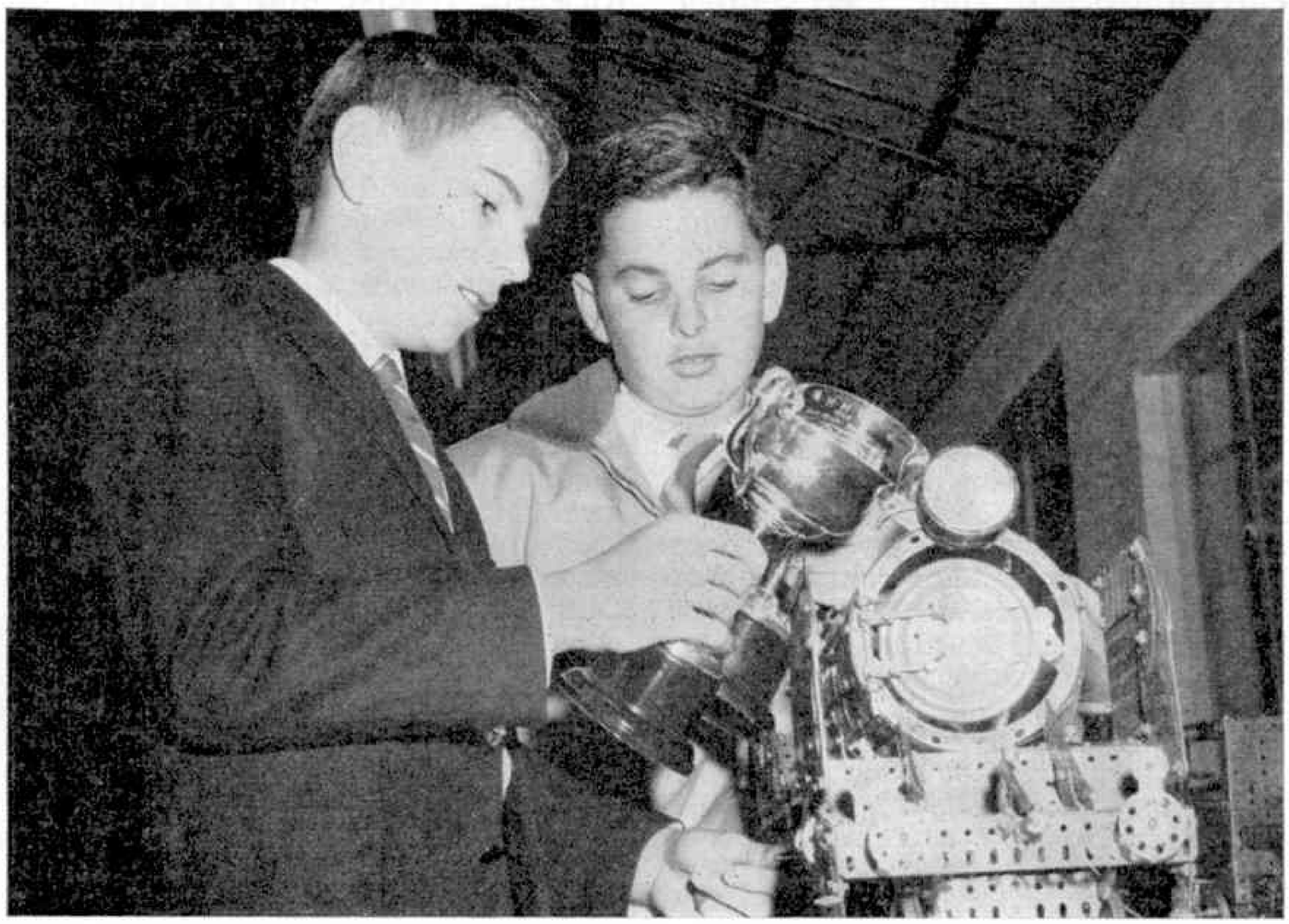
GINDIRI BOYS' SECONDARY SCHOOL M.C.—At the time of sending this report the club was in the middle of its busiest season, with several interesting models under construction. It has become almost a competition among the members to finish their models first and without fault, and the Leader is kept busy dealing with technical queries. Two groups are working on models of an observatory tower and a beam bridge respectively, and recently completed model has been dismantled in order to provide parts for the construction of a model lifting bridge. *Secretary:* Stephen Bode Ajayi, Boys' Secondary School, H.S.C. Section, Gindiri P.O., Barakin Ladi, via Jos, Northern Nigeria.

UNAFFILIATED CLUB

WEALD COUNTY SECONDARY SCHOOL (BILLINGSHURST) M.C.—Each year, well before the date for the school fête, the Meccano model-building enthusiasts set to work to construct something really large, and the subject chosen this year was a new single-deck bus recently put into service by Southdown Motorways.

The Meccano bus was driven by two separate motors, one to each rear wheel in order to obtain differential action, and a further motor actuated the steering. A 20 ft. square "road track" was improvised by putting desks together, and on this a roadway with "T" junction, curves and a few traffic signs was soon assembled. One of these signs read: *Careless overtakers mean busy undertakers.* The model bus was steered and controlled from a "driving seat" equipped with full-size steering wheel, gear lever and accelerator. The "controls" really acted as switches, the gear lever and steering reversed polarity to the D.C. motors and obtained rotation in either direction.

At the fête a fee of 6d. was charged for a "driving lesson"—once round the track and reverse into the bus stop—and there was a regular queue of would-be drivers. The "sense" of the controls was correct when the bus was moving away, but some quick-thinking was needed as the bus came towards the "driver". *Leader:* Mr. R.Pagan, Weald County Secondary School, Upper Station Road, Billingshurst, Sussex.



Trevor Criddle, the Secretary, and Reg. England, of the Maylands (Western Australia) Meccano Club, admiring their respective trophies awarded to them at the annual Presentation and Exhibition Night referred to in last month's "M.M." They are standing beside a Meccano locomotive built by Mr. England. Illustration by courtesy of "The West Australian".

MAKING THE MIAMI MYTH A REALITY

(Exclusive To The Meccano Magazine)

A B.O.A.C. Boeing 707 jetliner in flight.

MIAMI Beach, Florida, hitherto a film and television myth to most people on this side of the Atlantic, has become a reality now that B.O.A.C., with Cunard, is operating a once-weekly direct service by Rolls-Royce 707 jetliner. Miami Beach is, in fact, only ten hours, twenty-five minutes and £224 14s. 0d. (return fare for an economy seat) away from London.

It is four o'clock in the afternoon and the starting point for this luxury holiday is the final departure lounge at London (Heathrow) Airport, a short coach ride from the giant jetliner standing, not far away, on the tarmac. The stewards and stewardesses have just finished putting the final touches to the interior of an aircraft that will become home for half a day for as many as 137 passengers.

When the passengers arrive and have been shown to their seats, coats put away, and magazines and newspapers distributed, the aircraft doors are closed. Seat belts are fastened and activity reaches a high pitch on the flight deck. The four powerful Rolls - Royce Conway engines roar into life and gradually the jetliner moves down the taxi-way to the end of the runway. After final checks the throttles are eased forward and the brakes are released. With a rush the 707 speeds down the long ribbon of concrete and soon soars off on its journey in search of the sun.

Captain J. Woodman, B.O.A.C.'s Chief Pilot.

The sound of the engines seems far away and there is no sensation of movement as the stewardess suggests, "Would you care for a cocktail, sir?" The atmosphere in the cabin is relaxed as the passengers laugh and chat.

A radar scanner in the 707's nose searches the sky ahead, showing clearly on a small screen in front of the captain where any bumpy cloud may lie. A slight adjustment to the controls and the jetliner steers its way smoothly past any turbulence. More than 30,000 feet below, through gaps in the cloud, are the angry Atlantic rollers.

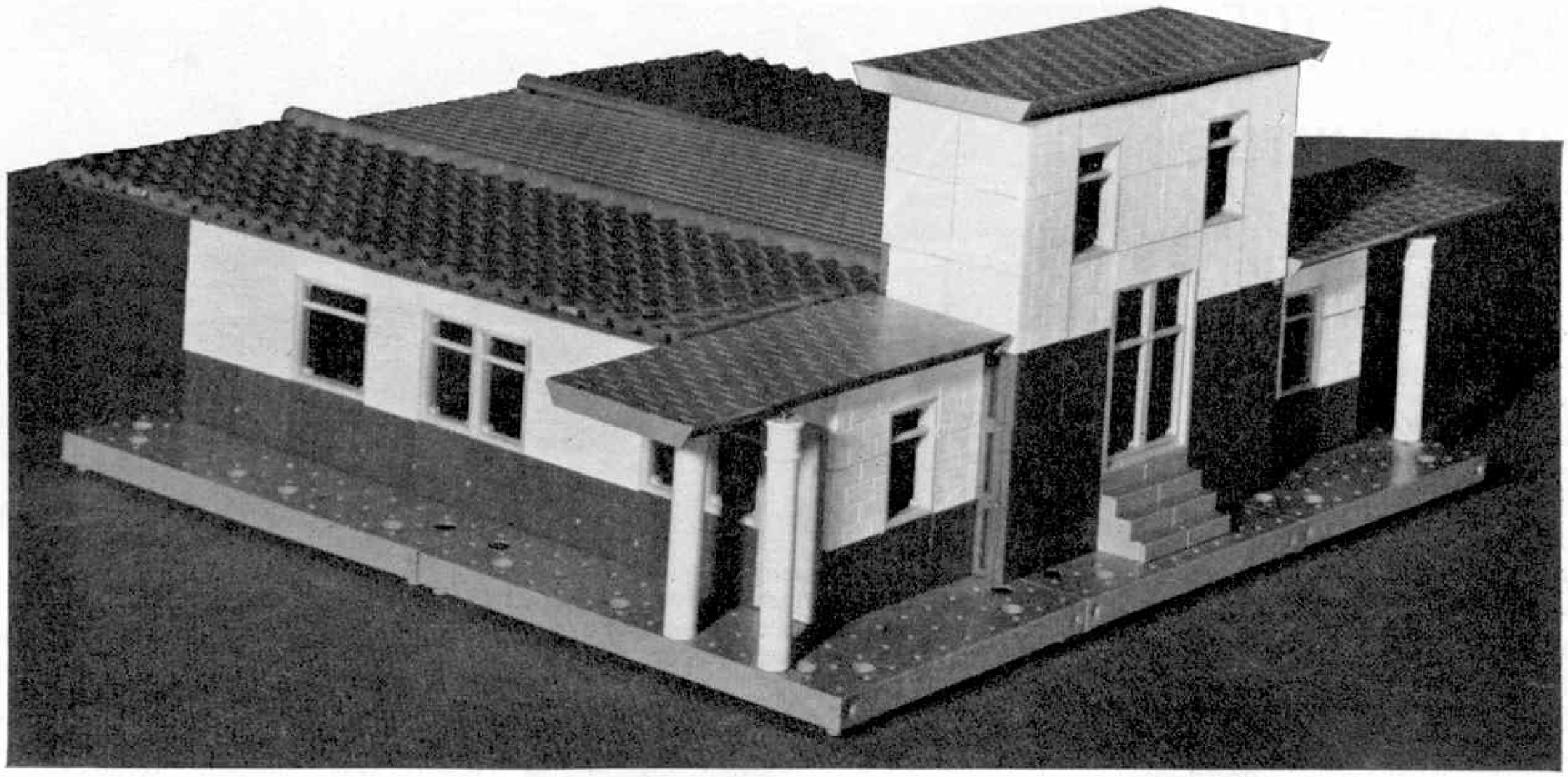
"A cup of tea, sir?" A bright smile from the stewardess breaks the passenger's luxurious day dream. Although Miami-bound, it all seems to become so English as everything—except the huge jetliner, of course—stops for tea.

A new face appears in the cabin. The broad gold rings on his sleeve indicate that this is the captain. He speaks quietly to each passenger . . . none will receive less than the best from B.O.A.C.

The captain carefully signs the log-books of any Junior Jet Club members who may happen to be aboard. The Junior Jet Club, founded by B.O.A.C. in 1957, is the first world-wide flying club of the jet age. Any young passenger under 21 embarking on a B.O.A.C. aircraft can become a member; there is no subscription fee and every member is given a badge and log-book. Certificates are awarded for 25,000, 50,000, 75,000 and 100,000 miles.

The time has arrived for the afternoon nap and seats are eased back. Later dinner is served in leisurely luxury from a gleaming chromium club trolley. It becomes a long, pleasant meal. Nothing is rushed; the service is impeccable. The cabin staff seem almost to anticipate the passenger's thoughts with another liqueur or glass of wine. And even while such attentive service is being given to adult passengers, a (*Continued on page 402*)

A steward and stewardess serve dinner on board a B.O.A.C. Boeing 707 jetliner. All illustrations are by courtesy of British Overseas Airways Corporation.



MODERN COMMUNITY HALL

LETTERS are always a guide to readers' opinion and, as most of the letters I have received have welcomed this series of articles, I feel I should now branch out into the range of larger models. This month, therefore, I present a building—made with the contents of the comparatively new Outfit No. 15—which I call a Community Hall. Although not very common in this country, being seen more frequently in the United States, these structures are roughly equivalent to our village hall where meetings, dances, fêtes and bazaars etc. are held.

In building the model, there are one or two important points to watch, otherwise you might not be able to complete it. The most important of these is the back of the main "tower". As you will know, some of the Bricks in Outfit 15 have a centre groove which enables them to be used with

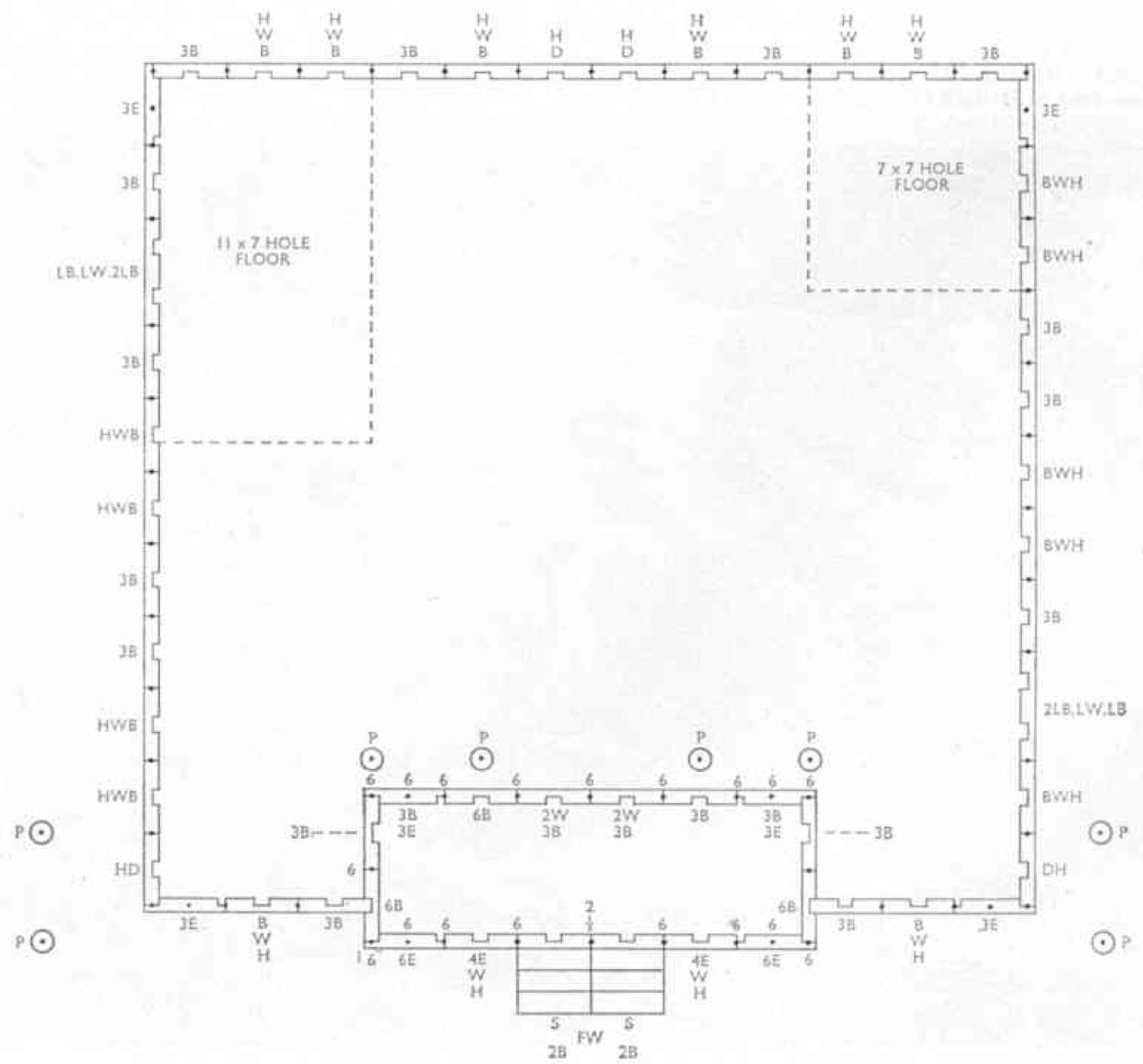
"ARCHITECT"
continues his series for
the Bayko Builder

the End Brick arrangement of Rods. You will see from the plan that the lower three Bricks at each end of the back are this type of Brick, while the upper three are End Bricks. If you do not follow this instruction, you will find there are not sufficient End Bricks to complete the model.

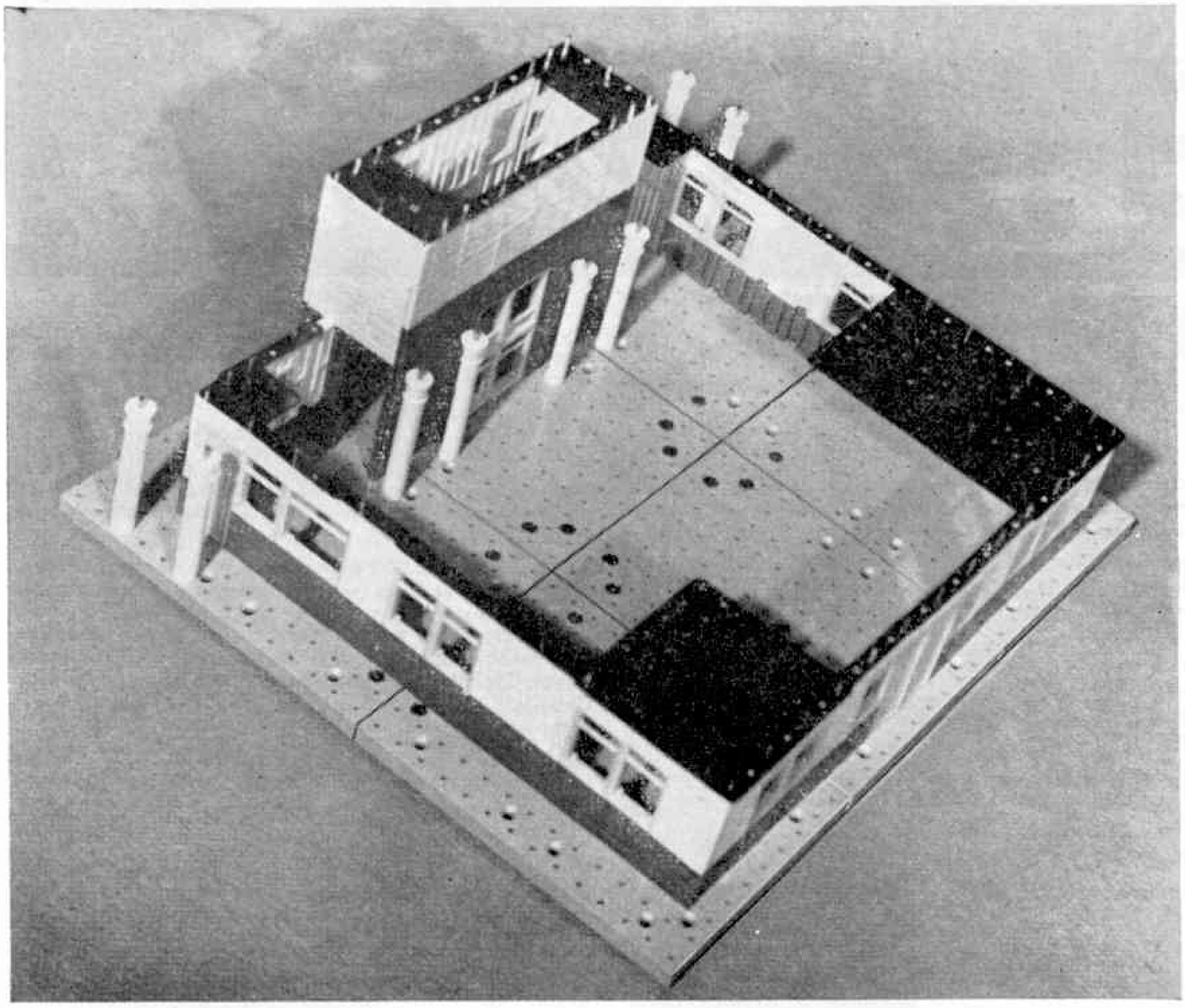
You will also see that the rear half of each side of the tower consists of three Bricks only, with a space of three Bricks below them. The Bricks are prevented from sliding down into the space by the ordinary Bricks beneath the End Bricks in the back of the tower.

Another point is to use two small floors in place of a few Corner Ties and Tie Bars; this will give you enough of the latter to complete the model with suitable rigidity.

Moving away from this month's model, it is interesting to note that although Bayko is often regarded purely as a toy, it lends itself to some very serious building projects in miniature. For instance, an internationally-known firm who market medical preparations have devised, from Bayko parts, models of surgeries which they consider to be ideal from the modern standpoint. These are to be put on



The attractive Community Hall, built with a No. 15 Bayko Outfit and described in this month's notes, is seen at the top of the page. The building plan is on the right.



A view showing the Community Hall before the various portions of the roofing were fitted. Taking the window near the tower as a guide notice the gap of three Bricks to which your attention is drawn in the article.

PARTS REQUIRED TO BUILD COMMUNITY HALL

6 Bases; 10 Base Links with Screws; 58 Bricks, Red; 52 Bricks, White; 12 End Bricks, Red; 18 End Bricks, White; 22 Half Bricks, White; 2 Long Bricks, Red; 1 No. ½ Brick Rod; 1 No. 2 Brick, Rod; 51 No. 3 Brick Rods; 19 No. 6 Brick Rods; 4 Doors; 1 Floor 7 × 7 holes; 1 Floor 11 × 7 holes; 23 Glazing Materials (Windows); 2 Glazing Materials (Large Windows); 8 Pillars; 2 Roofs, type A; 1 Roof, type B; 1 Roof, type D; 1 Pantile Roof, type D; 2 steps; 6 Corner Ties; 16 Tie Bars, Straight; 23 Windows; 2 Large Windows; 1 French Window.

exhibition in due course.

As an illustration of the more serious type of building which can be tackled in Bayko, Dr. E. W. Baxter of Arundel, in Sussex, sends the photographs of Chichester Cathedral which you see in this month's notes. He writes, "The model was constructed entirely out of standard Bayko parts, except for the spire (sugar paper), flying buttresses (Bristol board) and the transept windows (hardboard). Extra long rods Nos. 9, 10, 11, 12 and 15 had to be ordered specially".

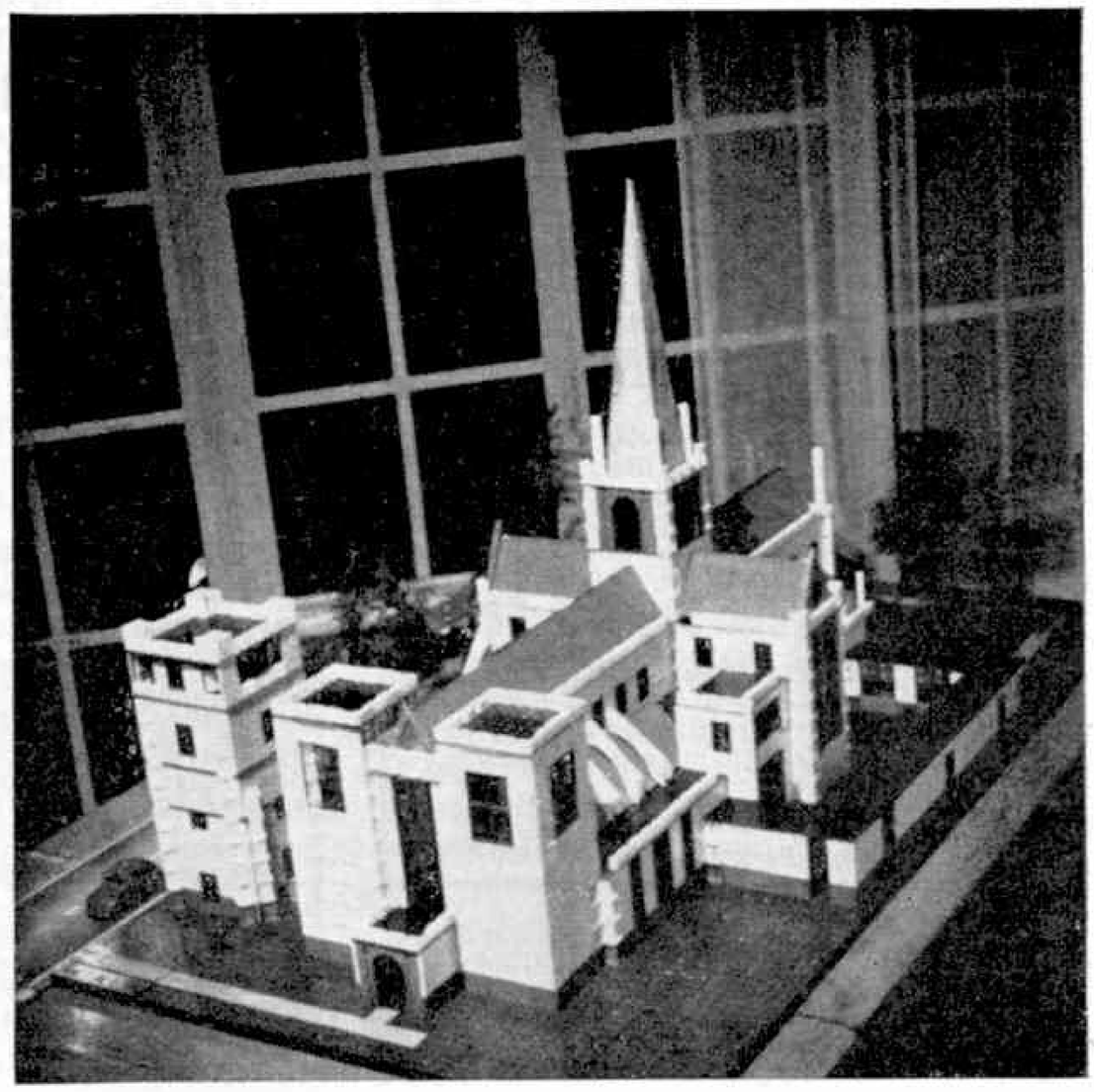
Doctor Baxter goes on to say that the interior of the cathedral contained the correct number of pillars in the nave, the organ case under the north transept, the screen, choir stalls, Bishop's throne and High Altar.

Of course, we have many overseas readers who build in Bayko and through one of our London suppliers I hear that the sons of Mr. Barry Palmer of Palmerston North, New Zealand, have made free-lance models of New Zealand-type buildings. This leads me to think that other enthusiasts overseas must often break away from our catalogue models to fashion replicas of buildings which are of particular interest in their own countries.

Going a little further, I think it would be a good idea to have a competition for overseas readers who have attempted this sort of thing. I want them to send me pictures of any such models they have built, together with photographs on which

(*Continued on page 403*)

These two pictures, showing different views of a model of Chichester Cathedral, reveal how effectively Bayko can be used in creating replicas of famous buildings.



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.....

2. What country issued the famous BLACK SWAN stamp in 1854, and commemorated its Centenary with a similar stamp in 1954?

.....

3. What country issued the first TRIANGULAR stamp in the world—the "Cape Triangular" of 1853?

.....

4. Which country NEVER puts its name on its stamps?

.....

5. If "Perf." means "With Perforations", what does "IMPERF." mean?

.....

6. Which country has SUOMI on its stamps?

.....

7. What was the former name of GHANA?

.....

8. What country has "C.C.C.P." on its stamps?

.....

9. Are all genuine stamps always printed on Water-marked paper?

.....

10. Pakistan has issued its own stamps since 1947. What country's stamps were used there prior to this?

.....

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ADDRESS .....

.....

..... MMQ

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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 399

For Stamp Enthusiasts

Back Again In Tristan

By F. E. Metcalfe

NOT even the most astute stamp dealer can tell with any certainty which way the philatelic wind will blow, as far as the popularity of any particular country's stamps is concerned. That observation results from a conversation I had with a well-known stamp dealer only a few days before writing this article. The country we were discussing (or rather island, for you can hardly call it a country, even if it does have postage stamps up to 10/– face) was Tristan da Cunha; and in reply to my query as to how the stamps were selling with him, he replied that they were nearly in the "Top Ten". I should explain that he is a great pop fan, although no teenager, hence his use of that expression!

It was as recently as 1952 that Tristan issued the first set of its own stamps, and for the purpose current stamps of St. Helena were simply overprinted Tristan da Cunha. But I had better give a few geographical details of that lonely island, which has been so much in the news since the eruption of its volcano, before I deal with the philatelic angle.

Actually Tristan is the principal island of a group, lying about 2,000 miles west of the Cape of Good Hope and 1,500 miles to the south south-west of St. Helena. The latter island has a sort of watching brief over it, hence the use made of the parent island's stamps. It was the great Portuguese Admiral Tristao da Cunha who discovered it first—as long ago as 1506—and so it is easy to see how it got its name. Nothing was done to implement the discovery for over a century, and the first to make any effort were the members of a party sent by Van Riebeeck, the Governor of the Cape in 1655. Forty-one years later another survey was made, this time by the Dutch East India Company, but as reports were unfavourable nothing was done until 1760 when an English captain named Nightingale is supposed to have landed on one of the other islands of the group, which now bears his name.

Next, Americans took a hand, and a party of sealers landed on Tristan, staying for seven months. Coming to 1810, three of the Americans settled there, but in a couple of years only one remained. Actually, these American settlers had sought British protection, but it was not until we sent Napoleon to St. Helena that we started to close the back door, so to speak, and on August 14, 1816 H.M.S. *Falmouth* landed a British party and we formally claimed the islands—a casual habit we had! The garrison was withdrawn the following year, but one of the troops, a man named William Glass, who had been an artillery corporal, elected to stay with his wife. Along with a couple of ex-Navy men they founded the settlement of today, about which we have heard so much since the recent volcano disaster.

This origin of the Tristan settlement is rather significant, in view of the return to the island of the present inhabitants who, apparently, much prefer the solitude of that far away island, with its benign climate, to cold and wet England. After the weather we had last winter I can understand their point as, years ago, I lived for a time in Patagonia. That was in the days when our own contact there with the outside world was a coast-hugging steamer once every couple of weeks or so (sometimes longer), and looking back I think I was never happier—but let us get on with the Tristan story.

After the war a packing plant was installed, and crayfish, etc. (of which the surrounding waters are said to be teeming) were packed and exported, mostly to the United States. This successful trade made possible more comforts for the inhabitants, who hitherto had lived fairly austere lives. But there was a better source of income to be had than crayfish, namely those little "bits of paper" for which we collectors will pay real money. So in 1952, as already stated, the whole set of St. Helena stamps were overprinted, and with a set having the face value of around £1, and thousands of sets selling, well I ask you . . .Then another set in 1954, a further one in 1960 and, believe it or not, yet another a year after that, it was "money for jam". Alas, that big bad volcano woke up, and you know the rest.

Now the philatelic history of Tristan da Cunha has been resumed for when the party returned to the island last April the current stamps of St. Helena were again called into service and the new set up to 10s. was overprinted, as a temporary measure, pending the issue of a brand new set. Incidentally, although the designs of the 1961 set were similar to the stamps of the previous issue, the currency had been changed from our pounds, shillings and pence to South African cents and rands. I must not forget the other philatelic venture—the set of postage due stamps issued in 1957. The fact that under no circumstances would these stamps ever have a local postal use was quite besides the point, for didn't we collectors want them?

Anyhow, the stamps of Tristan could hardly be more popular, and good luck to them. Readers who have bought previous issues while they were current have done very nicely for themselves, for they could easily more than double their money if they wanted to sell them. And even the "Resettlement" set, in spite of it being a best seller, is well worth taking up; if not to the top value (10/–) then a set up to 1/– will not break anyone. And after all, it is all in a good cause.

But my wish would be a few months' holiday there. Maybe I, too, would want to stay, although on second thoughts I would prefer Patagonia, with its perpetual sighing wind.

Stamp Gossip

Our New Stamp Bureau

FOR a long time the British Post Office has toyed with the idea of following the lead of post offices overseas in not only issuing stamps which collectors would buy, but also in setting up a department entirely for handling these sales. There was a time when it was literally over the body of the Post Office that any special stamps were issued at all. Now we see a complete change, as not only are four special issues being released this year, but a Philatelic Bureau (their own designation) set up to sell these and other issues which it will be the policy of the Post Office to issue from time to time. I mentioned last month that used copies which come your way should be carefully tucked away, for all these new British stamps are growing tremendously in popularity, and that means previously-issued special stamps are also coming into the picture, with prices already hardening.

BACK AGAIN

It only seems yesterday that football gave way to cricket for the summer, and already it is back again. It is amazing how popular this game is. Our American friends have tried hard to popularise baseball, for instance, while in Great Britain we just let their game take its chance. Few countries outside the U.S.A. have ever seen a game of baseball, but there is hardly a country in the world which is not football mad. Incidentally, the only medal I ever won was, believe it or not, for football—in Patagonia of all places! I wonder what happened to that silver medal? Anyhow, the popularity football enjoys accounts for the popularity of stamps which have the game as a motif. Just look at the stamp illustrated; can you wonder at it being popular? At the same time, I would not fancy playing football in Dahomey in the early afternoon.

NO MORE STAMPS

Do not be alarmed; the cross-heading refers only to a small island far away in the South Pacific, and even there there will be stamps for some time. In fact, a new value (a little beauty) has just appeared. I refer to a 5d. value for Nauru, an island which entirely owes its place in collectors' albums to phosphate deposits which, as they are coming to an end, means that there will be nothing left to provide a livelihood for the few hundred people who live there. So in the not very distant future, they will be moved to another island, nearer Australia, which at present is responsible for the administration of Nauru.

It was the Germans, I believe, who first developed Nauru's phosphate industry, but lost their hold owing to their defeat in the first world war. The industry has continued at such a pace that these deposits are now petering out, and so will the Nauru stamps in due course. In the meantime, these odd new stamps are appearing. They are a tremendous credit to the Australian Government printing works, both in respect of their designs and of the high quality of the printing itself. It is not so long since this printing works took up photogravure printing, and already their work compares with the world's best.

"FREEDOM FROM HUNGER"

I have referred previously to all these stamps, being issued by various countries. In some cases (but not all, by any means) the object is to raise funds for the big campaign being waged all over the world to help those less fortunate than ourselves. It is a sad thought that sheer starvation still exists in some parts of the world, while elsewhere bonuses are paid for keeping down food production. Anyhow, provided that no fancy prices are paid for them, there can be no harm in buying the "Hunger" stamps of the countries which we collect. The odd values which British Colonies have released are certainly worth attention.

DESIGNS

I got a very interesting letter recently from a young collector who obviously has all the makings of a first-rate philatelist. Among other topics to do with stamps he mentioned designs, and remarked that our designers should take a leaf out of the books of designers of Dutch stamps, and not overload the "dots and dashes" which our designers seem to do. As a case in point, he enclosed the Dutch stamp illustrated and which, as he states, is delightful in its simplicity. He compared it with the British stamp issued to mark the centenary of the Paris Postal Conference, which, as he rightly suggested, is about everything a stamp should not be, if simplicity has any point.

I agree with every word my correspondent wrote, but our designers have to include the Royal portrait in our stamps, and with such a small space at their disposal it is a difficult problem with which they have to cope. The late Edmund Dulac, who was a great artist and who designed many stamps, made no secret of how difficult he found it, and I have often wondered if it would be better if we confined the portrait to the ordinary stamps, which we are using all the time, and gave artists a free hand with the few special stamps which are issued once in a while.

THE TIP OF THE MONTH

I have mentioned already that the used copies which come our way, of the higher values of the recently issued British special stamps, are well worth keeping, for they, at least, will make wonderful swops later. In fact, I can well imagine that your stamp dealer will be pleased to buy them. But the tip this month is to take care, if (*Cont. in col. 1, next page*)

By E. W. Argyle

The Royal Navy On Stamps

H.M. YACHT BRITANNIA

BUILT by John Brown and Co. Ltd. of Glasgow in 1953 the Royal Yacht Britannia *was commissioned the following year. She was constructed to a double set of blue prints, one for a yacht and the other for a hospital ship, and the ship can be readily altered for either purpose. As a hospital ship she would have accommodation for 200 patients. The garage which houses the royal car on deck could hold two ambulances, and both the ballroom and the royal apartments can be converted into hospital wards, and the swimming pool into an operating theatre.*

H.M.S. DRAGON

THIS cruiser of the Danae class was built by John Scott & Co. (Shipping) Ltd., of Greenock, and completed on December 29, 1917. She served in the Harwich Force, 1918–19; Atlantic Fleet, 1919–25; Empire cruise, 1923–24; Mediterranean Fleet, 1925–26, and China 1927. Refitted in 1928–30, she served on the Atlantic and B.W.I. stations from 1930–38, and then in the Reserve Fleet until war broke out. In January 1943, H.M.S. Dragon *was transferred to the Polish Navy under the same name. This class of cruiser is now obsolete. Her normal peace time complement was 469.*

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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 396

Stamp Gossip—(*Cont. from previous page*)

you collect British Colonial stamps (as a big percentage of collectors do) that you buy, while they are current, all the nice little special issues which are coming out just now. Most of them cost very little, and they are "in and out" in many cases before the backward have got round to buying. My advice is: don't be one of the "backward" if you want to save money—and who doesn't?

Mixing Your Pullmans With Standard Stock— (*Continued from page 386*)

4.40 Train arrives at Newborough to await southbound express. Tank loco runs round coaches in order to attach them to the rear of the express train.
5.00 Express departs from Newborough.
6.15 Arrive Longdon.
6.30 The empty coaches are hauled to carriage sidings with the 0–6–2 Tank engine while the "Deltic" moves away to its depot to await the next duty.

For those who have not so far started to run trains to a schedule, such a working makes for great interest, and gives a true reason for running a train. It is also important to stress that it does not call for an extensive layout; the main requirements are a continuous oval, or something similar, with either twin tracks, or a single track provided with loops at the stations.

Two stations need to be placed on the main line and a third and smaller station on a branch line. Each station requires a siding close by to take the empty stock. Although the working shows the use of three locomotives the operations can be performed with two, the smaller one being employed to carry out all the duties done by both the 0–6–2 and the 0–6–0 Tank engines.

Another mixed stock train which only appears on special occasions is the V.I.P. train, which approximates to the Royal Train on the L.N.E.R. layout, since no Royal Saloon coach is available.

The V.I.P. train consists of two Pullman Cars and a maroon Corridor Coach Brake/2nd Number 4053, and the locomotive carries a special headboard. This train will, of course, only appear on your layout when someone very special needs to travel. In actual practice, it is normally reserved for Royal visitors to Britain.

Cyclists storm the Three Peaks—1— (*Continued from page 365*)

held, John Rawnsley and Harry Bond were wheel to wheel on the final stretch when Bond was baulked by a car. He finished just behind his friend Rawnsley, although both were credited with the time of 3 hours 21 minutes 35 seconds, which is the present record.

These two sporting cyclists have dominated the Three Peaks cyclo-cross since it began. They treat the preparations very seriously, and each has been round the circuit many times. Last year Bond, ever anxious to improve his knowledge of the Peaks, entered for the foot race which takes place in spring, and finished with a good position in the field!

Rawnsley had some bad luck in the cyclo-cross last year. He slipped while descending Whernside, receiving a nasty blow from his bicycle, which he was carrying at the time. He suffered from cramp at the foot of Ingleborough, and lost a minute while his calf muscles were massaged. Yet he managed to come in second to Bond, who had a glorious, trouble-free run.

This has so far proved to be a man's event. Two girls, however, have undertaken the Three Peaks circuit on cycles. Mrs. Anne Renshaw, wife of Michael Renshaw, one of the Peak pioneers, and her friend Miss Pat Gibbs were tired of hearing men say that the route was too tough for girls. They decided to try it, but unfortunately chose a day when the weather was appalling. They could have been pardoned for giving up the idea, or for modifying the route, but they went on to complete it in 11 hours 25 minutes.

Competition first came to these lofty, breezy peaks in 1887, although unintentionally. Two men who were on the teaching staff of Giggleswick School set off for a walk after five hours in the classrooms. They crossed Ingleborough to the Hill Inn, Chapel-le-dale (where the foot race starts and ends), and then decided to tackle Whernside as well. Penyghent looked so inviting as they walked down Whernside that they included the third peak in their journey, and they were back home in 14 hours, having covered 27 difficult miles.

Soon, twelve hours was the accepted time limit for a Three Peaks Walk and when the time had been brought down to less than five hours by young men wearing running shorts, an annual race was planned. It has been held each year, and Frank Dawson of Salford, the record-holder, has covered the 22-mile foot race circuit in less than three hours!

The cycling interest dates from 1959, when Kevin Watson, a scholar at Skipton Grammar School, went round in 6 hours 45 minutes, over an hour and a quarter of this being spent in resting. He was only 14-years-old at the time.

Today, the main ambition is to bring the cycling time into line with the best for foot-racing, those who compete on foot having the edge on cyclists because of the difficult terrain to be covered. Whether this will be achieved or not is anyone's guess, but it is a lively topic of conversation whenever the cyclo-cross takes place. Record times apart, it is still one of the toughest events of its kind in the world. The winner's prize is a wooden plaque—and cycling glory.

"Mary . . . have you seen my four spare spools anywhere?"

A Seasonal Pot-Pourri

South Midland 867 (521 ABL), the prototype Bristol RELH. Photograph by Laurence Gall.

CALLING ALL BUS SPOTTERS

By David Kaye

IN an earlier issue this year, I mentioned rare birds among buses, and how rapidly they are disappearing as standardisation gets a firmer and firmer grip on the transport industry! Thus it was encouraging to learn that Sunderland Corporation have placed an order with Atkinsons for some of their PM746H single-deck chassis, specially increased to an overall length of 33 feet and to be powered by Gardner 6HLW engines. These chassis will have 45-seat o.m.o. bodies built by Marshalls of Cambridge.

Also new recently is Bristol's contribution to the 36 footers—their RELH. This month's photograph is of their prototype with its new-style Eastern Coachworks body, seating 47, in the livery of Thames Valley's subsidiary, South Midland. It entered service on April 25 and is powered by a Gardner 6LX engine.

Talking of subsidiaries, since I wrote recently on this subject Southdown have acquired another —Bucks Beauties of Worthing. Mr. A. W. Buckingham started the firm in 1921 when he bought a 14-seater 45 h.p. Renault (LD8568) for running afternoon excursions round some of the narrow Sussex lanes, and stopping at farmhouses for tea. This vehicle was painted in maroon, but this faded so quickly in the salty sea air that it was often necessary to repaint it twice a year. Hence, when he purchased two De Dion saloons in 1923 (XL 95/100), he gave them a livery of cream, with only the wings painted maroon. These saloons were not at all popular with the charabanc-loving public, and Mr. Buckingham had to give the vehicles canvas roofs and open sides!

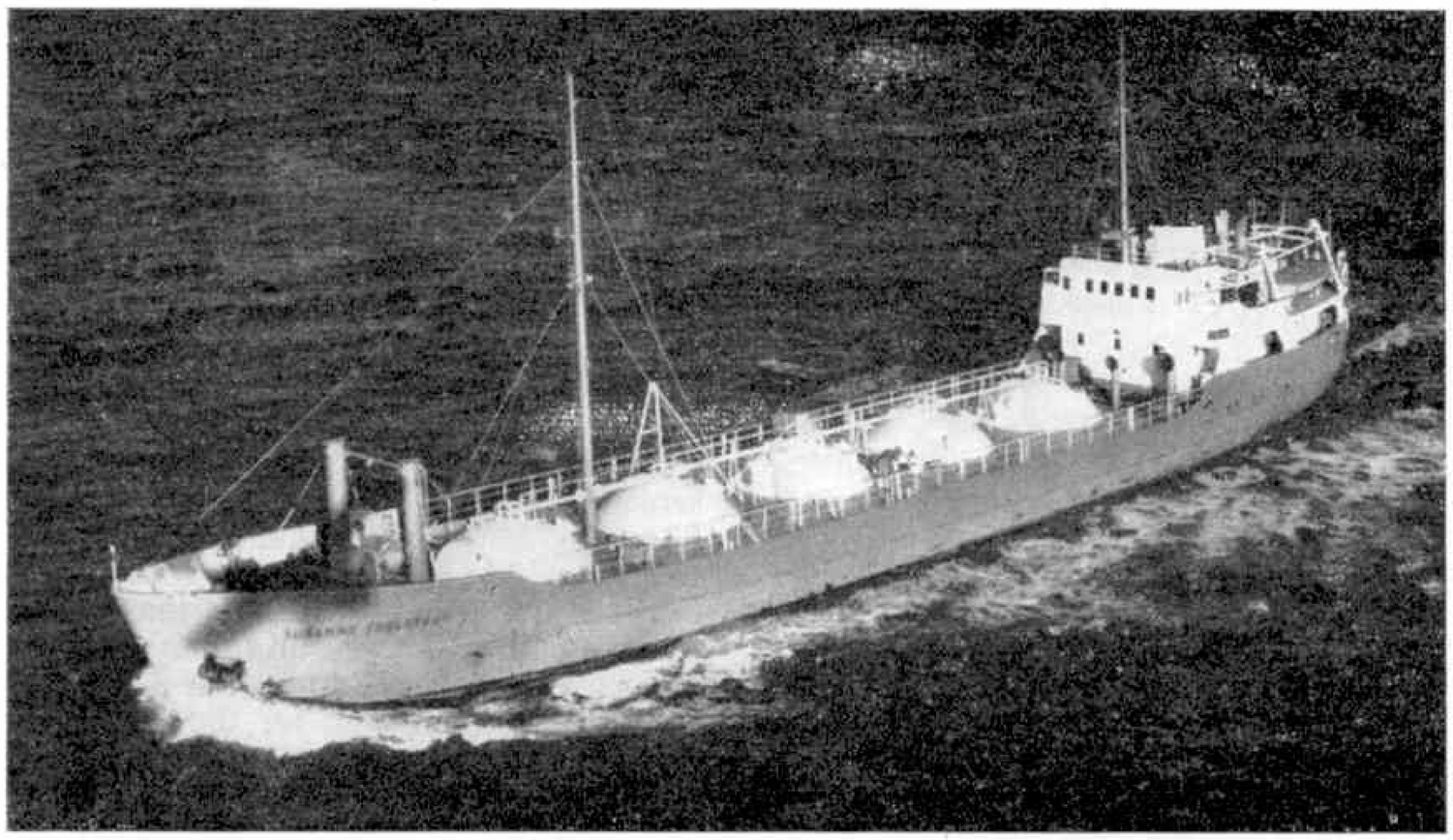
The Renault, and one of the De Dions, were replaced in 1929–30 by a trio of Chevrolettes with rear domes (which proved rather windy for the back seaters!). PO 123, 623 and 1961 were in their turn superseded by a triumvirate of Bedford WTBs in 1937—DLT 11–13—which carried a score of passengers apiece. Prior to this Mr. Buckingham, visiting the Motor Show in London, so admired the metallic blue livery of an Italian car there that he changed the colour of his fleet to cream and metallic blue.

In 1939, DLT 11 and 12 were called up for war service at Ford Aerodrome (now an open prison), With the compensation for these vehicles Mr. Buckingham bought a utility-bodied Bedford OWB (GPX 327) to tide him over until he could purchase four of the postwar 29-seater Bedford OB models. DLT 13 and HBP 852 were destroyed in a fire at his Heene Place garage two years ago, and while two more of the OBs were being repaired, Bucks Beauties borrowed a Bedford SB from a Buckinghamshire firm—PEA 710, but it was decided not to buy any of these larger coaches.

On December 28, 1962 the contract for the take-over was signed and Southdown acquired JBP 856, JPX 523 and LPX 150. The new owners recalled from Ireland their tourers 1832/3 (OUF 832/3) "Royal Tigers", of 1955 vintage, to be repainted in Bucks livery, taking JPX 523 as their pattern. These coaches were chosen since they bear 7 ft. 9 in. bodies on their 7 ft. 6 in. chassis and are more suitable for negotiating the narrow stretches of byways.

Mr. N. J. Peel, of Beeston, sent me a poser the other day regarding the difference between "Withdrawn from service", "Sold" and "Scrapped". It seems that Bartons have "withdrawn" vehicles, which Mr. Peel crossed off his list, only to discover them reinstated at a later date. My friend Mr. R. Gibson, whom I consulted on the matter, offers the following advice. "Look on 'withdrawn' with suspicion! It suggests to me that the vehicle is out of service—for the purpose of scrapping or selling—but until that actually takes place it could be returned to service if extra vehicles are urgently needed. Only when the vehicle is safely out of the fleet for good, having been dismantled or sold, should it be crossed off the list in ink. While it is in the 'withdrawn' stage, it can be crossed out in pencil".

We hope this will help puzzled spotters. Incidentally, Mr. Peel reports the arrival of a batch of Bedford VALs to Bartons. These are split up into two groups. Nos. 963–969 (963–9 RVO) have Yeates C50F bodies, while Nos. 970–973 carry Plaxton C52F bodies.



COASTER COMMENTARY

By

ROBERT GORE

NEW OCEAN-GOING TANKER WITH SECRET EQUIPMENT

PETROLEUM gas has a variety of uses, for besides providing cooking facilities in boats and caravans, one sees it used from small containers on roadside picnics or by a decorator burning off paint, and in even greater quantities it is piped into our gas mains. In the *M.M.* for last December we read something about natural gas that is found with, and comes from, petroleum. As distinct from the gas obtained from petroleum refining, which can be liquefied fairly simply by pressurisation or by moderate refrigeration, natural gas, in order to become liquid, entails deep-freezing to approximately minus 260 degrees F. and storage in highly-elaborate, insulated cargo tanks. Experiments in global shipments were carried out a few years ago by the aptly-named m.v. *Methane Pioneer* when she transported cargoes of 2,000 tons of methane on voyages of 5,000 miles from the Gulf of Mexico to Canvey Island, Essex. There it was pumped ashore, re-gasified and transferred to the North Thames Gas Board's Romford Gas Works, twenty miles away, and from there distributed in the ordinary way to their consumers.

The success of the venture can be judged from the fact that at the present time there is a £5,000,000 ocean-going tanker, the *Methane Princess*, being fitted with secret equipment during the course of construction at Barrow-in-Furness. When completed, she will transport liquefied gas from the Sahara to Canvey Island from whence supplies by pipeline will be made to various cities in this country, such as Manchester and Leeds.

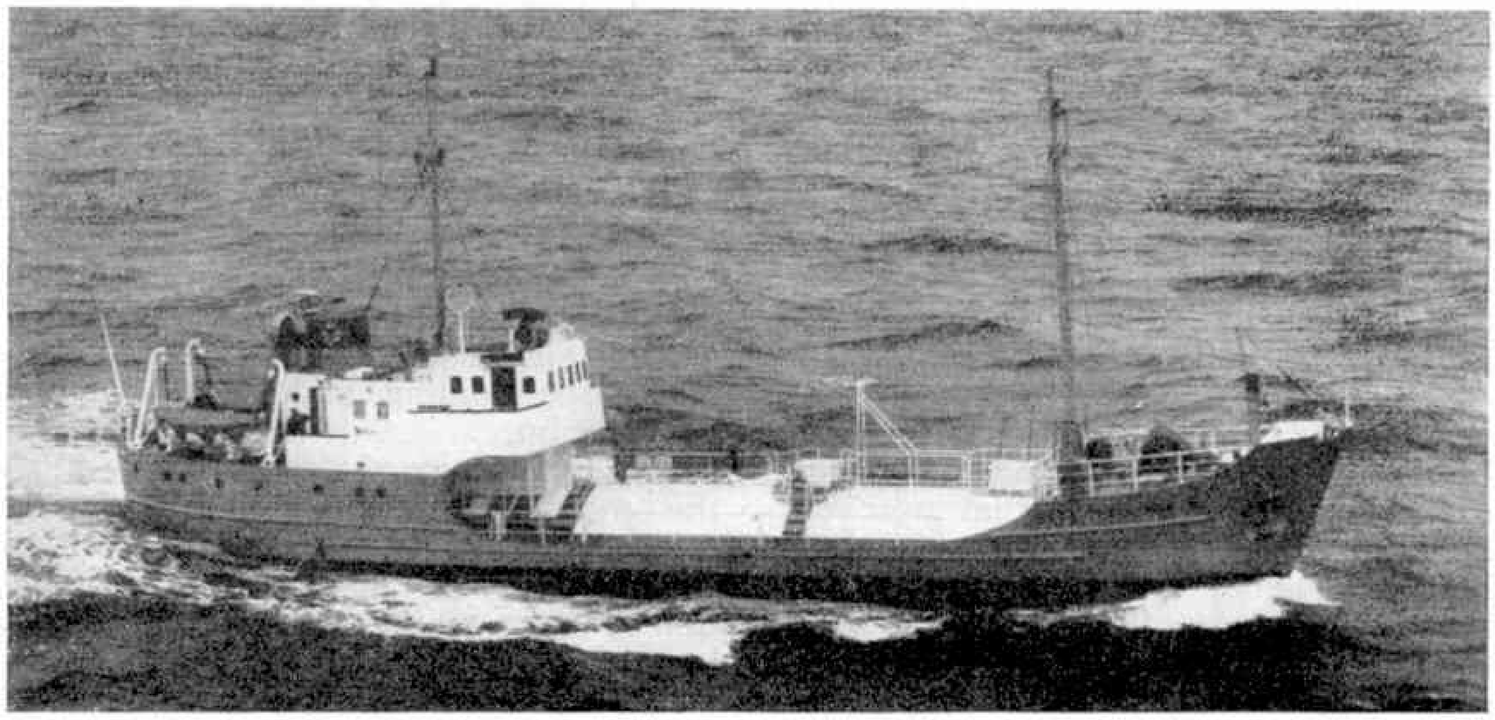
For several years, smaller quantities of liquefied petroleum gas (L.P.G.) have been distributed between European countries by coastal tankers. One of the principal companies so operating is the Danish firm of A/S Kosangas, whose vessels can often be found in British ports. Shortly before the last war, the four Tholstrup brothers, of Copenhagen, acquired the ownership of an L.P.G. marketing company, but because of the outbreak of hostilities their efforts to develop their interests were somewhat restricted. However, with the return to peace they made good progress and it was not very long before they sought a means of bulk transportation. For this purpose, and as an experiment, a small coaster was obtained and converted into a tanker, the result more than fulfilling expectations.

Another vessel was soon needed and it was then decided to build one specifically for L.P.G. This was the m.t. *Rasmus Tholstrup*, which instead of having a horizontal tank of 68 tons capacity, as did her predecessor, had twelve vertical ones providing for a total of 300 tons.

More recent ships have been constructed with spherical tanks, the tops being prominent because they are painted white and protrude through and above the deck. The *Kitte Tholstrup* has four such tanks, the *Signe Tholstrup* and the *Susanne Tholstrup* each have five, while their owners' latest addition, the *Ann Lise Tholstrup*, built at the shipyard of Jos. L. Meyer, in Germany, has a combination of one ball tank and two horizontal ones. The *Inger Tholstrup*, of 211 tons, is one of three sister ships and has one single horizontal tank.

In addition to carrying the family name, all the fleet have their hulls painted yellow, a colour most distinctive at sea, and are well fitted with modern navigational aids.

The Company now has 18 tankers in service, ranging from 149 to 1,100 gross tons.



Above: The "Susanne Tholstrup" (394 tons) shows her five special spherical tanks. On the forecastle you may discern the shadow of the photographer's aeroplane. Right: Having one single horizontal tank is the "Inger Tholstrup" (211 tons), one of three sisters. Illustrations by courtesy of Skyfotos.

Secret Cameras of the Past Century—

(*Continued from page 369*)

half-an-inch—like the decorative types very much in fashion today with both men and women—and the film is held in a tiny pan by pressure of the finger which is automatic when the ring is a good fit. A tiny lens with an aperture fixed at *f* 5.6 gives relatively clear pictures from twelve inches to infinity. This is due to the short focal length giving a wide depth of focus. The shutter speed is 100th of a second, but there is, as yet, no view finder. Films can be changed in the pocket and the inventor —Dietrich Cura, a chemist working in the Lufthansa (West Germany's Civil Airline) laboratories—hopes before very long to get pin-head shots.

A Meccano Polariscope—

(*Continued from page 373*)

centre of the Axle by a Spring Clip on either side of it. Slip a Fishplate on the hook; the Slot will pass over it. Attach a suitable length of Meccano Cord to the Fishplate and secure the cord by passing it through several holes in the Flanged Plate, adjusting its length until the crane hook hangs in the centre of the polarizing filters. Gentle pressure on the end of the Strip will result in black strain bands showing in the hook. More bands will appear as pressure is increased and intense strain colours will appear in the neck and curve of the hook where the strain is most concentrated. Try different designs of crane hooks to see in which the strain is most evenly distributed—this is exactly what an engineer would do if he were designing a new kind of crane hook.

All sorts of simple models can be made and examined in the Polariscope. All sorts of ways can be used to stress them, from simple squeezing by hand to some of the more accurate methods described above.

(*Polarizing filters to make your Meccano Polariscope can be obtained by sending a 5/- Postal Order, and your name and address, to the author, J. A. Frost, 3 Grass Hill, Caversham, Reading, Berks.*)

Railway Notes—(*Continued from page 375*)

In addition, mainly on freight or shunting, or standing-by at Sheds, were Jubilee and class 5 4–6–0s; 2–6–4 and 0–6–0 tanks; light 2–6–0s; also in many places southward—class 4 ex-Midland type 0–6–0s and 0–6–0Ts. Class 5 4–6–0s and 2–6–4Ts were on Leeds–Bradford–Morecambe line passenger trains.

Making the Miami Myth a Reality—

(*Continued from page 393*)

stewardess carefully warms a feeding bottle for the mother whose child has just eaten the strained foods that were put aboard by special request.

In the ladies' powder room beauty preparations are laid out. The gentlemen, too, have the fullest facilities for perfect grooming.

"How do they feel, sir—comfy?"

Now the noise of the engines drops and soon comes the descent into Bermuda's Kindley Field Airport, still basking in the evening sun. Then off into the air again; only an hour and a half away, the sun setting rapidly over them, are Nassau and the "Islands of perpetual June"—a mass of twinkling lights. Another short stop there, and then the 707 sets off for Florida.

Suddenly, it's all over. Forty-five minutes from Nassau, and a little over half a day from London, the 707 arrives at Miami International Airport just in time for passengers to settle into one of the many glittering skyscraper hotels which are dotted around like luxury cruisers stranded on the golden beaches. There, in modern elegance, they can think about the sub-tropical paradise to explore tomorrow, after a breakfast late enough to be known as "brunch". The myth of Miami has become reality.

Road and Track—(*Cont. from page 387*)

Rear suspension is by upper and lower wishbones, while the coil springs, mounted inboard out of the airstream, have movement controlled at the bottom end by articulated links. The front coil springs are also carried inboard—features that can add three or four m.p.h. to the top speed. Still under development is a new six-speed gear box which is coming along very nicely.

The new B.R.M., and the B.R.P. driven by Innes Ireland, are the main Grand Prix contenders so far to have joined Lotus in the use of monocoque construction; Cooper, while remaining faithful to a tubular chassis, use their new, patented anti-dip suspension, which is a big aid to better roadholding under braking and acceleration.

The car I enjoyed driving most of all this month is the Renault R.8 family saloon, first introduced into Britain towards the end of last year. Its specification includes all-independent suspension, large 10¼-inch disc brakes at all four wheels, and rack and pinion steering, while the rear-mounted 956 c.c. five-bearing crankshaft engine has sealed cooling. The well-proportioned body is built to almost the same dimensions as that of the Dauphine, but there is considerably more interior space for passengers. Total weight is 14 cwt., and the exceptionally smooth engine develops 42 b.h.p. at 5,200 r.p.m.

With such a good power-weight ratio the Renault R.8 is both brisk and economical, while its handling is much better than a Dauphine and the new body is less sensitive to winds. Maximum speed is 83 m.p.h. It will accelerate from standstill to 50 m.p.h. in 14 secs. and the four-speed, easy-change gear box permits maximums of 66, 44 and 27 m.p.h. on the three lower ratios. Fuel consumption can be between 36 and 40 m.p.g. even for those who do not drive to conserve fuel. I rate the little Renault R.8 very highly indeed.

Working Traction Engine with Emebo Motor— (*Continued from page 389*)

No. 37b; 24 of No. 38; 1 of No. 40; 2 of No. 51; 2 of No. 52a; 2 of No. 53; 15 of No. 59; 2 of No. 62; 2 of No. 62b; 2 of No. 64; 2 of No. 89; 2 of No. 90a; 1 of No. 94; 2 of No. 96; 1 of No. 103d; 3 of No. 111; 1 of No. 111a; 1 of No. 111c; 1 of No. 116; 4 of No. 118; 1 of No. 130a; 2 of No. 136; 1 of No. 154a; 1 of No. 154b; 3 of No. 160; 1 of No. 162; 3 of No. 163; 6 of No. 164; 1 of No. 186; 8 of No. 188; 2 of No. 189; 4 of No. 192; 8 of No. 212; 2 of No. 224; 2 of No. 225; 1 Emebo Electric Motor.

BOOKS FOR TRAIN LOVERS

British Railways Motive Power (Ian Allan 11/6d.), is a compact pocket-size book combining in a single volume details on the usual *A.B.C.* plan, not only of B.R. steam and electric locomotives, but diesel locomotives, and diesel and electric multiple-unit stock. It forms a useful record in these days of changing forms of motive power and apart from the lists of numbers, dimensions and other details it provides much additional information. Preserved locomotives, and Pullman cars, also are covered.

There are also available, at 2/6d. each, five separate *A.B.C.* booklets of similar pocket-size format. Part 1 covers steam locomotives of Western and Southern Regions; Part II similarly deals with steam motive power of London Midland, Eastern and North Eastern, and Scottish Regions. The three other booklets are not distinguished as "Parts". They deal respectively with diesel locomotives, electric locomotives and multiple unit stock, and diesel multiple-units, covering the whole B.R. stock of the types named. Each separate booklet and, of course, the combined volume referred to earlier, incorporates a coloured section in addition to numerous half-tone illustrations.

"Dad said, 'Did anybody turn in a hive of bees?' "

Modern Community Hall—

(*Continued from page 395*)

the actual model is based. For the most striking entry I will award a prize of £3, with a further prize of £2 for the entry that just fails to achieve the major award. To allow for the time taken in sending the photographs by surface mail if necessary, the closing date for the competition will be December 14.

I should stress that the contest is open only to overseas readers, in no matter what part of the globe they may live. Entries should be addressed to "Overseas Buildings Contest, *Meccano Magazine*, Binns Road, Liverpool, England". Prize-winning photographs become the property of Meccano Limited.

Dinky Toys News—(*Cont. from page 383*)

ing, windows, interior fittings and suspension—there is an opening boot complete with luggage *as well as* an opening bonnet giving access to a well-detailed replica of an engine, finished in sparkling aluminium colouring.

Collectors will know that this is the very first Dinky Toy to be fitted with *all* these features at once. But this is not the end of it. In addition, the miniature incorporates yet another thrilling Dinky Toys feature—jewelled front and rear lights. The jewels catch and reflect the light in such a way that, viewed from certain positions, they give the impression that the car's lights are on.

Our model has a striking two-tone colour scheme of metallic bronze with ivory top.

Finally, if you look at the inside back cover of this month's *M.M.* you will have a "preview" of one of the most outstanding models in the history of Dinkies, a fully-operational model of a Ruston Bucyrus excavator. Fuller details will be given next month.

Fireside Fun

Booking Clerk: Where to?

Sailor: I mustn't tell you. I'm sailing under sealed orders.

* * * *

First Negro: What fo' you name yo' baby "Electricity" Mose?

Mose: Well, mah name am Mose and mah wife's name am Dinah, and if Dinamose don't make Electricity, wot does dey make?

"You told me to tap out boss!"

"If a man smashed a clock, could he be convicted of killing time?"

"Not if the clock struck first."

* * * *

Passenger: Why are we so late?

Porter: Well, sah, de train in front is behind, and we was behind before besides.

* * * *

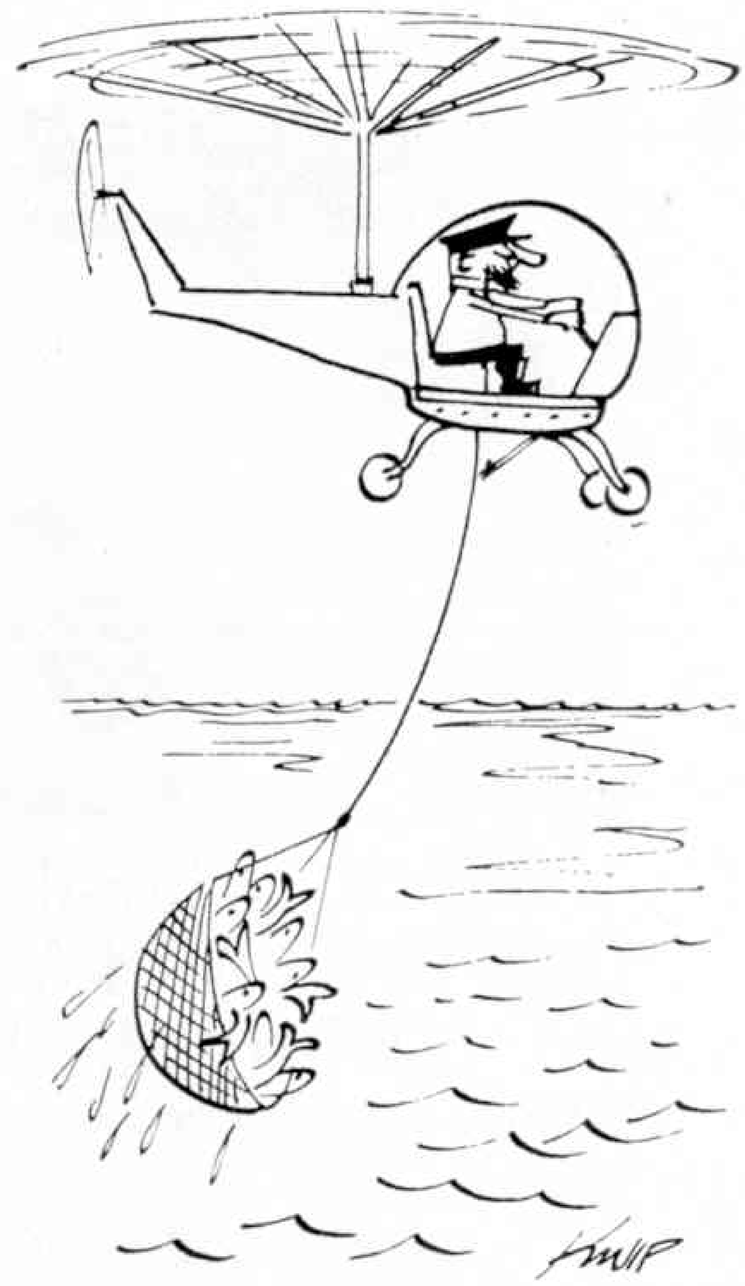
Teacher: Name a liquid that won't freeze.

Pupil: Hot water, sir.

* * * *

Donald (to wife at railway station): What, ye canna get a porter tae tak oor luggage?

Wife: Na, na. Ye try Donald, ye're accent's ne' quite sae noticeable.



"What is your name little boy?"

"Sam."

"What is the rest of it?"

"Mule."

* * * *

"Can I see the Minister of Agriculture?" inquired the old lady.

"Well, he is very busy madam: what do you want to see him about?"

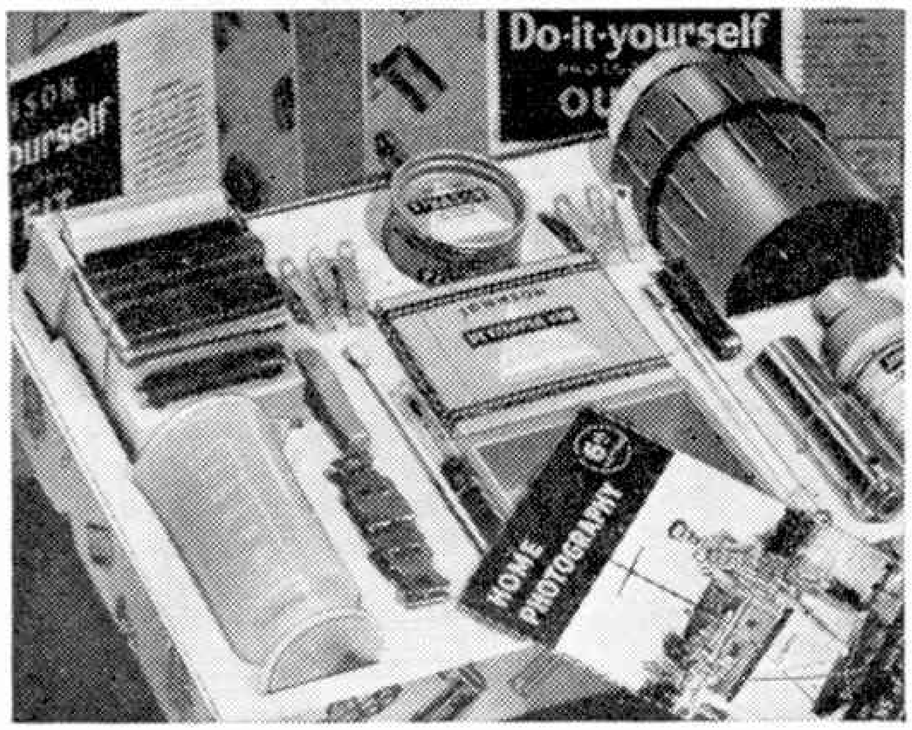
"I want him to tell me what is wrong with this geranium of mine."

* * * *

Scotsman: How much will you charge to press this pair of trousers?

Tailor: Two shillings.

Scotsman: Well, here's a shilling. Just press one leg and I'll have my photograph taken side view.



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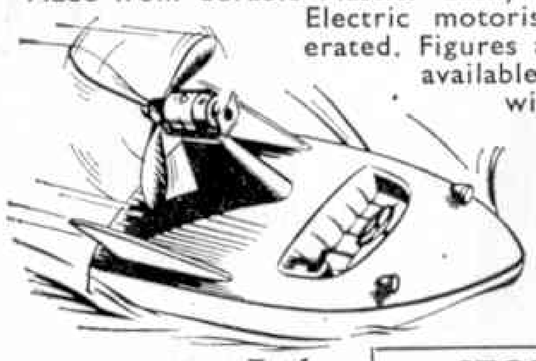
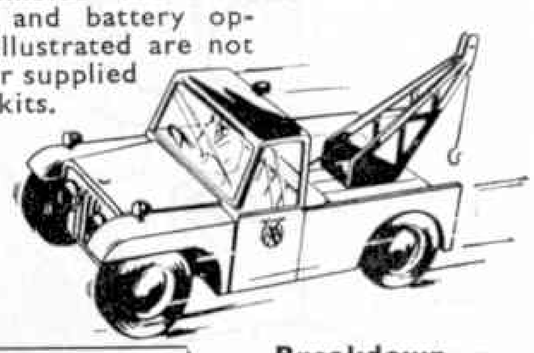
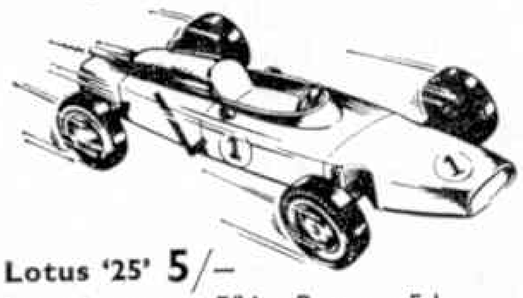


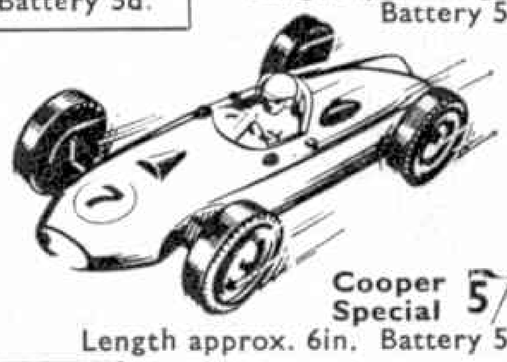


Aquaplane 5/6
Length approx. 6 in.
Battery 5d.

STOP PRESS!
Latest arrival M.T.B. 5/6.
6 in. long. Battery 5d.

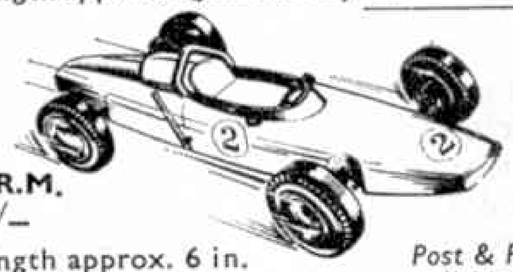
Breakdown Truck 5/–
Length approx. 4½ in.
Battery 5d.

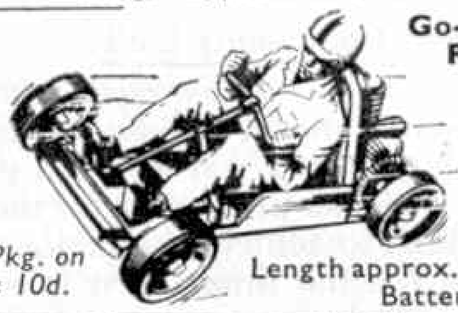




Lotus '25' 5/–
Length approx. 5¾ in. Battery 5d.

Cooper Special 5/–
Length approx. 6in. Battery 5d.





B.R.M. 5/–
Length approx. 6 in.
Battery 5d.

Post & Pkg. on all kits 10d.

Go-Kart Racer 5/–
Length approx. 5½ in.
Battery 5d.

GAMAGES, HOLBORN, LONDON E.C.1 **HOLborn 8484**

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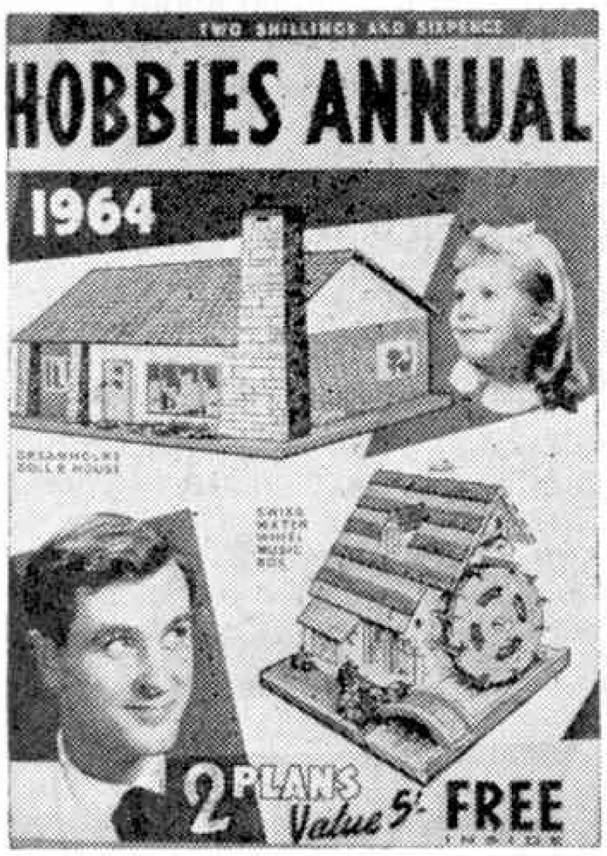

HOBBIES 1964 ANNUAL

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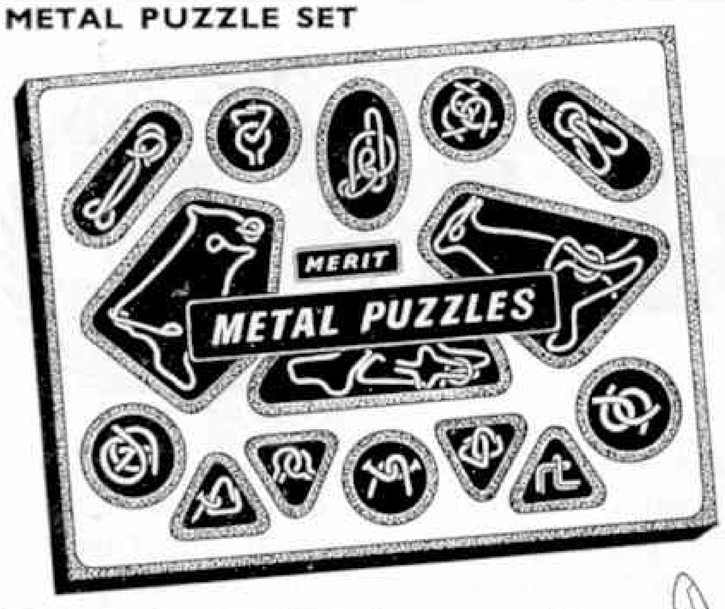

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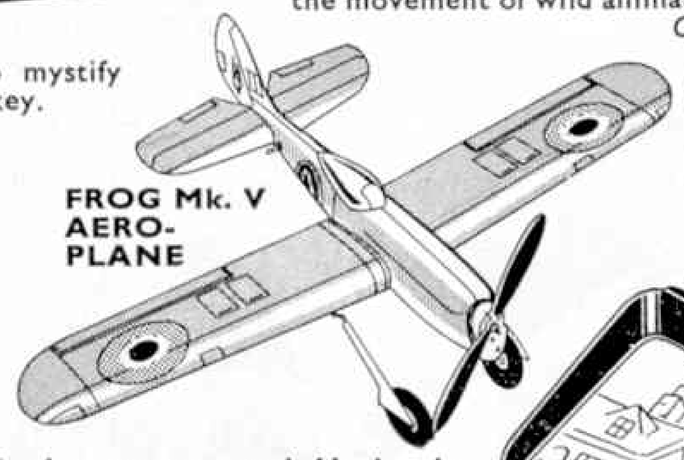

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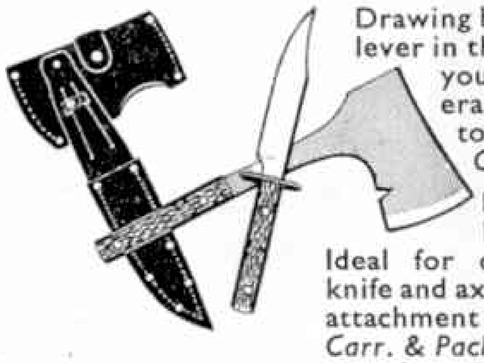

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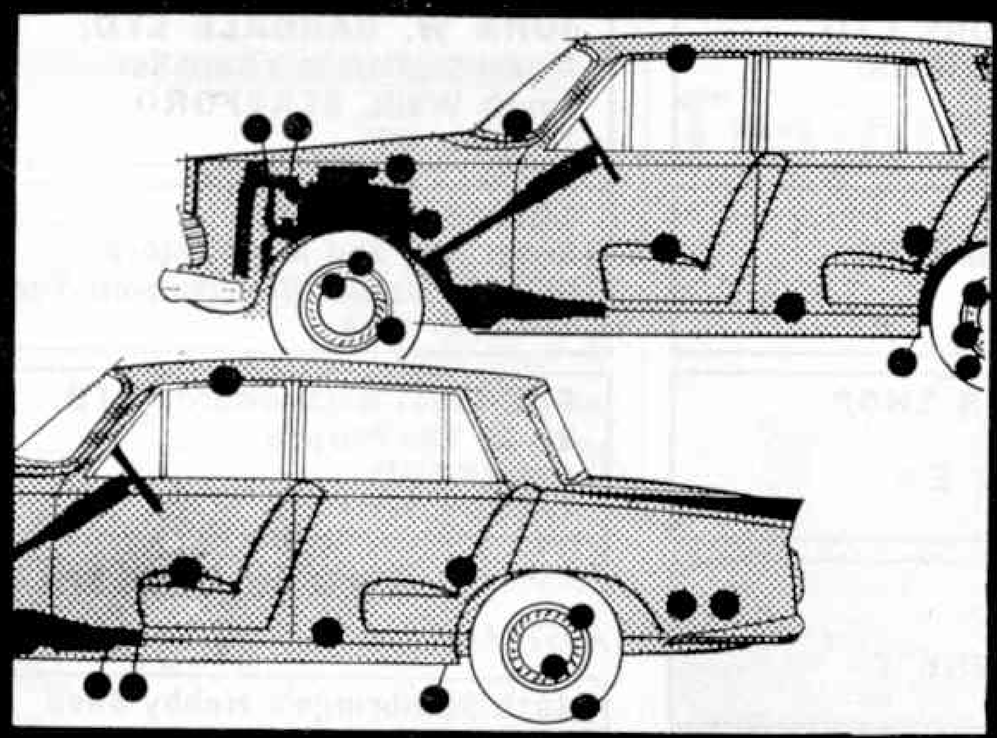

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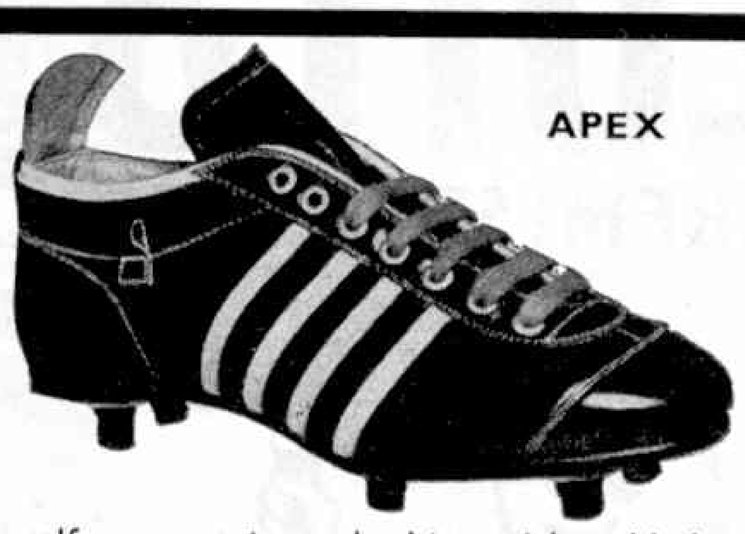

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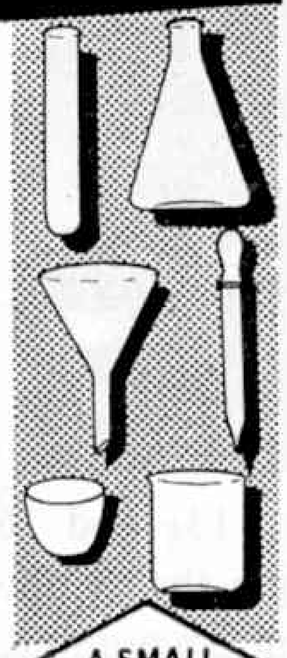

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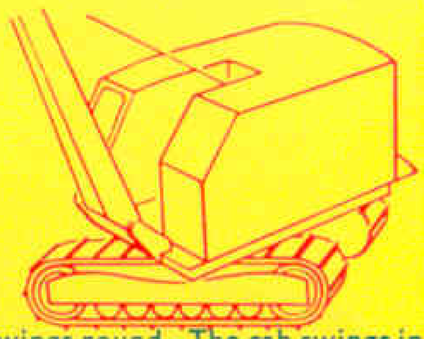
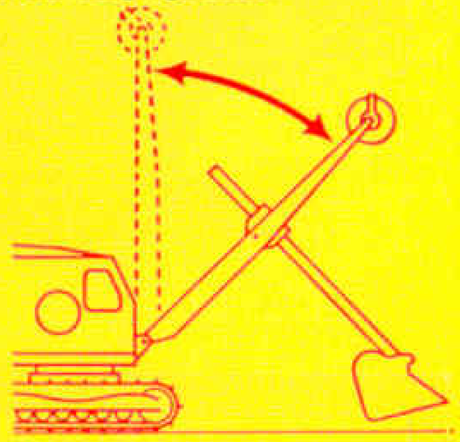
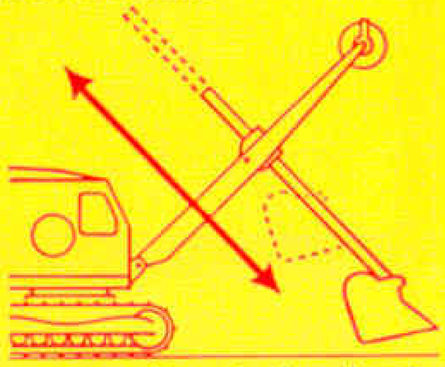


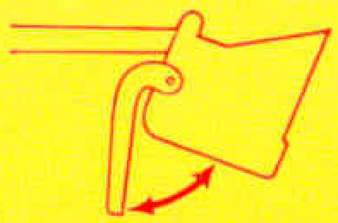
Cab swings round. The cab swings in a full circle either way for easy operating. The caterpillar tracks make a sturdy base too, even on rough ground.



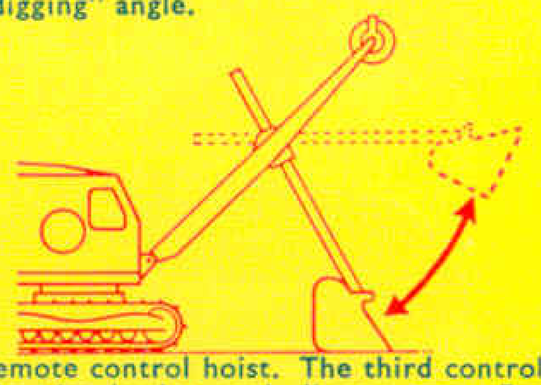
Boom goes up and down. A control knob raises and lowers the main boom into 18 separate positions!



Dipper arm adjusts in length. Another knob controls the length of the dipper arm—adjusts it to exactly the right "digging" angle.



Bucket scoops and empties. When the bucket is full, tip the gravel into a lorry by using the cord and toggle on the cab. The bucket opens, empties, then springs shut!



Remote control hoist. The third control lifts the bucket and dipper arm. For realistic excavating use it at the same time as the dipper arm control!

Here's the most exciting road-builder ever made—the Ruston Bucyrus excavator! You can level and clear your very own Dinky motorway without picking up a bit of gravel yourself! You'll have hours of fun and excitement operating this amazing Dinky Toy. Watch out for it at your nearest dealer. It's No. 975 and it costs just **27/6.**

AVAILABLE LATER OVERSEAS.

DINKY Check List

Tick which of these Dinky road-builders you've got! Compare your collection with your friends!

DINKY TOYS ®

No. 962 9/11 ☐

Muir-Hill Dumper Truck with driver and tipping mechanism.

No. 966 11/9 ☐

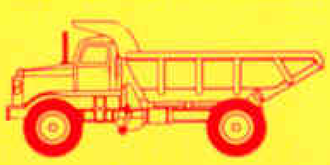
Marrel Multi-Bucket Unit, detachable heavy-duty bucket swings off lorry.

No. 960 10/3 ☐

Concrete Mixer, is rotated by gearing from the axle.

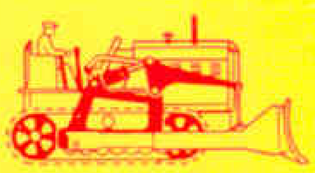
No. 959 16/- ☐

Foden Dump Truck tipper and bulldozing attachment operates "hydraulically".



No. 965 11/3 ☐

Euclid Rear Dump Truck handle-operated tipping mechanism



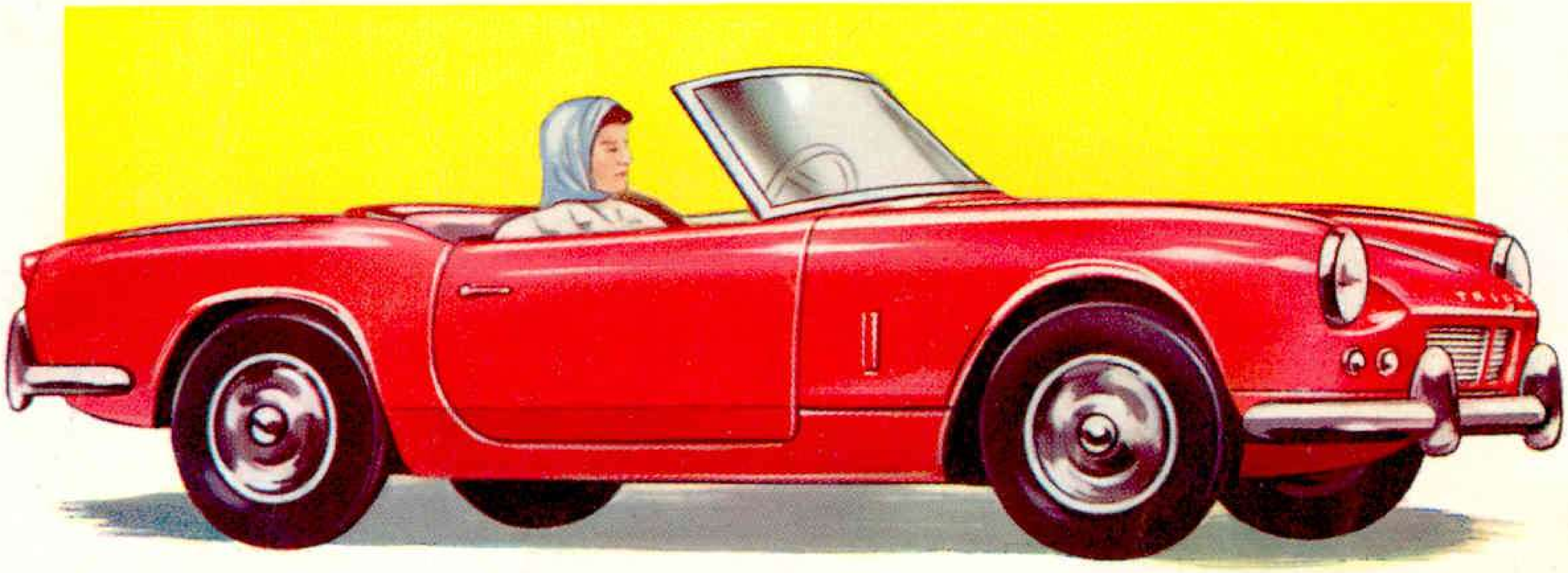
No. 961 16/6 ☐

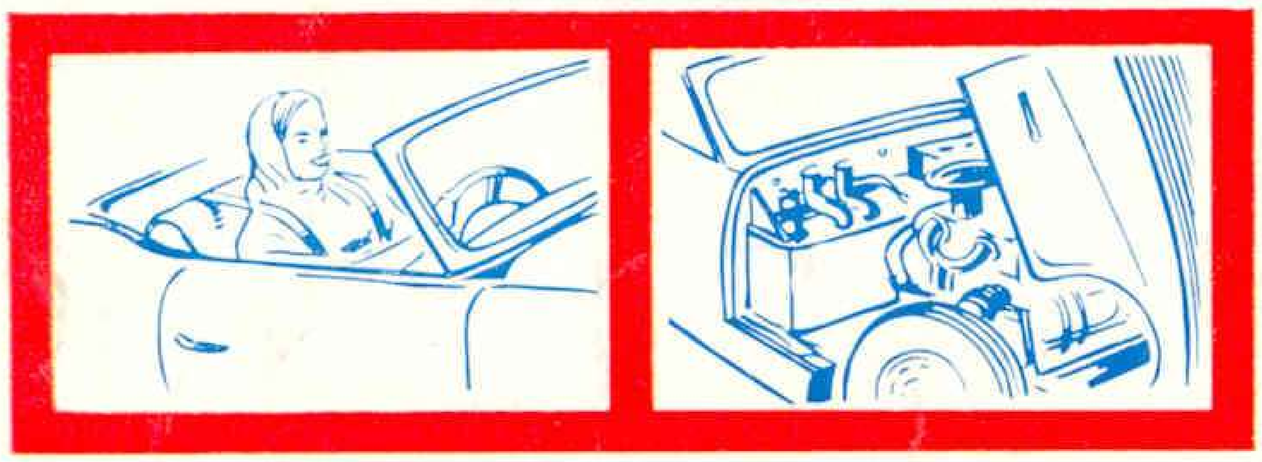
Blaw-Knox Bulldozer, caterpillar tracks, lever-controlled blade.

Available at: Hamleys, Harrods, Gamages, Selfridges and all good toy shops everywhere.

All prices apply to U.K. only.

DINKY TOYS ®





DINKY TOYS No. 114
TRIUMPH SPITFIRE

It's not the famous Battle of Britain fighter plane . . . but it IS the famous and revolutionary new sports car—the Triumph Spitfire. Features include: opening bonnet, detailed engine, steering, suspension, windscreen, interior fittings and, best of all, a safety belt which unclips to release the lady driver!
Length $3\frac{1}{2}$ in. U.K. Price **6/6**

DINKY TOYS No. 196—HOLDEN SPECIAL SEDAN

Australia's own car in Miniature!

At last you can buy a Dinky Toys model of Australia's famous Holden Special Sedan—and what a model! It's fitted with opening bonnet, opening boot, Prestomatic steering, windows, interior fittings and suspension plus—NEW—jewelled front and rear lamps which really seem to be "on"! You'll love it! Length $4\frac{1}{4}$ in. U.K. Price **7/3**

Available at: Hamleys, Harrods, Gamages, Selfridges and all good toy shops everywhere.

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