

VOL. XXXIV. No. 9

SEPTEMBER 1949

MECCANO

MAGAZINE



"CATALINA" AT MOORINGS

6^D

THE MECCANO MAGAZINE

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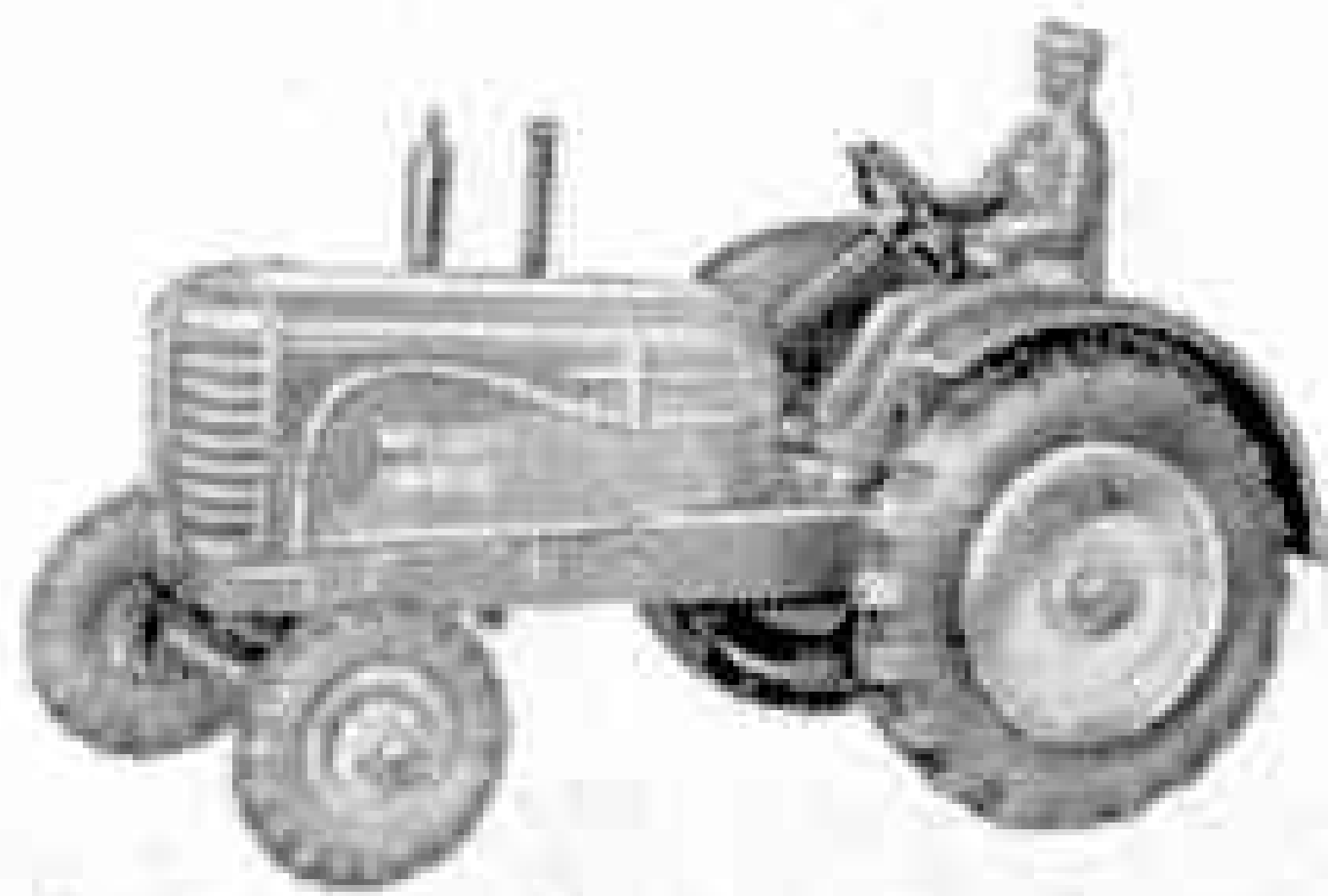
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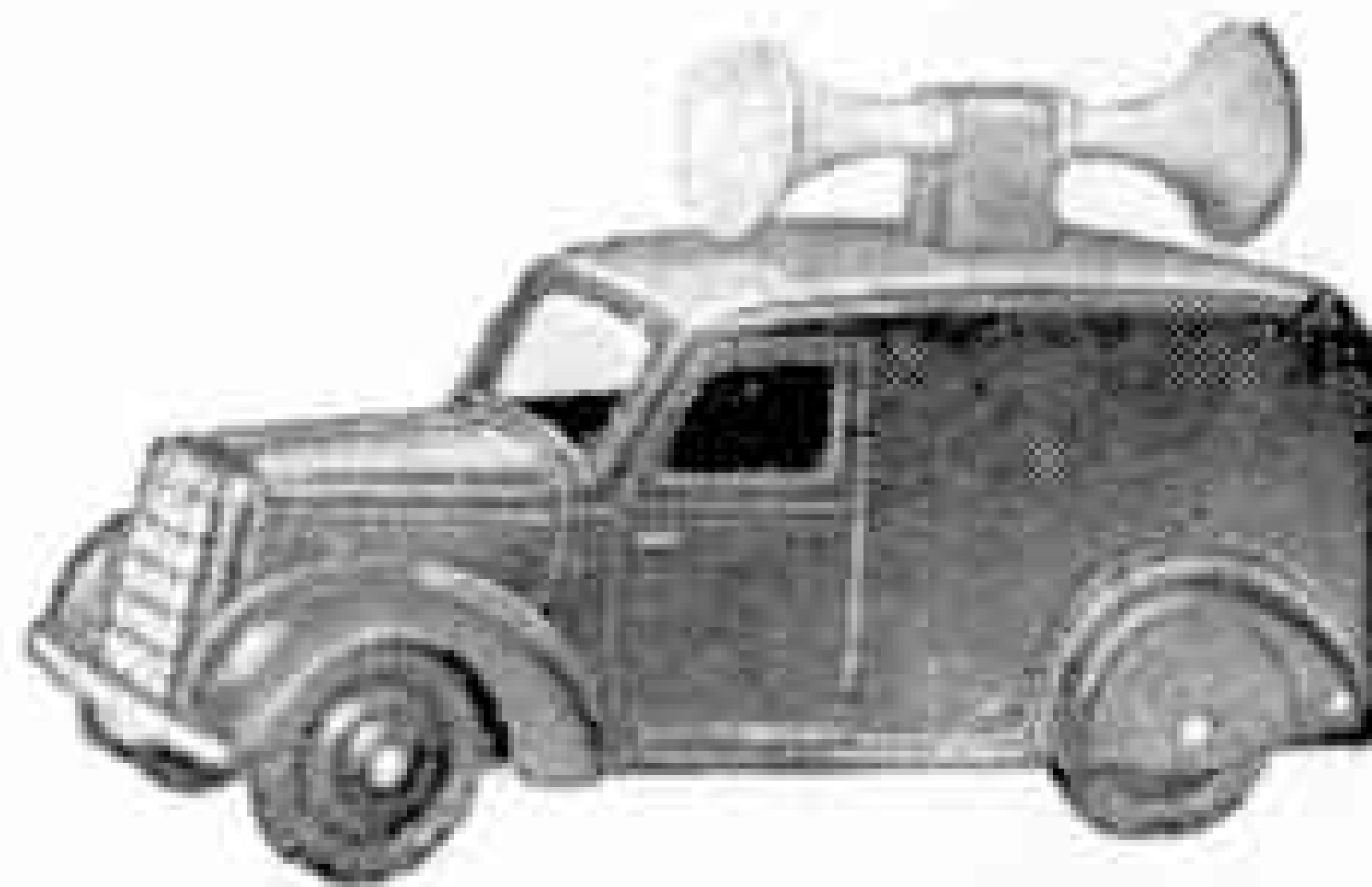
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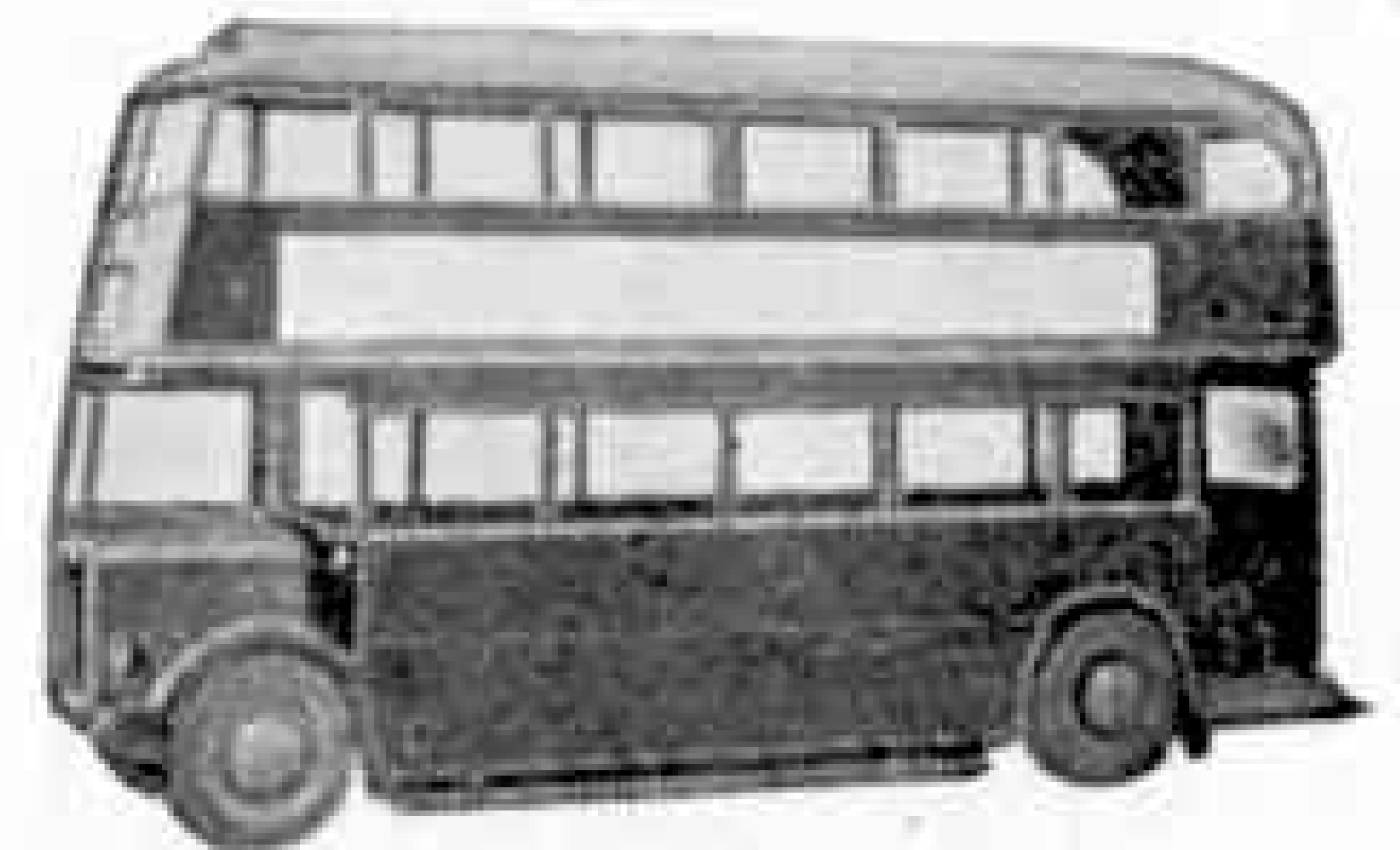
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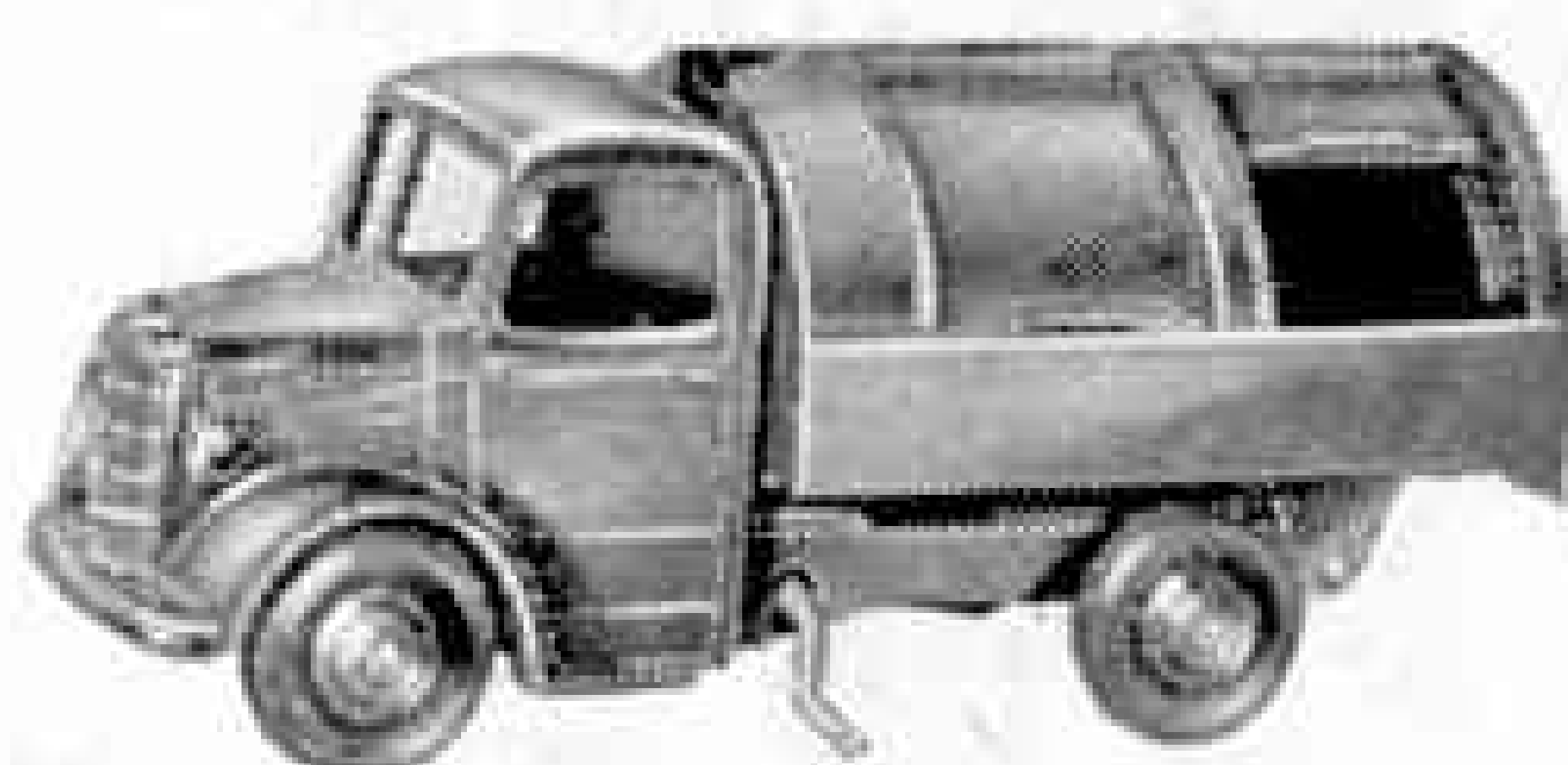
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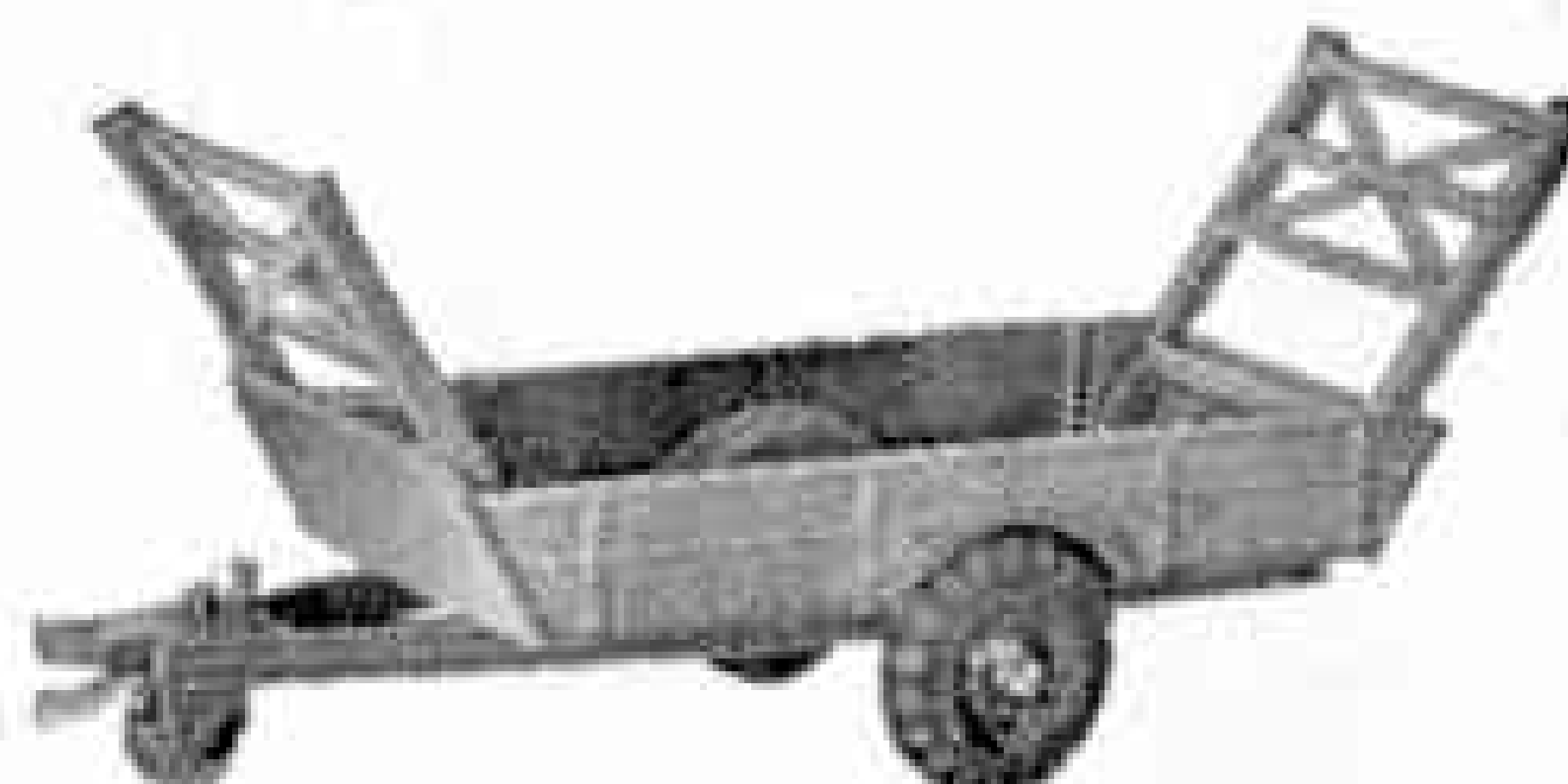
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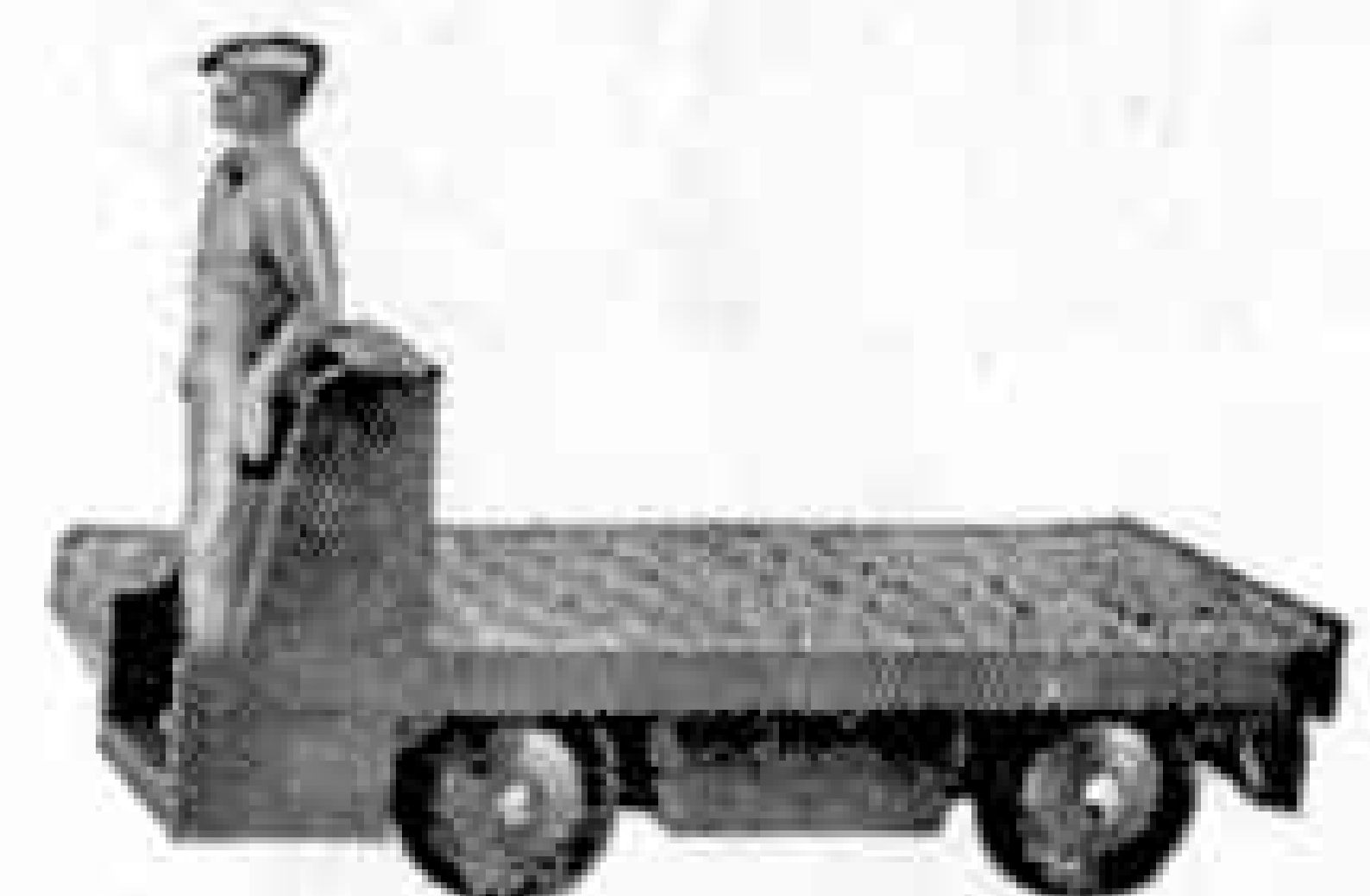
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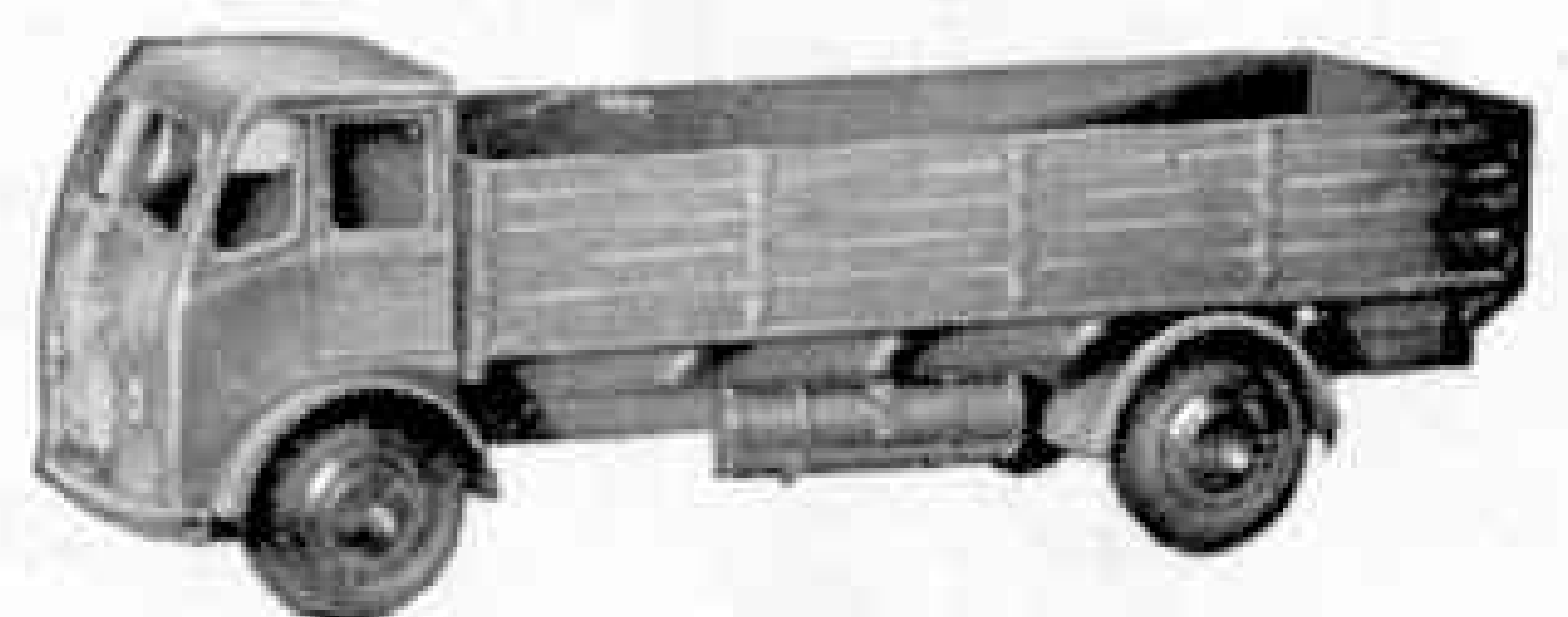
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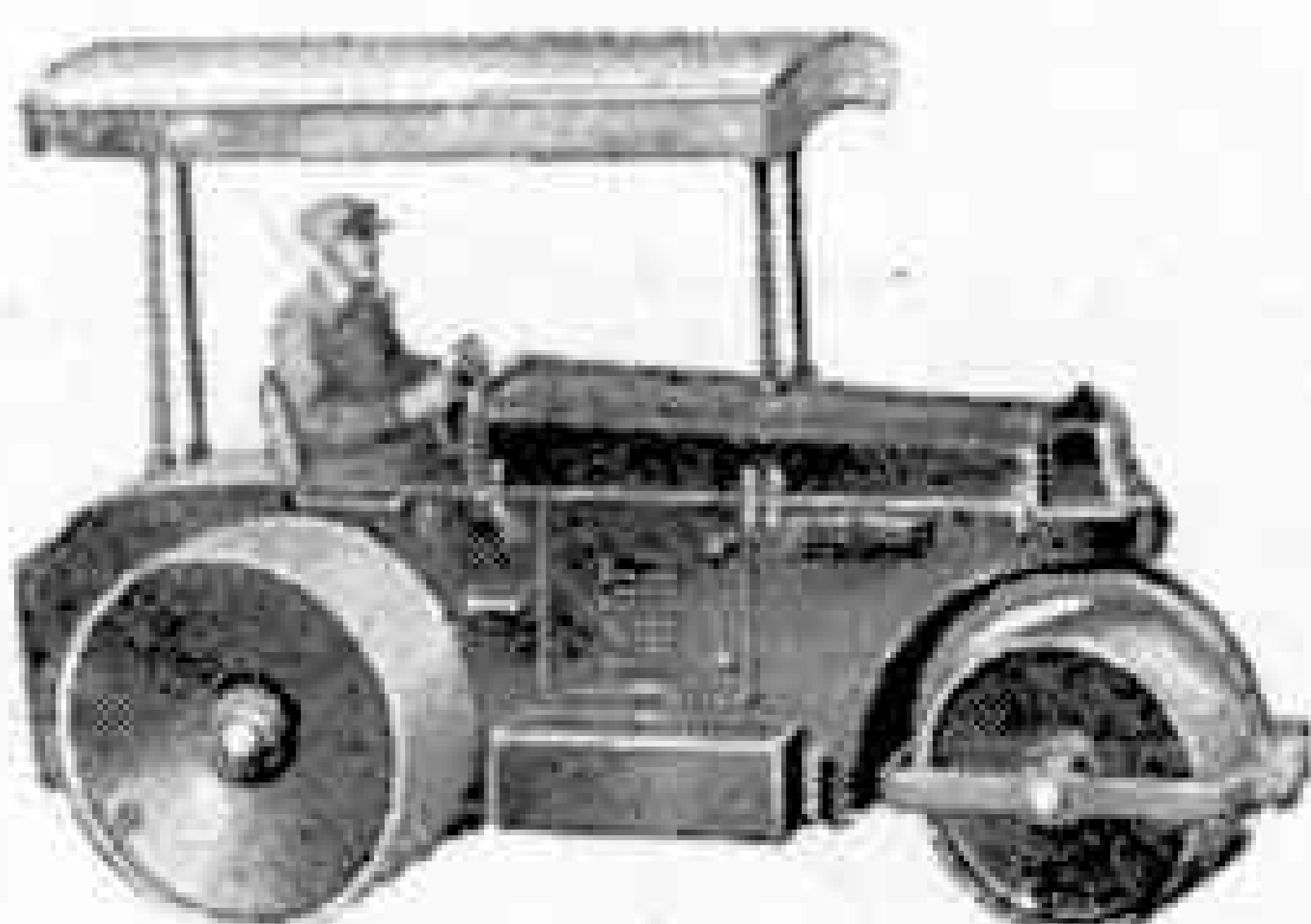
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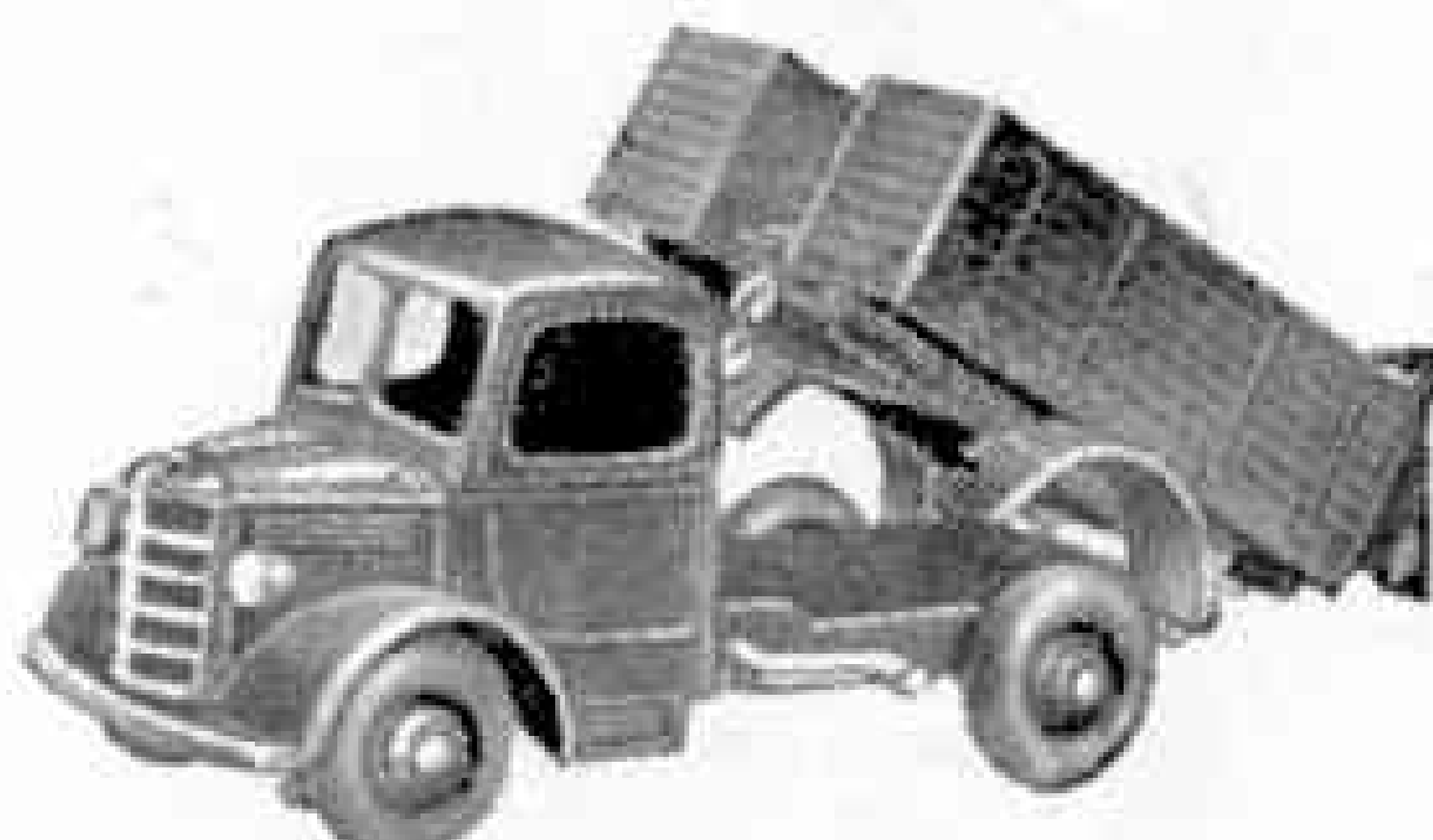
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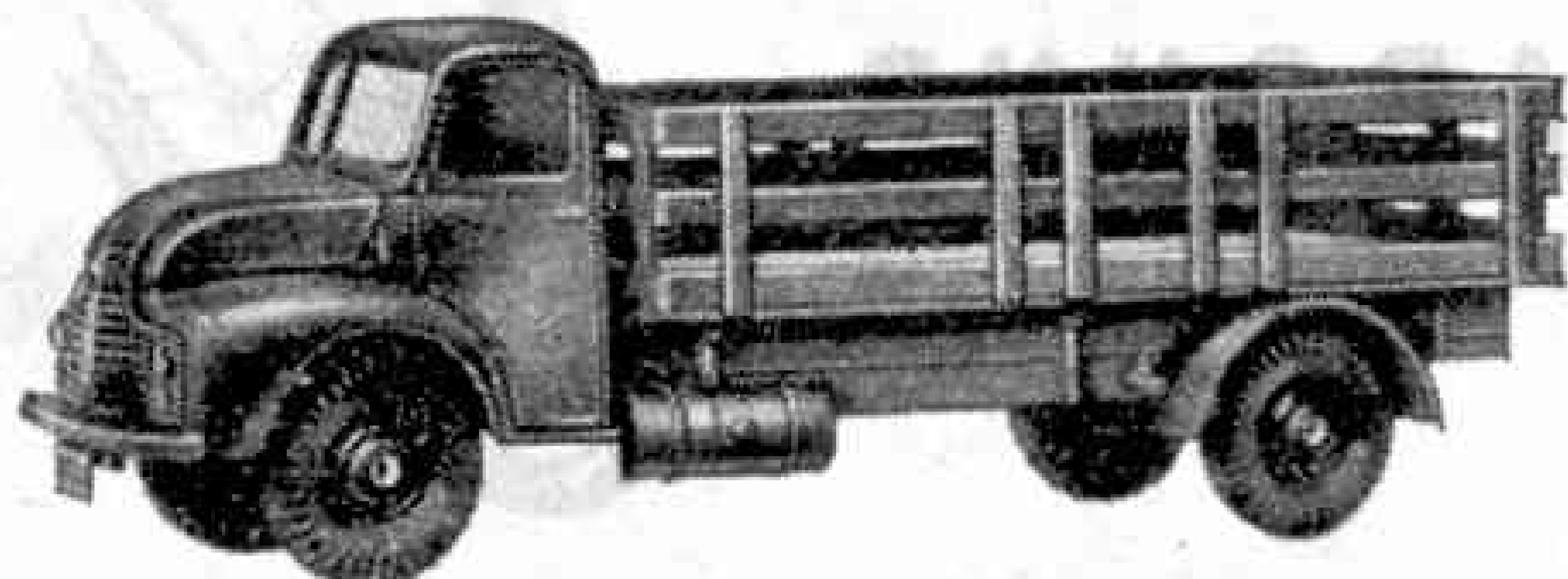
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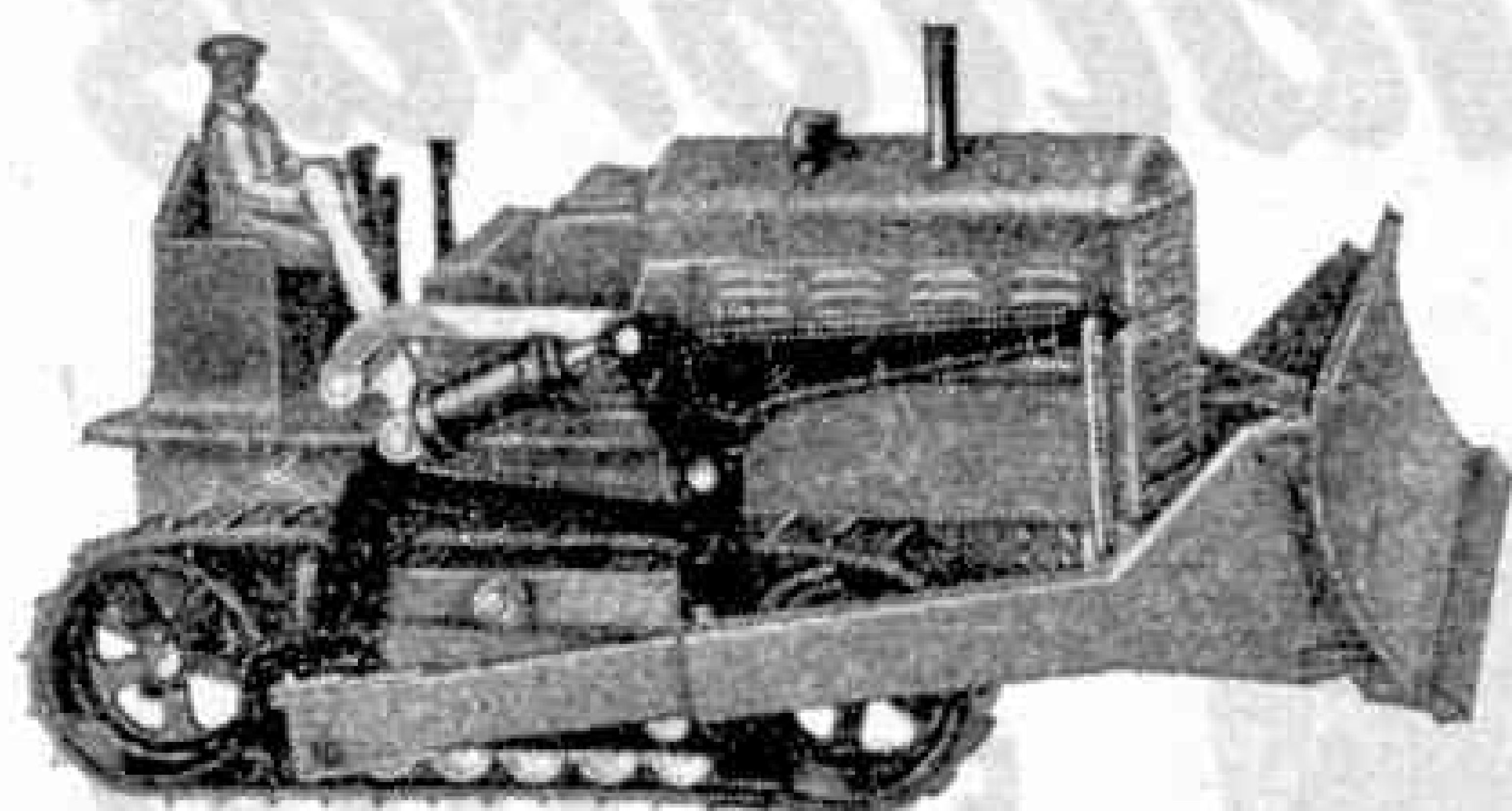
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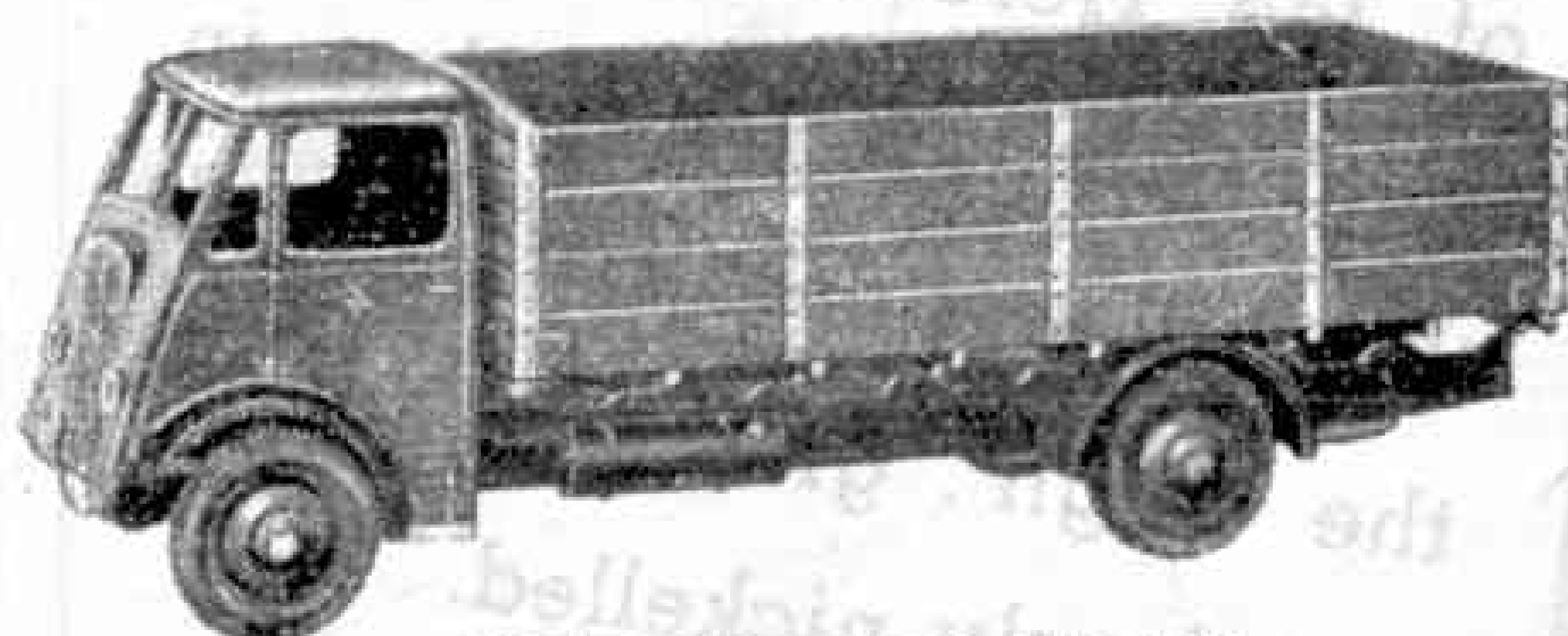
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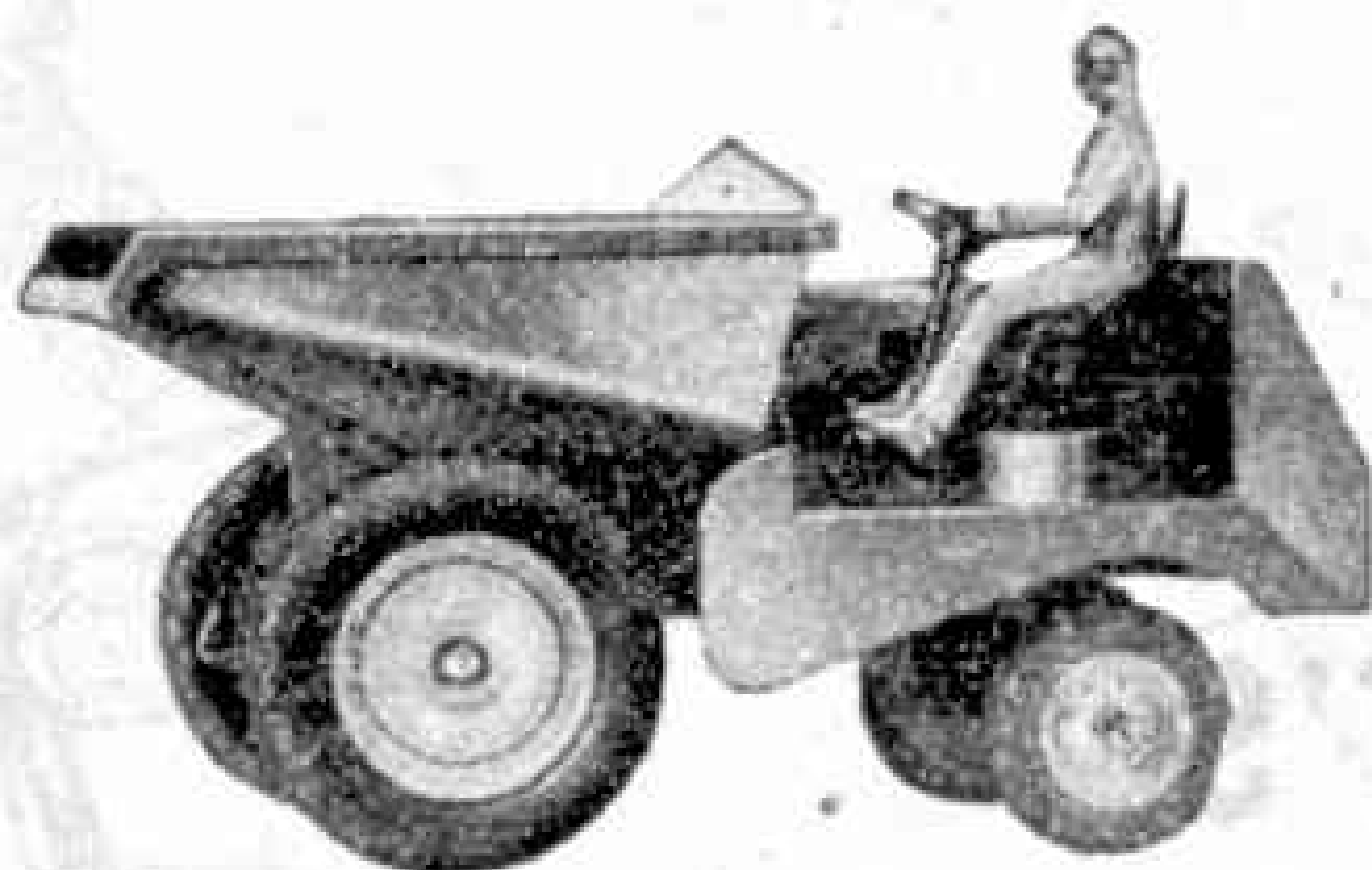
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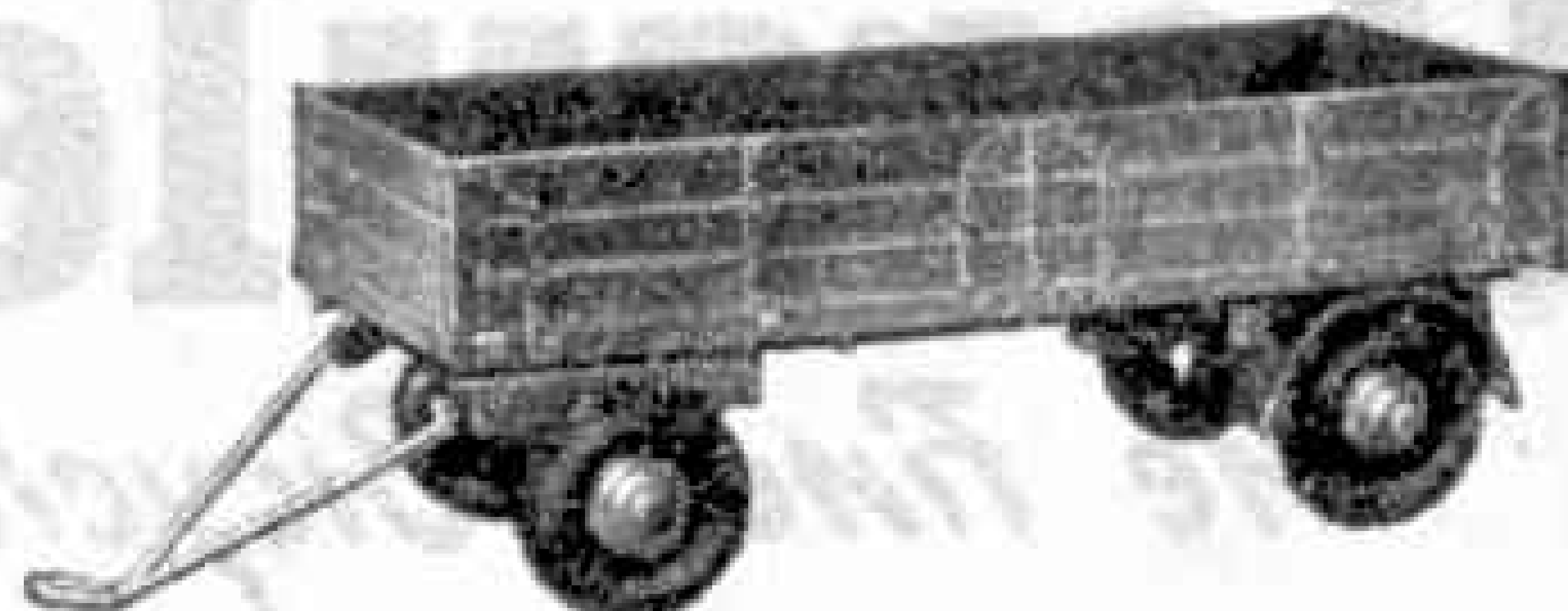
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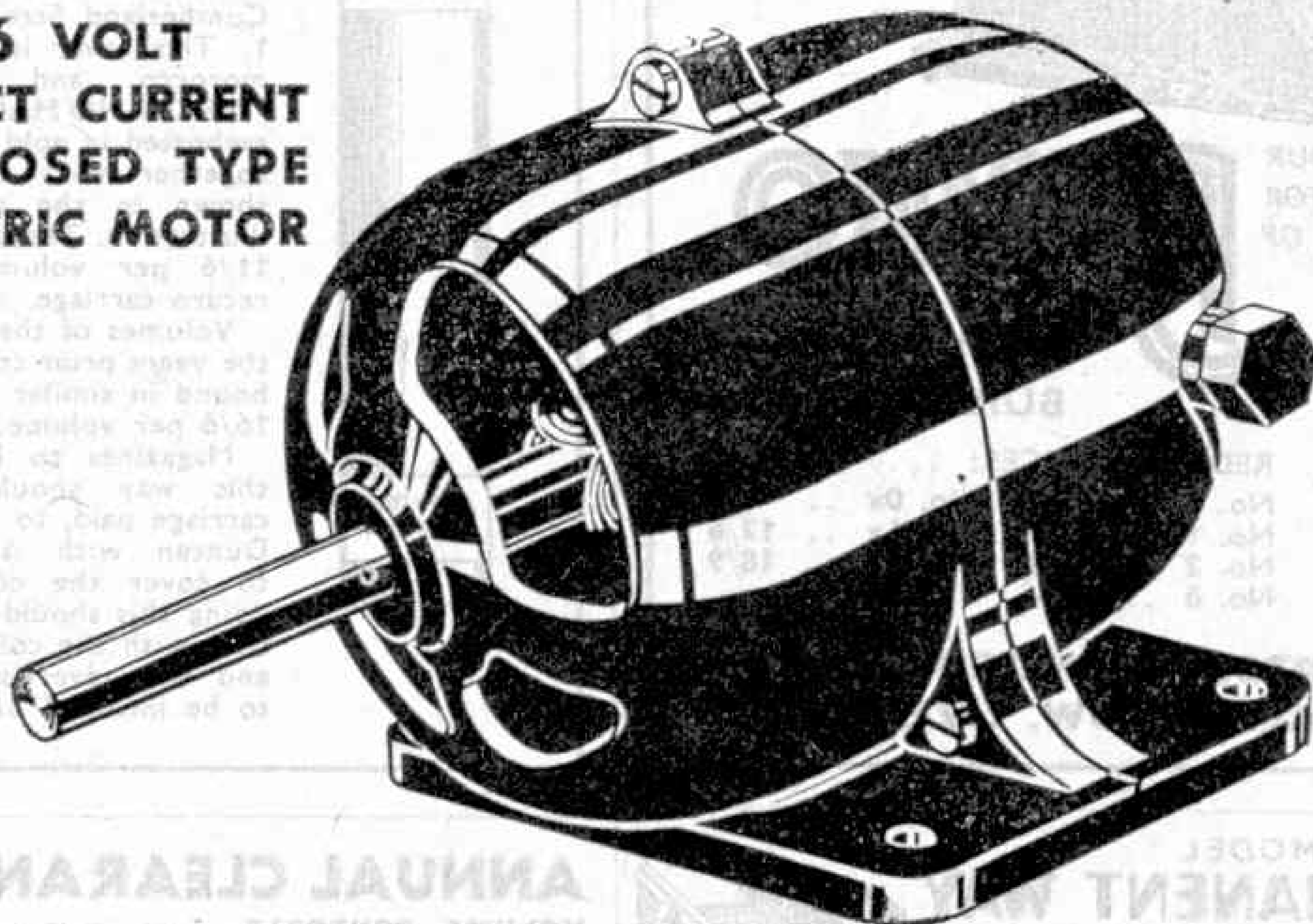
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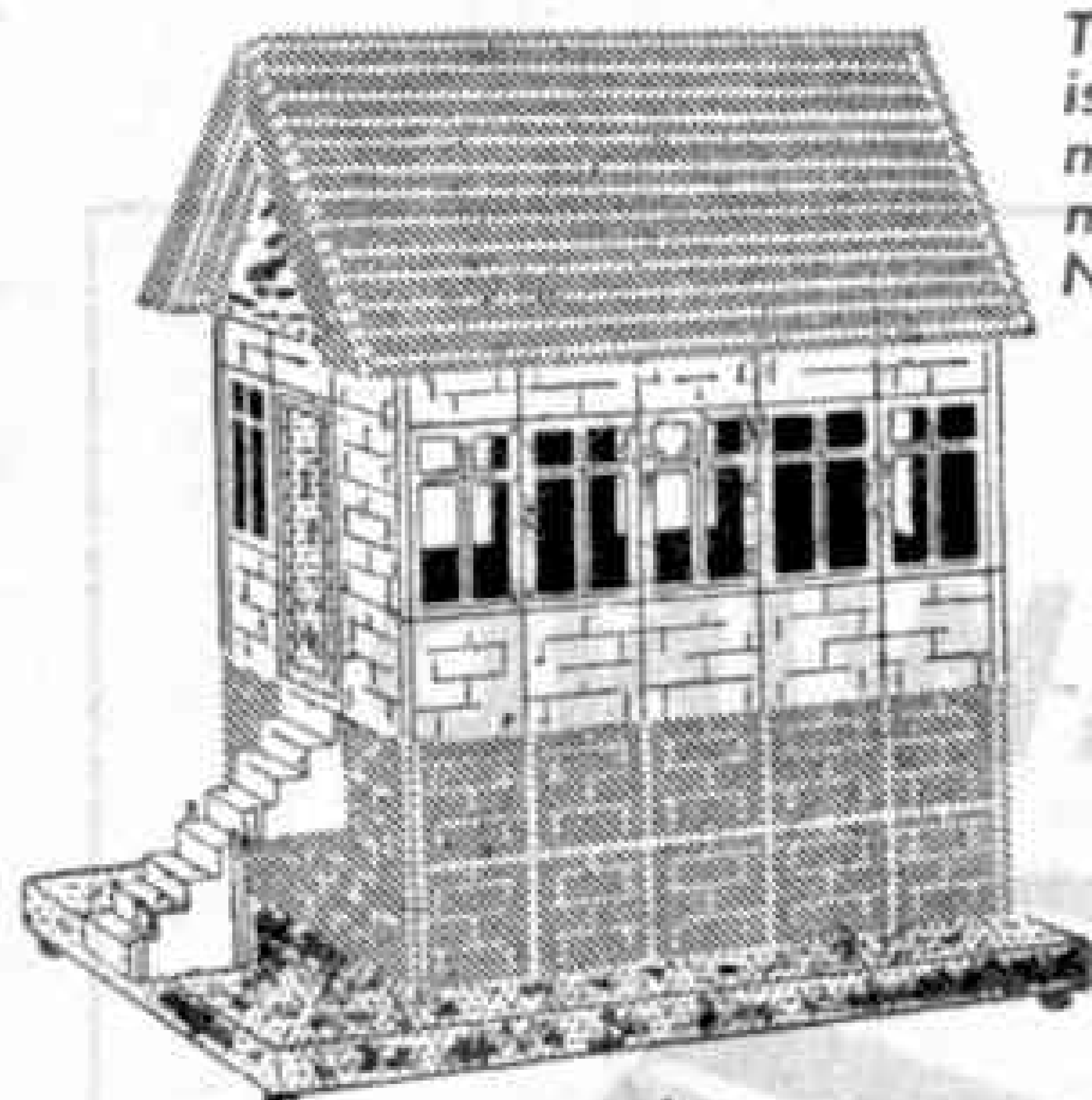
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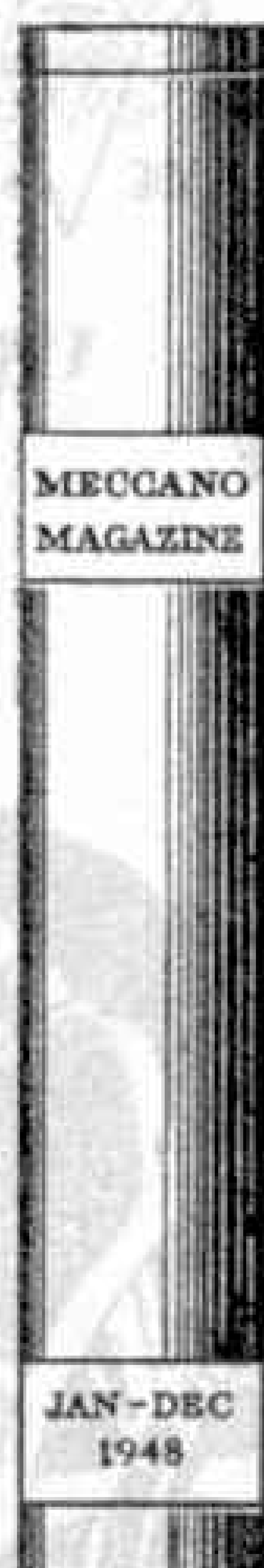
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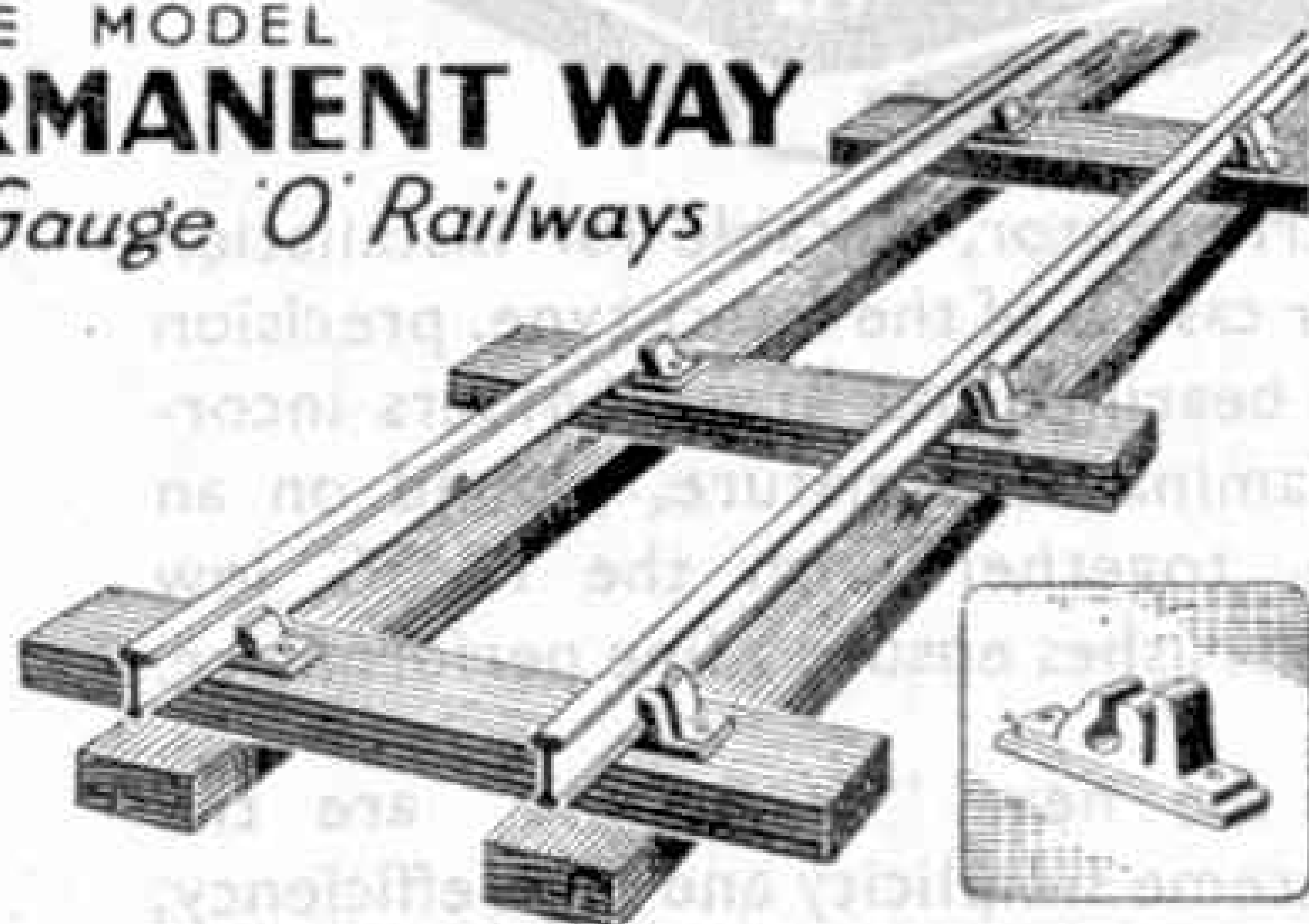


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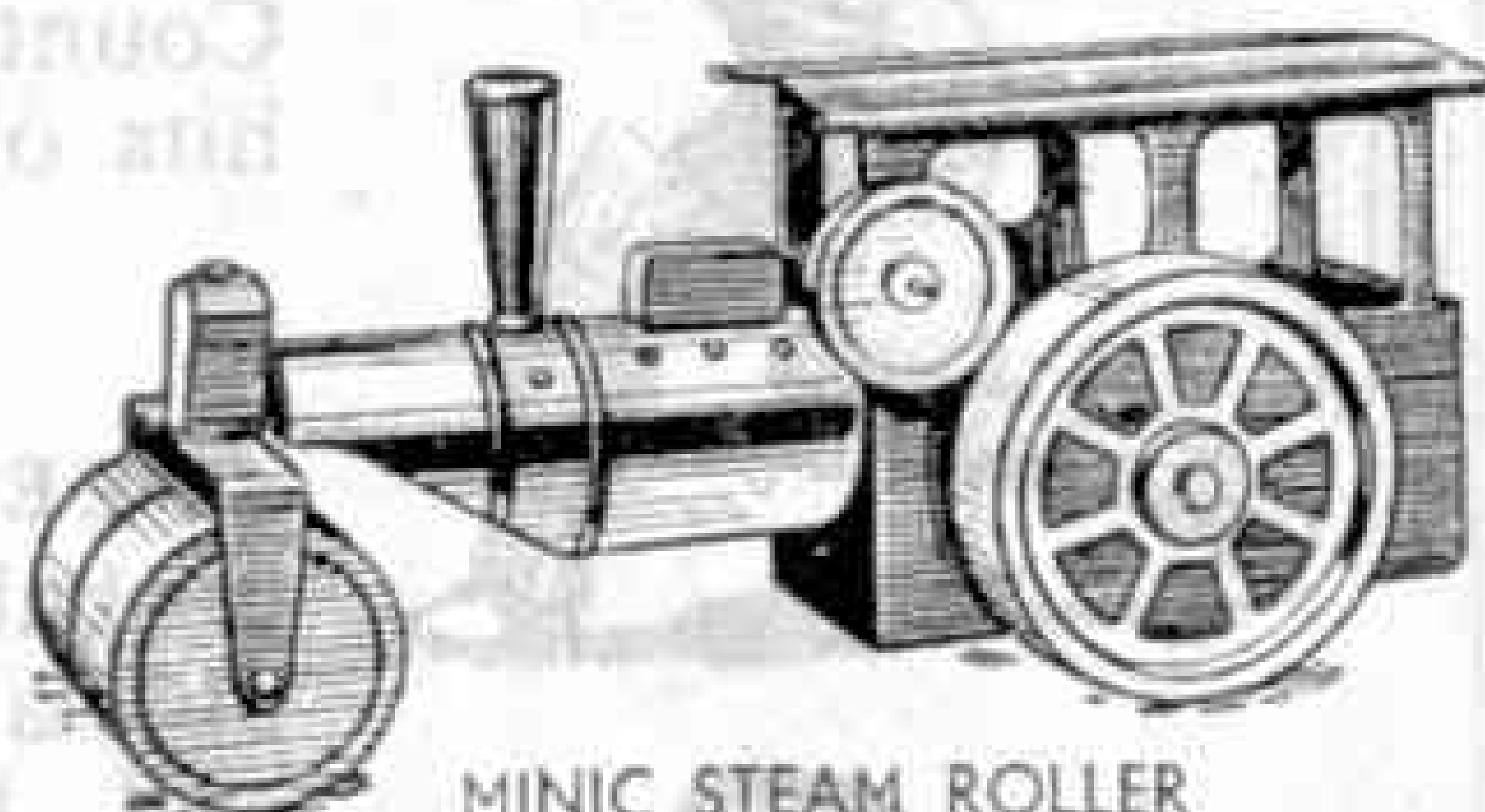
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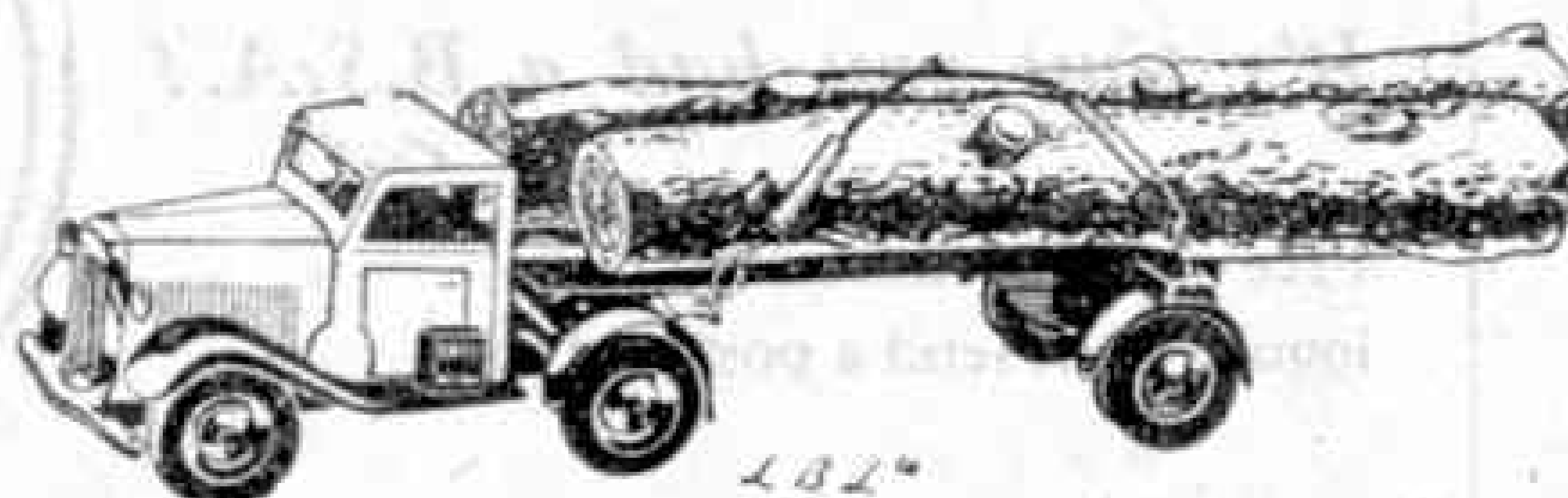
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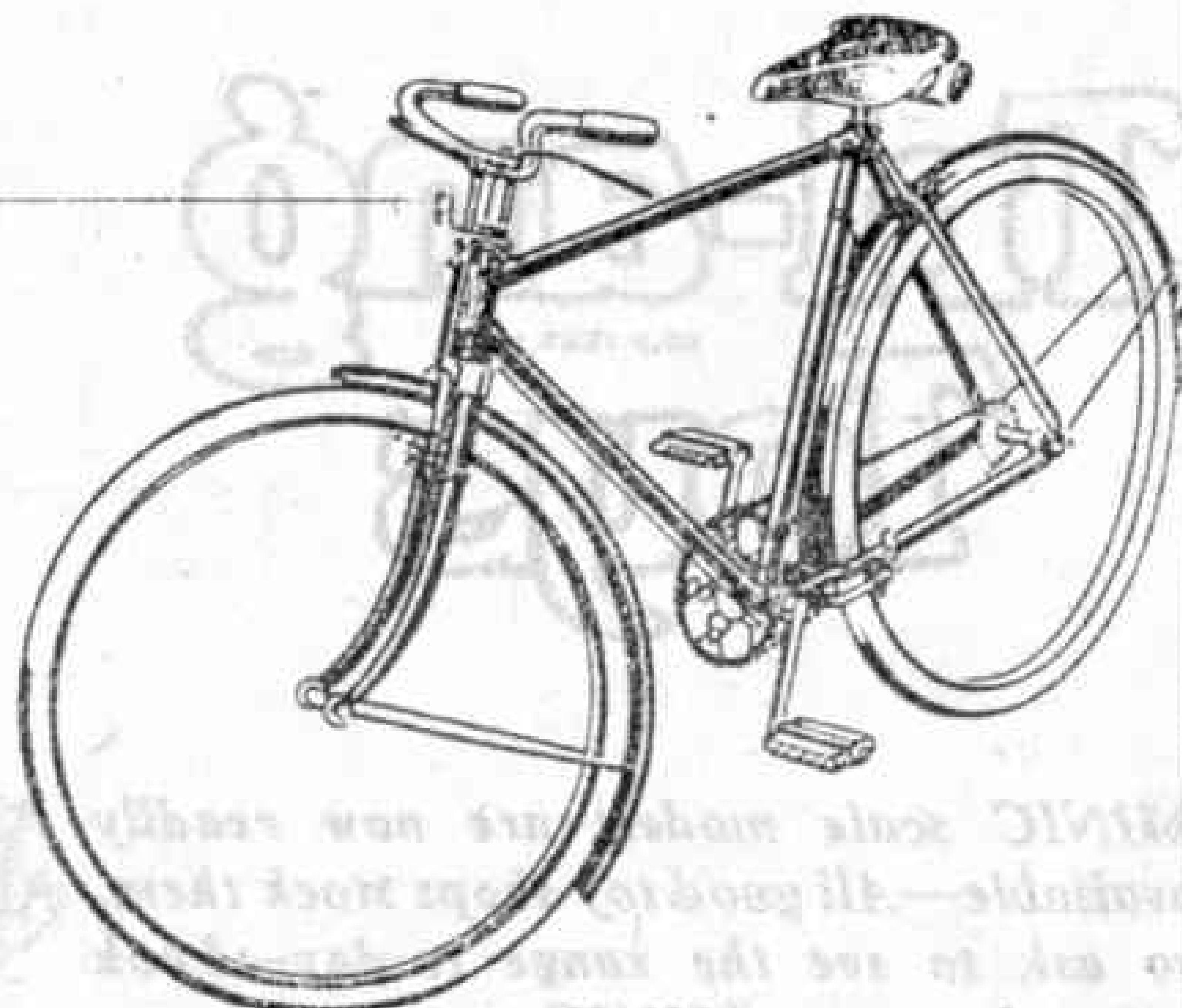
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MECCANO

MAGAZINE

Editorial Office:
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Vol. XXXIV
No. 9
September 1949

With the Editor

Britain's Jet Fighters

Since the early years of the first World War, British fighter planes have been second-to-none in the world. So it is hardly surprising that many people were shocked a few weeks ago to read about an alleged United States Air Force official report which claimed that our jet fighters failed to intercept "obsolete" American "Superfortress" bombers in recent exercises over England. Subsequent half-hearted American statements denying knowledge of such a report have done little to restore confidence in Fighter Command's abilities.

The truth is that in the recent Exercise "Foil," Fighter Command claimed one interception for every sortie flown against this country by "enemy" bombers, including "Superfortresses." That does not mean that every bomber was intercepted, for some were attacked and "destroyed" several times, while occasional fast bombers inevitably slipped past our defenders. Nevertheless, the fact that our fighters were able to deal effectively with everything from ancient "Ansons" to "Vampires" posing as jet bombers proves that they are not so useless as the American report seemed to indicate.

Nobody, least of all Fighter Command, would wish to hide the shortcomings of our jet fighters. Their endurance is short compared with wartime piston-engined fighters, and the small wing area of the "Meteor" 4 tends to prove a disadvantage sometimes at very high altitudes. But its phenomenal rate-of-climb and fire-power enable it to make such a devastating first attack that prolonged fighting would often be unnecessary. Furthermore, the more lightly-loaded "Vampire" maintains its manoeuvrability at far greater heights than those at which a "Superfortress" operates.

In fact, the "Meteor" and "Vampire,"

supported by our splendid "Hornet" and "Mosquito" piston-engined fighters, form a team capable of tackling every type of bomber in service anywhere. They will soon be joined by formidable new jet fighters, with greatly increased operational endurance and radar "eyes" to search out enemy bombers by day or night.

In this atomic age it is disquieting to think that even one bomber can get through to a target in Britain unmolested. But we can be assured that our fighters are *still* as good as the world's finest designers and engineers can make them. If they had been shooting with bullets instead of camera-gun film in Exercise "Foil," it is certain that a very large proportion of the attacking crews would have had slim prospects of reaching home to write reports, accurate or otherwise.

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The Story of the Lightship

By Frank C. Bowen

CONSIDERING their obvious value in warning ships away from dangers offshore, it seems curious that lightships were not established long before they were. It has to be remembered, however, that most ships were small enough to hug the shore, where a number of lighthouses had been established since Roman days, and that they would anchor at night or in fog. Time meant very little to navigators for centuries.

In spite of those factors a lightship was suggested by Sir John Clayton for the Nore, to guide ships through the dangerous sandbanks at the mouth of the Thames, as early as the reign of Charles II. As he intended it to be a private speculation, paid for by a toll on every ship which made use of it, and as Trinity House depended largely on its income from navigation marks to carry out the numerous duties with which it had been saddled, its protests against the scheme were successful, and the Nore Shoal continued to be marked only by an unlighted buoy.

In 1731 a speculator named Hamblin patented an "improved distinguishable light," although after the fashion of the time the specification lodged to secure the patent was so vague that it was quite worthless for showing what he had in mind. Nevertheless, it secured him permission to place the first British lightship on the Nore Sand. Whatever might have been in his mind when he secured the patent, the light was certainly not distinguishable, for it was nothing but a candle lantern slung on the yard arm of a 40-ton merchantman named the "*Experiment*." She was obviously too small for the weather to be expected in the mouth of the Thames, and within a few months she was replaced by the merchantman "*Good Intention*," whose burthen of 100 tons made her rather more efficient, but which was of little service to passing shipping. Hamblin tried to get his money back by inviting every ship which passed into or out of the London River to make a

voluntary contribution to the upkeep of the ship, but very few of them obliged him.

On the other hand there were any number of shipowners who complained bitterly that the lightship was so inefficient that, far from making shipping safer, it was often an added danger. The candles, seldom lit to the promised number, were constantly being blown out by the wind, so that ships coming up Channel and looking out for the promised light were liable to find themselves on the sandbanks all round it. Furthermore, it was constantly breaking its hemp cables, and its light might be sighted miles away from its station, with the ship being carried along by the wind and tide and all its crew fast asleep.

Within a few months of the establishment of the Nore light, therefore, the Corporation of Trinity House secured a licence to establish an efficient lightship, and prepared to fight Hamblin's concession. Having found that it was not profitable he sold

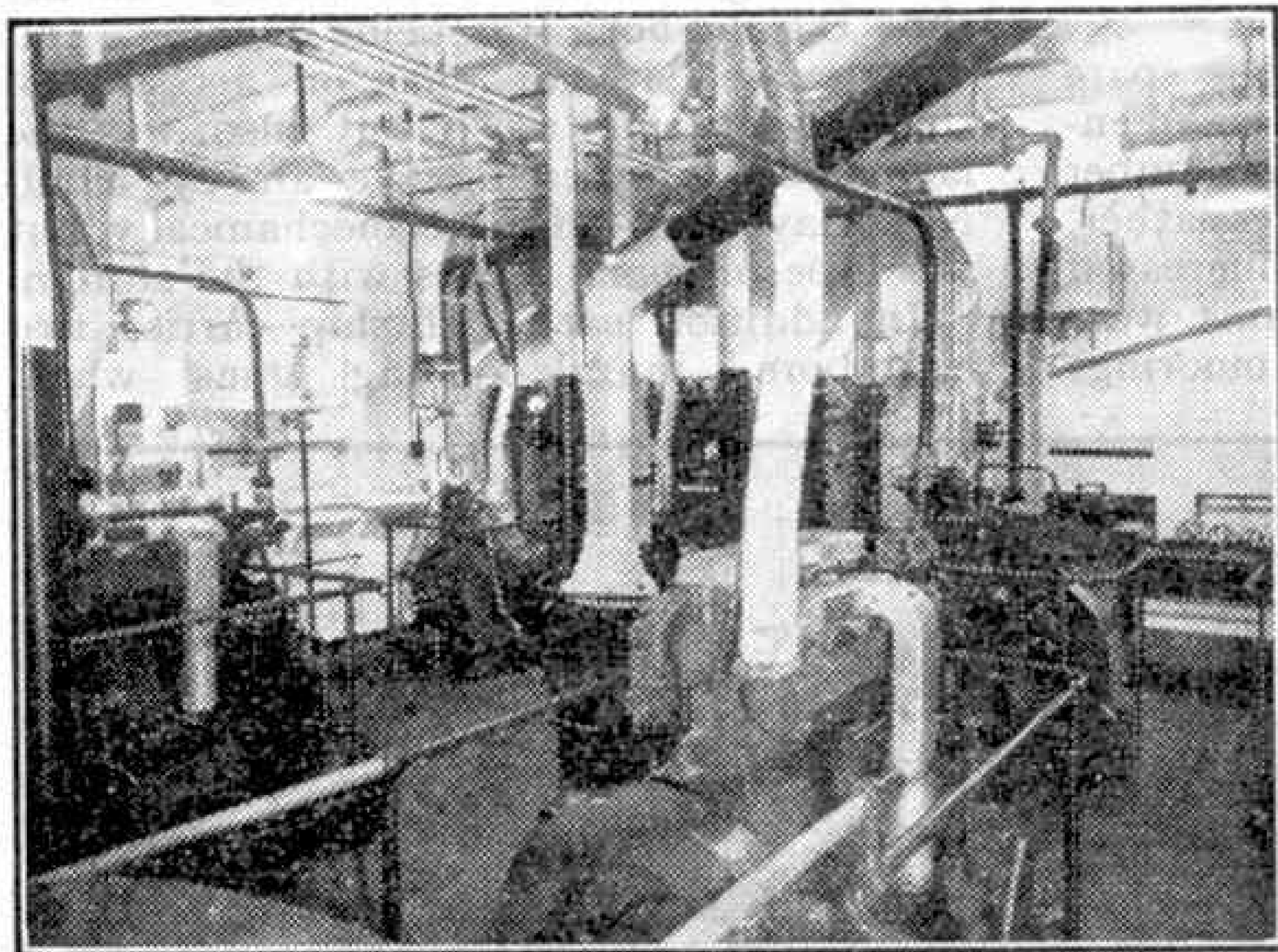


The most modern type of lightship with the lantern on a latticed tower and wireless slung between the two masts. Photograph by Philip and Son, Dartmouth.

it to David Avery, who very wisely made friends with Trinity House and worked in conjunction with them; when the concession expired Trinity House took it over.

The Corporation certainly did better with the Nore and other early ships than any private speculator who was only out

to make a profit from passing shipping. The lights were properly attended to, and yachts were stationed at the nearest convenient harbour as tenders to get the lightships back on station if they blew adrift. Nevertheless, it was some years



The engine room of a modern lightship. Photograph by Philip and Son, Dartmouth.

before anybody thought of using a specially designed ship; old merchantmen were considered good enough for the Dudgeon station when it was established in 1736, and for the first Mersey lightship in 1813.

The first great improvement was the substitution of lamps burning whale oil in place of the clusters of wax candles. They gave a far better light and were not nearly so liable to blow out.

The Goodwin Sands—the "Great Ship Swallow" of the monkish chroniclers—were a terrible danger to shipping which naturally suggested the possibilities of lightships. The first suggestion was made in Stuart days, but the idea was dropped when its sponsor was drowned. A converted coaster was placed roughly where the "*North Goodwin*" is moored nowadays, in 1795, followed by the "*Gull*" inside the sands in 1809. That was at the special request of the Admiralty, to lead the frigates stationed in the Downs during the Napoleonic Wars through the Gull Stream. The "*South Goodwin*" followed in 1832 and the "*East Goodwin*" in 1874. By that time Trinity House had placed a number of lightships on station.

In the early days, as has been mentioned, each lightship had a yacht as a tender based on the nearest harbour. Immediately the lightship broke adrift, which was constantly happening, she took out new

cables and helped her to get back to station; when that was impossible, or the lightship was under repair, the tender would go out to her position and anchor there, showing the necessary light, until she could be replaced. Each of these tenders had a permanent master, but otherwise they were manned by the lightship crews who were having a spell ashore. In due course these sailing tenders were replaced by steamers, one attached to each district instead of to each lightship. The early ones were paddlers, but later a very handy type of screw steamer, admirably seaworthy, was adopted and attended to the buoys and other navigation marks as well as relieving and storing the lightships. Between the two wars diesel tenders were tried with success, but the latest ones have reverted to steam.

Long before the sailing tenders were replaced by steamers, the use of converted merchantmen, which were very hard on their cables, was abandoned, and they were replaced by specially designed lightships with hulls carefully planned to ride as easily as possible. The first of these was built in 1825.

For a long time all the hulls were built of wood, with the strongest possible construction, sheathed with copper or muntz metal below the water to check fouling. Iron hulls for greater strength were tried in the Liverpool approaches in 1842 and on the North Goodwin station in the fifties, but the crews generally preferred wooden hulls as being more comfortable both in summer and winter. Composite hulls, wooden planked on an iron frame, were also tried for some time, but all the modern ships are steel with precautions against sweating inside.

In 1807 Robert Stevenson, grandfather of "R.L.S." the novelist, invented the multiple lantern encircling the mast and giving a far better light. The earliest ones were lowered on to the deck at daybreak to be cleaned, and hoisted by a hand winch at nightfall; but later they were replaced by lanterns permanently fixed to the masthead. Whale oil was replaced by colza, then by petroleum vapour, and later, between the two wars, by electricity generated on board by diesel dynamos. Early in the present century the slim

mast was replaced by a cylindrical tower, and in the most modern ships the light is on a big girder structure. Each lightship now has a quite distinctive light which cannot be mistaken for that of any others in the neighbourhood, and with the help of reflectors and scientific lenses they have been given a range of many miles.

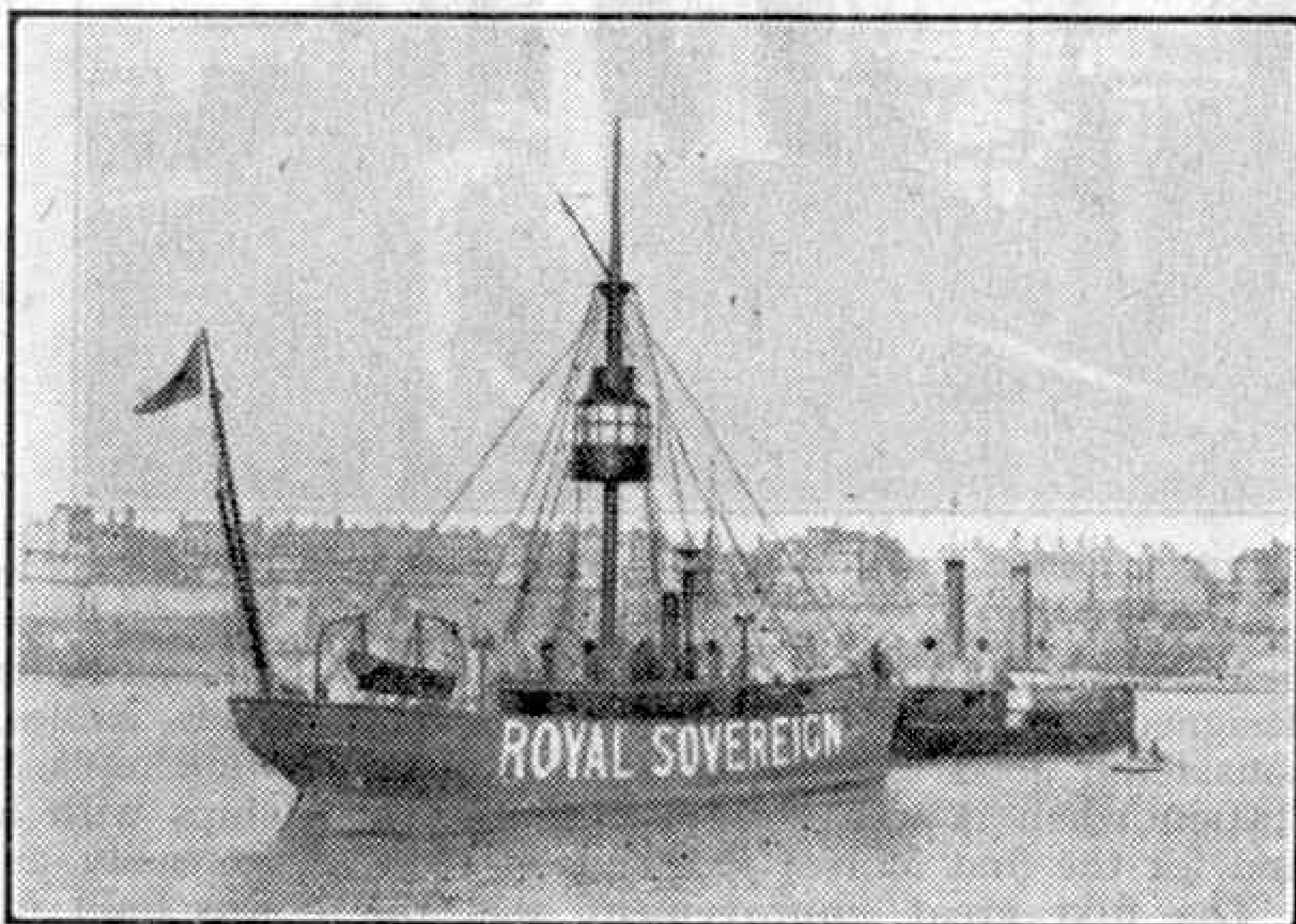
Chain cables, at first only for the spare anchors, were introduced in the eighteenth century and greatly reduced the number of ships breaking adrift in bad weather. The care given to the moorings increased rapidly; none but the finest chains were employed, and for years the moorings consisted of two or three mushroom anchors spread out with a ground chain between them having a swivel in the centre leading up to the ship. Latterly anchors of good modern patented types are preferred to the mushrooms, but in every case the moorings receive the greatest care for they always have to stand a tremendous strain in bad weather. Actually the depth of water is not the principal factor in that; local conditions in shallow water may be far worse than depth.

A conspicuous feature of all the old lightships, with their lantern on a mast, was a shape above the lantern, generally a ball, but sometimes one or two cones when there was any chance of confusion. This was partly to identify them to passing shipping, in addition to the name written in big letters on their sides, and partly as a distress signal to observers on shore; if anything went wrong the shape was lowered. Other signals are provided for lightships off their station. Nowadays they are not so necessary as every lightship can communicate with the shore by some means, generally by wireless telephony. Before that was perfected many of them were connected with the shore by telephone cables; these were always being broken, but the regular test message from the nearest Coastguard station every Saturday evening was a boon to the lightsmen for letting them know the day's football results.

However efficient a lightship's lantern may be on a clear night it is useless in fog, and they are all provided with sound signals. In the early days these were

heavy bells, or gongs specially imported from China on account of their noise; but a hundred years ago fog signals were tried and proved effective. They were soon improved and their character was made different for each station. In the old days the crew got extra "noise money" all the time the fog-horn was being sounded, and they earned it not only on account of the ear-splitting noise but also for the labour of compressing the air by hand. Nowadays it is all done mechanically but the type of signal varies with the station.

In addition each lightship carries two large-bore, muzzle-loading guns which



An up-to-date lightship in the First World War, with the lantern permanently at the masthead. Photograph by Nautical Photo Agency.

are fired as a warning if a ship is seen to be standing into danger. They are similar to those used at Trafalgar, but although it has often been suggested that they should be changed for more modern types, the old muzzle-loader has been pronounced by far the most effective on account of the tremendous bang that it gives.

During the recent war, for the first time in history, German aircraft deliberately attacked lightships, which had no means of defending themselves, with the result that they were withdrawn from their stations. In some cases they were replaced by untended floats, miniature lightships whose lamps were kept burning with acetylene for a very long period, and one or two of the old lightships were fitted with automatic gear to run without a crew. Altogether 16 lightships were lost during the war, while the replacement of worn out or obsolete ships was held up. These are now being replaced as quickly as possible by steel (Continued on page 362)

Fun with Dinky Toys

A Well-designed Bus Station

THE thoughts of many Dinky Toys owners planning a layout turn naturally to the running of buses and the construction of a road system that includes a bus station. V. Halliday, Ludlow, is one of these, and he became so intent on his idea that in the end he built the delightful bus station that is illustrated on this page. This has bays at which passengers can conveniently leave or enter buses, with shelters alongside and a waiting room at one end. There is also a garage for the buses, over which is a repair and maintenance station. There are even clocks, placed in positions where they can easily be seen, so that passengers can tell whether the services they use are running to time or not.

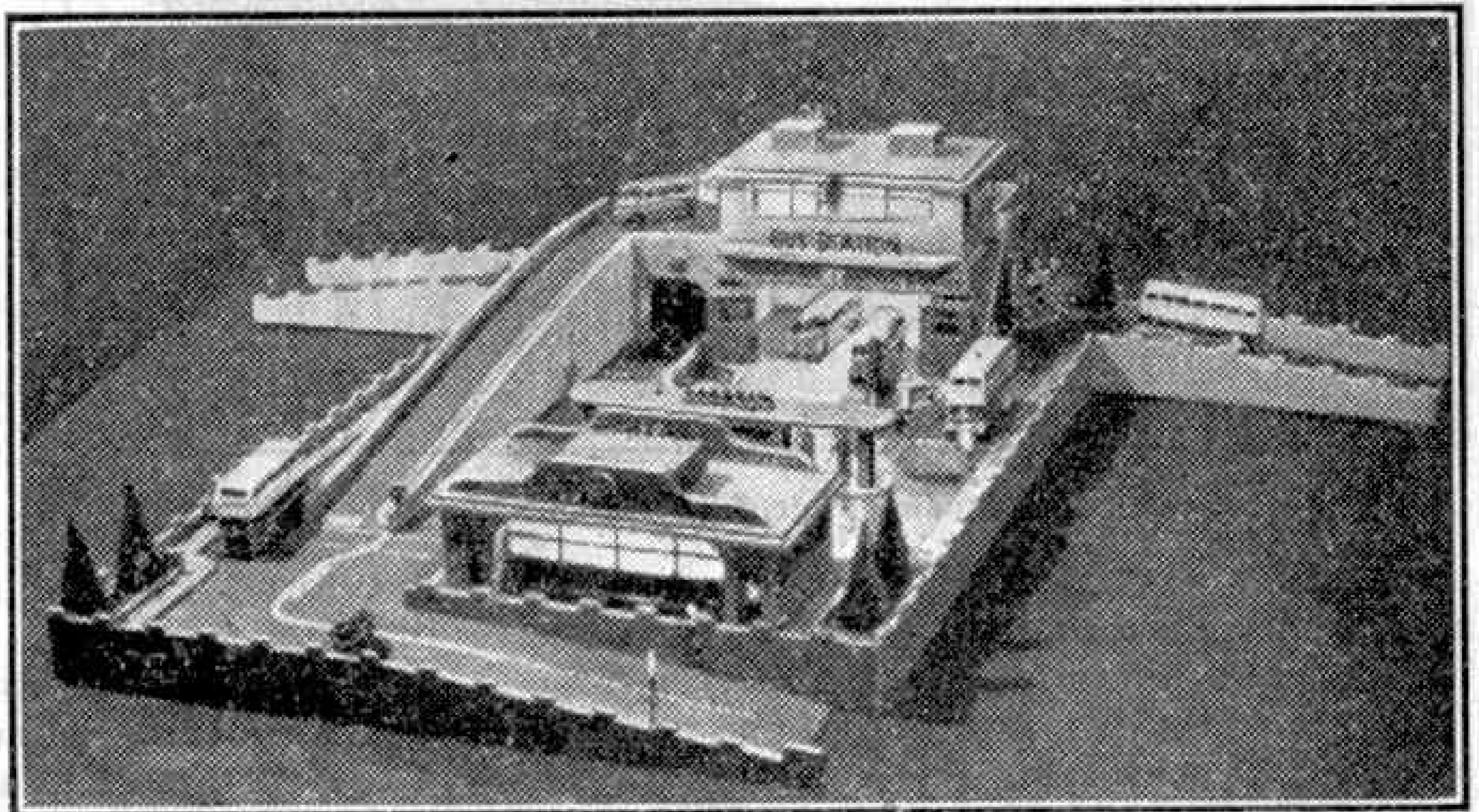
The main base of this bus station is of hard boards, reinforced with 2 in. by 1 in. battens, and the overall size, apart from the end ramps, is 33 in. by 20½ in. The layout itself was not made to any particular scale. Its builder decided on the sizes of buildings, widths of roadways, etc., by constantly comparing these dimensions with those of the Dinky Toys Double Deck Buses that were intended to make use of them. The result is a really practical layout, with many features of outstanding interest.

The buildings are constructed chiefly of plywood, but ordinary wood from boxes also has been pressed into service. The finished structures were given a coating of glue, and then various grades of bird and silver sand were sprinkled over them. When dry and painted the models had a good roughcast appearance that along with their excellent modern design gives a very pleasing result. A similar plan was followed with the small gardens included in the layout. Here sawdust was sprinkled on the glue and fir trees of the kind purchased for Christmas decorations

provided the vegetation. For windows plastic material was used.

Lighting of course is important in a model such as this. This was no problem to Halliday, who fitted flash lamp bulbs into small bakelite holders placed where required, and arranged a switchboard in a convenient position at the back of the model. A bell transformer provides current.

All the vehicles that pass through the Station, together with the Petrol Pumps, Traffic Signals and Road Signs, are Dinky Toys. To adapt the Road Signs to the layout their bases were removed and they were sunk to the extent required to make them of the desired height. The words "Bus Station" appear over the clock on the



A general view of the fine bus station designed and constructed by V. Halliday, Ludlow.

main building. The letters for this and other inscriptions were cut out of three-ply wood on a fretsaw machine.

White lines on the roads act as guides to the drivers of vehicles entering and leaving the bus station. Entry can be made only at the left-hand side, looking from the main building, and the right-hand side road is reserved for buses leaving. The words "No Entry" painted in correct places on the road warn drivers of vehicles.

The Garage has proved a completely fascinating plaything to many young friends of its constructor. He encourages them to run Dinky Toys buses around the layout, and has noted how helpful this can be in developing the beginnings of road sense.

Handley Page's Forty Years

By John W. R. Taylor

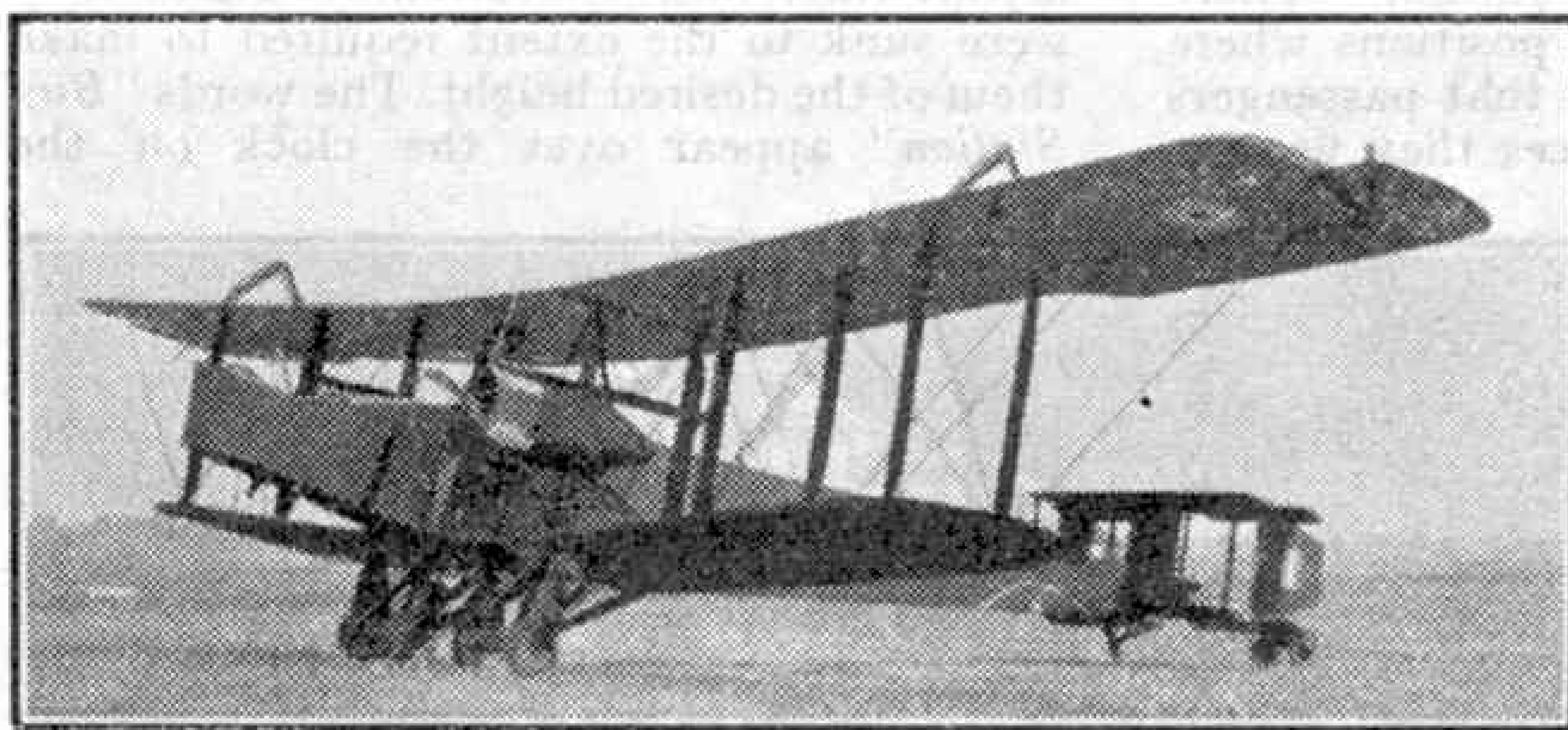
IN the early Summer of 1909, a young man named Frederick Handley Page registered a new company "to manufacture, let for hire, repair and deal in aeroplanes, hydroplanes, airships, balloons, aeronautical apparatus and machines, automobiles, motorcars, etc." All of which must have sounded very impressive and prosperous, until one learned that his factory at Barking consisted of a wooden shack with a corrugated iron roof, built on dump-heaps of clay excavated from London's underground railway tunnels.

Nevertheless, Handley Page Ltd. was

gliders, as it refused to climb more than a few feet. But it incorporated several advanced features, including sweptback wings of a crescent shape which may well be resurrected on high-speed aircraft in the next few years.

His first really successful aeroplane was a monoplane built in 1911 which, because of its virulent colour, was usually referred to as the "Yellow Peril" or "Antiseptic." This machine achieved fame by flying over London, and on the strength of his success Handley-Page moved to a bigger factory at Cricklewood. He has been there ever since.

Fortunately, by 1912 the Government was getting worried by the importance given to military aircraft abroad, and decided that it was time it had a few aeroplanes of its own. "H.P." was one of the lucky manufacturers to benefit from this decision, receiving an official order for five military aircraft. At the same time he



One of the famous Handley Page 0/400 bombers of World War I.

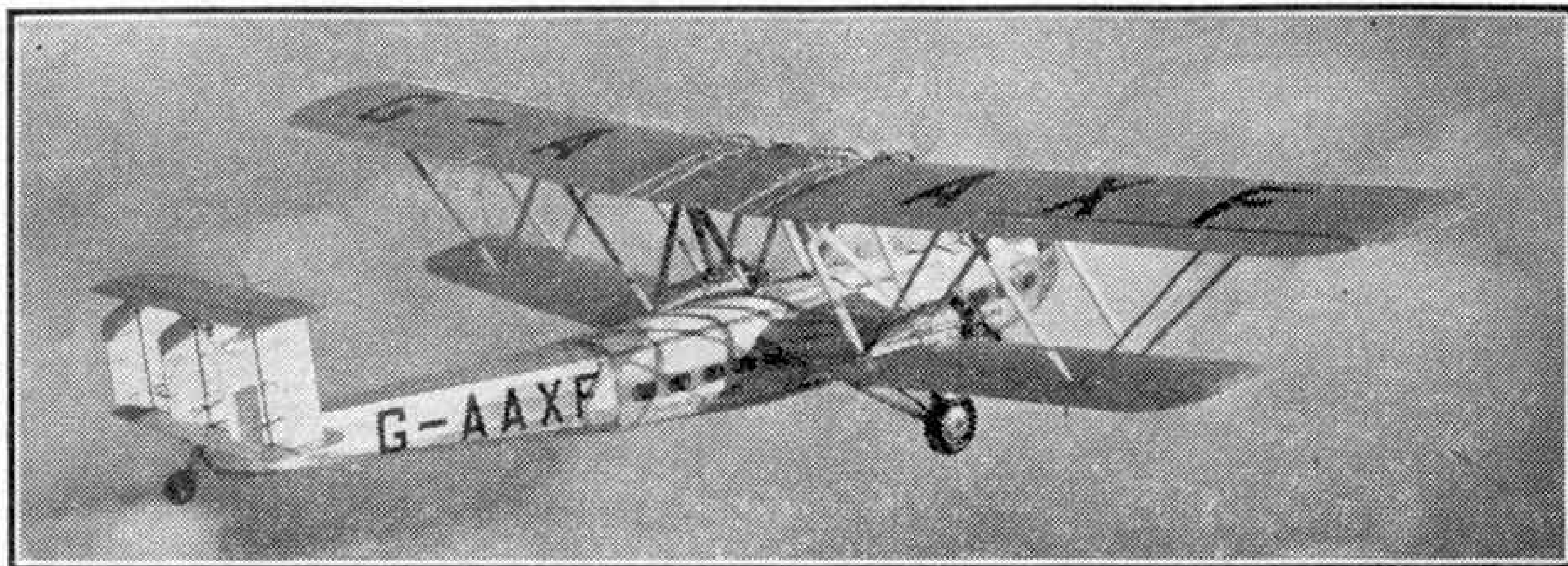
the world's first aircraft limited company, and what its founder lacked in finances he more than made up in ability. As a result, it has grown into one of the greatest aviation concerns in the world, so well-known that if you look on page 522 of the "Concise Oxford Dictionary of Current English" you will find "Handley-Page, n. Type of large aeroplane. (maker)." Few other manufacturers have achieved such fame in 40 years that their name has become part of our language.

At first the Company's lack of resources proved a handicap, but by building strange contraptions for other would-be aviators "H.P." was soon able to make enough money to develop aircraft to his own ideas. Most of them were gliders, because the primitive engines available in 1909 were seldom powerful enough to lift an aeroplane off the ground. Even if they did, they often stopped at inconvenient times, so gliders were much safer.

When Handley Page did eventually build a powered aeroplane, the "Blue Bird," it proved almost as safe as the

developed a remarkable crescent-wing biplane, the HP-7, which started life as a joy-ride machine but was taken over by the Admiralty when war started in 1914. They stationed it at Hendon for training and defence duties, armament consisting of one Webley revolver worn by the pilot. Before long its sweptback wings got it into trouble, when a group of conscientious London gunners mistook it for a German Taube and thoroughly riddled it with bullets. But it survived, and continued to give good service until written off in August 1915.

Meanwhile Handley Page had already begun to think in terms of the big bombers that were destined to bring his Company world-wide fame. His chance came late in 1914 when Commodore (now Rear-Admiral Sir) Murray Sueter asked him to go ahead with the design and construction of four giant twin-engined bombers for the Royal Naval Air Service, each able to carry six 112 lb. bombs. So enthusiastically did the Company tackle its first important job that the prototype of the world's first



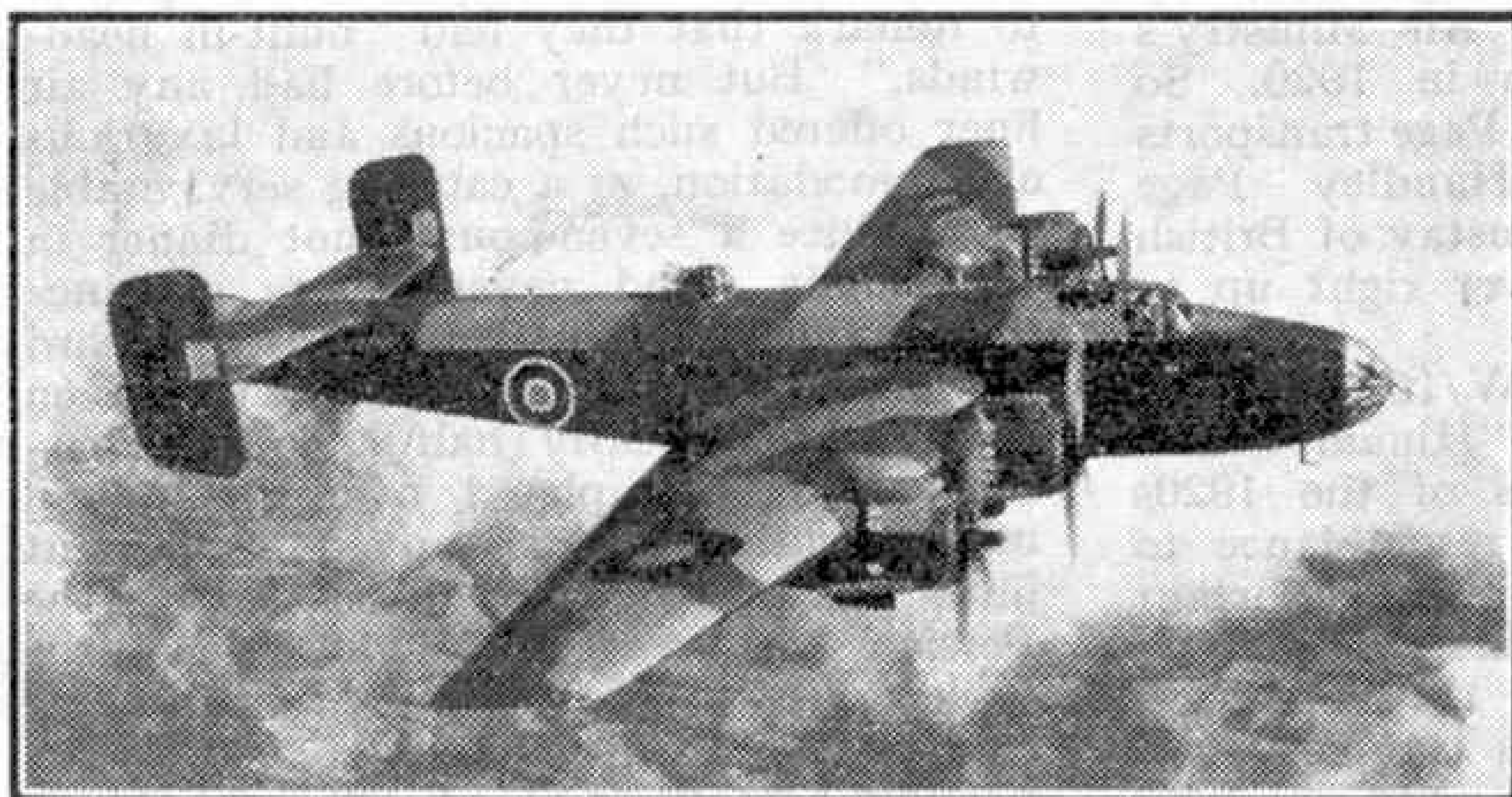
Probably the world's safest air liners, Imperial Airways' "Hannibal" class were a fine Handley Page type.

really successful big bomber—the Handley Page 0/100—was flying a little over a year later. Until that time aeroplanes had been considered useful only for reconnaissance or limited defensive duties: the 0/100 opened up an entirely new concept of aerial warfare, by proving that strategic bombing could be developed to the stage where it would have a decisive effect on land campaigns.

Altogether forty 0/100s were built for the R.N.A.S. Most of them were stationed at Dunkirk, from where they attacked targets inside Germany as well as U-boat bases at Ostend, Zeebrugge and Bruges. Unfortunately, as seemed to be a habit in those days, one of them was delivered to the Germans by mistake. The pilot lost his way and, seeing some French soldiers in a field, landed to ask where he was. It turned out that they were prisoners; so were the crew of the 0/100 a few seconds later, with the result that the Germans were able to incorporate features of the 0/100 in their Gotha bombers, which were used to raid London.

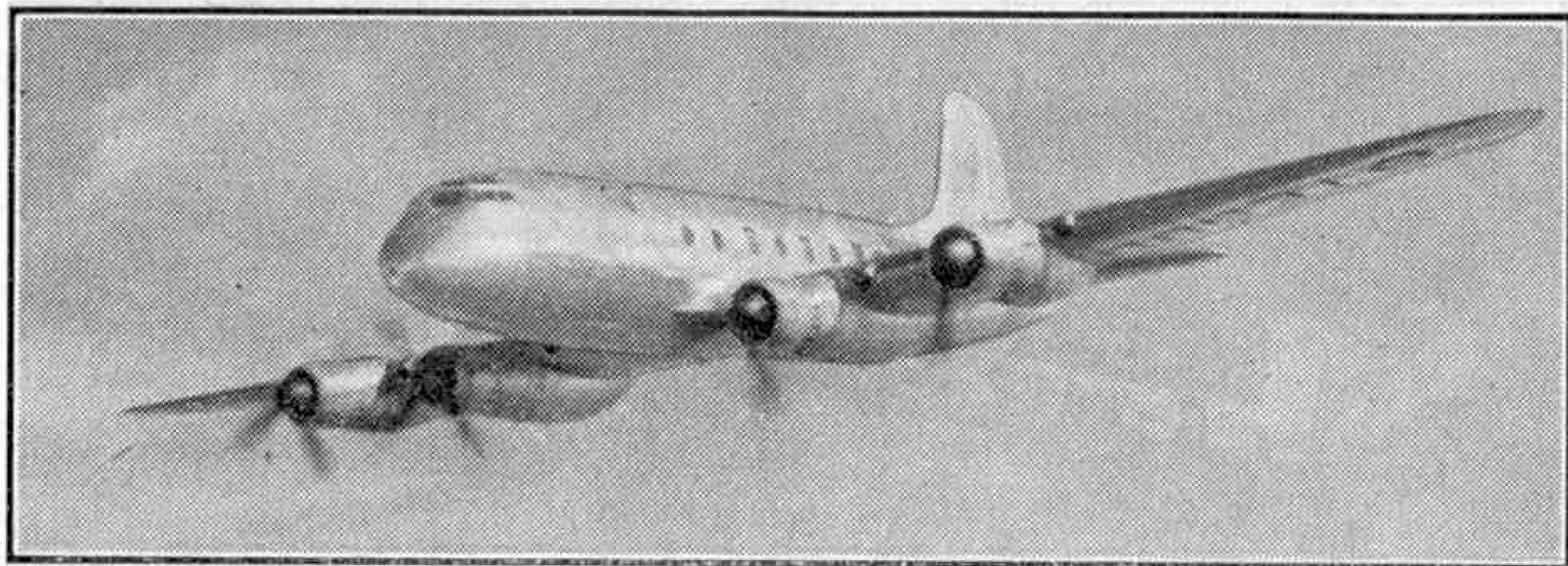
From the 0/100 Handley Page developed the famous 0/400, some 400 of which saw service with the R.N.A.S. and R.A.F. in the first World War. They formed the backbone of Trenchard's Independent Air Force in 1918, the first strategic air force in history, and were responsible for the intense bombing of German towns in the Rhineland, mostly by night. Others were sent east to fight the Turks and Bulgarians, and one of them flew in support of Lawrence's Arabs in Palestine. In his *"Seven Pillars of Wisdom"* Lawrence writes that it stood "majestic on the grass at Um el Surab, with Bristols and 9A, like fledglings beneath its spread of wings. Round it admired the Arabs, saying: 'Indeed, and at last, they have sent us THE aeroplane, of which these things were foals'."

But even the 0/400 was dwarfed by Handley Page's next bomber, the four-engined V/1500, which was designed to bomb Berlin from British bases and had a bigger wing span than the "Lincoln" of to-day. Powered by four 350 h.p. Rolls-Royce engines, it could carry a crew of six, thirty 250 lb. bombs, machine-guns and enough fuel for an endurance of 12 hrs. at 90 m.p.h.



Handley Page "Halifax," one of the main types of heavy bomber used by the R.A.F. in their bomber offensive in the second World War.

Realizing the enormous power of its new weapon, the newly-born R.A.F. ordered 255 of them to carry the war into the heart of Germany. By November 1918, only 13 months after their design was started, the first three were ready to take off for Berlin.



The prototype of the Handley Page "Hastings" military transport and "Hermes" air liner.

At that moment, however, the enemy asked for an Armistice, the war was over and, having just developed the world's most formidable warplane, Handley Page suddenly discovered that nobody wanted it.

Instead of maintaining enough military orders to keep the industry going, as a safeguard against future war, the Government immediately cancelled all contracts. Fortunately, it seemed possible that the demand for civil air transport might be sufficient to keep the two-legged wolves from the door. So, instead of shutting up shop, "H.P." formed one of the world's first commercial air transport companies—Handley Page Transport Ltd.—using converted O/400s and a V/1500 for long-distance flights.

From the start the H.P. Transport company achieved high standards of efficiency on its services to Paris and Brussels, but its directors had no illusions and realized that to do the job properly they would need air liners designed as such from the start, and not just converted bombers. The result was the twin-engined W/8, a 12-seat biplane which gained easily the highest award in the Air Ministry's civil aviation competition in 1920. So began the series of Handley Page transports which, together with Handley Page bombers, have been a mainstay of British air transport and air power right up to the present day.

The W/8, W/8B and W/10 air liners and the "Hyderabad," "Hinaidi" and "Clive" military machines of the 1920s all bore a strong family resemblance to the O/400, but each incorporated important new features to improve efficiency, safety, comfort and performance. For example, introduction of the famous Handley Page slot on the "Hyderabad," and its later application to all R.A.F. aircraft, reduced the accident rate in the Service by half.

The "Hinaidi" marked the change-over to all-metal construction, coming shortly after the wooden "Clive," one of which achieved incredible records of efficiency with Sir Alan Cobham's air circus. In one day in 1933 it lifted 1,008 passengers, taking-off and landing 48 times.

Going back to 1924 for a moment, in that year the four major British air transport companies, which were having a rather lean time, combined to form the Government-sponsored Imperial Airways. Nine of the 14 aircraft operated by the new combine in its early days were Handley Pages, and, in fact, air liners designed at Cricklewood formed a major part of Imperial Airways' landplane fleet right until 1940, when the Company was merged with British Airways to form the British Overseas Airways Corporation.

Most famous of all Imperial Airways' landplanes were the Handley Page "Hannibals," which revolutionized air travel in 1931. "Hannibal" and its seven sisters were neither handsome nor fast, indeed the sight of one of them ambling to Paris, at about 98 m.p.h. led one person to remark that they had "built-in headwinds." But never before had any air liner offered such spacious and luxurious accommodation, or a catering service able to produce a seven-course hot dinner in the clouds. And never before or since has any air liner equalled the safety record of the eight "Hannibals," which between them carried nearly half a million passengers and completed over 10 million miles of flying, without any fatal accident until one of them disappeared over the Persian Gulf on its last flight home to be broken up. What is more, their large capacity and low running costs made possible a profit of about £30 per working hour in normal conditions, a sober thought in these days of (Continued on page 362)

BOOKS TO READ

Here we review books of interest and of use to readers of the "M.M." With certain exceptions, which will be indicated, these should be ordered through a bookseller.

"BIRDS OF BRITAIN"

By J. D. MACDONALD (Bell, 8/6 net)

Over 400 birds are recorded as occurring in Britain, but about half of these are rare, others are restricted in range, and the number of those that are common or fairly common is about 100. Many of us can recognize a proportion of these, but to be able to name most or all of them is a considerable accomplishment. Mr. MacDonald will help bird lovers to reach this high standard. He is accustomed to identifying birds from verbal and written descriptions, and as a result knows the most useful points for which to look in order to distinguish one bird from another that may nearly resemble it.

With identification in mind the author has arranged about 200 common and resident British birds in 20 groups such as the seed eaters, the small birds with thick bills, those that are seen clinging to tree trunks, those that forage on branches, and so on. Within each group the individual birds are described in such a way that they can readily be distinguished. Small sketches are given to help the reader, and there are also nine full-page plates, six of which are in colour.

The book will be of absorbing interest both to beginners and to more experienced birdwatchers, for it gives in concise form a wealth of information about the appearance and habits of the birds described and illustrated. It should become the constant companion of the bird lover.

"DRAKE'S DRUMMER"

By CAPT. FRANK H. SHAW
(Children's Books Ltd. 6/- net)

We have to thank Capt. Shaw for many fine adventure stories, and here is a new one from him that takes us back to the great days of Queen Elizabeth and Drake's famous voyage round the world. Roger Carey and his friend Robin Fry have the good fortune to save Drake from being ambushed by Spaniards eager to prevent him from penetrating the secrets of the New World, and as a result they find themselves in the "*Pelican*," Drake's own vessel during his wonderful adventure. They are among the first to land on the South American coast, endure the hardships of the passage through the Strait of Magellan, help in the capture of the great Spanish treasure ship off the Pacific Coast of the continent, and play parts in countless thrilling adventures, finally being presented to Queen Elizabeth herself at the close of the victorious enterprise.

There is not a dull page in the book, which is illustrated by seven excellent drawings.

"EAST KENT BUSES AND COACHES" 2/6

"MIDLAND RED BUSES AND COACHES" 2/6 (Ian Allan Ltd.)

These two booklets deal in a similar manner with the vehicles of two well-known provincial bus and coach operators. In each the evolution of the company concerned and its road services are dealt with, and the development of the various types of vehicles employed is carefully followed. The vehicles composing the present-day fleets of the two concerns are listed in some detail, while the depots responsible for them and the different services that they operate also are given.

Both books will be welcomed by bus enthusiasts, especially in the districts covered by the companies. Copies of each cost 2/6 from bookstalls or Ian Allan agents, or 2/9 including postage direct from the publishers at 33, Knollys Road, Streatham, London S.W.16.

"THE BOYS' BOOK OF CRICKET"

Edited by PATRICK PRINGLE
(Evans Bros. 10/6 net)

This book on England's great summer sport has been specially written and produced for boys. It is an accurate and reliable guide for all who are interested in cricket, whether as players or onlookers.

Every side of the game is covered fully. Special articles are contributed by some of our greatest living cricketers, among them Denis Compton, Norman Yardley, P. G. H. Fender and the famous West Indian, Constantine, each of whom tells readers something of the features of the game in which he became distinguished. There are also a "cricket commentary" by Rex Alston, well known for his cricket broadcasts, general articles on cricket at home and overseas, and an account of an indoor training school. In addition to this useful information about first-class cricket there are sections giving advice on batting, bowling and fielding, with splendid action pictures of famous players whose methods serve as guides to those who wish to excel in the game themselves. Cricket stories, notes on the laws of the game, crosswords and quiz pages make up a book of wide variety, which includes also many drawings and humorous cartoons.

The book is large in size, with almost 200 pages, and every boy interested in cricket would revel in its articles, stories and pictures.

"REGIONAL ROUND"

No. 1 E. and N. E. Regions (Ian Allan Ltd. 2/6)

"*Regional Round*" is announced as the first of a series of booklets in which the reader is "taken the rounds" of the different Regions of British Railways. The Editor is G. Freeman Allen, and contributions are included from various well-known and authoritative writers. The scheme behind these "*Rounds*" is that each booklet will present a selection of articles and photographs dealing largely with the strongly individual practices of earlier, more colourful railway days, and with the various special characteristics that distinguished the principal main lines before the present age of standardization.

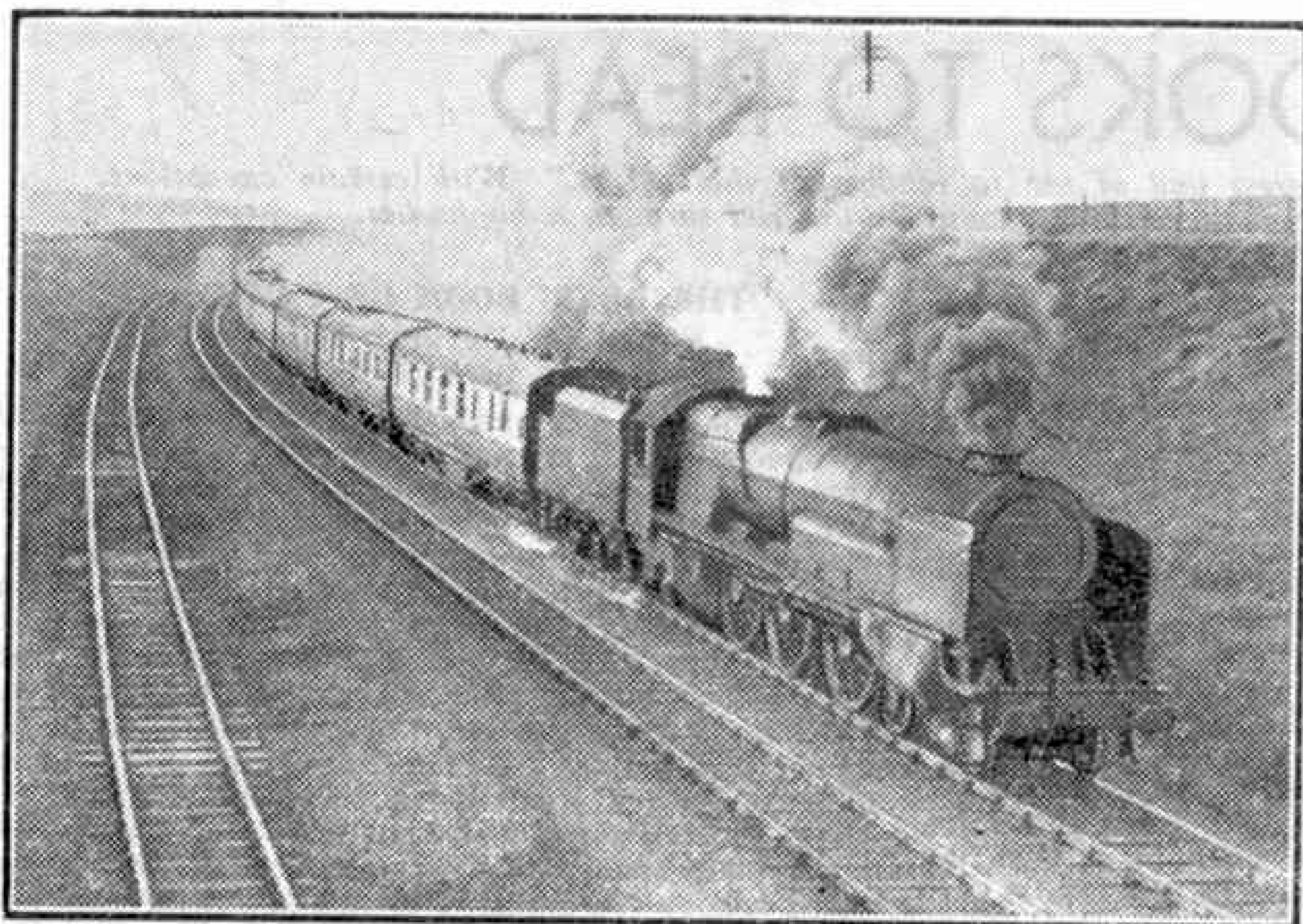
"*Round*" No. 1 gives a promising start to the series, the subjects including main line locomotive working of to-day in the two regions concerned. Various local railways and railway centres are described, and there are interesting chapters on pre-group coaching stock and signalling practice. The photographs are well reproduced.

Copies can be obtained from bookstalls and Ian Allan agents, or direct from the publishers at 33, Knollys Road, Streatham, London S.W.16, for 2/9, including postage.

"THE DRAGONFLIES OF THE BRITISH ISLES"

By CYNTHIA LONGFIELD, F.R.E.S.
(Warne. 17/6)

Every reader of the "M.M." must have been greatly impressed when seeing dragonflies, those biplanes of Nature, buzzing around in the Spring and Summer. For those who wish to know more about these wonderful insects this book will provide a store of good reading. It deals fully with every type, explaining the marvellous transformations that make up the life histories of the species concerned, and there are actual size photographs and many other illustrations that will enable each to be recognized. Methods of collecting, preserving and breeding also are explained, and a special attraction is a set of reproductions of original colour drawings of British dragonflies in the form of 12 full page plates.



The London Midland "Turbomotive" on the 5.25 p.m. up from Liverpool.
Photograph by R. Whitfield.

Railway Notes

By R. A. H. Weight

National and Scottish News

As we write the holiday season is at its height in appropriately hot weather. The railways are busy, and many excursions and other pre-war facilities have returned, providing no end of scope for the railway enthusiast or lineside recorder, be he stationary or able to travel.

There are still many varieties of colour finish to be seen on locomotives and rolling stock. The new blue hue for principal express engines is not greatly in evidence yet. The dark green with orange and black lining, apart of course from the Western Region, has only been noted so far on a few "A2s" of the North Eastern or Scottish Region, but the lined black is to be seen on all sides, though certain Regions and Works thereon are not yet unanimous regarding the types to be so finished. The new red and cream, or plainer red style of painting is appearing more on passenger train vehicles, unless they are parts of electric train stock, when their dress changes if necessary to green. Samples of chocolate and cream as well as the other experimental plum and spilt milk style continue to add variety, as do Pullman cars or the former companies' own colours still much in use and intermingled.

Following recent satisfactory trials from Euston to Glasgow and back, the pioneer main line twin diesel electric locomotives, Nos. 10000 and 10001, began an intended regular service hauling a night express or the "Royal Scot" throughout over the 401½ miles in July last. Some Peppercorn "Pacifics" have been allocated to the Scottish Region.

The annual Royal Highland Agricultural Show held at Dundee this summer necessitated special railway arrangements, which were carried through on a large scale. Esplanade Station, near the Tay Bridge on the East Coast main line, closed since 1939, was reopened, dealing with more than 53,000 passengers. Magdalen Green and Tay Bridge and West stations also handled heavy passenger, freight or livestock traffic in connection with the Show, which attracted a record attendance. Over 50 special passenger trains were run as well as a number conveying animals and other exhibits, not forgetting

an enormous number of huts, stands or buildings packed in sections.

Southern Tidings

Diesel electric 0-6-0 shunting engines are coming into service from Ashford Works, numbered 15211-25. They are seen working from Norwood Shed and in yards near London. A diesel mechanical locomotive also is under construction.

The first "Leader" class 0-6-6-0, double-ended 6-cyl. steam locomotive of novel, all enclosed design, No. 36001, was completed at Brighton in time to commence trials at the end of June last; two more are in hand, a total of five being on order.

"Battle of Britain" 4-6-2s numbered from 34091 up are being built, mainly at Brighton. Five Wainwright "H" 0-4-4Ts have been fitted with pull-and-push gear for local service from Tonbridge, Tunbridge Wells or elsewhere. Most of the Tonbridge passenger longer distance

duties are now worked by "L" class engines, several of which are lately ex Works in smart lined black finish.

No. 2423 "The Needles" is the first of the newer Brighton "H2" 4-4-2s to be scrapped; No. 32421 "South Foreland" is finished in lined black style, and has lately hauled extra Newhaven boat trains as well as through L.M.R. expresses between Brighton and Willesden Junction. A variety of tender, tank or mixed traffic locomotives is seen sharing the working between various points of the restored Midlands through trains to the Sussex coast resorts. On Saturdays, in between Newhaven boat train journeys, one of the electric engines also is employed. For example No. 20002 finished in blue was seen at the head of eight W.R. corridor coaches from Polegate to Brighton.

Several more L.S.W.R. 4-4-0s have been condemned. Some "T9s" were again assisting with Kent Coast summer traffic via Chatham, which route sees considerable usage of "King Arthurs" among other types. Many mixed traffic as well as some goods locomotives were seen on holiday trains.

A run on the 1.15 p.m. Kent coast express from Charing Cross to Ashford provided a good log behind "Schools" 4-4-0 "Whitgift," working through to Ramsgate in place of the usual "Battle of Britain" 4-6-2. A maximum of 78 m.p.h. was touched on the descent from Sevenoaks, Tonbridge being passed in 38 min. from Waterloo with 340 tons, and 70 m.p.h. was averaged from Paddock Wood to Headcorn through the Weald of Kent, producing a net time, allowing for permanent way slowing, of 64 min. for the 55½ miles to Ashford, allowed 65½ min. in the service time table.

With the fast-timed 7.25 p.m. down over the difficult Hastings route with a lighter 8-coach train, "Lancing" left London Bridge 3 min. late, was checked by signal at Sevenoaks, but was almost punctual at Tunbridge Wells and quite so by the time Crowhurst was reached. Twice 74-75 m.p.h. was touched, though curves and speed restrictions give little opportunity for sustained high speed.

New Type Diesel Locomotive

A new type of 4-8-4 main line diesel locomotive is under construction at Derby, in which power from the engines is transmitted mechanically to the driving wheels instead of electrically. The engine will be numbered 10100, and will have driving cabs at each end. It will be provided with four supercharged diesel engines, each capable of developing 500 h.p.,

housed in pairs at the ends. They will be coupled to the driving wheels through a new patented system of transmission with fluid couplings and a gear-box, in such a manner that the main engine horsepower can be maintained as nearly constant as possible over the designed range of engine speeds, which will go up to 84 m.p.h.

The locomotive will be available for mixed traffic work over many routes, if present plans mature.

London Midland Regional Notes

During a recent visit to Camden Locomotive Shed, London, the writer saw an interesting variety of 4-6-2 engines standing close together. They included No. 46202, the "Turbomotive," No. 46211, "Queen Maud" of the first "Princess" series, No. 46256, "Sir William Stanier, F.R.S.," fitted with electric light and roller bearings, and two of the "Cities," one of which had lately had the streamlined casing removed, therefore displaying a differently shaped smoke-box. No streamlined locomotive is now running. Some had the "straw" lining, others were plain black. The British Railways' crest appeared on a few tenders. The newest class "5" 4-6-0 observed was No. 44665.

Hard upon the news that the last "Claughton" and "Prince of Wales" 4-6-0s had been withdrawn, comes tidings that the sole surviving "Precursor" 4-4-0, No. 25297 "Sirocco," is condemned. It was built in 1904 as L.N.W.R. No. 643, a simple 4-4-0, being one of Mr. Whale's first express class of 130 "Precursors," which rapidly replaced the Webb compounds. It was rebuilt with superheater in 1915, later becoming L.M.S. No. 5297, and then 25297. It is considerably older therefore than the "Claughtons" or "Princes," and belongs to the era preceding the "George V" 4-4-0s, now all scrapped. Many of the "Precursors" were modified to this superheated, larger cylinder, piston valve, extended smoke-box



L.M.S. 4-6-0 No. 25673 "Lusitania." This was the last named engine of the now extinct L.N.W.R. "Prince of Wales" class. British Railways Official Photograph.

design, and fine work they did for their size.

Irish Railway News

From Northern Ireland we learn that the new "VS" 3-cylinder simple 4-4-0s have been fitted with smoke deflectors similar to those on the S.R. These engines haul the "Enterprise" Belfast-Dublin expresses, on which the "V" 4-4-0 compounds are also seen. Three of the latter have been fitted with Belpaire boilers, as on the latest "VS" type.

Five very old 0-6-0s were lately scrapped by the G.N.R. (I). This system has been partly merged in The Ulster Transport Authority, though operating responsibility may continue much as now.

Diesel-electric shunting or mixed traffic locomotives are in service, or nearly ready for it, on the C.I.E. system in Eire. One of the much-rebuilt Great Southern 4-6-0s No. 401 is now a 2-cylinder large-boilered engine with piston valves and Walschaerts gear, the Caprotti valves having been removed.

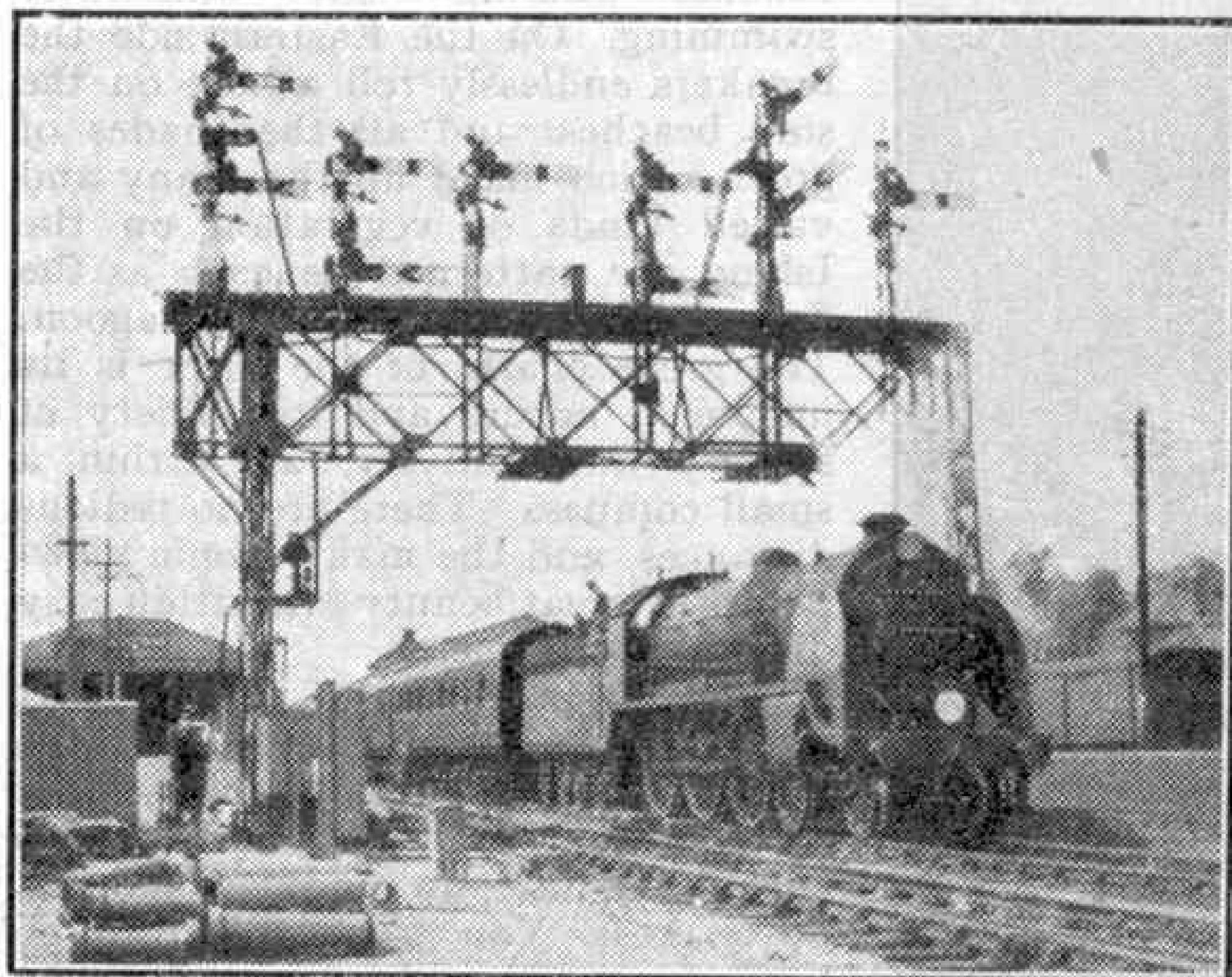
Western Region

Locomotives completed in quick succession, 4-6-0s No. 7021, "Haverfordwest Castle," No. 7022, "Hereford Castle," No. 7023, "Penrice Castle" and No. 7024, "Powis Castle" were in service by July last. The first two are stationed in S. Wales, as are Nos. 7018/20; No. 7019 is at Bristol, Bath Road.

New type 0-6-0T construction has begun at Swindon and Nos. 1500-2 are already in service. New 0-6-0T Nos. 8400-1 were received from outside builders during July.

Conversion from oil to coal burning, with restoration of previous numbers when necessary, continues to be effected.

No. 7012 "Barry Castle," working through with the Swansea express due Paddington at 9.0 p.m. with a load of about 410 tons gross, left Newport 13 min. late, was badly delayed by signals before Severn Tunnel Junction, afterwards taking things gently up the steep rise from the Severn Tunnel and over the easier uphill stretches to Badminton. There was a signal check at Somerford, so the 50½ miles from Newport to the Bristol main line at Wootton Bassett occupied 71½ min. Thereafter came a spirited bid to regain all lost time, since the 83½ miles into Paddington occupied only 78½ min., with an average of 66.8 m.p.h. over the favourable road between Swindon and Ealing, thus bringing the train into London punctually.



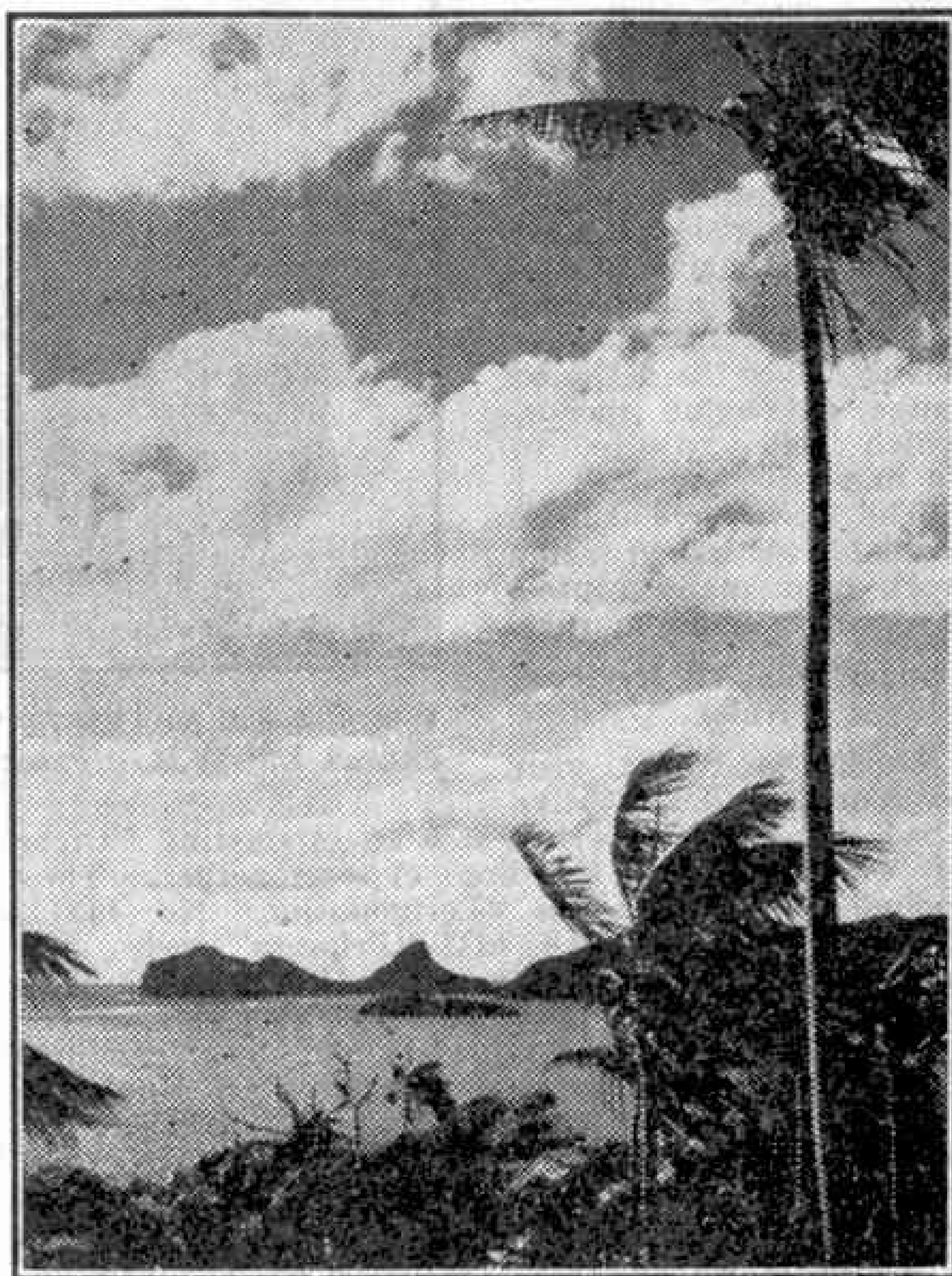
An interesting Southern scene at Basingstoke. The engine on the up train is N15 4-6-0 "Queen Guinevere." Photograph by H. M. Madgwick.

Lord Howe Island

THE Lord Howe Island service, operated by Qantas Empire Airways "Catalina," commenced on 3rd December 1947. Actually, although regularly once a week, the service is a chartered one. The "Catalina" flying boat has been specially modified to suit requirements for a passenger service. Portholes and comfortable seating for 14 passengers have been installed and the journey of slightly over three hours is accomplished in comfort and with a wide view for seeing what there is to be seen.

The passengers who fly the 482 miles between Sydney and Lord Howe are mainly tourists, for this island is a delightful little pleasure resort complete with lagoon. Roughly crescent shaped, with a magnificent coral reef shielding the concave side, the enclosed lagoon offers a safe alighting and taking-off area for flying boats. Aircraft arrive at the Island at approximately high tide, thus accounting for some early morning departures from Sydney.

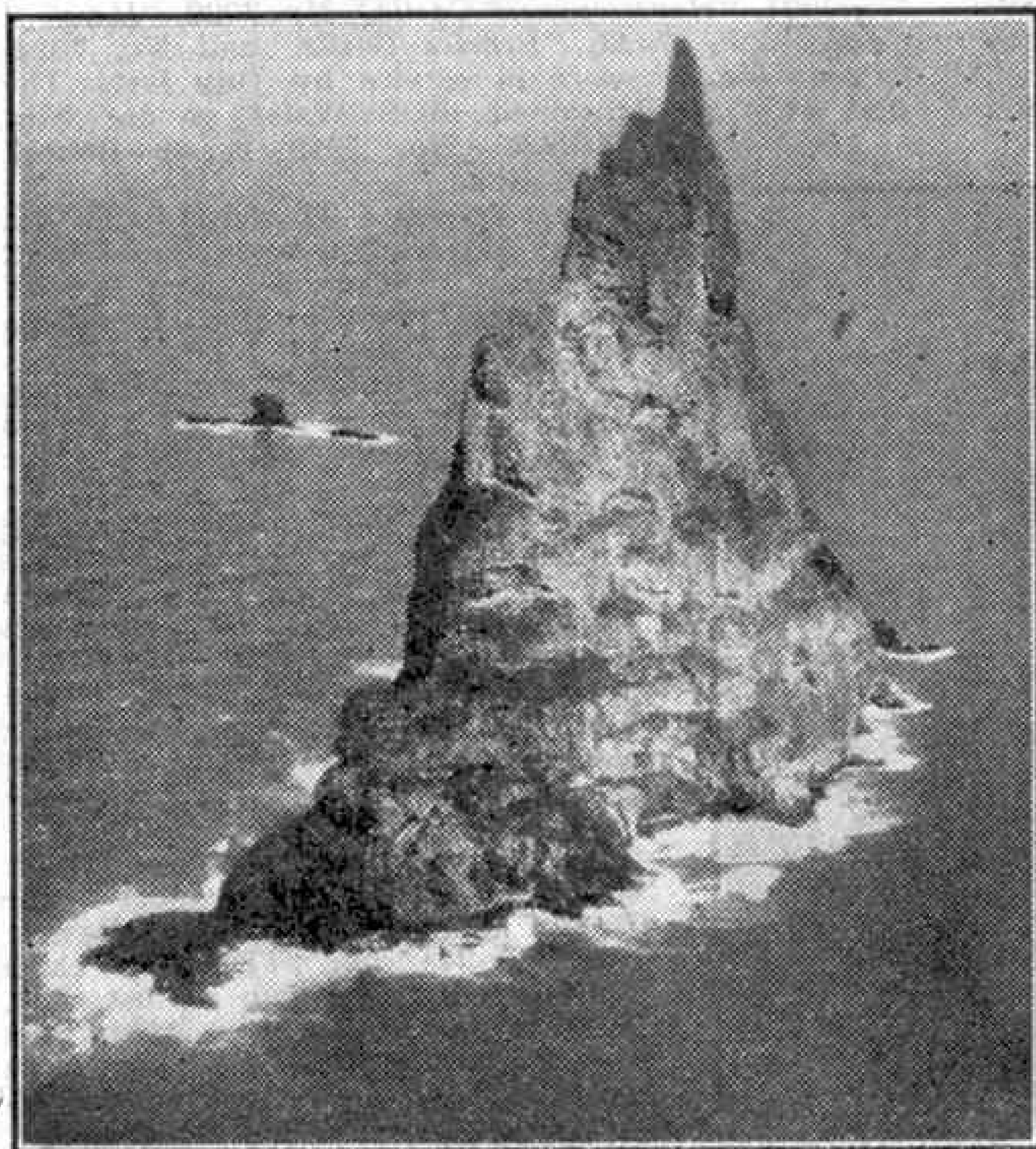
From the air the straightforward loveliness of the place is immediately apparent. The deep blue water changes to greens, browns, and golds where the corals come out of the ocean; and with white water



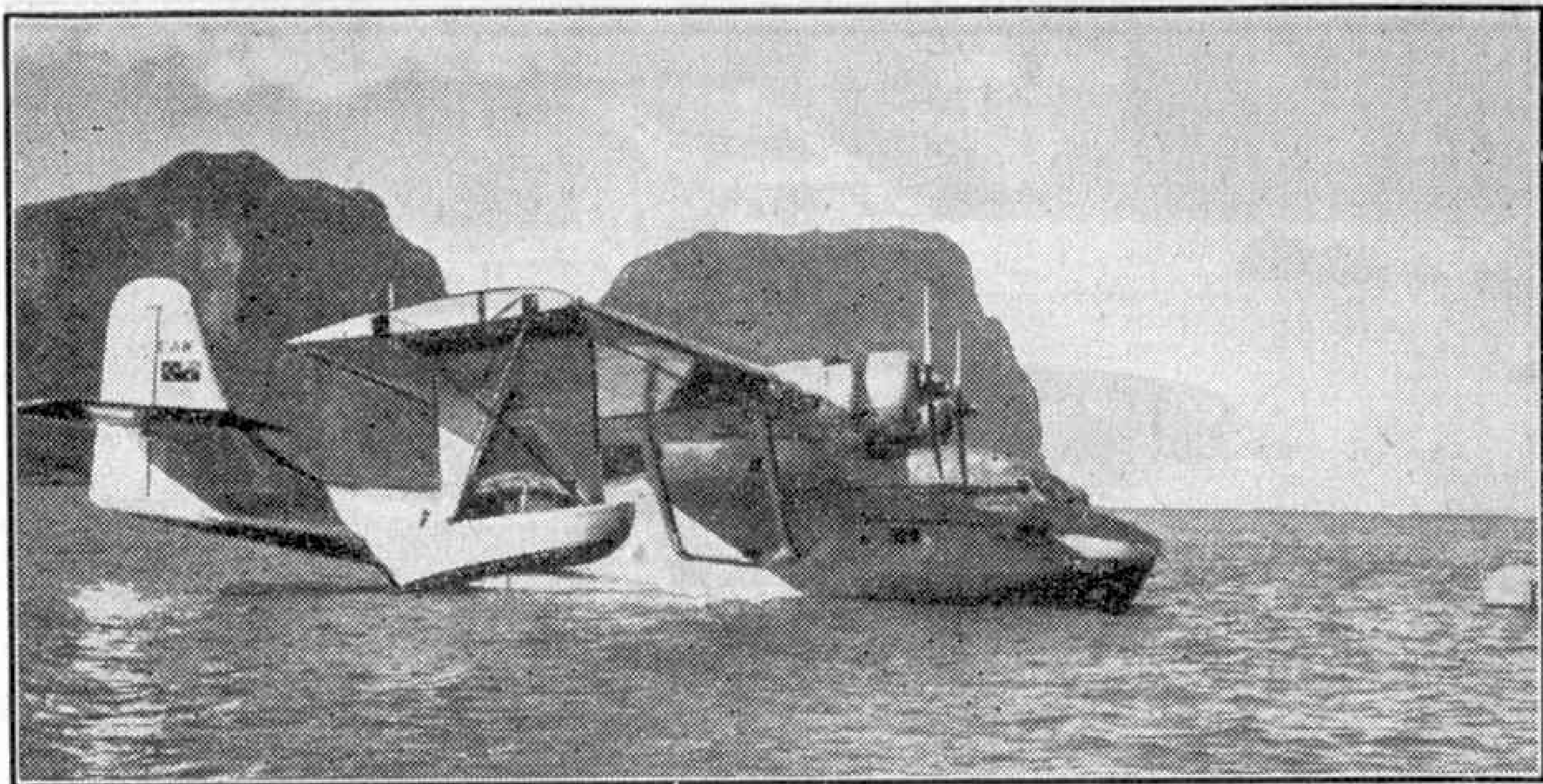
Lord Howe Island, showing Rabbit Island in the lagoon and Mt. Eliza just beyond. For the accompanying photographs and that on which our cover is based we are indebted to Qantas Empire Airways Ltd.

fringing their bases, two great mountains nearly 3,000 ft. high fall sheer to the surge of the South Pacific. On the landward side they sweep down to the lagoon, an area of iridescent opal with over three miles of sun-bleached beaches offering safe still-water swimming. On the Eastern side the breakers endlessly roll ashore on the surf beaches, and all the shades of green which make up the many and varied kinds of vegetation on the Island are patterned beneath as the flying boat swings low to the lagoon. The great charm of the place is its unspoiled nature and its variety of scenery and activity, all within a small compass. There are no tedious distances, and the many scenic viewpoints of great beauty are within easy distance of home.

With its profusion of palms, great mountains and coral reefs it has a tropical appearance without any tropical disadvantages. There is no enervating heat, no sandflies, malaria, or snakes. You can walk through long grass or bushland anywhere on the Island with perfect safety. It is a place where you can be as busy as



Ball's Pyramid, off Lord Howe Island.



Qantas Empire Airways' "Catalina" flying boat at Lord Howe Island.

you like or where you can laze the days away. A seabreeze blowing most of the time feels clean and fresh.

Naturally it is not always drenched in sunshine. Lord Howe lies in the North Tasman, and is subject at times to strong winds and high seas. It is never very cold, as the warm current responsible for the most southerly coral reef in the world helps to maintain an equable climate which rarely goes below 60 or above 80 degrees. Rainfall is about 75 in. annually. When it is windy on one side of the Island one can surf and sunbake on the lee side

less than 30 minutes' walk from the house.

One of Lord Howe Island's greatest assets is fishing. About 300 square miles of water less than 100 fathoms deep surround the island, which are great feeding and breeding grounds for fish of various kinds. Kingfish, trevally, salmon, bonito and black rock cod and bluefish are plentiful. In recent years two black marlin up to 10 ft. long and Spanish mackerel up to 6 ft. long have been boated. Yellow fin tuna are taken every month of the year and average 60 to 80 lb., while some up to 250 lb. have been taken.

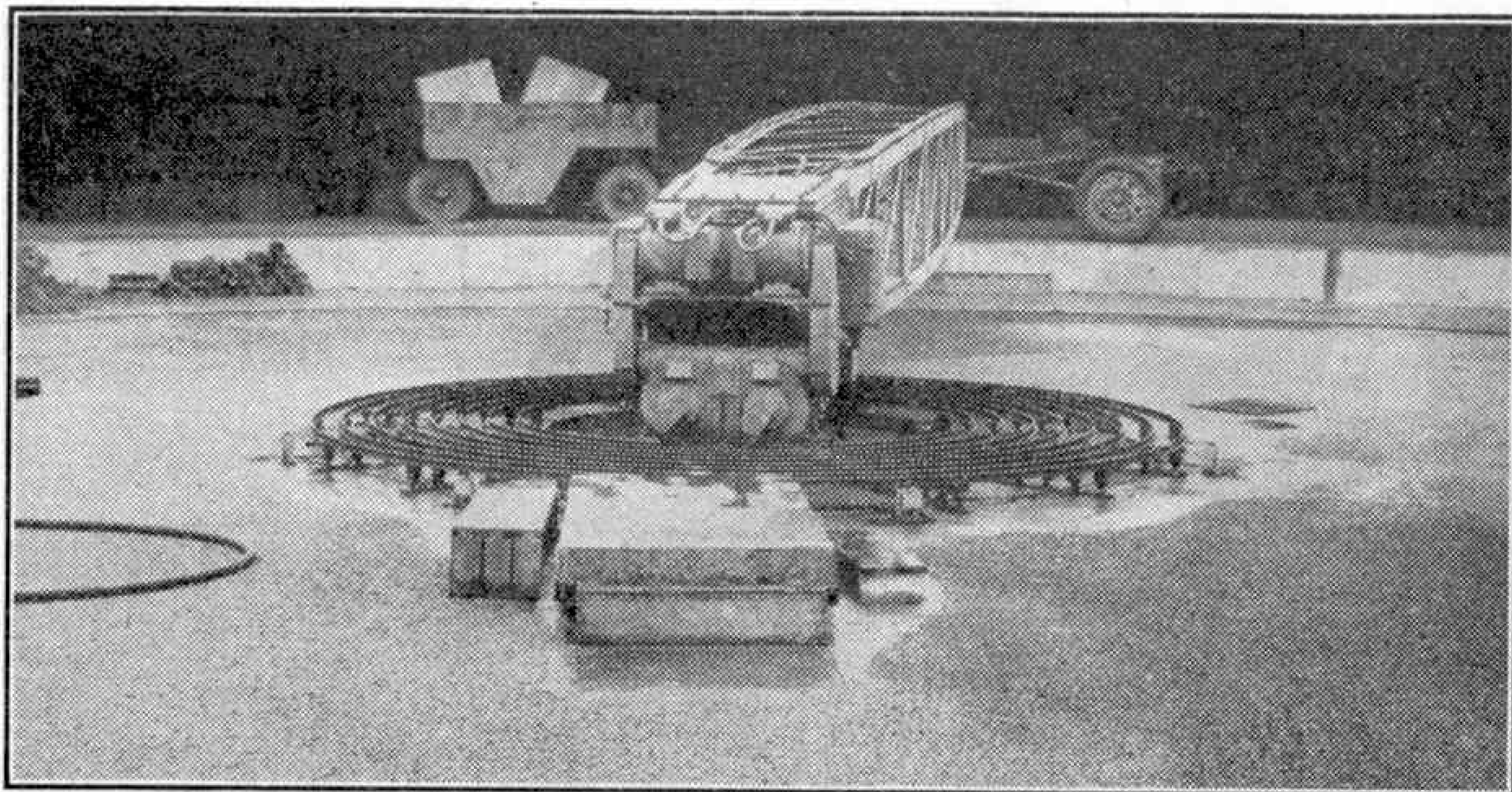
The World's Champion Diver

THE world's greatest animal deep sea diver and underwater swimmer is the bottle-nosed whale, which apparently thinks nothing of staying under water two hours. Whales generally are not fancy divers, but they are marvellously efficient, penetrating to enormous depths in their downward plunges. On one occasion a pressure gauge attached to a harpoon fired into a fin whale showed that a depth of 1,164 ft. was reached in one of its dives, and on returning to the surface the creature was still capable of towing a whaleboat for half an hour.

By comparison man is very feeble as a diver and underwater swimmer. He can get into the water by various graceful acrobatics, but can stay below the surface only for two to five minutes, and he cannot go very far down without being liable to an attack of bends or severe

pains caused by the sudden release in the blood of bubbles of nitrogen on returning quickly to the surface. His lungs are capable of storing little more than 2,300 cc. of oxygen, or about four pints, and this will last for only about four minutes when he is swimming. The whale on the other hand has a capacity of something like 1,000 times this amount of oxygen, an amount that is sufficient to keep it going for nearly an hour when swimming under water. It is not greatly troubled by bends, possibly because pressure thickens the walls of its lung cells so much that the nitrogen cannot easily pass through them and so find its way into the blood.

In general the greater the animal the higher its power of swimming under water. Yet the hippopotamus can only remain completely submerged for about 50 sec., while the beaver and the seal, both much smaller creatures, are capable of remaining under water for as long as 15 minutes.



The road machine at the Road Research Laboratory, Harmondsworth. A lorry chassis is whirled round by an electrically-operated steel arm to make tests of road materials and surfaces.

Making Britain's Roads Safer

The Work of the Road Research Laboratory

By W. H. Owens

IN Britain's Road Research Laboratory at Harmondsworth, Middlesex, scientists are working to give this country the smoothest and safest roads in the world, along which traffic of all kinds may move expeditiously, economically and comfortably. By making continuous laboratory tests, combined with many experiments under normal traffic conditions on the open highways, these experts are finding out all they can about road foundations and surfacings, why roads fail or are dangerous to traffic, what causes road accidents, and so on.

The cost of this research is money well spent in the interest of the whole nation. Roads concern everybody nowadays, and in a densely populated country like Great Britain, where they are used by large numbers of motor vehicles all the time, safety and efficiency are of first-rate importance. More than £70,000,000 a year is spent upon the upkeep and development of our roads. Science can help to reduce this burden by finding out how roads can be built to last longer and give greater service to the community.

The Road Research Laboratory was founded by the Ministry of Transport in 1929 and became a branch of the Depart-

ment of Scientific and Industrial Research in 1933. As a result of the work already accomplished, lasting improvements have been made to main highways in many parts of the country.

A wider knowledge of our native soils and of road-making materials, more scientific methods of construction, and the development of more durable anti-skid surfacings have helped to reduce not only highway costs, but also the heavy toll of road accidents. Road failures of all kinds have been investigated and the causes of these failures have been made known.

The Harmondsworth scientists have even assisted road engineers in many parts of the British Empire by undertaking the analysis of tropical soils, and so on. During the war they assisted materially with emergency road and airfield construction. And it was these experts who analysed samples of soil taken by Commandos from the Normandy beaches chosen for the D-Day invasion, thereby providing the Allied Command with advance information on the tank and vehicle bearing properties of those landing places.

Road research embraces a very wide field of investigation, ranging from soil mechanics to the study of the behaviour

of road vehicles and road users themselves. But since every good road must depend, first and foremost, upon good foundations, the study of soils is a fundamental problem. While the pioneers of our modern road system realized the importance of soil in supporting traffic loads, they were greatly handicapped through lack of knowledge of the properties of different soils and could not devise the means to measure them. In fact, it is only within the last 15 years that the necessary knowledge has begun to be acquired.

Soil experiments at Harmondsworth are concerned largely with the problem of compacting and stabilizing soils, so as to provide a firm foundation that will bear the road and its traffic loads over a long period. In a country of such diverse rocks as Great Britain the soils vary considerably in composition, and consequently in bearing power. So an important task being undertaken is the examination of the full range of British soils and the classification of these according to their properties.

To do this work the scientists must collect soil samples from all over the country, and for this purpose they use specially designed and equipped mobile laboratories. Such laboratories, incidentally, play an important part in the whole research programme. They are used not only for collecting soil or road samples, but also for various laboratory experiments of a kind that must be carried out on the actual site. The vehicles range from a simple light van to a heavy 4-wheel trailer equipped with a 100-ton testing machine. Field laboratories are also set up, where required, in temporary huts.

Back at Harmondsworth a series of physical and chemical experiments are made with the soil samples, and they undergo compaction tests as a means of finding out how the bearing power of each may be increased. The amount by which a soil can be usefully compacted depends on the kind of soil and the amount of water

it contains; and for each soil there is a definite moisture content at which the best results can be obtained. So tests are made to determine what this is in each case.

The compaction tests are made with a large Road Machine installed at the Laboratory. This consists of a lorry chassis, pivoted on an electrically-operated steel arm, which draws various types of compaction roller over sections of soil laid on a wide circular track. After each series of passes the density of the soil is scientifically determined. Experiments are repeated for a variety of moisture contents, and in this way valuable information is being accumulated about the whole range of typical British soils.

On all big highway constructional schemes nowadays it is usual for a soil survey to be carried out beforehand. The Road Research Laboratory undertook such surveys on several trunk road sites before the war, but since then simpler and more rapid methods have been evolved. By means of the soil survey the engineer is able to explore the nature and types of subsoil along the line of the road and to design his road structure accordingly. It is an insurance against trouble caused by unforeseen foundation conditions.

Finding out the best way to use bituminous materials in road construction

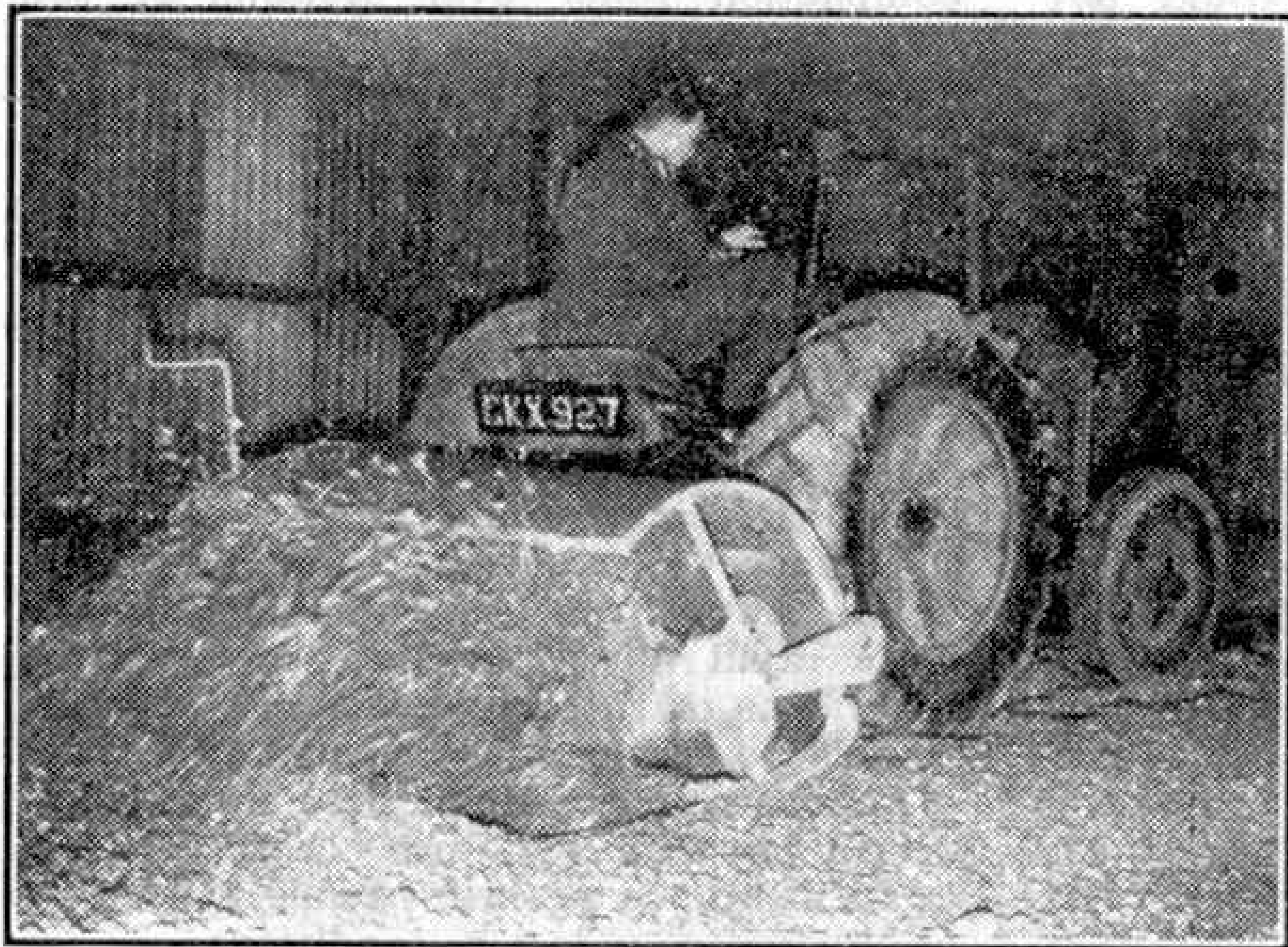


The control room for the working of the road machine.

occupies the time of another group of scientists at Harmondsworth. The physical and chemical properties of the constituents of these materials are investigated under controlled temperature conditions in the laboratory. Experimental non-skid surfacings are designed as a result of these preliminary investigations, and the

surfacing undergo rigid tests, not only indoors, but also on the highways under ordinary traffic and weather conditions. The outdoor tests serve to check the results of the laboratory investigations.

An extensive series of full-scale road experiments are undertaken in co-operation with the Ministry of Transport and local authorities. On about two miles of the



Mixing soil before rolling in tests of its suitability for road making.

Colnbrook By-Pass section of the London to Bath Road, which runs by the gates of the Harmondsworth headquarters, upwards of one thousand short sections of different thin surfacing compositions have been examined over the past twelve years.

Other road experiments of this kind are in progress on more than 30 other sites in England and Scotland, each of which is made with the primary object of solving local problems in connection with road surfacings. The first experiments in Scotland were made during the war to find out to what extent the results obtained on the Colnbrook By-Pass could be applied to localities with more extreme climatic conditions. Much attention is given to the problem of designing surfacings suited to local conditions of traffic and climate, and using local road stones and binders.

Yet another group at Harmondsworth is concerned with investigations into the problems and deficiencies of concrete roads. Concrete is a widely used material for modern highway construction, but there have been a good many failures due either to poor mixing, bad laying, or deficiency in the standard of materials. In the past, local authorities had no means of checking up on the quality of concrete work laid

down by their contractors, and they had no redress if the road failed to achieve the results expected of it. Now, however, the Road Research scientists help by testing samples of newly-laid concrete roads to obtain satisfaction that the material has been laid according to contract.

A lorry equipped with concrete-boring apparatus is sent out to collect sample 6-inch cores from road sections requiring investigation. When they are returned to the Laboratory, the cores are placed in turn in testing machines, which exert pressure on them to the point of destruction. Results of these and other tests show whether the concrete has been properly mixed and is of the required strength, if the steel reinforcement is good, and if the expansion joints are in order.

All the Laboratory's work on concrete roads is done in close co-operation with road engineers and the Cement and Concrete Association. This side of the

research programme involves study of the problems of concrete mixing, of mixer design and performance, and also of the compaction of concrete by vibration. For the purpose of experiment large numbers of concrete specimens have to be made and tested under accurately controlled conditions in the Laboratory.

Another aspect of concrete road research concerns the design of road slabs, and spacing and construction of joints, and the properties of jointing materials. Experimental concrete carpets are laid down on Ministry of Transport highways, so that full-scale trials may be carried out. As in the case of bituminous surfacings, scientists examine the results under traffic wear and exposure to weather over specified periods, and check up these results with their laboratory findings.

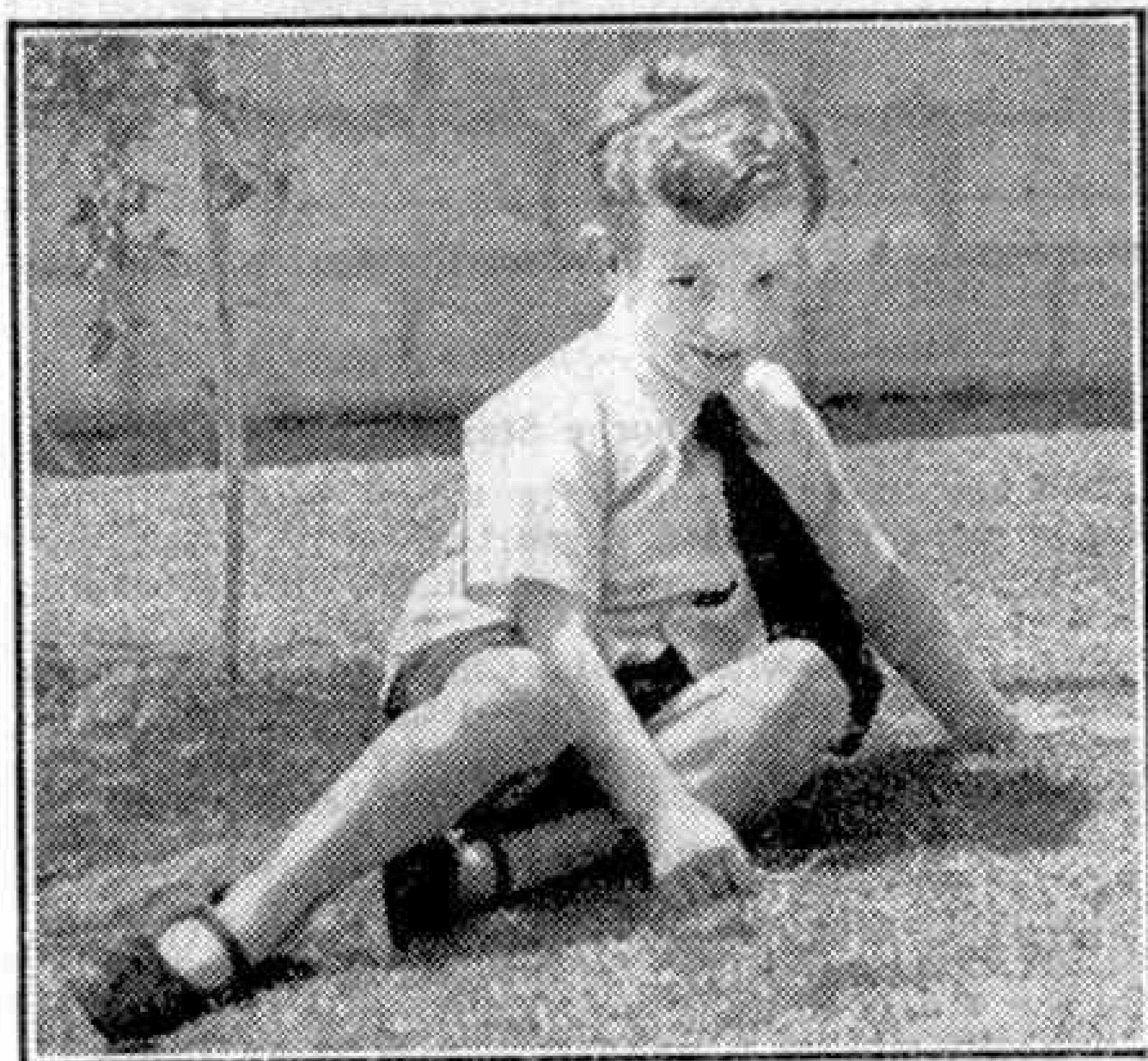
The study of roads from the angle of safety involves research and experiment of a different kind, much of it done outdoors on site. Road safety research has been embarked upon only in the last few years and is therefore very much in the preliminary stages. At present it is being studied under three main headings; namely, the Road, the Vehicle and the Road User.

Under the first of (Continued on page 362)

Photography

Preparing the Holiday Album

THE improved supplies of photographic materials will have enabled many "M.M." readers to make good use of their cameras this summer, and by now they probably have a good stock of holiday prints. These prints should not be kept lying about loose, as they soon become soiled and crumpled, and then cease to give pleasure. They should be looked over critically, and the best selected and put into an album. This will keep them clean, and provide a fascinating permanent record of summer activities.



"Chris." Photograph by B. Chulindra, Helland Bridge.

Some readers prefer the "slip in" type of album, in which the pictures are inserted into openings provided for them on the page. A drawback to this sort of album is that the size and shape of the openings are fixed, and quite often do not show one's prints to the best advantage. The alternative is the "paste-on" album, which allows us to trim our prints to the most effective proportions, and by getting rid of uninteresting expanses of sky or foreground bring into prominence the best part of the picture.

In trimming, care should be taken that the edge of the print is parallel with the horizon or any buildings that happen to be in the picture. The actual cutting should not be done with scissors, but with a sharp pocket knife and a steel straightedge, unless of course you are the fortunate possessor of a print trimmer. Another point, readers who prepare their own prints should not trim them until they are quite dry or they will tear in the process.

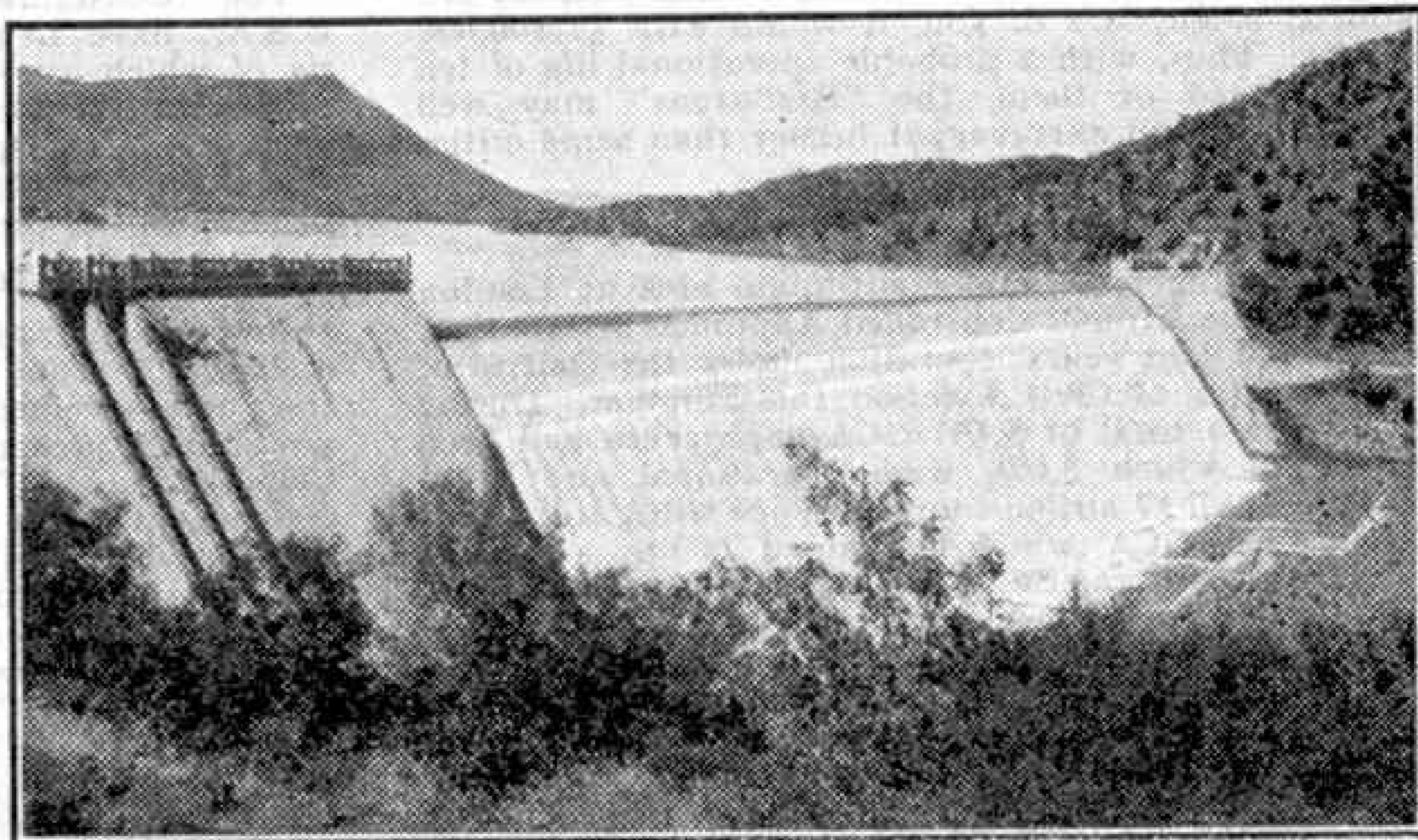
The layout of the album pages should be planned before actually mounting the pictures, by moving the chosen prints about on the page until the most suitable arrangement is found. A series of pictures "telling a story" should have a page to themselves, and care be taken to



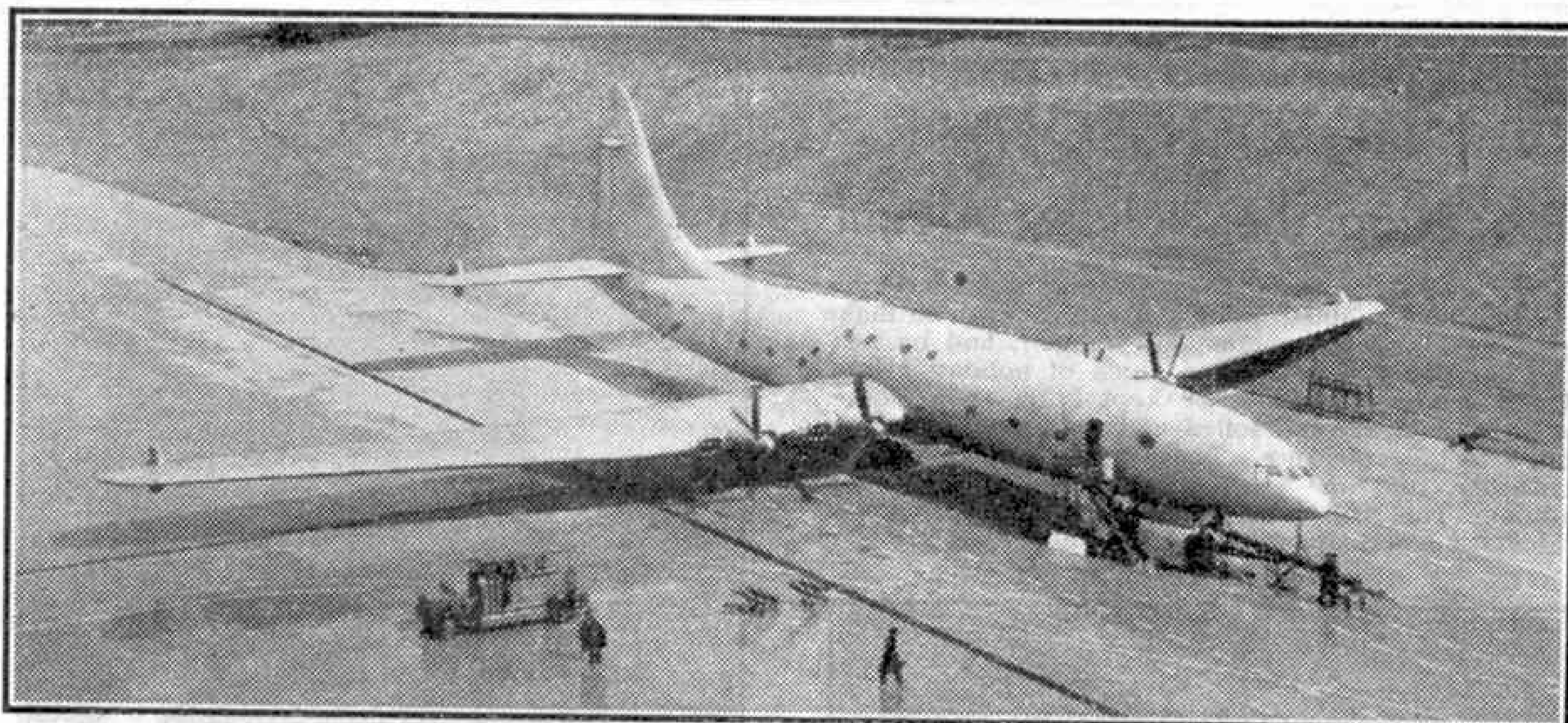
The Village Flour Mill. Photograph by R. L. Barnes, Ealing.

arrange them in the correct sequence. The actual mounting of the prints can be done easily and cleanly with one of the ready-made mountants obtainable from any photographic chemist. When all the prints that are to be mounted at the time are finished, the album should be placed under light pressure, such as that of a few books. This will prevent the leaves and prints from "cockling" as the mountant dries. It should be left like this for a day or so.

A holiday album prepared in this way is a lasting source of pleasure both to ourselves and our friends. Its attractiveness is increased if the title is neatly written beneath each print. The place and date of the photograph should be added.



Loskor Dam, Eastern Transvaal. Photograph by R. R. Vrnjas, Johannesburg.



The giant British air liner Bristol "Brabazon" I. This photograph and the upper one on the next page are by courtesy of The Bristol Aeroplane Co. Ltd.

Air News

"Brabazon" Progress

Latest news of the "Brabazon" I is that a Bristol twin-"Centaurus" power plant of the type especially developed for this giant air liner has successfully completed its Air Registration Board 150 hrs. type test. It is the first coupled power plant to pass the A.R.B. test; before passing it no engine may be fitted to a passenger-carrying aeroplane.

For the purpose of the test the two coupled engines, which are geared to drive counter-rotating propellers, were mounted in a test rig representing a 21 ft. wide section of the "Brabazon's" wing. They were then run for the full 150 hrs., 80 of them at maximum climb power, afterwards being stripped for examination. All components were found to be in perfect condition, without any sign of the vibration trouble experienced with earlier coupled units.

In view of past criticism of the "Brabazon's" high initial cost, some operating costs recently published are of particular interest. They show that if the "Brabazon" carries 100 passengers between London and New York and operates at an average throughout the year of 65 per cent. full load, on a basis of the present single fare of £80, it would earn £1,300,000 a year. Thus, with a probable operational life of ten years ahead of them, the "Brabazons" may well prove less of an extravagant luxury than some critics have led us to believe.

GCA at London Airport

One of the most important radio aids at London Airport, the Ground Controlled Approach installation, completed two years' operation under the control of the Ministry of Civil Aviation this Summer. During that time a total of 5,161 GCA approaches had been made, of which 3,020 were operational and 2,141 practice. All 17 airline companies operating to London Airport use GCA, which is manned 24 hrs. a day.

GCA is used chiefly to aid aircraft approaching the airport in bad weather, and is operated by controllers in a special mobile van situated at the end of the runway in use. By means of elaborate radar apparatus, they can see the position of the aircraft relative to the runway, and are thus able to tell the pilot what course to steer and height to fly, enabling him to come in "blind" until at such a height that the runway becomes visible.

Airborne Stars

The first large film unit to travel entirely by air was brought to London Airport recently aboard two "Skymasters" belonging to K.L.M., Royal Dutch Airlines. The unit, which was headed by Tyrone Power and his wife Linda Christian, included 94 passengers and over £200,000 worth of filming equipment. Previously it had spent 10 weeks in Marrakesh, Morocco, making a film entitled *"The Black Rose."*

New British Fighters

Preliminary details have been released of two new British high-speed fighters, the Gloster "Meteor" F8 and the Westland "Wyvern" TF2. The "Meteor" F8 is basically similar to the well-known Mark 4, but its tail end has been revised by fitting a more sweptback, square-cut tailplane, flattening the top of the fin and rudder and dispensing with the under keel surface or tail skid. In addition, it has a new single-piece cockpit hood and extended front fuselage, giving promise of even higher performance than the Mark 4.

Little may be said yet about the "Wyvern" TF2, except that it is powered by an Armstrong-Siddeley "Python" propjet and is a carrier-based torpedo-fighter.

The B-36 Freighter

The Consolidated-Vultee Aircraft Corporation, U.S.A., have developed an all-metal cargo carrier, six of which can be accommodated in the bomb-bay of one of their huge B-36 bombers, enabling it to operate as a transport with a payload of up to 35 tons. The United States Air Force have awarded the Company an initial contract for 190 of these carriers.

Turboprop Transports

Proof of the rapidity with which the propjet engine is emerging from the experimental stage is given in the announcement that two special "Theseus"-powered "Lincolns" operated by R.A.F. Transport Command have between them logged more than 600 hrs. of flying since May 1948. These operations have proved the claim that propjets require less maintenance than piston-engines of comparable power. In fact, new "Theseus" engines require practically no servicing of any kind during their first 200 hrs. running.

Each "Lincoln" has two piston-engines as well as its two "Theseus" propjets, but the piston-engines were retained only because no suitable gearbox had been designed for the "Theseus." So the aircraft have to rely on the piston-engines for all their electrical, hydraulic and other "services."

British European Airways' German Services

A fact not widely known is that for several months British European Airways have been providing not only frequent services between London and the main centres of Western Germany, but also a network of internal services linking those centres with each other.

Throughout the whole period of the Air Lift, except for one short break for technical reasons, B.E.A. have been the only airline operating daily into and out of Berlin from London. They have also operated regular normal services to Hamburg, Frankfurt and Dusseldorf. But their German internal services represent a completely new task for a British airline. The aircraft used on the routes are 27-seat "Vikings," except between Hamburg and Berlin, where special radar-equipped "Dakotas" have to be used to conform with Air Lift requirements.

"Constellation" With Knobs On

Few aircraft have been treated so unkindly as the normally-handsome Lockheed "Constellation" illustrated at the foot of this page. As well as two huge radomes mid-way along the top and bottom of its fuselage, this machine has a lengthened nose and a row of antennae running like spikes along its fuselage, fore and aft of its "humps." The United States Navy, for whom it was built, will release only a few details of this strange "Connie," which is designated PO-1W. But they do admit that it will be used "to test advanced electronic systems designed for installation on service machines"—which is fairly obvious!

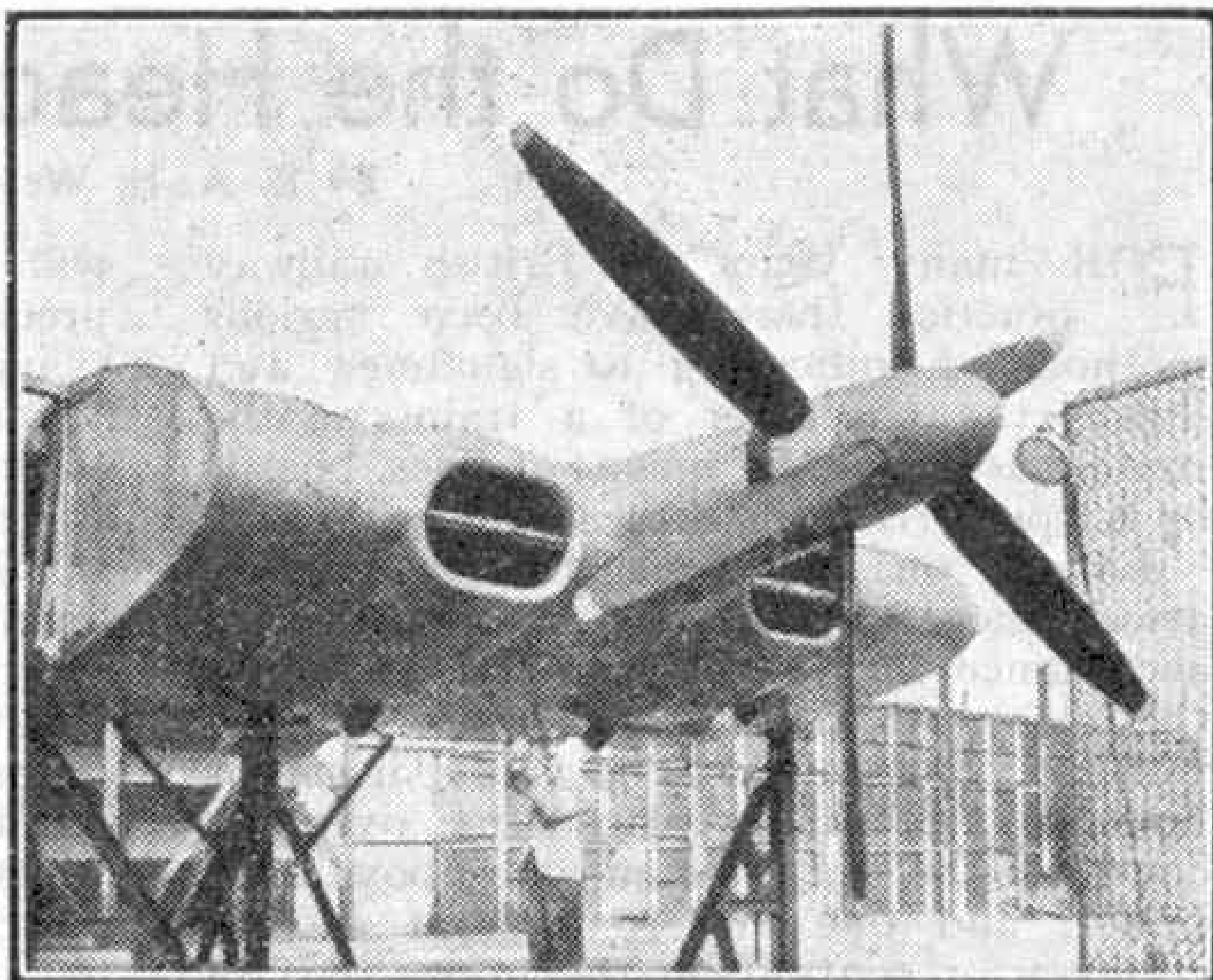
Normal flight crews are carried. In addition, facilities are provided in the cabin for technicians and electronic equipment operators, together with bunks for relief crew members on long flights. An interesting fact is that despite the bulky external equipment Lockheed claim that the "Constellation's" performance has not been materially reduced.

Proposed Emigrant Air Service

A group of 15 former American servicemen are planning to operate a migration service from Naples, Italy, to Sydney, Australia, using three 89-passenger Boeing flying boats. The Boeings will be the largest aircraft serving Australia and will carry 200 emigrants a month.

£10 Return Fare to Paris

Special excursion fares between London and Paris have been introduced by the two principal cross-Channel airlines, British European Airways and Air France. Costing only £10, compared with a normal return fare of £14.8.0, they are available for 30



The "Brabazon" "wing section" rig just before the start of the engine running trials referred to on the previous page.

days and entitle passengers to the full normal baggage allowance and reduction for children's fares. Thus, they compare favourably with the pre-war fare of £7/10/-. The only snag is that passengers must travel during the off-peak hours, between 10 p.m. at night and 8 a.m. in the morning.

Propeller Training Unit

So complex are modern propellers that pilots require special training to enable them to use to best advantage such features as constant-speeding, reversible pitch to reduce landing runs, automatic feathering to reduce drag to a minimum in the event of engine failure, and electric de-icing. To assist pilots destined to fly the giant new Boeing "Stratocruisers," Hamilton Standard Propellers have built a special test rig which enables pilots to practise "Stratocruiser" landing and take-off technique while on the ground.

An operating panel complete with throttle, engine instruments, airspeed indicator and control column enables the pilot to "fly" by manipulating a scale model of the aircraft. The model changes its attitude and the instruments register in response to movements of the controls. On the top panel of the rig, a full-size cutaway specimen of the "Stratocruiser's" Hamilton propeller operates exactly as the four propellers of this giant air liner would operate under similar conditions of flight.



U.S. Navy's PO-1W Lockheed "Constellation" taking off for its first test flight. This version of the famous "Connie" is designed to test airborne electronic devices.

What Do the Headcodes Mean?

By R. A. H. Weight

FOR many years in British railway practice there have been various methods of indicating to signalmen and others the character of a train, or the route it is taking, by means of discs, boards or lamps carried on the engines.

Except on the Southern Region the arrangement of engine headlamps in accordance with a standard code indicates the class of train as scheduled in the working time-table. The lamp irons or brackets are usually placed one over the centre of the buffer beam, one above each buffer, and one either in front of the chimney or centred on the upper part of the smoke-box door. Brackets are fitted in corresponding positions at the rear of tenders or bunkers. Lamps are usually carried in the appropriate positions by day and night, though they are only lighted when necessary. White discs are, however, used by day on the Great Eastern Section of the Eastern Region, and they are also seen sometimes on ex-L.N.E.R. locomotives that happen to be fitted with fixed electric headlamps.

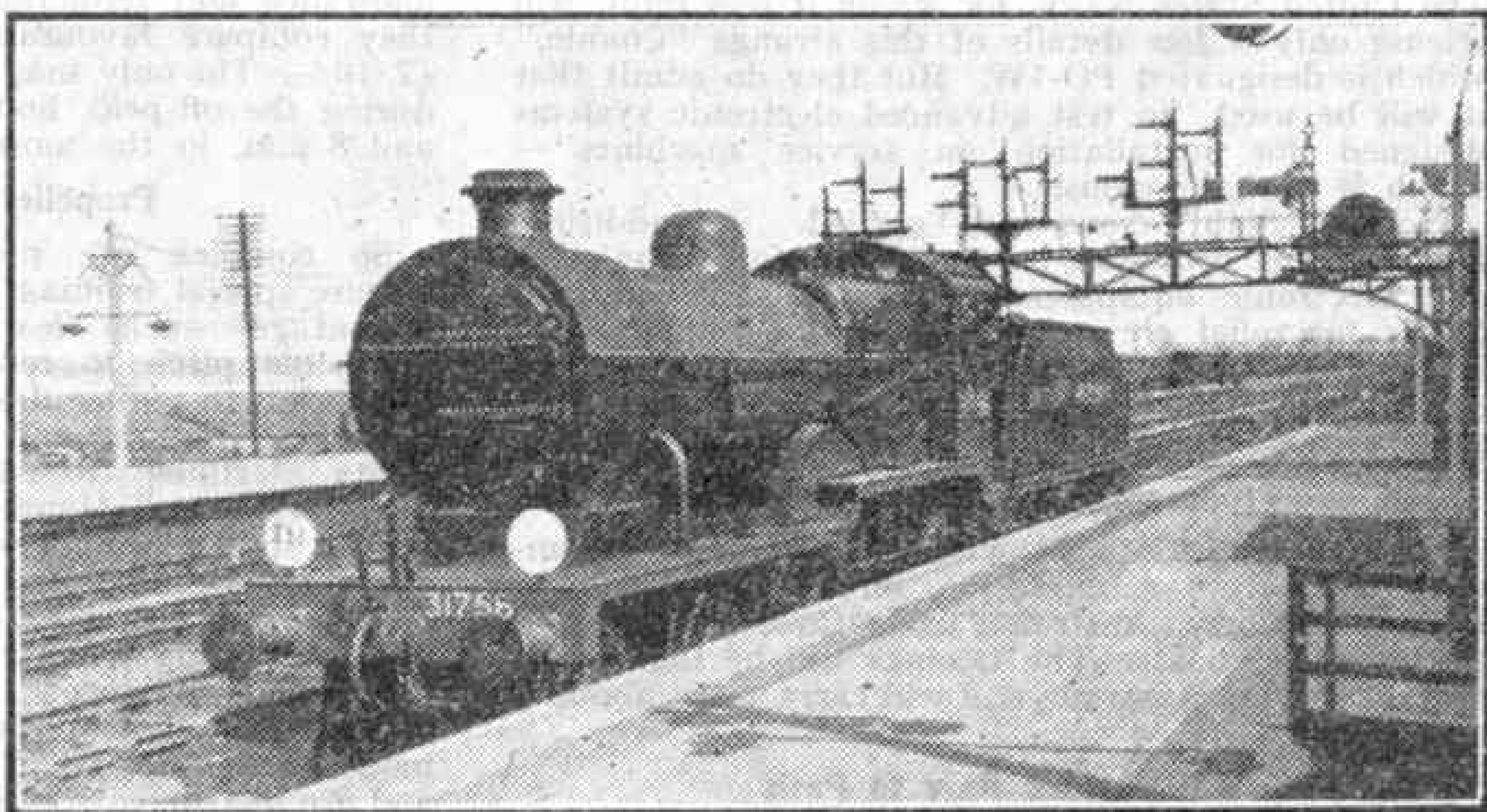
The general rule on most lines in Britain, always excluding the Southern system, is that one headlamp displayed over each buffer indicates an express passenger train, and one in front of the chimney means an ordinary or stopping passenger train.

Other indications involve the lamp iron in the centre of the buffer beam, either alone to denote a light engine or in conjunction with one of the three already mentioned, to describe empty carriage, fitted goods, milk or fish trains, through freight and so on. Mineral empty wagon or stopping goods trains employ one or other of the lamp irons over the buffers. Actual classification and indications still differ slightly between one region and another. Many readers who are accustomed to observing train running

will have become familiar with the more precise interpretations in their own particular districts of the standard headcode.

On the Southern Region there is the complicated and almost innumerable variety of routes available from the London area, involving lines or connecting links built to meet heavy traffic or provide competitive services in years gone by. On this account Southern engine headcodes still indicate the route being followed, not the class of train.

On some of the formerly independent lines, prior to the grouping of the railways in 1923, elaborate codes of differently marked or coloured discs by day, or lamps at night, were developed to indicate the many varieties of route followed. This,



Southern 4-4-0 No. 31756 at Ashford. Note the duty number on one of the route-indicating discs. Photograph by the late A. C. M. Clements.

however, became rather too complicated, especially in the London suburban area. At night green head lights could be confused with signal lights, while purple did not show up well. In more recent years white lights therefore became standard as a general rule for night use, with white discs by day on lines favouring discs, such as those that formed the Southern group. Each different formation tells its own story in accordance with an official code of "*Engine Head Signals*."

Southern Locomotives have in addition to lamp irons in the standard positions a further pair, one on each side of the smoke-box front about its centre line. Some also have the double irons over the buffers that used to be employed a good



An imposing array of discs and lamps typical of L.B.S.C. practice. The engine is one of the well-known 0-4-2 "Gladstones," bound for London Bridge. Photograph by H. Gordon Tidey.

deal by the L.B.S.C. The codes generally seen nowadays only employ one or two discs but there are at least twenty different possibilities with six lamp irons.

Where routes do not overlap, the same headcode can be employed in a number of instances with different meanings on different sections of line. For example, the first illustration shows an "L1" 4-4-0 fresh from Ashford Works, carrying discs to show she is about to traverse the Tonbridge-Redhill or Reading line. This head signal is also carried by boat expresses between Victoria and Kent ports via Orpington and Tonbridge. Trains from Cannon Street to Faversham or beyond via Chislehurst loop and Chatham; also between Bournemouth and Weymouth carry the same indication.

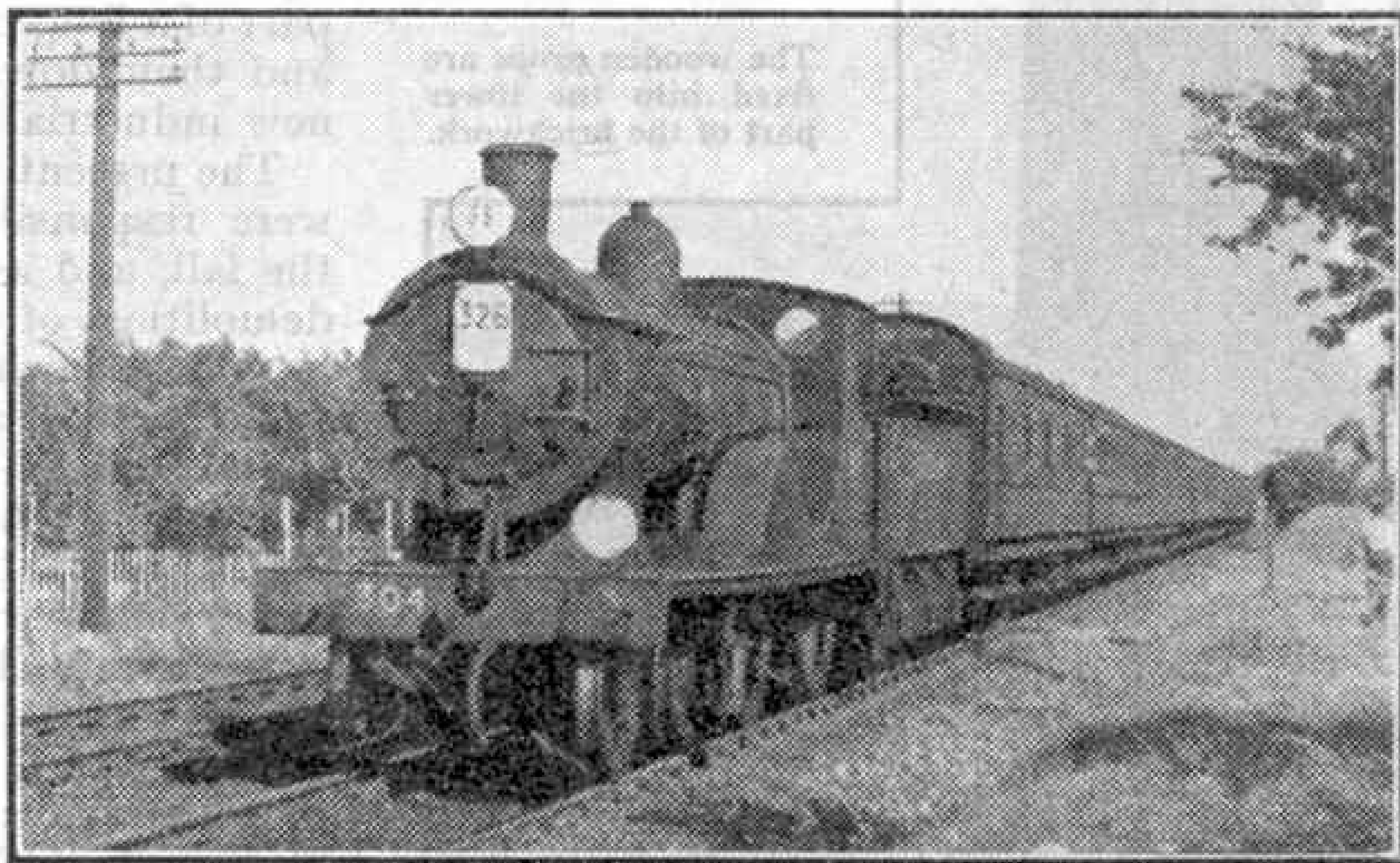
The headcode as seen when facing the engine in the third photograph is used by trains between Victoria and Ramsgate via Chatham; Cannon Street, or Charing Cross and Hastings direct; and by boat trains between Waterloo and Southampton (old) Docks.

Waterloo-Bournemouth engines carry one disc on the right smoke-box bracket and one over left hand buffer; those running along the West of England main line have one at the foot of the chimney and one in the centre of the buffer beam.

It will be observed that one of the discs in each case carries a number. This is another Southern speciality. It is the number of the "duty" upon which the locomotive is engaged for the day. If one knows the code the engine's home-shed can normally be deduced from this number; unless, as sometimes happens for various reasons, an engine is temporarily from another depot. To give a few typical examples, Western Section duty numbers start at 1 for Nine Elms; 101 for Feltham and 380 for Bournemouth.

On the Eastern Section, 1 belongs to Stewarts Lane, 80 to Bricklayers Arms; 340 to Ashford; 400 to St. Leonards and 465 to Ramsgate. On the Central Section there are 501 and 530 respectively for Stewarts Lane and Bricklayers Arms; 655 for Tunbridge Wells and 735 for Brighton. Principal passenger duties come first, then local passenger, fast goods, slow goods, etc. Thus duty 33 operates from Stewarts Lane (London) and 355 from Ashford.

On summer Saturdays and on other busy days S.R. trains traversing main lines display their running numbers used for reference in staff special working notices. These are carried on extra headboards, such as 326 in the picture below, which was the 3.36 p.m. from Ramsgate to Victoria.



A Drummond 4-4-0 with an up Ramsgate holiday special carrying the train number on the smoke-box front. Photograph by D. L. Bradley.

Felling a Chimney Stack

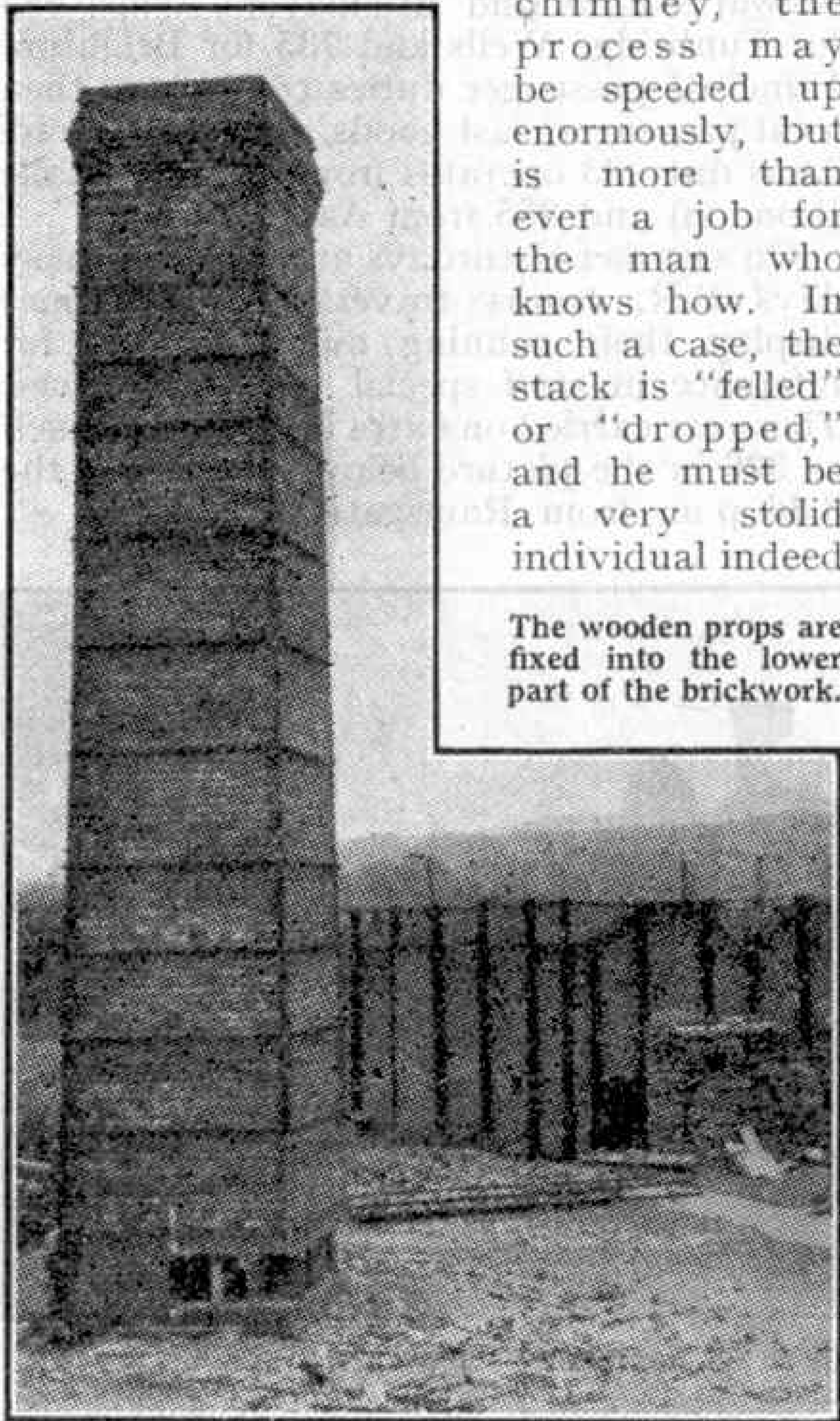
By Frank Harris, A.R.P.S.

EVERY town-dweller has long since learned to regard a forest of factory chimneys as a familiar part of the landscape and, if he is blessed with something of the artistic temperament, to dismiss them as a necessary evil. There they stand, and will continue to stand, until scientific progress renders them as obsolete as the rushlight and the bow and arrow.

Although at the present time many new and even loftier stacks push their smoke-plumed heads into the sky, it does happen that old chimneys are found to be in the way and are marked down for demolition. The order to remove a tall stack is easier to issue than to execute, and the destruction of even a small chimney is a matter for experts. In a thickly built-up area it may be necessary to start at the top and remove the bricks one by one, a long and costly business. Where there is adequate space around the

base of the chimney, the process may be speeded up enormously, but is more than ever a job for the man who knows how. In such a case, the stack is "felled" or "dropped," and he must be a very stolid individual indeed

The wooden props are fixed into the lower part of the brickwork.



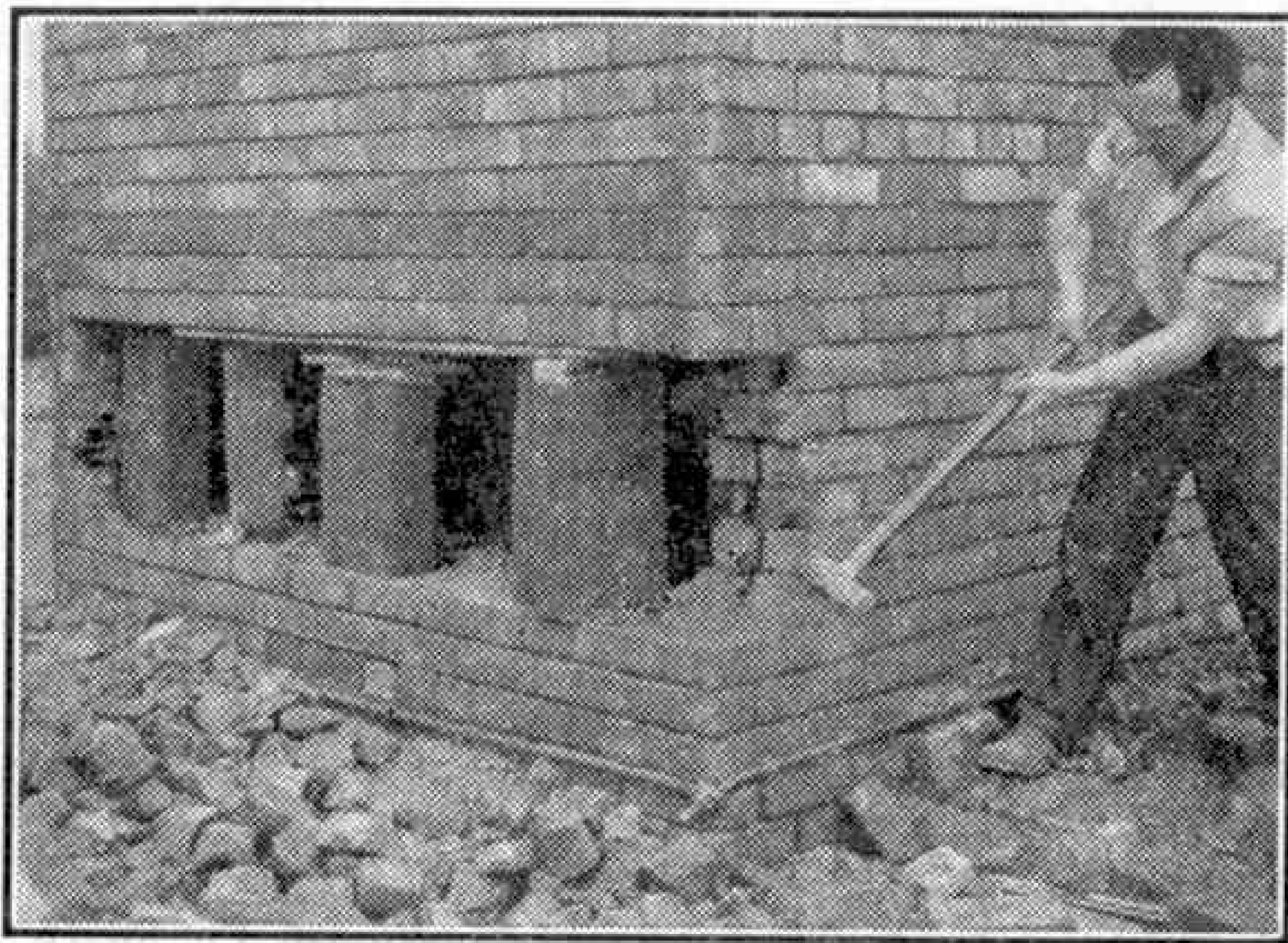
who finds himself unmoved by so exciting an operation.

The primary consideration is to decide exactly where the stack is to fall and to ensure that there is space enough to receive the fallen giant as it lies prone on the ground. Fortunately the direction of fall can be determined to very fine limits, and accidents are rare.

First, a hole is made in the brickwork of the stack at ground level and a piece of timber is firmly wedged into the hole. This done, the aperture is enlarged a little at a time, and as it increases in size more and more pieces of timber are inserted, as shown in the accompanying pictures. By the time this part of the work is complete, a large portion of the original brickwork has been replaced by the wooden props, which are now the chimney's sole support, and alone prevent it from toppling in the pre-determined direction. If the stack is a tall one the wooden supports are set on fire, and when they are burned through down comes the chimney with a frightening crash and, usually an all-enveloping cloud of dust.

Sometimes, with a smaller stack, the props are not burned but are merely knocked away with heavy sledge-hammers, which must call for a good deal of nerve and confidence on the part of the man with the hammer. This was the method employed in connection with the chimney shown in the illustrations, which was one of two 60 ft. square stacks—mere babies!—scheduled for demolition. They were part of a long-disused pottery in Lancashire and their downfall had to be filmed for a new industrial picture.

The present writer and several colleagues were responsible for the photography of the fall, and as none of us had ever seen a demolition of this kind, we were a little hazy as to what we might expect. However, as the result of a discussion with the engineer-in-charge—a well-known steeplejack, by the way—we were able to plan our activities. One of the two cameramen was posted on a low roof, immediately behind the doomed stack. He was perfectly happy until one of the felling experts mentioned, quite casually, that chimneys had been known to "kick backwards." After learning this particular trade secret, the poor photographer became convinced that, at best, he could only look



Enlarging the aperture to receive more timber.

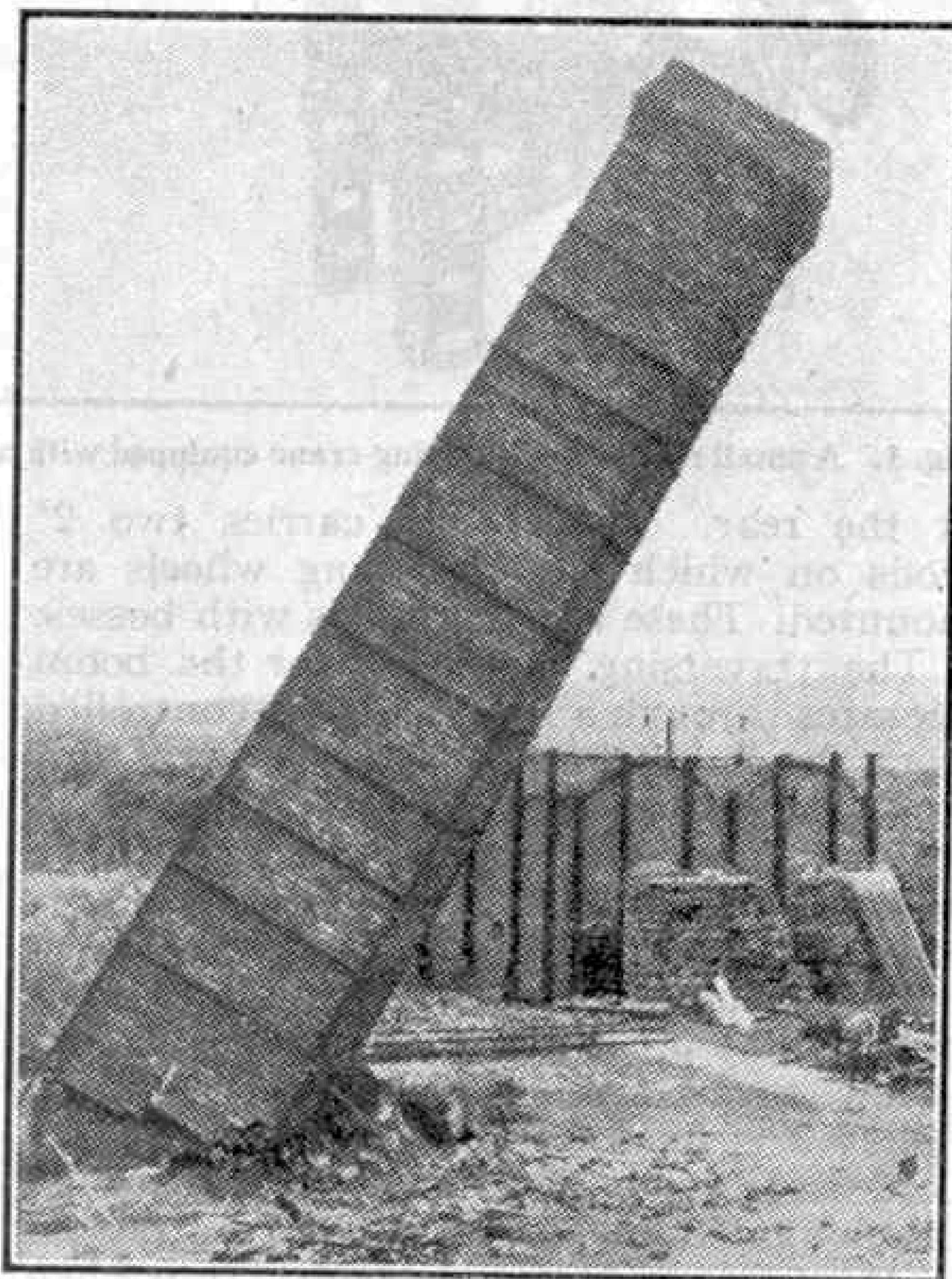
forward to several years in hospital, and took a lot of comforting. The second cameraman was placed almost in front of the chimney, naturally at a distance deemed perfectly safe. When the chimney began to totter and the cameras were running, he naturally kept his eye glued to the viewfinder. Unfortunately, this brought everything much closer than was actually the case, and created a vivid impression that the falling stack was heading straight for the camera. When, about halfway down its descent, the operator found himself looking right into the mouth of the stack, the sight was too much for him. Probably breathing a last farewell to his family he closed his eyes, but fortunately kept the camera running. Apart from a solitary brick which rolled merrily along and struck the tripod leg, nothing serious happened and the films were excellent.

The sound-recording department were less fortunate, as the shock when the chimney struck the ground temporarily dislocated their delicate apparatus, while the blanket of brickdust which covered their instruments took some time to remove.

It is most unusual for events to proceed other than as planned by the experts, but things have been known to go wrong, and a memorable example was told to the writer by Steeplejack Taylor of London. He was engaged to fell a 320 ft. stack in Huntingdonshire. There was ample room for the big fellow to fall, but the chimney itself was built on a kind of square ornamental plinth, 30 ft. high. Mr. Taylor proceeded to cut away part of the brickwork and to fill in with wooden

props in the normal way. When all was ready, he drenched the temporary supports with petrol, set fire to the structure and "retired immediately" as the firework labels advise. Slowly the wooden props burned away and fell from the aperture, but the chimney remained erect.

Realizing that he had cut away insufficient brickwork, the steeplejack took the only course open to him, which meant climbing the plinth to knock out more bricks. Taking his heaviest sledge, he began his nerve-racking task, while bystanders watched anxiously from safer vantage points. Scarcely had he begun to remove the bricks than the whole stack commenced to creak and groan as it started its headlong rush to the ground. With no time to hesitate, Steeplejack Taylor leapt from the 30 ft. plinth and landed with nothing worse than a shaking. A second or two later a mass of brickwork weighing hundreds of tons struck the earth with an impact that is likely to be remembered by the people of Godmanchester for a long time to come.



The props have been knocked away and "down she goes!"

New Meccano Models

Novel Miniatures—Crane and Tractor

THE miniature block-setting crane shown in Fig. 1 is only about 10 in. long and 6 in. high, yet it is fitted with traversing and load-lifting movements, and the crab or trolley from which the crane hook is suspended can be moved to and fro along the boom.

The constructional details of the model are very simple and most of them can be followed from the illustrations. The crab or trolley carrying the crane hook consists of two Channel Bearings bolted together. To its top side two 1" Triangular Plates are bolted, one at the front end and one

The other end of Cord 4 is tied to a short Driving Band 6 fixed to the rear end of the trolley as shown.

Hoisting and lowering of the load is carried out by turning Pulley 7. The Rod to which this Pulley is fixed carries a Cord Anchoring Spring. A length of Cord is tied to the Spring and then is led under the axles of the trolley and passed through the free hole of a 1" Triangular Plate 8 fixed to the trolley.

Parts required to build model Block-setting Crane:
2 of No. 1a; 2 of No. 1b; 4 of No. 3; 4 of No. 5;
4 of No. 9b; 2 of No. 12; 2 of No. 12b; 1 of No. 12c;
1 of No. 15; 2 of No. 16; 2 of No. 16a; 2 of No. 22;

6 of No. 23a; 1 of No. 24;
2 of No. 35; 44 of No. 37;
20 of No. 38; 1 of No. 40;
3 of No. 48; 2 of No. 51;
1 of No. 57b; 3 of No. 59;
3 of No. 77; 2 of No. 109;
3 of No. 111c; 2 of No. 126a;
2 of No. 155; 2 of No. 160.

The small tractor illustrated in Figs. 2 and 3 is a good example of the realistic effect that can be obtained using only a few carefully chosen parts.

The chassis is made by joining two 4½" Strips by four 1½" × ½" Double Angle Strips, one at each end of the chassis as shown at 1 and 2 in Fig. 3, and two in the centre indicated at 3. A

Magic Clockwork Motor is bolted to one of the 4½" Strips at a position one hole from the front of the chassis.

Each side of the bonnet consists of two 2" Strips connected at their upper ends by a 3" Strip 4, and joined to the opposite side by two 1½" × ½" Double Angle Strips. The top of the bonnet is made from two 2½" × 1½" Flexible Plates.

The rear axle is a 3" Rod mounted in 1½" Flat Girders bolted to the chassis. The Rod carries a 1" Pulley 5, and two 1" Sprocket Wheels, and is held in position by a Collar. The leading Sprocket Wheels are free to turn on Pivot Bolts fixed by two nuts to Fishplates bolted to the chassis.

The Magic Motor pulley is connected by a short Driving Band to a 1" Pulley fixed on a 2½" Rod 6. This Rod is mounted

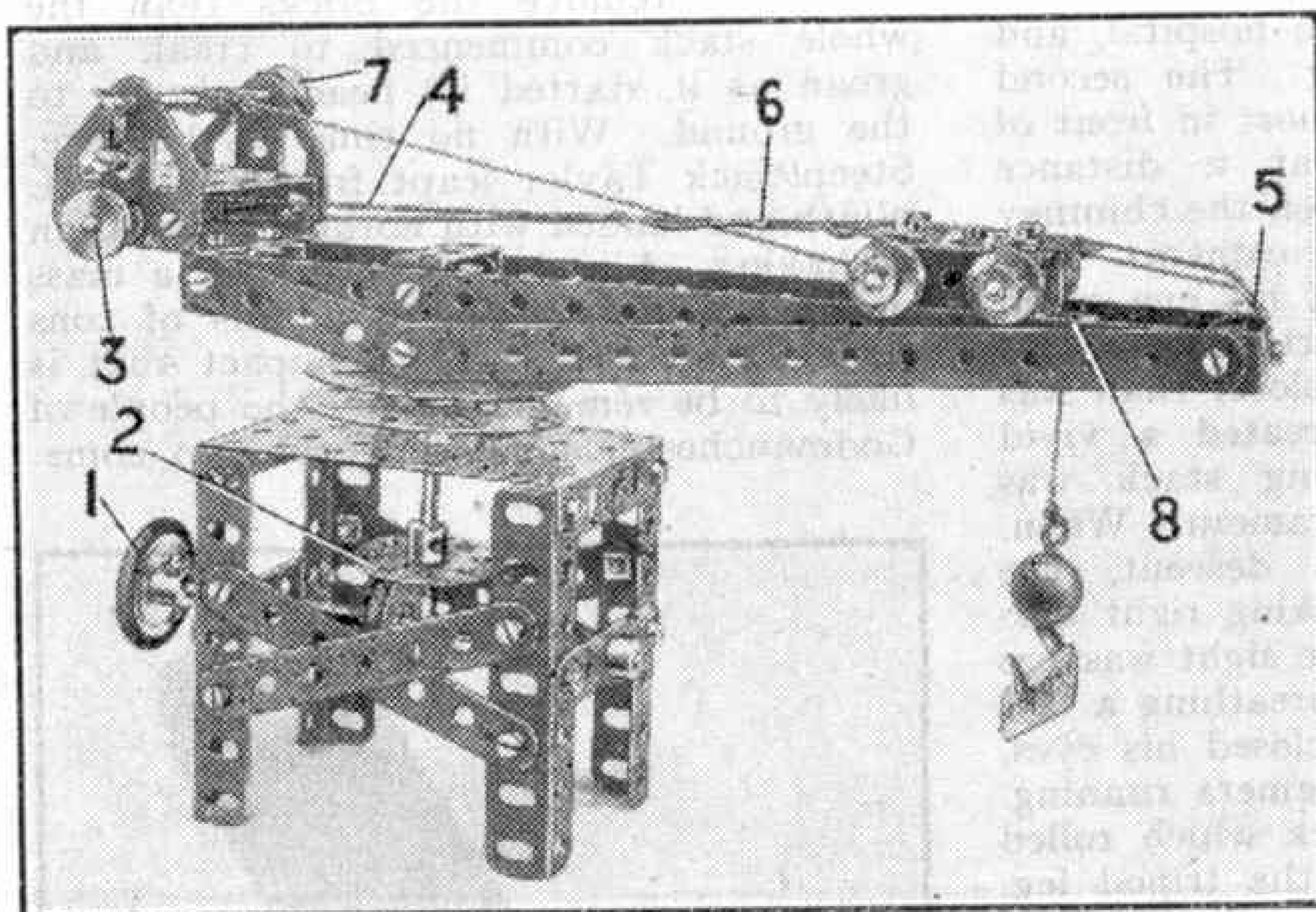


Fig. 1. A small model block-setting crane equipped with all the usual movements.

at the rear. The trolley carries two 2" Rods on which the travelling wheels are mounted. These are ½" Pulleys with bosses.

The traversing movement for the boom operates through a friction drive, controlled from the handwheel 1. This is fixed to a Rod and fitted with a 1" Pulley with Rubber Tyre. The Pulley bears against the face of a Bush Wheel 2 fixed on the lower end of the shaft on which the boom pivots.

Traversing of the trolley is operated from Pulley 3. A piece of Cord 4 is wound a few turns around the Rod to which Pulley 3 is fixed, and then one end of the Cord is led over the trolley and through the elongated hole of a Fishplate 5 attached to the front end of the boom. It is then led back and tied to a 1" Triangular Plate at the front of the trolley.

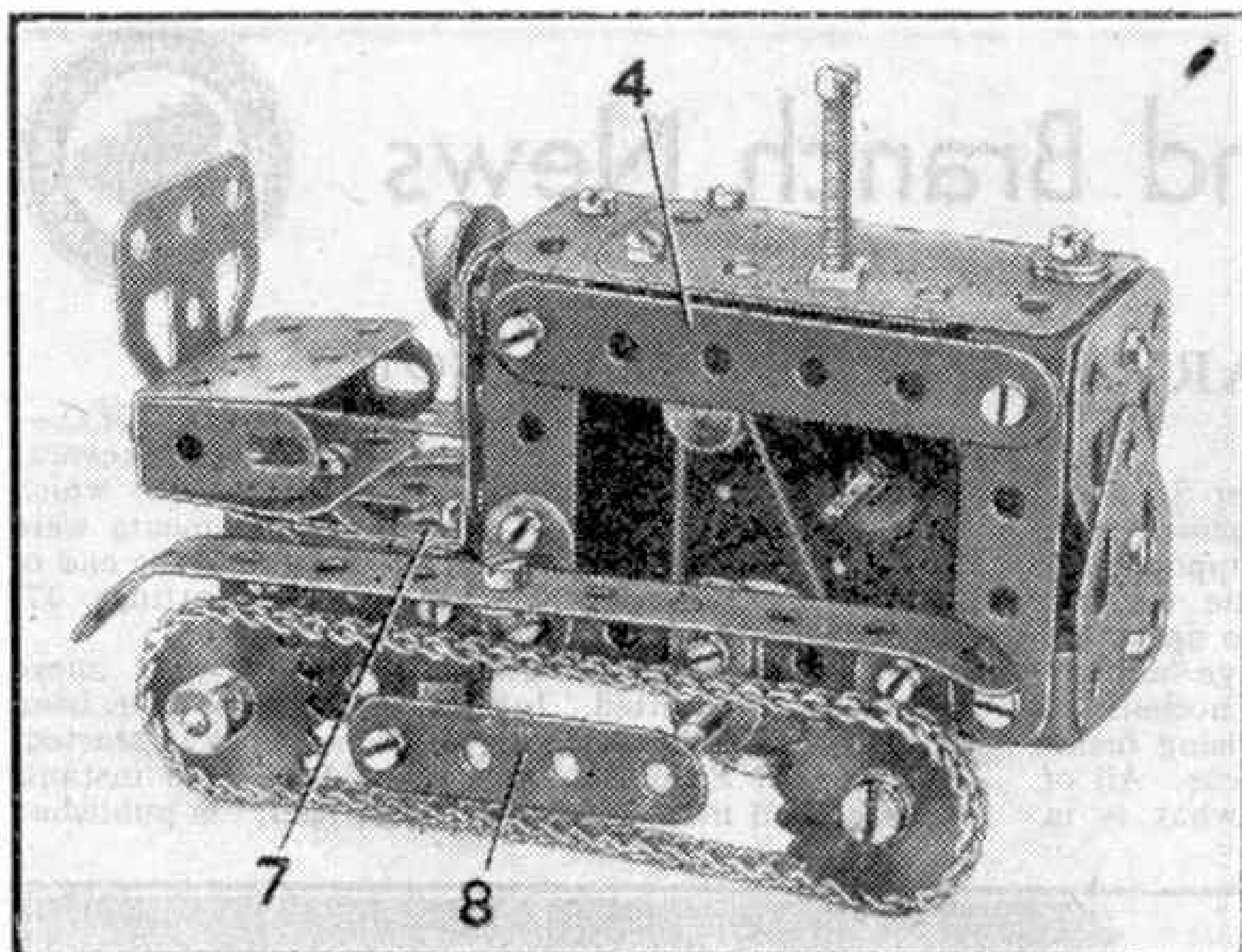


Fig. 2. Sprocket Chain forms the creepers of this simple and easily built tractor.

in Fishplates bolted to the chassis, and carries a $\frac{1}{2}$ " Pulley that is connected by a Driving Band to the Pulley 5 on the rear axle. A 1" Rod is attached to the brake lever of the Motor by a Rod and Strip connector, and projects inside the cab.

The seat is attached to the Double Angle Strip 2 by an Angle Bracket, the bolt fixing the seat holding also a Flat Trunnion that forms the floor of the cab. A vertical $1\frac{1}{2}$ " Strip is attached to the front of the Flat Trunnion by an Angle Bracket 7, and two horizontal $1\frac{1}{2}$ " Strips bolted to the vertical Strip shield the Motor from the cab.

A $1\frac{1}{2}$ " Strip is attached to one side of the chassis between the Sprockets by a $\frac{3}{4}$ " Bolt, and a 2" Strip 8 is similarly fixed to the opposite side. The model is completed by adding the tracks and track covers. The tension of the tracks can be adjusted by pivoting the Fishplates supporting the leading Sprockets.

The tractor is capable of hauling a trailer or any suitably designed agricultural implement. Model-builders will find wide scope for their ingenuity in constructing attachments for use with the model.

Parts required to build model tractor, 2 of No. 2, 2 of No. 2a; 2 of No. 4; 5 of No. 6, 4 of No. 6a, 5 of No. 10; 4 of No. 12, 2 of No. 12b; 1 of No. 16a; 1 of No. 16b; 1 of No. 18b; 2 of No. 22; 1 of No. 23; 1 of No. 23a; 37 of No. 37; 14 of No. 37a; 16 of No. 38; 6 of No. 48; 2 of No. 59; 1 of No. 94; 2 of No. 103h; 4 of No. 96; 2 of No. 111; 1 of No. 111a; 1 of No. 111c; 1 of No. 111d; 4 of No. 126a; 2 of No. 147b; 1 of No. 160; 2 of No. 188; 1 of No. 212.

"MOST USEFUL MECCANO PARTS" VOTING CONTEST

The special voting competition announced in the August "M.M." is still open for entries.

From the list of 10 parts given below competitors are asked to choose (A) the part they think is the most useful and that can be used in the greatest variety of ways in model-building, and (B) to arrange in the correct order the six parts that they think will receive the most votes when the "A" votes of all competitors are totalled.

The following is the list of parts included in the contest: (1) Part No. 10, Fishplate; (2) Part No. 108, Corner Gusset; (3) Part No. 165, Swivel Bearing; (4) Part No. 24, Bush Wheel; (5) Part No. 62, Crank; (6) Part No. 133, Corner Bracket; (7) Part No. 147a, Pawl; (8) Part No. 11, Double Bracket; (9) Part No. 59, Collar; (1) Part No. 137, Wheel Flange.

Prizes will be awarded to competitors who forecast the six parts that receive the highest number of votes and arrange them in the correct order of popularity. In the event

of a tie for any of the prizes the neatness and originality of design of the entry will be taken into account.

The closing date for entries from readers in the British Isles is 30th September, and for entries from readers living Overseas 30th November. Entries should be addressed, "Meccano Parts Voting Contest, Meccano Ltd., Binns Road, Liverpool 13." Competitors must make sure that their age, and name and address are written clearly on their entries.

The following prizes will be awarded in each section. First, Cheque for £3/3/-; Second, Cheque for £2/2/-; Third, Cheque for £1/1/-. There will be also five prizes of 10/6 and five awards of 5/-.

"ADVANCED MODEL-BUILDING COMPETITION No. 1"

We wish to remind readers that entries can still be accepted for the special Advanced Model-Builders Competition, full details of which were announced in the June and July issues of the "M.M." This contest will remain open for entries from any part of the world until 30th November next.

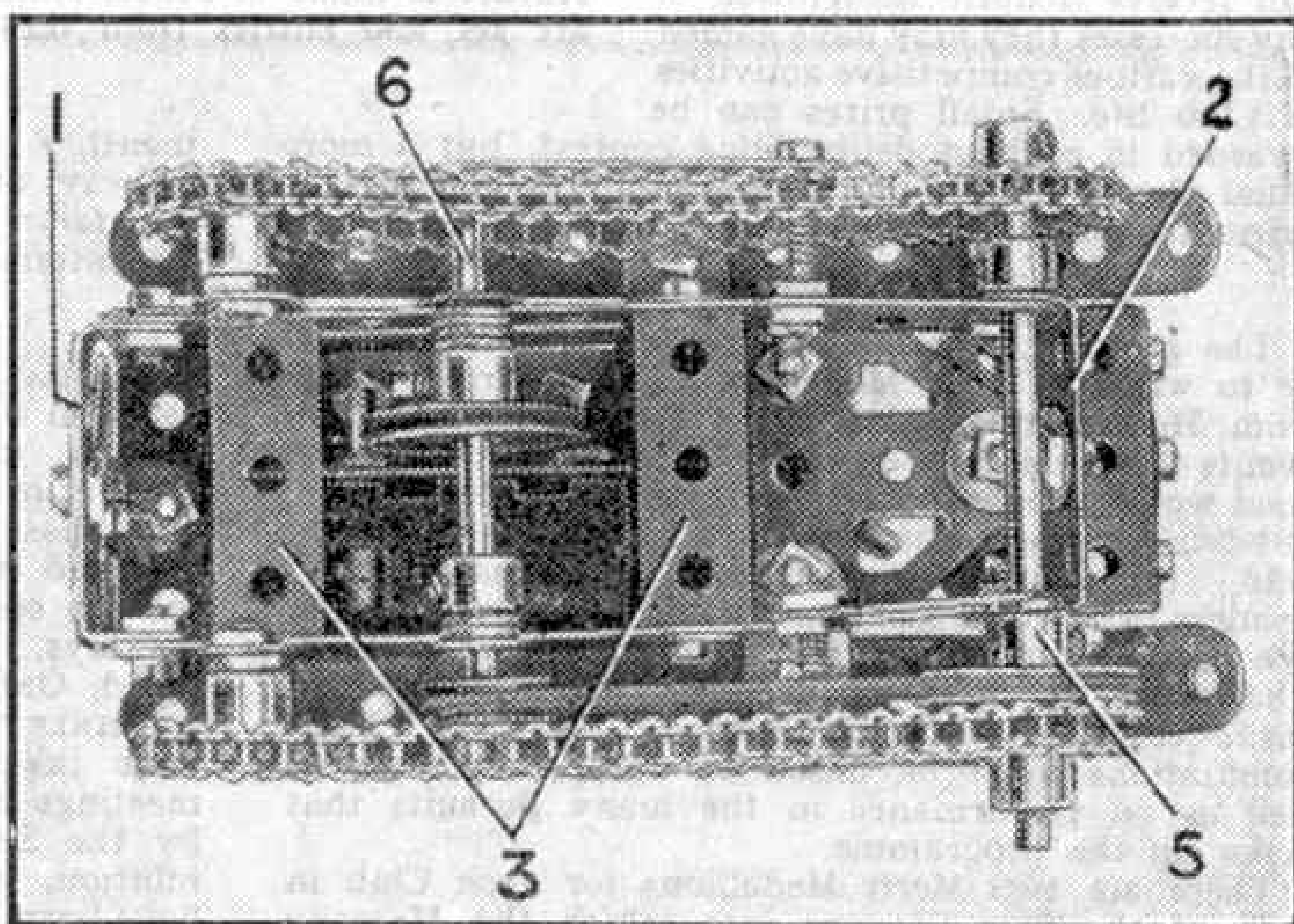


Fig. 3. The tractor is driven by a Magic Motor fitted as shown in this underneath view of the completed model.



Club and Branch News



WITH THE SECRETARY

FOOD FOR THOUGHT

We are now on the verge of the Winter Sessions. While the weather is good Clubs may continue with outdoor games, and there may yet be opportunity for a pleasant excursion to wind up the outdoor season, but the time is at hand to put into operation the plans for Club room work that have already been formed. Officials will have good notions of what is to be done, and no doubt enterprising members will come along with other bright ideas. All of these should be given consideration at what is in certain respects the most important event of the year—the general meeting at which details of the programme for the coming months are settled. An outline of what is suggested should be passed round among members, before the meeting if possible, so that they can think things out for themselves.

When members are busy building models, taking part in debates, giving talks or enjoying games, Leaders and seniors should always be at hand to give them the benefit of their experience. Boys join Clubs because they are full of enthusiasm for all that Club life means, and in their first Sessions particularly this enthusiasm must be encouraged and directed. There are many ways in which this can be done. A cheery word from the Leader often spurs a member on to greater efforts, and of course full use must be made of the various awards for good model-building or for achievements in other directions. The actual value of these awards is a small matter. The important thing is that they provide a way in which members can receive definite recognition of any successes they may have gained in the various competitive activities of Club life. Small prizes can be awarded in each model-building contest, but a more usual plan is to give marks to each entry and present prizes to members who win most marks in a Session.

MERIT MEDALLIONS

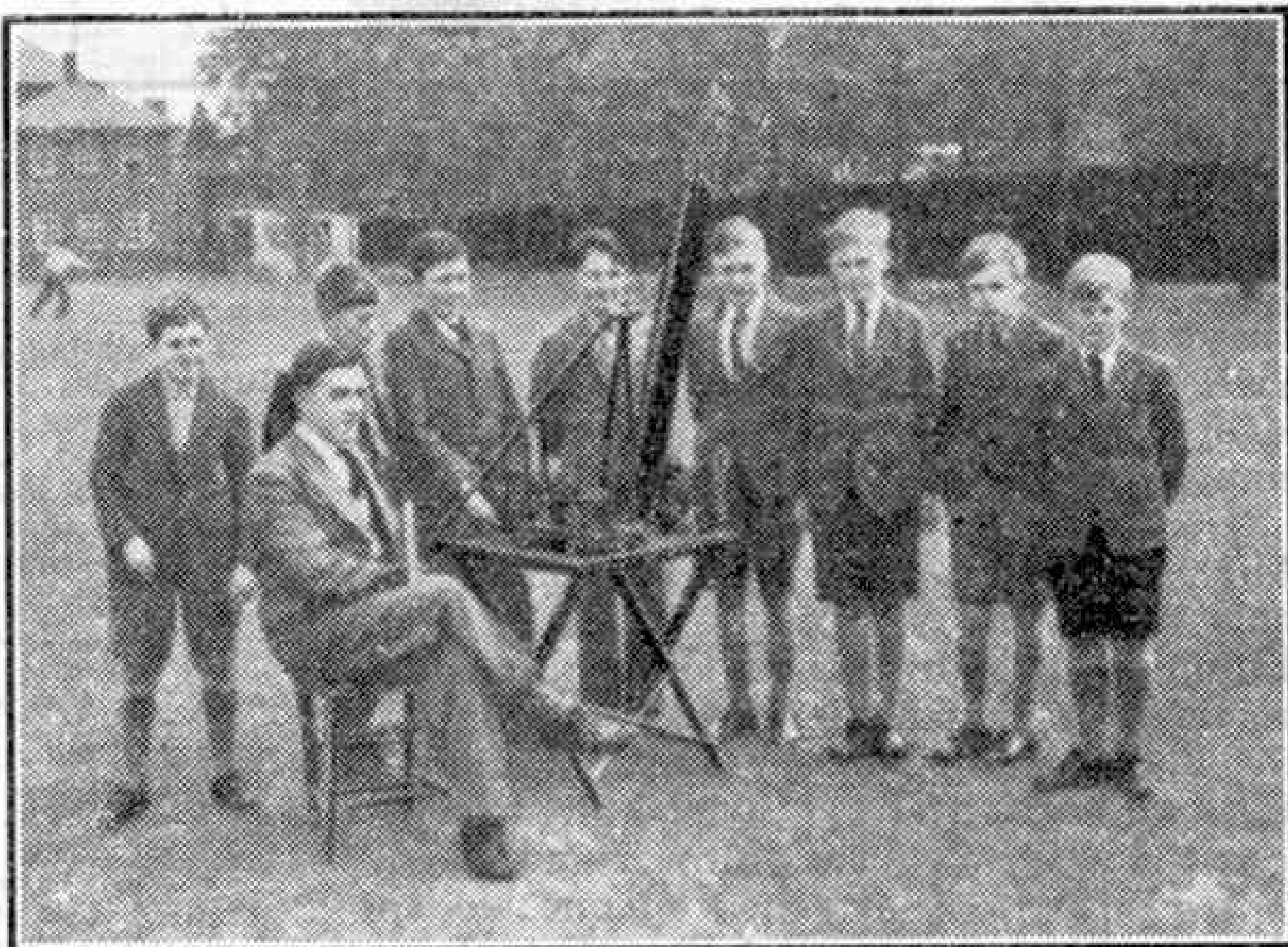
The greatest ambition of any Club member must be to win the Merit Medallion. This award is made from Headquarters and differs from prizes in Club events in that it is the mark of general and sustained good work on behalf of the Guild and the Club instead of being the reward of a special effort in one particular field. It is awarded on the recommendations of Leaders, who at all meetings should keep an observant eye on their members in order to pick out those who show the greatest keenness and the greatest desire to advance the interests of the Club. Their nominations must be based on this observation as well as on performance in the many pursuits that make up the programme.

There are two Merit Medallions for each Club in each of the four Sessions into which the Meccano Club year is divided, and before Christmas I want to receive two nominations from the Leader of every active Meccano Club.

CLUB NOTES

CRYPT GRAMMAR SCHOOL (GLOUCESTER) M.C.—This recently affiliated Club has arranged several interesting Model-building Competitions, in which good entries have been secured. Arrangements were made for exhibiting models in the School at the end of last term. Club roll: 20. *Secretary:* D. Gettings, 17, Riversley Road, Gloucester.

NORBURY M.C.—Progress is steady, but more members are wanted. Interesting outings have been arranged, and the Cycling Section has been re-started. The Annual Exhibition will be held on 17th instant. A successful magazine, the "News Reel," is published



Mr. G. Beach, Leader, with members of the Newcastle Royal Grammar School M.C. and models built by them. G. S. Miller, Secretary, is third from the right. The Club was affiliated in November of last year. A special feature is made of Model-building Competitions, in which special subjects are set, and entries from these Contests have been exhibited on School Speech Day.

monthly. Besides Club notes, it contains interesting railway, bus and other transport news. Club roll: 29. *Secretary:* John W. Taylor, 186, Merham Road, Thornton Heath.

BRANCH NEWS

MAGDALEN COLLEGE SCHOOL—Special interest was taken in a Visit to the Swindon Works of the Western Region, where members saw various stages in the making of locomotives and rails. More constructional work has been undertaken, and the layout has now assumed its final form. A competition was arranged for the construction of accessories during the School holidays. *Secretary:* R. A. Bowen, 33, Richmond Road, Oxford.

SHIRLEY AND DISTRICT—On Track Nights members have taken turns in conducting operations. Other meetings have included a Railway Quiz and a Talk by the Secretary on the Model Railway Club Exhibition, which members later visited. Games also have been played, Monopoly being a general favourite. All meetings end with refreshments and a short period in the Library. *Secretary:* D. J. Hancock, 26, Wickham Avenue, Shirley, Surrey.

Planning Hornby-Dublo Operations

THE Hornby-Dublo owner usually begins his train operating by getting accustomed to the control of the train. This is quite an easy matter because starting, stopping, and reversing are all controlled by the movement of a single handle on the Controller. In addition, a fine degree of speed regulation is afforded so that the train can be started up gently and then gradually accelerated to full speed. After a spell of running a corresponding reduction in speed can be made by degrees, just as if the train were a real one preparing to make a station stop.

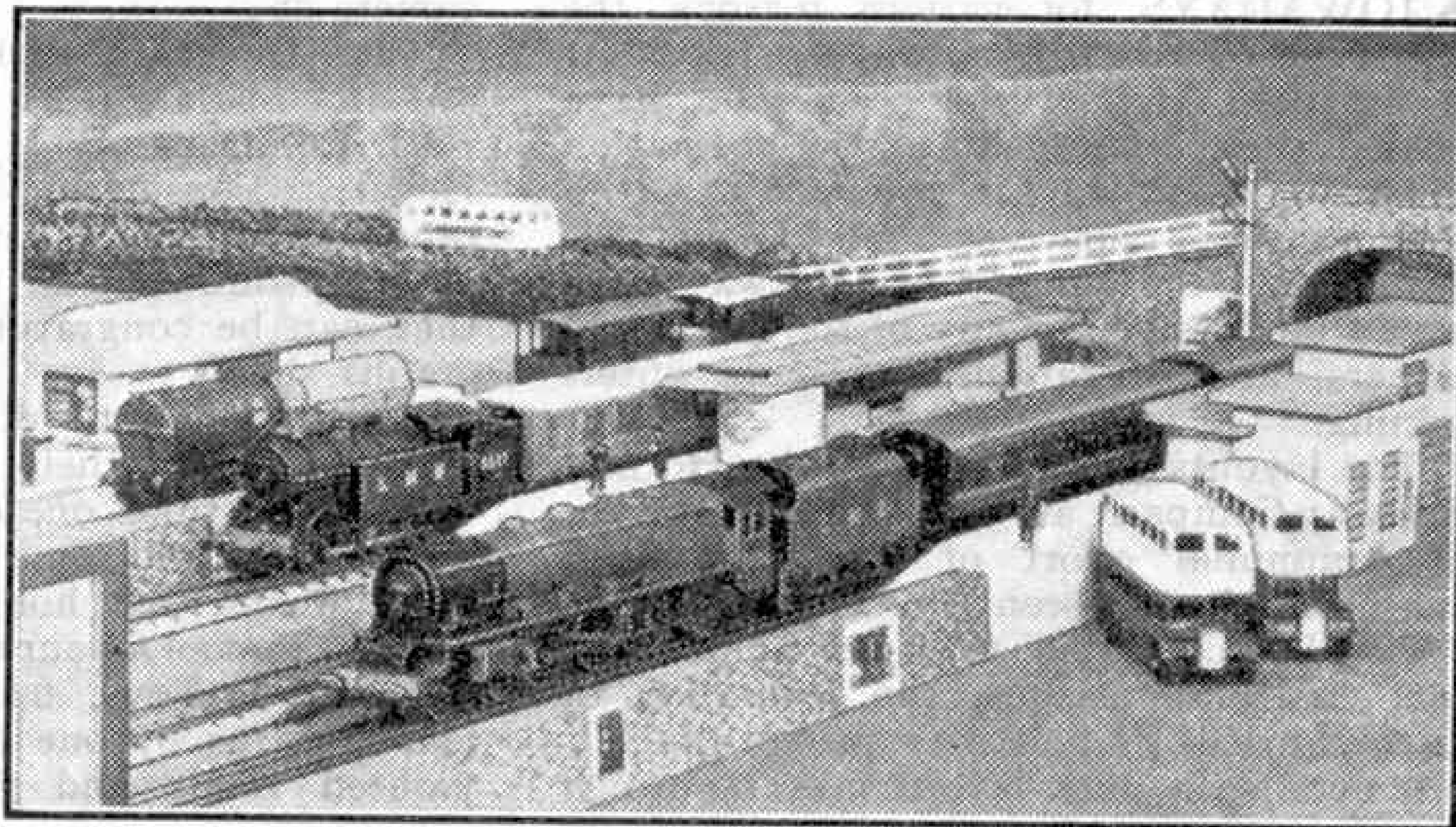
Simple operations of this kind give the Hornby-Dublo train owner a good opportunity of observing the working of his engine and running of the stock. Practice in these matters can be quite good fun and the skill acquired will be valuable in later more involved operations. For the best results it is essential that the track should be well laid and clean and that the lubrication of the engine and stock should have been attended to as detailed in the instructions packed with every train set.

Once the Dublo owner has become more accustomed to these elementary operations he is ready to begin running his train in accordance with some definite scheme. It is very little fun simply to send the train around the track without much idea behind it. Even on the simplest oval track, such as that provided in the train sets, it is possible to carry out entertaining running. Most Hornby - Dublo owners usually attempt to reproduce the working of some section of real line that they know, and one of the earliest requirements is to arrange a platform alongside the track where the train can stop. This can be quite an elementary affair, such as a box lid or even a couple of books of suitable thickness. Many miniature railways have

begun with just such primitive stations.

Some enthusiasts work to what we might term a mileage scheme; that is to say, a convenient number of circuits of the track is supposed to represent a mile of real track and journeys are made accordingly. Another arrangement is for the train to make a stop at the station after covering a definite number of circuits.

As the layout develops and the track becomes more extensive, so the operating possibilities are increased. The station arrangements are usually more perfect under these conditions and possibly the layout may boast more than one train. If this is so, and if both trains can be run at the same time, each on its own

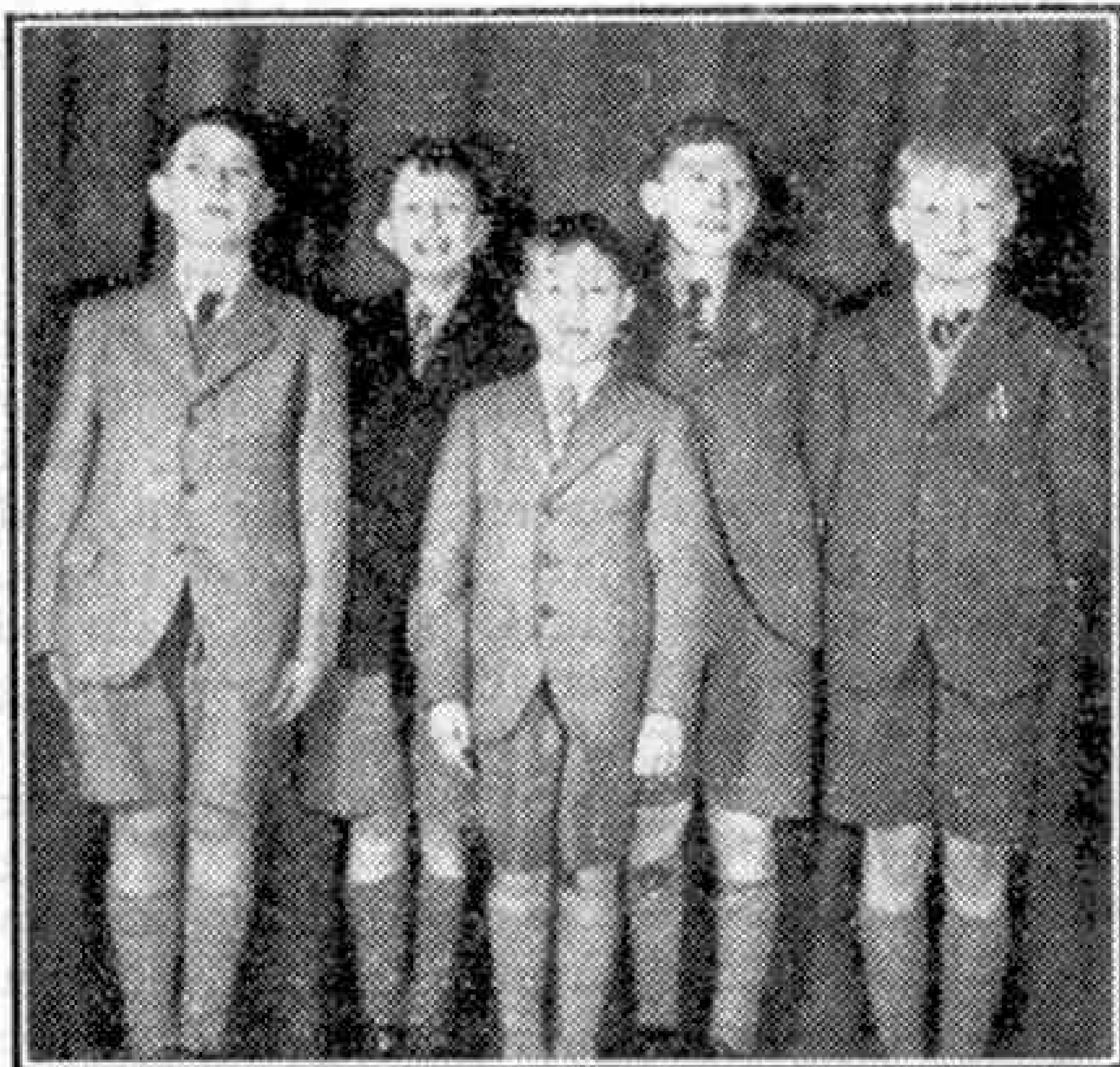


An interesting view on the layout of I. W. C. Cosens. Express and local trains are in use and the Dinky Toys buses are effective.

track, connecting services can readily be arranged.

This is the situation shown in the illustration on this page, which shows a realistic station layout. The express train, headed by the impressive Hornby-Dublo "*Duchess of Atholl*" locomotive, is pulling out after a stop. At the further platform the Hornby-Dublo Tank and its coaches represent a typical branch or slow-line train providing a connecting service with the main lines.

Incidentally the photograph shows some of the many realistic possibilities that are afforded to the Dublo owner. A special feature can be made of road traffic using the Meccano Dinky Toys motor vehicles. The Motor Buses shown are particularly good examples.



The "Directors" of the Hornby railway described in this article.

NOWADAYS, for various reasons, the type of Hornby railway system that is operated by several boys who have pooled their equipment in the formation of the line is growing in popularity. Given the necessary space, a more extensive system can be laid out in this way than would be possible for any of the individual owners, and operations are more entertaining.

The layouts of Branches of the Hornby Railway Company are well-known instances of communal effort of this kind, and examples have been described in the "M.M." from time to time. Sometimes, for particular reasons, the formation of an organized Branch may prove difficult; but even so a joint layout may be owned

A Hornby Railway in an Attic

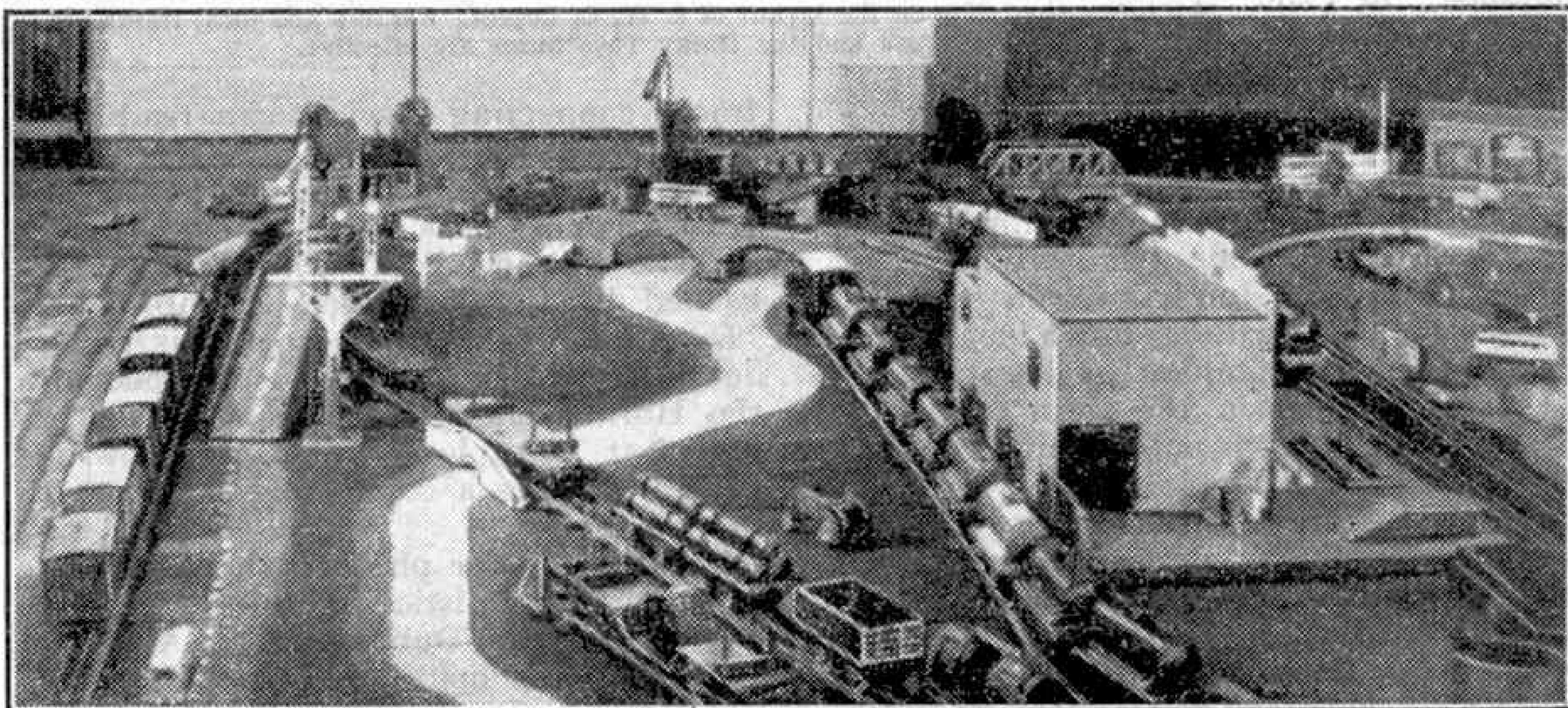
and operated by several boys together with success, and such an association may easily develop into a Branch.

Recently we received details and photographs relating to an excellent example of this kind of railway, situated in an attic room in the home of one of the "Board of Directors" of the system, hence the title at the head of this page. These boys are lucky in having such a fine site for their line. It is interesting too, that among the photographs submitted was one showing the joint owners, and this is reproduced on this page. All too often those responsible for interesting layouts are remarkably camera-shy!

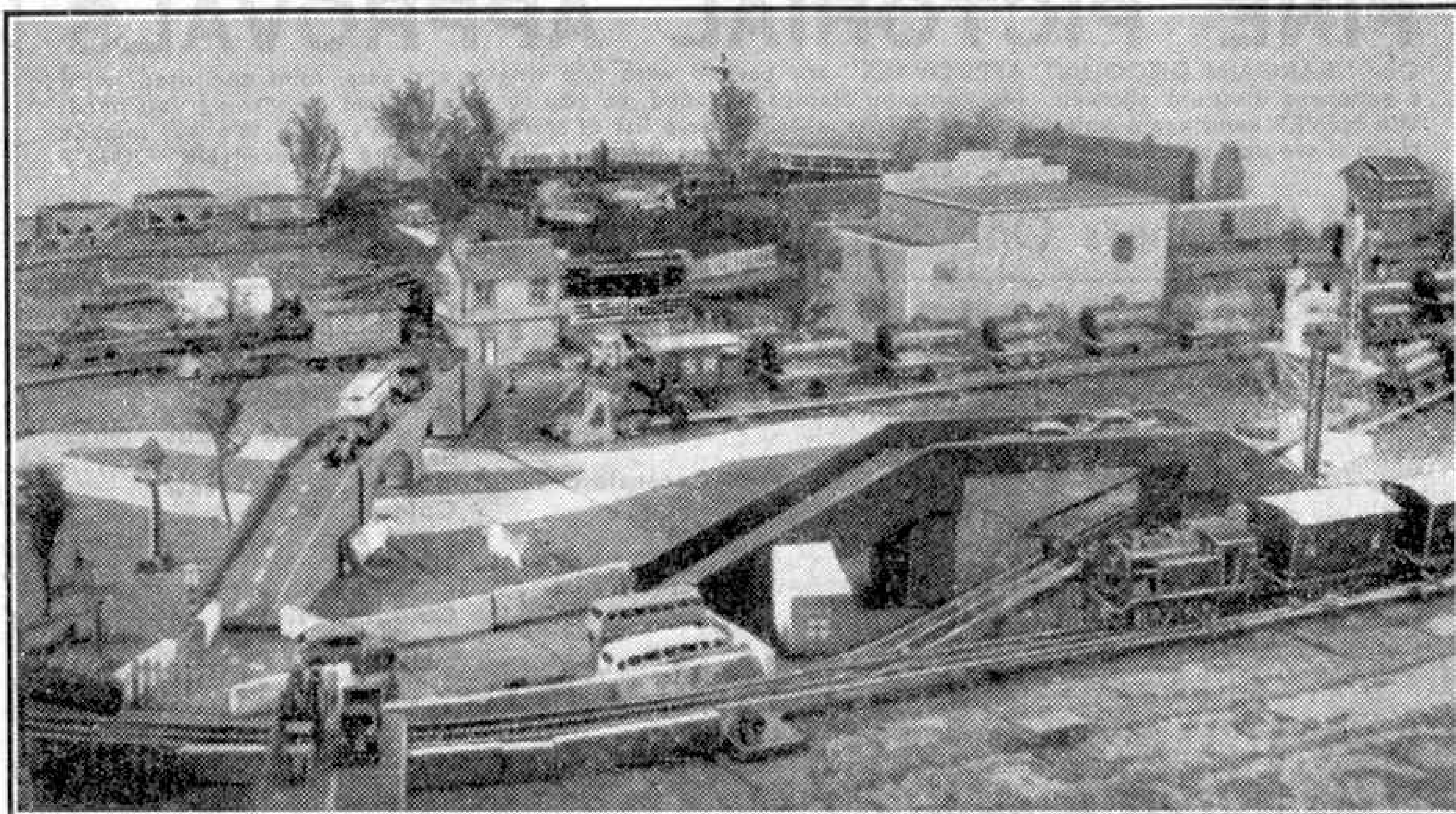
The "Directors" of this attic system are "M.M." readers J. M. Leonard, C. J. Vyle, R. I. Collinson, A. J. Harrison and J. A. Hewitt. Considering their ages, which range between 9 and 12 years, they have produced a system on which they can be congratulated, as the photographs show.

It is only fair to let them tell the story of their line in their own way:

"At Christmas one of us got a Hornby Tank engine and some trucks. This started the fun and last holidays the five of us decided to pool all our engines, rolling stock and Dinky Toys, using an attic kindly loaned to us by one of our mothers. We painted roads and fields on the floor-



A general view of the centre of the system showing the "river", and the goods warehouse with a train of tank wagons in one of the sidings.



Looking across the tracks of the attic railway. In the foreground a goods train is held while road traffic passes over one of the home-made level crossings.

boards, and in the middle of each road we painted a dotted white line. We then made viaducts, as the rails crossed a "river" in several places. We made these with a moulding outfit in which you use plaster of Paris strengthened with strong wire.

"To add to the scenery we thought it would be a good thing to have a quarry, so we put a shallow cardboard box on the floor in which we placed soil. With a few "trees," a home-made office, and several Dinky Toys, including a Supertoys Blaw-Knox Bulldozer, we built a very realistic quarry.

"The whole system is electric, so the stock is largely pre-war, and we have four Hornby 20-volt engines. There are three Hornby stations, and a home-made wayside station. Round the stations we painted flower beds with aeroplane "dope," which was found very effective. A large toy garage is used as a goods station and warehouse.

"We have a Hornby Viaduct, and one Hornby two-road Level-Crossing. Really we want more level-crossings, but we have had to use wooden ones like British Railways have at many stations.

"Our public transport service is run with Dinky Toys and consists of six double-deck buses and two single-deck buses. We hope to fit all our double-deck buses with indicator boards.

"As we had one 12-volt engine but not a 12-volt transformer, we thought we would fit up a long wire from the battery of the car, the 20-volt engines being off the track for the time being. This worked perfectly, but we could not regulate the speed of the train. Altogether we have a very good time with our railway."



One of the Hornby Stations, with the quarry and its siding beyond. Note the motor vehicles on the roads.

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For other Stamp Advertisements see also pages 360 and xi.

Stamp Collecting

The Norwegian Scene

By F. Riley, B.Sc.

LAST month we visited Switzerland, the land of giant mountains. This month let us take a trip to another country renowned for its heights, not perhaps as great as those of Switzerland, but none the less massive and interesting. This is Norway,



which has a long broken coast line and is remarkable for fiords that penetrate far inland between precipitous heights.

The stamps of Norway have many interesting features. The earlier ones were either of the portrait type or had formal designs. They are attractive to keen stamp experts because of their technical features, but young collectors also will study them with interest, as far as they are available. They will note the

prominent posthorn in one of the formal designs used over many years, and find that this appears also in the watermark. This watermark indeed has persisted, and can be seen on most of Norway's stamps.

Pictorials did not come until 1914, 59 years after the appearance of Norway's first stamp. In that year the country celebrated the 100th anniversary of its independence by issuing three stamps bearing a reproduction of a picture of Norway's constitutional assembly of 1814. Until that year the country had

been a Danish province for a long time, but it was then transferred to Sweden. The Norwegians fought against this, and before giving in they won the right to a large measure of independence. Complete separation came only in 1905, and portraits of the newly elected King

Haakon VII then appeared on Norway's stamps, on which the Swedish Kings had previously been pictured.

The next commemorative was a very interesting one. It was an air stamp issued to mark the famous flights in which Amundsen, the Swedish explorer, tried to reach the North Pole by air. The stamp was not a very ambitious effort. Its design was simple, practically its only feature being a white polar bear.

Norway of course extends well into the Arctic Circle, and it is not surprising to find that the North

Cape figures on one series of Norwegian stamps, issued in 1930 with a premium, or extra charge, for the benefit of the Norwegian Tourist Association Fund. The North Cape is a bold headland, well shown on the stamp—on which a vessel, presumably carrying tourists, also can be seen—and is usually regarded as the most northerly point of Europe. The same design appeared again in 1938 on two stamps of rather smaller

size, which also bore premiums in aid of the fund.

The reindeer is an animal that is always associated with Norway, and this creature duly appeared on one value of a tourist propaganda issue of 1938. The 20 øre value of this issue showed a Stav or

Stave Church. The churches of this type are among the most remarkable timber buildings in existence. As the stamp shows, they are of very unusual design, eastern in style. Some 300 were constructed in the 10th and 11th centuries, chiefly near the fiords, and many of them are still in existence.

Several very interesting stamps commemorate famous Norwegians. One issued in 1928 marked the

centenary of the famous dramatist Henrik Ibsen, and it was followed a year later by another commemorating the death in 1829 of Niels Henrik Abel, who lived only 27 years, but in his short life won undying fame as a profound mathematician. A more widely known figure

included in this series is Nansen, the famous polar explorer, whose portrait is seen on a stamp issued in four values in 1935, on which a premium was charged in aid of the Nansen Fund for refugees. After the first World War Nansen was director of an international scheme for returning prisoners of war to their homes and later he was actively engaged in famine relief in Russia.

An interesting stamp reproduced on this page is concerned with an exploit of another Norwegian

who took part in polar exploration. This is Tryggve Gran, who was a member of the Scott Antarctic expedition of 1910. The feat commemorated had nothing to do with polar exploration, however. It was the first crossing of the North Sea by air, made by

Gran in 1914. The flight was made in a Bleriot monoplane, which later was bought by the Norwegian Government and used by Gran on the outbreak of the 1914-18 war in patrolling the Norwegian fiords to detect German submarines resting in their sheltered waters.

Two years ago Norway celebrated the tercentenary

of postal services in the country by the issue of a special series of 11 stamps. The designs included portraits of King Haakon and Queen Maud on the highest values, with portraits of Norwegians connected more or less remotely with postal matters during the period. Various ways of carrying mail are illustrated, and one stamp has on it portraits of Nansen and Amundsen, Norway's famous polar explorers.





SCOUTS' STAMP FREE

ABSOLUTELY FREE. This very lovely little stamp, as illustrated, was issued by **AUSTRALIA** to commemorate the International Boy Scouts' Jamboree, at Yarra Brae, Wonga Park, Victoria, Australia. We will willingly send **YOU** one **ABSOLUTELY FREE**; it will enormously add to the interest of **YOUR** COLLECTION.

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12 Dahomey	50 Netherlands	12 Salvador
12 Danzig	25 Do. Colonies	15 San Marino
50 Denmark	12 New Caledonia	8 Saudi Arabia
25 Greece	8 Newfoundland	12 Senegal
12 Guadeloupe	20 New Zealand	8 Serbia
12 Guatemala	12 Nicaragua	12 Siam
8 Hayti	12 Niger Terrty.	12 Slovakia
8 Honduras	30 Norway	20 South Africa
100 Hungary	12 Oceanic Setts	50 Spain
12 Madagascar	12 Paraguay	10 Spanish Cols.
10 Malta	12 Peru	8 Sudan
10 Manchuria	8 Philippines	50 Sweden
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For other Stamp Advertisements see also pages 358 and xi.

Stamp Gossip and Notes on New Issues

By F. E. Metcalfe

THIS is the month when stamp collectors are thinking about getting out those albums which were put away earlier in the year. This looks like being a season of all seasons for collectors of colonial stamps, for between next month and the end of the year over 70 sets will be issued to commemorate the 75th anniversary of the Universal Postal Union.

And that isn't the end of the story, for we have new sets galore pending for various colonies. But we had better leave it at that for the time being, as those "U.P.U." sets will take up most of our pocket money.

As the colonial issues are only to be on sale for three months at the outside, there will be no time to waste if we are to gather them all. Fortunately most of the sets are of low face value, but both the Seychelles Islands and the Falkland Islands have overdone it, and there can be no justification for sets with face values of 5/10 and 3/7 respectively

for such relatively insignificant countries when all the rest of the colonies are satisfied with sets of less than 2/- face value. It is sheer exploitation of collectors, for the authorities of the two countries in question know that collectors will have to take all to complete their collections.

Still we suppose it could have been worse. We might have had a lot of sets topped by high values

like the "Silver Wedding" issues, and then the collecting of K.G. VI issues, now so popular, would probably have been given a death blow, for collectors in general could not have stood the pace. After all, there are other things in the world which one must buy besides stamps.

Of course one must not be too pessimistic, for those who did manage to afford a set of the "Silver Wedding" stamps have assured a very

handsome profit for themselves, if they ever want to sell. That does not necessarily mean that there is a profit waiting for all purchasers of the "U.P.U." issues. Yet from an investment point of view, and one can hardly spend the £8 or £9 which a complete set will cost without taking into consideration the monetary side of the transaction, the stamps should be worth while. We may have more to say about this next month.

The U.S.A. continues to issue attractive commemorative stamps, but apparently the selection is now to be left to the Postmaster General himself. The limit has to be 12 per year, and quite enough too. Without a doubt, if our own Post Office followed this lead stamp collecting would boom as never before, for attractive commemorative stamps of low face value as distinct from long sets, or stamps of high face value, do foster interest. The U.S.A. commemorative stamp which we are illustrating this month was issued to commemorate the tercentenary of Annapolis.

Australia has given us another stamp. The man honoured this time is H. A. Lawson, who was born of Norwegian parents at Grenfell, New

South Wales, on 17th June 1867. Actually his parents' surname was Larsen in the first place, but later it was Anglicised at the instigation of Mrs. Larsen herself.

Henry Lawson had a rather tough boyhood, but later he became one of Australia's great poets and writers. The stamp, if rather insignificant for a commemorative, is attractive.

Few countries are more popular with British collectors than Canada and a commemorative from there is always welcome. The one we are illustrating, honouring Halifax, is no exception. Canada produces on the whole beautiful stamps, which was probably the reason why Bahamas went there for its set to commemorate the Eleutherians. Alas, the set wasn't a success, but the "Halifax" stamp certainly is. A set of low face value stamps was to have been issued in June, on the date of the King's birthday, but when they were almost ready it was found that the designs were inadequate, so the emission was delayed, not for several years as would probably have happened over here, but for a month or two.

There was a time when the South and Central American countries were the only ones to issue stamps in any quantity for sale to collectors. European post offices held their noses high, and refused to consider such methods of raising the wind. But what a change to-day! A stamp dealer showed the writer of these notes recently a letter which he had received from a customer, who was packing up his collection of French and Belgian stamps and going in for South American stamps, as these latter were, as he put it, "not prepared so much for collectors." How the old continental collectors would stare if they could see the multitude of issues that their countries issue almost every week!

What that collector wrote is true enough. South and Central American countries are completely outclassed in the time-honoured custom of tapping collector's pockets by issuing lots of pretty stamps. It is true that countries like Argentina do bring out a fair number of stamps, but they are genuinely used for postal purposes, and emitted in the first place to honour or

commemorate some real event, such as the stamp we are illustrating. This is a beautiful stamp, one of a pair brought out earlier in the year to commemorate the holding in Buenos Aires of the 4th meeting of the Pan-American Cartographers. This stamp is being illustrated because some time ago we held up a stamp from the same country as an example of all a stamp should not be.

When Argentina reforms and produces beautiful stamps, well, it's only fair to report it, for the country is exceedingly popular.



The Story of the Lightship—(Cont. from page 332)

ships of the latest design, with very comfortable accommodation for their crew and quite an elaborate engine room for working the lantern and the fog horn.

A concluding word must be said for the lightsmen, who are a magnificent body. The normal crew consists of 11, two officers and nine men, but only seven are on board at one time, an officer and six men. They are relieved monthly, so that the officers have a month afloat and a month ashore, and the men two months afloat and then a month's holiday. They are all old sailors, some from the Navy but most of them from the Merchant Service; and in addition to keeping their ships scrupulously clean and in a wonderfully efficient condition they have all the sailor's traditional skill at handicrafts, making rugs, model ships and many other things to pass away their spare time. Needless to say, they find a ready market for such things when kindly yachtsmen or holiday-makers pay them visits with newspapers or fresh bread and vegetables.

Handley Page's Forty Years —

(Continued from page 336)

profitless nationalized airlines.

The ten years during which the "Hannibals" were in service saw the German Luftwaffe grow from a few gliders to the mightiest air force in the world. To meet the growing threat, Handley Page built an interesting series of bombers in the 1930s. First came the unorthodox "Heyford" night-bomber, then a bomber-transport development of the "Hannibal." But by 1935 it was obvious that the biplane had had its day, and this aircraft was converted into the H.P. 51 twin-engined monoplane, which in turn became the "Harrow," the R.A.F.'s first big monoplane bomber. "Harrows" remained in service as transports throughout the second World War, their most notable action being the evacuation of wounded paratroops from Arnhem. They were the only large aircraft able to take off from the small fields in that area.

Most famous Handley Page bombers of World War 2 were the "Hampden" and "Halifax," whose magnificent war record is too well-known to need recalling in detail. "Hampdens" were among the first aircraft to attack Germany; later they operated as Coastal Command torpedo-bombers and were used to lay parachute mines. "Halifaxes" shared with Avro "Lancasters" the main burden of the R.A.F. bomber offensive. In all 6,176 of them were built, representing more than 40 per cent. of Britain's heavy-bomber production. At the time of its peak strength, Bomber Command had 76 "Halifax" squadrons in action; between them they made about 76,000 bombing sorties and dropped nearly a quarter of a million tons of bombs.

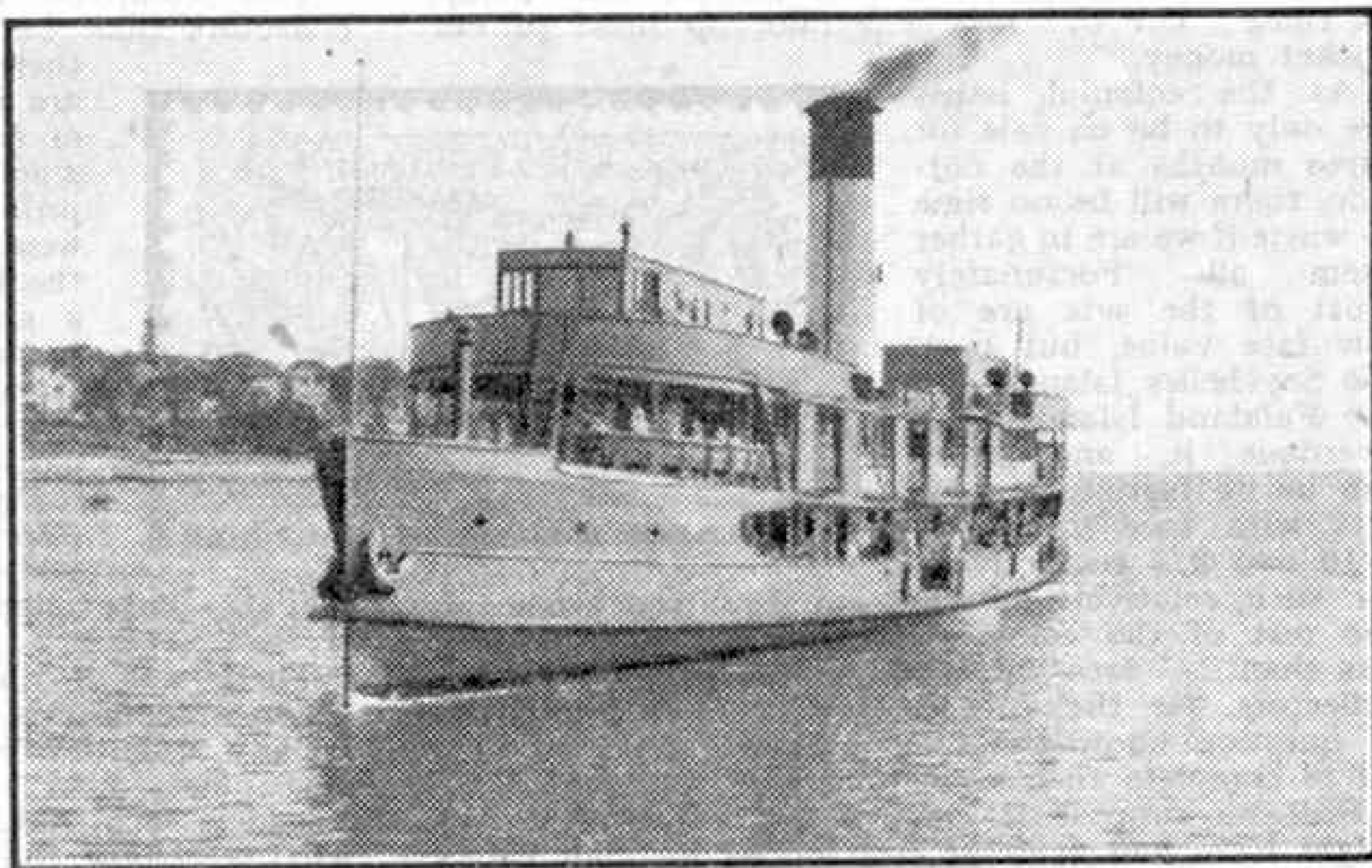
"Halifaxes" were used also as glider-tugs and military transports, and by Coastal Command for anti-submarine work and meteorological patrol. When the war was over they were converted into "Halton" air liners for B.O.A.C. and "Halifax" Freighters for the charter companies. Several of them have been back on the "Berlin Run" in the last year, each carrying 1,500 gall. of oil to help break the Russian blockade of the city.

Flying alongside them on the Air Lift are the fine new Handley Page "Hastings" military transports, forerunners of the "Hermes" air liners which will soon operate many of B.O.A.C.'s Empire routes. These aircraft, at the beginning of their service life,

have already been superseded on the drawing boards at Cricklewood by secret, highly-advanced designs, for which the little "Manx" tailless research aircraft of 1945 may well have provided much useful data. Still guided by its founder, now Sir Frederick Handley Page, there are plenty of indications that Handley Page's second forty years will be every bit as momentous as their first forty.

Making Britain's Roads Safer—(Cont. from page 344)

these headings, scientists study the problems of road surface characteristics and their relation to the safety of moving traffic. For instance, information about the anti-skid properties of different road surfacings is of great importance. To obtain this riders go out on special motor cycle combinations, the outer wheel of which leans over at a quite terrifying angle while tests are in progress. The skidding



A harbour ferry at Sydney, New South Wales. This interesting picture was submitted by R. Briggs, Bradford, in an "M.M." Photographic Contest.

resistance of any surface to wheels moving at speeds up to 60 m.p.h. is automatically recorded on instruments carried in the sidecar. For tests at higher speeds a 50 h.p. car has been used, the skid-recording apparatus being towed behind it.

Another machine used for road surface experiments is an American invention known as the "Roughometer." This single-wheeled apparatus is towed along behind a small motor van, and compares the riding qualities of selected stretches of road. By this means it can be discovered how some kinds of surfacings develop bumps and hollows more quickly than others.

Research into the safety of road vehicles includes the study of such important characteristics as vehicle lighting, braking and steering, in all of which the Laboratory maintains close touch with the Motor Industry Research Association; and also of the question of headlamp dazzle as a factor in road accidents, a problem that is being carefully investigated.

HAVE YOU ANY SPARE MECCANO PARTS?

Are there any readers of the "M.M." who have Meccano Outfits that they do not use? If so, these would be welcomed by Mr. D. Uttley, Sale, who is urgently in need of them for use in training deaf children. Gifts of Outfits or Parts would be gratefully received by Mr. Uttley, and would be of the greatest value to the boys among whom he works, whose need for aid in developing skill and resource are obviously greater than those of ordinary children. Any spare parts that can be presented for this purpose should be sent to Mr. D. Uttley, 46, Winstanley Road, Sale, Cheshire.

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.

LUXEMBOURG'S STREET TRAINS

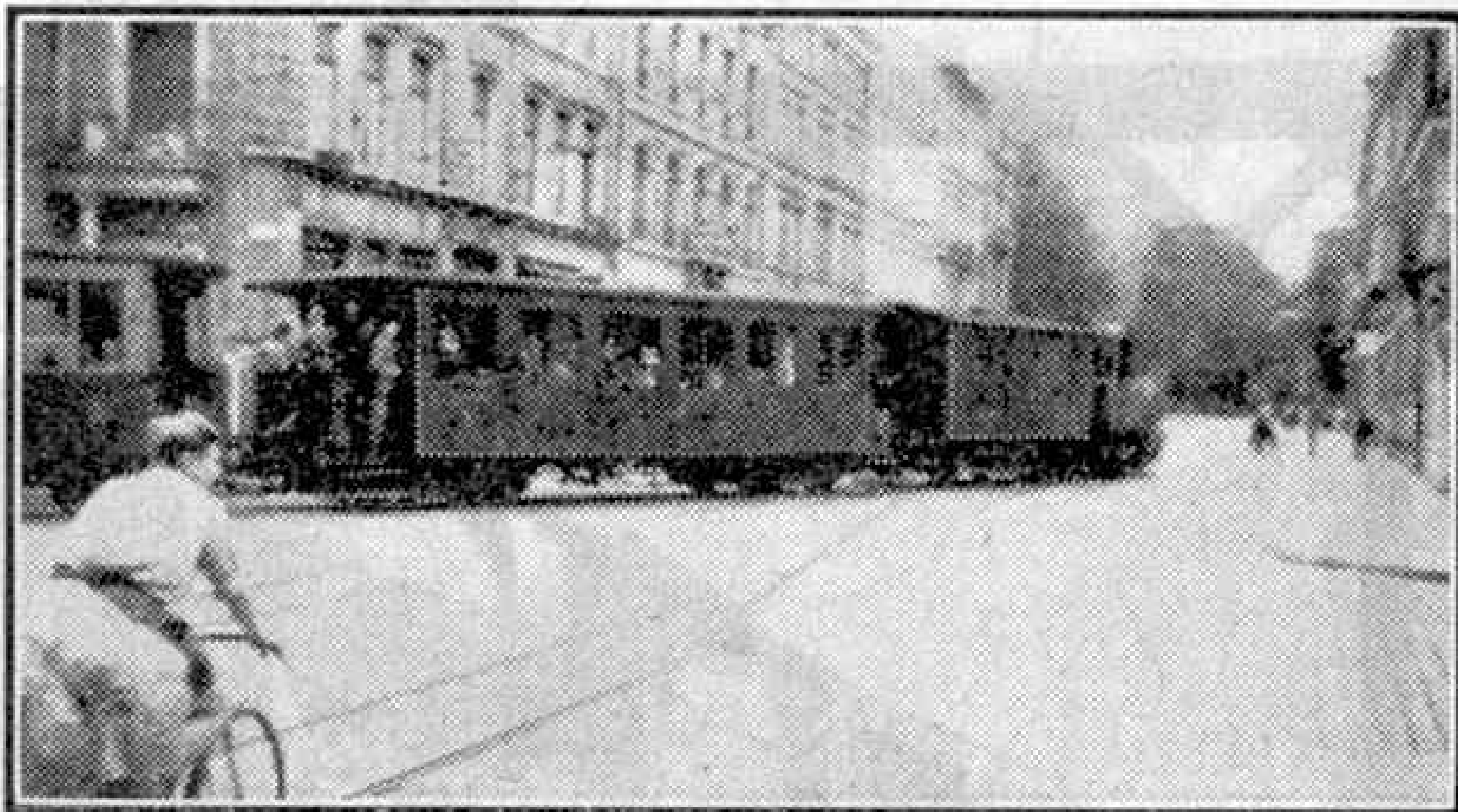
In Luxembourg, capital city of the little Grand Duchy of the same name, a sight can be seen to-day that must be unique as far as the capitals of European countries are concerned. This is a steam train running through the main streets.

There are two trains that provide this spectacle. One runs from the capital to Mondorf, and the other to Echternach, a small town that changed hands several times in the Rundstedt offensive during the War and was very badly damaged. Both trains start from the main station, and the one that goes to Echternach runs on the tram lines straight up one of the main streets, blowing smoke and steam in all directions and at frequent intervals dropping large lumps of burning coal from the fire-box. With continuously clanging bell, and preceded by a single coach electric tram to operate the points, this small locomotive with a full train of first, second and third class coaches makes two more stops before it finally leaves the town. There it changes to a normal narrow gauge track with sleepers.

Signals are not provided, but the policemen on

point duty at the cross roads wave the train on when it approaches and do their best to stop other traffic.

The accompanying illustration shows the locomotive under full steam rounding the bend at the Avenue de l'Arsenal, a point where it has been known to part company with the rails, fortunately without any



A steam train running through the streets of Luxembourg.* Photograph by R. A. H. Burman, St. Margarets, Middlesex.

serious mishap. Among the Luxembourgers the locomotive is affectionately known as "Charlie," after one of their Princes.

R. A. H. BURMAN (St. Margarets, Middlesex).

IN THE SILENT VALLEY

While cycling with a friend in the Mountains of Mourne, on the East Coast of Northern Ireland, we visited the reservoir in what is known as the Silent Valley. At the narrow end of the valley a small river flows from the mountains, and this is dammed by a giant ramp, along the top of which a small road for pedestrians has been built. The accompanying photograph shows the dam and the overflow pipe, which was very far above the water level at the time of our visit. A tunnel was then being driven under the mountains so that the water supply could be supplemented from another reservoir.

The valley is a mile and a quarter long and a quarter of a mile wide. The reservoir supplies the City of Belfast, 40 miles away, with its main water requirements.

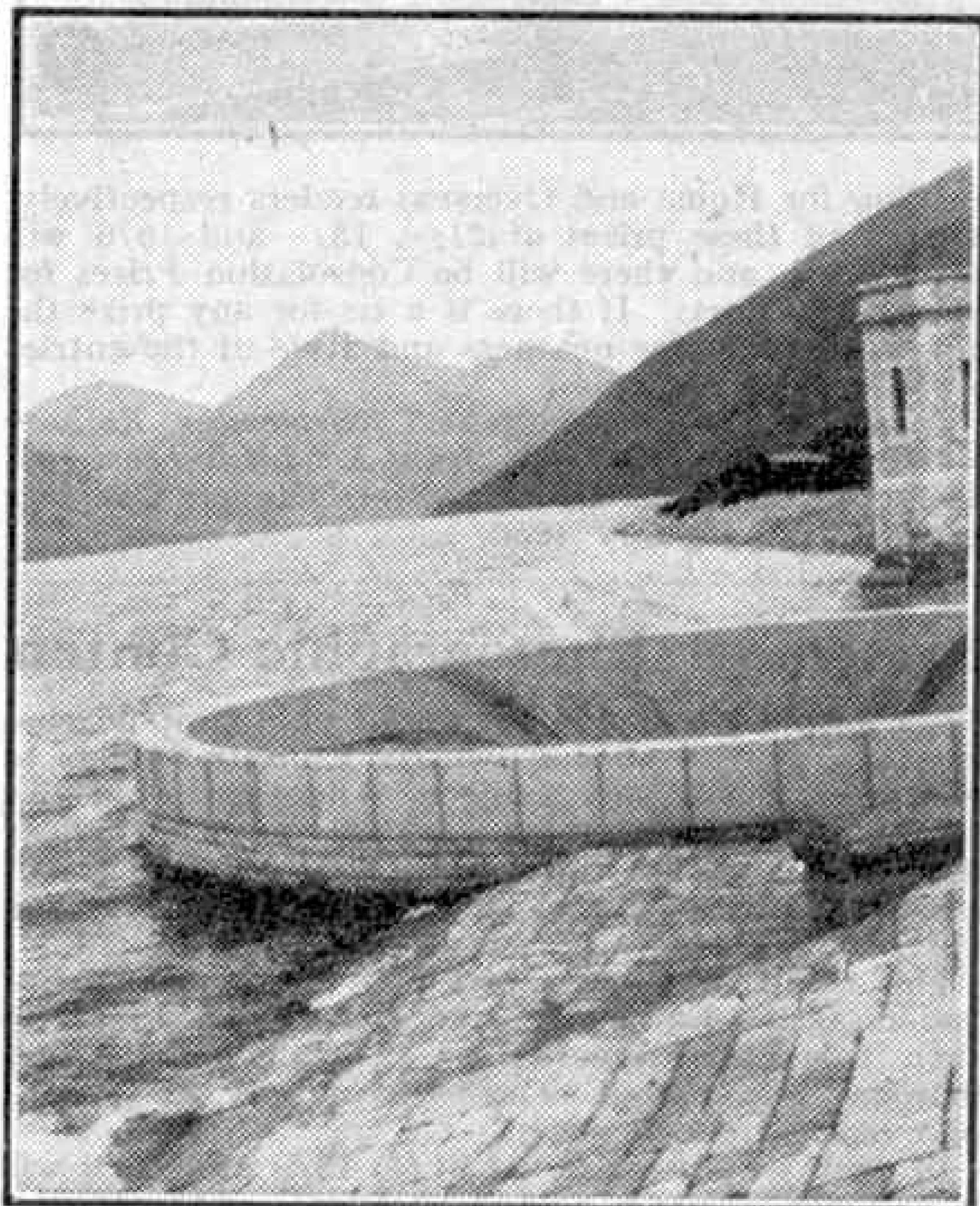
W. TURNER (Belfast).

LYDFORD GORGE

Lydford Gorge, which has recently been taken over by the National Trust, is a little distance from Tavistock. One can walk for nearly three miles along the side of this winding gorge, admiring the rugged beauty of the canyon, and of the river Lydd seething and frothing over innumerable little waterfalls at its base. One magnificent waterfall, formed by a tributary of the Lydd, is over 100 ft. high.

Descending to the mouth of one of the potholes to be seen in the gorge, where a jet of swirling, angry water is continually carrying out its age-old task of wearing away the rock, is a great thrill. It is reached by walking along narrow wooden planks, and looking up from it a small patch of sunlight can be seen at the top of a smooth circle of rock that rises high overhead.

P. J. STONE (Calstock).

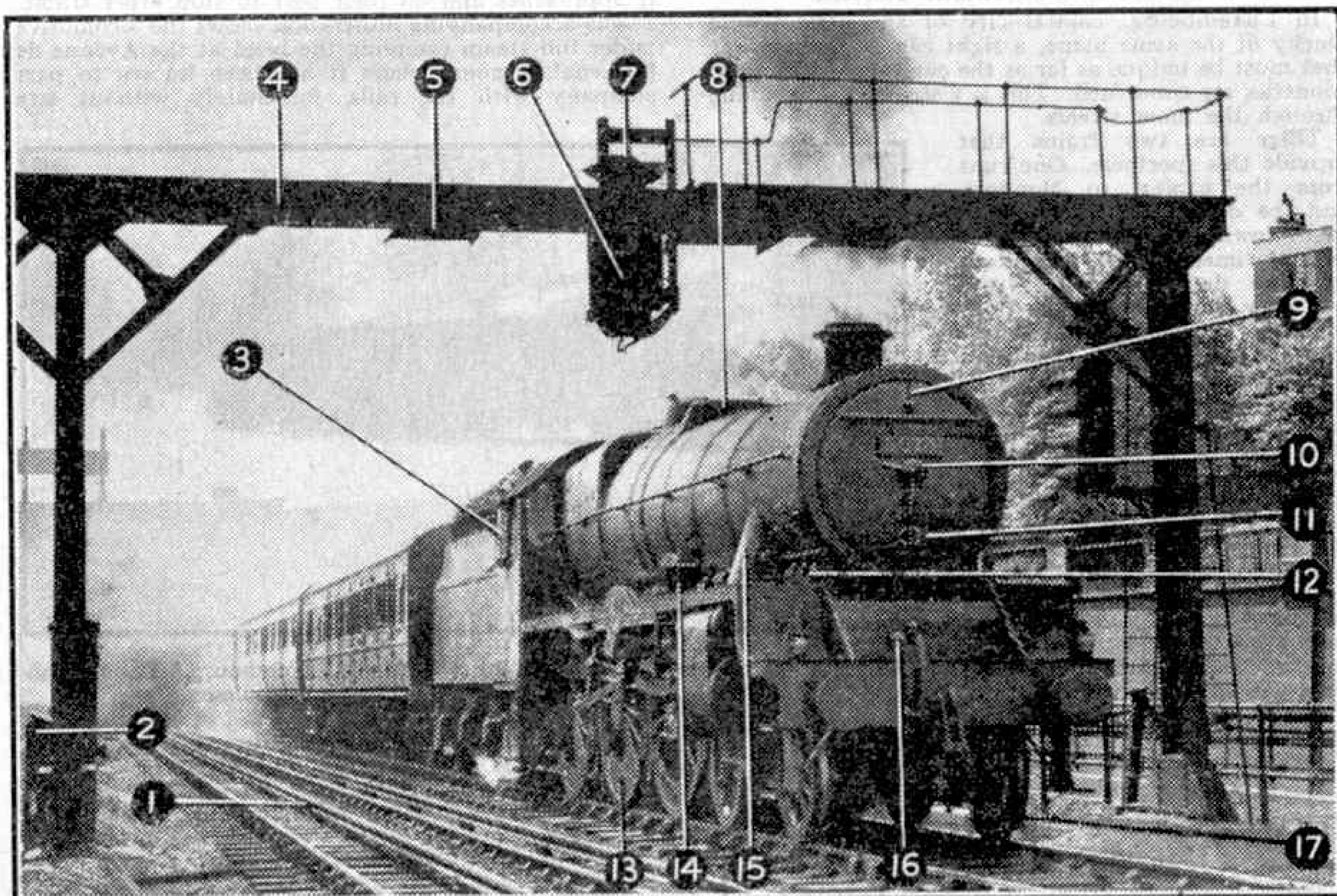


The dam of the reservoir in the Silent Valley, in the Mountains of Mourne. Photograph by W. Turner, Belfast.

Competitions! Open To All Readers

Prize-winning entries in "M.M." competitions become the property of Meccano Ltd. Unsuccessful entries in photographic, drawing and similar contests will be returned if suitable stamped addressed envelopes or wrappers are enclosed with them.

What Are They For?



The splendid photograph reproduced on this page has as its central feature L.M.S. No. 5574 "India," of the "5XP" class. Parts of this locomotive and of the track, etc., have been indicated by lines and numbers, and for our first competition this month we ask readers to tell us what these parts are and to indicate their purpose. It is not necessary to explain at great length; just sufficient should be given to show that the competitor knows exactly what each part does.

As usual, there will be two sections in this com-

petition, for Home and Overseas readers respectively. In each of these prizes of 21/-, 15/- and 10/6 will be awarded, and there will be Consolation Prizes for other good efforts. If there is a tie for any prize the judges will take the neatness and style of the entries into consideration.

Entries should be addressed "September Railway Contest, Meccano Magazine, Binns Road, Liverpool 13." Closing dates: Home Section, 31st October; Overseas Section, 31st January 1950.

Holiday Drawing Contest

Most readers will now have completed their holidays and in their thoughts will often return to the pleasant times they have had and the interesting things they have seen. We invite them now to send in drawings of anything novel or attractive that they have seen during the holiday season. There is no restriction in regard to subject, which may be an interesting scene at the seaside, a locomotive, a ship or dock scene, some novel rock formation, and so on.

The contest will be divided into the usual two sections, for Home and Overseas readers respectively, and in each of these there will be prizes of 21/-, 15/- and 10/6. Consolation Prizes will be awarded for other good efforts.

Entries should be addressed "Holiday Drawing Contest, Meccano Magazine, Binns Road, Liverpool 13." Closing dates: Home Section, 31st October; Overseas Section, 31st January 1950.

September Photographic Contest

The ninth of our 1949 series of photographic contests is a general one, in which we invite readers to send in prints of any subject. There are only two conditions—1, that the photograph must have been taken by the competitor, and 2, that on the back of each print must be stated exactly what the photograph represents. A fancy title may be added if desired.

The competition will be in two sections, A for readers aged 16 and over, and B for those under 16. Each competitor must state in which section his photograph is entered. There will be separate sections for overseas readers.

In each section prizes of 21/-, 15/- and 10/6 will be awarded. Entries should be addressed "September Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13." The closing dates in the competition are: Home Section, 30th September; Overseas Section, 31st December.

Competition Results and Solutions

HOME

APRIL 1949 CAR FACES CONTEST

1st Prize: J. C. Smith, Selsdon. 2nd Prize: B. McKenzie, Sheffield 10. 3rd Prize: D. W. Pratt, Shipley. Consolation Prizes: J. D. Rhodes, Shipley; P. Hodge, Cleckheaton; D. C. Wood, Glasgow; V. E. Madeley, Stoke-on-Trent.

APRIL 1949 AIRCRAFT DRAWING CONTEST

1st Prize: D. Pratt, London N.W.6. 2nd Prize: J. Hellings, Cuddington. 3rd Prize: K. G. Rush, Luton. Consolation Prizes: R. Francis, Crewe; K. R. Pargeter, Stourbridge; B. H. Croft, Pudsey; R. G. Holding, Colwyn Bay; J. E. Holding, Colwyn Bay; I. Cockburn, Ventnor, I.O.W.

APRIL 1949 PHOTOGRAPHIC CONTEST

1st Prize, Section A: S. S. Pethybridge, Newton Abbot; Section B: D. Bottomley, Isleworth. 2nd Prize, Section A: Mrs. I. Hardwick, Burnham-on-Sea; Section B: P. J. Stone, Calstock. 3rd Prize, Section A: J. McM. Neish, Glasgow C.3; Section B: A. E. W. Hobbs, Exeter. Consolation Prizes: F. G. Reynolds, Sidcup; G. S. Finlayson, Southampton; W. Forsch, Stoke-on-Trent; R. A. Rees, Cardiff; M. Rapley, Ilford; G. M. James, Sandbanks.

MAY 1949 SLOGANS CONTEST

1st Prize: R. M. Ruegg, Leeds 6. 2nd Prize: D. Sisman, Falkirk. 3rd Prize: C. M. Laird, Glasgow S.3. Consolation Prizes: B. Sheppard, Croydon; R. Rann, London N.13; P. J. Taylor, Leicester.

MAY 1949 LOCOMOTIVE CONTEST

1st Prize: B. E. Timmins, Birmingham 24. 2nd Prize: N. B. Watson, Market Rasen. 3rd Prize: A. J. Peacock, Darlington. Consolation Prizes: M. J. Hodgson, Sheffield 6; D. H. Muir, Glasgow; A. Darlow, Sheffield 5.

MAY 1949 PHOTOGRAPHIC CONTEST

1st Prize, Section A: L. H. Hobbs, Exeter; Section B: M. Fox, Ilford. 2nd Prize, Section A: C. K. Benington, Ballymoney; Section B: P. Clifford, Wembley. 3rd Prize, Section A: P. Tilbrook, London N.13; Section B: D. Elliott, Portaferry. Consolation Prizes: H. Fox, Ilford; P. Howard, Waddon; J. R. Norris, Nottingham; H. O. Thomas, Aldershot; R. H. Weeks, Carlisle; H. Meyer, Chandler's Ford; J. McWhor, Meols; C. E. Richardson, Mansfield; J. S. Walker, Crook.

OVERSEAS

NOVEMBER 1948 LOCOMOTIVE SHADOWS CONTEST

1st Prize: R. Thompson, Madras, India. 2nd Prize: J. MacDonald, Dublin, Eire. 3rd Prize: T. F. Houston, Cairo, Egypt. Consolation Prize: E. H. Parker, South Otago, N.Z.

NOVEMBER 1948 PHOTOGRAPHIC CONTEST

1st Prize, Section A: T. Burke, Dublin, Eire; Section B: J. Russell, Sarnia, S. Africa. 2nd Prize, Section A: Miss N. P. Milne, Hawke's Bay, N.Z.; Section B: B. R. Helsby, Alexandria, Egypt. 3rd Prize, Section A: J. A. Watkins, Mysore, India; Section B: F. Thomas, Washington, U.S.A. Consolation Prize: D. Hicks, B.A.O.R. (1)

DECEMBER 1948 ADVERTISEMENT CONTEST

1st Prize: F. Jensen, Copenhagen, Denmark. 2nd Prize: R. Fields, East London, S. Africa. 3rd Prize: P. V. Hughes, Nedlands, W. Australia. Consolation Prizes: A. F. Woodbury, Dunedin, N.Z.; J. Pope, Lower Mitcham, S. Australia; B. K. Jeffrey, Jesselton, North Borneo.

DECEMBER 1948 QUIZ CONTEST

1st Prize: H. Singh, Madras, India. 2nd Prize: K. T. Bedster, Melbourne, Australia. 3rd Prize: L. Tooms, Ohio, U.S.A. Consolation Prize: K. R. Cassells, Wellington, N.Z.

DECEMBER 1948 PHOTOGRAPHIC CONTEST

1st Prize, Section A: P. T. Rogers, Halifax, Canada; Section B: K. Lynch, Johannesburg, S. Africa. 2nd Prize, Section A: A. Hufford, Waterford, Eire; Section B: B. Jessup, New Orleans, U.S.A. 3rd Prize, Section A: J. C. Carter, Cape Town, S. Africa; Section B: R. T. Young, Kilwa, Tanganyika. Consolation Prize: Miss N. P. Milne, Hawke's Bay, N.Z.

SOLUTIONS

DECEMBER 1948 ADVERTISEMENT CONTEST

Allan, Astra, Baer, Bond's, B.S.A., Dinky Toys, Drydex, Halford, Hamley, Hercules, Hobbies, Hornby, I.C.S., Meccano, Rush, S.E.L., Selfridges, Windsor, Wolsey.

DECEMBER 1948 QUIZ CONTEST

1. Andover. 2. Wrexham. 3. Burnham. 4. Newquay. 5. Tooting. 6. Kew. 7. Barking. 8. Sevenoaks. 9. Crewe. 10. Kirton. 11. Staines. 12. Paignton. 13. Lancing. 14. Newport. 15. Felixstowe.



"Rosebud and Roses." A prize-winning entry in the June Photographic Contest. Taken by L. H. Hobbs, Exeter, who brightened his print by using oil colours.

Fireside Fun

"The doctor tells me I need a change of air, Tam."
 "Well, lassie, the radio says there'll be a change in the wind in the morn, so mebbe ye'll be better then."



"Your husband's a poor sailor, isn't he?"
 "Not at all. He's a rich manufacturer."

"Tell me about your exciting duties. Have you had any thrilling experiences?"

"Yes, my most thrilling escape was when I fell from a 50 ft. ladder," said the fireman.

"Really! But it doesn't seem to have done you much harm."

"No, it didn't. You see, I was only on the bottom rung."

"Yes, that ship can steam more than 20 knots."

"How nice for the sailors!"

"What difference does it make to them?"

"They must find it easier to untie the knots when they are steamed."

"Oh, policeman. I've just found my watch missing."

"Don't be silly, mum. If you've found it how can it be missing?"

"Oh, dear. I mean I haven't found it missing."

"Well, then, there's nothing for me to do about it."

"Yes, sir, I was sent to prison for telling the truth."

"Dear, dear. How did that come about?"

"They asked me if I was guilty an' I said I was."



Optician: "Can you read the bottom line on the chart?"

Old Countryman: "No."

Optician: "Good. I'll fix you up so that you can."

Old Countryman: "Wonderful. Eddication an' specs an' both free. I never learned to read when I was a boy."

BRAIN TEASERS MIXED MOTORS

Below are given five sets of names of well-known motor cars. From each set make up the name of another car by taking one, two or three letters from each of the names in the group, but where two or three are taken these must be consecutive.

1. TRIUMPH, WOLSELEY.
2. AUSTIN, HILLMAN, DAIMLER, FORD.
3. CHEVROLET, MERCURY, CROSSLEY, SINGER.
4. LANCHESTER, ALVIS, RILEY.
5. ALVIS, LAGONDA, FORD.

T.R.D.

ANY PAINTED ON FOUR SIDES?

A cube measuring 12 in. in each direction is painted. Then it is cut into cubes with edges 1 in. long. How many cubes will be painted on 1, 2 and 3 sides respectively, and how many will not be painted at all?



Barber (surveying customer thoughtfully): "Hair cut or polish, sir?"

QUICK WORDS

Each of the following clues when taken very literally leads to a common English word. What are the four words?

1. Doctor near stern forms selection.
2. Graduate of rank seems to be ill.
3. Officer made contact in the sky.
4. Diana's sport is on exhibition.

SOLUTIONS TO LAST MONTH'S PUZZLES

The herrings of our first puzzle last month cost the fishmonger 3½d., so that the profit was ½d, whether one was sold at 4½d. or three were disposed of for 1/-.

The hidden message in our second puzzle is made up of the middle letters of the words given, each of which has in it an odd number of letters. It reads USE DINKY TOYS WITH DUBLO TRAINS.

The solution of the word square problem is shown in the accompanying illustration.

The four words required in our last puzzle are RATS, TARS, STAR and ARTS.

T	O	N	E
O	V	E	R
N	E	A	R
E	R	R	S

THIS MONTH'S HOWLER

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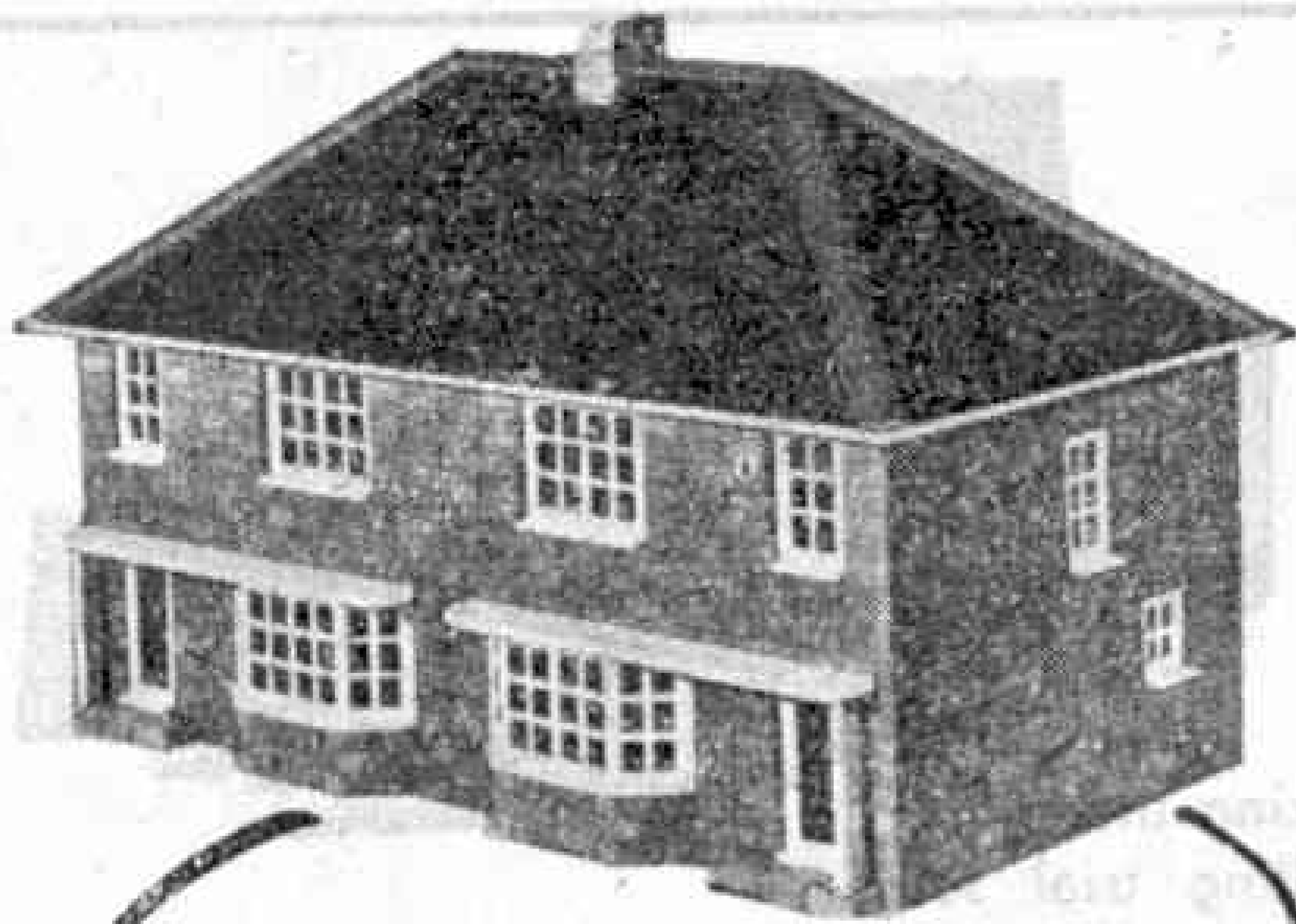
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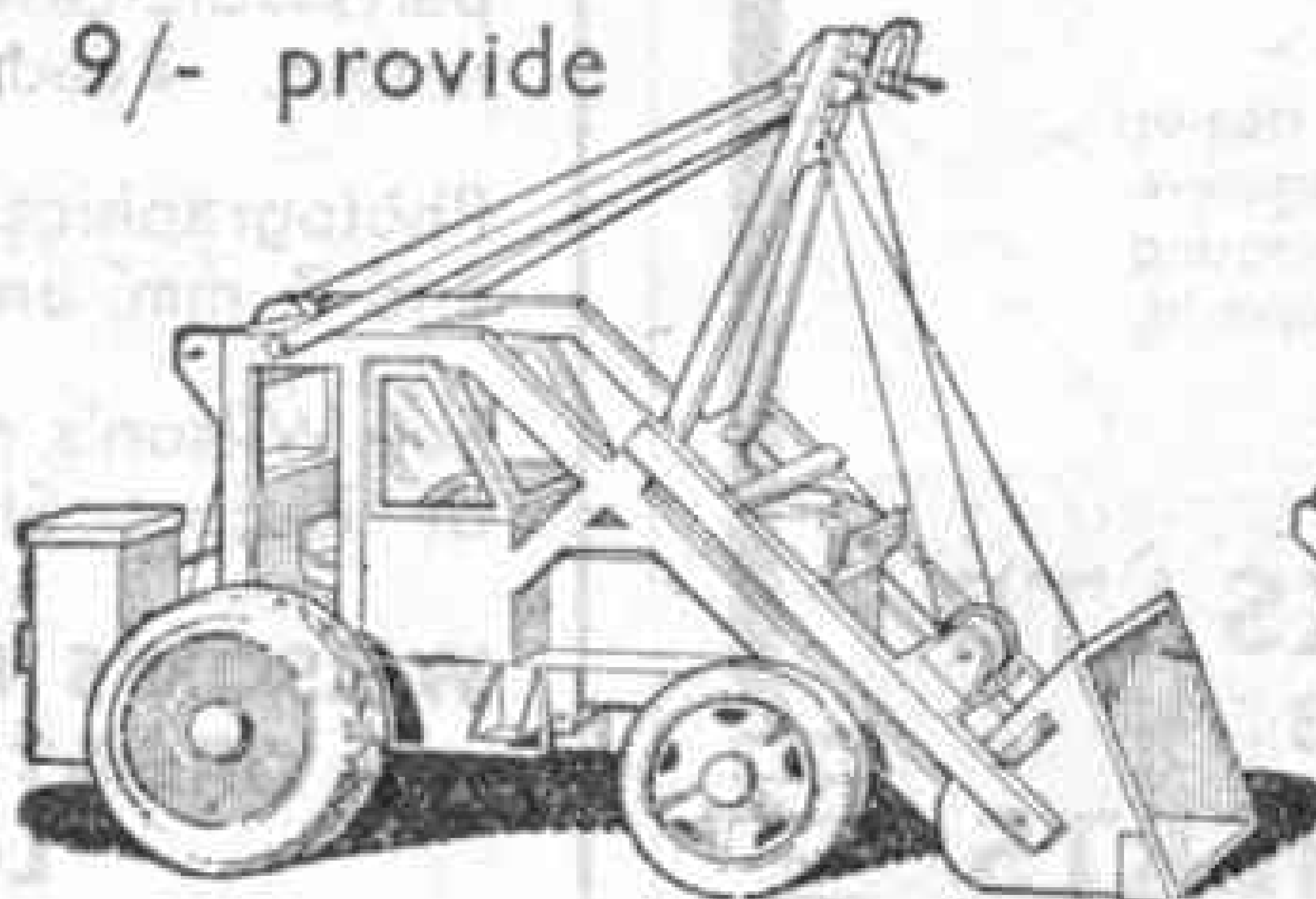
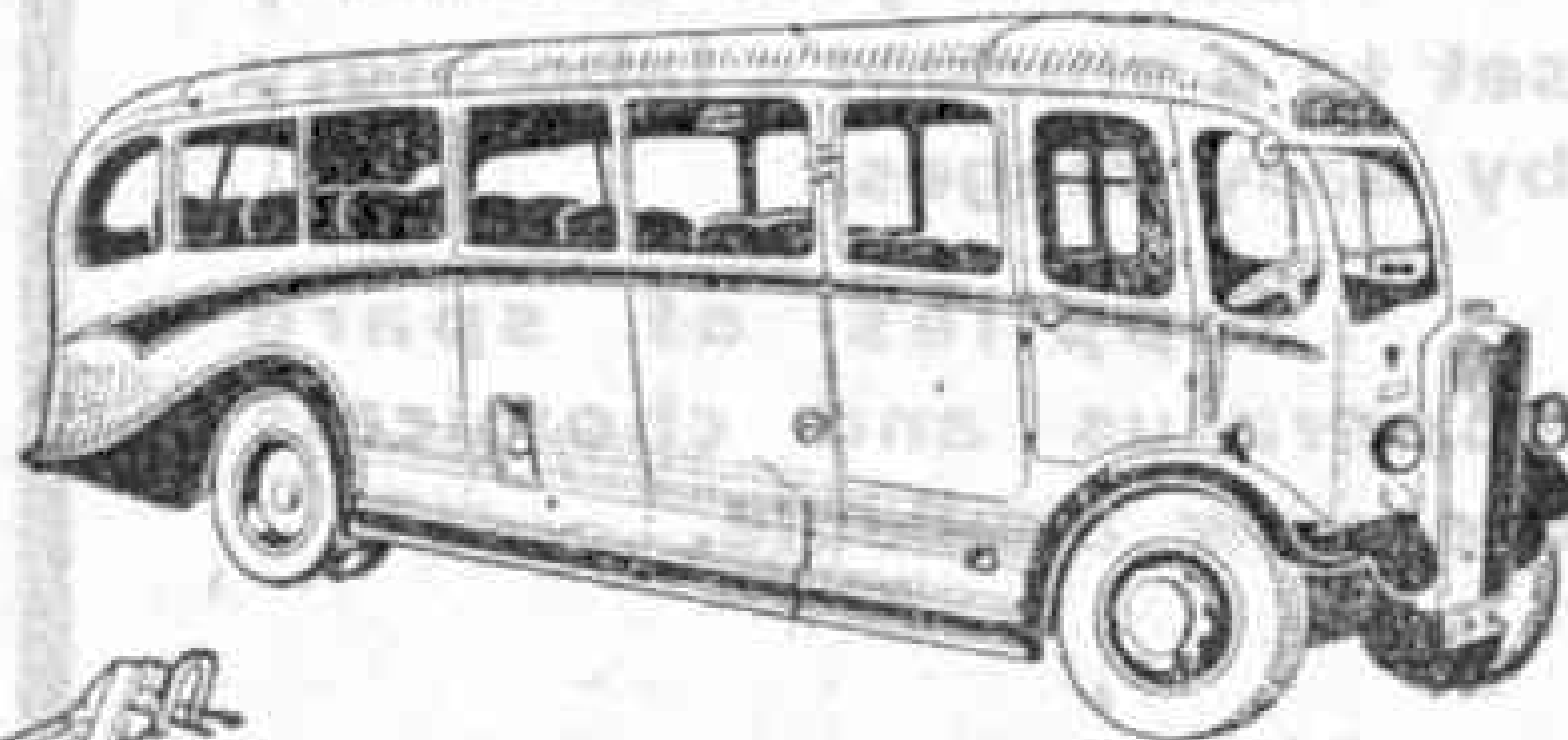
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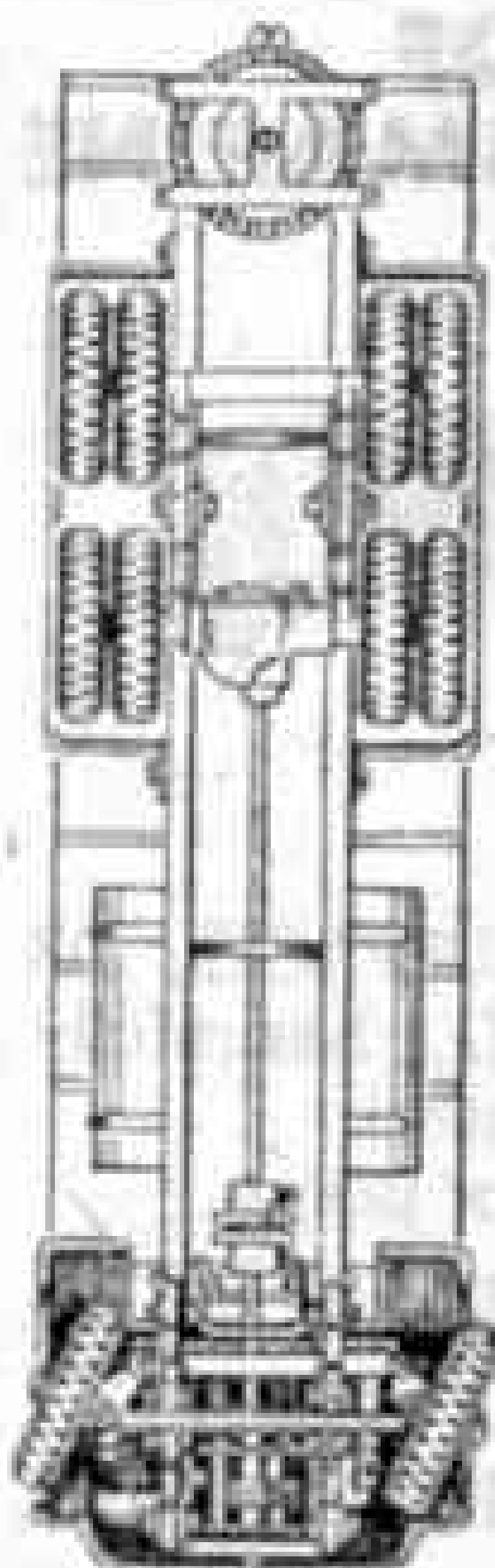
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"M.M.s" January 1944 to August 1947, perfect; offers.—**Crawford, Crakehall Vicarage, Bedale, Yorks.**

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