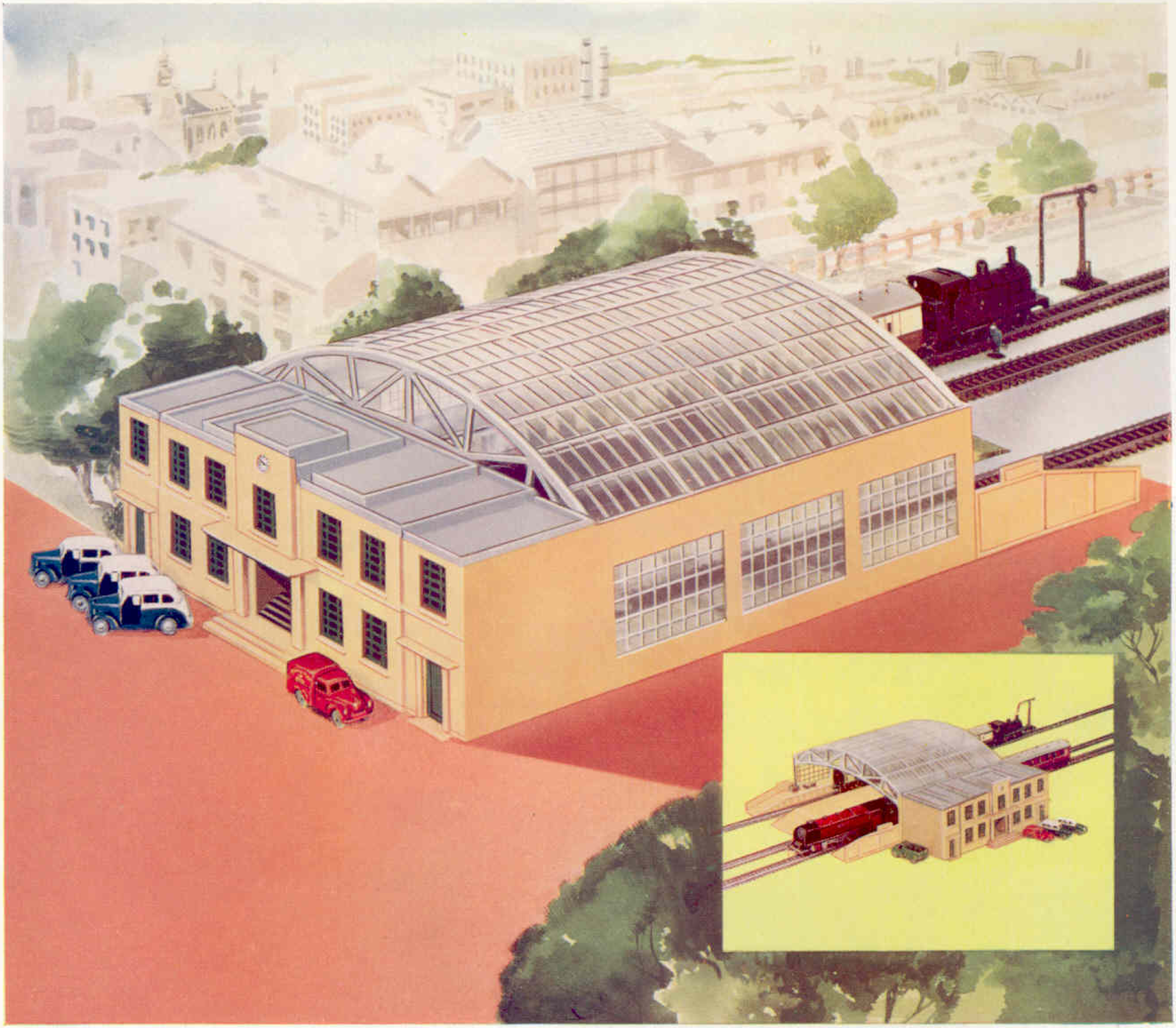
VOL. XLVI. No. 11 NOVEMBER 1961

MECCANO MAGAZINE

1/3

UP EXPRESS FROM BOURNEMOUTH



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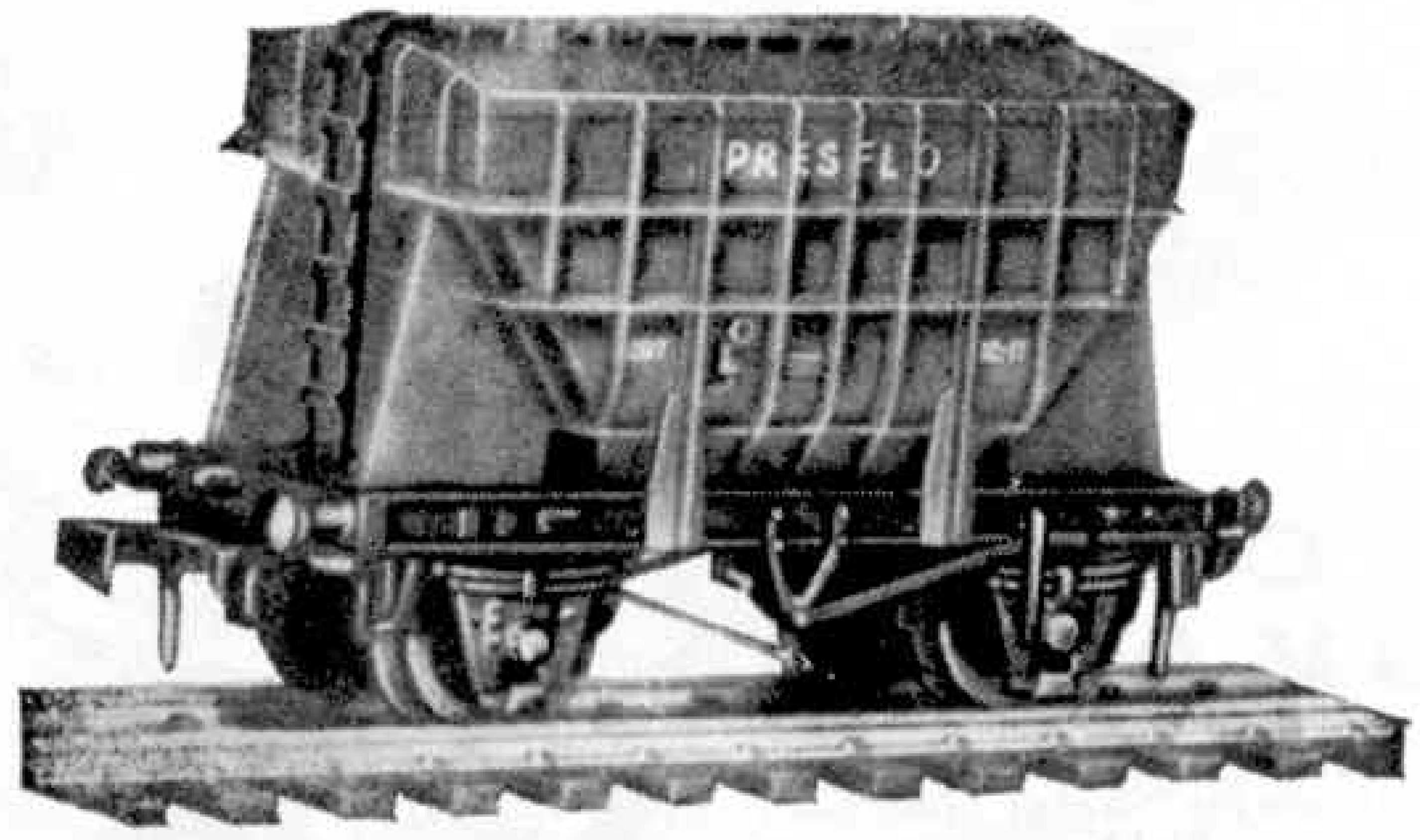

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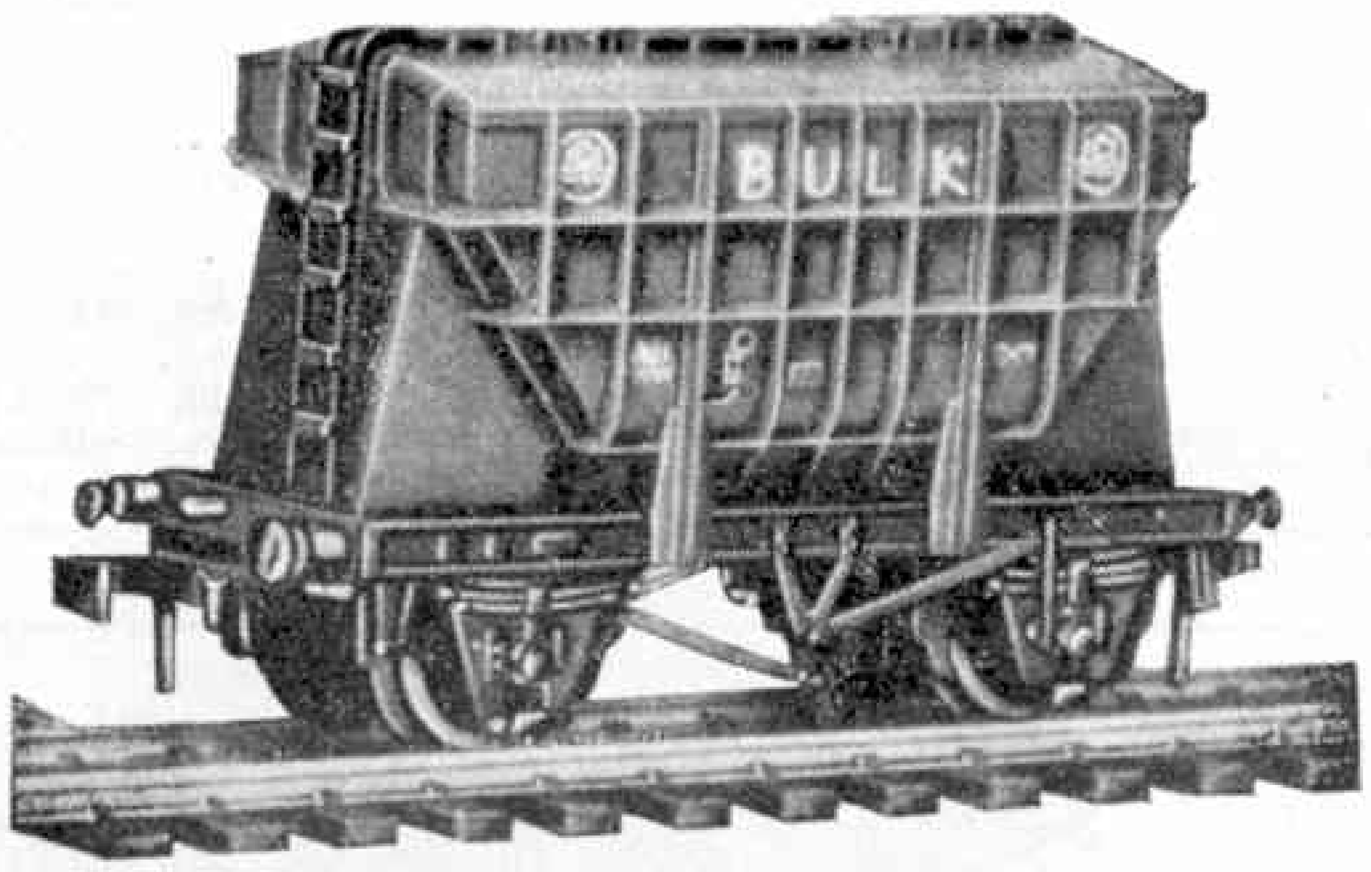

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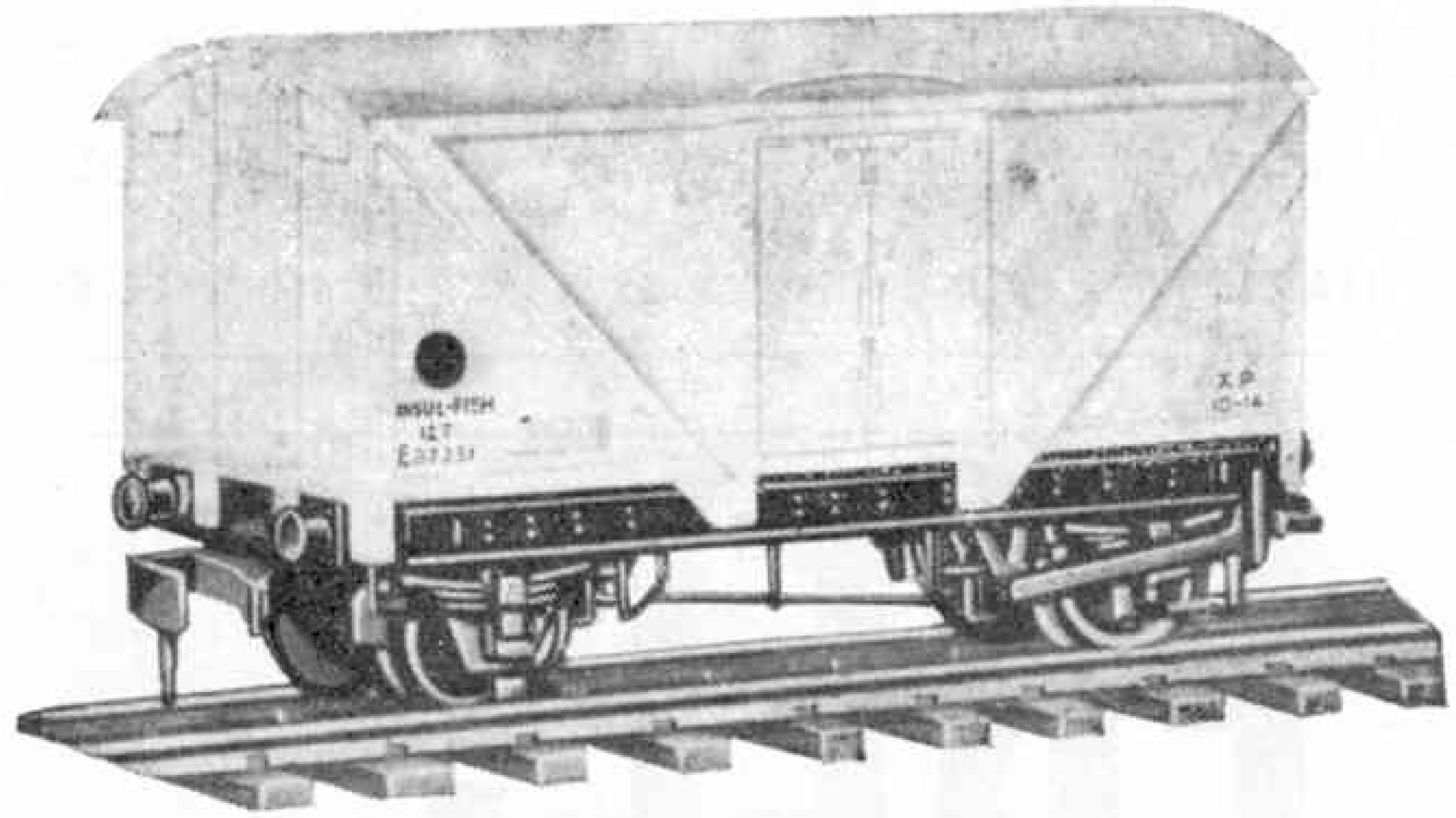

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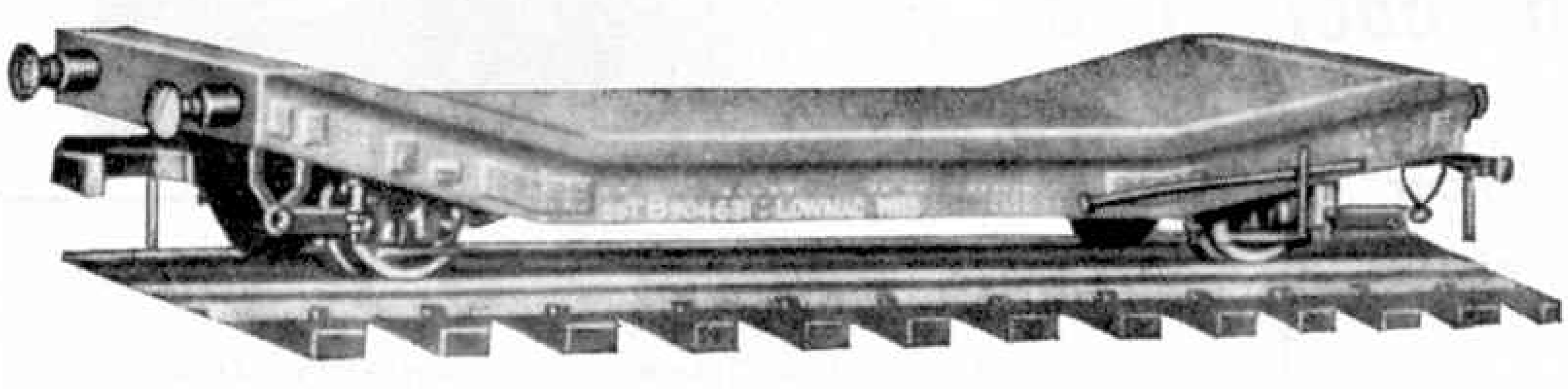

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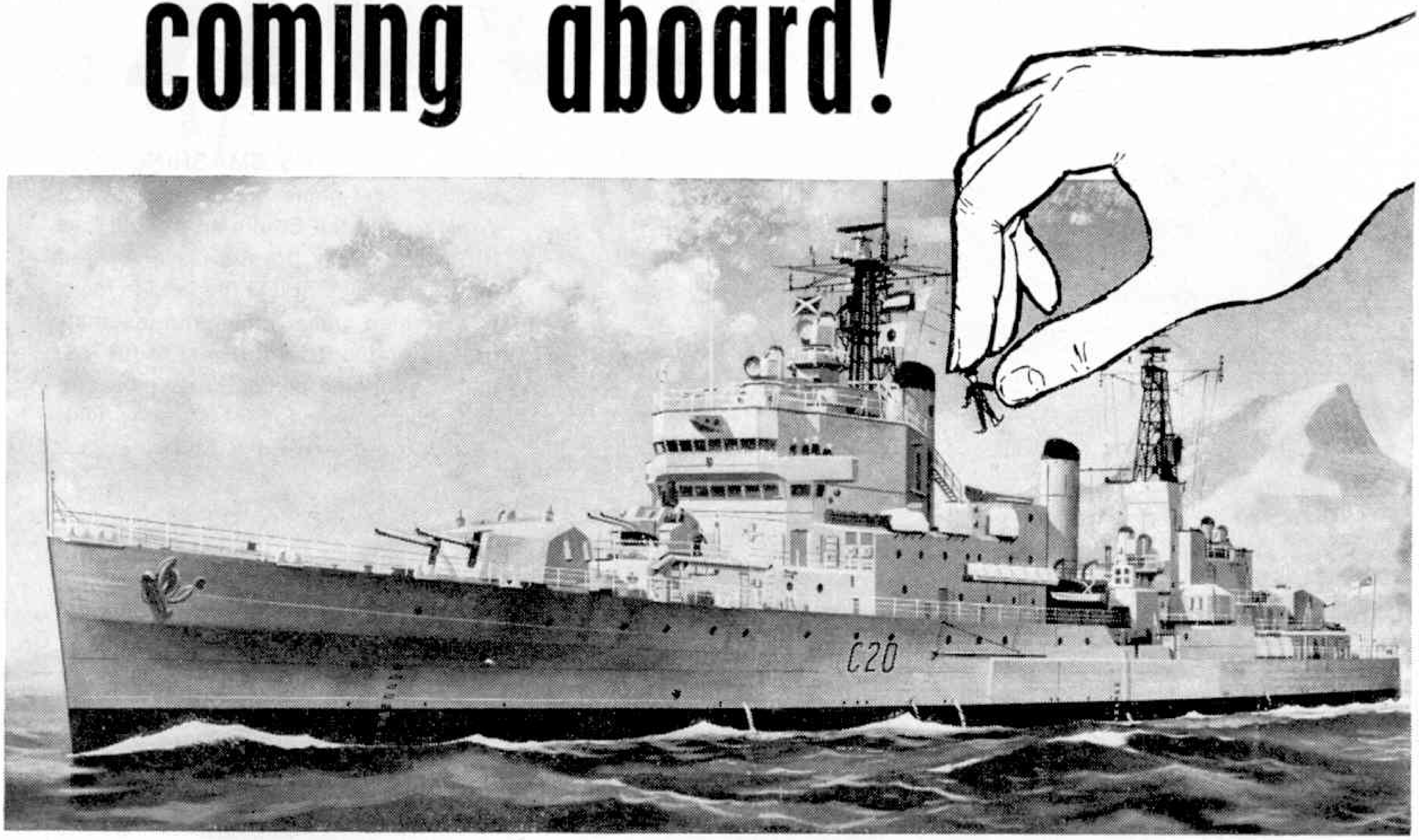

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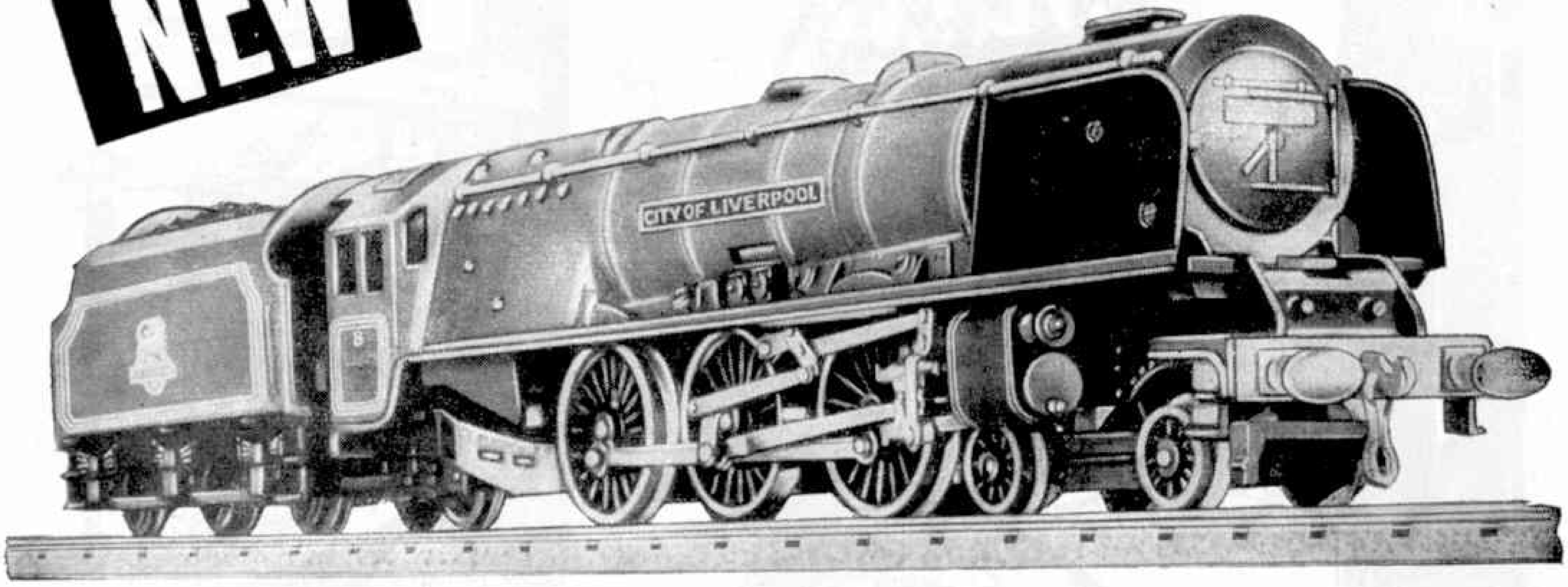

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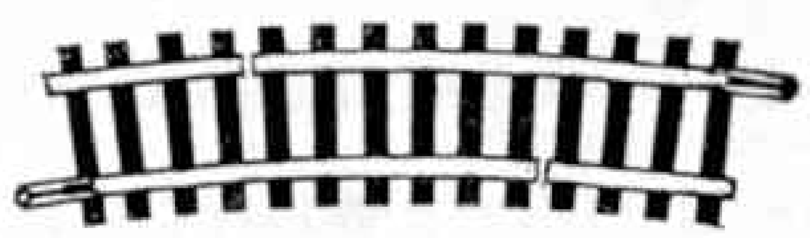

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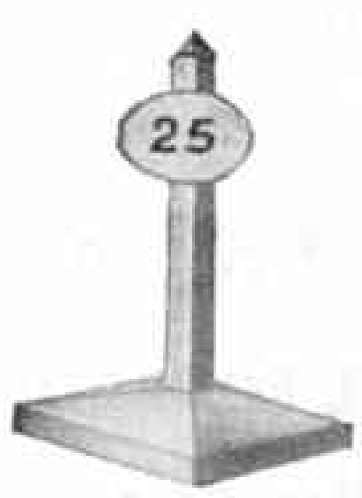

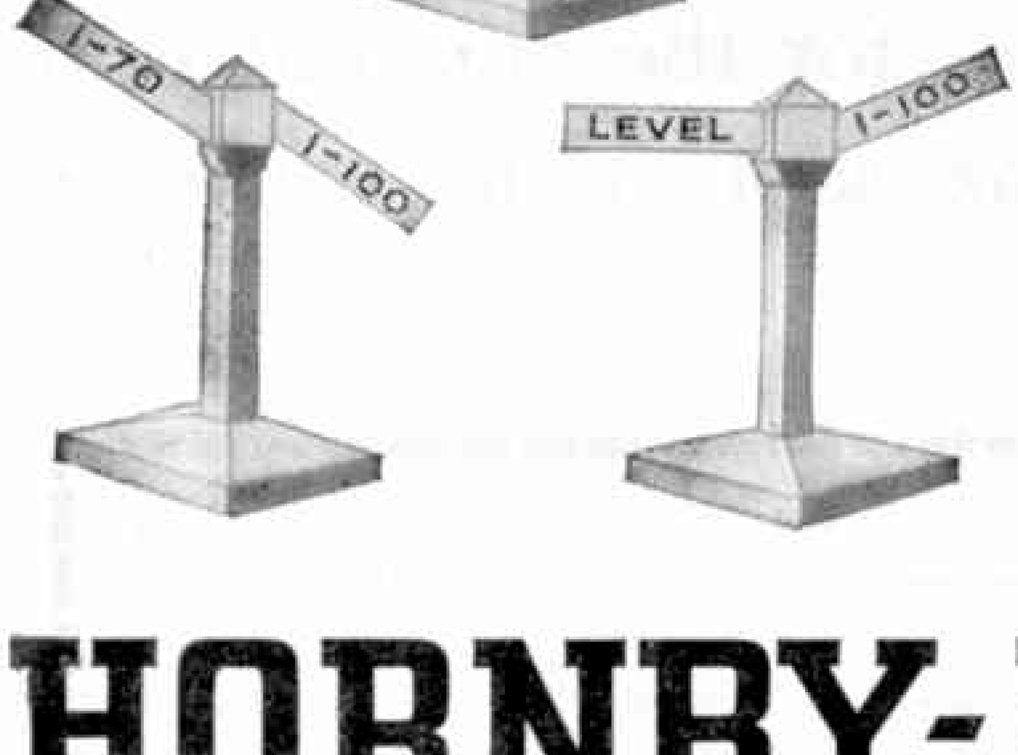

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Dump Truck At The Steelworks

I RECENTLY had the pleasure of visiting one of Britain's outstanding industrial plants—Hawarden Bridge Steelworks, Shotton, owned by John Summers and Sons.

There, I saw the scene pictured above. Moving slag which has been allowed to cool off after pouring in a lava-like stream from the blast furnaces is a fleet of Foden rear dump trucks, fitted with bulldozer blades—or scrapers—and I thought that the many *M.M.* readers who have enthused over the Dinky Toys model of this sturdy vehicle would like to see a picture of the prototype "earning its keep".

Indeed, the scene so appealed to me that I am hoping that in the next few months we shall be able to present an even more striking view of this wonderful vehicle at work as an *M.M.* front cover.

The works at Shotton have grown enormously in the last few years, and now cover over 980 acres of land, all of which has been reclaimed from the River Dee and the surrounding marshes. Within the boundaries of this huge plant are 85 miles of railway track, on which 30 diesel locomotives are operating, and 18½ miles of roads. There are almost 13,000 people working there and the firm's output of steel in one year is about 1,250,000 tons of ingots. By-products produced weekly include about 780 tons of tar, 60,000 gallons of refined benzol and 250 tons of ammonium sulphate.

Now just a word about next month's issue. In addition to articles with a Christmas flavour there will be puzzles and reviews of books for holiday reading. The December *M.M.* will be a bumper issue of 68 pages—the biggest so far since the change-over from a pocket-sized edition.

THE EDITOR.

Next Month: ALASKA RAILWAY JOURNEY

THIS MONTH'S CONTENTS INCLUDE—

OUR FRONT COVER

Our cover picture this month, prepared from a B.R. Southern Region photograph, shows an express from Bournemouth bound for Waterloo. The Bournemouth services have long enjoyed a special reputation and they include such well-known trains as the Royal Wessex *and the all-Pullman* Bournemouth Belle. *The picture is of special interest to Hornby-Dublo enthusiasts as the engine, No. 34048* Crediton, *belongs to the 4-6-2 Rebuilt West Country class, represented in Hornby-Dublo by the Two-Rail* Barnstaple *model, referred to in last month's issue, and the Three-Rail* Dorchester. *West Country locomotives share the Bournemouth and other workings with the slightly larger, but less numerous, 4-6-2s of the powerful Merchant Navy class.*

ROAD AND RAIL IN TURKEY

● ***Turkey has figured prominently in the international news scene in recent weeks. In this article, written some months before tension arose there, the author makes an interesting survey of the country's transport system.***

T.C.D.D. locomotive number 56741 at Ulukishla with a train bound from Istanbul to Mershin. Ulukishla is a little under 100 miles north of Adana in Southern Turkey.

TURKEY is a very large country by European standards. It is over 800 miles in length from east to west, and about 400 miles from north to south. Yet, in spite of its area, the country has a population of only about 26,000,000.

I arrived one winter afternoon in Adana, an industrial city in Southern Turkey which has a population of some 120,000. Like most Turkish cities, it is not too prosperous. Very few people own cars and most of the city's inhabitants are transported by horse-drawn carriages. There is, however, a small municipal bus fleet to which I will refer later.

* * * *

Early the next morning—7.30 to be exact—I was standing on the main platform of Adana Railway Station, admiring a diesel railcar train which consisted of three coaches. These railcar sets, called "Motor Trens" in Turkey, are the last word in speed and passenger comfort as far as the T.C.D.D. is concerned, T.C.D.D. standing for Turkish Cumuriyet Devlet Demir Yollari, which, in English, means Turkish Republican Railways.

The diesel train was bound for Ankara, and would reach its destination in twelve hours. I was also bound for the same city, but I was told that all seats on the Motor Tren had already been booked. As there was no steam express that day, and owing to the fact that the diesel was covering the journey, I was compelled to travel to Ankara by "Posta Train".

Posta Trains, as the name suggests, carry mail—as well as passengers and small items of freight—similar to that carried by passenger trains in Britain. They are divided into three classes of compartments, 1st, 2nd and 3rd. The

By
DAVID L. PERRY

3rd class compartments are furnished with wooden seats, and are used mainly by peasants who will travel, perhaps, one or two stations, carrying with them wares which they sell on reaching their destination. Second-class passengers are more fortunate. They are provided with leather upholstered seats and are seated six to a compartment. The 1st class compartment seats only four people, and is fitted with a small collapsible table, as well as movable head rests. The trains are steam heated throughout.

At 8.30 a.m. the Posta Train ambled into Adana Station. It was over half an hour late, and the driver was in no hurry to catch up with the schedule. I was travelling with Turkish Cypriot students who were bound for Ankara. As the train stopped, one of the students climbed aboard and my baggage was passed to him through the open carriage window. It was quicker to load one's luggage this way than to do so via the doors.

Just after 8.45 a.m. the whistle sounded and after much shouting and waving of goodbyes, the train started its journey north to the capital. In the marshalling yard adjoining Adana passenger station could be seen diesel shunting locomotive No. 33044—one of two operated by the Adana Motive Power Depot. This 0–6–0 diesel, like the "Motor Trens" and the carriage I now rode in, were all manufactured in Germany. Even the 2–10–0 steam locomotive which was hauling our train started its life in that country.

* * * *

The line between Adana and Ulukishla, a little under 100 miles farther north, is single track throughout, except at stations which, in this part of Turkey, are about ten miles apart. There are more than 30 tunnels on this stretch of the line, for Southern Turkey is very mountainous.

About 50 miles north of Adana we met the southbound "Taurus Express", which is run by the International Sleeping Car Company, and covers the route through three countries—Turkey, Syria and Iraq—every day. On every car could be seen a signboard with the name of the express and the cities it serves—"Taurus Express–Istanbul – Ankara – Adana – Allepo – Baghdad".

We arrived at Ulukishla a little after noon, but had to wait there until 4.30 p.m. for a train which was to take us on the second stage of the journey, as far as Kayseri, 250 miles to the north east.

In point of fact the train left a few minutes early—at approximately 4.25 p.m.—and about an hour later started to cross a large plain which I subsequently dis-

The imposing front of Ankara's main railway station, at the end of Station Road.

This American-built A.C.F. Brill trolley bus, No. 178 (left) is one of a number serving with the Ankara transport fleet. These vehicles are 35 feet long. Right: German-built Bussing No. 339 (Reg. No. Ankara 0.40.102). These buses are fitted with under-floor engines and dual entrances.

covered is over 60 miles long and about 30 miles wide. Suddenly the train began to slow, and within a few minutes came to a halt by a small hut at the side of the track. This was Bereket, the only station on the plain, and in the distance to the west of the railway I could see what was, in fact, the only town on the plain, Bereket itself, with two cart tracks leading down to the railway—the only means of access to the town.

The driver blew the whistle to waken anyone who might have fallen asleep on the station while waiting for the train, but no one came and we were soon on the way again. We reached Kayseri at 10.30 p.m. Here we had to change trains again, but this time we had a wait of only one and a half hours.

A few minutes after midnight, the train that was to take me on the last stage of the journey to Ankara pulled into Kayseri Station, and after a stop of only a few minutes pulled out again bound for Ankara, still 150 miles distant. At 12.30 p.m.—a little after noon—we reached Ankara, after a journey of 500 miles which had taken 28 hours.

I was shown around Ankara by the Cypriot students who had travelled on the train with me. The city has a population of about half a million, yet the municipal bus fleet consists of only 250 vehicles, about 160 of which are used to maintain normal everyday schedules.

* * * *

There are very few private cars in the Turkish capital, and suburban train services are all but non-existent. Taxis are to be had, but they rob the buses of little traffic for during the peak periods both forms of transport are in great demand, and overcrowding is common. When a bus pulls into a stop during a peak period, everybody tries to board it at once. Indeed, it is not unusual for a bus to spend over three minutes at a stop while the driver tries to persuade people to leave his sardine-packed vehicle so that he can close the air-operated doors.

All the buses operated by the Ankara municipality are single deckers and most are German-built Bussings. There are, however, about 30 trolley buses, manufactured by the American A. C. F. Brill Company, or the M.A.N. Company of Germany.

For my return trip to Adana I decided to travel by bus, and boarded a Mercedes bound for that city. Luxury motor coaches as we know them in Great Britain are non-existent in Turkey. Small private companies are responsible for all inter-city bus traffic, but these companies generally have fewer than a dozen buses in their fleet, and operate on only one, or possibly two, routes.

On the routes to the larger cities such as Istanbul, Kayseri, Adana, etc. several companies may compete for the traffic. The vehicles used are mostly manufactured by Mercedes, M.A.N. Bussing, or the Volvo and Scania-Vabis companies. There is, however, a small number of British Leylands and Bedfords to be seen.

At about 7.30 a.m. the vehicle pulled out of Ankara Bus Station and started the journey south. The road, though narrow, was just wide enough for two vehicles to pass.

* * * *

On the whole 350-mile journey we passed little more than 100 vehicles, most of these being lorries or long-distance buses. The bus does not travel through Kayseri, but at Ulukishla we stopped for lunch, and at 5 p.m. pulled into the bus park at Adana, after covering the journey in under ten hours.

The municipal bus fleet at Adana is very much smaller even than that at Ankara. There are only 26 buses in all, these being Italian Fiats, with forward-mounted engines and dual entrances. Most of the people of Adana still prefer to use horse-drawn carriages, which are to be seen on the streets in hundreds.

Although their land is not the most modern, I found the Turkish people to be among the kindliest and most hospitable I have ever met.

THE A.A. IN SEARCH OF A WORD

The Automobile Association is in search of a new word to add to the English vocabulary. Its meaning must be, "the driver of a motor vehicle of any kind".

Viscount Brentford, chairman of the A.A., stated recently, "The word 'motorists' is almost invariably used, in default of any other collective noun, to describe the drivers of all types of mechanically-propelled vehicles, including commercial vehicles, taxis, public service vehicles—and even motor-cyclists and moped riders. What are loosely termed 'motoring offences', for example, include the omission to maintain records for haulage vehicles, work ticket offences, unlawful pillion riding, goods vehicle and 'bus speed limit offences and scores of others, none of which are committed by 'motorists', i.e. the drivers of private motor cars.

"This lack of precision results in a lot of muddled thinking about the many problems affecting people in charge of mechanically-propelled vehicles of all kinds, often to the detriment of the real motorist.

"What is wanted in the interests of clarity is a new word which will make the distinction apparent."

Among suggestions made to the A.A. are: roadfarer, autodriver and even roadnaut and vianaut! The A.A. will welcome new ideas.

The 1962 edition of *Hobbies Annual* (price 2/–) is, like previous issues, full of good things. Its 180 pages offer a choice of hundreds of projects for toys, model furniture, etc., calculated to interest youngsters and adults alike. Modellers, handymen, fretworkers and craftworkers are all catered for. Each copy of this 1962 Annual includes two large free designs, one showing how to make a model zoo, and the other a "Whistling Bird" cigarette or trinket box which incorporates the latest "musical" novelty from the Continent. There are details of ready-to-assemble kits, and hundreds of individual materials for the modelmaker.

SPECTACLES IN FIRE

By ARTHUR TURNER

FIREWORKS are nowadays so closely associated with Gunpowder Plot that we are apt to forget that their history can be traced far beyond the days of Guy Fawkes.

Indeed, the story of firework tableaux—or set pieces—which are still arranged in these days in connection with many events in various parts of the world, goes back centuries. These displays are used to mark occasions of national rejoicing such as coronations and royal marriages, they form spectacular features at carnivals and fêtes, and they are part of annual commemorations such as the Fourth of July celebrations in America.

Celebrating important events by presenting firework displays has long been a popular custom. This picture shows such an occasion in London to mark the end of the second world war. Photograph by courtesy of Associated Press Studio.

Some of the most thrilling firework entertainments in Britain were staged on the Thames, in the days when the annual Lord Mayor's Day procession was along the river between London Bridge and Westminster. Rockets and other pyrotechnical devices were let off from barges, to the delight of crowds lining the banks.

Similar spectacles were also presented by the old London guilds. A popular device in the Guild Day processions was a "Hell's Mouth"—a huge head belching flames and smoke from its mouth. Grotesquely-masked men usually ran ahead of the procession, brandishing firework clubs to clear the route.

Helmets Gave Out Flames

Other performers presented "fire combats", waging battle with flaming swords and wearing helmets which gave out flames. There are records of wonderful firework displays of a semi-private nature held in Elizabethan days at Windsor Castle, Kenilworth Castle, and other baronial homes.

An amazing firework drama was given for the entertainment of the guests at the wedding of the daughter of James I. The characters in this fiery production included St. George, a fair lady, a giant, a dragon, and a magician, against a background representing an enchanted castle.

Londoners enjoyed a great firework entertainment in 1749, to mark the famous Peace of Aix-la-Chapelle—just as they did on the night of V-E Day in 1945, to celebrate the end of World War II. The 1749 display was built around a temple 410 feet long and 114 feet high, and equipped with a musicians' gallery. Over this structure were figures representing Peace, Neptune, and Mars, together with a bas-relief which depicted King George II giving peace to Britannia.

This affair nearly ended in tragedy, however, for the fireworks which formed part of the spectacle set the temple alight. Much of the structure was destroyed before the flames could be extinguished.

Another pageant of fire—entirely successful this time—was arranged in 1814, in honour of a visit to London by a number of monarchs and other distinguished people. It took the form of a firework building called the Temple of Concord, and covered nearly one third of the 50-acre Green Park adjoining Piccadilly.

Right: A portrait of the Queen made up of fireworks. Such pictures are first built up on the factory floor and then transported to the site in sections, where they are put together again. Photograph by courtesy of Brock's Crystal Palace Fireworks Ltd.

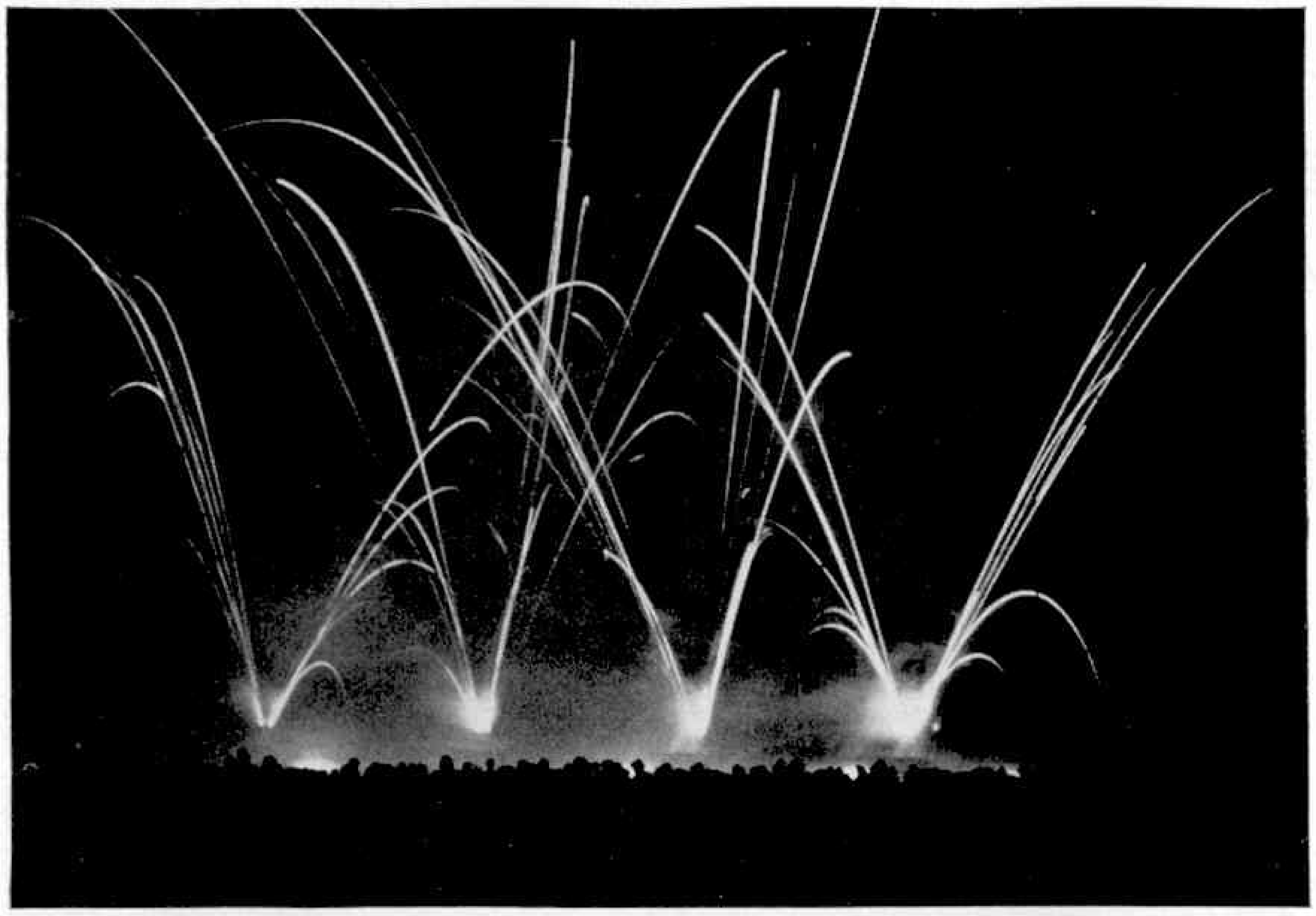
The pleasure gardens of eighteenth and nineteenth-century England, such as Marylebone Gardens, London, were the setting for many more grand firework displays, but those presented in the grounds of the Crystal Palace from 1865 until 1936 excelled all earlier ones. They set the standard for the set-pieces of today.

As the popularity of these pyrotechnical pageants grew, so the size and variety of the items presented expanded. Set-pieces grew from 20 feet to 600 feet, fire-wheels were extended from 12 feet to 100 feet in diameter, and shells increased in circumference from 18 inches to 50 inches.

Fire pictures have now reached a high degree of artistry. Some of the examples presented today cover an area of 2,000 square yards and are composed of more than 35,000 lights. We have battle scenes, events such as the eruption of Vesuvius, and moving figures. Firework portraiture has been improved to such an extent that no imagination is needed to identify the personalities represented.

Rockets at Spithead

Among the outstanding displays of the last 25 years was that at Spithead, in 1937, marking the Coronation of King George VI. More than 100,000 rockets soared



Rocket artistry at Belle Vue, Manchester. Nowadays such displays of fireworks are sometimes ignited electrically, so that they go off simultaneously (top). Below: An enchanting set-piece in a firework pageant at Belle Vue.

from the decks of naval vessels during a review of the Fleet.

A much earlier display of special interest was staged at the Crystal Palace to commemorate the Diamond Jubilee of Queen Victoria's reign. The major spectacle was a set-piece 200 feet long and 180 feet high. It began with fiery roses, thistles, and shamrocks, which subsequently became transformed into portraits of the Queen and her family.

One of the most stupendous firework marvels was presented as part of the South Bank (London) Coronation display in 1937. It lasted over an hour, and the most thrilling feature was a fiery waterfall 1,000 yards wide. More than 9,000 *bangs* made up that memorable occasion.

How are these gigantic firework displays arranged, and, in particular, how are firework portraits and similar set-pieces made? The first step is to draw them on squared paper. Then wooden frames are built on the floor of the factory, the frames being divided into squares which correspond with the squares on the paper.

The outline of the figure or portrait is then chalked on the floor, under the frame, as a guide. The picture is next built up with strips of cane, these being nailed to the frame. The final step is to attach quickmatch (cotton-wool drawn through gunpowder paste) to the strips. Some large set-pieces require as much as three miles of quickmatch.

The completed picture is then transported to the site of the display in sections and is re-built there vertically, ready to be touched off at the right moment.

Nowadays, when several set-pieces have to be presented simultaneously at points some distance apart, walkie-talkies are sometimes used to ensure exact synchronisation by the men whose job it is to set off the displays. Rockets, too, are sometimes fired electrically nowadays, both for safety reasons and to ensure that they go off together.

The first fire portrait was designed in 1879. Today, in addition to making such pictures for public occasions, firework manufacturers have put on the market smaller pictures for private use. For instance, at the time of the Coronation of Queen Elizabeth, in 1953, selections of fireworks which included easily-erected portraits of Her Majesty were on sale.

Growing Demand

With firework displays still a popular attraction the demand for set-pieces continues to grow. Some of the most spectacular shows are staged at Belle Vue, Manchester, and other big displays are presented at various holiday resorts. They provide additional entertainment, too, at carnivals, regattas, and speedway meetings.

One feature which is rarely, if ever, seen today is the "living firework" drama. This used to be extremely popular, and consisted of animated scenes by performers wearing asbestos overalls. To the front of the garment was attached a framework covered with cigarette-like sticks of firework compound.

The first subject to be depicted in this way was a boxing match, but later whole dramas were enacted, on gigantic set-pieces, for the entertainment of enthusiastic crowds.

Nowadays there are even talking pictures in fire. Such displays have been organised like a talkie film, by script-writers, dramatists, musicians, and sound technicians, enabling a drama to be presented in animated firework scenes to the accompaniment of music and a running commentary.

Factory Precautions

Yet, even in this age of machines, fireworks are made largely by hand for safety reasons, although the skilled workers who fill the tubes and cases work at such lightning speed that they seem almost machines themselves. As a further precaution, the factory is divided into two completely separate sections.

All the sulphur compositions are handled in one section, and here the slightest trace of chlorate of potash is banned. In the other section, sulphur is equally taboo. These two touchy chemicals are kept rigorously apart, for trouble would arise if they came together.

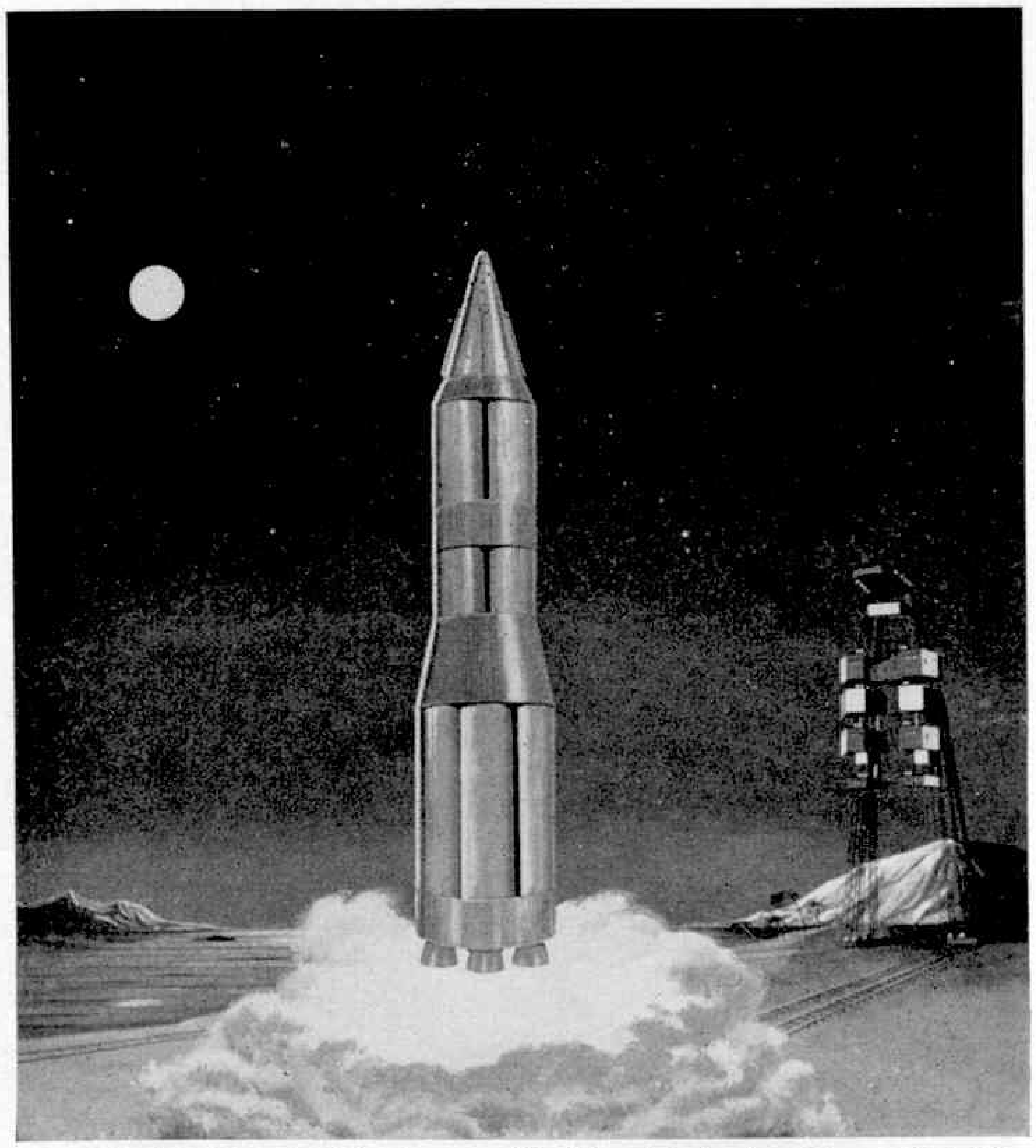
Again, the factory does not consist of just one or two large buildings, but of a number of small ones spread over a wide area, with high walls between them. Thus, if by some mischance a fire or explosion should occur only a small part of the factory would be involved.

And here is a tip for you for the Fifth. Since manufacturers find it necessary to take such stringent precautions, you will be wise to treat your fireworks with equal respect.

Finally, remember that the most dangerous firework is the "dud". More accidents are caused by these than by any others, because the firework that appears to have failed is the one most likely to go off unexpectedly.

SPACE NOTES

Man On The Moon



The thrill of the Nova launching is captured by this artist's drawing. Gross weight of the 220 ft. high rocket would be 6,700,000 lb.

THE servicing gantry has just been moved and the latest Nova rocket stands ready for firing. Only a few people are about, compared with the scores who were needed on the first satellite launchings, because rockets have become both simpler and more reliable.

Although the excitement of the first *manned* flight to the Moon can be felt, there is surprisingly little noise or bustle. The fuelling vehicles, which have been hard at work for the past 24 hours filling the huge tanks of the five-stage vehicle, have departed. There are no loudspeakers blaring orders; each man has a miniature walkie-talkie which takes the form of a capsule fitting comfortably into the ear, and all orders are given from a central control room.

The few remaining figures now hurry to shelter. The six giant, first-stage engines ignite two at a time, the ground control cable falls away and the 220-foot high Nova slowly lifts on a column of fire, propelled upwards by 8,000,000 lb. of thrust . . .

*   *   *   *

After rising vertically for ten seconds the rocket tilts slightly to the east and continues for another two minutes before the first stage burns out. As the first stage drops away (to be recovered by parachute for further use) the second stage ignites and, during its three minutes of operation, brings Nova's speed up to about three miles per second.

Finally, the third stage fires along a path almost parallel to the Earth's surface and at a height of 150 miles, bringing the speed up to just over escape velocity (seven miles per second).

For 60 hours the cone-shaped vehicle cruises silently through space. On approaching the Moon, control jets turn the vehicle until it is in the correct position for landing, the four retro-rockets fire and a gentle landing is made on four landing legs which extend some 40 feet from the side of the cone.

But this is not the first vehicle to land in this region of the Moon. As the three explorers on board disembark, they see a replica of their own vehicle together with a rather smaller vehicle. The latter was sent about a year previously to explore the area and determine its suitability as a landing site for Nova. It contained a small tractor which made a thorough survey,

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

sending back to Earth enough information to make a detailed map, and including such data as the type of rock and the position and depth of dust.

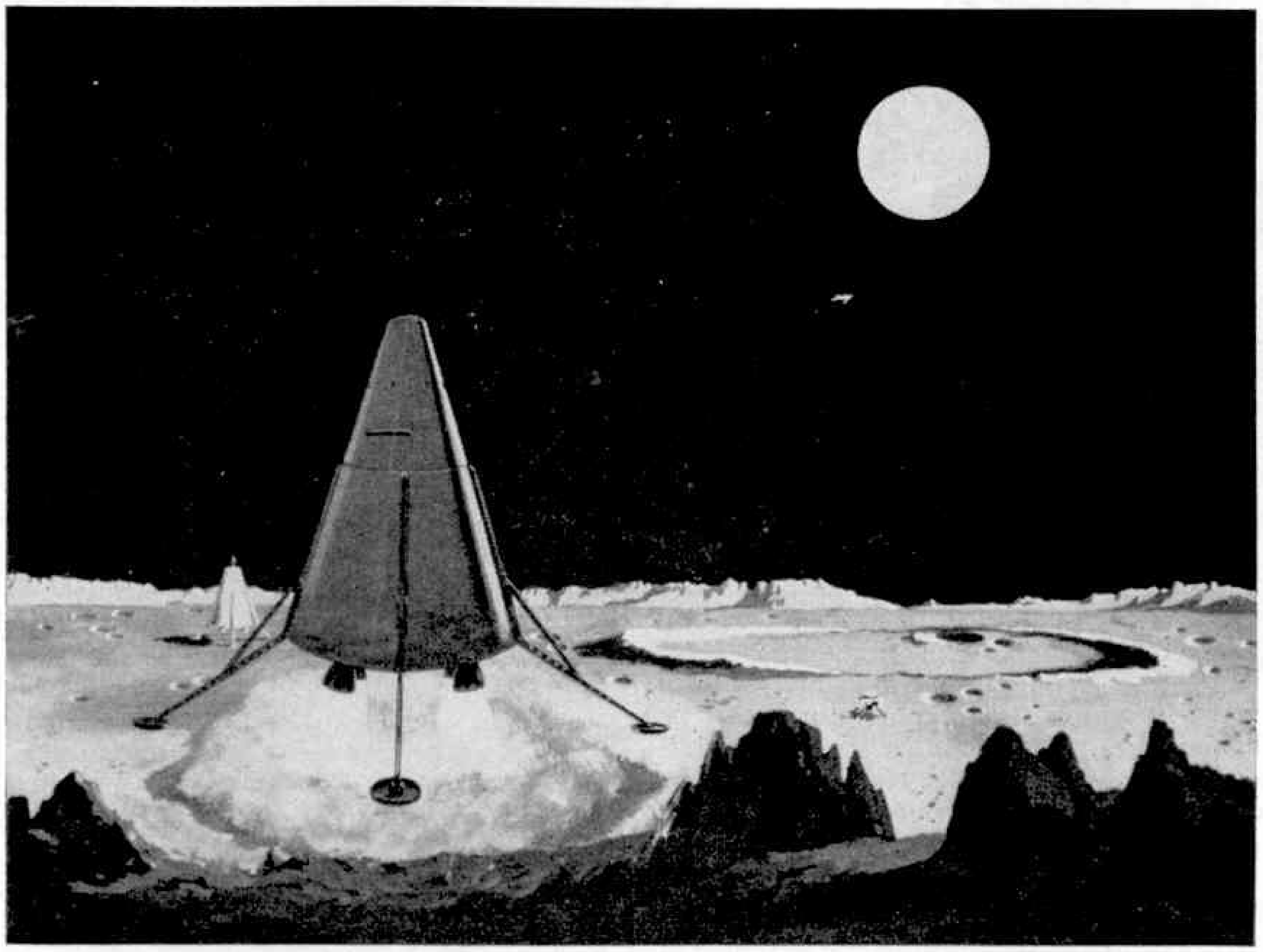
The first Nova was unmanned, and was sent a month before the manned version. It was despatched largely as an "insurance policy". It showed that Nova could, indeed, land in this area and is completely fuelled so that, in the event of damage to the second Nova, it can be used for the return journey.

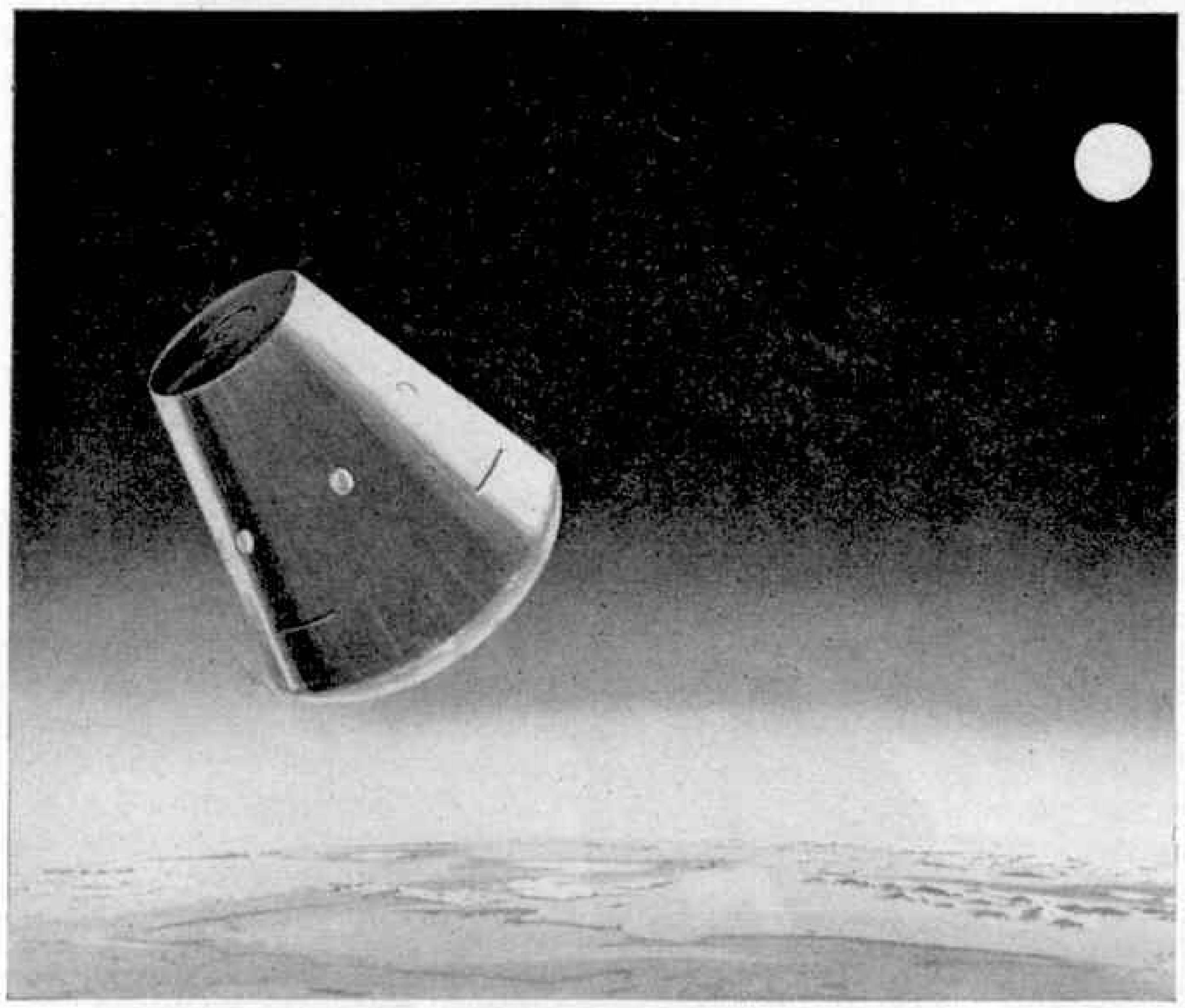
The crew members have twelve days for exploration before entering the living capsule ready for the trip home. When that time comes, the fifth and last stage is fired and this lifts them from the surface of the Moon into the return orbit. Incidentally, the fourth stage, which is left on the Moon's surface, acts as a launching stand for take-off.

*   *   *   *

During the latter part of the 60-hour return journey a few short corrective blasts on the control rockets place the manned capsule in just the right path for re-entry. The use of retro-rockets to slow the capsule down would ease the problem of descent through the atmosphere, but would add enormously to the initial take-off weight. The nose of the return capsule is protected by an ablative material—that is, a material that evaporates as it is heated by atmospheric friction, thus taking a lot of the heat with it and preserving the main structure of the capsule which lies underneath. At 30,000 feet a large parachute is ejected which brings the capsule safely down into the sea.

And the date? Well, the originators of the project, Rosen and Schwenk of the National Aeronautical and Space Administration, say that it could be before 1970. Their vehicle is, indeed, a large one but they have designed conservatively and there appears to be nothing that is im-





Landing on the Moon. A gentle touch-down is made on the four landing legs.

The Moon trip has been made and the explorers are returning. Here the capsule re-enters Earth's atmosphere.

practical — provided one has enough money.

Their choice of a direct Moon flight is an interesting one. Most modern designers consider the orbital rendezvous the best way of making any space journey. This scheme makes use of a number of smallish vehicles to assemble a supply of propellents in an orbit in space. The space vehicle is then taken up, either in one piece or in sections to be assembled in orbit, is fuelled and taken to its destination. The advantage of this scheme is that only comparatively small vehicles are needed (about a tenth of the size of Nova) but Rosen and Schwenk consider that the total cost would be very much greater, and that putting a number of loads into the same orbit, and assembling them, would probably be a very difficult assignment.

One of the most important choices in a space vehicle design is that of the propellents used in each stage. Naturally, the designer would like to use the most powerful propellents in all stages, but in practice this is not possible. In this design it was decided to use a cluster of six 1½ million pound-thrust liquid oxygen kerosene engines for the first stage, and one of them for the second stage. The reason for this is that such an engine is now being developed and will be ready for use in a few years' time, whereas large engines using, let us say, liquid oxygen and liquid hydrogen will not be ready in time. For the third stage, however, four 150,000 lb. thrust engines can be used and these use liquid oxygen and liquid hydrogen, as do the four smaller variable thrust engines of the fourth stage.

For the fifth stage, which is used for the lunar take-off, the choice is more difficult. The propellents must be stored for eighteen days under varying temperature conditions. Both liquid oxygen and liquid hydrogen boil at very low temperatures, and the tanks in which they are stored must be very well insulated. In all probability these propellents could be used but, just to be safe, nitrogen tetroxide and hydrazine, both of which are liquid at normal temperatures, have been chosen.

Whichever way one looks at this scheme, it is obvious that it has been devised by imaginative but practical engineers (Rosen, in fact, was in charge of the Vanguard high altitude rocket programme).

If the space programmes continue to progress as rapidly as they are doing at present there is a good chance that, by 1970, the names of the three men who stepped out of Nova on to the Moon will already be in the history books.

The Hawker Story

There could be no finer Christmas present for an air-minded boy—or his Dad—than the story of *Hawker Aircraft Since 1920* by Francis K. Mason, published recently by Putnam. Its price of 63s. may seem a bit steep, but for this one gets a 475-page book, crammed full of facts and figures, with more than 380 photographs.

Hawkers and their predecessors, the Sopwith Aviation Company, have built more successful fighters, over a longer period of time, than any other firm in the world. Mr. Mason begins by tracing the history of the company, and then describes in detail every type of aircraft built since 1920. Some, like the Fury, Hart, Hurricane and Hunter, are well-known; but even the most knowledgable reader will find much that is new. This applies particularly to the illustrations, which include many hitherto-unpublished pictures of "rare birds". These alone make the book a "must" for collectors and model-makers.

Clearly, Mr. Mason knows how much detail the modern youngster likes to have. In addition to the usual historical, structural and performance details of each aeroplane, he has included a 74-page appendix listing the official serial numbers allotted to every type. No less interesting are the details of aircraft that were *not* built. We always think of Hawkers as a fighter firm pure and simple, so it is surprising to see three-view drawings of a three-engined transport designed in 1926, a 4/5-seat lightplane projected in 1947, a twin-engined freighter with a swing-tail designed in 1953, and a six-seat high-speed transport conversion of the Hunter fighter which still seems a good idea even today.

J.W.R.T.

Repair Jobs That Keep The Wheels Of Industry Turning

The Science of Welding

A FEW weeks ago, a barrister with whom I was in conversation mentioned quite casually that one of his greatest relaxations was to organise and witness firework displays. Often this is an enthusiasm shared by the most unlikely folk. The familiar Golden Rain and its larger brother the Cometic Shell

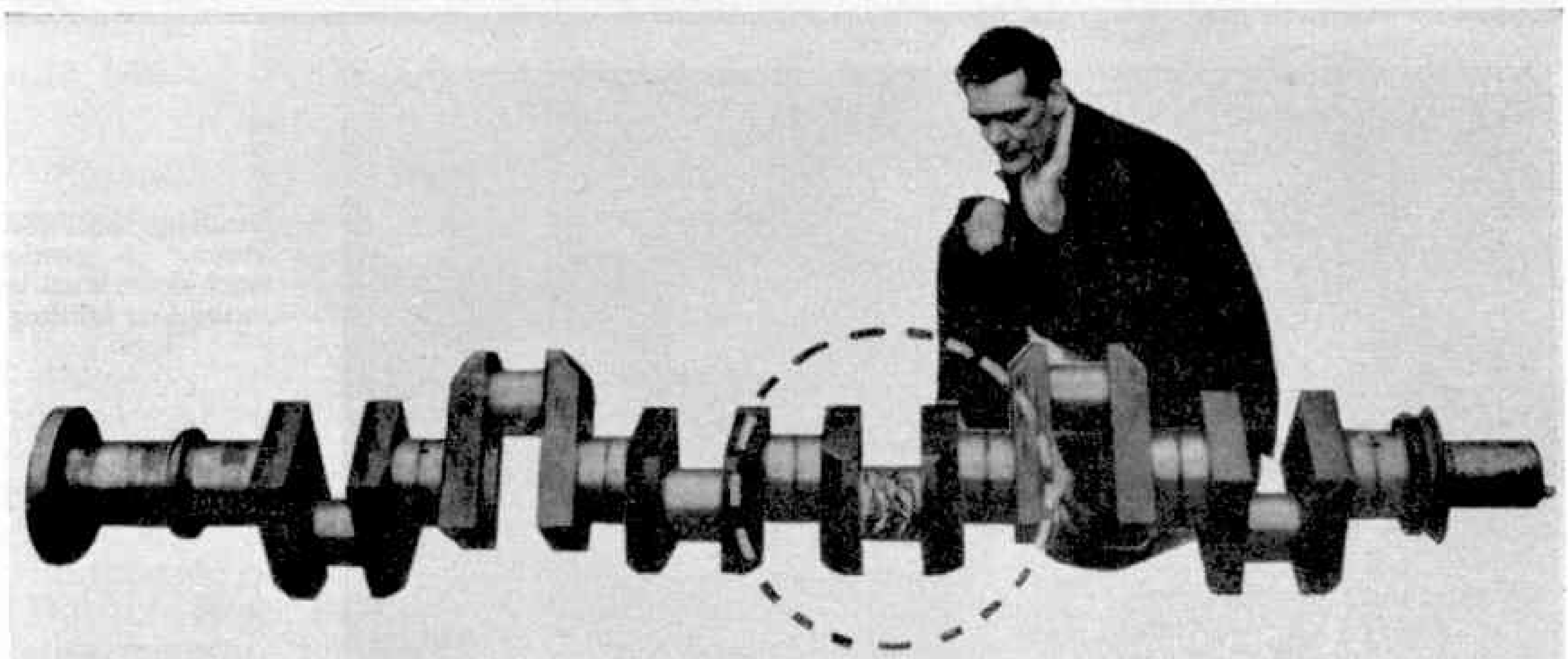
By
C. W. BRETT, M.Inst.W.
(Managing Director of Barimar Ltd.)

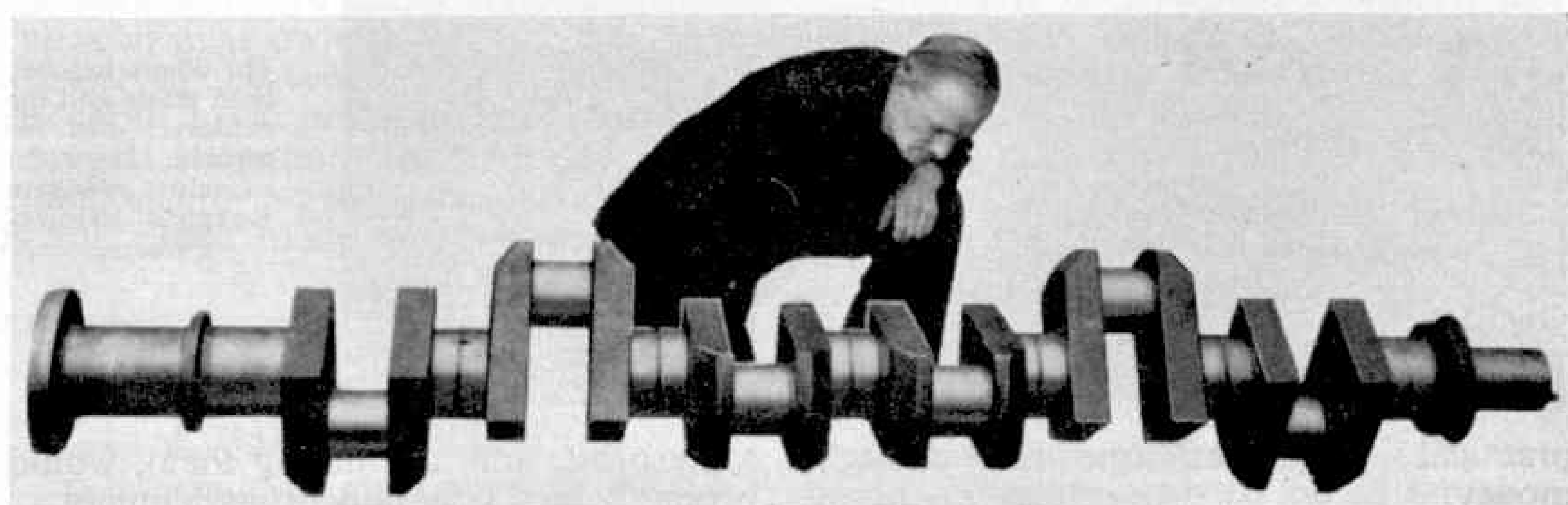
owe their attraction to the admixture of iron filings. In the manufacture of steel by the Bessemer process, there is a gargantuan display of pyrotechnics and, to a lesser extent, welding also produces spectacular effects that firework manufacturers would find hard to emulate. The "display" is, of course, only a by-product of craftsmen at work, but it is so intense that the workers' eyes must be shielded lest they suffer the painful malady known as "welders' flash".

There are two different kinds of welding, but both rely on intense heat to reduce any metal such as iron, steel, aluminium and so on to a molten state almost instantly. For those who like to be precise in these matters, the heat used for average welding varies between 6,000 degrees and 8,000 degrees Fahrenheit. There are several ways in which still higher figures can be achieved but none that are so readily controlled as either an electric arc or oxygen and acetylene gases burned together in correct proportions. Considerable variation in temperature is possible not only by governing the amount of each gas but by including coal gas as a means of dilution.

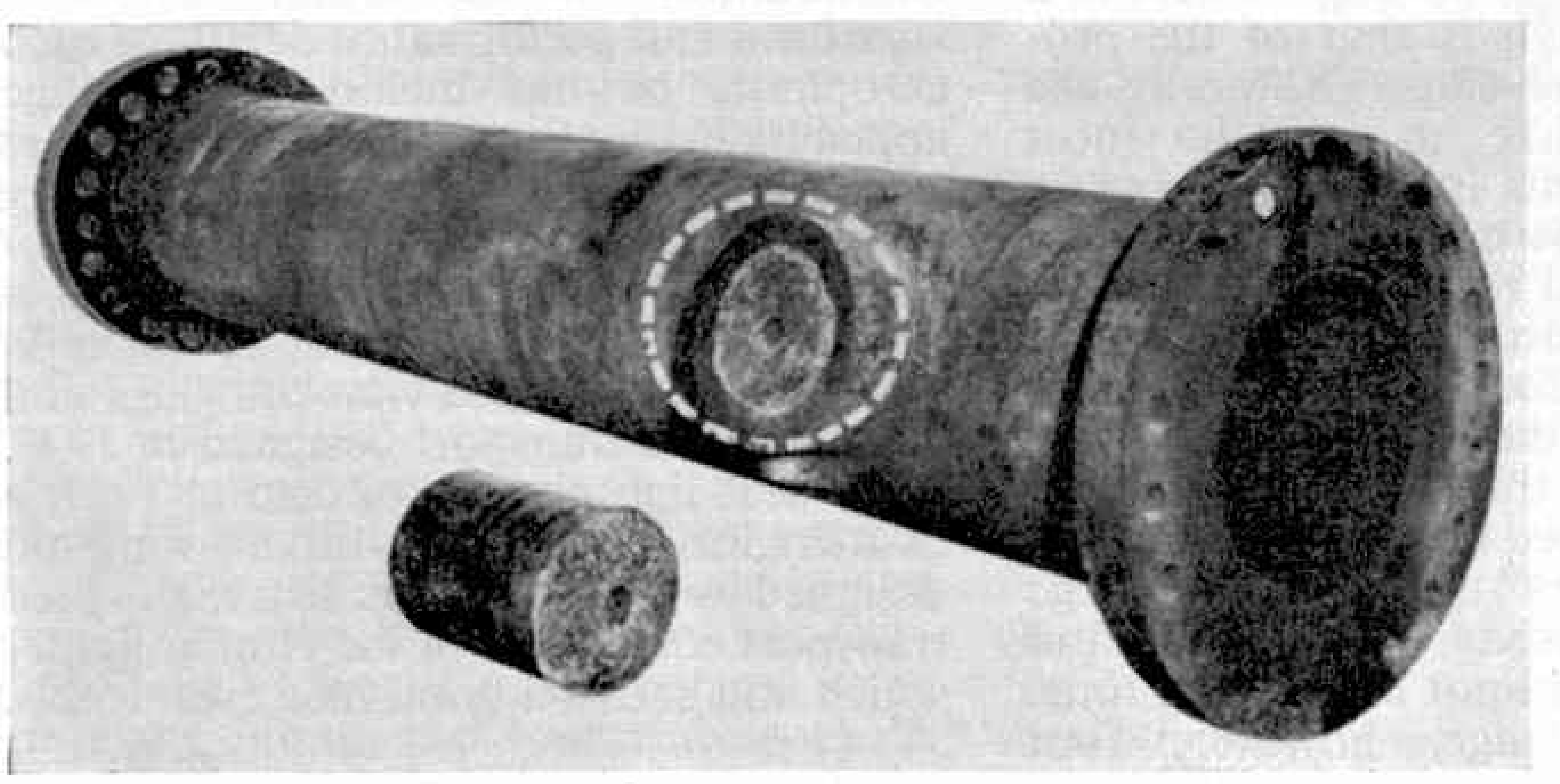
Apart from the methods mentioned there are also two main classes of welding. One is its application to the manufacture of a very wide range of metal products; the second, and far more exacting form of work, concerns the repair of parts that are broken, worn or corroded. In regard to the production of new articles, much less skill is generally required of the operator. Indeed, many jobs are automatic for, by electrical means, a welding machine does the work, an operator being required simply to feed it. This remark applies particularly to spot welding which is a popular way of making all sorts of

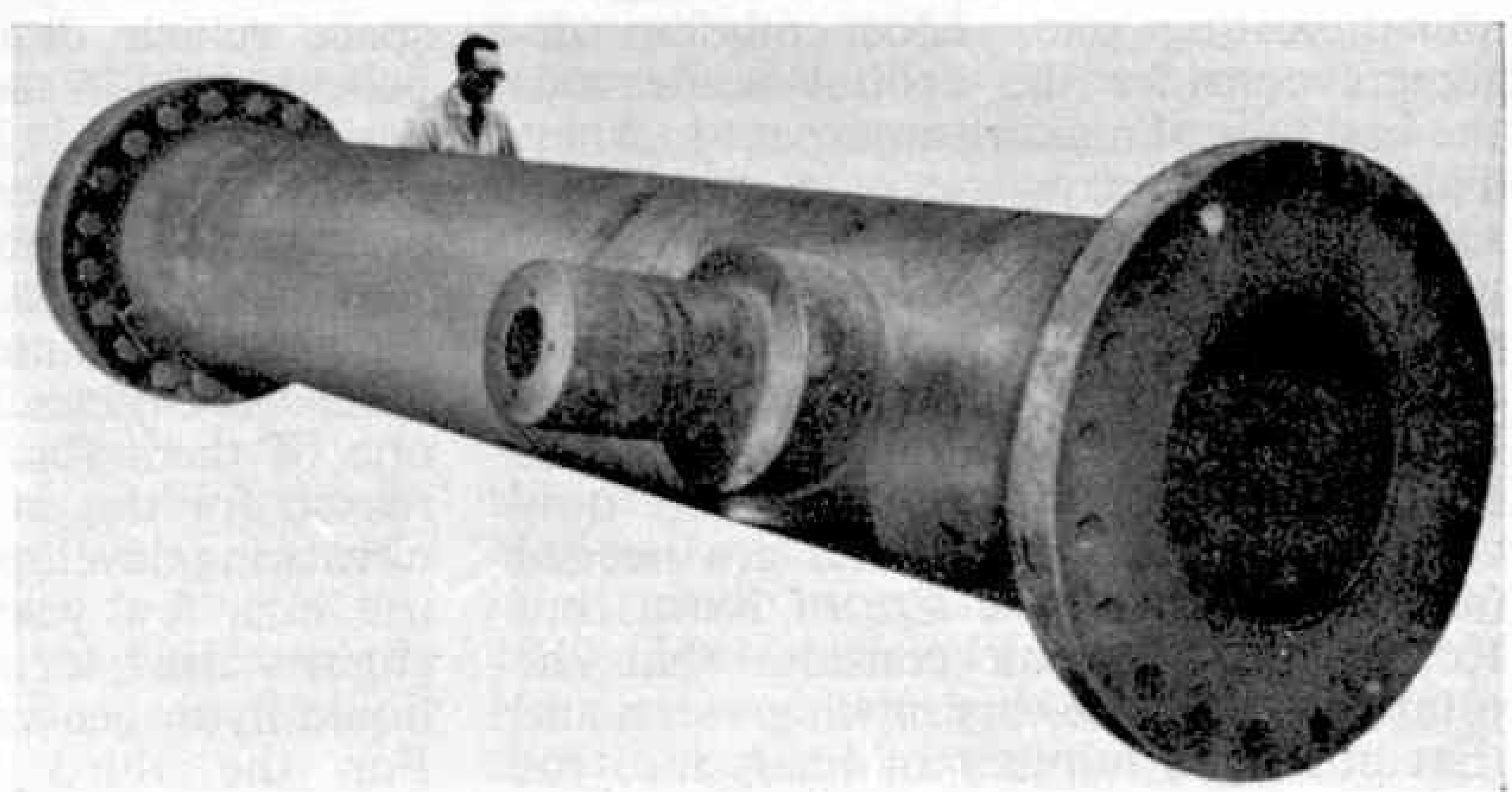
Below (top picture): Sometimes a crank shaft is damaged but not broken. In this instance, the trouble was due to bearing failure. The mutilated journal was built up by scientific welding (bottom picture).

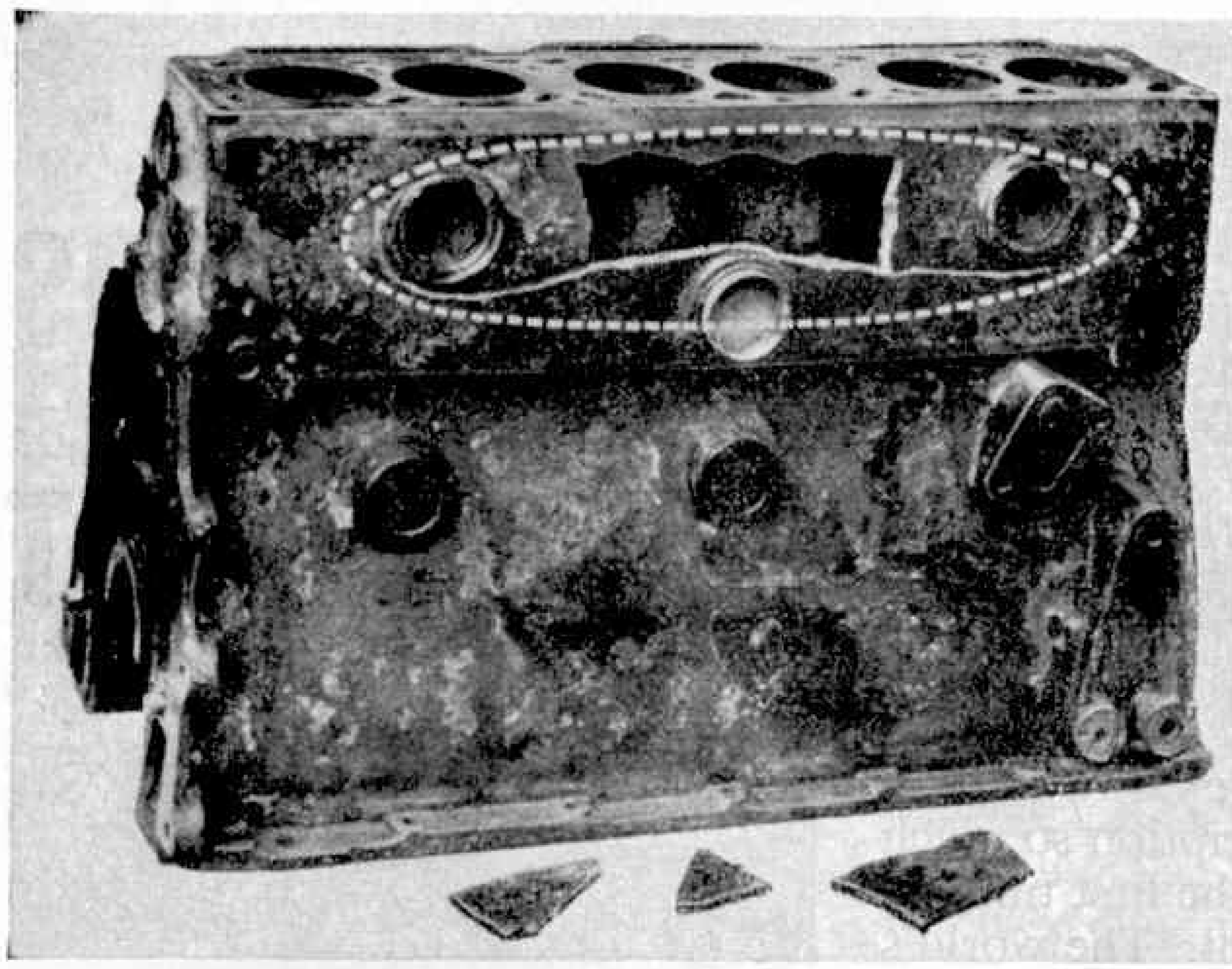


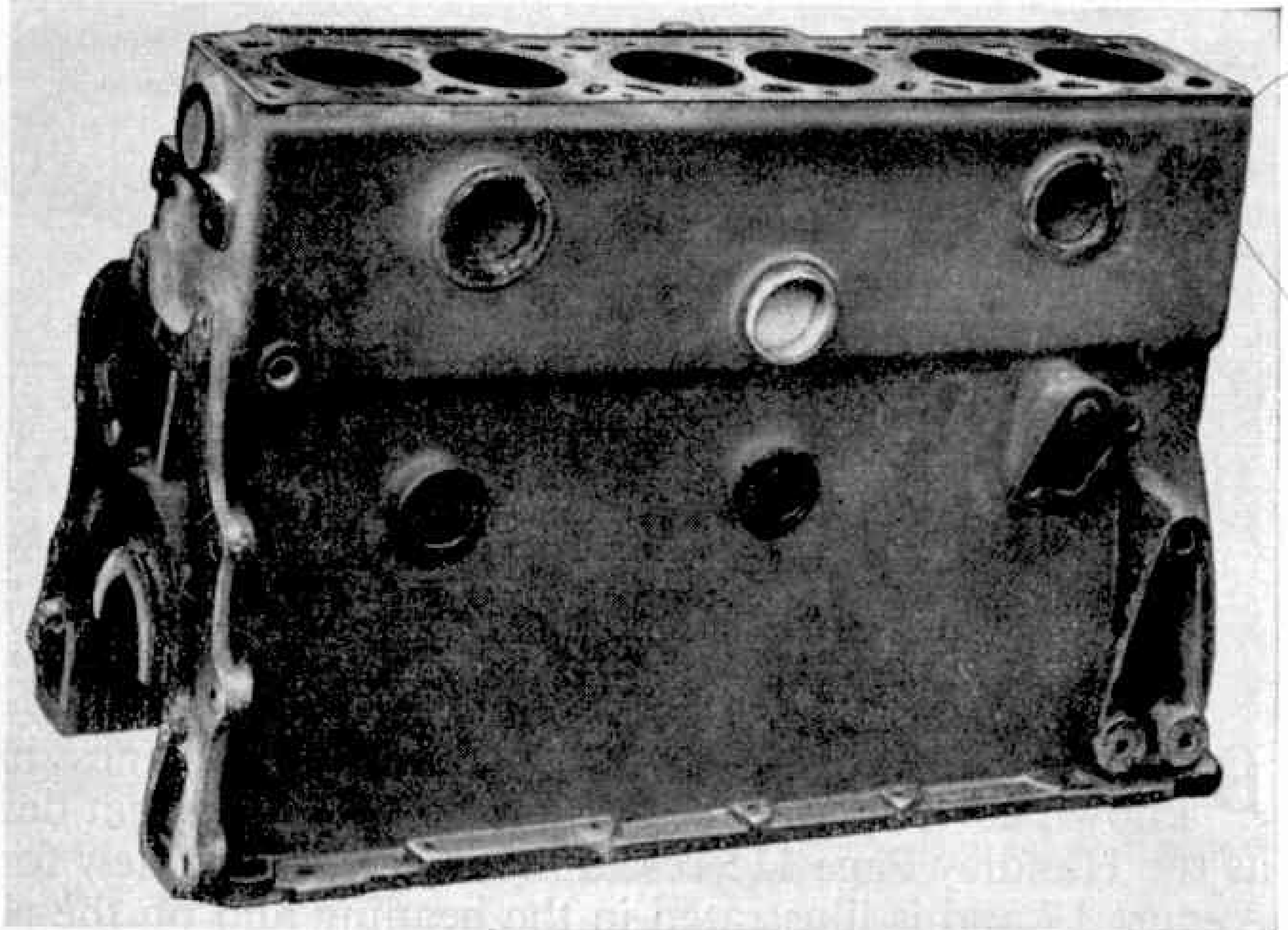


When a piece of machinery is of unusual design and difficult to replace, a scientific welding repair is an inestimable boon in the event of mishap. Below (left) is a large "tilting" cylinder with one of the trunnions on which it swivelled broken away. Cylinder and contents when in use weighed 20 tons. The scientific welding repair (right) made the cylinder as strong and efficient as a new one.









Car and motor transport owners, as well as operators of diesel engined vehicles, have cause to be thankful for welding repairs. This is the kind of damage (top left) that occurs to a cylinder block when it becomes frozen up during a cold spell. But the block is not ruined; within a very short time, and at comparatively low cost, a perfect repair is achieved (right). The cylinder block is as efficient as it was before the owner forgot to drain the water jacket. All the illustrations used in this article are by courtesy of Barimar Ltd.

things from sheet metal and avoiding the use of bolts or rivets.

While the method just described is a matter of constant repetition, repair needs are seldom identical, and it is this that makes them so much more difficult. It also explains why operators need years of training in special techniques before they become proficient. In consequence, the bulk of this work is handled by specialist firms. There are, of course, other reasons for this, one being the need for first-class machine shops to finish components to within a thousandth part of an inch, or even less, after welding. Equally important is the willingness of such firms to guarantee every job they do on a money-back basis.

Incredible things can be accomplished with any commercial metal that can be named, with the exception of low grade die castings composed entirely of zinc. In any event, these cost so little that repair is seldom worth even consideration.

Anyone unfamiliar with modern welding techniques, viewing damaged parts received for attention, would judge many of them to be beyond hope of repair and fit only for the scrap metal yard. Repairs, for instance, include gear wheels of all sizes, perhaps broken in several places and almost certainly with a number of teeth missing. Irrespective of the extent of the damage, such wheels are painstakingly made whole again, the lost teeth being built up afresh and then carefully re-cut. When the repair is completed, usually within twenty-four hours of being received, not only is it indistinguishable from new but capable of giving service that is fully equal to a brand new replacement, the cost of which is always many times the price of a welding repair.

The fact of being able to do work of this kind in a matter of hours frequently saves even more money, for it can be costly for an important section of a factory to be held up on account of a mechanical breakdown.

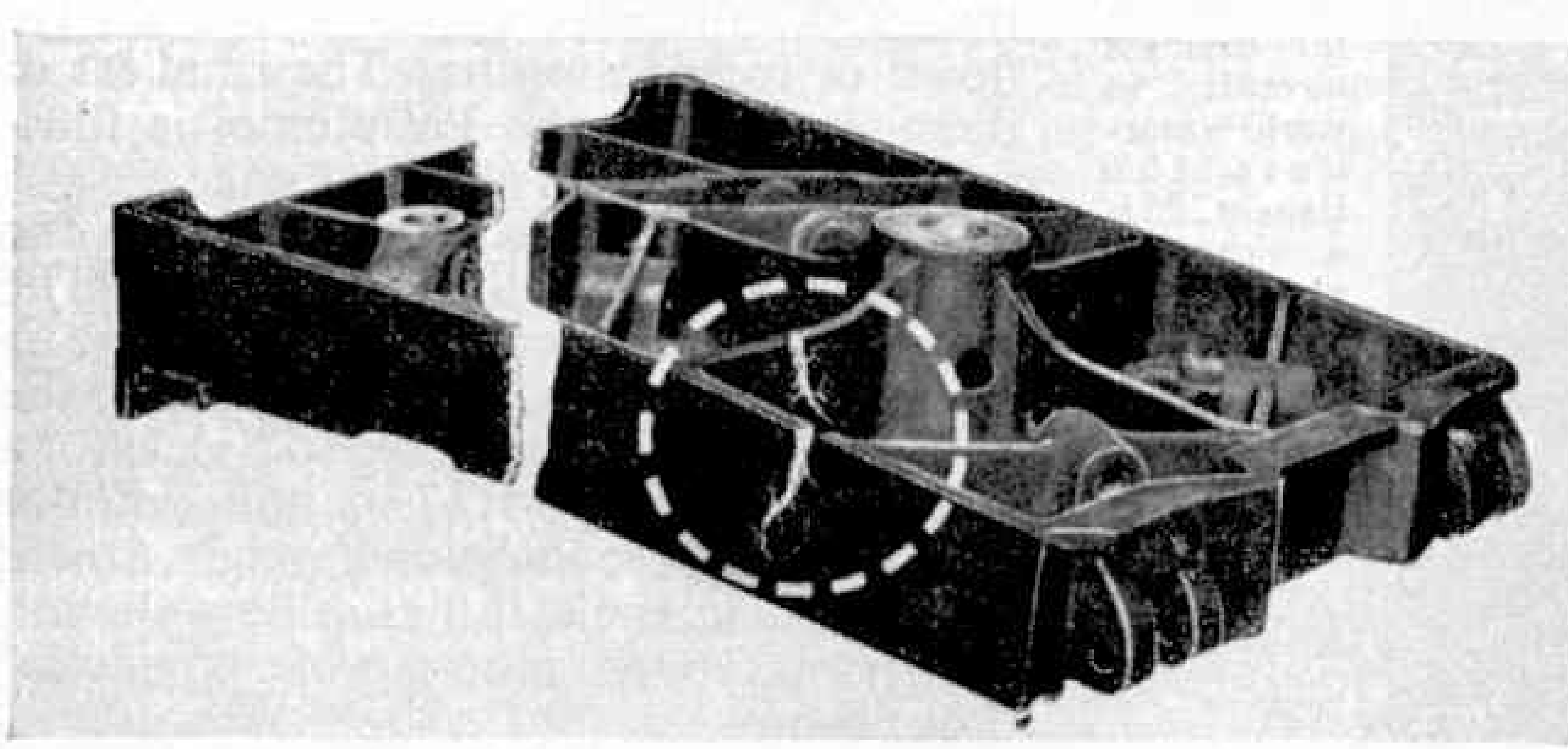
Some of the parts handled are quite small, such as the worn sprocket of a ciné projector; others are massive. Not long ago the 15-ton cast head of a press, capable of exerting a pressure of 1,000 tons, fractured right across the centre through metal which, in places, was ten inches thick. This press has an unusual job; it extrudes the lead covering that envelopes large cables used for carrying high voltage current. While work weighing up to 20 tons or so is usually brought to the shops of the scientific welding engineer, this was one of those cases in which it was deemed quicker to carry out repairs on the spot; moreover, the cost of transport was also saved.

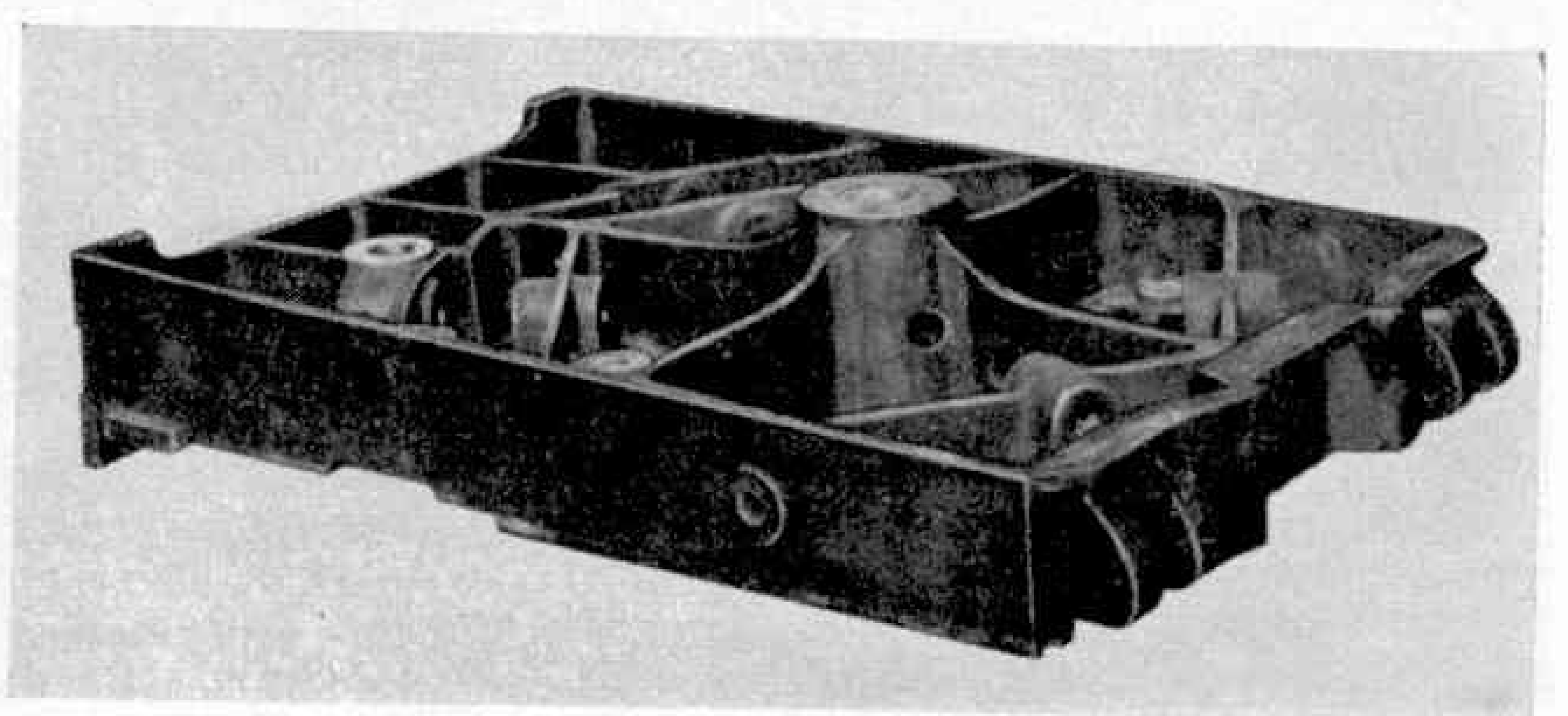
The men who tackle the really heavy jobs are known as the "mobile squad" and are on call at all hours to deal with emergencies, wherever they may arise. This service was organised during World War II, to deal with repairs caused mainly by bomb damage, and has proved so successful that it has not only been continued, but extended. The members of the squad have special mobile equipment and, from time to time, their services are required abroad, for British welding of this class is considered to be without equal.

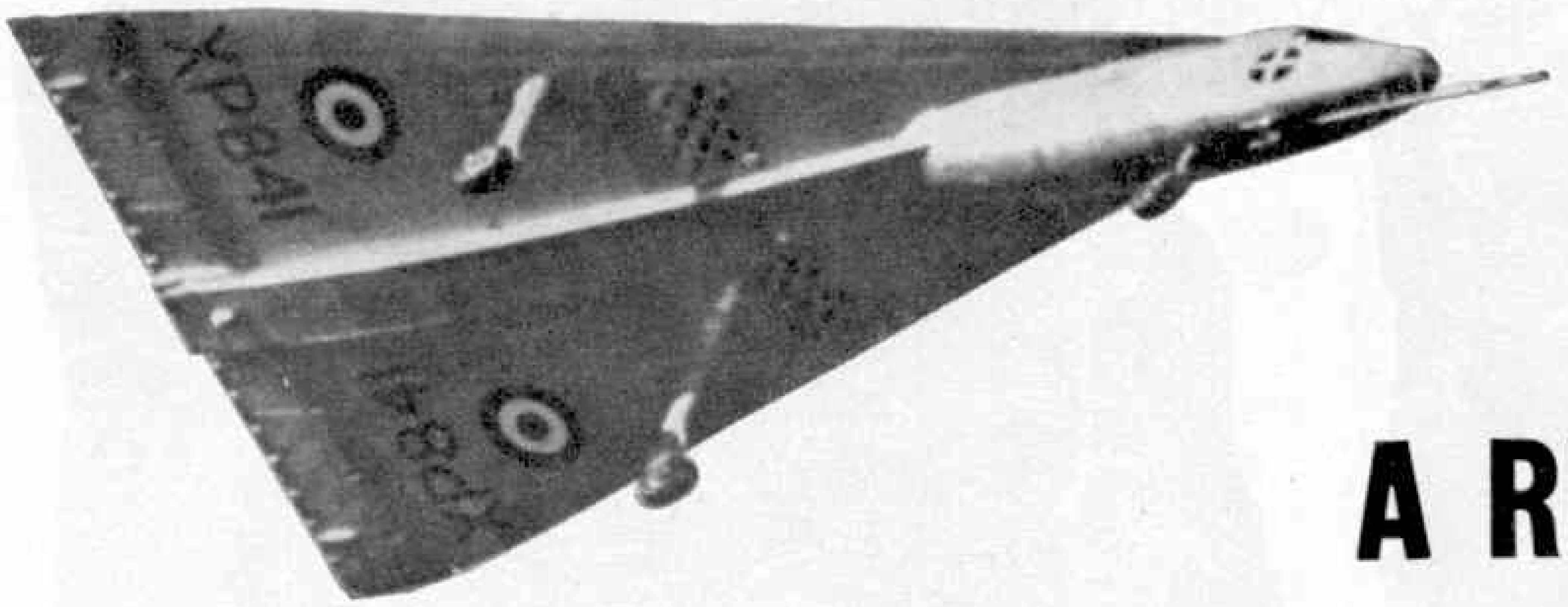
But to return to the press head. The broken sections were reunited after careful precautions had been taken to ensure absolute accuracy of alignment. After the head was re-fitted, days and nights of overloading followed to catch up with vital delivery dates, yet no further trouble of any kind has been experienced. Incidentally, a replacement would have cost thousands of pounds, and many months of delay.

A surprisingly large number of crankshafts of every size (*Cont. on page 423*)

Cranes and excavators have to work under very adverse conditions. Below (left) is a bedplate of one of these machines with a large piece broken off one corner and seriously cracked. A speedy repair (right) was essential because the contract on which the plant was engaged had to be completed before bad weather set in.







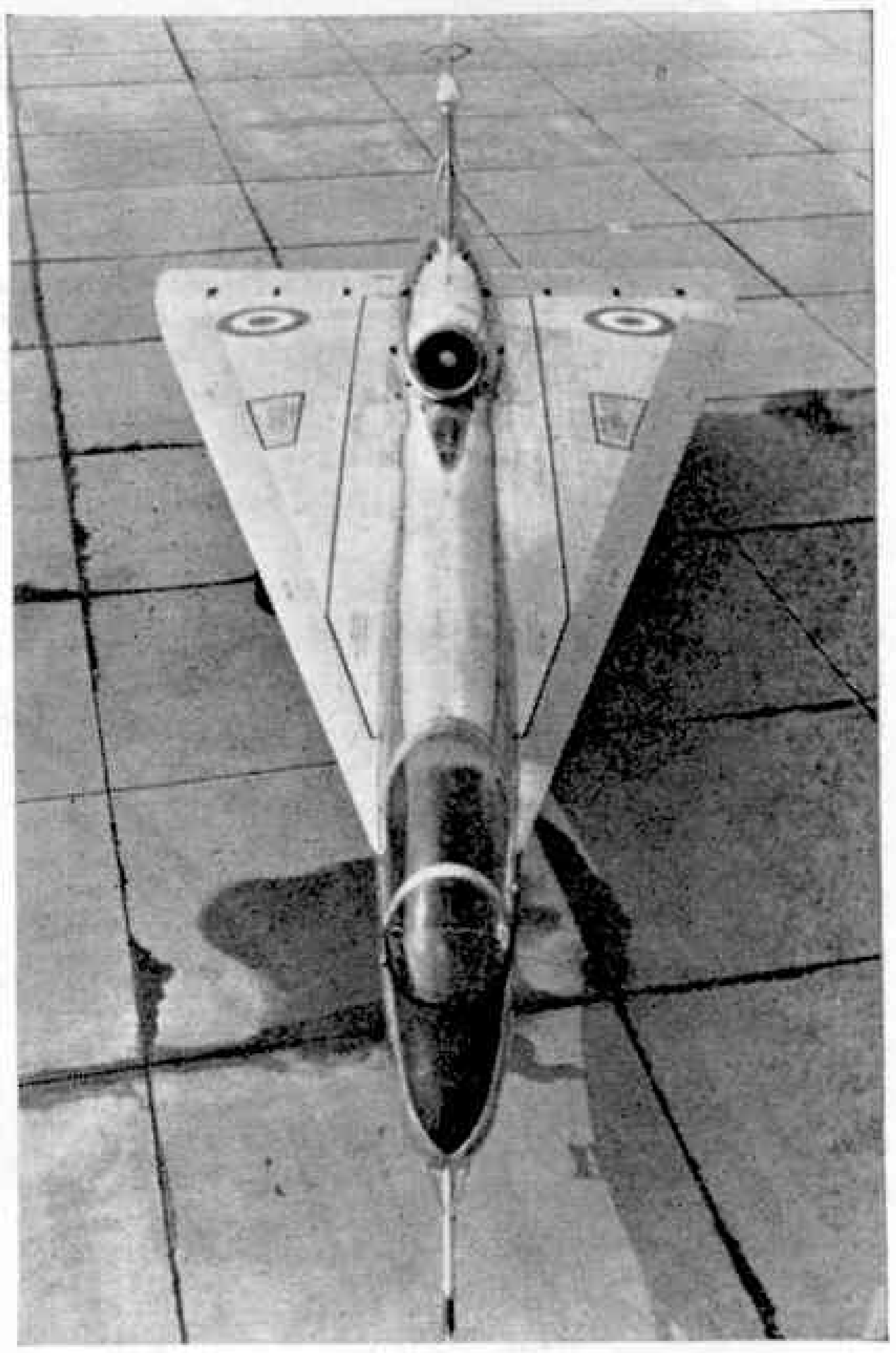
BRITAIN BUILDS A REAL PAPER DART

AIR NEWS

By

John W. R. Taylor

BECAUSE of their shape, delta-wing aeroplanes have always been known as "paper darts". None has deserved that description so much as the Handley Page 115 research aircraft, which flew for the first time on August 17 and is illustrated in the heading and on the right. The world's slenderest delta, its wings are swept back at such a sharp angle that they span only 20 feet, although the aircraft is 45 feet long. The pilot sits on an ejection seat in a cabin that seems to be hung under the front of the wing, and the 2,000 lb.-thrust Bristol Siddeley Viper turbojet is contained in a pod above the rear of the wing. A non-retractable tricycle undercarriage and flat-bottomed rear fuselage do not add to the 115's beauty.



One of the most sensational of Britain's aircraft, the Handley Page 115, is seen (above) at rest and (top picture) in flight. The photograph of this unusual machine in flight was taken at Farnborough Air Show by T. Godfrey of London.

Beautiful or not, it is one of the most exciting shapes in the sky today, for many designers believe that the supersonic airliners of the future will have highly-swept delta wings of this kind. The H.P. 115 has been built under a Ministry of Aviation contract to prove that an aeroplane of this shape is safe and easy to handle at low speeds. If its flight trials continue to go well, it will give Britain a lead in supersonic airliner development, for no other country has yet flown an aeroplane of such advanced design.

NON-STOP TO AUSTRALIA

The R.A.F. Vulcan bomber which made an historic non-stop flight from England to Australia this summer was refuelled in flight over Nicosia in sunlight, over Karachi at night and over Singapore at dawn.

After landing at Richmond, near Sydney, the pilot, Squadron Leader Beavis, said, "We reduced speed to about 170 m.p.h. to make the fuel connection with the tanker aircraft and cruised in company with it at 460 m.p.h. It took only twelve minutes to pump 5,000 gallons of paraffin into our tanks."

The Vulcan flew the 11,500 miles in 20 hours, 3 minutes, 17 seconds, at an average speed of 575 m.p.h., but reached 700 m.p.h. over Australia, east of Alice Springs. Squadron Leader Beavis summed up the flight later as "highly interesting, but not arduous".

Designed to meet the call for business aircraft in world markets the Beagle 206 is a superbly equipped limousine.

FLEA FLIES ON 10 H.P.

Over in France, there is still plenty of interest in the "Flying Flea" type of aeroplane invented by Henri Mignet in the 1930s, and several new versions have flown in recent months. The smallest of them, known as the Pouplume, is illustrated at the foot of the next page.

It follows the usual formula, with one wing below and behind the other. The rear wing is fixed, but the front one is pivoted in such a way that it can take the place of the usual ailerons and elevators. The span is only 25 ft. 7 in. and, without pilot and fuel, the Pouplume weighs a mere 231 lb. As a result, it flies quite well with a Monet Goyon motor-cycle engine of only 10 h.p.

NEW USE FOR OLD BOMBER

An Avro Lincoln maritime patrol bomber of No. 10 Squadron, R.A.A.F., was flown to the military airfield at Darwin, Australia recently to be stripped of its equipment and used as a training hulk for Air Force firefighting crews. Before the strippers could get to work, a problem cropped up that gave the aircraft its last moment of glory.

The airfield was expecting some Canberra jet bombers to arrive at any moment. Unfortunately, the tarmac was sprinkled with loose stones and gravel, which had to be removed to avoid the danger of their being sucked up into the bombers' engines. Department of Works' mechanical equipment, brooms and brushes were unable to do the job, so the Lincoln took over.

With engines revving at high power, it taxied to and fro, blowing the stones off the tarmac. In no time at all the airfield was assessed as useable by jets.

The Lions' Share

PETER VAN DER WOUDE, who sells Piper lightplanes down in Pretoria, South Africa, was grounded good and properly when lions invaded his ranch for a midnight feast of his pet twin-engined Apache aircraft.

On the menu—and off the aircraft next morning—were three tyres and a lion-size chunk out of the port aileron.

HOLIDAYMAKERS' SURPRISE

Holidaymakers bound for the Channel Islands have been quite surprised on occasions this summer to be shepherded out to a Viscount bearing the "Cedar of Lebanon" insignia of Middle East Airlines. If they experienced momentary fears of being whisked off to somewhere even hotter and sandier than Jersey and Guernsey, they must have been relieved to see over the aircraft's doorway a painted sign indicating that it was under charter to Jersey Airlines.

It is quite common for one airline to help another in this way during busy periods, and makes life more interesting for 'plane spotters.

The forceful and unusual lines of the de Havilland Trident are clearly seen in this illustration.

FIRST LOOK AT THE TRIDENT

At Hatfield in Hertfordshire, de Havilland are putting the finishing touches to the first of their Trident three-jet airliners, which will soon be starting its flight trials. As can be seen in the picture on this page it is a handsome swept-wing aircraft, with two of its 9,850 lb. thrust Rolls-Royce Spey turbojets mounted Caravelle-fashion on the sides of the rear fuselage and the other in the tail.

B.E.A. have ordered 24 Tridents, which should be the finest airliners in Europe when they enter service on the Corporation's network of routes in 1963. The big, roomy cabin seats up to 100 passengers, who will be carried at cruising speeds as high as 606 m.p.h. Cheaper fares are made possible by the fact that the Trident will cost only one penny a mile per passenger to operate when carrying a full load.

The Trident's ability to take off and land on a 6,000-ft. runway means that it can go almost anywhere. Nor will bad weather create the same problems as it does today, for this new British jet-liner is the first to be designed from the start for fully automatic landings, which will be routine by the late 'sixties.

The Trident, de Havilland expect, will remain in production and service for a very long time, because there is little point in using faster aircraft on short routes. The real key to shorter journey times is to speed up surface transport between airports and city centres. For example, a saving of ten minutes' travelling time between the airports and city terminals at each end of the 200-mile London–Paris route would have the same result as increasing the cruising speed of a flight from 400 m.p.h. to 1,000 m.p.h.

The 10 h.p. Pouplume designed and built by Emilien Croses is a new version of the "Flying Flea" type of aircraft popular some 30 years ago. Picture by R. A. Cole of Barnet (Herts).

EXTRACTING INFORMATION

Boeing are accustomed to receiving complimentary letters from people who have travelled for the first time in one of their jet airliners, but even they were surprised by the latest bouquet from an air-minded dentist.

"As a passenger in one of your aircraft", he wrote, "I was impressed with the comfort and adaptability of the seats with which they are equipped. Such a chair, with some modifications, offers considerable possibilities for dental use. Could you please advise me of the manufacturer's name?"

A BRITISH LIGHT TWIN

The first flight of the Beagle B.206 lightplane on August 15 was a great event for British aviation. For the first time in recent years we now have a twin-engined five-seat business aircraft comparable in every way with the best that U.S. industry can offer, and at a price of less than £30,000. The Beagle B.206 is illustrated on the previous page.

Although it spans only 38 feet, the B.206 has an extremely roomy cabin, complete with a toilet compartment and vast luggage space. Alternatively, without toilet, it can carry up to seven people. It is powered by two 260 h.p. Continental 10-470 engines, built under licence by

(*Continued on page 423*)

BRITAIN'S FOG MENACE

NOVEMBER is traditionally our foggiest month of the year, but December and January can be just as foggy, if not more so, at times. The last devastating November fog occurred in 1948, when practically the whole of the South and East of England was blacked out for week after week. The

By
DAVID BOWEN, F.R.Met.S.

authorities at Blackbushe Airport, Surrey even had to bring "Fido" into use again—the fog dispersal apparatus of war-time fame that consumes nearly 600 gallons of fuel a minute over a single runway!

Morning fog is dispersing over Middlesbrough (Yorks), but there is a sheet of "stratocumulus" cloud above. This looks dark and rainy because of the very hazy atmosphere, when, in fact, it is only quite a thin layer of cloud.

But since this disastrous fog we have had only the occasional foggy spell in November, and the weather pattern during this particular month generally runs as follows: first two weeks, mild on the whole, with good, sunny intervals away from towns, but night fog becoming rather frequent in industrial areas (and occasionally spreading over the surrounding countryside); second two weeks, cooler, breezier and more changeable.

An A.A. patrolman reporting on prevailing weather conditions from a roadside telephone box. Photograph: Topical Press.

During December, the dangerous part of the month from the point of view of fog is between approximately the eighth and the fifteenth, when winds generally tend to be slack, and fog—when it forms over industrial regions—is slow to clear. Oddly enough, in January too, the foggiest part of the month is between approximately the same dates during the average year.

To meteorologists the danger sign for a fog occurring is an "inversion" of temperature at about a thousand feet or so above the ground. Normally, as you ascend through the atmosphere the temperature decreases, and this means that the warmer air at ground levels is free to rise—thus causing a healthy circulation of airs. But sometimes air at a thousand feet or so above the ground is warmer than the air immediately below it; this "inversion" in temperature means that there is a stagnant circulation of air nearer the ground level, and any fog that forms cannot get away very easily, except by spreading horizontally.

* * * *

If we want to forecast foggy conditions without the aid of meteorological charts, and also without the aid of upper air soundings, we can still do so. Predict fog at night in late autumn, winter or early spring when the wind is fairly slack (less than 5 m.p.h.), when the sky clears, and when the air near the ground feels fairly damp.

Another sign that fog is likely is the steady rise of the barometer during the late autumn and winter season, particularly if this follows after a fairly unsettled spell, when there has been a good deal of rain, for the extra moisture in the air will assist the fog formation processes.

It was popularly imagined that, until the passing of the Clean Air Act in recent years, the fogs of the present century were worse than anything Britain had formerly experienced. This is not the case. In 1306 Edward I went so far as to threaten fog-makers with the death penalty, for fogs in those days were smokier and thicker than they are today, because of the poor quality of the coal.

Queen Elizabeth I, in an attempt to stop fog, prohibited the use of coal altogether, but she forgot that because our island is relatively small, and is surrounded by cloud-making oceans, fog must always be expected in the colder months of the year. It requires comparatively little smoke from a few law-breakers to turn a normally white veil into a murky pall with a smell peculiarly like stale cheese and sulphur.

* * * *

In the seventeenth century typical fogs were, we are informed, "so intense that no light of candle nor torches yielded any (or but very little) direction", and robberies were committed under the lights fixed between London and Kensington.

John Evelyn, the diarist, disgusted with London's "clouds of presumptuous smoak", suggested, as the remedy, an Act of Parliament compelling all breweries, dye-works, soap and salt boilers, lime burners "and the like" to remove their premises from a five to six mile radius of

Sea or river fog will often occur in coastal regions when the weather is fine and warm inland. Under these conditions it does not signify a change towards unsettled weather. This picture comes from Cleveland, Ohio.

London. Charles II was sympathetic, but nothing was done.

The turning point came at the beginning of the present century, when substantial improvements followed the replacements of coal-burners by gas and electricity. As a result, modern fogs—black as they have been—can never rival the syrupy "London Particulars" of Victorian days, although they are, perhaps, more dangerous on account of their high content of petrol and diesel fumes in large towns.

The foggiest parts of Britain are still the large industrial areas of London, Birmingham and Glasgow, as well as the broad general area between the East Midlands, Lancashire and Yorkshire. Fifty foggy days is the annual expectancy in these parts. But it is often possible to avoid the worst fogs by skilful manoeuvring, and by knowing where they are likely to be at their thickest. Reasonably high open country—Hampstead, in London, and Rothamsted, in Hertfordshire, for example—escapes as many as four out of five bad fogs, while flat plains, including the greater part of London, are the most affected areas.

* * * *

There is nothing very unhealthy about a real country fog, but a smog-filled living room contains up to a teaspoon of solid impurity suspended in the air in the form of billions of tiny particles. At the same time, according to expert calculations, there would be getting on for a thousand tons of water, to say nothing of several tons of soot, over the Greater London area within ten to twelve miles of Charing Cross. Fogs are generally at their thickest shortly after sunrise.

In the immediate post-war years, London's mid-winter smoke curtain robbed the city of something like one fifth of the normal hours of sunshine, and, because of the smoke screen, Central London lost about 100 hours of sunshine in the three winter months (and something like 300 hours throughout the year) between 1945 and 1958. When the figures are calculated for the next 10–15 year period, it would be reasonable to expect a fairly considerable improvement as a result of the Clean Air regulations.

Even so, financial losses caused through fog are still likely to be very considerable. Greater London alone loses between £2,000,000 and £4,000,000 worth of merchandise through fog damage every winter, and the cost of a national fog runs into many thousands of pounds a day. To take just one item as an example, a 6,000-ton steamer, the *Burhill*, outward-bound, missed the morning tide in November 1949 through fog. Even in those days, before the present increase in costs generally, this cost her owners up to £600 in extra wages, food, fuel and port charges.

* * * *

Road transport firms can also lose enormous sums through a single fog, even if their lorries are kept on the road, for excessive low gear driving results in heavy fuel consumption. So far as shopkeepers are concerned, in a single fog one store in Oxford Street, London, has been known to lose £3,000 in takings.

We have to face up to the fact that we can never rid our country of fog altogether. The most we can do, having already cut down on the extent to which our chimneys are polluting the atmosphere, is to get round the fog problem—that is, by improving radar devices so that aircraft, as well as road and rail transport, can operate safely through the murk. There is plenty of room for improvement in this field alone, for airlines in this country are still losing more than a £1,000,000 a year as a result of delays through fog.

A.A. Patrol Cadets Start Training

THE first six cadets enrolled in the newly-formed Automobile Association Patrol Cadet Force have begun their two-year period of training. The six youths—all aged 17—have started a short "acclimatisation" course at the A.A. Patrols' Training School at Widmerpool Hall near Nottingham. From there, they will go to the A.A. Area Headquarters nearest their homes to continue their training.

The cadets will learn from practical experience how the A.A. works on the road by attachment to A.A. Patrol Service Centres and Mobile offices and to the A.A. radio-controlled night breakdown service. In addition, they will learn about the A.A.'s work in the field of signposting. The curriculum also includes first-hand experience at an A.A. appointed garage. A.A. Patrol Cadets wear the same uniform as ordinary Patrols except for yellow piping on the cap band and "Patrol Cadet Force" shoulder flashes.

* * * *

R.A.C. SAFETY BOOKLET

"Road Sense and Safety", published recently by the Royal Automobile Club as a contribution to safer driving, is a light-hearted approach to a serious subject.

The booklet contains hints—illustrated by cartoonist "Stead"—on many aspects of road safety and has some pertinent remarks on the subject of "thrusters" and "cutters-in", and on "dolly-danglers", those people who obscure their front and rear windscreens with ornaments.

"Road Sense and Safety" is available free from all R.A.C. Offices.

* * * *

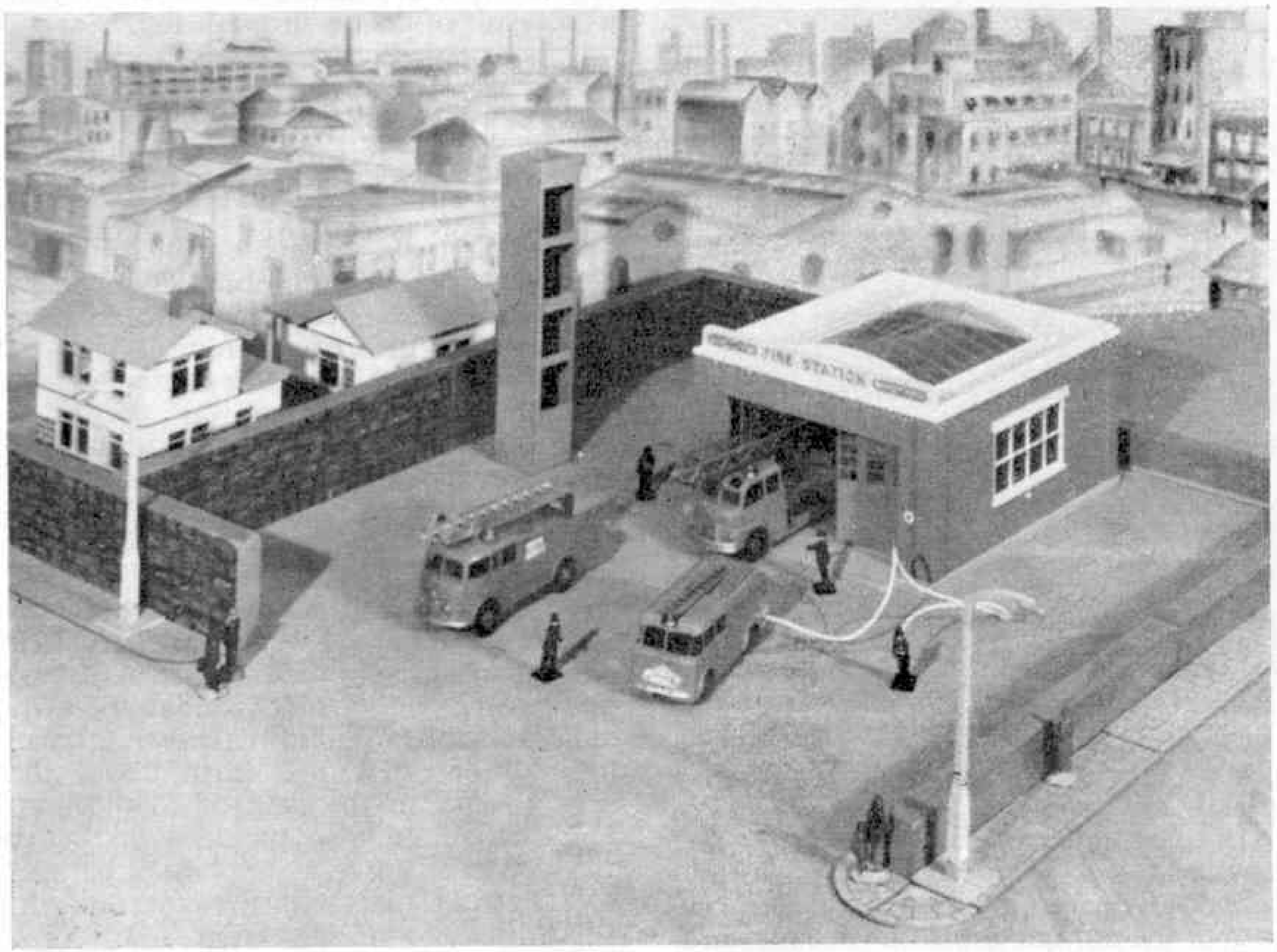
"YOUR MINIATURE WORLD"

Toy Buyers from the big stores, Toy Trade Press Editors, and representatives of B.B.C. and I.T.V. recently attended a special screening of Revell's colour film "Your Miniature World" at the Mayfair Hotel, London.

The film, a documentary which is undoubtedly outstanding in its class, bridges the gap between toys from Egyptian times and the modern construction kit. It shows how a plastic construction kit mould is manufactured and demonstrates the keen interest which has developed in hobby kit building among boys of all ages in the United States.

DINKY TOYS NEWS

BY THE TOYMAN



FIRE-FIGHTING EQUIPMENT AND A DASHING SPRITE

IF I were to ask our younger readers "What exciting event takes place this month?", I am sure that every one of them would answer "It's Guy Fawkes Day on the fifth". When we think of the Fifth of November, our thoughts naturally turn to bonfires and fireworks and, indeed, to real fires as well because some folk who light bonfires are careless in siting them too close to houses and other property.

So it is that there are many more calls than usual on fire brigades on the evening of November 5, and quite often fire services have to be reinforced on Guy Fawkes Day to cope with the extra work brought about chiefly through thoughtlessness or bravado.

New Fire Station

With these thoughts in mind, it does not seem inappropriate that our new models for this month include two important items to reinforce our Fire Service appliances. Firstly, we are bringing into the shops a new Fire Station, Dinky Toys No. 954. Secondly, there is a new Fire Engine, Dinky Toys No. 259, and you see both these models illustrated in the picture at the top of this page, with a close-up of the new Fire Engine below.

A third new model is the dashing Austin Healey Sprite, referred to in detail later in these notes.

The Fire Station will fill a long-needed want on many layouts, I am sure, and has been provided principally to house the Fire Service Set No. 957. Obtainable in easy-to-build Kit form it is made from strong plastic with brick-patterned walls, two bright red sliding doors, and a flat roof carrying an arched centre section which is moulded in clear polystyrene. A further touch of realism is added by the imitation fire bell at the right of the door. There is a chamfered pavement section leading into the Fire Station itself and the facia board carries the emblem, "Dinky Toys Fire Station". In each side wall is an eight-pane window with neat framework and sills finished in stone colour. The flat portion of the roof surrounding the arched section is also finished in stone. Overall dimensions of the new Fire Station are: length 10 inches, width 8 inches, height to top of facia board 5 inches.

Seven-year old Philip Greenwood of Bradford—a keen collector of Dinky Toys.

Now to the new Fire Engine, which is based on a Bedford chassis with a body made by Merryweathers. Fitted with four-wheel suspension, fingertip steering and windows, the Dinky Toys model is meticulously detailed. On the top of the vehicle are two imitation ladders, one

The new Dinky Toys Fire Engine in close-up. Note the imitation reel of hose beneath the coat-of-arms at the back of the vehicle.

A ROAD SAFETY OFFICER PLEADS . . .

USE EVERY CARE AT CHRISTMAS

NOVEMBER, December, January; three of the worst months of the year for many things—weather, dark days, health . . . and road accidents. Especially does this last-named point apply over the Christmas period, when more people are involved in road accidents than at any other time.

This is the time of the year when added care should be taken by all road users, and when accidents always seem to be even worse than at any other time. Since these are my last notes this year, I make the following appeals.

PEDESTRIANS: Please cross roads with care, especially when it is foggy and the roads are wet, greasy or icy. Under such conditions drivers have greater difficulty in stopping.

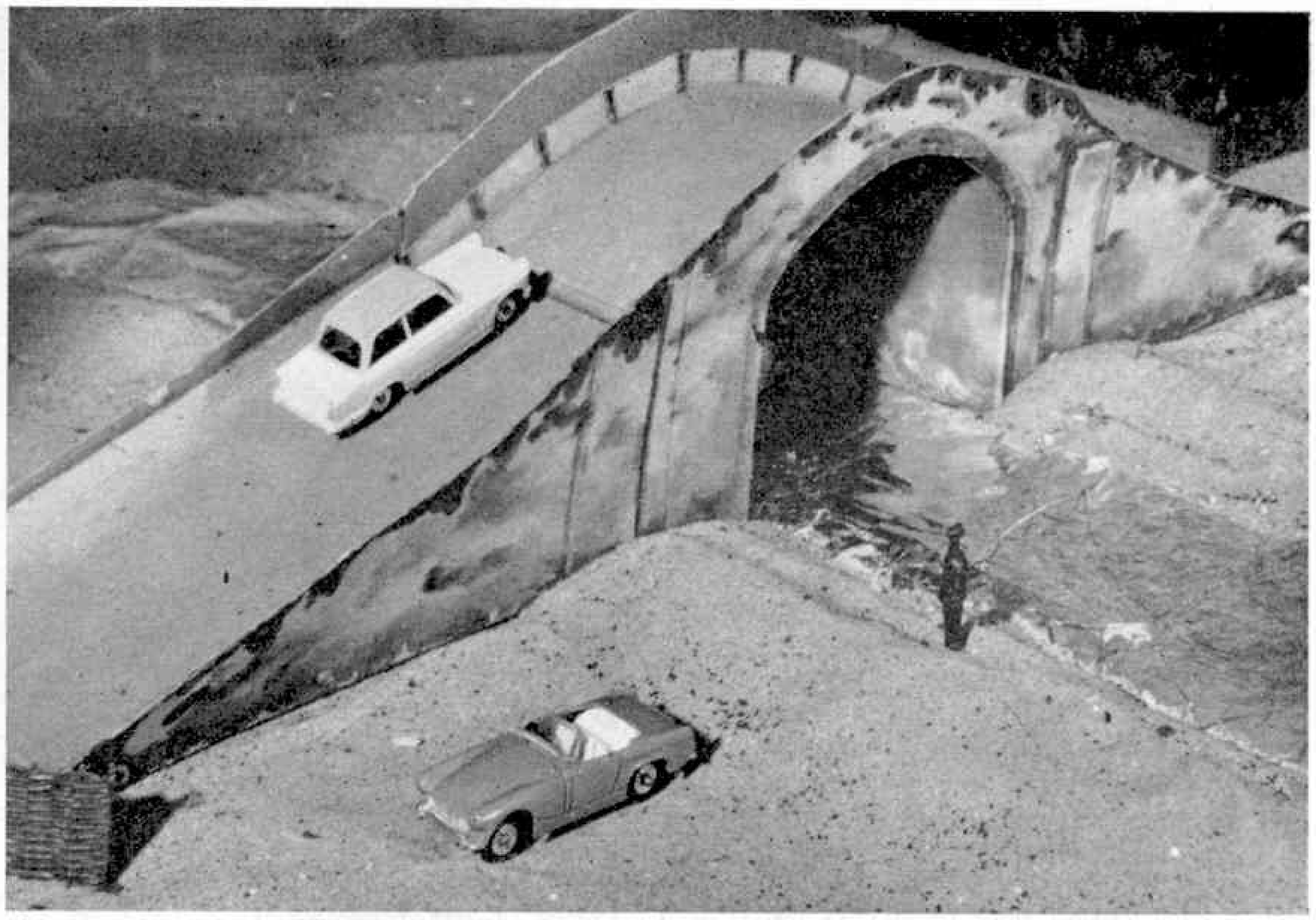
CYCLISTS: Please make sure your lights are good, especially your rear light. Watch out for slippery roads and the danger of skidding, particularly on fallen leaves.

Remember that at Christmas time there are more pedestrians about than at normal periods, and that there is more traffic on the roads. Be constantly on the alert. The right place to spend Christmas is at home—not in hospital.

running the whole length of the roof and the other along the nearside edge of the roof. On either rim of the roof, too, are imitation hose containers. A small ladder runs up to the roof at the back of the vehicle and there is a representation of the shutter doors on either side of the engine and at the rear which, in the actual machine, give access to equipment lockers and the pump unit.

To finish it all off, and give it a very impressive look, the Fire Engine has simulated hose reels sunk into the rear panels on either side. The length of hose-pipe which is available with the Dinky Toys Fire Station Personnel can be attached to each imitation reel to give a truly realistic look. Mounted above each hose reel is a striking coat-of-arms. Four and a half inches long, the new Fire Engine is approximately $1\frac{3}{4}$ inches wide and nearly 2 inches high.

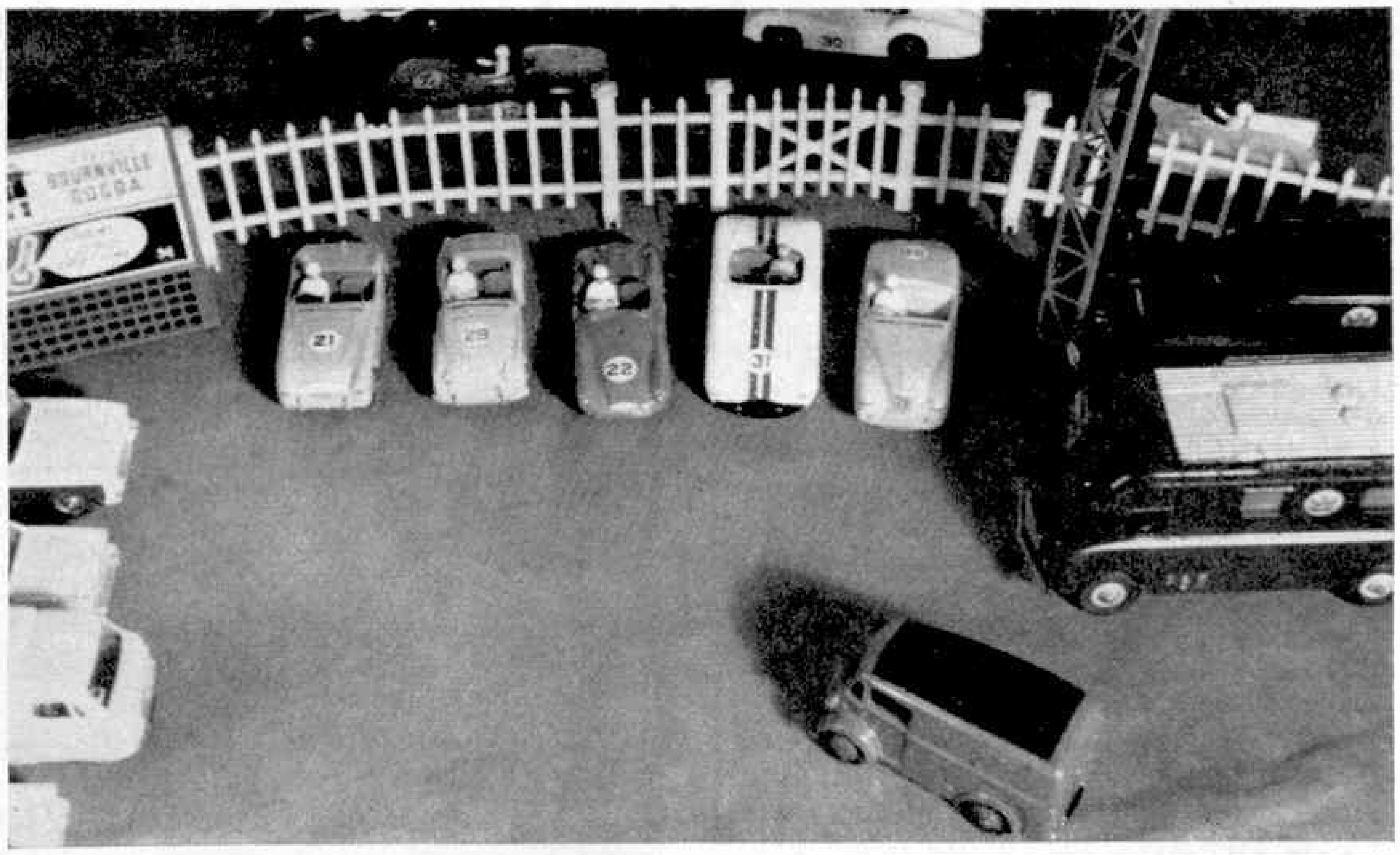
In the picture at the beginning of these notes you see the Dinky Toys No. 008 Fire Station Personnel engaged in a practice. The Turntable Fire Escape No. 956 is just leaving the station with the fire chief directing it. Another fireman is demonstrating the attachment of a length of hose to the new engine. Enthusiasts will



The Austin Healey Sprite is in the foreground of the riverside scene above.

Left: This view of the Sprite shows the steering wheel and gearstick. Below: D. G. Kyle of Tettenhall, Wolverhampton, with his Dinky Toys layout. Note his use of the Pavement Set.

This very real portrayal of a motor race scene comes from Mr. J. R. Bullen of the Society of Motor Manufacturers and Traders Ltd. Excellent use has been made of the B.B.C. Television Vehicles on the right of the picture.



notice that with this picture I have included two Bayko buildings, just behind the wall of the fire station, and I think they fit in very well indeed.

The third new model to be released this month is the Austin Healey Sprite, a close-up view of which can be seen on page 401. As readers will have already realised it is based on the new Mk. 2 version of this wonderful little sports car.

The actual Sprite is 11 ft. 4 in. long by 4 ft. 1$\frac{3}{4}$ in. high, with a width of 4 ft. 5 in. and a wheelbase of 6 ft. 8 in. Power is supplied by a 948 c.c. overhead valve engine which develops a brake horse power of 46$\frac{1}{2}$ at 5,500 r.p.m. In spite of this relatively small engine, a top speed of 85.5 m.p.h. was (*Continued on page 421*)

THEY WERE DIFFERENT THEN

Continuing The Series
By Patric Baker

No. 9—Austin Healey Sprite

AUSTIN HEALEY sports cars are produced at B.M.C.'s Abingdon factory at the rate of one every five minutes of the working day. This is a striking testimony to the success of the association between the Donald Healey Motor Company and the Austin Motor Company which began in 1951. It was in that year that Donald Healey commenced work, at his Warwick plant, on a new sports car incorporating the Austin 2.6 litre 4-cylinder engine as well as a number of other Austin components. The beautifully-styled and at the same time revolutionary steel and aluminium body was made by a firm of specialised coach builders.

After extensive high-speed testing and development, the Healey 100 was announced in 1952. The immediate demand for this car was so great that the Austin Motor Company offered to mass-produce the car at Longbridge. Soon, Healeys were rolling off the assembly lines at Longbridge at the rate of over 200 a week. In the first year, the Austin Healey topped all sports car sales in the U.S.A., and captured two Belgian class records at 113 m.p.h. Before long, the Austin-Healey 100 was being sold in quantity in more than 80 countries.

In September 1953, at Bonneville Salt Flats, one of the cars captured more than 100 international, national and American stock car records, including the speed record—at 142.6 m.p.h.—for a production car. A year later, a modified production Austin Healey 100 broke the existing American national flying kilometre class record with a speed of 192.74 m.p.h. as well as other international and American records including 24 hours at 132.29 m.p.h.

In August, 1956, a modified Austin Healey 100 (actually the prototype of the 100 six-cylinder model) registered new class D records for 200 miles at 152.51 m.p.h. and 500 kilometres at 152.32 m.p.h.—records which had stood since 1940. As a climax to two weeks of record breaking with this car, Donald Healey was officially timed at 203.06 m.p.h. driving a supercharged and specially streamlined model.

The 100-Six was superseded three years later by the 3000 model, powered by a highly-tuned B.M.C. "C" type engine which produced 124 b.h.p. and had Girling disc brakes on the front wheels as standard equipment. This very potent vehicle was available with a two-seater, or occasional four-seater, body. Its maximum speed was well over 100 m.p.h.

In 1958, the Austin Healey design team extended their know-how to the small car market, and the Sprite was born. At once, this attractive little sports car set a new standard in high performance at low cost and, like its bigger brothers, *(Cont. on page 421)*

The top picture shows one of the first Austin Healey 100s. This car has captured many world records. (Left) The latest car from the Austin Healey stable — the Sprite Mk. II.

"CRANK" IDEAS CAN LEAD TO PROGRESS

Says Kenneth Rawnsley In This Article

INVENTORS are often thought to be cranks . . . but without a doubt millions of people the world over have reason to be thankful to them for their brainwaves.

The next time you visit the Zoo, spare a thought for the Londoner who hit on the idea of using oil from monkey nuts to make wringing machine rollers more resilient. It was a wartime measure when rubber was scarce and it paid dividends to astute roller makers.

Behind every machine, building or other scientific wonder, Nature has lent a hand to architects and engineers. Henry Ford could never have become the leader of mass-production in the automobile industry had it not been for tapping the resources of trees and fruits . . . to obtain lubricants and rubber.

Cabin Boy Earned His Supper

The soil has often been the only means of allowing man to grapple with his enemies—fire, typhoons and floods. One night in the late 'eighties a New Orleans riverboat ran desperately short of fuel. The captain racked his brains for an answer . . . and wished he had stayed at home. The cabin boy did some thinking, too, and risked a whipping when he came up with an idea . . .

Breaking open a barrel of rum, he fed it to the dying embers. The result was an explosion, followed by a constant trickle of fuel which took the boat down river to the next wood station. The cabin boy got an extra supper for his pains!

Footplate Man's Discovery

In the days of the American depression a Chicago railroad engineer found his locomotive running short of coal, in an era when to be a minute late resulted in getting the sack at the end of the trip. There was little enough time to find an answer as the steaming giant thundered into the inky night. Probably thinking of home, and of his wife and children safely tucked up in bed, the engineer bent to the tender platform and brought out his evening meal—dried rice pudding.

On the spur of the moment he fed the pudding to the dying flames and for twenty miles the Chicago–Milwaukee Railroad engineer literally stoked the "Chief" on rice pudding! After drying it out on the hot footplate he found the pudding easily combustible, and from then onwards always carried an ample emergency supply in the tender.

One of Britain's principal industries is that of linoleum making and in Lancaster the mills of Jas. Williamson & Son Ltd. turn out £18,000,000 worth of linoleum a year—enough to cover the island of Bermuda from coast to coast. And in those 22,081,000 square yards Mother Nature supplied her own secrets, long ago, when James Williamson had a hunch that by applying linseed oil to canvas the finest linoleum could bring prosperity to England.

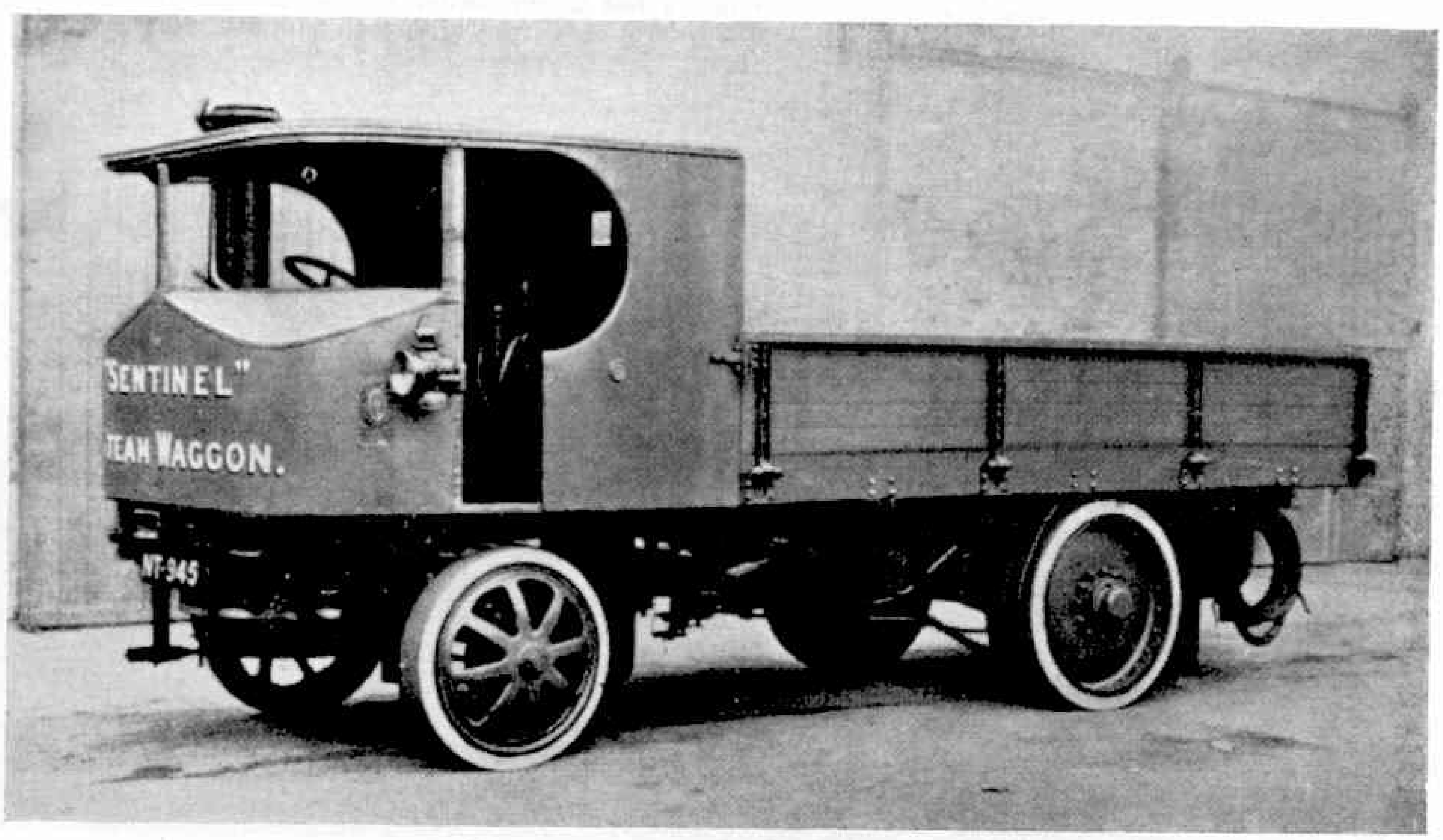
Williamson was no chemist but one day, as he was watching old sailors playing "Crown and Anchor" on the quayside at Lancaster, a man strolled by rubbing his palms with glee. The "old salt" had found a way of making canvas sheets stick together—by the simple expedient of spitting on them! Williamson realised that here was an immense industry in the making, and drained the world of its linseed crop.

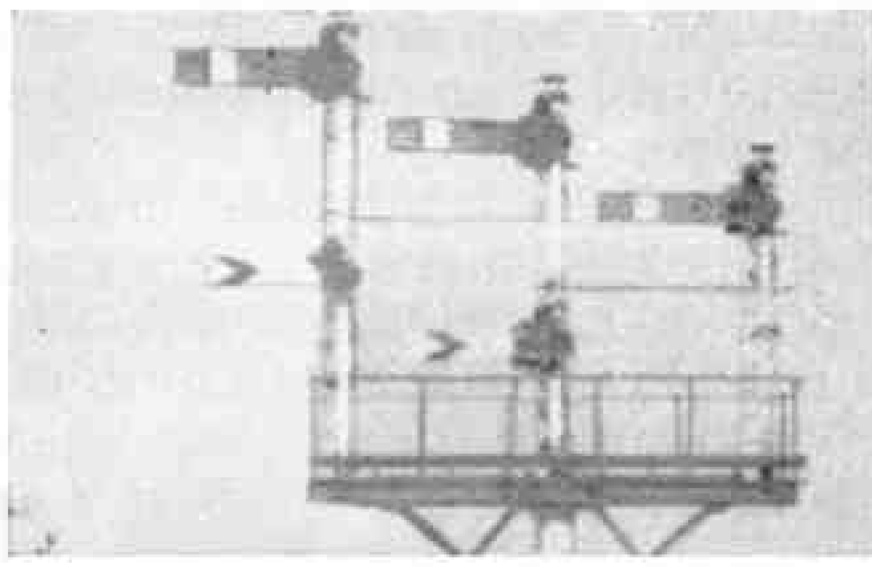
(*Continued on page 423*)

STEAM WAGGON OF BY-GONE YEARS

ALTHOUGH the youngsters of today may not have seen a steam waggon such as that illustrated below, there must be many older readers of the M.M. *who recall the famous "Sentinel" steam waggons and who saw them regularly travelling up and down the roads, hauling loads of various types. The firm of Sentinel Limited is now controlled by Rolls-Royce Ltd., to whom the "Meccano Magazine" is indebted for the following information about this fine old steam waggon: Boiler: Sentinel vertical; water tubes. Boiler pressure: 230 lbs. per square inch. Steam super-heated to 600 deg. F. on Welsh steam coal. Engine: Super-Sentinel, horizontal two-cylinder; double acting 6¾ inch bore by 9 inch stroke. Poppet valves, camshaft operated, developing 80 b.h.p. at 400 r.p.m. Differential mounted in crankshaft.*

The "Sentinel" steam waggon was driven by single roller chain and was fitted with solid rubber tyres and hand and foot operated brakes. The bunker capacity was 5 cwts. and the water tank held 60 gallons. The plain-side bodies, such as that illustrated, were made available with fixed, hinged, or portable sides and the extras that could be provided included such items as nameplates, strengthening stanchions, tarpaulin rails and lifting gear.





RAILWAY NOTES

Contributed by R. A. H. Weight

ABOARD THE "MIDLAND PULLMAN"

RAILWAYMEN along its routes call the *Midland Pullman* diesel-electric express the "Blue Streak" and will tell you, rightly, that it is one of the most luxurious trains ever seen in regular British service. It is decidedly the fastest between London and Manchester and other centres served. Just after the introduction of this, and of the largely similar two-class "flyers" on the Western Region, I included a general description of the services in *Railway Notes* in the October, 1960, *M.M.*

One bright evening during summer it was a thrilling and thoroughly enjoyable experience to travel down to Manchester by courtesy of the London Midland authorities and the Pullman Car Company; to find the train almost full and to note its remarkable quietness and steadiness, having regard to its high speed and the many gradients and curves. I greatly admired—insofar as my preoccupation with "logging" the run and dining choicely permitted—the generally high standard of comfort in the accommodation. There are two identical trains for this service and each six-car set, with its 2,000 h.p. diesel engines and very considerable electrical equipment, weighs about 310 tons loaded.

We left St. Pancras at 6.10 p.m. There was one slowing for reconstruction work soon after starting, between the Welsh Harp Reservoir and Hendon. After that all was plain sailing in good weather, with no signal delays—a tribute to excellent operating through many junctions and busy station areas. The fastest stage extends over the first 120 miles, covered in 100 minutes at a mean speed of 72 m.p.h. from the start. From Elstree to Trent Junction, where the north main line is left, 77 m.p.h. was averaged for 107 miles. This includes climbs at 1 in 120–132 and so on, surmounted at over 70.

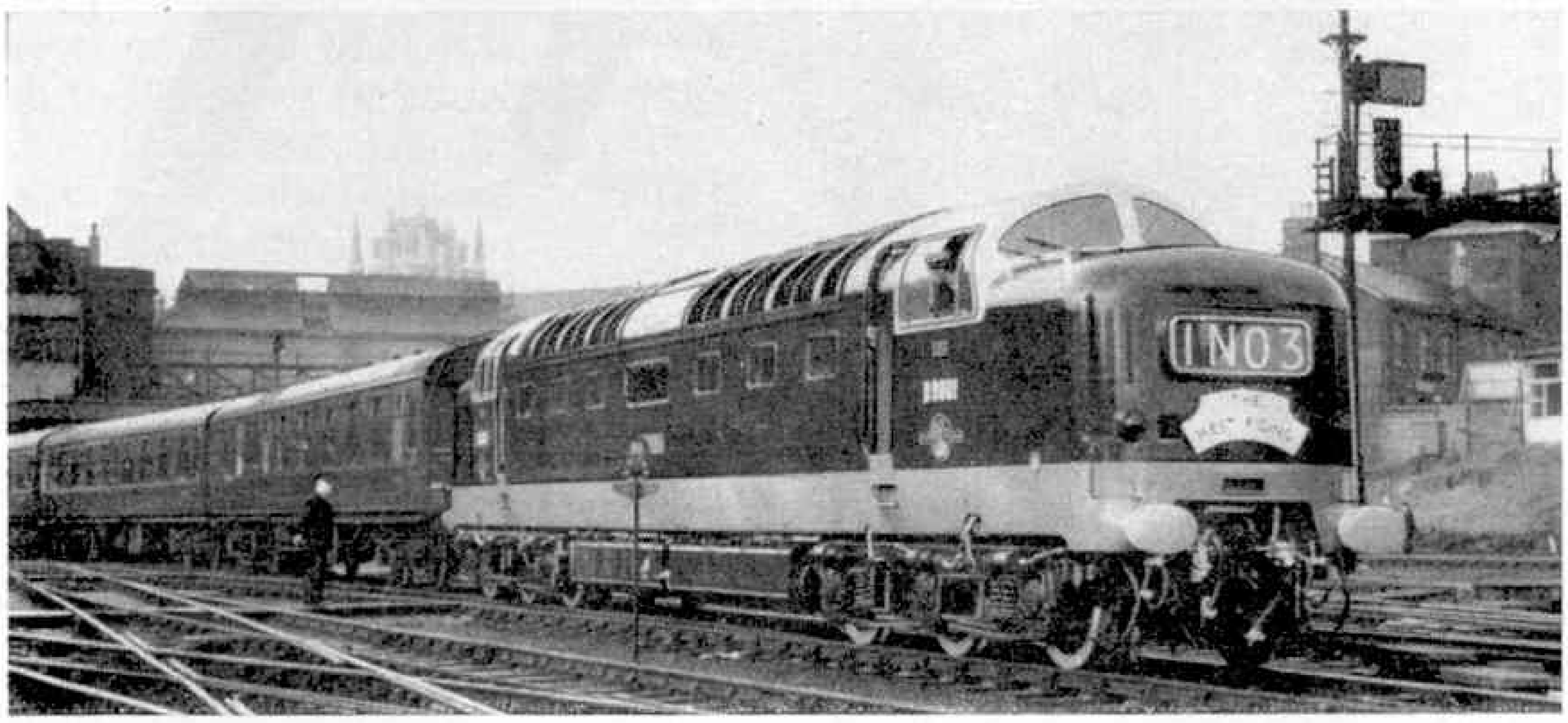
There were nine downhill maxima in the 86–90 m.p.h. range, and further high speeds along practically level track on each side of Loughborough, Leicestershire, when for some miles the readings of 90 from my stop watch were as steady as was the riding in the train. Passengers by these expresses usually have no idea that they are travelling so fast! The two-mile avoiding line past Chaddesden Sidings, Derby, keeping clear of Derby Station, was traversed very gently.

In just over two hours we came to Ambergate, 138 miles, a station with triple-junction, triangular-platform arrangement and considerable freight traffic. Thence we took the former Midland Railway spectacular and scenic trunk route through the Peak District, past Matlock, Rowsley, and Millers Dale to Chinley. The line winds, climbs, descends and tunnels amid high limestone ridges, wild moorlands and charming, wooded dales, reaching a summit almost 1,000 feet above sea level at Peak Forest, not far from Buxton.

After heavy climbing this summit was passed at 47 m.p.h., with time well in hand. High speed is not possible on this section, but our travel, averaging well over 50 m.p.h., was considerably quicker than on previous journeys with steam traction. Indeed, the sightseeing in air-conditioned, armchair comfort, seemed to end all too soon!

We made one stop, to set down passengers at Cheadle Heath, close to Stockport, to which point the 181 miles had taken 171 minutes, and in little more than three hours from London we were running into Manchester, almost 190 miles away, slowly and noiselessly pulling up in

The multiple-unit diesel "Midland Pullman", providing a fast luxury service between London and Manchester, was speeding through Mill Hill when photographed by J. A. Fleming.



Left (top) 0-4-4 tank No. 21 "Sandown" at Newport with a train from Ryde to Cowes. Photograph by M. Edwards. (Below) The fastest train in Britain, "The West Riding", is seen leaving King's Cross behind Type 5 Co–Co diesel D9001 "St. Paddy". B.R. Eastern Region picture.

the Central Station at 9.15—five minutes before time. Much of the long descent from Peak Forest had been taken easily at around 60-68 m.p.h. with power off and braking where necessary, the train having been slightly early all the way from Derby.

Long memories were indeed revived of my schoolboy observations and working days as a junior on the old Midland Railway, when the expresses were hauled by comparatively small 4–4–0 locomotives and 2–4–0 and 4–2–2 engines were still in use. Maximum possible speeds were much lower and diesel traction seemingly unknown. I thought of the astonishing contrast presented by the *Midland Pullman*, which is now providing additional high-speed journeys in midday–afternoon to and from St. Pancras–Leicester–Loughborough–Nottingham. Accommodation is first class only.

It was a pleasure, on arrival in Manchester, to congratulate the driver, from Kentish Town Depot, London, and his mate, on their expert and careful handling of the controls, and the acting Pullman Car Conductor on the first-rate interior service.

VETERAN TANK ENGINES

The small railway system in the Isle of Wight is unique, fascinating and smart. It is very well operated, although all the locomotives of the 02 class ex-London and South Western 0–4–4T type are about 70 years old. The carriages have also seen long service on the mainland as well as on their present section of the S.R., which is separated from Hampshire by over four miles of sea. The main northern terminus at Ryde Pier Head is half a mile out over the sea and to it the approach viaduct from Ryde (Esplanade) and beyond carries a double track. There are four platform lines all in use at frequent intervals, especially on summer Saturdays when many thousands of holiday visitors and others are conveyed in each direction by train and ship.

One Saturday last July when I was watching operations for some hours on each side of the Solent, extra vessels, well-filled and almost exactly to time, were running on the four-and-a-half mile ferry service to and from Portsmouth Harbour. They were S.R. motor ships and paddle steamers, three services an hour each way about lunch time, completing the crossing in 25–30 minutes. The regular pattern of train services on the busy Saturdays provides for five each way in and out of Ryde Pier Head Station, a fresh engine taking over at the outward end for the next journey. Four six-coach trains go all or part of the way along the $12\frac{1}{2}$-miles to Sandown–Shanklin–Ventnor, with limited or staggered stops to spread the load over this busiest route. One train formed of four bogies provides the hourly service to Newport and Cowes.

The working in the opposite direction is similar and has certainly been brought to a fine art, with good timekeeping and rapid clearance of queues. To avoid cumulative delays, as a good deal of each route is single track, it is essential that trains should pass one another as booked on the loops or along the limited two-track stretches. All those I saw or travelled by did so, as they did also on the Friday, when the summer, ordinary-day three-trains-per-hour programme was in force to and from Ryde, and patronage on the Ventnor route was quite considerable.

Since my previous visits some seven years previously—described subsequently in the *M.M.*—some short, less profitable island lines have been closed and a few locomotives withdrawn. But, at the time of writing, there are nineteen tanks of class 02, all named after towns or villages in the island and numbered in their own local series between 14 and 36. They use the Westinghouse air brake instead of the vacuum system customary elsewhere in Britain now for steam locomotives. They have been provided with enlarged coal bunkers, and, in some cases, distinctive deep-toned whistles. They are shedded and repaired at Ryde, St. John's Road. I travelled behind Nos. 21, *Sandown*, 22, *Brading*, 30, *Shorwell*, 35, *Freshwater*, and saw a number of others.

Sandown gave quite a lively performance on one of the Saturday $4\frac{3}{4}$-mile non-stop runs from the country station, Brading, through the Ryde town stations to Pier Head. The first $2\frac{1}{2}$ miles were on single line traversed about then by eight trains each hour. The train staff was handed up as speed was reduced at Smallbrook Junction signal box, where the Cowes trains converge.

NEW LOCOMOTIVES' NAMES

Following an L.N.E.R. Pacific race-horse-naming tradition, the following names have been allotted to the Deltic-engined Type 5 Co–Co diesel-electric locomotives now at work or being completed for the Eastern Region: Nos. D9001, *St. Paddy;* D9003, *Meld;* D9007, *Pinza;* D9009, *Alycidon;* D9012, *Crepello;* D9015, *Tulyar;* D9018, *Ballymoss;* D9020, *Nimbus*.

Further diesel-electric namings by the L.M.R. for existing units include No. D100, *Sherwood Forester*, and, in the "ships" series, Nos. D218, *Carmania* and D233, *Empress of England*.

Diesel-hydraulic B.B. Warship class recent additions have been: Nos. D851–3 respectively named *Temeraire*, *Tenacious*, *Thruster;* D869–70, *Zest* and *Zulu*.

Other new locomotives, unnamed, lately reported include more of the powerful Type A Bo–Bo electrics for the North Western electrified lines.

Swing Boat And Rear Dump Truck

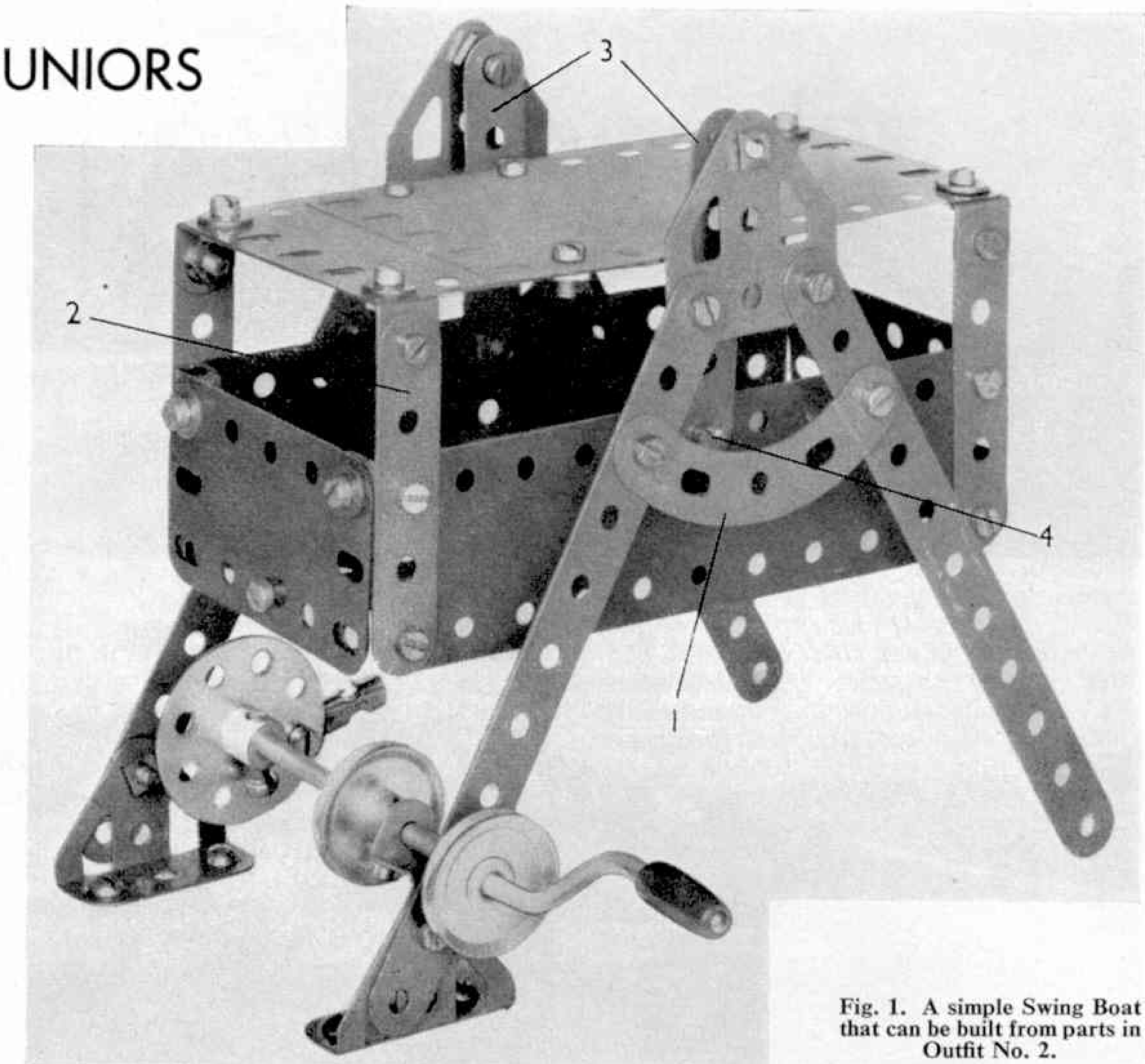


Fig. 1. A simple Swing Boat that can be built from parts in Outfit No. 2.

IF you have an Outfit No. 2 you will be able to build the model Swing Boat shown in Fig. 1. It is quite easy to construct and you should commence by taking four $5\frac{1}{2}''$ Strips and joining them in pairs at the top by means of Flat Trunnions. These form the supports for the Swing Boat itself and they are braced by $2\frac{1}{2}''$ Stepped Curved Strips 1.

The floor of the boat is a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate and its sides are formed by $5\frac{1}{2}'' \times 1\frac{1}{2}''$ and $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates. The roof is made up with a $4\frac{1}{2}'' \times 2\frac{1}{2}''$ and a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate and is supported by Angle Brackets bolted to four $2\frac{1}{2}''$ Strips 2.

The boat is suspended from the apex holes of the Flat Trunnions on $\frac{3}{8}''$ Bolts, which are lock-nutted to two $2\frac{1}{2}''$ Strips 3. The Strips 3 are bolted to the roof of the boat by Angle Brackets and to the sides by Bolts 4.

A $3\frac{1}{2}''$ Crank Handle with Grip is passed through one of the $5\frac{1}{2}''$ Strips and through a Reversed Angle Bracket attached to the same Strip. It is kept in place by 1" Pulleys and an eight-hole Bush Wheel is attached to its end.

A Rod and Strip Connector is attached by a $\frac{3}{8}''$ Bolt and a Spring Clip to this Bush Wheel, and a length of Cord is tied to it. The other end of the Cord is tied in the fourth hole in the centre row of the Flanged Plate forming the floor of the boat.

Parts required to build the Swing Boat: 4 of No. 2; 6 of No. 5; 6 of No. 12; 1 of No. 19g; 2 of No. 22; 1 of No. 24; 1 of No. 35; 46 of No. 37a; 40 of No. 37b; 8 of No. 38; 2 of No. 48a; 1 of No. 52; 2 of No. 90a; 3 of No. 111c; 2 of No. 126; 2 of No. 126a; 2 of No. 188; 2 of No. 189; 1 of No. 190; 1 of No. 191.

REAR DUMP TRUCK

The Rear Dump Truck shown in Fig. 2 can be built from the parts

BY SPANNER

in Outfit No. 4. The chassis is formed by two $12\frac{1}{2}''$ Strips 1. These are joined together by two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 2 and 3, and a $4\frac{1}{2}''$ Flanged Sector Plate 4 is then bolted between them at the front.

Each side of the cab is formed by a $5\frac{1}{2}''$ Strip 5 bolted to Strip 1. A $2\frac{1}{2}''$ Strip 6 is also bolted to Strip 1, and this is joined to the Strip 5 by a $3\frac{1}{2}''$ Strip, at the same time bolting a $2\frac{1}{2}''$ Strip 7 in place. The Strip 7 is then joined to the Strip 5 by a $2\frac{1}{2}''$ Strip. The sides of the cab and the bonnet are filled in by a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate 8 and a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate 9, and are bolted to the $4\frac{1}{2}''$ Flanged Sector Plates 4 and 10. The Strips 5 and 7 are joined by two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Brackets to which a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate is attached to form the roof.

The back of the cab is a $4\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate which is fixed at the top by Angle Brackets and at the bottom is bolted to the Double Angle Strip 3. The front of the bonnet is a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate 11 bolted to the Flanged Sector Plates 4 and 10.

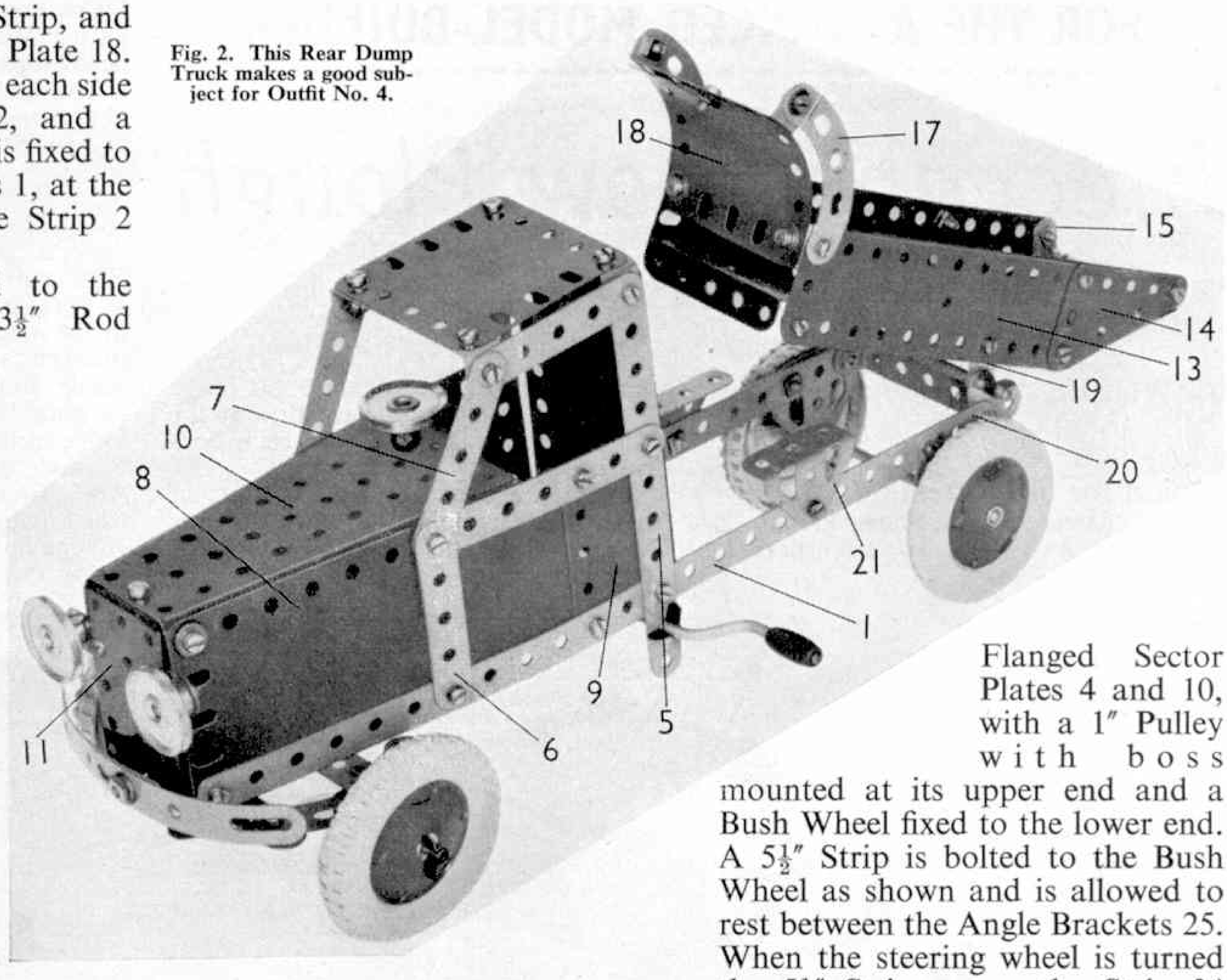
The tipping body is built round a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate 12 that forms the base. The sides are $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates 13 extended by $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Triangular Plates 14. These are joined by a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 15, and bolted to this is a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate 16. Two $2\frac{1}{2}''$ Stepped Curved Strips 17 are bolted to the Plates 13, at the same time bolting in two Angle Brackets. The Angle Brackets are connected together by a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip, and to this is bolted a Curved Plate 18. A Fishplate 19 is bolted to each side of the Flanged Plate 12, and a second pair of Fishplates is fixed to the rear ends of the Strips 1, at the same time bolting to the Strip 2 Flat Trunnions 20.

The body is pivoted to the chassis by passing a $3\frac{1}{2}''$ Rod through both sets of Fishplates, the Rod being held in place by Spring Clips. Two Trunnions 21 should now be bolted to the Strip 1 and the body rests on these when it is in the lowered position. A $3\frac{1}{2}''$ Crank Handle with grip is passed through the Strips 5 and held by Spring Clips. Cord is tied to it and is then passed under the rear axle and tied to the Plate 16. This produces the tipping action when the Crank Handle is turned. The rear axle is a 4" Rod held in the Flat Trunnions 20.

The steering is arranged as follows: Two $2\frac{1}{2}''$ Strips 22 overlapped three holes are bolted to the Flanged Sector Plate 4. Next two $2\frac{1}{2}''$ Stepped Curved Strips 23 are bolted inside two Double Brackets, using $\frac{3}{8}''$ Bolts. These Bolts should then be lock-nutted in the end holes of the Strips 22 so that the Double Brackets are able to swivel freely. The front ends of the Curved Strips 23 are lock-nutted to a flattened Formed Slotted Strip 24. Two Angle Brackets 25 are bolted to the Strip 24. The steering column is a $3\frac{1}{2}''$ Rod which is passed through the Flanged Sector Plates 4 and 10, with a 1" Pulley with boss mounted at its upper end and a Bush Wheel fixed to the lower end. A $5\frac{1}{2}''$ Strip is bolted to the Bush Wheel as shown and is allowed to rest between the Angle Brackets 25. When the steering wheel is turned the $5\frac{1}{2}''$ Strip moves the Strip 24 from side to side. The front wheels are fixed on $1\frac{1}{2}''$ Rods held by Spring Clips in the Double Brackets.

The headlights are 1" Pulleys mounted by means of a $\frac{3}{8}''$ Bolt on a $2\frac{1}{2}''$ Strip that is bolted behind the Flanged Plate 11. The front bumper consists of two Formed Slotted Strips bolted by a $\frac{3}{8}''$ Bolt to the Flanged Plate 11, (*Cont. on page 423*)

Fig. 2. This Rear Dump Truck makes a good subject for Outfit No. 4.



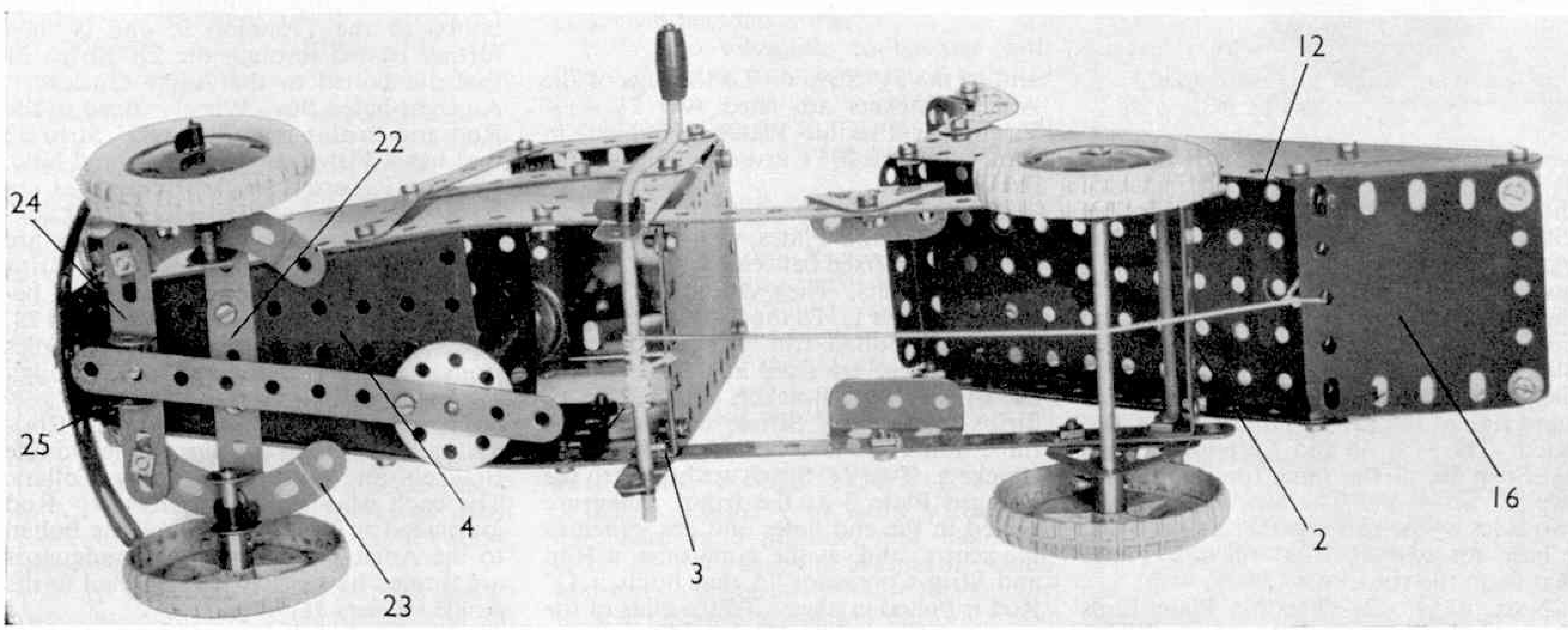


Fig. 3. An underneath view of the Rear Dump Truck.

FOR THE ADVANCED MODEL-BUILDER

Meccano Snow Plough

BY "SPANNER"

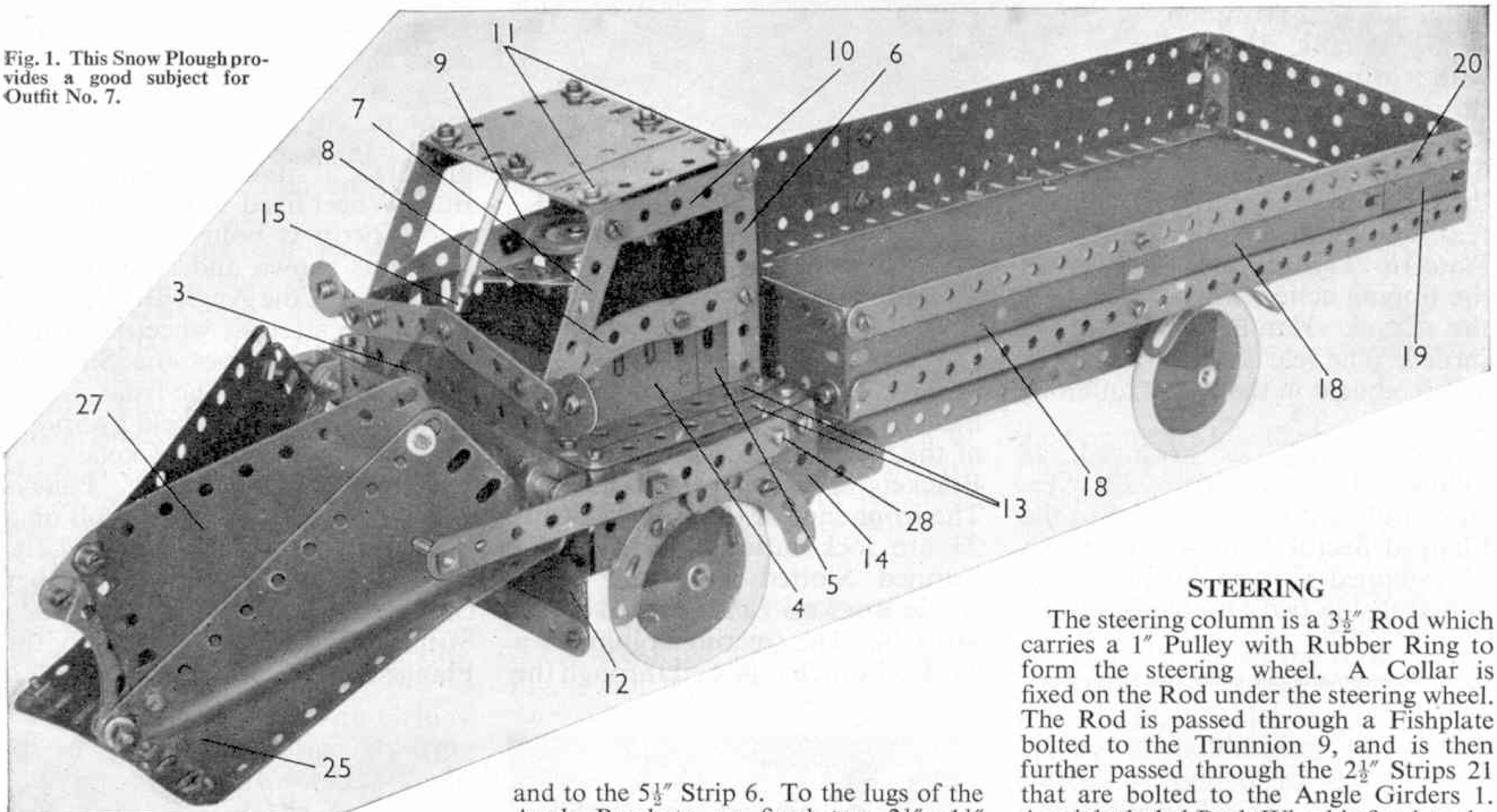


Fig. 1. This Snow Plough provides a good subject for Outfit No. 7.

OWNERS of an Outfit 7, or one larger, will find the Snow Plough shown in Fig 1 an attractive subject for their attention.

The chassis of the Snow Plough is formed by two 12½″ Angle Girders 1, which are joined by a 3½″ Strip 2 and a 3½″×2½″ Flanged Plate 3. The sides of the cab consist of two 2½″×2½″ Flexible Plates 4 and 5 bolted to the Angle Girders of the chassis. The Plate 5 has a 5½″ Strip 6 bolted to it and the Plate 4 is also bolted to the Flanged Plates 3, at the same time bolting in a 2½″ Strip 7 and a 2½″ Curved Strip 8. The Curved Strip 8 is joined to the Strip 6 by a 1½″ Strip. On the right-hand side of the cab, a Trunnion 9 is also fitted. The Strips 6 and 7 are joined by a 2½″ Strip 10, at the same time bolting in two 3½″ Strips 11. The Strips 11 join the two sides of the cab together and provide a base for two 2½″×2½″ Flexible Plates that form the roof.

Next, a 5½″×2½″ Flexible Plate 12 is bolted to the Flanged Plate 3. It has a 5½″ Strip at the top and another at the bottom. The mudguards are each constructed similarly as follows: Two 3½″ Strips 13 are supported on two sets of Angle Brackets joined by a Fishplate. These are bolted to the Flanged Plate 3 and to the 5½″ Strip 6. To the lugs of the Angle Brackets are fixed two 2½″×1½″ Triangular Flexible Plates 14 which, in turn, have two 2½″ Curved Stepped Strips fixed to them.

The back of the cab consists of two 2½″×2½″ Flexible Plates, which are bolted together and fixed between the Strips 6 on Angle Brackets. They should rest on the Angle Girders 1. To the 2½″×2½″ Flexible Plates are bolted two 2½″×1½″ Flexible Plates. These are fixed at the top of the cab by the Angle Brackets attached to the Strips 6. Two 2½″ Strips, which overlap three holes, are also bolted to the Angle Brackets. Two 2½″ Strips are bolted to the Flanged Plate 3 at the front. They are bolted in the end holes and are joined in the centre, and, at the same time, a Rod and Strip Connector 15 that holds a 1½″ Rod is bolted in place. To the ends of the Strips are bolted two Fishplates, which have ¾″ Washers fixed to them to form the headlamps.

The load platform is formed by two 12½″ Angle Girders 16 joined together by two 5½″ Strips 17. The bottom is filled in with two 12½″×2½″ Strip Plates. The sides consist of two 5½″×1½″ Flexible Plates 18 and a 2½″×1½″ Flexible Plate 19. A 12½″ Strip 20 is then bolted to the top. The back and front of the load platform are 5½″×1½″ Flexible Plates, which are bolted to the Angle Girders 16 by 1″×1″ Angle Brackets and to the Strips 20 by ½″×½″ Angle Brackets. The load platform is supported on the chassis by Double Bent Strips at the front and ½″ Reversed Angle Brackets at the back. The ½″ Reversed Angle Brackets are bolted to a 5½″ Strip, which is fixed between the Angle Girders 16 nine holes from the back.

STEERING

The steering column is a 3½″ Rod which carries a 1″ Pulley with Rubber Ring to form the steering wheel. A Collar is fixed on the Rod under the steering wheel. The Rod is passed through a Fishplate bolted to the Trunnion 9, and is then further passed through the 2½″ Strips 21 that are bolted to the Angle Girders 1. An eight-holed Bush Wheel is fixed to the Rod and to this is bolted a 2½″ Strip 22 that has a Fishplate fixed to its end hole. Next, ½″ Reversed Angle Brackets 23 are bolted to the Angle Girders 1. Lock-nutted to them by means of ½″ Bolts are Double Brackets, which have 1½″ Strips held between their lugs. Lock-nutted between the two 1½″ Strips is a 3½″ Strip 24. The Strip 24 has a ¾″ Bolt fixed three holes from its end and this should pass through the Fishplate bolted to the Strip 22.

The wheels are supported on 2″ Rods journalled through the lugs of the Double Brackets and held in place by Collars. The back wheels are fixed to a 4½″ Rod journalled in two Flat Trunnions bolted to the Angle Girders 1. The mudguards are formed by Slotted Strips bolted to the Angle Girders 16.

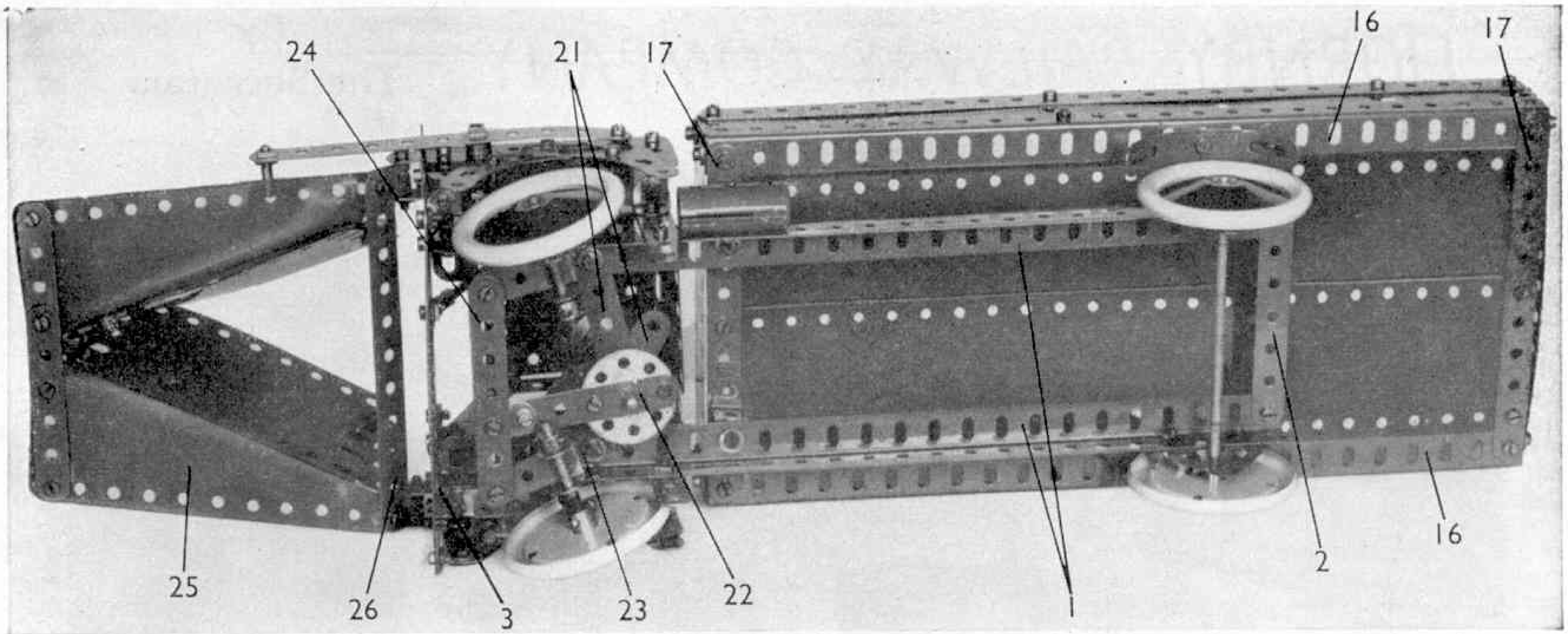


Fig. 2. The simple but effective steering gear of the Snow Plough can be seen in this underneath view of the model.

THE PLOUGH

The plough blade is formed by bending two $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates 25 from corner to corner. They are joined by a $5\frac{1}{2}''$ Strip 26 at the back and by two 3″ Strips at the front. Two $4\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates 27 are also bolted to the Plates 25. They are joined at the front by a Fishplate. The Fishplate has two $2\frac{1}{2}''$ Stepped Curved Strips bolted to it and these in turn are bolted to the end holes of the Plates 25. Two Right-Angle Rod and Strip Connectors are bolted between the Flexible Plate 25 and Strip 26. Two Double Brackets are bolted to the top of the Plate 12, and the Right-Angle Rod and Strip Connectors are fixed in these on $\frac{3}{4}''$ Bolts. This arrangement allows the blade to move up and down.

Finally the mechanism that causes the plough to move up and down is fitted. It is formed by a $5\frac{1}{2}''$ Strip which is fixed on the left-hand side of the cab on a $\frac{1}{2}''$ Bolt.

(*Continued on page 423*)

WINTER MODEL-BUILDING CONTEST No. 1

Cash Prizes For Winners

LAST month, we announced the first of the General Model-Building Competitions we shall be organising during the autumn and winter. In these contests we are offering cash prizes—which are considerably bigger than those awarded in recent competitions—for the most original and best-built Meccano models of any kind.

The competitions are open to anyone who owns a Meccano Outfit, whether they live in this country or overseas. Models need not be confined to the parts actually contained in a given Outfit. Any amount of extra parts may be used as required.

HOW TO ENTER

If you wish to enter this Competition all you have to do is to think of a new model and then set to work to construct it, as neatly and realistically as possible, from standard Meccano parts. Models that are merely copies of models shown in Meccano Instruction Books or other Meccano publications will not, of course, be eligible.

When you have completed your model the next thing is to obtain either a good, clear photograph, or, if this is not possible, make a good sketch of it, and send this to us. *The actual model must not be sent in any circumstances.* However, if you cannot obtain a photograph and you are not much good at sketching, you can ask one of your pals to make the sketch for you. The model itself, however, must be your own unaided work.

It is also advisable to enclose with photographs or drawings a short description of the principal features of your model, mentioning any points of special interest you wish to bring to the attention of the judges.

In order to give everyone a fair chance entries will be divided into two separate Sections as follows: Section A, for competitors who will be under 14 years of age on December 31 next; Section B, for competitors aged 14 years or over on that date. *In each of these Sections a separate set of prizes will be awarded*, and full details of these are given in the panel alongside.

HOW TO POST YOUR ENTRY

Before posting your entry write your age, name and address, and the letter A or B, indicating the Section in which you are entering, in block letters on the back of each photograph or drawing. You should address your envelope: "Winter Model-Building Competition No. 1, Meccano Limited, Binns Road, Liverpool 13".

CLOSING DATE

Intending competitors should note that this Competition will remain open for entries until December 31 next.

THE PRIZES

The following prizes will be awarded in each Section of the Competition:

SECTION A

(Competitors under 14 years of age on December 31 next)

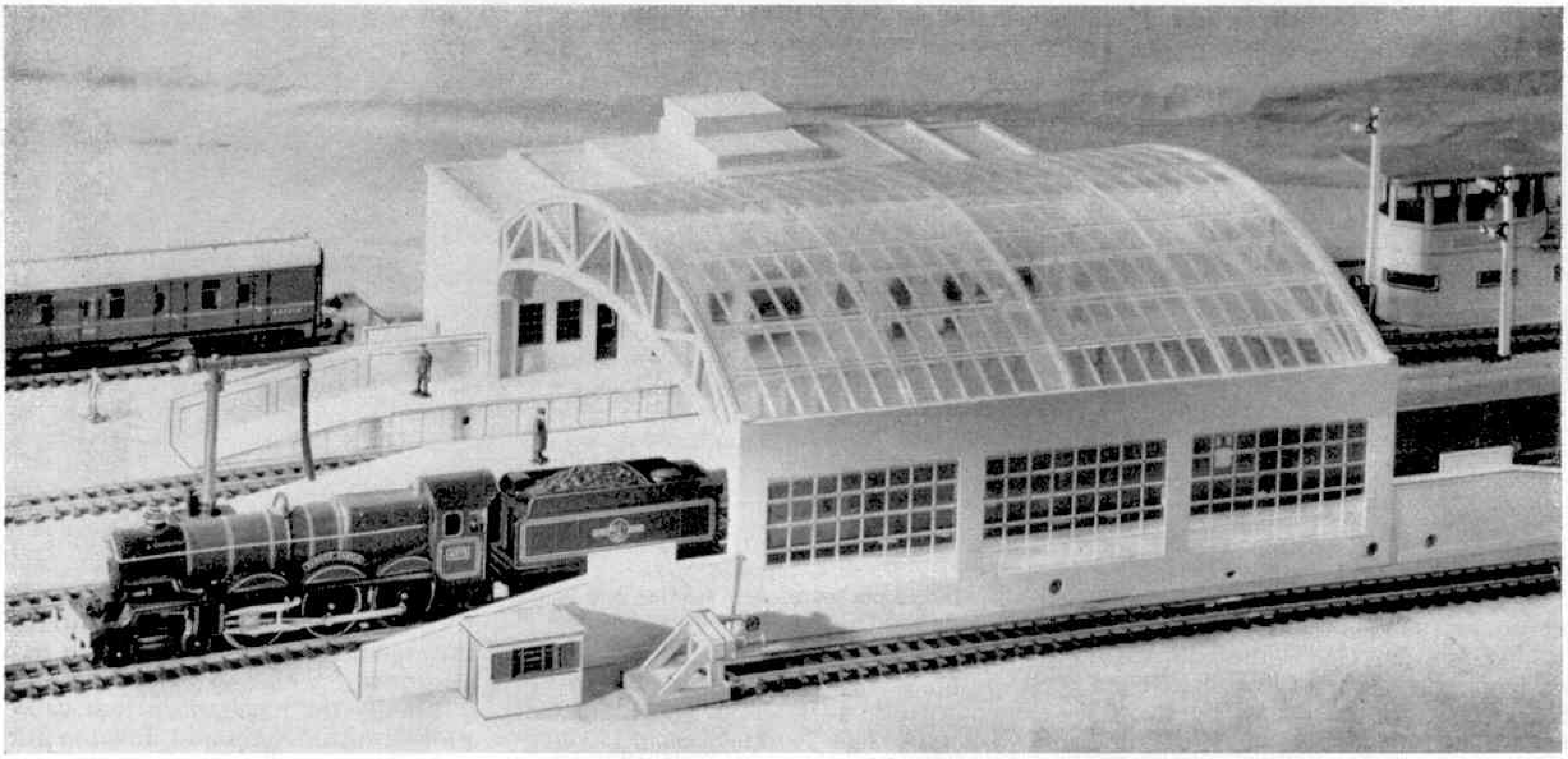
First Prize Cheque for £5.5.0
Second Prize Cheque for £3.3.0
Third Prize Cheque for £2.2.0
Ten prizes each of 10/6d.

Certificates of Merit also will be awarded in this Section to those competitors whose entries just fail to reach prize-winning standard.

SECTION B

(Competitors who will be aged 14 or over on December 31 next)

First Prize Cheque for £7.7.0
Second Prize Cheque for £5.5.0
Third Prize Cheque for £3.3.0
Ten prizes each of £1.1.0



"Cardiff Castle" brings its train to a stop at the Through Station formed from the components of the No. 5083 Kit referred to in this article.

An Impressive Station: More New Rolling Stock

LAST month, these notes drew attention to the fine Hornby-Acho products recently made available from the Paris factory of Meccano Limited, including the particularly attractive Station Kit. Now, I am specially pleased to be able to give you news of another kit, this time a Hornby-Dublo production, which is remarkable for the versatile character of its component parts. It is No. 5083 Terminal and Through Station Composite Kit which is illustrated in full colour in the Hornby-Dublo catalogue. In the pictures accompanying this article, and in the catalogue itself, you can see the two basic forms of station which can be assembled from the parts provided.

By the way, if you haven't got a copy of the Hornby-Dublo catalogue you may wish to take advantage of the scheme announced on page ii.

Dual-purpose Building

Now about that Kit; not only are the station platforms and building highly attractive, but the various units provided can—as the name of the Kit implies—be used to construct a through station of the important main line type, with arched roof, or a terminal station of a similarly impressive character.

There is no need for me to tell you how this is done because the instructions included in the Kit go fully into details. Here again, as I told you last month in connection with the French-type Station, it is essential to follow the order of operations recommended in the instructions.

The completed station, in either form, is a structure well worthy of handling the important passenger trains in the Hornby-Dublo System. Apart from the purely railway section of the finished station, consisting of two side platforms and a central island, side walls and arched roof sections with supporting girders, there are parts to assemble an imposing station building with an entrance leading through into the station itself. The platform components include sections with ramps for use at platform ends and, for use when the station is assembled as a terminal, there are short connecting lengths intended to be at right angles to the main platforms, thus forming the area behind the buffer stops.

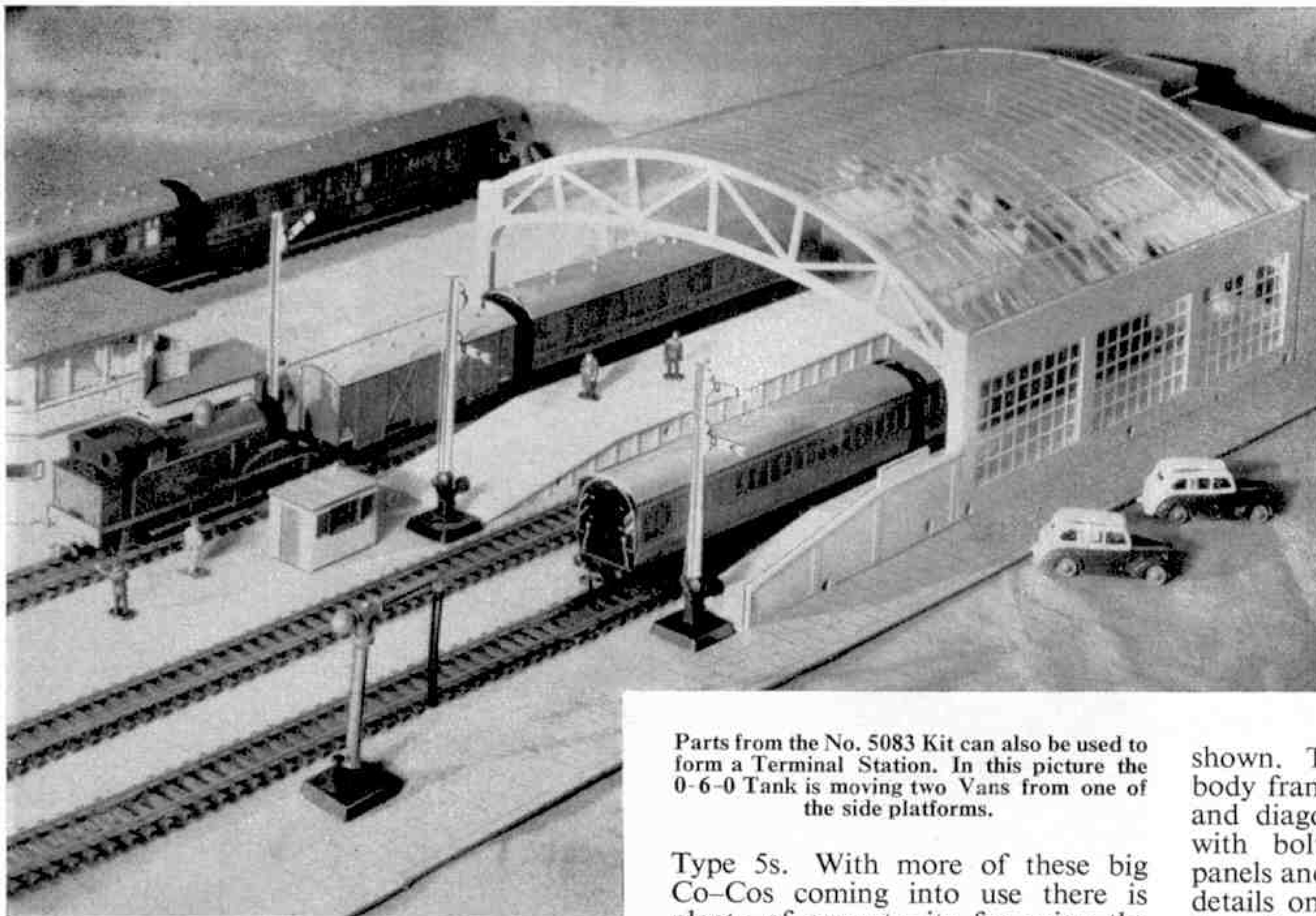
Above the entrance hall, the centre section of the building is developed to form a flat-topped tower projecting above the level of the roof, and the front face of the tower makes an admirable setting for a dummy clock.

The building can be placed adjacent to either of the side walls when a station of the through type is required. Alternatively, when a terminus is called for, the platform ramp sections normally projecting beyond the roofed-over area can be omitted at one end of the station, and the building can then be placed across this end, reaching from side wall to side wall. In this form, an attractive and businesslike terminus results.

Room for Extensions

As the number of pieces included in the Kit covers only the basic requirements for whichever type of station is to be built up, the platforms when assembled are restricted in length. But the design of the units is such that extension will be possible not only of the platforms, but also of the side walls and roof section, by adding further sections of the type required. Ask your Dealer about these.

Furthermore, extension sideways by the addition of extra platform or roof sections is readily possible, because the side walls and other pieces have been designed to present an entirely plain surface, free from projections or architectural features, so that the sections can butt together as



Parts from the No. 5083 Kit can also be used to form a Terminal Station. In this picture the 0-6-0 Tank is moving two Vans from one of the side platforms.

required. Again, a terminal station may be extended sideways as well as lengthways, or it may have a through station beside it, if a combined structure of this type is called for. When either type of station is being extended lengthways, additional roof sections may be used as well as platforms with fences.

In whatever form the Kit is assembled, good use can be made of No. 1575 Lighting Kit and No. 1576 Terminal Panel for the illumination not only of the office and administration block represented by the station building, but also for lighting up the interior of the roofed-over section.

Co–Co diesels at work

From a subject that stays put on the railway, let us pass to one that moves, and quickly, too. You will have read in *Railway Notes* in the September *M.M.* about Britain's fastest train, *The West Riding*, and I expect many of you recall how this train made a television news item when the accelerated service began between King's Cross, Sheffield, Leeds and Bradford. On that occasion, a time-regaining performance by one of the big Type 5 Co–Co diesels—which have been coming into service on the East Coast route during recent months—was recorded.

The many owners of Hornby-Dublo Co–Co Diesels must be thrilled at having on their own layouts, an engine that can perform corresponding feats in miniature, and one based on the design of the real Type 5s. With more of these big Co–Cos coming into use there is plenty of opportunity for using the Hornby-Dublo model in an appropriate manner on representative services in miniature. On another page, *Layout Man* shows you a picture in which the Co–Co Diesel is heading a miniature express representing *The Talisman*, on a reader's layout. Why not do something similar on your railway?

Why "Blue Spot"?

A new Van is now ready in the Hornby-Dublo range—the No. 4300 "Blue Spot" Fish Van, so called because it is representative of the rather exclusive group of vans used for "Blue Spot Fish Specials" between North East Scotland and the South.

These vans are provided with roller bearings for fast running, and for ready identification by the staff are distinguished by a blue disc 15 inches in diameter painted on each side, showing up prominently against the white-finished bodywork.

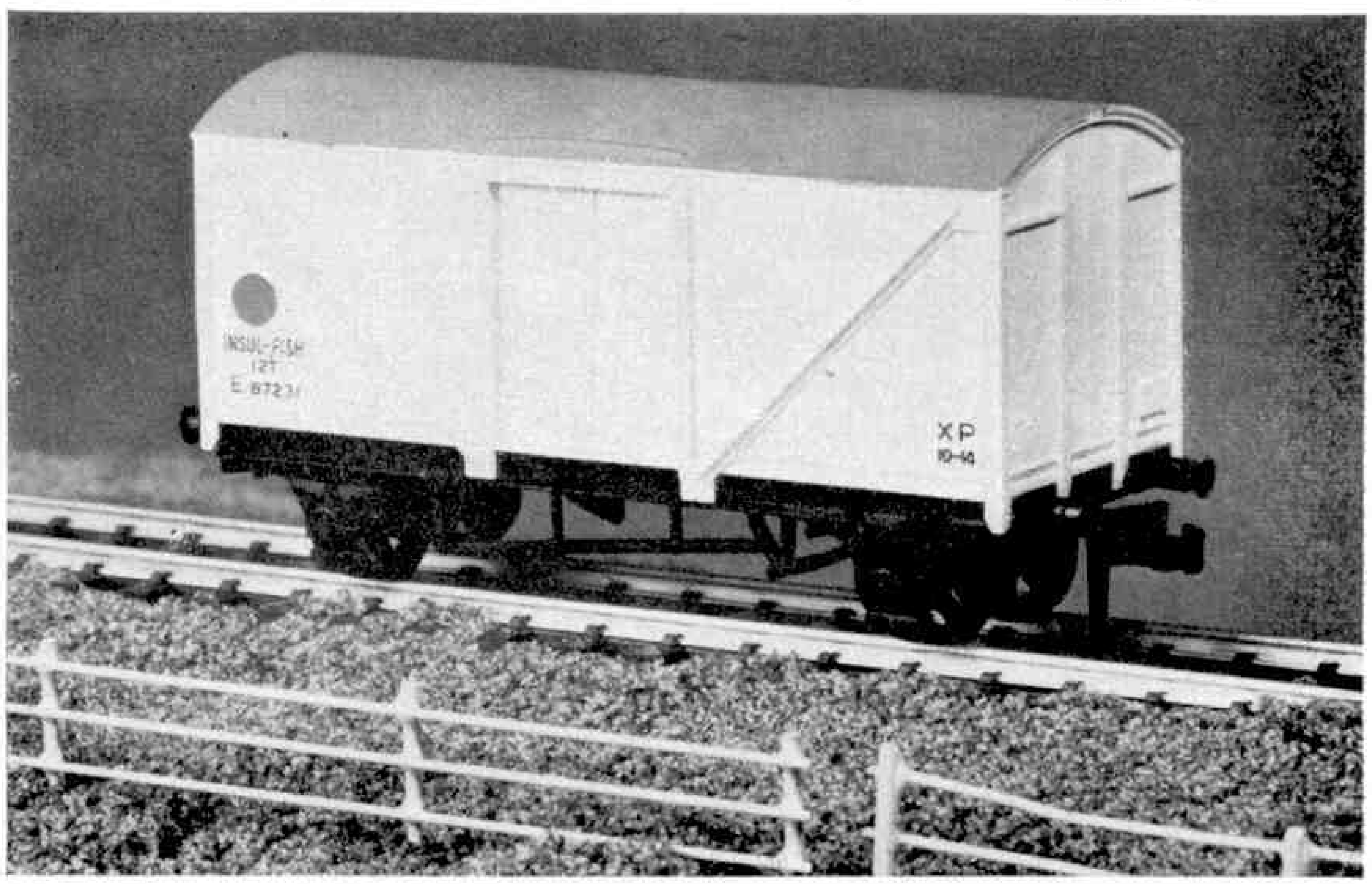
In keeping with the general character of the real vans the bodywork of the Hornby-Dublo Van, which is moulded, is somewhat plain to look at, but the clean white finish and, of course, the blue spot, the neat lettering, including the code name *Insul-Fish*, and the grey roof, make up for this. The detail is all there, as you can see in our picture, and in particular the set-in appearance of the doors, which are sliding doors on the real vehicle, is especially well shown. The metal sections forming the body framing, with their stiffening plates and diagonals, are reproduced in relief, with bolt heads, door handles, label panels and so on all neatly modelled. The details on the ends are no less complete than those on the sides.

The base also is a moulding and the vehicle runs on nylon wheels. Between the wheels, longitudinally, appears a reproduction of the brake gear, including brake blocks, hand levers, hangers, pull rods and so on, and also the brake cylinder, since the real vans are vacuum brake-fitted for running in the fastest trains. As you might expect, the special roller-bearing type axleboxes below the dummy springs are modelled in fine detail.

New Engines, and Wagons

In addition to the new products I have described in some detail, there are others becoming available that are certain of an equally warm reception. There is just

(*Continued on page 423*)

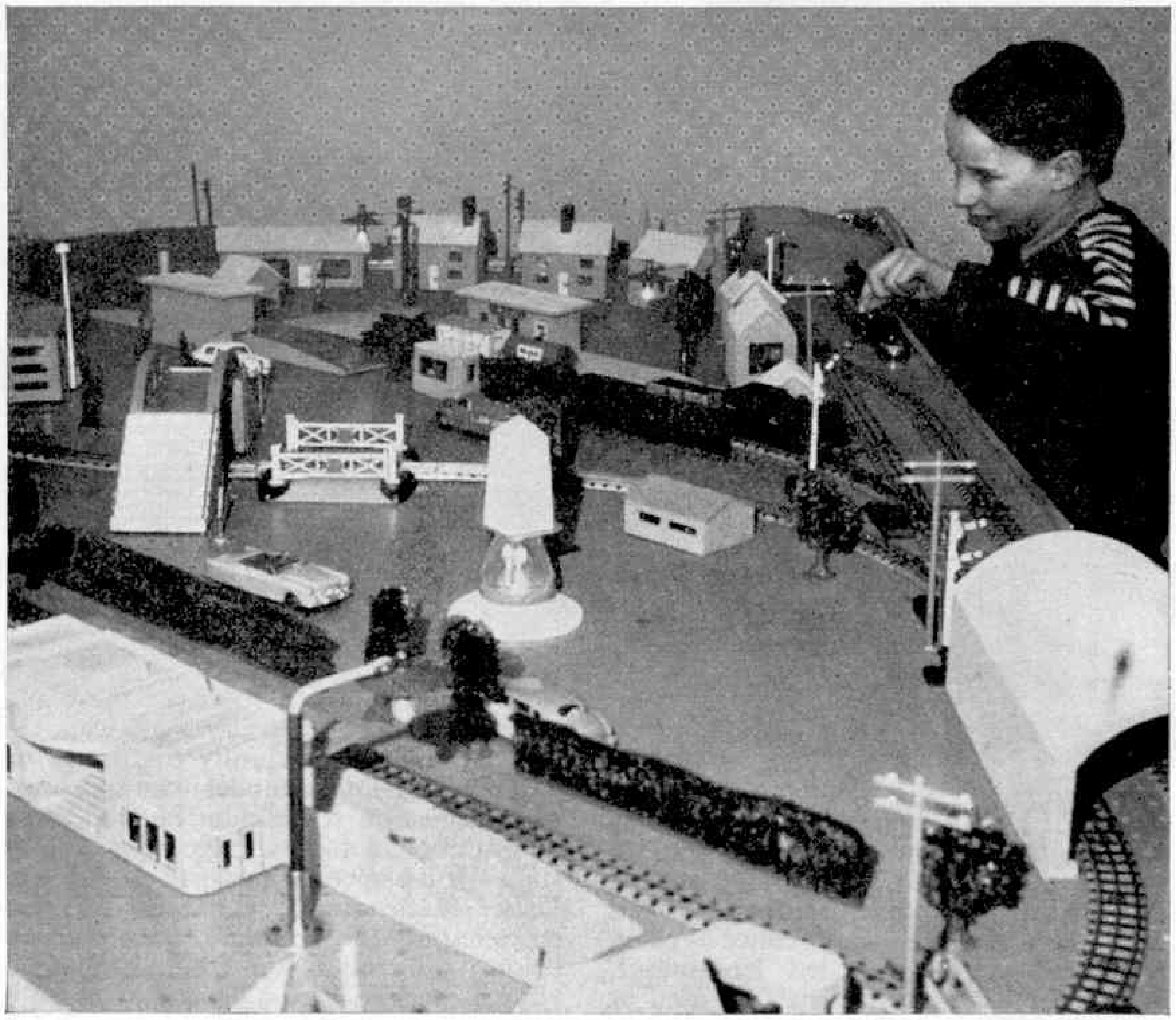


The distinctive appearance of the Hornby-Dublo "Blue Spot" Fish Van is well shown in this picture.

HORNBY-DUBLO TRACK FORMATIONS

LAYOUT MAN DESCRIBES

A Compact Two-Level Railway



Operating his Three-Rail layout is Hornby-Dublo enthusiast Keith Bush, of Huyton.

A SHORT while ago, I was pleased to receive from *M.M.* reader Antony Wheeler, of Ramsgate, the photograph from which the lower picture on this page has been prepared. This shows a neat and well-arranged layout, the development of which has been hampered somewhat by the restrictions of space.

This is not a new story, but it is clear from the illustration that our friend has managed to include plenty of railway, and a reasonable amount of lineside equipment within the limits of a baseboard measuring 6 feet by 4 feet 6 inches. What is more, this has been done without crowding, for the layout of the track, and the placing of the various buildings, has been carefully planned.

Rising Gradients

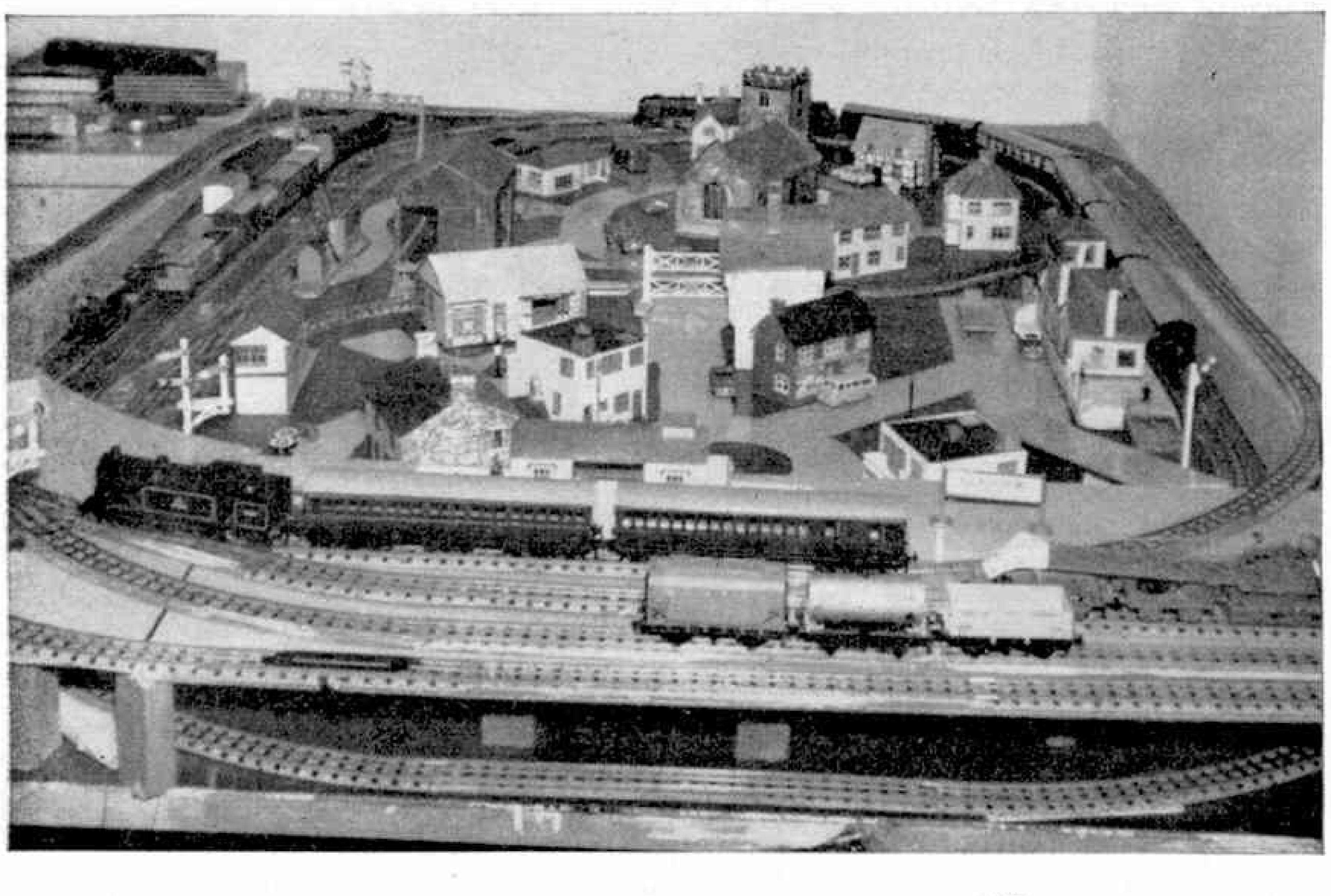
The heart of the system, from which no doubt the rest has been developed, is a single oval track incorporating a siding and an "S"-shaped reverse loop running diagonally across the centre.

This oval is connected by means of Points forming two sets of crossovers to another outer oval, but the two are not considered together as a double track main line. From the outer one are thrown off two branches, each forming a rising gradient leading to the high-level section that you see in the foreground of the picture.

On this raised section, the two gradient tracks meet one another and make, in effect, a third oval on which the train with the 0–6–2 Tank is actually running in the illustration. Several dead-end or siding roads are situated on the high-level section.

Matters are arranged in such a way that a train can leave these sidings and make various circuits, finding its way down to the tracks at normal baseboard level and ultimately reaching the inner oval. There, the crossover Points and reverse loop enable it to retrace the whole of its path and complete the journey by running back into the high-level section where it began.

Naturally, in order to do this careful control is necessary and the operator has to be sure to make the various Points movements involved at the right time.



A fine view from one end of the Hornby-Dublo Three-Rail layout of Antony Wheeler. The gradient sections and high-level tracks are clearly shown.

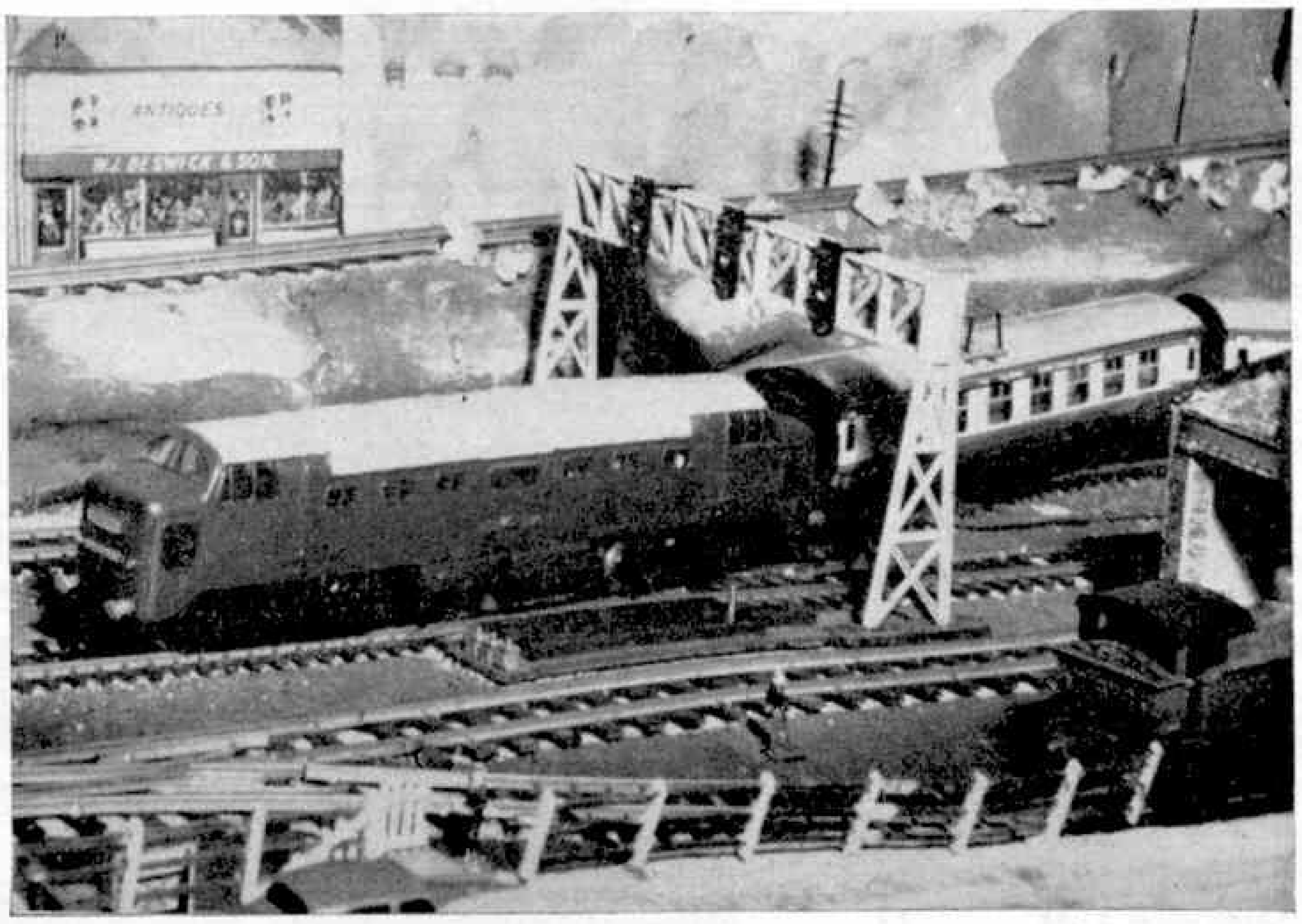
Many variations of the running programme are possible and variety in traffic and in motive power is well provided for by a good selection of Hornby-Dublo rolling stock, and four Locomotives. The engines are respectively a *Duchess of Montrose*, 2–6–4 and 0–6–2 Tanks, and a Bo–Bo Diesel.

The inner oval track includes a Lineside Apparatus for the T.P.O. Mail Van, and a further highlight in the matter of equipment is the Hornby-Dublo Breakdown Crane, shown in the illustration.

Siding Extensions

The owner tells me that certain alterations are now in progress. These take the form of siding extensions forming a marshalling yard at the opposite end of the layout from the one you see in the picture.

The lineside effects are confined to the space in the centre of the layout and consist of several buildings forming a miniature township. As the reverse loop runs across the middle of the system, it separates one part of the town from the other, but traffic on the road system between the two is catered for by a level crossing in the "S"-shaped loop. Dinky Toys and other motor vehicles are used on the miniature roadways.



A miniature express representing "The Talisman" hauled by the Hornby-Dublo Co–Co Diesel passes over a junction on the Two-Rail layout of S. F. Page.

Keith Bush, aged 11, of Radway Road, Long View, Huyton, near Liverpool, whose picture appears at the top of the previous page, has built up his Three-Rail scheme over a period of about two years. The tunnel on the right of the picture, the footbridge and the houses which all help to give character and background have been built by Keith with the assistance of his father.

NOW LINESMAN TELLS YOU MORE ABOUT

TWO-RAIL SCHEMES

Combining with the Three-Rail notes by Layout Man *to form a comprehensive feature on Hornby-Dublo operating systems is this article for the Two-Rail enthusiast—the second in a new series. The picture below, which shows this month's specially-designed scheme, will be of great interest to those who wish to develop their Two-Rail sets from modest beginnings. Overleaf is a diagram explaining the system of wiring. A list of items required is also provided.*

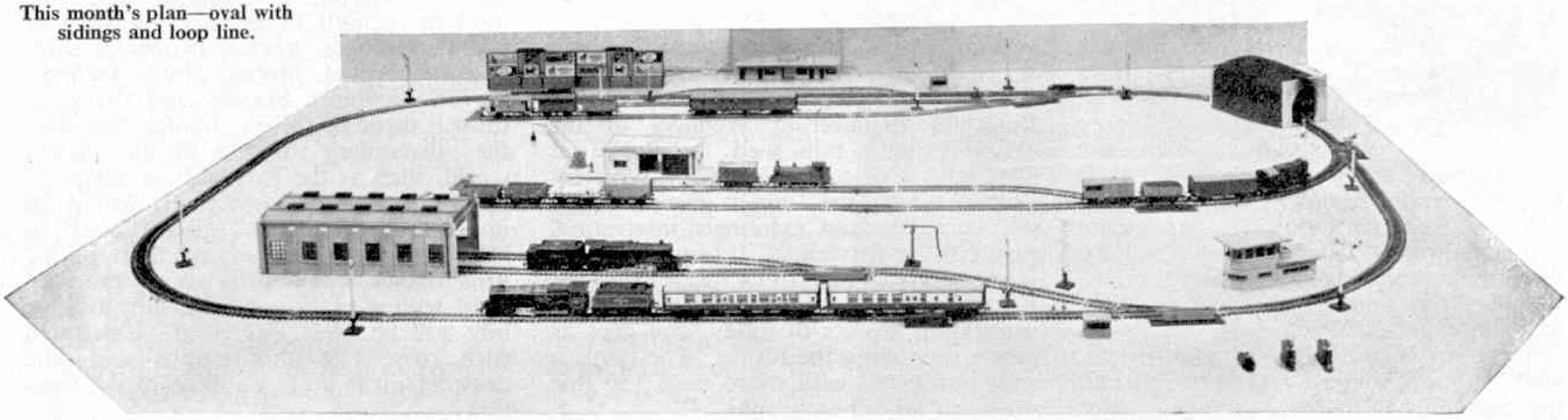
LAST month saw the introduction of this new series of articles which will describe some of the many and greatly varied track arrangements which are possible using Hornby-Dublo Two-Rail components, and the method of wiring the various types of Electrically-Operated accessories. Taking the oval track with one or two sidings as the basis of a miniature railway system, we take the next step to development by extending the oval formation to allow a longer run for the trains. This also means that a train of greater length than that supplied in a basic Set can be operated. To accommodate the extra rolling stock more and longer sidings become necessary.

* * * *

The track formation shown on the diagram overleaf, has been designed to fit comfortably on a baseboard measuring 8 feet by 4 feet 6 inches. This amount of space allows a safety margin on the outside of the track and room for the power control unit in one corner. It consists of the familiar oval, with sidings sufficient to hold plenty of rolling stock or engines not in use, and there is, in addition, an Engine Shed served by two tracks. To add to the operating possibilities, a loop line has been provided.

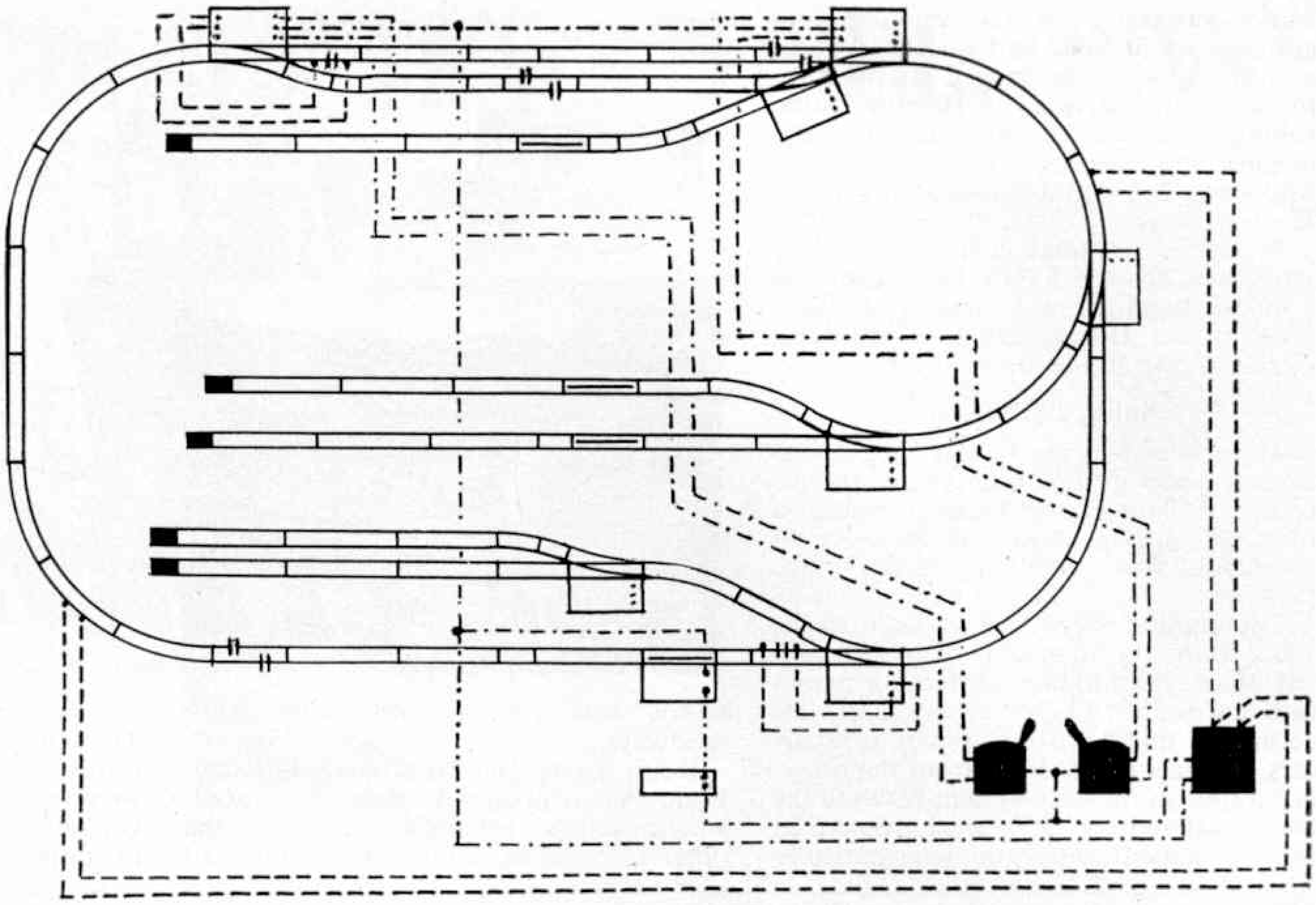
The track formations featured in this series will, as far as possible, follow real railway practice, bearing in mind limitations of space and the necessity to use an oval form of layout in order to allow non-stop operation. On the present layout the

This month's plan—oval with sidings and loop line.



ITEMS REQUIRED

14 Curved Rails .. 2710
2 Curved Terminal Rails with Suppressor 2714
3 Curved Half Rails 2711
6 Curved Quarter Rails 2712
27 Straight Rails .. 2701
6 Straight One-Third Rails 2703
7 Straight Two-Third Rails 2702
2 Straight Two-Third Single Isolating Rails 2738
3 Straight Two-Third Double Isolating Rails 2739
1 Uncoupling Rail, Electrically-Operated, and Switch .. 2746
3 Uncoupling Rails, Hand Operated .. 2745
1 Right-Hand Point, Electrically-Operated 2731
1 Left-Hand Point, Electrically-Operated 2732
2 Switches 1614
5 Right-Hand Points, Hand-Operated .. 2728
5 Buffer Stops .. 2450
1 Power Control Unit



loop line will permit two trains travelling in opposite directions to pass each other. This is known to railwaymen on single-line railways as "crossing trains". For instance, a train travelling in a clockwise direction can be stopped on the platform track and the Points are then set against it. The action of so setting the Points will isolate the train, leaving it in an electrically dead section. Another train can now be brought out of a siding and can traverse the main line for as long as desired, passing the other train by means of the loop line. It is also possible to run the second train into the loop and isolate it by moving the Points against it, when the original train can resume operation again. Two trains *cannot* occupy the main line at the same time.

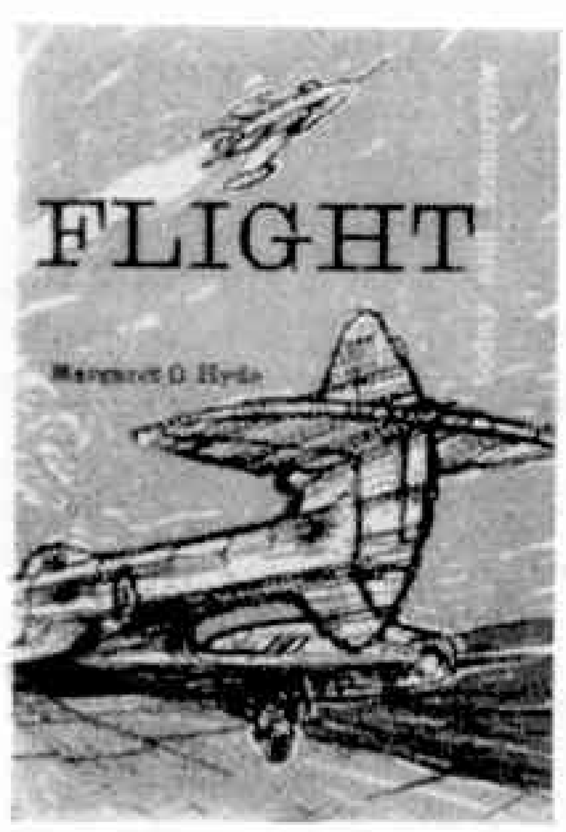
* * * *

The two Points serving the loop line are electrically-operated, and each is wired to a 1614 Switch, so that the Points can be worked independently when it is required to run a train into the siding which leads off the loop at the right-hand end. If this siding is omitted from the layout, however, both the loop Points can be wired to one 1614 Switch. Any of the Points, or other accessories, can be operated electrically or by hand, as desired, without alteration to the form of the layout or track wiring.

Each siding, except those serving the engine shed, has an Uncoupling Rail, so that shunting and marshalling operations can be carried out. The Uncoupling Rail on the Lower main line is electrically-operated by means of the Push-Button Switch provided for the purpose, and the necessary wiring has been indicated on the diagram.

Any layout can, of course, be developed to any desired extent by the addition of further track and accessories. A large range of these is already available in Hornby-Dublo Two-Rail, with more items to follow in due course.

MORE NEW TITLES FOR BOOK-LOVERS



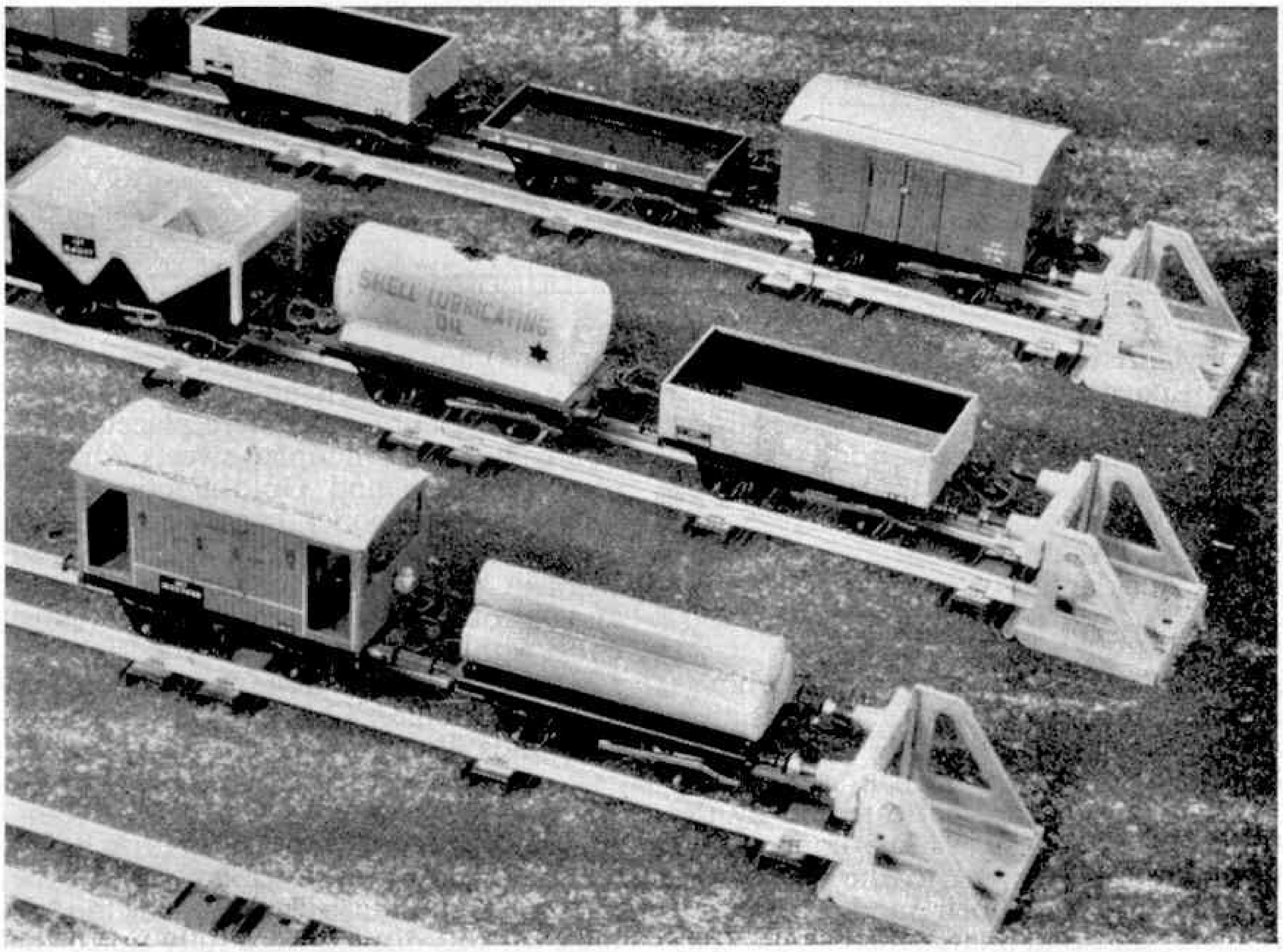
In her book **"Flight Today and Tomorrow"** (Brockhampton Press, price 12/6) Margaret O. Hyde gives young readers a fascinating insight into modern aviation, and a stimulating glimpse into the future. After describing the various parts of an aeroplane and their function, she explains the principles of flying, describes "blind"—or instrument—flying, how jet aircraft work, and the development of rocket flight. Finally, there is an account of an imaginary flight to a space station.

The book is edited by Robert J. Hoare, who has supplied additional material, and the many excellent line drawings with which it is illustrated do much to help the young reader to understand the text with ease.

* * * *

Two new additions to the well-known series of Boys' Books are **"The Boys' Book of World Airlines"** and **"The Boys' Book of Engineering Wonders of the World"**, both published by Burke at 10s. 6d. Written by Kenneth Wolstenholme, D.F.C., the former gives a short, but complete and extremely interesting, history of civil aviation. It begins with the first attempt of man to fly, passes through the early days of flying, investigates all the interesting aspects of today, and goes as far as predicting the future. The book is well illustrated with more than 150 line drawings and photographs.

"The Boys' Book of Engineering Wonders of the World", written by Leonard Bertin, investigates not only modern marvels of engineering such as radio telescopes, nuclear-propelled ships and submarines, atomic power stations, the St. Lawrence Seaway and the great tunnel through Mont Blanc, but also the outstanding wonders of the ancient world, such as the pyramids of Egypt or the Parthenon of Greece. It would be impossible, of course, for the book to mention all the engineering feats of the present day, but it presents an excellent cross-section of those in which the average boy will be most interested. Illustrated with over 150 photographs and line drawings, it is indeed a mine of information.



THREE IN A ROW

By "TOMMY DODD"

As a rule, a rail layout begins with a simple oval track, which gradually becomes longer and wider. Just how long, or how wide, depends on the amount of room there is, and on the number of Rails the Hornby Railway owner has. Then Points are added to make sidings and loop lines. Sidings are always handy because wagons or coaches, and engines too, can stand in them, but loops are perhaps to be preferred from the running point of view. You can run your train through one Point into a loop and you can run it out again similarly through the Point at the other end. With a siding you must either back in, or back out, according to the way your train is travelling, and this can hold things up a little at times, especially if you are in a hurry to get through your running programme before bedtime!

Still, sidings have their uses and in miniature a siding is always completed by one of the most popular accessories in the Hornby System—the Buffer Stop. This is usually one of the first things a Hornby Railway owner wants to add to his set. Just why this should be, I do not really know. Perhaps it is because buffer stops are such familiar sights on real railways; certainly it is hard to make a journey by train without seeing several. And possibly what is in mind, even though we do not realise it, is the thought that a runaway train or vehicle *might* actually collide with a buffer stop.

At all events, the Hornby Buffer Stop is a neat and attractive affair, readily attached to the end of the siding track and quite capable of stopping a wagon that has been shunted with a little more enthusiasm than judgment. The beam that connects the side members has two spring buffers mounted on it, which can give quite a jolly rebound to a wagon or van striking them, as long as the vehicle is not travelling at too high a speed. If this is, then there may be a job for the breakdown gang!

One thing you must not forget—always use a Rail Connecting Plate to secure the Buffer Stop to the end piece of track. The joint pins in the rail heads keep the Buffer Stop in correct line, but the Connecting Plate will prevent it from parting company with the rest of the track.

Notice how the Buffer Stops shown above are nicely in line. This gives a neat effect that is helped also by the fact that the sidings run parallel to one another. It is, of course, not always possible to arrange matters in this way.

CALLING ALL BUS SPOTTERS

BY DAVID KAYE

WELL, I was most encouraged by the response of *M.M.* readers to my first column, in the September issue. Of the letters I received dealing with the pros and cons of trolleybus operation, all but three were in favour of this form of transport being retained in our cities and towns.

Let us look, first of all, at the views of trolleybus opponents. John Makin, of Preston, condemns them as "the most fallible form of transport there is," a sweeping statement which he backs up by recalling his early days in Derby, when there were frequent de-wirings despite careful driving. "On frosty mornings," he says, "havoc occurred in the trolleybus timetables." Michael Gorham of Strood, Kent points out that these vehicles are useless when there is an electricity failure, and complains of the unsightliness of the overhead wiring system. As T. J. Knappett of Southampton points out, because of advances in modern diesel bus construction the virtue of the trolley's high capacity has now lost its attraction.

Among those in favour of the trolleybus is M. Hardwick of Maidstone, who tells me that in his town the trolleys make a profit. He puts in a very valid point in reminding us that at this moment British Railways are converting main lines to overhead wiring systems. Barry Watson of Cedarwood Crescent, Nuthall (Notts) is such a trolley enthusiast that he and some of his friends are hoping to form a trolleybus society in the Nottingham area,

(*Continued on page 421*)

A Reading Corporation 56-seater trolleybus. Photograph by Surfleet Transport Photographs.

Club and Branch News

Photographs, Please!

IN most Clubs and Branches there are members who are fairly expert in photography and who, I am sure, made the most of the past summer's activities to obtain interesting photographs of the members enjoying themselves at games, or on rambles and excursions. I should very much like to see the best of such photographs, and if they are suitable for reproduction in the *M.M.* I shall be delighted to use them in this way.

PORTSMOUTH M.C. CHRISTMAS DISPLAY

On November 1 the North End (Portsmouth) Meccano Club and associated Hornby Railway Company Branch are opening a Christmas Display and Bazaar at their Club room, 36 Stubbington Avenue (entrance in Beresford Road), Portsmouth. Thereafter the display will be open every Monday, Tuesday and Wednesday from 7.30 to 9.30 p.m., until Wednesday, December 20. Admission 3d.

HORNBY RAILWAY BRANCH RECENTLY INCORPORATED

LECONFIELD CLOSE (HULL)—*Chairman:* Mrs. Joan Audrey Timms, 44 Leconfield Close, Greatfield Estate, Hull.

CLUB NOTES

ASHTEAD FREE CHURCH M.C.—Summer activities not previously reported include sailing model boats at Epsom and swimming at Epsom Baths. An outstanding event was a visit to Messrs. Lyons' Factory at Cadby Hall, Kensington, London, where members saw the firm's Swiss rolls being made on a conveyor belt system which produces 25 miles of rolls a day. Members were greatly interested in the ingenious machinery used for the manufacture and packaging of these rolls and other of the firm's products. From Cadby Hall the party went on to visit the British Museum, and ended their outing to London by boating on Regent's Park lake. *Leader:* Mr. C. Price, 32 St. Stephen's Avenue, Ashtead, Surrey.

NORTH END (PORTSMOUTH) M.C.—An Exhibition held in the Club room on Monday and Wednesday evenings during late July, on Monday to Thursday mornings and afternoons during August, and on Monday and Wednesday evenings in September, was very successful. A Christmas display on similar lines is being held during this month and until just before Christmas, as announced elsewhere on this page. Members have been invited to make suggestions for means of raising funds, and there has been a good response. Some of the ideas put forward will be introduced as opportunity occurs. *Secretary:* Mr. A. J. Nicholson, 213 Sultan Road, Buckland, Portsmouth.

AUSTRALIA

MAYLANDS M.C.—The membership is divided into groups, or Factions as they are named, and on July 29 the Factions held a joint Exhibition in a shop in the Maylands shopping centre rented by the Club for this purpose. The honours for the best display went to the Black and Gold Faction for their model of an oil refinery, set up in a large metal tray. The oil tanks were built from Meccano and cardboard, and Caltex transfers (brought along by a member whose father works for the Caltex company) were used on the tanks. The refinery's administration centre was built from miniature building bricks, and "no smoking" signs were erected around the refinery. A model fairground, which included a Ferris wheel, merry-go-round (with cardboard swans for seats) and an "Octopus" won second place for the Green and Gold Faction. Around the fairground were placed cardboard stalls for hoopla, sweets, drinks, etc. The Blue and Gold Faction were third with a model car racing track.

The Parents' Committee held a sale of work in association with the Exhibition, and a profit of £24 was made. A previous effort with a jumble sale had added another £20 to the Club building fund. *Secretary:* Trevor Criddle, 17 Kenilworth Street, Maylands, Western Australia.

NEW ZEALAND

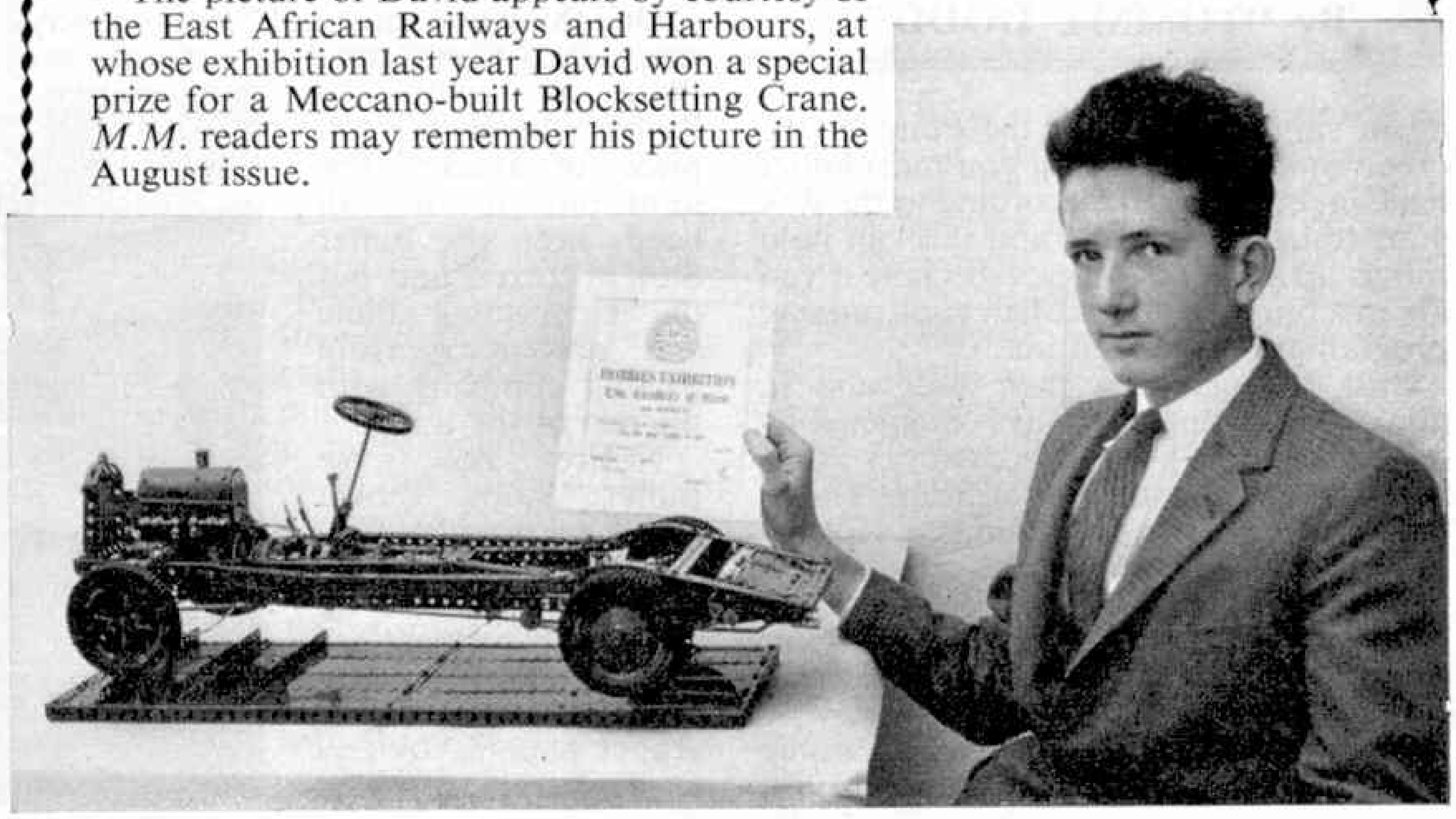
CHRISTCHURCH M.C.—The Club again had a very successful display stall at the New Zealand Industries Fair. The models built for this display were fully up to the Club's usual high standard. Along the stall was a gantry crane 3 ft. × 3 ft. × 1 ft. 6 in. high, all movements in which were remote controlled from a panel behind the model. Another attraction was a Meccano lightship, with four fixed lights and one flashing light, which rocked realistically. *President:* Mr. C. E. Saunders, 6 Walsall Street, Riccarton, S.W.1, Christchurch, New Zealand.

A KEEN MECCANO MODEL-BUILDER

PICTURED below is 14-year-old David McGowan, of Nairobi, holding the Certificate of Merit which he was awarded for the best exhibit in the motor class of a hobbies exhibition held in the City Hall at Nairobi. The occasion was the third annual hobbies exhibition organised by Nairobi Rotary Club.

The model which David constructed was the motor chassis illustrated in the January 1957 issue of the *Meccano Magazine*.

The picture of David appears by courtesy of the East African Railways and Harbours, at whose exhibition last year David won a special prize for a Meccano-built Blocksetting Crane. *M.M.* readers may remember his picture in the August issue.



Close-Ups

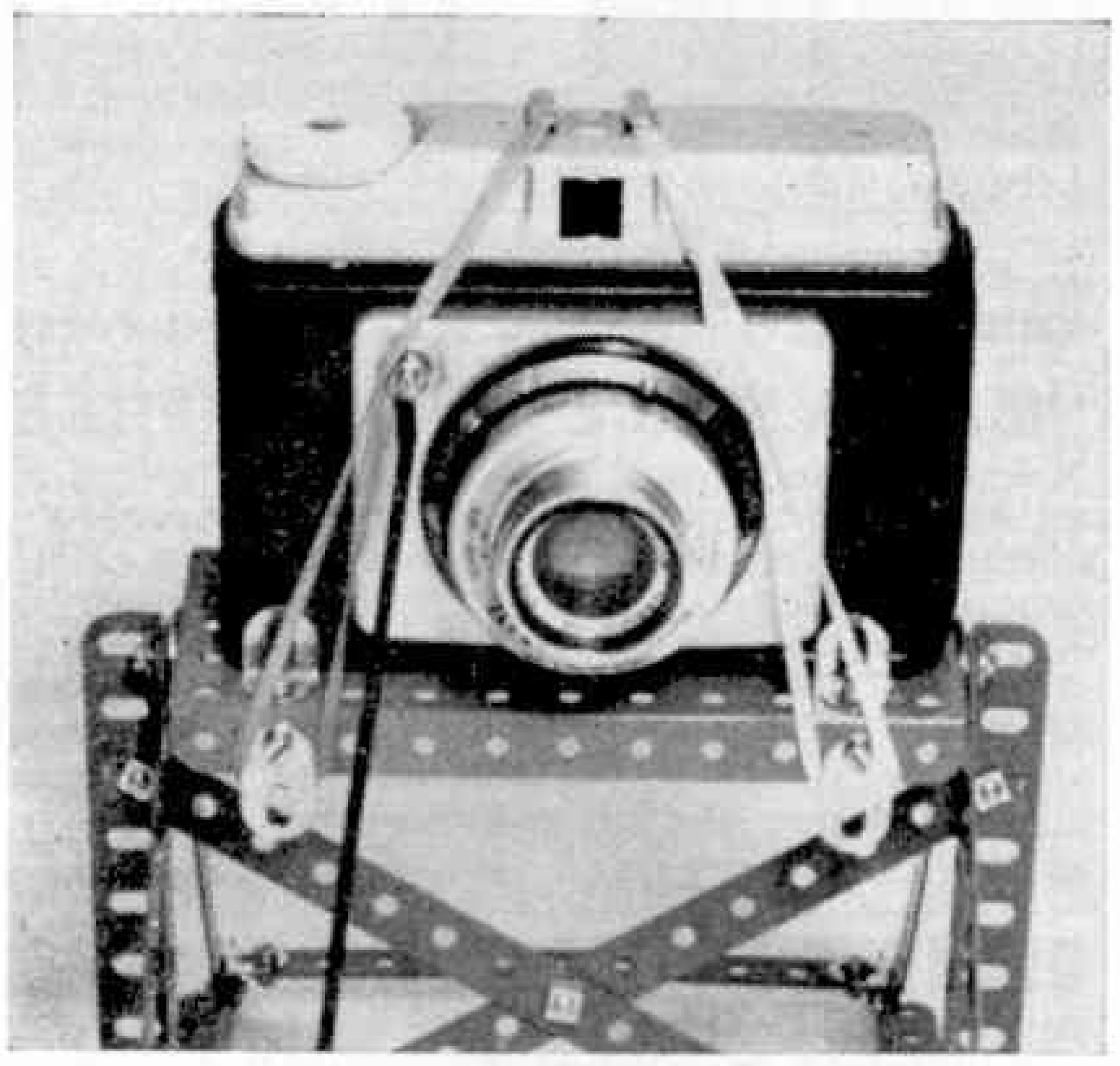
A typical outdoor close-up of two Dinky Toys on a "country road" in the garden. This kind of picture is easy to take using a positive supplementary lens on your camera.

FEW cameras are designed to focus on objects nearer than $3\frac{1}{2}$ feet. Many fixed focus cameras will not even allow you to come as near as this. Taking close-ups with *any camera*, however, is possible and, in fact, quite simple if you use positive supplementary lenses.

Placed immediately in front of your ordinary camera lens, supplementary lenses enable you to focus sharply on objects much nearer than would normally be possible. "Portrait Attachments" are supplementary lenses.

The power of supplementary lenses is expressed in units called "dioptres", the power in dioptres being the reciprocal of the focal length of the supplementary lens measured in metres. If your camera lens is focused on Infinity, a 1 dioptre, or No. 1 lens placed in front of your camera lens will enable you to focus sharply on an object 3 ft. 3 in. away. If you change the setting of your lens to the $3\frac{1}{2}$ ft. position, the No. 1 supplementary allows you to focus on objects only 20 in. away. A 2 dioptre, or No. 2 lens, covers the range 20 in. to 13 in. at the same camera lens settings and a No. 3, 13 in. to 10 in. These distances are the same whatever the focal length of your camera lens and are measured from the front of the lens to the subject.

Use two stout elastic bands to hold your camera on the stand, as illustrated below.

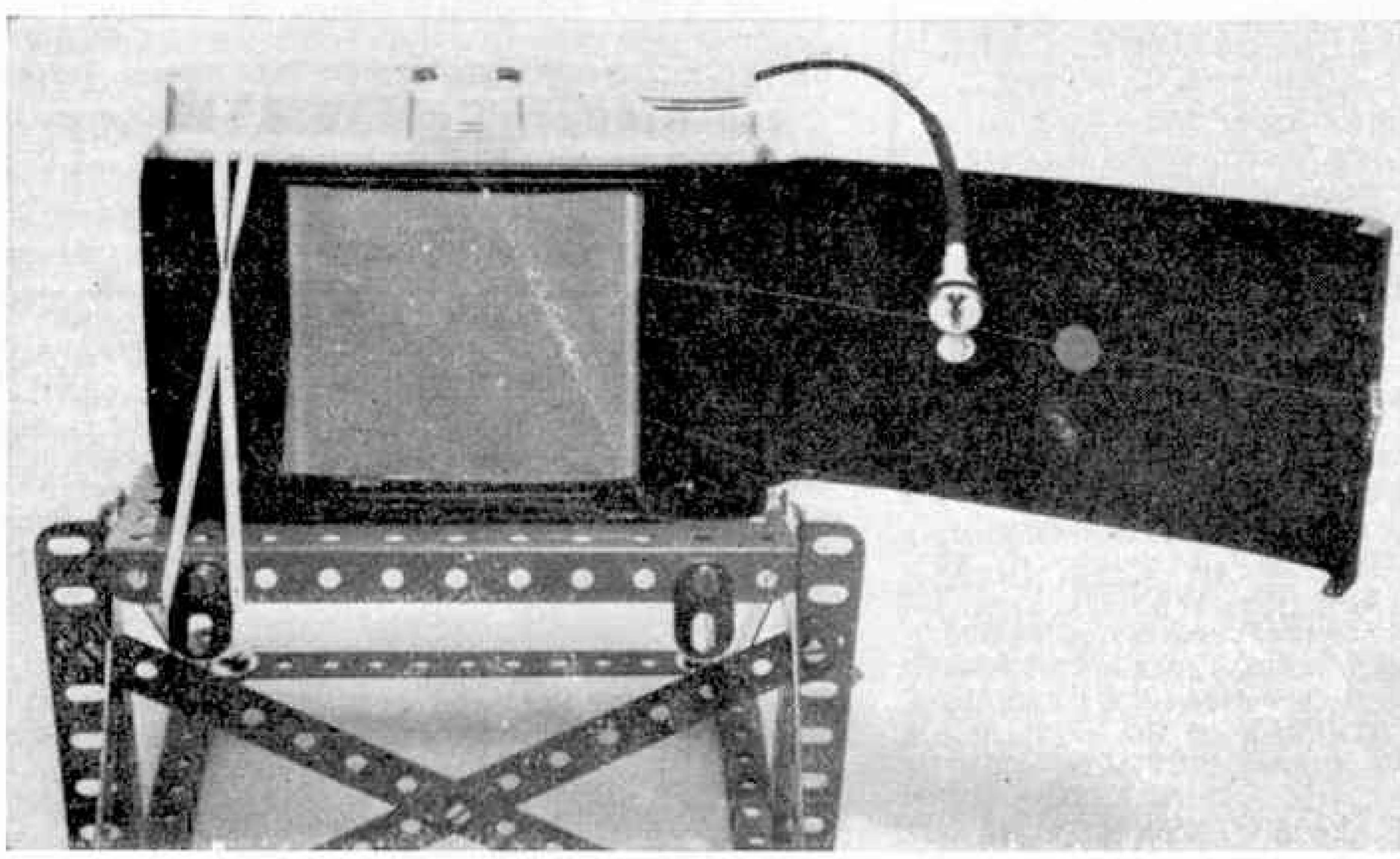


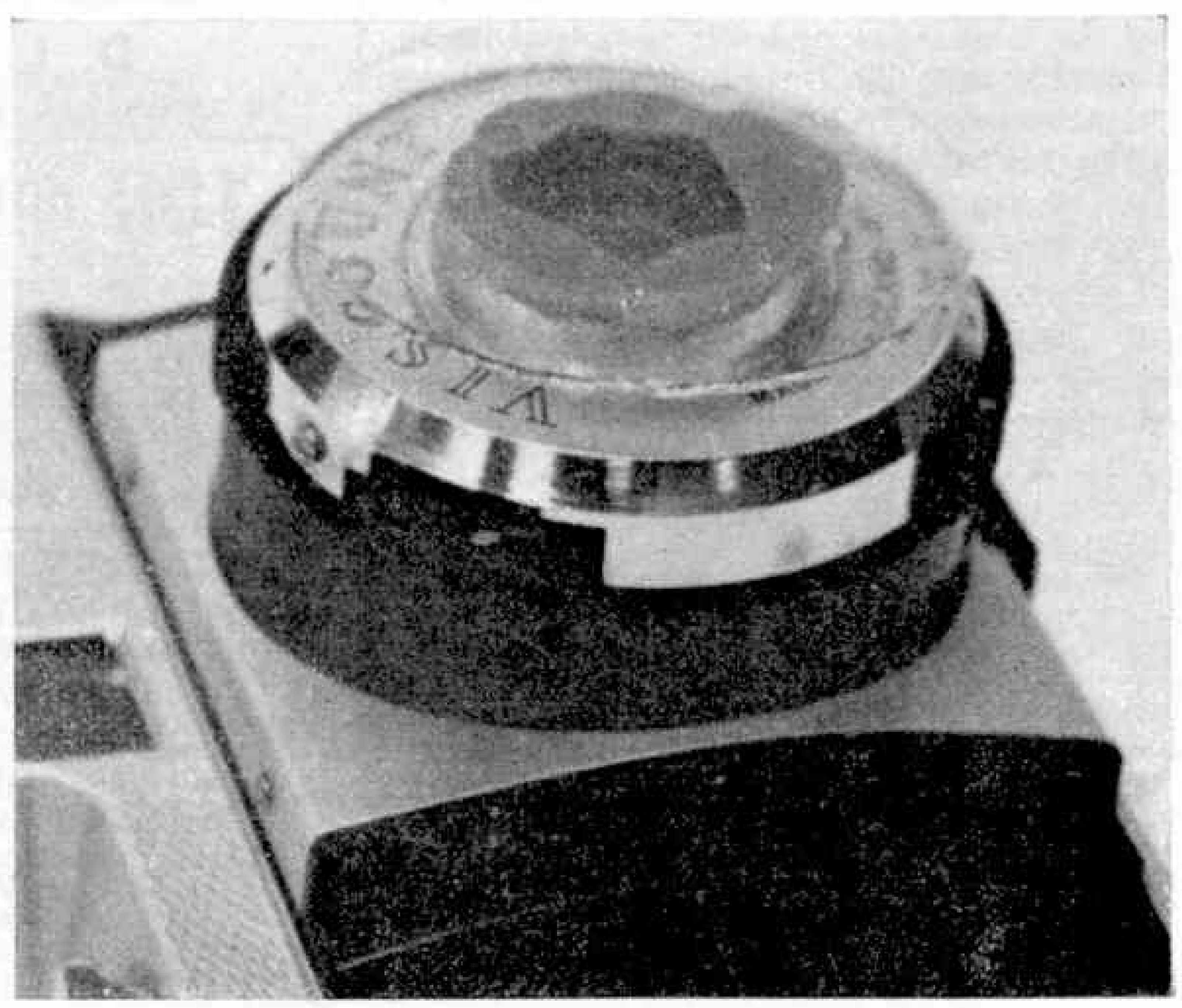
BY H. G. FORSYTHE

Supplementary lenses suitable for most cameras cost about 5s. each and there are slip-on holders available to attach them to your camera. Supplementary lenses specially made for photography are best, but some spectacle lenses can be used and can give quite good results. Simple "flat" lenses only are suitable, not those used to correct eye defects such as astigmatism. The local optician will probably sell you one for a shilling or two. Attachment to your camera is simple if you use a very small amount of Plasticine rolled out and formed into a ring. Place this on your lens mount, and gently press the spectacle lens down flatly on to the mount, as shown in the picture on this page. The Plasticine will hold it there firmly. Plasticine can be removed later by using a soft face tissue.

The main problems of close-up photography are positioning your camera and keeping it steady, focusing accurately on your subject, and using the right kind of light. Illustrated this month is a simple Meccano camera stand, designed especially for close-up work, which will hold your camera steady. The camera rests on a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate. It is positioned against two Angle Brackets bolted to the Plate. Four Fishplates bolted to the edge of the Flanged Plate are used as attachments for stout elastic bands holding the (*Cont. on page 423*)

Below: How to attach a spectacle lens to the camera using Plasticine. (Bottom left) An aid to focusing; a piece of tracing paper fixed in the back of the camera where the film would normally be when you are taking a picture.





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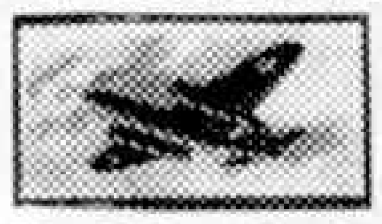


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Carreras	50	Celebrities of Brit. History	**2/9**
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Gallaher	48	Army Badges	**5/–**
Gallaher	48	Film Episodes	**2/–**
Gallaher	48	Film Partners	**2/–**
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Guernsey Occupation and **Russian Space Men** stamps Free to collectors requesting approvals—**GIBBONS**
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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 421

For Stamp Enthusiasts

Oceania

By F. E. Metcalfe

ANY old and experienced stamp collector will tell you that when he or she first started their collection it was so hard to get hold of stamps that cut-outs from postcards, etc., were gleefully added to their albums. I, for one, used to try to make up with seals, etc. In fact, anything on paper was grist for the philatelic mill provided that it remotely resembled a stamp, and the search was on all the time.

Nowadays, it is hardly a case of searching, but of dodging. For instance, last year 3,000 new stamps were issued, most of them for collectors—not for their benefit, but for that of the issuing post offices—for these bits of paper, sold at postage stamp prices, provide "money for jam".

In those far-off days to which I have referred almost everyone went in for a general collection, and you could get somewhere, too. Now, of course, it is a quite hopeless task to try to cope with all the stamps which are issued; so, instead, we have specialists who just take an odd country or two, or even only particular issues, while others take a group of countries, such as those in the British Commonwealth. But even this limitation is beyond the means of some collectors, so they merely collect Commonwealth issues of a single reign—those of the KGVI or the QEII periods being the most popular—and, if you can contend with so many stamps, these are highly commended.

One or two collectors I know of have hitherto limited their field to the KGVI–QEII issues of the West Indies, Barbados, Trinidad, etc.—nice stamps, and widely collected in the United States, Latterly, however, I have noted a slight easing of interest in the stamps of that part of the world, the reason being that shortly the West Indies will be out on their own, and the restraining hand of the Colonial Office will be removed. Collectors are afraid that, in consequence, we may get a repetition of what has happened in the case of Ghana since she went out of control—the issue of new, and sometimes expensive, sets every month or two. If all the countries which make up the West Indian Federation went off at that rate the result would be that those collectors who had limited their scope, to avoid

acquiring too many stamps, would have too much to swallow.

Well, two collectors of West Indian stamps have written to me recently and asked if I could suggest a group of British Commonwealth countries "where none of this Ghana business" is likely to be repeated, and as I had already given some thought to the point raised I was able to reply right away: what about the British Commonwealth countries in Oceania? It is these countries which I suggest to you here. They are well worth the attention of collectors who wish to take a small group, where there is little fear of repetition of what has happened in Ghana for, with sister countries of ours—Australia and New Zealand—as leaders, the stamps we get will be well worth collecting, and easily obtainable.

Let me give the group of countries I am referring to: they are Australia and New Zealand, followed by British Solomon Islands, Cook Is., Fiji Is., Gilbert and Ellice Is., Nauru, New Hebrides, Niue, Norfolk Is., Papua and New Guinea, Pitcairn Is., Tokelau Is., Tonga, and Western Samoa. I think we should also include Christmas Island, as it is under the control of Australia and actually uses stamps which are an adaptation of those of Australia itself.

Now I know that is a tidy list, and also that it is being suggested for those who wish to collect only on, shall we say, a moderate scale. So I cannot suggest that *all* the stamps which have been issued by these countries should be considered, but rather only those of the past 20 years or so—say from the beginning of the reign of the late King George VI, or even from the beginning of the present reign. Which-

ever is taken up, there will be plenty of stamps to buy, and many of them, used—at least those from Australia and New Zealand—will cost very little.

And isn't it a fascinating list of countries? All those South Sea Islands. What a picture they conjure up! Pitcairn Island, with all the romance of the "Bounty"; Gilbert and Ellice Islands, from where we get all those phosphates—in itself a romance; Norfolk Island, with the grim pictures on some of the stamps reminding us of the days when convicts were sent there, and those beautiful flower stamps of the more recent and happier period in its history. Yes, anyone who cannot find interest in the stamps of such countries had better not collect at all.

It will be noted that there are a number of provisional stamps among those recently issued by countries under Australia's direction. This is because this latter country has been changing its postal rates quite a lot and, of course, it's a case of when father turns we all turn. So to keep in line with Australia, countries like Norfolk Island and Papua and New Guinea have followed suit, and such stamps probably have a good future. That is one more reason why their popularity is growing, as growing it certainly is.

New Hebrides, which also comes into the group, is also worth a few words, as this is a country which issues two sets of stamps concurrently. The reason for this is that New Hebrides is a condominium, Britain and France being the countries which, in theory at least, share the government. But in practice I think it is relatively nearby Australia which has most say. The stamps are quite attractive, but only those belonging to the British side of the administration come into the group under review.

There is one other country I must mention. This is Western Samoa, which was a dependency of New Zealand but recently changed its political status; and I am not too sure if any stamps which appear later will form part of our group. There is very little news of any new stamps at the moment, and meanwhile there are several which should be included in our Oceania collection.

Finally, I suggest that if you do decide to take up British Oceania you take the trouble to see from the map just where these various island territories lie. Pop around to the local reference library and read something about their history, etc. I expect you will already know as much as you want to about Pitcairn Island, but you can learn many interesting things about the others, with very little labour.

Armed with the knowledge you have gained, you will find that the stamps have become much more interesting to you.

Stamp Gossip

NUCLEAR RESEARCH

MANY *M.M.* readers, I am quite sure, are interested in the subject of nuclear research and I suppose that, taking into consideration the popularity

of Greek stamps today, many would buy the set which was issued on July 31 last. The stamps were released to mark the inauguration of the "Democritus" Nuclear Research Centre at Aghia Paraskevi. One of the pair, illustrated above, features Democritus himself, the great Greek philosopher who, I am assured, first conceived the atomic theory some 2,500 years ago—which I assume rather anticipated the Russians. The other stamp depicts the reactor building at the Centre. Anyhow, in keeping with all modern Greek stamps, the pair in question are really attractive, and if you have not got them yet now is the time to do so, as, in common with many other stamps, they are likely to go up in price quite a bit.

THE LION OF JUDAH

Recently I wrote about the Lion Country (Sierra Leone) but actually there is more than one country in Africa which features lions. As a matter of fact, this magnificent animal is indeed the king of what used to be called the Dark Continent. Many older readers will remember the stay in England during the second world war of the Emperor of Ethiopia, who was driven out of his country when the Italians invaded it. One of his titles is the Lion of Judah, and since he granted the concession to an American agency to handle his country's stamps things have been moving fast in that line.

One of the recently issued sets had to do with six of the species of wild animals in that far-away land and, of course, one of the animals depicted is the mighty lion. The others are the wild ass, eland, elephant, giraffe and a beisa. Perhaps the stamps of this country are not particularly popular, but they are of interest, and this "Wild Animal" set is bound to be sought after by thematic collectors.

The stamp I have illustrated, however, is one of a set of three triangulars issued to commemorate the golden wedding of the Lion of Judah himself.

N.Z. HEALTH STAMPS

I am indebted to Miss Sybil Donehouse of Auckland, New Zealand, for a nice first day cover of the 1961 Health stamps. In a letter to me she mentions that she has a standing order for the *M.M.* for her two young nephews (gosh, would that some aunt of mine had shown such imagination when I was young!) and that she always reads it first.

The stamps on her cover were really a beautiful pair, and any collector who misses these is missing a lot, especially as they will only cost a few coppers until they are withdrawn. The best thing to do is to buy a pair of miniature sheets. These are of six stamps of each of the two values, and at the time of writing only cost about 5/- for the pair. Most stamp dealers can supply them, and apart from getting stamps which make a fine page in your album you are also contributing a mite towards a very good cause (children's camps), and who would not like to help, in some small way, such a worthy charity as that of our New Zealand brothers and sisters.

COLLECTORS' GUIDES

This would make a good title for stamp catalogues, as we could not get on very well without them. It is true that many collectors unwisely try to make do with old editions, and thus not only miss a lot of fun but frequently miss bargains as well. Anyway, we are again at the period of new editions, so a few words about them may not be out of place.

Actually, this paragraph is prompted in the first place by two letters I recently received from young collectors who wanted information on this point. One of the writers states that, through a relation, he gets a lot of used foreign stamps (lucky chap) and so he is forming a general collection. He asks which catalogue he should use. The answer, of course, is *Gibbons Simplified Catalogue*, which, as far as I know, is the only one published in the world which lists *all* stamps, ignoring, of course, watermark, perforation varieties, etc. I have great admiration for this catalogue, for it is wonderful value.

Equally popular—with British collectors at least—are our own colonial stamps, particularly those of the KGVI and QEII reigns, and two new editions of the Commonwealth Catalogues have just appeared, price 8/6 each. Incidentally, in the "QEII" all the African "Overprints" are listed and illustrated, so collectors will have no difficulty about sorting out the various varieties. As for the "KGVI"

(*Continued on next page*)

By E. W. Argyle

Locomotives On Stamps

THE quaint old steam locomotive depicted on the 25 ore Swedish Railways Centenary stamp is the "Fryckstad". It was built by Munktells of Eskilstuna, in 1855 for the 3 ft. 8½ in. gauge Fryckstads Railway in Varmland, when that line discontinued horse traction. Later the "Fryckstad" was used as a shunting engine in the Swedish Naval Dockyard at Karlskrona. The locomotive is now preserved in the Swedish Railway Museum at Tomteboda (Stockholm) where it is the oldest original locomotive on view.

Japan's first railway connected Tokio with Yokohama in 1872. The 70th anniversary of this line was commemorated in 1942 by the 5 sen stamp shown above, depicting locomotive C5928, one of the C59 class of Pacifics based at the Tabata Depot, Tokio, of the Japanese National Railways. These large, Japanese-built 4-6-2s were constructed for heavy goods and passenger service on a gauge of 3 ft. 6 in., but electrification of the J.N.R. has gone far, and these large Pacifics will soon be out of service.

FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 418

Stamp Gossip—

(*Continued from previous page*)

edition, it is two years since the previous one was published, and a great deal has happened since then to the popular group of stamps with which it deals.

SCOUTING

Among the most popular thematic subjects is Scouting, and that means that the portrait of Lord Robert Baden-Powell has appeared on a number of stamps. Of course, there are countries which try to substitute their own leaders as at least co-

founders of the movement, but other countries give credit where it is due, so Lord Robert comes into his own. As can be seen from the illustration, Togo has honoured him on one of its four new stamps which were issued to mark the twentieth anniversary of his death and the death of D. C. Beard, who also had to do with furthering the aims of scouting in America. This is said to be the first Boy Scout issue by any African country, and it should prove a best seller, for it is a fine printing job.

THE TIP OF THE MONTH

I get a lot of letters from *M.M.* readers, many of whom ask what countries they should collect, as far too many stamps are issued for them to go in for everything. This is why I am continually writing about this or that particular country, and of course about groups such as our own KGVI stamps (which are so readily available and at such reasonable prices) and the British Commonwealth stamps of the present reign. This is the time of the year when young collectors at least look round for something new to collect, and, as I have said, some ask my advice, for what it may be worth after 60 years of collecting. Well, frankly, our own British Commonwealth stamps, from the beginning of the King George VI reign, need a lot of beating, and I think that if you opt for these you will not regret it.

Calling All Bus Spotters—

(*Continued from page 415*)

one of its objects being the purchase of a trolley as the clubroom!

P. S. Wardle of Sheffield, harks back to a Ministry of Health statement, in 1955, that if the number of diesel vehicles increased, the air we breathe would become thickly polluted. "Was any notice taken?" he asks. "Not on your life! Local councils went on merrily replacing trolleybuses (clean and silent) and trams (clean) right and left."

Leaving this thorny problem, we turn to the subject of speed. As many of you probably know, a recent Act of Parliament allows public service vehicles (i.e. buses and coaches) to increase their maximum speed from 30 m.p.h. to 40 m.p.h., and so next year we should see some speeding up on many long-distance routes. It is extraordinary that at the moment the Southdown take two and a half hours to cover the 50 miles from Brighton to London, compared with about three hours in the golden era of stage coaches in the Prince Regent's gay days at the Pavilion at Brighthelmstone! On the other hand, the Midland Red CM5T coaches, with overdrive gearboxes, C.A.V. turbo-chargers, disc brakes, and a top speed of 82 m.p.h., cover the 112 miles from Victoria Coach Station, in London, to Digbeth Coach Station, in Birmingham, in 3 hrs. 25 mins. That is according to the advertised timetable, but they often accomplish it in two and a half hours. What are your views on a bus's speed? Address your letters to me, c/o Editorial Department, *Meccano Magazine*, Binns Road, Liverpool 13. If you require a reply, please enclose a stamped addressed envelope.

I regret that in my article last month I referred to *Ole Bill* as B.340; this should be B.43.

Dinky Toys News—

(*Continued from page 402*)

reached when the car was tested. The Dinky Toys model carries a windscreen, seats and steering wheel and generally the detail is such that it is fitted even with a transmission tunnel and a gear lever. The model is finished in a sporty red gloss with cream interior.

You see the new model in country surroundings in the picture at the top of page 401. Its owner is fishing just below the bridge and he has parked his car in such a way as to allow him to drive straight back on to the road without having to turn around first. Perhaps he is one of those fortunate people who work in the country, instead of being surrounded by bricks and mortar.

They Were Different Then—

(*Continued from page 402*)

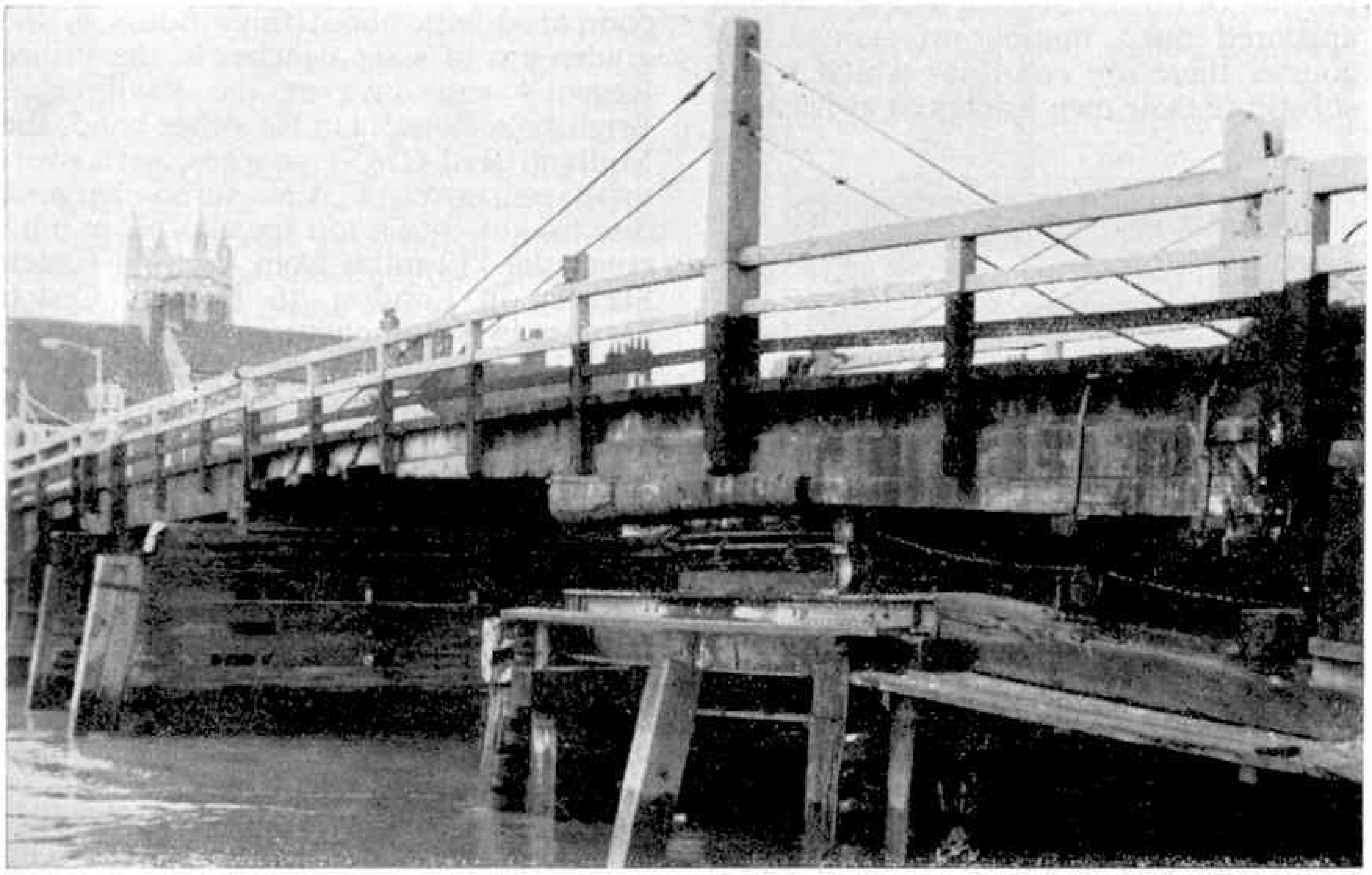
performed extremely well in competitions all over the world. The power unit of the original model was a tuned version of the B.M.C. "A" type, 948 c.c. engine, fitted with twin S.U. carburettors and special valve springs. Power output was 42.5 b.h.p. at 5,000 r.p.m.

The latest Mark II Sprite, introduced earlier this year, has a sleek, new body with built-in headlights and large boot with locking lid. It is a little faster, the brake horsepower having been raised to 46.5 at 5,500 r.p.m., and is capable of accelerating from 0–60 m.p.h. in less than 18 seconds. The price of the basic model—£641.9s.2d. with U.K. purchase tax—is still remarkably low.

The newly-available Dinky Toys model of the Sprite costs 4s. from your local Meccano or Dinky Toys dealer.

Yorkshire Toll Bridge: An Old Stage Coach

FROM OUR READERS



Selby Bridge, which joins the East and West Ridings of Yorkshire, is one of the few main road toll bridges left in this country. My picture shows the mechanism by which the opening leaf is rotated. The bridge was completed in 1795 and a peculiarity of the structure in its original form was the use in the opening leaf of cannon-balls as bearings. The bridge, which is of wood, remains basically the same as it was when first constructed to carry traffic over the River Ouse.—J. R. MILNER (Leeds)

This old stage-coach (pictured left) used to run regularly from Minehead to Lynton and Lynmouth and had many steep hills to contend with. The grandmother of our household, who is now 82, remembers travelling in this coach, the "Lorna Doone", when she was 18. Now it is to be seen in the garden of the Hoops Inn on the Bideford–Clovelly road.—Mrs. M. LONGRIDGE (Gillingham, Dorset)

At Shepton Mallet, in Somerset, is an unusual road sign. Beneath the usual sign for a level crossing with gates appear the words "Uneven rails". This would seem to warrant the description of an "un-level" crossing. Even at a very low speed, a car bumps quite considerably when travelling over the crossing.—DAVID C. BRYANT (Bristol)

STEAM ERA PASSES

The good people of the British Isles are more fortunate than we Americans, at least, in one respect—they still have the opportunity to see and hear steam railway locomotives in action. It is an old saying that "You don't miss the water until the well runs dry", and so it was with us Americans. We did not miss, and scarcely noticed, steam locomotives until suddenly we realised there were so few left as to be practically non-existent. As an example, here in California there is not one steam locomotive left in service. At least we older people can remember seeing and hearing these "iron horses" in action, but the younger generation in this country will never have even this memory. I hope the boys and girls of England will take full advantage of the opportunities they still have to experience the thrill of seeing a powerful steam locomotive in operation, for I notice that the efficient—but totally unimpressive—diesel locomotive is rapidly taking over. In all too short a time they will be in the same position that we are: only in memory will they be able to see a steam locomotive. True, we have steam locomotives on display, but these are only carcases. The thunder of their exhausts is stilled forever.—W. A. NOVAK (Maywood, California, U.S.A.)

The Science of Welding—

(*Continued from page 395*)

and type are re-joined by welding methods after being broken in two. It is an interesting fact that, after they have been expertly welded, shafts are actually stronger at the point of breakage than before. Not only strength, but absolute accuracy of alignment in all respects is guaranteed.

If a part has not actually broken, and unduly rapid wear is the complaint, then the welding engineer steps in and solves the problem usually by applying special wear-resisting steel. In cases of corrosion, either a non-ferrous metal is applied or, possibly, stainless steel. It all depends on the job that particular part has to do and the conditions under which it operates. Final judgment in matters of this kind rests with the metallurgical chemist who supervises the operators.

Even highly-trained engineers make surprising requests sometimes and it is not uncommon, when a component is received for attention, for it to be stipulated that no heat shall be applied. Obviously this rules out all possibility of welding but it does not defeat the repair engineers, for in such cases they apply a "cold" method termed "metal stitching". The result provides extraordinary strength, and although work of this nature is confined mainly to castings, the results are highly satisfactory and are accorded the same guarantee that accompanies all welding work.

Specialised welding of the type described is essential to the smooth running of industry, for in matters of maintenance, and where mechanical failure has to be speedily rectified, there is no more trustworthy means of handling the problems involved.

Air News—(*Continued from page 397*)

Rolls-Royce, and will carry its full payload for more than 1,000 miles at 200 m.p.h.

The B.206 is the luxury machine of the new Beagle range and is equipped with radio and navigation aids to full airways standards, so that it can be used for day and night operation in all weathers anywhere in the world. The fact that it was designed and built in just over nine months leaves little doubt of Beagle's ability to put Britain back on the business flying map.

"Crank" Ideas Can Lead to Progress—

(*Continued from page 403*)

Some of the world's finest linoleum comes from Lune Valley Mills and it goes into royal palaces and weavers' cottages alike, all because an Englishman's kink about linseed oil proved correct. It was later destined to become an expensive idea, for today raw linseed oil costs £200 a ton.

In 1937, a New Jersey housewife poured turnip juice into the tank of her Cadillac . . . and it worked! During the last war various other queer ideas were thought up to beat the petrol shortage.

A Glasgow engineer, tired of applying for fuel allocations, poured whisky into the tank of his car and found there was no pinking. A lorry used to make the nightly haul between Bradford and Glasgow on monkey-nut oil! Added to petrol, it helped to give more miles per gallon.

One French motorist tried orange juice! At a cost of £3 a gallon it became expensive; scientists found that 20,000 oranges were needed to obtain fifteen gallons of fuel!

Italian racing drivers decided to race on beetroot wine, which was pumped into the fuel tanks and mixed with charcoal. Castor oil, lemon juice and even straw juice—extracted from straw under pressure—have been used as racing fuels!

Hornby Railway Company—

(*Continued from page 411*)

room to mention these now, but I hope to tell you more about them next month. Hornby-Dublo owners of Three-Rail layouts will be glad to know that the rebuilt West Country Locomotive referred to in detail last month is now available in Three-Rail form as No. 34042 *Dorchester*.

Another welcome piece of Hornby-Dublo Locomotive news is that the popular Two-Rail *City of London* now has a Three-Rail sister, No. 46247 *City of Liverpool*.

To add to the variety of Hornby-Dublo goods rolling stock there is now No. 4626 Presflo Bulk Cement Wagon, No. 4627 I.C.I. Bulk Salt Wagon and No. 4652 Machine Wagon *Lowmac*. The new Cable Drums mounted on the Low-Sided Wagon, No. 4646, are plastic mouldings. In addition, No. 5025 Gradient and Mile Posts have appeared, as also has No. 2743 Curved Double Isolating Half Rail, Large Radius.

Photography—(*Continued from page 417*)

camera in position. Two ½" Bolts pivot the Flanged Plate in the centre hole of each end, and attach it to two 5½" Angle Girders. A ¾" Washer is placed next to the Flanged Plate and an ordinary Washer between the Bolt head and the Angle Girder, and the Flanged Plate and the nut. In this way it is possible to tighten the Bolt firmly but still allow a stiff movement of the Flanged Plate for camera adjustment.

The 5½" Angle Girders are bolted at right angles to two 12½" Angle Girders forming the base of the stand. Six 7½" Perforated Strips brace the stand as shown and the 12½" Angle Girders are held together by two 5½" Perforated Strips with Angle Brackets bolted at each end. The stand can be modified to suit almost any kind of camera.

An easy way of focusing and, at the same time, having a preview of your picture, is to open the back of your camera when it is empty, carefully placing a piece of fine tracing or grease-proof paper where the film runs, and fixing it accurately in position with Sellotape. With supplementary lens in position and your camera on the stand as illustrated, open the shutter at the "B" or "T" setting and you will see an image, upside down, on the tracing paper. The picture is much easier to see if you cover your head and the back of the camera with a piece of dark cloth.

By moving the camera backwards and forwards you will soon find the position of sharpest focus and the exact field covered by your lens. Remember that at close range your viewfinder no longer shows the same area as that which your lens covers. When you have found the right position for the camera, and your subject is in focus, you can remove the camera from the stand, taking care not to disturb the stand itself. Load the camera with film, replace it on the stand and start shooting.

Next month's "Photographers' Page" will show you how to use the Meccano Camera Stand to photograph a Hornby-Dublo Locomotive.

Swing Boat and Rear Dump Truck—

(*Continued from page 407*)

but spaced from it by a few Washers.

Parts required to build the Rear Dump Truck: 2 of No. 1; 3 of No. 2; 2 of No. 3; 9 of No. 5; 4 of No. 10; 2 of No. 11; 6 of No. 12; 1 of No. 15b; 2 of No. 16; 2 of No. 18a; 1 of No. 19g; 3 of No. 22; 1 of No. 24; 8 of No. 35; 73 of No. 37a; 63 of No. 37b; 13 of No. 38; 1 of No. 40; 6 of No. 48a; 1 of No. 51; 1 of No. 52; 2 of No. 54; 4 of No. 90a; 5 of No. 111c; 2 of No. 126; 2 of No. 126a; 4 of No. 187; 2 of No. 188; 2 of No. 189; 2 of No. 190; 1 of No. 191; 2 of No. 192; 1 of No. 200; 2 of No. 215.

Meccano Snow Plough—

(*Continued from page 409*)

The Bolt should be placed in the fifth hole from the end of the Strip nearest to the back of the cab. The Bolt is fitted with lock-nuts so that the Strip can pivot freely. A ½" Bolt 28 is then bolted in the end hole at the rear. This is not fixed to the cab but should be free to slide in and out of the hole. At the other end is bolted a threaded pin on which rests the plough blade. When the Bolt 28 is withdrawn the blade will swing down.

Parts required to build the Snow Plough: 2 of No. 1; 9 of No. 2; 6 of No. 3; 2 of No. 4; 11 of No. 5; 4 of No. 6A; 4 of No. 8; 9 of No. 10; 4 of No. 11; 16 of No. 12; 4 of No. 12A; 1 of No. 15A; 1 of No. 16; 2 of No. 17; 1 of No. 18A; 1 of No. 22; 1 of No. 24; 2 of No. 35; 139 of No. 37A; 125 of No. 37B; 31 of No. 38; 2 of No. 38D; 2 of No. 45; 2 of No. 48B; 1 of No. 53; 3 of No. 59; 2 of No. 90; 6 of No. 90A; 2 of No. 111; 2 of No. 111A; 4 of No. 111C; 1 of No. 115; 4 of No. 125; 1 of No. 126; 2 of No. 126A; 1 of No. 155; 1 of No. 163; 1 of No. 164; 4 of No. 187; 4 of No. 188; 6 of No. 189; 8 of No. 190; 2 of No. 191; 3 of No. 192; 2 of No. 197; 1 of No. 212; 2 of No. 212A; 2 of No. 215; 4 of No. 221.

Fireside Fun

Two friends were walking along as a jet 'plane zoomed overhead.

Said Bob, "Would you like to be up there with that 'plane, Fred?"

Replied Fred, "Well, I wouldn't like to be up there without it!"

"I said CLEAN it—not press it!"

An American and a Dutchman were talking. "What does your flag look like?" asked the American.

"It has three stripes," replied the Dutchman, "red, white and blue. We say they have a connection with our taxes—we get red when we talk about them, white when we get our tax bills, and we pay them till we're blue in the face."

"That's just how it is here," replied the American, "only we see stars, too."

* * * *

"These" said the guide at Niagara, "are the greatest falls in the world, and if the ladies will be silent for a moment you will be able to hear the thunder of the water."

* * * *

Man: I have come because I read your advertisement for a man to retail canaries.

Proprietor: Oh, do you want the job?

Man: Well, no. But I'm curious—how did the canaries lose their tails?

* * * *

Two spacemen looked down from their spaceships at the surface of Venus.

"And I thought they asked for volunteers to go to Venice," one said.

* * * *

Five-year-old Tommy arrived home from school bursting with pride and excitement.

"Mummy, we are having a Christmas play at school and I'm in it. I'm a piece of paper."

"A piece of paper?" she queried.

"Yes", he replied emphatically. "A piece of paper."

His mother saw his teacher during the week, and asked if Tommy had made a mistake. The teacher thought for a moment and then light dawned.

"I know what he meant", she exclaimed, "I asked him to be a page."

A man who owned a talking parrot wanted to go shopping, so he told the parrot to tell the coalman he wanted ten hundredweight of coal, and that the money was on the shelf.

The coalman arrived and the parrot gave to him his instructions. After delivering the coal the man called for the money, and said to the parrot, "What a clever bird you are being able to talk!"

"Yes, I can talk," replied the parrot, "and I can count, too. You've only delivered eight hundredweight."

A conceited young man was having an interview with the manager. After expounding his talents, he wound up with these words: "Have you an opening for an intelligent man with a university education?"

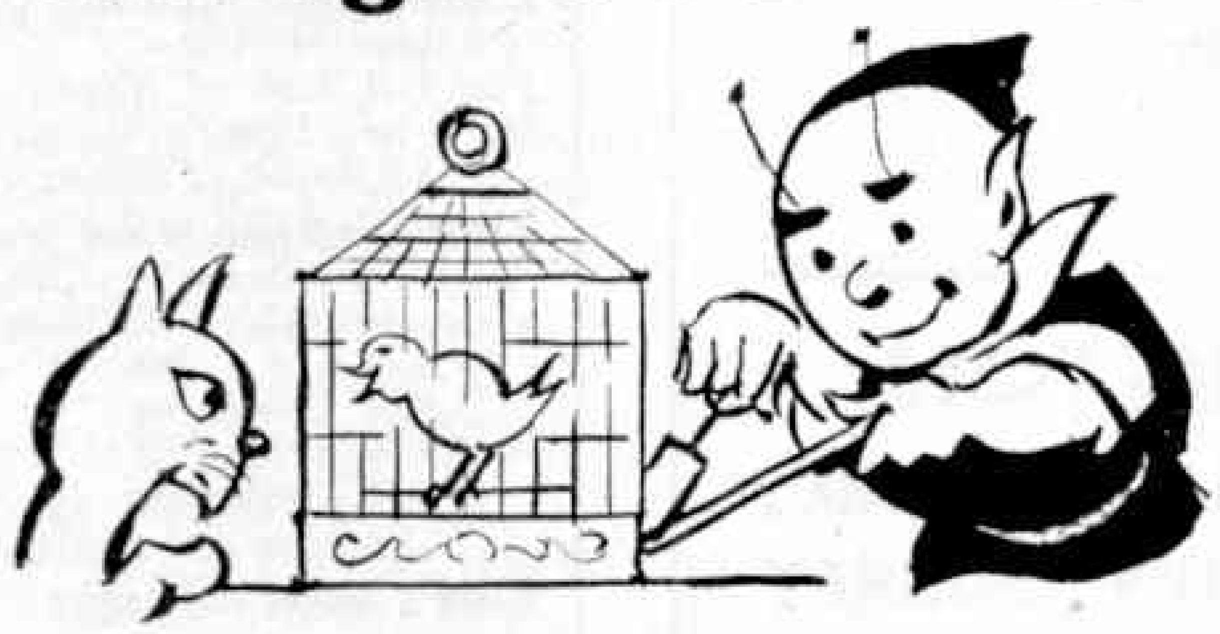
"Yes," was the reply, "but don't slam it as you go out."

"My goodness! I didn't realise it was so late."

Whether you solder to

(*a*) keep things IN ......

(*b*) keep things OUT ......



(*c*) keep things GOING.....

success is certain with

FLUXITE

You can't go wrong with FLUXITE. Every engineer and mechanic confronted with a soldering job knows FLUXITE is the flux that never lets him down. FLUXITE's great popularity is proof positive of its qualities.

M.P.90

Obtainable from all good-class Ironmongers & Hardware Stores

HOW TIMES HAVE CHANGED

Early in the nineteenth century, women and children were employed in the mines to push the trucks of coal. They often had to crawl on all fours through the low, narrow galleries. Nowadays most of the coal is carried on endless moving belts of rubber.

Dunlop make special belting for use in mines. This is flame-proof and built extra strong to stand up to the strain of heavy, rough loads. Dunlop also make belting for use in quarries and in factories — for carrying all kinds of materials quickly from point to point.

DUNLOP

SYMBOL OF PROGRESS

CFH/PR1/8

THE FINEST AIR RIFLES

Relum

MODEL SLAVIA 622

No. 2 BORE *Approx. range 20 yards. Weight 3¼ lb. Length 36 in.*
The smallest .22 rifle available. Precision rifled barrel, full length butt, light trigger pull.

MODEL SLAVIA 618R

No. 1 BORE *Approx. range 25 yards. Weight 3¼ lb. Length 36 in.*
Precision ground solid rifled barrel with pin front sight. Adjustable rear sight. Powerful and accurate.

- Spares readily available.
- Speedy repair service.
- All rifles fully guaranteed.

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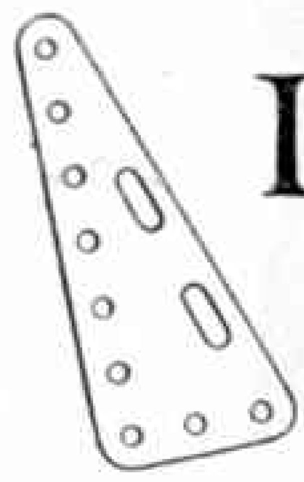
All your models come to life with Humbrol products—a superb finish for each and every modelling need — Humbrol Railway Enamels for all your Kitmaster Kits in authentic true-to-life colours—Humbrol Scenic Enamels to complete railway layout, and Humbrol 1 hour enamel, the superb finish for general modelling, a really tough flexible lead-free enamel that lasts—available in a range of 34 intermixable colours.

See the full range of Humbrol finishes at your local model, hobby or handicraft shop.

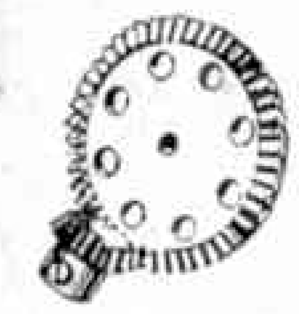
Recommended by

ROSEBUD
Kitmaster

The colours for your SADDLE-TANK are Humbrol Red 121, Silver 129, Copper 131. A colour chart in every kit.



DEALERS WHO SPECIALISE IN MECCANO SPARE PARTS



Listed below are some of the dealers who sell Meccano accessories and spare parts. This is intended to aid enthusiasts—and there are many of them—who are constantly requiring additional spare parts for their Sets. All dealers are, of course, able to order Meccano spare parts for their customers, but those listed below are among our spare part specialists.

C. G. MARSHAL
Maxwell Road
BEACONSFIELD
Telephone: 1092

H. J. BANKS
23 St. Peter's Street
BEDFORD, Beds.
Telephone: 61183

BATESON'S SPORTS DEPOT LTD.
2 Abingdon Street
BLACKPOOL
Telephone: 24061

TETTS THE IRONMONGERS
402 Wimborne Road
Winton, BOURNEMOUTH
Telephone: Winton 309

H. SALANSON & CO. LTD.
83-85 Fairfax Street
BRISTOL 1
Telephone: 2-6185

R. M. HILL & SONS
36/40 Castle Street
CARLISLE
Telephone: 21621 and 21122

W. PAINE & CO. LTD.
168 High Street
CHATHAM. Also at Strood and Grays
Telephone: 45215

POPE & SMITH LTD.
20/21 Tindal Street
CHELMSFORD
Telephone: 2331

KENT, BLAXILL & CO. LTD.
3 High Street
COLCHESTER
Telephone: 6371

WEST END CYCLE STORES
65 and 71 Crouch Street
COLCHESTER
Telephone: 73759

HARVEYS OF COVENTRY LTD.
16 Broadgate
COVENTRY
Telephone: 26570

DOLLS' HOSPITAL (MELLERS)
55 Hallgate
DONCASTER
Telephone: 2831

DERRETT (Toys) LTD.
52 High Street
ERITH, Kent
Telephone: 32339

FLETCHERS (Sports) LTD.
20-24 Kings Square
GLOUCESTER
Telephone: 22974

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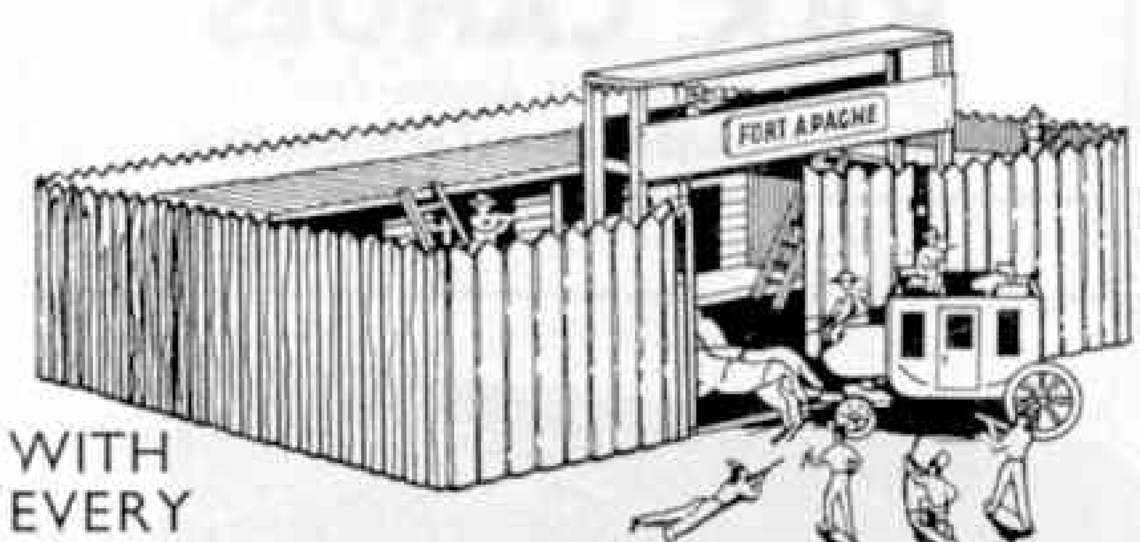

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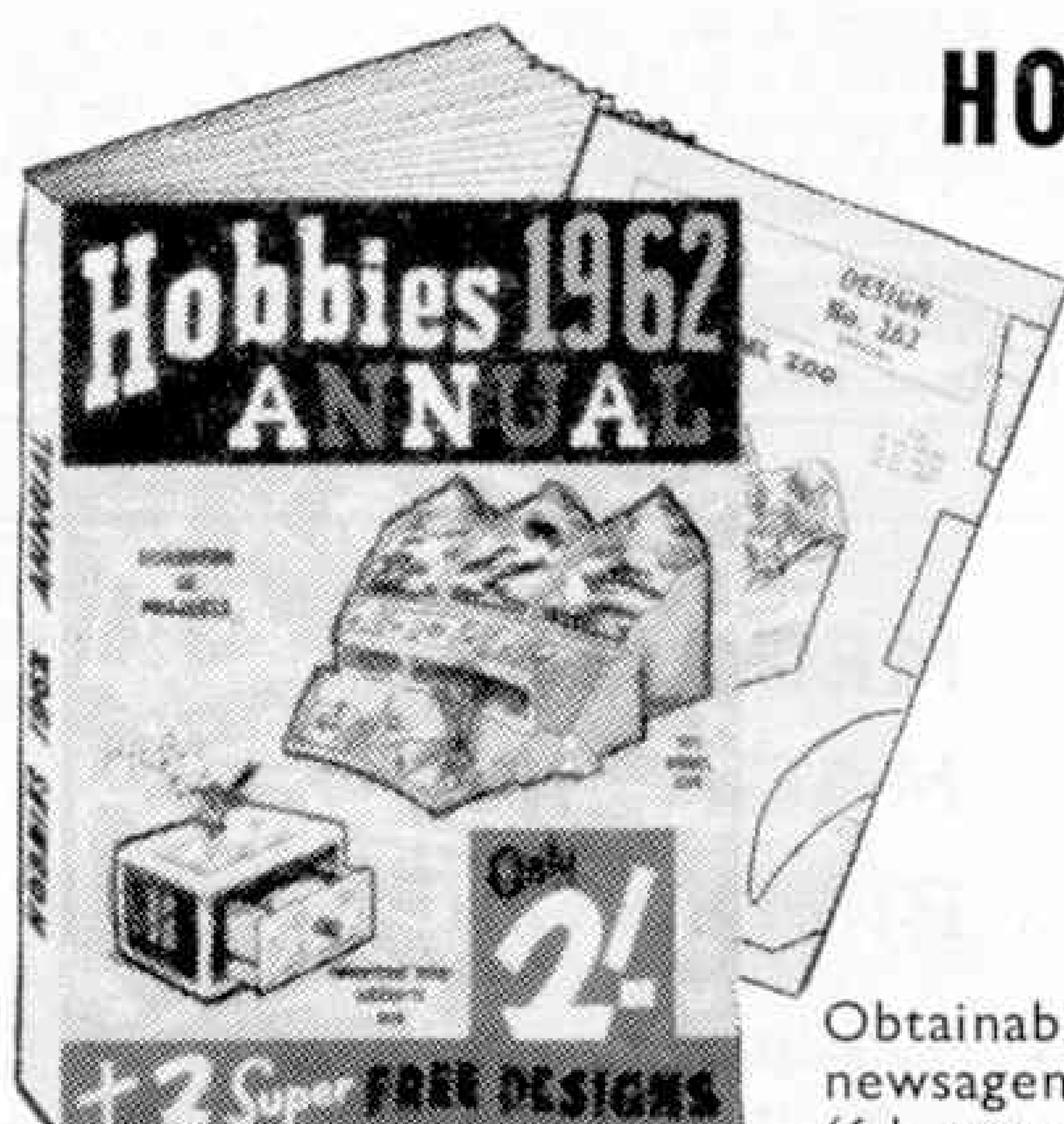

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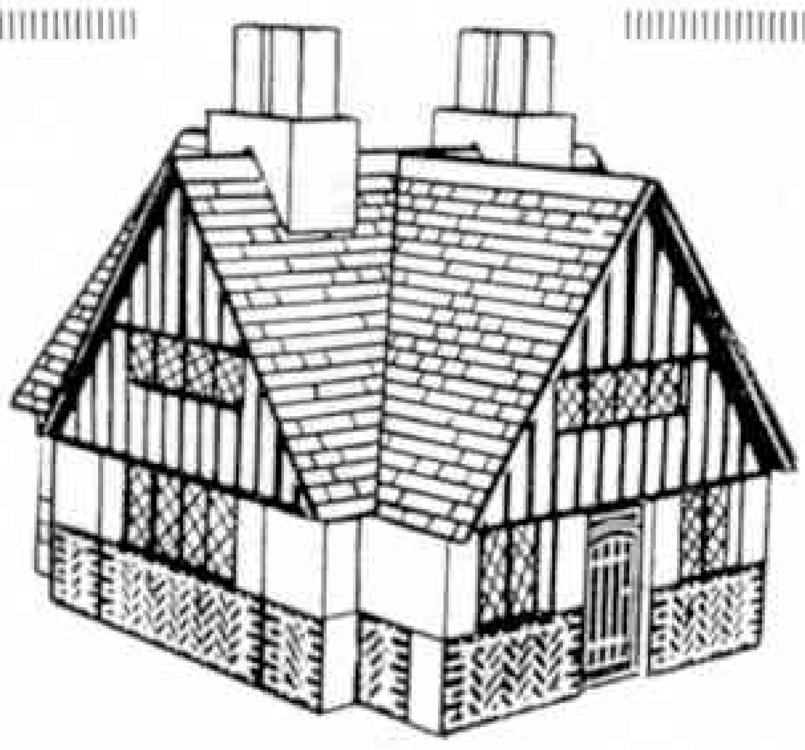

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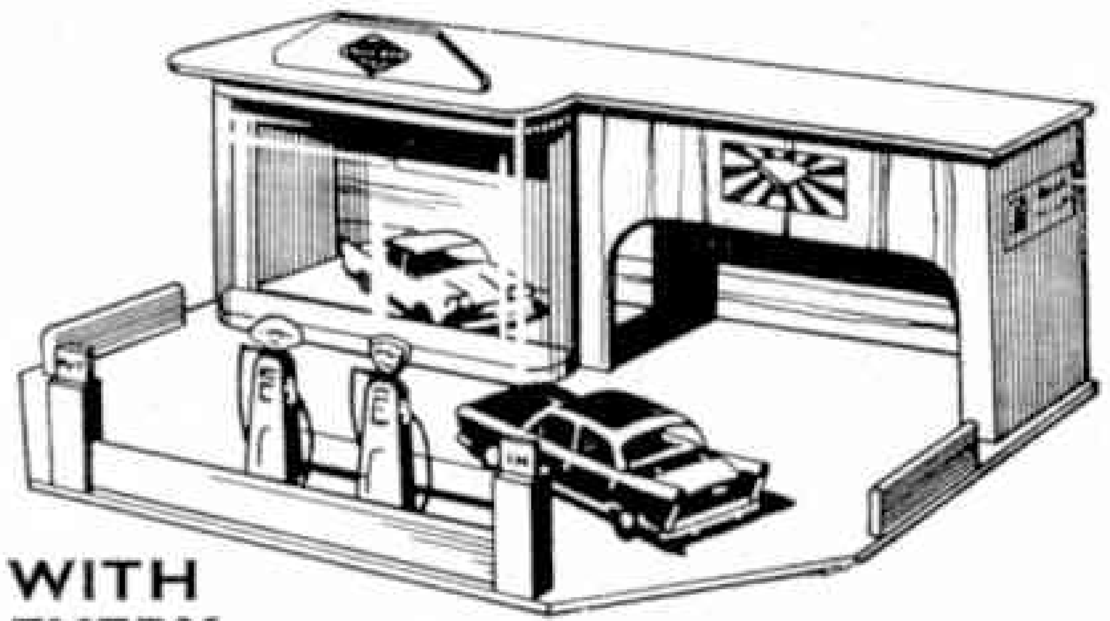

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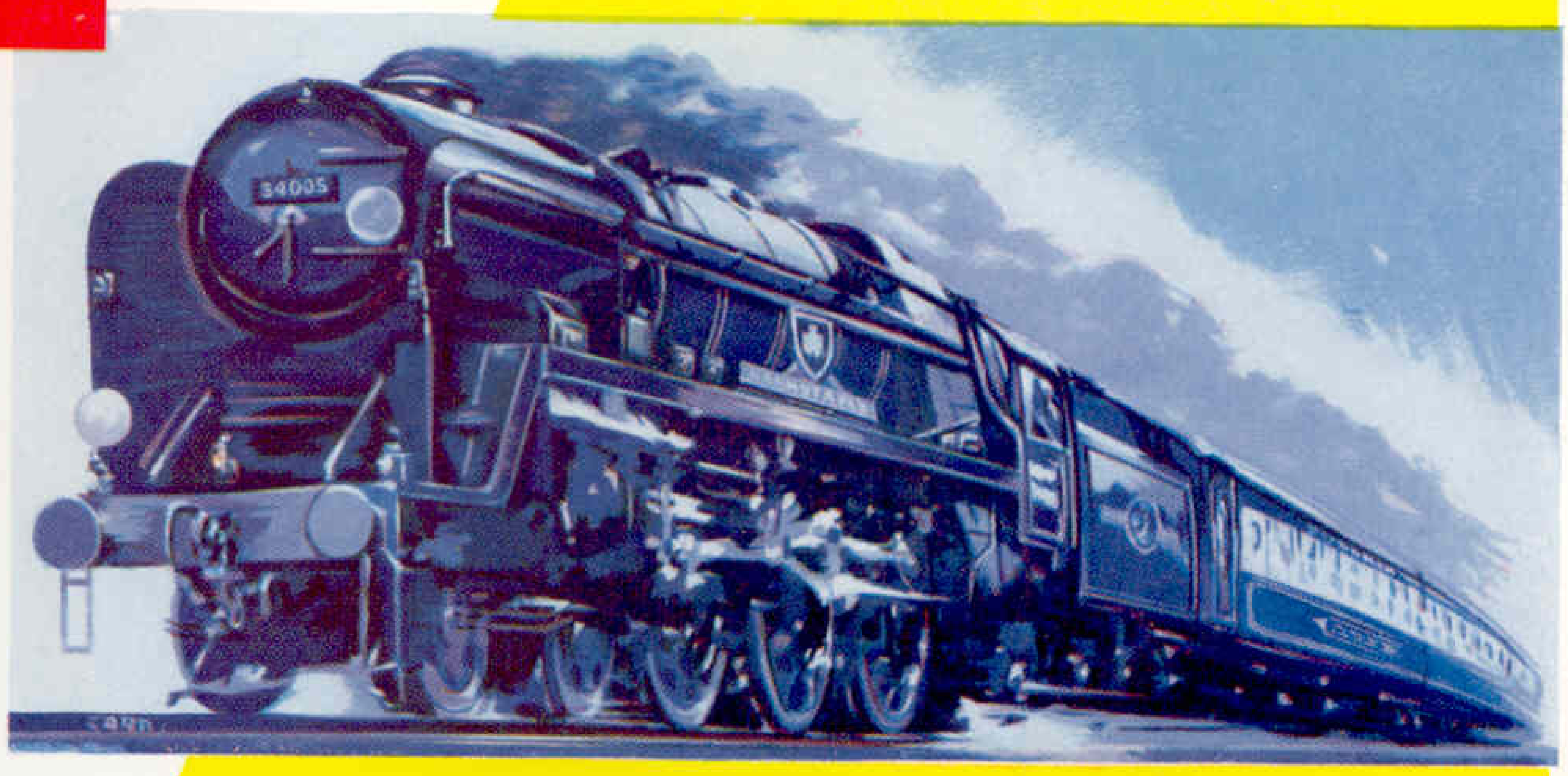

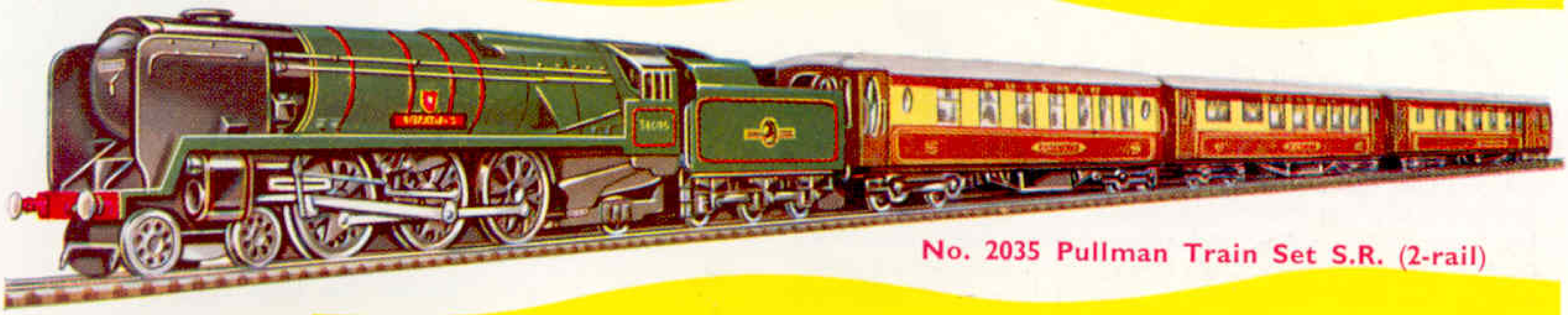

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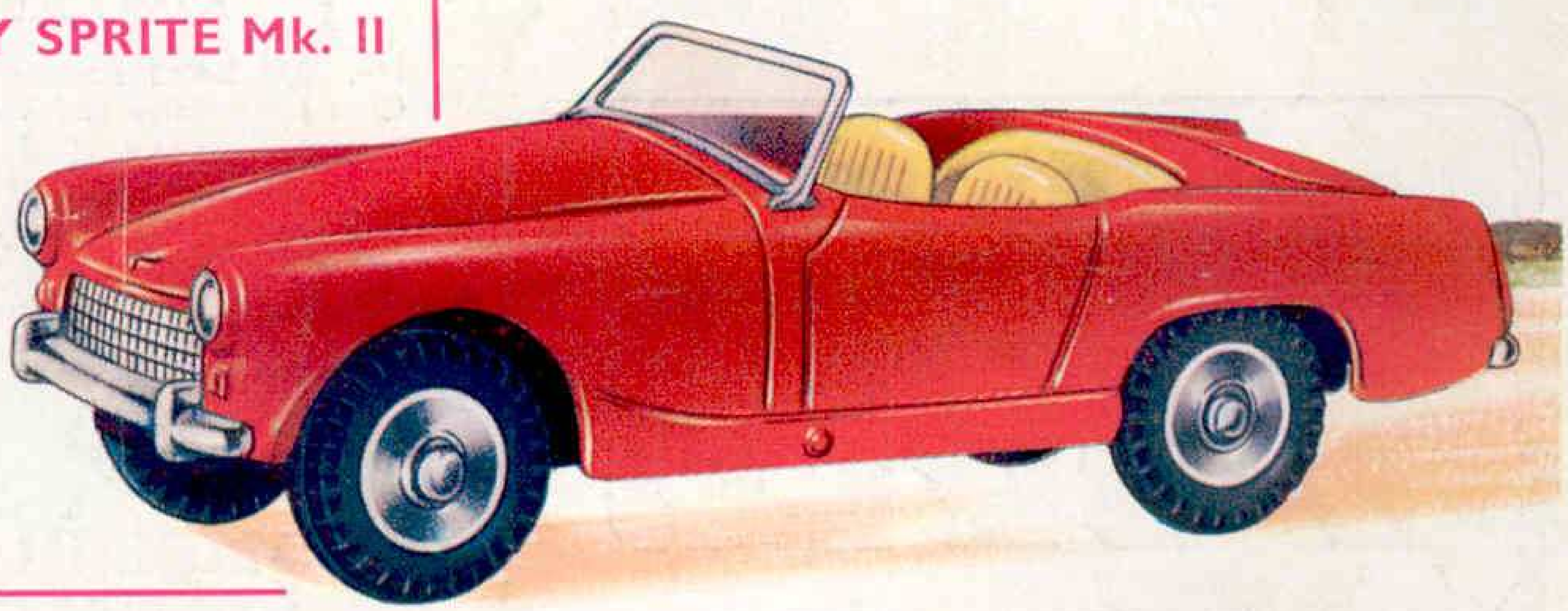

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