VOL. XLVIII Nº4 APRIL 1963

MECCANO MAGAZINE

1/3

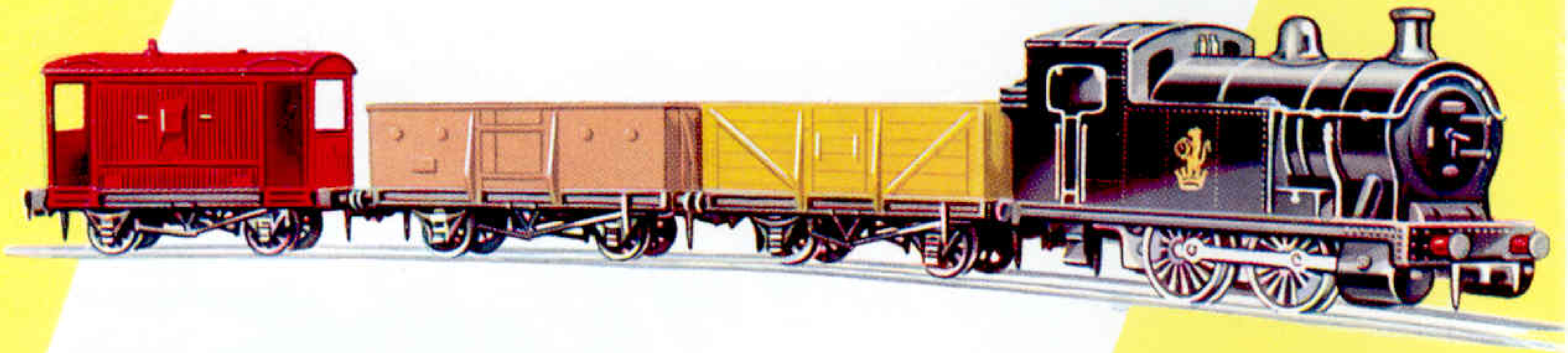
LOOK!

a genuine

HORNBY

gauge 00/H0 train

No. 2001 HORNBY ELECTRIC 0-4-0 TANK GOODS SET



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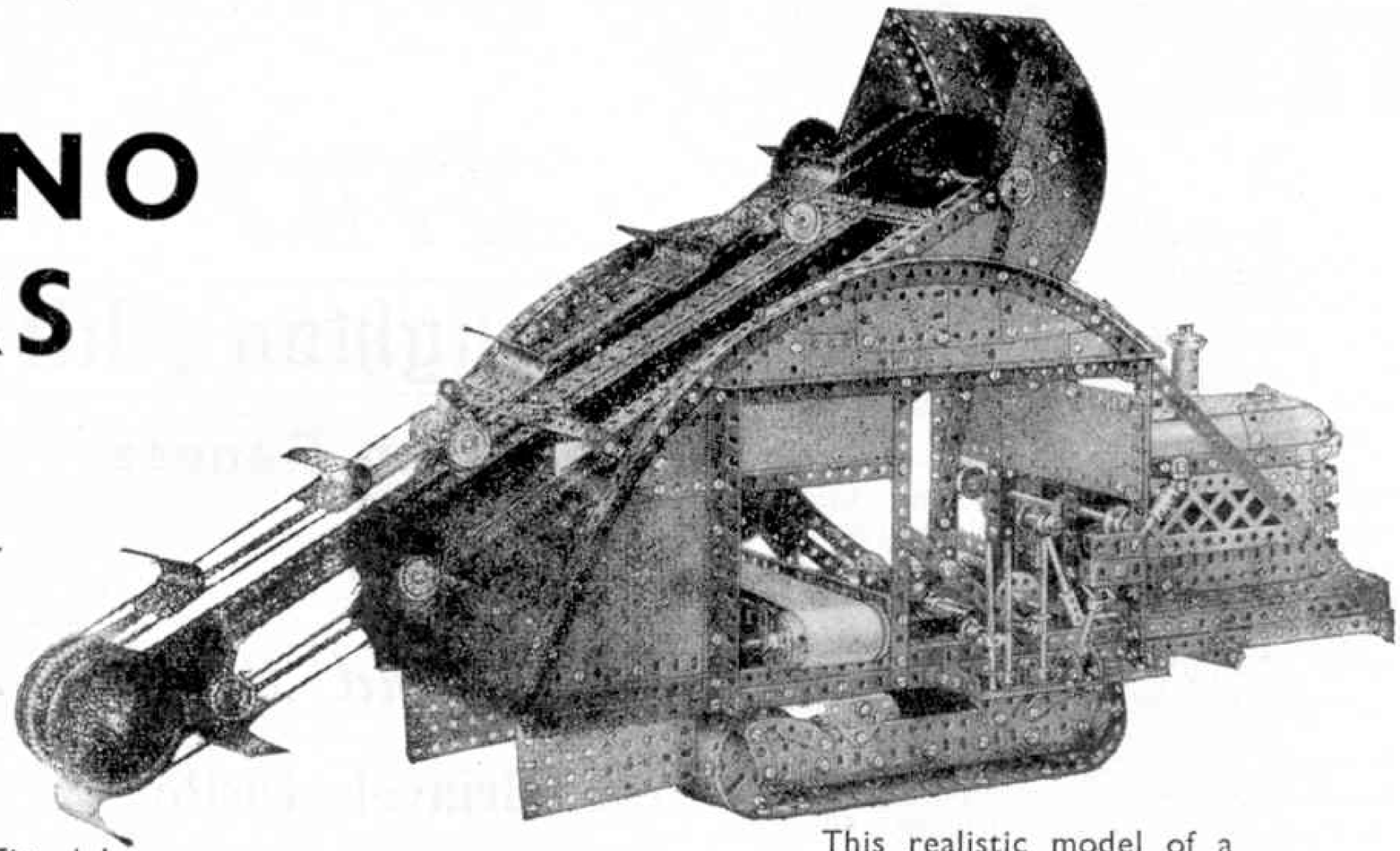
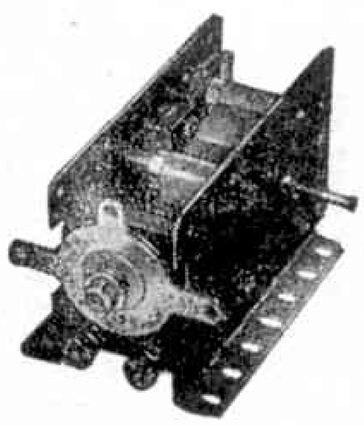


This realistic model of a Trench Digger can be steered as it travels and is powered by a Meccano E15R type Electric Motor.



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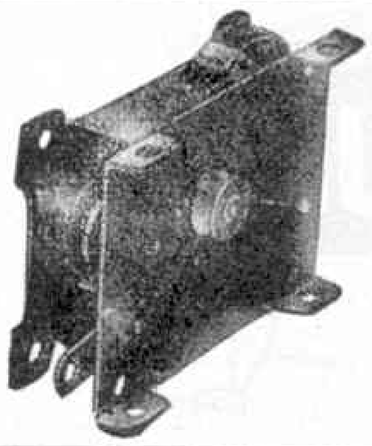

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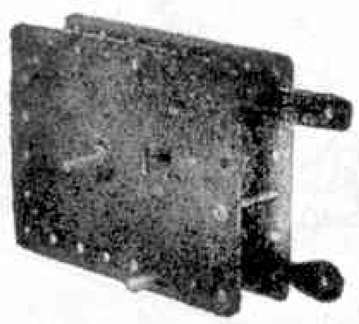

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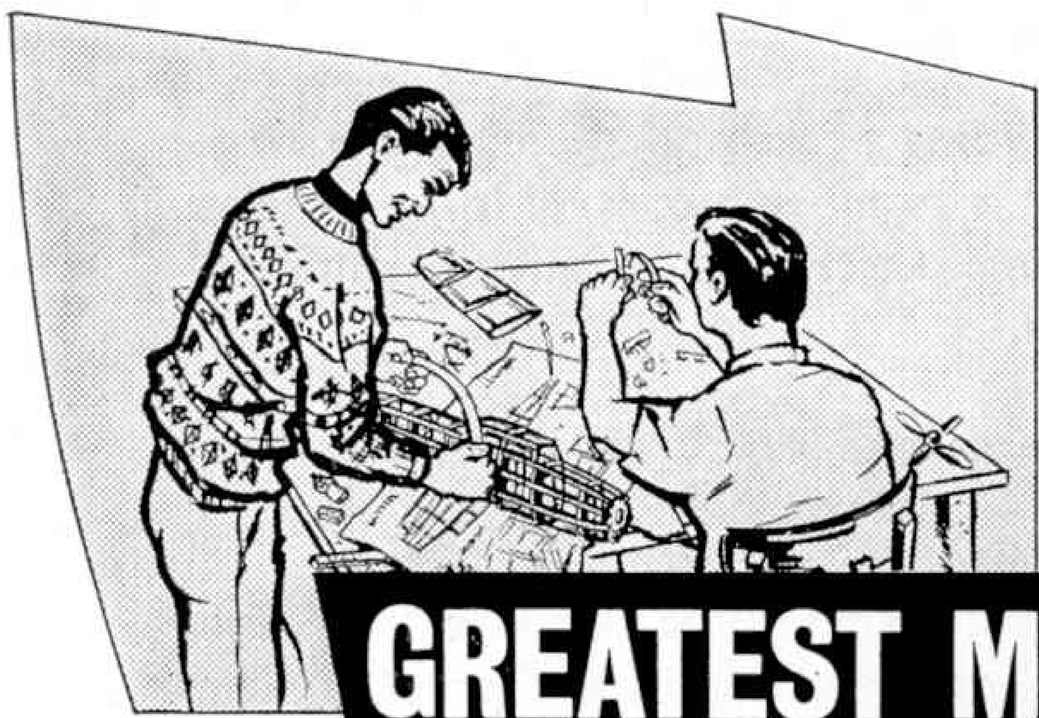

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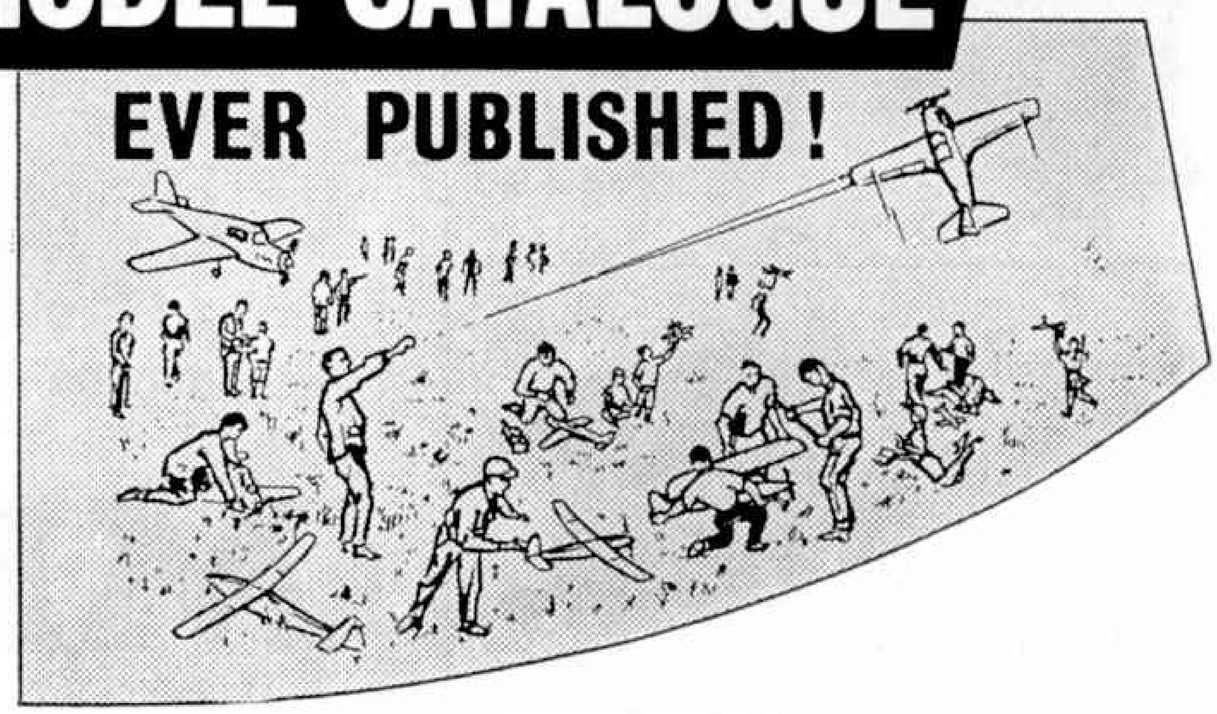

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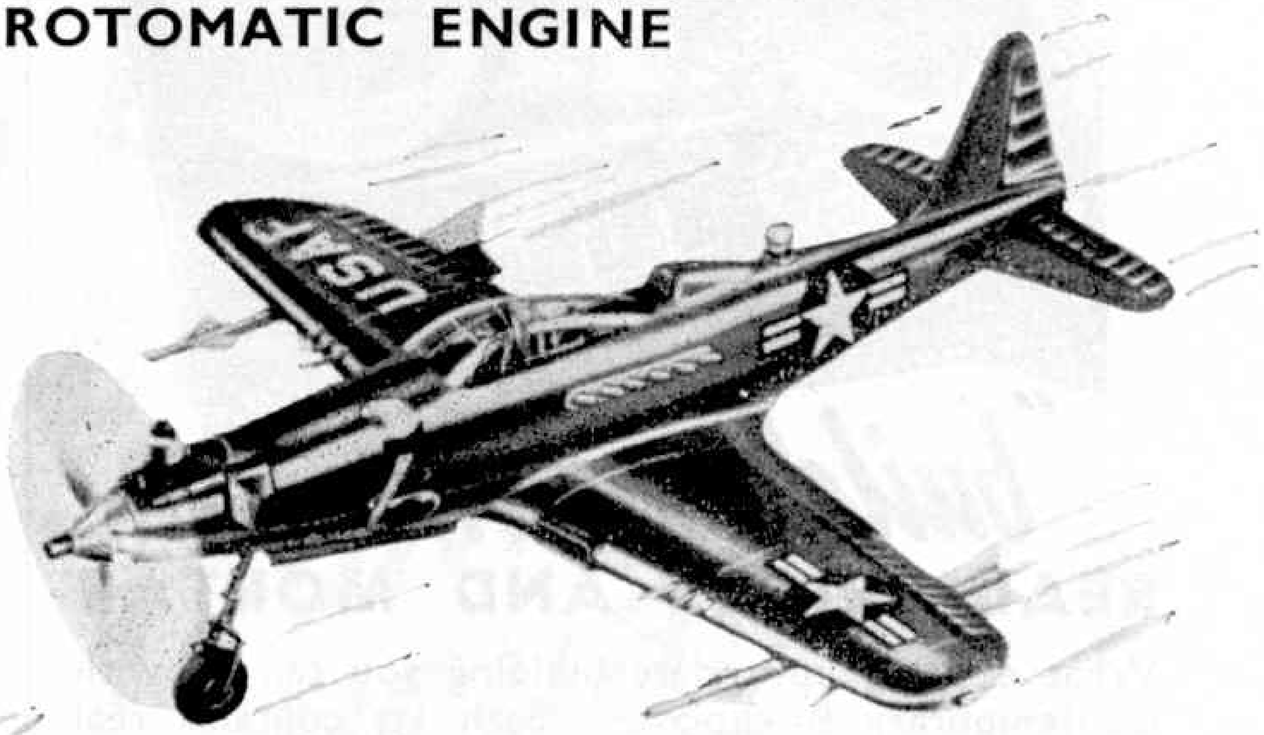

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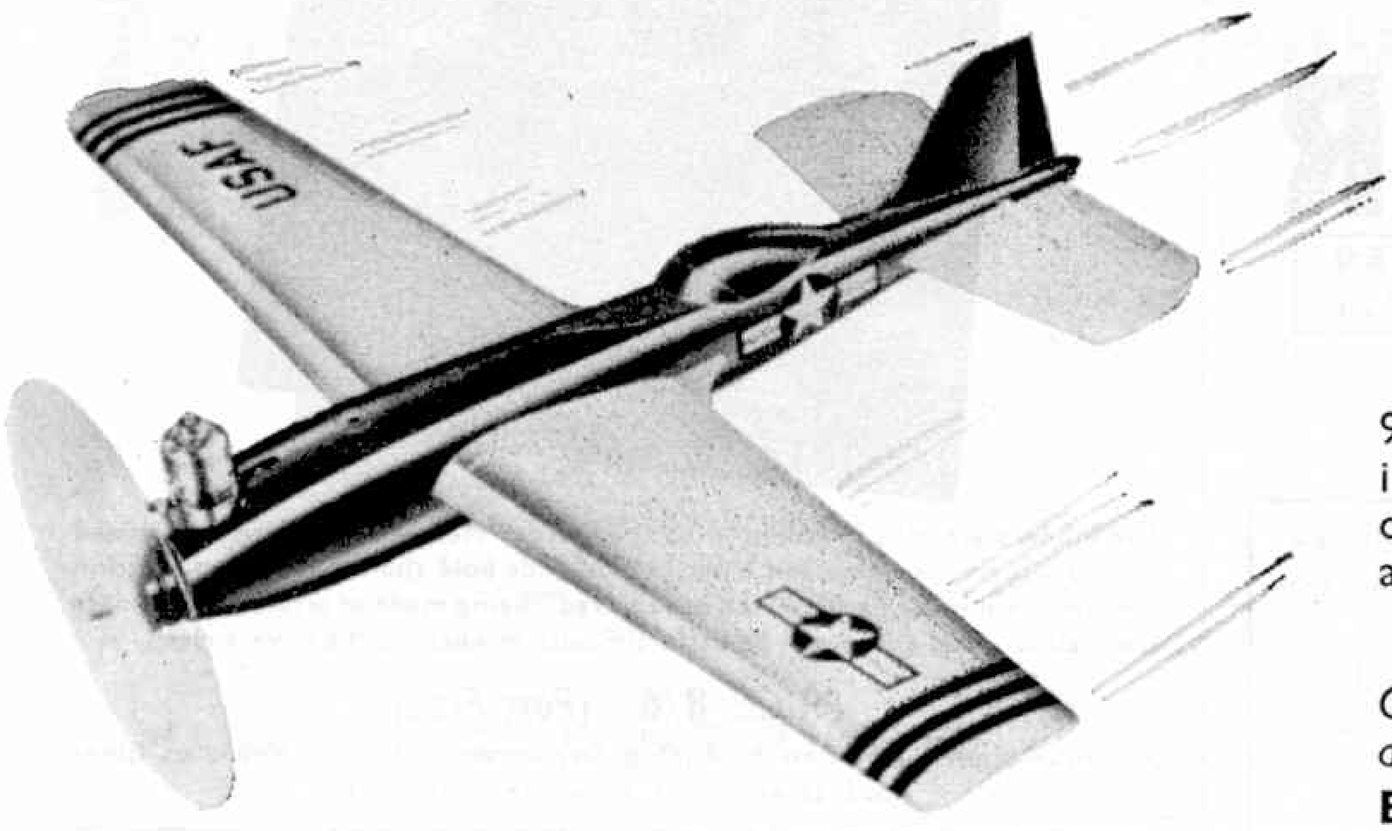

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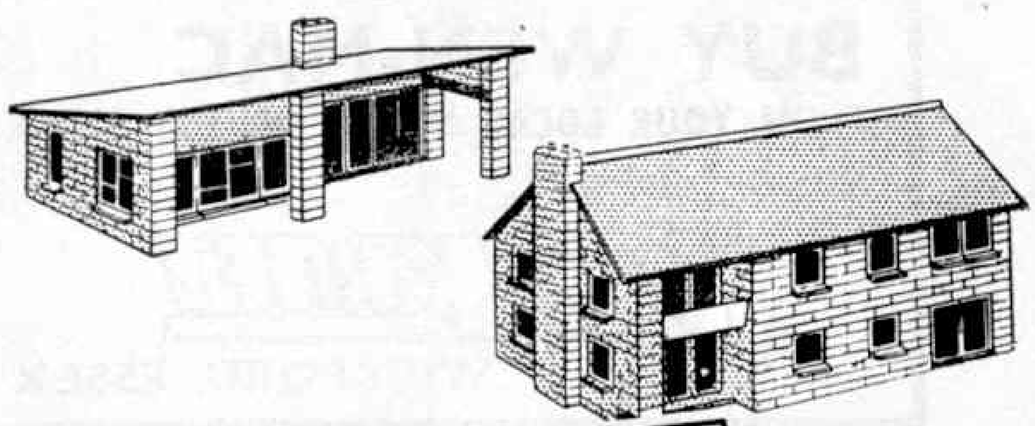

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No. 1090 Hornby 1 Power Control Unit
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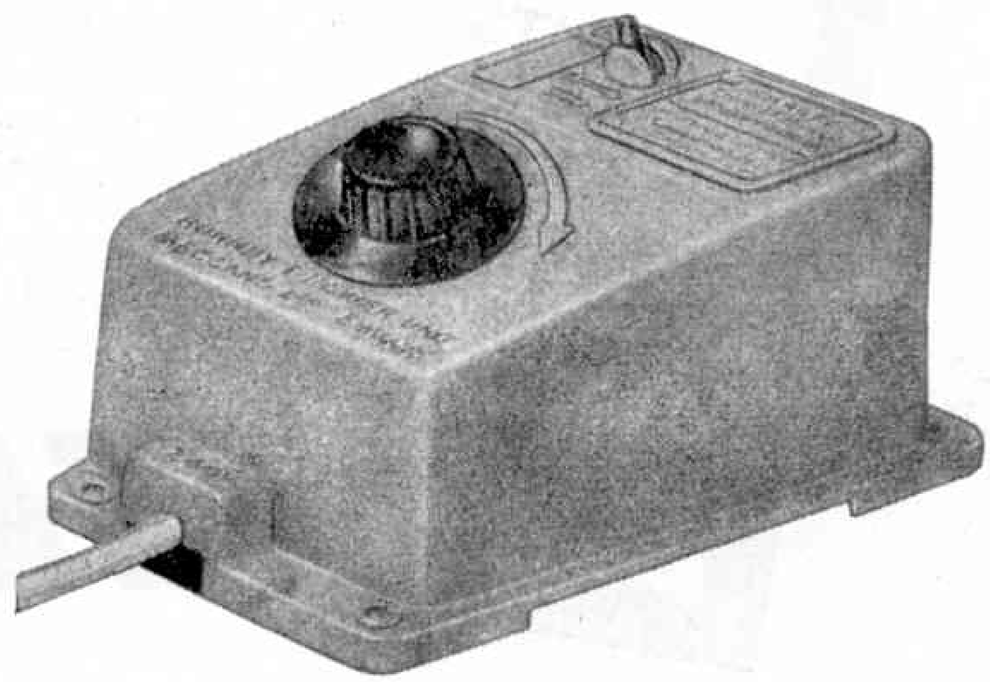

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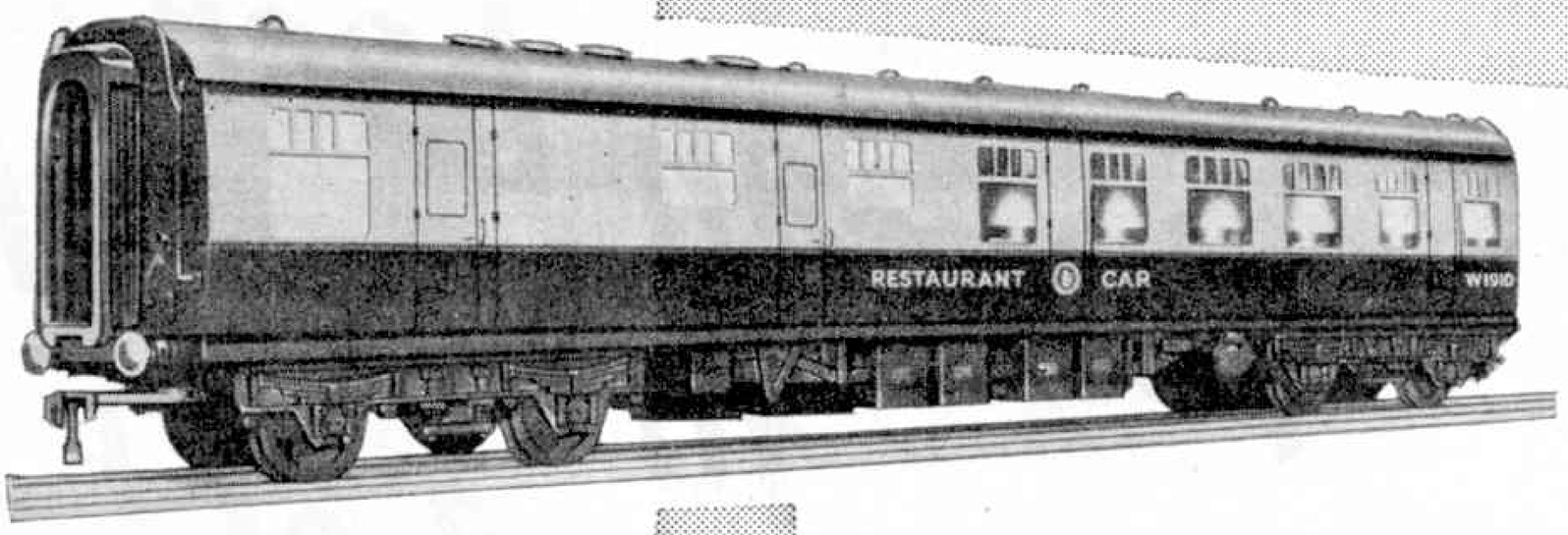

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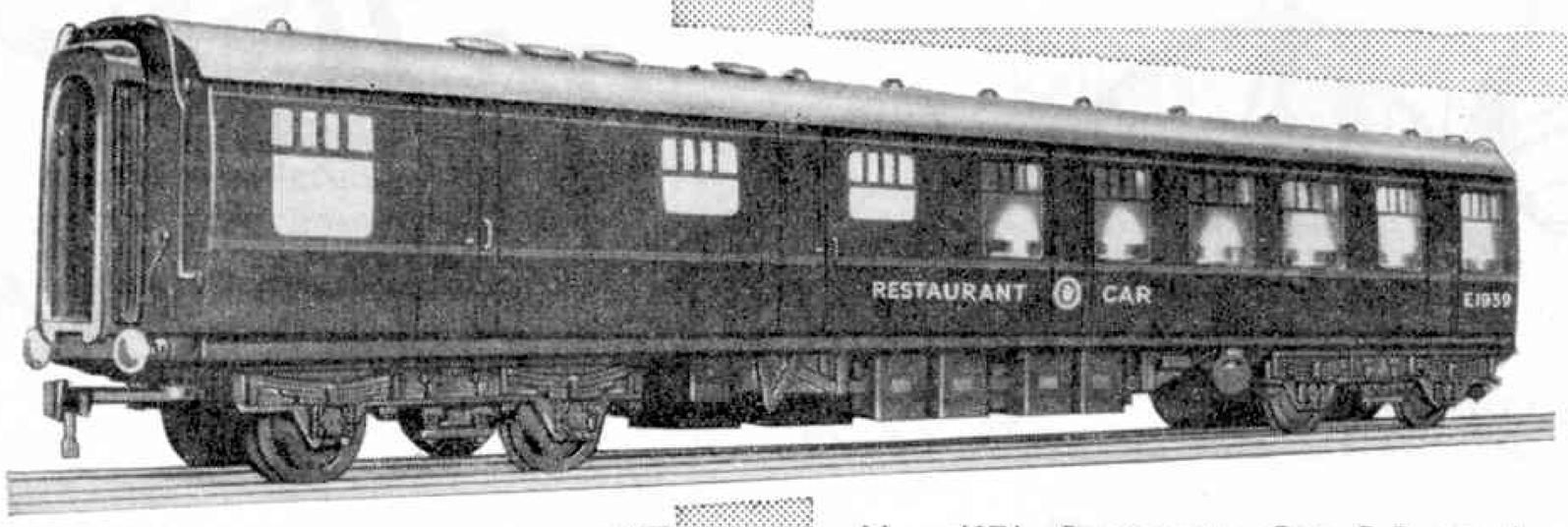
In style and construction these new Restaurant Cars match the latest Hornby-Dublo Corridor Coaches, with their strong metal sides, bases and bogies. Roofs, ends and underframe details are plastic mouldings. Each vehicle has interior fittings and glazed windows.

No. 4070 Restaurant Car is finished in W.R. brown and cream livery.

No. 4071 Restaurant Car is identical in design and construction to No. 4070, but is finished in B.R. standard maroon.



No. 4071 Restaurant Car B.R. with interior fittings.
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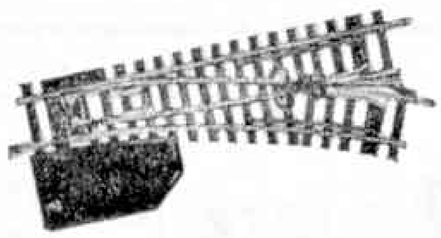

Hornby-Dublo (00 Gauge) "Simplec" Hand-Operated Points. The new "Simplec" Hand-Operated Points are available in Right-Hand and Left-Hand form. Since these points are self-isolating, there is no need for the inclusion of Double Isolating Rails in any track circuit to which they are added.

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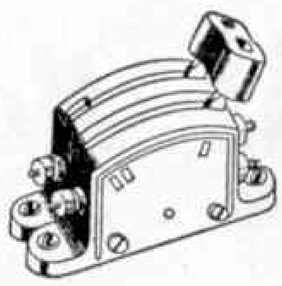

No. 1612 SWITCH LINK HANDLE

The switch link handle is designed to fit on to the levers of two adjacent Hornby-Dublo Switches so that they may both be moved at once. U.K. Price **9d.**

HORNBY DUBLO

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MECCANO MAGAZINE

Volume XLVIII No. 4 April 1963

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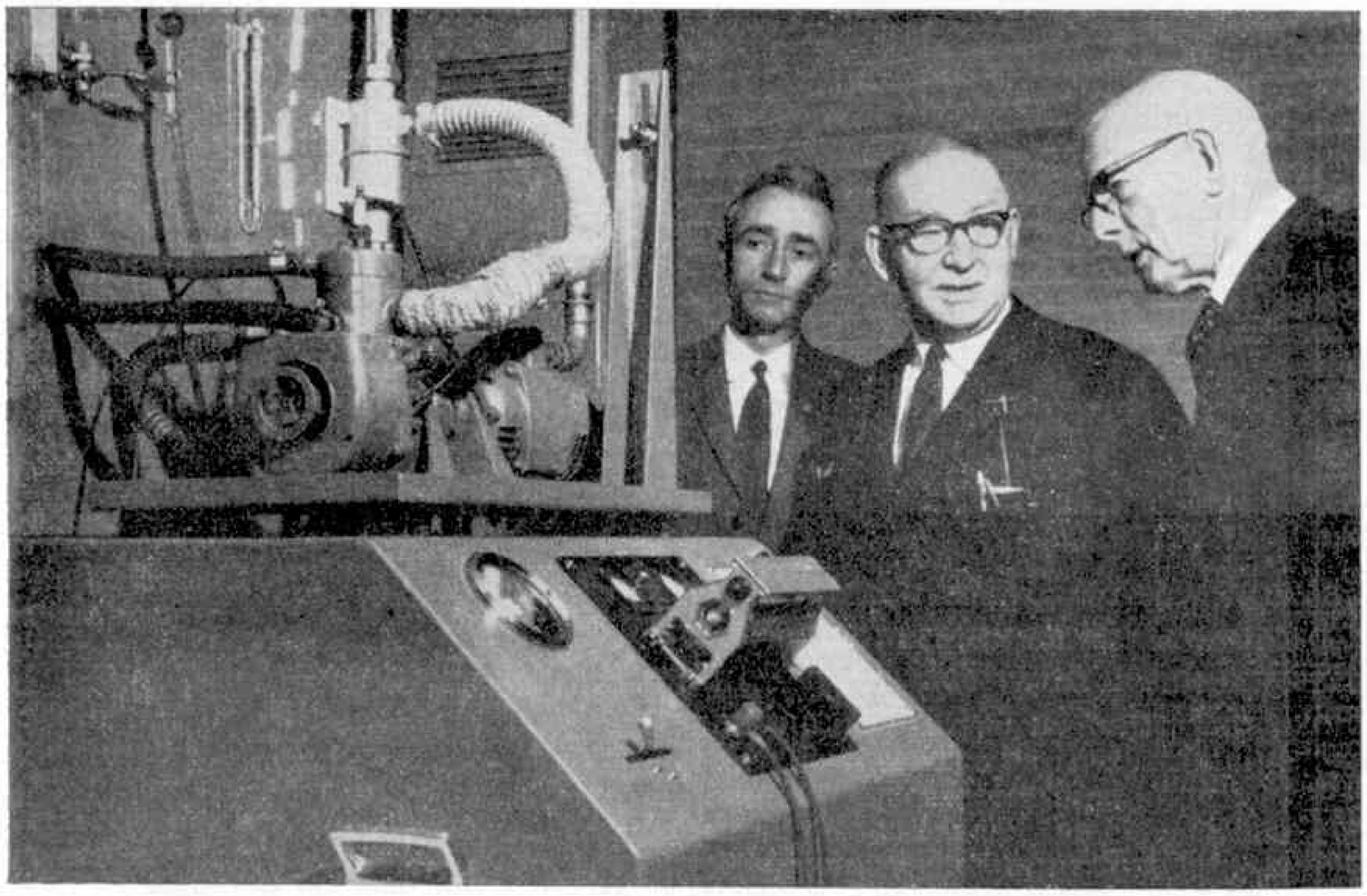

MOST boys of the modern age are interested in mechanical engineering probably to a greater extent than the youth of the last generation, and I am sure young readers of the *Meccano Magazine* will be intrigued by the invention which is pictured above. It might well be called an engine for the schoolroom, and it was demonstrated at the annual meeting of the Science Masters' Association in Manchester. This compact unit consists of a small, single-cylinder gasoline engine driving an electric generator. Instruments permit the measurements of power output, fuel consumption and air-fuel ratio—measurements that will enable students to become familiar with the principles of the conversion of chemical energy into mechanical energy through the generation of heat. Large engines of this type, costing thousands of pounds, are used in research laboratories, but this is the first time an inexpensive, portable engine suitable for secondary schools has become available.

The engine, known as the "Shell-Plint Engine Test Bed" is being produced by Plint and Partners, Limited of Wargrave, Berkshire who have been given a royalty-free licence by Shell to manufacture it for educational purposes.

The Royal Dutch Shell Group of Companies, who actively promote the training of engineers, state that they realise the importance of boys being encouraged to take an interest in mechanical engineering early in their secondary school life. As there was no equipment within the reach of secondary schools to demonstrate the theory of the internal combustion engine, engineers at Thornton Research Centre designed the prototype of the unit shown in Manchester. The engine is a 34 c.c. two-stroke petrol unit and is water-cooled. It develops 0.6 h.p. at 4,000 r.p.m. The engine drives a generator which is mounted on trunnion bearings, a torque arm and spring balance making it possible to measure the torque developed by the engine. The complete installation weighs about 200 lb. Overall dimensions are: Length, 33 inches; breadth 36 inches; height 41 inches. The scientist, Sir John Cockroft, F.R.S., Master of Churchill College, Cambridge is seen in the centre of our photograph. On his left is Dr. C. D. Davies of Shell Research Limited and on the right is Professor S. J. Davies, C.B.E., lately Dean of the Royal Military College of Science.

THE EDITOR

Next Month: FRIENDLIEST LINE IN THE WORLD

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OUR FRONT COVER

One of the greatest single-seat fighters of all time, the S.E.5a, is shown on our cover this month. It is seen in flight near the aerodrome at Farnborough, where the prototype S.E.5 was designed, built, and flown for the first time in November 1916. Of the 5,205 S.E.5s and 5a's built during the 1914–18 War only this one is still flying. It was rebuilt with great care at the Royal Aircraft Establishment, Farnborough, in 1957–59, after hanging from the roof of a hangar at Baginton Aerodrome for many years. Powered by a 200 h.p. Hispano-Suiza engine, it is often seen at air displays, as a reminder of the great air battles of the 1914–18 war in which S.E.5s and S.E.5a's won so many gallant victories.

OIL PIPELINES FOR BRITAIN

By

Arthur Gaunt

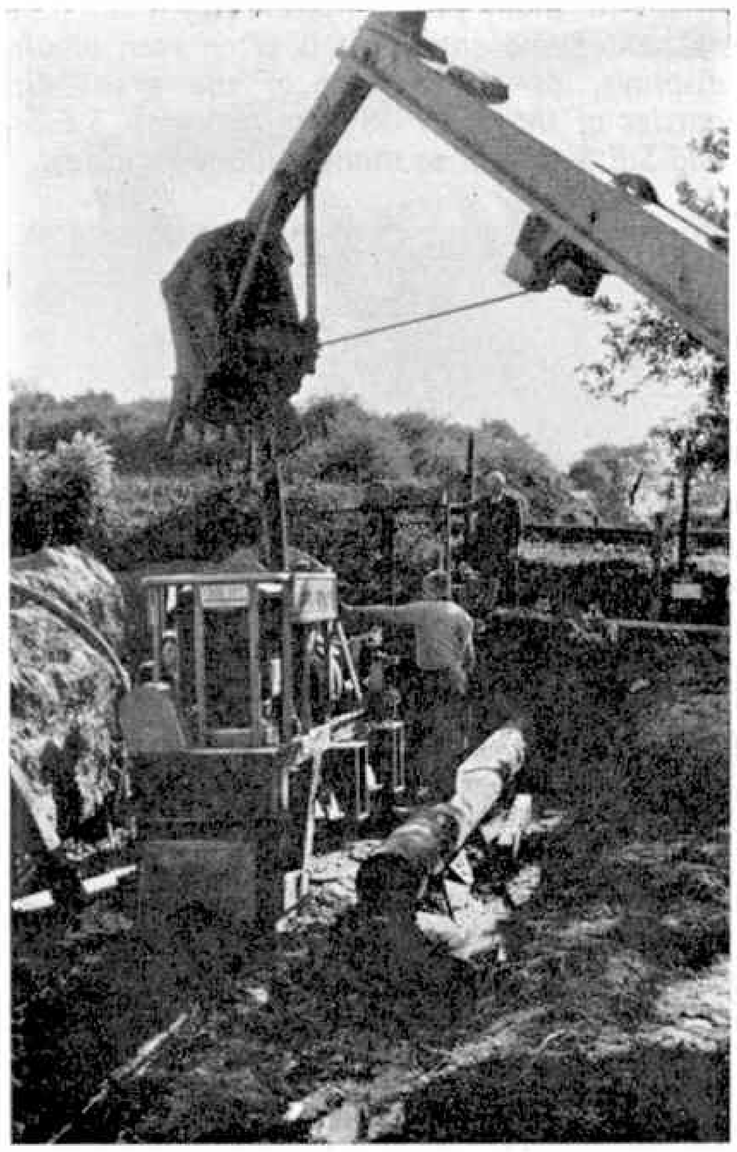
Welding two 1,100 feet sections of pipe together during the laying of a pipeline (from the Esso Refinery at Fawley to a distribution depot near London Airport) across Southampton Water. As the end of each section reached the water's edge it was welded to a following section until a continuous pipe crossed the 6,500 feet between high water levels on each bank. The lines were hauled across by a powerful winch on the Fawley shore and laid in a dredged trench which, after back-filling, ensured that they were buried at least eleven feet below the sea bed.

LONG-DISTANCE pipelines for transporting oil are a familiar feature in some parts of the world, notably the U.S.A. and the Middle East. In fact, this method of carrying oil was in use a century ago, and today the world total of such pipelines approaches a length of more than 600,000 miles, the U.S.A. alone having over 400,000 miles.

In Britain, however, the oil pipeline is still regarded as rather a novelty, and the news that long ones are being built in the United Kingdom by the leading oil companies has aroused considerable interest.

In reality, the idea is not as new to Britain as you might think. About 1,000 miles of pipelines were constructed during World War II, designed to carry oil products, mainly to airfields. Some of these lines have since remained in use, but recently the big oil distributing companies have been giving increasing attention to the possibility of developing the system on a much wider scale.

In the construction of the Shell-Mex–B.P. Ltd. London Airport pipeline thrust-boring took the pipelines under two railways and a road—without interrupting traffic.



Today, we use well over 50,000 tons of oil in Britain every year. Less than one per cent. of that vast total comes from oil wells in the United Kingdom. Nearly all of it comes from abroad, being brought to Britain's ports by tanker fleets.

Our oil imports, indeed, are rapidly growing. We need the precious fluid for road vehicles, and ever-increasing quantities are required by the steel industry and power stations. It is used for heating industrial and other premises, and oil by-products give us various commodities such as plastics and synthetic rubber.

* * * *

Scientists have, in fact, greatly extended the importance of oil in the modern industrial world. Consequently, the means of distributing it from the ports and refineries has become more important, too. Until recently, the usual method of transportation has been by road tanker, or in some cases by barge, but this system is becoming less satisfactory. Road tankers increase congestion on the highways, especially in cities and towns, and arrangements have to be made for storing big quantities of oil at depots in various places. Conveying the liquid by pipelines reduces these drawbacks and is likely to reduce transport costs, too, especially when the scheme is fully developed.

A few medium-distance and long-distance oil pipelines are already operating in different parts of Britain. Crude oil is carried in this way from Milford Haven to Llandarcy. Similar fuel goes by pipeline from Finnart, which is on Loch Long, in Scotland, to Grangemouth.

There is a pipeline system connecting oil installations at Walton-on-Thames with London Airport, augmenting the highly concentrated road supply service. A fourth pipeline system links Stanlow (Cheshire) with Urmston, near Manchester, and is used for refined products.

* * * *

A more recent and more impressive

scheme has been to construct a pipeline from Fawley, near Southampton, to a new processing plant at Severnside, near Bristol. This pipe, six inches in diameter, carries ethylene gas for chemical processes. As a result provision of a continual stream of traffic across the West of England has been avoided.

Work has been started on a 64-mile pipeline, twelve inches in diameter, from Fawley to a new distribution centre near Staines. From there, light liquid products—chiefly petrol, kerosene, and gas oil—will be delivered by road to a wide area, including the whole of West London, but aviation fuel will be taken by a separate pipeline to London Airport.

It is clear that this method of transporting oil is being taken up in a substantial way in Britain at the present time. The chief reason for our tardy adoption of the idea is that all our industrial centres are within reasonably easy reach of the ports. Water transportation has so far been widely used for the bulk transport of oil from ports to storage depots. For instance, oil is at present shipped by tanker from Fawley to Purfleet, a distance of 220 miles, and then borne up the Thames in barges to a bulk plant at Fulham. The Fawley–Staines pipeline will cut the distance by more than two-thirds.

Do not imagine, however, that long pipes will soon be seen snaking here and there across the countryside. On the contrary, there will be little outward sign of the existence of these pipelines. Those already constructed do not betray their presence, for they are laid underground. Once buried, they are out of sight for good, and being unaffected by weather will last for 50 years or more. Improved ditching machines, more efficient welding techniques, and more reliable coating and wrapping materials have all helped to produce better pipelines and cut the time and cost of building these arteries for oil.

The 12-inch Fawley–London pipeline now under construction for the transportation of various oil products will be accompanied by an 8-inch pipeline for liquified petroleum gas, but both pipes are being made in seamless steel sections averaging 36 feet in length. Twenty-four isolating valves are to be installed in each line, all of them in underground chambers. Instruments at each end will indicate the pressure, rate of flow, and other data. The larger pipeline will be able to handle 2,500,000 gallons a day, but this can be raised to 3,500,000 gallons if necessary by adding an intermediate booster pumping station.

A particularly interesting point about these modern pipelines is that different products can be sent through them in succession without trouble. It has been discovered that if the flow is kept above about two miles an hour the products will not seriously contaminate one another. As many as eleven have been transported along one pipe without contamination rising. The Fawley–London pipeline for petrol and other products is planned to take that number. At the receiving end they will be diverted into separate storage tanks.

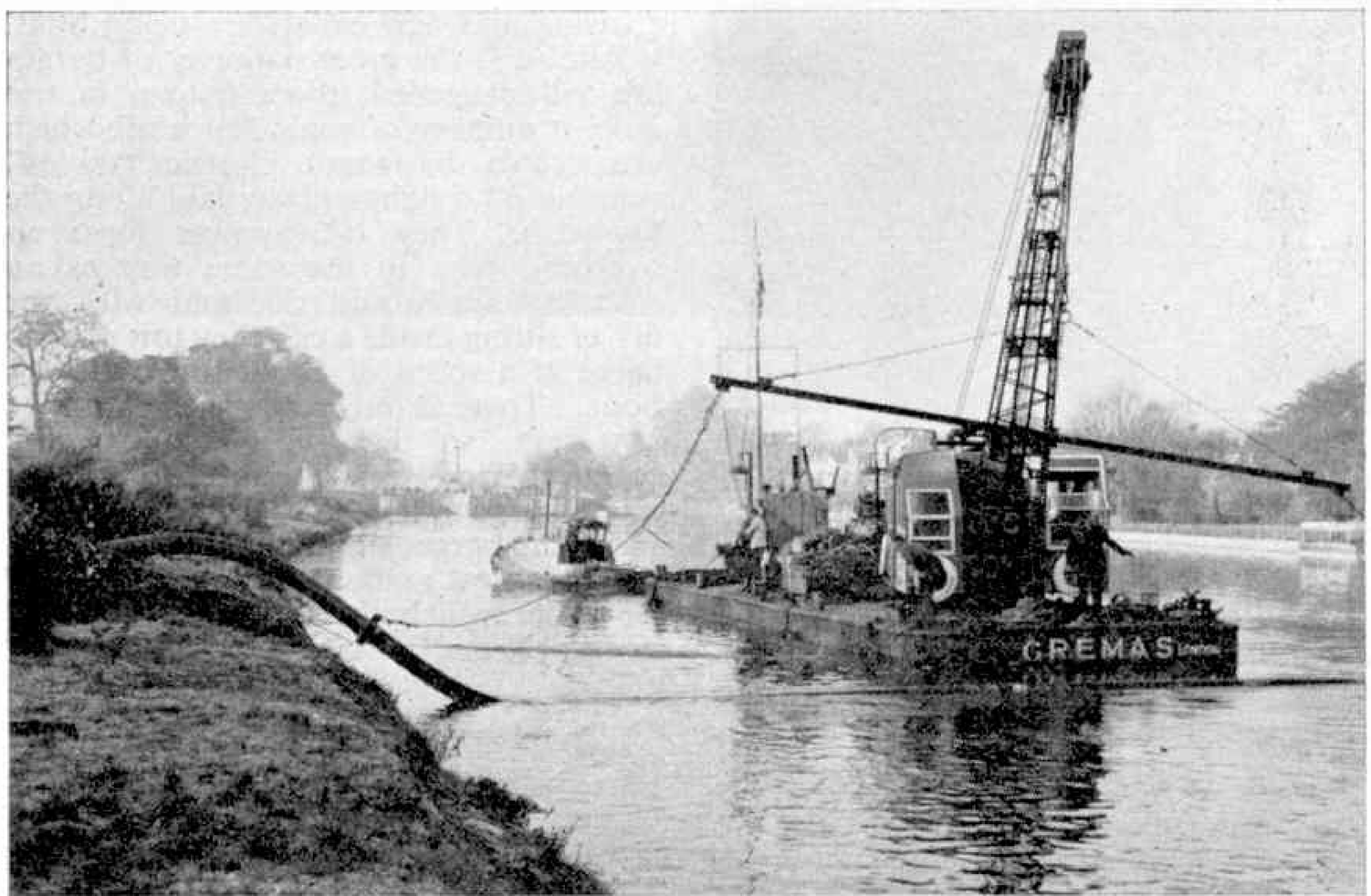
Nowadays, the laying of a pipeline does not take long. That between Walton-on-Thames and London Airport took fewer than five months to construct. Much more time is occupied in the preliminary arrangements, such as the negotiations with land owners and public authorities. The nation as a whole must be convinced that there is a real need for each particular pipeline and that the appearance and normal use of the countryside will be preserved. Owners and occupiers of land need assurance that it will not be permanently damaged and that they will receive due compensation for any temporary loss. In preparing the way for the Fawley–Severnside pipeline, more than 1,000 agreements had to be negotiated, and in nearly every case this was done voluntarily, without recourse to the powers granted by Parliament for compulsory arrangements.

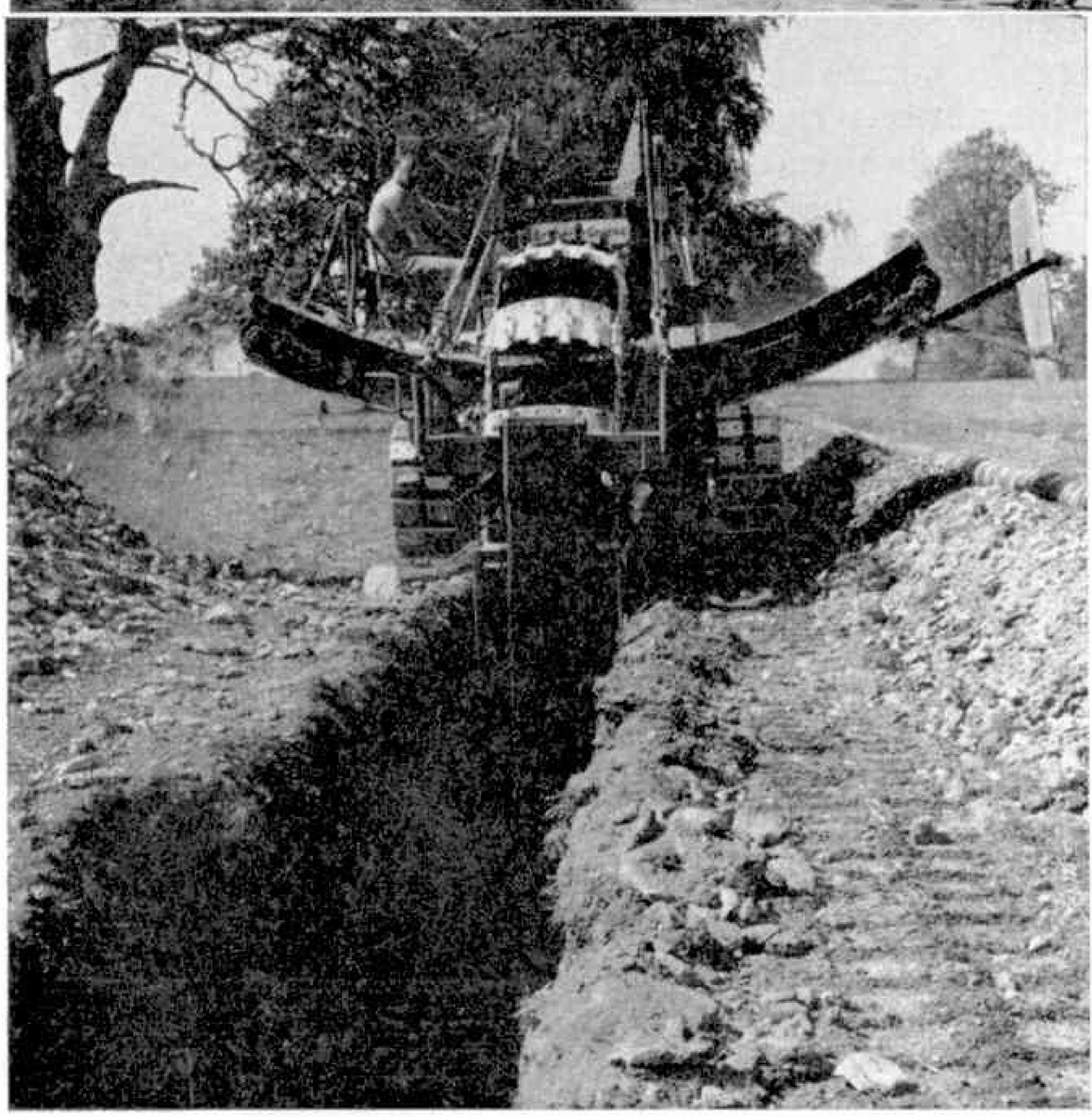
* * * *

In point of fact, not only are Britain's pipelines being constructed in such a way that they do not impair the countryside, but they are also being built with remarkably little interference to its existing use.

When the pipeline from Walton-on-Thames to London Airport was undergoing construction, it had to pass beneath Kempton Park racecourse. The job was done between race meetings, and special

(*Continued on page 162*)



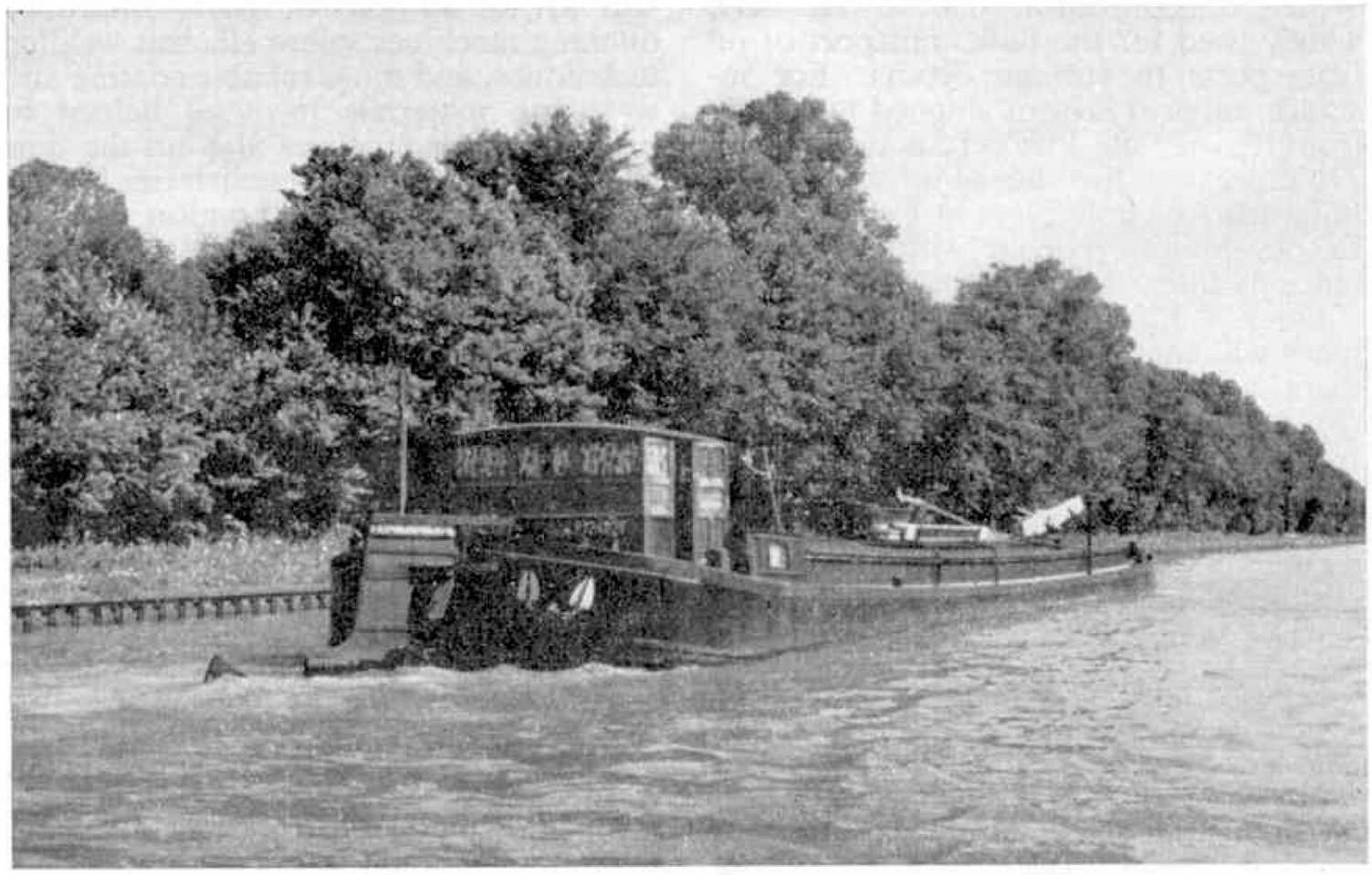


A prefabricated section of pipeline for a river crossing being manoeuvred into position.

This trenching machine seen operating at Box, in Wiltshire, is preparing the way for the laying of the Fawley Severnside pipeline. Normally the line is laid at a depth of three-and-a-half to four feet, although this may vary slightly with differing soil conditions.

CONTINENTAL CANALS

By
J. Mannering



HAVING spent some weeks last summer on the inland waterways of France, I was struck by the difference between the use made of canals and rivers on the Continent and in our own country. The great Continental rivers are linked by canals, making it possible to move goods, from one end of Europe to the other, in swift, commodious barges the crews of which usually consist of a man and his wife, with perhaps some assistance from a growing family. This is in great contrast to our own canal system where so many of the waterways have been allowed to fall into disuse and, in any event, are so small that they cannot accommodate barges capable of carrying a worthwhile load.

The difference probably stems from the fact that on the Continent, particularly in France and Germany, there are huge rivers flowing for hundreds of miles through fertile valleys where civilisation and commerce have flourished for a thousand years or more. Throughout a span of countless years man's growing control of the rivers by weirs and locks made conditions easier for waterborne traffic; and by the fourteenth or fifteenth centuries the rivers were the principal means of communication and carriage of goods over a large area of Europe.

The writer of this article describes how, by locks, tunnels, and lifts barges move across the rolling countryside of France . . .

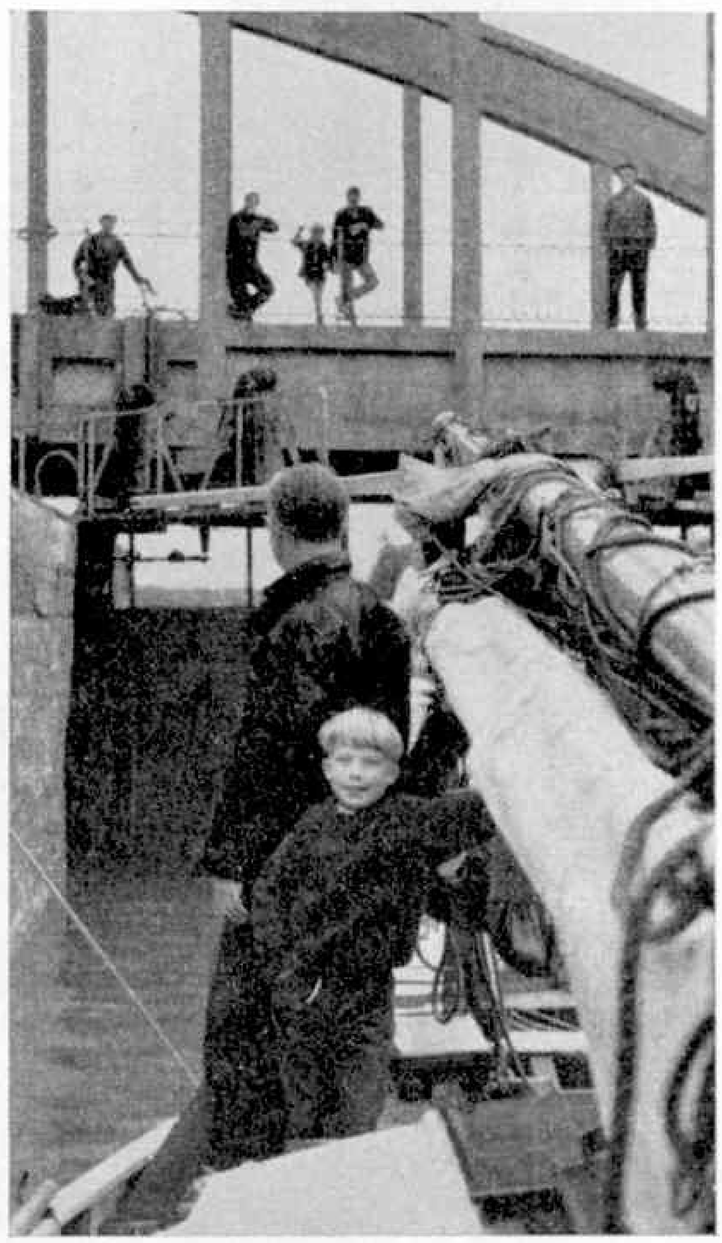
By the eighteenth century a considerable network of canals was in being, linking the various river systems, and since there was already established traffic on the rivers, the canals and locks had to be constructed to accommodate the vessels already in use.

In our own country the canal system was also establishing itself in the late eighteenth and early nineteenth centuries, but we had comparatively little river traffic at that time. What there was consisted of small barges suitable for our modest rivers.

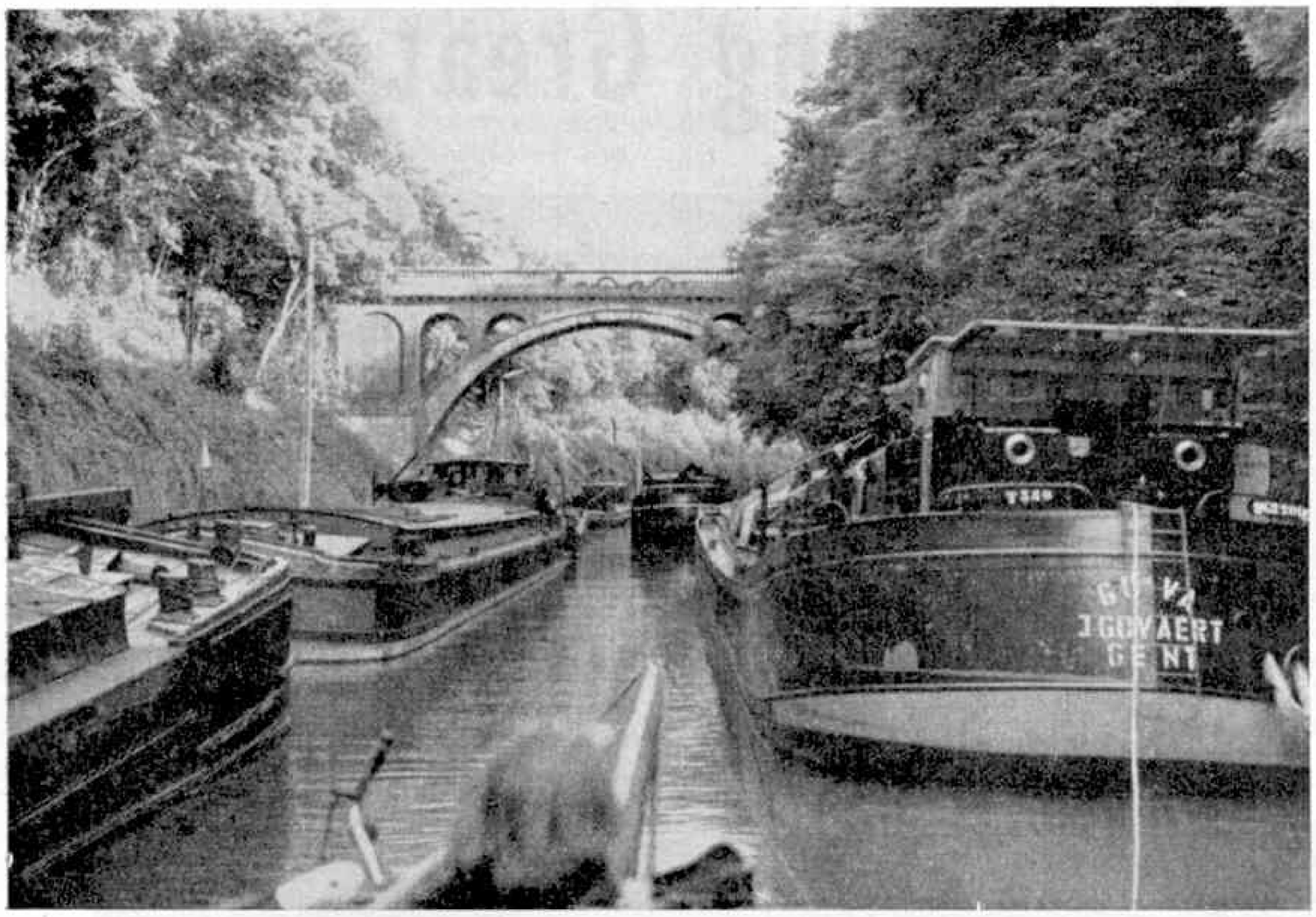
The great rivers on the Continent were next developed into a canal system on a more useful scale, and although there have been improvements from time to time since then to allow for the increase in the amount of traffic, the canals have not greatly changed in the past 100 years. For instance, on my recent trip I passed through the three and a half mile tunnel on the summit level of the St. Quentin Canal in North-East France, built by order of Bonaparte in the early nineteenth century.

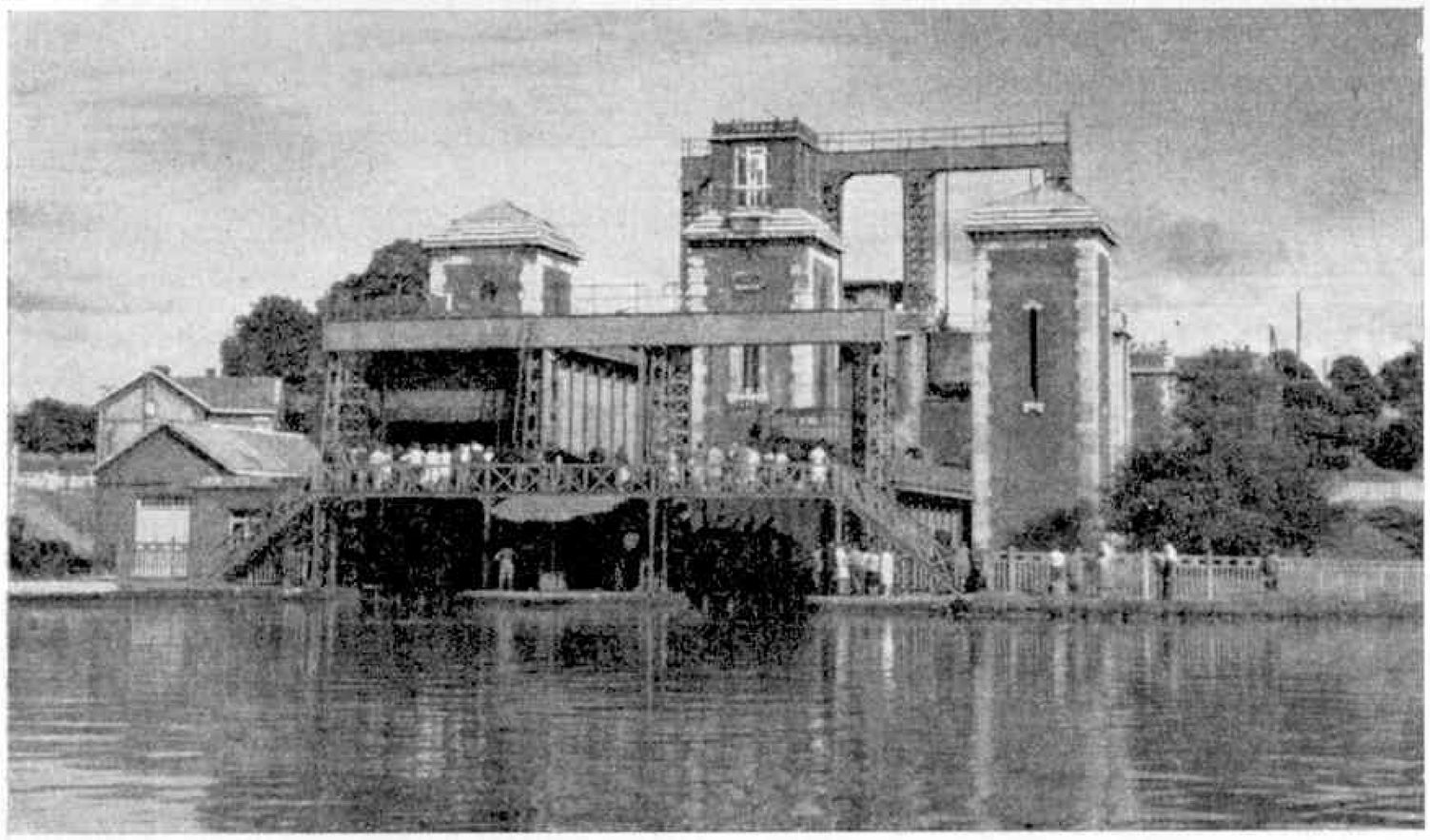
In view of the difficulties of road travel in those days, it is easy to understand how transport by water became the accepted method. Even today, in competition with both road and rail, barge traffic is increasing and new canals are being built.

Although the great majority of barges are self propelled, there remain in use quite a number of engineless craft which are drawn by small electric "mules" running on a light railway laid along the tow-path. They take power from an overhead wire in the same way as an electric tram would do, and with the driver sitting inside a cab they tow a laden barge at a speed of about four miles an hour. There is only a single track on the tow-path, so that when two "mules' approach from opposite directions, each with a barge in tow, they stop a few yards apart, the barges slip their tow lines, and, with the great amount of "way" through the water which these craft carry, they move past one another and then take up



Top picture shows a standard French canal barge. Note the very large rudder and the stern anchor for letting go in an emergency. Above: In a lock on the Canal de Sensee.





Above: The lay-by where the trains of barges pass outside the tunnel on the St. Quentin Canal. Below: The hydraulic lift near St. Omer showing one barge coming down and the other going up. All the photographs illustrating this article are by the author.

the tow from the "mule" which was previously proceeding in the other direction.

Traffic on the Continental waterways always keeps to the right (passing port to port), but one has to be on the look-out for a barge under tow, for clearly one cannot pass between a barge and the bank from which it is being towed.

Another arrangement I found baffling at first was that many barges, especially on the rivers, carried a large blue flag from their starboard side, indicating that the skipper wished to pass starboard to starboard. Barge captains are entitled to do this if, for reasons of deep draught, or to avoid an adverse current, they wish to hold to the left bank.

As well as locks, which are the normal way of overcoming differences of level on a canal or river, the French employ several ingenious methods of dealing with this difficulty. Across a narrow valley they sometimes build an aqueduct which carries the canal, in a brick or metal conduit, across the valley in the same way that a viaduct carries a railway. They may drive a tunnel through a hill, if that appears to be more convenient than a series of locks, and when they come to a sharp escarpment they sometimes construct a lift.

Examples of these last methods are to be found on the St. Quentin Canal which runs from Northern France into the River Oise. The hydraulic lift is near St. Omer, about 30 miles inland from Dunkirk. After passing through very flat country a chalk escarpment about 40 feet high is met with, and this was originally ascended by a ladder of seven locks. In 1887, however, a lift was built. Consisting of two counterbalanced tanks each capable of taking a standard French canal barge measuring 38 metres by five, it allows one craft to go up while the other goes down. It works on a principle that a vessel displaces its own weight of water.

When each barge has entered its tank, sluice gates are let down to seal the tanks and the ends of the canal channels, and then irrespective of the size or lading of the barges, the tanks must weigh the same. Thus very little power is required to set the tanks moving. As the vessels arrive at their fresh levels, the sluice gates are lifted and the barges pass from the tanks into the canal.

This lift is a fine piece of nineteenth century engineering which called for great precision and strength to ensure that the tanks ride up and down smoothly, carrying, perhaps, a 500-ton barge.

On the summit level of the St. Quentin Canal (287 feet above sea level) there is the three and a half mile tunnel built in the days of Napoleon. There is still a tow-path through the tunnel along which, in years gone by, the horses towed the barges. Now, twice in every 24 hours, long trains of barges are made up and are towed through by a kind of aquatic tram. It is a vessel about the size of a small tug, but it takes its power from a cable running along the roof of the tunnel and for some distance above the approaches at either end.

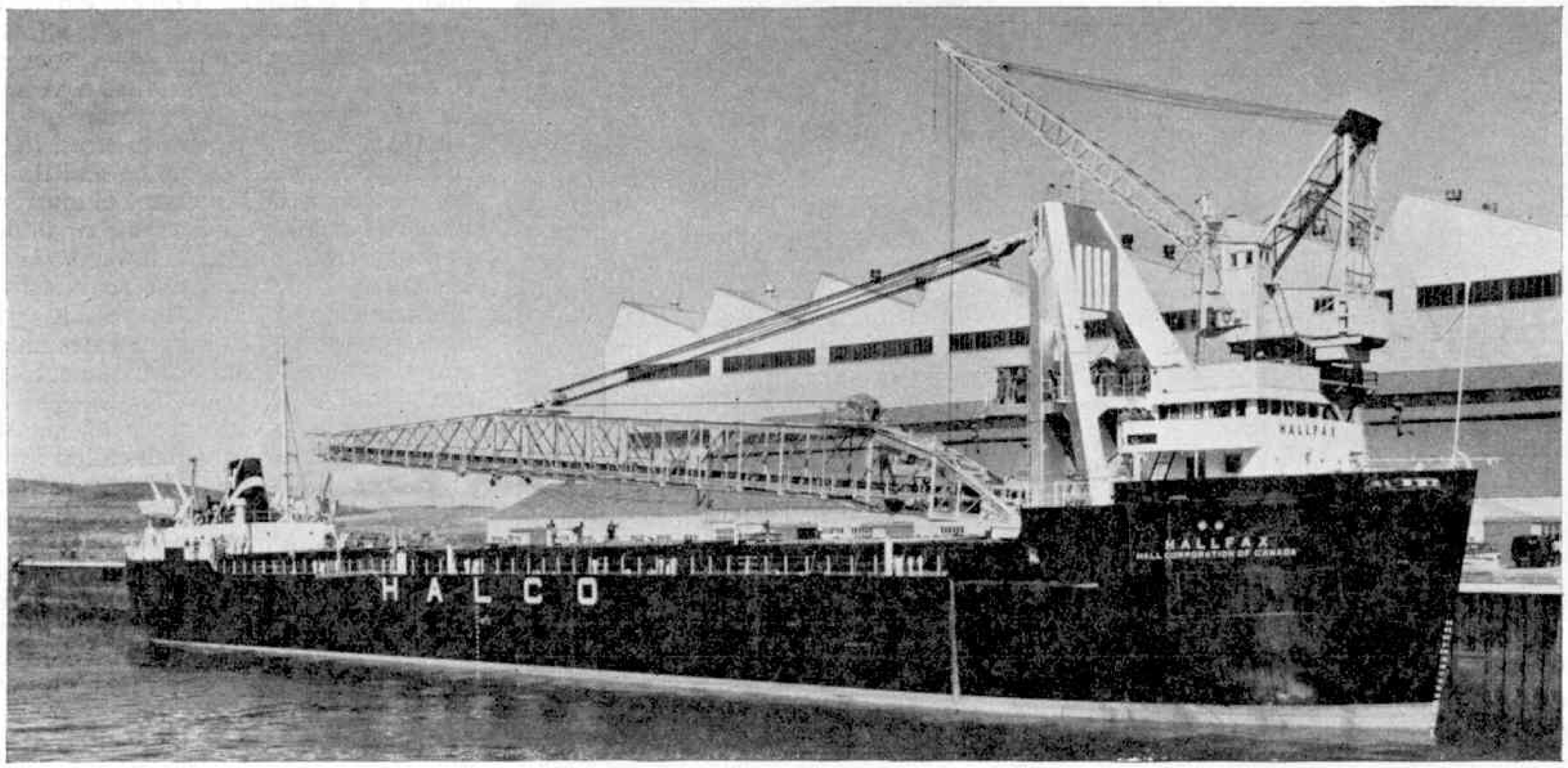
By means of a powerful capstan amidships, this vessel pulls over her bow, and passes over her stern, a chain cable lying along the bed of the canal, thus dragging herself along with a train of barges following. The vessel gives a powerful, positive pull, moving at about 1½ m.p.h.

Since the boat in which I was travelling was very small we had to be last in the train, and it was an eerie experience indeed, in the dimly-lit tunnel, to hear the many barges ahead banging and scraping along the tunnel sides. We were not at all sorry to emerge again into the sunlight and to continue our way through the rich countryside of France.

BOOK REVIEW

ABC British Cars 1963, compiled by Robin MacNicol (Ian Allan, 2/6) is an attractive little handbook containing 81 half-tone pictures of current types of British cars. The accompanying text gives concise descriptions of the types, with enough detail to enable the keen "car-spotter" to recognise distinguishing features of the many different models. Technical specifications of 37 current makes of car are listed alphabetically, and in each case include dimensions, interesting details about the types of engine, maximum power, weight and price.

"Hallfax": Self-Unloading Great Laker



PRIME TASK IS SPEEDY TRANSFER OF CARGOES

THE latest addition to the fleet of the Hall Corporation of Canada is the self-unloading motor vessel *Hallfax*. Built at the Glen Shipbuilding Yard of William Hamilton and Company Limited this bulk-carrier has a tonnage of 9,200 deadweight.

Attention in design has been concentrated on a ship whose prime task is speedy loading, transfer, and unloading of bulk cargoes. In the normal run of events 9,000 tons of materials can be loaded, transferred, discharged and a return voyage made in ballast and a further 9,000 tons loaded, all in the space of 24 hours. Use of the special self-unloading equipment enables this ship to discharge her cargo at the rate of 2,000 tons an hour, placing it on a quay anywhere within a distance of 200 feet from the ship's side.

The profile of the vessel is typical of ships serving the Great Lake ports. The forecastle, navigating bridge and accommodation are sited forward and the machinery aft, and accommodation in and above the raised quarter deck aft.

Dimensions of the *Hallfax* are as follows:

Length overall 385 feet; moulded breadth 58 feet; moulded depth 30 feet; deadweight capacity 9,200 tons; service speed 11.5 knots; ballast capacity 2,800 tons; speed in ballast 12.5 knots.

By GORDON WOOSEY

The hull and machinery have been constructed under the Special Survey of Lloyd's for their Class X100A1 and Class III ice-strengthening, the hull construction being almost entirely welded throughout.

Twin spade rudders with Costa Bulb farings are fitted behind the twin screws and are operated with Hastie electro-hydraulic steering gear with two rams and two pumping units.

The four cargo holds are filled through four hatches each having an opening 40 feet × 38 feet 6 inches with self-trimming end coamings and MacGregor steel covers (six sections per hatch) opened and closed mechanically by the MacGregor system of endless chain on each side operated by a 20 h.p. motor. Oil fuel is carried in a tank forward of the holds, with a 120-ton capacity, and settling tanks in the engine room of 13 tons capacity. Fresh water tanks are situated in the engine room and the fresh and salt water services are pressurised. For the quick transfer and emptying of the water ballast tanks a 10-inch bore ringmain is installed, with the valves controlled from deck level.

A central tunnel with access by watertight door from the engine room runs the length of the cargo holds and permits the control of 41 pneumatically-operated gates on each side spaced between transverse peaked baffles over each of the two hold conveyor tunnels. These air-operated bunker gates are supplied by the General Electric Company Limited.

Two conveyors, each 275 feet in length and 4 feet in width, take the material from the hoppers to the bucket elevator. Each is powered by a 75 h.p. motor and is driven at a speed of 500 feet a minute. These conveyors carry the cargo forward, rising at the forward end to discharge on to a 96-inch bucket elevator. This is driven by a 220 h.p. wound-rotor induction motor, lifting the material approximately 60 feet at a maximum speed of 160 feet every minute. The elevator is of the continuous twin-chain and bucket type, and at its head a feed chute transfers

Above: In this picture of the "Hallfax", her 200-ft. boom can be seen partly raised and the A-frame to which the multi-rope is attached is clearly depicted. The illustrations to this article appear by courtesy of G.E.C.

the material from the buckets to the boom conveyor.

This conveyor, five feet in width, is carried on a 200-foot long boom capable of slewing 110 degrees each side of the centre-line of the ship, and driven by a 200 h.p. motor. The inboard end of the boom is secured to a 16-foot diameter turntable which rotates on five pairs of cast-steel bushed wheels running on a steel track. It is controlled by two 52 h.p. Clarke Chapman winches. The boom is supported by multi-wire rope tackle, one end being fixed to the outboard end of the boom while the other is secured to the robust "A"-shaped frame behind the turntable.

As the ship is for use on the Great Lakes and the St. Lawrence Seaway four automatic mooring winches and sewage discharge plants are provided forward and aft.

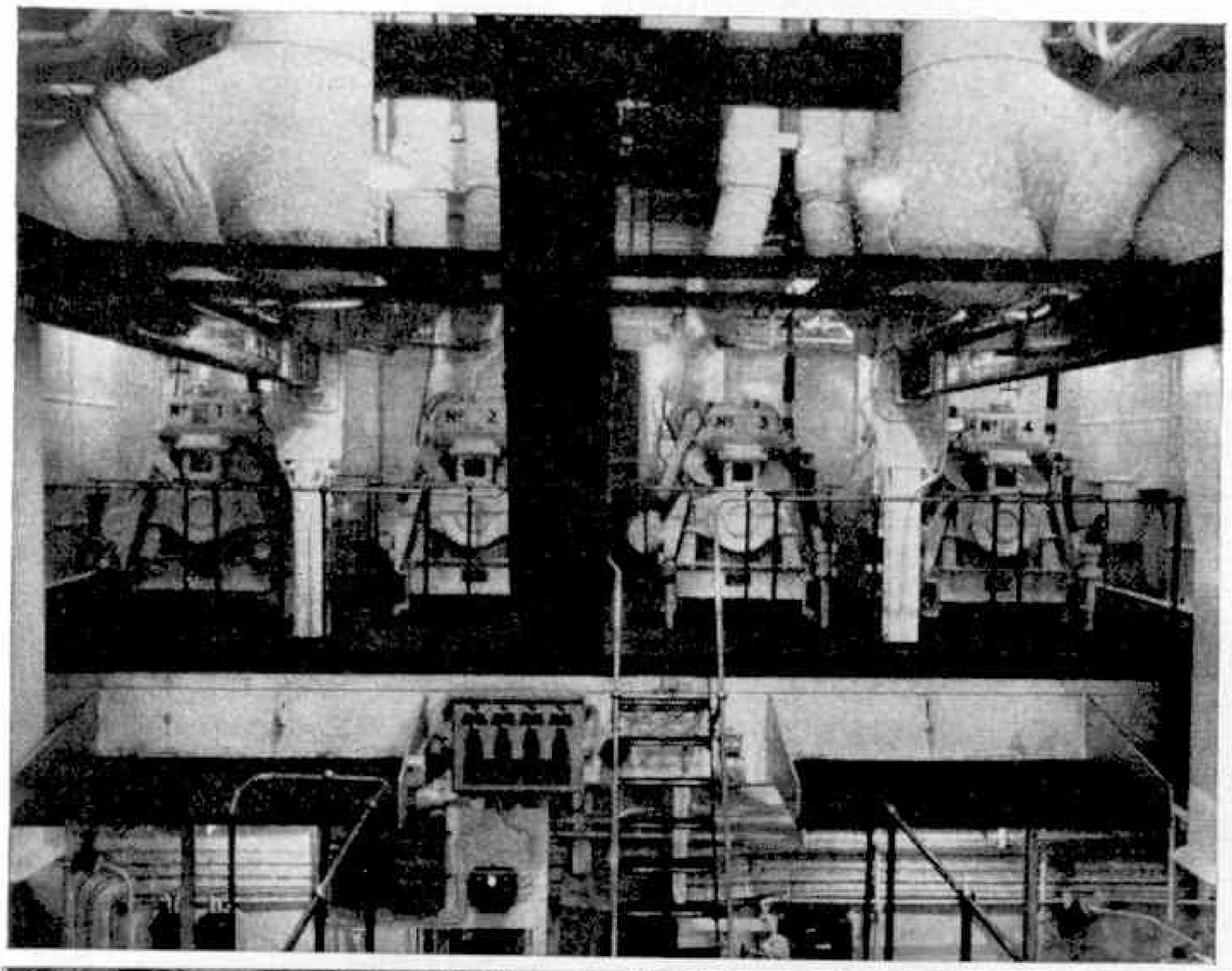
Life-saving equipment includes two 24-foot fibreglass lifeboats, one of the rowing type and one diesel-propelled. An inflatable liferaft forward, carried in a plastic valise, will hold ten people.

The main propulsion unit of the vessel consists of two six-cylinder Nohab Polar Diesel MN16S turbocharged two-stroke engines each developing 1,650 b.h.p. when running at 335 r.p.m. They are complete with engine-driven compressors, oil and water pumps and independent electrically-driven standby pumps and compressors. Speed and direction of the engines can be controlled from the bridge by a Robinson-Westinghouse pneumatic control system.

The main engines and auxiliaries are arranged for fresh water cooling, and the installation is complete with fuel and lubricating oil purifiers, oily water separator, fire extinguishing equipment and mechanical ventilation. The engine room controls, alarms, and gauges are all grouped at a console fitted between the two engines. Special care has been given to the bearings, piping and other essential parts to afford them protection during the off-season in winter, and to facilitate overhaul and the putting of the ship back into service.

Electric current is supplied from four Rolls–Royce engines coupled to MacFarlane alternators for continuous output of 220 kW 550 volt, 3-phase 60-cycles when running at 1,800 r.p.m. The alternators are self-regulating and are fitted, with parallelling gear, on a flat at the after end of the engine room.

Complement of the *Hallfax* is 31 officers and men, and they are accommodated in well laid-out quarters, neatly decorated and furnished, which are situated forward and aft. The quarters are ventilated at atmospheric temperature by Windsor mechanical ventilation, with provision for re-circulating in zero temperatures. So far as heating is concerned, the quarters are provided with convector-type electric radiators. Messrooms and storerooms are conveniently placed around the galley, which has an oil-fired range.



Left: Four 220-k.w. Rolls-Royce-powered diesel alternators are carried at the after end of the engine room of the "Hallfax" to supply the electric current. Altogether they weigh only about 20 tons. Below: A general view of the vessel's engine room, showing twin 6-cylinder Nohab-Polar engines with Robinson-Westinghouse control panel.

RAILWAY BOOK REVIEW

Railway Scrapbook by E. W. P. Veale (Railway Publications Ltd., 18/6) is a product of a lifetime's research and interest on the part of the author. Although a "scrapbook" in the sense that its topics are so varied, it deals with them in a very readable and by no means scrappy manner, and interest in the matters touched on is increased by the inclusion of well-selected quotations from sources contemporary with the events or personalities described. The book's twelve chapters cover such diverse topics as the influence on history of railways in general, the amenities of travel, the question of rail gauge, railway electrification, and rail–sea travel. There is also a description of the last trunk line to be built in Britain, and a survey of American railroad development.

One can pick up this book to read any chapter at random, but having done so it is difficult to put it down again. It will appeal strongly to those with a genuine interest in transport, but others too will find enjoyment and instruction in its pages.

There are few illustrations, but a book of this character does not call for many. Those included are pertinent to the subject matter and are well reproduced. The index provided is invaluable for reference.

RAILWAY NOTES

Contributed by R. A. H. Weight

FAST RUNS NOW TOTAL HUNDREDS MORE

THE vast range of quicker timings and re-modelled long and short distance services introduced in 1962 —which have resulted from the greater use of electric, diesel-electric or diesel-hydraulic power to provide more expresses and better connections on a number of important British routes—is impressive when expressed briefly in figures!

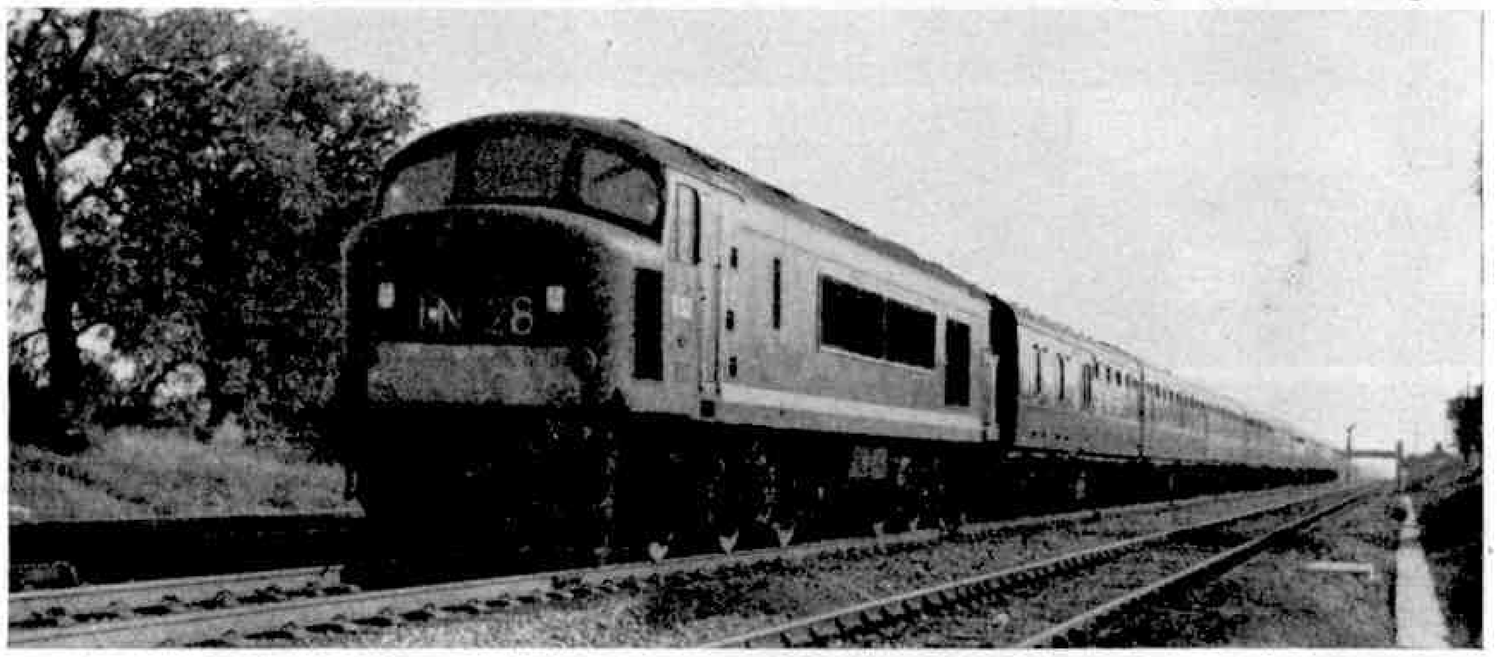
For example, when comparing the autumn timetables of 1962 with those for 1961, the daily mileage of ordinary weekday trains, scheduled from start to stop at an average of 66 m.p.h. or over, has gone up from 937 to 2,949; at 62 m.p.h. and over, from 4,298 to 10,945, and at 60 and over, from 9,181 to 17,584. In the last-named extensive range the number of trains concerned has risen from 124 to 317 daily.

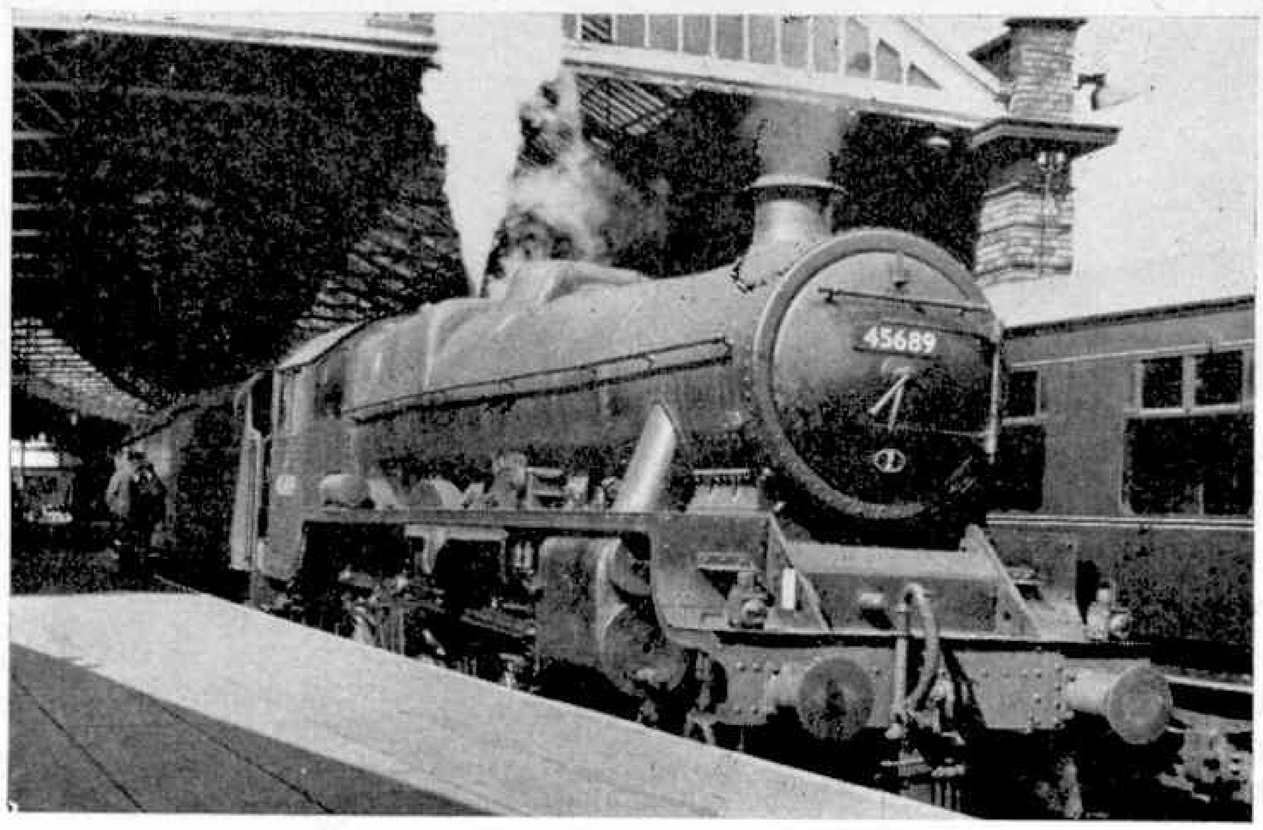
The fastest expresses, during parts of their journeys, are: *The Tees–Tyne Pullman*, which averages 75½ m.p.h. Darlington–York; *The Midland Pullman* running between St. Pancras and Leicester (99 miles), which averages 72½ m.p.h. northbound and 71 when returning; and *The West Riding* with an average of 72 m.p.h. from Hitchin to Retford (106¾ miles).

Never before in Britain has there been anything like the galaxy of more than twenty regular passenger services timed at more than a mile-a-minute and up to 75½ m.p.h. from start to stop, either way, which now travel the 44 miles between Darlington and York. They speed along the four-track line, which is largely straight and slightly graded and is equipped with modern colour light signalling and the automatic warning system for drivers. In addition, the very fast *Flying Scotsman*, *Talisman*, *Trans-Pennine* (Newcastle services) and other expresses traverse the same lines without calling at one or both stations.

Included within, say, the 65–68 m.p.h. range are long 268-mile runs to and from King's Cross–Newcastle; 124½ miles Edinburgh–Newcastle; each way between Paddington and Chippenham or Bath Spa; St. Pancras to Wellingborough or Leicester and quite a number to and from Darlington–York. Among shorter very fast snippets are three with electric traction over the 22½ miles from Crewe to Runcorn; also Swindon–Didcot, 24 miles in 22 minutes. The long list of starting points covering journeys at mean speeds of 60–64 m.p.h., with steam haulage for some, includes Sidmouth Junction, Devon; Taunton, Somerset; Leigh-on-Sea and Benfleet, Essex; Birmingham (Snow Hill),

The upper picture shows the Gloucester–Derby–Newcastle express at speed hauled by B.R.–Sulzer Peak class 2,500 h.p. diesel D137, now used on most Midland Division expresses. Photograph by C. Ord. Below: A scene on the beautiful Welsh Coast route. The 10 a.m. Portmadoc–Euston express "The Welshman" passes Colwyn Bay in charge of Britannia class No. 70043 "Lord Kitchener". Photograph by B.C. Bending.





Above: In picturesque Anglesey — a diesel excursion from Llandudno drawn up at the platform at Llanfair P.G.

Left: North Wales again — Jubilee class No. 45689 "Ajax" pictured at Holyhead ready to haul the 4.25 p.m. train to Manchester Exchange. Both photographs are by B. C. Bending.

Crewe, Salisbury, Newport (Mon.), Carlisle, Carstairs (Lanarkshire) and Perth. There are also a number, long and short, booked at little below the 60 m.p.h. average. In all cases lost time is sometimes regained. Maximum speeds at suitable points frequently rise well above 80 m.p.h.

QUICKEST EVER?

Among the striking accelerations of Midland Line expresses effected in the current winter timetable are timings just under two hours either way over the 123½ miles between Nottingham and St. Pancras. A good example was logged last autumn by Mr. Gordon Pettitt on the southbound *Waverley*, allowed 119 minutes. Loaded rather more heavily than sometimes with "11-on", or about 385 tons in all, and hauled by B.R.-Sulzer, 2,500 h.p. diesel-electric locomotive No. D151, it knocked nearly ten minutes off that quickest-ever (booked) schedule for an ordinary train via Melton Mowbray—a rather steeply-graded route throughout—and was at rest in St. Pancras within one hour fifty minutes from leaving Nottingham—perhaps achieving a record of its kind at the time? I think so!

There was probably lost time to make up; two track repair slowings were observed; and there was remarkably fine uphill work. Downhill maxima rose to 86–88 m.p.h., as on various past runs behind Royal Scot or Jubilee 4–6–0s.

GOOD WESTERN RUNS

The fastest schedule from London (Paddington) to Birmingham (Snow Hill) has been reduced from two hours to one hour fifty minutes, as many readers will be aware, representing almost exactly a 60 m.p.h. average along a route that involves several speed restrictions and a good many varying gradients. History was probably made on the opening day of the revised schedule, when a comparatively light train (the Monday 9.0 a.m. down, hauled by one of the new "Western" class diesels, No. D1038 *Western Sovereign*) was easily at rest in the Midlands city by 10.44 a.m., six minutes early, the journey having taken less than 1¾ hours; so there is a margin to allow for the attachment of more carriages or to cover delays.

Other down morning expresses allowed two hours with two stops, and including certainly one extra slowing, have been observed arriving at Snow Hill 2–3 minutes before time with "10-on". I hope to include more stories from the W.R. north main line in a later issue this year.

At the time these notes were written, the only long-distance express service to and from Paddington regularly operated by steam locomotives was that to and from Oxford–Worcester–Hereford, calling at principal stations. The famous, long-lasting and numerous Castle class four-cylinder 4–6–0s were usually the engines concerned—as has been the case for many years. A good many have been withdrawn from service, as have all the Kings and several County and Hall 4–6–0s.

The type 3 1,700 h.p. B:B Hymek diesel-hydraulic locomotives continue to increase in numbers, and are in considerable use on fast trains to and from Bristol, South Wales, Gloucester, etc. It was the more powerful Warship class No. D864 *Zambesi*, however, working the 10-coach 9.5 a.m. Paddington–Gloucester–Cheltenham and 4.0 p.m. return, recorded by Mr. B. C. Bending, that put up an excellent showing. In spite of fog all the way, and thanks to the automatic, electrical notification given to the driver in his cab of the indication applying at all distant signals, Swindon was reached 2½ minutes early after good steady running westbound with a call at Reading, then on punctually through the Cotswolds over Sapperton summit.

On the London-bound run in the evening, when conditions were brighter, the train's crew converted a seven-minute late start from Swindon into a three-minute early arrival at Paddington, the 77¼ miles taking only 76½ minutes with a stop at Reading and a "clear road" throughout. I logged and reported, just over two years ago, a similar and partially faster journey with the same load and power in one of the tightly timed Bristol–London trains. The Cheltenham express is allowed seven minutes more from Swindon for steam or diesel haulage but, in any case, it was a lively trip!

LONDON MIDLAND NEWS

A further extension of the overhead electrification gradually being effected from Manchester and Liverpool towards Birmingham, Rugby and London (Euston) is now in operation from Crewe as far as the impressively rebuilt station at Stafford. Modernisation of signalling, in association with improvements in track layout, extends for a good many miles. Reconstruction has also taken place at Tamworth, 23 miles south of Stafford, where the low-level platforms accommodate trains calling on the West Coast main line, while the high-level ones, almost at right angles, are on the Derby–Birmingham–Bristol trunk route.

Particularly during night hours, very heavy transfer and loading operations with mails and Post Office parcels traffic take place there, for which lifts, increased accommodation for postal staff and equipment have been installed, together with improved facilities for passengers. During two busy periods between 10.45 p.m. and 1.30 a.m. the northbound "West Coast T.P.O." (Euston–Carlisle–Scottish) and Bristol–York–Newcastle postal expresses, conveying sorting (*Cont. on page 187*)

A TIME FOR LAMBS

HARRY NORTH tells the story of a North Country farmer's battle against weather, disease and predatory animals in his efforts to save his new-born lambs.

New life on the Pennines.

WHEN Farmer Thwaite's eyes flickered open one wild night in early April, he looked across the warm kitchen of Fairmeadow, his home for 30 years, and noticed that the old grandfather clock had just ticked its way past midnight. He did not need to go outdoors to discover that the weather was bad, for a strong wind was moaning round the grey farmstead, and hail pattered on the window panes.

The farmer raised himself from the horsehair sofa on which he had been dozing, struggled into overcoat and oilskin, picked up a long-shafted crook and storm lantern, and opened the back door. The wind took a cold, keen grip on him as he left the shelter of his home and walked into the night.

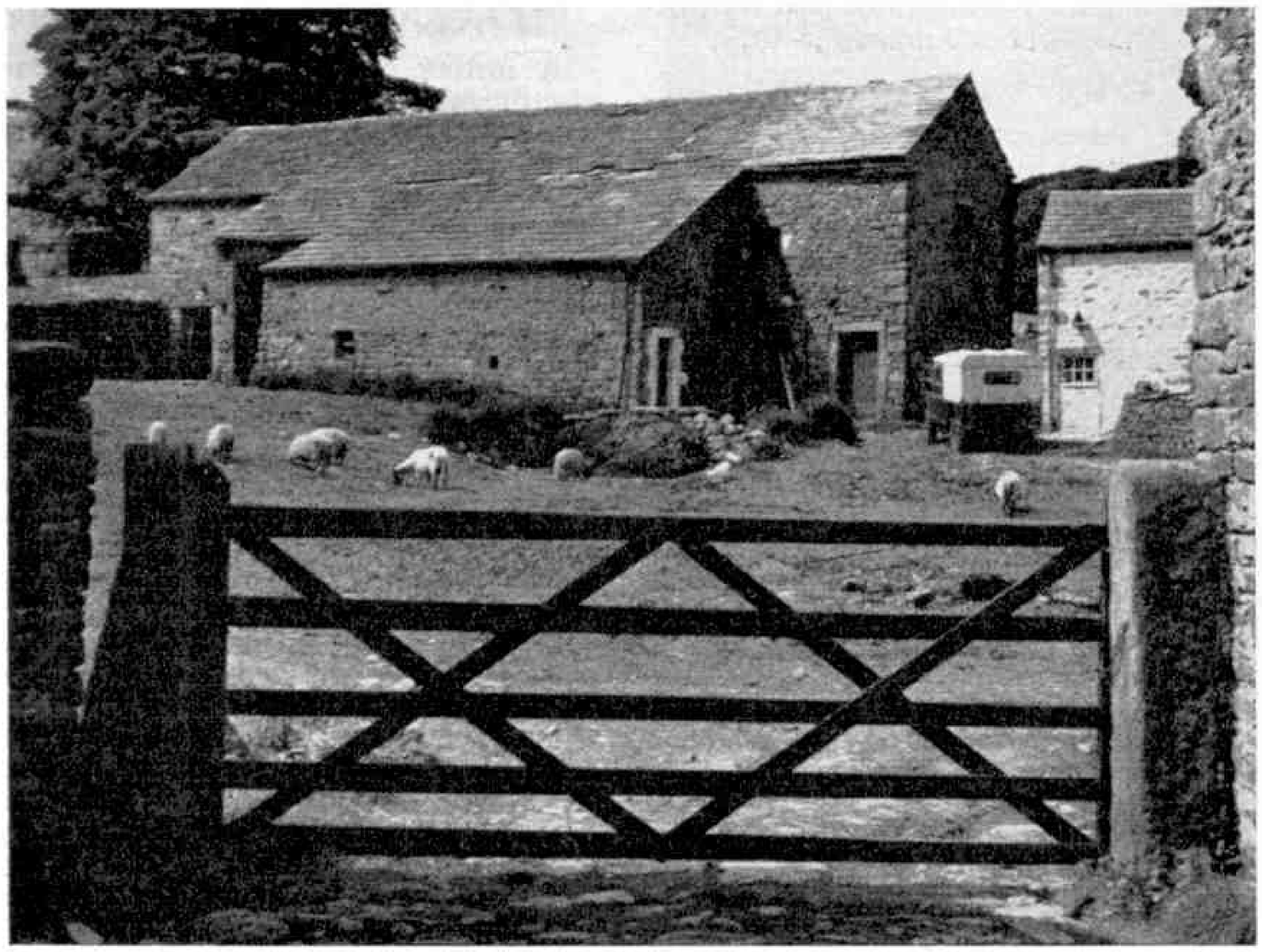
The lambing croft was not many paces away. Before darkness set in he had gone round the field, driving the ewes and any lambs which had recently been born into this handy, sheltered corner so that they would be close at hand during his night-long vigil. Many lambs were expected, and the weather was keen, so he planned to visit the croft every two or three hours to see that all was well.

The sheep were clustering at the lea sides of the high walls as he approached. They were not alarmed by the lantern, for he had purposely carried it round the field a number of times before lambing began, and the sheep were accustomed to this bright patch of light in the darkness. Above the bleating of the ewes, Farmer Thwaite picked out the voices of the lambs. One, born only a quarter of an hour before, was already feeding on its mother's milk.

* * * *

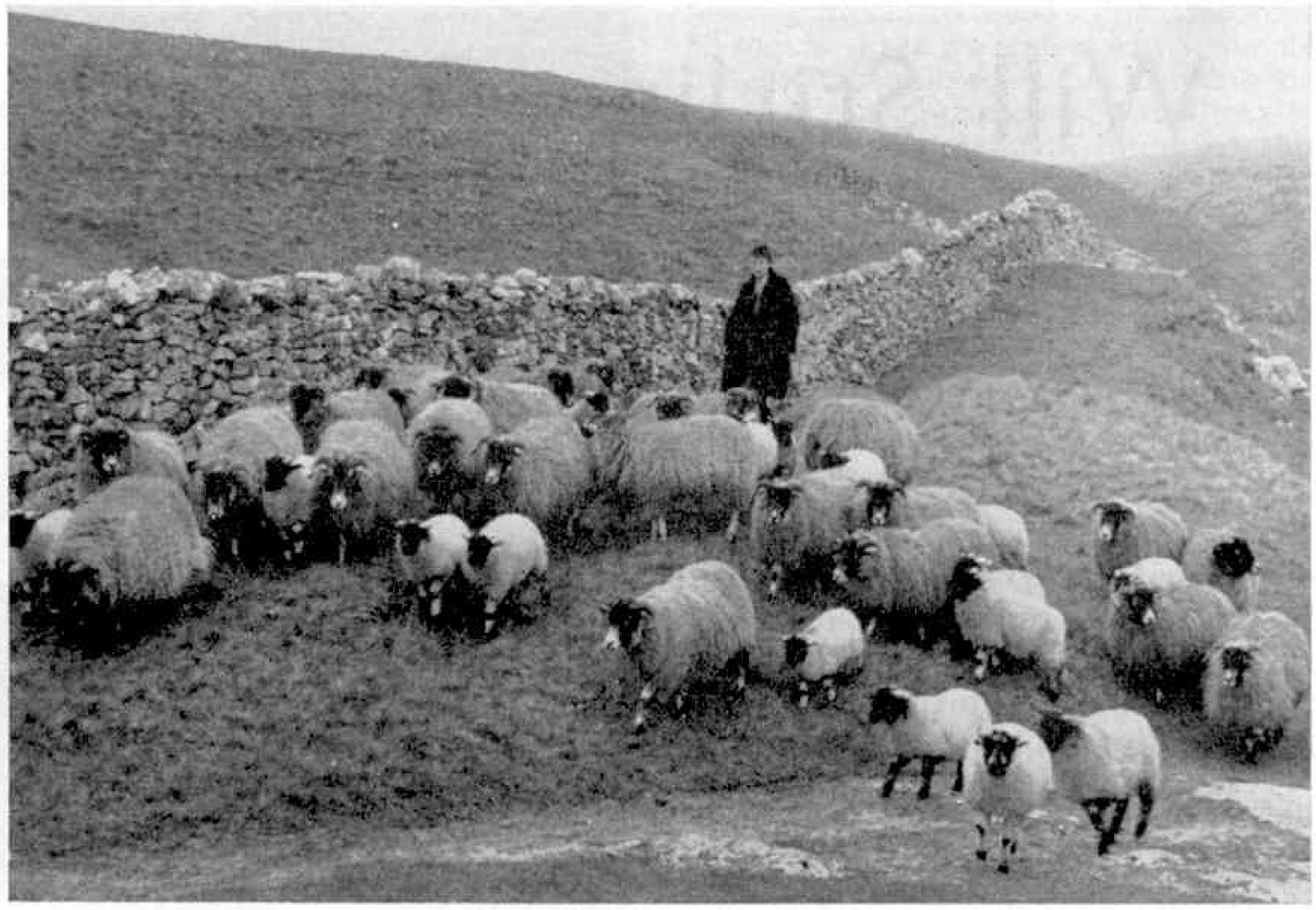
Not far away were twin lambs which did not seem strong and were already "starved", the cold penetrating to their bones. The farmer picked them up, feeling their hearts thumping wildly beyond the ribs, and gently carried them the few yards into the barn. The old ewe followed, bleating anxiously. In the barn, which was half full of sweet-smelling hay harvested the previous July, other sheep and lambs were lying. Two lambs had settled snugly in a hole the farmer had made among the bales of hay, and above them was a thin covering of hay, retaining the warmth of their bodies. Sometimes he put a thin, cold lamb in a "cradle" of hay with a lamb that was dry and strong and ready to face the great outdoors again the following morning.

A fell farmstead. This and the other pictures illustrating this article are by Harry North.



It was only when he had seen to the welfare of the lambing flock that Farmer Thwaite realised he was cold, too, and he returned thankfully to the kitchen to brew himself some strong tea. He had not slept in his bed for three nights, simply cat-napping on the kitchen sofa. Nor had he found time to shave; there would be opportunity enough when the weather eased. Lambing time, a week old, was already beginning to sap his strength, and an average fell flock takes a month to deliver the lambs!

At daybreak, the wind had moderated, but the air was still cold. Farmer Thwaite called his collie dog to heel and set off across the fields with his lambing crook—a shaft of hazel, with a handle made from the horn of a sheep, smoothed down and bent into shape by steaming. The crook not only helped him to keep his balance on the steep ground, acting as a "third leg", but it could be flicked out with the speed of an adder's tongue, to settle round the neck of a lamb so that it could be brought gently towards him for inspection.



A flock of fell sheep with their lambs.

* * * *

The dog was ill-at-ease. Normally it was master of the flock, and had often gathered the sheep on the fells, meeting little resistance. But now the attitude of the ewes with lambs was hostile to say the least. When the dog wandered too close to one sheep it was chased briskly away.

Farmer Thwaite saw that there was a clear sky in the east, but he knew that within half an hour—such was the fickle nature of April weather—the sky might darken and black clouds sweep across country, dropping rain or hail. Then a lamb that was not strong might never really recover from exposure if it were left unattended for half an hour or so.

In some mud near a gate he found the track of a fox. Reynard, having slept away the daylight hours of the previous day on some remote rock ledge, or in bracken, had trotted lightly down the slopes with the coming of dark, to prey on poultry, or rabbits, or the odd lamb that was not thriving. Then the farmer heard the sound of a motor horn, one of the old-fashioned variety. At least, it sounded like that, but it was actually the call of a ruffian in black feathers. A carrion crow, perched on the topstones of a wall, honked a welcome to the day, and into Farmer Thwaite's mind came pictures of lambs he had picked up in the fields after they had been attacked by wandering crows.

Dry-stone wall country where fell sheep abound. This photograph was taken in Barbondale.

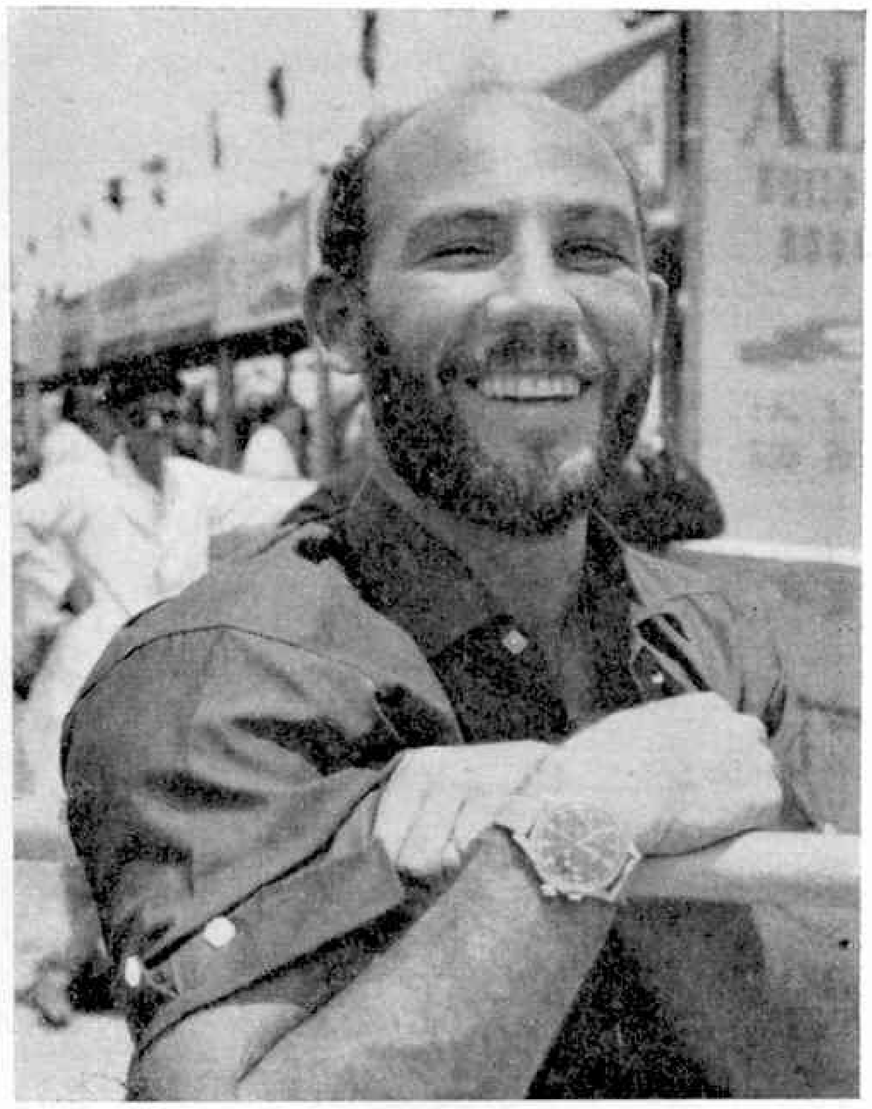
The sheep were now released from the lambing croft, and were wandering slowly across the farmside fields. One looked as though the birth-time was near, for it was heading for a secluded spot sheltered by a wall. Farmer Thwaite had seen it there the previous day, and guessed that it was selecting a place to lamb. Most lambs are born with the ewe away from the flock in the early hours of the day, and particularly in warm, moist weather. Some sheep are so crafty that they give the impression that they are intending to make use of one spot, and, at the same time, quietly mark out another place instead. The farmer came across a new-born lamb, just struggling to its feet, helped by the parent ewe, who at the same time cleaned it down. Within five minutes the lamb was drinking in the rich milk that would help it grow apace.

After breakfast, the farmer headed towards the fields again. He liked to tour once every two hours during the day, for his help was sometimes needed. On his rounds he came across a new lamb by the side of its dead mother—an orphan in a cold, wet world. The farmer picked it up and carried it back to the farm. Into the little lamb he coaxed milk laced with glucose, which had been poured into a baby's feeding bottle, and when the lamb was in good health and spirits, he prepared to find a foster-mother for it. He had in mind a ewe which had lost one of its twin lambs. Carefully, he skinned the dead lamb, then bound the skin round the

(*Continued on page 187*)

Will Stirling Moss Race Again?

Asks Jerry Ames



This recent picture of Stirling Moss, appears by courtesy of the Editor of "Motor Sport."

AFTER an absence of nearly twelve months, I shall be surprised if Stirling Moss returns to racing—as a driver. Although he has made a remarkable recovery from the appalling accident at Goodwood, last Easter, I believe he has been away from racing too long to take up the game where he left off. Unless he can do this, Stirling will not be very interested.

I cannot recall any top driver finding his old form again after being away from the circuits for a year or more. Even the great Nuvolari was never quite the same after the war, nor were Caracciola, Herman Lang or Varzi. Continuity of driving in top class racing is essential for those who wish to stay at the top, for men change as they grow older, just as machines do.

Should Stirling announce his retirement, do not expect him to sever his connection with racing—it has been his life's work since the age of fifteen. His experience gained in almost every form of motor competition, from Grand Prix and sports car racing to rallies and record breaking, is unique in a man still only 33.

ROAD AND TRACK

The Japanese firm of Honda has admitted it would pay handsomely for his services as team manager, or technical adviser, and at their special request Stirling has agreed to visit them in Japan to look over their cars. I believe Enzo Ferrari would also be glad of his services and there are, no doubt, a number of leading British firms, with a big finger in the motor racing pie, who would gladly accept him on their pay roll.

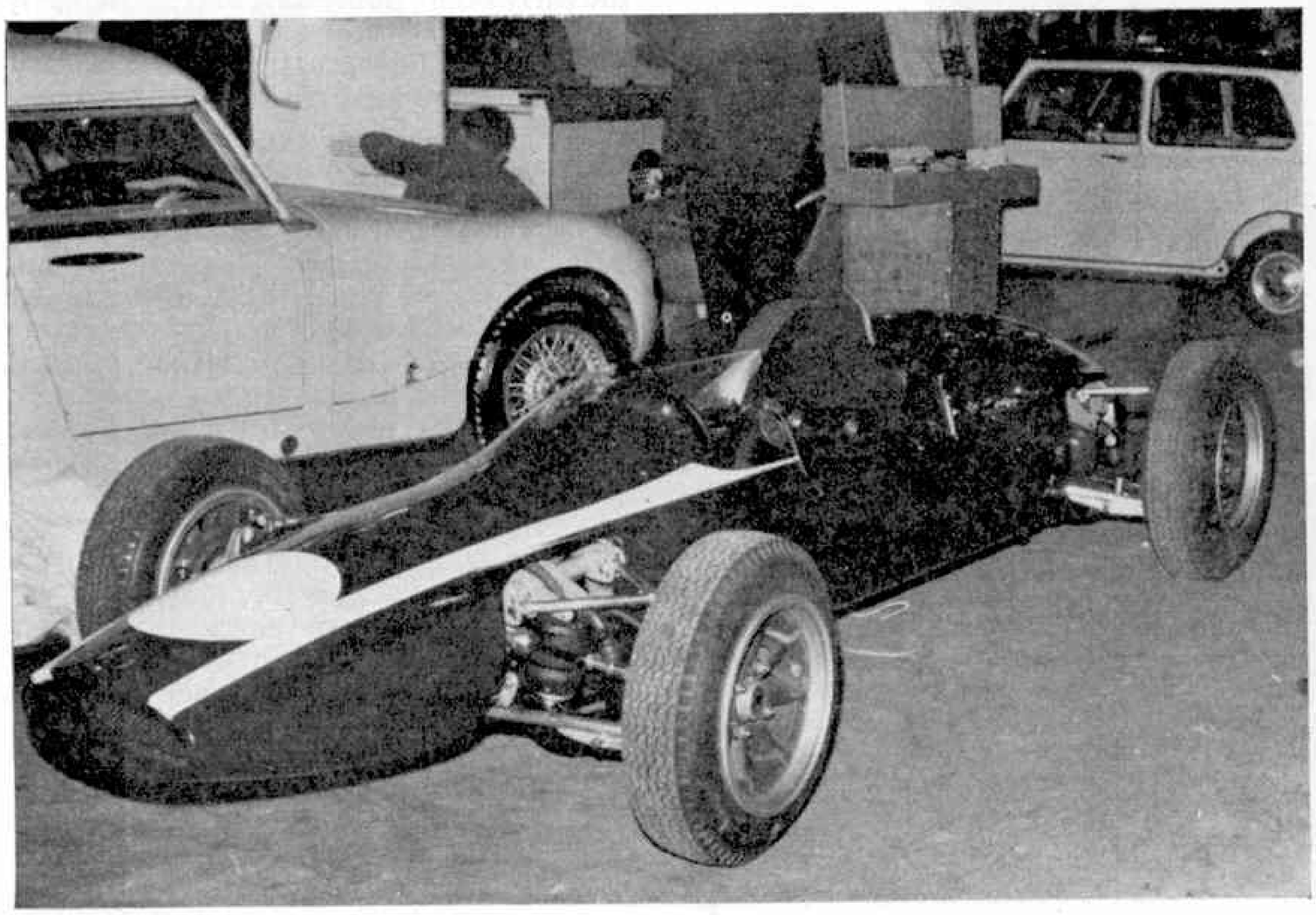
THE SEASON'S PLANS

Meanwhile, more plans for the new season's Formula One racing are taking shape. Rob Walker has decided not to withdraw from the sport after all and has signed up Swedish driver, Jo Bonnier, who last year drove a Porsche. For the coming season Rob Walker has ordered a new Cooper, because he is impressed by the splendid record of reliability. This pleases Jo Bonnier, too.

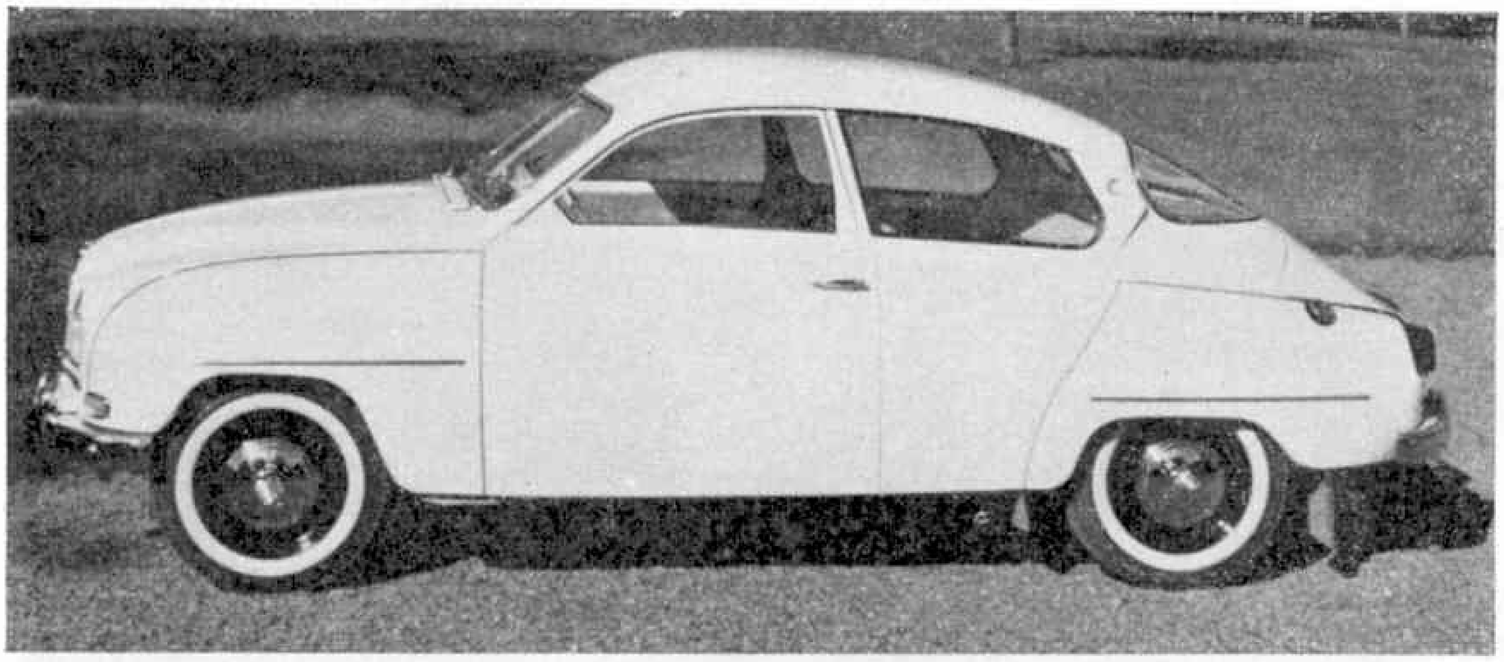
At the Racing Car Show I ran into Charles Cooper who was telling me about their race against time to complete the new Formula Junior and have it on the stand by opening day. The 1963 Formula Junior Cooper, also suitable for Formula II racing being introduced in 1964, breaks new ground. It is the first racing car to feature BMC'S ingenious new Hydrolastic all-independent suspension, and one of Cooper's objects in using it is to prevent dipping when accelerating or braking. This is one of the extremely rare occasions when racing borrows something from the touring car.

Modifications have been made to house the new suspension inside the re-designed body. The Hydrolastic system works in conjunction with normal upper and lower wishbones, while developments are going ahead to use Alex Moulton's rubber units in place of helical spring struts. Power unit is the BMC "A" type enlarged to 1,098 c.c., but the cylinder head has the inherent disadvantage of siamesed ports. Nevertheless, using a 12 to 1 compression ratio Coopers and BMC have worked wonders to extract 98 bhp at 7,800 rpm. Its six-speed gear box still uses a Citroen aluminium casing, which has proved extremely reliable. The complete car has a very handsome profile from every angle and is strongly built, a very definite advantage in Formula Junior racing where it is not unusual for a driver to run out of road.

Formula II racing, coming officially



The 1963 Formula Junior Cooper breaks new ground. It is the first racing car to feature BMC's Hydrolastic all-independent suspension. Picture by courtesy of "Motor Sport".



Top picture: The four-wheel drive SAAB 96 saloon—"one of the best handling cars that has come my way for some time", says Jerry Ames in this month's chat. Below: Good acceleration is one of the many virtues of the stylish Humber Sceptre, pictured here.

next year, permits engine sizes up to 1,000 c.c., nor need they be so closely related to production saloon units. Minimum weight limit of the complete car is slightly higher at 420 kg. instead of 400 kg. for the Juniors.

The Formula II Cooper will use a new high-revving, twin overhead camshaft Coventry Climax engine, expected to develop not far short of 120 bhp, which should provide it with a most effective power-weight ratio.

Charles Cooper also told me that his new season's Formula One machine will be fitted with Hydrolastic suspension, as well as a much modified V–8 Coventry Climax engine.

FRONT-WHEEL SAAB

Recently I have been testing a front-wheel drive SAAB 96 saloon. With a top speed of 73 m.p.h. it is not very fast, but on snow and ice I found it progressed more smoothly and safely than most cars. Indeed, it proved to be one of the best handling cars that has come my way for some time. Cold weather starting is good. After leaving the car out all night in 14 degrees of frost, early morning starting on full choke was instantaneous. A radiator blind for quick warming-up is a standard fitting. Despite plenty of low gear work and wheelspin on ice, fuel consumption was better than 30 m.p.g. The car has a fairly large four-seater body and is pulled by a 3–cylinder, two-stroke engine of 841 c.c. I can recommend this inexpensive car, particularly to anyone who has frightened himself recently on our icy roads.

Last month, I mentioned Rootes new Humber Sceptre; this month, I have been driving it. To my mind the Sceptre is one of the finest moderately-priced sporting luxury cars any manufacturer has yet introduced. Although its performance is not quite so high as that of the Sunbeam Rapier, the Sceptre weighs more and is appreciably larger. It has surprisingly good acceleration, reaching 50 m.p.h. from a standstill in twelve seconds. As the car I drove was still rather new, and the engine a little tight at the top end, I did not attempt maximum speeds but, limiting myself to 5,000 r.p.m., recorded 82 m.p.h. I see no reason why it should not reach its claimed 92 m.p.h. and, when properly run in, cruise easily at 80 m.p.h. in overdrive—a standard fitting on this model. Servo-assisted brakes with large front discs stop one rapidly and smoothly. The comfort of the seats and of the driving position is above average and the car has a well-padded, practical facia with sensible instrument layout.

GAS TURBINE SPORTS CAR

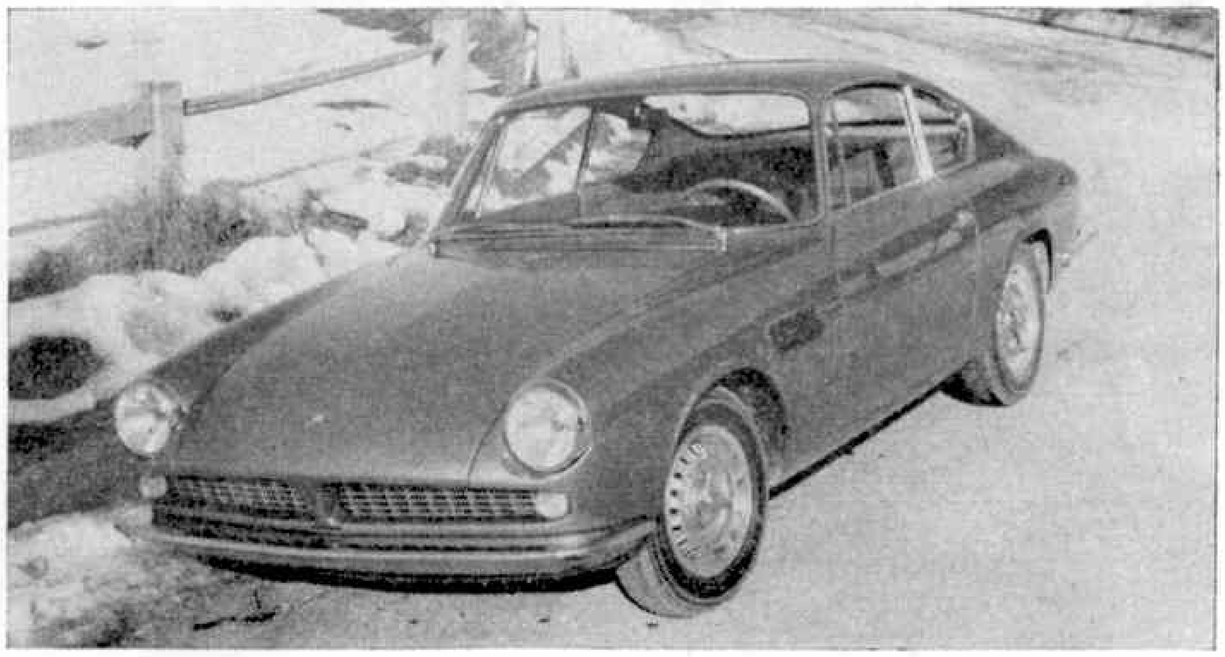
Le Mans is not a race I am keen on these days. The 8.3 miles circuit has been smoothed and modified so many times to increase lap speeds that much of its character has been ironed out. But this year's race, taking place on June 15 and 16, sounds promising, for entries include a new gas turbine prototype sports car from Rover and its technically interesting rival, the NSU Spyder, powered by a new Wankel rotary combustion engine.

The Index of Performance class is more open this year. Panhard cannot be ready in time, but there could be an intensely exciting Anglo–Italian battle between the small Lotus and the A.S.A. GT coupé. The A.S.A. is a production version of the baby Ferrari 1,000 in road form. It uses a 1,032 c.c. four-cylinder, single cam engine, has a claimed top speed of 112 m.p.h. and can accelerate from standstill to 50 m.p.h. in something like ten seconds. It is to be exported to Britain at a future date. For Le Mans, the engine may be placed at the rear and reduced in size to 998 c.c.

Rover have been attracted by the idea of racing a gas turbine car for some time. Now they are to collaborate with Rubery Owen, one of the oldest chassis makers, in the production of their Le Mans car. Rubery Owen is controlled by Sir Alfred Owen, who also owns BRM., makers of the World Champion Grand Prix car. It is hardly surprising therefore that drivers of the new Rover–BRM are to be world champion Graham Hill and his U.S.A. team mate Ritchie Ginther.

Several years ago, when Connaught Grand Prix machines were at the height of their fame, I suggested to Spencer King, head of Rover's gas turbine section, that it might be a good idea to let the Connaught organisation have a gas tur-

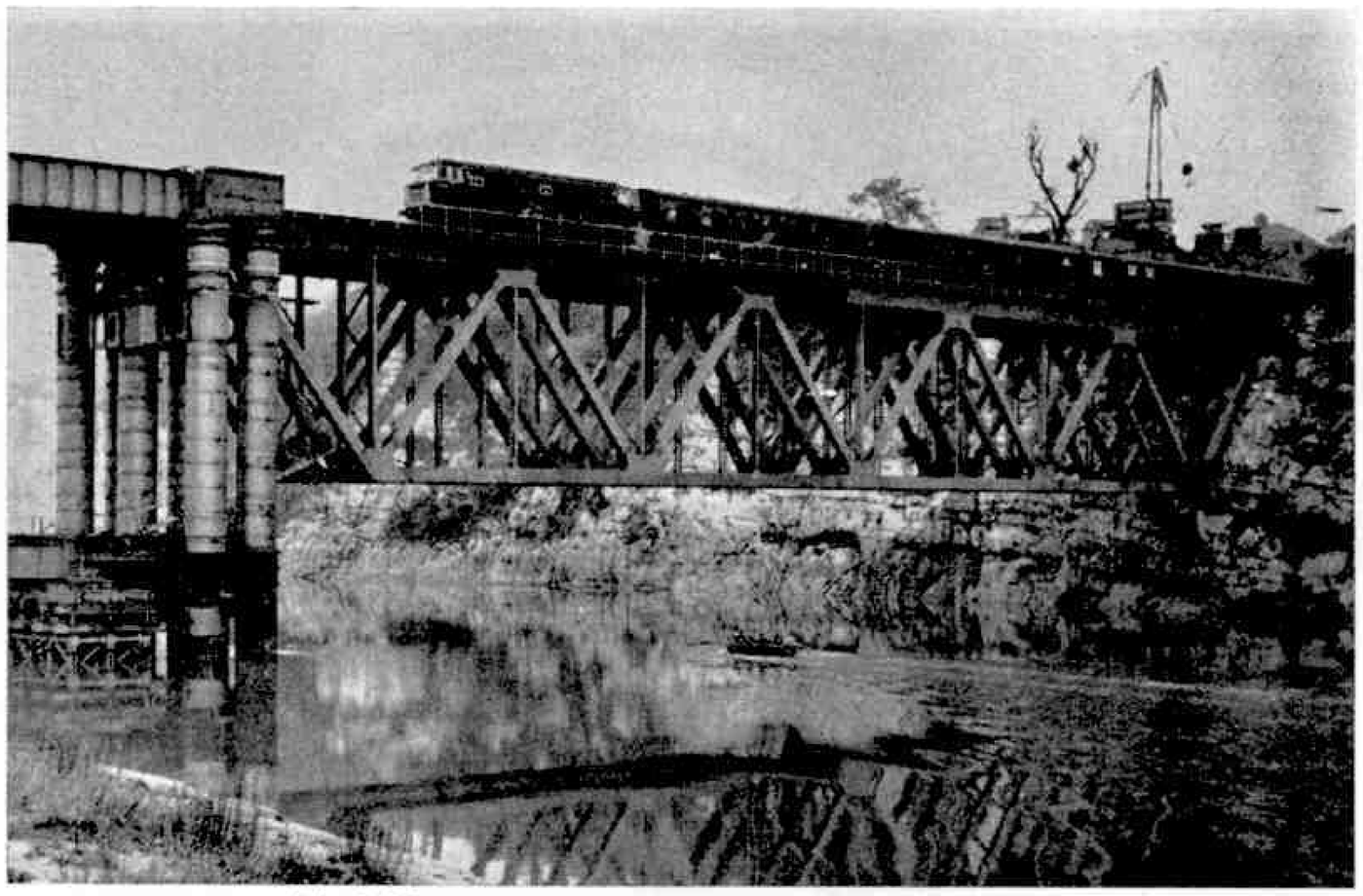
(*Continued on page 167*)



The A.S.A., a production version of the baby Ferrari 1,000. It has a reputed top speed of 112 m.p.h. and is seen here at Monte Carlo. This illustration appears by courtesy of "The Motor".

A BRUNEL BRIDGE RENEWED

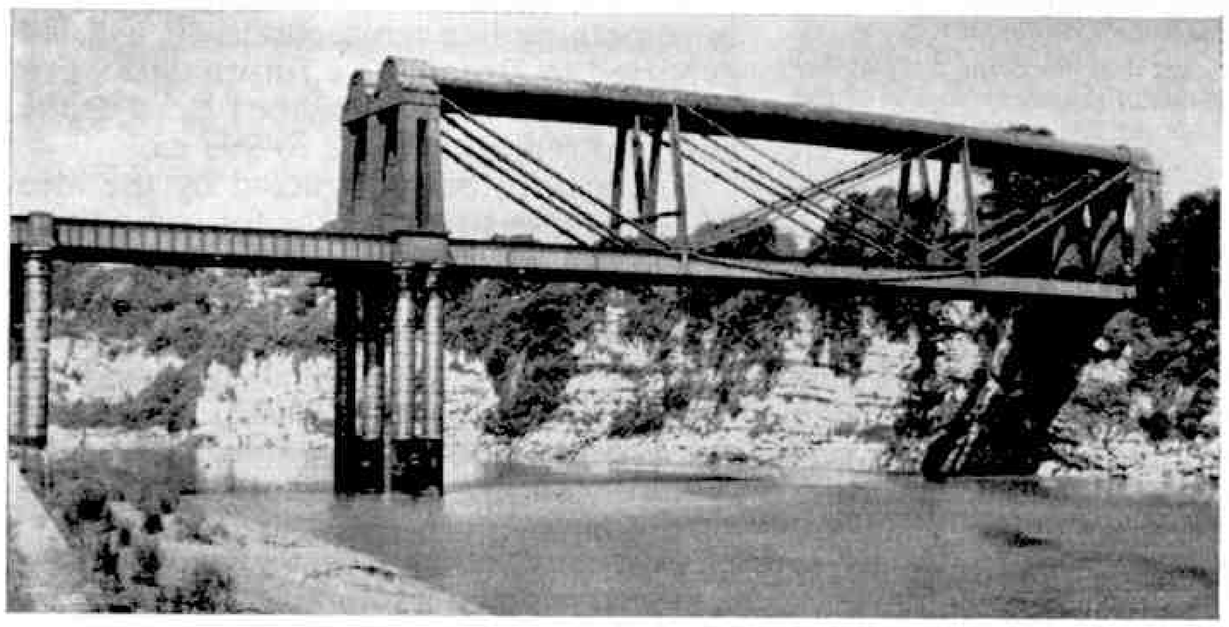
• *This article is based on information supplied by British Railways, Western Region.*



The bridge as it appears after rebuilding. The new spans are the pride of the railway engineers at Paddington.

MOST visitors to the ancient walled town of Chepstow visit the castle, sample the Wye salmon and note the traffic jams in the High Street. But one unfailing eye-catcher is the railway bridge carrying the Western Region main Gloucester to South Wales line over the Wye, which, twice in little over a century, has played an outstanding role in advancing the science of bridge engineering.

It was in 1850 that the firm of Finch and Willey, of Liverpool, sent a band of workers to Chepstow to build a bridge designed by Isambard K. Brunel to carry the broad gauge railway from London to South Wales. One hundred and ten years later, the bridge builders of Chepstow were to replace those very spans with new ones—the first of their kind in Britain.



As the railway from Gloucester emerges from a rock cutting, it comes suddenly upon the crossing of the Wye. The bridge is 200 yards long and is divided into two parts. To cross the river itself, which hugs the base of a cliff on the Gloucester side, Brunel slung the girders of his bridge from giant iron trusses carried on towers high above the trains. Over the Monmouth half, where the alluvial bank of the river is dry except in times of flood, and the railway continues by way of an embankment, he supported the girders on piers at intervals of 100 feet. The tower on the halfway pier was of cast iron supplied by the Irish Engineering Company of the Seville Works in Dublin. The tower on the cliff was of masonry.

Each truss—there were two, one for each line of railway—used the principle of the suspension bridge with the chains hanging from the ends of a giant horizontal tubular strut, itself resisting the inwards drag of the chains and being supported on two vertical props bearing on the chains. Each tube weighed 138 tons and was made of wrought iron plates, fashioned and riveted together like the hull of a ship. Indeed, only a few years previously Brunel had built his first iron steamship—the *Great Britain* acclaimed as the finest ship in the world!

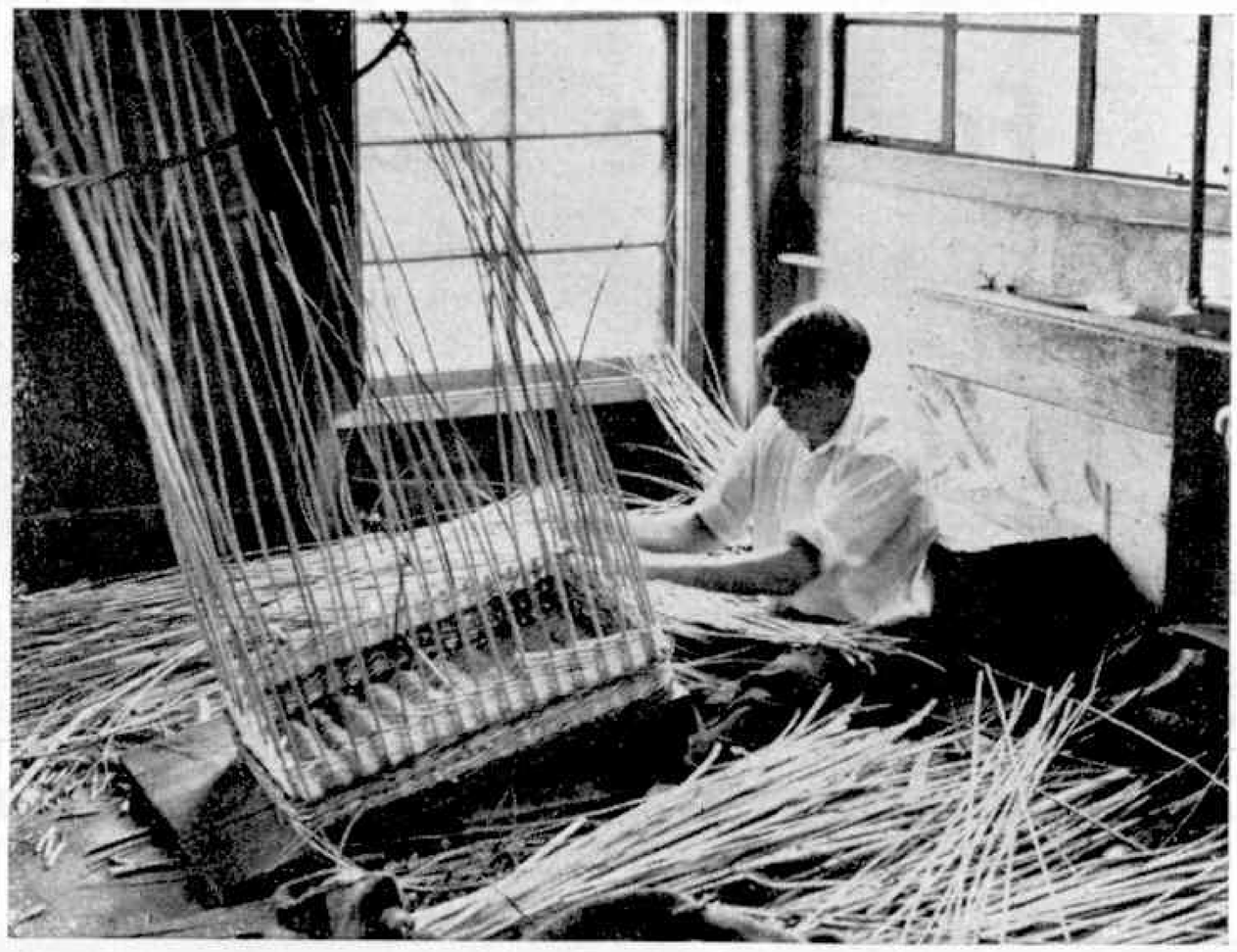
The tubes for his bridge were launched across the river on pontoons and hoisted clear of shipping, all in a day, and the trusses were built from them. The bridge was opened on July 14, 1852. One wonders whether Bastille Day had any special significance for Brunel. His father was a Huguenot! Whether it did or not, it was purely coincidental that the first of the 1852 trusses came to be closed to traffic for reconstruction on July 14, 1962.

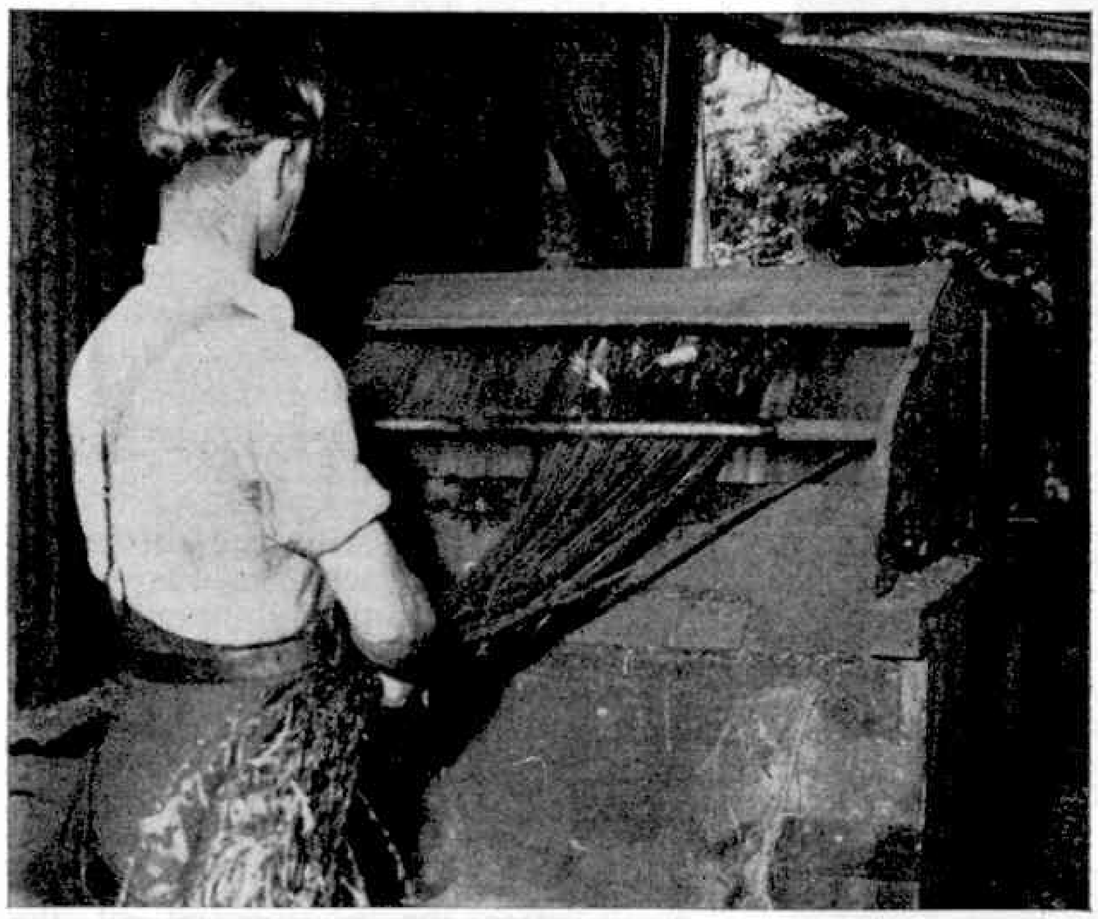
The experience gained at Chepstow led Brunel to use the same unique form of construction for his greatest masterpiece, the Royal Albert Bridge at Saltash. But suspension bridges are not steady enough for trains at speed, and in

(*Continued on page 187*)

Top left: The bridge as it was before alterations. Brunel slung the girders from giant iron trusses carried on towers high above the trains. A clear headway of 50 feet was needed for sailing ships trading from Chepstow. Bottom left: A scene during the rebuilding. A train heading for Gloucester, crosses the up line span of the new bridge, while cranes operating on the down lines span remove dismantled portions of the old 1852 bridge. All photographs appear by courtesy of British Railways Western Region.

PICTORIAL FEATURE By John Topham





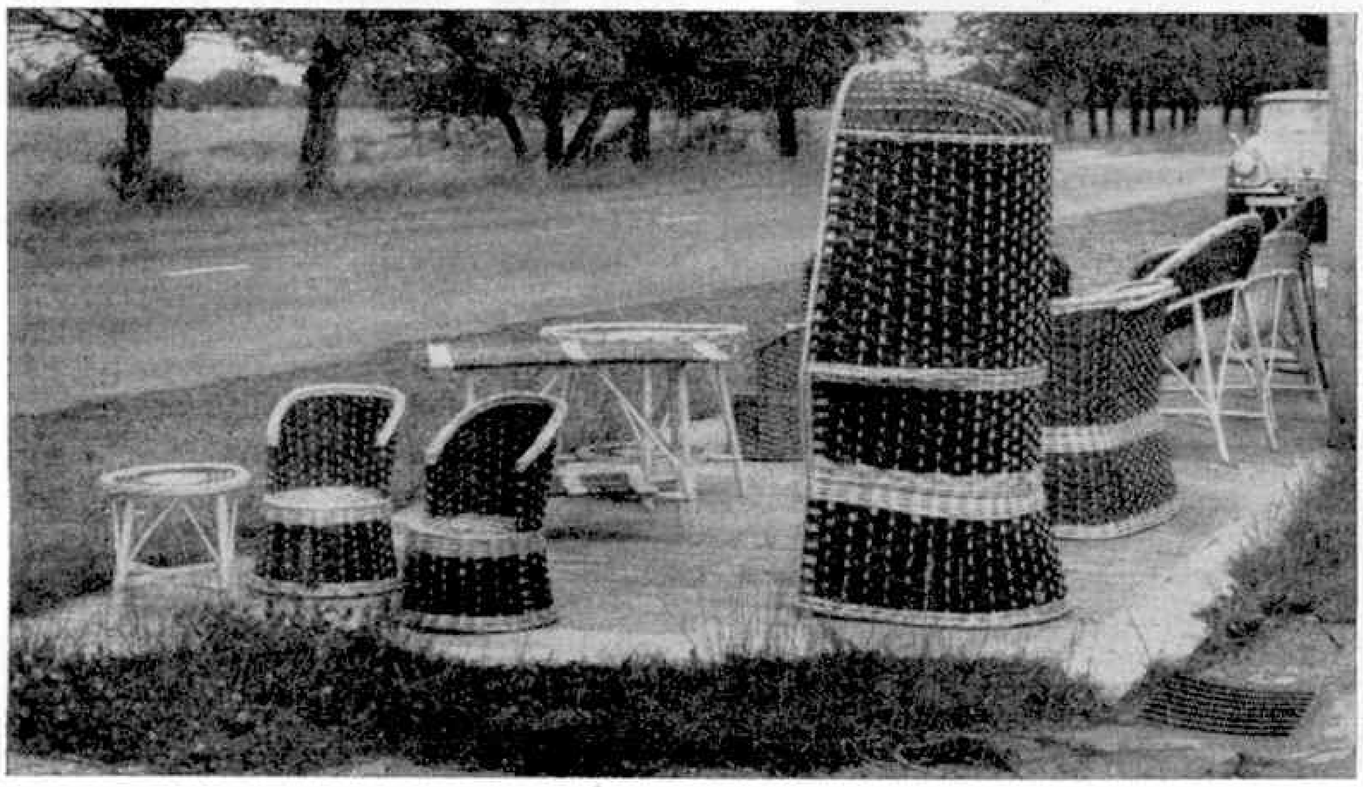
THE BASKET MAKER'S CRAFT

THERE are probably many people who do not know what withies—or osiers—are, still less for what purpose they are used; yet in some parts of the country, notably Norfolk and Somerset, they form part of the national economy.

Sedgemoor in particular is well-known for its osier beds, which cover many acres. To the historian Sedgemoor means a battle in the Monmouth Rebellion; to the present generation Sedgemoor appears as an area where osiers continue to flourish and the craft of basket-making continues, although with a dying spirit, for few will come forward to continue with the ancient craft of their fathers. Yet the demand for the goods is great and the families and firms who make baskets in that area are in arrears with their orders. The work they produce is sent to all parts of the world and although valuable contracts are on offer they just cannot increase their output.

The market, mainly, is for agricultural and horticultural baskets—for fruit, potatoes and vegetables. Following on are flowers and such luxury items as dog and cat baskets. Laundry baskets come well down the list—and occasionally there is some peculiar basket for one of the Ministries.

But until the young entrants to the trade get firmly established, and attract others to join them, the luxuries and "specials" will have to be strictly limited. At the moment, customers must be content to receive their basic requirements by instalments—just as fast as the willing hands of the basket makers can supply them.



Our pictures show—Top left: Clearing up a field of withies. Convolvulus (or bindweed) is very persistent in this crop and has to be eradicated by hand. Top right: A basket maker at work in one of the small factories near Taunton. Centre: Stripping off the skin (or bark) and leaves—the only process in this ancient craft to have become mechanised. Bottom: Examples of the basket maker's craft displayed outside a roadside basket factory near Taunton.

New Naval Missiles For The Sea Vixen

FOR several months there have been rumours of a strange-looking version of the de Havilland Sea Vixen naval fighter, with its tail-booms extended forward so that they project beyond the wing leading-edges. We know now that such an aircraft not only exists but is in production for the Royal Navy as the Sea Vixen F. (AW) Mk.2.

A photograph of it appears below and reveals several other changes in addition to the extended booms. Most important is that the Firestreak infra-red homing air-to-air missiles carried by the Sea Vixen Mk.1 are replaced by four of the new de Havilland Red Tops on the Mk.2. These work on the same principle as Firestreak, in that they fly towards anything hot, such as the exhaust nozzles of an enemy aircraft; but they are much more sensitive and efficient, and enable the fighter to make its attack from any direction, instead of only doing so from astern.

Nobody deserves greater praise than the helicopter crews of the Royal Air Force for their efforts to relieve suffering during the severe weather of the past winter. Their work required considerable skill and courage, mixed at times with patience.

For example, one Whirlwind helicopter battled through the snow to deliver bread to a beleaguered farm. The farmer and his family dashed out to meet the airmen, but their faces fell when they saw that the bread was brown.

"We're very sorry," said the farmer's wife, "but we don't eat brown bread. Could you possibly go back and fetch us some white?"

The helicopter pilot's reply is not recorded!

It is unlikely that the tail booms have been extended purely for aerodynamic reasons and the new front portions almost certainly contain fuel, to increase the Sea Vixen's range. Performance figures are secret, but the Mk.1 can fly faster than sound in a shallow dive.

AIR NEWS

By

John W. R. Taylor

Three Fleet Air Arm squadrons are equipped at present with Sea Vixens and it has been stated that Bullpup air-to-surface missiles can be carried, in place of the air-to-air weapons, for attacks on surface targets. Internal armament consists of 28 2-inch rockets carried in two retractable packs under the front fuselage.

BABY BOEING FLIES

Soon after the photograph of the Boeing 727, which you see at the bottom of this page, was taken, the aircraft began its flight tests. Boeing refer to it as their "Junior Jet", but it is quite a big baby, with seats for up to 114 passengers, and a take-off weight of 142,000 lb.

The 727 is very like the de Havilland Trident in general layout, with three engines clustered together at the tail. It is, however, bigger and more powerful. Each Pratt & Whitney JT8D–1 turbofan gives 14,000 lb. of thrust, enabling the 727 to

Top left: This de Havilland Sea Vixen F. (AW) Mk. 2 naval fighter is seen carrying four Red Top infra-red homing missiles. Bottom left: This Boeing 727, pictured just before it began its flight tests, can carry up to 114 passengers. The smallest newcomer to the Boeing jet family, it is known by them as their "Junior Jet". It has a cruising speed of up to 580 m.p.h. and a maximum range of 1,700 miles.

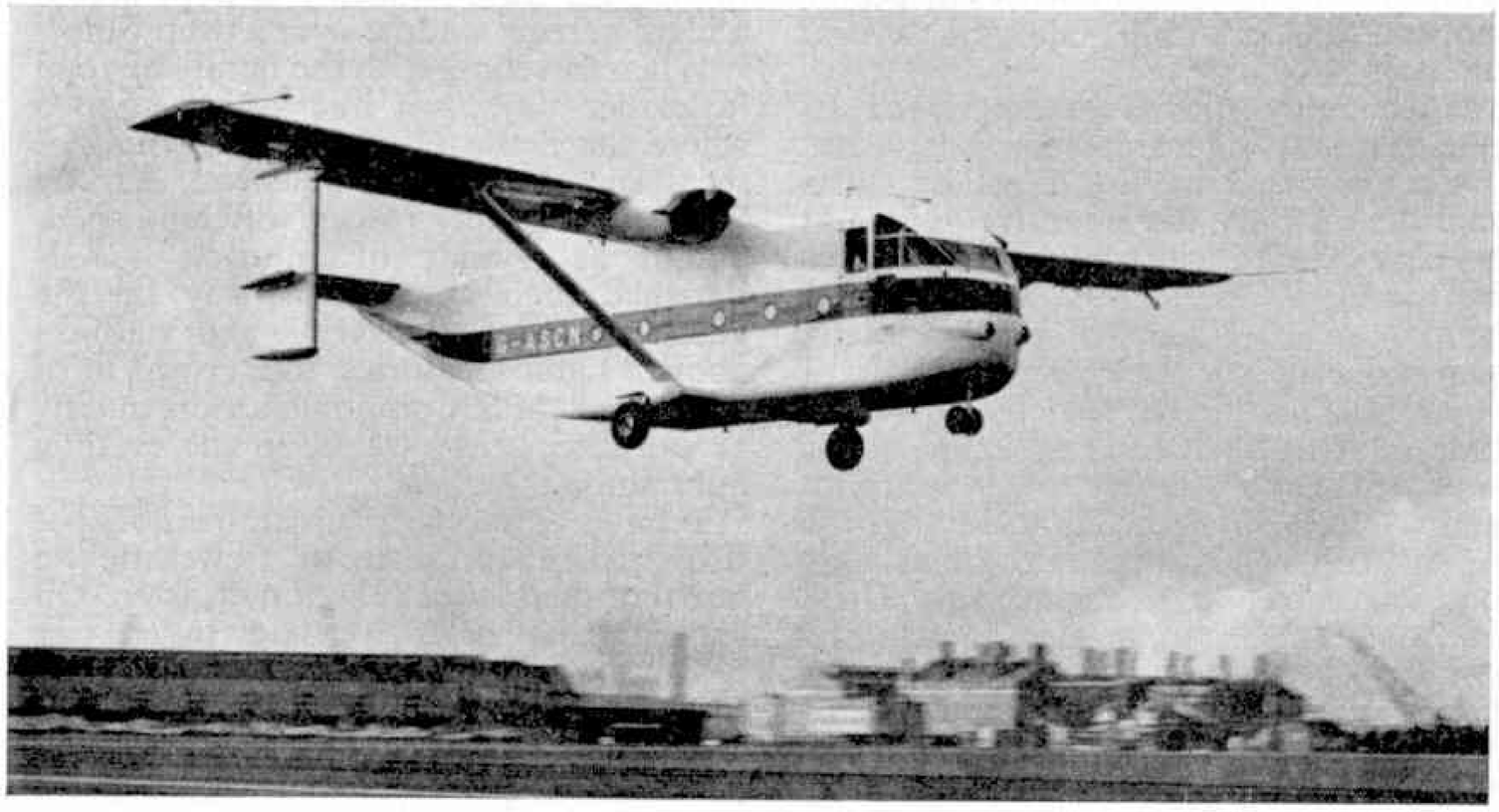
Left: Loading rockets on an UH-1A U.S. Army helicopter (see "Choppers into Battle"). Above: This picture shows the UH-1A as it appears when fitted with machine-guns and rockets. Photographs by permission of the Bell Helicopter Company.

cruise at up to 580 m.p.h. Its maximum range is 1,700 miles.

An attractive feature of the 727 is that its upper fuselage section is identical with that of the Boeing 707 and 720 series, as are many of its other components and systems. This makes it easier and cheaper to build, and will simplify maintenance work for operators who already have some of the older and bigger machines.

So far, a total of 127 have been ordered by United Air Lines, Eastern Air Lines, Lufthansa, American Airlines and T.W.A., all of whom have Boeing 707s or 720s. In addition, the Australian Government has given permission for Trans-Australia Airlines and Ansett-A.N.A. to order two each. Deliveries are scheduled to begin before the end of this year.

The prototype Short Skyvan light transport 'plane, which made its first flight in mid-January. It will be able to carry payloads up to 4,000 lb. at a speed in excess of 200 miles an hour.



THERE'S NOTHING NEW

T.W.A. workmen, digging gravel for use as ballast in the airline's Constellations, at what is now the site of Rome's new Leonardo Da Vinci Airport, were told to dig only one pit rather than several smaller holes. While digging, they uncovered a tablet in Latin, giving instructions to Roman labourers to dig gravel for ballast for Roman ships from one central pit, rather than from several smaller holes!

Leonardo Da Vinci Airport is built on the ruins of the ancient seaport of Ostia, at the estuary of the River Tiber.

"CHOPPERS" INTO BATTLE

We usually think of helicopters as rather gentle aircraft, more suitable for rescue work than warfare, but the U.S. Army is showing in Vietnam that the humble "chopper" is well able to take care of itself when anybody interferes with its lawful work.

The United States is not at war with the Communist Viet Cong, but its Army helicopters are used to carry Vietnamese soldiers into battle against the rebel guerrilla forces. Several of the big tandem-rotor H-21's used for this work were hit by ground fire and forced down; so Major Robert Runkle, Commander of the Army Tactical Transport Helicopter Company, decided to escort the H-21's with Bell UH-1A Iroquois light helicopters, each armed with sixteen air-to-surface rockets and two 0.30-inch machine-guns.

The UH-1As are not allowed to go into action unless fired on first, and the Viet Cong will probably think twice about picking a quarrel following a recent battle in which the UH-1As killed 65 of the rebels.

ONE FLIGHT—69 RECORDS

Just one year ago the famous American airwoman, Miss Jacqueline Cochran, flew a Lockheed JetStar four-jet business-plane from New Orleans, Louisiana, to Bonn in Germany, via Gander, Newfoundland, and Shannon, Ireland, at an average speed of 511 m.p.h.

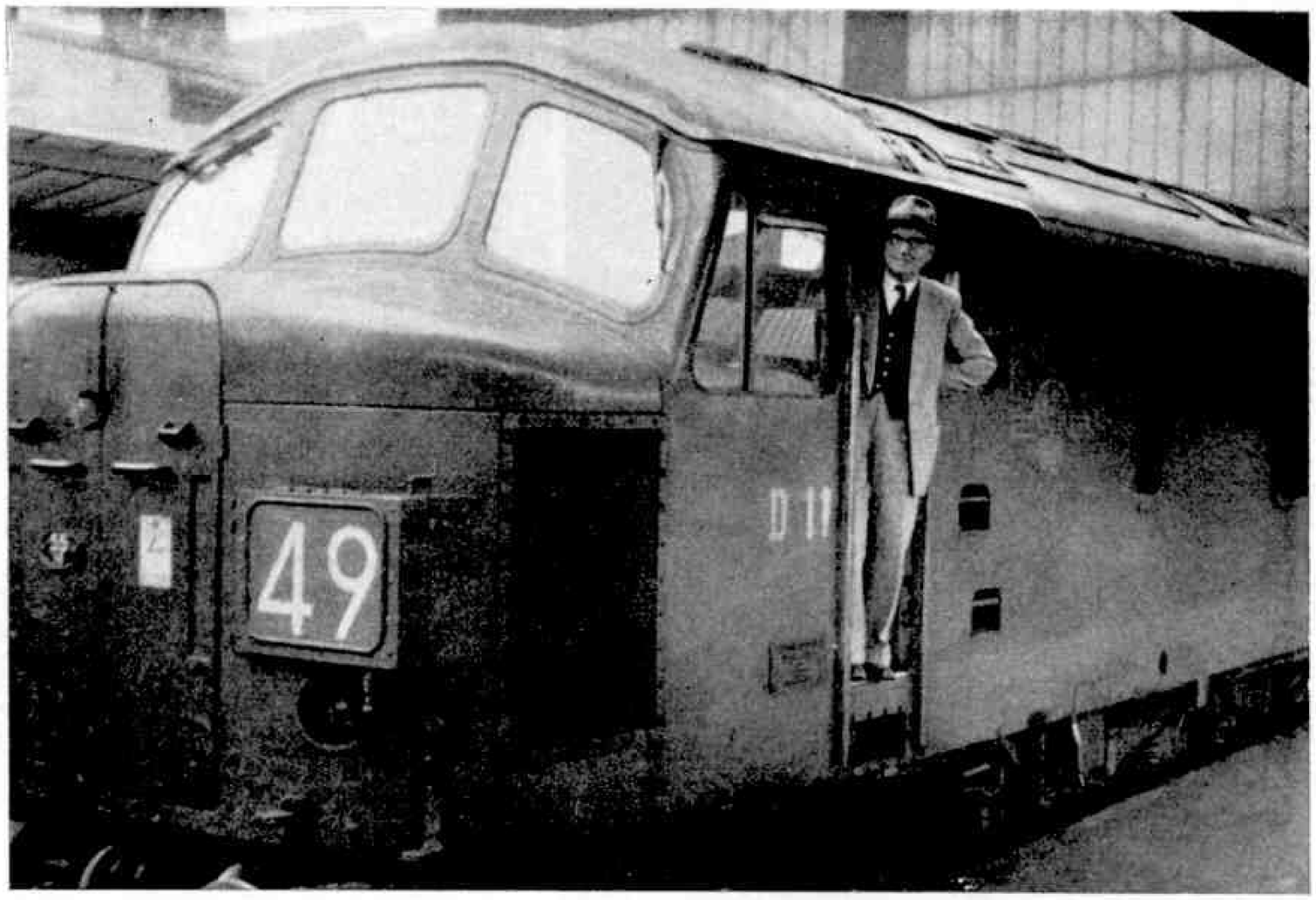
It was hoped to set up 25 speed and point-to-point records during the long flight. In fact, twelve months of checking by the Federation Aeronautique Internationale and the U.S. National Aeronautic Association have shown that Miss Cochran can be credited with 69 international and national records. No other flight in aviation history has produced such a crop of them.

SKYVAN PREMIÈRE

One of the most interesting of recent British light transports, the Short Skyvan, made its first flight from Sydenham Airfield, Belfast, on January 17. It had seemed at one stage that the test would

(*Continued on page 187*)

DIESEL RUN OVER THE BACKBONE OF ENGLAND



LITTLE more than a year ago now, I had occasion to travel from Merseyside to Glasgow and back by rail and decided to use, as far as possible, the lines I had either not covered before or, at least, had not travelled over for many years. I was going at the invitation of the B.B.C. to give a short talk on the old Liverpool and Manchester Railway locomotive Lion *which I was instrumental in saving from the scrap-heap.*

What was to prove a journey full of memories began when I took an electric train from Hoylake to

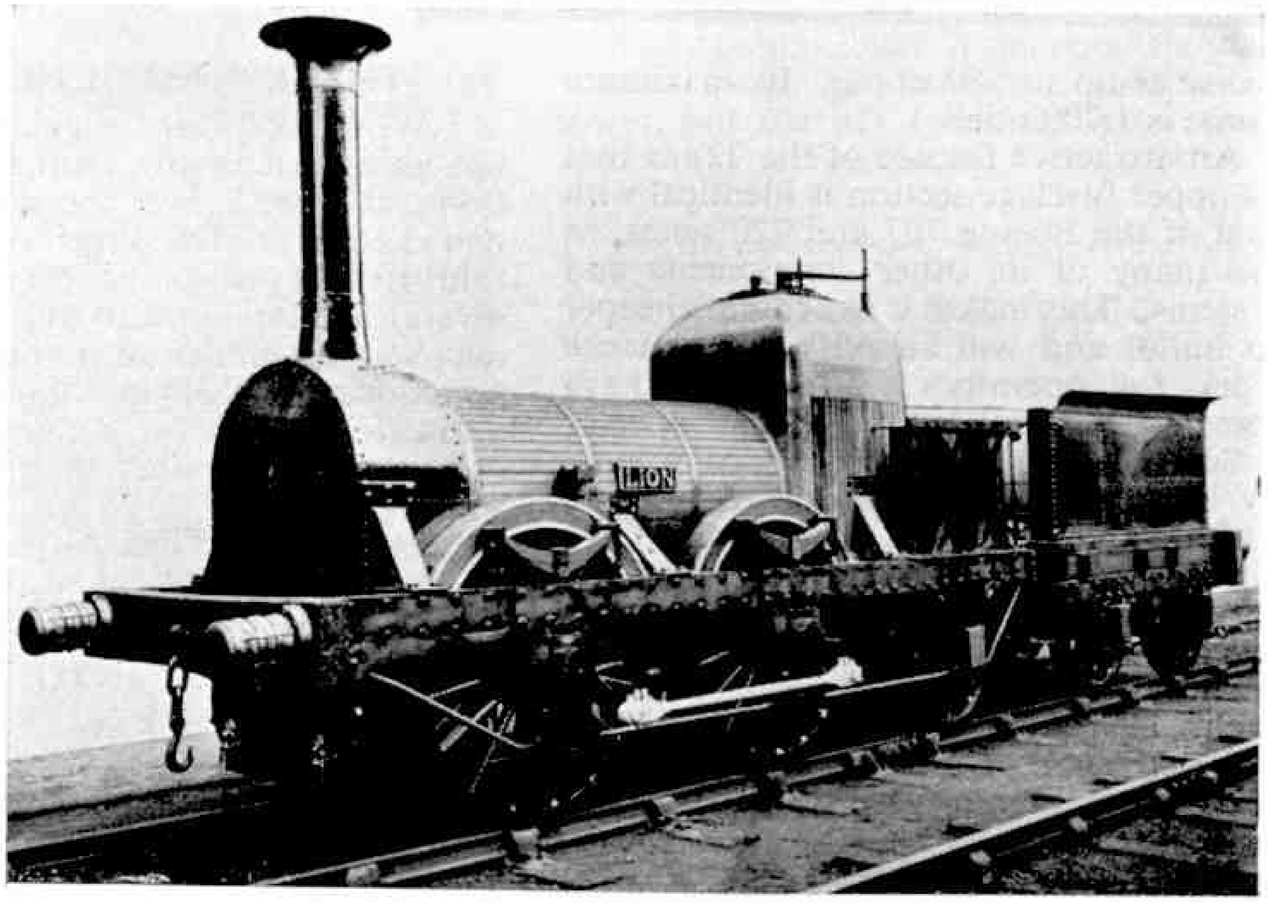
Described by

CHARLES W. REED

Liverpool on the Mersey Line—formerly the Wirral Line—a journey which set me thinking back to the days when this route was a separate, steam-worked railway with a wide variety of motive power.

Between Liverpool Exchange and Hellifield—the latter part of this section of the trip was new to me and proved very pleasant—I rode behind 4-6-0 No. 45517, one of the few remaining un-rebuilt Patriots or "Baby Scots," hauling a light four-coach train with extreme ease, over the old Lancashire and Yorkshire Line.

At the rather bleak station of Hellifield, where there is a good view of the engine shed and turntable, I boarded the Type 4 2,500 h.p. Sulzer-engined diesel-electric locomotive No. D11, hauling the 10.35 Leeds–Glasgow express, consisting of eleven bogies (370 tons net). I had for the first time, by courtesy of British Railways, the privilege of riding in a modern diesel locomotive, and in the interesting company of Inspector Marsden, of Accrington, as far as Carlisle, and of District Inspector Simpson, of Corkerhill, Glasgow beyond that point.

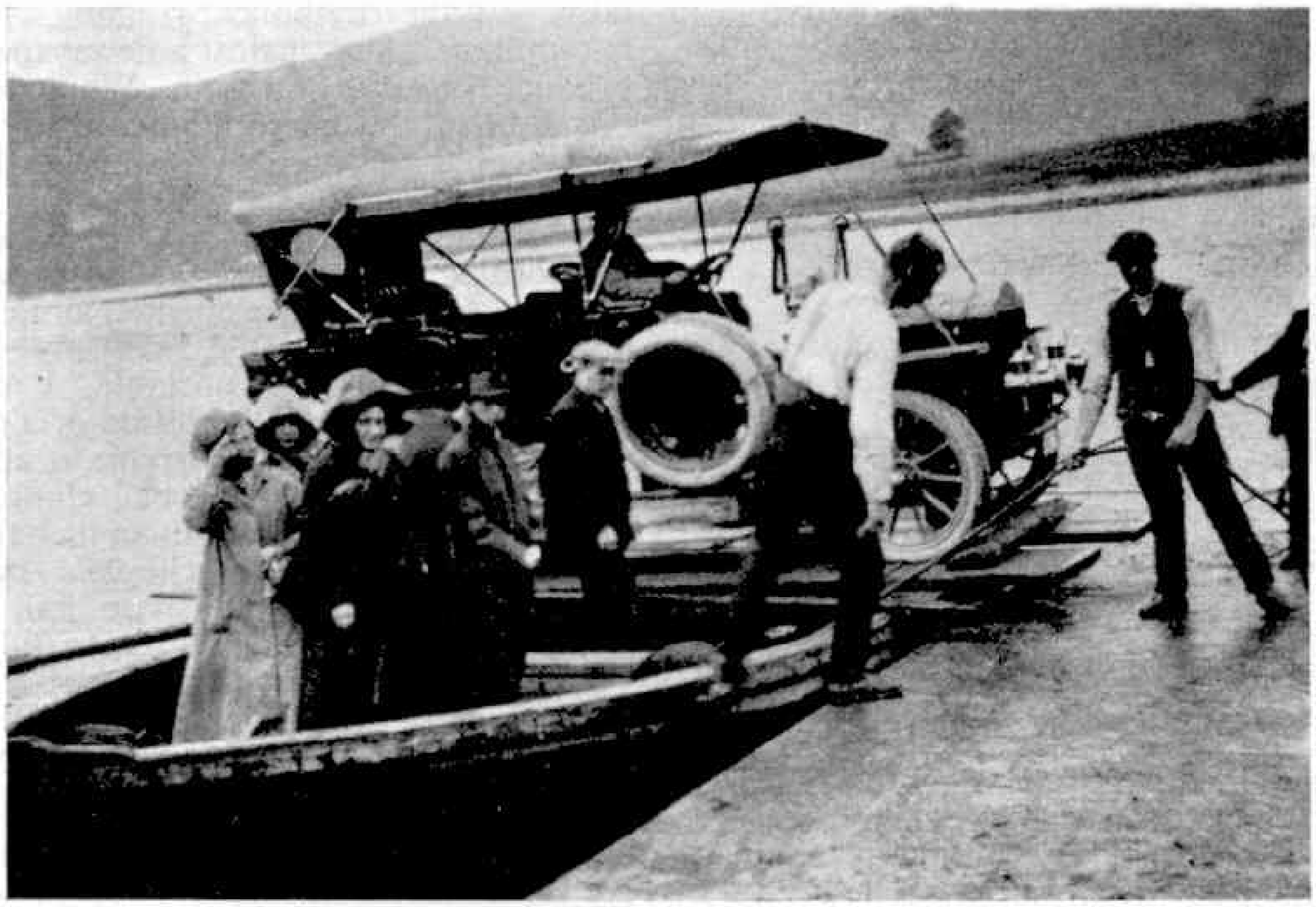


Above: The author stands in the cab doorway of No. D11 Sulzer-engined diesel-electric locomotive, at Carlisle. Right: Liverpool and Manchester Railway 0-4-2 locomotive "Lion" as restored to working order. (British Railways London Midland Region photograph.)

I thoroughly enjoyed the experience. In spite of my strong leaning towards steam, I was impressed by the effortless starts from the stations, the smooth riding, and the extreme ease with which this locomotive hauled the heavily-loaded train over the long, steep gradients on this line, being beautifully handled by Driver Reid of Corkerhill, accompanied by Fireman Pollard. This Settle to Carlisle line of the former Midland Railway, which was built in the face of extreme difficulties in the early 1870's, when mechanised aids were few, is a masterpiece of engineering. There are some fifteen tunnels and an equal number of massive viaducts, carrying the metals through and over the backbone of England and giving, especially from the cab of a diesel engine, some breath-taking views such as when, emerging from a long tunnel, the train suddenly swoops across a high, narrow viaduct over a deep valley.

When travelling with the family by road in earlier days, we had often stopped where the Settle–Carlisle route could be seen, such as near Ribblehead, Kirkby Stephen and other places, watching spellbound as a pair of Johnson 4-4-0s thrashed their thunderous way up the gradients or flashed over the high viaducts above. Later memories, too, crowd in of watching L.M.S. Compounds more quietly at work on heavy trains, in the evening light among the fells.

I have a specially vivid memory of Christmas 1910, when at Newcastle we heard of the Hawes Junction disaster. On learning the news we had taken our "White" steam car across the moors to the scene of the accident, which was near Grisedale Crossing footbridge. I can still picture the four wrecked engines, the



A flashback to 1910 when the writer of this article (fourth from left in the boat) and other members of his family made a precarious crossing, with their 30 h.p. "White" steam car, on the Ballachulish Ferry.

burned-out coaches, and the breakdown cranes working to clear the line. All this came to mind as, in the diesel, we passed the spot where the accident had occurred.

I slipped into the restaurant car at Carlisle for lunch, then rejoined the engine at Dumfries. We had left Carlisle three minutes late, but regained correct time by Annan. After Dumfries we drew up at Kilmarnock three minutes early, at 3.13 p.m. Here, our two restaurant cars were detached, and from that point on it was very easy running through the pleasant Ayrshire countryside of the old G. & S.W. route. I have a note of seeing, at Dumfries, in about 1910, No. 384, one of James Manson's 4–6–0's, and I still treasure the mental picture of that beautiful engine. My modern footplate journey ended at Glasgow, St. Enoch, that elaborate terminus at which we arrived one minute early at 3.54 p.m.

* * * *

The Type 4 diesel-electric locomotives such as that in which I rode are capable of attaining 90 m.p.h., but on my trip we seldom exceeded 70 m.p.h., travelling mainly at a steady 50–55 m.p.h. Riding this engine, it was indeed difficult to tell whether we were on a stiff grade, on the level or even descending, unless one noticed the position of the control handle. This was indeed a different experience from some of my memories of hanging on grimly, in the wind, to the cab side on steam footplate trips. Then one heard the thunderous beat of the exhaust during a stiff climb, as the engine shook and "shouldered", and the fireman, in a swirl of coal dust, worked hard with his shovel.

I am interested in all forms of transport and have a soft spot for paddle steamers, now a fast disappearing race. So next morning I caught the 9.06 a.m. to Craigendoran. Unfortunately we were eighteen minutes late on arrival, but the small diesel vessel *Maid of Skelmorlie* was held for us, and after a view of the paddler *Waverley II* alongside the pier we sailed, alas in a real "Scotch mist", for Gourock and Dunoon. I cannot recall sailing from Craigendoran before, but I visited the harbour several times in my young days when my family was touring the west coast, and well remember the famous N.B.R. paddlers *Lucy Ashton*, *Waverley I* and *Marmion* plying from there.

The paddle steamers then, like the locomotives of the time, were always very smart, beautifully painted and immaculately clean, with shining brasswork. The modern diesel ship no doubt does its work well and cheaply, but give me a good old-fashioned paddle steamer with engines to watch!

Through the courteous co-operation of Mr. A. Stewart, the General Manager of the Caledonian Steam Packet Company, it was a great treat for me to be able to sail in the famous paddle steamer *Jeanie Deans* from Dunoon right up the Clyde to Glasgow. What did I care for the rain and mist, when invited by Mr. MacLean, the Chief Engineer, on to the starting platform of the cosy engine room, watching him manoeuvre the great triple-expansion engines, with the gleaming polished cranks swinging purposefully around? Although this steamer was built in 1931, mainly by apprentices during a strike, I found her still in excellent condition.

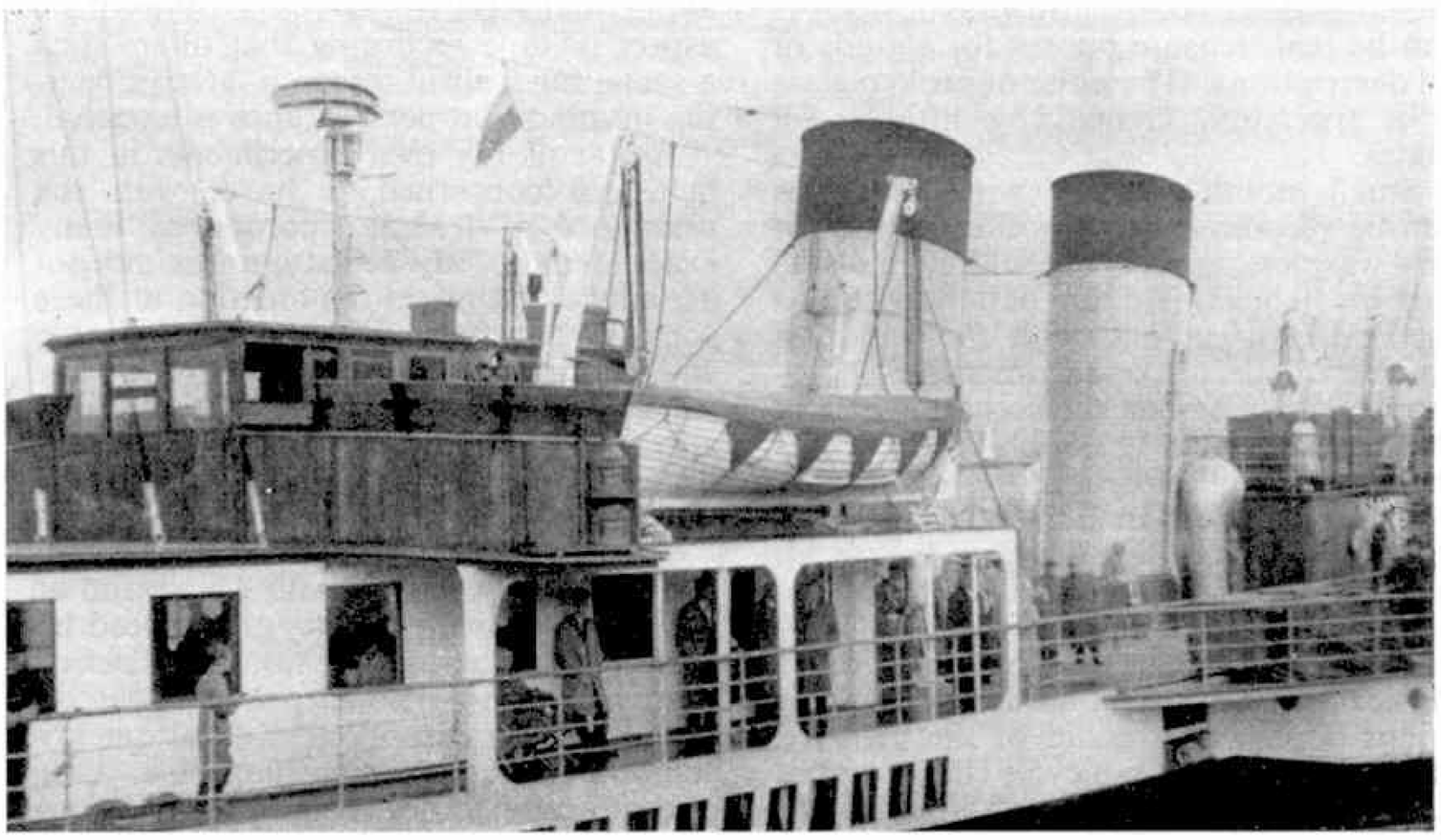
Back in Glasgow, I travelled to Queen Street to catch the 4.0 p.m. *North Briton* train to Newcastle. This train of eleven bogies was drawn by English Electric Type 4 diesel locomotive No. D282, with a banker No. 69183 up to Cowlairs.

At Edinburgh, the Glasgow crew were relieved by Driver Davidson and Fireman Reed of Gateshead Shed. Two of our three minutes late arrival in Edinburgh were made up by the station staff, enabling us to leave at 5.16 p.m. Then, after calling at Dunbar, there followed an effortless run over the Grantshouse summit to Berwick.

Here, armed with another footplate pass, through the courtesy of the North-Eastern Region P.R.O. at York, I climbed into the driver's compartment. I was accompanied by Inspector Bond, who proved a most friendly and helpful companion. It was especially interesting to examine this Vulcan Foundry engine, as it was probably one of those I saw building there in 1959, when I was engaged on surveying and testing duties at the works.

Over the Border Bridge, dead on time. we sped easily with ample power in hand down the beautiful Northumbrian coast with its glorious views of the sea from the cliff tops. This is a wonderful route to me, for I spent my young days, from the turn of the century to the first world war, on Tyneside. Driver Davidson handled his

(*Continued on page 170*)



Coming alongside at Dunoon in the course of the trip described here is the paddle steamer "Jeanie Deans", owned by the Caledonian Steam Packet Company.

SOUND EFFECTS IN TAPE RECORDING

MANY tape recorder owners, especially if they belong to a club, like making recordings of playlets. However, quite a number of would-be drama producers find that the reproduction of the appropriate incidental noises is a great obstacle.

You can gather many suitable outdoor sounds by using a battery-operated portable tape recorder. So that these sounds may be immediately available, mark what these recordings are, not only on the container, but also on the correct side of the spool, with self-adhesive labels. However, actual sounds are not always realistic when recorded on a tape recorder. For example, even the B.B.C. still depend on coconut shells to reproduce the sounds of horses' hooves, so you will see that a portable tape recorder will not need to be brought into service every time sound effects are required.

Here are some useful hints on how to create sounds by artificial means. Supposing, for instance, you had to record a war play. A wooden rattle, such as those used at football matches, will reproduce machine-gun fire with amazing fidelity. My own method of reproducing the sounds of heavy artillery, or aerial bombardment, is to put my microphone face up under the lid of my record player, and proceed to pound on that lid. This is, of course, one of those sound effects that cannot be registered during the main recording, but must be done on its own and played back on a second machine when required for the play. By altering the rhythm of the beats on the lid, your bombs and artillery fire can become the hooves of stampeding cattle. By slowing it down to a measured thump, it becomes the tread of the Mysterious Unseen, walking about in the room overhead.

Shops that specialise in practical jokes can be real treasure houses for sounds of all descriptions. The noise of broken glass is a speciality, created by little metal plates.

Small mouth-operated wind machines can be recommended for effects, but not bird warblers, for they are seldom realistic. For bird songs, it is far better to record the real bird singing, with the aid of a parabolic reflector, as shown in the photograph accompanying the second article in this series (Feb *M.M.*) or else use some of the many excellent recordings on gramophone records of Dr. Ludwig Koch.

One great recording device is the piano. Apart from its use in its own right, the piano can be used to reproduce a variety of sounds, including those made by other musical instruments. I have seen amazing things done with the aid of the pianist's ingenuity. By laying bicycle chains across the strings of a grand piano, a zither has been perfectly reproduced (please obtain permission first if you want to try this!) and I have seen a pianist reproduce a harpsichord effect by stuffing newspapers into the body of an upright. Harpsichord music is, of course, ideal for a Regency setting or a Jane Austen adaptation.

Some friends of mine, doing a programme featuring a funeral, managed to reproduce a near perfect church organ effect by playing long drawn-out chords on the bass, with the loud pedal held down. The sounds normally reproduced by the piano are chiming clocks, door bells, dinner gongs, and the chink of glasses and crockery.

Fourth Article in the Series by Gordon E. Gompers

Another instrument that can be useful, but only if a skilled player is available, is a violin. I have heard bagpipes reproduced perfectly by this means, as well as the sound of air raid sirens.

The important thing to bear in mind about all this is that there is no other single aspect of tape recording that offers such a scope for fruitful research, always bearing in mind that perseverance is essential.

As far as my own experiments in this field are concerned, I have, with the assistance of friends, reproduced many exact sounds. My acquaintances did not actually assist me in the creation of these sounds, but formed a panel to decide whether or not they sounded correct. They listened to recordings of my latest sound effects, but were not told what the sounds were supposed to be. They had to tell me what they were, without any clues at all.

The results of these experiments were interesting, to say the least. The sound of sawing wood was perfectly reproduced by rubbing a tie across the top of a kitchen chair back; that of a carpenter's rasp by passing the microphone's face quickly across a newspaper or a magazine. One of the most significant successes, incidentally, was the rhythmical rubbing of the microphone's face against a newspaper to produce the noise of a train. While doing this I tilted the microphone slightly, so that it could pick up my low whistle which added greatly to the realism.

I have already mentioned the piano as a recording device. Another instrument with which I have experimented almost as much is the typewriter. On my own machine, an Olivetti portable, I have successfully produced the sound of a cash register by releasing the carriage at about its length, and letting the bell clang. If the carriage is released about an inch from the end, you have a clippie's ticket machine. Pounding the space bar can give you the impression of distant artillery.

As you may guess, the arena for exploration and expansion in sound effects is vast, and it is all yours—a challenge to your ingenuity.

Oil Pipelines For Britain—

(*Continued from page 145*)

care was taken to preserve the precious turf. Similarly, a short length of the Fawley–London pipeline was laid early in 1962 near Winchester, instead of at a later date, to reduce inconvenience to racehorse trainers in the area. Construction of the main project started in May, the first major job being to lay the pipes across Southampton Water.

The pipes, which are coated with concrete for this stage of the route, were strung out and welded into 1,100-foot lengths ready to be pulled across. Meanwhile, a trench was dredged across the harbour, being made deep enough to ensure that in the navigable channel the pipes lie about eleven feet below the sea bed. Then a tow-wire was laid along the trench, with one end connected to the first 1,100-foot length of pipe and the other end attached to a winch. As each section was pulled into the water the hauling operation was halted while the next section was welded on. No floats were attached to the pipes, as they might restrict the use of the navigable channel.

On land, such pipelines are laid at least four feet underground and during the trenching work the topsoil is kept separate, enabling it to be replaced, thus restoring the land to its previous condition. Some idea of the diversity of the problems involved is obtained from the fact that the two Fawley–London pipelines will cross 97 roads, seventeen rivers, and eleven railways on the 64-mile route.

Thrust-boring machines are available, however, to burrow a hole for a pipeline through railway enbankments without interrupting rail traffic. Such machines were in action, for instance, when the pipeline between Walton and London Airport was put down.

This method of conveying oil is likely to be progressively extended in Britain. One of the latest such projects is for an oil pipeline from Shell Haven on the Essex side of the Thames Estuary, to a point near St. Albans, Hertfordshire.

Some Early Exposure Meters

THE importance of accurately gauging the amount of exposure required was recognised early in the development of Photography, and it was not long before simple forms of exposure meters were invented. These early meters were, in general, either of the wedge-extinction type or some form of actinometer, and a few examples of each class, which I shall deal with below, are illustrated on this page.

One of the earliest extinction meters was the French Decadun, dated 1885. It was used by holding the meter against a high-light portion of the subject as seen on the ground glass focusing screen, and the dial was revolved until the details viewed through the small window on the right-hand side were barely visible. The letter appearing in the top window referred to the printed table which indicated the exposure. It is interesting to note that the fastest exposure shown is 4/10th second and the slowest six minutes!

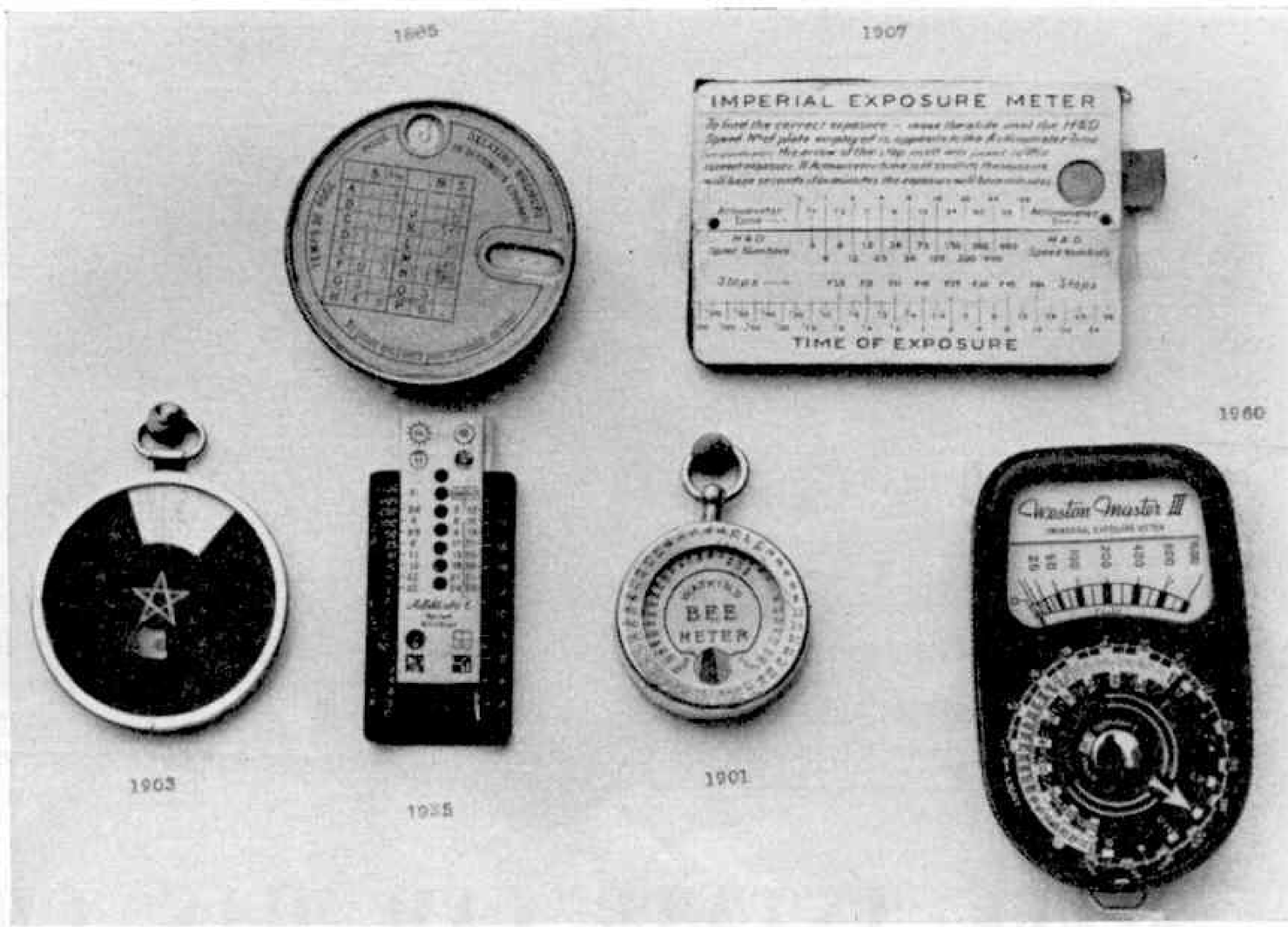
By DUDLEY BRANDE

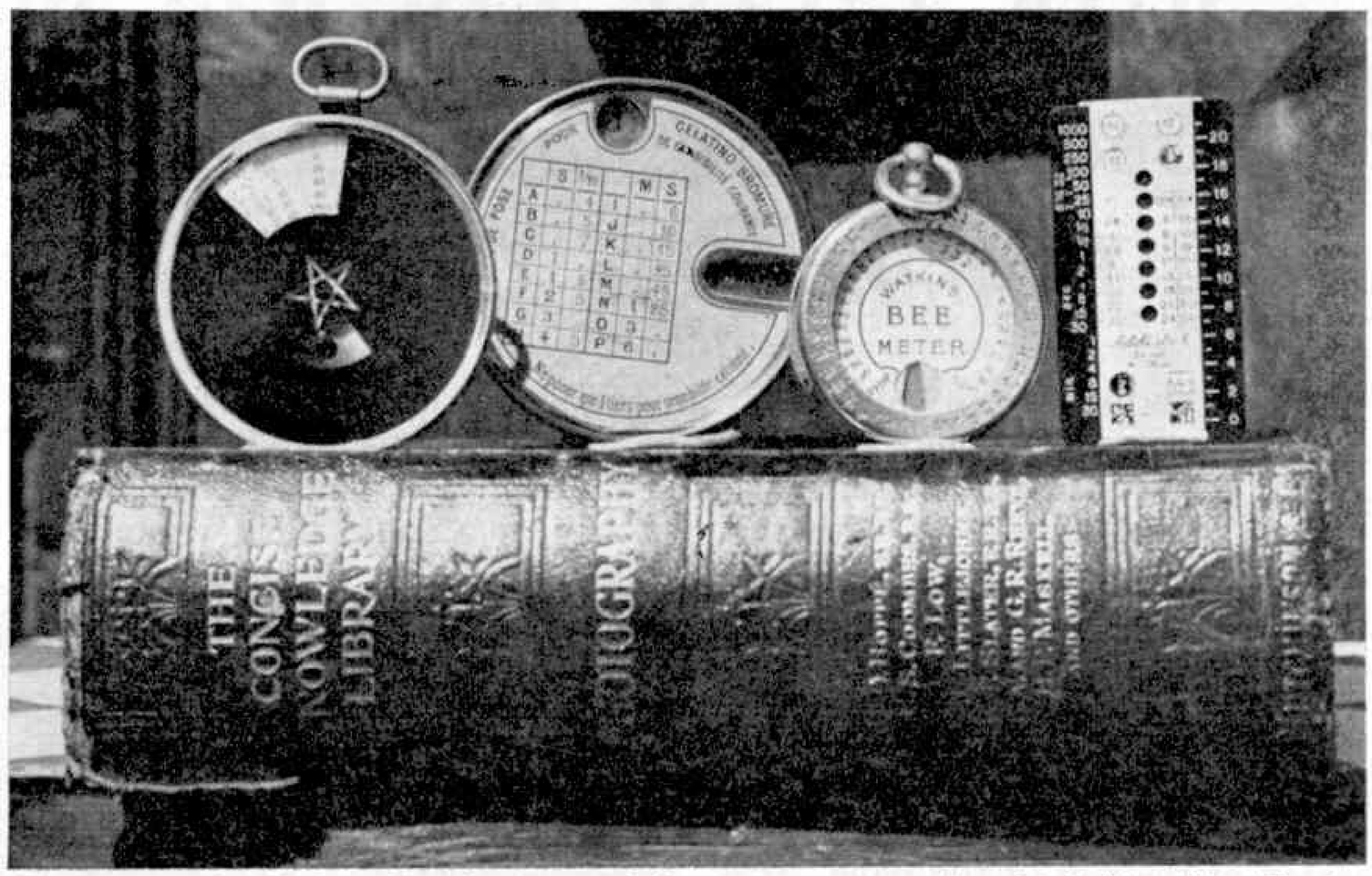
With the Ica Diaphote, the subject is viewed through a small blue window and the dial revolved until the details just disappear through the wedge. The dial scale shows the stops and exposures.

* * * *

Another useful extinction meter was the Addiphot, in which a wedge shows a number of single figures. The meter is held towards the subject, and the highest figure clearly seen is noted and certain additions are added according to the light conditions prevailing. A sliding scale, marked in Din. and Scheiner degrees, moves up or down, and the stops and exposures are read from the scale, which also includes exposures for cine cameras. Diagrams indicating light conditions, ranging from bright sunlight to dark interiors, are engraved on the meter face.

Extinction meters were, and still are, also made in tubular form, but all use the same wedge-extinction principle.





These photographs, by the author, show some of the exposure meters referred to in his article. The two groups of three in the top picture are: top left, Decadun meter 1885; bottom left, Diaphote 1903, Addiphot 1935. Top right, Imperial 1907; bottom right, Bee 1901, Weston 3, 1960. In the lower picture are shown, from left to right: Diaphote meter 1903; Decadun meter 1885; Bee meter 1901; Addiphot 1935.

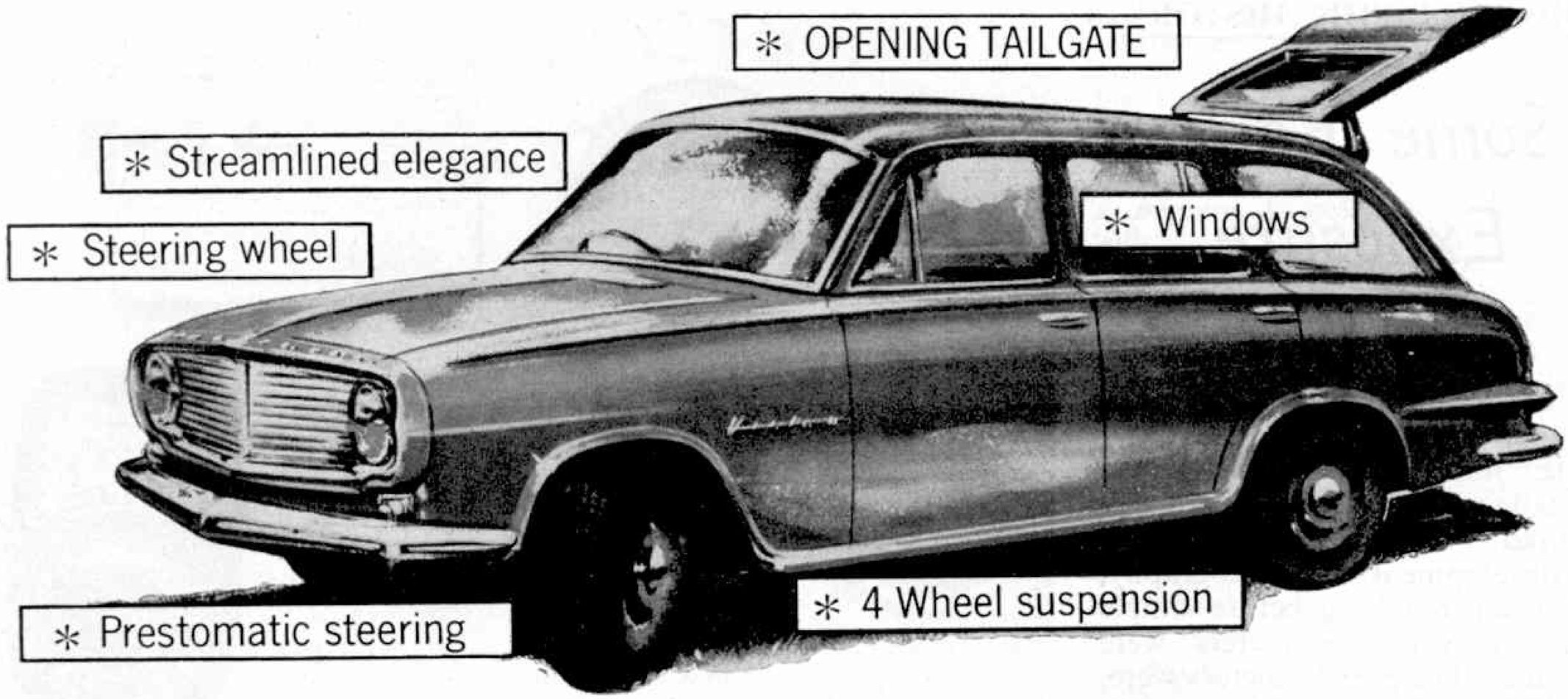
Actinometers, too, date a long way back. These used a piece of sensitised paper which darkened on exposure to light. The time taken for the paper to match a "standard tint" was noted and the result applied to tables or scales that gave plate speeds, stops and exposures.

Probably the best known of this type were the Watkins Bee and the Wynne Infallible meters. The earliest Watkins meters used a pendulum hanging from the meter, and instead of using a watch, one noted the number of swings taken until the paper matched the standard tint.

The Imperial meter, a 1907 example of which is shown in the upper illustration, was made of cardboard and cost one shilling. In this type sensitive paper was exposed through the small circular window, and the tint matching time noted and applied to the sliding scale at the bottom of the card.

Checking these old meters against a modern type such as the Weston Master 3 produces surprisingly accurate results—due allowance, of course, being made for the slow emulsion speeds for which the old meters were designed. In fact, the wedge-extinction meters, even the ancient ones, will often give a useful reading in very dull interiors when the modern photo-electric cell exposure meter fails to register.

And it is fun working out the A.S.A. speeds to suit the old timers!



SLEEK ESTATE CAR HAS GREAT APPEAL

Second New Racer—The Formula One Cooper

IF you conducted a private survey among your friends—a sort of Gallup Poll—and asked them with what would they associate the month of April, you would almost certainly find that most of them would answer "April Showers". Well, with the memory of a long, hard winter still before our minds—I shiver at the thought of it!—we probably will not mind some gentle rain this month as long as the weather is warmer.

But to most Dinky Toys collectors April this year will, I am sure, be remembered for the introduction of two more tip-top new models, the first of which is graphically illustrated at the top of the page. It is the Vauxhall Victor Estate Car and you will find it listed in our latest catalogue as No. 141.

As you can see, it presents an impression of streamlined comfort and power which is, in fact, provided by the real car itself. Among the features indicated on the Dinky Toys model I draw your particular notice to the opening tailgate which swings upwards to give access to the finely-detailed interior. The car has all the other Dinky Toys hallmarks, and these too are indicated on the illustrations.

Before continuing with our model, however, let me give you some information concerning the prototype vehicle. Manufactured by Vauxhall Motors Ltd., of Luton, Bedfordshire, it is powered by a 4-cylinder, o.h.v. engine of 1,508 c.c. capacity or, to be exact, 1,507.6 c.c.

DINKY TOYS NEWS

By The Toyman

capacity. At 4,600 r.p.m. this engine, which has a compression ratio of 8.1 to 1, gives a power output of 56.3 b.h.p. and enables the car to cruise at 70 m.p.h. with a maximum speed of 80 m.p.h. Average fuel consumption over a long journey is between 28 and 34 m.p.g.

To move away from the actual engine to the car in general, overall dimensions are as follows: Length, 14 ft. 5¼ in.; width, 5 ft. 4 in.; height, 4 ft. 8 in.; wheelbase, 8 ft. 4 in.; front track, 4 ft. 2¾ in.; rear track, 4 ft. 3⅜ in.

As in all estate cars the rear seat is collapsible to give plenty of luggage space when required. The storage capacity with the rear seat in position is almost 21 cubic feet and, with the seat folded, a fraction under 45 cubic feet, which shows that space is more than doubled. Unlike a number of other estate cars, however, the Vauxhall has four doors, so that the occupiers of the front seats do not have to climb out and tip their seats forward in order to allow those in the rear to disembark. A heater and windscreen washers are fitted as standard and, inside, there are individual front seats, leather trimmed, and carpets on all floors. In all, I would say that this is a splendid vehicle, combining comfort and style with reliability and usefulness.

Returning now to the Dinky Toys version, this is, as I mentioned earlier, equipped with an opening tailgate in addition to Prestomatic steering, windows, interior fittings and 4-wheel suspension. The high-lustre yellow gloss colour scheme is particularly attractive and contrasts perfectly with the delightful blue interior.

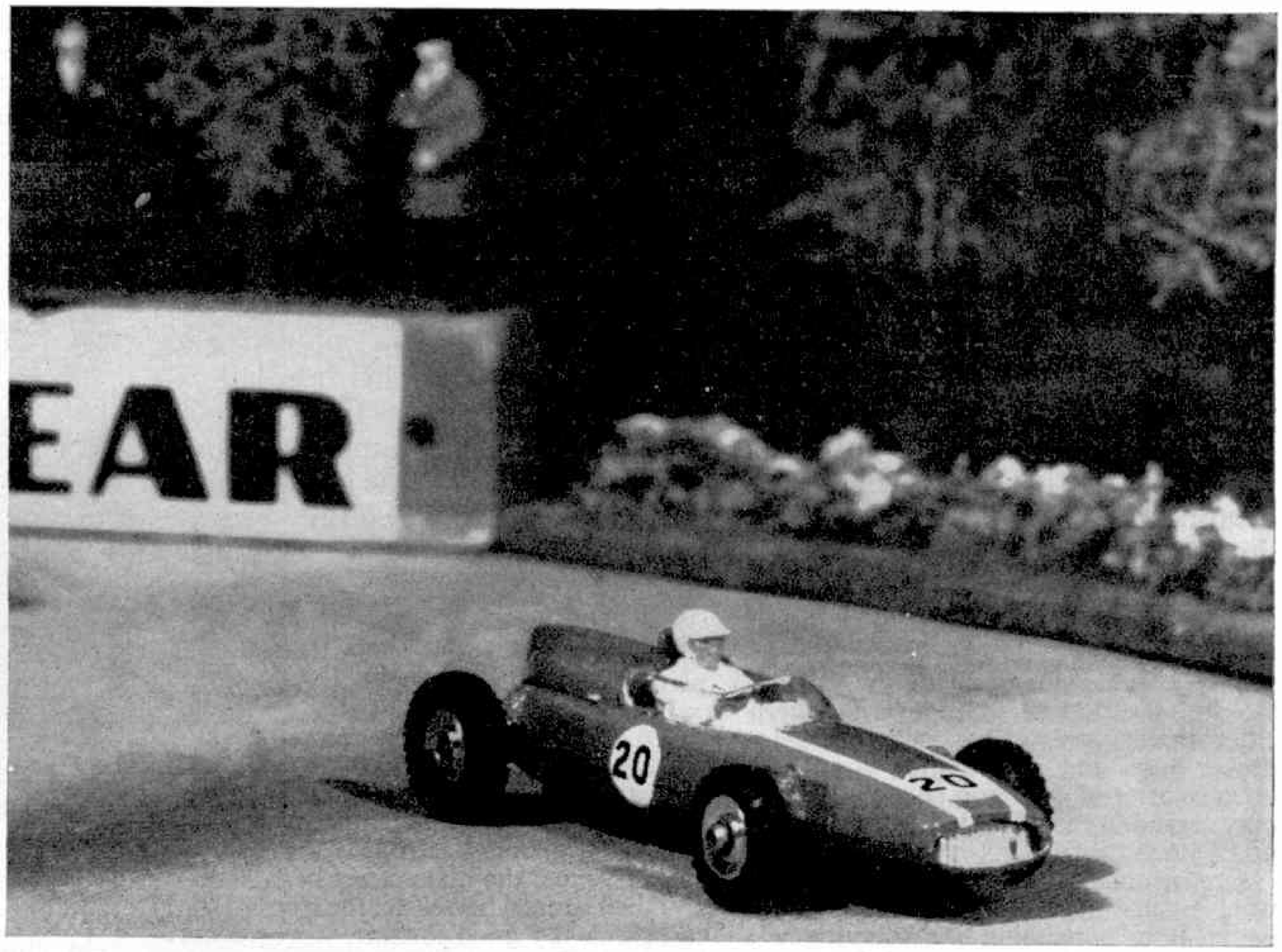
Although the rear seat in the prototype is collapsible, in our miniature it is permanently in the folded position so that those of you who obtain the model will have lots of fun fitting all sorts of luggage into the back of it.

Incidentally, I have had quite a number of letters from enthusiasts enquiring about the luggage which we use and which I included in the Volkswagen 1500 scene in these pages last month. All of the different items are contained in the set of Railway Station Personnel (Dublo Dinky Toys No. 054) and you will find that they add greatly to your scenes and layouts.

Another model which will greatly enhance your whole collection, let alone

The illustration of the new Dinky Toys model of the Vauxhall Estate Car which appears at the top of the page details the outstanding features of this attractive vehicle.

Finished in racing blue, with two white stripes running from nose to windscreen, the new Dinky Toys Cooper Racing Car is pictured, on the right, in a realistic setting.



your layouts or scenes, is the second new release this month—the Cooper Racing Car.

Last month, you may remember, we introduced the first of a new racing car series—the Formula One Ferrari. The Cooper—illustrated with these Notes—is the next in that series and is No. 240 on the Dinky Toys list.

Like the Ferrari, it is fitted with 4-wheel suspension, driver and windscreen and the engine cowl, situated to the rear of the yellow-helmeted driver, lifts off to reveal an aluminium-painted representation of the famous Coventry Climax racing engine.

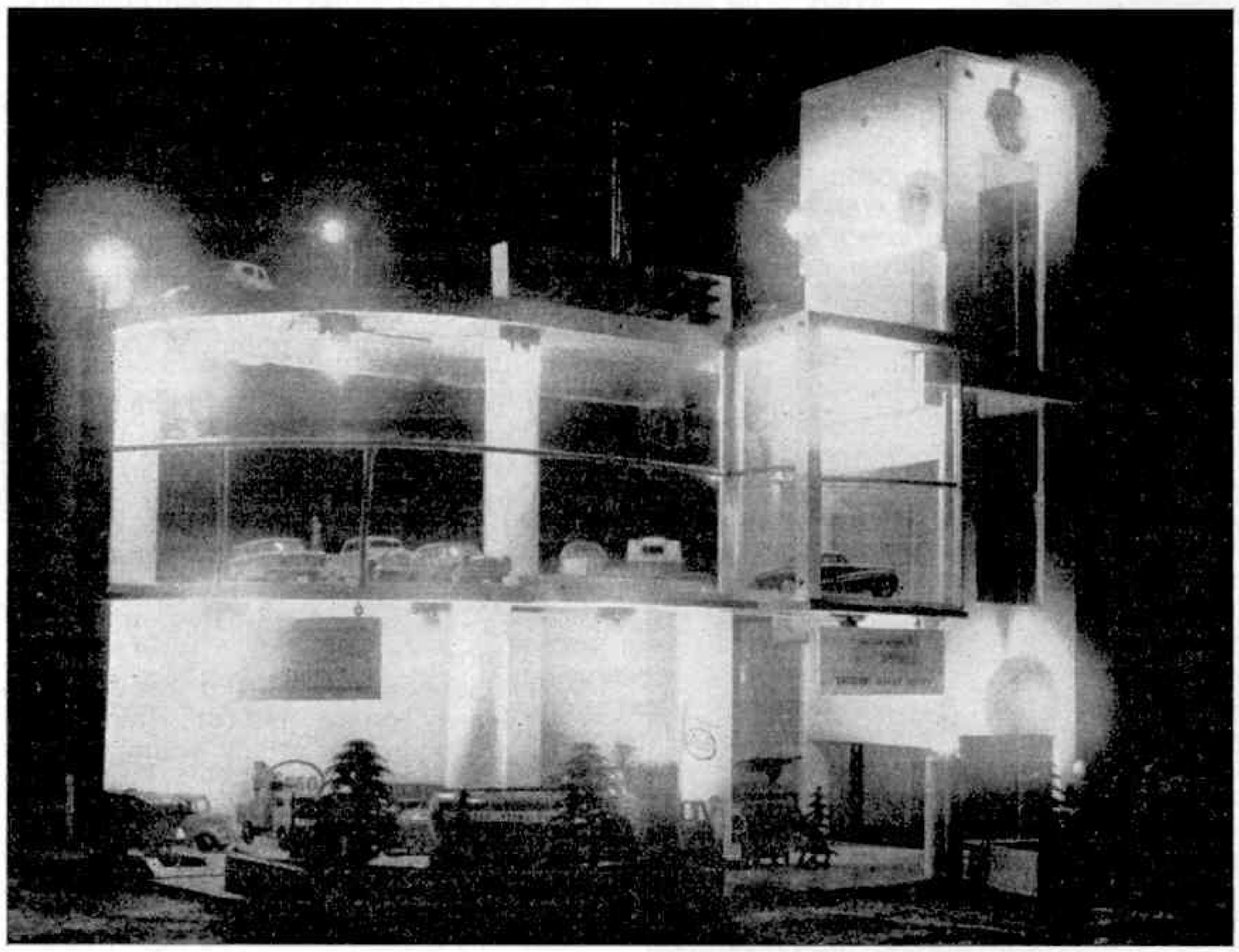
The exterior of this is finished in racing blue with two white stripes running from the air intake at the front, along the nose, to the clear windscreen surrounding the cockpit. Just inside the air intake, the radiator can be seen and the cooling system on the prototype runs from this, back past the driver, to the engine at the rear.

All racing car followers will know that the Climax-engined Cooper is one of the best performing competitors in Formula One racing today, not only in this country but throughout the whole world. What you may not know, however, is that many racing car manufacturers—British, at least—do not make all their own engines but fit those of a firm who specialize in engine manufacture. For example, Coventry Climax supply engines for racing cars owned by several different firms so that you get such combinations as Lotus–Climax, Lola–Climax or Emeryson–Climax. This final combination is rather unusual as the Emeryson is an American-financed car, which only goes to prove that the British Coventry Climax engines are among the best in the world!

The particular engine which powers the present Formula One Cooper has eight cylinders arranged in a "V", the sum capacity of which is 1,496 c.c. It develops the remarkably high power output of 174 b.h.p. at 8,600 r.p.m. and has four overhead, gear-operated camshafts. The fuel injection system makes use of four Weber twin downdraught carburettors and it is interesting at this point to notice one important difference between this vehicle and ordinary production sports cars for, in most cases, the latter are fitted with two carburettors only.

Last month I mentioned that Formula One specifications required all cars in that class to be fitted with starter-motor, battery, etc. and so, in accordance with these specifications, the Cooper has a Lucas Transistorised ignition system. This means that the car can be started anywhere, at any time, by only one person, which is very important if it happens to stall on a race-track, away from the pits. If this happens to a car which does not have a self-starter but is started by being pushed, then it will probably loose its chance of winning the (*Cont. on page 185*)

The handsome garage in this effective night-time scene is owned by Lawrence Bennett of Tettenhall, Staffordshire. Reference to it is made in this article.



A ZOO IN REVERSE

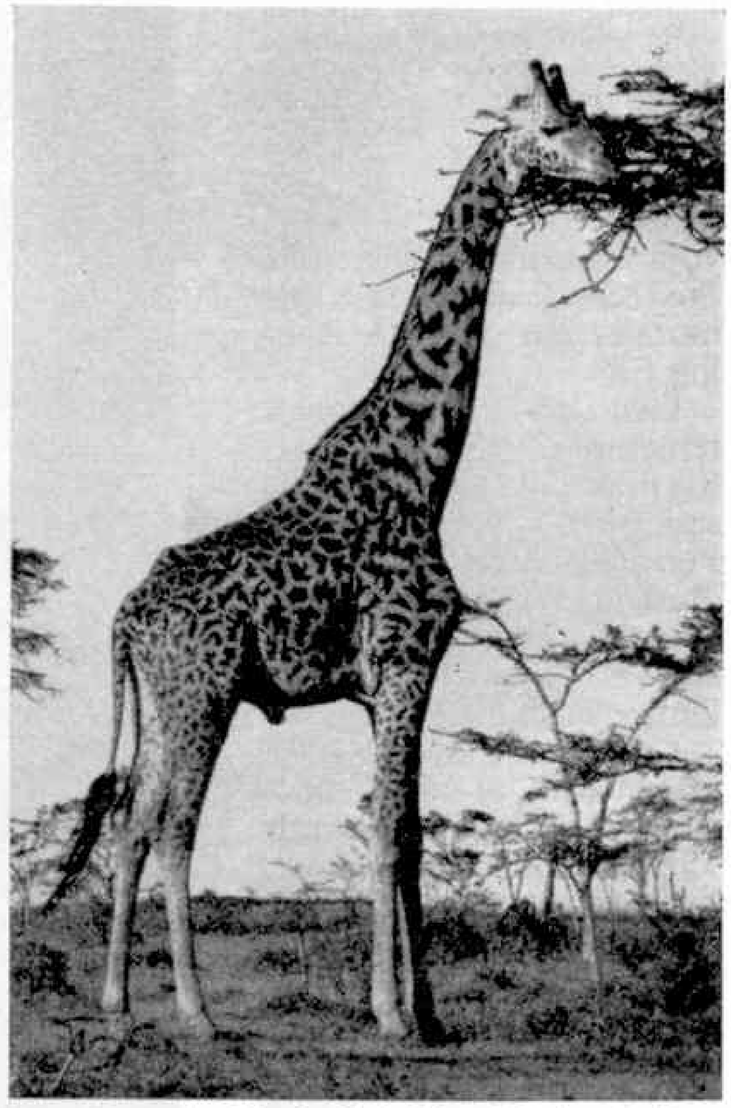
Laurence Tester Describes The Nairobi National Park

TWENTY-YEAR-OLD Bernard Verlaque was riding his motor-cycle home one evening on the outskirts of Nairobi when his headlamps picked up what he thought were two gazelles running across the road. In case there might be more following, he slowed down to almost walking pace. Imagine his shock when he arrived at the spot where the gazelles had disappeared. They turned out not to be gazelles at all, but two fully-grown lionesses. Bernard quickly changed into top gear. Fortunately, although the lionesses bounded off after him, they were in a playful mood and gave up the chase after 50 yards or so.

Meeting lions like this is merely one of the normal hazards of living in Nairobi, the capital of Kenya. Although a modern city with busy streets, skyscrapers, double-decker buses and a population approaching a quarter of a million people, it is the only capital in the world with a game park on its boundary.

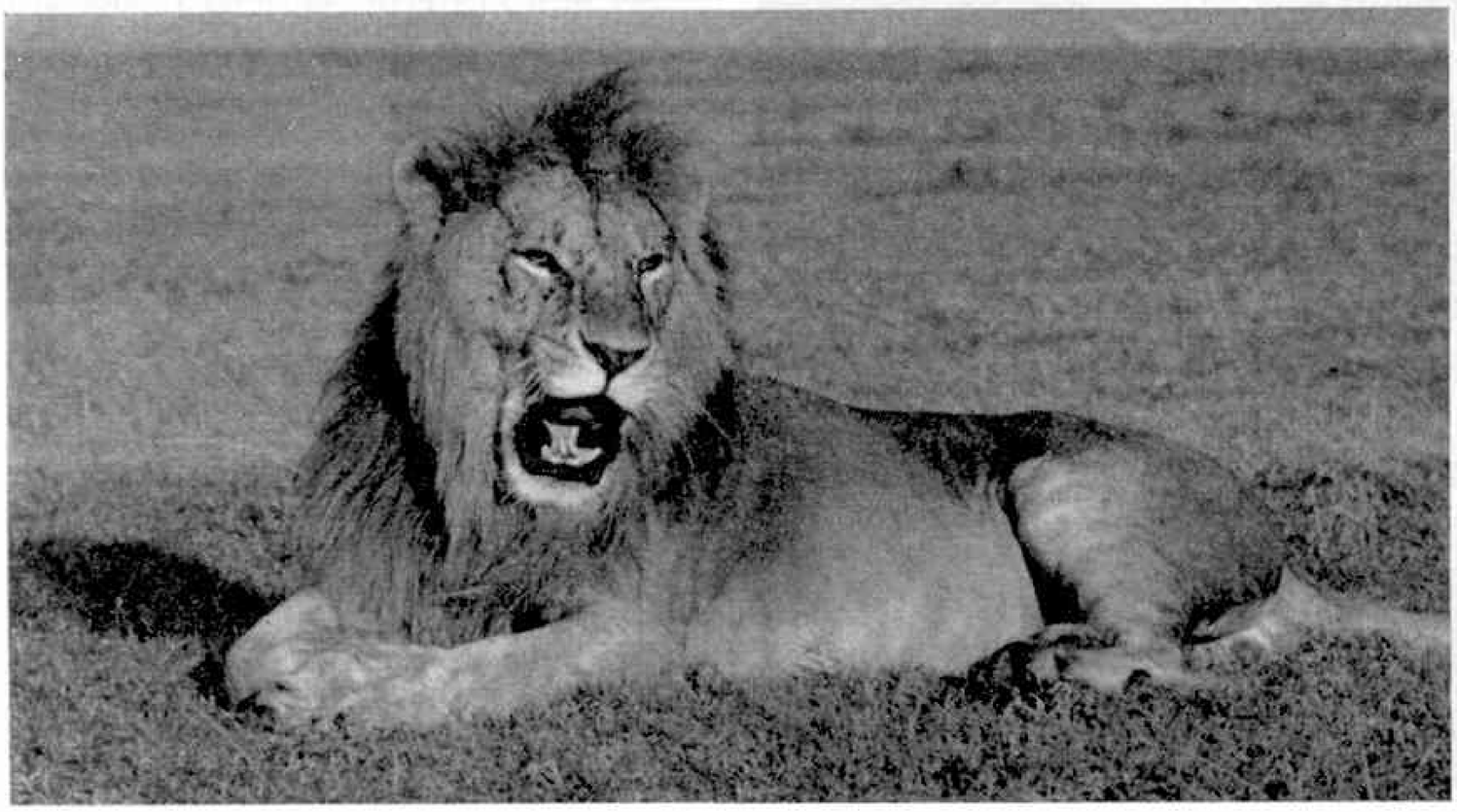
Few people outside Africa know just what a game park is. A common notion is that it is "something like Whipsnade". In actual fact, there is very little resemblance, for an African game park contains neither cages nor paddocks.

It is a zoo in reverse with the visitors caged in their cars and the animals free to come and go as they wish. There is not even a fence to prevent the animals straying into nearby Nairobi. Indeed, it is not long since a lioness strolled down Delamere Avenue, the main street of Nairobi, and then sunned herself on the steps of the cathedral. By good fortune, it was not a Sunday!



The tallest animal in the Nairobi park is the giraffe—this one is browsing the topmost branches of an acacia tree. Photograph by Laurence Tester.

(Left) Don't say you haven't been warned! This signpost speaks for itself. (Below) This magnificent lion was photographed at eight o'clock in the morning within three miles of the centre of Nairobi, a city of 250,000 people.



On another occasion, a whole troop of baboons took it into their heads to invade Nairobi. They broke into houses, ransacking larders and kitchens and doing considerable damage before the Park Warden, Stephen Ellis, and a score or so of his park rangers, were able to drive them back.

To Warden Ellis this was in a day's work, for his duties vary from rearing an abandoned baby leopard on the bottle to tracking down gangs of armed poachers; from rescuing a motorist whose car has broken down in the park to shooting an injured animal which has been caught in a snare.

Some idea of the day-to-day problems of running a game park can be got from Warden Ellis's diary:

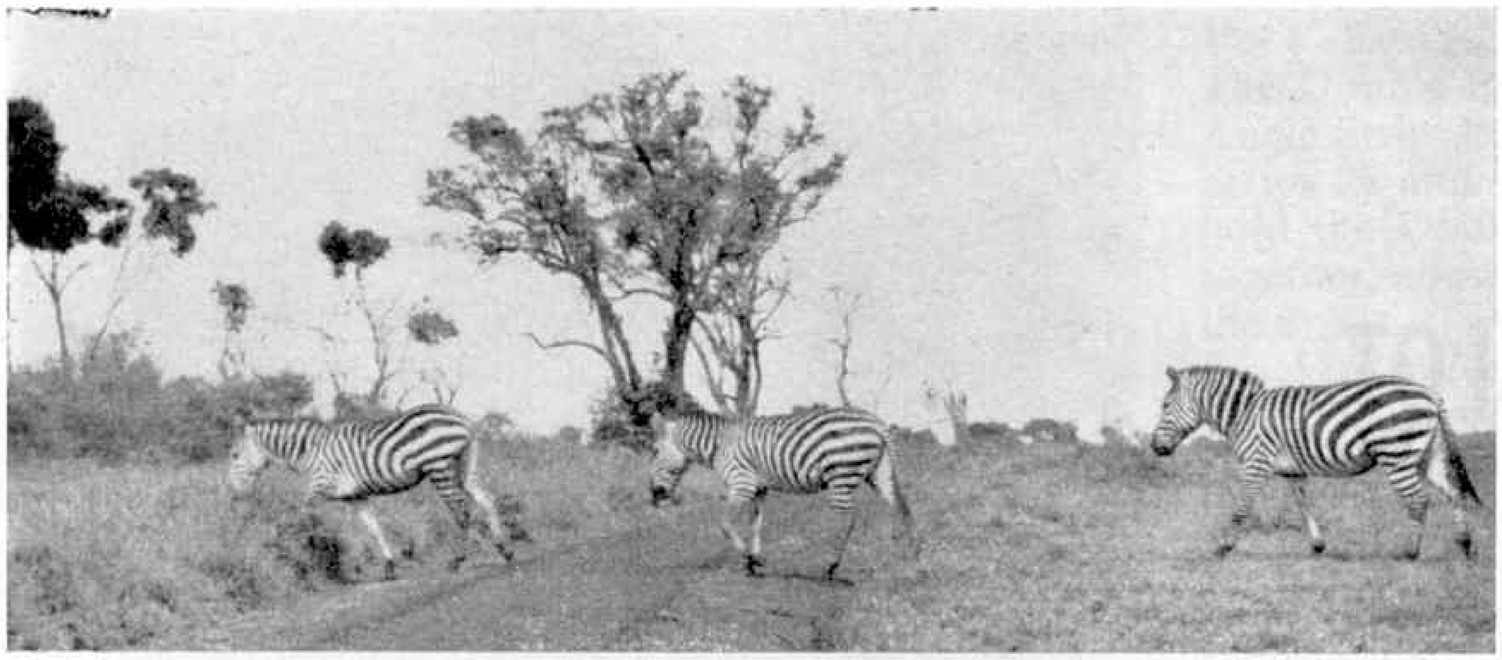
8.30 The control at Nairobi West aerodrome reported that a cheetah and her cubs are hunting on the runway and proving a potential danger to aircraft.

10.00 Telephone message from Ujana army camp to ask if we would deal with a leopard which has been seen in region of cookhouse.

1.15 Lady living in Woodley estate of Nairobi complains that during the night a lion had prowled in her garden and tried to force her front door.

9.30 Telephone call from resident of Hardy estate, Nairobi that lions are trying to attack some stabled horses.

Like everyone else, Warden Ellis must live happily with his neighbours. He cannot ignore any request for assistance; every telephone call must be followed up, whatever the time of day, or night, other-



Driving through the Nairobi national park, motorists must constantly be on the alert for animals crossing the tracks.

One of the most popular attractions of the Nairobi national park are the baboons which climb on motor-cars for tit-bits.

wise, the person may not seek help again. Instead, he may take the law into his own hands by shooting any lion or leopard which happens to take a stroll through his garden. Naturally, Warden Ellis hates to see this happen. Although he fully appreciates the problems of farmers living on the edge of the game park and is always prepared to admit that lions do sometimes kill cattle, he also knows that they rarely attack man. Of course, this does not mean they can be trifled with. Like any other wild animals, they must always be treated with the greatest respect. But they are rarely dangerous unless provoked.

This point is well illustrated by the fact that, although the park rangers are constantly on patrol, either on foot or on cycle, very few are ever hurt by wild animals.

Often, however, there are narrow escapes, and seldom does a week go by without some incident in which a park ranger is involved in an argument with lions. Lion cubs are particularly fascinated by any moving object, and a ranger on a bicycle is always considered fair game for a mischievous prank.

Although the rangers know all of the lions in the park, both by sight and by name, and which can be trusted and which can be bad-tempered, their job can be a hazardous undertaking at times.

Most of the rangers regard their bicycles as a successful decoy and, whenever a lion starts trouble, they usually prefer to take to their heels, leaving their bicycles or sandals behind to attract the attention of the cubs. The score for one recent month was three bicycles damaged, one ranger's hat ripped to pieces, two blankets dragged into a gorge, and a pair of sandals chewed up by cubs!

The only other people allowed to go through the park without the security of a vehicle are a group of Somali tribesmen who live there with their cattle. They have been here since before the area was declared a game park and cannot therefore be moved. They wander through the bush herding their cattle quite unconcerned at any lion or leopard which might be prowling in the vicinity. Occasionally, a lion does kill one of their cows, but fortunately this is very rare.

The Nairobi game park is not a big one as African parks go, but in its 44 square miles there are believed to be something like 10,000 animals at the peak season of the year. Altogether, there are more than 70 different species of animal and, although the lions are undoubtedly the biggest attraction, other interesting animals include zebra, leopard, cheetah, giraffe, baboon, buffalo, hippo, crocodile and even a solitary rhino or two which prefer the sanctuary of the park to the surrounding country.

Nowhere else in the world can you see wild animals in their own surroundings with such ease. Artificial salt licks and waterholes have been provided to attract game to the park, but otherwise the area is little different from much of Africa 50 years ago.

It is a wonderland with few equals in the world. May it always remain a sanctuary for wild life.

Road and Track—

(*Continued from page 155*)

bine engine and put it into a suitable chassis for the race at Le Mans. Mr. King, who used to race himself, was extremely interested in the suggestion, more especially after I stated that I had discussed the idea with Rodney Clarke, chief of Connaughts, who was keen to try it. Eventually this thought had to be dropped, because Rovers felt the gas turbine unit needed more development before it could do the firm justice in a tough race like Le Mans.

The latest Rover gas turbine engines have now reached a high stage of development and, I should say, will prove extremely competitive with piston engines.

Linking Rover with BRM is a splendid move, because it means the gas turbine engine builders will have a first-rate, thoroughly experienced, racing organisation at its disposal, under the able management of Tony Rudd, who steered BRM to the World Championship in 1962. A good deal, of course, will depend on the satisfactory development and trials of the new gas turbine sports Rover. Most of the final testing will be done by BRM drivers Graham Hill and Ritchie Ginther. I expect the new car to have all-independent suspension.

The Rover–BRM will be entered in a special category at Le Mans, for which the organisers, the Automobile Club de l'Ouest is offering a prize of 25,000 francs (£1,820) for a gas turbine car completing the race and covering a minimum distance of 3,600 kilometres at an average of not less than 150 k.p.h. (93.5 m.p.h.) In order to encourage the development of gas turbine cars the A.C. de l'Ouest have offered this prize annually during the past five or six years, but until now there have been no entries.

If the Rover–BRM runs at Le Mans, it will be the first occasion on which a gas turbine car has been raced.

It is interesting and significant to note that Rover now becomes the third largest British manufacturer of normal production saloons to have a working agreement with specialist racing car manufacturers and constructors. The two others are the Cooper–BMC tie-up and the Lotus–Ford association.

At long last it seems that British car manufacturers are making proper use of racing as a development and testing ground, to improve the breed of future road cars.

For The Advanced

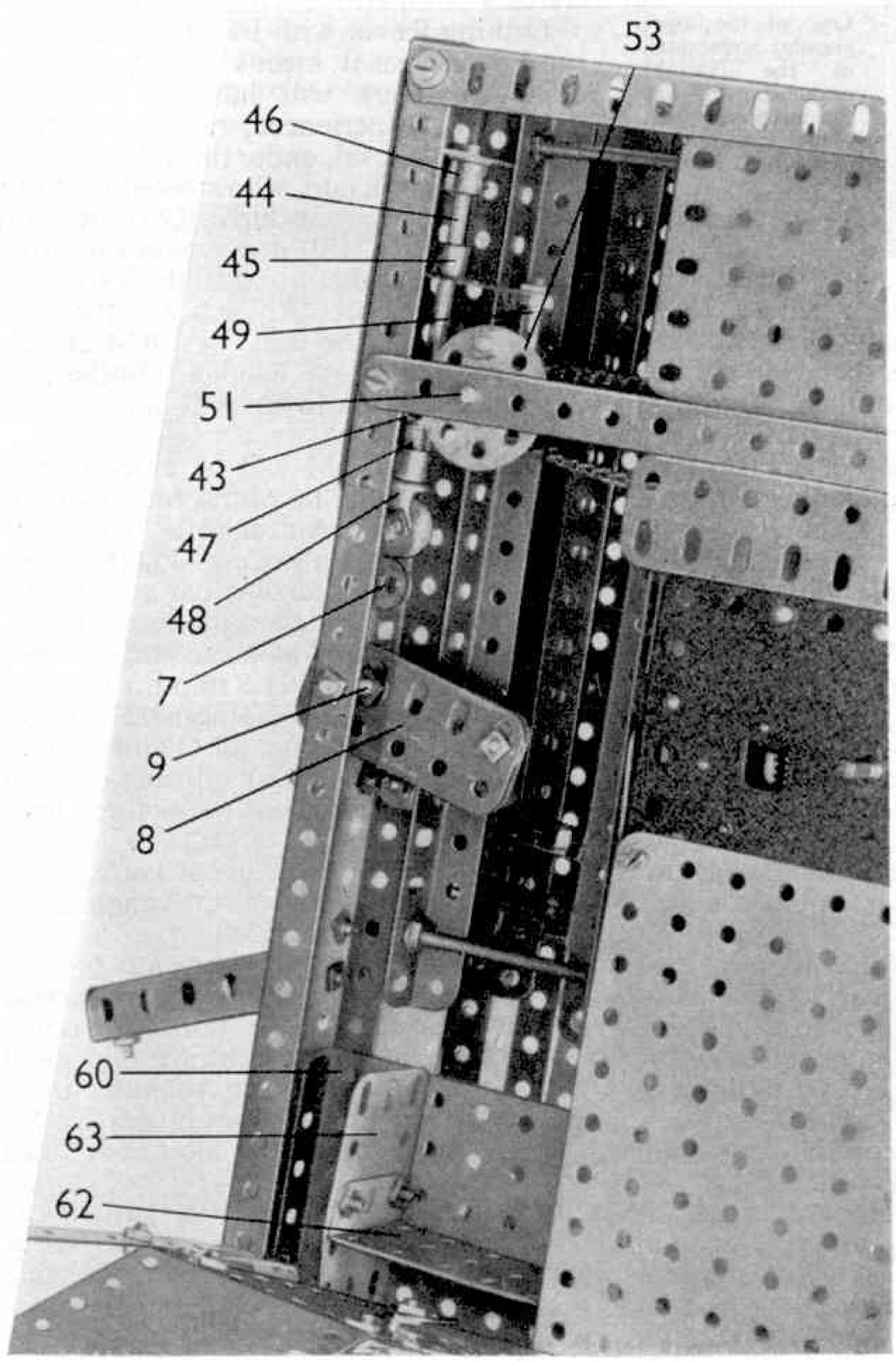
Meccano Modeller

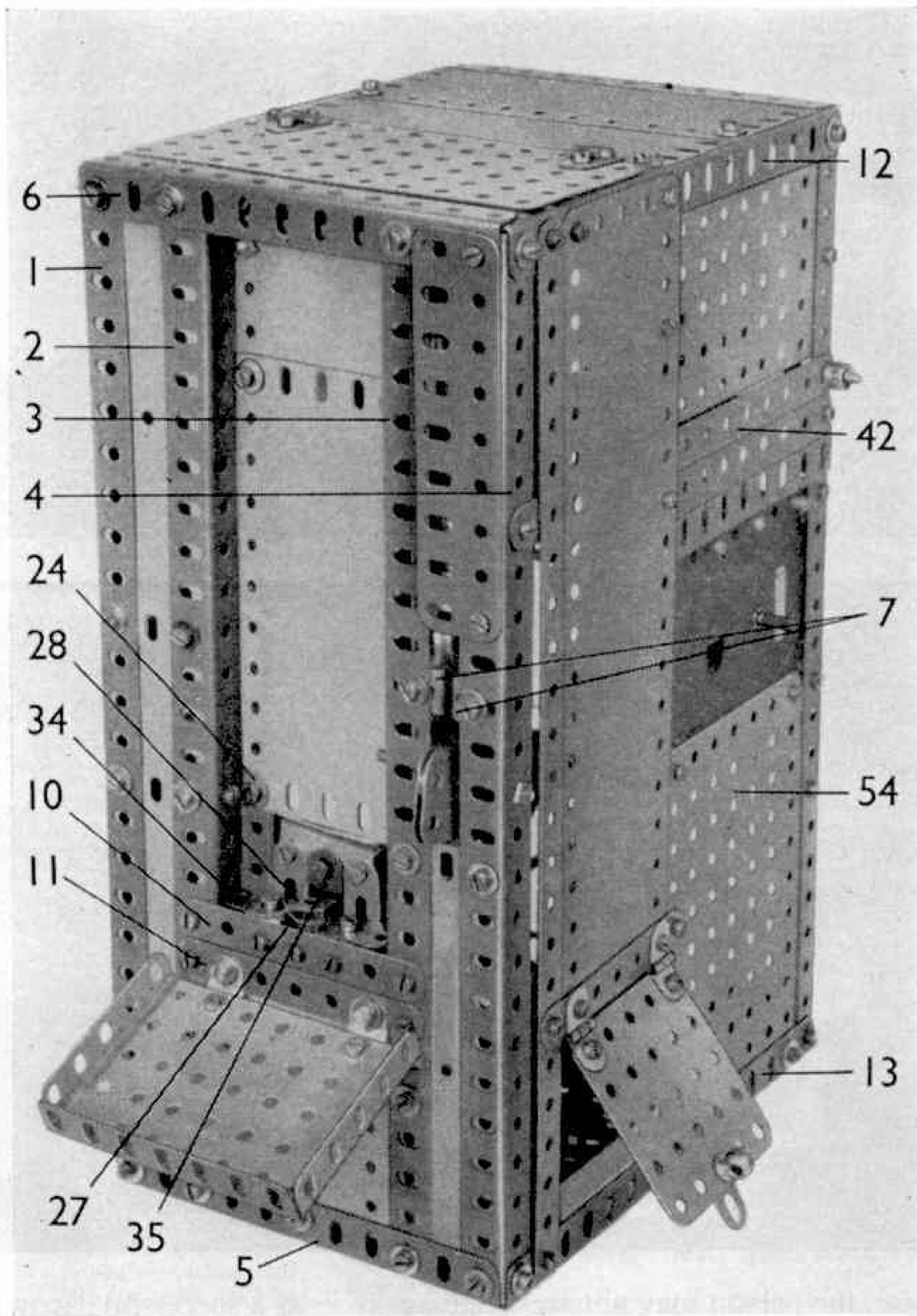
PENNY-IN-THE-SLOT MATCHBOX MACHINE

THE model shown alongside is a version of one of the various types of automatic vending machines that are often to be seen on railway stations, outside shops, etc. If you place a penny in the slot of the model

By "SPANNER"

an ingenious but simple mechanism releases a pull-out drawer containing a box of matches. (That is, of course, if the machine has been suitably stocked up!)





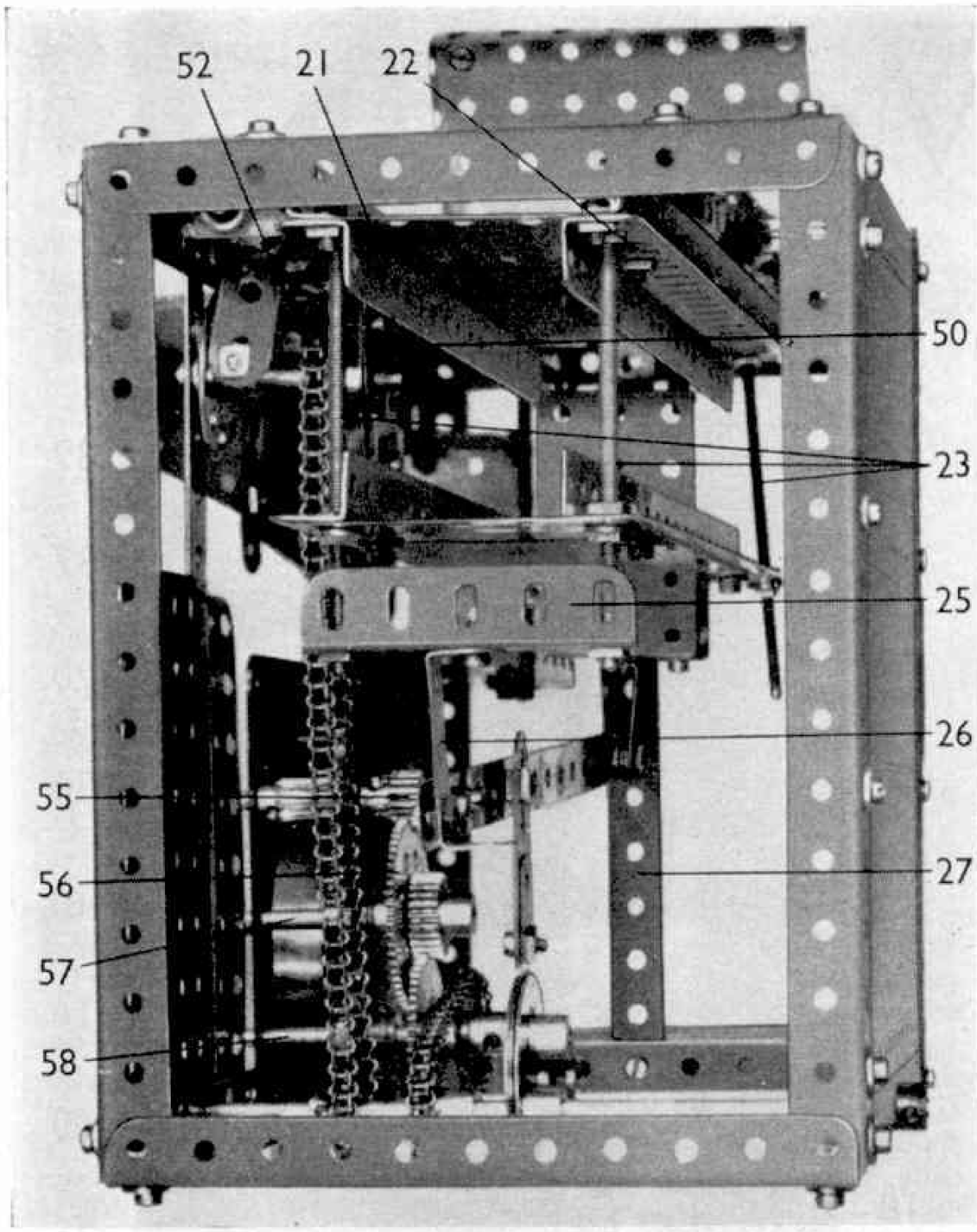
Above: The "Penny-in-the-Slot" Matchbox Machine described in this article. Left: Part of the right-hand side of the casing has been removed to reveal details of the coin slot and a portion of the operating mechanism.

The model is not difficult to build, but a little patience may be needed to adjust the mechanism correctly.

Framework

Bolt four upright 12½″ Angle Girders 1, 2, 3 and 4 to the 5½″ Angle Girders 5 and 6. Between the Angle Girders 1 and 2 are two 5½″×1½″ and one 2½″×1½″ Flexible Plate, and between Angle Girders 3 and 4 are a 5½″×1½″ Flexible Plate and a 4½″ Flat Girder. Below the Flat Girder bolt two Angle Brackets 7, adjusting the space between them to take a penny. Now bolt two 2½″ Flat Girders 8 together, with two 2½″ Strips between them, to form a groove for the coin. These are attached to the Angle Girders 3 and 4 by a 2″ Screwed Rod 9 and six nuts.

Two 3½″ Strips 10 and 11 are secured to the Angle Girders 2 and 3. To the Strip 11 bolt a 3½″×2½″ Flexible Plate and two Obtuse Angle Brackets that support the 3½″×2½″ Flanged Plate with a 3½″ Angle Girder attached. Four 7½″ Angle Girders 12, 13, 14 and 15 are bolted to the 12½″ Angle Girders, and also two 12½″ Angle Girders 16 and 17 and two



Above: Looking down through the top of the Machine. Right: Looking inside the machine from the lower end.

$5\frac{1}{2}''$ Angle Girders 18 and 19. The side is enclosed by three $12\frac{1}{2}'' \times 2\frac{1}{2}''$ Strip Plates and a $7\frac{1}{2}''$ Strip 20.

Matchbox Magazine

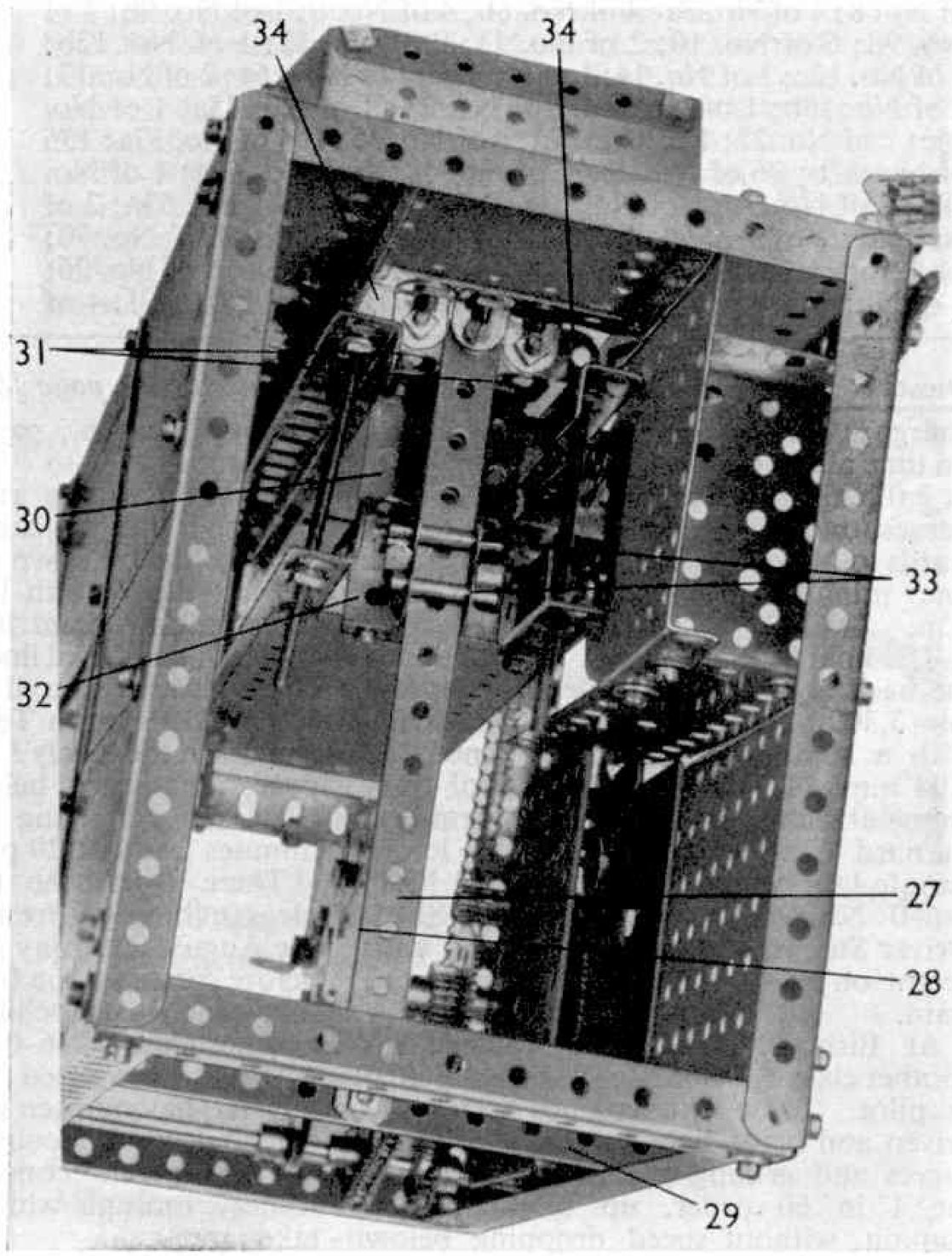
Bolt two $9\frac{1}{2}''$ Angle Girders 21 and 22 to a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ and a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate, the distance between the Angle Girders being slightly greater than the length of a matchbox. A similar pair of Angle Girders with Flexible Plates is secured to the Angle Girders 21 and 22, with four $3\frac{1}{2}''$ Screwed Rods 23, again allowing an easy fit for the matchbox. The magazine is bolted with four Angle Brackets 24 to the Angle Girders 2 and 3. To the top Screwed Rods fasten a $2\frac{1}{2}''$ Angle Girder 25, to which is bolted a $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 26. An Angle Bracket is secured to the centre of the Strip 10, and to this a $7\frac{1}{2}''$ Strip 27 is fastened, placing Washers between the Strip and the Angle Bracket so that the shank of the Bolt does not protrude through the $7\frac{1}{2}''$ Strip 28. A slight crank is made near the end of this Strip, so that both the Strips 27 and 28 lie together, $\frac{1}{2}''$ from the end. The rear ends of the Strips are secured to a $5\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 29.

Ejector Mechanism

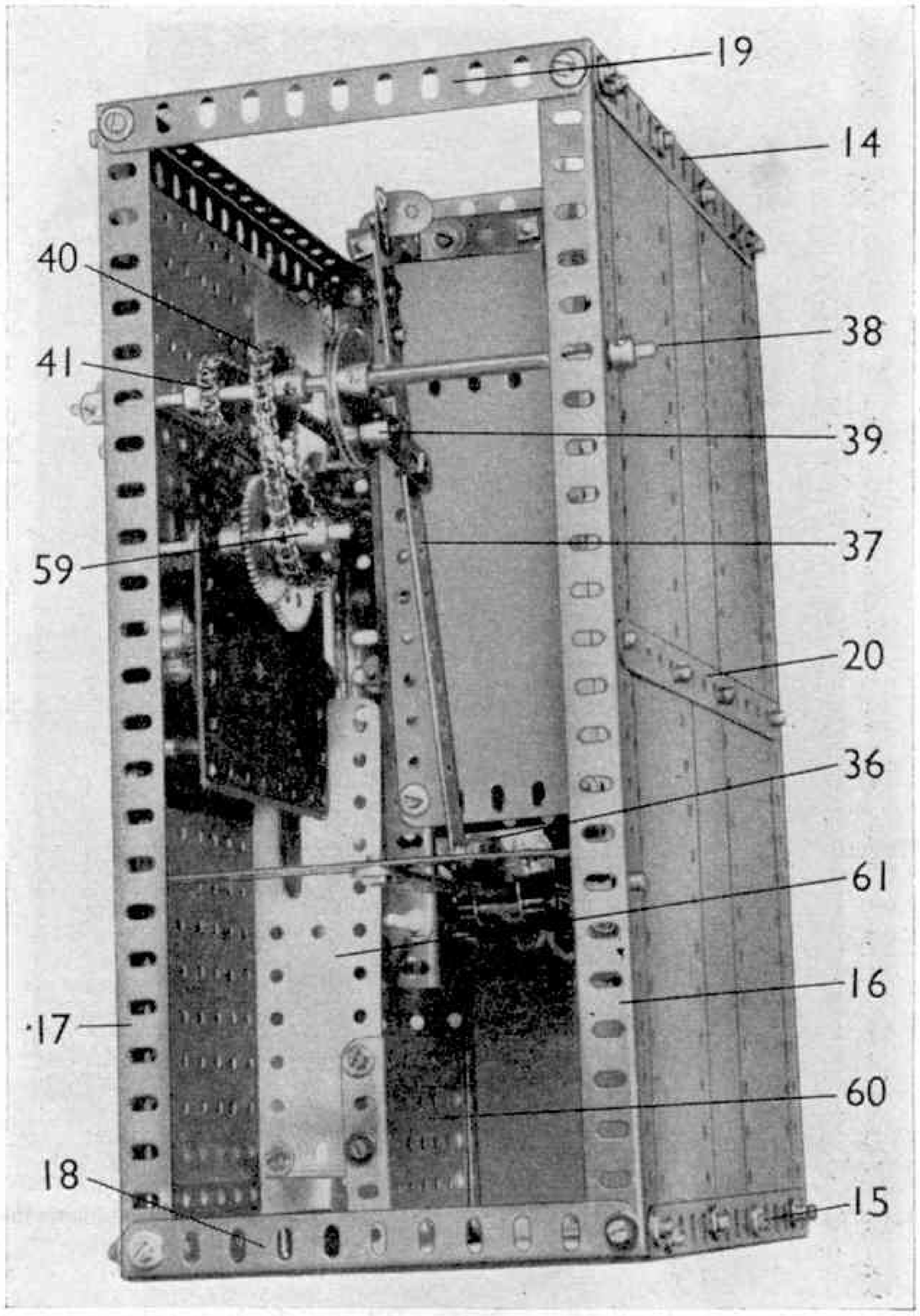
A $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 35 is bolted to the flanges of a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate 30. Two Fishplates 31 are attached to the front flange, and a $1'' \times \frac{1}{2}''$ Reversed Angle Bracket 32 to the rear flange. The Double Brackets 33 are placed over the Double Angle Strip 35, with the lugs on either side of the $7\frac{1}{2}''$ Strips 27 and 28. The 1″ Rods and the Spring Clips hold the Double Angle Strip and $7\frac{1}{2}''$ Strips loosely together, allowing the Flanged Plate to slide freely on the Strips. Two Fishplates 34 are attached with Angle Brackets to the $3\frac{1}{2}''$ Strip 10. Bolt a Single Bent Strip 36 to the Flanged Plate 30, and to this a compound 9″ Strip 37, made up from a $7\frac{1}{2}''$ Strip and a 2″ Slotted Strip, is lock-nutted. The Slotted Strip is lock-nutted to the $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 26. Adjust the lock-nut in the slot of the Slotted Strip to give the Flanged Plate an easy movement along the $7\frac{1}{2}''$ Strips.

On a $6\frac{1}{2}''$ Rod 38 place a Triple Throw Eccentric 39, a 1″ Sprocket Wheel 40 and a $\frac{3}{4}''$ Sprocket Wheel 41. The Eccentric arm is extended by a 2″ Slotted Strip, and is attached in the tenth hole of the Strip 37. The Eccentric should move the Flanged Plate 30 so that the Fishplates touch the Fishplates 34 in the foremost position, and clear the matchboxes in the rearmost position. A $7\frac{1}{2}''$ Strip 42 is placed on the Rod 38 and secured to the Angle Girder 4 by a nut and bolt, which holds a Double Angle Strip 43 on the inside of the Angle Girder 4. A 4″ Rod 44 is passed through the centre hole of the Double Angle Strip 43 and on it is a Compression Spring 47 and a Small Fork Piece 48 that supports a $\frac{1}{2}''$ loose Pulley on a $\frac{3}{8}''$ Bolt. A Collar is placed on the top of the Double Angle Strip to keep the Compression Spring half compressed.

A Crank 45 and a Double Arm Crank 46 are secured to the Rod at right angles to each other. A Threaded Pin 49 is placed in the Crank 45. A $1'' \times \frac{1}{2}''$ Angle Bracket 50, with Fishplate attached to its long arm, is secured to the $9\frac{1}{2}''$ Angle Girder 21



The "Penny-in-the-Slot" Matchbox Machine with the back and top of the casing removed.



and supports a 2″ Rod 51 that carries a ¾″ Sprocket Wheel 52, and a Bush Wheel 53 fitted with a Threaded Pin. Crank 45 is adjusted so as to lift its Threaded Pin 49 clear of the Threaded Pin in the Bush Wheel when the coin is pressed between the ½″ Pulley and the groove in the Flat Girders 8. A length of Sprocket Chain connects the ¾″ Sprocket Wheel 52 to the Sprocket Wheel 41.

The Drive

A No. 1 Clockwork Motor is bolted to the frame and to a 5½″ × 3½″ Flat Plate 54. To the driving spindle is secured a 7/16″ Pinion 55, that drives a 60-toothed Gear Wheel 56 on the Rod 57. A ¾″ Pinion on this Rod drives a 50-toothed Gear Wheel on a 3″ Rod 58, which also has a 1″ Sprocket Wheel 59 secured to it. The Sprocket Wheels 40 and 59 are connected by Chain.

When the Threaded Pin 49 is touching the Threaded Pin in the Bush Wheel the Flanged Plate 30 should be in its foremost position. The side of the frame can now be completed by bolting a 12½″ Strip, a 9½″ × 2½″ Strip Plate, a 4½″ × 2½″ Flat Plate and a 4½″ Flat Girder in position. A 2½″ × 2½″ Flat Plate is hinged to the lower end of the Strip Plate. The catch for the door is a Fishplate attached to a Handrail Support with two nuts. The top of the casing is enclosed with two 5½″ × 2½″ Flexible Plates and a 5½″ × 2½″ Flat Plate hinged to a 5½″ Strip.

Coin Box

To the Angle Girder 3 bolt a 3½″ × 2½″ Flanged Plate 60. Now fix a 5½″ × 1½″ Flexible Plate 61 and a 2½″ × 1½″ Flanged Plate 62, to the Flanged Plate. Complete the box by bolting a 2½″ × 1½″ Flexible Plate 63 to the flange of the Plate 62.

Parts required to build the "Penny-in-the-Slot" Matchbox Machine:

1 of No. 1; 5 of No. 1b; 1 of No. 2; 3 of No. 3; 2 of No. 5; 6 of No. 8; 4 of No. 8a; 4 of No. 8b; 4 of No. 9; 1 of No. 9b; 1 of No. 9d; 6 of No. 10; 2 of No. 11; 9 of No. 12; 1 of No. 12b; 2 of No. 12c; 1 of No. 14; 1 of No. 16; 1 of No. 16a; 2 of No. 17; 2 of No. 18b; 1 of No. 23; 1 of No. 24; 1 of No. 25a; 1 of No. 26c; 1 of No. 27; 1 of No. 27d; 4 of No. 35; 164 of No. 37a; 135 of No. 37b; 86 of No. 38; 2 of No. 48; 1 of No. 48a; 1 of No. 48d; 2 of No. 51; 1 of No. 52a; 2 of No. 53; 1 of No. 53a; 2 of No. 55a; 6 of No. 59; 1 of No. 62; 1 of No. 62b; 1 of No. 70; 1 of No. 72; 4 of No. 80a; 1 of No. 81; 1 of No. 94; 2 of No. 96; 2 of No. 96a; 1 of No. 102; 2 of No. 103c; 2 of No. 103f; 4 of No. 114; 2 of No. 115; 1 of No. 116a; 1 of No. 120b; 1 of No. 124; 1 of No. 130; 1 of No. 136; 2 of No. 188; 4 of No. 189; 2 of No. 190; 1 of No. 190a; 1 of No. 191; 5 of No. 192; 3 of No. 197; No. 1 Clockwork Motor.

Diesel Run Over the Backbone of England (*Continued from page 161*)

charge in a masterly fashion, keeping dead on time all the way. We passed Alnmouth at 7.0 p.m., and Morpeth, with its severe curves, one minute early; so, we sped onwards to Newcastle Central, arriving there one minute before schedule, at 7.41 p.m.

The final day of my trip, Saturday, saw me back at Central in time to glimpse a new 3,300 h.p. "Deltic" No. 9002 leaving with a southbound train. I joined the 9.04 a.m. Newcastle to Blackpool train (summer Saturdays only), which ran via Barnard Castle and Tebay. We left a minute late behind an Ivatt class 4 M.T. 2–6–0 No. 43126 of Gateshead Shed, Driver Stephenson at the regulator, with "eight on" (247 tons net) and a packed train.

At Bishop Auckland we picked up another class 4, Doncaster-built No. 76050 as pilot. These two engines were well driven and made light work of the many curves and grilling gradients, several of the 1 in 60 order, up to Stainmoor Summit, without speed dropping below about 35 m.p.h., passing the summit at 11.5 a.m.

An exhilarating run over the moors followed, then we came winding down to Kirkby Stephen, two minutes early. Here we left the Penrith line and curved left under the Midland Railway viaduct and so down the closed line to Tebay. Our two engines were replaced by a Fowler 2–6–4T No. 42379, with a Tebay crew. Now we slid down the lovely Lune Valley at a good pace, but were held by signals near Lancaster, arriving at Preston eight minutes late at 1.20 p.m.

There I left the train, and spent a pleasant hour on Preston station watching the August Saturday procession of trains, before catching one for Liverpool, a light four-coach load behind No. 43035, with another class 4 2–6–0.

I had completed three days full of interest, having been greatly impressed by British Railways courtesy, by the ability of the drivers concerned and by the scenery through which my journey had taken me.

Hornby Railway Company—

(*Continued from page 179*)

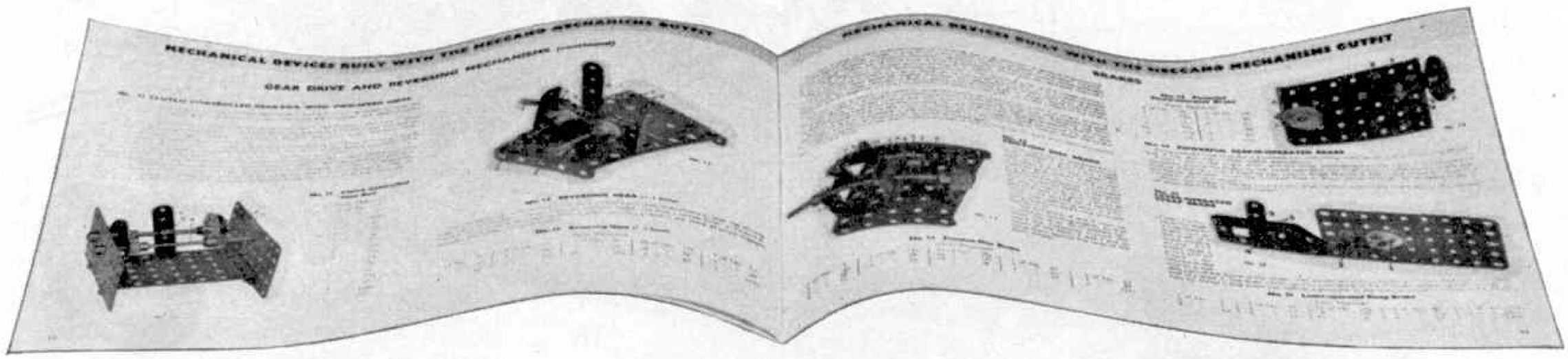
Isolating Rail, the terminals of which are not wired, is fitted at the other end. Attached to the Speed Reducer is a signboard bearing a capital R and this follows French railway practice where such sections operate. A train travelling at normal speed will automatically slow down, or even come to a brief halt, when passing through the section. It will resume running and ultimately regain normal speed on leaving the section. This procedure, as you may well imagine, adds considerable fascination to any layout. The device is intended to be fitted into a continuous track, but if it is required to insert it into an end-to-end layout, current must be fed into the track at both ends of the low speed section. One further important point: the Isolating Rails should be placed so that the gaps are on the same side of the track.

There are other circumstances in which the Speed Reducer can be used, such as in conjunction with Points. Examples are given in the instructions packed with this item.

MECHANISMS

THE "THINGS" THAT MAKE A MODEL WORK

"SPANNER" TALKS ABOUT A USEFUL REFERENCE BOOK FOR YOUNG MECCANO BUILDERS



THE question "What shall I build next?" is constantly in the minds of all keen Meccano boys. They never need to worry about the supply of different models running out because, once they have built all those shown in the Model Books that are packed with their Outfits, they have gained sufficient knowledge of the use of Meccano Parts, and of the unlimited ways in which they can be assembled, to realise the tremendous scope there is for them to design and build thousands of other models *to their own ideas*. In this way they can put their own brain-waves into tangible form.

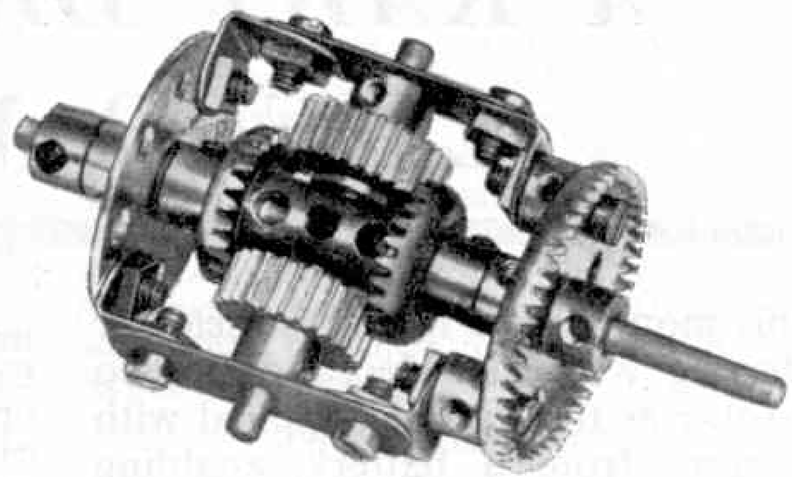
It is in planning, and then constructing, one's own models that the greatest fun and pleasure is obtained from the Meccano Hobby, and what a thrill it is to complete a model, based entirely on your own ideas, and set it working like the real thing.

Working models must include mechanisms of some kind. For example, a car needs a gear-box, differential, brakes, steering, etc., while even a small, hand-operated crane requires some form of brake to prevent the load falling when the winding handle is released. It will be obvious, therefore, that a knowledge of simple mechanisms is of great value to the young model-builder who wants to make his models as realistic as possible.

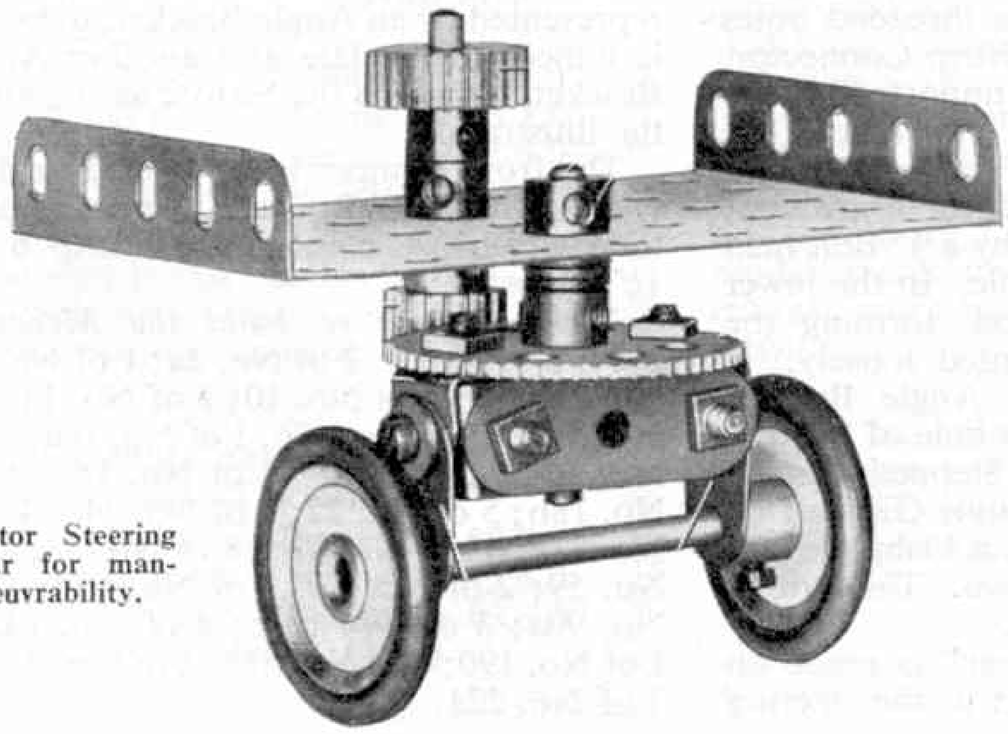
There are many different, yet simple, mechanisms that can be constructed in a standard form and applied to models of widely-varied types. In some cases, a little modification to the design of the mechanism, achieved by using other Meccano Parts to obtain the same result, may be required, and this is generally quite easy to accomplish.

To help young model-builders who wish for guidance on the construction of simple mechanisms, there is available a very useful Book which contains a selection of those they are most likely to find useful. It is called the "*Meccano Mechanisms*" *Book*, and is obtainable from Meccano Dealers, price 1s. 6d., or direct from Information Service, Meccano Limited, Binns Road, Liverpool 13, price 1s. 10d., including postage.

In this book, the various devices have been classified into sections for easy reference. The clear and detailed manner in which they are illustrated will be appreciated from the two examples, taken from the book, shown on this page. The panel lists the various sections which the book contains and the types of mechanisms dealt with. Among them are devices to make your model reverse, intermittent drives (or "start and stop" mechanisms), simple gear-boxes (to enable you to drive your model at different speeds) and examples of simple brakes and steering arrangements. In addition, there is a full explanation of the use and purpose of the various Meccano Gears and Pulleys, with details of how to use them with Meccano Clock-work or Electric Motors.



Differential Gear for motor vehicles. Both illustrations are from the book referred to above and full instructions on how to build them are provided.



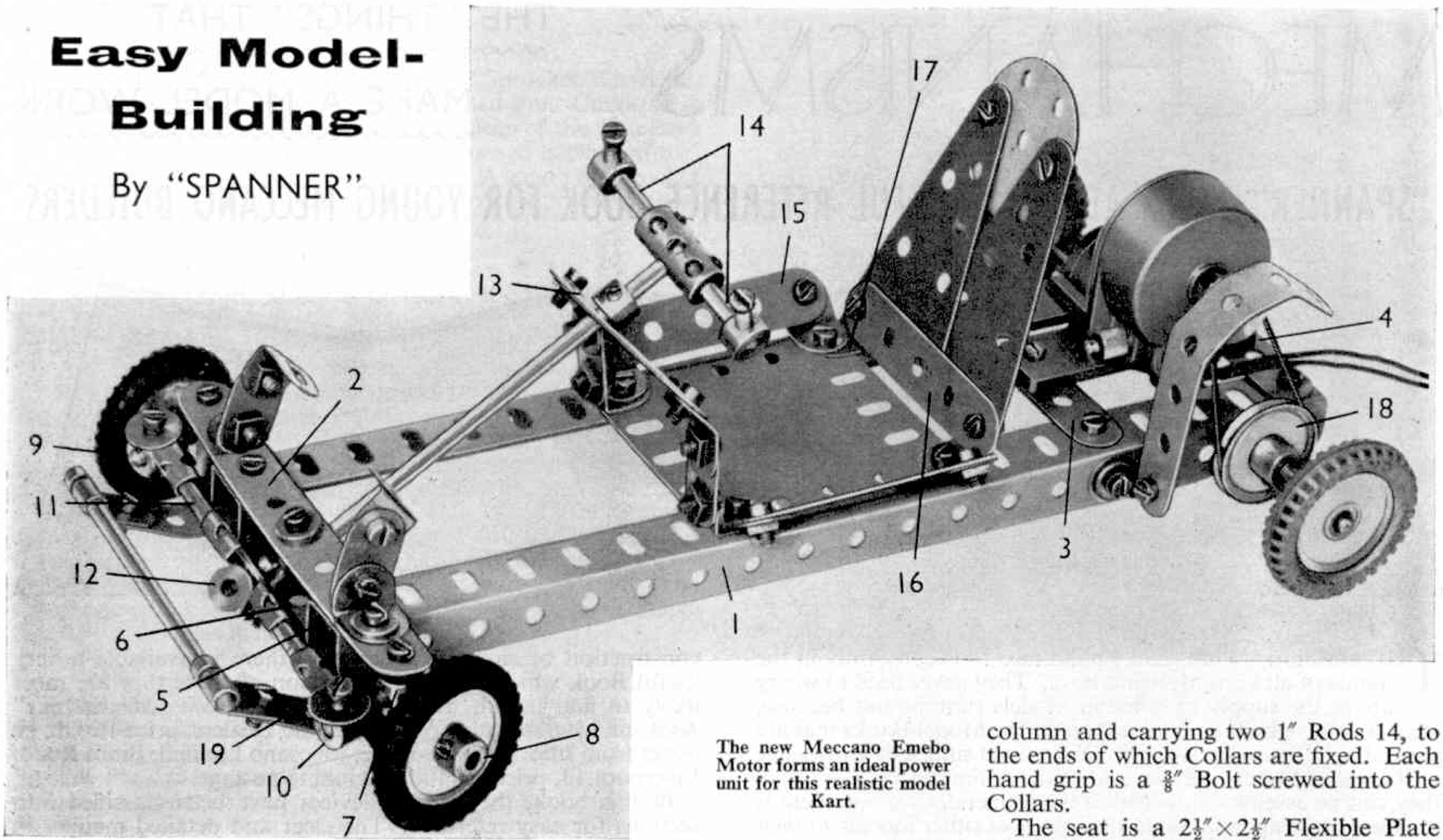
Castor Steering Gear for manœuvrability.

The 'Mechanisms Book' is divided into sections as follows:

Gears and Gear Trains
Gear and Pulley Drives for Motors
Pulley Systems for Cranes
Levers—The Simplest Form of Mechanical Power
Intermittent Drives—"Start and Stop" Mechanisms
Gear Drive and Reversing Mechanisms
Brakes
Steering Mechanisms
Miscellaneous Mechanisms
Cams—"Maids of all Work"

Easy Model-Building

By "SPANNER"



The new Meccano Emebo Motor forms an ideal power unit for this realistic model Kart.

A KART DRIVEN BY EMEBO MOTOR

IN view of the popularity of Karting in this country today a typical Kart has been chosen as the subject for our simple new model this month. The model is ideal for driving with the Meccano Emebo Motor as this can be supplied with current from a battery, enabling the model to be self-contained.

* * * *

The chassis of the Meccano Kart illustrated above consists of two 9½″ Angle Girders 1 joined together by a 4½″ Strip 2 and two 2½″ Strips 3 and 4. The bolts fixing Strip 2 to the Angle Girders 1 hold also a Double Bracket 5, and to the other lug of these a further 4½″ Strip 6 is bolted. Through each of the holes of the Strips 2 and 6 a bolt is fixed, with the nut on the inside. A Short Coupling 7 is fixed between each pair of bolts and is allowed to swivel on their shanks. A 1″ Rod is fixed tightly in the lower transverse holes of the Couplings and on this a 1″ Pulley with boss fitted with Tyre is placed. The Pulley is free on the Rod and is held in position by a Collar 8.

A further 1″ Rod 9 is fixed in the higher transverse holes and on the end of this is a Collar 10 with one of its threaded holes uppermost. A Rod and Strip Connector, carrying a 1½″ Rod 11, is supported loosely on a bolt screwed into this hole. The other ends of the Rods 11 carry a Rod and Strip Connector also, and these are connected to a Coupling 12 by a ⅜″ Bolt held in its upper transverse hole. In the lower transverse hole a 5″ Rod, forming the steering column is mounted loosely. It then passes through an Angle Bracket bolted through the centre hole of Strip 2, and also through a 2½″ Stepped Curved Strip 13 joined to each Angle Girder 1 by an Obtuse Angle Bracket, a Fishplate and an Angle Bracket as shown. The Rod is held in place by a Collar.

The steering "handle bar" is made up from a Coupling attached to the steering column and carrying two 1″ Rods 14, to the ends of which Collars are fixed. Each hand grip is a ⅜″ Bolt screwed into the Collars.

The seat is a 2½″×2½″ Flexible Plate edged along each side with 2½″ Strips 15 bolted to Obtuse Angle Brackets. Two 2½″×1½″ Triangular Flexible Plates joined at the top by a 6-holed Wheel Disc and at the bottom by a 2½″ Strip 16, form the seat-back, which is connected to the seat itself by Angle Brackets 17.

The rear axle is a 5½″ Rod that carries a 1″ Pulley with boss 18 and the rear wheels, which are 1″ Pulleys fitted with Tyres. The Pulley 18 holds the axle in place in the chassis on one side whilst a Collar serves the same purpose on the other.

The Emebo Motor is fixed on Strips 3 and 4 by bolts passed through their centre holes, and the drive is taken from the Motor to Pulley 18 by a 2½″ Driving Band. A "chain case" is made from a 3½″ Strip, bent as shown, and joined to Angle Girder 1 by an Angle Bracket.

The accelerator and brake are each represented by an Angle Bracket, to which is joined a Fishplate and another Angle Bracket, bolted to the Strip 2 as shown in the illustration.

The front bumper is a 3½″ Rod held in two Right-Angle Rod and Strip Connectors, which are connected to Strip 6 by 1½″ Strips 19.

Parts required to build the Meccano Kart: 5 of No. 2; 2 of No. 2a; 1 of No. 3; 1 of No. 8a; 4 of No. 10; 2 of No. 11; 10 of No. 12; 6 of No. 12c; 1 of No. 14a; 1 of No. 15; 1 of No. 16; 2 of No. 18a; 6 of No. 18b; 5 of No. 22; 1 of No. 24c; 43 of No. 37a; 45 of No. 37b; 8 of No. 38; 8 of No. 59; 2 of No. 63; 2 of No. 63d; 1 of No. 90a; 3 of No. 111c; 4 of No. 142c; 1 of No. 190; 4 of No. 212; 2 of No. 212a; 2 of No. 221.

MODEL-BUILDING COMPETITION No. 2

Another Chance to Win a Fine Cash Prize

THIS month we announce the second of the Meccano Model-Building Competitions we are organising this season. It offers every Meccano model-builder another excellent opportunity to win a fine cash prize. Full details of these prizes are given in the panel on this page, and they will be awarded to the builders of the best Meccano models submitted to us between April 1 and June 29 next.

The Competition is open to anyone possessing a Meccano Outfit, no matter what his age or where he lives. Further, the contest is so arranged that every entrant will have the same chance of success, however young or old he may be and irrespective of the size of his Outfit.

How to Enter

In entering this contest, a competitor may choose any subject he likes best for his model, but he will be wise to select one he can reproduce realistically with the Outfit or Parts available to him. He has, therefore, a very wide field from which to make a choice.

After a suitable subject has been decided upon, the next thing is to set to work to construct it as neatly and realistically as possible from standard Meccano Parts. Here we must emphasise that it *must be* original—models that are merely copies of those shown in Meccano Instructions Books or other Meccano publications will not, of course, be eligible.

When the model is completed, the next step 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.

If, however, you cannot obtain a photograph and you are not much good at sketching, you can ask one of your pals to make a sketch for you. The model itself, however, must be your own unaided work. It is also advisable to enclose with the photographs or drawings a short description of the main features of the model, mentioning any points of special interest you wish to bring to the judges' attention.

Open to All

As we have already stated, the competition is open to Meccano Model-builders of all ages living in any part of the world, and in order to give everyone a fair chance, entries will be divided into two sections, A and B. Section A, is for competitors under 14 years of age on June 29 next, and Section B, is for competitors aged 14 or over on that date. A separate set of prizes will be awarded in each Section.

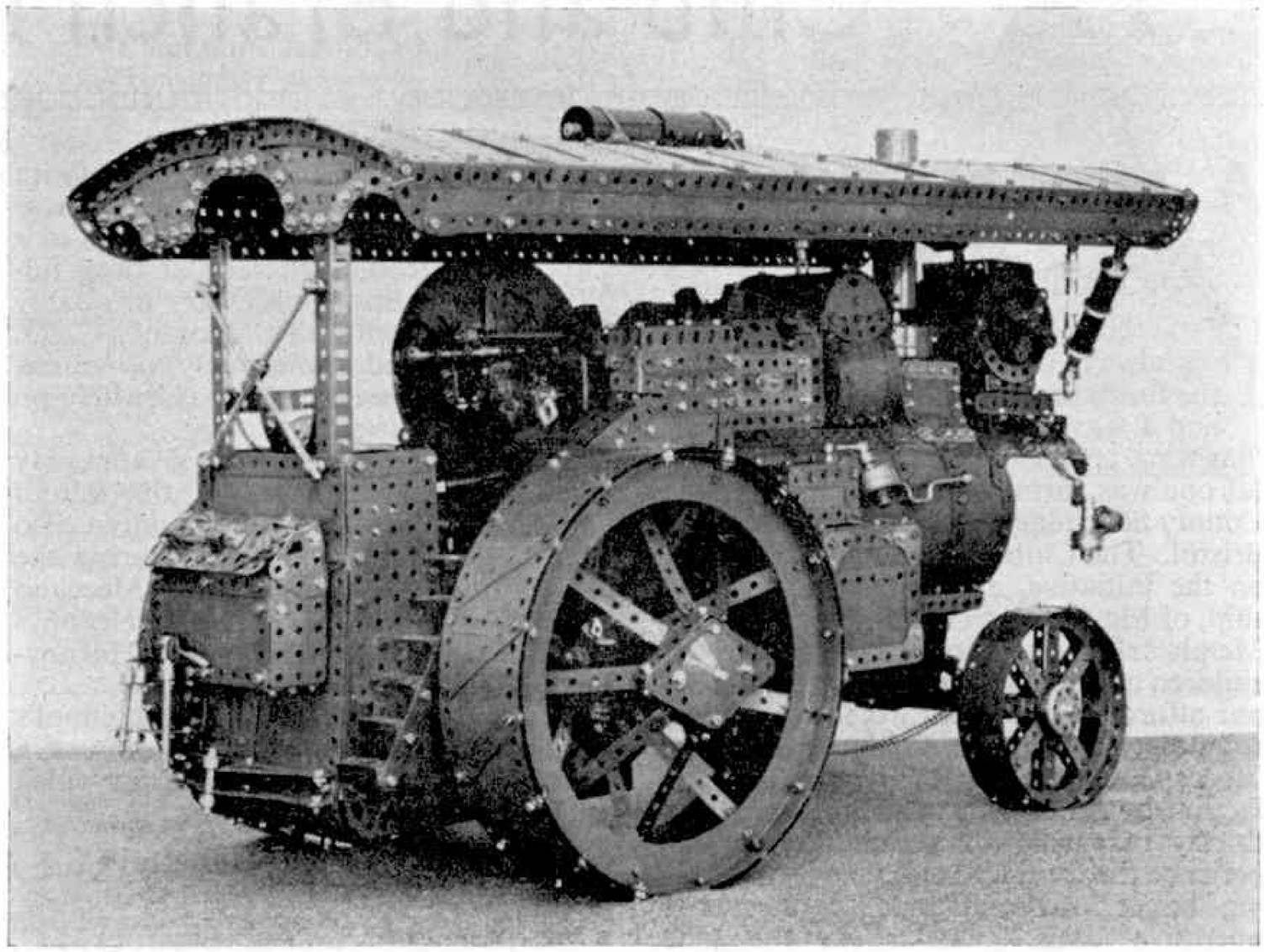
The Judges will award the prizes for models that are the most original in subject and which are well proportioned and sturdily constructed. Competitors who possess only small Outfits need not feel that they will not stand much chance against competitors who have large Outfits at their disposal. Small, well-built, sturdy and original models will have a far better chance of success than a large and complicated structure that is rickety in construction and poor in design, and which does not show much originality in its subject.

Note These Rules

Competitors who will be entering a Meccano Competition for the first time should note carefully these simple rules:

Before posting your entry, write your age, name and address, and a letter A or B (indicating the Section for which you are entering), in block letters on the back of each photograph or drawing. You should address the envelope to: "Model-Building Competition No. 2", Meccano Limited, Binns Road, Liverpool 13.

The competition will remain open for entries until June 29 next. Entries may be sent in at any time between now and the closing date, but any entries received after June 29 will be disqualified.



A fine model of a Showman's Traction Engine that won a Prize for M. Brookfield, Blythe Bridge, Nr. Stoke-on-Trent, in a previous "Meccano Magazine" Competition.

Model-Building Competition No. 2

THE PRIZES

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

SECTION A

(Competitors under 14 years of age on June 29 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 June 29 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

WITH THE SECRETARY

Club and Branch News

A Fine New Club At Bristol

IT is always gratifying to have news of the formation of a new Meccano Club, and I was therefore delighted to hear that what promises to be a highly successful one was formed last Christmas at the County Secondary School, Winterbourne, Bristol. The Club was brought into being on the initiative, and under the Leadership, of Mr. Conrad G. Adams, the school Metalwork Master, firstly to help deprived children of the school whose parents could not afford to buy them worthwhile gifts; secondly, to help the children who have Meccano Outfits to obtain greater satisfaction by sharing them with others, and thirdly to enable all the children to experience the thrill and enjoyment of building larger Meccano models on a co-operative basis. This is in the true Meccano spirit, and its immediate success is borne out by Mr. Adams' comment "What is especially noticeable is the willingness of members to share their Sets with less fortunate members.

"The difficulty is not to get members, but to limit the Club to reasonable proportions", he told me in a letter.

The Club got off to a flying start, with a membership of 22, an adult Leader (as already stated) and regular meetings in a suitable Clubroom—thereby at once fulfilling the conditions necessary to qualify for affiliation with the Meccano Guild. This was granted immediately, of course, as the official announcement elsewhere on this page indicates.

Meetings are held every Wednesday from 4.30 to 7.30 p.m. in the school Handicraft rooms, and the children also have the use of these rooms during the lunch hour for constructing Meccano models or accessories for the Hornby-Dublo layouts—the Club has two Hornby-Dublo Train Sets.

Added purpose is given to the school's handicraft activities by the holding of a weekly competition, the entries for which are judged by the Headmaster.

MECCANO CLUB RECENTLY AFFILIATED

WINTERBOURNE SCHOOL (BRISTOL) M.C. —*Leader:* Mr. Conrad G. Adams, County Secondary School, Winterbourne, Bristol.

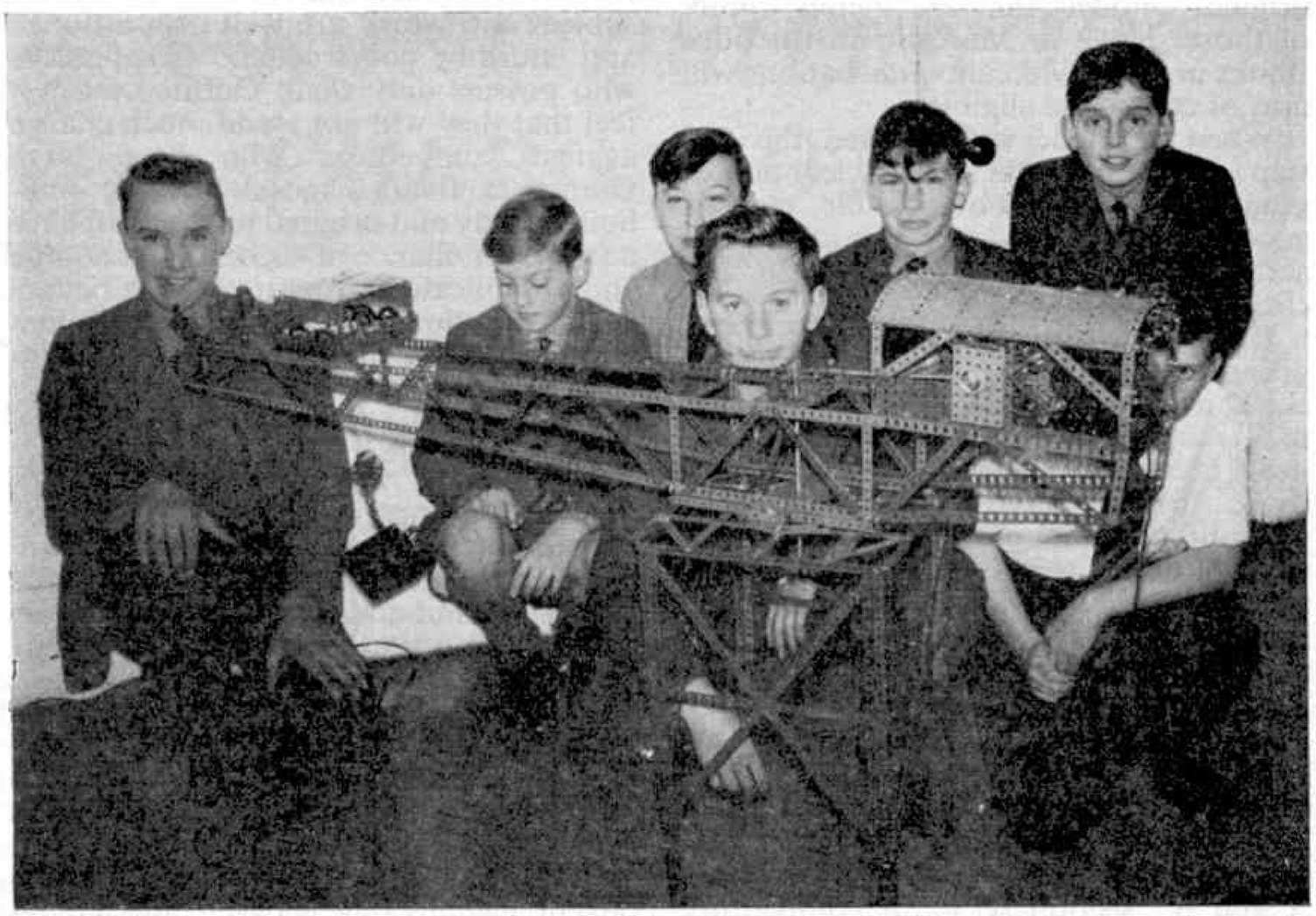
CLUB NOTES

ST. ANNES Y.M.C.A. M.C.—The Club stock of Meccano Outfits has been substantially increased by generous gifts from interested people. At the time of writing, members have begun the construction of a Meccanograph, their most ambitious model to date. *Secretary:* Brian Pickett, 26 Walter Avenue, St. Annes, Lytham St. Annes, Lancs.

NORTH END (PORTSMOUTH) M.C.—Meetings continue to be well attended, and Meccano model-building has continued with enthusiasm. Open Nights and a Jumble Sale will be held on Monday to Wednesday evenings from April 1 for an indefinite period. The Clubroom will be open from 7.15 to 9.30 p.m., and the charge for admission will be 3d. for either adult or child. Visitors will see attractive displays of Meccano models built by the members, and other models under construction. *Secretary:* Mr. A. J. Nicholson, 213 Sultan Road, Buckland, Portsmouth.

AUSTRALIA

MAYLANDS M.C.—The Club recently re-opened for the year, and several enthusiastic new members have been enrolled, replacing older boys who have left the Club. Plans are in hand for an Exhibition featuring Satellites, Missiles and Rockets. *Secretary:* Trevor Criddle, 17 Kenilworth Street, Maylands, Western Australia.



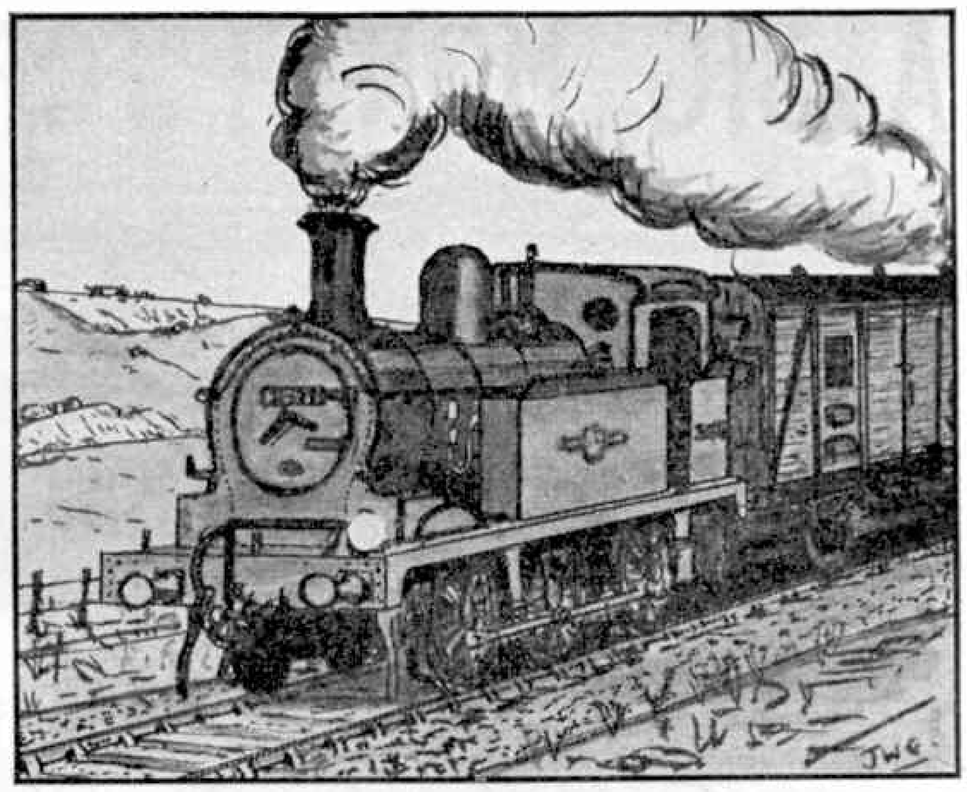
Some of the enthusiastic members of the Shebbear College (Beaworthy, North Devon) M.C., with their recently completed fine Meccano model of a Hammerhead Crane. Grouped behind the model are (left to right): Members Norman, Earle, Thorne, Sloman, Kingdon, Colvill and Kent (Secretary).

BRANCH NEWS

ST. ANNES Y.M.C.A.—The Y.M.C.A.'s model railway has been working with its customary efficiency. Recent valuable additions to equipment have included a Hornby-Dublo Turntable generously given by one of the members, a complete set of maroon coaches, seven low-sided wagons, four Blue Spot Fish Vans and two Ventilated Vans. It is hoped to obtain permission to extend the layout considerably. *Secretary:* Brian Pickett, 26 Walter Avenue, St. Annes, Lytham St. Annes, Lancs.

NORTH END (PORTSMOUTH)—The sixth section of the new layout is nearing completion. It is hoped that the Director of Entertainments and Publicity, Southsea, will visit the Branch to see this extensive and well-equipped layout when it is finished and in operation. Further alterations are being carried out on Mr. Enfield's old layout, including the laying down of track alongside the farm, and the erection of a small station by the farm for the transport of milk, farm machinery, etc. Visitors to the series of Open Nights announced in Club Notes above will see work in progress on both these layouts. *Secretary:* Mr. A. J. Nicholson, 213 Sultan Road, Buckland, Portsmouth.

HORNBY REPAIR SERVICE



THE service operated by Meccano Limited to expedite repairs to Hornby-Dublo Locomotives and Tenders, Hornby Gauge 0 Clockwork Trains and Clockwork and Electric Meccano Motors is being constantly widened in its application. Dealers authorised to offer this service, who are listed below, display a distinctive Accredited Service Specialist sign. Customers may, of course, send repairs to the Service Department of Meccano Limited, at Hanson Road, Aintree, Liverpool 9, if it is more convenient for them.

ANGUS

Dundee—Brian Sherriff, 93 Victoria Road.

BEDFORDSHIRE

Bedford—H. J. Banks, 23 St. Peter's Street.
Luton—Aeromodels, 59 Wellington Street.

BERKSHIRE

Reading—E.A.M.E.S. (Reading) Ltd., The Model Shop, 24 Tudor Road.
Reading Model Supplies, 1 Hosier Street, St. Mary's Butts.

CHESHIRE

Birkenhead—Birkenhead Model Supplies Ltd., 32 Grange Road West.
Moreton—Mortimer Ltd., 254–260 Hoylake Road.
Neston—J. Bailey, The Model Shop, Parkgate Road.
New Brighton—G. Longworth, 78–80 Rowson Street.

CORNWALL

Helston—Eddy & Son (Helston) Ltd., 21 Meneage Street.

CUMBERLAND

Carlisle—R. M. Hill & Sons, 36–40 Castle Street.

DENBIGHSHIRE

Wrexham—Craftoys Ltd., 4 Centenary Buildings, King Street.

DEVONSHIRE

Barnstaple—E. Gale & Son Ltd., Joy Street.
Bideford—E. Gale & Son Ltd., 2–3 Mill Street.
Exeter—John Webber (Sports) Ltd., 50–51 High Street.
Plymouth—F. T. B. Lawson Ltd., New George Street.

DURHAM

Durham—C. T. Applegarth, The Model Shop, 92 Claypath.
Stockton-on-Tees—K. Dean, 41 Bishopton Lane.

ESSEX

Basildon—H. T. Dwyer Ltd., 8–9 Blenheim House.
Chelmsford—Chelmsford Model Co., Baddow Road.
Colchester—West End Cycle Stores, 65 Crouch Street.
Ilford—Pages of Barkingside Ltd., 19 Broadway Market, Fencepiece Road, Barkingside.
Southend-on-Sea—Alco Supplies, 133 Hamstel Road, Southchurch.

GLAMORGAN

Cardiff—James Lendon, 194 Fidlas Road, Llanishen, The Model Shop, 9 Mill Lane.
Neath—Pearns Ltd., 16 Alfred Street.

GLOUCESTERSHIRE

Bristol—The White Tree Electrical and Toy Bazaar, 28 North View, Westbury Park.
Cheltenham—I. Newman (Cheltenham) Ltd. 127–9 Bath Road
Cirencester—S. E. Trinder, The Model Hangar, 71 Cricklade Street.
Gloucester—C. & N. Ash Ltd., 106 Westgate Street.

HAMPSHIRE

Bournemouth—Deppers, 918 Wimborne Road.
The Sports Shop, 14 Seymoor Road, Westbourne.
Portsmouth—Robin Thwaites Ltd., The Hobby Shop, 28 Arundel Street.
Southampton—H. I. Dowling & Son Ltd., 265–267 Shirley Road.
Woodcraft Supplies Ltd., 38 Northam Road.

HERTFORDSHIRE

Royston—H. C. Green, 25 High Street.
St. Albans—Bold and Burrows Ltd., 12–18 Verulam Road.
Welwyn Garden City—H. A. Blunt & Sons Ltd., 38 Fretherne Road.

KENT

Beckenham—Furley & Baker, 69 High Street.
Bexleyheath—W. J. & H. G. Jennings Ltd., Department Store, Broadway.
Canterbury—Barretts of Canterbury Ltd., 2 St. George's Street.
Gillingham—J. R. Baker (Gillingham) Ltd., 14 Canterbury Street.
Maidstone—F. T. Gilbert & Son, 116–118 Week Street.

LANARKSHIRE

Glasgow—Caledonia Model Company, 478 Argyle Street.
Clyde Model Dockyard Ltd., 22–3 Argyle Arcade.
Glassfords, 89 Cambridge Street, C.3.

LANCASHIRE

Ashton-under-Lyne—Ashton Model Supplies, 201 Old Street.
Darwen—Arnold Leaver, 65–67 Duckworth Street.
Liverpool—Lucas's (Hobbies) Ltd., 7 Tarleton Street.
Rushworth, The Model Railway Shop, 137a Kensington.
Manchester—Bassett-Lowke Ltd., 28 Corporation Street.
The Sports Depot (Manchester) Ltd., 4–10 Princess Road, Moss Side.
Wigan—J. J. Bradburn, 76 Market Street.

LEICESTERSHIRE

Leicester—North's Toy and Model Stores, 5 Melton Road.
Loughborough—Clemersons Ltd., 43 Market Place.

LINCOLNSHIRE

Cleethorpes—H. Loftis, 196 Grimsby Road.
Lincoln—S. A. Nobbs & Son Ltd., 2 Norman Street, and 16 Sincil Street.
Bycrofts Emporium, 366 High Street.

LONDON

London—Allan Brett Cannon Ltd., 32 Railway Approach, London Bridge Station, S.E.1.
H. A. Blunt & Sons Ltd., 133 The Broadway, Mill Hill, N.W.7.
Hamblings (Models) Ltd., 10 Cecil Court, Charing Cross Road, W.C.2.
Model and Tool Supplies, 604 Kingston Road, Raynes Park, S.W.20.
Models (City) Ltd., 2 The Arcade, Liverpool Street Station, E.C.2.
Palace Model Shop, 13 Central Hill, Upper Norwood, S.E.19.
W. & H. (Models) Ltd., 23 Paddington Street, Baker Street, W.1.

MIDDLESEX

Edgware—Cresta, 1 Cinema Parade, Manor Park Crescent.

MIDLOTHIAN

Edinburgh—Harburn's Hobbies Ltd., 116 and 122—124 Leith Walk.
Messrs. Donray, 302 Morningside Road.

NORTHAMPTONSHIRE

Peterborough—Oliver Carley, 35 Broadway.
Wellingborough—Littlefolk, 24 Market Street.

NORTHUMBERLAND

Whitley Bay—The Whitley Model Shop, 67 Park View.

NOTTINGHAMSHIRE

Nottingham—Beecroft & Sons Ltd., 16 Pelham Street.
Gee Dee Ltd., Friar Lane and Goose Gate.

OXFORDSHIRE

Oxford—A. S. Rising, 243 Banbury Road.

PERTHSHIRE

Perth—Bob Croll, 75 High Street.

SHROPSHIRE

Oswestry—Vaughan's, 56 Beatrice Street.

SOMERSET

Bath—Pram and Toy Shop Ltd., 22–23 Southgate Street.
Cyril Howe's of Bath Ltd., 15 Abbey Churchyard.
Taunton—Westlakes (Cycles) Ltd., Station Road.
Yeovil—H. J. Perris (Retail) Ltd., 9–11 Princes Street.

STAFFORDSHIRE

Burton-on-Trent—J. W. Belfield, 2–4 and 12–14 West Street and Market Street, Swadlincote.
Cradley Heath—Dunns (Cradley Heath and Dudley) Ltd., 65 Lower High Street.
Stafford—John Bagnall Ltd., South Walls Road.
Stoke-on-Trent—John Pepper (Henley) Ltd., 61–65 Piccadilly, Hanley.
Walsall—S. H. Granger, Caldmore Models, 108 Caldmore Road.
Wolverhampton—A. J. Chamberlain, 39 Darlington Street.

SURREY

Coulsdon—R. Wills (Scientific Hobbies) Ltd., 92 Brighton Road.
Croydon—Priors, 107 High Street.
Guildford—Guildford Dolls Hospital Ltd., 13 Swan Lane.

SUSSEX

Crowborough—Regent House, High Street.
St Leonards-on-Sea—A. Hammonds, 5/6 Marine Court.

WARWICKSHIRE

Birmingham—Bearwood Model Supplies, 53 Parade.
Hornton's (Models and Toys) Ltd., 32 Stephenson Street, 2.
The Perrys, 769 Alum Rock Road, Ward End.
J. Williams, 51 Comberton Road, Sheldon.
Sutton Coldfield—W. Gill & Son, The Parade.

YORKSHIRE

Bradford—Bradford Model Railway Centre Ltd., 202 Keighley Road, Frizinghall.
W. Carter, 15 Bridge Street.
Leeds—King Charles Sports Centre, 18 and 20 King Charles Street.
Sheffield—Fred Shaw, 42 Church Street.
The Redgate Co. (Sheffield) Ltd., Moorhead.

CHANNEL ISLES

Jersey—George D. Laurens, 3/5/7 Queen Street.

EIRE

Dublin—Southern Model Railway Co., Lower Leeson Street.

NORTHERN IRELAND

Belfast—The Model Shop, 36 Wellington Place.
Thornton & Co. Ltd., 40/42 Donegal Place.

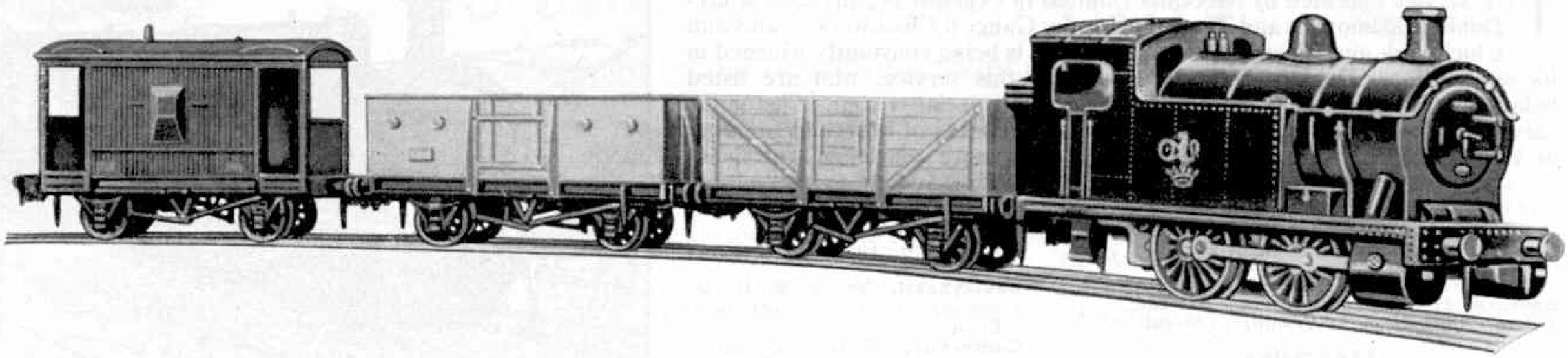
WESTERN AUSTRALIA

Perth—Jack Stanbridge's "Hobbyshop", 54a Canning Highway, Victoria Park.

NEW ZEALAND

Auckland C.2—Jackson Cycles Ltd., 99 Karangahape Road.

A BIG MONTH FOR HORNBY TRAIN LOVERS



The practical lines of the new, ready-to-run Hornby-Dublo Train Set can be clearly seen from this illustration.

Goods Set For The Youngsters: "Simplec" Points: New Restaurant Cars: More French Items

Hornby Railway Company

By the Secretary

WE have details this month of several intriguing new introductions into the Hornby-Dublo and HOrnby-acHO ranges from our Binns Road factory and from our Paris subsidiary, Meccano (France) Limited. Let us start with our own attractive new items. Of especial interest to those youngsters who are anxious to enjoy their first taste of the Hornby-Dublo hobby is the news that we are introducing an efficient, inexpensive new Train Set, under catalogue No. 2001, and you will find it announced in our advertising pages this month.

A special point about this set is that it is complete with Power Control Unit, so that the owner has available, in one box, everything he needs to start operations right away.

The items in the new Train Set make up a Goods Train of simple character, and the locomotive represents a tank engine of moderate size. It does not follow the lines of any particular prototype, but has been designed to incorporate typical features of British practice. It possesses a motor of particularly efficient character for its size, designed to ensure satisfactory life. The design of the motor has been kept as simple as possible, so that routine maintenance is kept to a minimum.

* * * *

Externally the engine is of pleasing outline, and the outside cylinders provided help to give it an air of real purpose and capability. The housing is a plastic moulding, which has allowed the maximum detail to be incorporated. Such things as rivet heads, hand rails and so on are all there, together with the various items of piping that form such an intricate feature of many full size engines. This new addition to the Hornby-Dublo locomotive family looks very workmanlike in its black finish and I am sure it will appeal very strongly to those who see it.

To make up the train are two wagons of representative types, with fully-detailed moulded bodywork finished in attractive colours. Constructionally the bodywork is standard with that of the 13-ton Open Wagon and the Open Wagon steel type respectively, so that there is plenty of character even in such a small train. In addition, there is a Goods Brake Van of effective appearance, with moulded bodywork that includes features found in B.R. standard practice. It does not incorporate the long wheelbase characteristic of the existing Goods Brake in the system, but the bodywork is arranged very neatly on a shorter four-wheeled base giving it a particularly attractive appearance.

The set includes Curved Rails to form a circle and these curves have the standard radius of 15 in. A board measuring three feet square is necessary to accommodate the track comfortably and to leave room in a convenient corner for the Power Control Unit.

This unit is entirely new and is known as the Hornby I Power Control Unit. It is an efficient, attractive-looking piece of apparatus, simple in character yet entirely safe in operation and providing the means of controlling the train's speed. A separate reversing switch is fitted so that the locomotive can be made to travel backwards when required. In operation the speed control knob should be brought back to the "stop" position before the reversing switch is used.

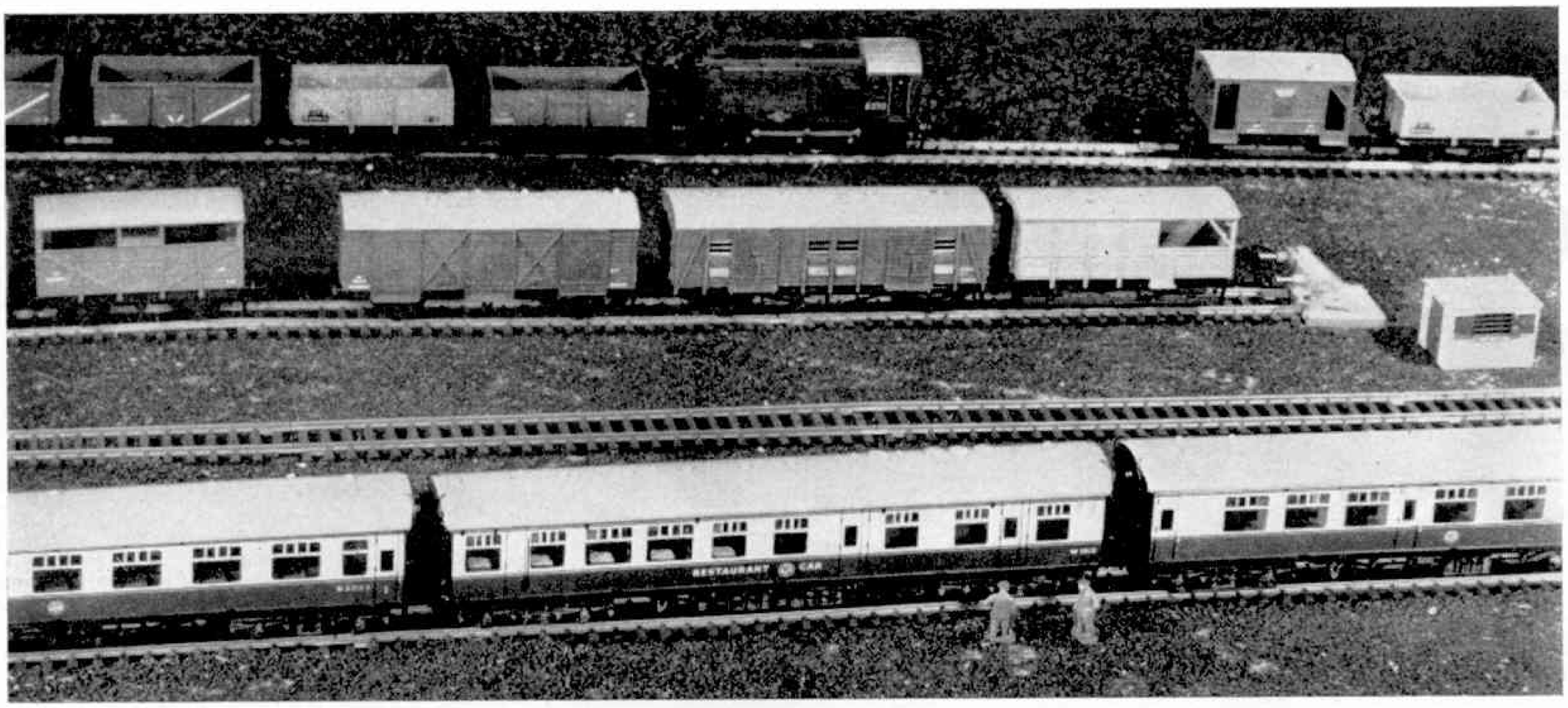
This is a set that will be of interest to all Hornby-Dublo owners and is certain to become the starting point of many realistic layouts.

While dealing with electrical matters, I am pleased to tell you that we are introducing into the Hornby-Dublo 2-Rail system Points of a new design to simplify the system and ease wiring difficulties. They are known as "Simplec" Points, and their principal characteristic is the inclusion of an insulated frog—that is, the "V"-shaped section where the two rails intersect. Another new introduction is No. 1612 Switch Link Handle, illustrated on the following page. This fits on the top of the levers of Hornby Switches which are adjacent to each other, so that they may be moved simultaneously.

* * * *

It is some time since I had details to give you of any new passenger-type rolling stock, so that it is with special pleasure that I am now able to tell you about the two new Restaurant Cars listed under Nos. 4070 and 4071. You will recall the revision in Hornby-Dublo passenger coaches that took place some time ago, leading to the appearance of the now familiar corridor coaches representing B.R. standard practice. The new Restaurant Cars incorporate similar features, and like the Corridor and Open vehicles already in service on many layouts, they, too, represent standard stock.

In their construction the cars have been brought into line with the style of construction standardised in Hornby-Dublo coach building practice. A wealth of detail is provided with the moulded roofs, end and underframe sections. The bodysides, bases and bogie frames are, like the real ones, of strong metal. They run on the standard Hornby-Dublo Nylon Wheels, so that their easy action when on the road is ensured. Moulded couplings, as now standard, are fitted. Interior furnishing and features are, of course, in-



This studio photograph shows one of the new attractive Hornby-Dublo Restaurant Cars, No. 4070, in Western Region livery, in an appropriate setting.

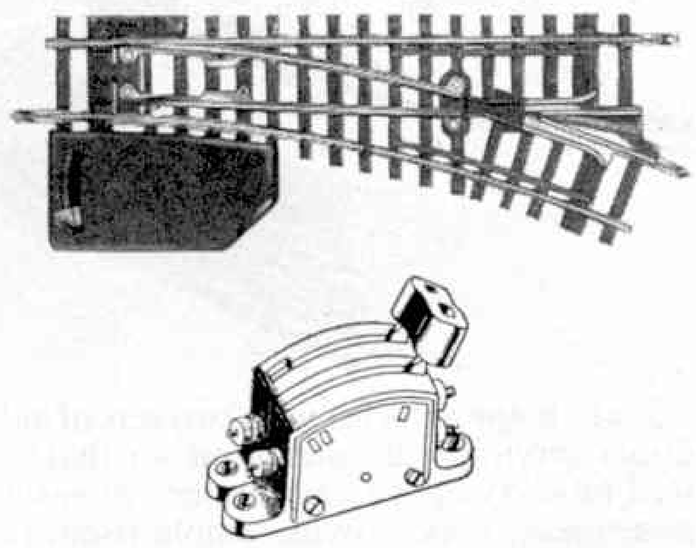
corporated, these being attractively represented by plastic moulding that provides the table tops and the seating on either side of the passage through the restaurant section. As in the real vehicles seating is arranged so that there are pairs of seats on one side of the gangway, with single seats to the smaller tables on the opposite side. At one end of the car the section representing the kitchen and pantry is partitioned off where the centre passage becomes a side corridor. Windows are glazed with transparent plastic, except those in the kitchen section, where obscure glass is the rule in real practice.

The special character of the vehicles as compared with ordinary Corridor Coaches is denoted by the roof and underframe details. There is a representation of the normal torpedo ventilators along the passenger section, but at the busy end of the vehicle, where the kitchen and pantry are situated, circular shapes simulate the fans that are so necessary in the actual coach.

Apart from the interest of the traveller in the amenities provided in the Restaurant Car there is something fascinating about their special character that appeals to the enthusiast. To the massive fans and obscured windows, one must add the underframe detail so convincingly represented in the new Hornby vehicles. These incorporate the underframe girders that help to form what is in effect the backbone of the real coaches and there are the brake cylinders and the "V"-shaped brackets that carry the brake shafts in real life. Also, on the kitchen side of the car, are represented, first, a casing which houses the compressor used for lifting water from underfloor tanks to kitchen level, then, all in a row, the containers used for cooking purposes, and the casing of the lighting dynamo. On the opposite side the fittings represented are mainly of an electrical character. Lighting is specially important in a Restaurant Car, so the relatively massive character of the battery boxes will not surprise you. Among other underfloor items to intrigue you is the section of moulding—just below the central door on this side of the vehicle—that represents the refrigerator and bottle cooler boxes. A Restaurant Car has to be in effect a self-contained hotel on wheels.

* * * *

The new Restaurant Cars are available as No. 4070 in W.R. brown and cream livery and as No. 4071 in B.R. maroon. In each case appropriate running numbers appear on the bodysides, together with the bold wording "Restaurant Car" and the B.R. emblem. The B.R. classification of the real vehicles represented is *R.U.*, which stands for Restaurant Car Unclassed—in other words, first-class or second-class passengers can be accommodated. If additional seating is required it is often the practice to run an open coach of either class next to the Restaurant Car and this practice can readily be followed in Hornby-Dublo. This is, in fact, precisely the situation shown in one of this month's pictures in which the new cars appear. The open coaches, in Hornby-Dublo are therefore very useful vehicles, carrying the seating and double accommodation required for such purposes. I can foresee a strong demand for the new Restaurant Cars on the part of Hornby-Dublo owners who want to cater for the needs of their "hungry passengers" on long-distance services.



The top illustration shows one of the new "Simplec" Points (hand-operated) which are among this month's introductions to the Hornby-Dublo Two-Rail System. The lower illustration shows the new Switch Link Handle.

NEWS FROM FRANCE

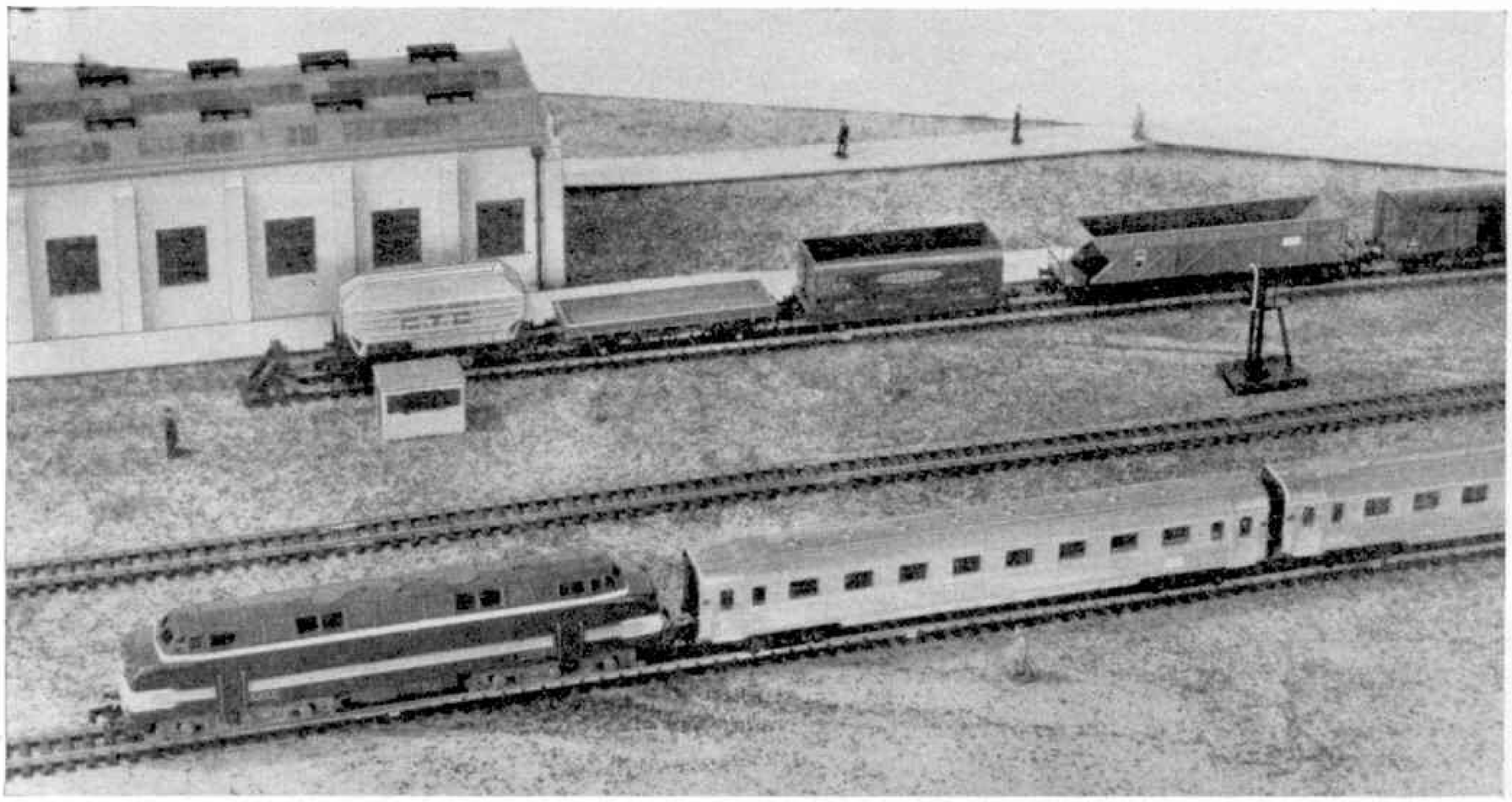
And now to the latest items from the factory of Meccano France which are available over here. Our illustrations this month show something of the wide selection of locomotives and rolling stock involved.

Taking the locomotives first, we have the main line Diesel Electric (HOrnby-acHO No. 634). This machine of modernistic design and appearance has two six-wheeled bogies, and its prototype is Class 060 DB on the S.N.C.F., the initials standing for French National Railways. The prototype was designed for service on lines which do not carry sufficient heavy traffic to justify the expense of electrification but, as is well known, most of the main heavily-trafficked lines of France are electrified already, or will be eventually.

The HOrnby-acHO model is a powerful machine embodying a Ring Field motor. As a matter of fact an excellent illustration of the real locomotive appears on the front cover of the HOrnby-acHO catalogue for this year, so that readers can compare the model with the prototype. Our miniature locomotive is finished in blue with yellow embellishments, and is of striking appearance.

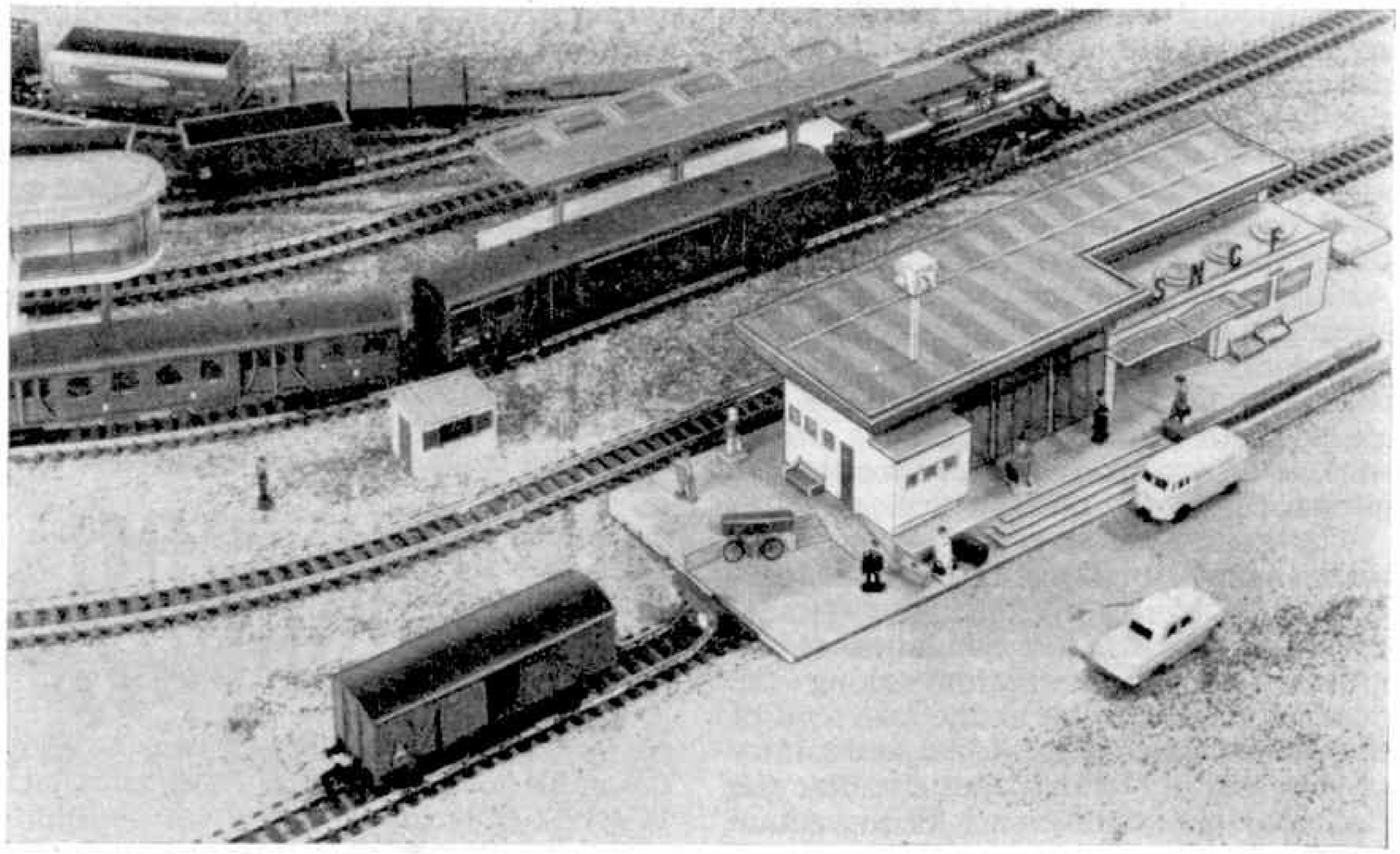
* * * *

A further diesel locomotive included in the acHO range is a Diesel Shunter (No. 635), a six-coupled machine numbered C61006 which again is a compact and powerful unit. The wheels are fitted with Coupling Rods in a similar manner



Left: The passenger train "Le Vendeen", hauled by the HOrnby-acHO Diesel Electric 060 DB Locomotive. A selection of wagons manufactured, like the Train Set itself, by Meccano France are on the sidings in the background.

Below: A busy station scene showing the HOrnby-acHO 2–6–2 Tank arriving with its train of suburban passenger coaches.



to the British Railways Diesel Shunter, and this gives the locomotive an active air compared with other diesels whose wheels are hidden behind bogie frames and are not coupled. The model is finished in the S.N.C.F. livery of green with yellow stripes.

Next we have a steam locomotive to consider. This is a 2–6–2 side tank but its Continental designation is 1–3–1 because, on the railways of Europe, locomotives are classified by the number of axles rather than by the number of wheels, the latter practice being common to the rest of the world for steam locomotives.

The Hornby model (No. 636) is a splendid, finely-detailed representation of a 2–6–2 Tank Locomotive of a type designed for use on local passenger trains on the Region de L'Est (formerly the Eastern Railway of France). The prototype was introduced in 1925 and there were 49 engines in the class, known as 131 TB on the S.N.C.F.

The passenger rolling stock in the HOrnby-acHO range now allows for running ordinary main line express trains, luxury expresses and local suburban passenger trains of the kind found in and around Paris. The ordinary main line bogie stock has already been dealt with in the *M.M.* (October 1961), but since its introduction we now have the stainless steel vehicles of a design originated in the United States by the Budd Company. The models faithfully reproduce the fluted, bright steel construction relieved by a yellow line above the windows on the 1st Class Coach. Second class vehicles do not carry this lining. The stainless steel coaches are used on the principal main line express trains such as the famous "Sud Express" which operates between Paris and the South-West of France. The HOrnby-acHO catalogue number for this type of coach, listed as Inox Passenger Coach, is No. 737.

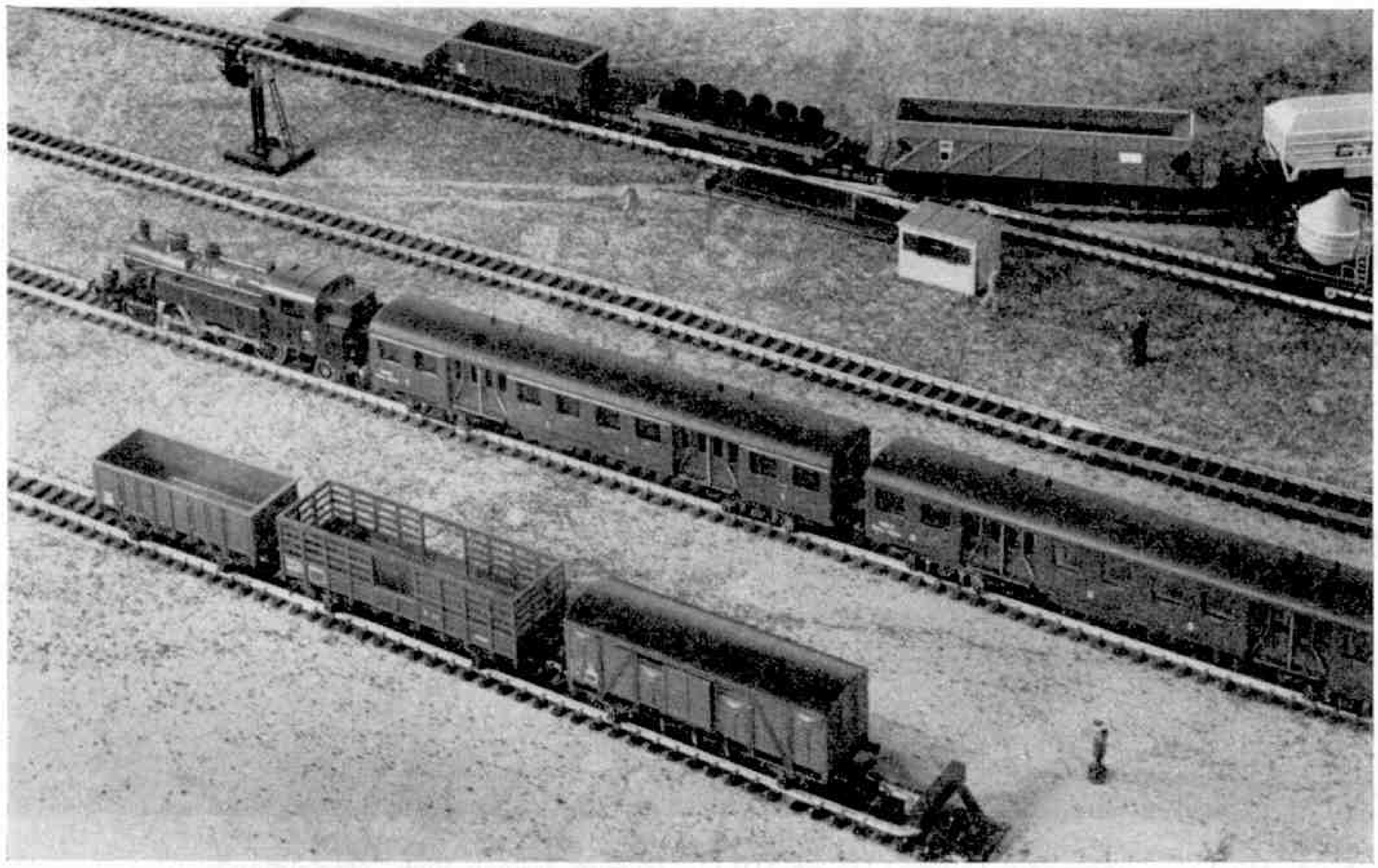
The French suburban coaches, on which those now available over here are modelled, are bogie vehicles with two sets of side doors serving wide platforms so that, as well as carrying a large number of seated passengers, they provide ample room for people to stand. Suburban trains in and around Paris hold very large numbers of passengers, but steam suburban trains are becoming rare because of electrification of the busy lines. The HOrnby-acHO suburban stock are listed as No. 735 for the Suburban Passenger Coach, Second Class and No. 736 for the Suburban Passenger Coach, First Class.

Four complete Train Sets are now available in the range produced by our French factory.

* * * *

Now let us turn to the most recent freight vehicles from Meccano France which are now available over here. First of all there is the Bogie Hopper Wagon (No. 729) of the kind used for coal and other mineral traffic. In actual practice vehicles of this nature are loaded from tipplers or silos but at the destination the load is discharged through bottom doors. In the range of four-wheeled vehicles, which are most common on European railways, there is an excellent miniature of a standard long-wheelbase Goods Van of up-to-date design (No. 704). In real practice this vehicle is used for a great variety of traffic which needs protection from the weather, and the van is fitted with sliding doors. The livery of the HOrnby-acHO model is the familiar dark brown of the prototype.

A number of vehicles of special character used for certain types of continental traffic are also represented among the latest French items of rolling stock available in this country. First of all there is a Bulk Grain Wagon (No. 706) which is a hopper-type vehicle finished in grey and lettered C.T.C. together with similar lettering describing the traffic it carries. It is owned by the railways but is used solely



In the picture on the left the HOrnby-acHO 2-6-2 Tank, at the head of a passenger train, passes sidings on which freight rolling stock is prominent.

The Speed Reducer shown below brings great realism to the railway scene. An approaching train is about to slow down to pass through the section on which a speed limit has been applied.

for the products of the firm whose name it carries.

For the transport of cement, silo wagons are used in France and there is a model of this vehicle, too, now to hand. Basically it is a freight wagon with two upright silos and bears the lettering of the cement company by whom it is operated. It is listed as No. 703 in Britain and its official designation is Cement Bulk Transporter. Another intriguing vehicle is the special wagon used for carrying wheels and axles for railway purposes (No. 716) which could also be used for conveying other types of machinery.

Number 709 on the list is a large steel Mineral Wagon the prototype of which discharges its load through hinged doors in the lower part of the body. This vehicle is decorated with the green and yellow trade sign of Simotra, whose product it carries. Then there is a model of a flat wagon with eight upright stanchions (No. 717) which is suitable for carrying timber, steel girders or rails. Its official designation on the Hornby list is "Flat Truck with Removable Staked Sides".

We come now to a peculiar vehicle which looks rather like a roofless cattle wagon but which is really intended for the conveyance of bulky goods. It is known as No. 701 Goods Wagon with Lattice and is indeed one of those vehicles which has a typical continental atmosphere about it. A Low-Sided Open Wagon (No. 718) is also available and this is rather similar to the wheel-carrying vehicle.

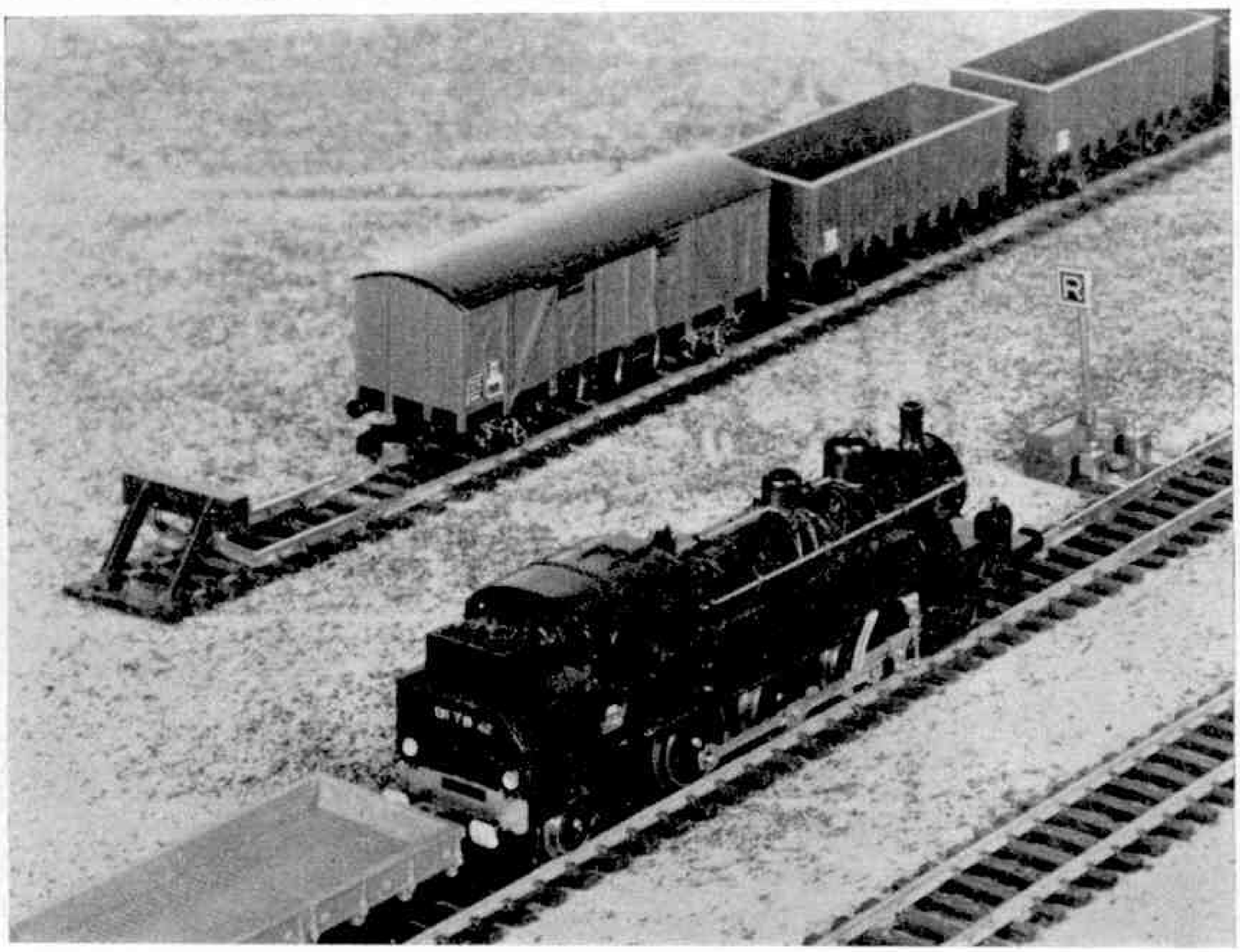
For the transport of industrial goods tank wagons are operated by the Primagaz Company and one of these modernistic wagons is also included in the British range of HOrnby-acHO vehicles. Finished in white and black with red and blue lettering, and numbered 702 in the list, it is a most attractive item for any railway.

* * * *

Finally, I want to mention an accessory which can bring tremendous reality to a railway. It is the Speed Reducer (No. 664) and its purpose is self-evident from its title. As you know, temporary speed restrictions are imposed by railway engineers for various reasons. They may be in force over newly-laid track which has not become firm, or perhaps on a bridge which is under repair. Restrictions are often permanently applied in colliery areas where subsidence could occur. A train travelling at high speed will suddenly slow down and pass through the affected area at a prescribed low pace, and then, after leaving the section, will resume normal schedule speed. This operation can now be reproduced on Hornby-Dublo Railways by introducing the Speed Reducer, another product of our French factory.

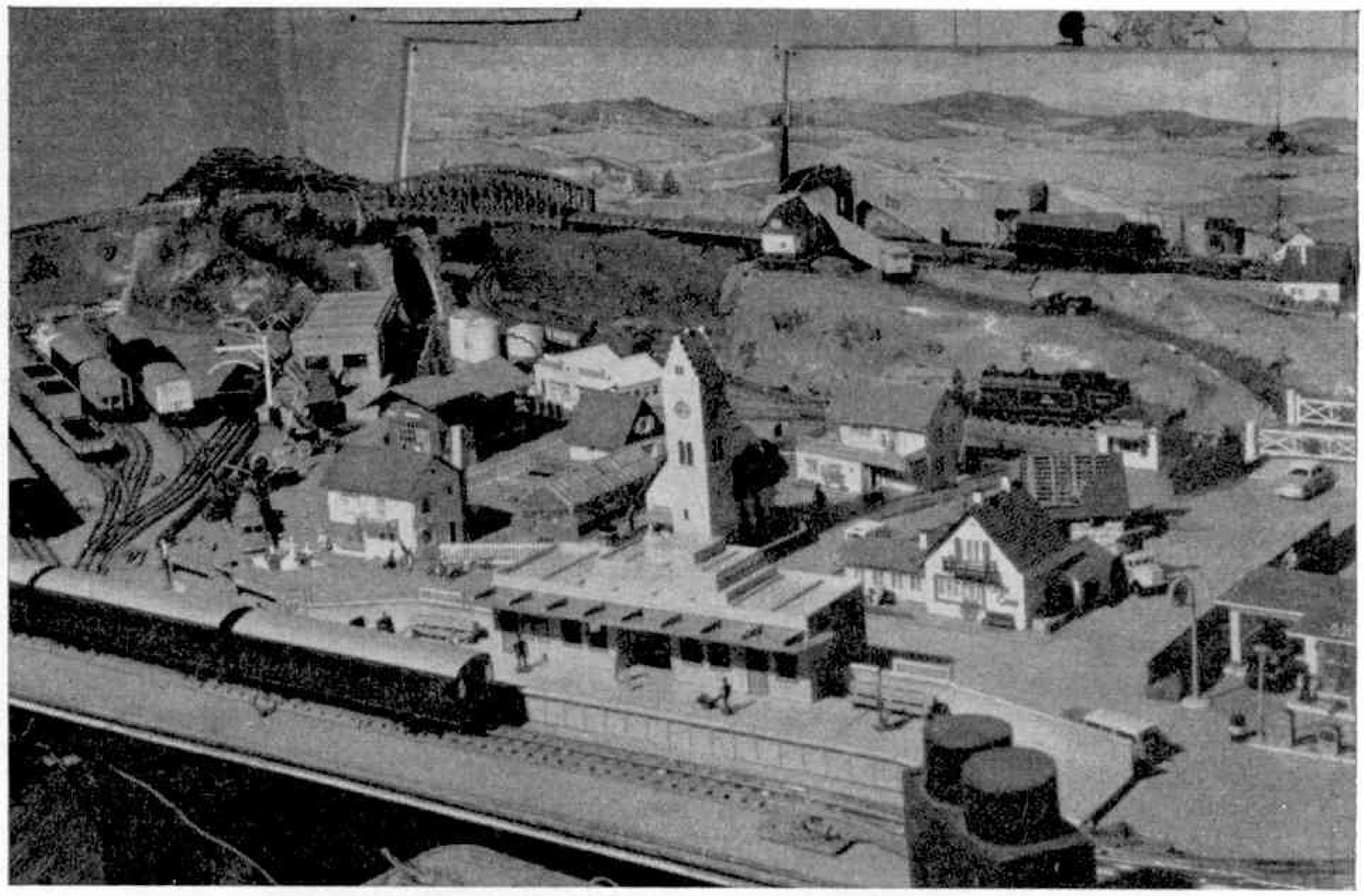
The Speed Reducer is a device with two terminals which is attached to a Single Isolating Rail at the beginning of the "reduced speed" section. A further Single

(*Continued on page 170*)



Layout Man chats about 3-Rail

New Zealand Scheme That Boasts The Scenic Touch



"AFTER six years of adding to a small train set I now have a baseboard which is ten feet by eight feet wide" writes our correspondent Leslie Box of Port Chalmers, Otago, New Zealand. His layout, as our illustrations show, is a pleasantly scenic one with, in the centre, a village that includes a sawmill, two churches and a hotel; all equipped with Hornby-Dublo lighting kits. There are several houses and shops, two service stations, a small factory and a fairly large farm.

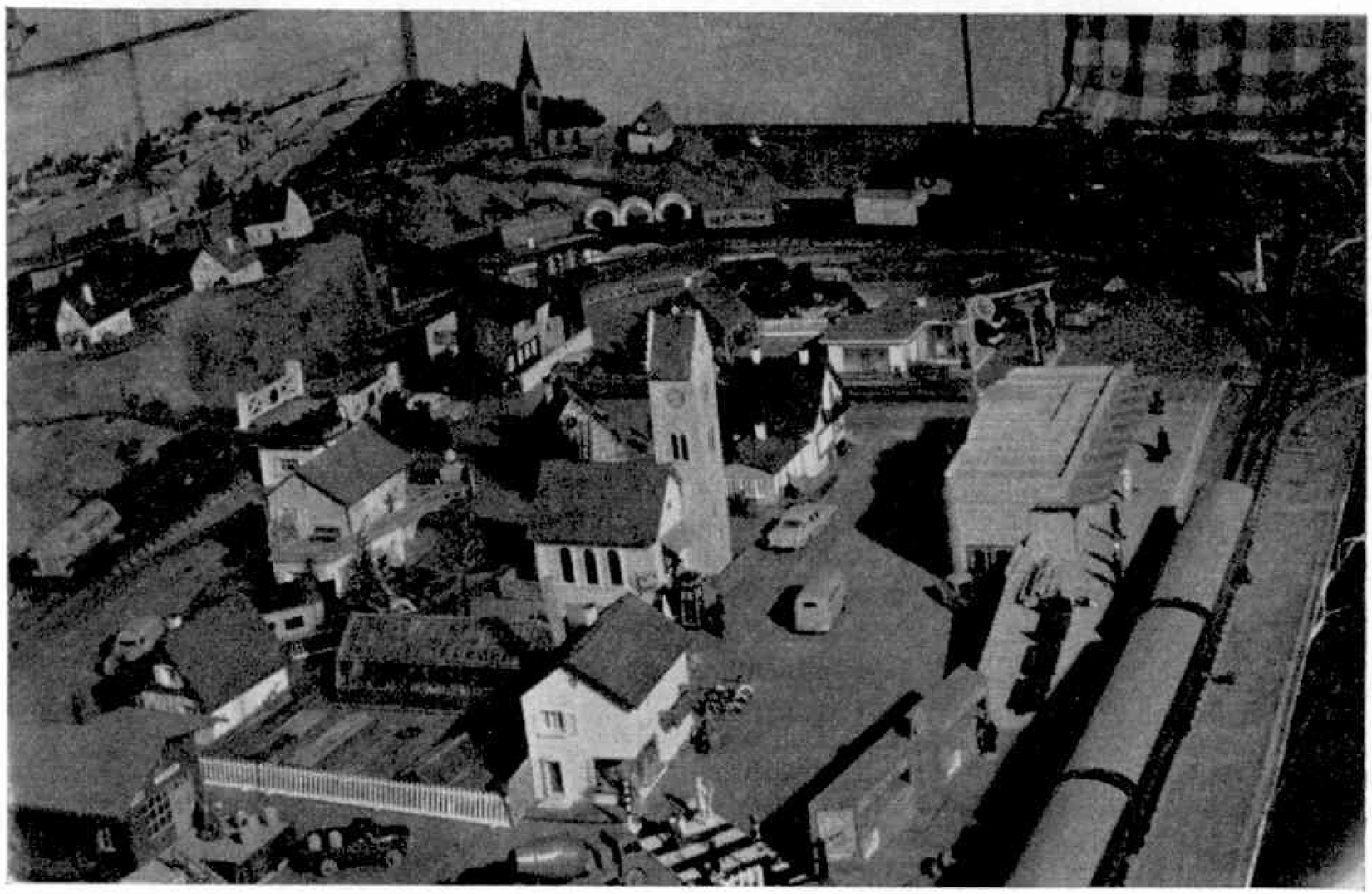
A double track running from the north end of the main station, called *Crawford*, extends all the way round the baseboard to the south end of this station. Just beyond this main station a track leads away to the left, curving into a long tunnel that passes beneath the suburban station—represented by a Hornby-Dublo Island Platform. Emerging from the tunnel, the track passes over a Diamond Crossing and enters another short tunnel, by way of which it gets back to the main station.

The other main line climbs an incline up to the Island Platform, beyond which there is a girder bridge spanning a lower track, then the rails go downhill, traverse another bridge and so return to baseboard level, reaching this about 2½ feet south of the main station.

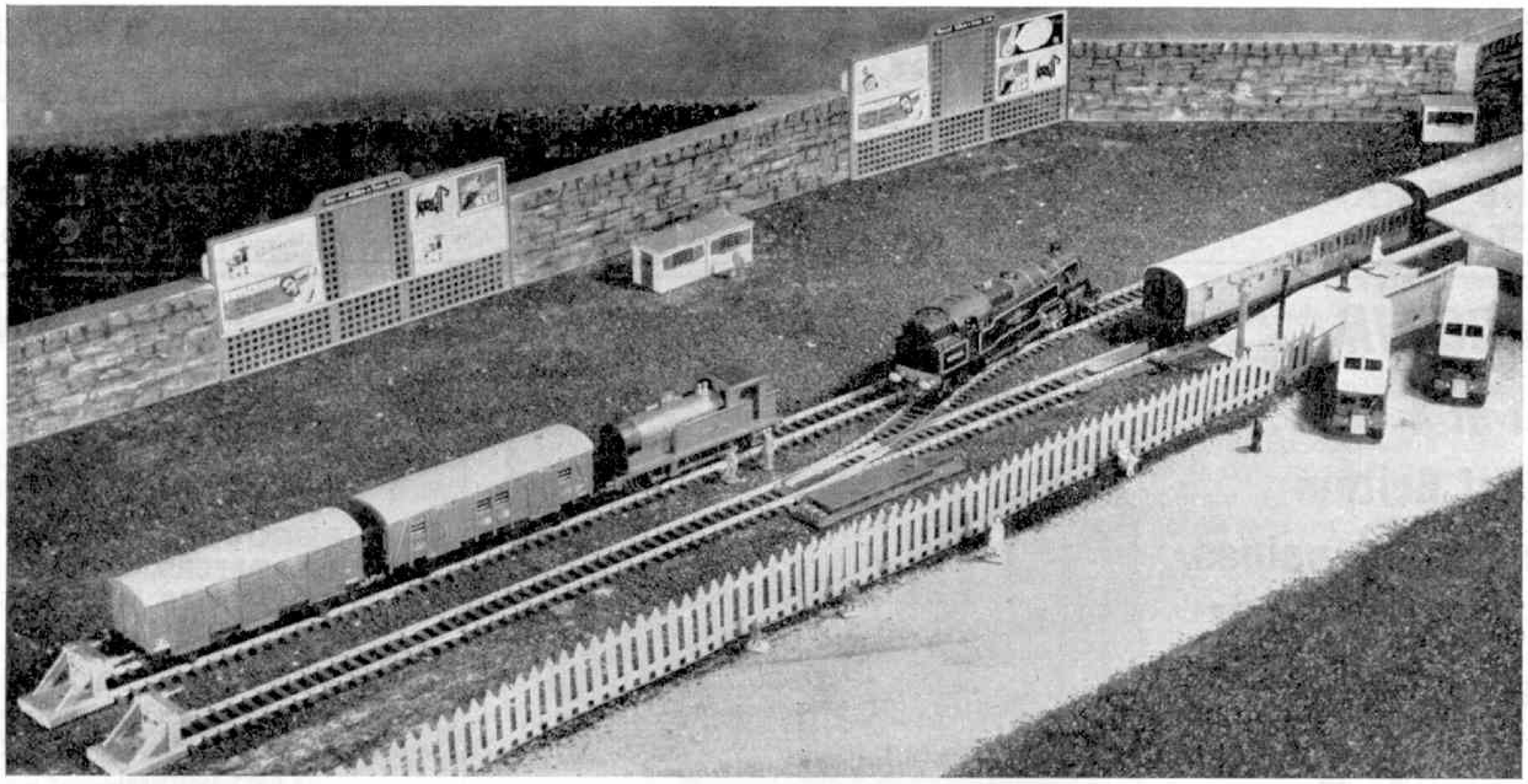
Between the foot of the gradient and the main station there are seven sidings for goods and passenger rolling stock, giving plenty of space for shunting and train marshalling. One siding is situated on the edge of the town, where the Hornby-Dublo Goods Depot is also located. This means that the road from the town is on one side and the railway on the other. There is also a siding which passes round the foot of the hill below the Island Platform and leads to some large petrol storage tanks, and to where the railway petrol tank wagons are kept. Just before this siding, a pair of Points leads to another track which passes between the two tunnels already mentioned, by way of the Diamond Crossing, and continues under the girder bridge and around the back of the hill. The Breakdown Crane is usually accommodated on this track.

At the north end of the main station there is a branch going off to the right and leading to the engine shed and turntable. There are five locomotives, consisting of the 0–6–2 Tank, 2–6–4 Tank, Bo–Bo Diesel, *Bristol Castle* and *Duchess of Montrose*. The rolling stock includes several Coaches and an interesting variety of Vans and Wagons, sufficient in fact to make up several trains. The control arrangements are such that it is possible to have three trains in operation at the same time.

Further developments since the photographs were taken include the provision of double track through the main station.



(Above) A view of the main station and sidings on the Hornby-Dublo layout of Leslie Box, Port Chalmers, New Zealand. (Left) General view of the layout. Illustrations by G. O. Wilkes.



A BRANCH-LINE VENTURE

LINESMAN WRITES FOR THE TWO-RAIL OWNER

NO doubt most readers who have followed this Two-Rail series will have travelled on a branch line passenger train where one locomotive works the same set of coaches to and fro on the daily service. At each end of the line the engine changes ends by running round the train, and this month's layout has been designed to reproduce this form of working.

Because of space limitations it is usually not possible to build a very long branch line, but an oval track such as that shown this month will allow the train to have a good length of run for as many times as the operator desires before finishing its journey at the opposite station from that at which it started. Diesel or Tank locomotives are ideal for this kind of operation.

The layout depicted in our diagram will fit in a space of 13 feet by 5 feet 6 inches. Two Power Control Units are required so that an additional train—a goods for example—can run continuously round the inner track while the passenger train operates on the outer one.

When you wish to perform shunting movements with the goods train, or run it into one of the sidings in the centre of the layout, the passenger train can be kept in the Terminal Station while this is taking place.

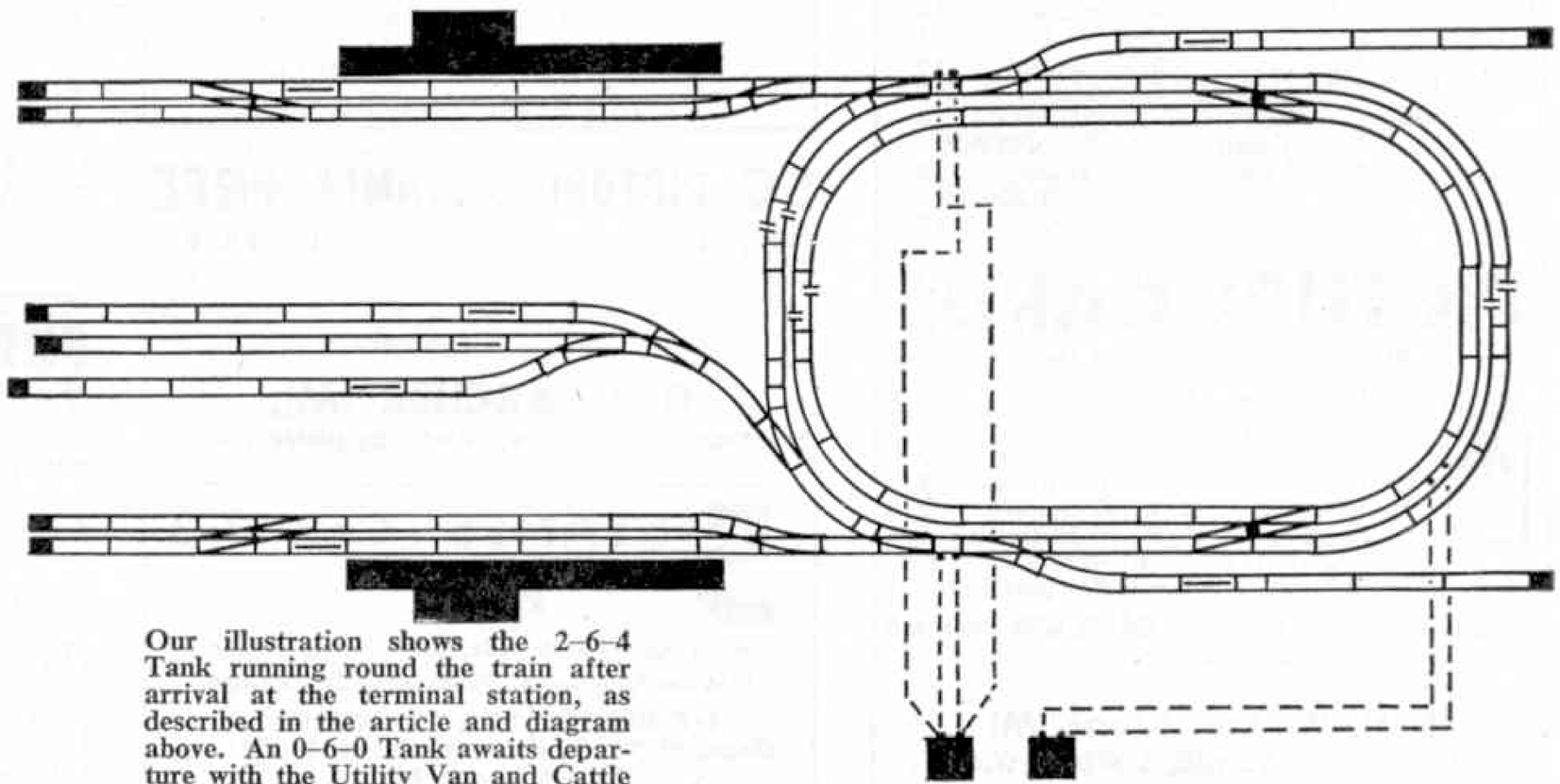
Alternatively, a passenger or goods train complete with locomotive can be stabled in one of the long sidings which lead from the outer main track at the right-hand end of the layout. In every case a siding will be isolated when the Points are set against it.

As usual, Hand-Operated Points are shown, but it would be better to have them Electrically Operated, except perhaps those serving the centre group of sidings, otherwise the operator will have some

(*Continued on page 187*)

ITEMS REQUIRED

18	Curved Rails	2710
6	Curved Rails, Large Radius	2719
1	Curved Terminal Rail, With Suppressor ..	2714
3	Curved Half Rails ..	2711
9	Curved Quarter Rails..	2712
1	Curved Half Isolating Rail, Double	2740
46	Straight Rails.. ..	2701
23	Straight Two-Thirds Rails	2702
14	Straight One-Third Rails	2703
2	Straight Terminal One-Third Rails, With Suppressor	2708
2	Straight Two-Thirds Isolating Rails, Double ..	2739
7	Uncoupling Rails ..	2745
8	Right-Hand Switch Points	2728
9	Left-Hand Switch Points	2729
9	Buffer Stops	2450
2	Power Control Units	



Our illustration shows the 2–6–4 Tank running round the train after arrival at the terminal station, as described in the article and diagram above. An 0–6–0 Tank awaits departure with the Utility Van and Cattle Wagon, which it will take to the sidings.

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FOR OTHER STAMP ADVERTISEMENTS SEE PAGE 185

For Stamp Enthusiasts

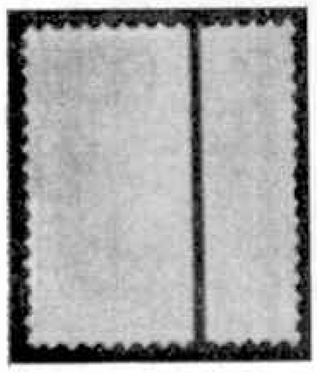
"ALF"

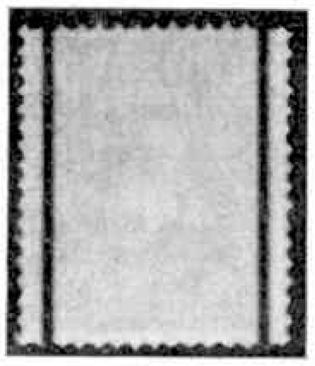
By F. E. Metcalfe

THE more one knows about the British Post Office the more one appreciates how good it is, and it is tremendously important to all of us that the service should be in every way first class. A valuable contribution to this efficiency is made by the various machines now used by the Post Office—such as those that can sort thousands of letters an hour, and others capable of separating letters and packets.

The machine that is of most interest to stamp collectors is the Automatic Letter Facing machine, popularly known as "Alf". (It was described and illustrated in the August 1958 *M.M.*) How has "Alf" affected our hobby? To find the answer let us go back to November 19, 1957, the first day on which anyone going into a Southampton and district Post Office and asking for stamps of face values of ½d. to 3d. would—if they looked at the back of the stamps they bought—have found a black vertical line on the 2d. value and two lines on each of the other five. Now the difference between one and two lines is the crux of the matter, as I will explain in a moment.

Months before the date just mentioned, Post Office engineers had been installing an elaborate and expensive machine to perform, mechanically, a job which previously had been done by hand, at much cost in time. The machine, and the marking of the stamps, were experimental, and since then there have been lots of adjustments. Here, however, we need only concern ourselves with the changes in the marking of the stamps. The next alteration in this respect came when, in addition to the graphite—or black line—markings on the back, phosphor lines were printed on the front of the stamps. These "dual-marked" stamps were first placed on sale on November 18, 1959, when two extra values (4d. and 4½d.) were added to the stamps thus treated. Unfortunately for collectors these phosphor lines are transparent, and on the ordinary stamps thus treated it is very difficult to spot them with the naked eye (quartz lamps do the trick, but I don't suppose that many collectors have one of these gadgets), but generally it is possible to do so if the top and bottom margins of the sheets are examined. The next change came on June 22, 1960, when new stamps appeared but with only colourless phosphor lines on the front. Again two new values were added, this time the 6d. and 1/3d.





Now these phosphor lines, as already stated, are very awkward for collectors, since, being colourless, they are most difficult to detect. But this is not affecting the popularity of the stamps. In fact, I am sure these graphite and phosphor-lined stamps have played a great part in the tremendous increase in popularity of our own British stamps of the "QE" period.

The "NPY" stamps, sold where "Alf" machines have been installed, i.e. London S.E., Southampton, Leeds and Liverpool, also have phosphor lines. Fortunately the lines on the front of these stamps, although still colourless, show up quite clearly if the stamps are held level with the eye and the light is allowed to fall across the surface.

I began by remarking that the first Automatic Letter Facing machine was installed at Southampton—incidentally, I think it was the first in the world. An adaptation of this invention has since been installed in Canada (where current stamps from 1c. to 5c. have been treated with the phosphor lines in the same way as our own) by the London firm responsible for these machines and now we have similar ones in London S.E., Leeds, Liverpool and Glasgow. This means that postage stamps of the values mentioned earlier, and sold in those cities and districts, have the phosphor lines.

By the way, if you soak one of the phosphor-lined stamps in very hot water (don't use a mint stamp, of course) the lines will show up white when the stamp has dried out. Another point about these phosphor lines is that they have been applied by both the typographical and photogravure methods of printing.

I have mentioned that on the 2d. value of the treated stamps there was only one line (when there was a change in postal rates, and the 2½d. took over the 2nd class mail rate, that stamp got the one line, and the 2d. stamp two lines, like the rest). This is all-important, as the object of the lines is to enable the machine, by means of them to separate, electronically, first class mail (letters, etc.) from second class (open envelopes, containing invoices and printed matter).

Stamp Gossip

Red Cross Centenary

RECENTLY, I read in one of the newspapers a quite detailed account of what will be done in the way of functions, conferences, etc., to mark the centenary of the Red Cross later this year. Alas, there was no mention of the way in which stamp collectors will come into it all, yet, as far as new postage stamps to commemorate the event are concerned, it will be the greatest "splash" ever. In the past, events such as the "Anti-Malaria Eradication Fund", "Europa", "Parliamentary" and "UPU" conferences, etc. have been occasions when many countries have released special issues in this connection. But it would seem that almost every stamp-issuing country in the world will do philatelic honours to the Red Cross centenary and for once not only will Great Britain issue a set, as already reported, but all the colonies will do so as well. So around next August, if you are keen about stamps, keep your hands tightly in your pockets, or you may be tempted to "clean them out". When we get nearer to the great event I will have more to say about it. In the meantime, let's sit tight, pending the avalanche.

ERRORS TO ORDER

When is an error not an error? I would have found it rather difficult to answer that one until the U.S.A. Post Office recently supplied the answer. It is a strange story, and one I think which could only have come from North America.

As is generally known among collectors, the U.S. Post Office, ever eager to commemorate something, issued a stamp last October in memory of the late Dag Hammarskjold who at the time of his tragic death was Secretary-General of the United Nations. It was printed by more than one operation and the yellow portion was inadvertently printed upside down in the case, it is believed, of four sheets only. A collector bought a sheet, noticed the error and realised that for a very small sum he had picked up a small fortune—or so he thought. The newspapers were full of the "find", and a figure of half a million dollars was mentioned as the value of the sheet.

Under any circumstances, it was, of course, not worth anything like that sum. Still, it would have been worth a good few thousand dollars if the issuing post office had not made the quite fantastic decision to print several million more stamps with the inverted yellow, so that—as the head of the Post Office put it—everybody could have an error, if they wanted one. Of course, since the action was deliberate, there was no error at all, hence the answer to my query—when is an error not an error?

The owner of the faulty sheet obtained an injunction in the courts against more such sheets being printed, but when the Post Office agreed to sign an affidavit that his stamps belonged to the original printing he withdrew and the Post Office went on providing the stamps. This will, I think, do more harm to U.S. stamps in general, from a collector's point of view, than anything else they could have done. The American stamp papers have been particularly bitter about the matter, for they know the damage which will be done in the long run.

CHILD WELFARE

The two stamps which Pakistan issued on December 11 last year in favour of "UNICEF" (United Nations Children's

Emergency Fund), have a very worthy object behind them. As can be seen from the illustration here of one of the stamps, a milk bottle figures prominently in the design. This is because "UNICEF" is providing equipment and transport for a milk conservation plant in Karachi and in several other cities in Pakistan. Actually, the date on which the stamps were issued marked the sixteenth anniversary of that worthwhile institution "UNICEF". You know, when we read about those political bickerings at United Nations' meetings we are apt to overlook the fact that behind all that the U.N. organisation is providing many fine services up and down the world, mostly in countries which are in need of such help.

"UNICEF" was created by the United Nations in 1946 to meet the emergency needs of children, especially in countries devastated by the second world war. The Fund derives its income from voluntary contributions by governments and the public.

MINIATURE SHEETS

Lately, I have been asked several times by new collectors to define miniature sheets—or souvenir sheets as they are sometimes called—and to give their

raison d'etre. Actually, they are smaller sheets than is usual—sometimes you get stamps of different values on the same sheet—and, of course, it is collectors' cash which is four square behind that *raison d'etre.* These sheets are very popular with some collectors; in fact, I have come across more than one collection which consisted of nothing else but these sheets, but, to be candid, I would be the last person to recommend anything of this kind.

Yet there is one miniature sheet which will interest British collectors. It was issued on Boxing Day last year by Belgium to commemorate Ypres thousand years of existence (how they do love that term "a thousand years" on the Continent). The sheets consists of eight stamps, and the design is the imposing monument erected in Ypres "to the Armies of the British Empire who stood here from 1914 to 1918".

Belgium is a true friend of Britain in every way, and this latest mark of their friendship will be much appreciated this side of the water.

THE TIP OF THE MONTH

Spain is no longer the mystery country to most of us that it used to be. Since we found out what fine cheap holidays it can provide, this knowledge has resulted in an increase in the popularity of Spanish stamps. I will really have to go into them more thoroughly some time, but meanwhile some readers will have noticed on letters a 5p. stamp depicting a coat-of-arms. One or two with whom I have discussed these had not noticed that these coats-of-arms varied. In point of fact, spread over quite a long period a stamp will appear for all the provinces of Spain, each showing the arms of a particular province. I have a feeling that these stamps, used as well as mint, are going to be well worth collecting, as each one will have only a very short life, and as the operation will take so long to complete most collectors will tire before it ends. My advice is—pick up all the nice used copies which come your way.

By E. W. Argyle

The Royal Navy On Stamps

H.M.N.Z.S. ACHILLES

THIS stamp shows Achilles *on the left and the liner* Dominion Monarch *on the right. The* Achilles *was built by Cammell, Laird and Co. Ltd., at Birkenhead, and was completed in October 1933. She won fame at the Battle of the River Plate in 1939, when she took part in the destruction of the German pocket-battleship* Graf Spee. *The* Achilles *also saw service in the Pacific operations against Japan. In July 1948 she was purchased by the Indian Navy and re-named* Delhi.

H.M.S. VICTORY

THE oldest and most famous vessel in the Royal Navy, H.M.S. Victory, *was built at Chatham Dockyard from the plans of Sir Thomas Slade and was launched there on May 7, 1765, and first commissioned in 1767. A "first rate" of 100 guns, she was a popular ship and served in turn as the flagship of Admirals Kempenfelt, Howe, Hood and Jervis before she led the weather line under Lord Nelson at Trafalgar. She is now restored to the condition in which Nelson knew her, and is on view to the public at Portsmouth Dockyard.*

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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 182

Dinky Toys News—

(*Continued from page 165*)

race as the driver would not be able to start it on his own.

Coventry Climax do not only make engines, of course. In fact, we at Meccano Limited make a model of one of their other products—the Coventry Climax Fork Lift Truck, No. 401 in our lists—and if their engines prove to be as popular as our model, then I can assure you that their success in the racing field will continue unabated.

Before finishing I would like to apologise for an omission on my part earlier this year. You may remember that I asked readers if they could identify the model disappearing from the upper illustration on page 25 of the January *M.M.* and I said that I would give the answer in the February edition. Unfortunately my space, both in that month and March, was so limited that I was unable to do so, therefore, I would like to give the answer here. The model is the Opel Kapitan and it carries Dinky Toys number 177.

A number of people have written to me with the answer and, I am pleased to say, nearly all were correct. I would like to congratulate them, and everyone else who had the right answer, on their keen powers of observation.

Finally, many readers will remember that in the November issue last year we described a most attractive garage owned by Lawrence Bennett of Tettenhall, Staffordshire, and told how the garage, which has three floors was fitted with lighting. Our last illustration this month shows the garage illuminated for night-time operation, and you can see just how effective it is. We offer our congratulations to Lawrence and his father, Mr. R. B. Bennett, who between them created this outstanding model.

RAILWAY BOOK REVIEW

The Railway Enthusiast's Guide (Lambarde Press, 15/-) lives up to its title in providing, in effect, a directory of societies and clubs for railway and miniature railway enthusiasts, railway museums, and an inventory of preserved locomotives and rolling stock. In addition, railway books and periodicals are listed, the text as a whole being backed up by some 32 illustrations, many of them not reproduced before.

More than 40 countries are included in the coverage, making the book a valuable source of reference. The individual enthusiast, as well as the railway or miniature railway club secretary, will appreciate this revised edition.

FREE. Four New Sierra Leone Flowers. All **New** Applicants for my popular "Marvel" Approvals enclosing 6d. towards cost of postage, etc. will receive this latest Set of Large attractive Mint Stamps Absolutely FREE. Tell your parents.
W. GRANVILLE LUCAS (LE), HINCKLEY, LEIC.

Calling All Bus Spotters *By David Kaye*

A MARKET TOWN FLEET

IN the March *M.M.* we saw how a small, modern, independent stage carriage operator served Guildford, a town of some 50,000 people. This month's notes deal with a similar-sized firm which is based on a market town which is only one-tenth the size of Guildford.

It was snowing when I arrived at Bourne in that part of Lincolnshire known as Kesteven, on the edge of the Fens. I had travelled from neighbouring Spalding on Lincolnshire Road Car Co. route 20 in 2614, a Bristol MW with a 33-seat E.C.W. body, and in twelve miles we only stopped three times to pick up passengers. This is a very sparsely populated area, with considerable distances between towns and nothing approaching a large village intervening. Hence Delaine's—my "quarry"—cover an area of country which has a diameter of 40 miles!

On the stroke of ten o'clock a procession of Delaine buses entered the Market Place headed by No. 55, a pay-as-you-enter (sometimes called O.M.O.—i.e., one man operated) Bedford SB1. The vehicle has luxury coachwork by Yeates of nearby Loughborough, who have built much of Delaine's current fleet. Car 55 was bound for the village of Dyke, only five minutes' driving time away. Next came car 47, a Leyland "Tiger Cub" bound for Stamford 11 miles—35 minutes—distant. The third vehicle to emerge was double-decker 48 (a Leyland "Titan" PD 3) off to Peterborough, 23 miles away. Finally came another single-decker, car 44, a petrol-engined Bedford due to run out to Braceborough on one of the four trips a week which this village now has in place of its former rail service link with Bourne.

Having watched this cavalcade depart into the gathering whiteness, I trudged back along the Spalding Road to Delaine's garage, which is next to the B.R.M. works—very much in the news at New Year. Mr. H. Delaine-Smith greeted me and introduced me to the other office staff—his sister and son, for this is very much a family business—and from the start it was obvious that Delaine welcome enthusiasts' interest in them. Mr. Delaine-Smith told me they receive enquiries for fleet lists, photographs and timetables from as far away as Australia, while nearer home one lad from Leicester spends all his spare time visiting them.

Above. Leyland PD2 No. 45 with its Willowbrook body, demonstrating the distinctive manner in which the livery of blue and white smartens up its appearance. It is seen standing next to car 44, a Bedford SB3 with a highly-decorative Yeates "Riviera" body. Photograph by courtesy of Delaine.

The present Managing Director's grandfather had run a horse brake into Spalding at the end of the last century, and the original stables are incorporated within the modern garage as a reminder of those early days. However, it was Mr. Delaine-Smith's father who began running a motor bus to Spalding, Grantham and Stamford, in 1920. This was followed by a route to Peterborough in 1923, and this has been by far the most profitable of the company's routes, for out of 1,100,000 passengers carried in 1961 no fewer than 420,000 were on the Peterborough run. This service has a two-hourly headway, increased to hourly on Saturdays (and with the "Posh" climbing the Football League tables so quickly they cannot go wrong!). Before the second world war Delaine had a garage in that cathedral city, but gave it up when war came. Nevertheless, the bulk of their private hire work still comes from Peterborough.

When British Railways denuded Bourne of its passenger services in 1953 Delaine took over the Braceborough run, and in 1961 became the first independent operator to enter into a pooling agreement with the B.T.C., starting a joint service with the Lincolnshire Road Car Company on their route 34 (Bourne–Billingborough –Sleaford). This meant that Lincs. no longer had to garage three vehicles at Bourne. Each morning two double-deckers convey 120 workmen from Bourne to the Blackstone Engineering Works at Stamford, while another 80 workmen travel by Delaine to the Chalmer Works at Essendine, in Rutland.

Many school journeys are run, and a recent addition to their services have been special bingo buses! Each night two double-deckers and two single-deckers go round the outlying hamlets, bringing people into Bourne to play that particular game, while on Friday nights Bourne bingo fans are transported to Billingborough and on Saturday nights even further to Pointon.

Although all this sounds rosy, there are still many problems such as the evening

The Delaine Fleet List

Fleet No.	Registration Mark	Chassis/Engine	Bodywork	Vintage
39	HCT 150	A.E.C. Regent III	Strachan H60R	1953
43	KTL 518	Bedford SB 3	Yeates C41F	1956
44	MGT 110	Bedford SB 3	Yeates C41F	1957
45	KTL 780	Leyland PD 2	Willowbrook H63R	1956
46	OCT 565	Bedford SB 3	Yeates C41F	1959
47	MTL 750	Leyland PSUC	Yeates DP43F	1958
48	OCT 566	Leyland PD 3	Yeates H73R	1959
49	RCT 2	Bedford SB 1	Yeates C41F	1960
50	RCT 3	Leyland PD 3	Yeates H73R	1960
53	STL 707	Bedford SB 3	Yeates C41F	1961
54	CCK 668	Leyland PD 2	Brush L53R	1950
55	TTL 517	Bedford SB 1	Yeates DP44F	1961
56	UTL 78	Bedford SB 1	Yeates DP44F	1962
57	?	Bedford SB 1	Duple C41F	1963

and Sunday journeys. I was shown paying-in sheets which reported time after time no passengers carried on this or that particular trip. Two out of the three other small independents operating into Bourne would probably gladly sell out to Delaine, but this would merely add to the unprofitable mileage already run. In a place like Bourne you come face-to-face with the realities of providing adequate, but economic, public transport for such a widely scattered farming population.

On peak summer Saturdays express coaches are run to Great Yarmouth and Clacton, but at other times passengers can book through tickets and travel by service bus to Peterborough and thence by Eastern Counties coach to these watering places. Delaine have a staff of 24 full-timers and seven part-timers.

Turning to the actual vehicles, as with Safeguard, described last month, the policy is to change over to diesel 100 per cent., for on the long runs as much as 22 m.p.g. can be achieved by oil engines compared with only 9 m.p.g. by petrol ones. At the close of 1962 two second-hand petrol-engined Bedfords (cars 51 and 52, EX 7824/7684) were sold, and they will be replaced by such coaches as car 57, a Bedford SB 1. Delaine have the distinction of having the only double-deck bodies built by Yeates (cars 48 & 50). They believe in spending an extra £200–£300 on each bus or coach so that it can have all manner of trimmings to make it catch the eye. For example, in car 56 I was amazed at the polished oak cash desk, which is certainly the smartest I have ever seen.

Car 54 was originally Ribble 2691. At the moment Delaine have no plans to buy any 36-footers. Their present longest vehicle measures just over 31 feet.

Finally, I offer my thanks to Mr. Delaine-Smith for all his help in the preparation of this article.

A Time for Lambs—(*Cont. from page 153*)

body of the little orphan. He set it on its feet next to the ewe, and she sniffed suspiciously at it, for a ewe identifies her offspring by the smell. The smell of the dead lamb had permeated the skin of the orphan, and the mother was satisfied, permitting it to feed from her with the other lamb.

But finding foster-mothers is not always so easy. Farmer Thwaite remembered the lamb, one of twins, which he took away from a sheep during the night to restore its spirits. He returned it next morning, but the sheep would have none of it, for the lamb had mingled with other lambs, and its distinctive smell was lost.

A syringe was used to vaccinate young lambs against diseases which once claimed hundreds of lives, and the farmer also kept his eyes open for other complaints such as the "tremblings", which is caused when there is a sudden flush of new grass after lean eating and the ewe eats more of it than is good for her.

Lambing time is never really ended on a fell farm, for even as the farmer disposes of one year's surplus of lambs at the autumn sales he is thinking of the next lambing season.

Pictures in books and on the walls of school classrooms present a picture of lambing time which is pleasant, with fluffy lambs gambolling across green fields under blue skies, and beaming farmers looking delightedly on.

It is not often like this. Farmer Thwaite, of Fairmeadow, is exhausted when the lambing season is over, and looks back on days and nights of worry and concern; of violent storms, and the visits of predators such as foxes and crows; of illness and injury, as new life comes to the fells.

Railway Notes—(*Continued from page 151*)

carriages and mail vans (as well as passengers in the latter case) stop respectively at the low and high-level stations within a few minutes of one another. Later on this occurs similarly with the southbound services. Hundreds of bags are interchanged, letters and packets having been sorted *en route*.

Many readers will be familiar with the attractive main lines and connecting routes along the North Wales Coast from Chester to Rhyl and onwards to Colwyn Bay, Llandudno, Bangor, Anglesey and Holyhead, carrying for much of their course heavy summer holiday traffic which includes steam and diesel-headed day excursions and tours. Observations on one of the earlier peak Saturdays last season, when through trains to and from London, the Midlands and Lancashire were numerous, showed that steam locomotives were decidedly in the majority, with many 4–6–0s of the L.M. and B.R. standard class 5 types ex-L.M.S. Jubilees and Royal Scots, taking the longer distance trains, as well as one each of the Duchess and Britannia classes, during the period of watching.

Concluding my own visit to Llandudno Junction, Bangor and Holyhead a few years ago, I enjoyed a good run behind No. 70045, *Lord Rowallan*, through from Holyhead to Euston, in *The Irish Mail*.

"Will I be on Television?"

A Brunel Bridge Renewed—

(*Continued from page 156*)

the present re-building the Chepstow trusses have now been replaced with rigid girders. The topmost principals are hollow, but, instead of being circular, they are 12 feet wide and rectangular in cross-section with the trains running above.

Again design follows ship building practice; the welding of the parts was modelled on British Railways' first all-welded passenger pontoon launched at Chepstow and towed to Plymouth a few years earlier. These more rigid girders are steel trusses of welded parts, wholly prefabricated in the workshops and bolted together on the bank of the river. The know-how learned in fashioning the welded components is proving invaluable to the bridge builders of Chepstow now engaged in their latest venture of making the box-like pieces for the deck at England's longest span, the Severn Road Bridge.

The 1962 spans of Chepstow Bridge were launched out over the river; this time they travelled complete—320 tons at a time, slung on trollies beneath Brunel's spans and drawn forward by a force of less than three tons. Each new span served as a platform on which the chains and tubes and all the old wrought iron paraphernalia could be taken down and removed.

The new steel spans are the pride of Western Region engineers, at Paddington, who designed them and worked out the erection scheme. The contractors are the Fairfield Shipbuilding and Engineering Company, Ltd., successors to Finch and Willey, at Chepstow.

Air News—(*Continued from page 159*)

have to be postponed through bad weather, but the company's chief test pilot, Denis Tayler, managed to stay in the air for a quarter of an hour. Shortly after he landed the airfield was blanketed by a snowstorm.

The Skyvan is being developed by Shorts as a private venture. The prototype (G–ASCN), shown in the picture on page 159 has two Continental piston-engines. Production models will be powered by 550-h.p. Turbomeca Astazou turboprops and will be able to fly 640 miles at 172 m.p.h. with 3,075 lb. of freight, or 208 miles at 207 m.p.h. with a full payload of 4,000 lb.

In its production form, the aircraft will be known as the Turbo–Skyvan and will have a length of 39 ft. 6 in., a span of 64 ft. 1 in. and a loaded weight of 12,000 lb. Its cargo hold will be 16 ft. long, 6 ft. 6 in. wide and 6 ft. 6 in. high, with accommodation for twelve stretchers or eighteen fully-equipped troops as an alternative to freight or vehicles. With a full load, it will be able to take off within a distance of only 920 feet.

Several operators, including Wien Alaska Airlines and Trans–Australia Airlines, have indicated readiness to order Turbo–Skyvans if flight development goes according to plan.

A Branch-Line Venture—

(*Continued from page 181*)

extra work to do in walking round the layout to set Points for different train movements.

The layout would, of course, be greatly enhanced by the addition of Hornby-Dublo accessories, and you will note how a Hornby-Dublo station has been used with advantage to provide passenger facilities at each terminating end of the track.

To keep the two main oval tracks electrically separate it will be necessary to remove the Metal Fishplates from the curved arm of the Points forming the crossovers and replace them by Nylon Fishplates. The positions for Nylon Fishplates have been indicated by black dots on the diagram. The Crossover Points can be wired together so that they both operate at once by the single movement of the switch lever. It will also be necessary for one of the power control units to have an additional output for the operation of remotely-controlled accessories.

* * *

As those of you who have read this month's article by the Secretary of the H.R.C. will have discovered, the new items announced in the Hornby-Dublo range this month include the "Simplec" Points. They are also mentioned in our advertising columns. The introduction of these points will mean considerable ease of wiring in most circumstances and some present problems will be eliminated. The branch-line layout I have described this month is wired on the existing Hornby-Dublo Two-Rail system but now, as the months go by and "Simplec" Points begin to appear in the shops, I shall endeavour to show you how the two systems differ in regard to wiring. Later in the year, wiring diagrams will be based entirely on the "Simplec" system.

"If they don't look real enough we have plastic greenfly at ninepence a dozen!"

Fireside Fun

Applying at the accounting department of an American railroad company for his first job, the graduate just out of high school was momentarily stymied by a question on the application form which asked, "What machines can you operate?"

Pausing briefly, he finally wrote, "Slot and Pin Ball."

"Spare a bob for a few dog biscuits?"

Dad had taken his youngest son to the pet shop to pick out a puppy as a birthday present. The lad spent half-an-hour looking over the assortment of puppies in the window.

"Decided which one you want?" asked his father.

"Yes," replied the lad, pointing to one puppy which was wagging his tail enthusiastically, "I want the one with the happy ending."

* * * *

Old Timer, "Billy the Kid killed 21 men before he was 21 years old."

Youngster, "Golly, what kind of car did he drive?"

* * * *

Cinema Usher: May I help you, sir?

Man: I lost my caramel.

Cinema Usher: Oh, I thought it was important.

Man: It is. My teeth are in it!

* * * *

"Can I touch you for a fiver, old man?"

"For a fiver, you can kick me."

"I've come to mend the little light in your fridge."

The sermon went on and on and at last the vicar paused and asked, "What more, my friends, can I say?"

From the back of the church came a sleepy voice, "Amen".

* * * *

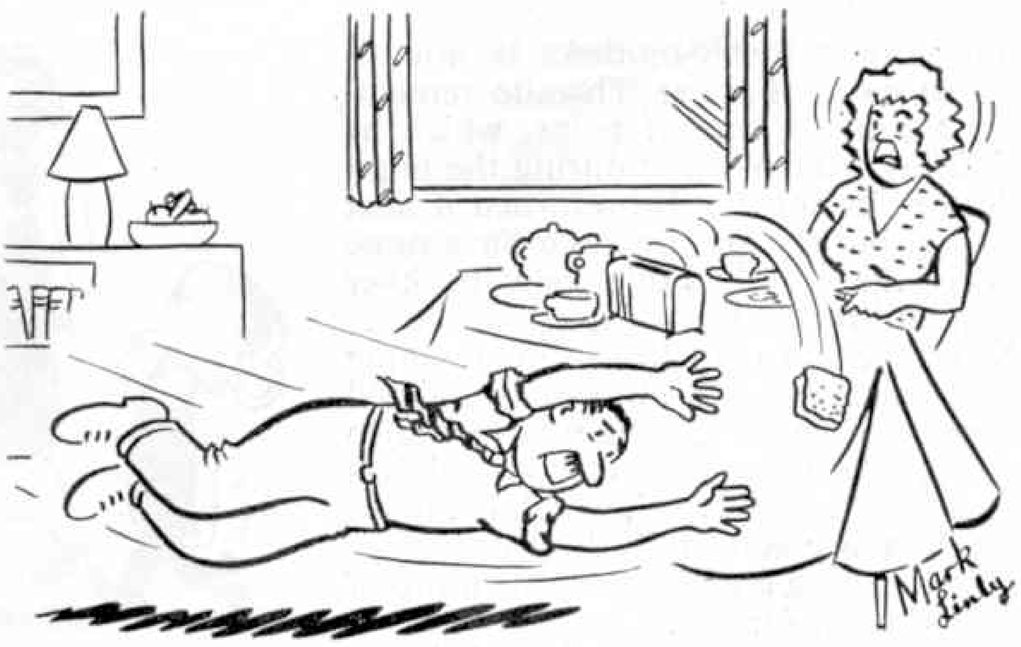
"Tom, that dratted cat is back again. I thought you took it out to the country to lose it."

"I did, then I got lost and had to follow it back home."

* * * *

"Something's wrong with the kitchen sink!" the doctor told the plumber excitedly over the 'phone. "Hurry over!"

"Tell you what, Doc," the plumber answered complacently, "It's probably just your imagination. Try dropping a couple of aspirin tablets down the drain and call me again in the morning."



"Can't you ever forget you once played goalkeeper for your school?"

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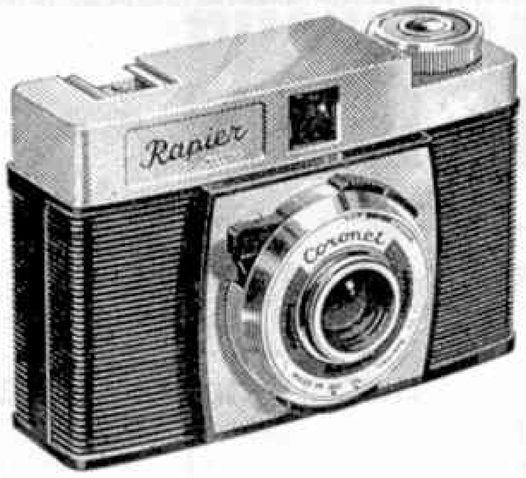

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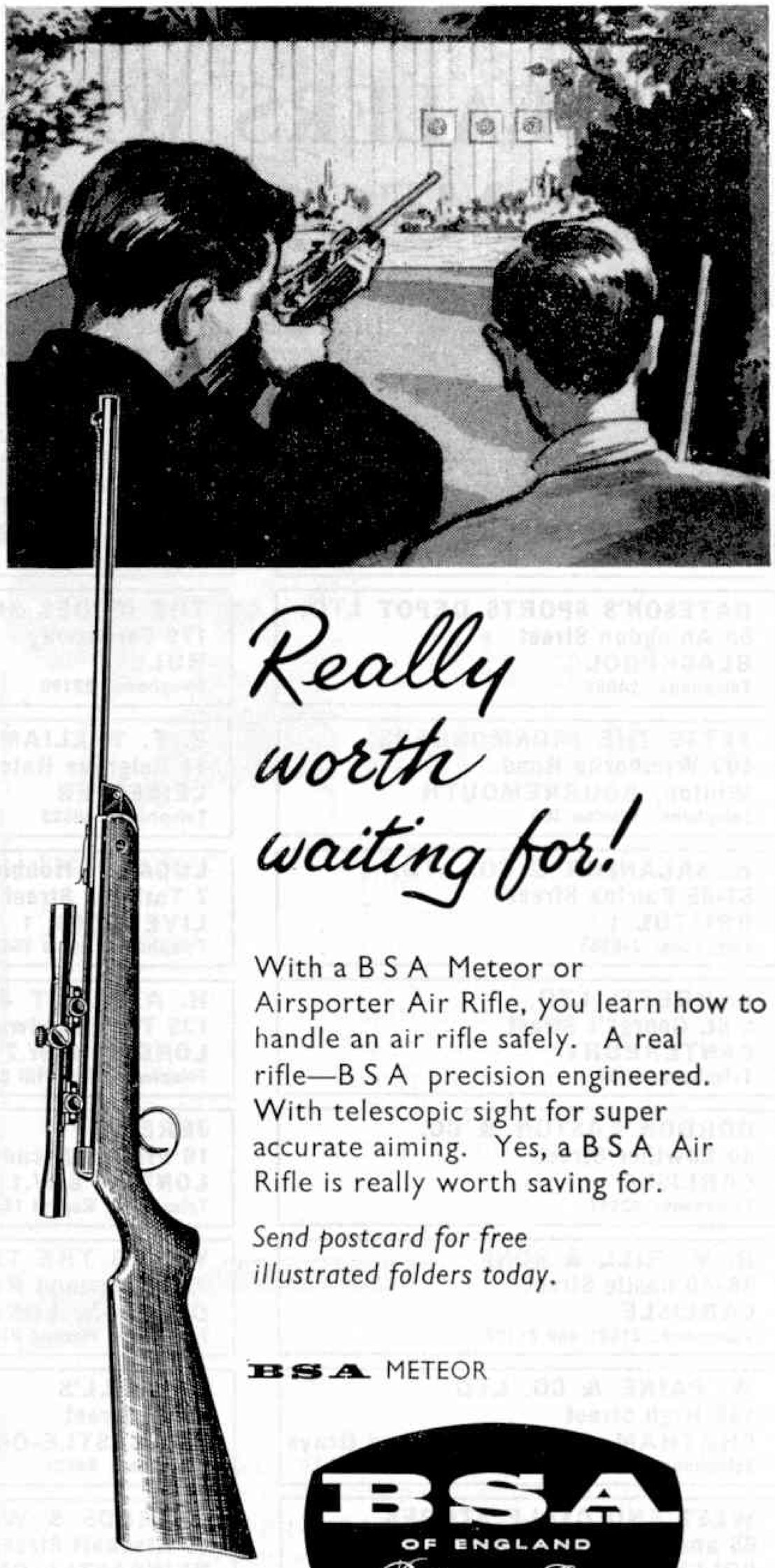

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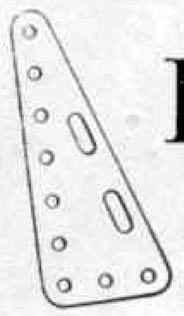

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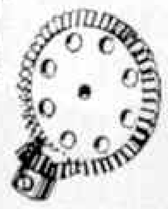

Listed below are some of the dealers who sell Meccano accessories and spare parts. This is intended to aid enthusiasts—and there are many of them—who constantly require additional spare parts for their Sets. All dealers can of course order Meccano spare parts for their customers, but those listed here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

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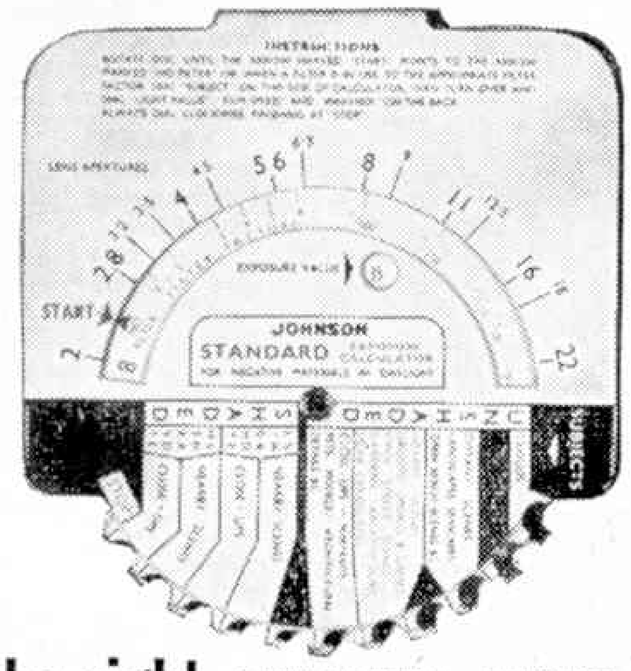

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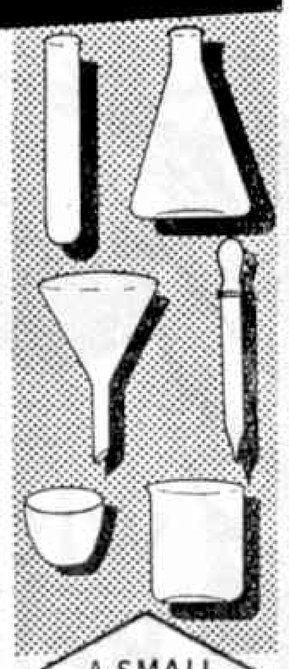

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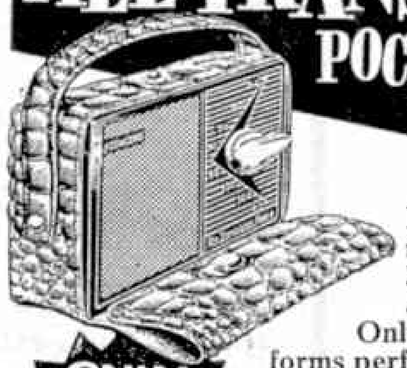

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