

VOL. XLIII. No. 8

AUGUST 1958

MECCANO

MAGAZINE



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DOVER

15c

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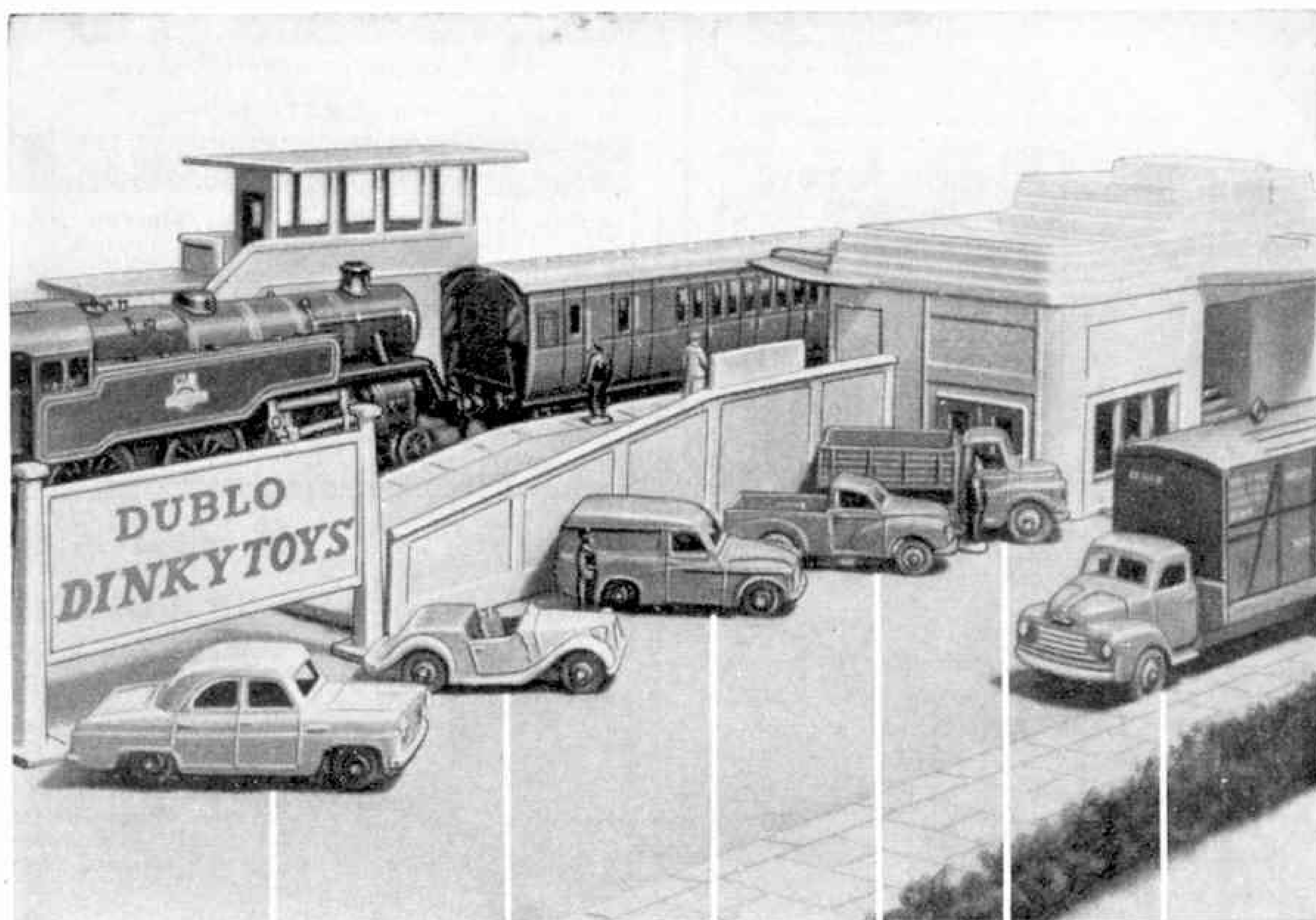
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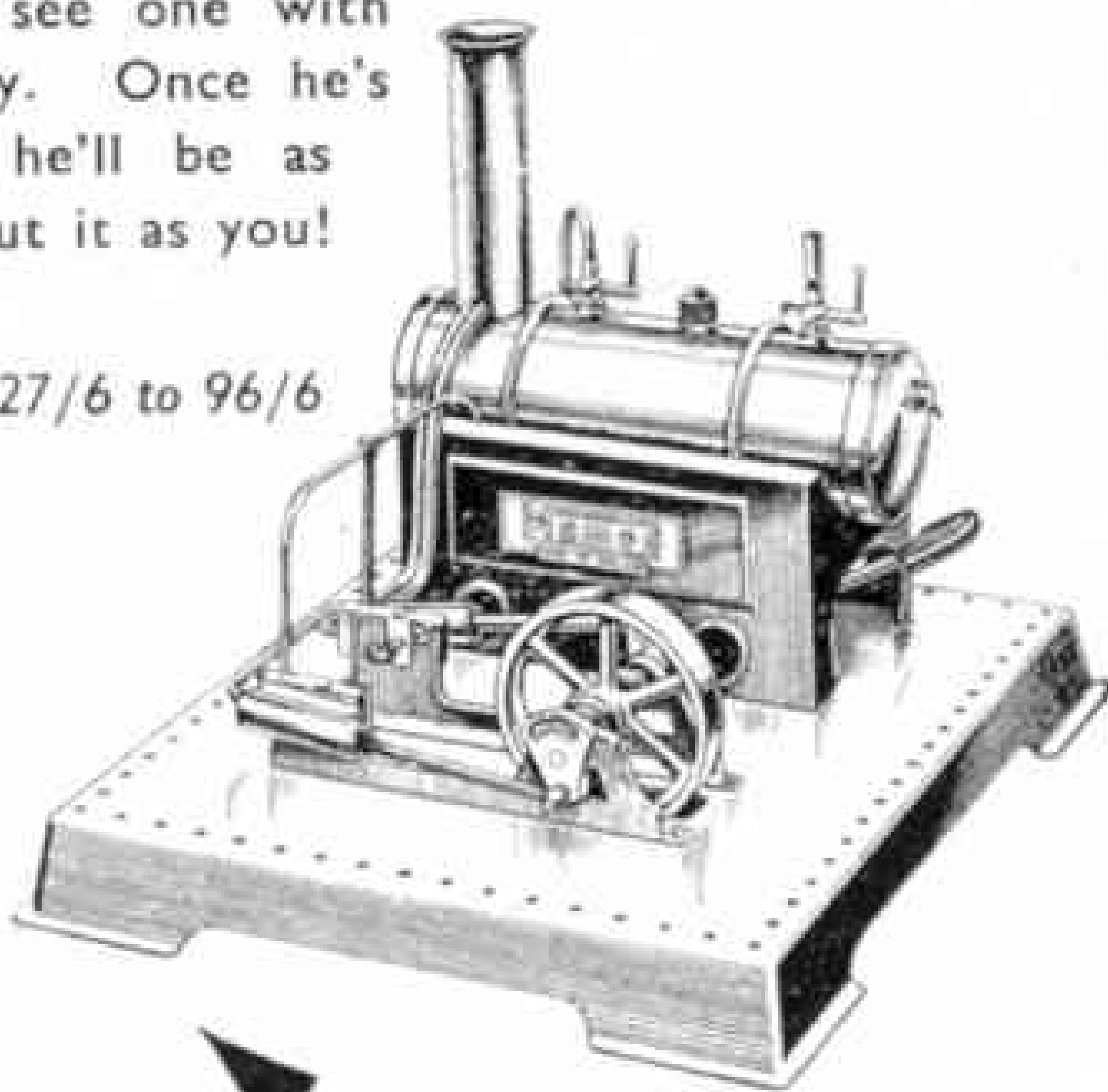
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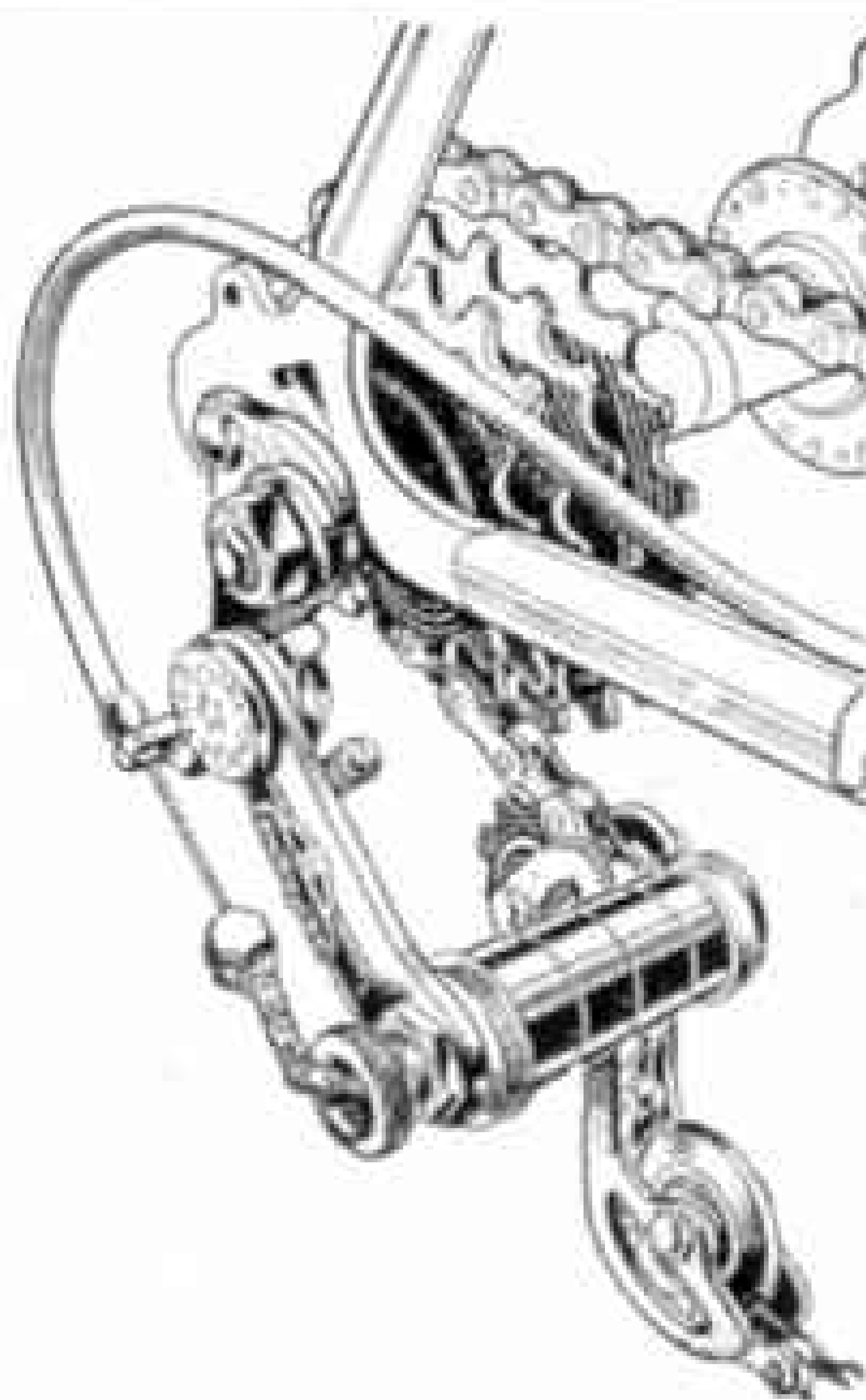


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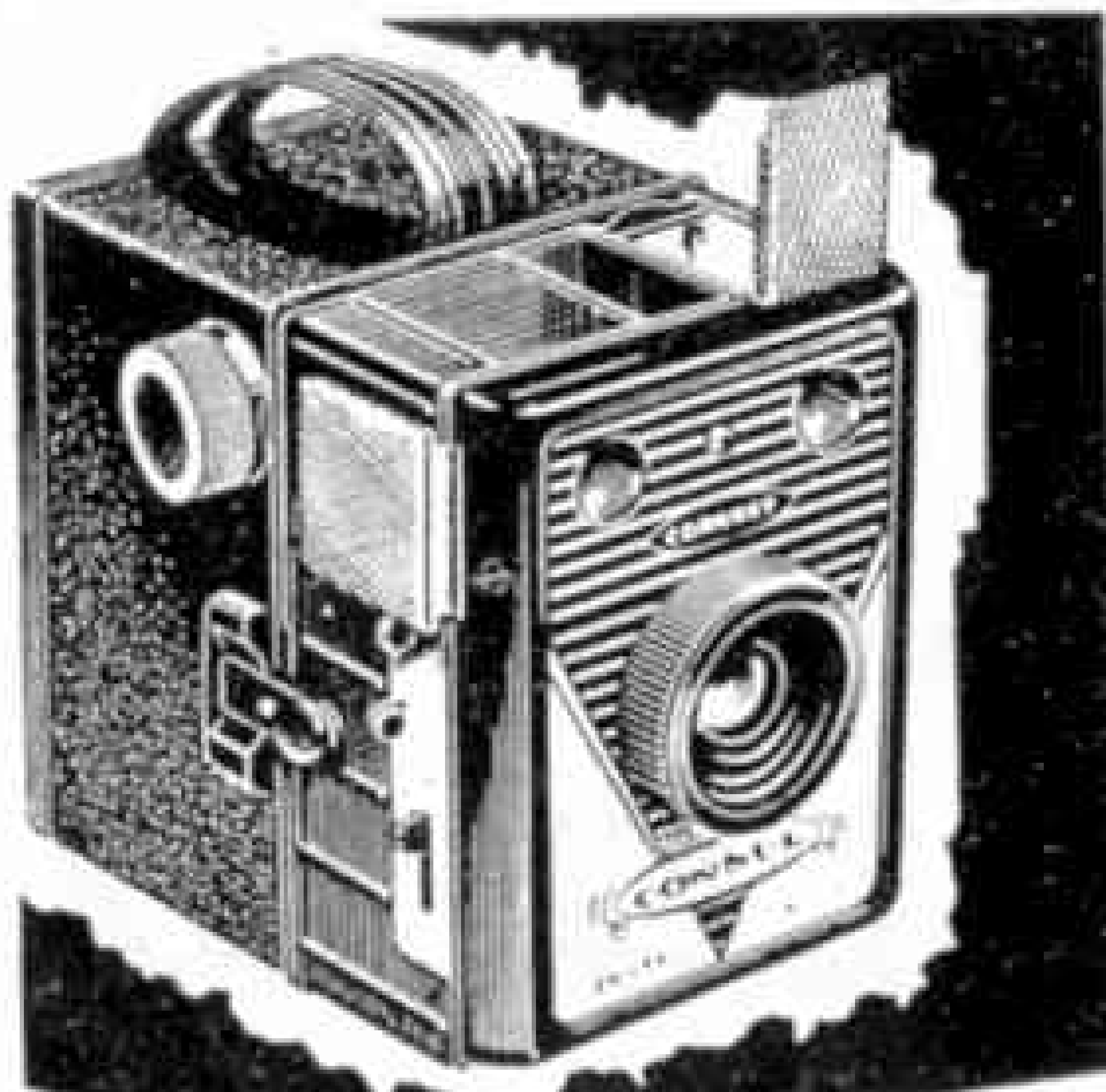


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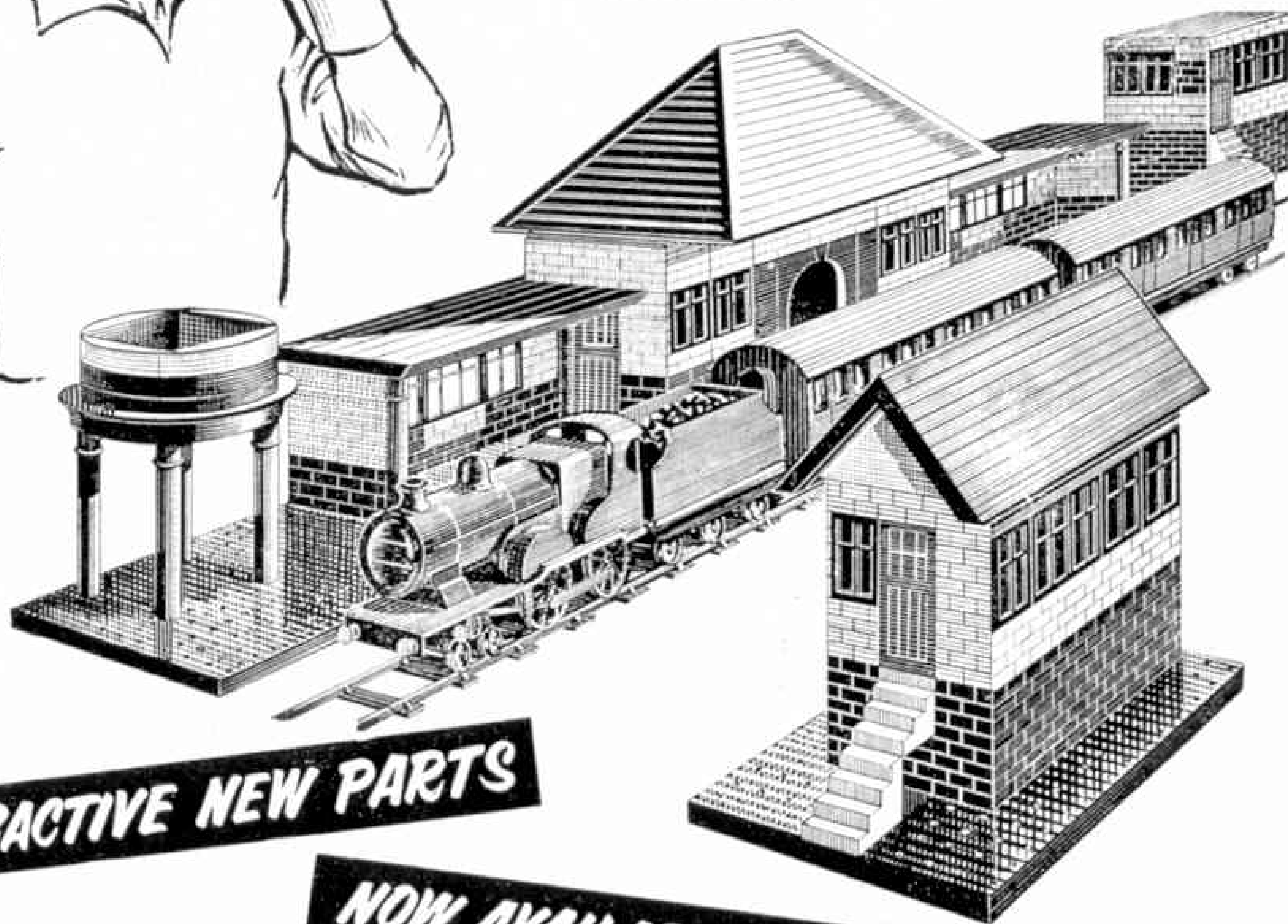
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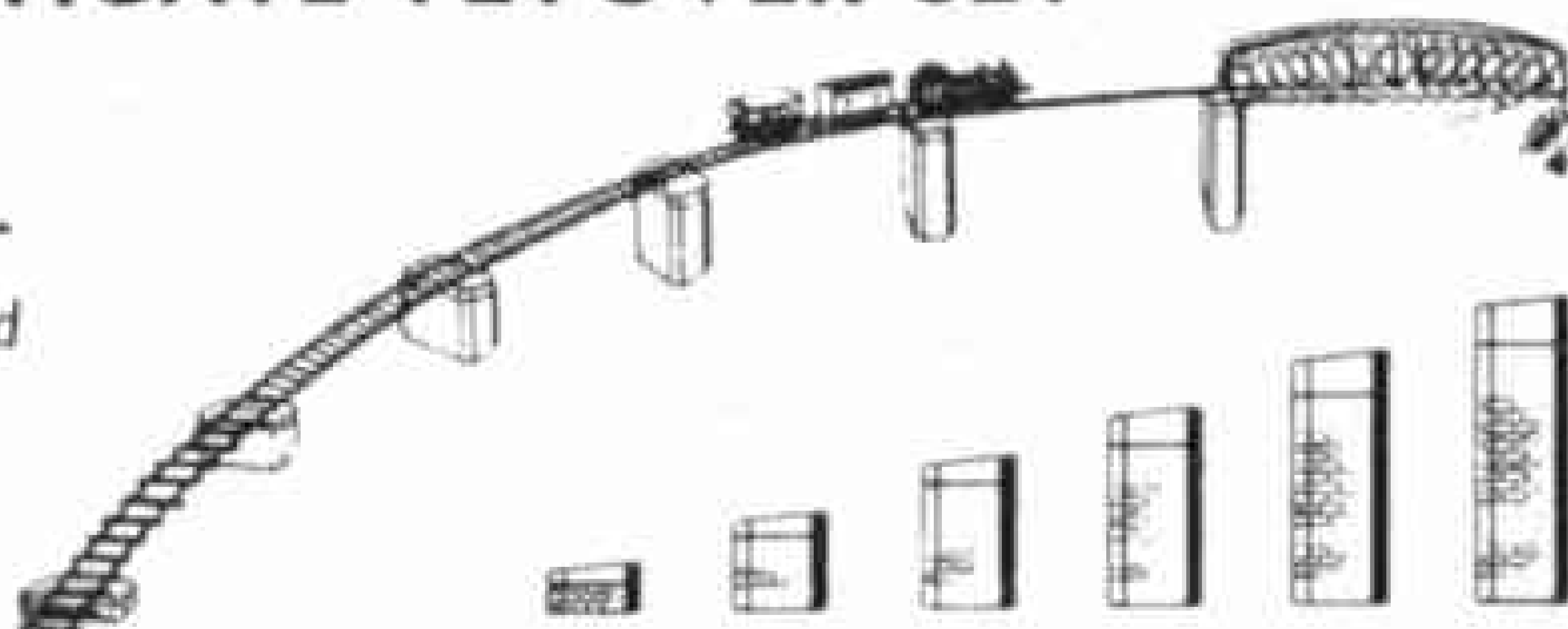
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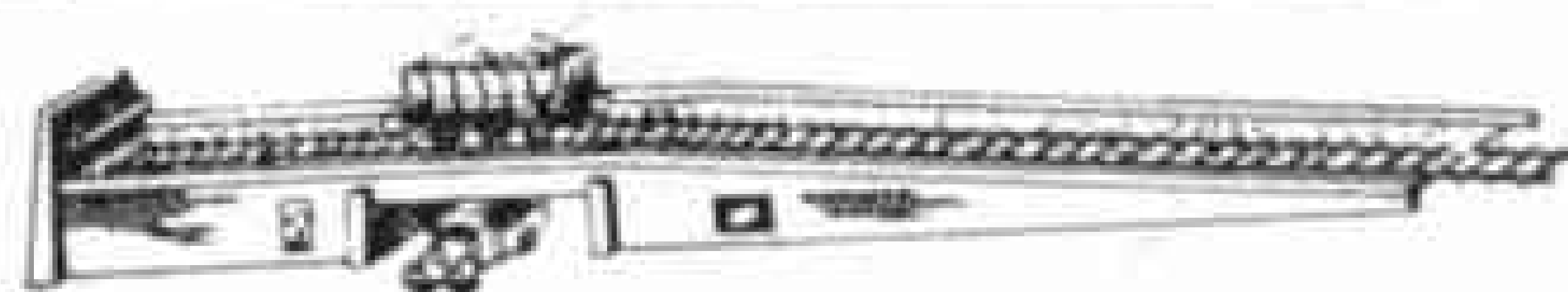
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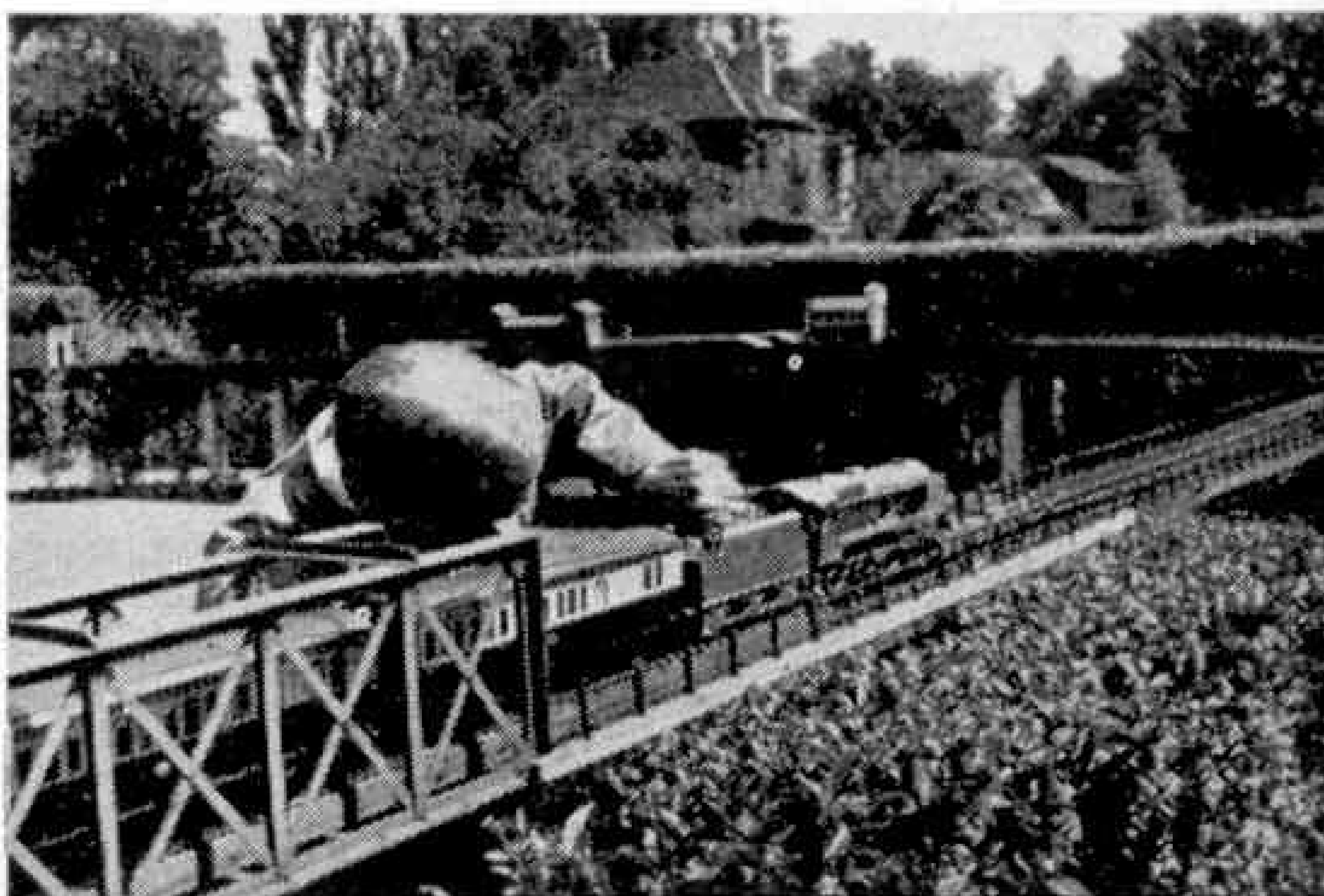
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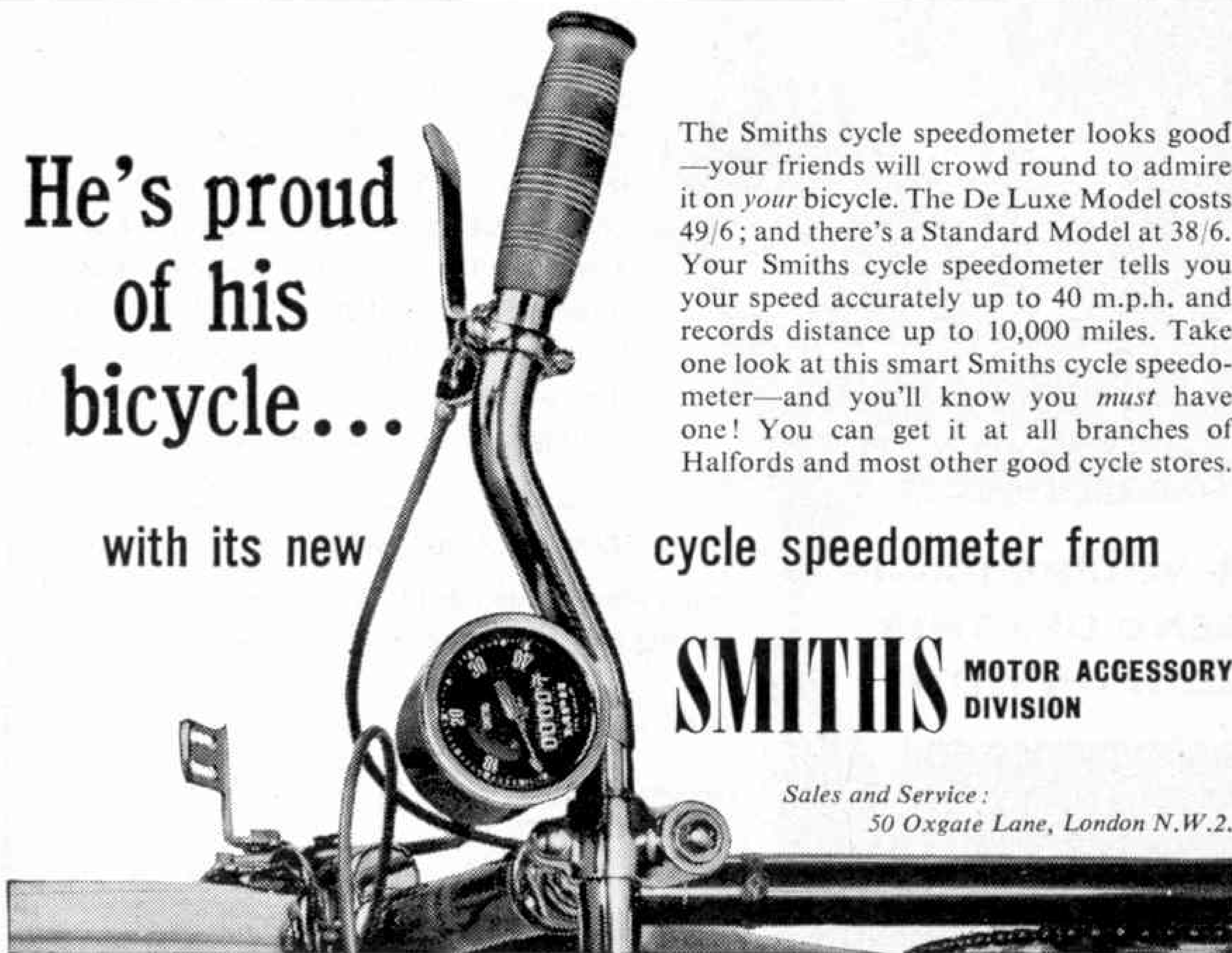
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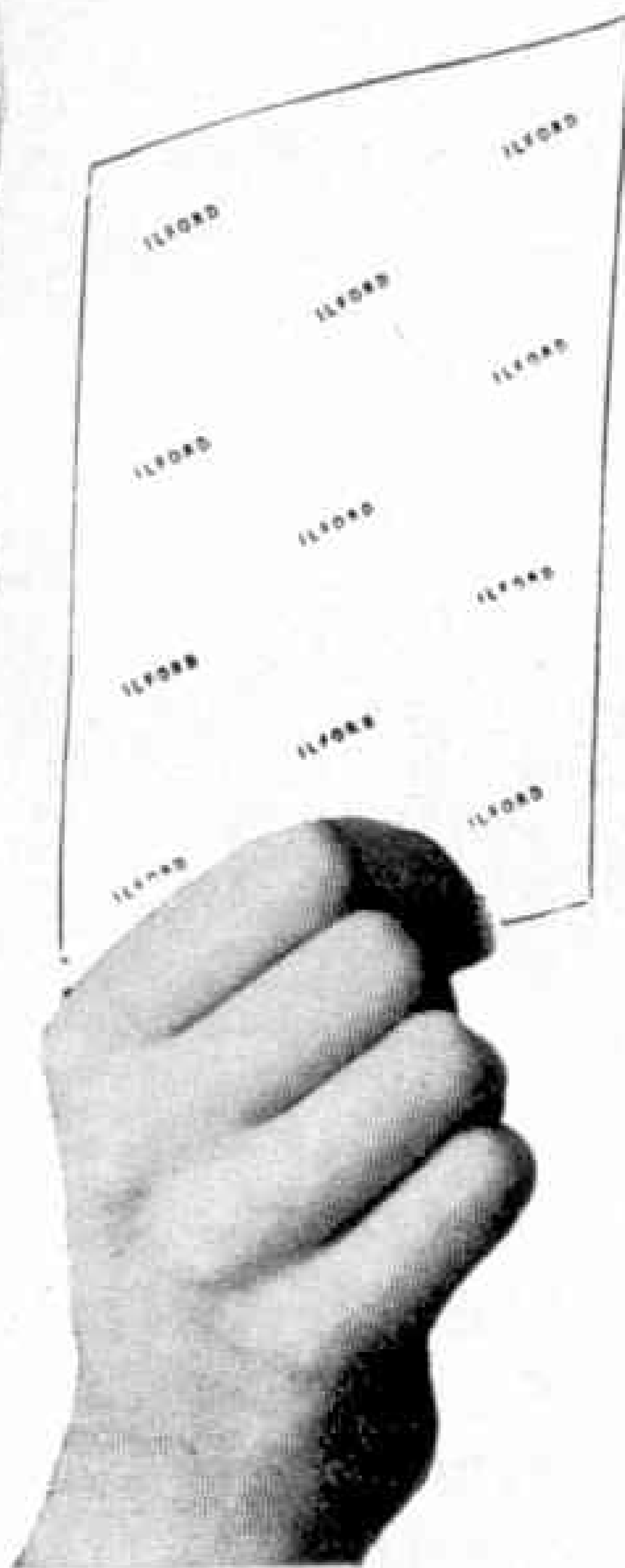
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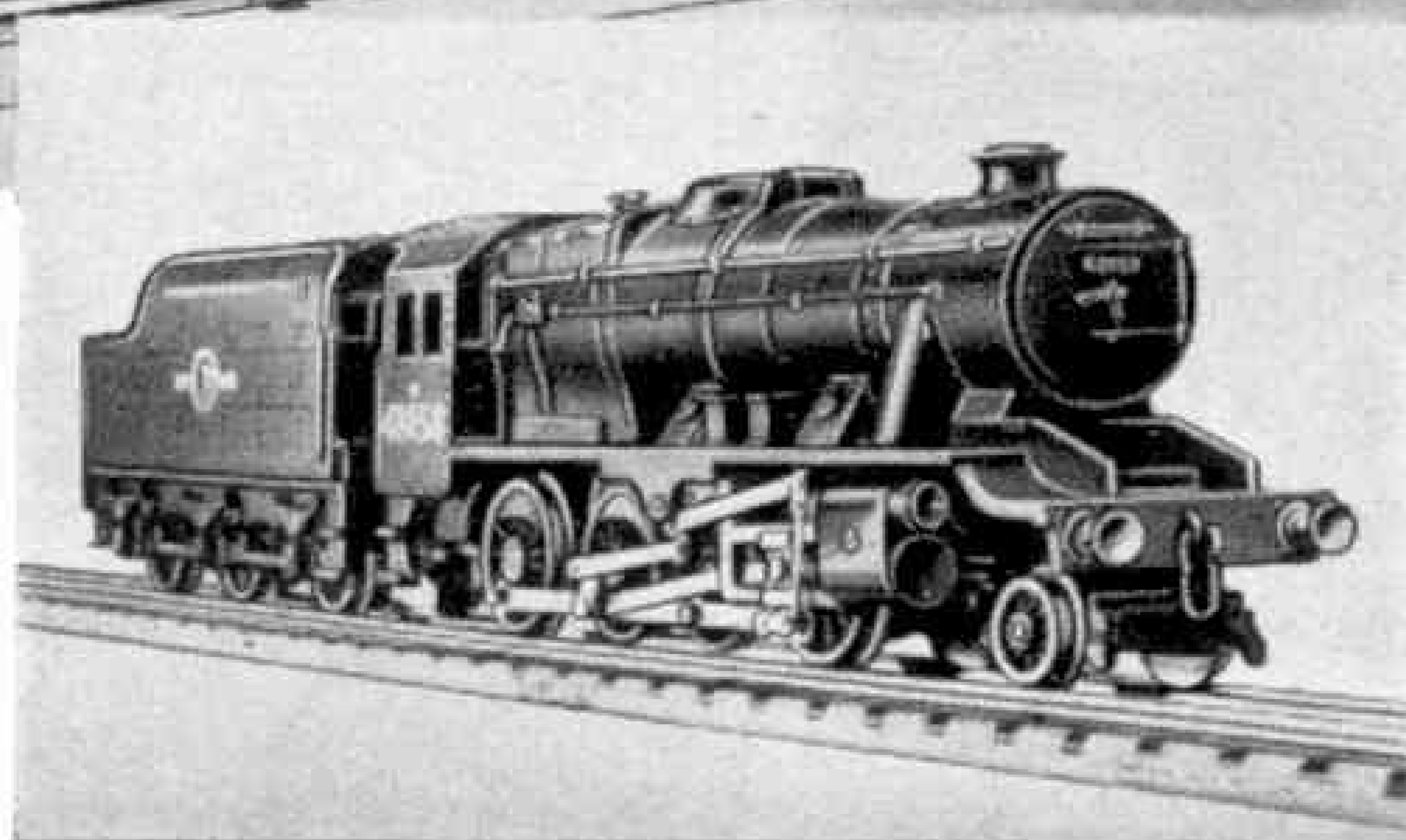
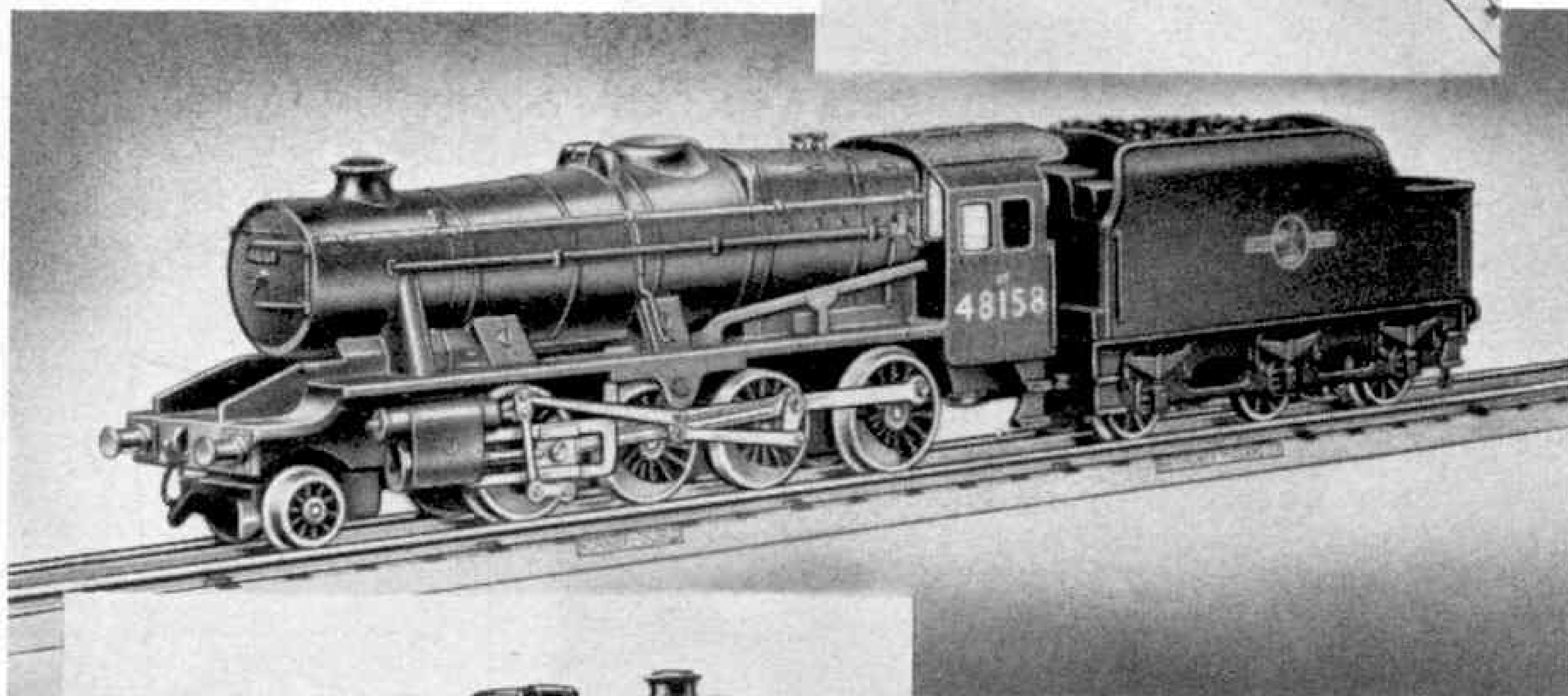
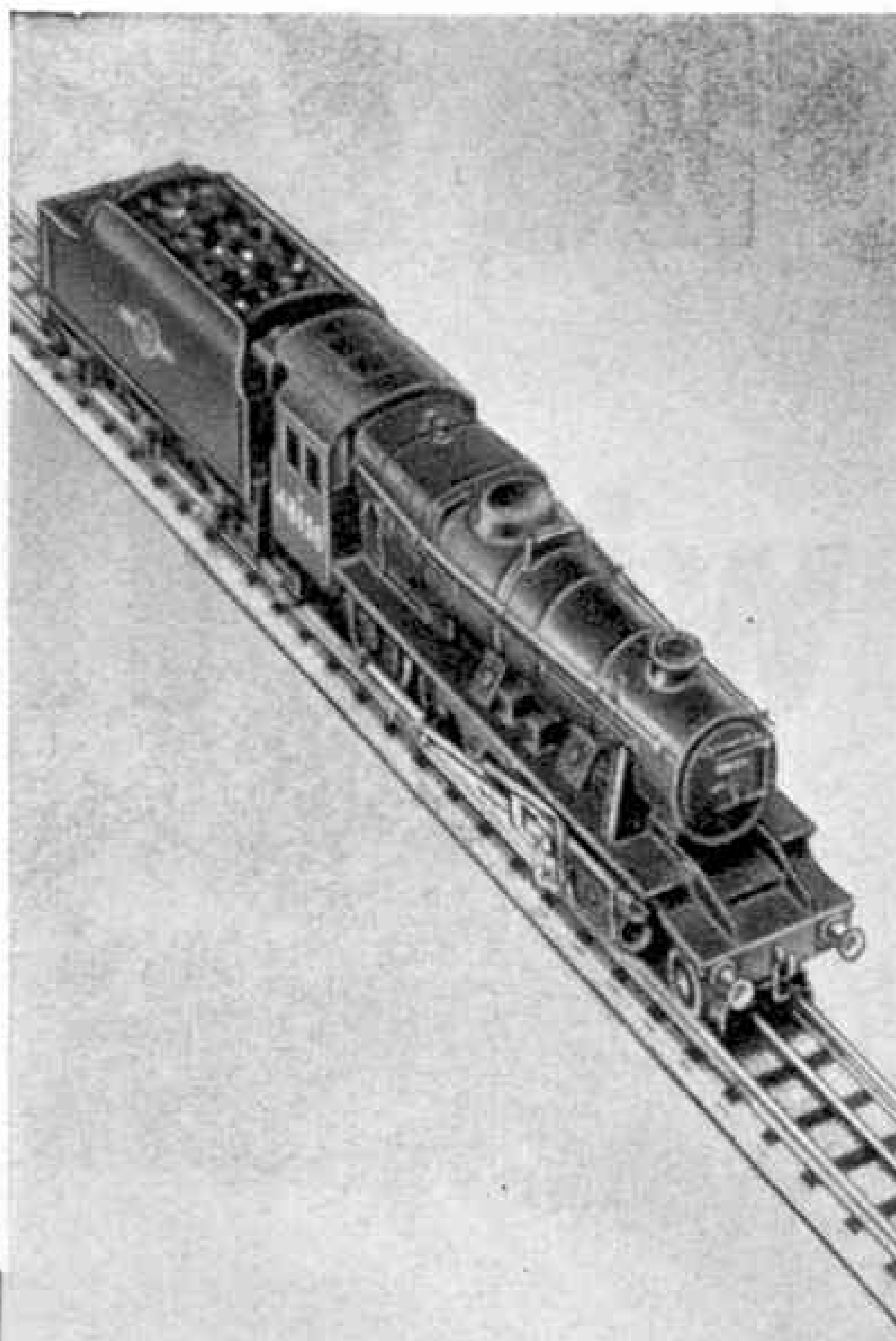


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MAGAZINE

Editorial Office:
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EDITOR : FRANK RILEY, B.Sc.

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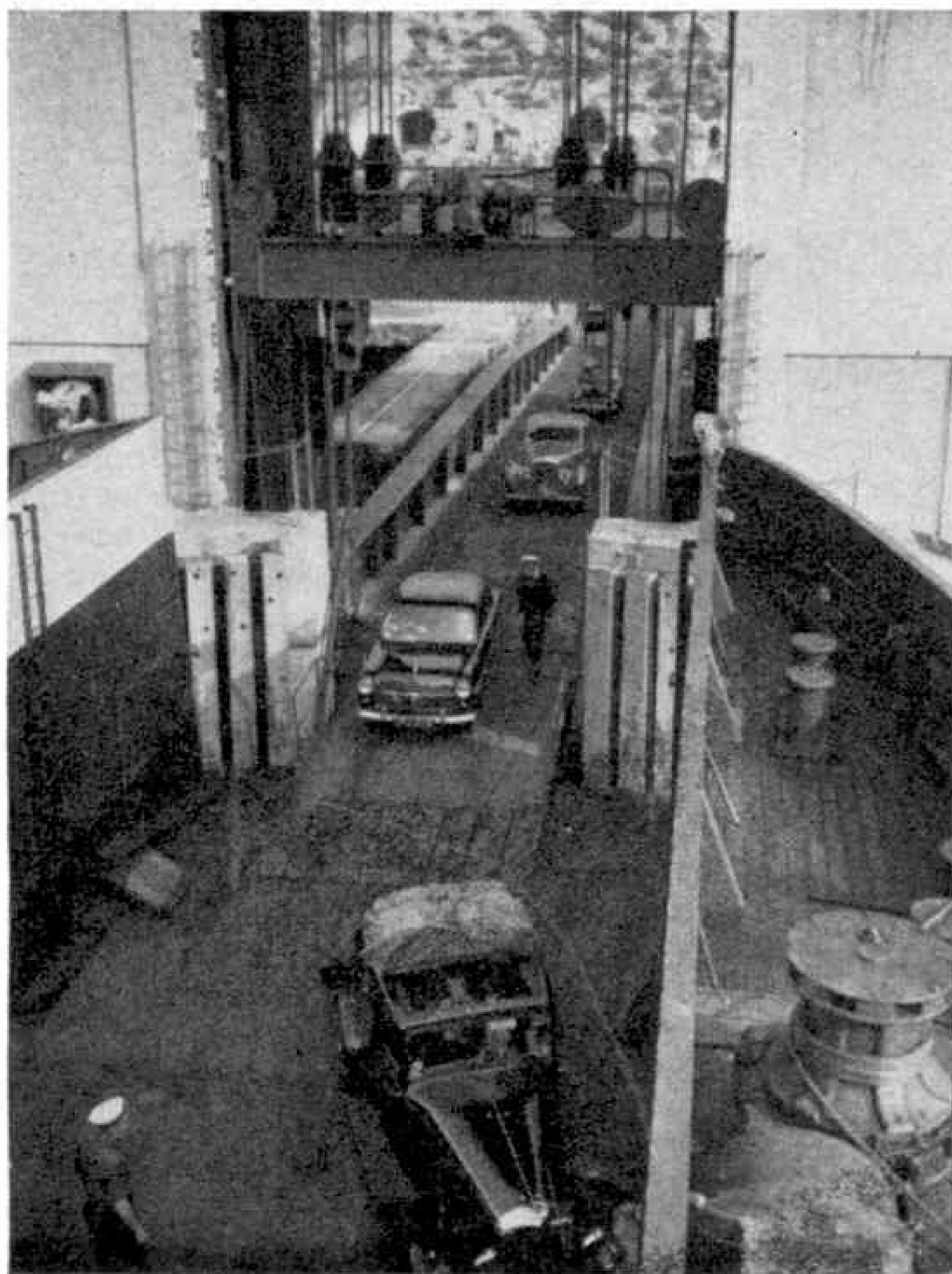
Holiday Prospects

We are now in what is traditionally the chief holiday month of the year, but whether this is to prove a good one or not remains

Even "flaming June" let us down by turning on to us a record rainfall, which caused many extensive and destructive floods. While enduring it rather grimly we recalled that a number of weather prophets had suggested that the summer of 1958 would generally be good. As I write, there is still time for this prophecy to be fulfilled, and I hope that the weather has relented for the benefit of every reader who wishes to enjoy himself at the seaside, or in any other holiday resort.

There may be a bright side to all this. June rain was a record in Britain, and perhaps readers who live on the other side of the world have been faring better. I would like to know.

I wonder how many readers have already taken part in a scene similar to that shown in my picture this month, or will be crossing the Channel during the next few weeks. Those who have such an experience, with an exciting and interesting holiday overseas, will be specially interested in this month's cover showing the busy and colourful scene at the Dover Car Ferry Terminal. This was based on an actual photograph of the Terminal, which I owe to the courtesy of the Dover Harbour Board. A special article on the terminal begins on the next page.



Here is a fine picture showing motor cars being driven over the loading bridge on to a car ferry at Dover. Photograph by courtesy of the Dover Harbour Board.

to be seen. The earlier part of the summer was one of the most dismal on record.

The Editor

Dover—The Gateway of England

By W. Taylor Allen, M.B.E., B.Sc.(Eng.), A.M.I.C.E.

Senior Assistant Engineer, Dover Harbour Board

DOVER is situated on the south-east tip of England, and owing to its close proximity to the Continent, has always been of importance to cross-Channel traffic. The deep cleft in the hills, formed in pre-historic times by the River Dour, has always given protection to the small ships

point below the western cliffs, where it was sheltered by a rocky promontory. Following his departure from Dover to meet the French king at the *Field of the Cloth of Gold*, King Henry VIII became interested in improving the Harbour and ordered that the promontory be extended to form a pier.

The work, however, was never fully completed, as the still water in the lee of the pier caused a deposit of shingle across the front of the bay.

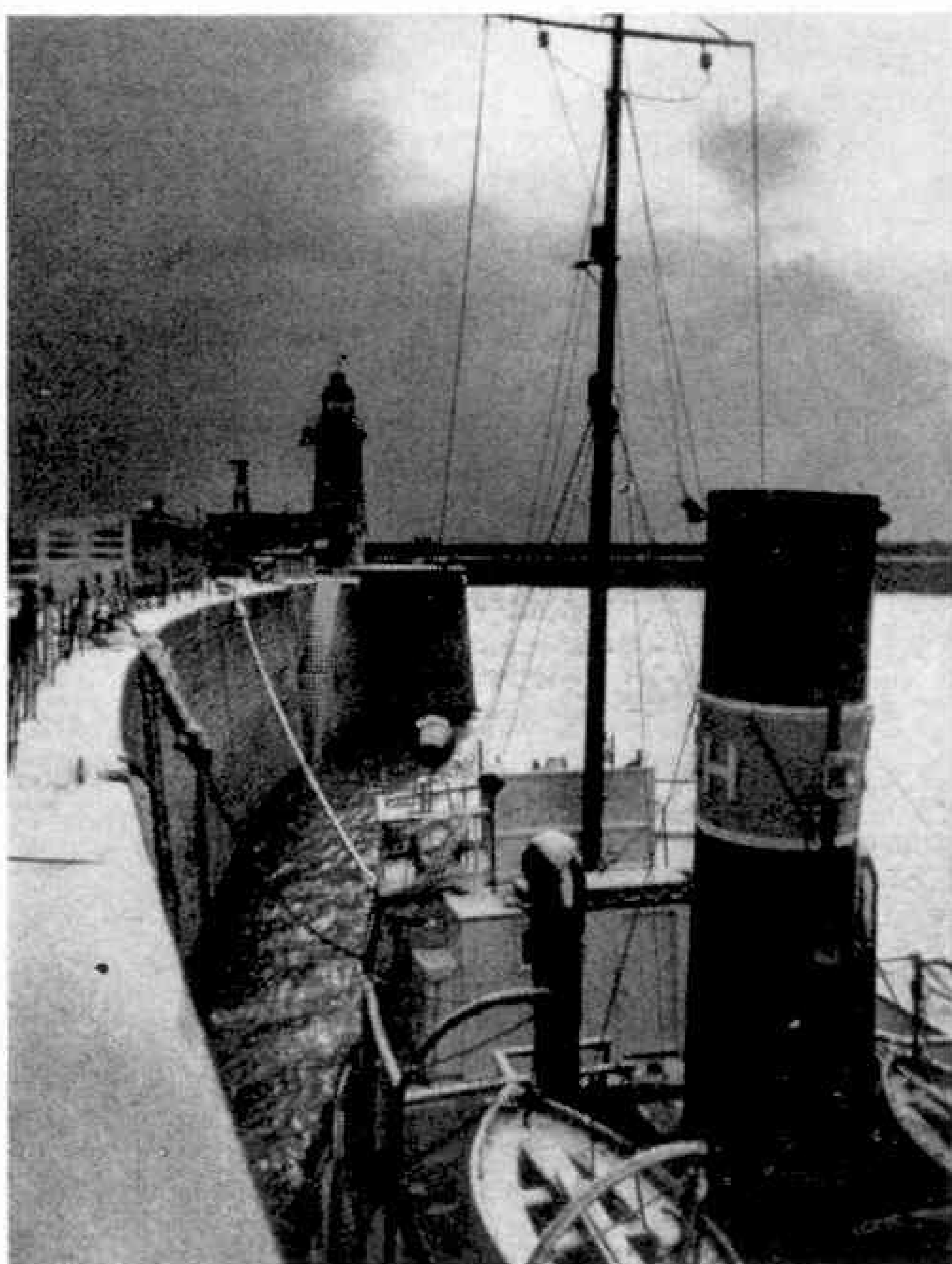
This was the beginning of a very difficult period in the history of the Harbour, for the artificial obstruction in the sea caused frequent deposits of shingle across the entrance. During the 300 years that followed, many schemes were put forward in an endeavour to prevent or cure this trouble.

At the beginning of the 19th century, it was proposed that a haven of refuge for the fleet should be constructed in Dover Bay and, in 1847, the Government commenced the construction of the Admiralty Pier, which was envisaged as the Western Arm of this proposed haven. This effectively stopped the silting of the harbour mouth, as it cut off the easterly drift of shingle from the direction of Folkestone.

The construction of the harbour of refuge was taken a step further in 1897, when construction commenced on the Eastern Arm, the Southern Breakwater and the Extension to the Admiralty Pier. This work, which is generally acknowledged to be one of the greatest feats in marine constructional engineering of its time, was completed in 1909. The walls and piers were built of large

blocks weighing from 30 to 40 tons. These blocks were made of concrete, with a granite facing to those that were to be placed on the outside faces of the walls above water level.

The sea-bed was prepared by divers and by men working in diving bells, and when the chalk bottom had been levelled, the concrete blocks were built up in courses. When it is remembered that in the Southern



A winter scene at the tugs' berth in Dover Harbour. This one is tied up at the Prince of Wales Pier, the end of which is marked by a lighthouse. The illustrations to this article are reproduced by courtesy of the Dover Harbour Board.

plying across the Strait.

The Commentaries of Julius Cæsar mention the "Haven Between the Hills", and evidence that the Romans used the Port exists today in the form of the *Pharos*, or lighthouse, on the cliffs of the east side of the valley. During the late Saxon period the river became greatly silted and the shipyard, which had up to that time been situated in the estuary, was transferred to a

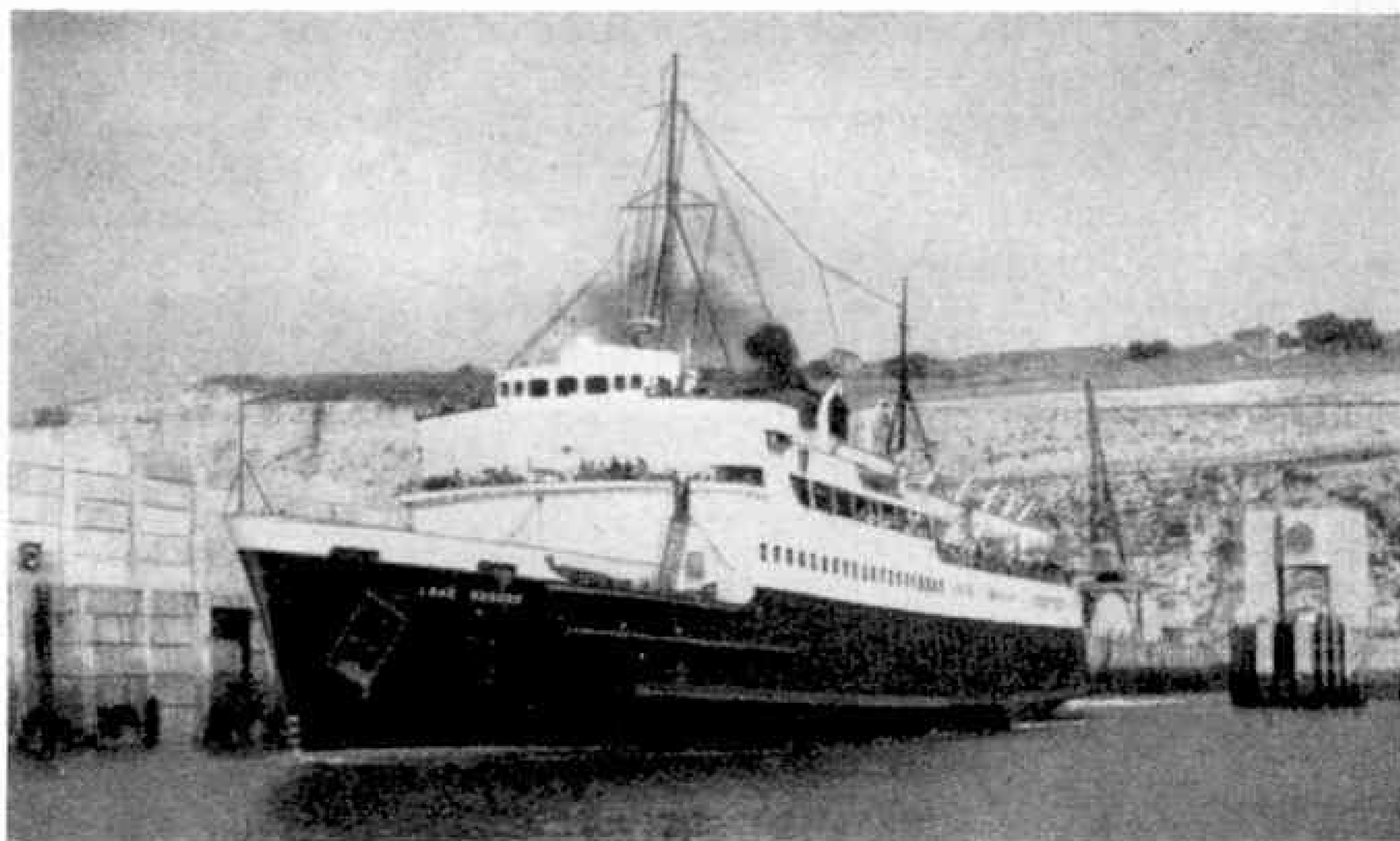
Breakwater alone nearly one million tons of concrete were used, two-thirds of which are always below water level, and that the work was carried out in the open sea three-quarters of a mile from shore, the magnitude of the task can be appreciated.

The gradual development of the Port throughout the centuries has produced the vast artificial harbour of today, with depths of water up to 32 ft.

at low water spring tides, and embodying accommodation for shipping of various types up to vessels of 9,000 net registered tons. The total area, owned by the Port Authority, the Dover Harbour Board, is approximately 850 acres, of which 700 are water area.

The Port is divided into the Outer and Inner Harbours, and the adjacent land areas, the Eastern and Western Docks. Let us look at each of these in turn.

The Outer Harbour gives ample accommodation for visiting liners, and many vessels of the Bergen, Blue Star, East Asiatic, Elder Dempster, Guinea Gulf, Holland - Africa, Palm and Royal Netherlands Lines use the Port each year. The Passenger Tender *Delphinus* has been



The motor vessel "Lord Warden", one of the motor car ferry ships. She is built to take up to 130 vehicles.

built recently for the Dover Harbour Board especially for this trade, and besides carrying passengers can transport up to four motor cars from the liner to the shore.

In addition to the new Tender, the Board have also constructed two new 1,000 h.p. Diesel Tugs, the *Diligent* and the *Dominant*.

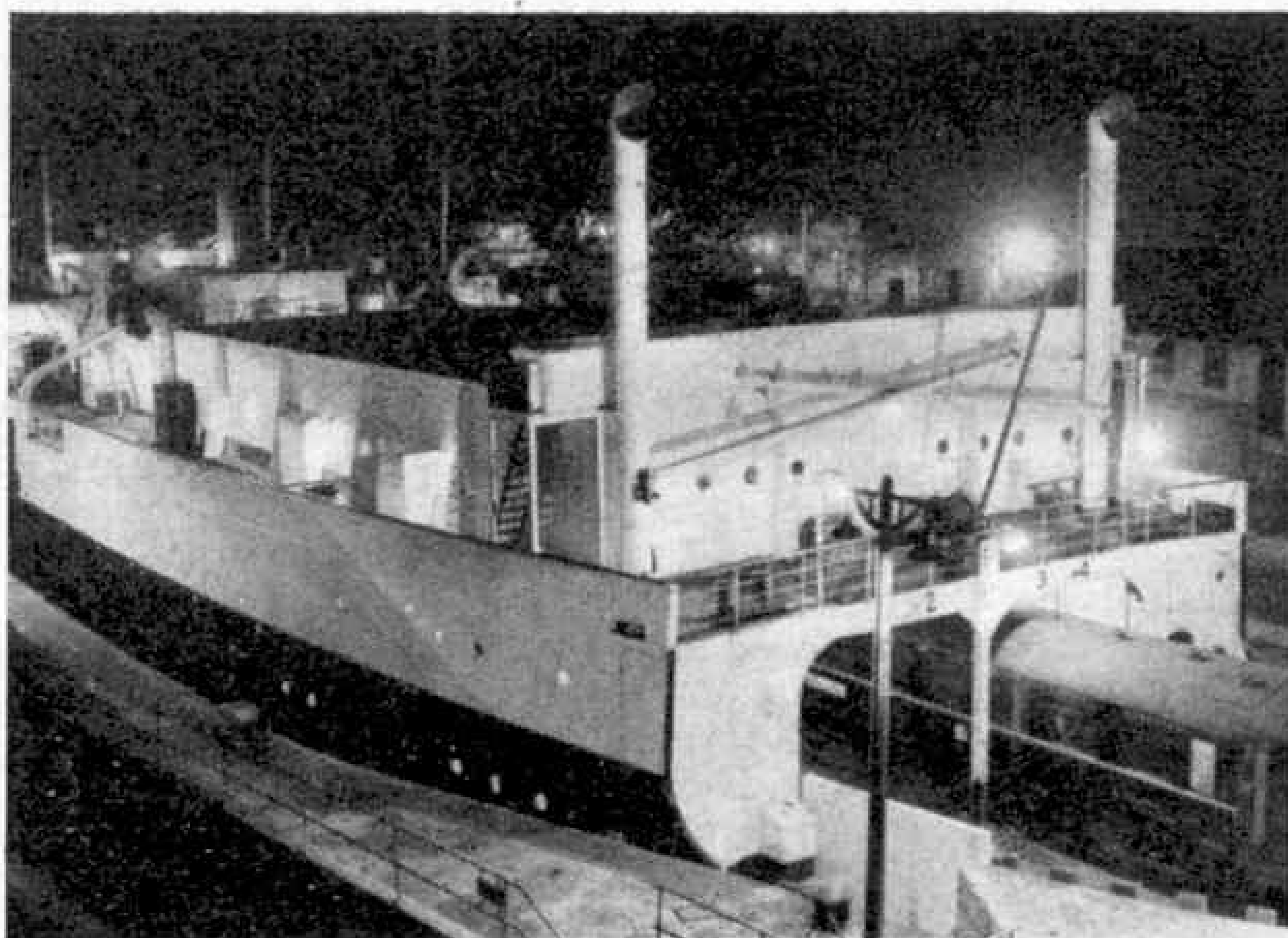
Coming now to the Inner Harbour, the original Admiralty Pier was widened to a considerable extent at the beginning of this century to make room for the passenger terminal, the Marine Station. At the present time further improvements are in hand in connection with the electrification of lines in the Southern Region down to Dover. It is a surprise to many to find that the number of passengers who embark or disembark annually through Dover approach the two million mark—more than any other port in the British Isles.

Also in the Inner Harbour is situated the British Railways' Train Ferry Dock. This Dock is of considerable importance as it allows trains to run direct on board a ferry, and later to run off the ship at Dunkirk and continue to their destination by rail. A considerable saving in time and transshipment costs, therefore, ensues. Each ship can take twelve sleeping coaches, or approximately forty goods wagons on the train deck, and has a separate garage for thirty cars.



A leaf of the gates of one of the Docks of the Dover Harbour Board being re-positioned.

The Dock can be entered at any state of the tide, the gates closed, and the water level raised as necessary to make the railway tracks connect with the shore. The gates are of box construction and are hinged at the bottom, folding down into recesses in the sea-bed when not in use. They are operated by electrically-driven winches



Sleeping cars of the London-Paris night passenger service being loaded on to a train ferry at Dover. B.R. (Southern Region) Official Photograph.

through wire tackles and can be opened or closed in a few minutes.

Within the Eastern Docks is situated the Car Ferry Terminal, which is pictured on this month's cover. It was opened in 1953 to handle the increasing car traffic to the Continent. In 1928, when Captain S. M. Townsend inaugurated the first ferry service specially for cars, 6,000 vehicles were carried between England and the Continent. In 1939 31,000 were carried, and in 1957 the number had increased to 264,000.

The new Terminal was designed to allow the accompanied motor vehicle to pass through the necessary shore formalities and on to the car ferry with as much speed, comfort and simplicity as possible. To this end considerable thought was given to the layout of car parks, petrol stations and customs hall in order that unnecessary checking and reversing of vehicles could be avoided. At the loading berths, bridges were designed which could be raised and lowered with the tide, and over which the vehicles could drive directly from the shore on to the car deck of the ferry vessel.

At the height of the season six stern-loading car ferries use the two loading berths, and between them make 25 trips

daily between England and the Continent.

The loading bridges are 140 ft. long, hinged at the shore end and capable of being raised or lowered 17 ft. 3 in. above and below the horizontal at the seaward end. Final access to the ship's deck from the bridge is over a short horizontal platform and a link span that rests on the ship's deck when in use, and which can be raised drawbridge fashion when not in use. The seaward end of the bridge and platform are hung from a beam that moves vertically in guides in a tall steel and concrete portal structure. Dead loads are largely counterbalanced by weights hanging in the wings of the portals, and the live loads and excess dead loads are carried by the main hoist winch situated in the machine room directly over the bridge.

Although the weight of the bridge and platform at the seaward end is 140 tons, a 15 h.p. electric motor is able to operate the hoisting winch. The link span is constructed of five triangular sections, which are so hinged to the platform that the seaward end can follow any list or roll that may take place on the ship's deck.

The operation of the winch is under manual control when a ship is not in the berth, but when once the link span has been lowered on to the ship's deck, the control can be made automatic, and the bridge will then follow the rise and fall of the ship as it varies under loading or as the tide ebbs and flows. The tidal range at Dover is 18 ft. 9 in. at spring tides, and on these occasions can rise as much as 6 ft. within an hour.

The Western Docks include the two impounded areas of water, the Wellington Dock and the Granville Dock. It is these docks that were formed in the years following upon Henry VIII's venture in marine engineering.

The Granville Dock provides facilities for the many different types of cargo that pass through Dover, among which are coal, timber, stone, pit props, wood pulp and fruit. Here electric portal cranes are available for handling the cargo on to rail or road vehicles, or into the modern transit shed.

The Rich Life of Bornu

Stories of Northern Nigeria

By J. Wade

NIGERIA is the largest single piece of "Empire" left to Britain, and will soon achieve self-government. This, and the interest in the new state of Ghana, are likely to make Nigeria front-page news before very long.

The Queen's visit to Nigeria is still alive in the memory, and most people have some idea of the larger centres, such as Lagos, Ibadan, Enugu and Kano. But how many have any real idea of the peoples of this vast country, over four times the size of Great Britain, with its many tribes, customs and languages? That one portion of Africa should present such bewildering differences is everywhere a matter of surprise.

It is quite impossible, in a short article, to cover the country, since nothing is typically Nigerian, but only typical of the part one is dealing with. For this reason the present article will not go beyond Bornu, and even then not all the peoples there can be presented.

Bornu Province, which includes the Emirates of Bornu, Biu, Bedde, Fika and Dikwa, is in the extreme north-east of Nigeria, close to the Sahara Desert, and includes a part of Lake Chad. Several hundred years ago most of it, including Bornu proper, was part of the Kanem Empire, which stretched away into what is now French Niger to the North. After a period of splendour the Empire fell apart, and Bornu became heir to its major glories. During the Fulani Jihad, or holy war, Bornu held out against the Fulani horsemen who conquered almost all Northern Nigeria, and so remains to this day a distinctive part of the Northern Region.

Bornu later fell an easy prey, however, to an eastern adventurer called Rabeh, who came from the Egyptian Sudan about

1893, and only when Rabeh was killed by the French in 1900 did it again lift its head. At the same time the Empire was divided, part to the British, part to the French and part to the Germans. The latter part, together with a portion of the Northern Cameroons, is now mandated territory, administered with Northern Nigeria.

Bornu is in savannah country, an area of grassland with varying tree cover, and in



A richly appointed Kanuri horseman, the Waziri of the Galadima of Bornu. In the old days the Galadima was guardian of the Western Approaches to the Kanem empire. The illustrations to this article are from photographs by the author.

these surroundings the people grow guinea corn, millets, ground nuts and cotton, and a mixed collection of minor crops such as beans, onions, peppers and rice where possible. Cultivation is carried out with the hand hoe. Goats, sheep, chickens and the inevitable donkey are everywhere to be found, and nomadic Fulani, Shua Arab and Koyam keep herds of cattle with which they move around in search of water and grazing.

The chief people of Bornu are the Kanuri, who claim not only Arab descent, but to have been the first of three waves of Nigerian peoples who left the country around Mecca when the prophet Mahomet was quarrelling with his uncle. Other main groups are the

Mandara, very like the Kanuri, and the Shua Arabs, who are said to have been the cavalry of the old Kanem Empire. Interesting and colourful are the numerous pagan peoples of the Northern Cameroons, who were driven into their mountain homes

of the Mandara Hills, in the Northern Cameroons, one can make the acquaintance of the many clans of Hill Pagans. On market days they make the journey down the steep paths to take part in the fun of the market. These Hill Pagans are entirely different from

any of the plain dwellers. They are hard workers and good farmers. The land on the hills they occupy is not only poor, but is in constant danger of being washed away by torrential rains. To counter these hazards they have perfected a system of terracing by means of stone walls. In the Mandara hills it has been estimated that there are 20,000 miles of these stone walls, varying from a few inches to some feet in height.



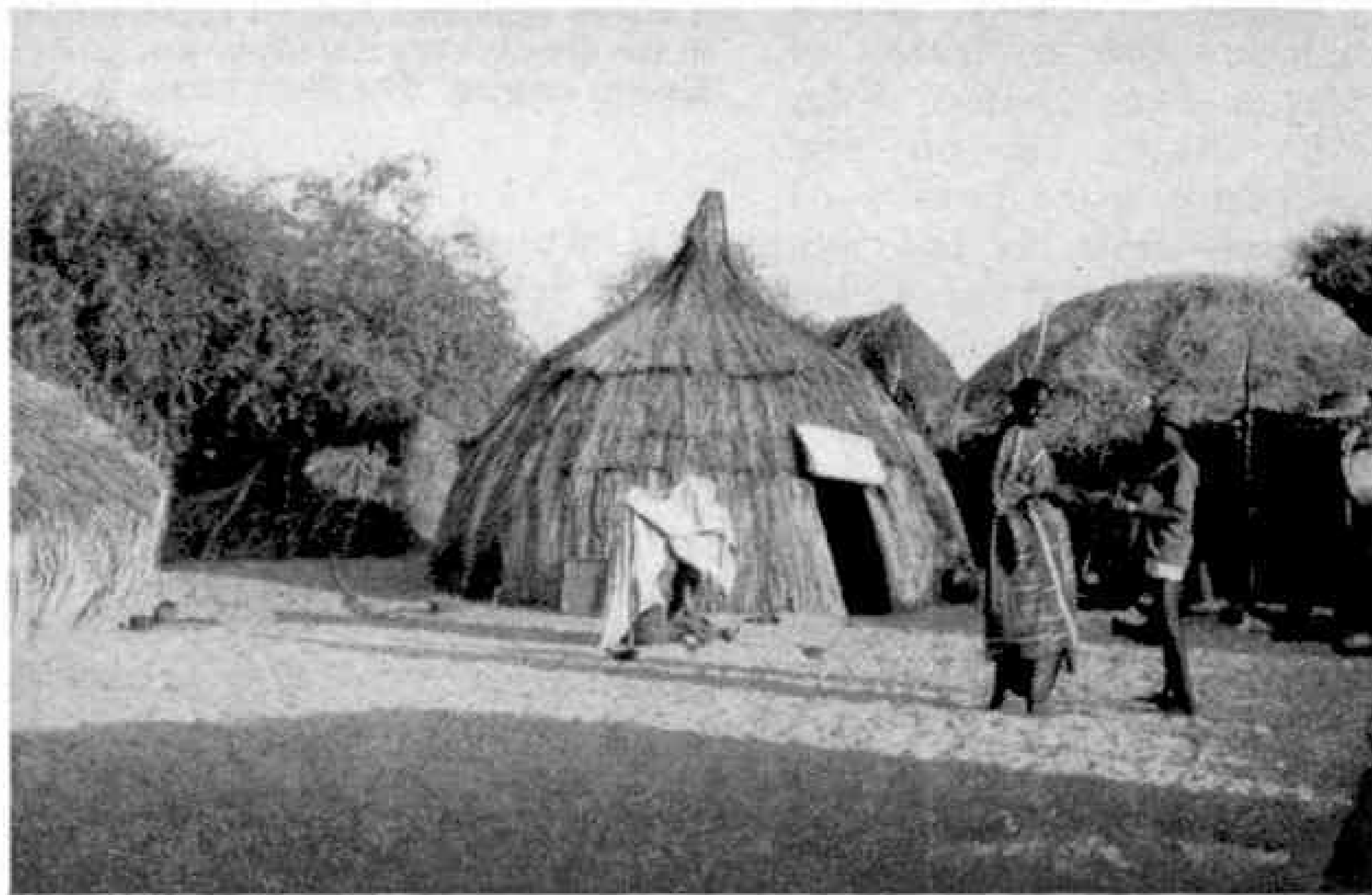
Camels bring in a load of ground nuts to the collecting station, seen in the background on the right.

centuries ago and who are considered by some to have been the original inhabitants of the Province. Smaller groups are found in the smaller Emirates, such as the Bolewa of Fika, and the Burra and Tera of Bui.

The Fulani, who are to be found throughout the North, are one of the mysteries of West Africa. Their origin is uncertain, and they are quite different in appearance, language and customs from any other Nigerian people. Large numbers of them, known as "Town Fulani," are urban dwellers, and most of them have forgotten their own language, speaking Hausa, Yoruba or whatever is the language of the people amongst whom they have settled. The nomad Fulani, on the other hand, cling to the language and customs of their fathers, and despise their town brothers. These Fulani are dark to copper in colour, with fine features and thin lips. They are extremely tough, and frequently trek hundreds of miles with their cattle, living on blood and milk. Many of them still undergo the traditional whipping before marriage.

In the towns at the foot

The houses of the people are almost always of mud, round in shape and thatched with dried grasses. In the towns one may see rectangular houses with flat roofs. The Kanuri do not, as a rule, decorate the exterior of their houses, but they do follow the usual custom of putting them into family compounds, ringed around with walls of mud or, more frequently, of guinea corn stalks. The Burra of Bui quite often decorate their houses with designs representing crocodiles and various other figures, despite their present allegiance to



A compound on the shores of Lake Chad. The houses are of straw on stick frames, as mud for building is very scarce here.

the teachings of Islam, which frown on the use of images of man or beast. The crocodiles are reminders of a pagan past, when the people used to worship the sacred crocodiles in Tilla Lake, a crater lake not far from the town.

Where mud is scarce, or where people are very poor, the houses are made of grasses on a framework of sticks. Thus one sees grass houses in Gubio, a town on the edge of the desert fringe, and in the villages near to Lake Chad. In both these areas mud is as scarce as sand is plentiful, and it cannot be spared for house building, but must be used for pot-making.

The Hill Pagans also build round houses, but these are smaller and closer together, and mingled with their corn stores. Often a stone wall surrounds them, to which may be added a wall of living cacti, set a little further out.

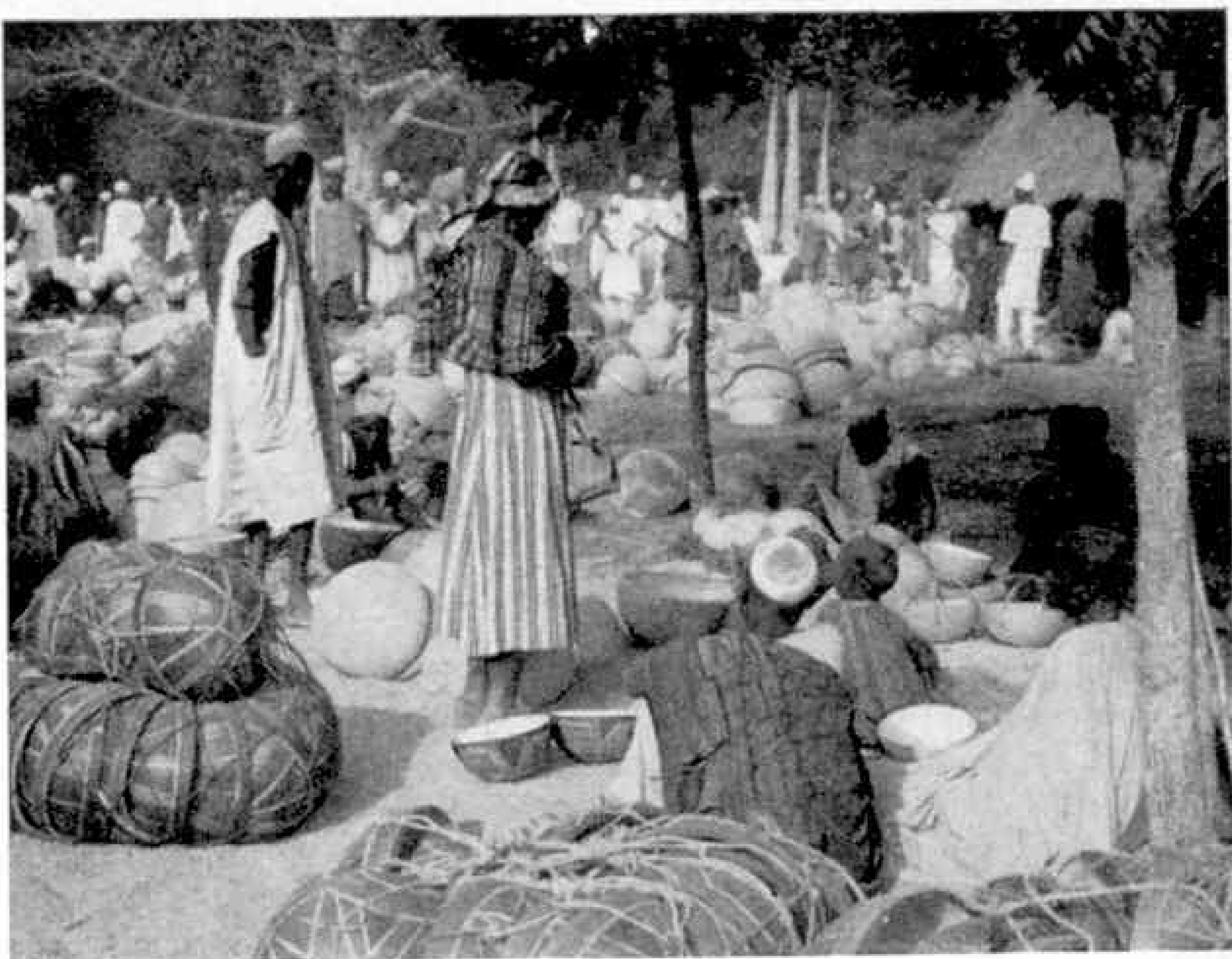
Nowhere, of course, is life more abundant and colourful in Bornu than in the markets. In the larger towns, such as Maiduguri, the capital, there are permanent markets. But any place of any size has its market day, when everyone for miles around will congregate to buy and sell, to meet friends, and to laugh and chatter.

The market place is like a huge department store, with every commodity in its place. All the corn here; all the pottery there; and all the peppers and so on in their appointed corners. The only real difference is that most things are sold from the ground, or from rough stalls, or from mats and bowls. The latter may be imported enamel, but are more likely to be calabash, which is a vegetable like a large round marrow, split, cleaned and, often, decorated with designs on the outside.

Many commodities are confined to particular classes of people. Thus the butter and milk is in the hands of Fulani and Shua women. Men will sell corn, calabashes, spear-heads, dried fish and so on. The men are also the tailors, working on sewing machines under woven shelters. Women sell peppers, onions, corn and cooked foods. The Shua women do their hair in tight ringlets, and rub it with

butter. One can always tell when the butter sellers are near!

As might be expected from their situation and their Arab affinities, the Kanuri and Mandara are wonderful horsemen. Of the many occasions that call for celebration, such as holidays, weddings, Moslem festivals and so on, one spectacle that

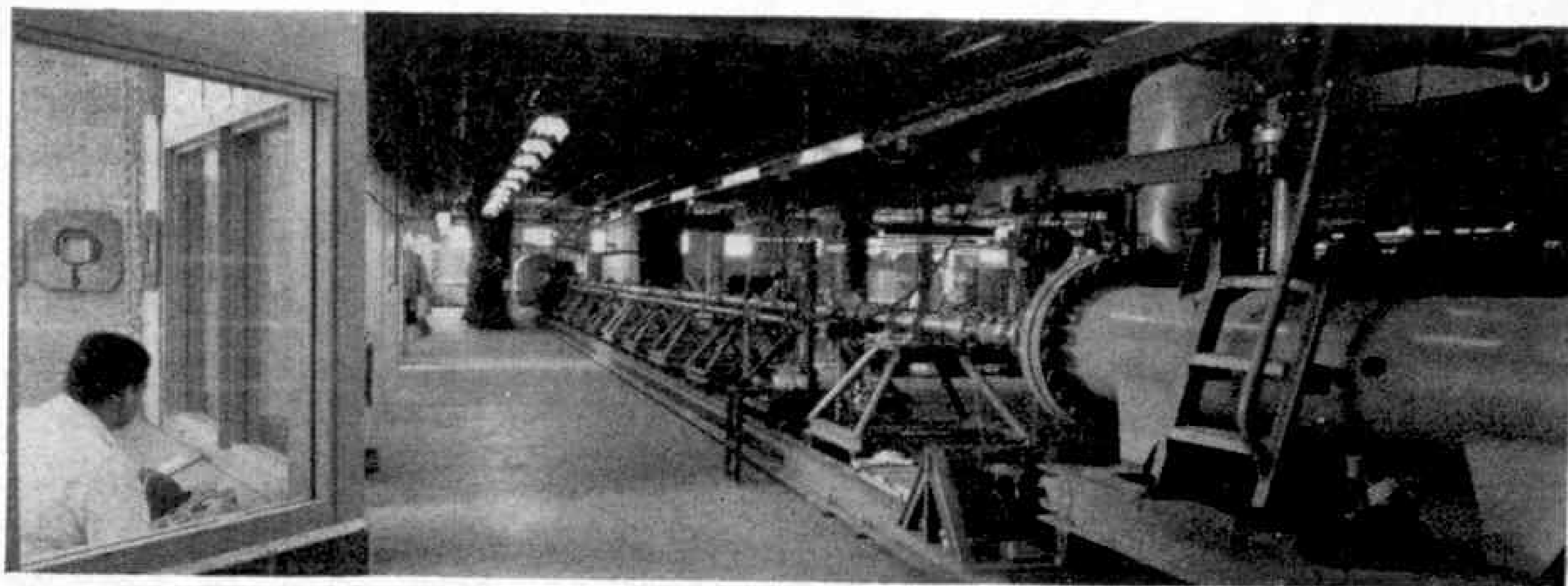


A corner in the market of the capital of Bornu, showing calabashes, or gourds, plain and decorated, on sale.

always interested and excited me was the sword dance.

Imagine some important person expecting some equally important guest. For hours before the guest's arrival the host's followers are on parade on heavily caparisoned horses. Singly, or in numbers, the men gallop up to their leader's compound. Women in the entrance carry small branches and wave them at the men. Musicians are playing pipe-like instruments, and drummers maintain an insistent rhythm throughout the noise, dust and yelling, which builds up around them.

Suddenly the tempo changes. The shouting dies. The pipes take on a quieter, sweeter note, the drums a softer voice. The horsemen combine to give effect to the change. No longer wielding their swords as if in real earnest they hold them delicately between fingers and thumb, with ends upraised. Each man sways gently with the rhythm and, at the moment demanded by the music, rises slowly in the saddle and as slowly subsides. This goes on for some moments and then, without warning, the shouting, drumming, waving and yelling is taken up again.



Space Notes

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

Rocket Motors

The gases to drive a rocket motor along are produced by burning a "propellant" mixture in a combustion chamber, and the substances burnt can be either solid or liquid. Although the gases produced are usually similar, solid motors and liquid motors, as they are called, are vastly different in construction.

A solid propellant is often a mixture of a fuel and an oxygen-carrying substance, known as an oxidant, which when ignited will continue to burn until it is all used up. Such a propellant is stored in the combustion chamber. This type of rocket is then very simple in construction. It is just a tube full of propellant, closed at one end and with a nozzle at the other, usually with an electrically-operated igniter rather than the more familiar blue touch-paper.

The liquid motor is a different proposition altogether. Here the fuel—perhaps petrol or kerosene—and the oxidant—maybe liquid oxygen or nitric acid—are stored in separate tanks and must be fed

into the combustion chamber in a carefully controlled manner in just the right proportions and at the correct rate to give the required thrust. The liquid motor therefore is a complex device of pipes, control valves, injectors and pumps.

This rocket uses propellents at such a vast rate—for the same thrust a rocket uses them at about 15 times the rate that an equivalent turbojet uses fuel—that the choice of method for injecting them into the

combustion chamber is very important. The simplest method is to apply a gas pressure to the tanks, as shown in Fig. 1; this forces the propellents through the control valves into the combustion chamber. The drawback of this system is that the tanks must withstand a high pressure, 400 lb./sq. in. or more, and consequently become very heavy if large quantities of propellant are to be carried. So this arrangement is normally used only for small rockets designed to run for a short time, such as anti-aircraft rockets.

A lighter system used for large rockets, particularly those which have to run for more than about



In the picture at the top of the page a 100 ft. shock tube is seen. Above is the Oriole, a high altitude research vehicle described on the opposite page. Photograph, Avco Research Laboratory.

half a minute, is shown in Fig. 2. Here the propellents are fed by means of pumps and can therefore be stored in lightweight unpressurised tanks. Centrifugal pumps driven by a small turbine and running at high speeds are normally used. The gas for driving the turbine can very conveniently be obtained by decomposing high concentration hydrogen peroxide, which produces a mixture of steam and oxygen at high temperature. This usually means carrying an extra tank of peroxide which makes the motor more complex, and it is now quite common practice to provide a gas generator that uses the main propellents, but burns them in the right ratio to produce a gas at about 500 deg. C. that can conveniently be used to drive the turbine.

Shock Tubes

Some very unconventional methods have been evolved for solving the unconventional problems met with in developing long range missiles and satellites. A very few years ago nothing was known about the aerodynamics of flight at altitudes above 20 miles and speeds greater than a Mach number of 10. Experiments with conventional wind tunnels, blowing air round by means of a fan, were quite out of the question, but one of the most useful pieces of equipment recently devised for investigating these extreme conditions is the "shock tube" seen in the picture on the opposite page. Nothing could look much less like a conventional wind tunnel.

The shock tube consists basically of a long tube, from one to four inches in diameter, at one end of which is a small pressure chamber known as a "driver". Pressure can be built up very rapidly in the driver, either by suddenly opening a valve connected to a high pressure gas bottle or by igniting in it a mixture of combustible

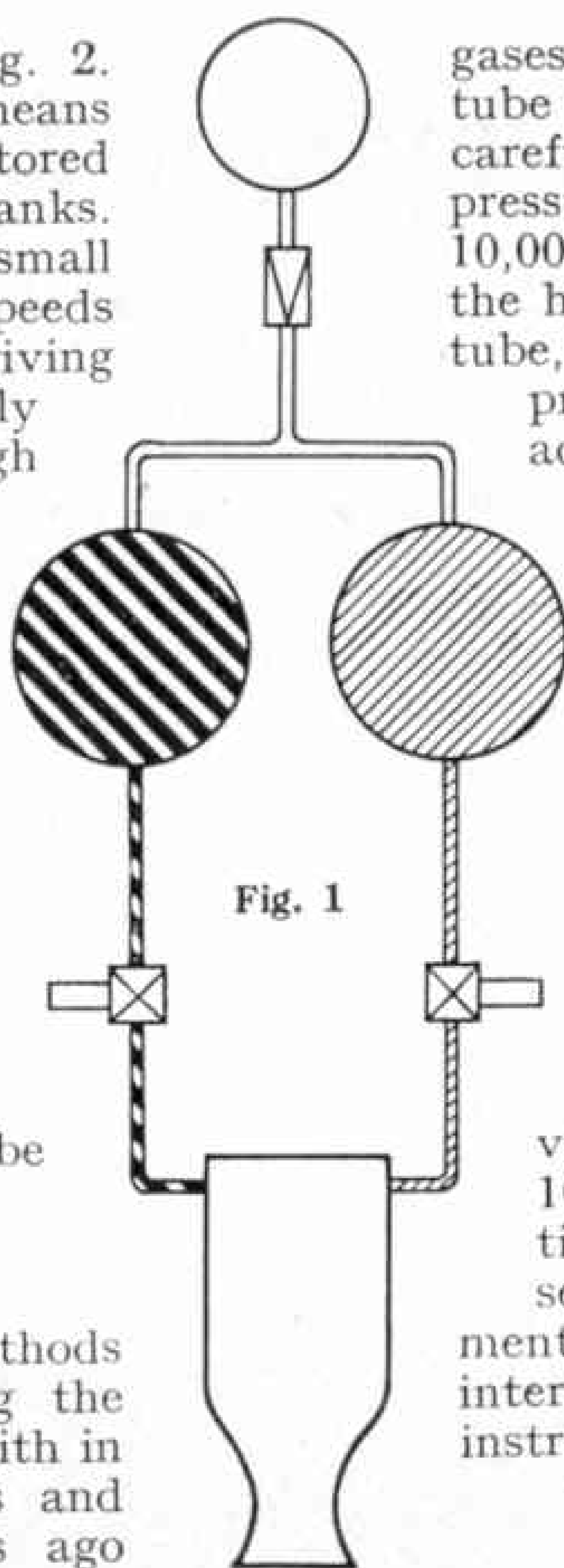
gases. The driver is separated from the tube by a burster disc which is carefully designed to fail at a given pressure—this can be anything up to 10,000 lb. sq. in. When the disc breaks the high pressure gases rush into the tube, which is filled with a gas at low pressure, and form a shock wave across the tube.

This shock wave travels down the tube at extremely high speed, with a Mach number of 10 to 25, and is followed by the driver gases. A model placed in the tube is subject to this extremely high speed flow from the time of arrival of the shock wave to the time of arrival of the driver gases. This duration increases with length of tube so that most shock tubes are very long. The one shown is 100 ft. long, but even so the testing time is only 300 millionths of a second! To make any measurements at all during such a short time interval special electronic recording instruments have to be used.

Oriole

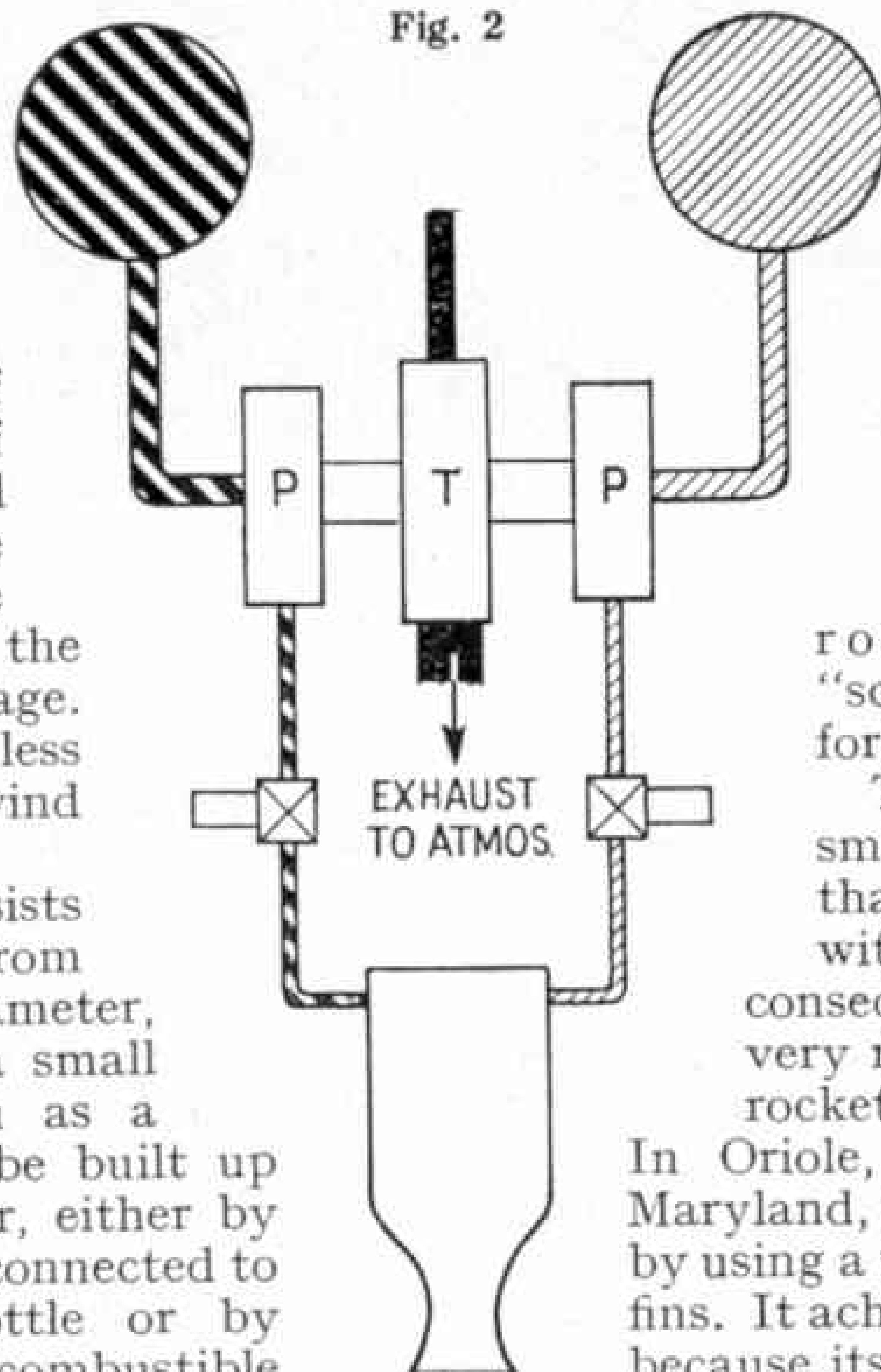
One tends to think of upper atmosphere research with rockets as being a very expensive business to be undertaken only by government organisations. In general this is true, but during the past few years Professor S. F. Singer of the University of Maryland has developed several small research vehicles propelled by surplus solid propellant rockets which he has "scrounged" from the armed forces.

The major problem with the smaller research rockets is that their drag compared with their weight is high and consequently they are slowed up very rapidly by the air after the rocket motor has finished firing. In Oriole, the latest product from Maryland, the drag has been reduced by using a very slender vehicle with no fins. It achieves aerodynamic stability because its centre



Diagrams showing the working of pressurised gas, above, and turbo-pump liquid, below, propellant motors. Photograph, University of Maryland.

Fig. 2



(Cont. on page 406)

"The Daylight Express"

Australia's Fastest Train

By H. G. Forsythe

THE *Daylight Express* provides the fastest ever regular service between Melbourne and Sydney. It covers the 590 miles between the two State capitals in a little over 13 hours, and is now one of Australia's most popular trains. Its modern all-steel, open plan coaches are air-conditioned, making them cool and dust free in summer, delightfully warm and snug in winter. Comfortable, aircraft type adjustable reclining seats are fitted. These can even be rotated so that passengers may face in whichever direction they wish.

A public address system is installed and announcements are made when the train

two *Daylight Expresses*; one in Victoria, the other in New South Wales.

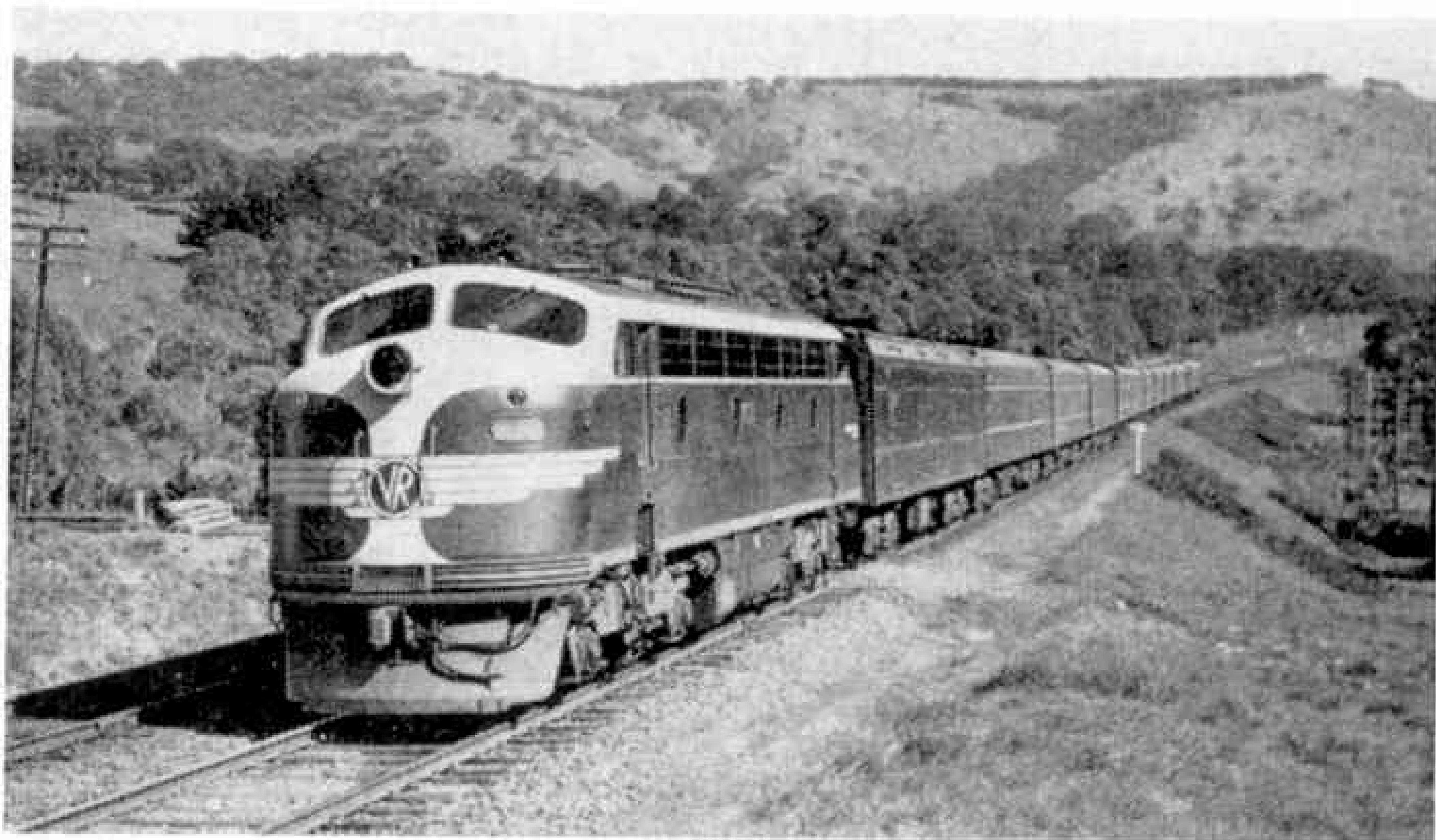
In New South Wales the gauge is 4 ft. 8½ in. or Standard Gauge, while in Victoria it is 5 ft. 3 in. Through running is impossible, and passengers must change trains at Albury on the border between the two states.

The trains that provide the service look very much alike, but they are painted in different colours and in Victoria there is a lounge-observation car at the rear of the train.

Let us suppose we are on board *The Daylight* one morning as at 8 a.m. the shining royal blue and gold train, hauled by one of Victorian Railways "B" Class 1,750 h.p. diesel-electric locomotives, sets off from Spencer Street Station, Melbourne's main line terminus. Accelerating rapidly through the suburbs we are soon passing Broadmeadows, north-western terminus of the extensive suburban electric services radiating from Melbourne.

Now we are beginning to climb and it is not long before the picturesque gum tree covered slopes of the Great Dividing Range are flashing past the windows. In the first 33 miles, at Heathcote Junction, we have reached an altitude of 1,145 ft. above sea level.

At Mangalore, 68 miles from Melbourne, the double track ends. The main line is single for the next 222 miles to Junee in New South Wales. Special precautions are taken, of course, to prevent head-on collisions, and passing loops are provided at stations, so that trains travelling in opposite directions can pass each other.



"The Spirit of Progress" near Kilmore East in the Great Dividing Range on its way to Melbourne. Photograph by courtesy of Victorian Railways.

approaches a station or passes a place of interest. There is a continuous meal service in the buffet car, and a tray service is provided for those who prefer not to leave their seats. In fact, one can obtain ice cream, soft drinks and snacks at any time anywhere on the train. There is also a Train Hostess, whose main duty is to look after the comfort of women and children, particularly mothers with babies, and elderly people.

An interesting point, and one which comes as a surprise to those unfamiliar with the differences in rail gauge in many parts of Australia, is that there are really



The New South Wales section of "The Daylight Express" at speed near Picton, 50 miles from Sydney. Photograph by courtesy of New South Wales Government Railways.

Even an express as important as *The Daylight* sometimes has to give way to other trains on the single line and at Locksley, a few miles farther on, we draw to a halt to allow Australia's most famous train—*The Spirit of Progress*—to fly past on its way to Melbourne. This train, introduced in 1937, was the first completely streamlined, air-conditioned, all-steel train in the Southern Hemisphere.

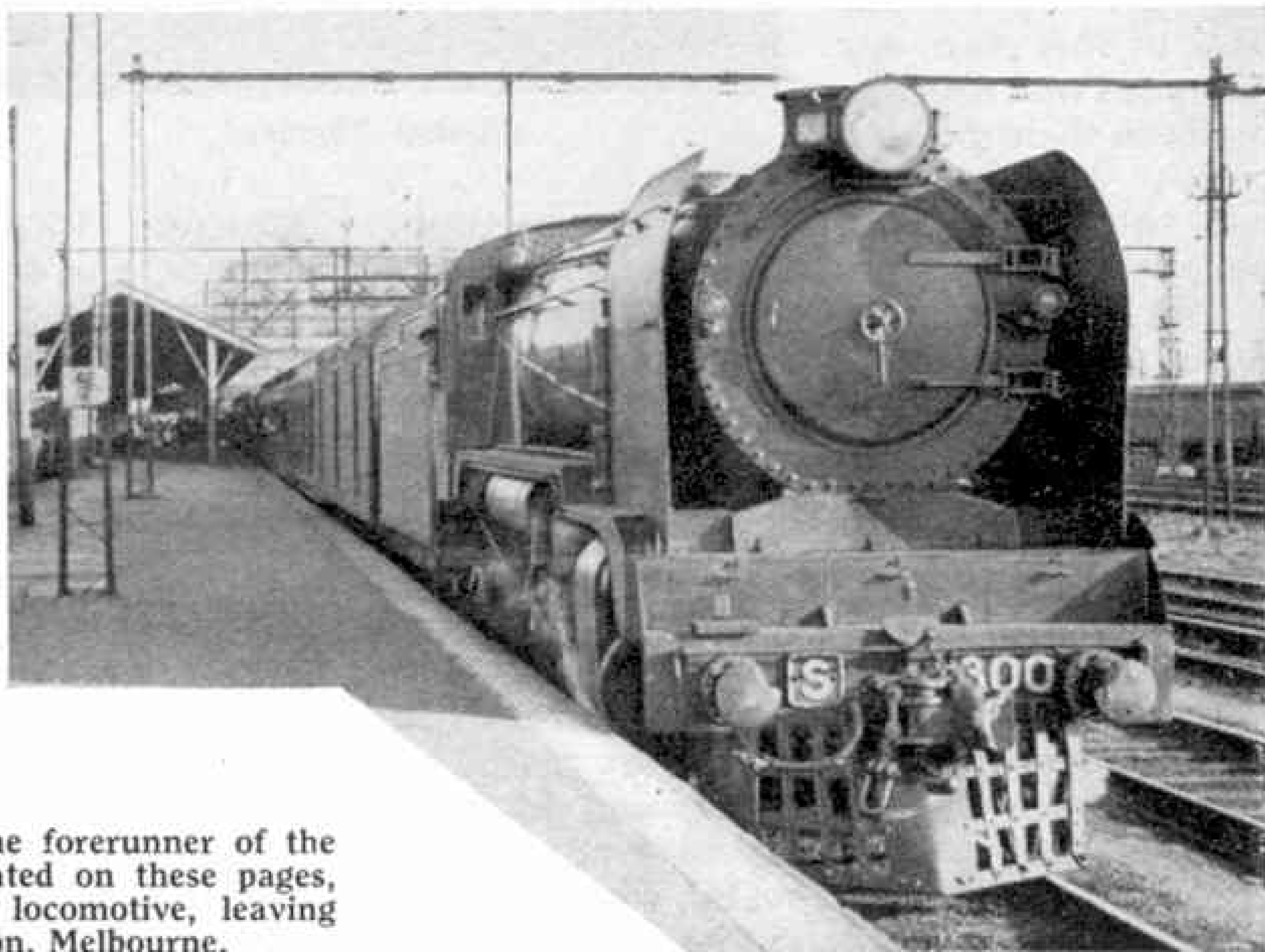
Leaving Locksley after the *Spirit* has thundered by, *The Daylight* picks up speed rapidly. From there to Albury the track is ideal for fast running. Although there is an official speed limit of 70 m.p.h., speeds of 75 m.p.h. and over are often reached. At coffee time we rush through Glenrowan, where in the early days the notorious gang of bushrangers led by Ned Kelly made their last stand against the police, and at 11.50 we glide smoothly to a stop at Albury Station.

The New South Wales *Daylight Express*, waiting at the other platform, is also diesel-hauled. A "42" Class Clyde-General Motors locomotive heads the striking red and yellow train. This locomotive will be in charge for the whole of the 399-mile journey to Sydney, although the crew will be changed at Junee, in the heart of the sheep grazing and wheat growing areas, and again at Goulburn.

The scenery in New South Wales is truly magnificent, but the line

passes through very difficult country. The many sharp curves and steep grades make fast running almost impossible. At Bethungra, for instance, which we pass at 2.30, the grade was so steep, 1 in 40, that a special deviation loop had to be constructed to give a compensated grade of 1 in 66 up the hill for trains travelling towards Sydney.

At 6 o'clock we are passing Cullerin in the mountains. This is the highest station on the main line and is 2,395 ft. above sea level. Dusk is falling as we reach Goulburn, near the junction with the main line to Canberra, Australia's Federal Capital. There are still another 137 miles to go, but as the light is now failing we shall have to wait until we make the return journey to Melbourne to see the pleasant rolling tree covered hills of the Southern Tablelands and the approaches to the great city of Sydney. The time of arrival at Sydney Central Station is 9.25.



"The Sydney Limited," the forerunner of the two famous trains illustrated on these pages, hauled by an "S" Class locomotive, leaving Spencer Street Station, Melbourne.

Russia's Greatest Designer

By John W. R. Taylor

THE townsfolk of San Jacinto, California, received quite a shock on 14th July, 1937, when a huge single-engined monoplane landed near their city and disgorged three airmen who spoke a strange foreign language.

The incident would have created even more alarm today, because the airmen were Russians; but in 1937 most people had sufficient commonsense to recognise a non-stop flight of 6,305 miles from Moscow to San Jacinto as a fine achievement, without suspecting any warlike motives.

What made the flight of special importance was not merely that it set up a new World Distance Record, but that it was made along the direct "Great Circle" route between the two cities, so that the airmen flew over the Arctic, not far from the North Pole. A few months later, the Russians announced that they were planning a regular airline service over the same route. So, although the war put paid to this plan, our modern Polar services between Europe and North America are not such a new idea as we sometimes believe.

The aeroplane used for the Moscow-San Jacinto flight was an ANT-25, with a wing span of no less than 111 ft. 6 in. (about the same as a Comet jet-liner), although its single AM-34R engine developed only 860 h.p. The "ANT" designation showed that it was designed by Andrei Nikolayevich Tupolev, who has been designing big and important aeroplanes ever since.

He first became interested in aircraft in 1909, the year in which Bleriot made his famous cross-Channel flight, and had the good fortune to be able to study under Professor Nikolai Zhukovsky, who is known as the father of Russian aviation.

Like the Wright brothers in America, Zhukovsky believed that the key to progress lay in tackling problems scientifically rather than in trying to perfect a design by trial and error. Typical was his method of solving the argument as to whether the slipstream behind a turning propeller expanded or contracted. He simply fixed a small propeller to the shaft of a tiny electric motor, blew cigarette smoke towards it and demonstrated that the stream of smoke contracted to a narrow column behind

the propeller. He also built the first Russian wind tunnel in 1910.

After the Revolution seven years later, many of the country's foremost designers, including Igor Sikorsky, fled overseas. Tupolev stayed on, believing that the new Russian leaders might do more than their predecessors to encourage aviation. With Zhukovsky he went to see Lenin in December 1918, and his hopes were justified when they were given permission to found a properly-equipped aviation research centre in

Moscow. Work on the centre was started at once, and the result was the now-famous Central Aerodynamics and Hydrodynamics Research Institute (TsAGI).

Since that time, TsAGI has been the training school for Soviet designers, and Tupolev has divided his time between instructing there and working on new aircraft. Several of the foremost Russian designers of the present time began as his pupils, and it is important to remember that modern aircraft bearing the "Tu" designation are not necessarily all designed personally by Tupolev.

Men like Tupolev, Yakovlev and Ilyushin are each in charge of a team of designers who work under their supervision. This



Andrei Tupolev.

Soviet TB-7 heavy bomber taking off for an air raid on enemy lines during the Second World War. U.S.S.R. Official Photograph.



explains how machines as varied as the Yak-25 jet fighter, Yak-24 helicopter and Yak-18U piston-engined trainer can all be produced simultaneously, apparently by one designer.

Despite the founding of TsAGI, aviation reached rock bottom in Russia in 1920, when not a single airframe or aero-engine was built. By comparison, a total of 1,769 aircraft had been produced four years earlier, during the war. Nevertheless, the new research centre went quietly to work laying the foundations for future progress; and in 1922 financial and technical help came from an unexpected quarter.

Under the terms of the Treaty of Versailles after the 1914-18 War, Germany was not allowed to build warplanes or even large civil aircraft; so German manufacturers simply transferred their activities to other countries and carried on

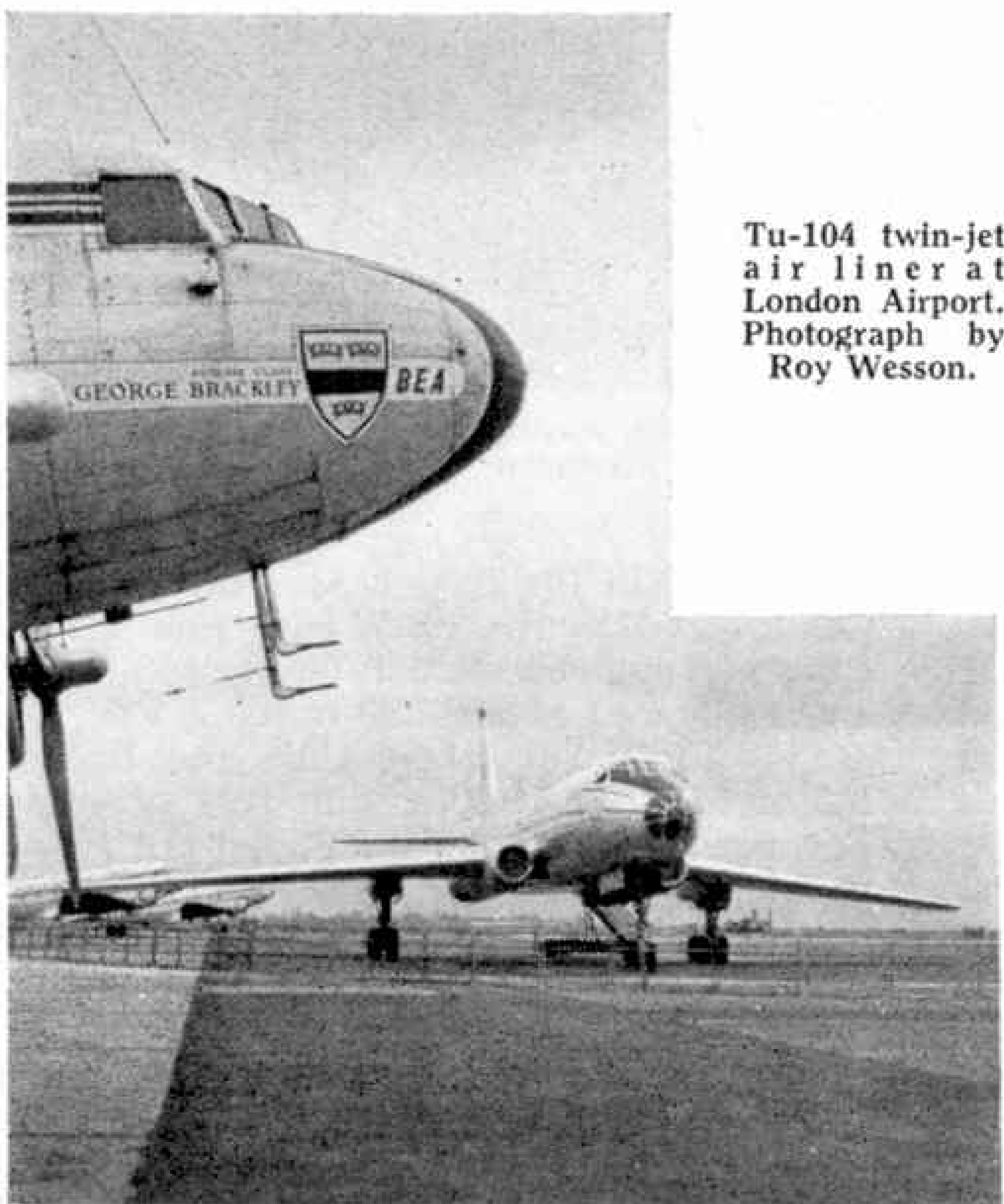
business as usual. The Junkers company built a factory at Fili, near Moscow, and one of the men who went to work for them was Andrei Tupolev.

Junkers specialised in all-metal aircraft, at a time when wood and fabric were still the normal aviation materials. It is hardly surprising, therefore, that when Tupolev's own designs began to appear in 1923, they too were of metal construction, often with the corrugated type of skin covering that had been pioneered by the German company.

He came in for a great deal of criticism, because Russia is a land of forests and many people considered that he should make use of wood from these rather than play about with expensive metals of which supplies were scarce. Unperturbed, Tupolev went personally to the Kolchugino metal works and organised production of an aluminium alloy called Kolchugalumin, which became the basic material of his aircraft. With one or two exceptions, they were monoplanes from the start, which again reflected both the influence of Junkers and his own foresight.

First came the ANT-1, a tiny single-seat low wing monoplane with an 18 h.p. Blackburne engine. It was followed by the ANT-2 three-seat high wing monoplane with a 100 h.p. Bristol Lucifer, and the ANT-3 two-seat high-performance biplane with a 450 h.p. Napier Lion. All of these engines were of British manufacture, because in the 1920's Russian designers decided to concentrate their efforts on learning to build efficient civil aircraft, knowing that they could buy all the warplanes and engines they needed from other countries.

The machine which first brought world fame to Tupolev was the ANT-4, a twin-engined long-range monoplane.



Tu-104 twin-jet air liner at London Airport. Photograph by Roy Wesson.

Named *Land of the Soviets*, one of these aircraft flew from Moscow, across the Pacific and the United States, to New York in 1929. The ANT-4 went into service with the first Russian airlines and was followed by the even better ANT-9, a nine-passenger high wing monoplane powered by three 230 h.p. Gnome-Rhone Titan or 365 h.p. Wright Whirlwind engines. With a range of 625 miles at a cruising speed of 125 m.p.h., the ANT-9 was as good as its competitors anywhere in the world, and led to such a rapid increase in air travel that Tupolev was soon busy on even bigger air liners to cope with the traffic.

His ANT-14 of 1931, powered by five 480 h.p. Jupiter engines, was one of the first attempts to produce a large-capacity transport, with seats for a crew of five and 36 passengers. But his next design made even the ANT-14 look small.

It was an age of giant aeroplanes, with designers all over the world trying to outdo each other in sheer size and load-carrying capacity. The pace had been set by the German Dornier Do-X flying-boat, which weighed 55 tons and could carry 169 passengers. It needed no fewer than twelve engines to lift it off the water, because engine development had lagged behind progress in air-frame design and there were no suitable engines of more than 615 h.p. available.

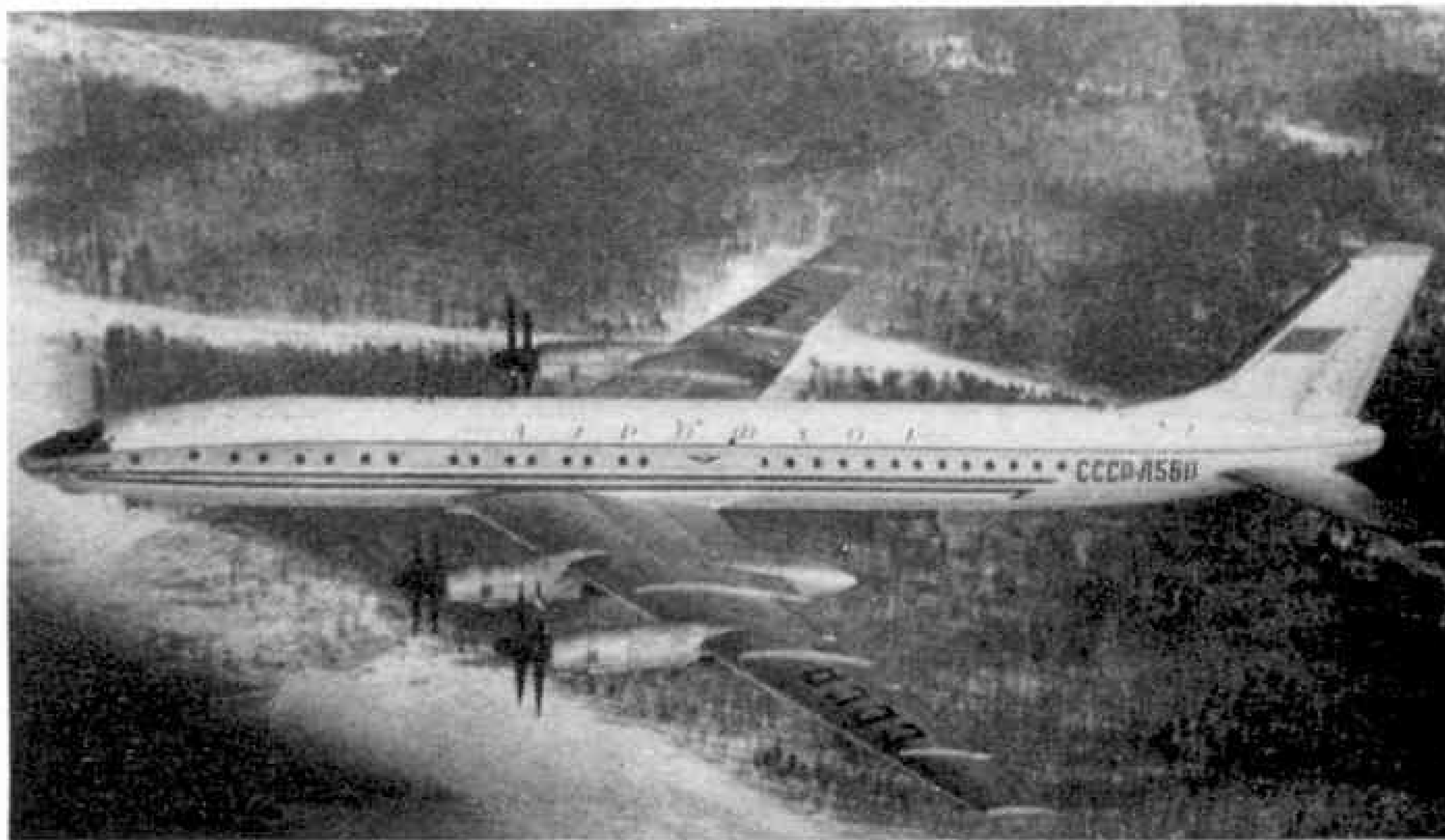
Tupolev also had to plan for twelve engines in his ANT-26, but it was soon clear that the design was not practicable. The aircraft would have been so big and would have had to carry so much fuel that it would hardly have got off the ground. In any case, most Russian aerodromes were so small that the emphasis had to be—and still is—on aircraft able to take off and land in short distances at comparatively low speeds. This the giant ANT-26 would certainly not have done.

Instead Tupolev produced the ANT-20, with eight 750 h.p. engines, a span of 206 ft. and seats for 60 passengers. Although the

biggest landplane flown up to that time, it was far more practical than the ANT-26. Named the *Maxim Gorki*, it was the pride of the Russian aircraft industry until one day in 1935 when it collided with another aeroplane in mid-air and crashed, with heavy loss of life.

After that, Tupolev seemed to draw inspiration from America and Britain rather than Germany; because his ANT-35 of 1936 recognised the start of a new era of faster, more comfortable air travel. It was a twin-engined monoplane with retractable undercarriage, rather like a small Dakota in general appearance and able to carry ten passengers at 220 m.p.h. This was extremely good at the time, and the ANT-35 became a mainstay of the Soviet airline Aeroflot until the war interrupted airline progress.

Tupolev designs played a smaller part than might have been expected in what is known in Russia as the Great Patriotic War of 1941-45. In the 1930's his big TB-3 four-motor monoplane bomber was standard



The Tu-114 four-turboprop air liner, by far the heaviest aeroplane ever flown. It can seat up to 220 passengers.

equipment in the Soviet Air Force, and it was followed by the TB-7, with four 1,100-1,300 h.p. engines, retractable undercarriage and top speed of 260-280 m.p.h.

The TB-7 was larger than the British Lancaster and Halifax and was of quite advanced design; but the Soviet Air Force believed in using bombers in support of the armies on the ground rather than for strategic bombing, so it had little opportunity to distinguish itself. In any case, Tupolev became a victim of one of the Stalin "purges" and fell from favour, to the extent that when a (Cont. on page 406)



Life-Boat Story

By the Editor

EVERY year the Royal National Life-boat Institution publishes a report that should be read by all who have safety at sea in their hearts. It includes accounts of rescues, often exciting and dramatic, which show that no effort is spared by the life-boat crews, all of them volunteers, in the interests of those in peril on the sea.

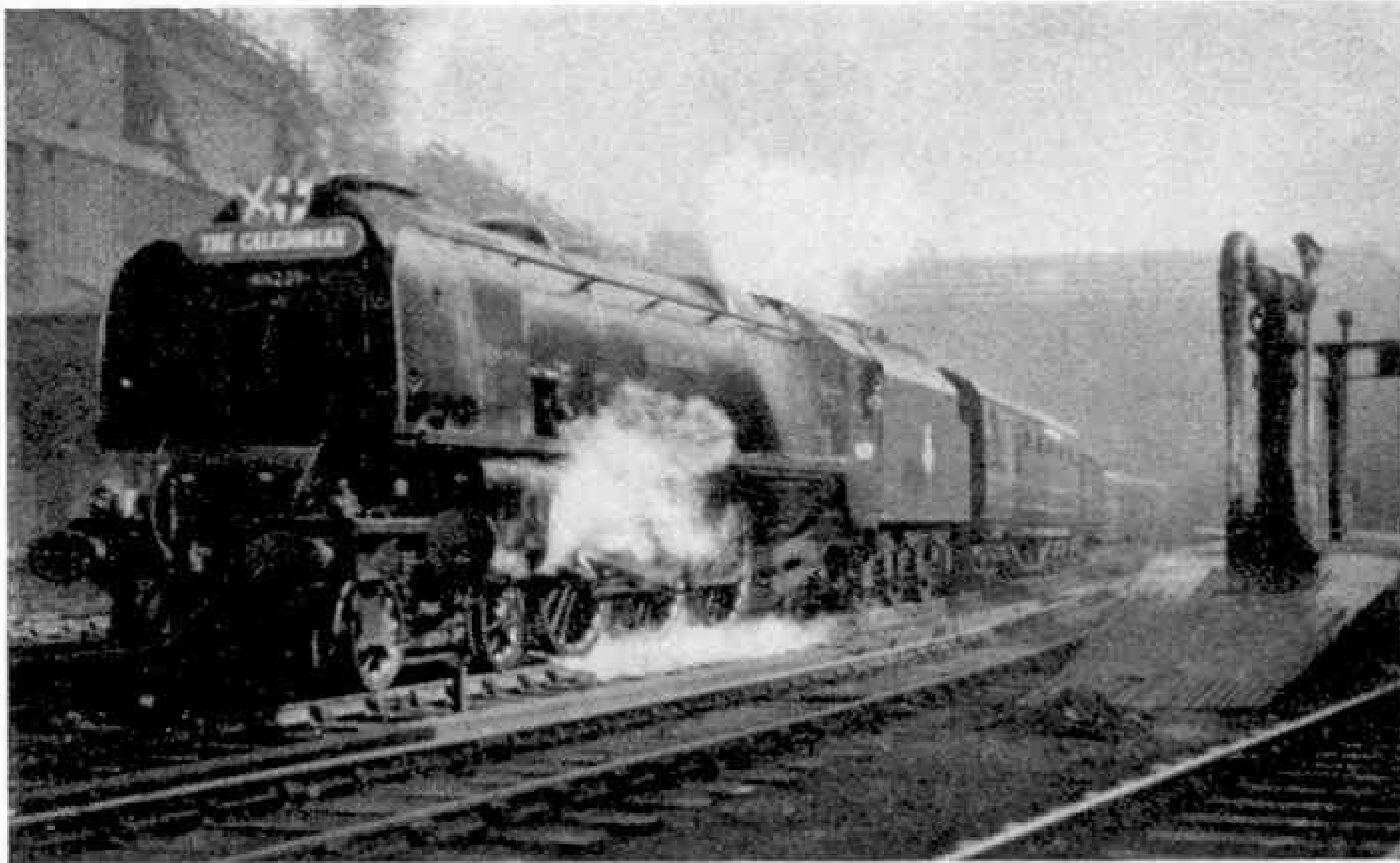
The 1958 issue of this annual production traces the story of the service since the war. During hostilities the crews had to face the dangers of enemy action as well as the normal hardships of life-boat service, but in spite of these troubles they rescued the astonishing number of 6,376 lives; and this figure does not include the 3,400 men brought from Dunkirk by the Ramsgate and Margate life-boats manned by their regular crews, or the thousands of others taken off the beaches there by life-boats in charge of naval ratings.

Since the war the service has been provided with many new boats and better facilities for rescue work, and in fact more and more calls have been made on the service year by year since the war ended. The increase indeed began before the war, for there were 269 life-boat launches in 1926 and 468 ten years later. In 1946 there were 631 launches and by 1956 the number had

risen as high as 745. There are several reasons for the increase. The most important single factor is probably the introduction of radio telephony into sea-going craft of all kinds, which has meant that more distress signals have reached the life-boat stations. Other causes have been the growing popularity of yachting and the steady increase in the number of holidaymakers who put to sea in unsuitable craft. Many more aircraft too have found themselves in need of help.

The selection of famous life-boat rescues given in *The Story of the Life-Boat* is of absorbing interest, and the picture on this page is from a photograph taken in 1956, when the Lizard and Coverack life-boats went to the rescue of the motor vessel *Citrine*, which was in danger near the Lizard. The former is seen on its return from service with men rescued from the *Citrine*. The Coverack life-boat saved the others, and Acting Coxswain Carey of that vessel was awarded the Institution's Bronze Medal.

Copies of the booklet can be obtained from The Royal National Life-Boat Institution, 42 Grosvenor Gardens, London S.W.1., or from any of the Institution's branches or life-boat stations, price 1/6.



No. 46239 "City of Chester" distinguished by a striking headboard leaves Glasgow Central for Euston with "The Caledonian". Photograph by G. H. Robin.

A fresh crew took the engine and train on to Glasgow, but I was not able to proceed into Scotland this time.

Hundreds of 8F L.M.R. 2-8-0s

In 1935, on what was then the L.M.S. Railway a new series of Stanier-designed 2-8-0s entered service for heavy freight haulage, up to that time largely handled by 0-8-0 or 0-6-0 engines. They were numbered from 8000 upwards and came to be known generally as the 8F class. They are powerful locomotives, having two outside cylinders actuated by Walschaerts gear in the usual way nowadays; the tapered boiler is pressed to 225 lb. per sq. in., and the engines are capable of running over a large proportion of main and

secondary lines, because of their dimensions.

During the last great war the type was selected for large-scale construction on Government account for military service overseas as well as on home railways. Building was carried out at Crewe, Horwich, Doncaster, Darlington, Swindon, Brighton, Eastleigh and Ashford railway works, as well as by Beyer, Peacock & Co. Ltd., and the North British Locomotive Company, Glasgow, at various times, so that by 1945 there were over 500 examples scattered over a wide area.

To-day there are well over 600, numbered between 48000 and 48775, stationed at ex-L.M.S. depots or those from which L.M.R. locomotives are operated. They may be seen, for instance, all the way from Willesden and London yards to Carlisle; from Cricklewood over the Midland Division to Hellifield, and beyond; on the Cheshire Lines; Shrewsbury to Pontypool Road, Swansea (Victoria) in Wales; on through freight transfer trains to S.R. yards in S. London, and elsewhere; appearing sometimes on passenger, parcels or perishable produce trains. Some carry a five-pointed white star painted on the cabside indicating that the wheels have been balanced to render them suitable for hauling fast, braked freight trains.

Locomotives in the News

New steam class 9 2-10-0s were recently completed and allocated as follows: No. 92192, 36A, Doncaster; No. 92167, 21A, Saltley, Birmingham. Nos. 92190-1 mentioned last month have now gone to Doncaster. Of diesel-electric types, additions include: main line 2,000 h.p., Nos. D202-4; Brush 1,250 h.p., Nos. D5509-10; all to 30A, Stratford. Bo-Bo 800 h.p., No. D8205, 1D, Devons Road, London: Six-wheeled shunting locomotives, Nos. D3432-4, 87B, Duffryn Yard, S. Wales; Nos. D3492-4, 31B, March; Nos. D3507-8, 82B, St. Philip's Marsh, Bristol; D3509-14, 83D, Laira, Plymouth; Nos. D3656-8, 55B, Stourton, near Leeds.

Diesel-mechanical 200 h.p. shunting type, No. D2019, 34D, Hitchin; Nos. D2020-2, 40B, Immingham, Lincs., Diesel-hydraulic, 4-wheeled, Nos. D2902-3, 1D, Devons Road.

For the 3 ft. gauge lines at the Beeston Creosote Works, Notts., an 0-2-2-0 diesel-mechanical small locomotive has been added to stock numbered in service stock, ED10.

Around the G.E. Line, E.R.

During recent travels over a circular route from London to Norwich and back, my interesting

Railway Notes

By R. A. H. Weight

Aboard "The Caledonian"

With the introduction of an extra train each way on the *Caledonian* high-speed service on ordinary weekdays 'twixt London and Glasgow, this summer sees the finest-ever Anglo-Scottish express service operating to and from Euston and King's Cross over the West and East Coast routes. I have recently described journeys over the latter in the *Talisman*, *Fair Maid*, *Flying Scotsman*, etc.

Recently it was a pleasure to be able to travel most comfortably with excellent interior service on the 4.15 p.m. from Euston, one of the original *Caledonians* introduced in 1957. This calls only at Carlisle and is timed to cover the 401½ miles each way between Euston and Glasgow (Central) in 400 min., having by a small margin the fastest overall schedule by either route to-day.

The engine was 8P No. 46239 *City of Chester* (figuring in my first illustration this month) stationed at and ably manned by Camden Driver A. Bassett with Fireman B. Young. The usual handsome 8-coach train weighed about 285 tons inclusive.

After leaving Euston we were soon improving on the fast schedule, passing Crewe at 6.37 p.m., 158 miles in 142 min., and covering 134 miles in the first two hours with lively uphill work and a maximum of 87 m.p.h.

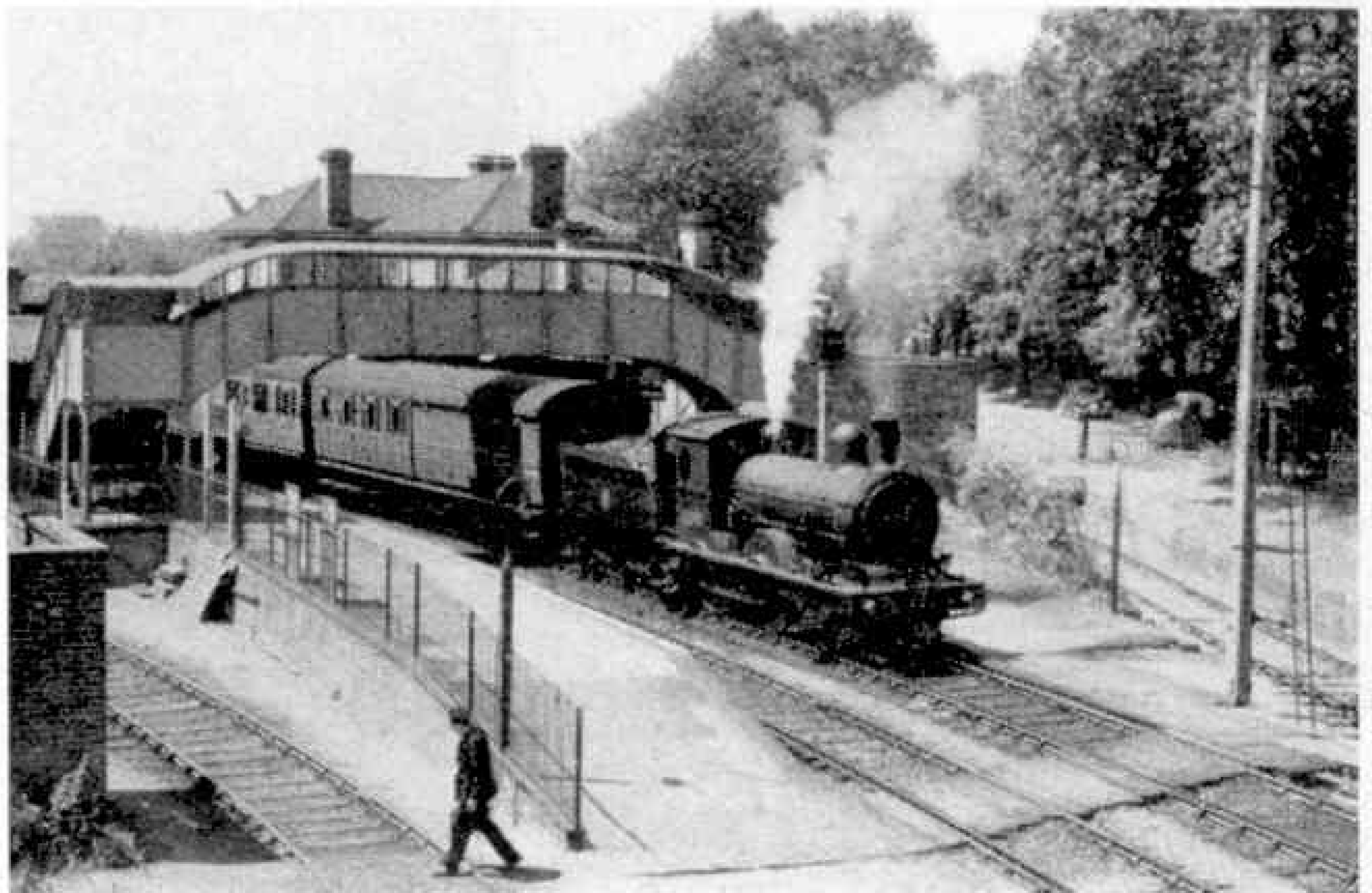
There was only one signal check, before Lichfield, but there were four slowings due to permanent way repairs and so on, which caused a slight lateness to develop around Carnforth. After this came the first part of the steep climb to Shap among the Lakeland Fells, but the slight loss was quickly regained, the summit being passed at 38 m.p.h. after a 4-mile climb at 1 in 75. There followed speeds up to 94 m.p.h., in perfect steadiness, beyond Penrith bringing the *Caledonian* into Carlisle, stop, at 9.2½ p.m., 3½ min. early, or 299 miles in 287½ min. overall—a fine effort!

observations included the very clean green No. 61670 *City of London* (at one time one of the two streamlined B17 4-6-0s) bringing in the smart maroon 8-coach *Scandinavian* to load for Harwich at Liverpool Street, where the beautifully turned-out little carriage pilot engine, J69 0-6-0T No. 68619, was another subject for admiration.

The 2.24 p.m. down via Cambridge was hauled by 4-6-2 No. 70034 *Thomas Hardy*, which did well between stops when opportunity offered but had to run carefully on the "wrong" up, track between Roydon and Burnt Mill as the down line was occupied by clever power-operated apparatus mounted on wagons for boring holes, mixing cement, erecting and fixing masts in readiness for forthcoming electrification on the overhead principle from London to Bishops Stortford.

Later in the day I rode behind another *Britannia*, *Cœur-de-Lion*, from Ely to Norwich. Both local and stopping main line diesel services are much in evidence around East Anglia and appeared to be doing well. Diesel-electric locomotives are taking over many of the London express or other through passenger workings, as well as some of the fast freights, as indicated by my report of a good *East Anglian* run last month and by one of our present illustrations. *Britannia* Pacifics have taken charge of some of the accelerated Liverpool Street-Clacton trains.

I was pleased, however, to see many ex-Great Eastern Railway locomotives on country services, through London portions north of Ely, Norwich or Ipswich, etc., including *Claud Hamilton*, D16, 4-4-0s; B12 4-6-0s; both in rebuilt form; also various 0-6-0s. Among newer classes, the L.N.E.R. *Sandringhams* share all sorts of duties. I noted one on a Cambridge-Colchester branch train such as worked for many years by E4 2-4-0s, of which class No. 62785 is at present the sole survivor. These useful little engines began to appear in 1891 and were built until 1902, the total number then being 100.



A little old engine, ex-Great Eastern 2-4-0 No. 62797, with a train in an appropriate East Anglian setting. This one of the last survivors of a once numerous class is shown leaving Sudbury on a Cambridge-Colchester train. The photographs on this page are by G. R. Mortimer.

A Miscellany of Developments

Overnight facilities for motorists including inclusive charges for conveyance of cars in covered vans, and passengers, who travel in some cases on the same special train by sleeping car or ordinary coach, saving long drives to holiday areas, have been extended this summer and apply between London and other centres in England and Scotland; from Scottish stations or north of England to Eastbourne, or Dover for the Continent; between Paddington or Waterloo-Devon-Cornwall, with other opportunities.

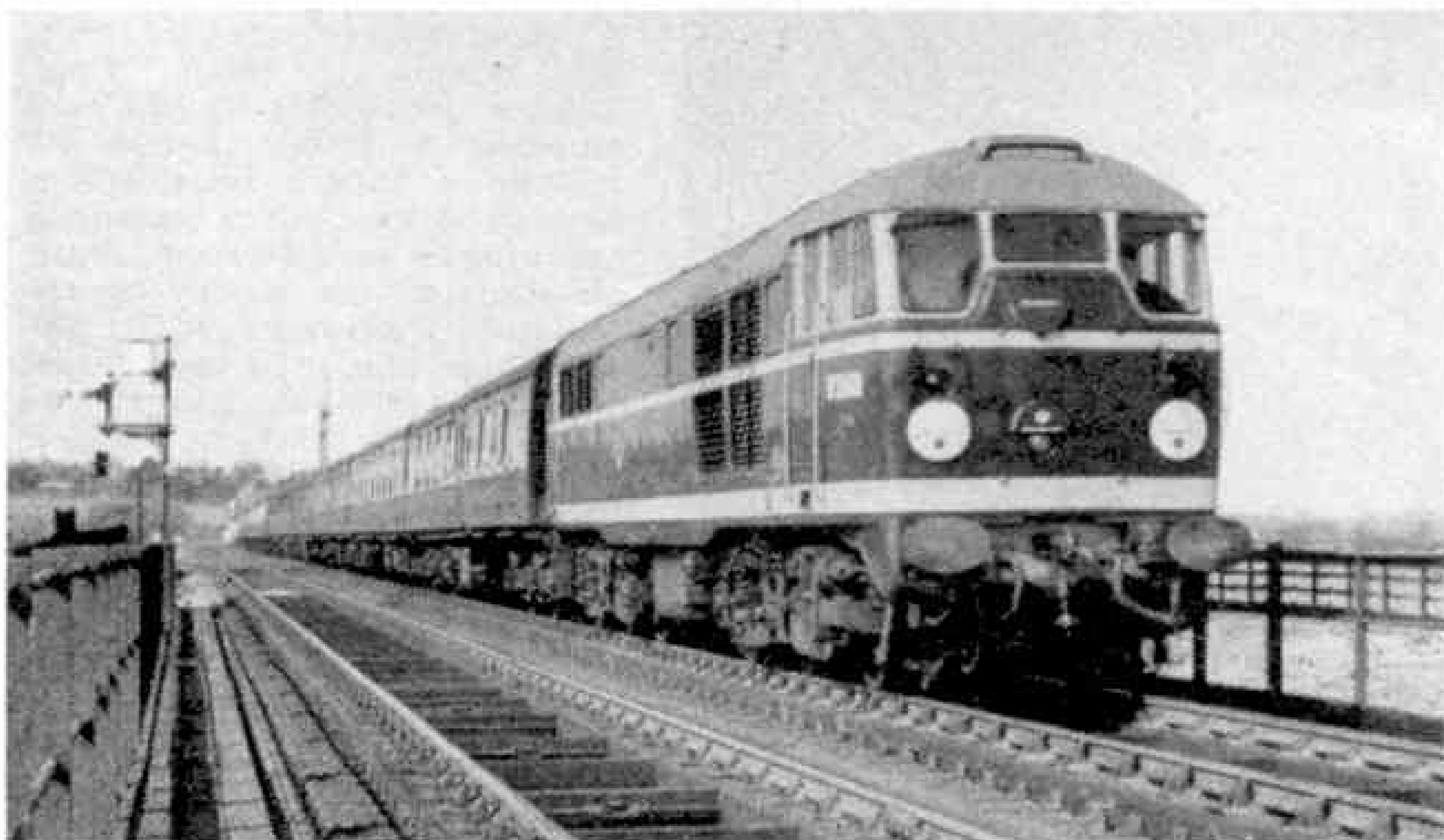
Seven-day "rover" tickets available over practically their whole territory are being issued by each of the British Regions until the end of October at very moderate charges offering enormous possibilities for travel, exploration and observation.

Electronic computers, believed to be the first of their kind, are being tried with apparent success in connection with L.M.R. and E.R. timetable revision, making allowance for many factors involved such as track occupation facilities, loop lines, junctions, priorities, and so on.

B.R. Locomotive Testing Bulletin No. 19

This Bulletin gives details of special performance and efficiency tests carried out over the difficult Midland route between Carlisle and Skipton, with the *Deltic* diesel electric locomotive built by the English Electric Company in 1955 that has been in service on British Railways for an extended trial period. Engineers or students will find the numerous tables and graphs relating to performance worthy of study. It is clear that the *Deltic* performed very well during these tests.

Copies of the Bulletin may be obtained from the Chief Publicity Officer, British Transport Commission, Room 268, 222 Marylebone Road, London N.W.1., price 10/- post free.



Brush diesel-electric No. D5500 makes a striking contrast in motive power with the steam 2-4-0 in the upper illustration. It is crossing Manningtree South Viaduct with a Liverpool St.-Norwich train.

Air News

By John W. R. Taylor

MANNED SATELLITE

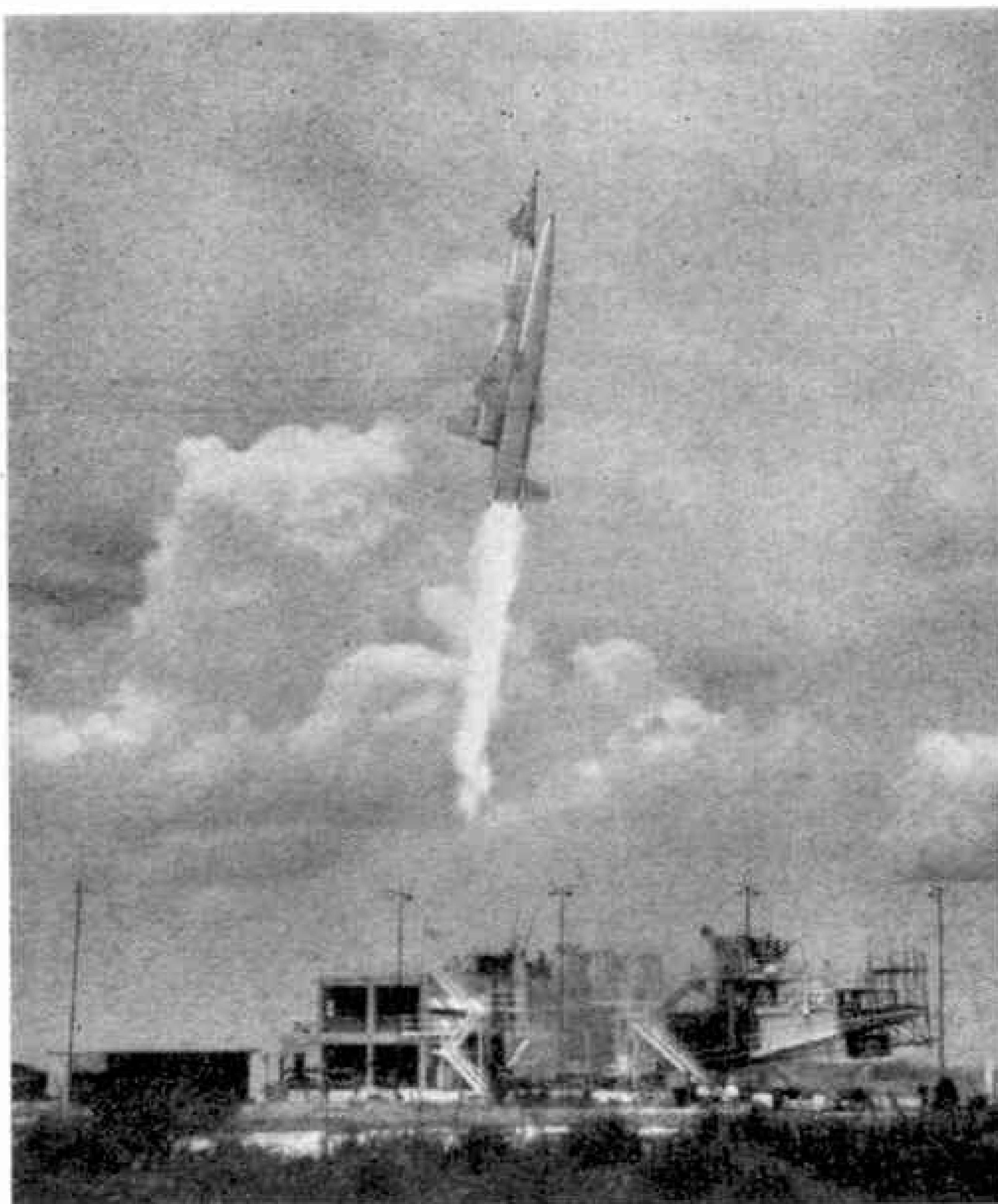
No aircraft in history has been designed to do such a fantastic job as the North American X-15 research monoplane, illustrated on this page. Its bullet-shaped fuselage houses a Reaction Motors XLR-99 Pioneer liquid-fuel rocket engine developing no less than 60,000 lb. of thrust, which is about four times the power given by the Curtiss-Wright rocket that pushed the Bell X-2 to over 2,100 m.p.h. in 1956.

Although its design looks quite orthodox, the X-15 embodies countless new and advanced ideas. For example, the trailing-edges of the upper and lower tail-fins are square-cut and 12 in. wide, and the razor-thin wings contain tiny rocket-jets that will help to control the aircraft when it climbs beyond the effective atmosphere.

The X-15 is, in fact, designed to fly at speeds of 3,500 to 4,500 m.p.h. and at heights up to 100 miles. Later, it may even become the first man-carrying satellite, because there are plans to fire it to a height of about 20 miles with the aid of a large missile-type booster rocket, after which its own engine would probably carry it far enough and fast enough to enter a satellite orbit around the Earth. The biggest problem to be solved is to get the aircraft and pilot back safely to the ground afterwards, without their burning up through friction with the atmosphere as did the Russian Sputniks I and II.

A MIGHTY MISSILE

If the X-15 is launched successfully into orbit, it will probably be carried on the first part of its journey by



North American XSM-64 Navaho missile in flight at U.S.A.F. Cape Canaveral test site, in Florida. The picture shows the booster with missile riding piggy back.

a booster rocket of the type developed for the North American Navaho missile, illustrated above.

Intended originally to carry an H-bomb warhead over a range of 2,500 miles at 2,300 m.p.h., the ramjet-powered Navaho has now been dropped from the U.S. missile programme. But many of its components and techniques are being used for even-more-advanced projects.

U.N.O. EMBLEM IN THE AIR

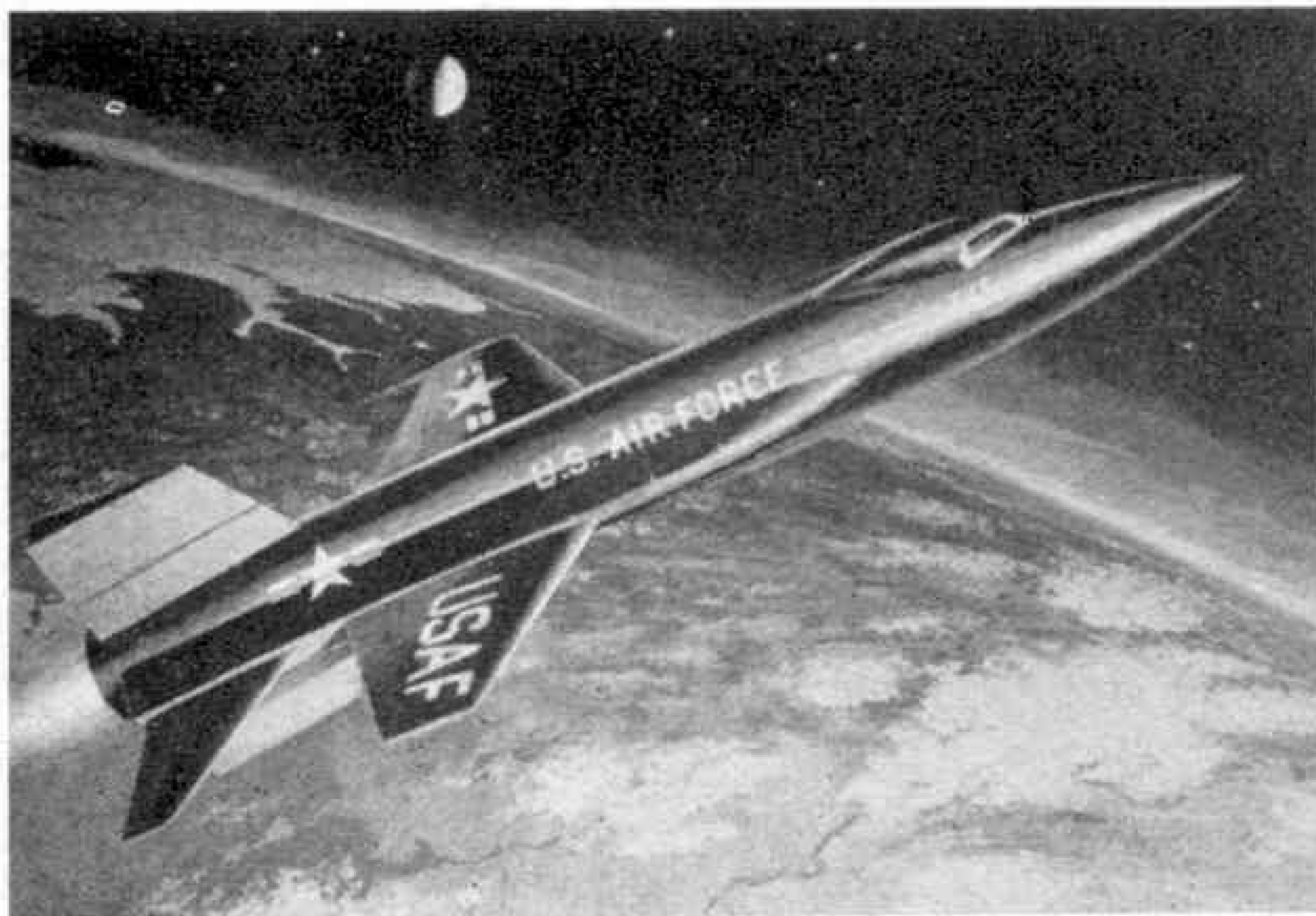
The light blue emblem of the United Nations, showing the world framed by olive branches, will soon be seen in the air, painted on all the aircraft operated by United Air Lines.

The idea was started by one of this company's pilots, Capt. Charles Dent, after he had been awarded a \$5,500 bonus for making a superb belly-landing with an air liner full of passengers following an undercarriage failure. He donated the money to the United Nations, with the suggestion that it be used to put across the idea of painting the Organisation's emblem on air liners, to remind people all over the world of the necessity for international co-operation.

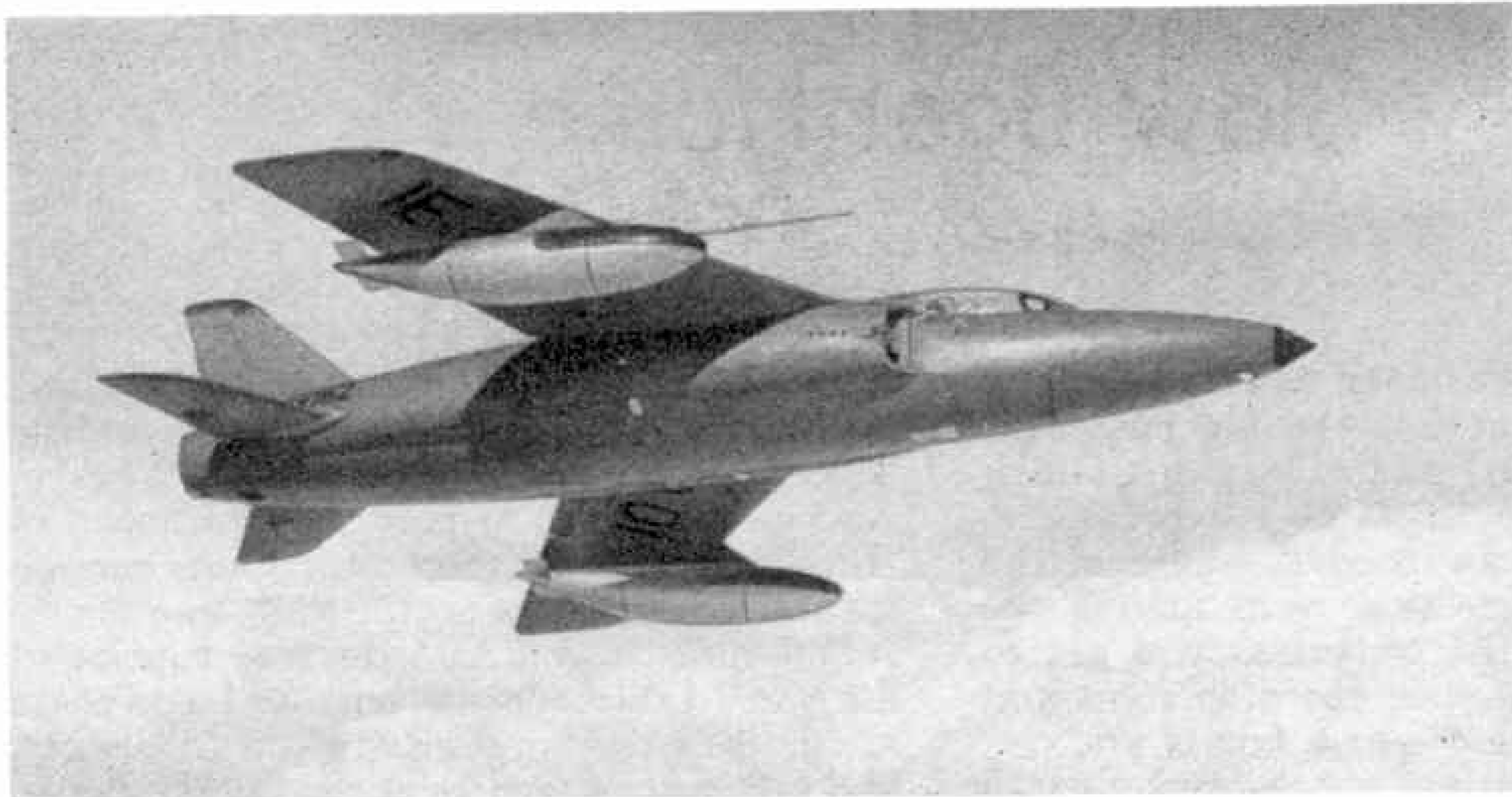
Already, other airlines have said that they will follow the lead of United Air Lines.

GNATS IN THE NEWS

A few months ago the Air Ministry placed an initial production order for 14 Folland Gnat two-seat trainers, to give R.A.F. pupil pilots experience in flying at transonic speed. Now



An artist's impression of the North American X-15 research aircraft described on this page. It is designed to fly at speeds of 3,500 to 4,500 miles per hour and at heights up to 100 miles.



One of several Folland Gnat single-seat fighters ordered by the Indian Air Force, photographed during a test flight. Illustration by courtesy of The Bristol Aeroplane Company Limited.

THE DOUGLAS DC-8

The second of America's two giant four-jet airliners, the Douglas DC-8, made its

it has been announced that the R.A.F. is to try out the single-seat fighter version of this aggressive little aeroplane in Aden, to see if it would form a suitable replacement for the Venom for ground-attack duties.

It has been obvious for a long time that such an aeroplane would be needed, because local campaigns and "police" actions of the kind we have fought since the war in Malaya, Kenya and Aden are far more likely than a major war. Huge, fast, powerful fighters like the English Electric P.1B are no good for this work, which demands a simple machine able to operate from rough airfields with a minimum of maintenance.

So, at last, it looks as if the R.A.F. may follow the example of Finland and India, and order the Gnat for first-line duties. The above picture shows an Indian Air Force Gnat, armed with two 30 mm. Aden cannon and fitted with radar-ranging in its pointed nose. For ground attack duties, the guns and underwing fuel tanks are retained, together with two 500 lb. bombs or an equivalent weight of rockets.

NEW WORLD RECORDS

Lockheed F-104 Starfighters of the U.S.A.F. Air Defense Command achieved the remarkable feat of breaking both the world air speed record and the aeroplane height record within ten days of each other in May of this year.

First to fall, on 7th May, was the height record, when Major Howard Johnson climbed to 91,249 ft. (over 17 miles) over Palmdale Air Force Base, California. Then, on the 16th, Capt. Walter Irwin took off from the same airfield to achieve an average of 1,404.19 m.p.h. in two runs over a measured course, during one of which he clocked over 1,500 m.p.h. at times.

In each case, the F-104 was flown with its full operational equipment installed, and on the power of its normal General Electric J79 turbo-jet with reheat.

Douglas DC-8 four-jet air-liner being towed from the assembly shop.



maiden flight on 30th May last.

In general appearance it is very similar to the Boeing 707, and offers the same choice of Pratt and Whitney JT3 or JT4, or Rolls-Royce Conway turbo-jets.

The first DC-8, like the first 707, is a short-range model, powered by four JT3's. With tanks for 14,205 gall. of fuel in its wings, it will carry 118-176 passengers for nearly 5,000 miles at 561 m.p.h. All versions are the same size, with a span of 139 ft. 8 in., and length of 150 ft. 6 in.; but whereas the short-range model has a loaded weight of 265,000 lb., the intercontinental versions will weigh 287,500 lb. and carry enough fuel for a range of up to 6,000 miles.

COMET'S 4½-HOUR CANADA—U.K. FLIGHT

One of B.O.A.C.'s experimental Comet 2E's, on a routine transatlantic training flight, arrived at London Airport in the early hours of Tuesday, 13th May last, having left Gander, Newfoundland, only 4 hr. 33 min. earlier. Average speed for the 2,400-mile flight was 530 m.p.h.

The Comet had left London at lunchtime on the previous day, and its flying time for the 5,100-mile round trip was 11 hr. 24 min. On the westward flight, it made a scheduled stop in Iceland; and it is an open secret that B.O.A.C. is considering the possibility of opening a transatlantic service next year with its Comet 4's. Although they would need to land in Iceland to refuel, they would still link London and New York much faster than any other aircraft except the Boeing 707-120's of Pan American.

Slow Boat Home

By Bernard Llewellyn

THERE is an intimacy about travelling on a freighter that the big passenger liners cannot rival. On the big ships, which take two to three weeks to reach London from India, you can discover—even at the end of the voyage—new faces among the passengers. On the freighters you get to know everybody—even the ship's cat and the Captain's canary—in a few hours.

It is not easy to get a passage by cargo steamer. These boats seldom carry more

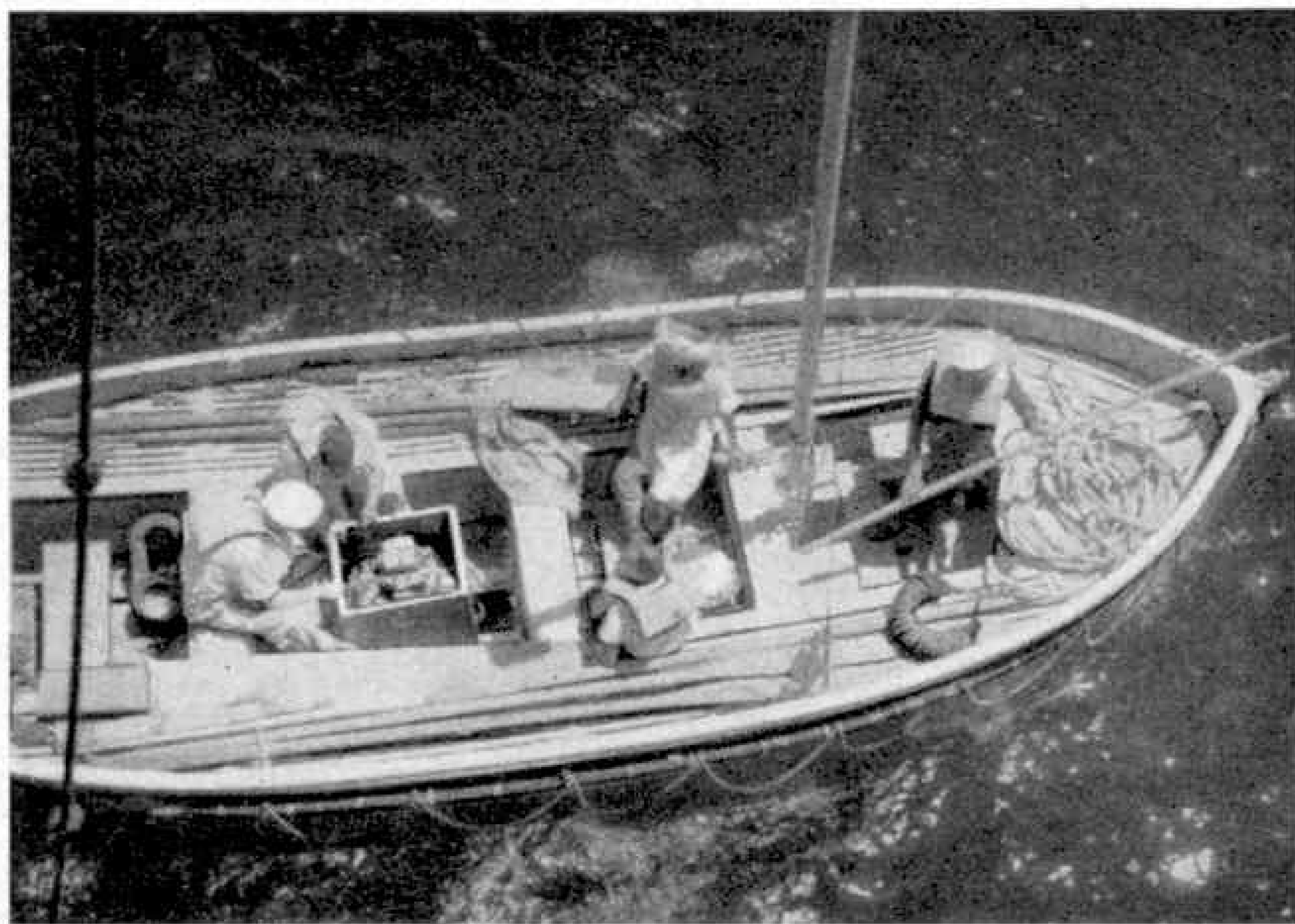
all had private bathrooms and toilets. There was a small lounge on the deck above the dining saloon and a well-stocked library. And on the deck, to port and starboard of Number 3 Hatch, there was room enough for our deck-chairs at the rail.

One quickly gets into the lazy routine of life aboard ship. On the smaller boats there are none of the "organised games", dances, and fancy dress parties of the liners. Books and conversation with crew and fellow passengers take up the hours, with a moon to watch at night and porpoises and flying fish by day. On the liners the Captain is as remote as the gods; on our freighter we were invited into his cabin and went fishing with him during idle days off-shore.

There were many such idle days, and I soon discovered how much of a freighter's time is spent hanging about outside ports, waiting for a berth to be vacated or the harbour pilot to come aboard. At some ports, such as Colombo, dock labourers took their time while the ship's

officers raged impotently about the decks. They contrasted with the Sudanese "Fuzzy Wuzzies" we met later at Port Sudan, who moved huge bales of cotton into our hold at a steady rate.

Our first halt after Calcutta was half-way down the east coast of India at Vizagapatam, a small port where the ships of India's Scindia Line are built. There we waited three days off a white sandy shore where fishermen, burnt black by the sun, launched their buoyant fishing boats in the tumbling surf. These are curious boats, as I saw for myself when we finally went ashore, for they are made without nails or bolts, the planks being sewn together with a thread woven from the fibre of coconut husks.



The motor life-boat of the "Chinkoa" has a trial run. The illustrations to this article are from photographs by the author.

than a dozen people in, say, eight cabins, and they are booked up well in advance. Thus I was extremely lucky in Calcutta last year to get a passage aboard the British India freighter m.v. *Chinkoa* at only two days' notice. There had been a last-minute cancellation; my ten fellow-passengers had booked at least a year ahead.

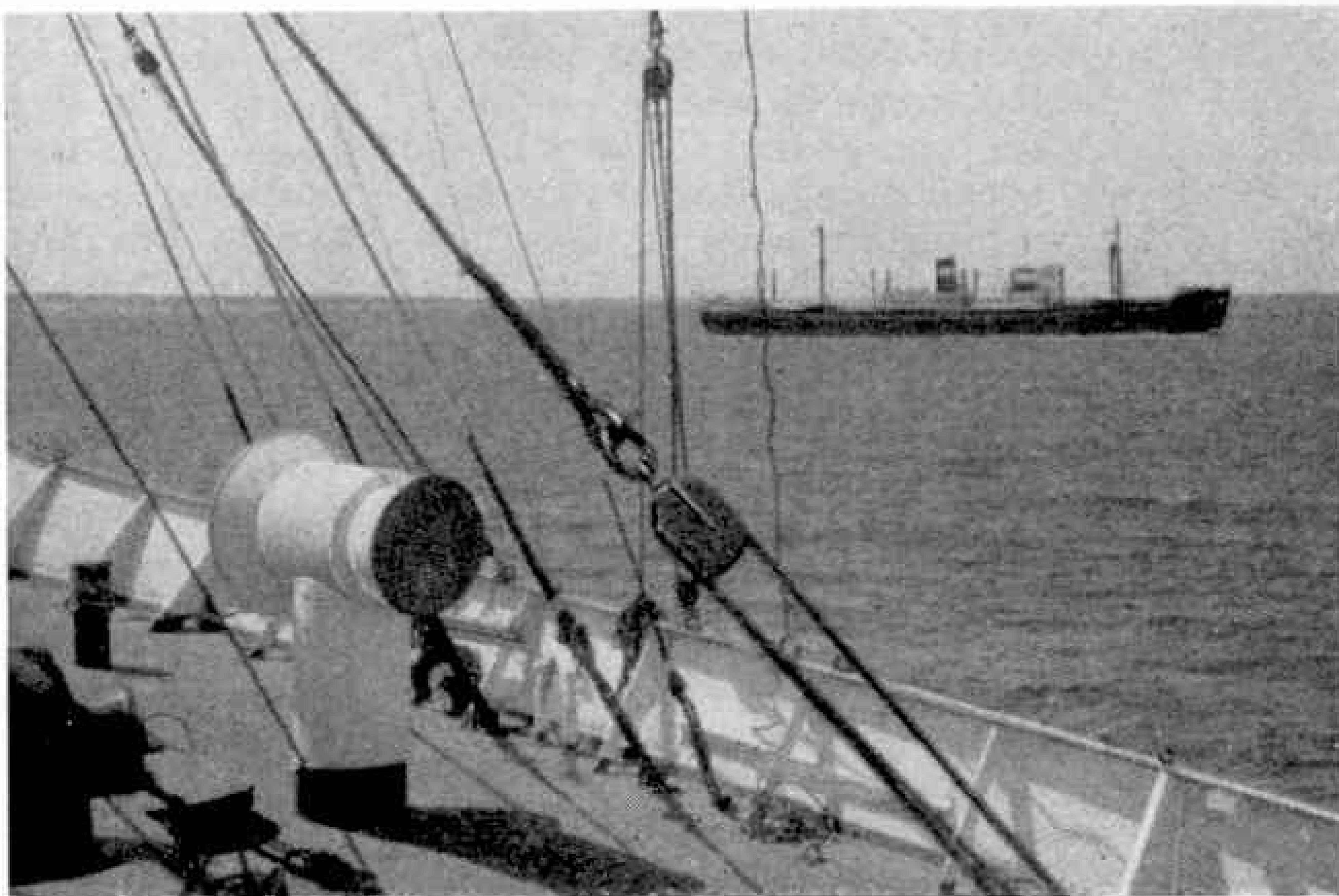
The *Chinkoa* was a new boat with a gross tonnage of just over 7,000. Her black upswept prow towered above the hot tin roofs of the Calcutta Customs sheds as I drove up to the Docks. In the sheds I stood with the others, waiting to board the vessel that would be our home for nearly two months.

It was a comfortable home. The cabins, whether they were single or double-berthed,

We were two days at Vizagapatam loading manganese ore; and as the huge iron buckets, each capable of holding up to two tons, were tipped to discharge their contents into the holds, a reddish dust hung over the deck, and the passengers who stayed aboard retired to cabin or lounge.

While we were there, the *Chinkoa* was re-routed. We had expected to be going round the Cape, but a wireless message from the owners now told us we would be returning via Suez. As this meant we should be calling at more ports and seeing rather less empty sea, we were pleased at the news.

The bright stars of the Southern Cross kept us company down to Colombo. For ten days we remained anchored in the great harbour there, making frequent trips ashore in launches and using the ship as our hotel. From the deck we watched great passenger liners like the *Oranje* and the



The British-India liner "Okhla", seen from the deck of the cargo boat on which the author made the voyage here described.

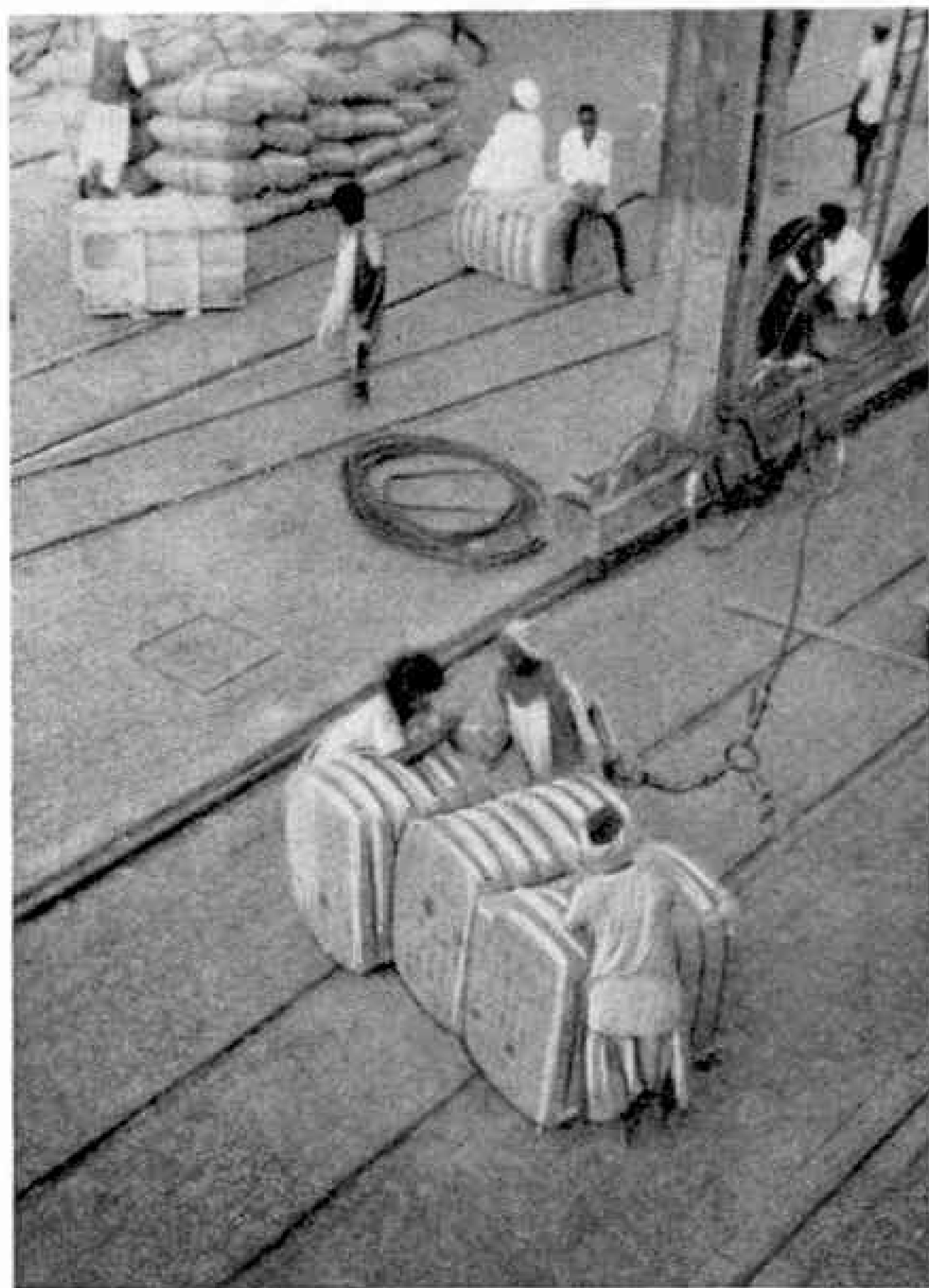
P. & O. *Canton* come in for brief stopovers. The Bank Line *Inchanga* arrived en route from Africa. We seemed to be at the crossroads. Every morning when we came on deck a change had taken place in the pattern about us, but a hard core of loading or off-loading freighters remained.

One morning the *Ob* arrived—a Russian ice-breaker loaded with scientists on their way home from the Antarctic.

I spent an evening ashore with the Chief Engineer. He was chafing at the delay in the harbour. Yet he had been on slower ships. "In the old days", he said, "we used to stop at some thirty miserable ports between Calcutta and Bombay. That was really something to complain about." But there did come a day when the last of the tea chests was swung up from the lighters, and that evening the pilot came aboard to take us out through the narrow harbour entrance. The lights of Colombo's Galle Face Hotel came on as we stood out to sea.

We had no bad weather on the trip. The nearest we came to it were the blustery winds and choppy seas into which we headed between the southern tip of India and the Gulf of Aden. We rolled and pitched for a couple of nights, and the ladies aboard were glad we were not heading towards Durban, where the radio spoke of very bad weather. By the time we sighted the African coast the winds had dropped.

Oil is cheap at Aden and the *Chinkoa* was to take on eleven hundred tons. We were meeting ships again and the night we were running into Aden three freighters to starboard were winking at us with their Aldis lamps.



Loading cotton at Port Sudan.

Aden is a duty-free port, and passengers on their way to and from the East have a chance to buy cameras, watches, clothes, etc., at rock-bottom prices. The ladies especially had been looking forward to going ashore. But the refuelling took far less time than the Captain had thought, and we did not land. Instead, the bum-boats came out to the ship laden with all sorts of oddments from nylon shirts to Japanese tea sets. The goods were hauled over the ship's side in straw baskets, and bargaining went on until the *Chinkoa's* anchor was raised and we were away again, bound for the ports of the Red Sea.

The next two ports of call, Massawa and Port Sudan, in the Red Sea, were extras. The orders had come over the radio while we were in the Indian Ocean. The Captain had not been to Massawa before, and the chart showed a coastline studded with tiny coral reefs and islands. He slowed down so that he would arrive in daylight.

The shores of the Red Sea are fascinating. Inside the green coral reefs the almost transparent water forms a vast aquarium for tropical fish. They are of every colour imaginable and shoals of them darted about the sunlit shallows. Massawa has the reputation of being the hottest town in the world. It was once simply an Arab dhow harbour, but the Italians made it into a considerable port which they used to develop Eritrea. Today a few Italian shops supplement the Arab quarter, where sandy courtyards and old mosques have a special charm in the moonlight.

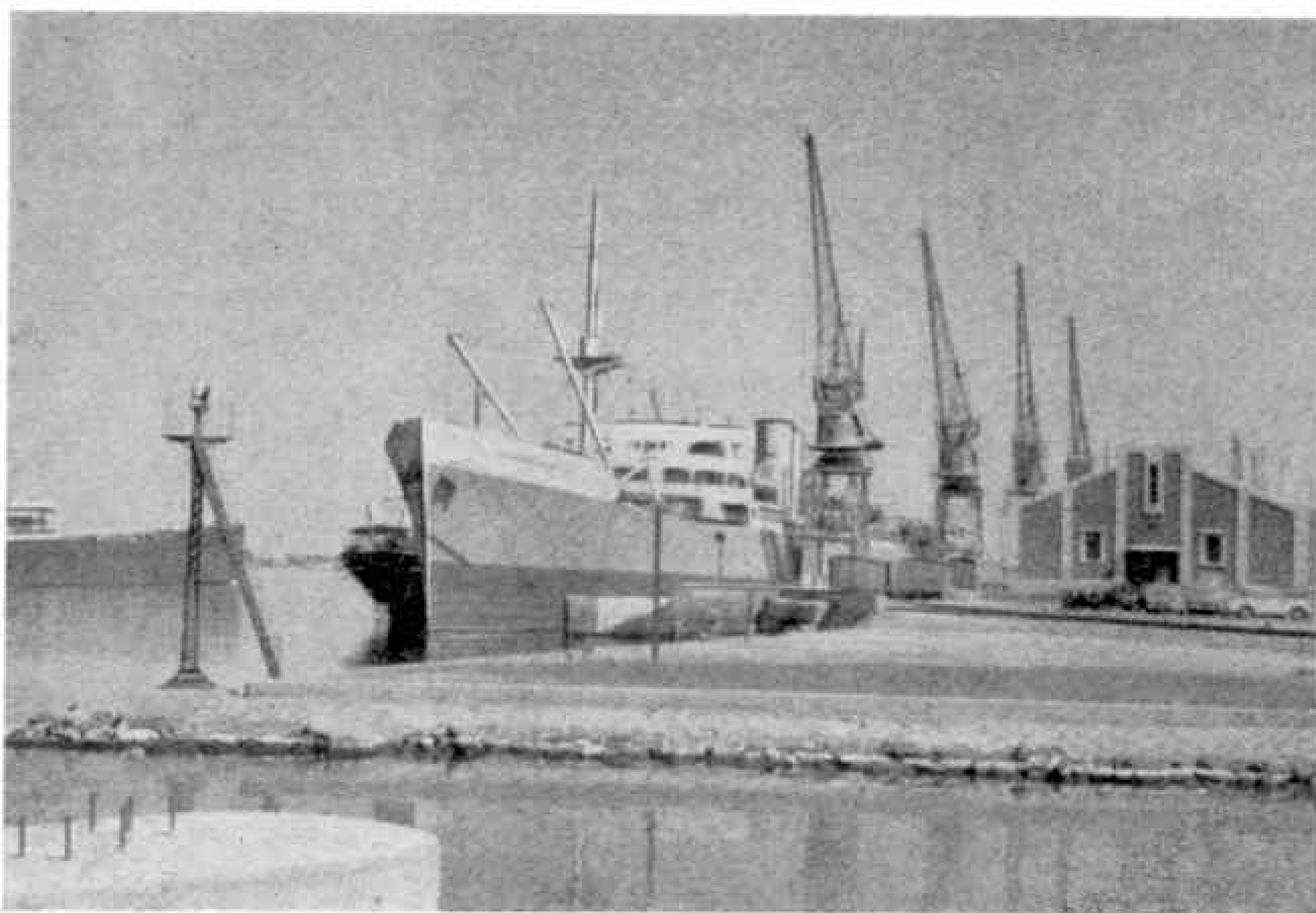
Waiting off Port Sudan, we spent the days fishing with rod and line, catching eight to ten pounders over the stern with hooks coated with pellets of bread. From time to time we saw the fins of a shark; but when I went shark-fishing in the ship's boat with some of the crew, trailing a huge butcher's hook and hunk of raw meat astern, I was glad enough that the sharks kept out of our way. Ashore there was a scruffy Arab bazaar and some scrawny camels. Most of the Arabs I saw went about in long white "nightshirts", while the closer I got to the Fuzzy Wuzzies the more unnatural

their heads of woolly curls seemed to be.

On the way up to Suez, great convoys of empty oil tankers came towards us on their way to Abadan. In one long day, piloted by two young Germans, we passed through the Canal. We did not stop at Port Said; but sailed on down the length of the breakwater into the Mediterranean.

A huge power cable today spans the strait between Sicily and the toe of Italy, sagging between two giant pylons. We passed beneath it, heading for the volcanic isle of Stromboli and the coast at Genoa. Now we were properly in Europe. While the ship off-loaded cargo in the shadow of Genoa's tall lighthouse, we passengers made a car trip along the Italian Riviera to Rapallo and Portofino in a couple of old Alfa-Romeos.

There was still nine days to go to Tilbury, with an intermediate stop at Marseilles; and we spent them getting used to the idea of living in England again. For nearly two months we had happily whiled away the



The harbour at Port Sudan.

time on this slow boat home. It seemed highly probable that none of us would have such a time again!

Railway Owned by a City—(continued from page 389)
vicinity of Fazackerley, near Kirkby. It seems probable that the latter place was chosen for the factory estate as it had plenty of open land available and is situated conveniently near a main highway as well as a railway line. It is also conveniently close to the docks.

Today, the Estate, now the Kirkby Urban District, is still expanding and new factories are being built from time to time giving employment to many thousands of people. The place of the railway in this scheme of things seems firmly assured.

MECCANO MAGAZINE



THE picture reproduced above reached me from Nigeria, and is the work of Mrs. E. Waterfield, A.I.B.P., who thought I might be interested in including it in the Magazine. I certainly was, and here it is for you to see.

The two boys seen in the picture are at the Zaria Government College, and are members of a class in which Meccano models were being built as part of their instruction. What I liked about the picture was the obvious concentration of the two boys on their model-building. The one on the left has actually reached the stage of turning the handle of his model to make sure that it will work. I am quite sure that when he had completed this trial any doubt he may have had would have disappeared and a smile of triumph would have followed.

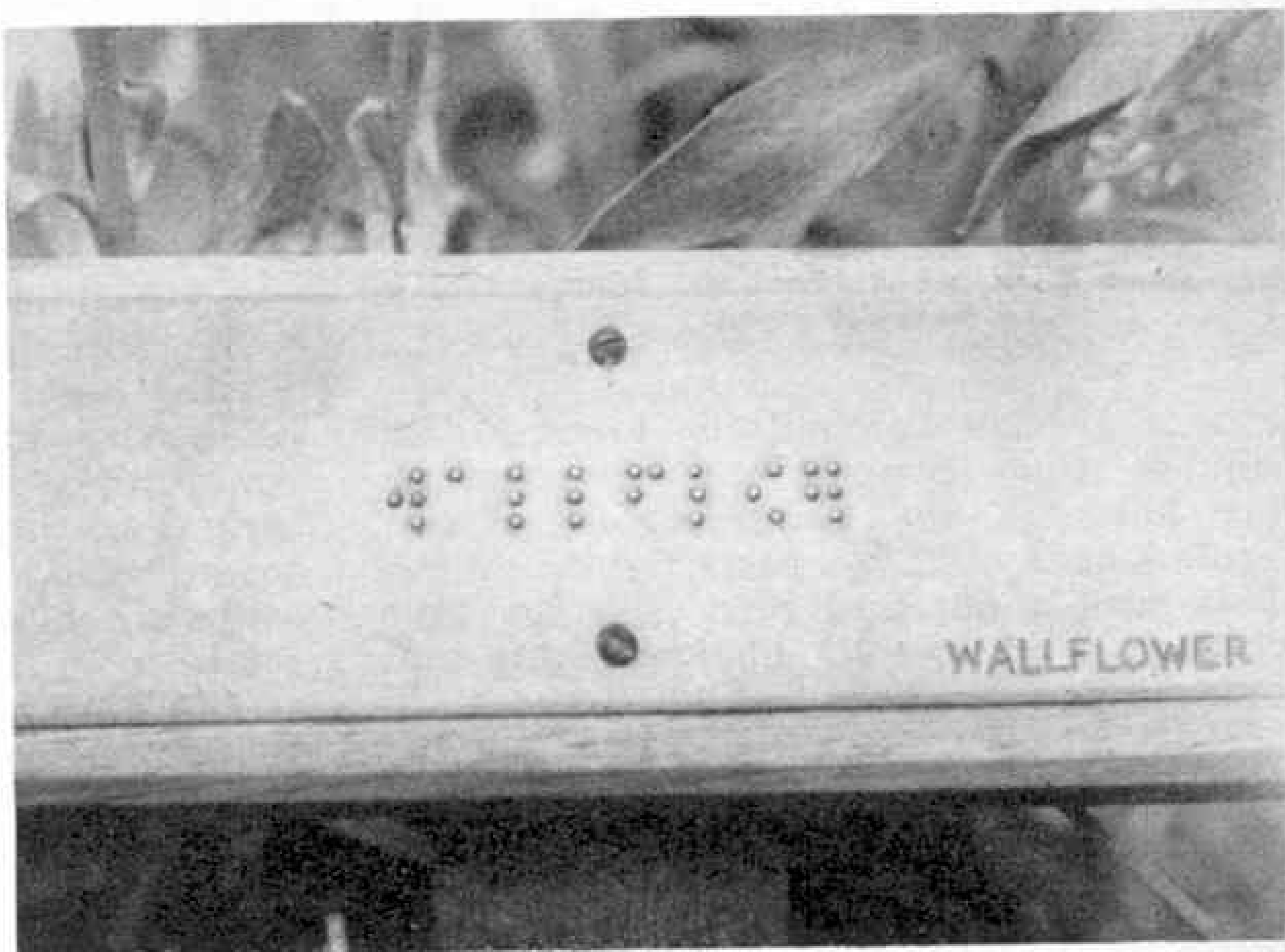
A sign for the blind in a Reading Memorial Garden. Photograph by H. L. Gilbert Heath.

Junior Section

Braille in the Gardens

Can you read Braille? If you can, then I suppose you will have no difficulty in recognising that the Braille characters seen in the lower picture on this page represent the word "Wallflower". If you cannot, there is of course the word alongside to help you!

The picture is evidence of a kindly thought. It shows a sign in the King George V Memorial Gardens in Reading, one section of which is raised in rockery fashion to about waist height, and the plants in it carry notices like the one seen in the picture for the benefit of those who cannot see the signs. These are of copper strip nailed to teak T-piece labels. They were originated by the Corporation and the Inner Wheel Club of the borough.



Easy Model-Building

"Spanner's" Special Section for Juniors

A Derrick Crane and a Tramcar

THE two new models I have for you this month are a workable Derrick Crane that can be built from parts in an Outfit No. 0, and a Tramcar that requires parts in an Outfit No. 3.

The Derrick Crane is shown in Fig. 3, and you should start building it by assembling the vertical or king post that supports the jib. For this you require two $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strips 1 and 2 connected by a $2\frac{1}{2}"$ Strip.

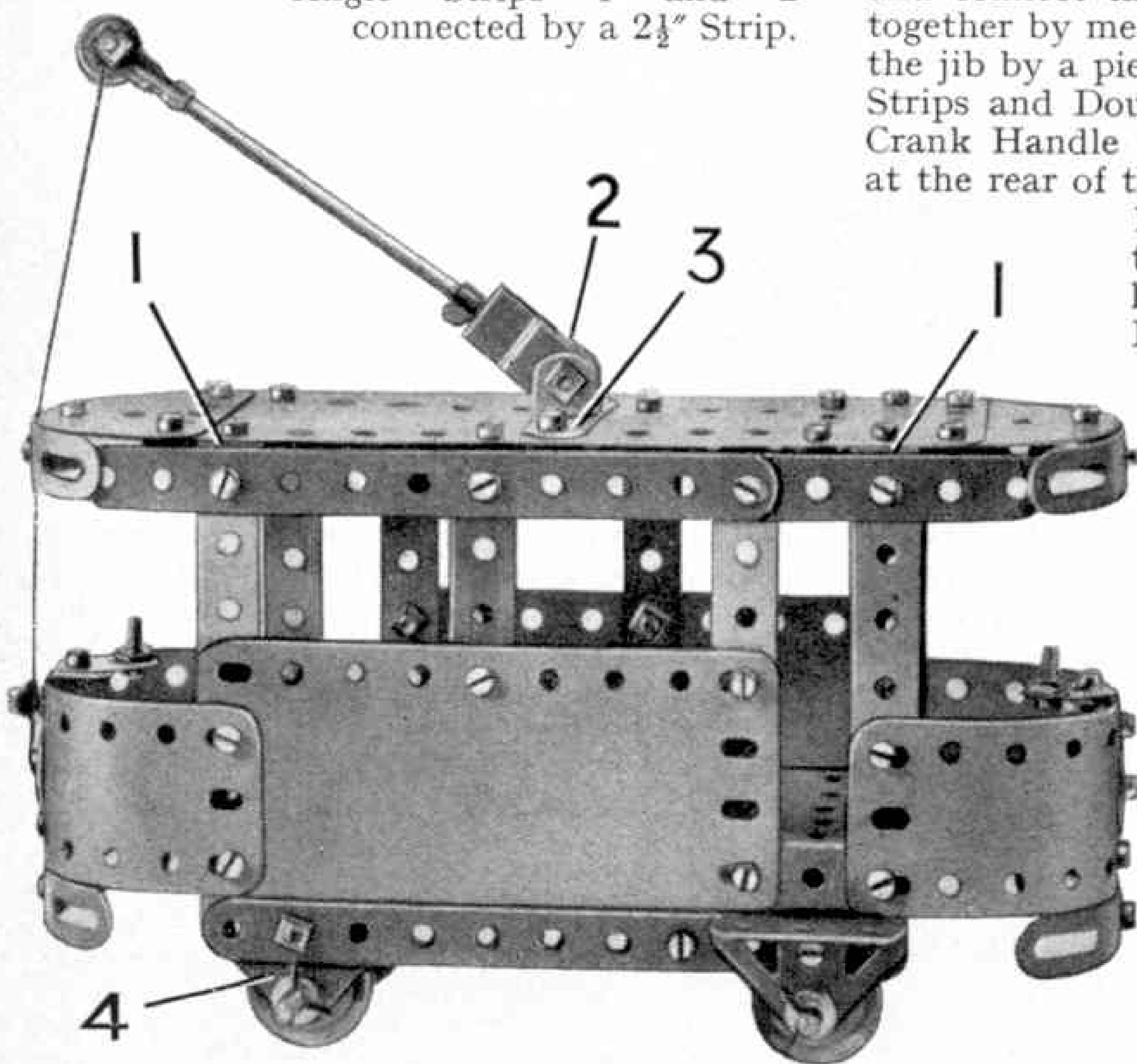


Fig. 1. A small but sturdy model Tramcar that is easy to build.

Pass a $\frac{3}{8}"$ Bolt through the lower lug of Double Angle Strip 1 and also through the holes at the pointed ends of two Trunnions 3. Fix the parts tightly on the Bolt with a nut and then pass the Bolt through a $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plate and secure it in place with lock-nuts.

Push a $3\frac{1}{2}"$ Rod through the lugs of Double Angle Strip 2 and through a Fishplate 4, and use a 1" Pulley and a Spring Clip to hold the Rod in place. Now bolt two Angle Brackets to Fishplate 4, and

to each of them attach a $5\frac{1}{2}"$ Strip. The next thing is to connect the lower ends of the $5\frac{1}{2}"$ Strips to $2\frac{1}{2}"$ Stepped Curved Strips bolted to the Flanged Plate. You should also use the bolts securing the Curved Strips to attach two Trunnions to the Flanged Plate as shown in the illustration.

The next thing to do is to make the jib. Bolt a $5\frac{1}{2}"$ Strip to each of the Trunnions 3 and connect the upper ends of the Strips together by means of a $\frac{3}{8}"$ Bolt 5. Support the jib by a piece of cord tied between the Strips and Double Angle Strip 2. Pass a Crank Handle through the Flat Trunnion at the rear of the Flanged Plate and use a 1" Pulley and a Bush Wheel to hold it in place. Tie a length of cord to the Crank Handle, pass it through a hole in the $2\frac{1}{2}"$ Strip of the jib post and take it over the Bolt 5. Finally tie it to an Angle Bracket to form a load hook.

Tramcar

Construction of the model Tramcar should be commenced by bolting a $4\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible plate to each side of a $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plate, in the positions shown in Fig. 1. The driving compartment at each end is formed by

bending a $5\frac{1}{2}" \times 1\frac{1}{2}"$ Flexible Plate and then bolting it to the Flanged Plate. Eight $2\frac{1}{2}"$ Strips are bolted to the sides as shown in the illustration, and are connected at their upper ends by a built-up strip consisting of two $5\frac{1}{2}"$ Strips overlapped seven holes. The ends of these built-up strips are joined by $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strips 1.

The roof consists of two Semi-Circular Plates, a $5\frac{1}{2}" \times 2\frac{1}{2}"$ and a $2\frac{1}{2}"$ Flexible Plate, which are bolted together and fixed to the Double Angle Strip 1. A 3" Formed Slotted Strip is attached to each Semi-Circular Plate by a $\frac{1}{2}" \times \frac{1}{2}"$ Angle Bracket,

The trolley pole is represented by a 4" Rod held in a Stepped Bent Strip 2 lock-nutted to $\frac{1}{2}$ " $\times$ $\frac{1}{2}$ " Angle Brackets 3. The Rod is held in place by a Spring Clip and a Cord Anchoring Spring.

The tram runs on four 1" Pulleys fixed on $3\frac{1}{2}$ " Rods. Each Rod is journalled in a Flat Trunnion 4 and a Trunnion, and is held in place by Spring Clips. The control handles at each driving position are formed by $\frac{3}{8}$ " Bolts in Fishplates fastened to the $5\frac{1}{2}$ " $\times$ $1\frac{1}{2}$ " Flexible Plates by Angle Brackets. The headlamps consist of $\frac{3}{4}$ " Washers, and the bumpers are represented by 3" Formed Slotted Strips fixed in place by Fishplates.

A Skittle Game

An amusing skittle game is shown in Fig. 2. The base of this is made from two $5\frac{1}{2}$ " $\times$ $2\frac{1}{2}$ " Flanged Plates 1 bolted together by their longer flanges. The striker 2 is a Worm suspended by a length of Cord from a vertical $11\frac{1}{2}$ " Axle Rod 3. This Rod is mounted on the base with a Bush Wheel and a $\frac{3}{4}$ " Flanged Wheel 4, and the Cord is attached to a Fishplate 5 mounted between two Collars and Washers at the top of the Rod. Each of the five skittles is made from a 2" Rod, a Handrail Coupling and a Collar, and these are assembled as shown in the illustration, with the Collar forming the base of the skittle.

The game of skittles is played by two people, all the skittles are given numbers and each competitor tries to knock down more skittles than his opponent and so score more points. An interesting and amusing variation can be introduced as follows. If after three tries a competitor knocks all the skittles down at one swing of the striker, he may choose to have another swing, or to rely on his original score. If he

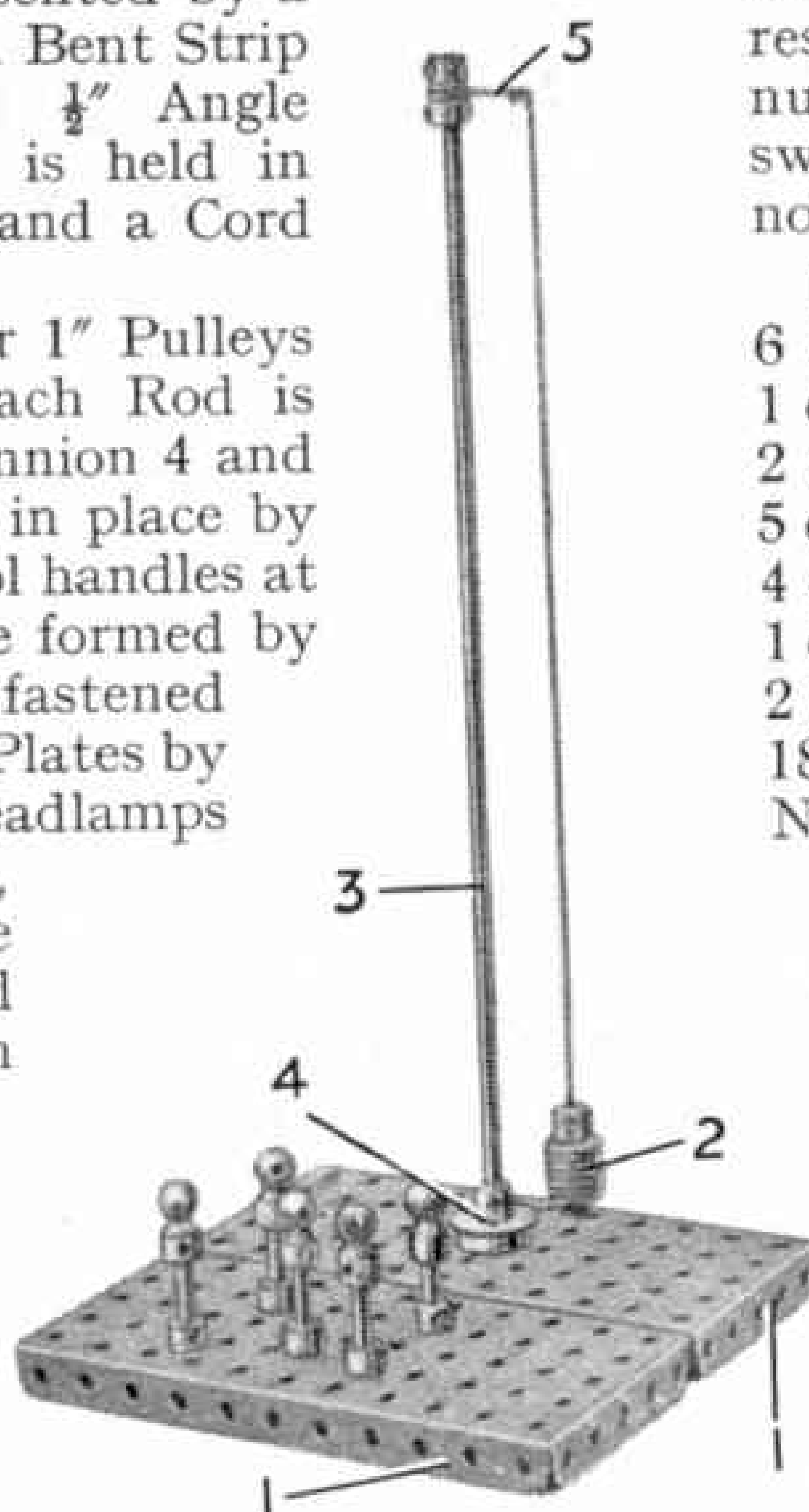


Fig. 2. This Skittle Game will provide its builder and his friends with lots of fun.

takes the fourth swing and his resulting score does not exceed the number he scored with his first swing, his original total score does not count.

Parts required to build the Tramcar:

6 of No. 2; 9 of No. 5; 4 of No. 10; 1 of No. 11; 5 of No. 12; 1 of No. 15b; 2 of No. 16; 4 of No. 22; 1 of No. 23; 5 of No. 35; 50 of No. 37; 6 of No. 37a; 4 of No. 38; 1 of No. 44; 2 of No. 48a; 1 of No. 52; 6 of No. 111c; 2 of No. 126; 2 of No. 126a; 1 of No. 176; 1 of No. 188; 2 of No. 189; 2 of No. 191; 1 of No. 192; 1 of No. 212; 2 of No. 214; 4 of No. 215; 2 of No. 217b.

Parts required to build the Derrick Crane:

4 of No. 2; 1 of No. 5; 1 of No. 10; 3 of No. 12; 1 of No. 16; 1 of No. 19s; 2 of No. 22; 1 of No. 24; 1 of No. 35; 21 of No. 37a; 15 of No. 37b; 2 of No. 48a; 1 of No. 52; 2 of No. 90a; 2 of No. 111c; 2 of No. 126; 2 of No. 126a.

Parts required for the Skittle Game:

1 of No. 10; 1 of No. 13; 5 of No. 17; 1 of No. 20b; 1 of No. 24; 1 of No. 32; 3 of No. 37; 2 of No. 52; 7 of No. 59; 5 of No. 136a.

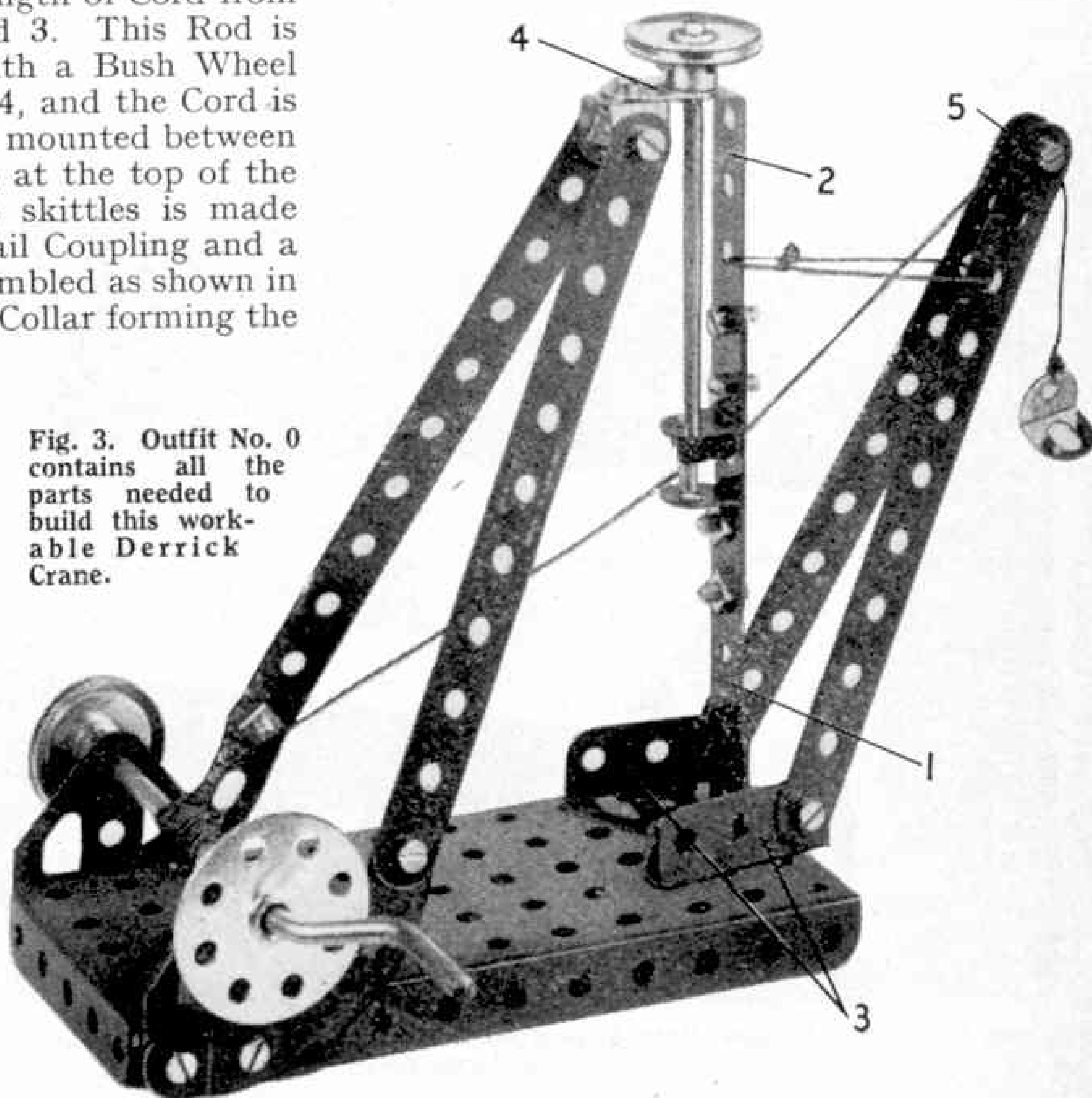


Fig. 3. Outfit No. 0 contains all the parts needed to build this workable Derrick Crane.



DINKY TOYS

By THE TOYMAN

Great News for Collectors!

NOW every Dinky Toys enthusiast can have a Dinky Toys Collector's Licence, which in the Dinky Toys world is equivalent to the driving Licences of real motorists. All that he has to do to obtain his licence for the current year is to write for it to the Secretary of the Club at Binns Road, Liverpool 13.

The Dinky Toys Collector's Licence is the same size as a motor car driver's licence, so that holders will be able to carry them in their pockets, ready for use at any time. Each has a printed Registration Number, with space on the inside front cover for the holder's name and address. It becomes valid when he adds his



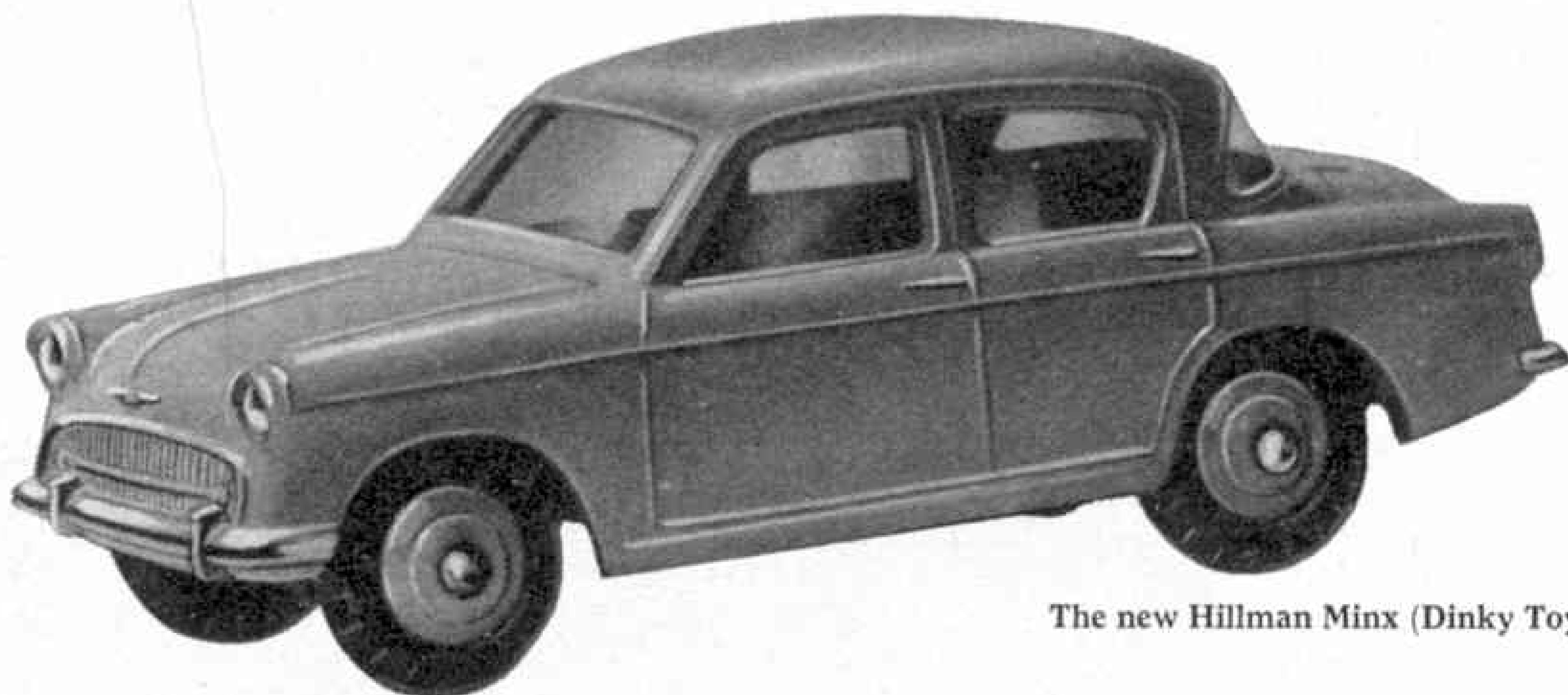
The cover of the Dinky Toys Collector's Licence for 1958-9 looks like this, but is in an attractive colour. It is something that every Dinky Toys owner must have.

signature. New Licences are to be issued annually, and those now current will be due for renewal on 1st July, 1959.

When you get your Licence you will find that besides giving you official standing as a Dinky Toys collector, it has inside a list of the Dinky Toys current at the beginning of the licensing year, with space in which to write the date when each Dinky Toy in your collection has been obtained. Room is left also for writing in the numbers and names of Dinky Toys issued during the licensing year. So the document is not only a licence. In addition it is a registration book in which you will have a record of your collection, and this can easily be brought up to



A busy scene with the new Dinky Toys Hudson Hornet and Hillman Minx cars, with glazed windows, in a realistic and easy-to-arrange garage setting.



The new Hillman Minx (Dinky Toys No. 175).

date with every new acquisition.

Here indeed is something exciting for Dinky Toys owners, every one of whom should write for a Licence at once. It will be great fun to keep track of your Dinky Toys with it, and you will thoroughly enjoy comparing your records with those of your friends. And don't forget—whenever you write to me quote your Registration Number at the head of your letter. You will find it at the top of the inside cover page.

Another point. Licences are issued to all Dinky Toys owners, whether they are members of the Dinky Toys Club or not. *Every new member of the Club from now on will automatically be granted his Licence when he is enrolled.* Look out for a special announcement next month!

Now let us see what is new *this* month. There are two more private cars, each fitted with glazed windows and windcreens, Dinky Toys No. 174 Hudson Hornet, and Dinky Toys No. 175, Hillman Minx.

An earlier version of the latter car is already known to Dinky Toys collectors. The new Hillman Minx is a very pleasing and attractive model, and in view of the large number of real Hillmans that are to be seen on the roads today, it is sure to be a great

favourite in both of its attractive 2-tone colour schemes. In one the lower half of the body is grey and the upper half blue, while the wheel hubs are blue and the radiator grille, bumpers, etc., are finished in aluminium. In the second the lower half of the body is finished stone colour and the upper half bright green. In this case the wheels are stone colour, while the radiator grille and bumpers, etc., are aluminium.

The Hudson Hornet will please the many hundreds of collectors who have written to me suggesting that more examples of American cars should be included in the range. Apart from those who have a special interest in these particular cars, the very striking appearance of the new model and its beautifully detailed bodywork are bound to appeal to all Dinky Toys collectors.

The Dinky Toys model is a miniature version of the Hudson Hornet four-door sedan, a long and powerful car with a wheel-base of 121½", and a 225 b.h.p. V-8 engine. The big radiator grille is of an attractive cellular pattern, rimmed in heavy metal, and carries a "V" design theme. Another notable external feature is the hefty wrap-around front bumper, which is



One of America's big cars modelled as a Dinky Toy. It is the Hudson Hornet (Dinky Toys No. 174) introduced this month.

fitted with special guards to give maximum protection. The windscreen on the actual car, by the way, is one of the largest in the motor car industry, having an area of 1,100 square inches and a width span of 62½ in.

In planning, casting and finishing the Dinky Toys model of this fine American car, every care has been taken to ensure that it should be a near perfect miniature of the real car in all its external features, and I am sure that those who are familiar with the actual vehicle will agree that a very high degree of success has been attained.

Here again there are two 2-tone colour schemes. One of these has the body in primrose yellow and the top in grey, with grey side flashes, grey wheel hubs and white tyres. The massive radiator grille and bumpers, lamps and rear motive are in aluminium. The other colour scheme is equally effective. In this the body is brilliant red, with cream top and side flashes. The wheels are stone with white tyres. Aluminium finish is used for the radiator grille, etc., as in the alternative scheme.

Have you had your holidays yet? If you are one of those who still have this pleasure to come, let me remind you that it is a very good plan to take a few of your Dinky Toys along with you. In this country, as we all know only too well, the weather is apt to be uncertain at the best of times, and a few Dinky Toys included in your luggage will provide you with a means of passing the time enjoyably if you are forced to stay indoors for a while. Also you can have really good fun with them on the seashore, for it is easy to make good roads in the sand and miniature buildings, including of course the good old sand castle with its tunnels, can be shaped quite easily. The picture on this page will give you a good idea of the possibilities.

So don't forget to put a few old cars in your grip! Don't take your best and newest

items—you will get just as much fun from your older ones, and it won't matter as much if they get knocked about a bit.

It has taken me some time to go through all the entries received in the Dinky Toys layout picture errors contest announced in the May *M.M.*, but the task was completed eventually and all the prize-winners have now received their awards. The list of



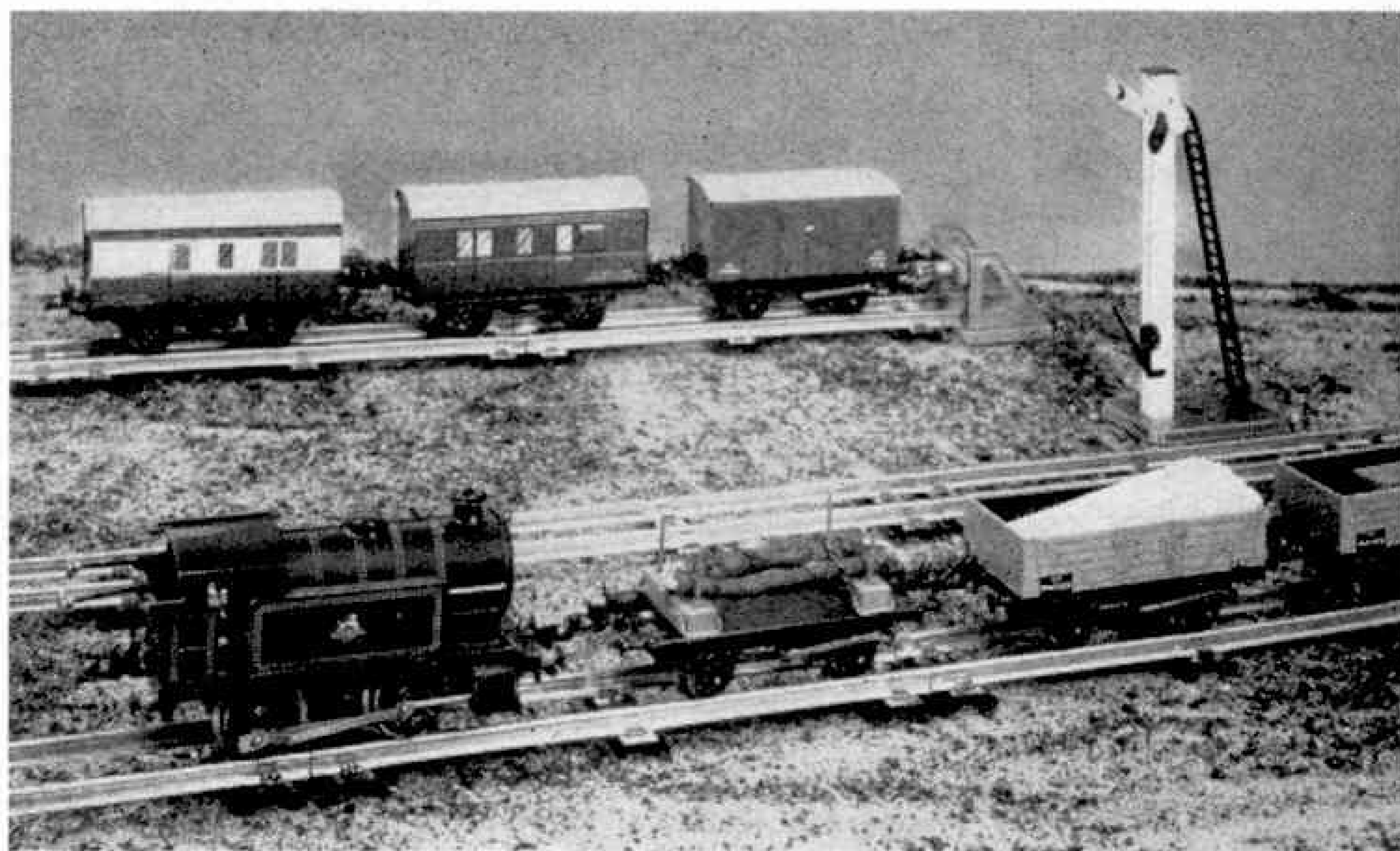
Fun on the sands with Dinky Toys. This picture shows one of the many play schemes it is possible to arrange at the seaside.

successful entrants is given below and a P.O. for 10/6d. has been sent to each of them: P. Bryson, Manchester; M. A. Farrell, Hendon, London N.W.4; S. Penn, Robin Hood, Yorks.; M. Steer, Plymouth; A. Tambinayagam, Ceylon; J. A. Vallance, Portsmouth.

I congratulate these Dinky Toys collectors on their success, and the neat manner in which they completed their lists. Some entrants submitted much longer lists of "errors" than those to whom I finally awarded the prizes. Unfortunately these competitors, instead of listing only the factual errors included items that were not really errors but just matters of personal opinion, and these of course did not count. However, taking the entries all round they proved that readers of the *Meccano Magazine* have very keen eyesight.

There will be another Puzzle Picture of this kind soon in the Dinky News pages, so keep a look out for it.

"Tommy
Dodd"
writes
about



Bits and Pieces!

WE had a chat last month about simple railways, and the possibilities of working in sidings or branches in an interesting manner, these being developed to suit some particular traffic needs. Most layouts include some activities of this kind and this means that a variety of different items of freight is usually seen round and about the yards, warehouse buildings and on goods platforms, and of course some will be loaded into Wagons. Apart from loads specially made up for the purpose, there are lots of things that can be used that are to be found about the house or among the collection of oddments that many boys seem to treasure.

So our pictures this month include suggestions that can be followed up on the simplest railway and indicate various uses and possibilities of some of the fine Hornby No. 50 goods vehicles introduced during last year. I expect that most Hornby railways have some of these in use now and probably many of them have already run up quite a "mileage" on busy journeys on layouts here, there and everywhere.

The illustration on this page shows a simple but very effective load for the

The picture above suggests interesting loads for Hornby Goods vehicles. The No. 50 Lumber Wagon is loaded with logs, as it should be, and "tubes"—drinking straws really—make an excellent load for the Open Wagon next to it, forming part of this Hornby goods train. Various Vans stand on the siding in the background.

No. 50 Lumber Wagon. This represents the type of vehicle used for the carriage of tree trunks and similar timber and you could not have anything easier to reproduce in miniature. One or two pieces, of suitable length for the Wagon, of the type of stick that so many boys seem to manage to pick up during the holiday period will be just the thing. These are simply loaded on the bolsters that are a characteristic feature of the Wagon concerned. If they are stacked in a tidy manner they should not come loose during the journey, but as an additional precaution you can hold them together

on the Wagon with a rubber band or two.

In the same picture, and in the one at the top of the following page, a No. 50 Wagon is shown with a load of miniature "tubes". These are actually drinking straws, of which you are sure to have a plentiful supply available at this time of the year. They are easily cut to length and of course they are light, which is an advantage with any load carried in the wagons of a clockwork railway.

Our miniature tubes represent a finished manufactured product, but a complete contrast is offered by the oddments that you

A novel yard scene on a Hornby railway. Various odds and ends and one or two made-up pieces suggest activity in scrap metal traffic.

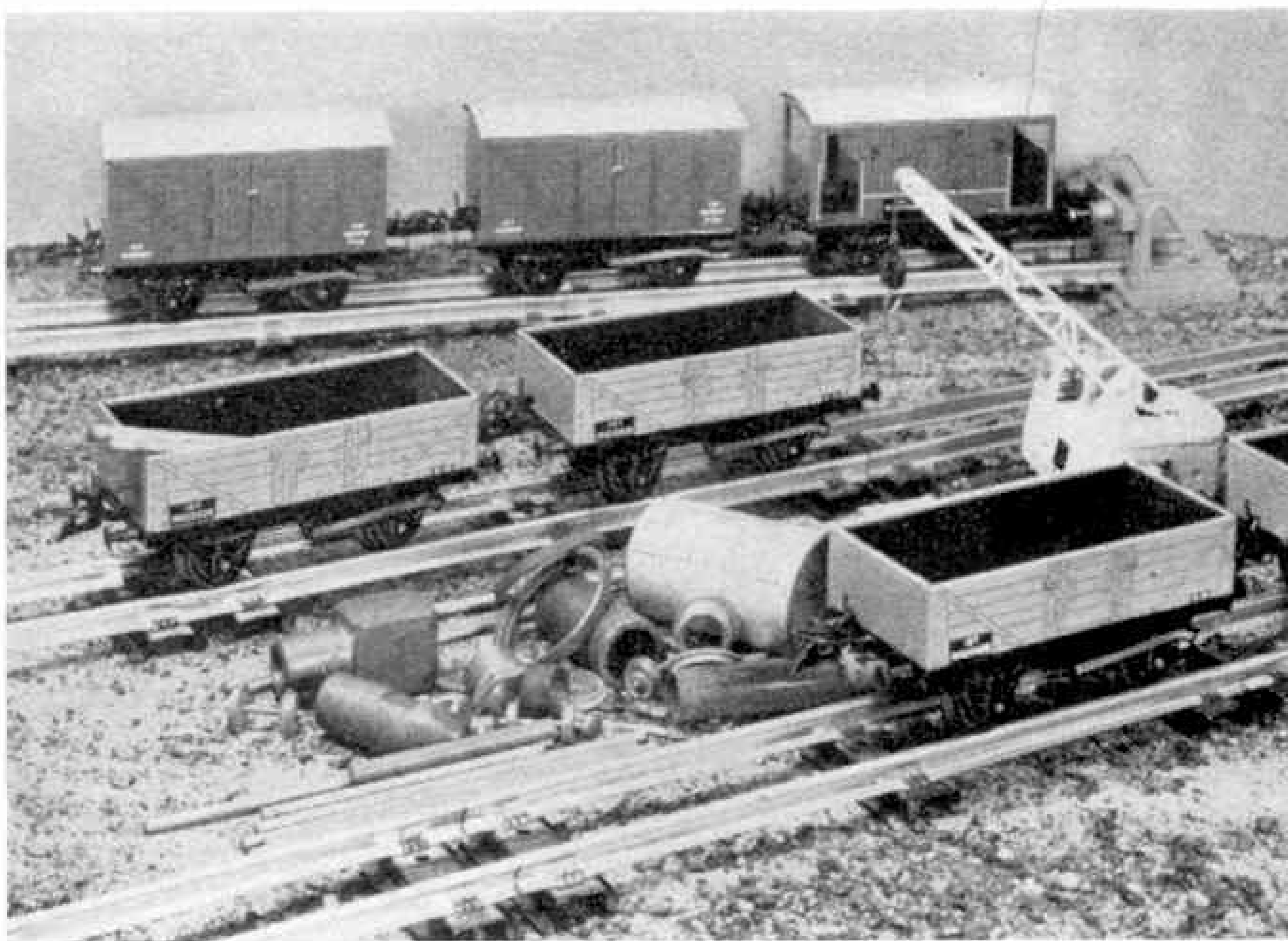
see in the second illustration, between the tracks in the goods yard. These bits and pieces represent a miscellaneous collection of scrap, such as it is possible to see loaded in railway wagons at times.

I am sure that most of you will have no difficulty in getting together a similar collection.

One or two pieces of cardboard of different sizes make a good start. You can paint these if you wish to represent parts of old drums or boilers and if you add one or two things from your collection of bicycle oddments and perhaps a metal ring of the type used to secure the lid on some types of household jars, you will be getting on. Perhaps a disused wheel from an old wagon and an axle or so may be included.

The form of some of the items will make it easy for your yard crane to hoist them into your wagons, but certain pieces may need slings placed round them so that the crane hook can catch them up. Making these from string or Meccano Cord will be a nice exercise for nimble fingers.

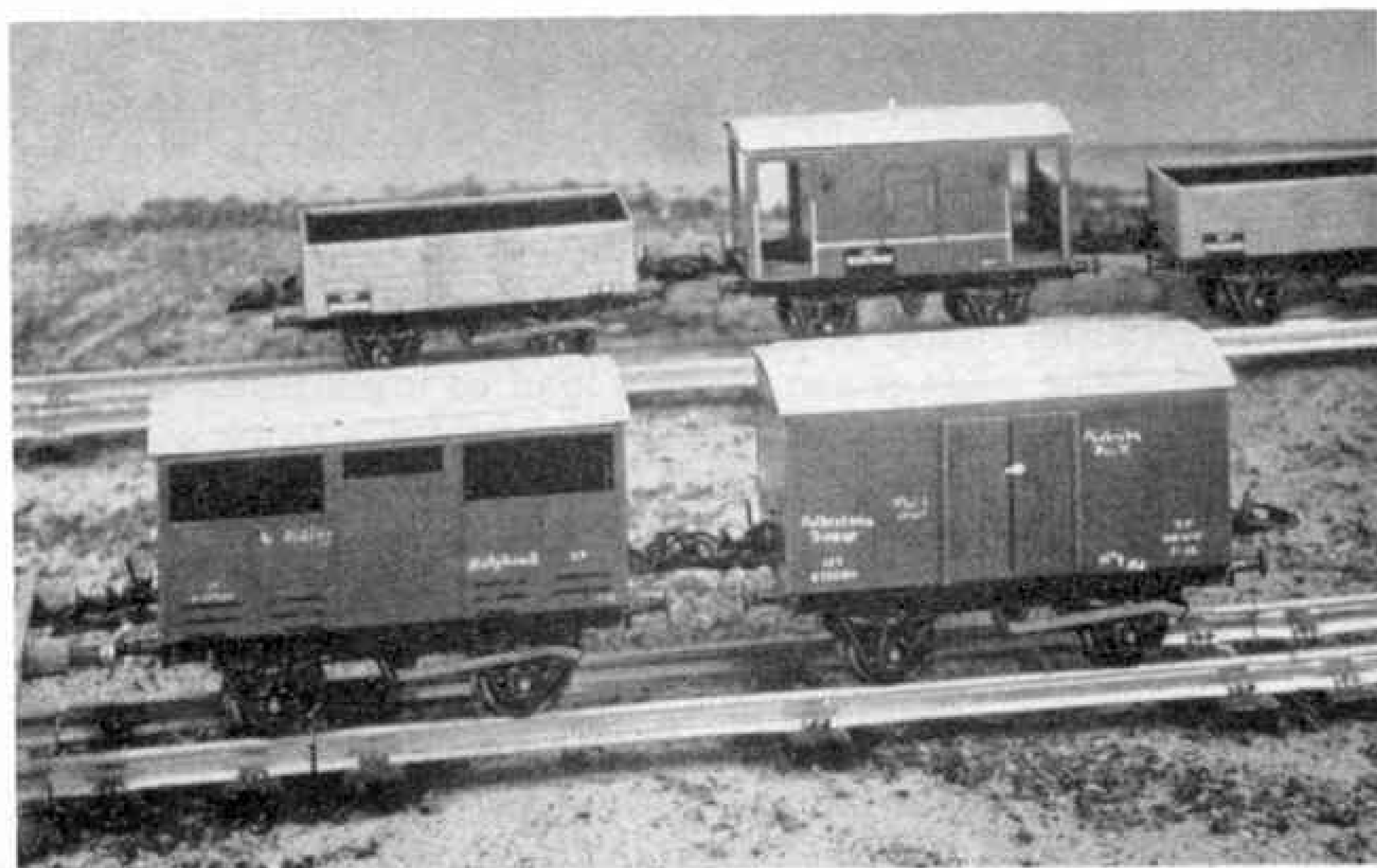
Another little job that you can do is suggested by the markings shown on two Vans in the lower picture. You will have



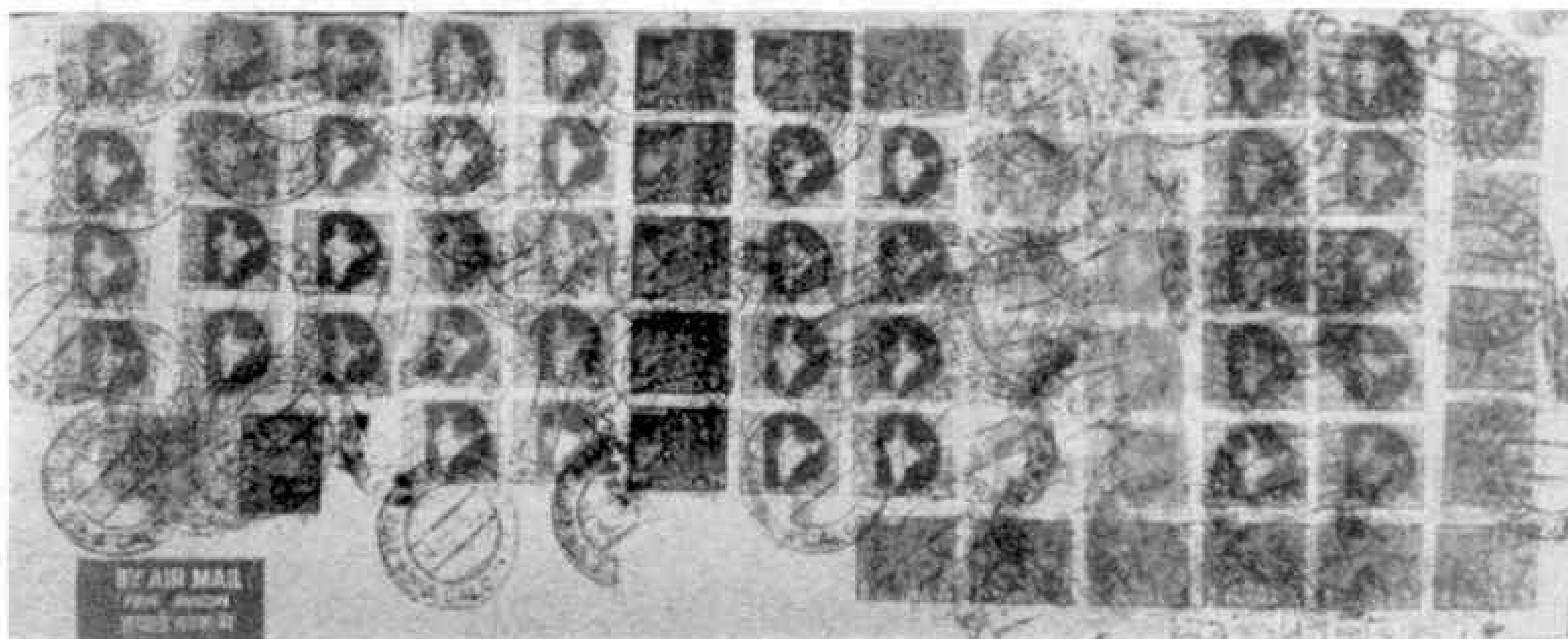
noticed how real railway goods vehicles often carry the name of a loading point or destination, or even a brief record of their contents, marked on them in chalk. Often markings of loading points and destinations provide interesting clues to the wanderings of the particular vehicle concerned, always provided that you can sort out the meaning of some of the rather mysterious abbreviations. In miniature you cannot chalk on a Hornby vehicle, but you can imitate chalking by a little careful brushwork using the type of water colour known as poster paint. Before starting to paint, rub the surface that you want to letter with an ordinary rubber, otherwise the paint will not settle properly.

Perhaps you have some of this paint at home, but if you have to buy some you will find it useful for many other miniature

or modelling purposes. If you are not good at this sort of thing do not worry too much; the real chalk writing is not always really neat, but there are exceptions. In any case you can always remove the paint with a damp rag and start again.



Chalked destinations and instructions, often seen on real vehicles, are here imitated in white paint, a realistic touch that Hornby railway owners will appreciate.



Of General Interest

Is this a Record?

I am wondering if the envelope shown in the picture above holds the record for the number of stamps it carries. I have not counted them, but J. Worley of Marston St. Lawrence, near Banbury, who has sent it to me, tells me there are 69 altogether. I think most of you will have recognised immediately that the letter was posted in Calcutta, in India. The total value of the stamps is 28 rupees, which is equivalent in British currency to about £2 2s. 0d.

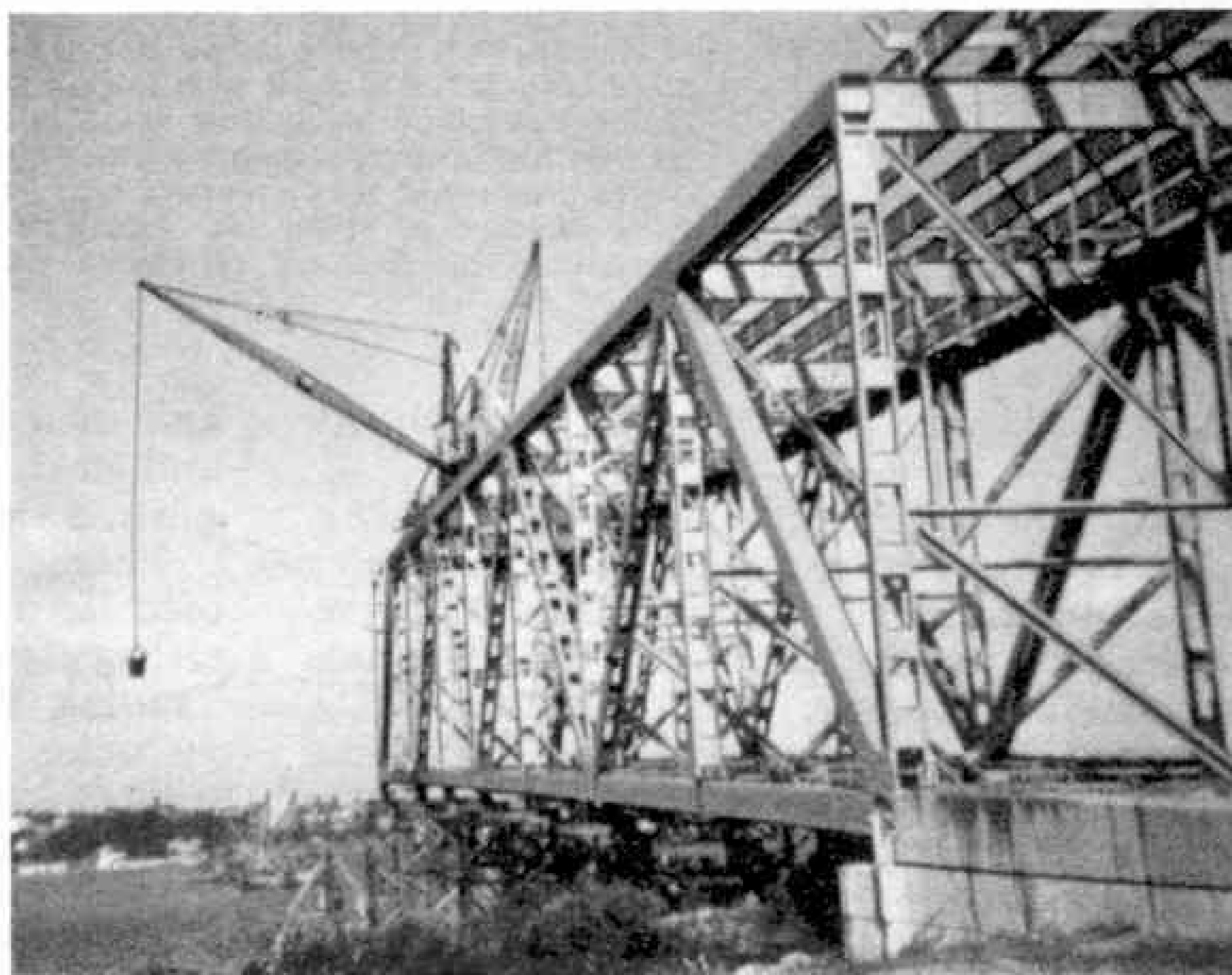
I often receive letters from readers in India, and indeed in other countries, that have a multitude of stamps on them. Sometimes the number of these has been so great that they have run over on to the back, but in those cases the envelope has been a much smaller one than that shown above and the total has been much less than 69. Possibly some of you have envelopes with a remarkable number of stamps on them, and I should like to know if anyone can produce one with more stamps on than are seen on this example.

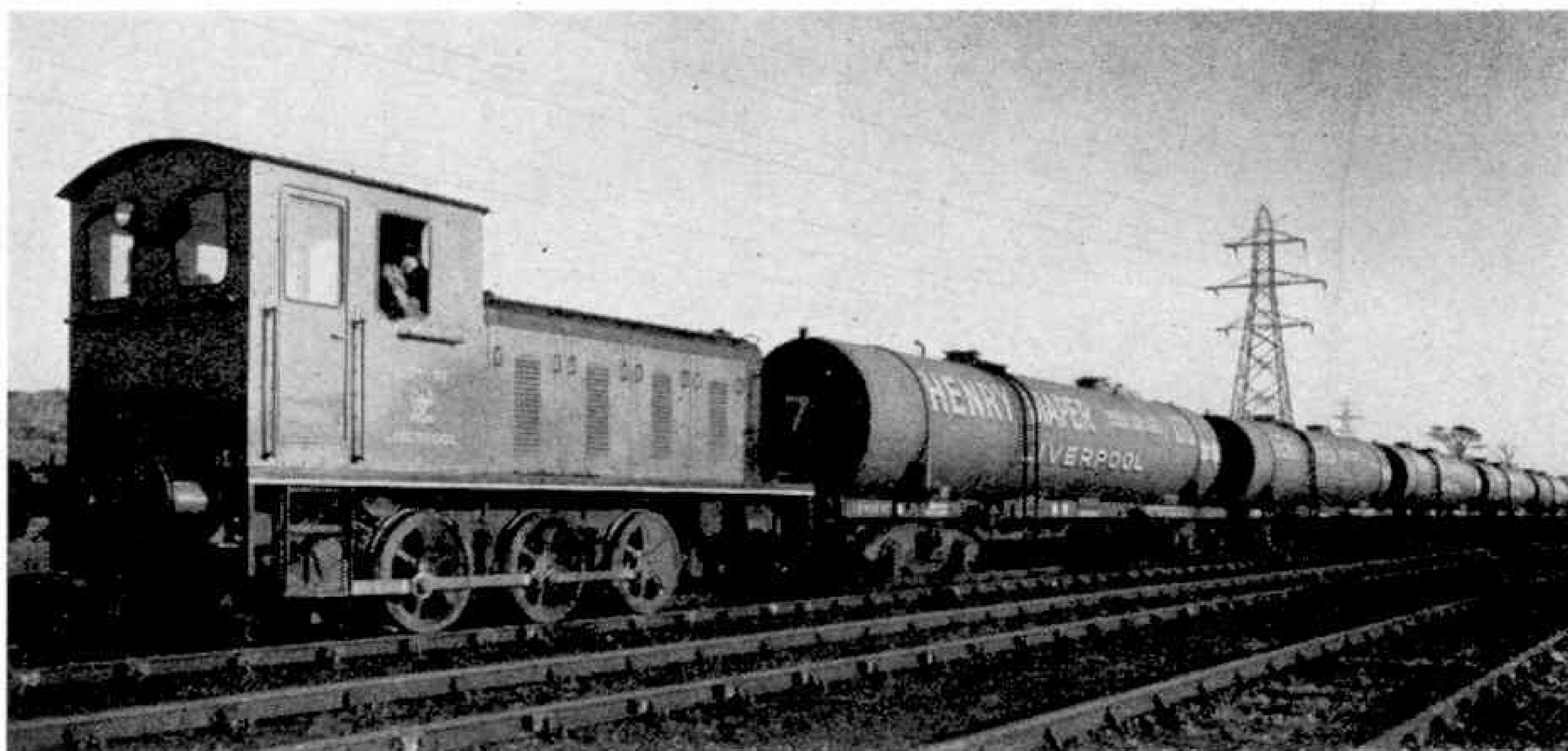
Auckland Harbour Bridge

The British Commonwealth has a number of very remarkable bridges, the Sydney Harbour Bridge, and the Birchenough Bridge across the Zambesi among the more recent. Now the number is to be increased by the construction of a great bridge across the harbour of Auckland, in

New Zealand, which indeed is already in course of erection, as the photograph at the foot of the page shows. This came from R. Campkin, who lives in Auckland. When sending it he pointed out that when complete the bridge will link Auckland City with the northern suburbs and will also provide a shorter route to the areas of New Zealand north of the city. His picture shows part of the bridge under construction.

The date at which it is expected that the bridge will be completed is May 1959. If the weather is favourable it may be finished before that time. Readers of course will be greatly interested in this addition to the great bridges of the Commonwealth, and in due course an illustrated article on it will appear in the *M.M.* It is being constructed by famous British bridge builders.





Railway Owned by a City

The Liverpool Corporation System at Kirkby

By J. W. Gahan and Jeffrey Marshall

ABOUT twenty years ago the village of Kirkby, which is a few miles to the north-east of the City of Liverpool, was a quiet place where a few of the citizens ventured for Sunday walks. There was no bus service then, as the Liverpool transport did not at that time venture so far out in that direction. The village has an ancient Church and is served by a small rural kind of railway station on the former Lancashire and Yorkshire Railway main line between Liverpool and Manchester. In the earlier thirties the new East Lancashire Road, built to connect these cities, was completed and opened. It passed within a mile or two of the village, but did not disturb its peace.

With the outbreak of war in September, 1939, a great change took place. This quiet suburb was chosen as a site for factories to be engaged on the production of materials required for the war. A large factory estate was laid out and provided with by-roads, while there also sprang into existence many railway sidings to connect it with the main line. A tramway too was extended to the Estate, and bus and railway services were provided and continually augmented

as required to serve the factories, all of which were working at high pressure.

This continued until the war ended in 1945. In due course the former war factories then gradually became redundant, but the most interesting development was that the railway system and the Estate itself were taken over by the Corporation of the City of Liverpool. The latter became known as the Kirkby Trading Estate, for it consisted

of a large number of factories, with of course housing estates, which together have created what can almost be described as a new town in itself. The once green fields and hedgerows have now largely disappeared

and their place is taken by concrete, bricks and steel, in a great industrial development scheme that is still in progress.

There must be few cities that actually own and operate a fairly considerable railway system. That serving the Kirkby Trading Estate consists of approximately 40 miles of track, mainly in the form of sidings, and serves most of the one hundred and twenty firms who have their premises there. Much of the track is of the chaired bullhead type, but there are stretches of flat-bottom track also. An

The picture at the head of the page shows a scene at Kirkby, on a railway owned by the Corporation of Liverpool that is dealt with in this article. In it diesel shunting locomotive No. 3 is hauling a train of high-capacity tank wagons. The railway serves a new and busy industrial area, and has a track mileage of about 40. This photograph is reproduced by courtesy of Henry Diaper Ltd.

extension serving a great new factory on the East Lancashire Road leaves the Estate proper and crosses the now abandoned electric tramway, which had been built in 1942. It is a right-angle crossing, on the same level as the tramway.

This crossing was recently the scene of an operation that was probably unique. When the tramway to Kirkby was replaced by bus services in 1956, no room could be found for the displaced tramcars at the Corporation Works in Edge Lane. So it was decided that on the Sunday after the services ceased, the trams would be driven out to Kirkby and parked at the terminus, to be moved over the railway tracks to a storage place that had been made available.

The trams were transferred from their own grooved track on to the grooveless railway track with the aid of mobile cranes and skid-plates. Trains of tramcars were assembled in this way and these were hauled about a mile over the railway to the far side of the Estate. The whole operation was carried out expeditiously and without serious mishap, and the illustration on this page shows one of these trains, headed by a diesel locomotive. They must have been unique.

The picture on the opposite page shows a train of Tank Wagons owned by Henry Diaper (Bulk Liquids) Ltd., of Liverpool, which are used for the conveyance of Latex Rubber between Gladstone Dock, Seaforth and Kirkby. These Tank Wagons are the largest in the British Isles and have a capacity of 10,000 gallons. The laden weight of each wagon is 63 tons. They run on 4-wheeled plate frame bogies, and were built by British Railways. Their colour scheme is green, with white lettering shaded in black.

Originally steam locomotives served the railway, but today motive power is provided by two diesel-mechanical 0-6-0 shunting locomotives, numbered 3 and 4. These

sturdy machines were built by the Drewry Car Company Ltd., and are powered by 204 h.p., eight-cylinder diesel engines. They have fluid flywheels, hydraulic clutches and dual control and have five gears in both the forward and reverse directions. A steam locomotive is kept in reserve. Each locomotive carries the City coat of arms on the cab-side, the livery being green.

The railway has a new engine shed equipped for servicing, and also a weighbridge of 35 tons capacity. A wagon-mounted weed spraying unit also forms part of the equipment and is used for the control of weeds on the track. The City Engineer's Department maintains the system.



An unusual train, made up of Liverpool Corporation tramcars, taken out of service, being shunted into storage sidings by a diesel locomotive. Photograph by S. Clarkson.

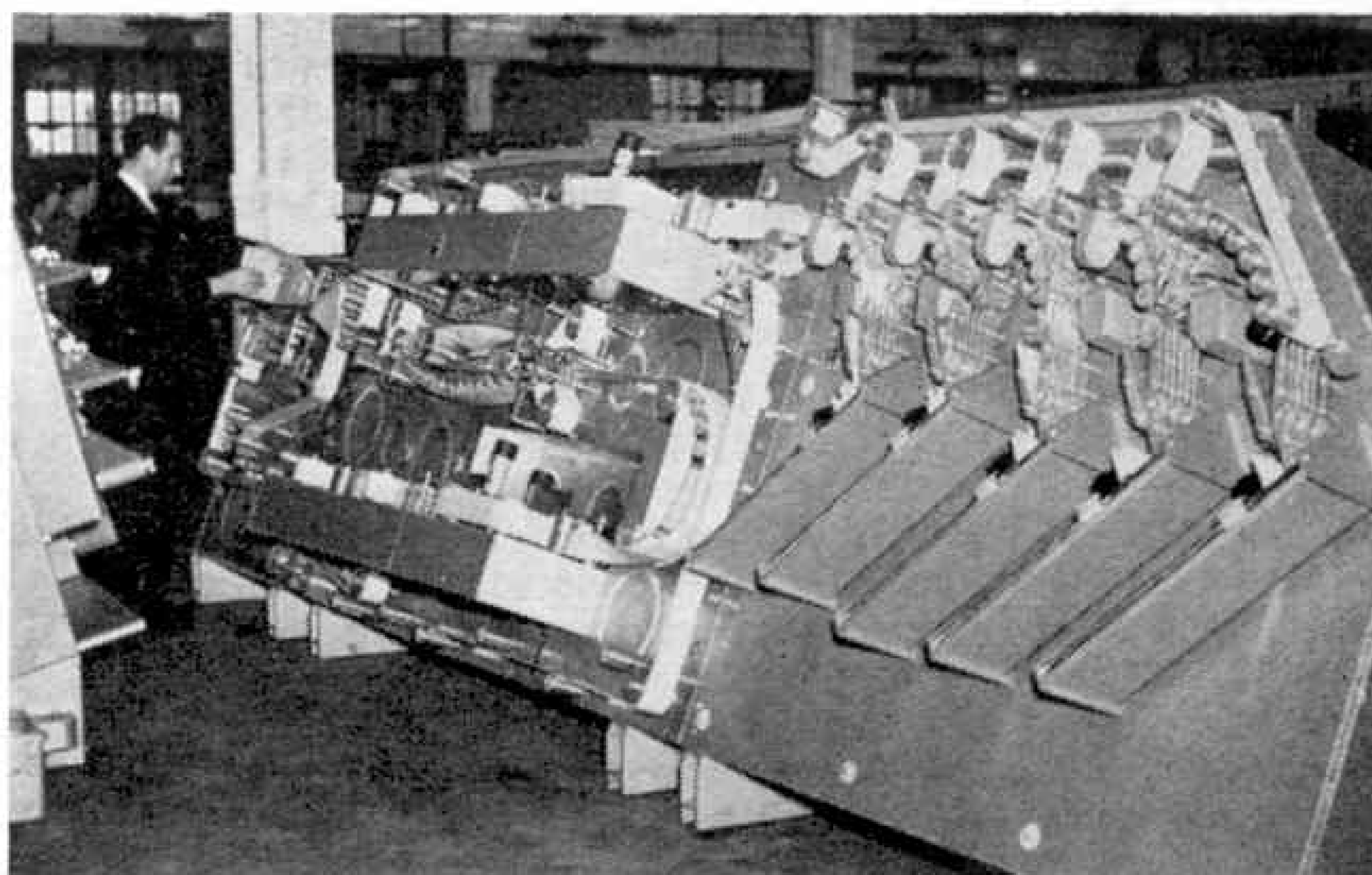
The City of Liverpool and surrounding districts are well provided for in the matter of railways, and as an industrial area they provide plenty of traffic. In addition to the famous Edge Hill grid-iron of the former London and North Western Railway, there is a large group of sorting sidings at Aintree, built by the former Lancashire and Yorkshire Railway Company, and many other installations. The whole of the seven miles or so of docks too are served by an extensive railway system, a description of which could form an article in itself.

The Kirkby station already referred to is situated on the main line from Liverpool Exchange Station to Manchester Victoria, which is joined by a connection from the North Docks in the

(Cont. on page 378)

A New Post Office Machine

By the Editor



All this to turn unsorted letters face upward and the right way round! This ingenious machine has been designed by the research engineers of the British Post Office.

IN the March issue of the Magazine there was an article describing ingenious machines that had been designed by the British Post Office for speeding up the sorting and handling of letters. To make the best use of such machines, it is necessary to have some rapid way of "facing" the letters concerned, that is of turning them so that all are right way up, with the stamp in position for postmarking. At the time of writing such a machine is now being tried out at Southampton.

Clearly the first need in a facing machine is some means of detecting the stamp, and the one adopted is to print black lines on the back of the stamps, before gumming, using a graphite ink that conducts electricity. When the stamps are passed through a high voltage scanner the current

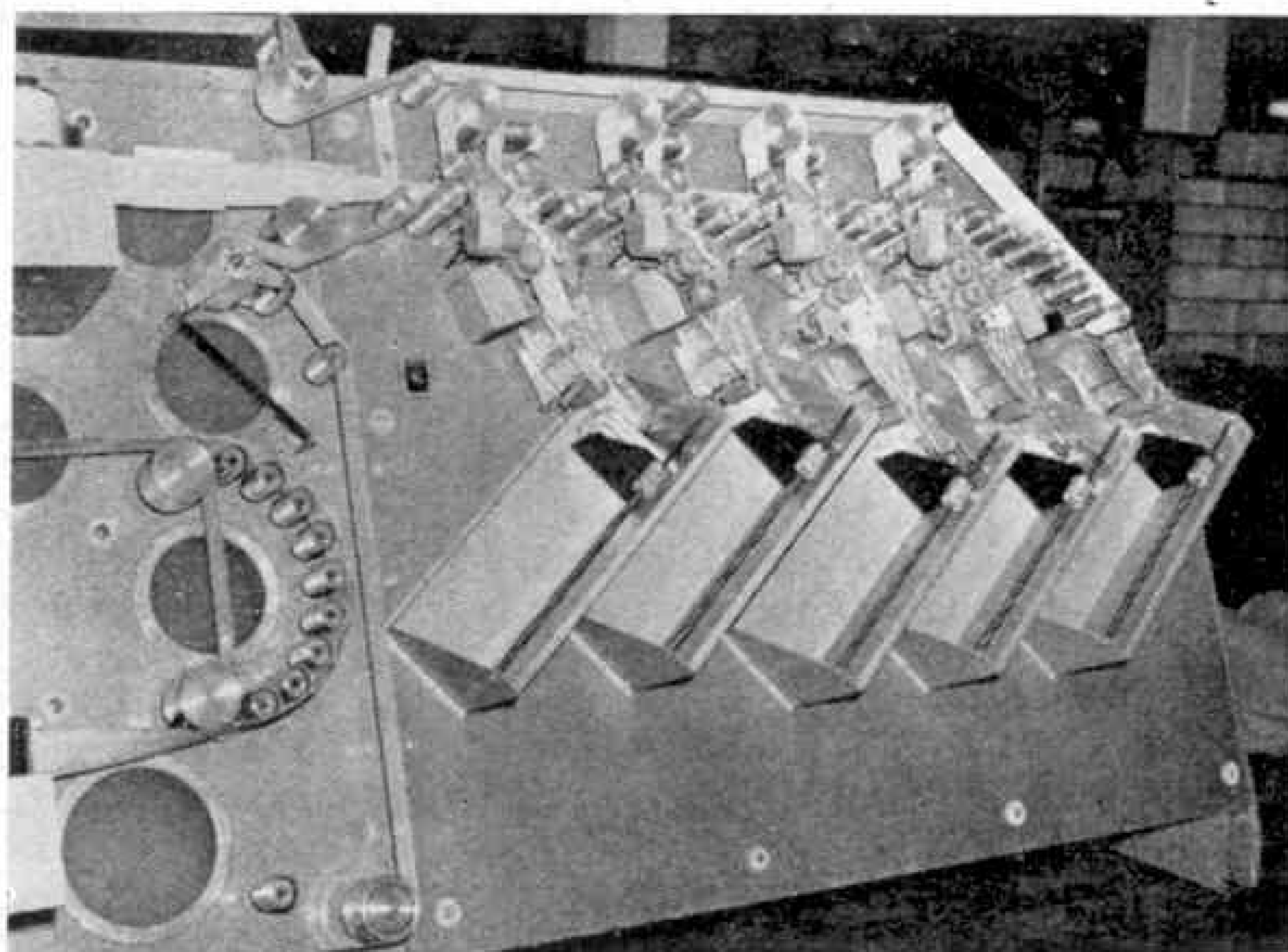
then passes through them, completing an electric circuit that is used in devices for turning the letters over if necessary to bring them to the correct position.

The machine does more than this, for it distinguishes letters carrying a 2d. stamp from those carrying stamps of other values up to 3d. This is effected by printing a single black conducting line on the 2d. stamps and two similar lines on the other values, and stamps treated in this way are being sold in the Southampton area.

The machine is seen in the upper picture on this page. It is 20 ft. long, 6 ft. tall and 5 ft. wide. Stacks of letters fed into the first section are spaced by rollers into a stream of separated letters that pass on a single

endless belt through the first of two scanning heads, which searches an area along both sides of the bottom edge of the letters. Those for which no signal is given to show that a stamp has been found on the bottom edge are then diverted and turned over to bring the stamp to that position. These rejoin the main stream, which then consists only of letters with stamps on the bottom of the envelope.

Then the second scanning head comes into play. The signals from it operate mechanisms that complete the facing and divert each letter into one of four stacking boxes. Those without stamps are delivered into a fifth, to be dealt with specially.



Where the letters passing through the facing machine are stacked.

A Meccano "Mechanisms" Competition

Cash Prizes for Good Ideas

ENTRIES in Meccano model-building competitions usually are pictures or drawings of complete models of some kind. Now here is a new idea in these contests. Instead of complete models, entrants are asked to send in details of *mechanisms* only.

By "mechanism" we mean constructions such as gear-boxes, clutches, differentials, reversing gears, brakes and similar mechanical devices designed for specific purposes or for carrying out special mechanical movements. There are hundreds of suitable devices, many of which require only a few parts to build up, and there are an amazing number of different ways of constructing mechanisms that serve identical purposes.

Mechanisms of this kind are usually intended for use in models, but in this contest it is *not necessary to incorporate the mechanism in an actual model*.

After you have thought out and built up a mechanism the next thing we ask you to do is to make a neat sketch of it, or to obtain a good clear photograph. Then write a short description of the purpose and construction of the mechanism and send this, with the sketch or photograph, to *Meccano Mechanisms Competition, Meccano Limited, Binns Road, Liverpool 13*. Put your age, name and address on each illustration. The closing date is 31st October next.

There will be two Sections: A, for those under 14 years of age on 31st October next, and B, for those then aged 14 or over.

THE PRIZES

The following prizes will be awarded in each of the Sections A and B.

	£	s.	d.
First Prize, Cheque for	4	4	0
Second Prize, Cheque for	2	2	0
Third Prize, Cheque for	1	1	0
Ten prizes, each of	10	0	
Ten prizes, each of	5	0	

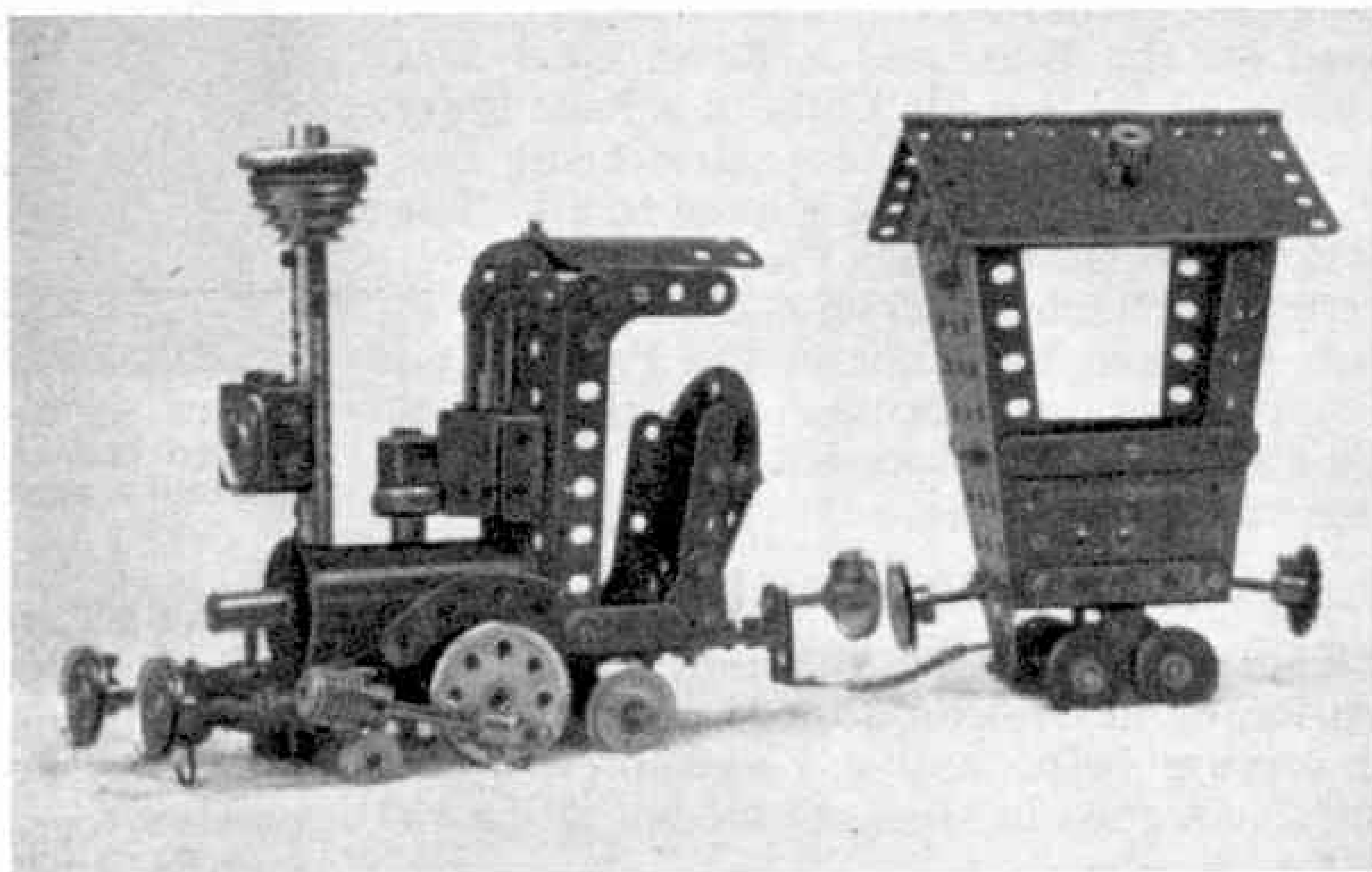
Closing Date for Entries: 31st October, 1958.

RESULTS OF THE "NEW YEAR" MODEL-BUILDING COMPETITION

The full list of prize-winners in the "New Year" Model-Building Competition is as follows:—

Section A

First Prize: £4 4s. — J. M. Skeffington - White, Harrogate; Second Prize: £2 2s. — N. Spain, Stowmarket, Suffolk; Third Prize: £1 1s. — J. H. Borkowski, Montreal, Canada.



This amusing model Emett Train won a prize for Roger Latham, Solihull, in the "New Year" Model-Building Competition.

Ten Prizes each of 10/-: S. J. Gee, Coventry; R. Cole, Enfield, Middx.; K. Cameron Ary, Kentucky, U.S.A.; A. Davis, Arequipa, Peru; C. Wright, Nottingham; G. D. Ward, Hampstead, London; J. and W. Slosse, Antwerp, Belgium; S. A. Jones, Chigwell; S. Baartman, Pretoria, South Africa; G. Giese, Buenos Aires.

Ten Prizes each of 5/-: N. McEwan, Wallasey, Cheshire; J. Lauder, Bath; A. Stansfield, Bradford; D. Edwards, Walsall, Staffs.; I. Clark, Roundhay, Leeds; A. C. Ovenall, Stockton Heath, Cheshire; E. Scharf, London W.2.; I. J. Wightman, Derby; S. R. Shute, Huddersfield; A. P. Stears, Ickenham, Middx.

Section B

First Prize: £4 4s. — H. W. Henry, Rochester; Second Prize: £2 2s. — M. Brookfield, Stoke-on-Trent; Third Prize: £1 1s. — H. J. Halliday, London S.E.15.

Ten Prizes each of 10/-: R. Smith, Aberdeen; A. J. Van Der Kroft, Amsterdam, Holland; G. Kind, Luxembourg; S. Peart, Aylesham, Norfolk; S. W. Tebby, Farnborough; C. J. Sanctuary, Wolverhampton; R. P. Turner, Leicester; P. H. Kessler, Lucerne, Switzerland; B. Mackintosh, Montreal, Canada; J. O'Brien, Adelaide, S. Australia.

Ten Prizes each of 5/-: R. Murphy, Quebec, Canada; G. Colnags, Bergamo, Italy; Dr. D. P. Marolia, Bombay, India; G. B. Lewis, Swansea; J. Messer, Blackwell, Carlisle; A. K. Forbes, Aspatria, Cumberland; R. Latham, Solihull, Warwicks.; A. Kumar, New Delhi, India; B. W. Rowe, N. Abbot, Devon; J. A. Barak, Long Eaton, Notts.

Among the Model-Builders

By "Spanner"

Ratchet and Pawl Mechanism

The ratchet and pawl device shown in Fig. 1 was submitted by 11-years-old John Bingham, Hindhead. The Ratchet 1 is fixed on the Rod, and a Bevel Gear 2 is connected by two $1\frac{1}{8}$ " Bolts to a Face Plate 3 as shown, both of these parts being free on the Rod. The Pawl 4 is fixed to a $\frac{1}{2}$ " Bolt passed through the Face Plate. The Tension Spring is attached at one end to another $\frac{1}{2}$ " Bolt 5 locked by a nut in the Face Plate, and its other end is connected to the boss of the Pawl by a bolt screwed into a threaded hole of the boss.

A Belt Adjusting Device

There are many different types of tensioning devices for adjusting the tension of driving belts, and a very simple form suitable for use in Meccano models is shown in Fig. 2.

In this device a 1" loose Pulley 1 rotates freely on a 1" Rod secured in the boss of the Fork Piece 2. The latter is mounted on a $3\frac{1}{2}$ " Threaded Rod 3, which is secured by means of two nuts at either end to a Double Angle Strip. A similar Double Angle Strip 4 is mounted in an inverted position and maintains the Fork Piece 2 in a horizontal position. The Rod 3 passes completely through the longitudinal

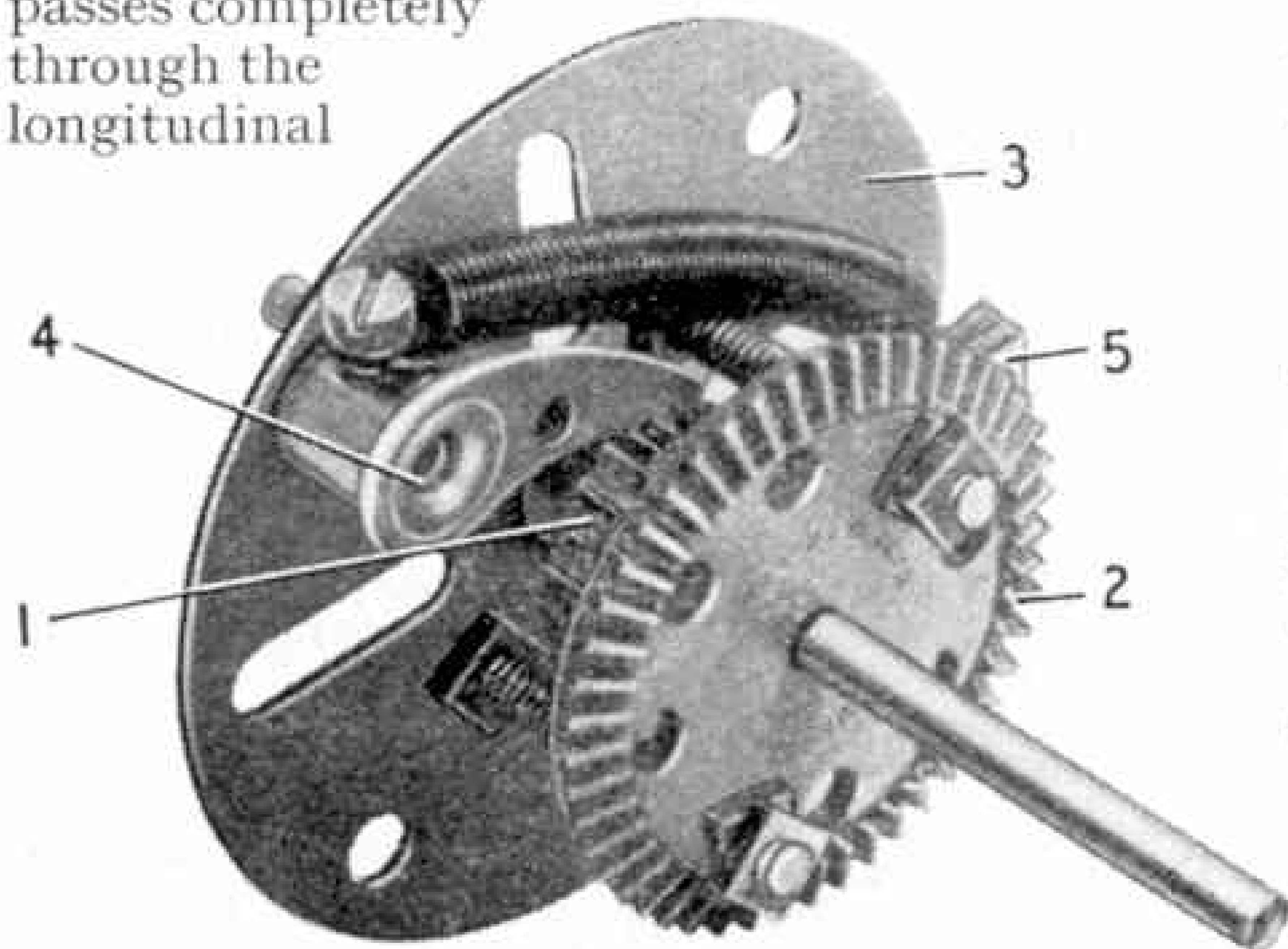
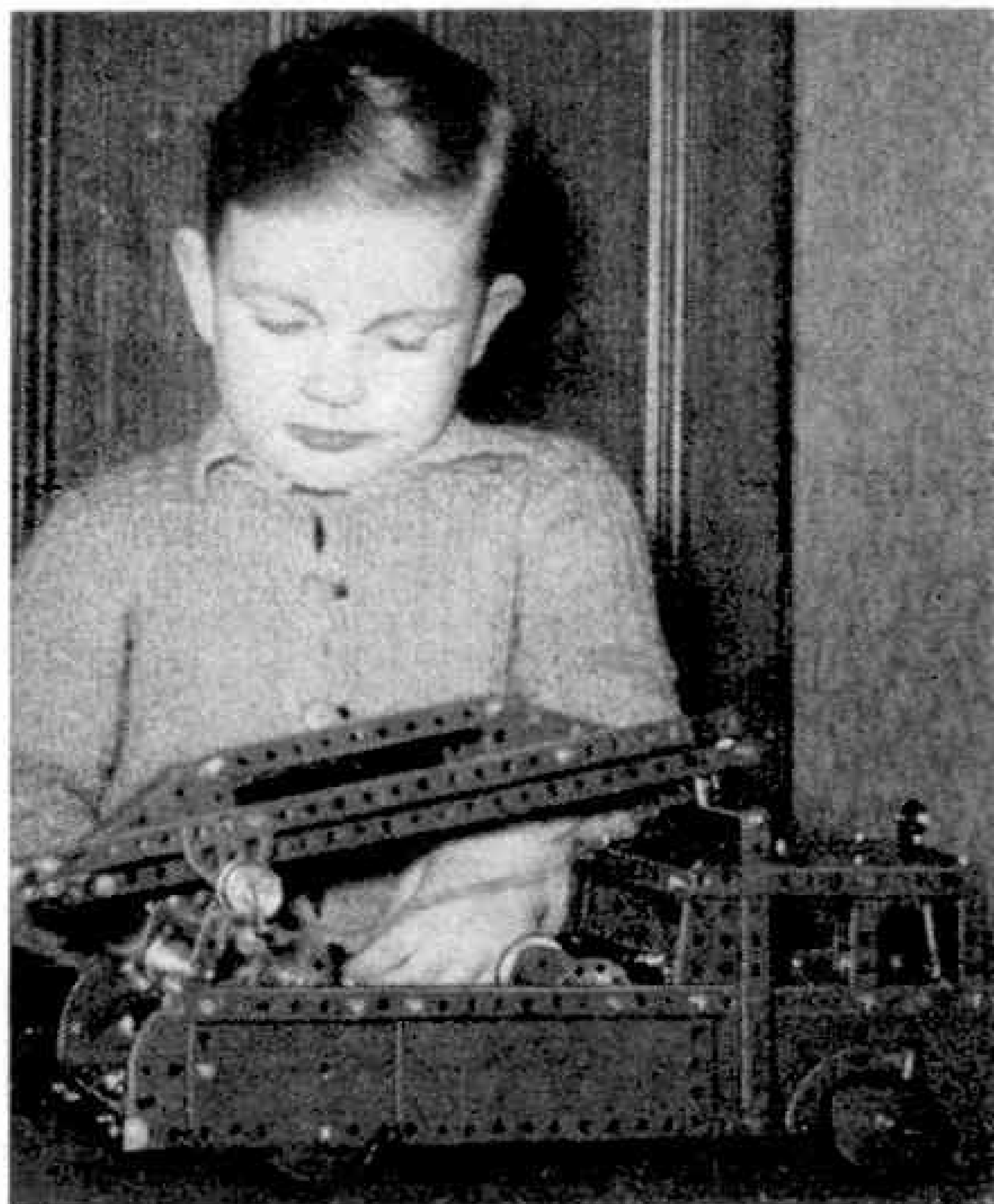


Fig. 1. A ratchet and pawl mechanism that has many applications in model-building.



"That's another job finished" says five-years-old Michael Crabtree, Hebden Bridge, as he puts the last bolt into a model fire-engine, built mainly by himself.

bore of a Threaded Boss 5, which is mounted immediately alongside the Fork Piece 2. A few turns of the Threaded Boss will force the Fork Piece carrying the jockey pulley towards the belt, so increasing its grip around the Pulleys 6.

One of the advantages of a screw-adjusted tensioner lies in the fact that the tightness of the belt may be varied according to the load to be transmitted, so that when little power is required the belt can be "slacked off" to allow for easy running. The device may also be employed as a form of clutch mechanism. For this purpose a very slack belt is used so that if the pressure on the Pulley 1 is relaxed a point will be reached when the belt merely slips around the pulleys.

A Novel "Maltese Cross" Movement

Fig. 3 shows a novel method of achieving an intermittent motion something on the lines of that obtained from an orthodox Maltese Cross mechanism. The arrangement illustrated is suggested by H. H. Taylor, Huddersfield.

The driving member, which rotates constantly, is a Bush Wheel 1 fixed on the driving shaft. This carries two bolts in adjacent holes. In the illustration an Adaptor for Screwed Rod 2 is screwed on to the shank of one of these bolts to act as a handle to turn the mechanism for demonstration purposes, but it is not

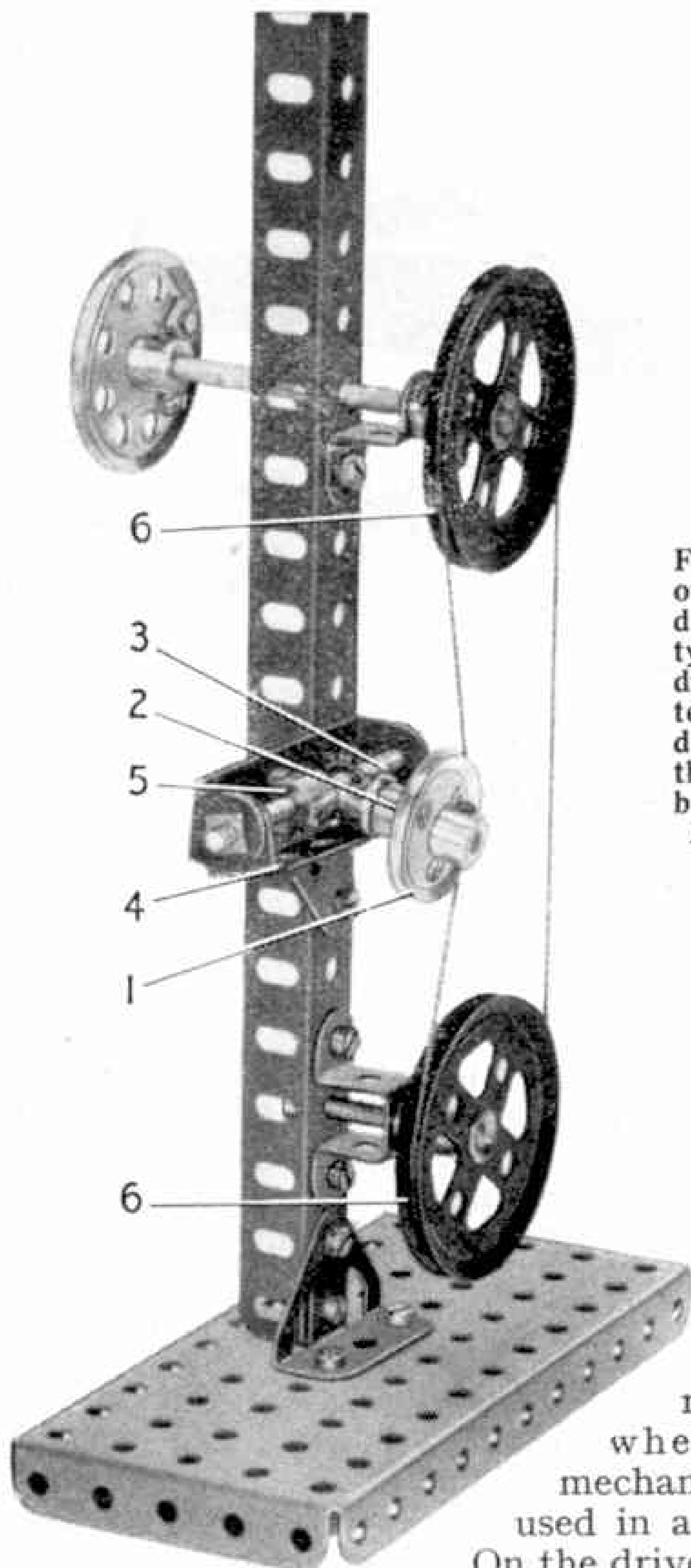


Fig. 2. One of several different types of driving belt tensioning devices that can be built in Meccano.

required when the mechanism is used in a model. On the driven shaft is a second Bush Wheel 3 fitted with a bolt and nut in each of its eight holes. When the Bush Wheel 1 is turned the two bolts in it engage the bolts in the Bush Wheel 3 and rotate the Bush Wheel 3 through one-eighth of a revolution. The Bush Wheel 1 then continues rotating but the Bush Wheel 3 remains stationary until the bolts in Bush Wheel 1 engage it again. Fitted to the other end of the driven shaft is a large Fork Piece and mounted above it is a Double Arm Crank fixed on the end of a short Rod journalled in a Double Angle Strip as shown. The Rod carries a Collar in the position shown and a Compression Spring between the Collar and one lug of the Double Angle Strip.

How to Use Gearing

The following brief notes on the use of gearing will be helpful to young model-

builders anxious to drive their models by means of gears. The best type of gearing for use in a particular model will depend on the kind of model and the amount of power needed to drive it. For a slow-moving model of a heavy type, such as a traction engine, gears that will provide a fairly big reduction ratio will be required, and a Worm meshed with a 57-tooth Gear will usually be satisfactory.

For really heavy models it may be necessary to use several gears meshed together in pairs, and this is known as a compound gear train. A good example of this consists of a Worm on the motor shaft meshed with a 57-tooth Gear, and a $\frac{3}{4}$ " Pinion on the same shaft as the 57-tooth Gear meshed with a 50-tooth Gear fixed on the driving shaft of the model. The Worm and the 57-tooth Gear form the first stage of the gearing and give a reduction ratio of 57 to 1. The second stage is formed by the $\frac{3}{4}$ " Pinion meshing with the 50-tooth Gear, and these give a reduction ratio of 2 to 1.

The complete train gives a total speed reduction ratio of 114 to 1, and the result is that the power exerted on the driving shaft of the model is 114 times greater than would be obtainable direct from the motor shaft.

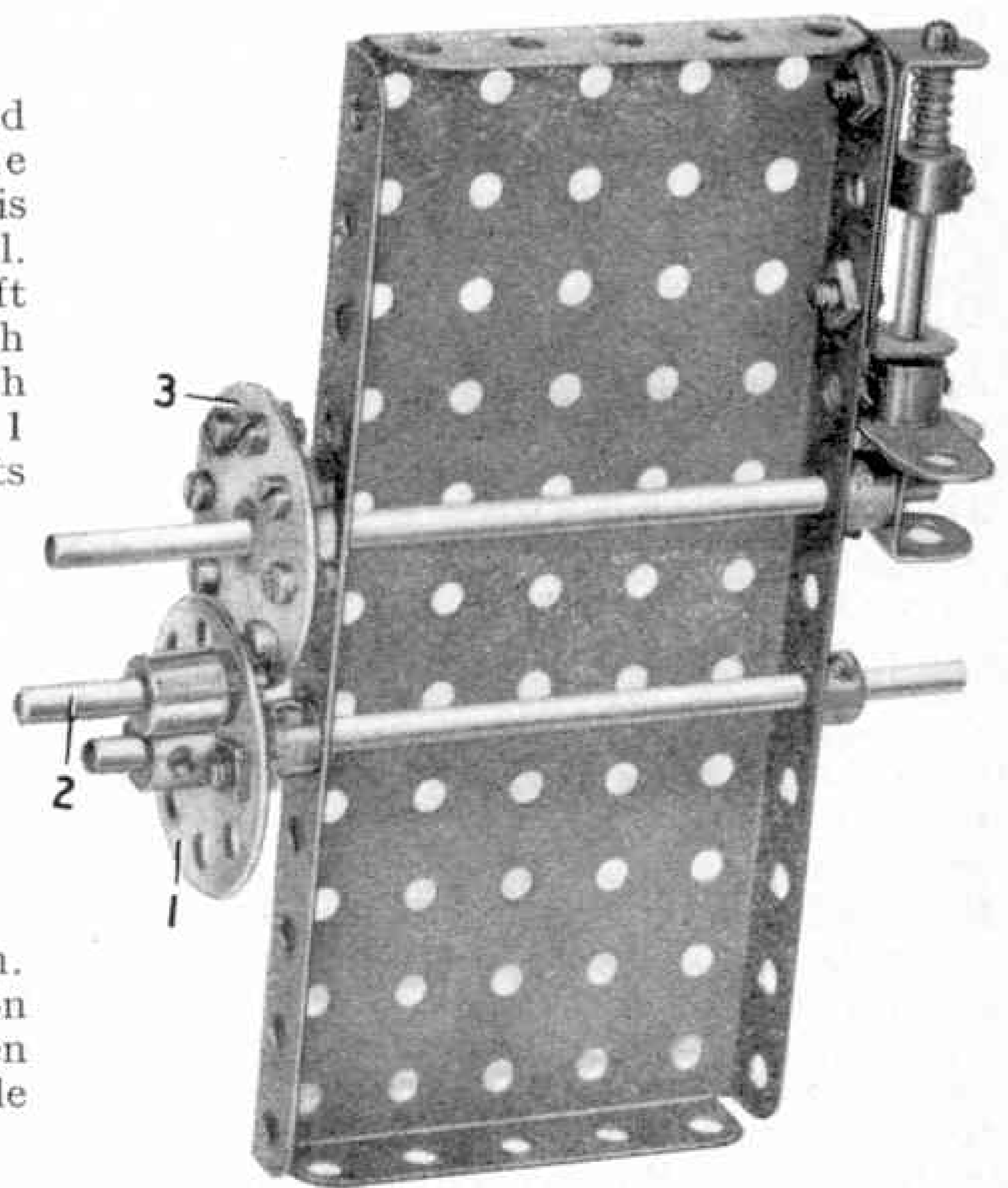


Fig. 3. A Maltese Cross movement designed by H. H. Taylor, Huddersfield.

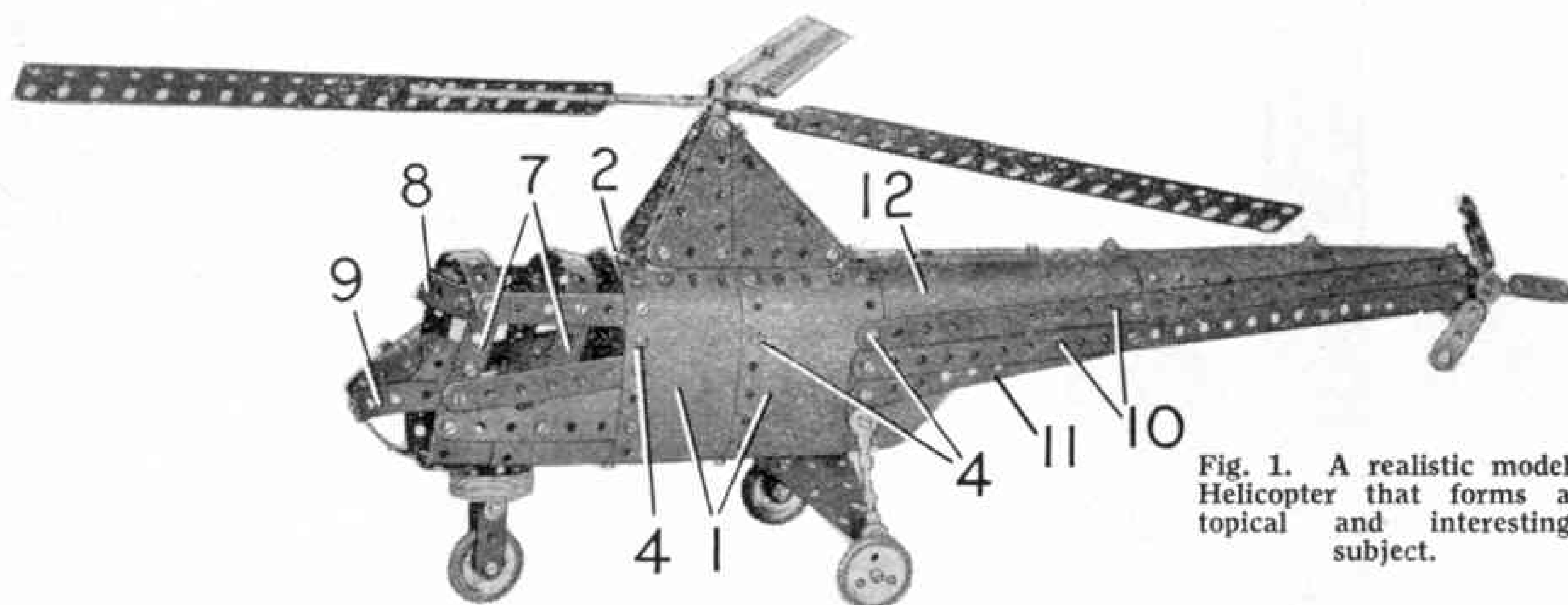


Fig. 1. A realistic model Helicopter that forms a topical and interesting subject.

A Realistic Model Helicopter and a Magazine Rest

THE model Helicopter shown complete in Fig. 1 is an excellent subject for those with a fair quantity and assortment of parts at their disposal. It is not designed for construction from any particular Outfit.

The cabin section of the fuselage is made by bolting four $4\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plates 1 together and then curving them slightly as shown. On the inside the upper edges of the Plates are strengthened by $4\frac{1}{2}"$ Strips, and the Plates are connected by a curved $2\frac{1}{2}"$ Strip 2. A $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plate 3 (Fig. 2) is fixed between the Plates by bolts 4 (Fig. 1) on each side.

The nose section consists of a curved $3\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plate 5 (Fig. 2) and two curved $2\frac{1}{2}" \times 1\frac{1}{2}"$ Flexible Plates 6. These are connected at their upper ends by a $3\frac{1}{2}" \times 1\frac{1}{2}"$ Triangular Flexible Plate, which is edged by a $3\frac{1}{2}"$ Strip. Two $2\frac{1}{2}"$ Strips 7 on each side of the craft support a $3"$ Strip, and the latter is connected to the opposite side by two $3\frac{1}{2}"$ Strips curved and arranged as shown. A $2\frac{1}{2}"$ Strip 8 is attached to the front ends of the $3"$ Strips by Obtuse Angle Brackets. Two $2\frac{1}{2}"$ Curved Strips 9 are bolted to the sides and arranged so that their front ends can be joined by a bolt. The bolt supports also a Formed Slotted Strip that is attached to the Plates 6. Two $2\frac{1}{2}" \times 1\frac{1}{2}"$ Triangular Flexible Plates are fixed to the front pair of Strips 7 and to an Obtuse Angle Bracket attached to the Curved Strips 9.

Each side of the structure that supports the main rotor consists of a $2\frac{1}{2}" \times 1\frac{1}{2}"$ and a $2\frac{1}{2}" \times 2\frac{1}{2}"$ Triangular Flexible Plate, which are connected to the Plates 1 by

Obtuse Angle Brackets. The upper corners of the Triangular Flexible Plates are joined by a Double Bracket. The front of this structure is formed by two $2\frac{1}{2}"$ Strips bolted together at their upper ends, their lower ends being connected to the sides by Angle Brackets. The back is made in a similar way to the front, except that $3"$ Strips are used instead of $2\frac{1}{2}"$ Strips.

The tail is made by fixing two $12\frac{1}{2}"$ Strips 10 and a $5\frac{1}{2}"$ Strip 11 to each side of the cabin. The rear ends of the Strips 10 are connected by $1"$ Triangular Plates. The plating above the Strips consists of two $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plates 12, a $4\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plate 13 and a $3\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plate 14. On the inside a $12\frac{1}{2}"$ Strip is bolted along the centre of the Plates. Two $3\frac{1}{2}" \times 2\frac{1}{2}"$ Triangular Flexible Plates are arranged between the Strips 11 and the rear of the cabin.

Each leg of the main undercarriage is a $2\frac{1}{2}" \times 1\frac{1}{2}"$ Triangular Flexible Plate bolted to a $5\frac{1}{2}"$ Strip 15 and connected to the underside of the cabin by an Obtuse Angle Bracket. The wheels are $1"$ loose Pulleys with Rubber Rings, and they are mounted freely on $\frac{1}{2}"$ Bolts fixed by two nuts each in $1" \times \frac{1}{2}"$ Angle Brackets. Each leg is braced by a strut consisting of two Rod and Strip Connectors joined by a $1\frac{1}{2}"$ Rod. The strut is attached to a $1\frac{1}{2}"$ Strip fixed to the cabin and to an Obtuse Angle Bracket bolted to the leg.

The nose wheel is a $1"$ loose Pulley with Rubber Ring placed on a $\frac{1}{2}"$ Bolt that is fixed by nuts in two $1\frac{1}{2}"$ Strips. Each of

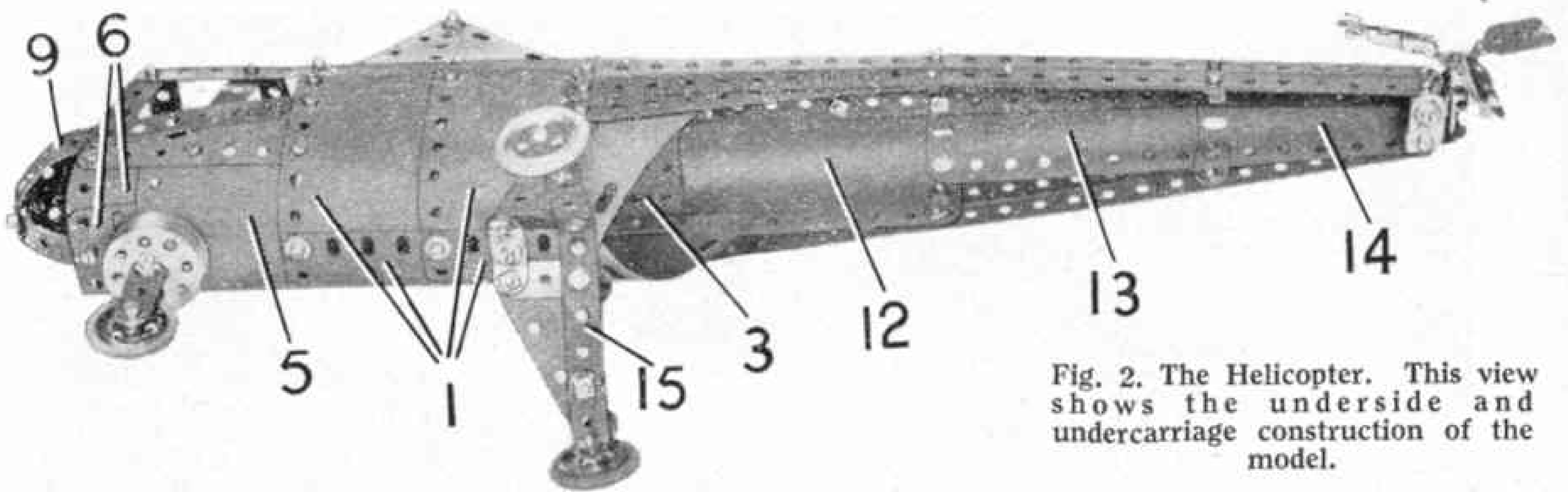


Fig. 2. The Helicopter. This view shows the underside and undercarriage construction of the model.

these Strips is held by a bolt that is fitted with two Washers and then screwed into a Collar on a $1\frac{1}{2}$ " Rod. Eight Wheel Discs are placed on the Rod, which is then fixed in a Double Arm Crank bolted inside the cabin.

The hub of the tail rotor is a Three-way Rod Connector with boss, and each arm of this carries a 1" Rod fitted with a Rod and Strip Connector. A $1\frac{1}{2}$ " Strip is bolted to each Rod and Strip Connector. The rotor is mounted on a $1\frac{1}{2}$ " Rod held by a Collar in the 1" Triangular Plates at the tail.

The main rotor is made by fitting a 5" Rod in each arm of a Three-way Rod Connector with boss. A $9\frac{1}{2}$ " Flat Girder is bolted to a Right Angle Rod and Strip Connector and a Rod and Strip Connector passed over the Rod. The rotor is mounted on a $4\frac{1}{2}$ " Rod supported in the Flanged Plate 3 and in the Double Bracket at the top of the cowling.

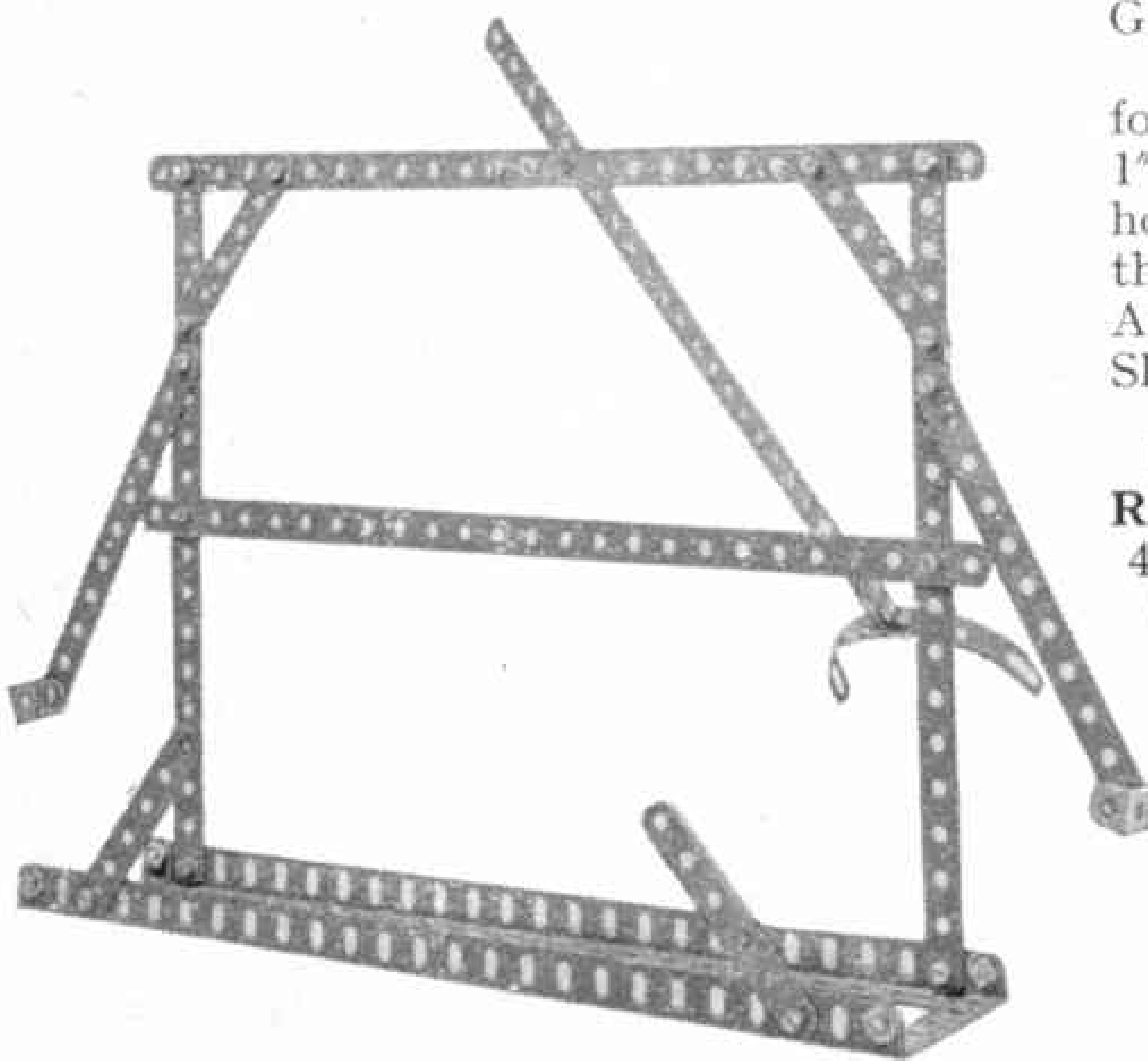


Fig. 3. A useful magazine stand that can be assembled from a few parts. Just the thing for holding the opened "M.M." or Instructions Book.

Magazine Stand

The simple book stand shown in Fig. 3 was designed especially for readers of the *M.M.*, and was sent to us by C. Cohen, Secretary of the Cape Peninsula Meccano Club, Cape Town. It is a very useful gadget that will come in handy when you settle down to read the *M.M.* and it can also be used to support a Meccano Instructions Book when you are model-building.

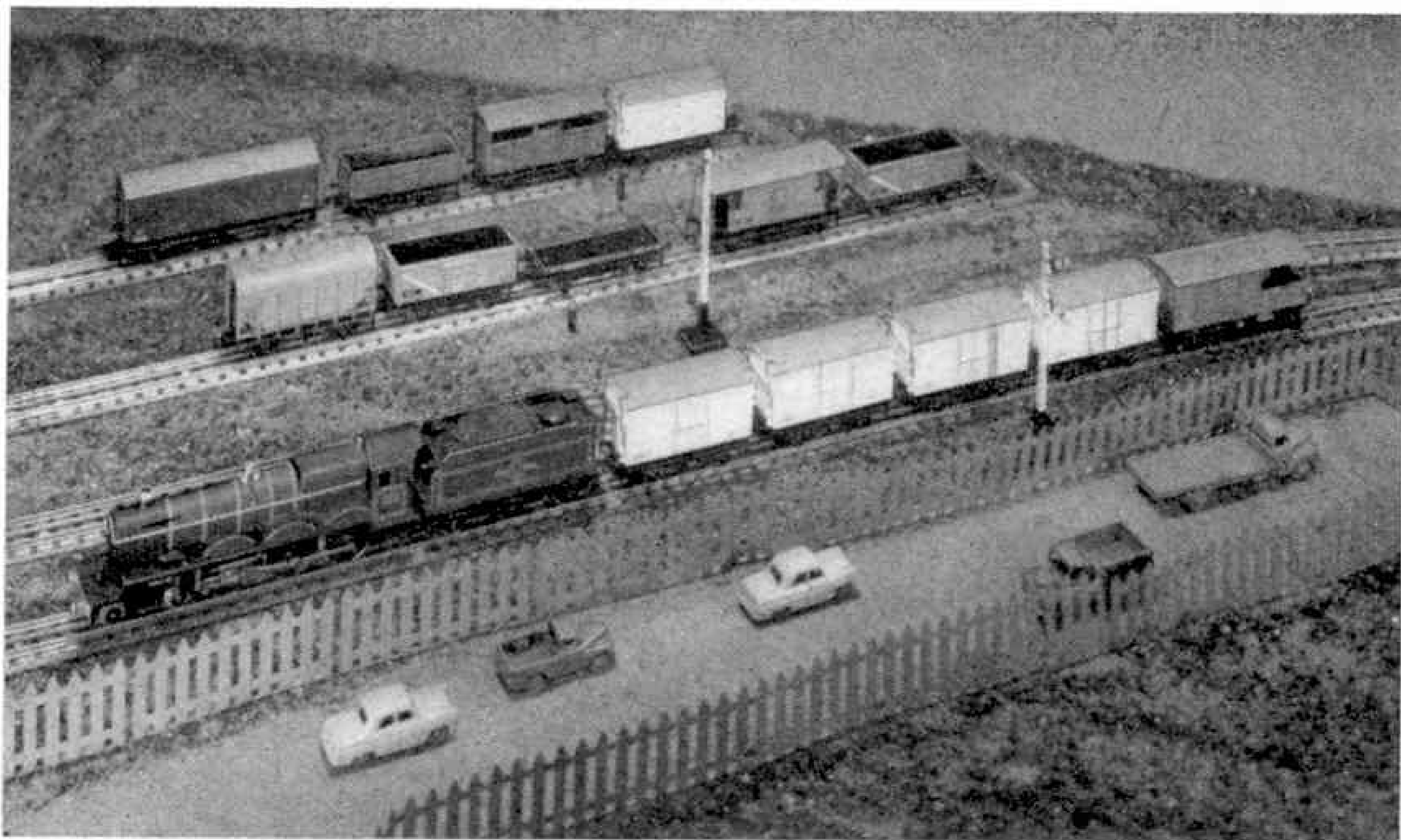
The base of the model is made up of two $12\frac{1}{2}$ " Angle Girders joined at each end by a $2\frac{1}{2}$ " $\times$ $\frac{1}{2}$ " Double Angle Strip. The framework consists of two $9\frac{1}{2}$ " Strips joined by two $12\frac{1}{2}$ " Strips as shown and bolted to the rear Angle Girder. It is braced at the top corners by 3" Strips. The two arms that hold the Magazine in position are $5\frac{1}{2}$ " Strips with Double Brackets fixed to their ends as shown. They are bolted to the $9\frac{1}{2}$ " Strips six holes from the top. Two 3" Strips are bolted to the front Angle Girder of the base.

A back strut to support the frame is formed by a $12\frac{1}{2}$ " Strip that is bolted to a $1" \times 1"$ Angle Bracket fixed in the centre holes of the top $12\frac{1}{2}$ " Strip of the frame. At the bottom of the $12\frac{1}{2}$ " Strip two $1" \times \frac{1}{2}"$ Angle Brackets are bolted to a Formed Slotted Strip.

Parts required to build the model Magazine Rest are: 3 of No. 1; 2 of No. 1a; 2 of No. 2; 4 of No. 4; 2 of No. 8; 2 of No. 11; 1 of No. 12a; 2 of No. 12b; 27 of No. 37a; 27 of No. 37b; 4 of No. 38; 2 of No. 48a.

Parts required to build the Helicopter: 5 of No. 1; 3 of No. 2; 2 of No. 2a; 4 of No. 3; 4 of No. 4; 8 of No. 5; 9 of No. 6a; 3 of No. 10; 1 of No. 11; 6 of No. 12; 2 of No. 12b; 3 of No. 15; 1 of No. 15a; 3 of No. 18a; 1 of No. 18b; 3 of No. 22a; 8 of No. 24a; 103 of No. 37a; 96 of No. 37b; 18 of No. 38; 1 of No. 52; 4 of No.

(Continued on page 406)



HORNBY RAILWAY COMPANY

By the Secretary

News and Views

BEFORE anything else this month I must give you some news that I am sure will delight all of you. This is the introduction of the first main line goods engine in Hornby-Dublo, indeed the first such engine in Gauge 00 produced in this country. Just look at the illustrations at the foot of the opposite page and on page x in the advertisement section of this issue of the *M.M.* They represent the powerful L.M.R. 2-8-0 type familiarly known as the 8F class. Large numbers of these engines are in service, not only on London Midland routes, but elsewhere as well.

The appearance of this fine new engine marks a big step forward, for there has long been the need for a heavy main line freight locomotive for Gauge 00 railways and the new Hornby-Dublo engine is just the thing for this. It represents a prototype that has been constantly suggested by large numbers of Hornby-Dublo owners during the past few years. So now the Hornby-Dublo system includes a really beautifully

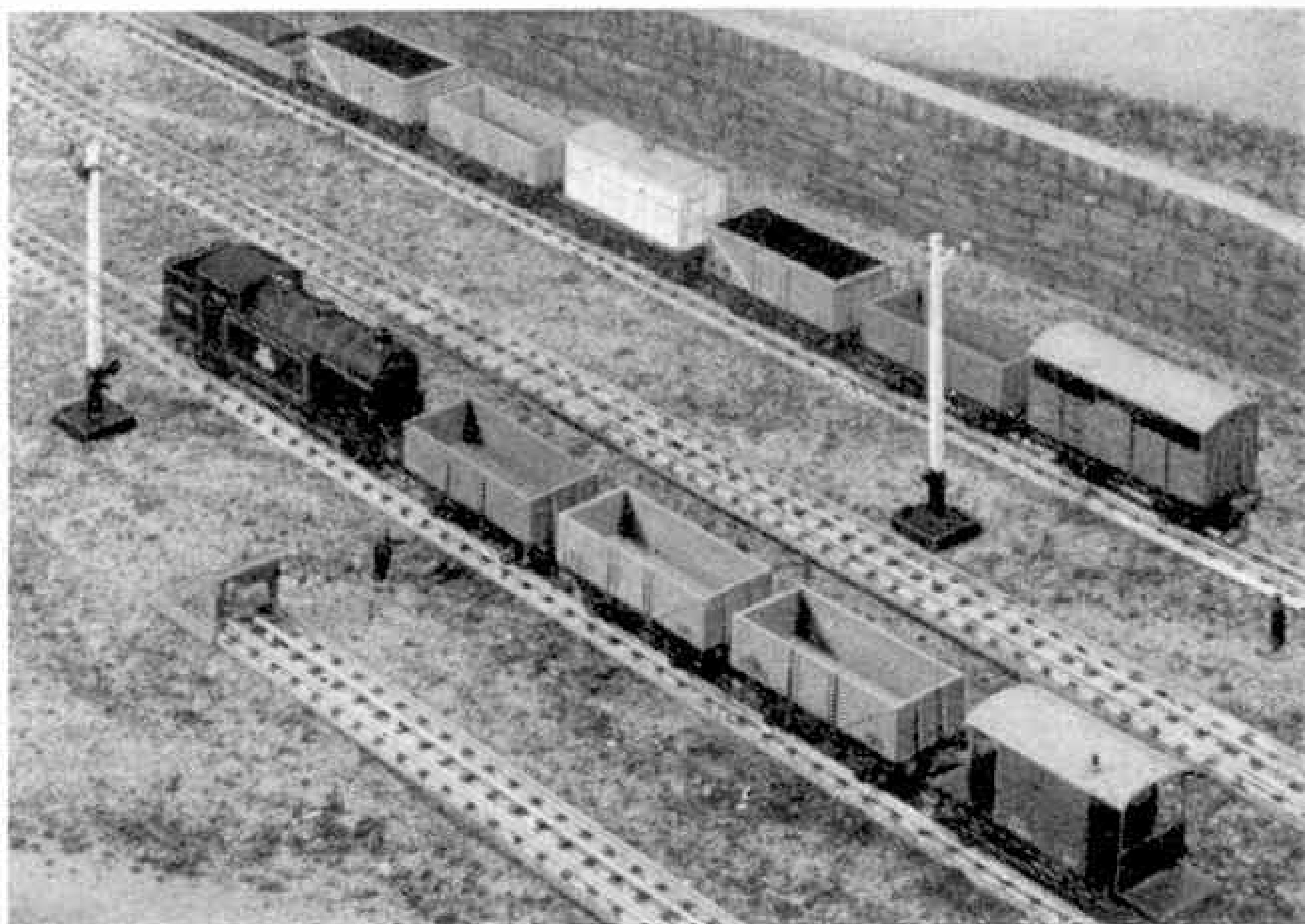
The train seen in the illustration at the head of the page is obviously "The Meat". The Hornby-Dublo SD6 Refrigerator Vans indicate this and it is quite properly hauled by the Hornby-Dublo "Bristol Castle", as engines of this class are used on trains carrying such perishable loads.

detailed engine for freight train work that has been eagerly in demand, one that will look absolutely right at the head of any of your goods trains. I shall be able to tell you more about it in due course and to say something about the engine in service.

There is little doubt that with recent introductions in the series of SD6 goods vehicles with moulded bodies, and with more of these to follow later on, there will be plenty of goods stock for the new freight engine to haul. I can see that the Goods Departments of many Hornby-Dublo railways are going to be very busy during the coming months.

Last month I told you about the most recent SD6 vehicles and two of our pictures this month show these in service. I need scarcely repeat that these, the SD6 Refrigerator Van W.R. and the 13-ton Standard Open Wagon, reproduce exactly all the characteristic details of the originals so perfectly that no Gauge 00 railway should be without them. And there are others in the SD6 range that are equally indispensable, as our pictures show.

A short train of empties including SD6 Open Wagons. The recently introduced 13-ton Standard Wagons are clearly shown.



No other title than *The Meat* would suit the fast perishable train shown in the picture on page 396. That it is an important one is obvious because *Bristol Castle* is hauling it, so that the complete formation reproduces entirely the appearance of a real Western Region meat train speeding on its way. *The Meat*, somewhat similar to *The Fish* that I have mentioned in a previous talk, is a term traditionally applied on many routes to a regular service of this kind.

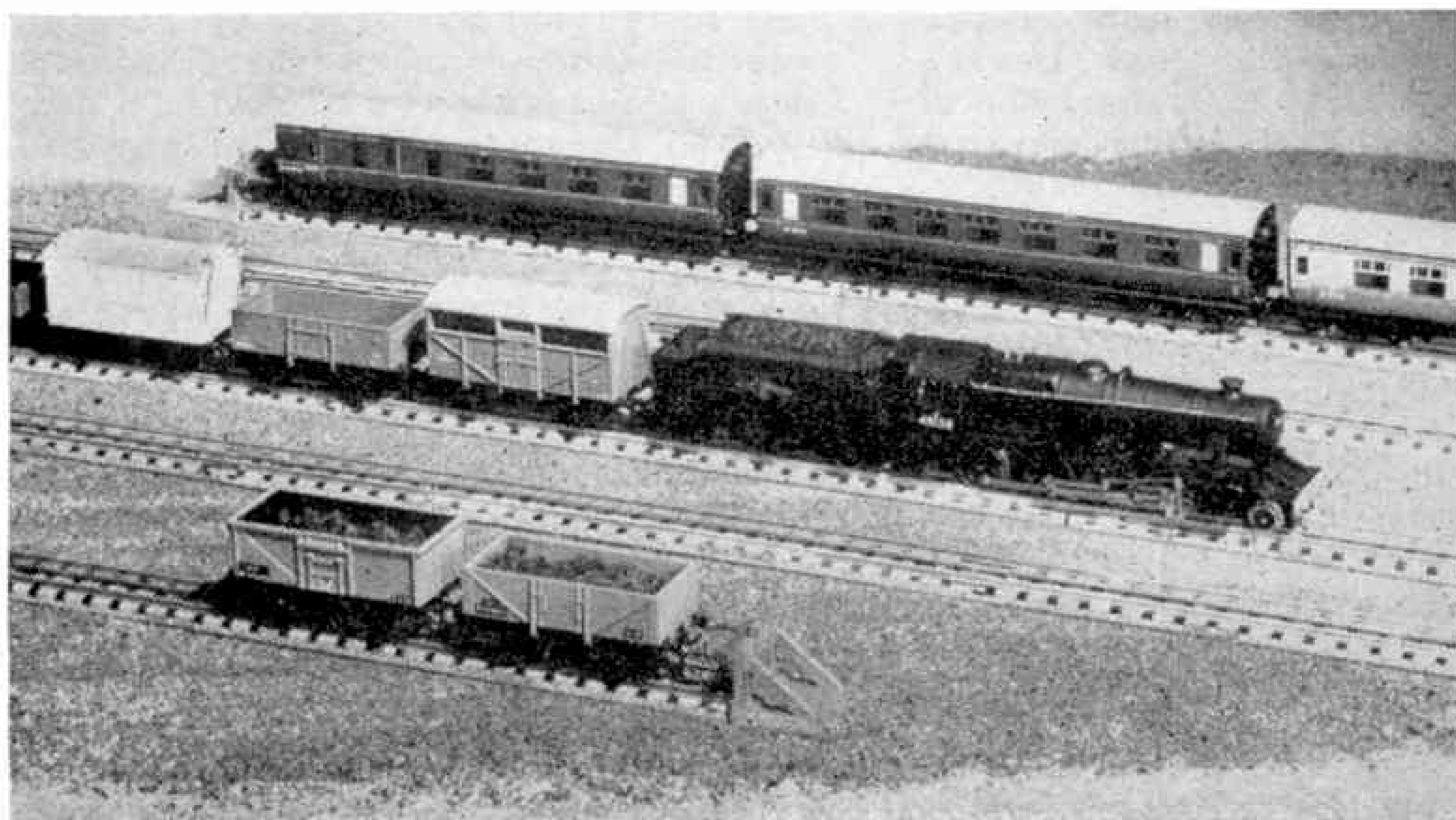
I expect that sharp-eyed readers will have detected something special about the Goods Brake Van in the rear of our Hornby-Dublo meat special. This is actually a moulded vehicle, one of the SD6 series in fact, but one that I have not dealt with so far because it is not yet available separately. Those of you who watch such things will have noted that the two new Goods Train Sets, G16 and G19 respectively, which became available a month or two ago, include this SD6 Goods Brake Van of Western Region type.

The fullest advantage has been taken in the moulded construction of this new Brake

Van to reproduce the characteristic features of the real van, and I will have more to say about it later. Obviously this was just the Brake Van to use in arranging the meat train formation shown in my picture, as I am sure you will all agree, although you may not be able to buy this Van separately for a little while. It is well worth waiting for!

Do not forget that meat trains can also include traffic handled in containers. You know that the Hornby-Dublo System includes an Insulated Meat Container, mounted on an appropriate Low-Sided Wagon, so you have plenty of choice in the matter of the make-up of a train for meat traffic.

Late news item: another new vehicle is to appear this month, the SD6 12-ton Ventilated Van. But more about this later.



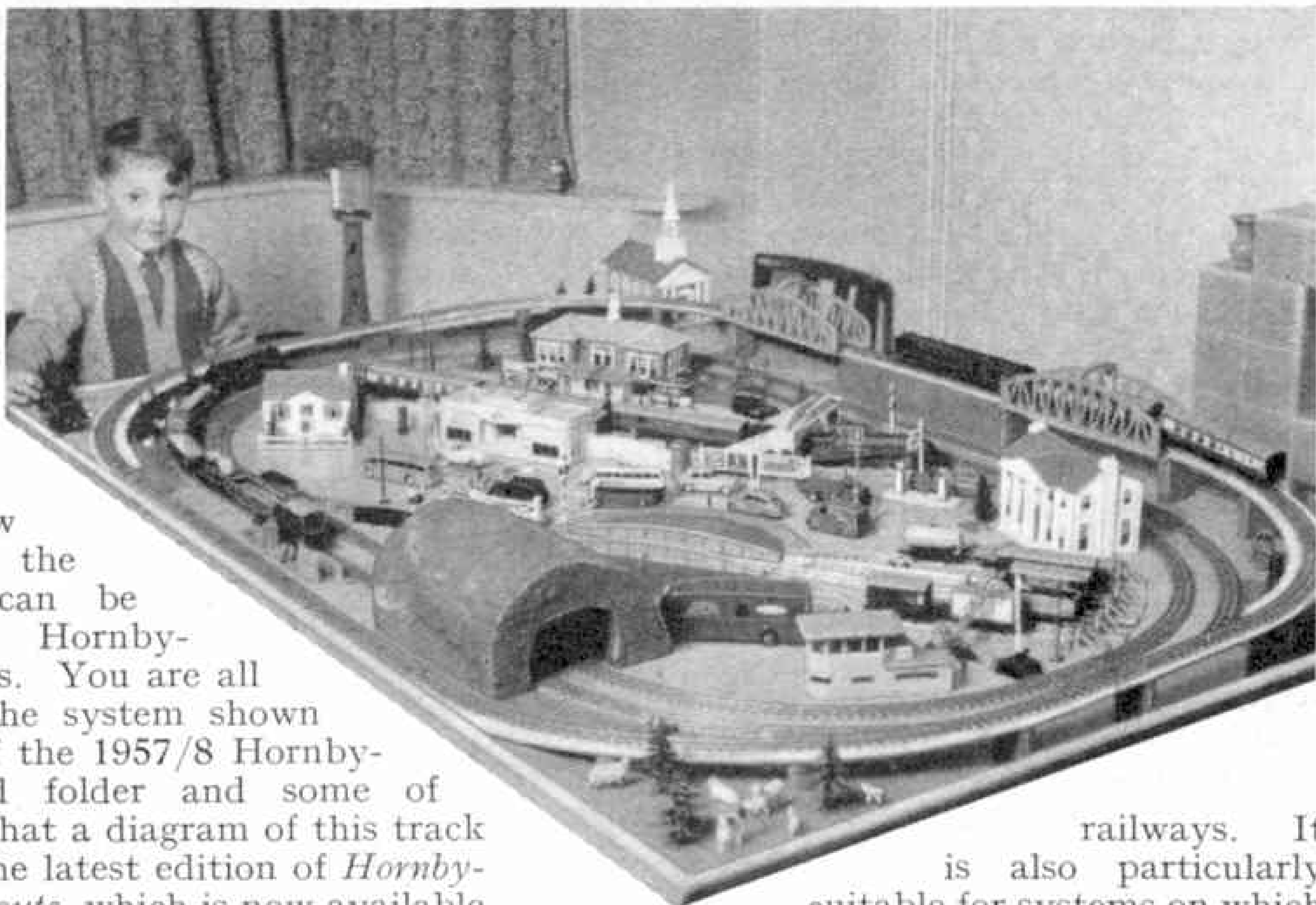
The new Hornby-Dublo L.M.R. 8F2-8-0 in action. The sturdy and powerful appearance of this engine is well shown in this illustration.

Making Gradients and Banks

DAVID MOUNTFORD, H.R.C. member No. 296583, of Great Barr, is the keen owner of the fine railway that you see in the picture below. In building this up his father Mr. R. Mountford has played an important part, for David is only five. In spite of his youth the latter is a very capable train operator, and is seen to be obviously enjoying himself in the photograph.

What I like about David's railway is that

David Mountford, Great Barr, whom you see here, is the capable owner of this fine Hornby-Dublo railway. Road Traffic effects are provided by a selection of Dinky Toys motor vehicles.



it shows how adaptable are the layouts that can be regarded as Hornby-Dublo standards. You are all familiar with the system shown in the centre of the 1957/8 Hornby-Dublo coloured folder and some of you will know that a diagram of this track is included in the latest edition of *Hornby-Dublo Rail Layouts*, which is now available either from your dealer or from H.R.C. Headquarters, price 6d. Now David's layout follows the same general scheme in having an outer track that is partly elevated and passes over two of the fine Hornby-Dublo Girder Bridges.

There is one difference. The inner part of the system has been reversed, as it were, and this has had the pleasing result of bringing the Turntable and the lineside apparatus for the T.P.O. well into the foreground, facing the operator when in his normal position. The elevated section is now at what we may regard as the back of the system, as is clear from the illustration above.

The use of the Girder Bridges in leading an elevated track across other tracks or roads at baseboard level raises the question of how to provide the necessary inclined

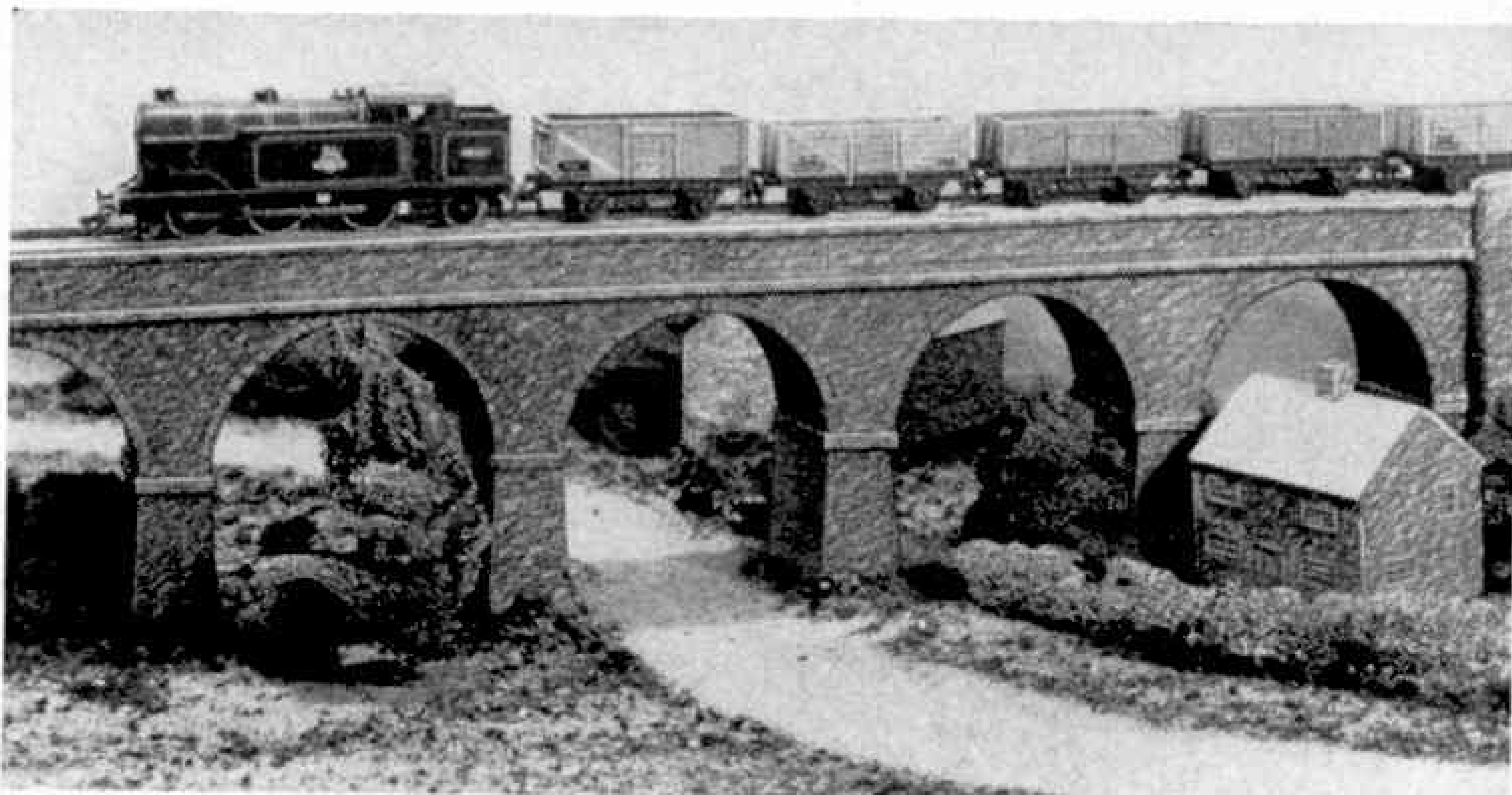
approaches. This can be done in various ways, and that adopted on David's layout is perhaps the simplest. Here the track is carried on strips of wood that are supported on suitably-shaped blocks placed at intervals, leading the track up from baseboard level to a height of $2\frac{3}{4}$ in.

This simple way has the advantage that there is no elaborate supporting structure to break up if alterations are made, and of course this often happens on miniature

railways. It is also particularly suitable for systems on which there is not a great deal of "ground" space to spare. This is the case here. David's layout occupies a board 8 ft. $\times$ 4 ft. 6 in. and the space is full of railway and lineside structures and scenery.

There are other methods of providing approach gradients or elevated tracks and a more elaborate and spectacular attractive form of raised construction is shown in the upper illustration on the next page. Here we have an arched viaduct. The track base or floor of the viaduct, and the sides of the piers or supports and the parapets, are all carefully built of wood. The arched sections of such a viaduct can be filled in with wood or card, or a combination of the two, and the result will always be satisfactory if care and patience are exercised. The finish can be applied by painting, or by making use of one of the many types of brick paper

A picturesque viaduct carries the railway over a country road. A train of empty Wagons moves across in charge of a Hornby-Dublo 0-6-2T.



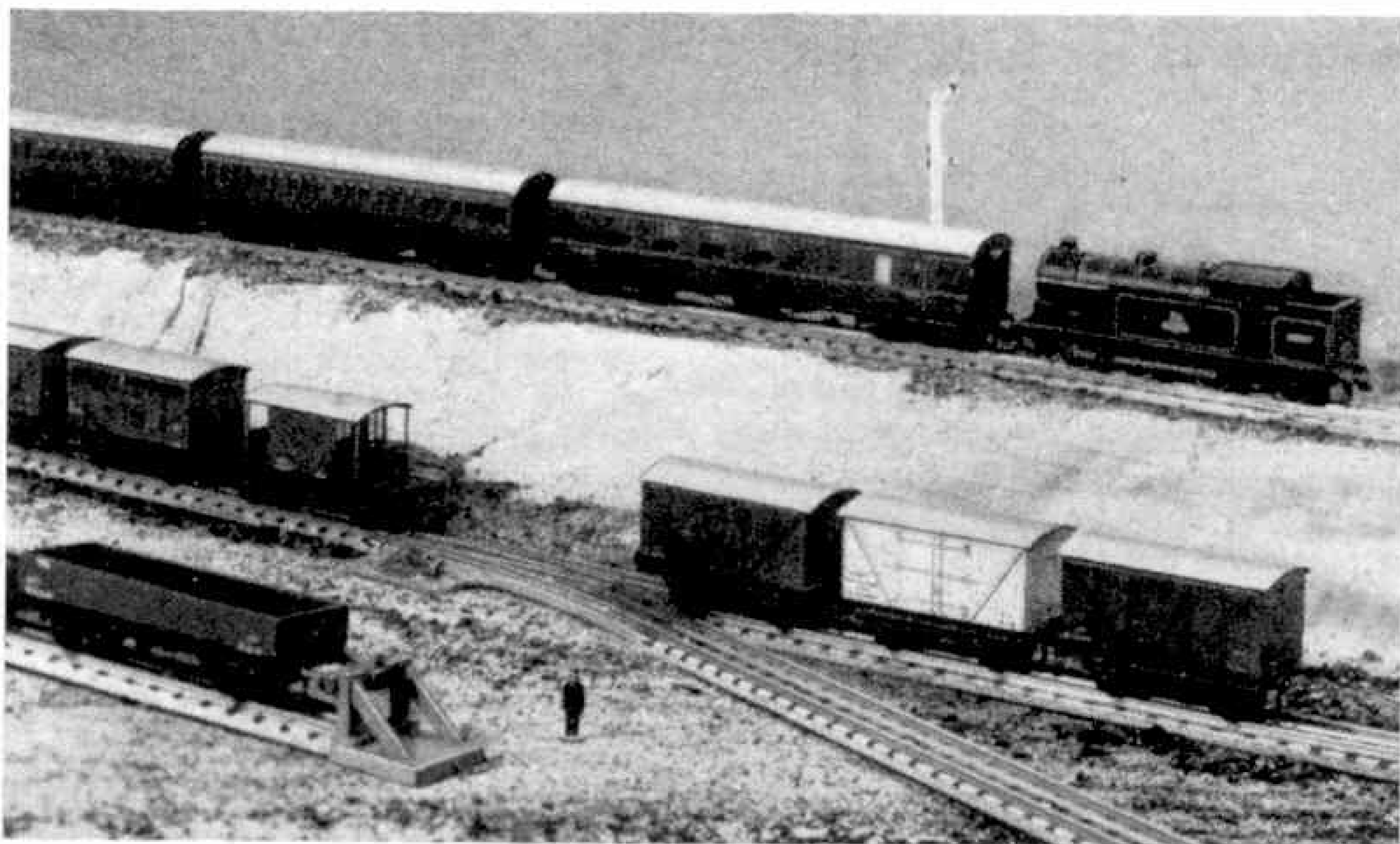
that are available nowadays. When the latter are applied with care the effect can be quite pleasing.

Embankments are truly railway features and some of these are quite long. One of the articles in last month's *M.M.* gave some useful details of possible ways of construction for miniature railways. Although methods of forming the actual bank can vary according to the wishes of the Engineer-in-charge, the basic idea of laying the track on wooden strips supported by blocks remains the same. Some owners prefer to use canvas or some similar material, or perhaps suitable wire mesh covered with paper, as the foundation for the banking effects. The latter can be applied by means of plaster or some similar modelling material that is capable of being spread or moulded as required.

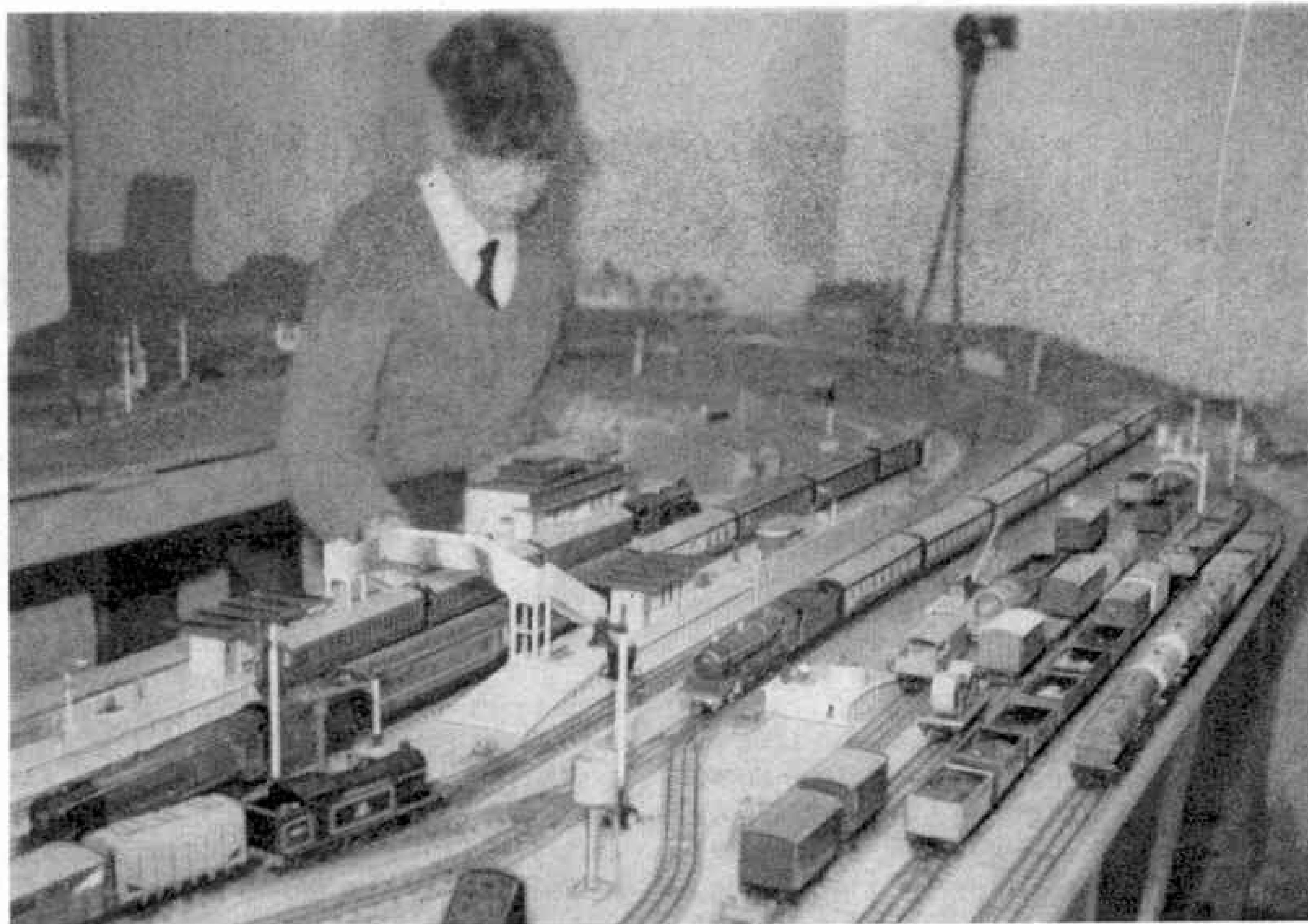
Some of our younger enthusiasts will find

this type of work a little difficult perhaps, but they need not despair. A lot can be done with ordinary brown paper, preferably not the shiny sort. This can easily be attached to the baseboard by means of drawing pins or some suitable adhesive, and balls of screwed-up newspaper can be used as a sort of filling underneath the surface. Water colour paint is good for finishing this type of thing and one does not have to be an artist in order to obtain quite convincing effects.

Sometimes layouts are arranged with a permanently raised section like that in our third illustration. Here the tracks at the two levels are quite separate and independent, but in spite of this the general effect of such a system can be good.



Here the main line runs on an embankment at a higher level than the yards, with a local train passing along in the background.



Good Traffic Working

By "Layout Man"

THE picture on this page shows a layout that has not only been laid out on generous lines in order to handle plenty of traffic, but has also been planned to make good use of lineside matters. The system has been built up by M.M. reader P. Phillips, of Wells, Somerset, whom you see above busy controlling affairs at *Crawford*.

This name of course is one of the standard titles provided on the labels for station name purposes that are packed with each Hornby-Dublo Island Platform and Station. On this railway very good use has been made of a combination of the standard Through Station, Island Platform and Platform Extensions in building up *Crawford*, as is obvious from the illustration, and the platforms are connected by means of the familiar Hornby-Dublo Footbridge.

By the way, notice the smoke effects on the latter. These were obtained by careful blackening with candle smoke. A neat little touch of realism this.

Main line, suburban and freight traffic are all in evidence in the picture, the situation being that the trains alongside the platforms are waiting while station

duties are being performed. A goods train is running through the outer side platform road, while on an avoiding line entirely clear of the station *Bristol Castle* is passing with a heavy train. Perhaps this is a sample of holiday working of the kind mentioned by the H.R.C. Secretary in his talk last month? It is no bad scheme from the layout point of view to have avoiding tracks, if this can be arranged, as important through expresses can be given a clear road while the station platform lines are occupied by other traffic.

To the right of the picture the freight yard is busy and there is an interesting touch that I am sure will appeal to you. This is the ramp section of standard Island Platform used on its own to represent a small loading "bank". The ramp provides the necessary sloping approach and there is of course a short section of level platform at the top of it on which goods can be dealt with.

This idea has possibilities that some of you would love to explore. When Island Platforms and Through Stations are combined to form one big unit, there may be one or two ramps left over and they can be used in this rather unusual manner.



Club and Branch News



WITH THE SECRETARY

AN EXHIBITION HINT

A letter from the Cape Peninsula M.C., in South Africa, mentioned that at their Exhibitions each Meccano model displayed has beside or in front of it a small Meccano-built rack carrying a card bearing the name of the model and that of its builder. This method catches the eye of the visitor better than merely putting the card flat on the table, and the card is less likely to be brushed away by visitors closely inspecting the model. Nothing elaborate is needed. Clubs to whom the idea is new may like to try it out at their next Exhibition. Another type of Meccano rack from the same source is described on page 395.

PROPOSED H.R.C. BRANCH

WEST DULWICH (LONDON)—Mr. J. Seaman, 45 South Croxted Road, West Dulwich, London S.E.21.

CLUB NOTES

NEWTOWN SCHOOL (WATERFORD) M.C.—The Whit Exhibition was very successful. The models covered a wide range of subjects, and some members exhibited two models. *Secretary:* J. Gillespie, Newtown School, Waterford, Eire.

MILE END (PORTSMOUTH) M.C.—Models completed have included a space ship, rocket and flying saucer. An Electric and Sound Section has been formed. The Amateur Dramatic Section recently staged an elaborate mock trial, preceded by the taking of fingerprints by two members posing as detectives! The trial was followed by a sing-song and refreshments. The Dinky Toys layout has been completed. *Secretary:* Mr. A. J. Nicholson, 213 Sultan Road, Buckland, Portsmouth.

AUSTRALIA

MAYLANDS M.C.—The Winter model-building session is now in full swing, and includes Friday evenings and from 9.30 a.m. until 4 p.m. on Saturdays. Large models under construction include the Baltic tank locomotive, giant blocksetting crane, ship coaler, funicular railway, and a combine harvester. A second party of members has visited Newspaper House, where they were shown round by Mr. Harvey, and saw how a newspaper is produced. On another occasion the Leader and 36 members visited the Western Australian Government Workshops at Midland Junction. Mr.

Keirnan, of Forward Down Ltd., visited the Club and showed a splendid selection of colour slides illustrating construction work in Malaya upon which he had been engaged. The first Winter cycle run was well attended. *Secretary:* T. Down, 31 Drummond Street, Bedford Park, Western Australia.

NEW ZEALAND

CHRISTCHURCH M.C.—The Club again had an impressive display of models at the annual New Zealand Industries Fair, which this year was visited by over 50,000 people, a record. The many models exhibited included a fire engine with ladder extending some 2 ft. 6 in., working printing press, model tanker about 7 ft. long., and the ever-popular Meccanograph, the designs produced by it being handed to delighted young visitors. *Secretary:* Mr. C. E. Saunders, 6 Walsall Street, Riccarton S.W.1, Christchurch, New Zealand.

SOUTH AFRICA

CAPE PENINSULA M.C.—Members are busy preparing models for the annual Winter Exhibition. The subject this year is *In the Dockyard*. At one meeting Mr. Mutti, a Red Cross ambulance driver, who is the father of one of the members, gave a lecture on the Red Cross radio control service between Cape Town and the town of George, some 250 miles away. The ambulance used is equipped with two-way radio. *Secretary:* C. Cohen, 23 Upper Rhine Road, Sea Point, Cape Town South Africa.

BRANCH NEWS

FEATHERSTONE CASTLE (HALTWHISTLE)—Activities have slowed down temporarily, as members have been busy with school examinations. At one meeting the Secretary gave an interesting talk on *British Railways since Nationalisation*. Plans are in hand for an outing to Carlisle Station. *Secretary:* F. N. Clark-Lowes, Featherstone Castle, Hillbrow School, Haltwhistle, Northumberland.

AUSTRALIA

ST. ALBANS AND NORTH PORT RAILWAY.—This first monthly report records that two new Girder Bridges have been installed on the Branch layout by the Company's Civil Engineering Section. A Hornby-Dublo 0-6-2 Tank has been overhauled in the Branch workshops and repainted Midland red. *Secretary:* Mr. E. G. Skiller, 176 Grand Parade, Kogarah, New South Wales, Australia.



Colin Cohen, the enterprising and enthusiastic Secretary of the Cape Peninsula M.C., Cape Town, South Africa.

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For other Stamp Advertisements see also pages 404 and xviii

Stamp Collectors' Corner

By F. E. Metcalfe

SPORTS STAMPS

Recently I received a letter from an elderly philatelist urging me to tell all young "thematic" collectors, that is, those who collect stamps illustrating some particular subject, not to continue wasting their time. He described their present style of collecting as no better than the gathering of cigarette cards and wanted them to go in for collecting stamps and not pretty pictures.

Well, I don't propose to tell them anything of the kind. If I did, I do not suppose that they would take the slightest notice, for youth nowadays has a habit of choosing its own fun. Maybe it always had, if we had only realised it. So I am dealing with Sports stamps this month. Still, in fairness to my correspondent, who after all only wanted to be helpful, I must point out that attention merely to the classification of designs does not get one very far, when all is said and done.

Sports stamps speak for themselves, as it were, and so delightful are many of them that I found it quite difficult to know which to select to illustrate these notes. Recently our own Post Office released one of its rare special issues in commemoration of the Empire Games, which were held in Wales in July, and this had a

definite purpose, which is more than can be said about many of the sets that come out. For instance, last year the Dominican Republic, of all countries, issued a set of "Sports"

stamps depicting famous athletes who had won events in the Olympic Games. The stamps were attractive enough and sold well what few there were, so they brought out another set that also depicted winners. But none of the many Russian winners was included. This was scarcely a gesture in the Olympic tradition.

Russia too brought out a set on the same lines, and in view of their athletic prowess and their success in Melbourne, maybe we can say that this was fairly justified. Their set had no Dominican winners, for obvious reasons.

Hungary is another country that has brought out some very fine Sports stamps.

Again, I think we can say that this country, relatively small in population but capable of winning ten gold medals at Helsinki, is also entitled to say it with stamps.

Most of these sets are printed by photogravure, which lends itself to a rather easily obtained showy result. But it is very different with line-engraved stamps. With them the result has to be worked for, as it were, and that is why I think the French Sports set of 1953 is such a superior printing job. One of the set I am referring to is illustrated. The six stamps in this issue, with the sole exception of the 75f. value, only cost a copper or two each, so even if our pocket money is short just now we can still afford to buy.

That is the great point about these Sports stamps. Set after set can be bought for very little cash, and that is one of the reasons perhaps why they are so popular. For instance, San Marino brought out a set in 1953.

There are nine stamps in all, but with so many stamps to buy, all one need do is to purchase the first seven values, or a shorter set still. Anyhow, for about two shillings a nice page can be added to one's collection. The same country issued Sports sets in 1954 and 1955, and here again short but nevertheless attractive sets cost only a shilling or so each.

Before we leave this part of the world, we may as well look to see what Italy has done for the Sports fans. In 1957 the Winter Olympic Games were held at Cortina, and of course these had to be celebrated with stamps. So a most attractive issue of four values was released. It is catalogued, used, at about 1/6d., and recently I saw a young collector pick one up for 8d. Quite a nice little bargain.

A set I like very much is the one issued by Belgium in 1950 for the European Athletic Championships. There are five stamps in the set, and the three low values only cost a little over a shilling. It will cost ten or twelve shillings to get the whole five stamps. But I feel that this set will make a nice little investment.

We cannot leave without mention of the Olympic Games set of Finland of 1951, and that of Australia of 1956. Many collectors will already have both sets in their collections, and that for Finland looks like turning out quite good. What I like about it is that the designs are neat, and genuinely postally used sets can be obtained, at about half a crown.

The Australian set for the Melbourne Olympic Games was a real mixture. It consisted of only four values, yet three printers, all of different countries, shared the task of producing them. To be quite candid, I think that

(Continued on page 406)



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Stamp Gossip

BRUSSELS

Last month I referred to the stamps being issued in honour of the Belgium Exhibition. As they are still coming out many are trying to collect them all, and dealers report quite a brisk trade in what looks like being a colourful lot.

Even if the Exhibition were being held in Britain, it would not be easy to get our own Post Office to issue a set of special stamps, so there is no chance that we will follow the lead of America, France, Belgium, Portugal, etc. But one day there may be a change of heart at St. Martin's le Grand. In the meanwhile our cash will have to be spent on stamps issued by more wideawake administrations, such as the Portuguese one illustrated. And, also in the meanwhile, those who are lucky enough to get the chance to pay a visit to Brussels can enjoy what is a wonderful display.



BEST OF BOTH WORLDS

While I believe that the primary object behind a hobby should be recreation, there is nothing to be said against any pastime that also provides a bit of education. Stamp collecting can provide both. For instance, a young relative of mine recently showed me a small collection of map stamps, which apart from any other consideration

was quite a delight to the eye. Naturally, the map stamps of the Portuguese Colonies, such as that of Mozambique illustrated, figured prominently in this collection, for this old friend of Britain has issued some beauties.

In the arrangement of the collection it was the maps themselves that had been given first consideration, and they were arranged by continents. For instance, a full page map of say Africa was mounted, and then on the pages that followed were map stamps from countries in that continent, with a few words underneath each describing the country concerned. After this came a letter in brackets, and there was a corresponding reference letter on the map.

Now this young collector had obviously had a lot of fun, and undoubtedly picked up quite a bit of geographical knowledge in the process. One could easily amplify the geographical angle, by writing up the stamps more extensively and adding comments on each country's products, animal life and so on. Why not have a go? Such a collection need not make too deep inroads into our pocket money.

NEXT MONTH

Next month the new stamp catalogues will begin to appear, and we



shall be looking to see what new stamps we have got. There are certainly plenty of new ones, particularly among the Queen Elizabeth issues. Gibbons Part I, which contains all Colonial stamps, and the Commonwealth QEII Catalogue will be out at the beginning of next month, and I think they will give great pleasure. So better be getting those albums lined up.

INDIAN AIR FORCE

That sister nation, India, issues quite a lot of special stamps nowadays, but these are generally so attractive, and of such a moderate face value that on balance I am sure collectors welcome them very much. I know I do. Also, though they have been given quite a big share of publicity already, I cannot resist asking the Editor to illustrate the issue made to commemorate

the Silver Jubilee of the Indian Air Force.

One design is used for the two stamps, of values 15 n.p. and 9 n.p. respectively, in the issue. It will be noted that two planes are depicted, and while I might have



recognised the Hunter Jet, I am afraid that the other would have beaten me but for the fact that its make is given on the stamp. Of course I know that a good percentage of those who read these lines would have spotted the Wapiti at once.

Once more we have to thank our good friend Mr. E. R. Kooka for full details and specimen stamps. If the Indian Post Office had a few more like our correspondent then its stamps would be popular indeed, for it is only publicity they lack.

WORLD CHANGES

We all picked a funny time to be born in, for this is certainly a period of change, and even our stamps are affected. For instance, Ceylon has decided that the recent change of official language shall be reflected on its postage stamps. So instead of having the name of the country in bold English lettering, we now get lettering in Sinhalese. Anyhow, it will be fun getting stamps with and without the adjustments, and this brings me to the final item for this month.



THE TIP OF THE MONTH

I have just written about the changes that are taking place with the stamps of Ceylon. The two high values 5r and 10r originally had the title of the country in large type, at the top, in English, but in the adjusted designs, the word CEYLON is in tiny letters. Ignore those for the time being, and try to get nice used copies of the originals, that is the stamps with CEYLON at the top.

First of all be sure that you only go for perfect copies. See there are no creases—the paper used creases easily—and that the perforations are intact and the cancellations neat. With so many of the stamps there are about in a poor condition, the prices for all are quite reasonable at the moment, but I have a feeling, particularly in reference to the 10r value, that later on good copies will be very difficult to get and quite costly.

Space Notes—(Continued from page 365)

of gravity is placed very far forward. The "sting", which carries the instruments, is placed on top of a Loki booster rocket. This booster fires for 0.8 sec., and then the string continues by itself to reach a peak altitude of 80-120 miles. The total cost to the University is £100 per vehicle.

Manned Rocket Volunteer

Recently the U.S. Congress appointed a Committee on Astro-nautics and Space Exploration, and various experts have been called to it to give their views. One of these was Dr. Wernher von Braun, who is in charge of the Explorer satellite programme. He proposed the launching of a 150-mile altitude man-carrying rocket as a preliminary to a manned satellite. Major D. G. Simons, who set an altitude endurance record last August with a 32-hour 102,000 foot balloon flight, has volunteered to be the first passenger.

Russia's Greatest Designer—(Continued from page 370)

slightly-improved version of the TB-7 went into production it was redesignated the Pe-8, after his assistant Vladimir Petlyakov.

Before the war ended Tupolev was reinstated, and his Tu-2 became the best of Russia's Mosquito-type light bombers. But the exploit that won him a Stalin Prize was his work on the Tu-4.

Despite its designation, this aircraft was an exact copy of the American Boeing Superfortress, which was put into production in Russia by the fantastic process of taking to pieces some Superforts that force-landed near Vladivostok after raiding Japan, and making precise drawings of every component. Whatever we may think of such an action, it was a great engineering feat, and enabled the Soviet Air Force to build up its first real strategic bomber fleet after the war.

Today, Tupolev's reputation rests not on the pirated Tu-4, but on the series of superb jet and turboprop aircraft which he has designed for Aeroflot and the Soviet Air Force. On the military side there is the Tu-16 bomber (code-named *Badger* in the West), with two tremendously-powerful turbojets, and the four-turboprop *Bear*, with a top speed of almost 600 m.p.h. This is much faster than anyone believed a turboprop aircraft could fly a few years ago.

Of more interest and value are the civil counterparts of these bombers, the twin-jet Tu-104 and its four-motor variant the Tu-110, and the four-turboprop Tu-114 Russia, which is by far the heaviest aeroplane ever flown, with seats for up to 220 passengers and the ability to carry 120 people non-stop from Moscow to New York.

Although, in certain respects, they are designed to different standards from those to which Western air liners are produced, they are great aeroplanes, reflecting to the full the genius and long experience of Andrei Tupolev. They also prove that, in his early seventies, he can still hold his own as Russia's greatest designer in the new jet age.

A Realistic Model Helicopter—(Continued from page 395)

59; 1 of No. 62b; 2 of No. 77; 2 of No. 90; 3 of No. 103a; 3 of No. 111a; 3 of No. 155; 2 of No. 188; 2 of No. 190a; 5 of No. 191; 2 of No. 192; 10 of No. 212; 3 of No. 212a; 2 of No. 213b; 1 of No. 215; 6 of No. 221; 2 of No. 223; 2 of No. 224; 2 of No. 266.

Stamp Collectors' Corner—(Continued from page 403)

Australia would have produced something much more satisfactory if she had allowed her own Government printers to produce all four stamps instead of just the 4d. and 7½d. values. Harrisons of Britain printed the 1/- value and Courvoisiers of Switzerland the 2/-, which was the top value.

South and Central American countries have produced their share of Sports stamps, and we must find room to illustrate one of them. For this purpose I have selected one from Colombia. This is not actually from

a Sports set, but the subject fits, for it shows the fine football stadium of Girardot at Medellin. There is another reason why I wanted to refer to this stamp. A Sports collection should include sporting objects as well as sportsmen, and it is good fun looking for stamps with sporting motifs that are to be found amongst ordinary sets.

And now I notice that I have never even mentioned our own "Olympic Games" set of 1948. Dull and prosaic, what a sorry set it looks when mounted with all those glowing Sports sets that so many other countries have issued in the same cause.

JANUARY 1958 COVER VOTING CONTEST

1. April. 2. December. 3. September. 4. August. 5. July. 6. November. 7. October. 8. February. 9. March. 10. May. 11. June. 12. January.

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Overseas:

1st Prize: P. Rees, Katong, Singapore 15. 2nd Prize: P. Lamb, Dublin, Eire. 3rd Prize: E. Penwell, Christchurch, N.Z. Consolation Prizes: P. Wood, Tasmania, Australia; D. Ellis, Ottawa, Canada; D. Monson, East London, South Africa.

An Interesting Edinburgh Area Rail Tour

Scottish readers who are railway enthusiasts will be interested to hear that The Stephenson Locomotive Society (Scottish Area) have arranged a "Lothian Lines" tour which will take place on Saturday, 6th September next. It will begin and end at Edinburgh, and will cover some 40 miles.

The special train, composed of a C.16 ex N.B. 4.4.2T with four corridor coaches, will leave Edinburgh (Waverley) at 1.55 p.m., and use the now diesel-operated suburban inner circle line to Niddrie, thence Smeaton Junction and Macmerry branch (closed 1925). Returning to Monktonhall Junction, freight lines will then be used to reach Portobello, from where a trip will be made over the former N.B. North Leith branch (closed 1947). At Granton (closed 1925) the train will traverse the harbour line to join the ex C.R. route and run via Crew Junction to Edinburgh (Princes Street) where the tour will end at 6.2 p.m.

The cost of the tour is, Adults, 11/6d.; Children, 6/-; and tickets can be obtained by post from the Honorary Area Secretary, Mr. W. A. C. Smith, 46 St. Andrew's Drive, Glasgow S.1. A detailed itinerary also is available from him at 2/6d. Please include a large, stamped addressed envelope.

DID YOU NOTICE THIS LAST MONTH?

Many of you will probably have noticed that the captions of the pictures at the foot of pages 309 and 310 in the July M.M. were wrongly placed. To put matters right, just change them round.

THIS MONTH'S SPECIAL ARTICLES

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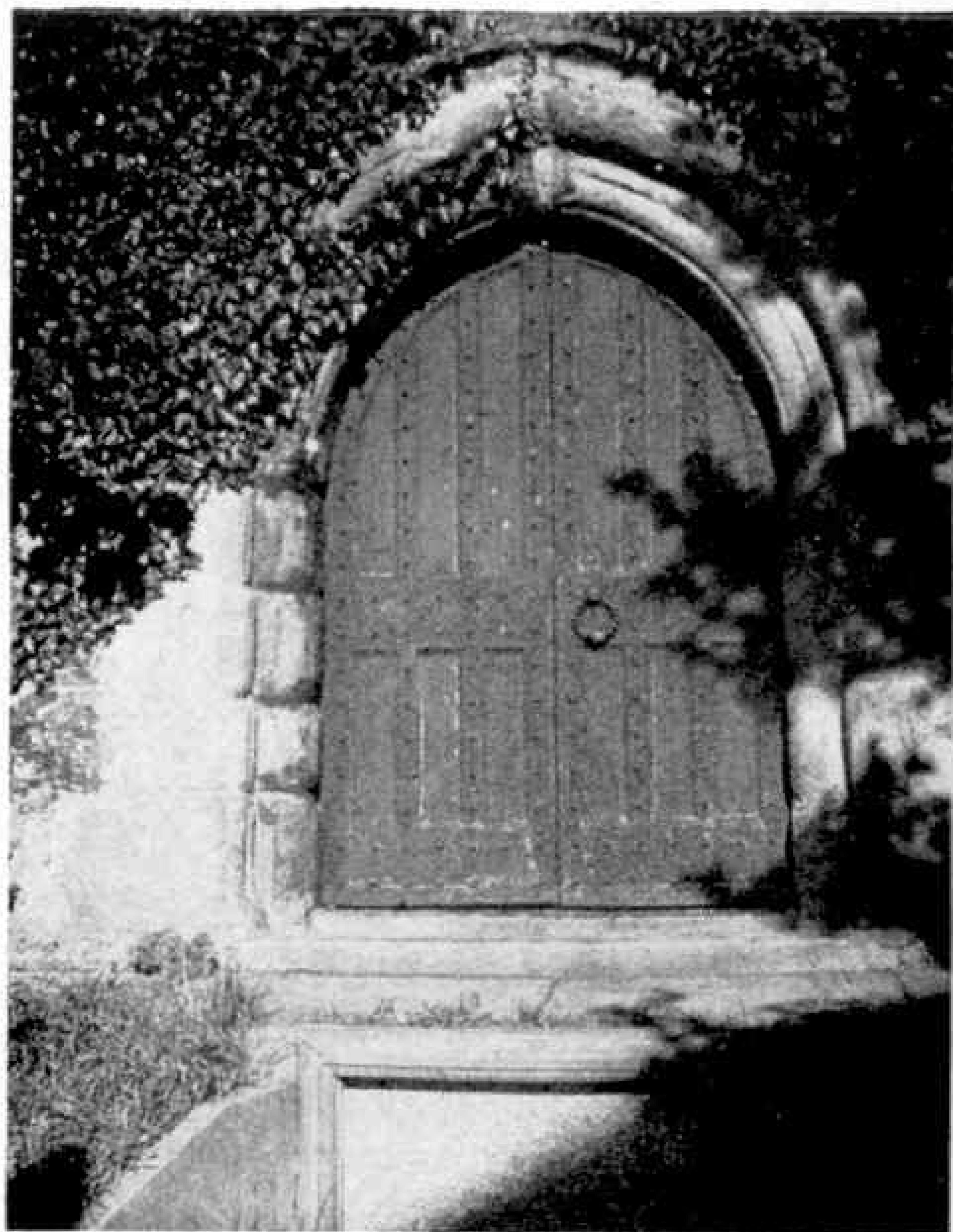
From Our Readers

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

and Hampton-in-Arden, in Warwickshire, was the recognised centre of England. But while travelling through Lillington, near Leamington, where the Kenilworth road diverges from the Rugby road, I came across an oak tree known as the Midland Oak, which is also said to mark the centre of England.

In fact it appears there are several Warwickshire villages that challenge both Meriden and Lillington, each claiming the distinction for itself.

STANLEY A. BENNETT (Solihull).



A Morecambe doorway with a history, as explained on this page. Photograph by E. East, Bradford.

A Link with the United States

During the summer months many thousands of holidaymakers visit Morecambe, the popular Lancashire resort. Very few of them notice the old doorway tucked away to the left of the modern, red brick Town Hall, and yet this is very interesting.

As the accompanying photograph shows, a stone tablet, the top only of which is visible, has been erected in front of the door. This informs the reader that the doorway was preserved from the old Poulton Hall, which stood on the site of the present market, and also that it is the original entrance to the Manor House of Poulton-le-Sands. This last-mentioned building was owned in part during the 15th and 16th centuries by the direct paternal ancestors of George Washington, the first President of the United States of America.

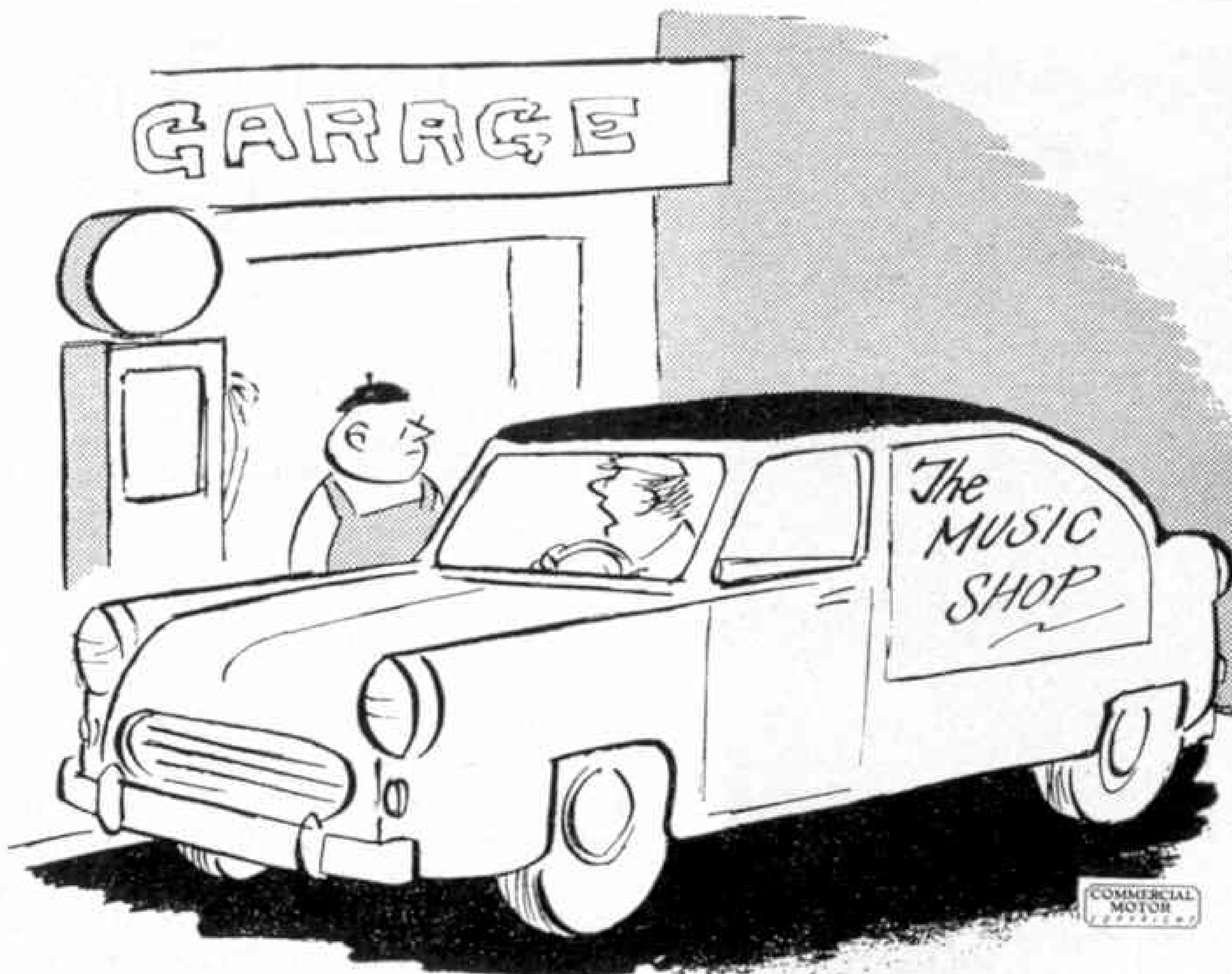
E. EAST (Bradford).

Where is the Centre of England?

Until recently I had always believed that Meriden, a small village between Coventry

Midland Oak, in Lillington, a Warwickshire village that is one of the claimants to being the centre of England. Photograph by Stanley A. Bennett, Solihull.





Fireside Fun

"The horn's flat." (Reproduced by courtesy of "The Commercial Motor")

"What are you thinking of?"
 "Oh, nothing much."
 "Don't be self-conscious."

* * * *

"Do you believe in free speech?"
 "I most decidedly do."
 "Splendid. May I use your telephone?"

* * * *

Mamma: "Where have you been, Johnny?"
 Johnny: "Playing ball."
 Mamma (severely): "But I told you to beat the rug, didn't I?"
 Johnny: "No, mom. You told me to hang the rug on the line and beat it."

* * * *

"You owe me six months' rent. You must get new lodgings!" declared the landlady.
 "Go without paying you? Never!"

* * * *

A beggar approached a man with a hat in each hand.
 "What's the idea of the two hats?" asked the man.
 "Business was improving," said the beggar, "so I opened a branch office."

* * * *

"You've read my last book, haven't you?" asked the author.
 "I hope so," groaned the critic.

* * * *

Bob: "What is the difference between a hairdresser and a sculptor?"
 Bill: "One curls up and dyes and other makes faces and busts!"

* * * *

"Don't you see the sign marked 'Private'?" asked a farmer of a man caught fishing.
 The fisherman grinned. "I never read anything marked 'Private'," he said.

Bootmaker (to applicant for job): "Do you know anything about boots, my boy?"
 Boy: "Well, guv'nor, I ought to, I've got the boot from every place I've had."

* * * *

BRAIN TEASERS THE POOL PUZZLE

A man had a square pond with a tree at each corner as shown in the adjacent diagram. He wanted to make the pool about twice as large still keeping the pond square and the trees in the same position. How did he do it?



WHATEVER IS IT—

In a garden is a greenhouse, in the greenhouse is a brownhouse, and in the brownhouse is a whitehouse. In the whitehouse is a heart. What is it?

ANSWERS TO LAST MONTH'S PUZZLES

Five Minute Crossword

The solution to the Crossword is shown alongside.

* * *

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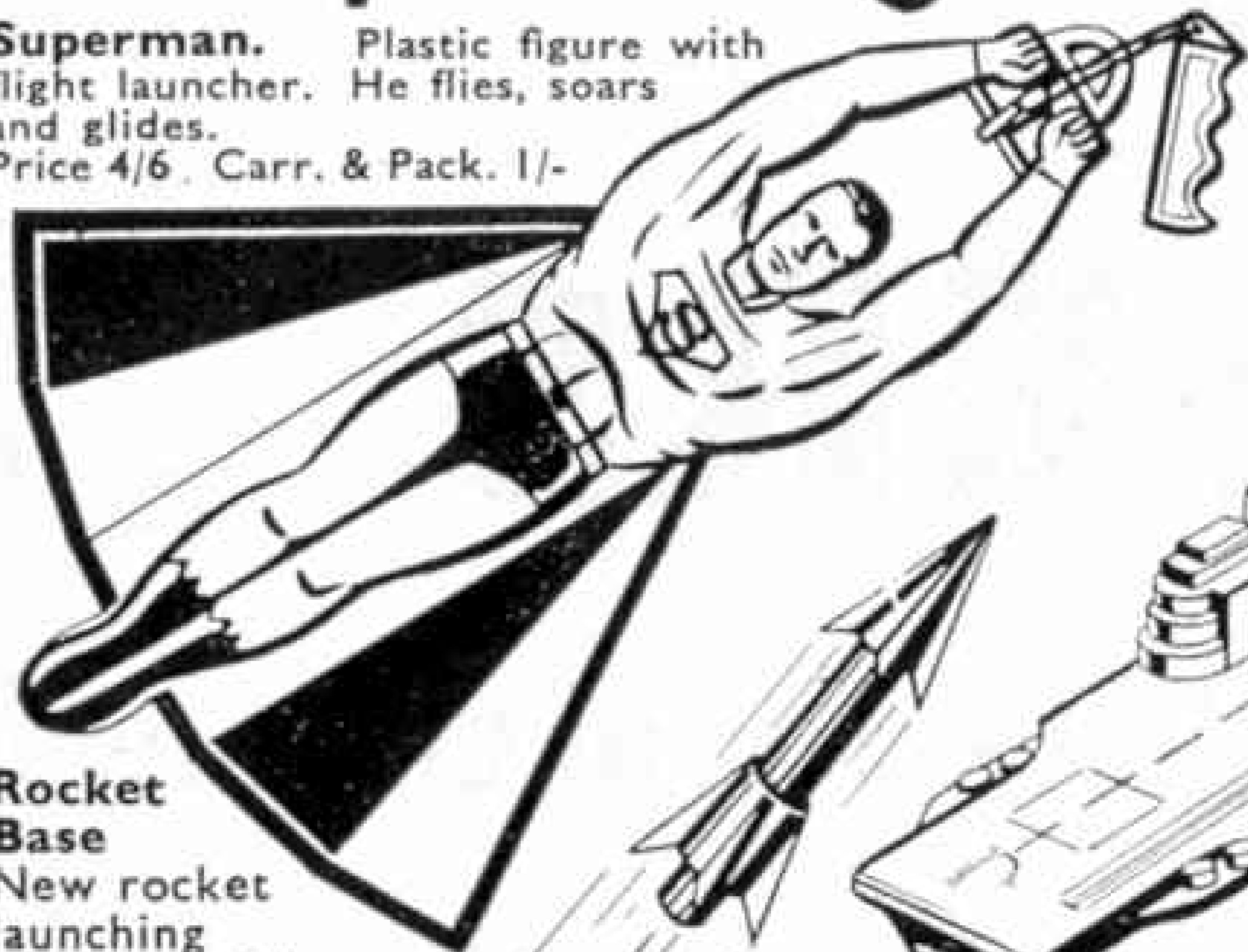
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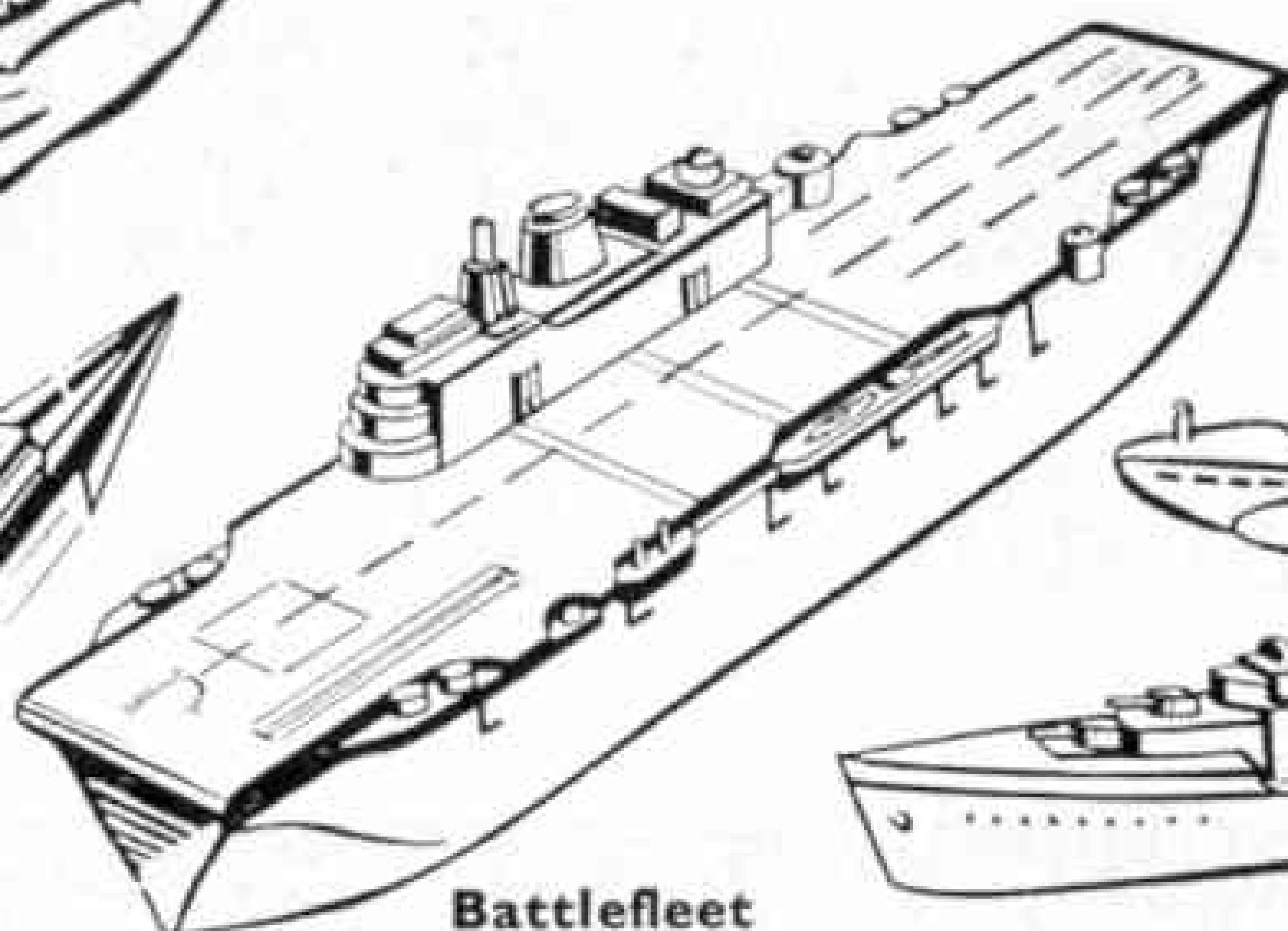
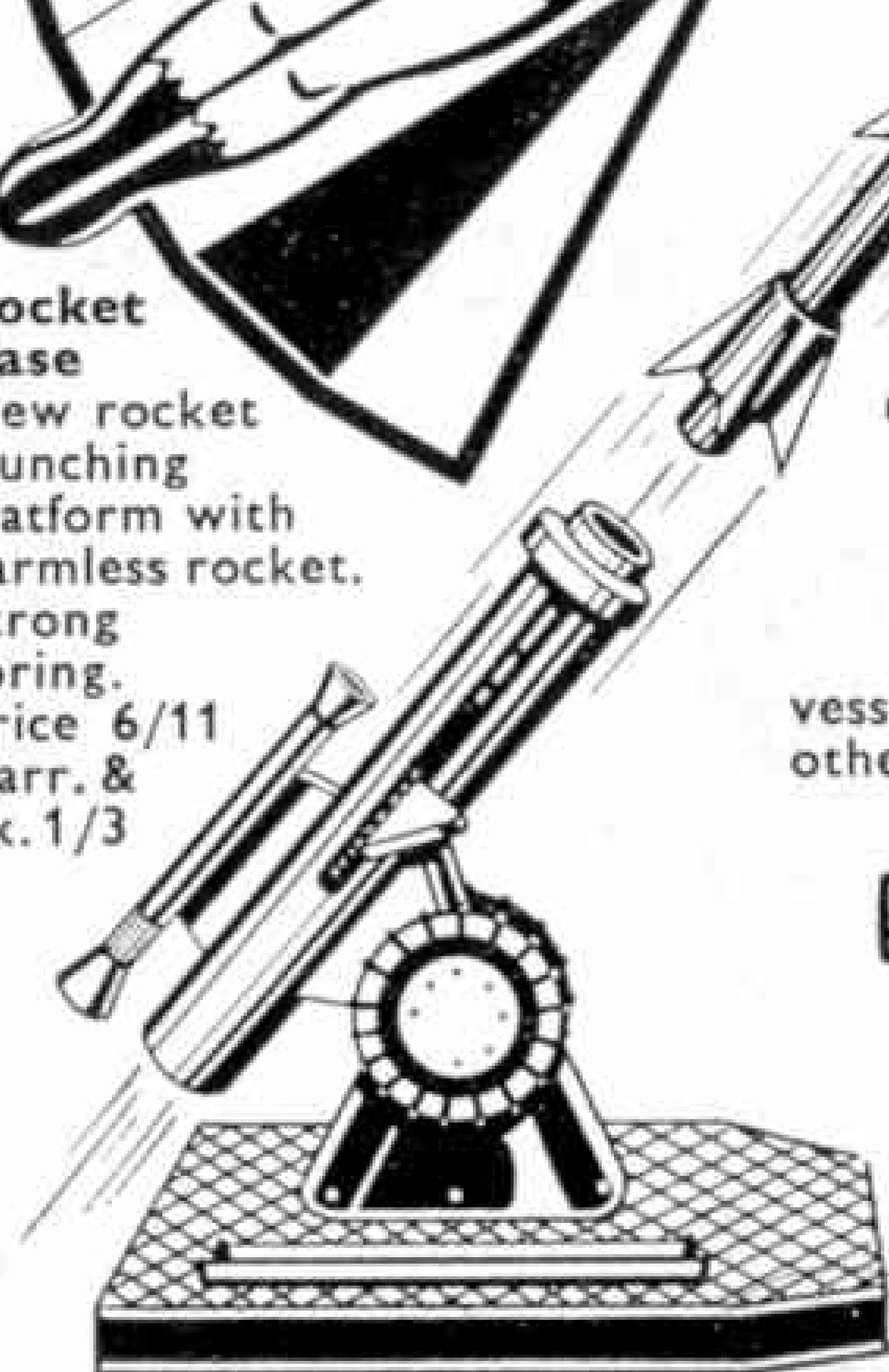
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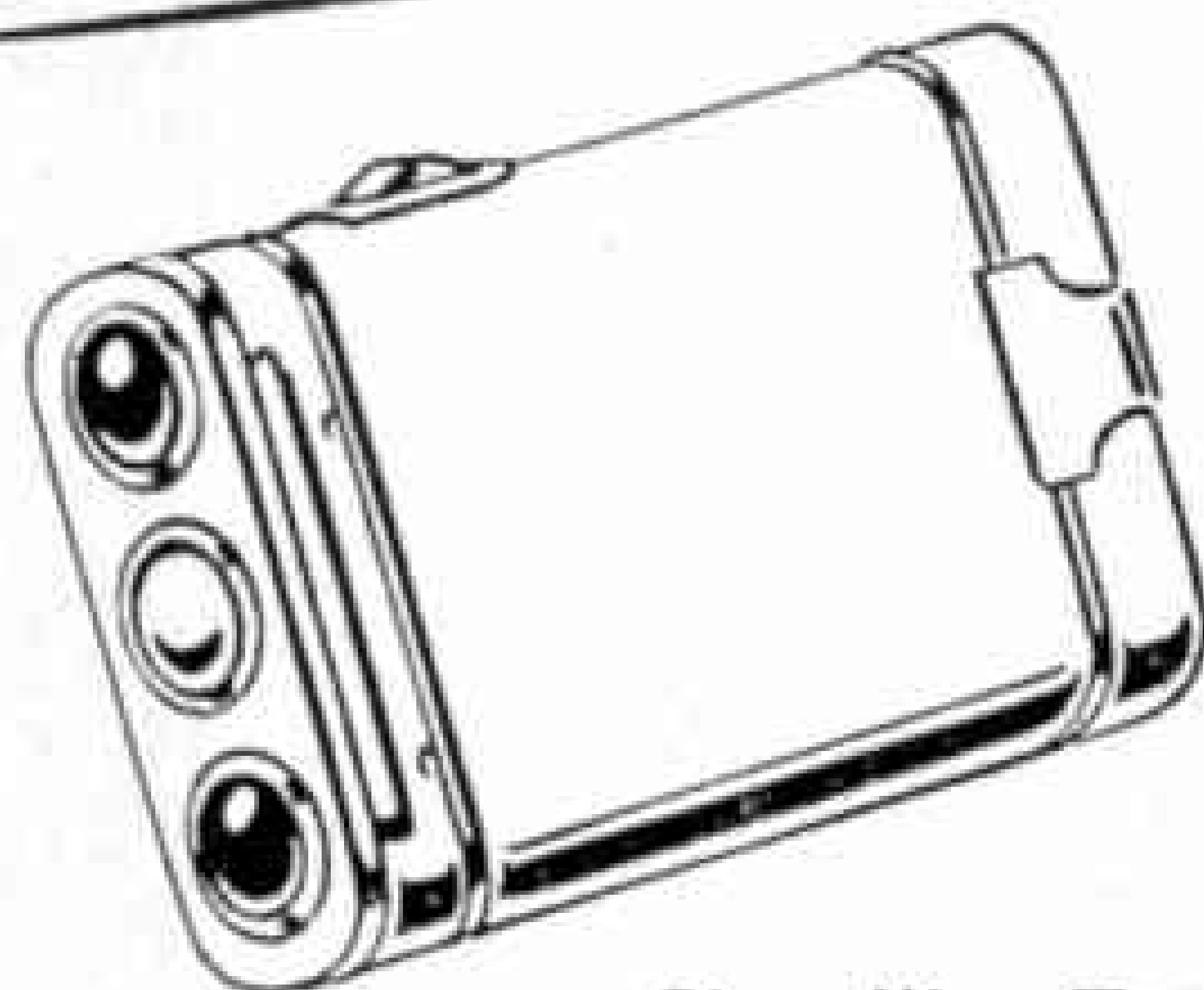
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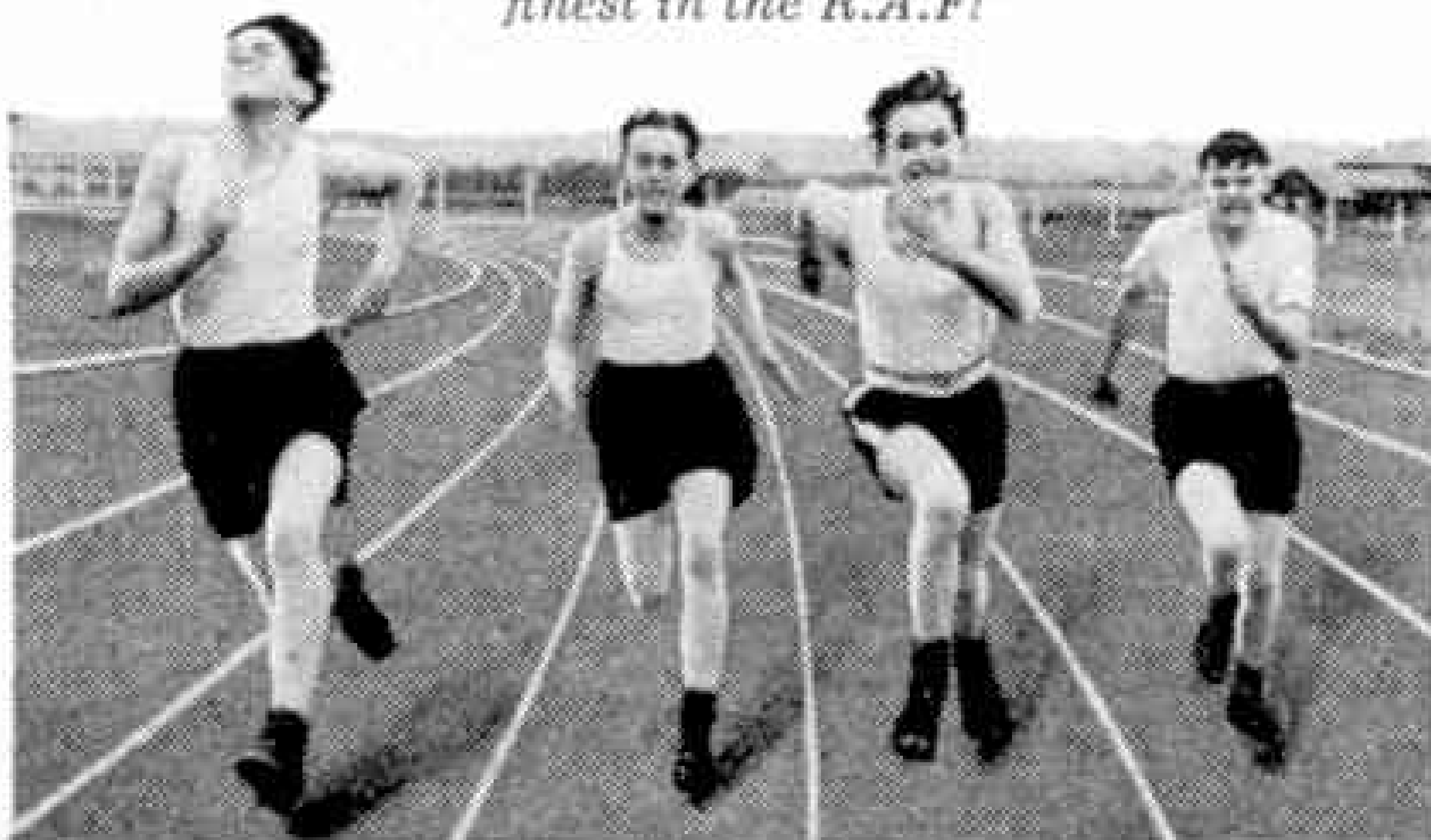
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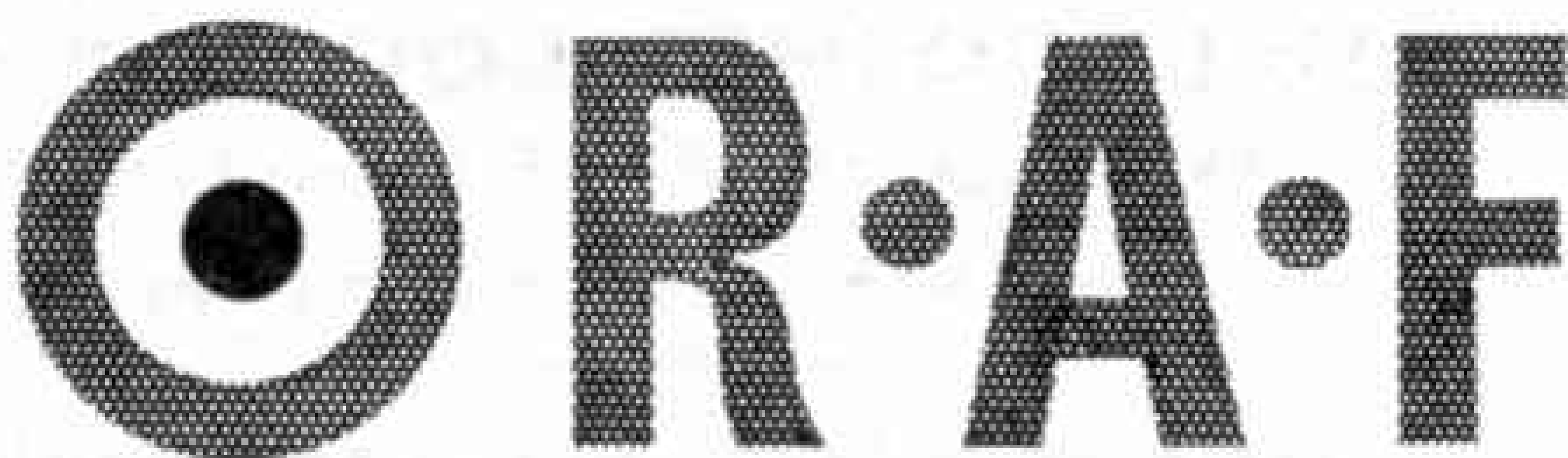


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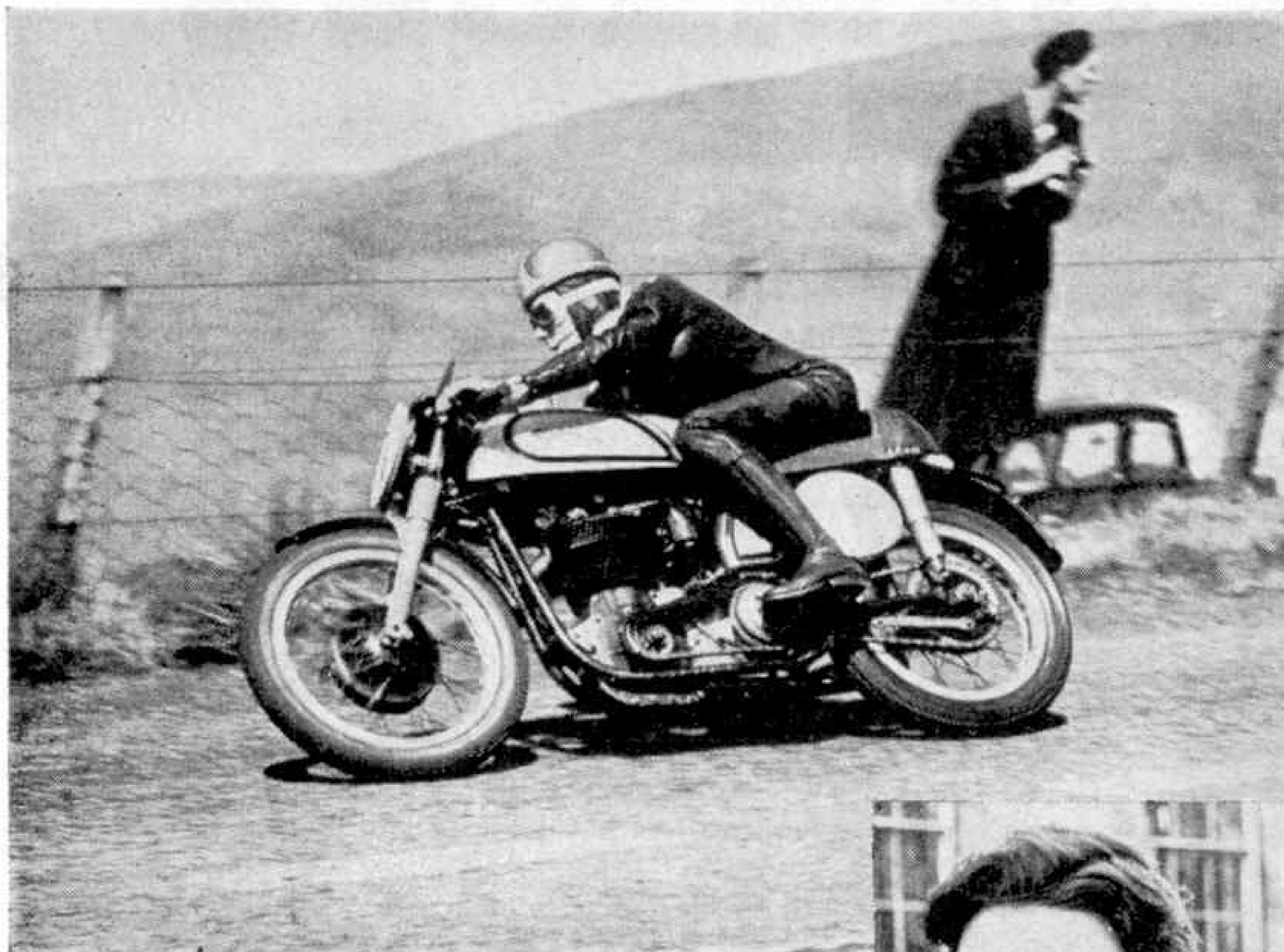
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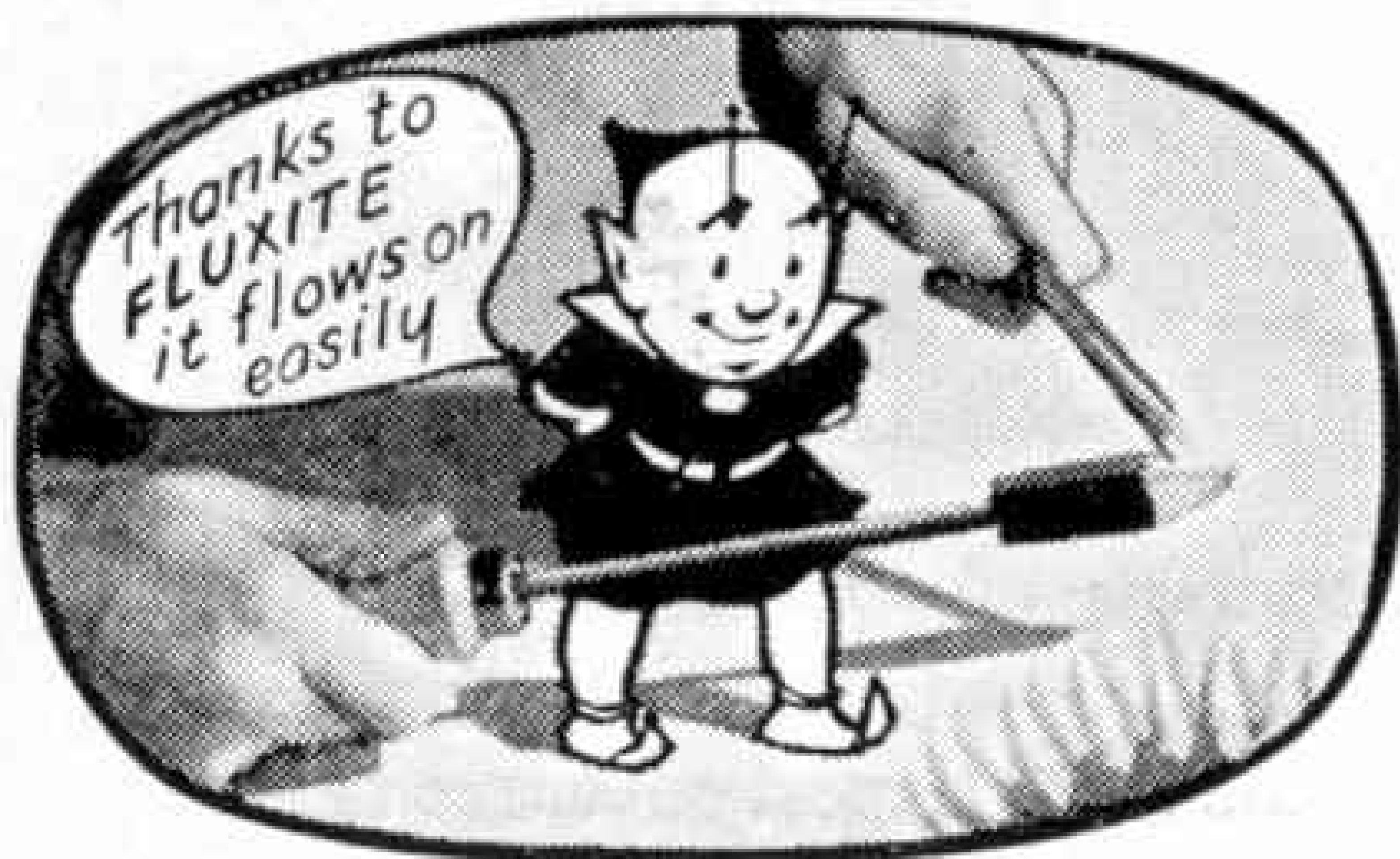
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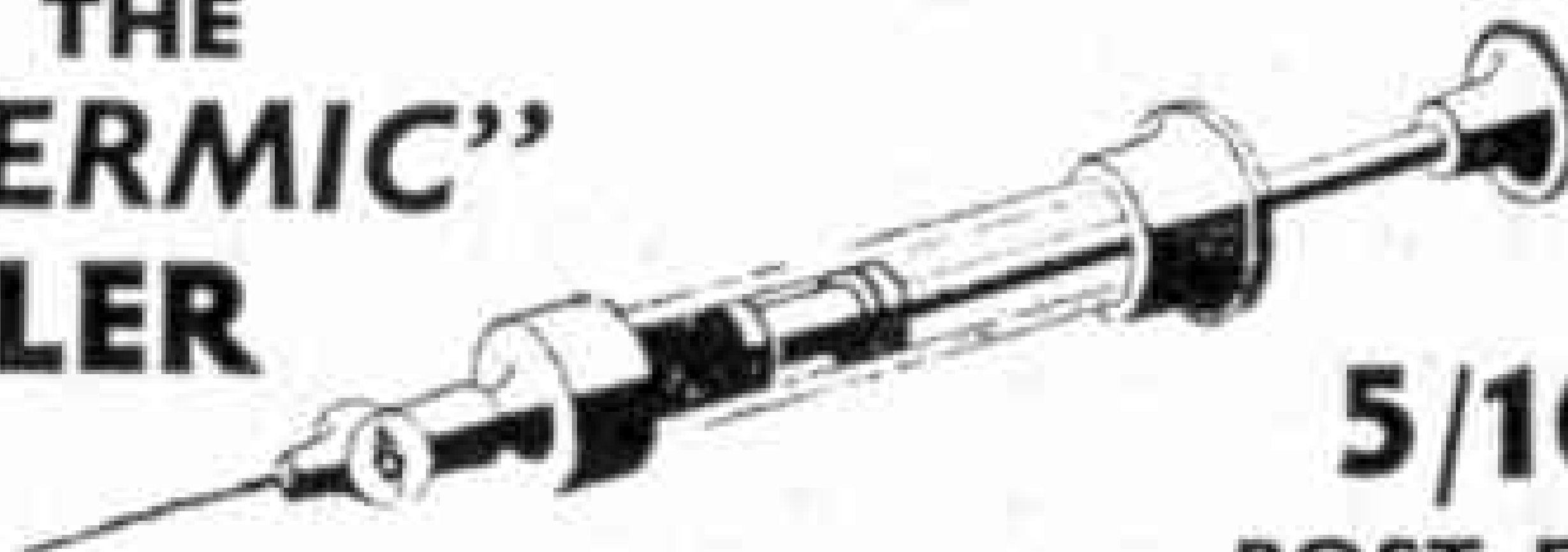
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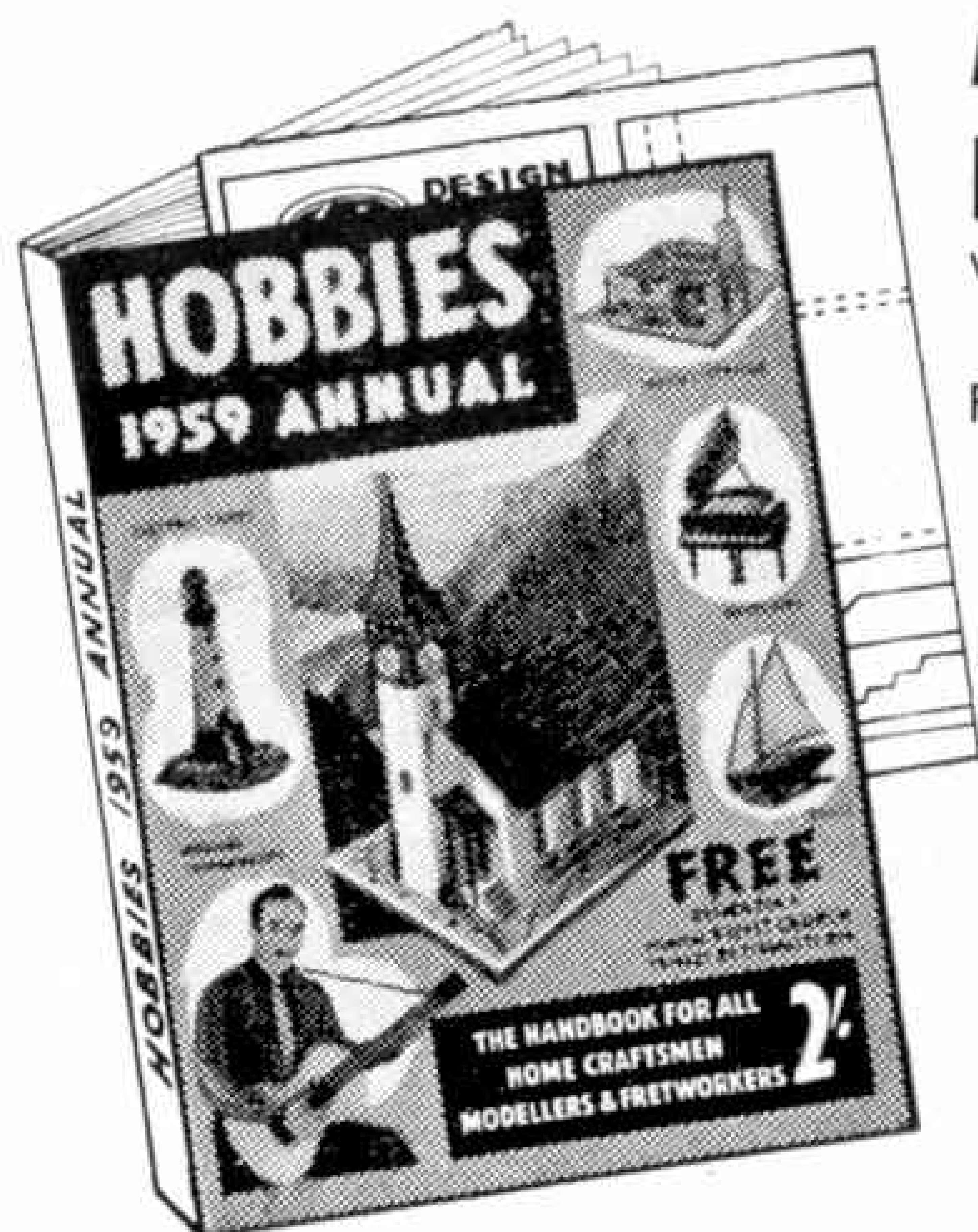
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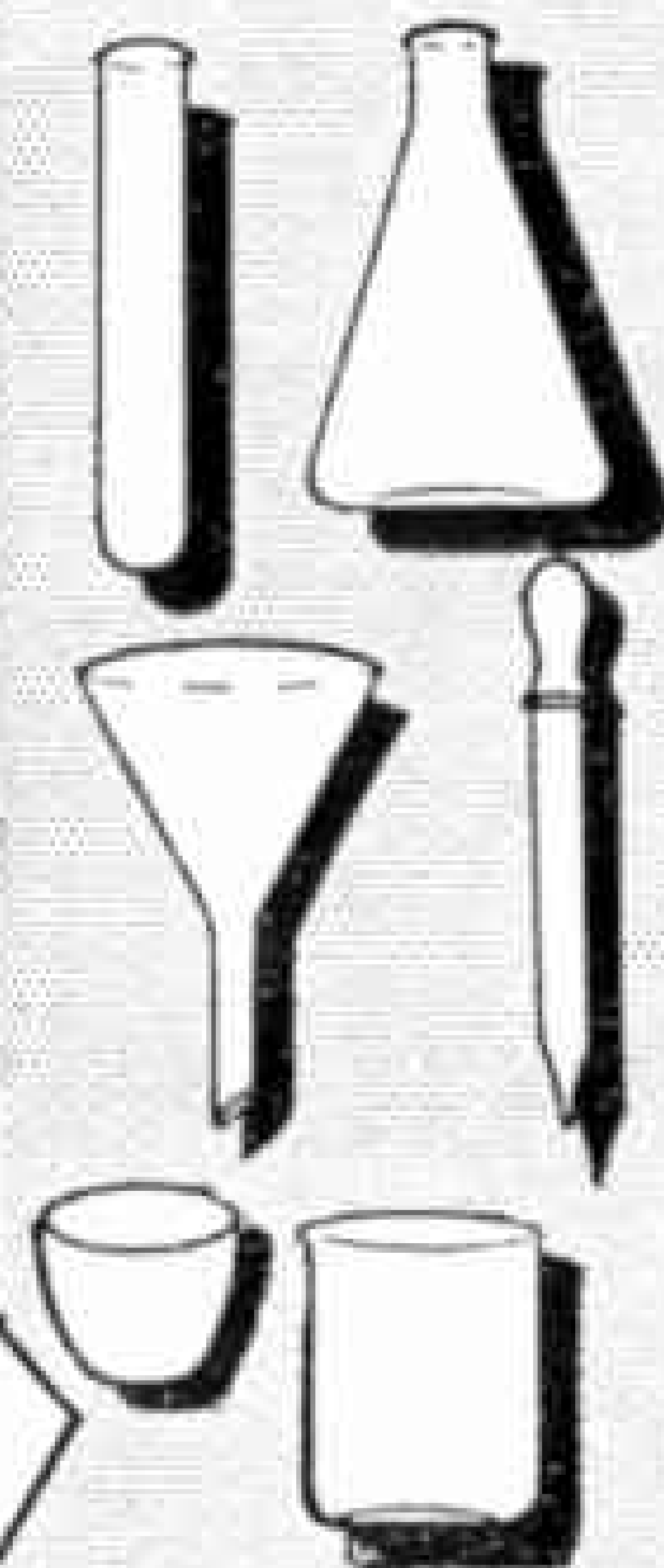
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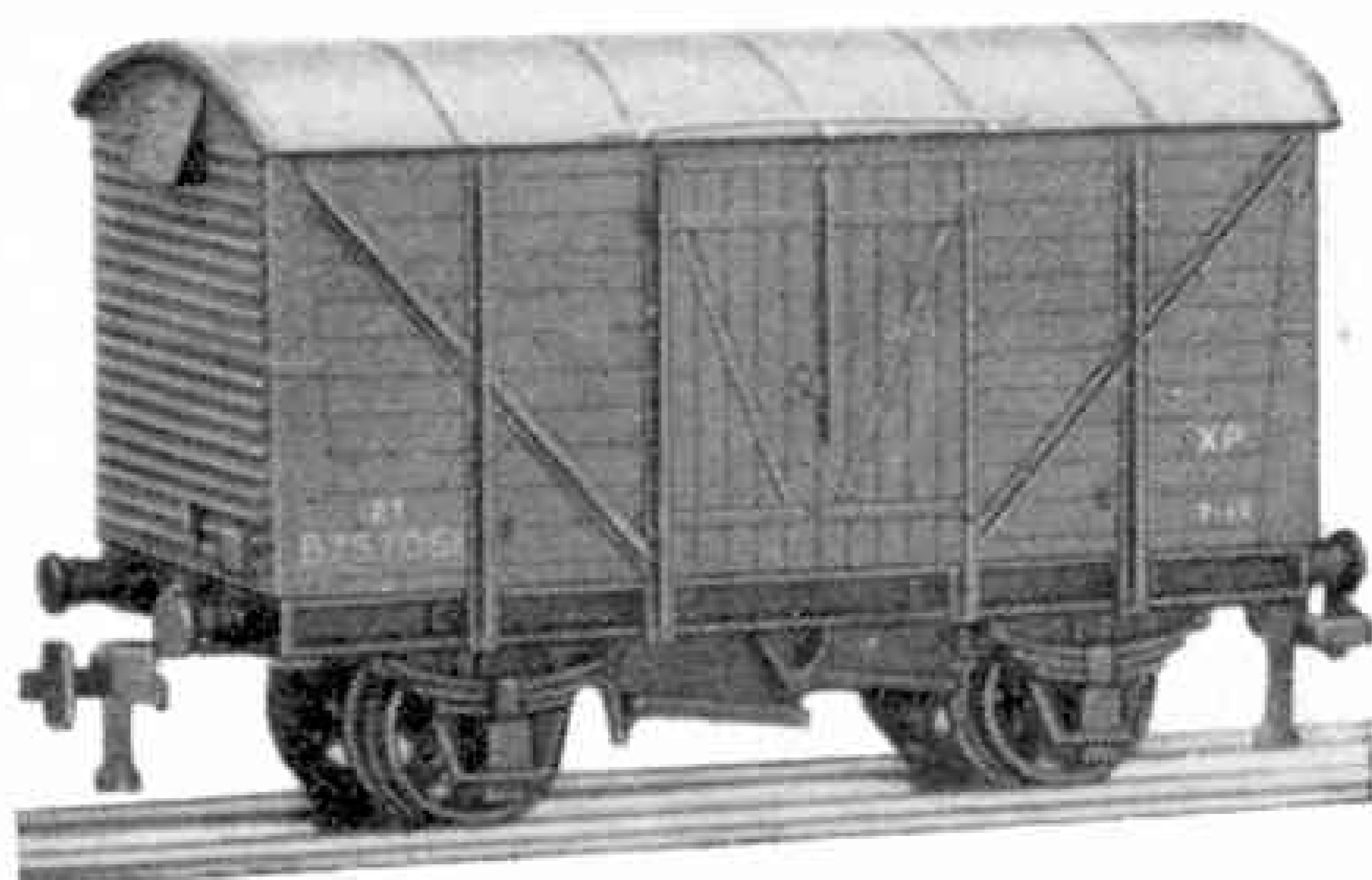
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AUGUST 20 — 30

MECCANO

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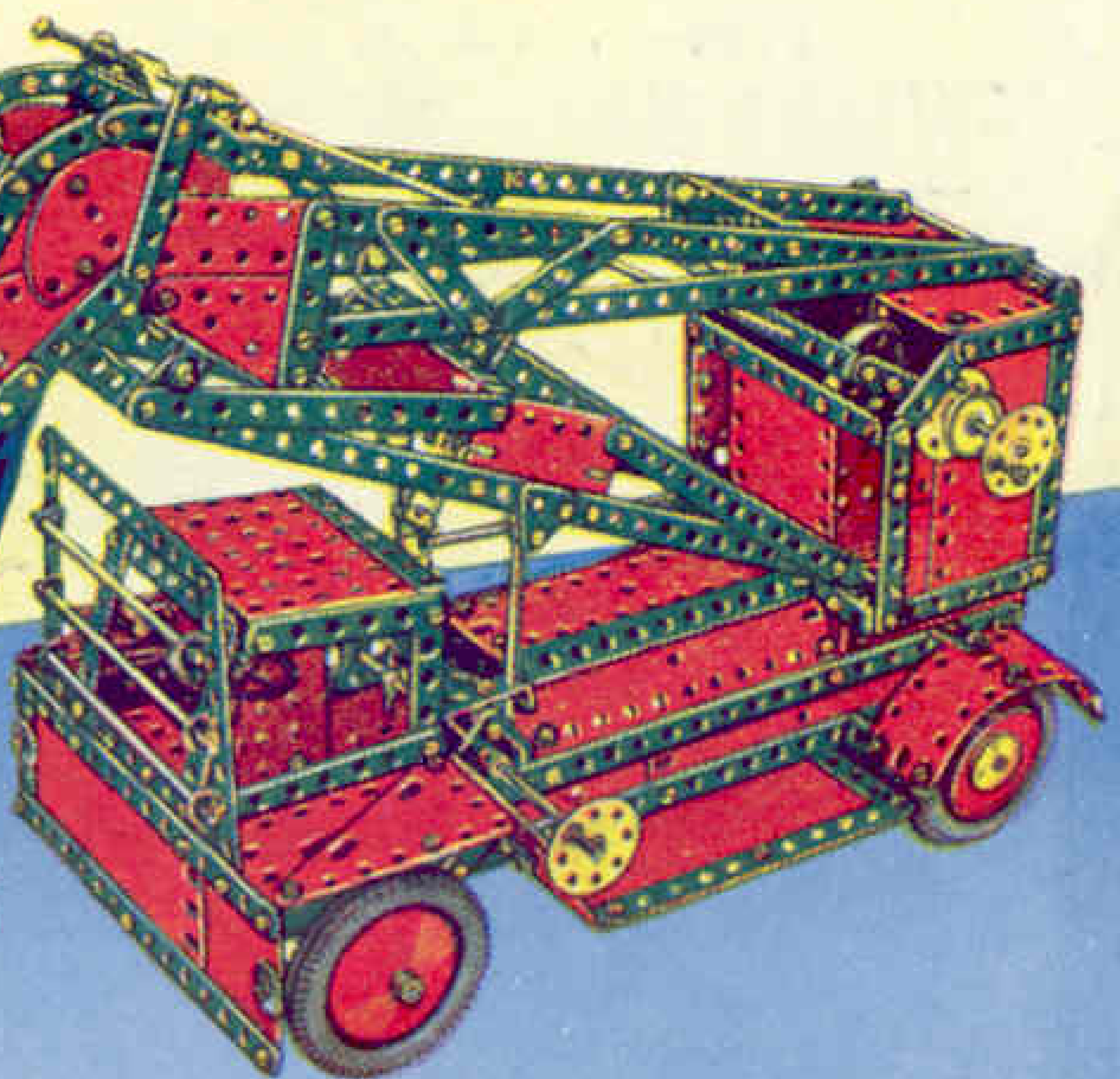
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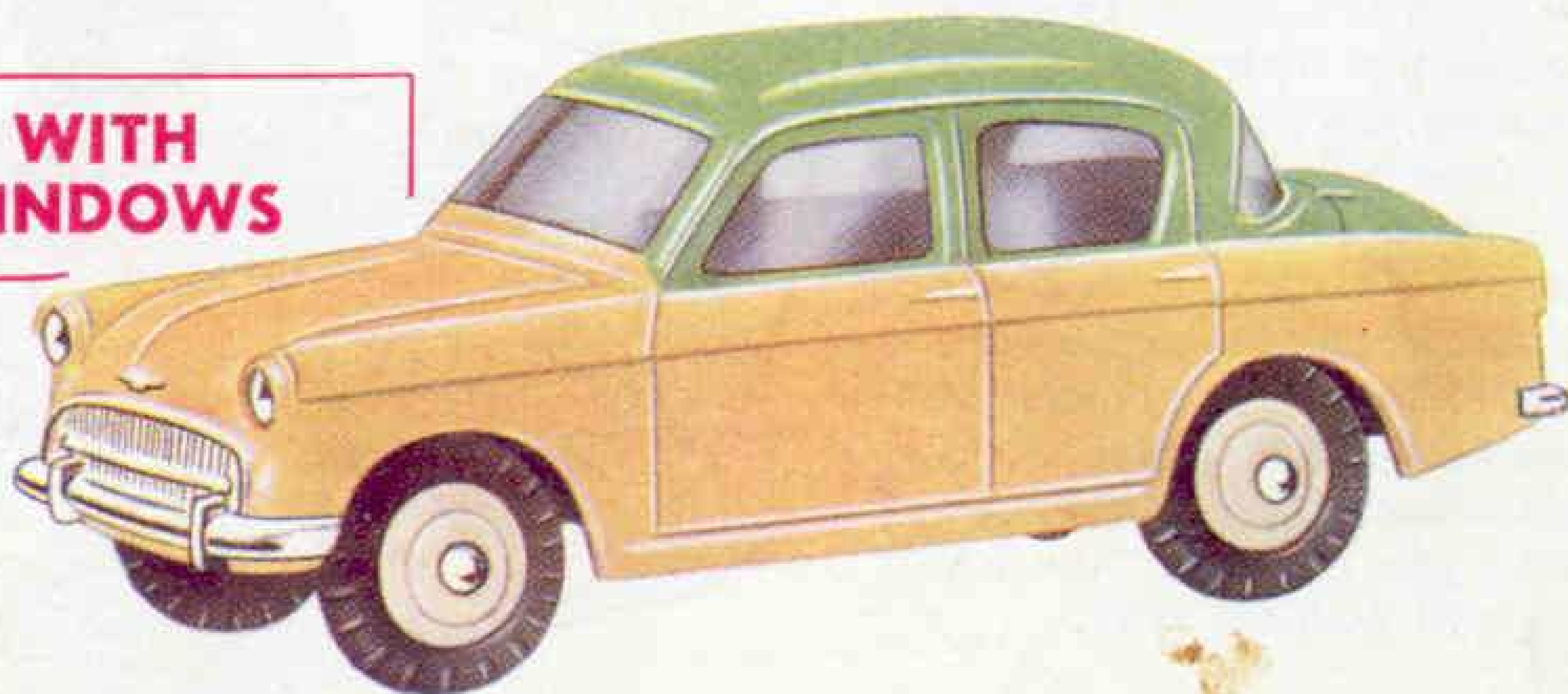
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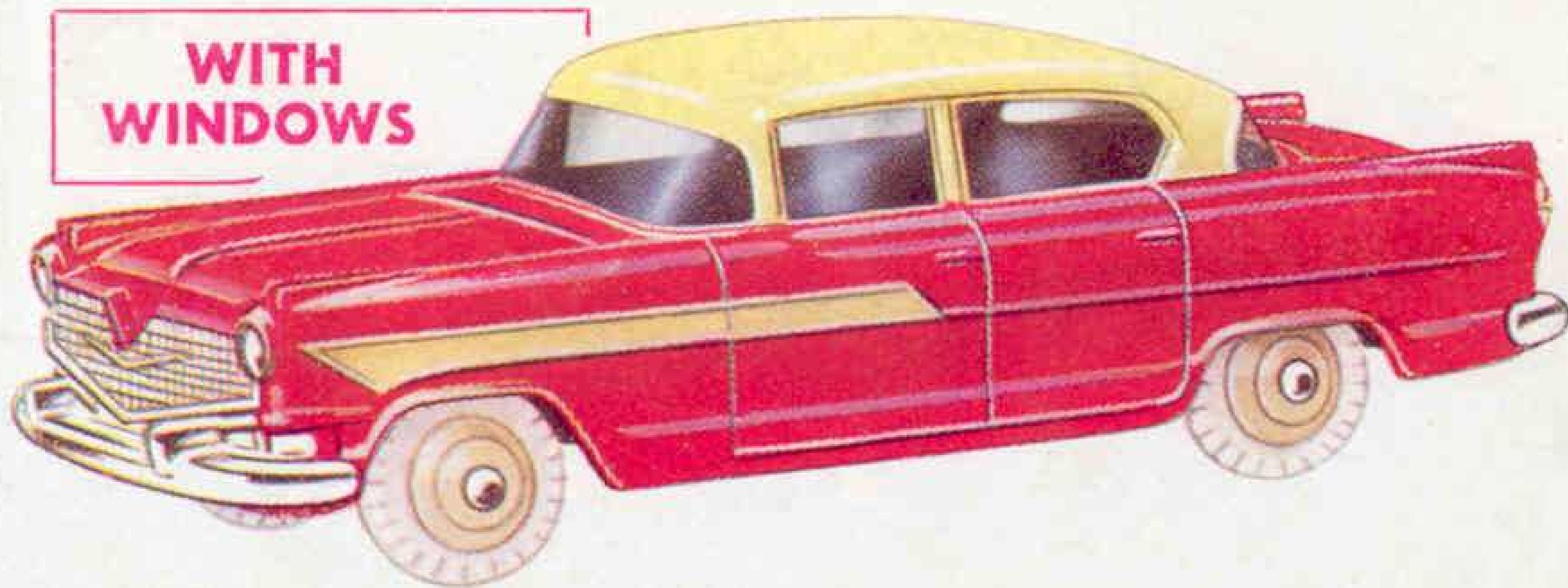
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