

VOL. XXXVII. No.6

JUNE 1952

MECCANO

MAGAZINE



A "BRITANNIA" SPEEDING WESTWARD

9^p

THE MECCANO MAGAZINE

DINKY TOYS

TRADE MARK REGD.



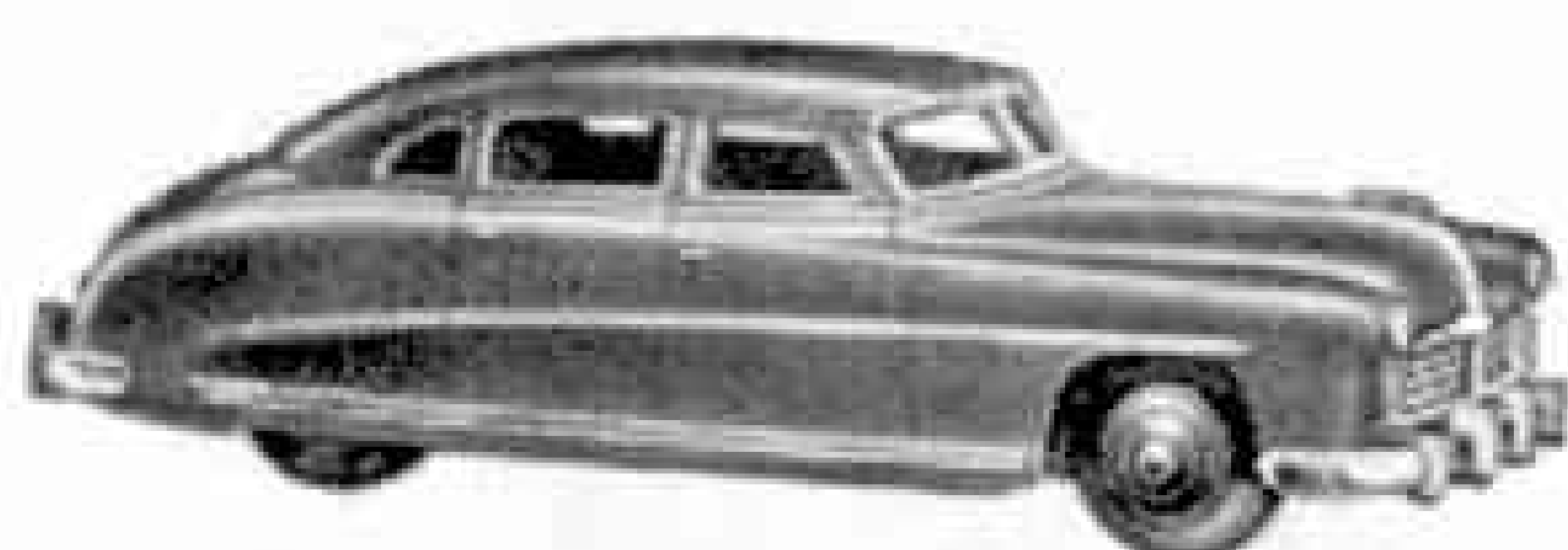
Morris Oxford Saloon
No. 40g
2/11



Austin "Atlantic" Convertible
No. 140a
3/11



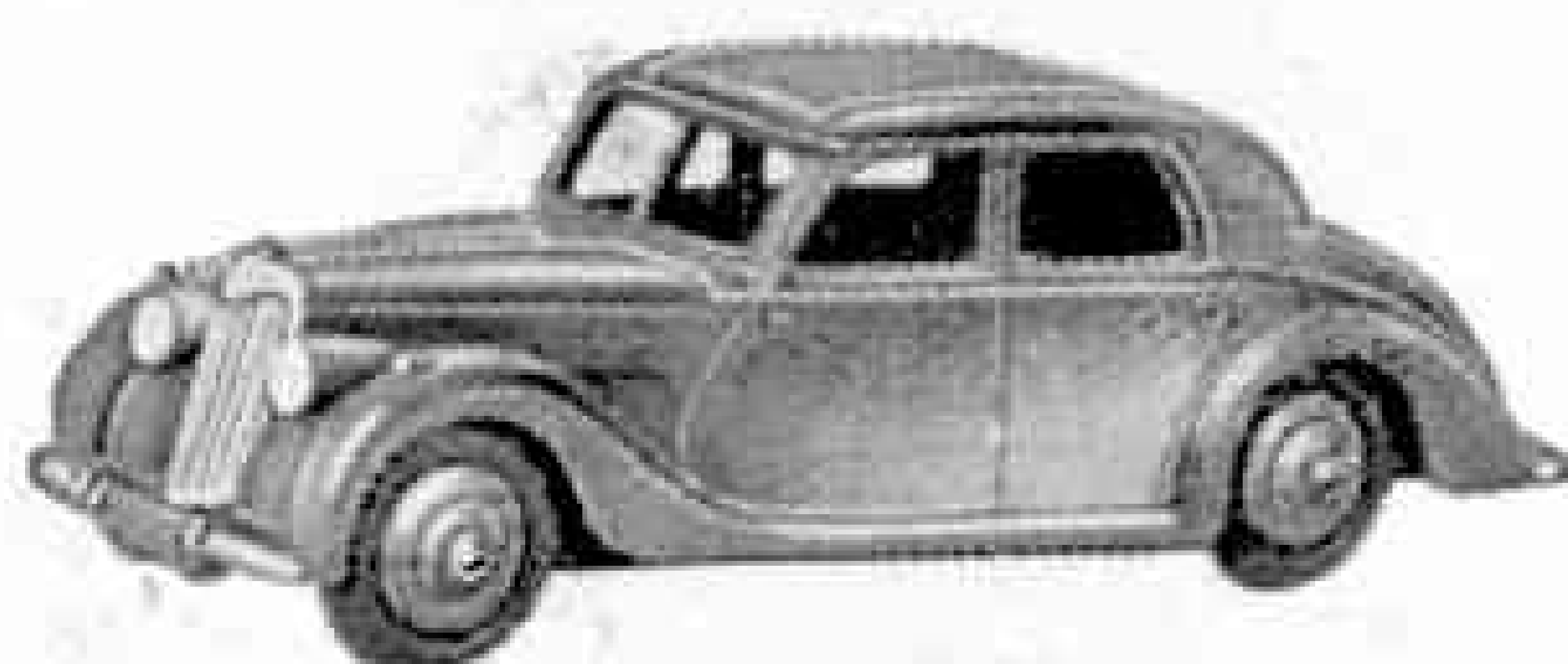
Breakdown Lorry
No. 25x
6/6



Hudson
"Commodore" Sedan
No. 139b
3/9



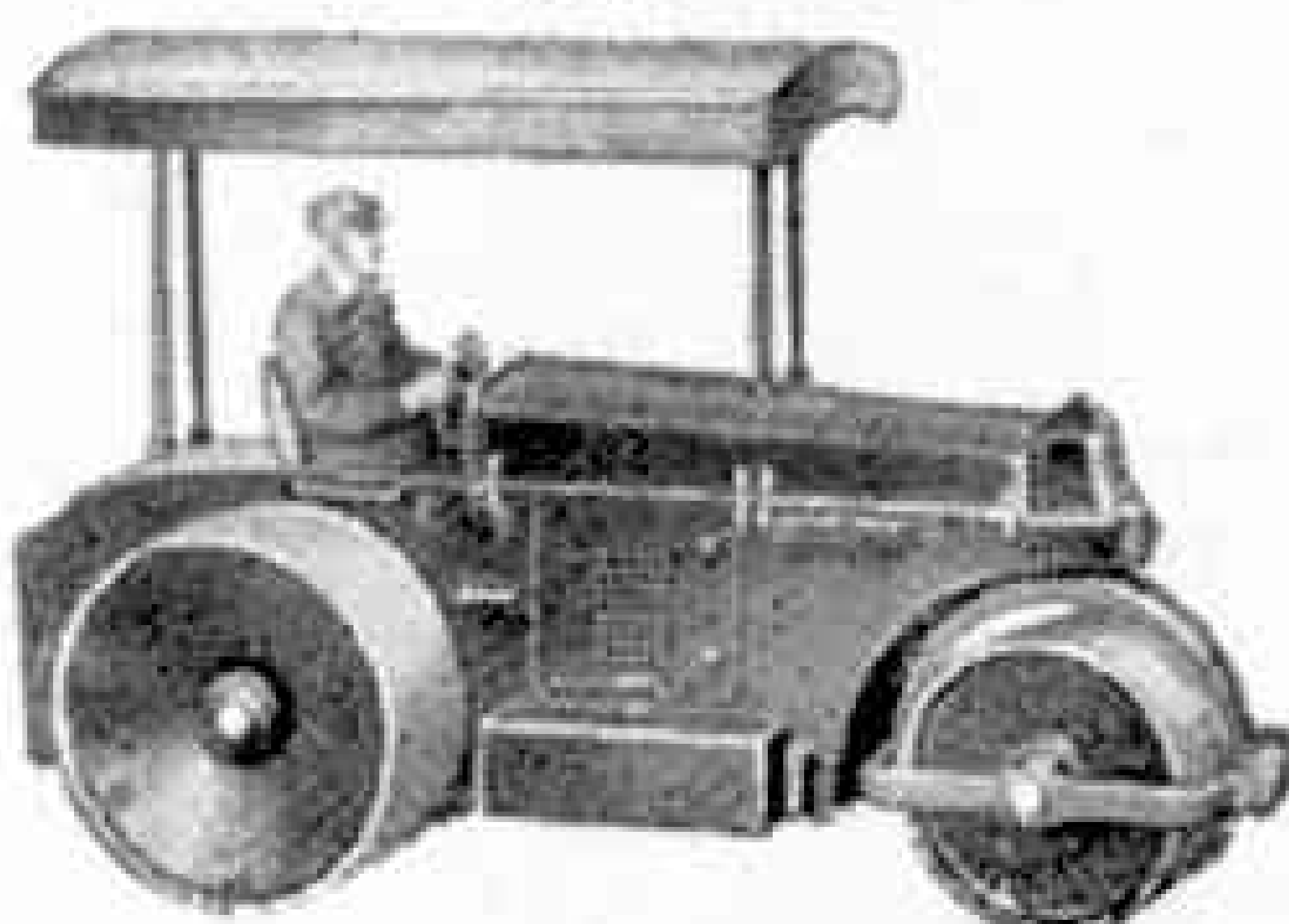
Trojan 15-cwt. Van "Dunlop"
No. 31b
2/11



Riley Saloon
No. 40a
2/11



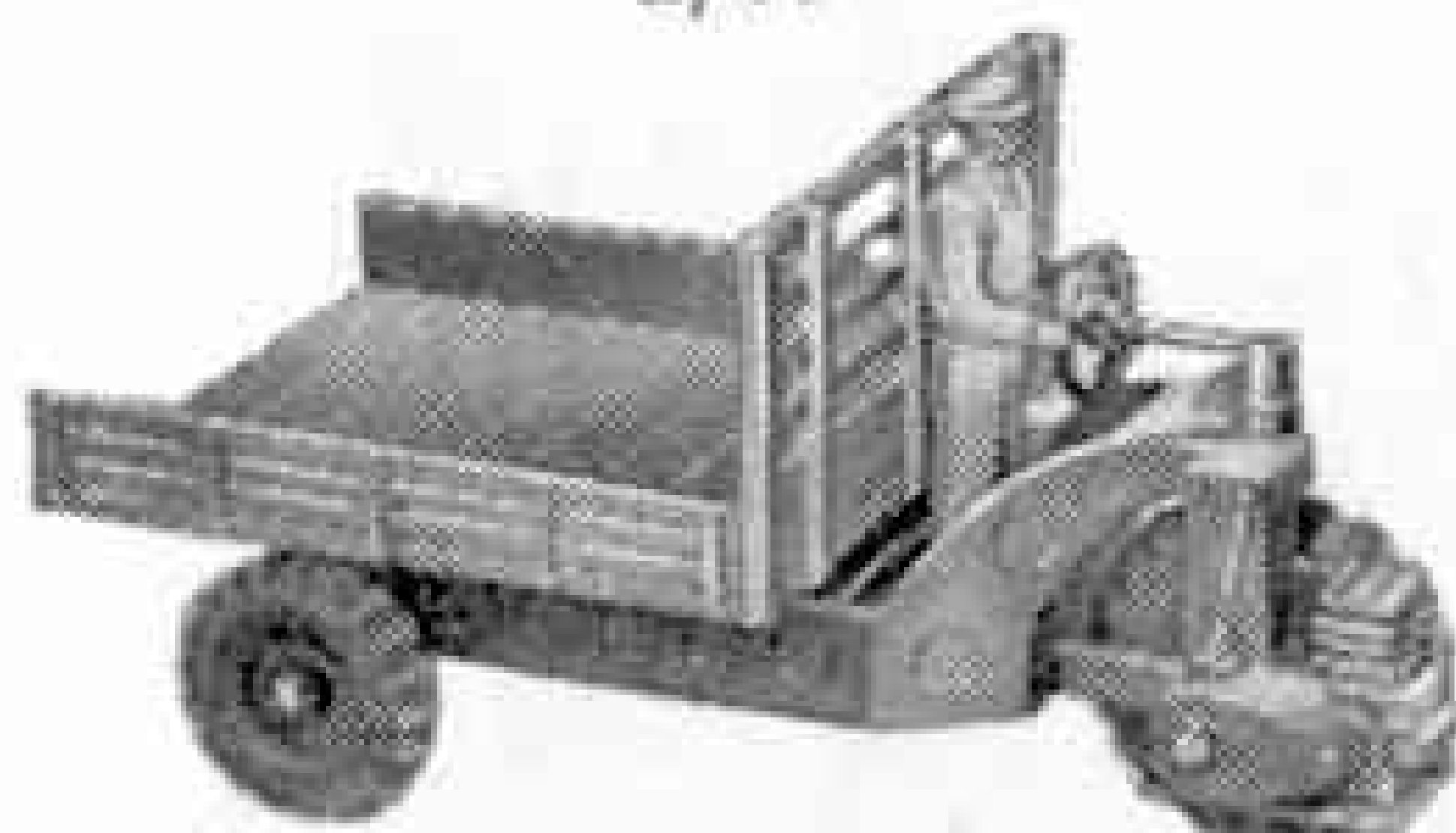
Austin Wagon
No. 30j
2/11



Aveling-Barford Diesel Roller
No. 25p
4/4



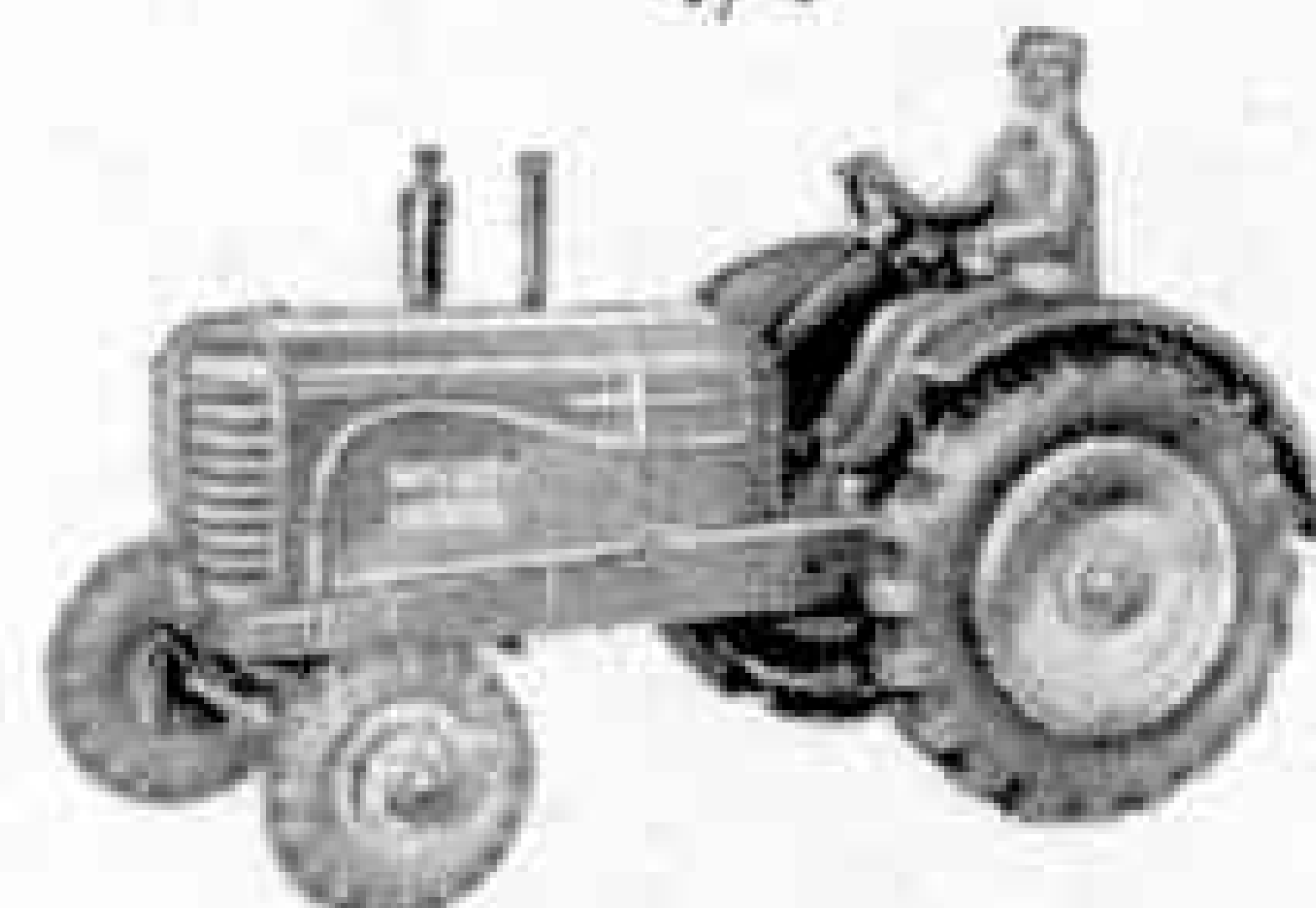
Bedford Truck
No. 25w
4/4



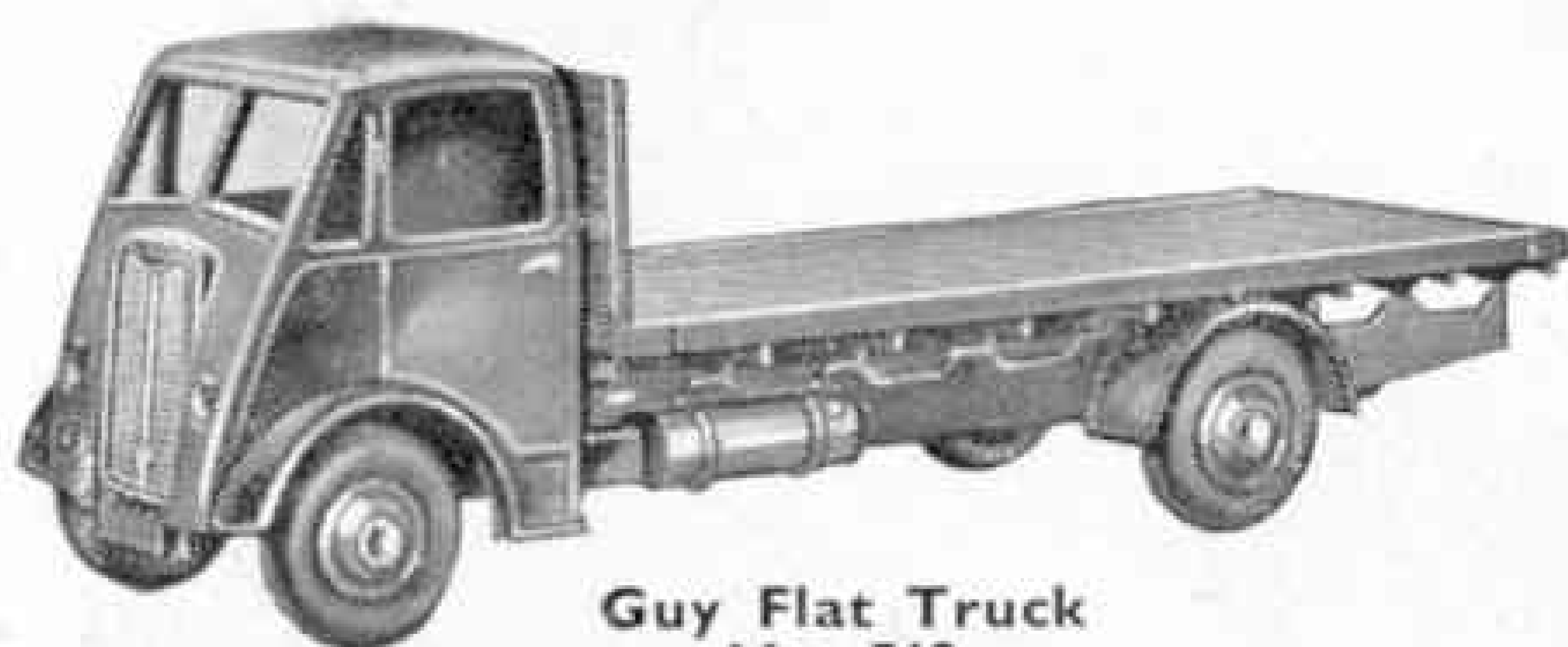
Motocart
No. 27g
5/3



Estate Car
No. 27f
3/5



Massey-Harris Tractor
No. 27a
4/8



Guy Flat Truck
No. 512
5/11



Guy Van
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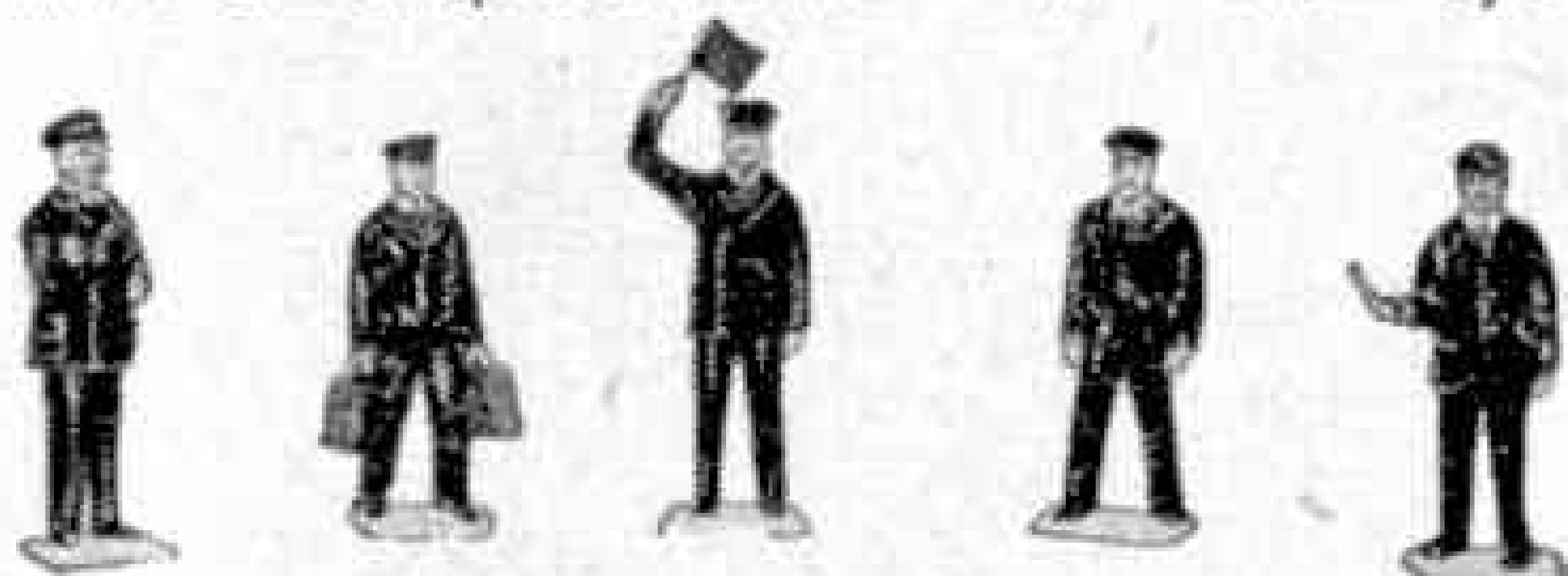
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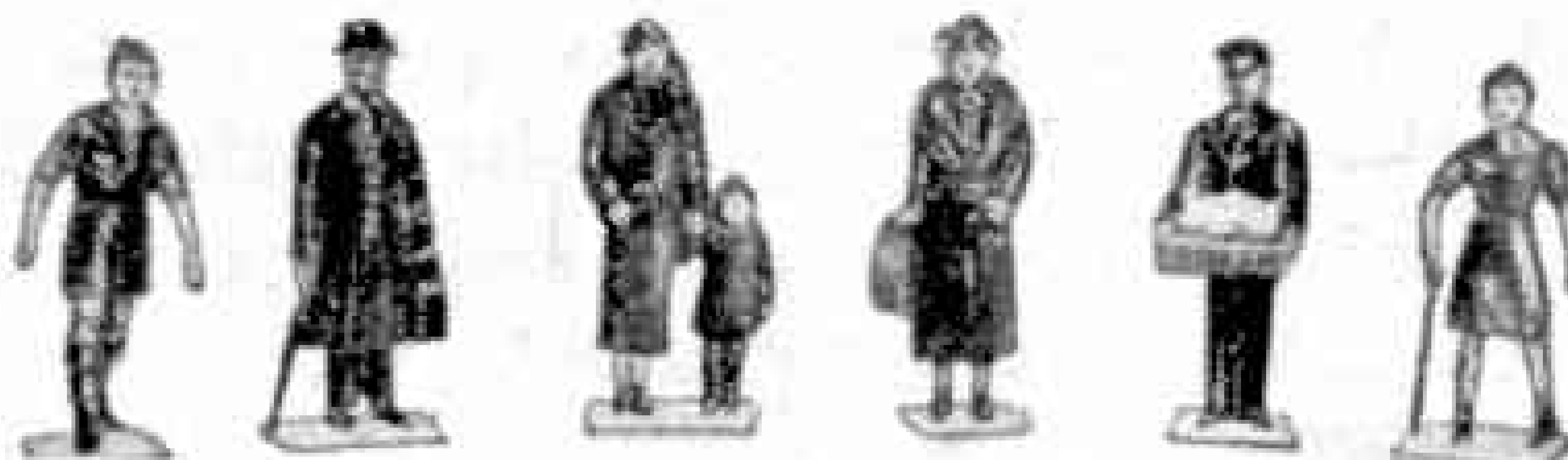
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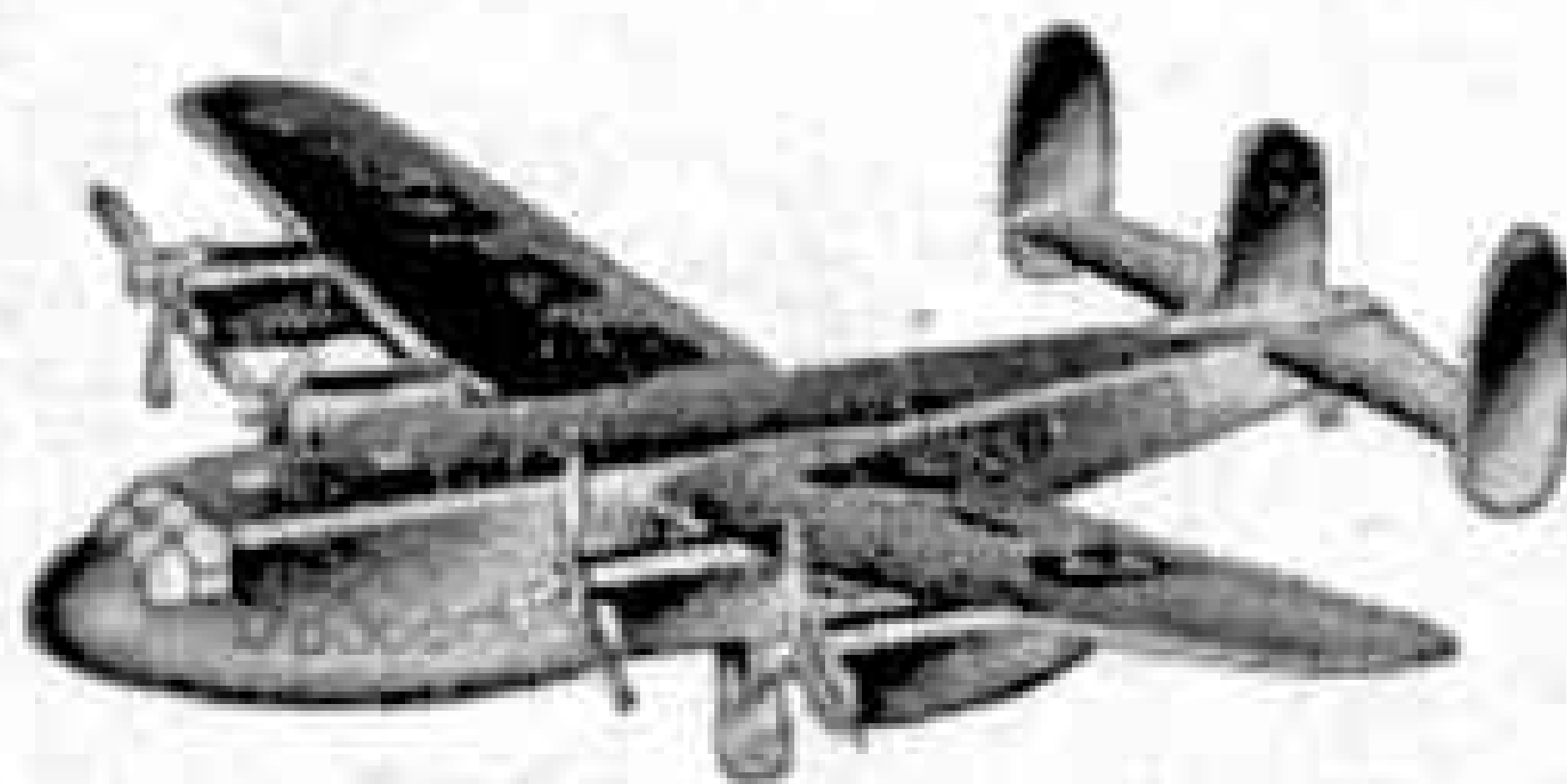
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1/10



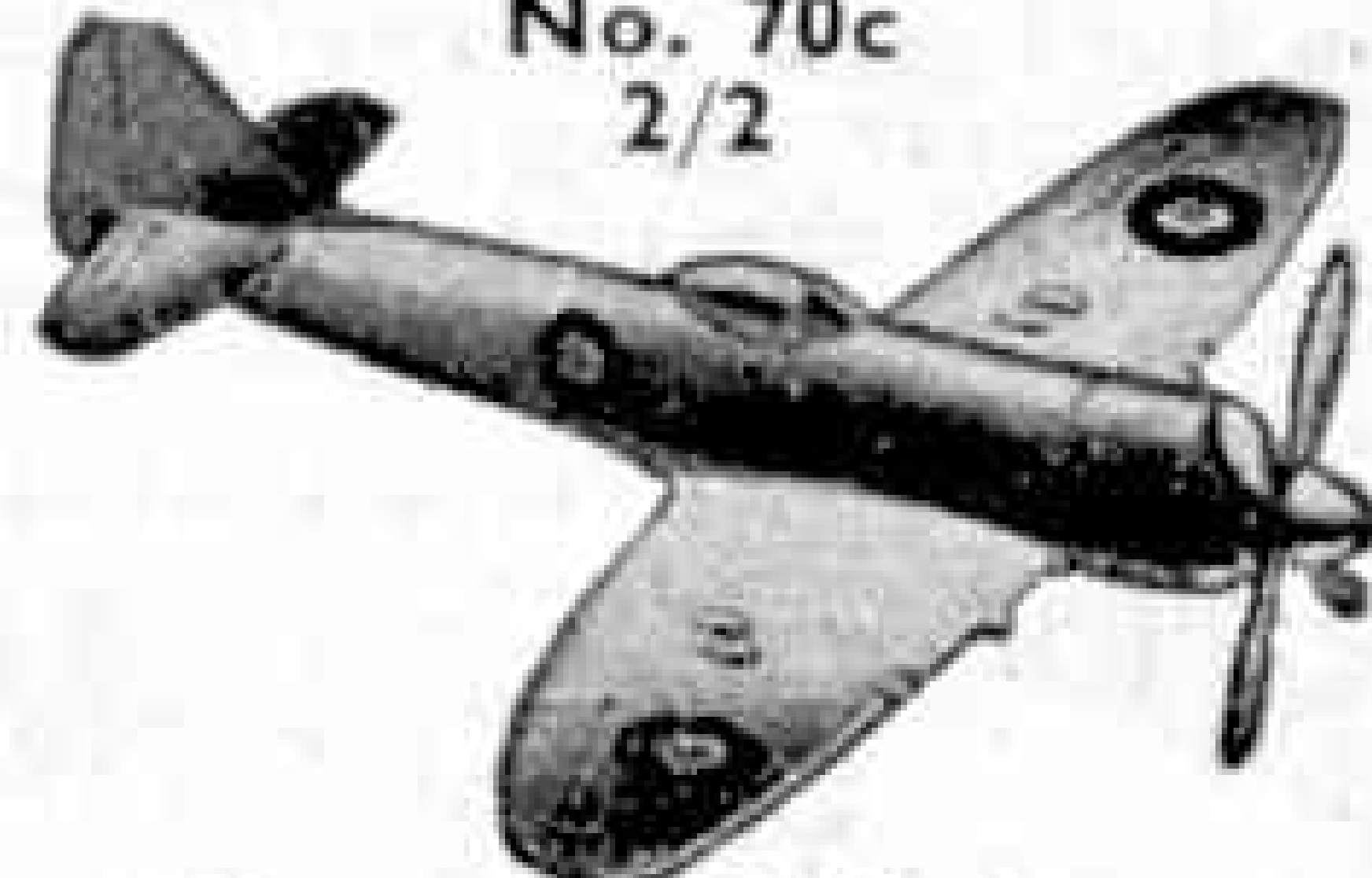
Meteor Twin Jet Fighter
No. 70e
11d.



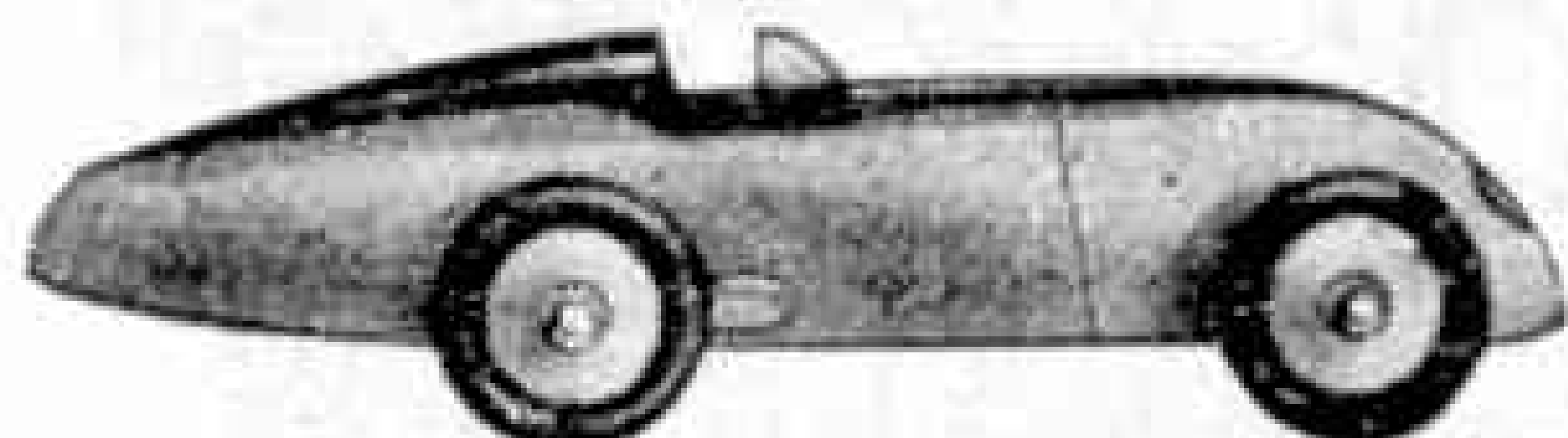
Avro "York" Air Liner
No. 70a
3/9



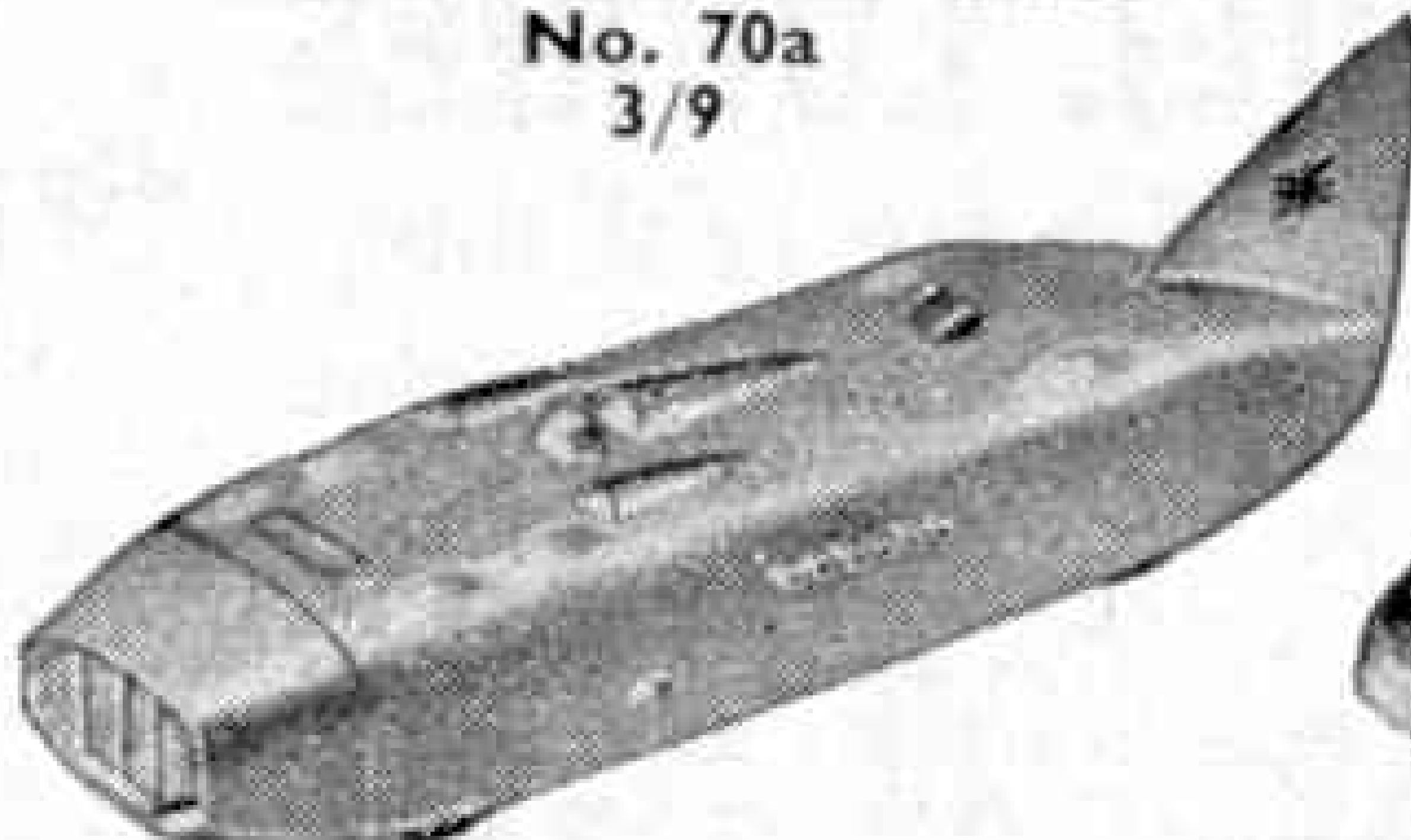
"Viking" Air Liner
No. 70c
2/2



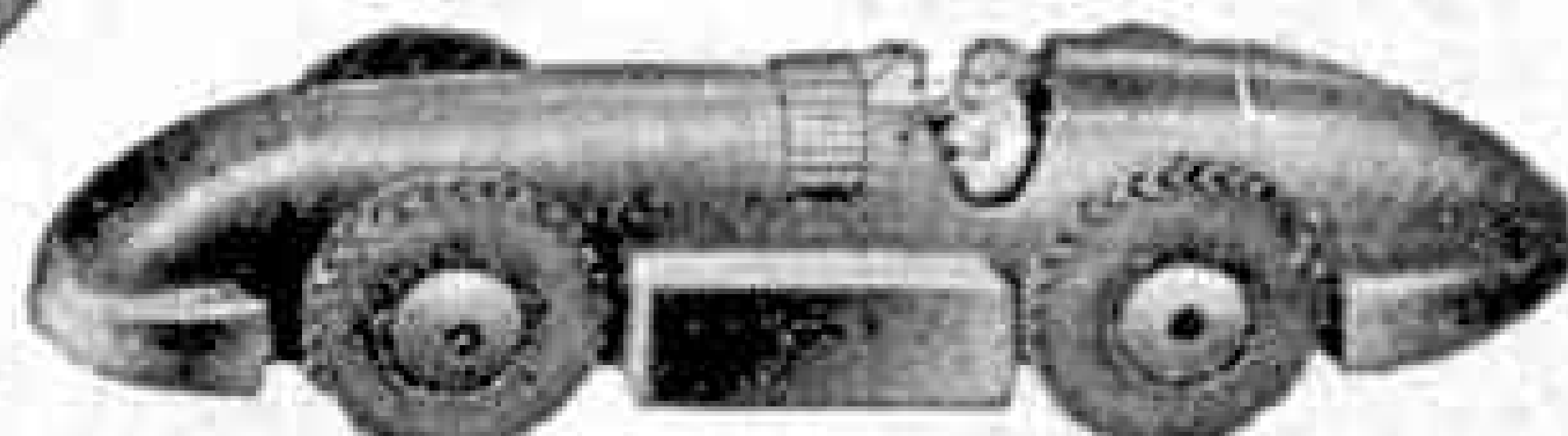
Tempest II Fighter
No. 70b
10d.



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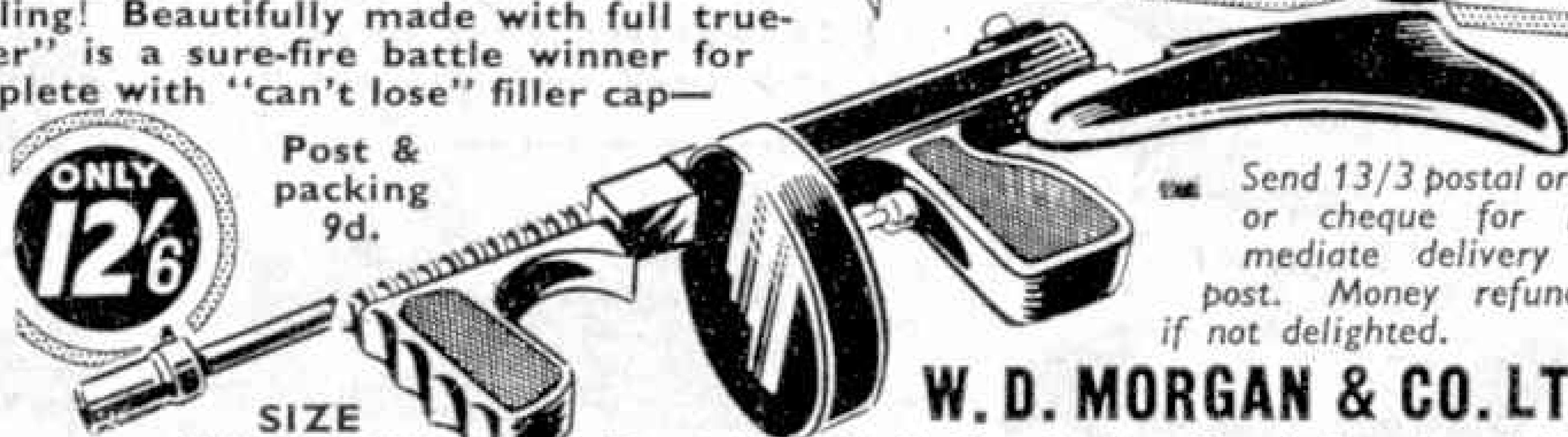
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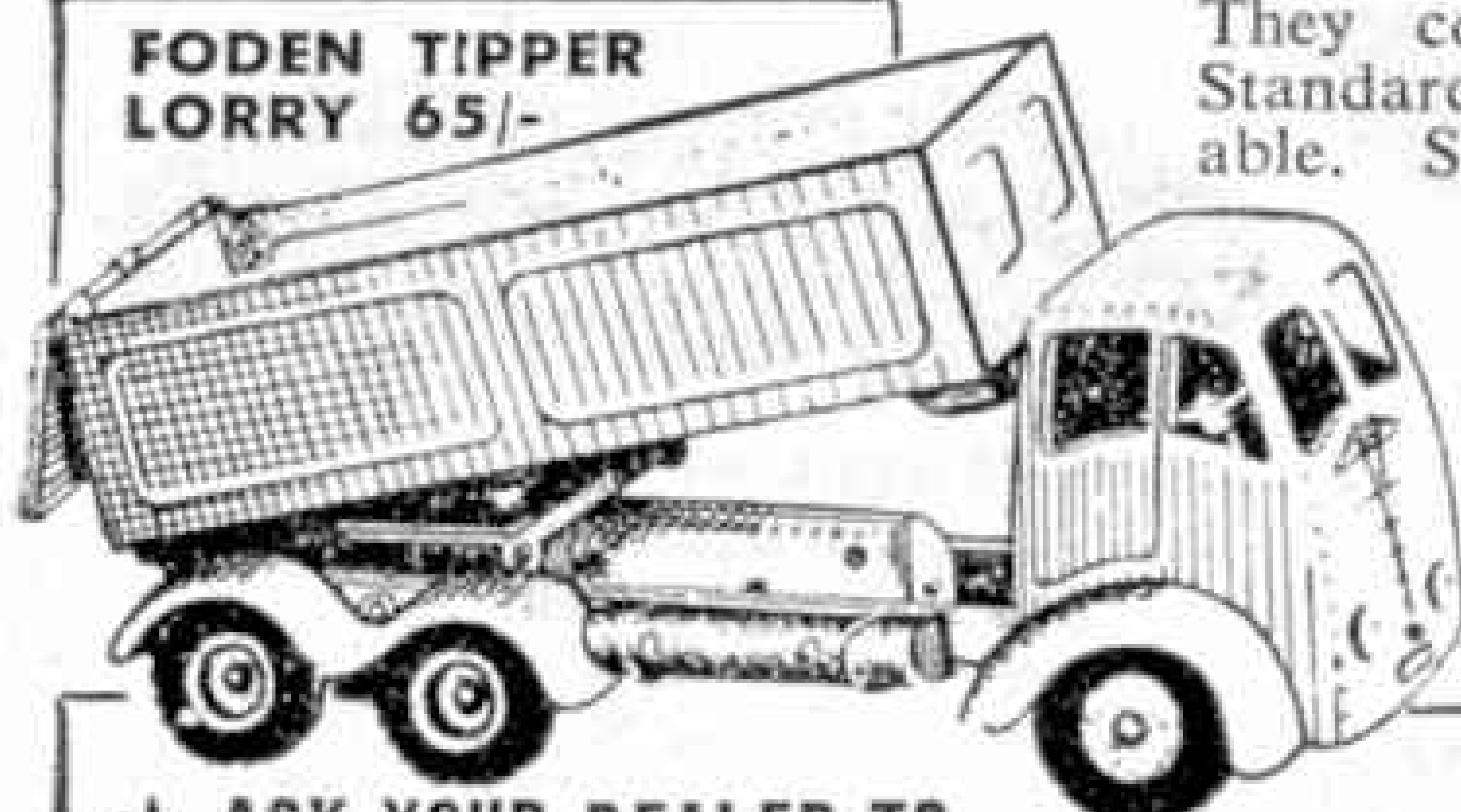
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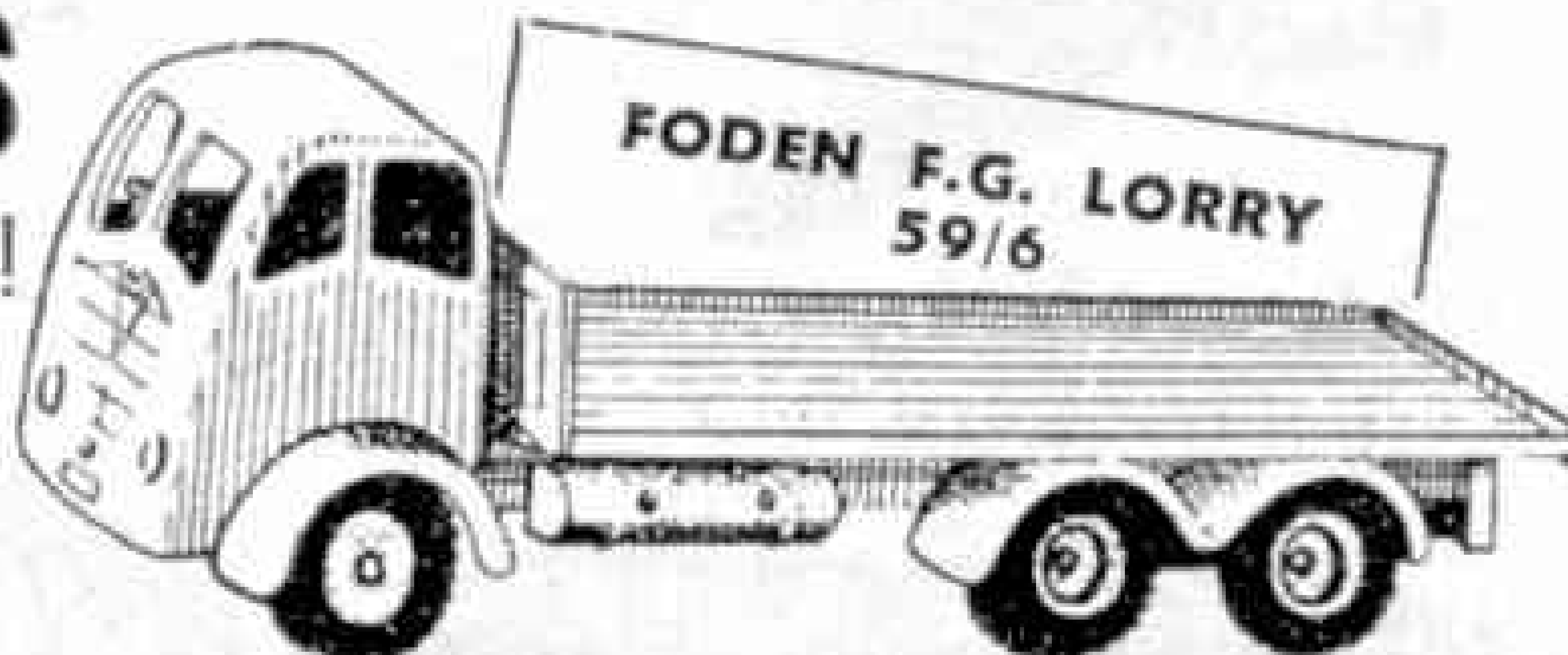
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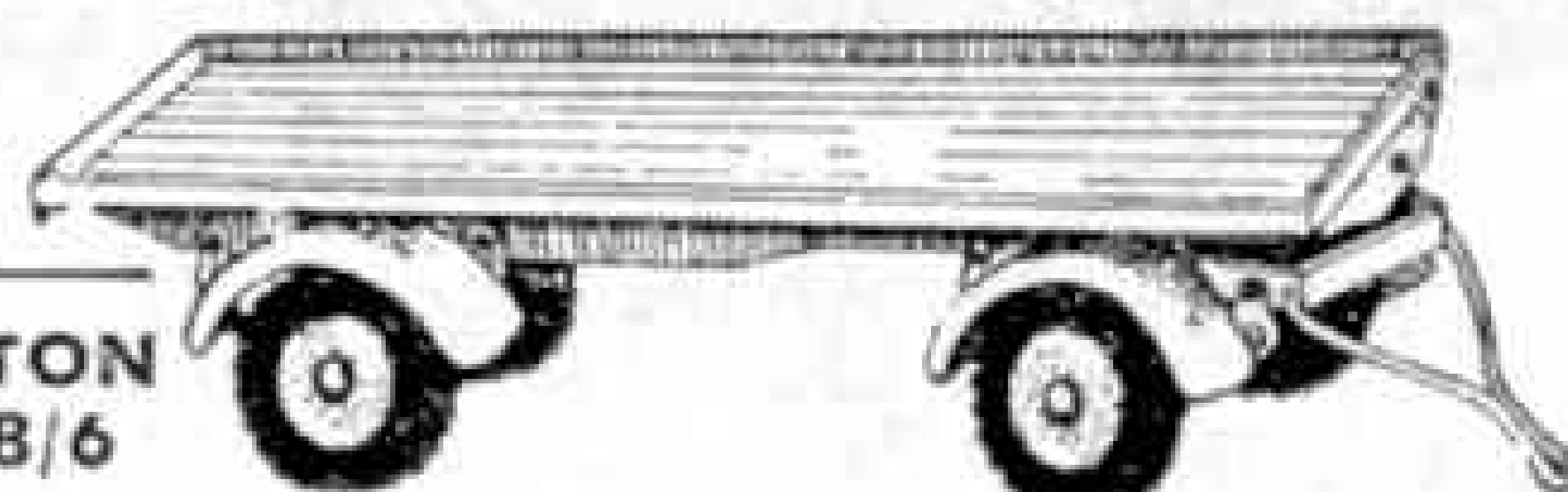
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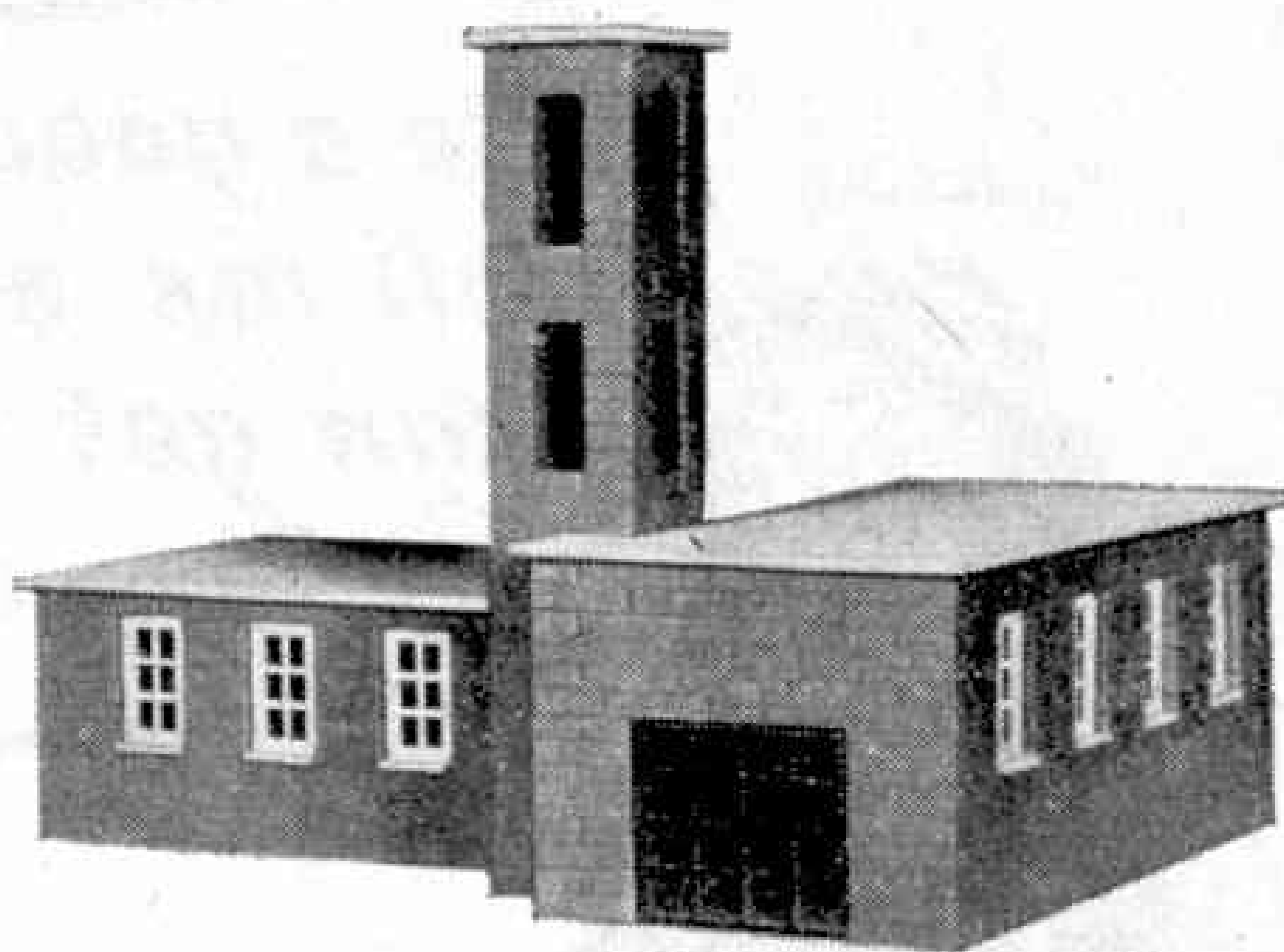


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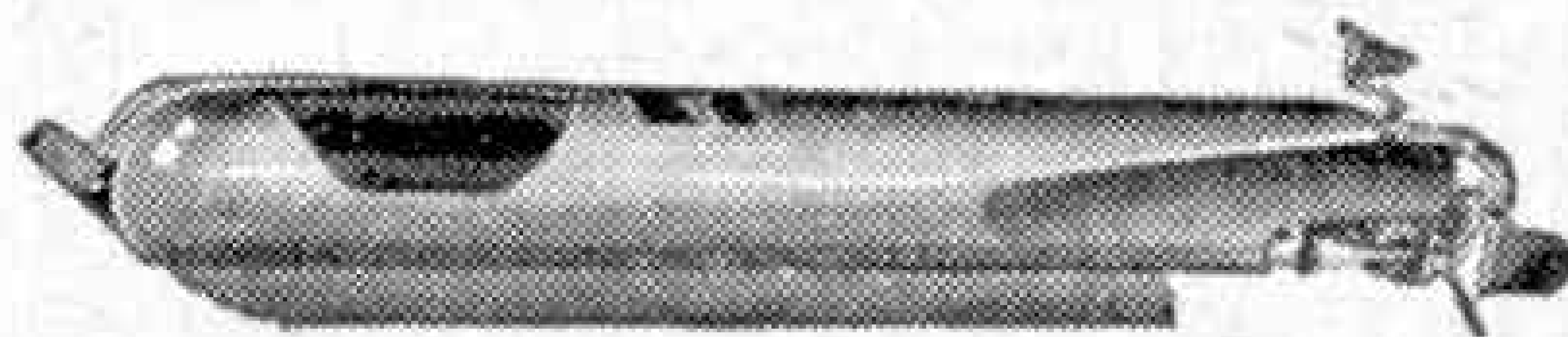
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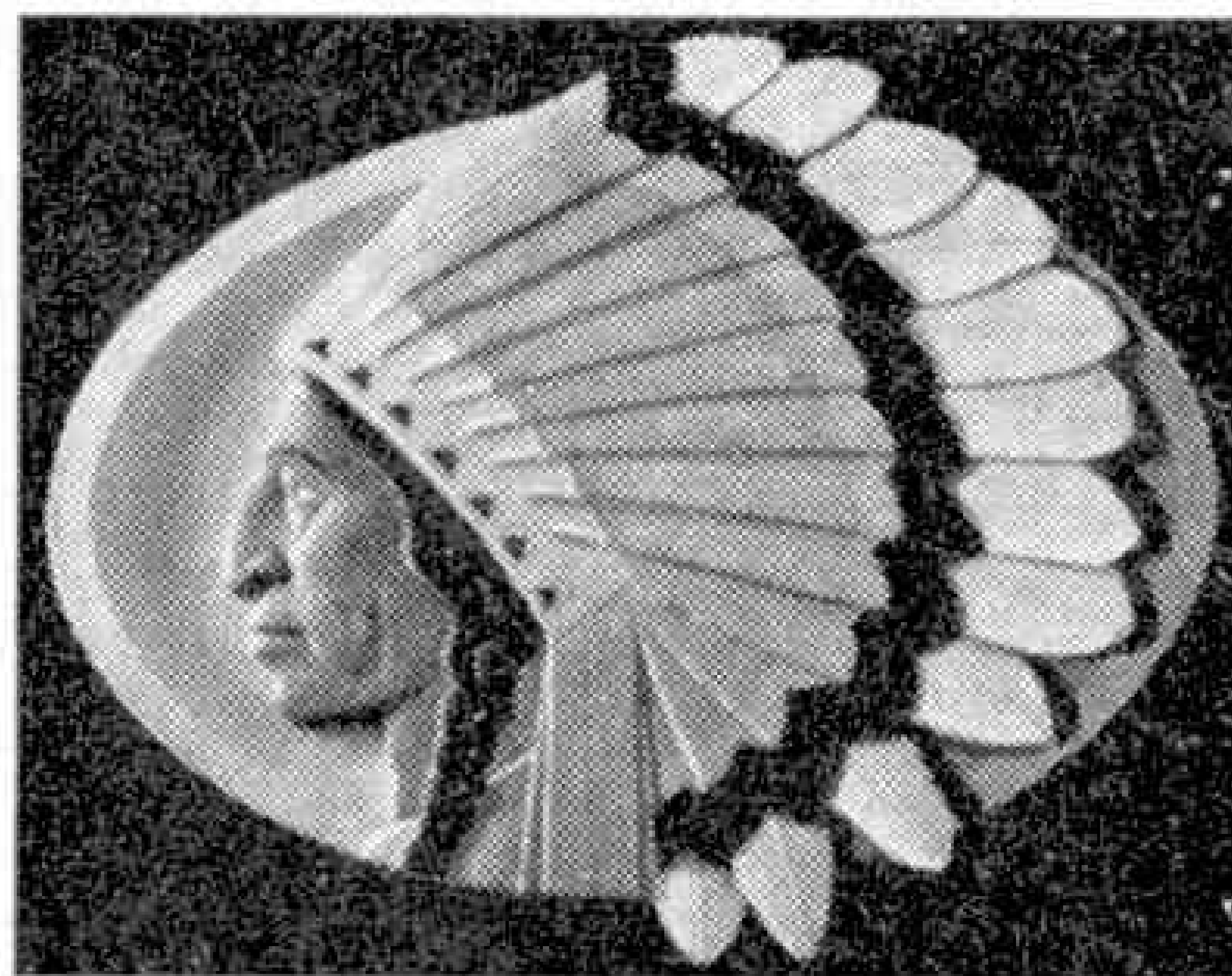
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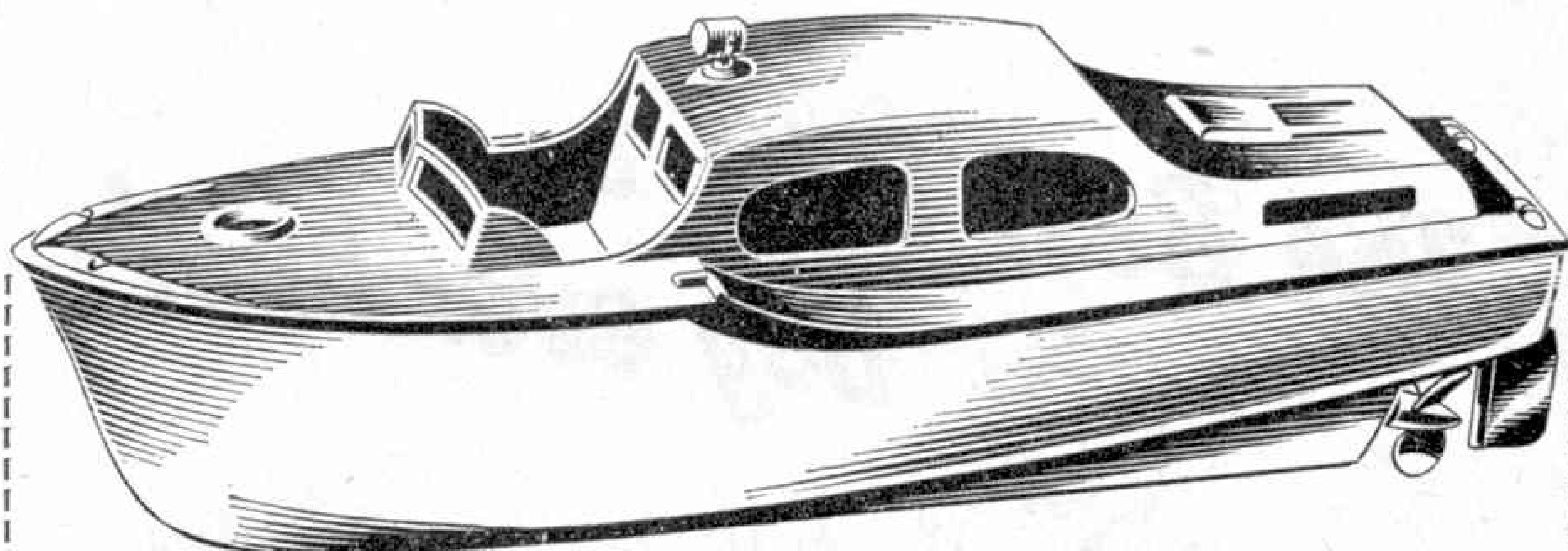
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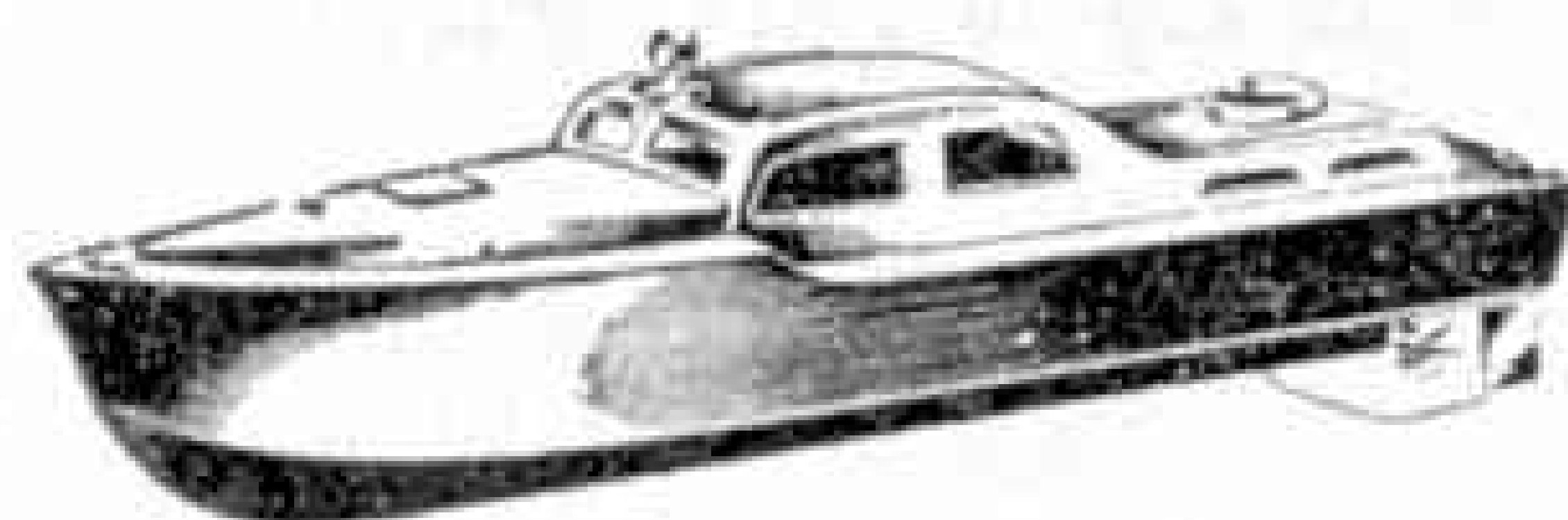
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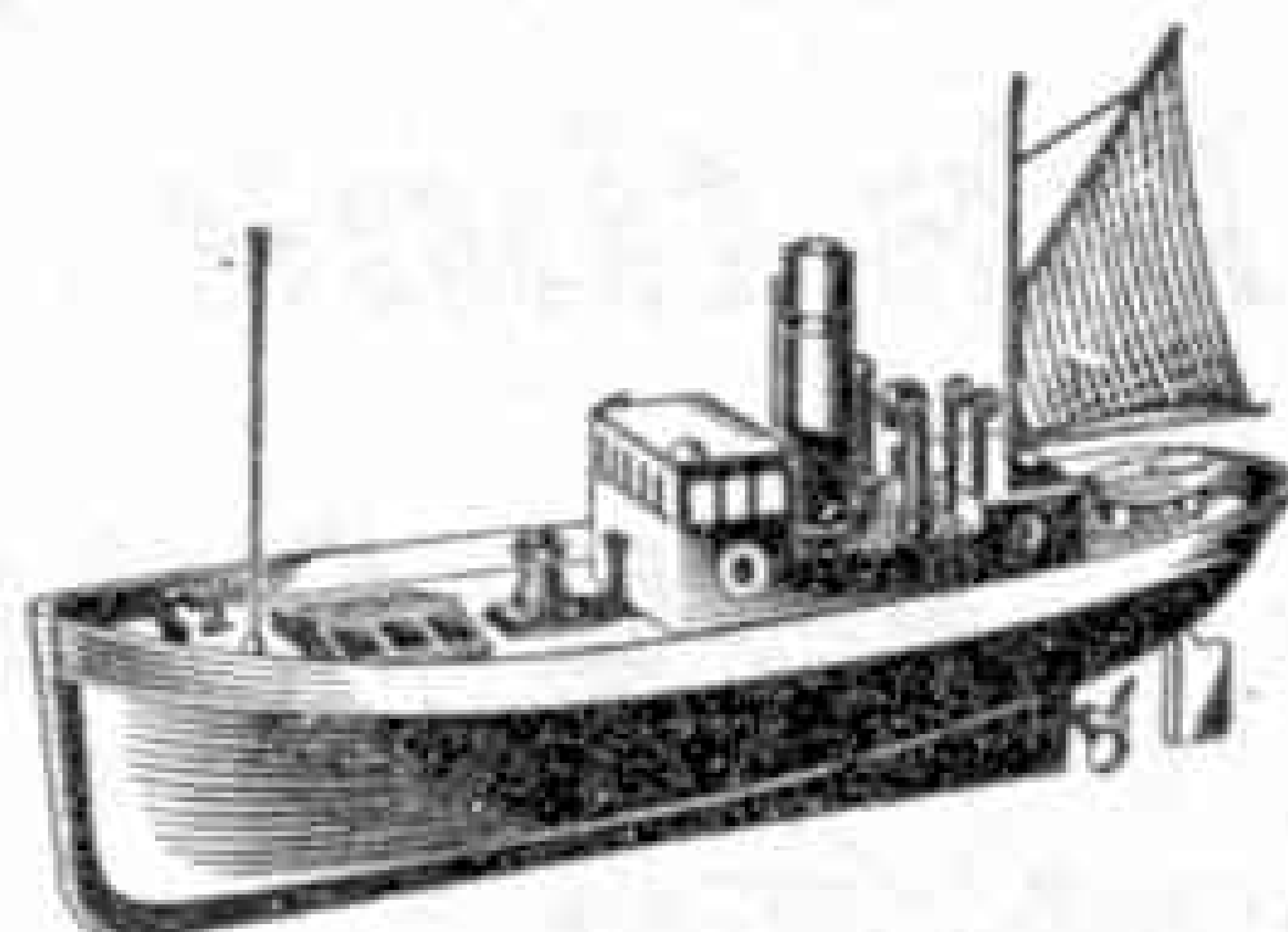
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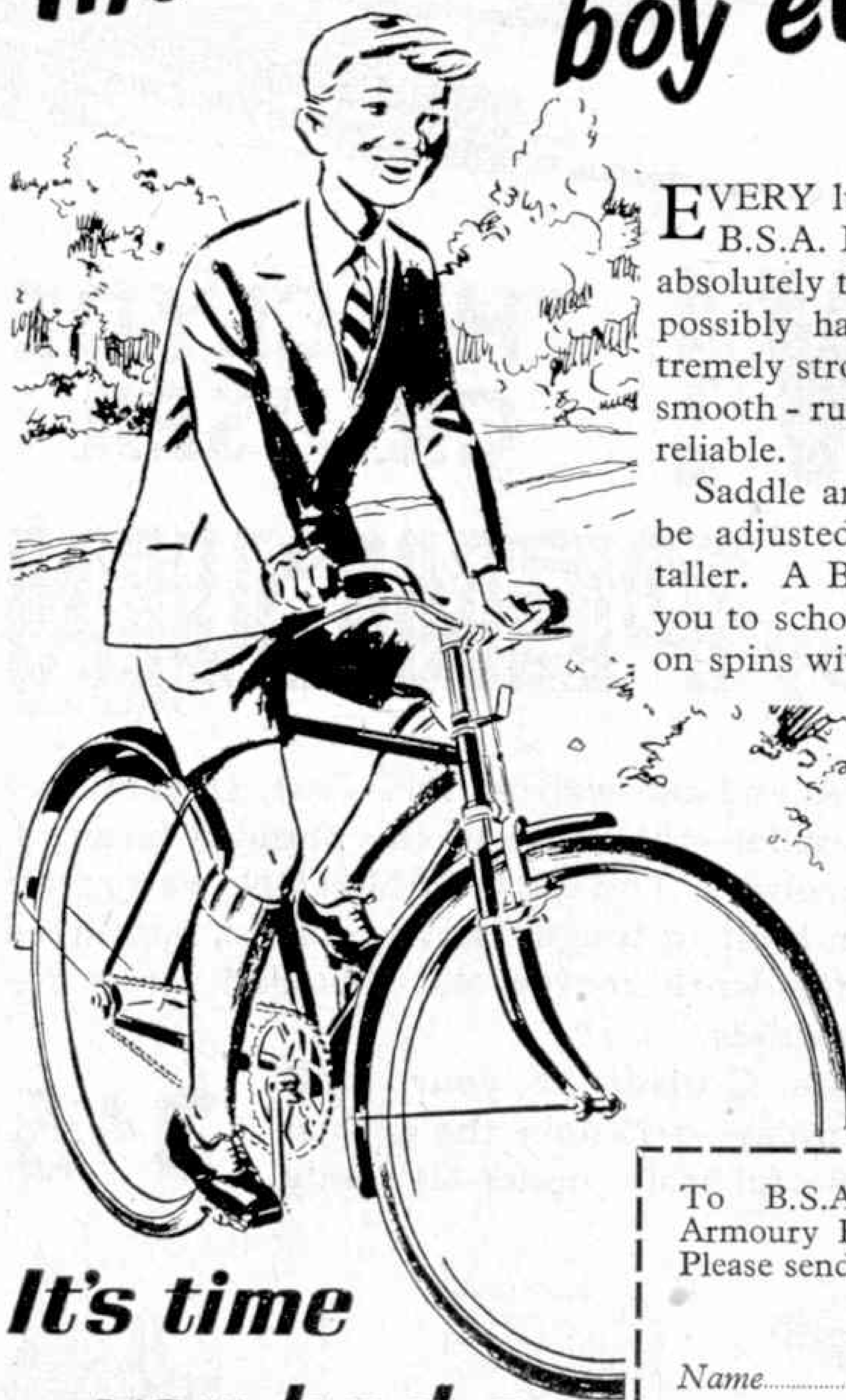


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MECCANO

MAGAZINE

Editorial Office:
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Vol. XXXVII
No. 6
June 1952

A Signal Mystery

I hope you will like my picture this month. It shows just a quiet country station, where trains apparently seldom come along to disturb the peace, nobody ever gets hurried or excited, and no voice from some undiscoverable corner demands attention before telling passengers for somewhere or other that their train is standing at platform 3. Altogether a restful and attractive kind of place.

Now the quiet of the countryside is something for which to be thankful, but I have not reproduced this picture to illustrate that. There is a story behind it. The station is Broomhill, on the line between Aviemore and Forres that was the main route of the former Highland Railway when it was first constructed, but became a branch when the new main line to Inverness by way of Carr Bridge was opened. The photograph was taken by D. M. Naylor, of Ashton, near Chester, who sent it because he had encountered a puzzle when looking round the station.

The signals on the platform were concerned in this. There is no signal box, so they are operated by the station staff by simply turning a handle fixed to the signal post. As far as our reader could

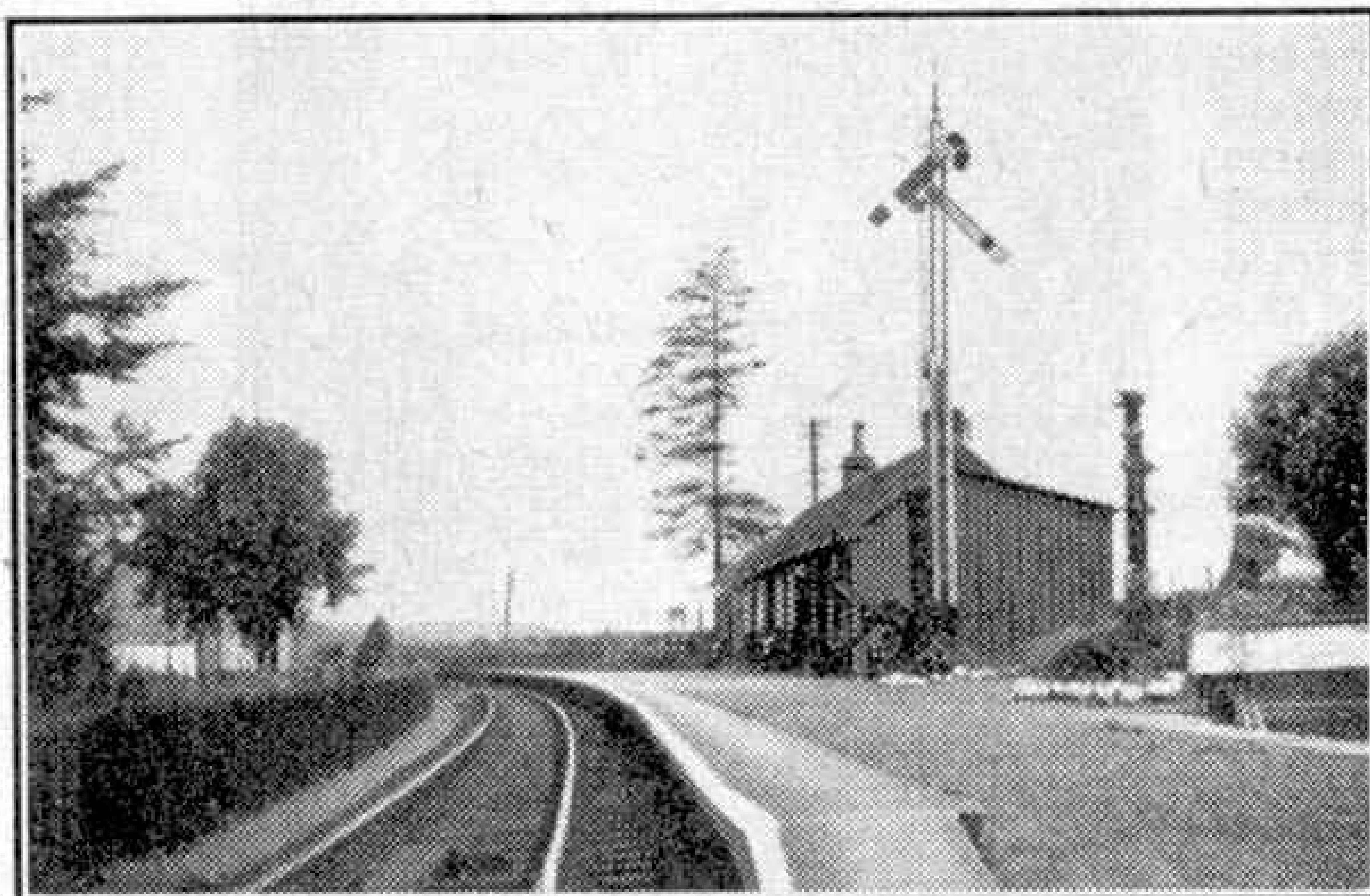
learn, they play no part in the signalling of trains except in emergencies, and apparently they had been in the "off" position shown in the picture for years!

Naturally Naylor wrote to the "M.M." about this and after some enquiry I was

able to clear up the mystery for him. The purpose of the signals is to stop goods trains when wagons, or perhaps just an odd wagon, for the station clearly is not a source of much freight, have to be attached to them.

Unless the signals are "on," these trains just pass right through the station.

The signals are certainly interesting in themselves, but there must be many other unusual things to be seen, not only on our railways, but also on our roads, and indeed in almost every corner of the country. D. M. Naylor came across his station mystery when on holiday. All of you who explore new country during the coming holiday season may find some little puzzle, and many of the mysteries unearthed must be worthy of introduction to other readers of the Magazine. So keep a sharp lookout and let me know what you discover. Send me a photograph if you can take one.



Mystery signals of the Scottish Region station at Broomhill.

My Cricket Story

By Cyril Washbrook
(Lancashire County C.C. and England)

MY interest in cricket goes back to my early school days and I am sure that the earlier any boy begins to take an active part in games the better, not only for his physical well-being, but also for his moral outlook on life and general education, which are equally important.

I was very fortunate in having parents who encouraged me in every way to play games, and no effort was spared to give me every facility to take part in them.

My early cricket was played at Barrow, Nr. Clitheroe, Lancashire, with a small village club in the Ribblesdale League. It was there that I first received help and advice from senior members of the club. Since that time I have always listened to advice and I have always been willing to learn if possible from others. It has been my experience that one never ceases to learn something new about this greatest of all games.

At the age of eleven I was considered good enough to play for Barrow 2nd XI in the Junior League, and during the same year I was given my school colours for cricket at Clitheroe Grammar School. This was my very first honour in cricket, one of which I shall always be proud. Even at this early stage I dreamed of the day when perhaps I should play for England, but scarcely dared hope it would ever come true.

From Lancashire I moved to Bridgnorth in Shropshire in the year 1927, and was able to continue my cricket with the school and the Bridgnorth XI. It was there that I really began to score a lot of runs, so much so that by the time I

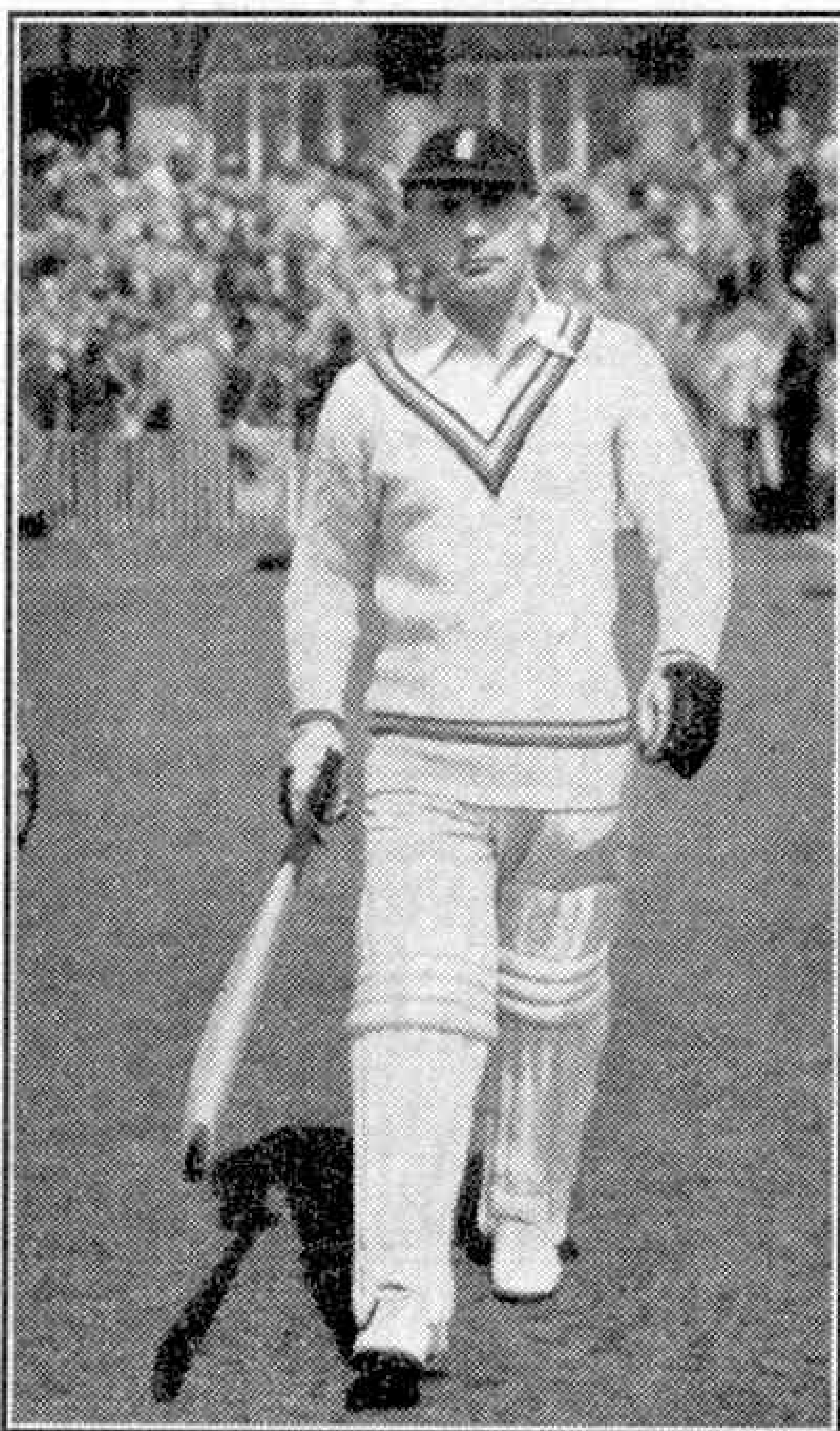
was 16 my batting ability had been brought to the notice of three County Clubs — Lancashire, Warwickshire and Worcestershire. I was offered trials by all these counties and accepted an invitation to play for Lancashire 2nd XI against Cheshire at Chester. This of course was a

great event, but as the game was almost completely ruined by rain I had no chance of showing what I could or could not do at this stage.

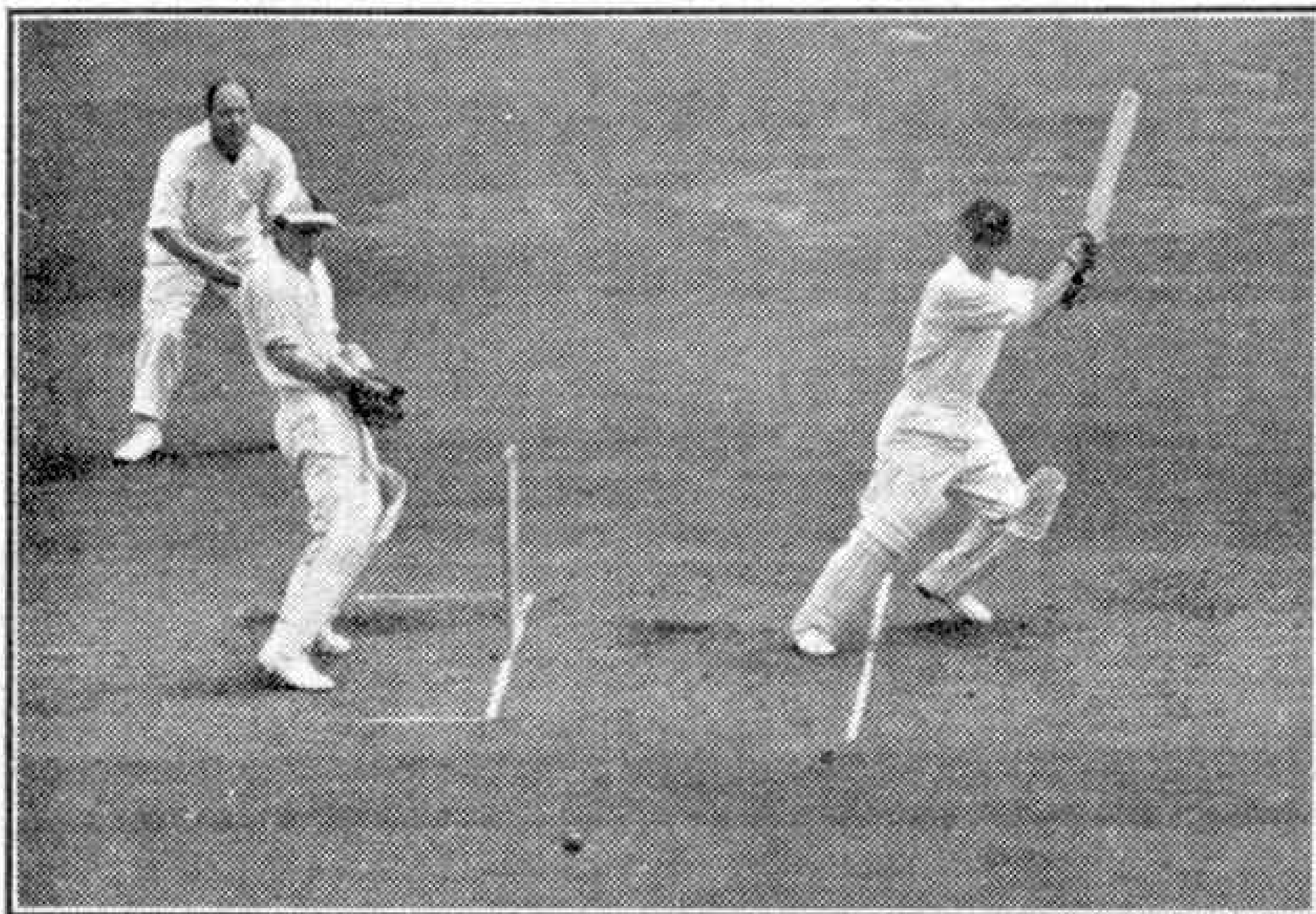
During the same season I also accepted an invitation to play for Warwickshire 2nd XI in a friendly Bank Holiday fixture at Edgbaston, Birmingham. I met with reasonable success for a boy, scoring 41 in the second innings, and as a result of this performance I was offered a professional engagement on the ground staff of the Warwickshire Club. This was declined for the time being, because I was at school at Bridgnorth and my parents thought it wise for me to complete my education before determining what I should do for a career.

So my cricket continued with my school and club until I was 18 years old, and it was then decided that I could give professional cricket a trial as a career. As a Lancastrian I really wanted to play for the county of my birth, and so in April 1933 I signed as a professional cricketer for Lancashire.

It was at Old Trafford, Manchester, under the expert guidance of our coach Harry Makepeace, that I first received any real coaching. I shall always be grateful to this grand cricketer for all



Cyril Washbrook takes the field at Old Trafford, Manchester. Photograph by courtesy of the "News-Chronicle."



A fine cut to the boundary off Oakman, the Sussex spin bowler, during the match between Lancashire and Sussex at Old Trafford in June of last year.

try and play within those limitations. For instance, if as a batsman you simply cannot play a particular scoring stroke with a certain degree of safety, then don't play it at all! Concentrate on perfecting the strokes you can do well. This plan will pay huge dividends in runs, which are what count in this game of cricket.

For bowlers I think there are two golden rules to observe. You must gain complete command of 1, length and 2, direction before you learn or try to learn the arts of spin, flight, swerve or speed. Bowlers

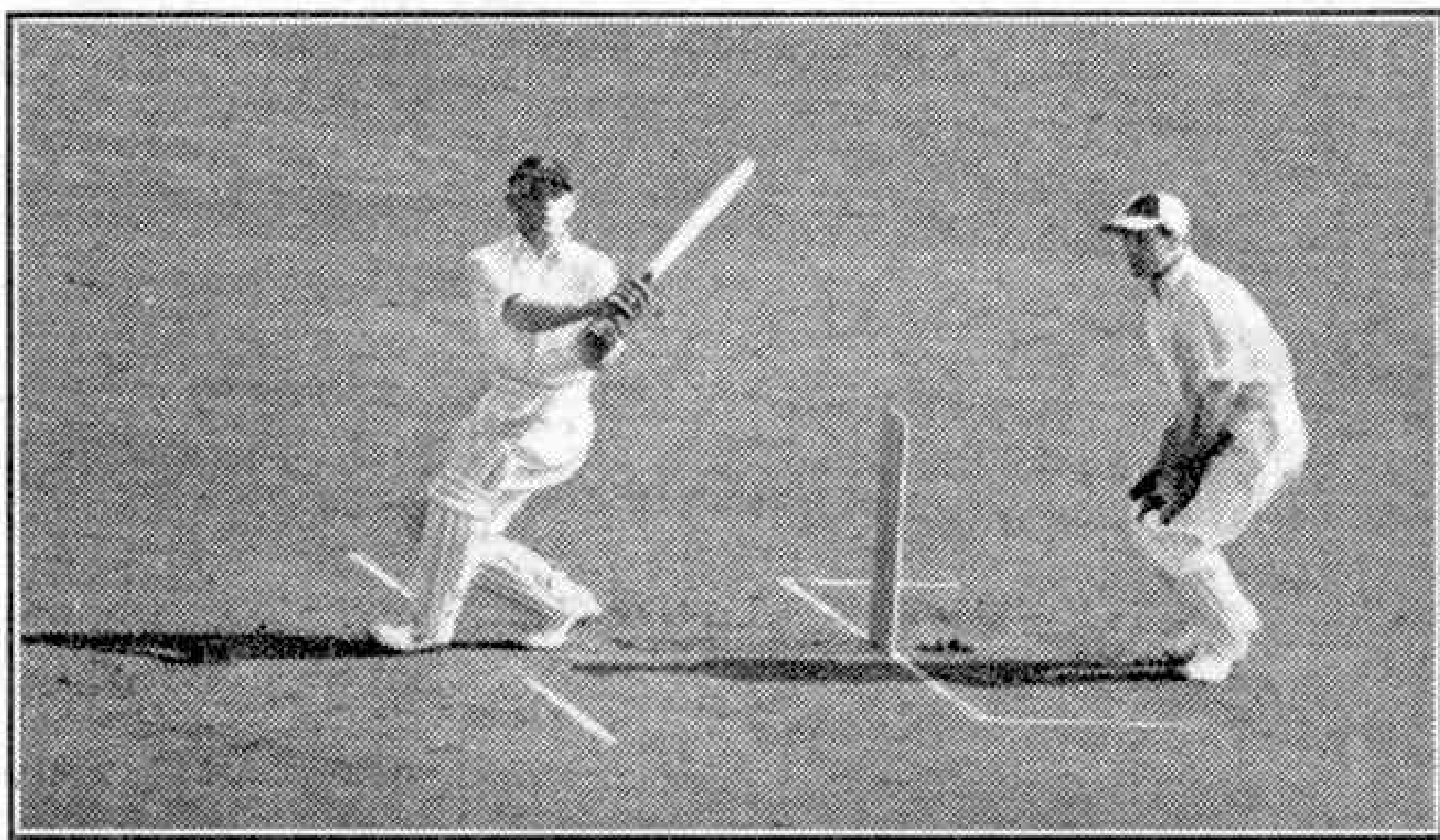
who have these two essentials always command a great deal of respect from all batsmen.

Fielding is the most important part of cricket from a match winning point of view. Good fielding simply cannot be over-estimated in value to a team. Like all other departments of the game it

the help and advice he gave me then, and throughout our long association at Old Trafford. Now that he has retired from his difficult task, I do sincerely wish him many years of retirement and I am certain he will always be royally welcomed whenever he visits us at Old Trafford. There exists a great and true friendship amongst cricketers that one does not experience in any other game.

There are certain things one must have to be a success at cricket. They are 1, Determination; 2, Courage; and 3, Concentration. These really speak for themselves and require little enlarging upon by me. To be a success in anything you must have the determination to achieve your object. Courage of course is so necessary in facing really fast bowling, and in coping with any difficult situation such as may develop, for instance, during a Test Match. Concentration, the third requirement, is vital to cricket. Its loss indeed is fatal. All the best cricketers have simply got to have great powers of concentration, particularly batsmen and wicket keepers!

It is also very important to realise one's limitations at an early stage in cricket and having done this, always to



Another boundary in the 1951 Lancashire-Sussex match. The illustrations on this page are reproduced by courtesy of Kemsley Newspapers Ltd.

requires constant practice and hard work. Runs saved in the field are just as valuable as runs obtained with the bat. Nothing looks worse on any cricket ground than bad fielding, and boys have no excuse for it. Fielding is a thing to be enjoyed and not grumbled about.

I have often been asked what is ideal opening pair of batsmen. It is my contention that the

(Continued on page 286)

The Railway of Penrhyn Quarries

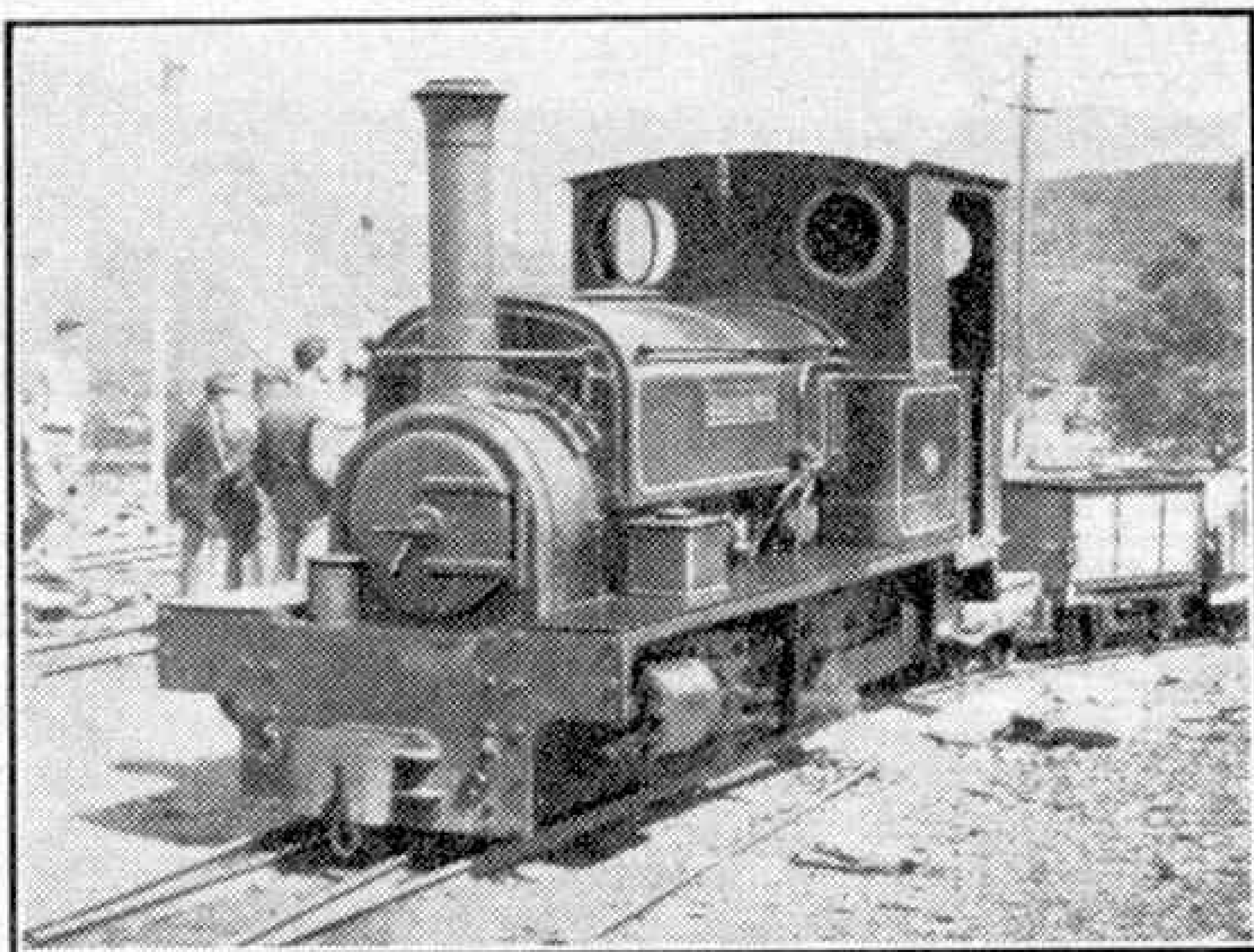
By P. M. Howlett

LAST summer I had the opportunity of visiting the Penrhyn slate quarries at Bethesda, in North Wales, and of seeing part of the Penrhyn Railway, which is one of the few remaining narrow gauge railways in North Wales. It is used for transporting slates from the quarries down to Port Penrhyn on the Menai Straits. The blocks of slate, after being blasted from the quarry face, are taken to dressing sheds where they are sawn, split and dressed into roofing slates by skilled craftsmen and then graded according to thickness.

The Penrhyn Railway was first laid down as a horse tramroad and opened in 1801. The present line follows a slightly different course. It runs for six miles from the quarries to Port Penrhyn, its course passing through Tregarth and Felin Hen, and then following the valley of the River Cegin to the sea. The only traces now remaining of the old line are a disused masonry bridge and a viaduct, both spanning the River Cegin, at the lower end of the line. The present track, of bullhead rail, is substantially laid and well maintained.

The first steam locomotives used were

0-4-0 tank engines, with vertical boilers and cylinders, built between 1870 and 1877 by De Winton, of Caernarvon. The quarry still uses tank locomotives of the 0-4-0 type, 16 of which were built by the Hunslet Engine Co. Ltd. The other 12

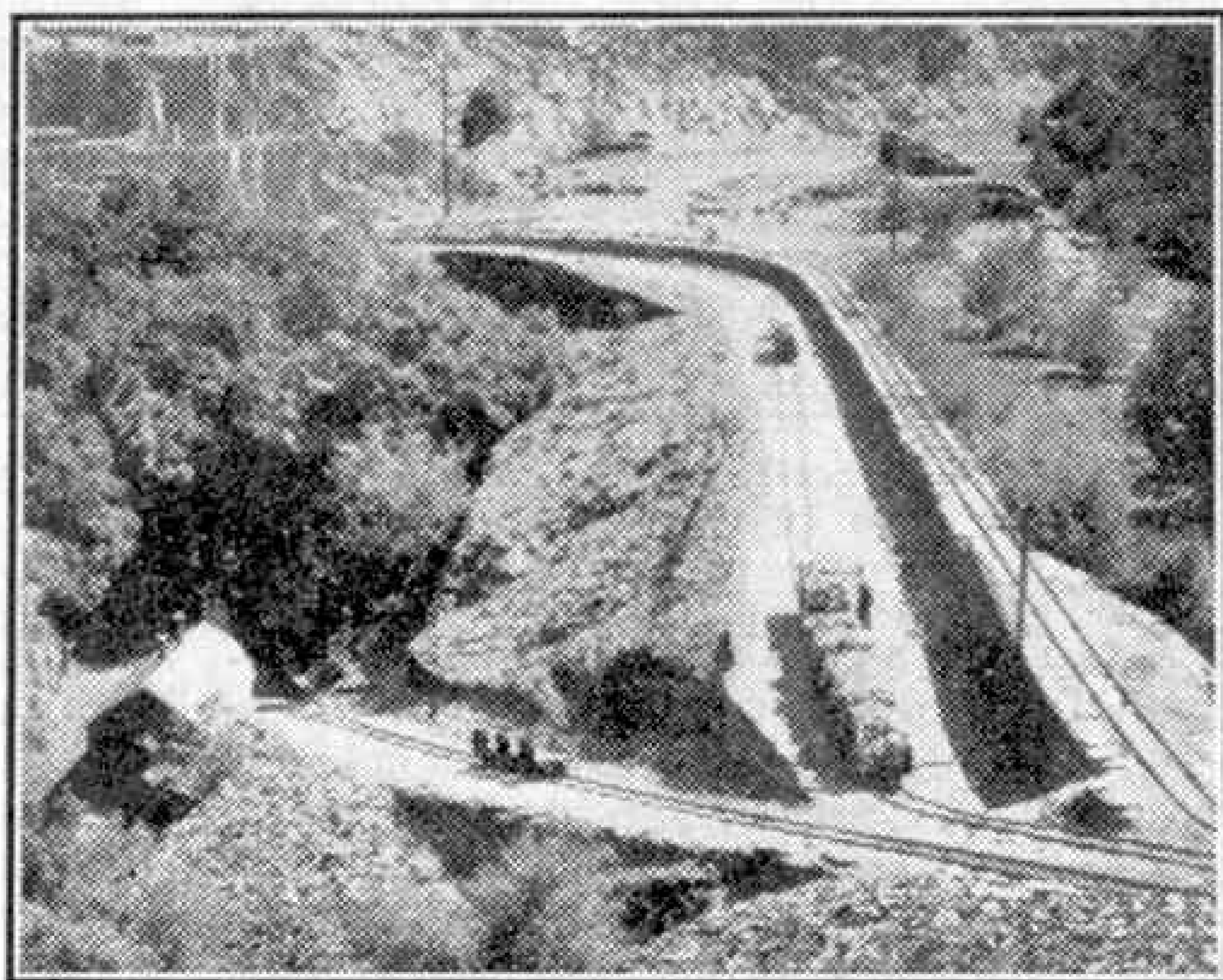


"Jubilee 1897" an 0-4-0 saddle tank locomotive used in Penrhyn Quarry. The photographs on this page were taken by the author by permission of the General Manager, Penrhyn Quarries.

steam locomotives have been bought elsewhere. Since the war several diesel locomotives have been introduced.

Three steam locomotives are used on the "main line," the rest being used near the quarry face. The engine in the upper picture is one of these smaller engines, "Jubilee 1897," built by Manning, Wardle and Co. Ltd. for use in the Cilgwyn slate quarries. It was bought in 1928 by the Penrhyn Quarries. A feature of all the locomotives I saw was their high standard of cleanliness.

On weekdays a passenger train used to be run in each direction for the use of workmen. This consisted of four-wheeled carriages, each seating 24, but this service, which had been in use for over 70 years, was withdrawn in February 1951, as the majority of the workmen now use road transport. The wagons used on the quarry tracks have double flanged wheels, running free on their axles, but the wagons used on the railway to Port Penrhyn are of the single-flanged type.



Slate wagons waiting to be hauled up one of the electrically operated inclines at the quarry.

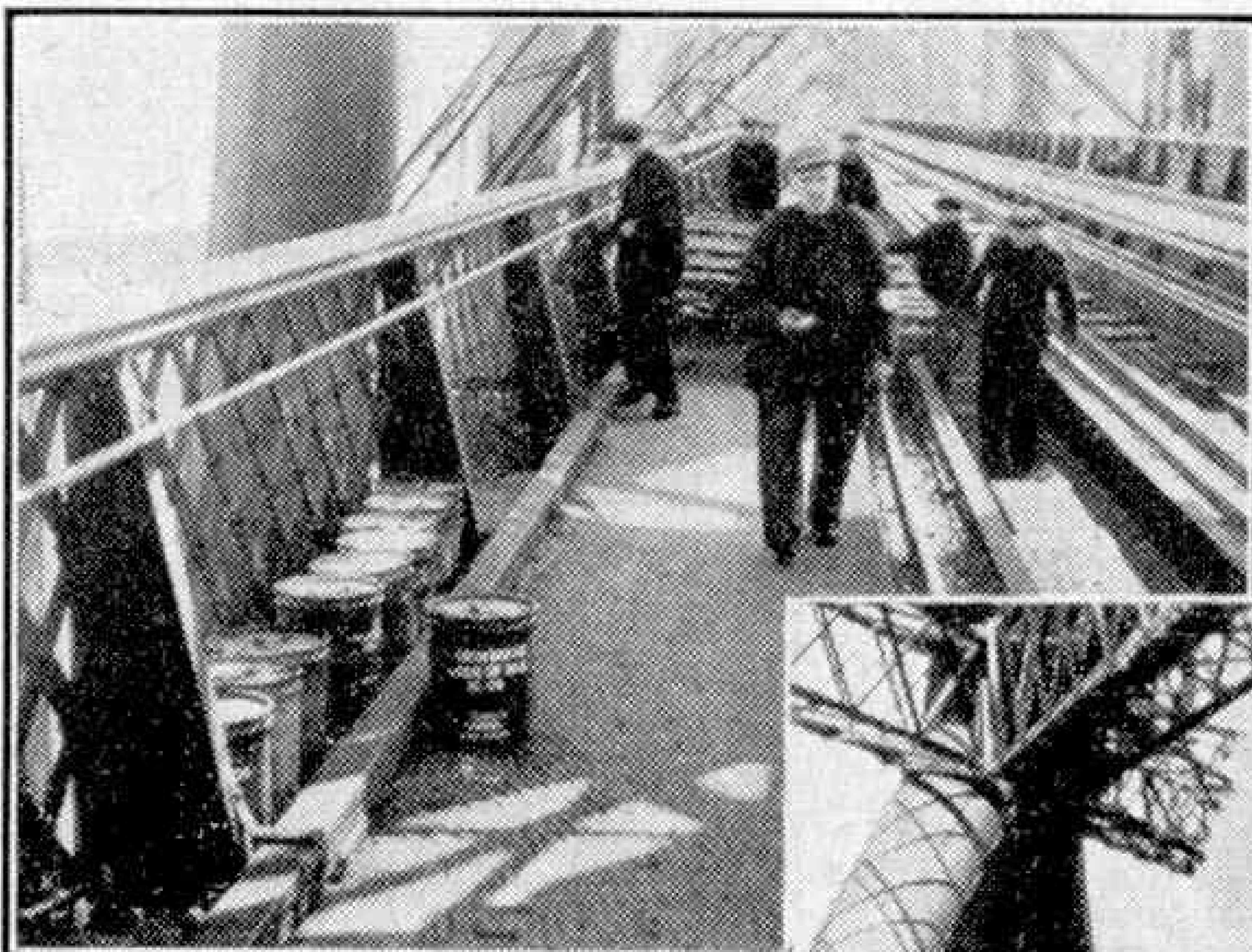
Walking Across the Forth Bridge

By E. M. Patterson

THREE-QUARTERS of a century ago the Firth of Forth was a grave obstacle to rapid East Coast traffic in Britain. The northbound railway passenger was faced, when he arrived at Edinburgh, with a ferry passage across five miles of choppy sea to Burntisland before he could reach the jute mills of Dundee or the granite city of Aberdeen. On his way he would cross the Firth of Tay by Sir

Three years after the Tay debacle, fresh plans were afoot for a Forth viaduct and Sir John Fowler and Sir Benjamin Baker proposed to use the cantilever principle for the first time for a railway bridge. Six and a half years later the Bridge was declared open by King Edward VII, then the Prince of Wales, as he stood clutching his hat in a howling westerly gale after driving home the last of the six and half million rivets.

Crossing the Forth Bridge for the first time is an unforgettable experience. On a southbound train, slipping along by the south coast of Fife, one gets warning of its presence when approaching Inverkeithing by the appearance in the sky over the quarry-riddled hills of three great disembodied humps,



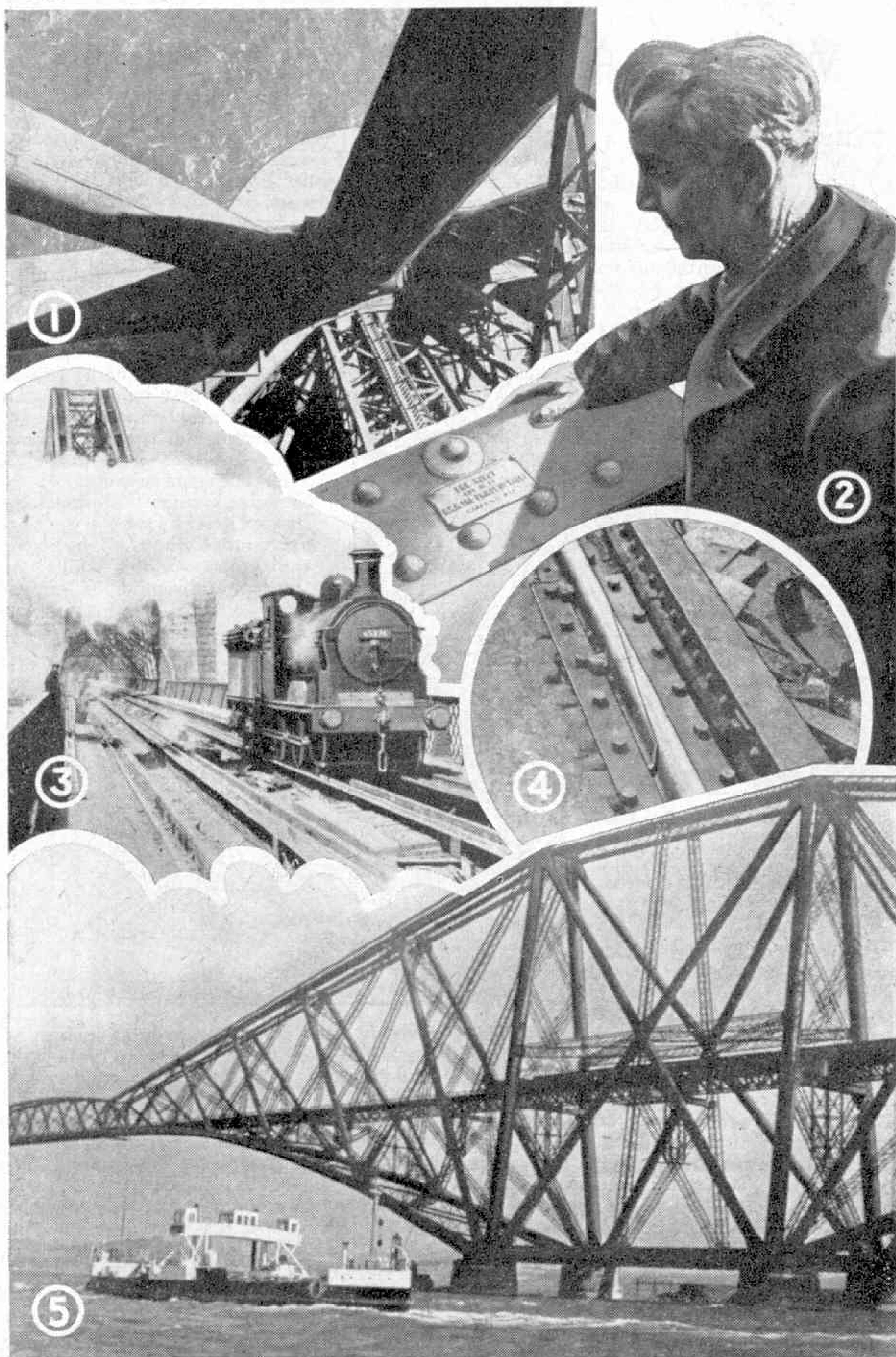
Above a gang led by the look-out man is getting staging into position in readiness for painting work. On the right a through goods headed by an ex-North British Railway 0-6-0 is seen rumbling towards the camera.

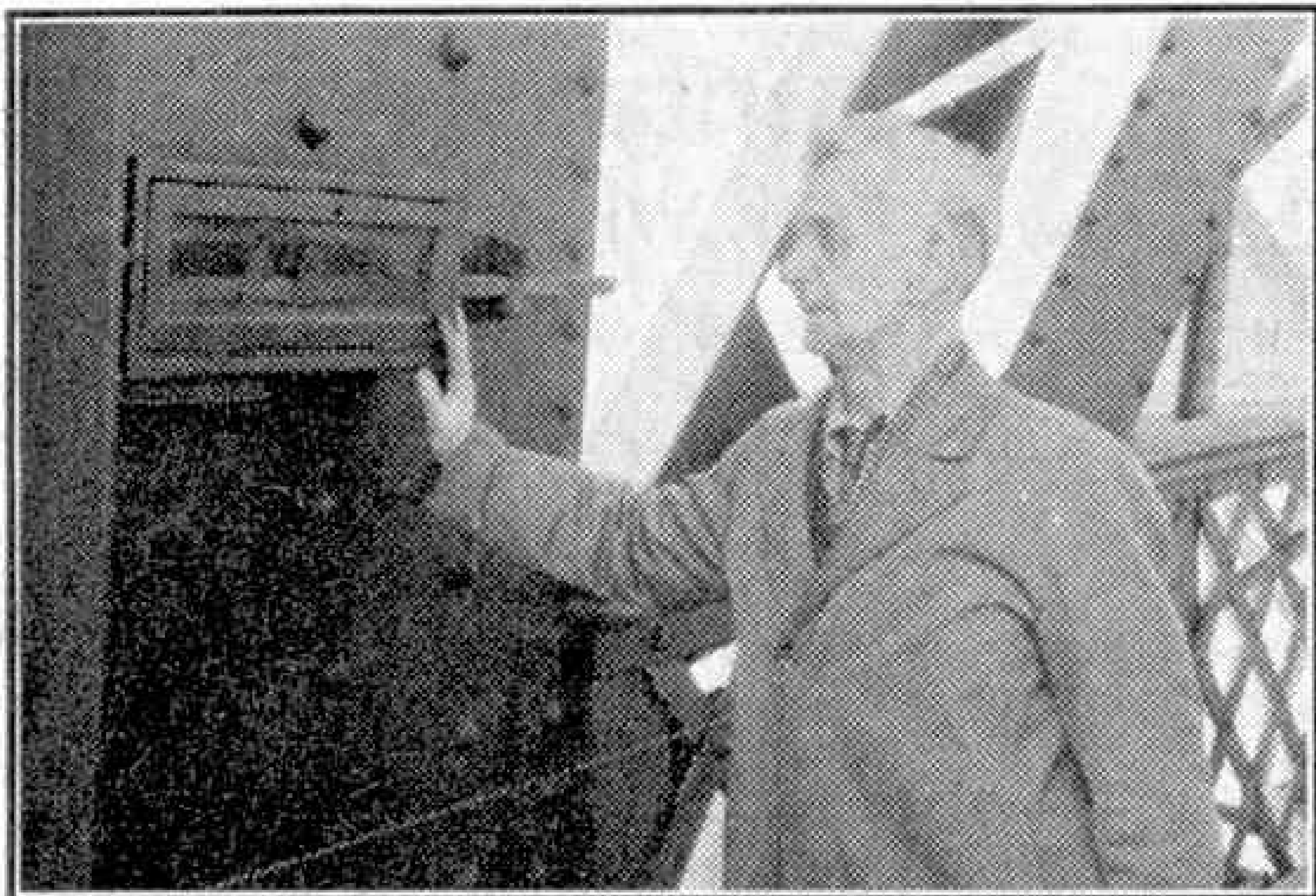


Thomas Bouch's new bridge. Bouch, his reputation then at its zenith, had planned a gigantic suspension bridge to span the Forth and work on it had in fact begun. But a night of vile weather in December 1879 wrecked his Tay structure, eclipsed his fame and plunged a Burntisland-Dundee mail train and all its passengers into the Firth.

The Bouch plan for a bridge across the southern estuary at once became suspect, an enquiry followed and the project was hastily and wisely abandoned. The only reminder today of this scheme is a brick pier on the west end of Inchgarvie, the small island in midstream. This pier looks pitifully inadequate alongside the massive granite piers of the present bridge.

looking as if some prehistoric creature of vast dimensions had chosen to wallow in the tideway. The monster vanishes, the metals of the Dunfermline line run in and we forge up the 1 in 70 bank, pass through a short tunnel, run along a high, rock-strewn embankment and plunge into the longer North Queensferry tunnel. When the train emerges into daylight the ground falls away on each side as the wheels beat out a strangely hollow tattoo on the north approach viaduct. Below pass the red, pantiled rooftops of North Queensferry and in a few seconds, now out over the water, the innumerable steel





The foreman painter looks at a "tell-tale," a glass fronted indicator that records Bridge movements.

girders and tubes of the three cantilevers pass, changing inclination and repeating the sequence as we run high over the central rocky isle of Incharvie towards the wooded southern shore.

More impressive still, but denied to all but a privileged few, is a footplate ride across the Bridge on one of Gresley's magnificent streamlined 4-6-2 locomotives as it hauls an East Coast express, running northward from Edinburgh. Once clear of the running sheds at Haymarket and accelerating across the flat farmland beyond Saughton, the sea seems but a remote possibility. Then at a mile-a-minute gait the crossings of Dalmeny Junction come up and the goods branch to South Queensferry slips downhill to the right. Looking along the sleek, blue-painted side of the "A4" we see the metals apparently widening, rising and falling in a fantastic switchback. Once on to the approach span the illusion vanishes and the road stretches ahead through the granite portal of the south cantilever to the black tunnel mouth over a mile distant. The hard riding of a cab seat, the reek of hot oil, and the beat of the exhaust echoing back from the great girders combine to provide an exhilaration that culminates in the

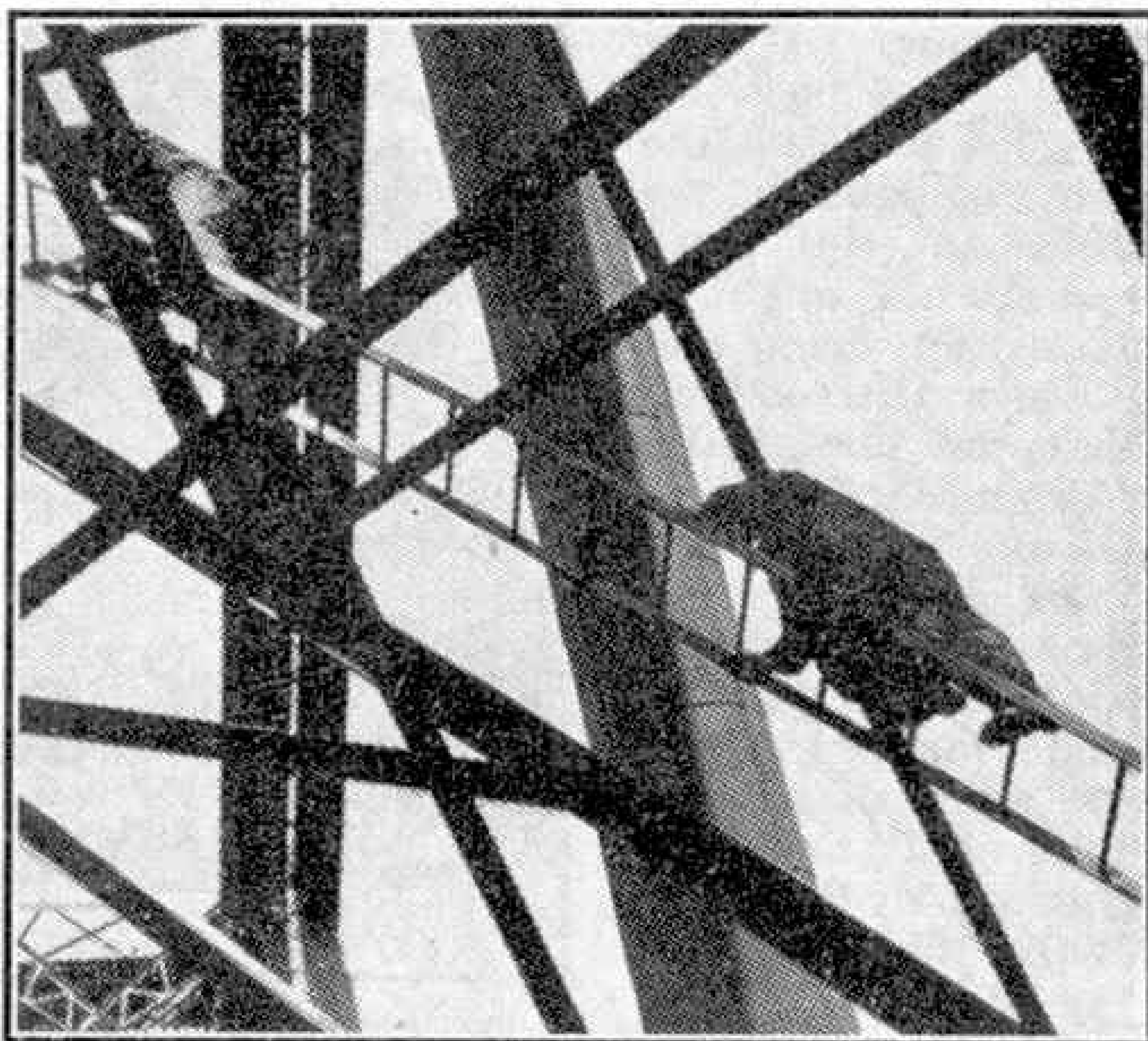
On the opposite page is an interesting group of Bridge pictures. 1. Looking down from the deck to the base of one of the cantilever girders. 2. The golden rivet driven by the Prince of Wales in 1890 to complete the Bridge. 3. A middle-aged 0-6-0 trundles merrily along the south approach span. 4. One of the tapered overlapping rail joints. 5. The ferry boat ploughing its way across the Firth just above the Bridge. Immediately beyond is the brick pier erected for Bouch's abandoned bridge design.

plunge into the blackness of the tunnel, with steam now roaring from the lifted safety valves above one's head.

My walk over the Bridge began with a visit to the unpretentious office of "The Forth Bridge Railway Company" in a brick-built terrace house on the south side. There I met Inspector Bell, for 25 years in charge of maintenance of the Bridge, and seemingly satisfied him that I was a fit and proper person to go on to his Bridge; inclined neither to leap from it, nor to contravene his instructions about keeping to the gangway and always facing oncoming traffic I was allowed to proceed on my way. British Railways knew

who and where I was then—but disclaimed responsibility for my return!

Half way out on the south approach



Painters going aloft on the never-ending job on the Forth Bridge.

viaduct, with the treetops behind me and deepening water 157 feet below, solid ground seemed to have much to recommend it. On an average 200 trains cross the Bridge each day. Statistically therefore I was due to become acquainted with its traffic soon. A white steam plume far ahead confirmed my fears. Two minutes later the foot-way was vibrating merrily and seemed to be rapidly narrowing as a Dunfermline-Edinburgh passenger train bore down at something near the 40 m.p.h. limit.

By the time I had (Continued on page 286)

The Scammell "Mountaineer"

A Heavy Duty Chassis with Four Wheel Drive

THE giant motor lorry shown in the illustration on this page is in an unusual position, to put it mildly. It must be very rarely indeed that such a huge vehicle rears up like a mettled horse, but in this case there was a good reason for its prancing—in the form of a weight of 14 tons at the rear of its platform body.

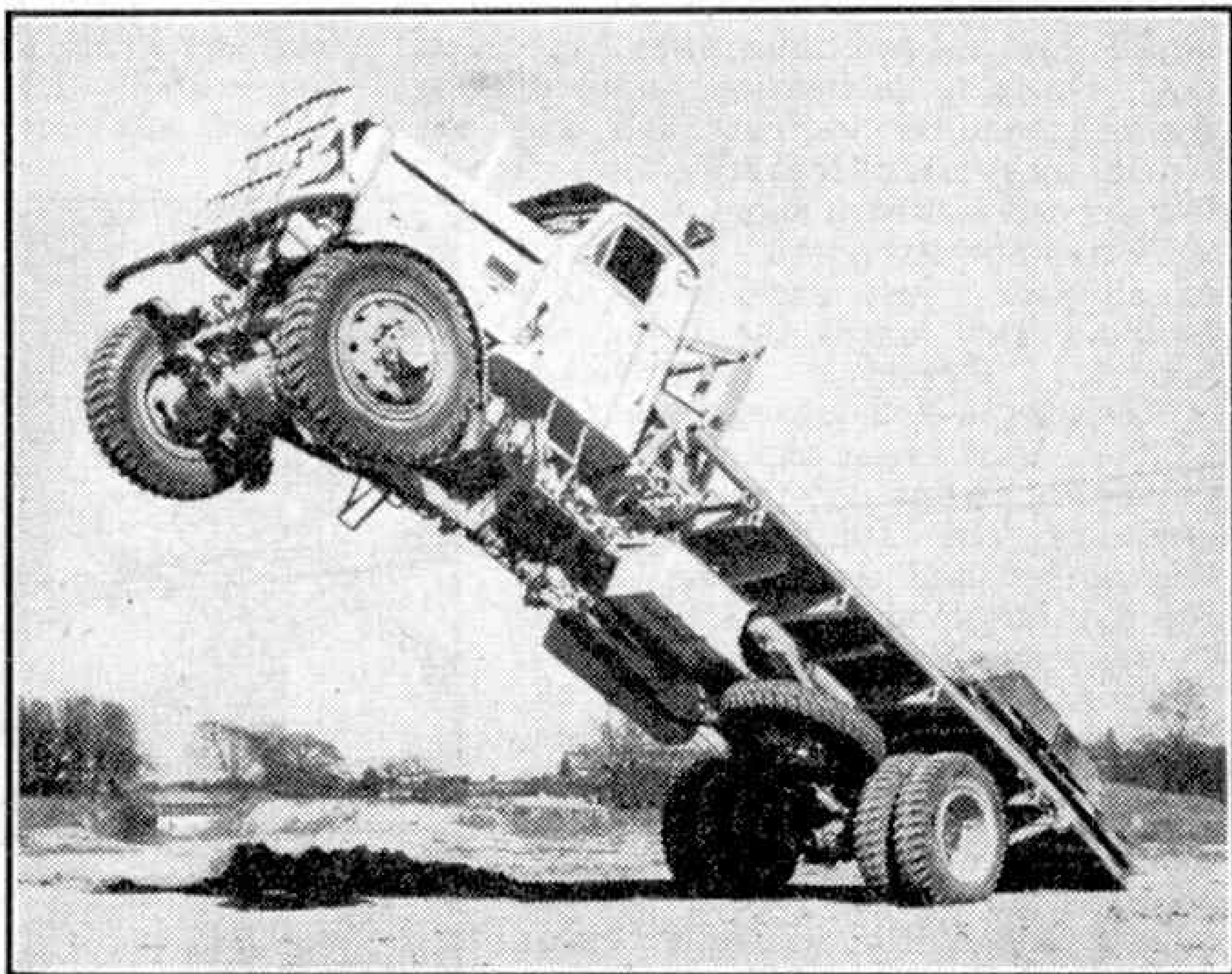
The lorry is a Scammell "Mountaineer," supplied to the Shell Petroleum Company Ltd., on which a test weight was being loaded. The steel blocks making up the total of 14 tons were piled up on a skid and this was hauled over a roller at the rear of the body by the winch mounted at the front of the lorry and driven by its engine. As the skid was pulled forward to reach the point of balance, the front of the lorry rose to an angle of about 50 deg., and it was at this moment that the photograph reproduced here was taken.

In the test the rope from the winch continued to pull the skid forward, over the point of balance and on to the platform of the lorry. When this was done the front of the vehicle returned slowly to the ground.

In actual practice in the oil fields, for which the Shell Company required the lorry, it will carry oil pumps, drilling units, etc. These will be mounted on skids and loaded in exactly the same manner as the weights used in the test.

The chassis of the lorry seen undergoing this extraordinary test in preparation for its work in oil bearing lands is one of the range of 4×4 "Mountaineers" designed and built by Scammell Lorries Ltd., and fitted with a heavy body for oil field use. The type is described as 4×4 because it has four wheels, the rear wheels being

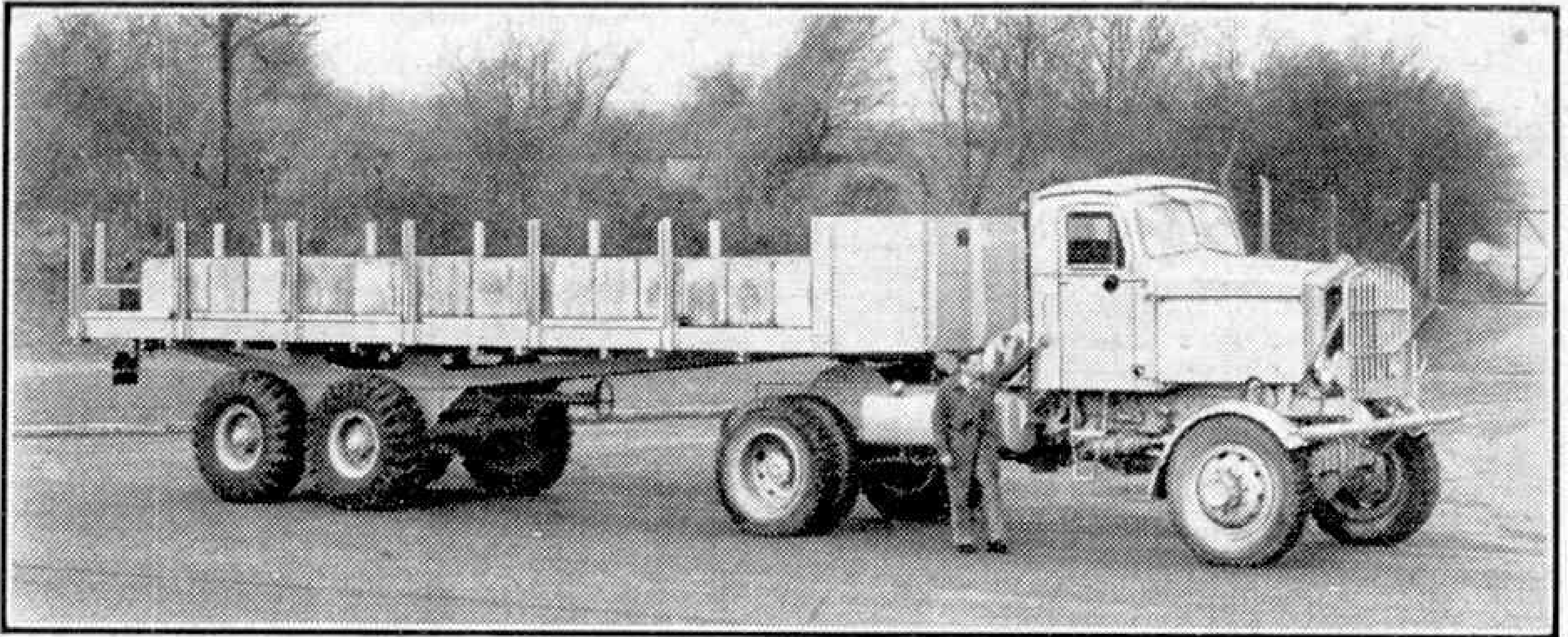
twins, and all four are driven. Its frame has sturdy side members, well braced, and it is fitted with a powerful Scammell-Meadows 6.DC. 630 diesel engine, which has six cylinders, with a total capacity of 10.35 litres, and develops 130 brake horse power at its governed speed of 1,900 revolutions per minute. It was in fact designed for operating "off the road" and where conditions are particularly arduous. Because of this it is admirably adapted for the use to which the Shell Petroleum Company puts it.



A Scammell 19 ft. wheelbase "Mountaineer" with a heavy oil field type body poses for its photograph. Its front end rises from the ground as a test weight of 14 tons is hauled on to the rear of the platform. Photograph by courtesy of Shell Petroleum Co. Ltd.

There are many outstanding features in the "Mountaineers." As our illustrations show, they are massive vehicles. They are produced in three wheelbases, 14 ft., 17 ft. and 19 ft. The model with a wheelbase of 14 ft. has a full chassis length of 19 ft. 6 in. Its width is 8 ft. 8 in. and from the ground to the top of the cab when the vehicle is laden it measures 9 ft. 3 in. The gross vehicle weight is 20 tons.

The powerful diesel engine drives through a single plate Borg and Beck clutch, which



The 14 ft. wheelbase "Mountaineer" chassis with a 25-ton "Crane" semi-trailer. The illustrations on this page are reproduced by courtesy of Scammell Lorries Ltd.

is contained in a housing bolted to the crank case of the engine. A clutch brake operated by the clutch pedal helps in making upward gear changes quickly.

The gear box is mounted on rubber at three points in order to insulate it from distortion of the chassis. In it ball and roller bearings are used throughout. There are six forward speeds and one reverse, under the control of one lever working in a visible gate, and all gears except reverse are in constant mesh, with sliding dog engagement. Lubrication of a very efficient type is used, a gear type oil pump distributing an oil of low viscosity all round the box.

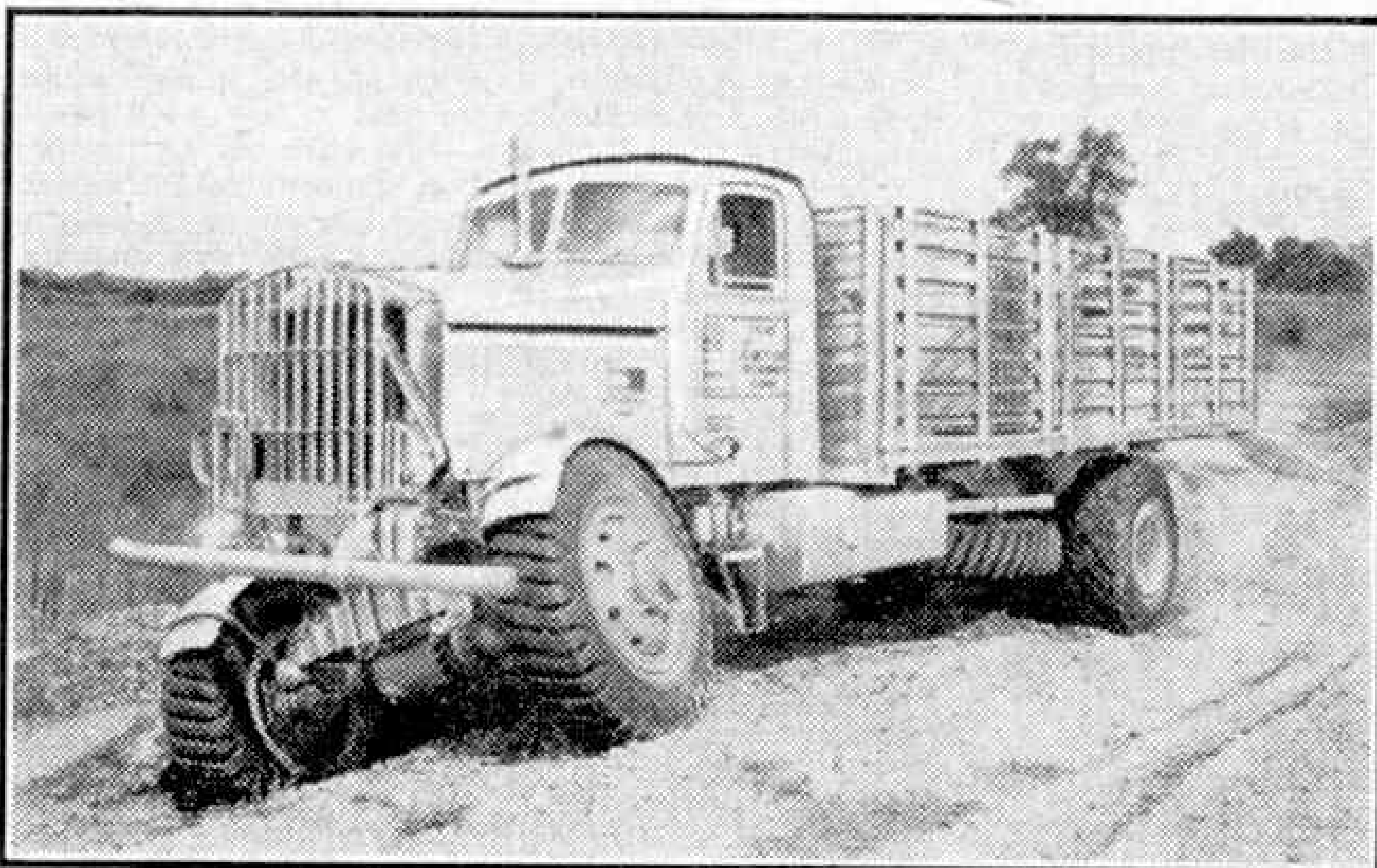
Another special feature is a power take off that is capable of transmitting the full torque of the engine. This consists

of a sliding gear that is controlled by a lever in the driver's cab.

The transposing drive for the driven front axle is mounted on the back of the gear box. It consists of three spur gears contained in a housing. This drive works through a dog clutch that is operated from the driving seat as required, whether the lorry is in motion or is stationary.

A glance at the lower illustration on this page introduces another striking feature of the Mountaineer range. This is the well-tried Scammell rocking front axle. In this a laminated spring across the vehicle is used. It is pivoted in the middle and the design allows for movement to accommodate the lorry to uneven ground without giving rise to distortion of the frame, a point well shown in our picture.

Various kinds of bodies can be fitted to this very adaptable chassis. The 14 ft. wheelbase type can be provided with a dump truck body; as a motive power unit for use in conjunction with a semi-trailer, as in the upper illustration on this page; or with a ballast box, so that it can be used as a tractor for towing drawbar type trailers. The 17 ft. wheelbase model is supplied either as a motive unit or load carrier, and the 19 ft. wheelbase is a load carrier.



The Scammell 19 ft. wheelbase "Mountaineer" is quite at home on rough and uneven ground. The lorry shown has special tyre equipment for operating over sandy ground in Saudi Arabia.

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.

"THE STORY OF CRICKET"

Edited by PATRICK PRINGLE

"THE STORY OF SOCCER"

By PATRICK PRINGLE (Harrap, 3/- each)

Here are two additions to "Harrap's Sports Readers" series. The first will delight all cricket lovers, as the next best thing to playing or watching this great Summer game is to read about it. It is not a textbook on the subject, but contains a brief history of the game, followed by eleven chapters mainly reminiscent and each the work of a famous cricketer who has won Test Match honours. These famous players include Hobbs, Hammond, Hutton, Washbrook and Compton. Most of them have chosen to recall some outstanding incident in their long and adventurous careers, but Keith Miller writes about Sir Donald Bradman, and Learie Constantine, the famous West Indian cricketer, tells why he has "always tended to attack bowling rather than be patient with it." There is an excellent preface by that grand veteran Sir Pelham Warner, and a pictorial supplement contains splendid photographs of famous cricketers in action.

Probably few readers who are football enthusiasts, whether actual players or merely observers, know anything of the history of this great sport, or how the laws governing Soccer came into being and through successive modifications assumed their present shape. Nor are they likely to know how the Football League gradually evolved into the highly organised fixture machine that it is today. These and many other interesting facts about the game are revealed in "The Story of Soccer." By avoiding biographies, statistics and unnecessary details, the author gives a very concise history of the game. Raymond Glendenning, the noted B.B.C. sports commentator, contributes a foreword, and the book is illustrated with some excellent half-tone photographs.

"THE AXMINSTER AND LYME REGIS LIGHT RAILWAY"

(By LEWIS COZENS. 5/-)

The interesting little line here dealt with was opened in 1903, and the author tells its story admirably. After an introductory section and consideration of early schemes, the construction and characteristics of the railway and its working under the old L.S.W.R. and the Southern Railway are dealt with. There are details of the engines that have worked over its sharply-curved and steeply-graded route, which is notable as the home of the only three remaining Adams 4-4-2 tanks still in active service. The special suitability of these engines for the route is shown by the fact that one of them that had been sold in 1917 was bought back from outside ownership by the Southern Railway in 1946.

Road passenger services were a feature of the district long before railways were established, and a particularly interesting section deals with the horse coaches and buses and the modern motor buses with which they were maintained, and also with some of the personalities associated with them.

The book is well illustrated and maps and station plans help the reader to follow the account. Copies are obtainable by post only from the author at 25, Cholmeley Crescent, Highgate, London N.6, for 5/3d. each, including postage.

"THE AIR LEAGUE RECOGNITION MANUAL"

By C. H. GIBBS-SMITH (Putnam. 10/6)

The object of this book is to put over an entirely new method of teaching aircraft recognition. Instead of trying to persuade his readers to remember every individual feature of every aircraft, Mr. Gibbs-Smith refers, for example, to the Chase Avitric as "a sort

of winged Nissen Hut, with a tail that has almost lost interest in the aircraft below it," and then goes on to elaborate this. In most cases his similes are good, and helpful to the novice, who is introduced to every other form of recognition aid from silhouettes and sillographs to clever aero-caricatures by Charles Sargeant, with a bare minimum of facts and figures to confuse him.

Altogether 180 types of aircraft are illustrated, nearly half of them with silhouettes as well as photographs. Chief criticism is that the illustrations are far too small, especially as Mr. Gibbs-Smith himself comments that the golden rule for efficient study is to make the picture as large as possible.

J.W.R.T.

"THE MYSTERIOUS VALLEYS"

By ARTHUR WYBORN

"THE CITY OF SHADOWS"

By PETER MEREDITH.
(Warne. 7/- each)

Here are two thrilling adventure stories. The first one begins with Ken and Lola Standish, a pilot named Weston and a native house boy, baling out as their aircraft crashes in a desolate unmapped limestone region in the interior of New Guinea. The stranded party make their difficult way over the mountains, and after braving many dangers come upon some native tribes whose savagery and yet semi-civilised customs astound them. Their subsequent adventures with the "Wise Ones" in the inner recesses of the mountains, and their dramatic rescue, make the story exciting to the end.

In "The City of Shadows" Bob Ellis and his young brother Vic are on a walking tour in peaceful Huntingdonshire when they hear that their older brother Ron, after crash-landing in the North African desert, has been captured by Moors, and they determine to go to his aid. Their arrival in the desert marks the beginning of a battle of wits between themselves and the Moorish raiders that leads to exciting captures and daring escapes, and culminates near the City of Shadows in the strangest adventure of all.

"SKETCHING OUT-OF-DOORS"

By REGINALD HARRISON (Foyle. 2/6)

Many branches of art need elaborate and often expensive equipment, but pencil sketching requires only a good sketch block or pad, a few good pencils and plenty of enthusiasm. Thus for an outlay of a few shillings an enthusiast can acquire enough working material to last him the whole season. There are no mysteries in the art of sketching, and this charming pocket guide shows how it is possible, in a very short time, to acquire enough experience and technique to be able to obtain the greatest pleasure from sketching out-of-doors.

The author explains the various grades of pencils required and the best kind of paper for the beginner; the attitude to adopt when sketching that will ensure easy movement of hand and arm; the wisdom of choosing simple subjects at first; the importance of economy of line; and so on. Other chapters deal with composition and perspective, style and technique. When you have become proficient with a pencil, you may want to try pen-sketching. A special chapter deals with this, explaining the technique of line by which the pen artist obtains the delicate tones and shades that he requires, and the correct ink and paper to use.

Finally there are hints on "fixing" drawings to keep them clean and permanent, on mounting and framing, and on colour work. The book is illustrated with examples of the author's own sketches.

What Holds Up A Skyscraper?

By Richard J. Salter, B.Sc. (Eng.), A.M.Inst.H.E.

MANY of you will have seen a house of which the foundation has moved. When this happens the walls crack at one corner, and in time the house falls down or has to be strengthened. With a building of the tremendous height and weight of a skyscraper it is even more important that there should be no movement in any part of the building.

The best way of making sure of this would be to dig down through the soil until solid rock is reached, and to erect the high building on it. This is often done, even for quite small buildings, provided the rock is near enough to the surface of the ground. But this is not the case everywhere, and it certainly is not in New York, the home of the highest skyscrapers, where there are thick layers of clay and shale beneath the ordinary soil at the surface. All this material would have to be dug through before rock was reached, often at more than a hundred feet from the surface.

Heavy buildings can be erected with perfect safety on ground similar to that of New York, however, by using a method of construction known to engineers as piling. In this piles are driven down through the clay into the rock below, and it is only a matter of placing a

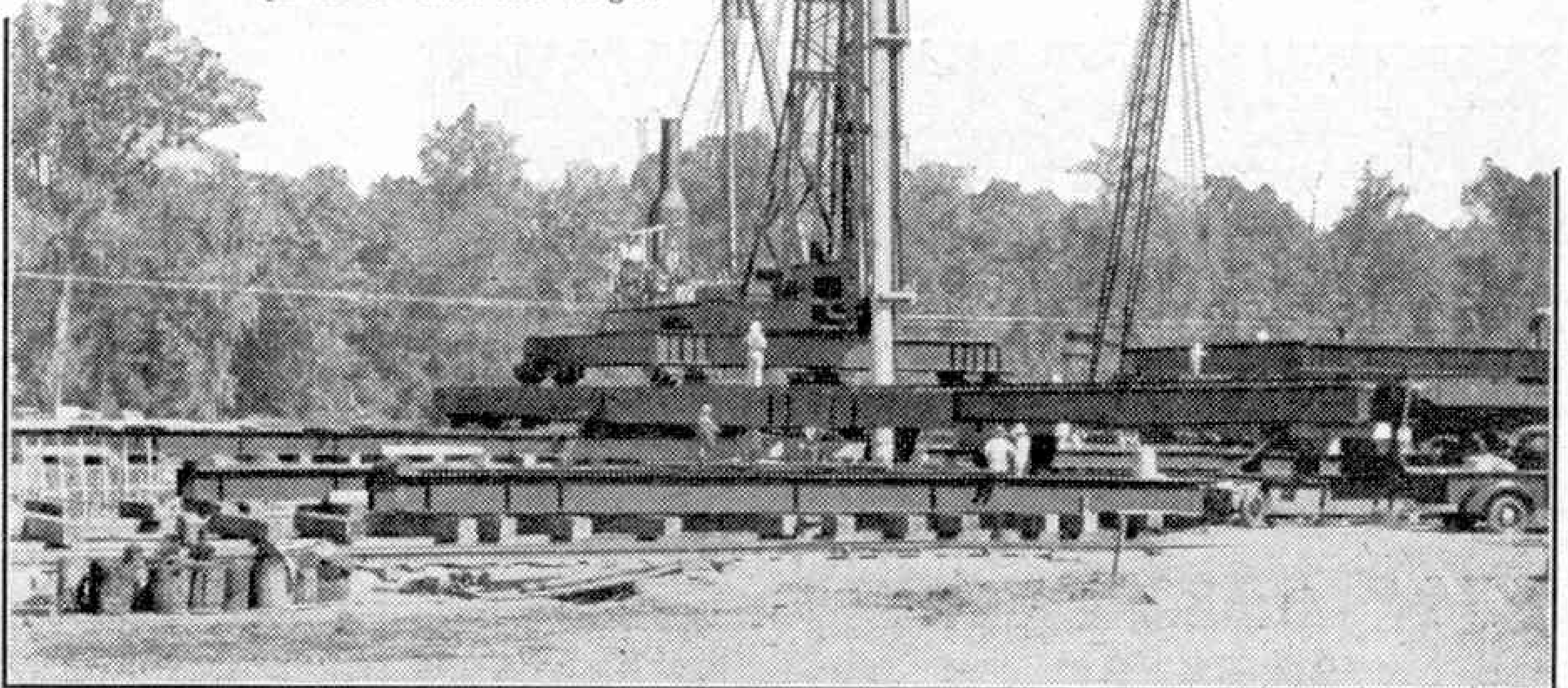
sufficient number of these in the right places.

A pile is another name for a steel, concrete or even timber column which has its base on the rock and its upper end against the bottom of the structure it is supporting. It may consist of a very strong piece of steel, similar to that used for girders, which may be surrounded with concrete. Alternatively it may be made of concrete with steel bars running through it to increase its strength, or of timber only for use in places where salt water might rust the steel or cause the concrete to crumble.

A pile is driven down to the rock in much the same way as you would drive a post into the ground. The steel tube or girder is held upright in a special framework, as shown in the illustration on this page, and a heavy weight is dropped many times on it. The weight is raised between the blows by steam or compressed air, and in double acting pile drivers these also drive the weight down.

After a considerable number of blows the pile reaches the layer of rock or other sound material that is to take the weight to be carried.

The gigantic pile driver seen here was specially built by the Raymond Concrete Pile Co. to drive long piles. It is 136 ft. high. The white concrete pile is readily visible and above it is the heavy weight that forces it into the ground by repeatedly falling upon it. A steam engine provides the power to raise the weight.



Air News

By John W. R. Taylor

"Comets" in Service

The age of jet travel began officially last month, when B.O.A.C. introduced de Havilland "Comets" into regular service for the first time on their 6,724-mile "Springbok" route from London to Johannesburg.

Cruising at 450 m.p.h., 7½ miles above the earth, the "Comets" have brought South Africa within 24 hrs. of London. Excluding time spent on the ground at Rome, Beirut, Khartoum, Entebbe and Livingstone *en route*, actual flying time is only 18 hr. 40 min. Even this will be bettered when airport staffs become experienced in handling jet liners, and when the situation in Egypt permits re-routing the "Springbok" through Cairo instead of Beirut, so reducing the total distance by 450 miles.

B.O.A.C. hope to have nine "Ghost"-engined "Comets" in service to Johannesburg and Singapore by the end of the year. They will be followed within two years by 11 "Avon"-powered "Comet" 2s, with long enough range for service on the North Atlantic run.

An American Robot Fighter

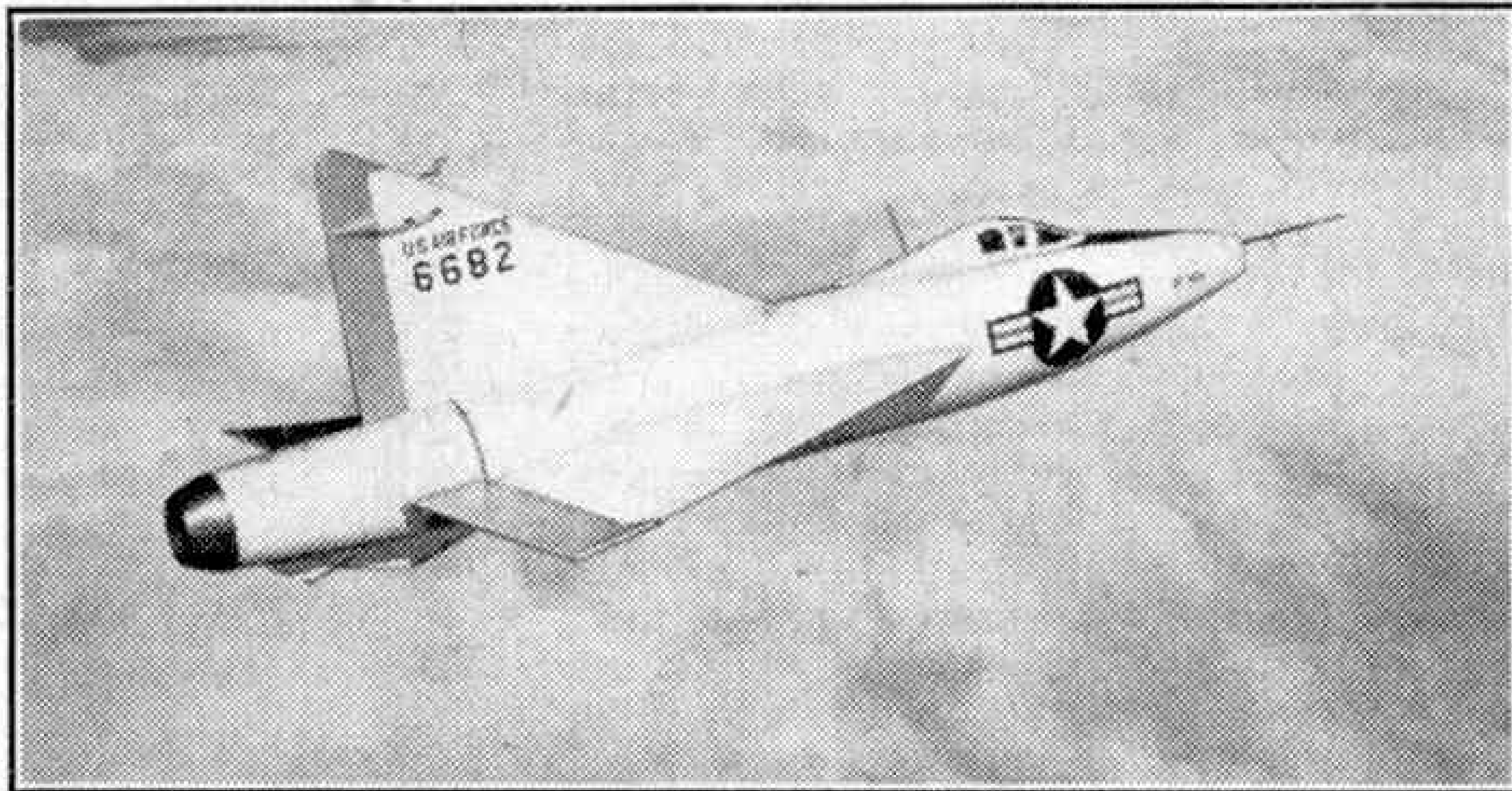
Tests with the delta-wing Convair XF-92A high-speed research aircraft have gone so well that the U.S.A.F. have ordered "off the drawing board" a supersonic fighter on the same lines, designated the Convair XF-102. No official details of the XF-102 have been released, but it is believed to be a fast-climbing, supersonic delta-wing interceptor, powered by a Pratt and Whitney J-57 turbojet and controlled by a fully-automatic electronic pilot.

Its human pilot will be carried solely as a monitor and to fire the specially-designed guided missile which will form the aircraft's main armament.

While the new aircraft is being built tests continue with the XF-92A which, as shown in the illustration below, has now been fitted with an afterburner to augment the power of its J-33 engine.

Sabre Simulator

In last month's "M.M." I described the wonderful electronic flight simulators now being built to train airline pilots. Now the American Engineering and Research Corp. have built a simulator that will enable pilots of the new North American F-86D "Sabre" jet fighter to "shoot down" their first enemy 'planes without actually seeing the enemy or leaving



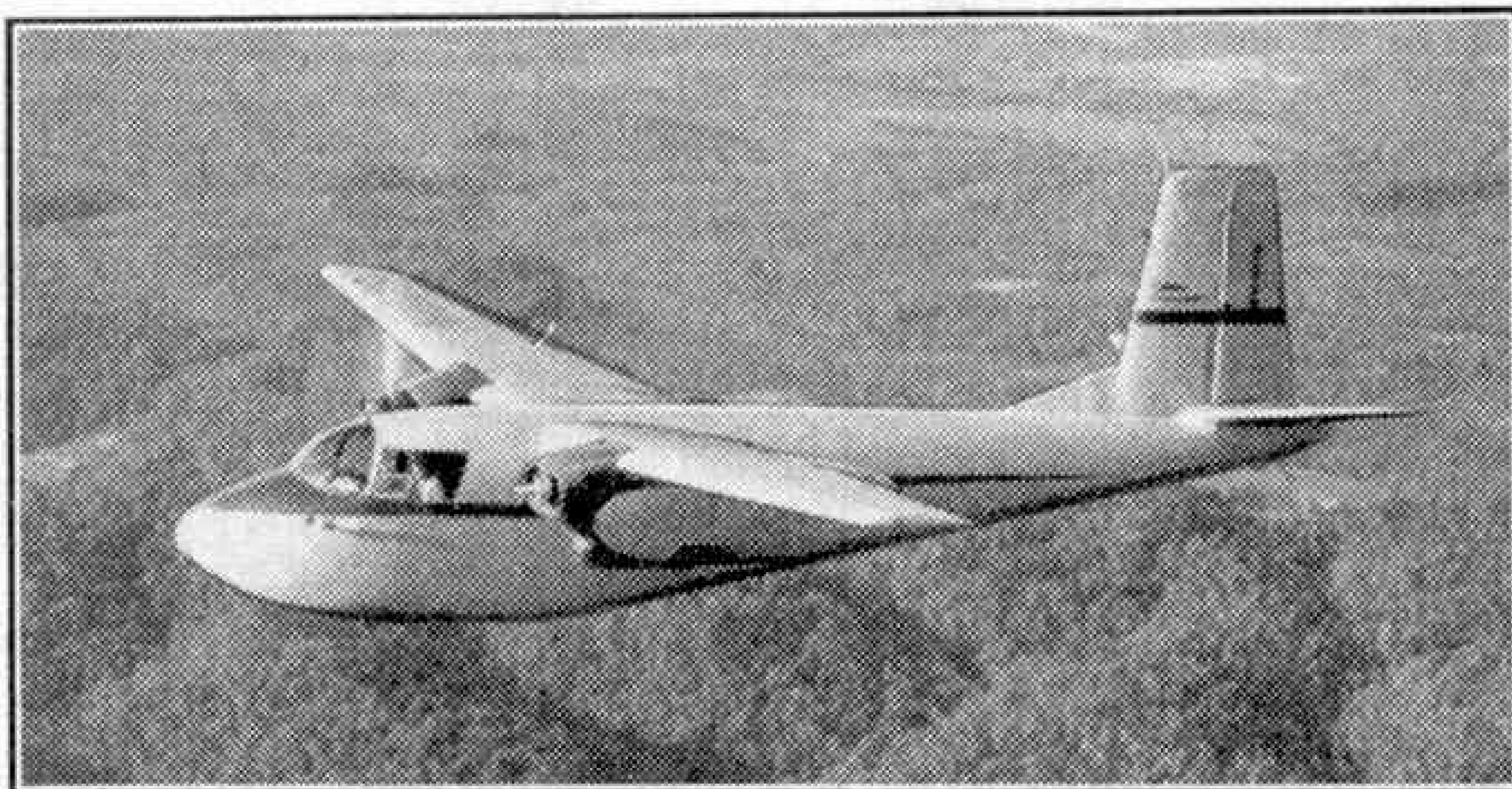
The delta-wing "Convair" XF-92A, with afterburner fitted in the extended tail section to provide increased thrust. Photograph by courtesy of Consolidated Vultee Aircraft Corporation, U.S.A.

the ground. Named the "Flightronic," it contains 1,152 electronic valves and 60 miles of wiring, and is the first to simulate two 'planes at once—the one being flown and an approaching enemy 'plane, as seen on the pilot's radar. The result will improve still further the fighting efficiency of U.S. "Sabre" pilots, which has helped them to score 10-to-1 victories against MIG-15s in Korea, even when heavily outnumbered.

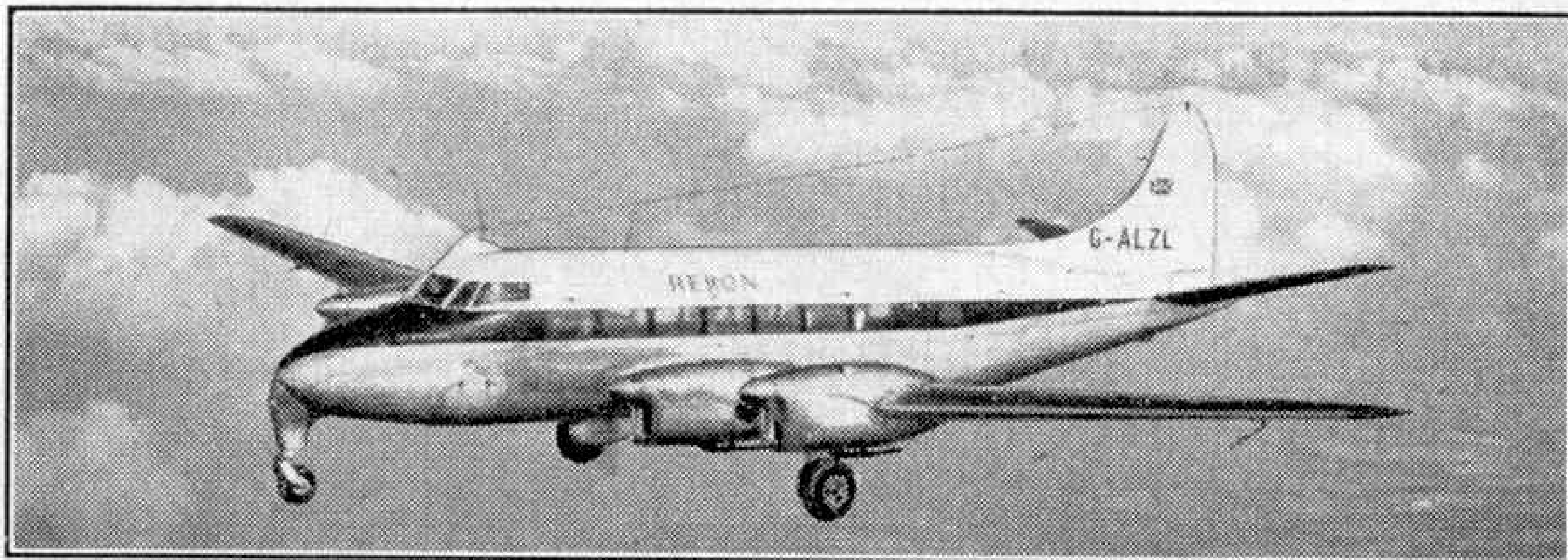
The Aero "Commander"

The neat little twin-engined Aero "Commander" shown on this page flying with only one propeller has not met with an unfortunate accident. It made aviation history by flying non-stop like that all the way from Will Rogers Airport at Oklahoma City to Washington, a total distance of 1,160 miles, in 9½ hrs. The flight was made to prove the single-engine performance and safety characteristics of the aircraft carrying full load, the port propeller being removed before take-off to avoid any doubt of the achievement.

With both engines running, the six-seat "Commander" cruises at 197 m.p.h. for 850 miles. It is in full production at Tulakes Airport, Oklahoma City.



Aero "Commander" flying with one airscrew removed. Photograph by courtesy of Aero Design and Engineering Corporation, U.S.A.



D.H. "Heron" 4-engined air liner. Photograph by courtesy of de Havilland Enterprise.

Orders for D.H. "Heron"

Garuda Indonesian Airways have ordered 14 de Havilland "Heron" four-engined light air liners for service on their routes from Djakarta to all the important cities and islands of Indonesia. De Havillands report that numerous other airlines and operators have also ordered the "Heron," including the Norwegian Braathens S.A.F.E. company and Transportes Aereos Salvador of Brazil. The "Heron" was designed as an economical replacement for the veteran "Rapide" biplane.

New Anti-Submarine Weapon

Latest anti-submarine weapon in the Western Union armoury is the "sonar ear," a sensitive detection apparatus which can be lowered into the water from a helicopter hovering 50 ft. above the sea.

Tests over the North Atlantic have shown that a team of three or four helicopters using "sonar ears" can sweep a wide area and quickly pinpoint any submerged submarine, even when it is well below periscope depth.

Unsinkable Carriers

The U.S.A.F. plan to make trial landings this Summer on vast islands of ice, some of them 20 miles long, in the hope that they can be used as unsinkable aircraft carriers. Three such islands, designated T1, T2 and T3 and each hundreds of feet thick, are being plotted in their daily courses by Alaska-based "Superfortresses" of the 58th Weather Reconnaissance Squadron, ready for the experiment which is a development of Mr. Churchill's wartime *Project Habakkuk*.

Baby "Vampire"

One of the major attractions of last year's Paris Aero Show was the little jet-propelled SIPA 200, illustrated on this page. Its resemblance to the "Vampire" is purely superficial, as it is actually a two-seat personal or training aircraft, powered by a Turbomeca "Palas" of only 330 lb. thrust.

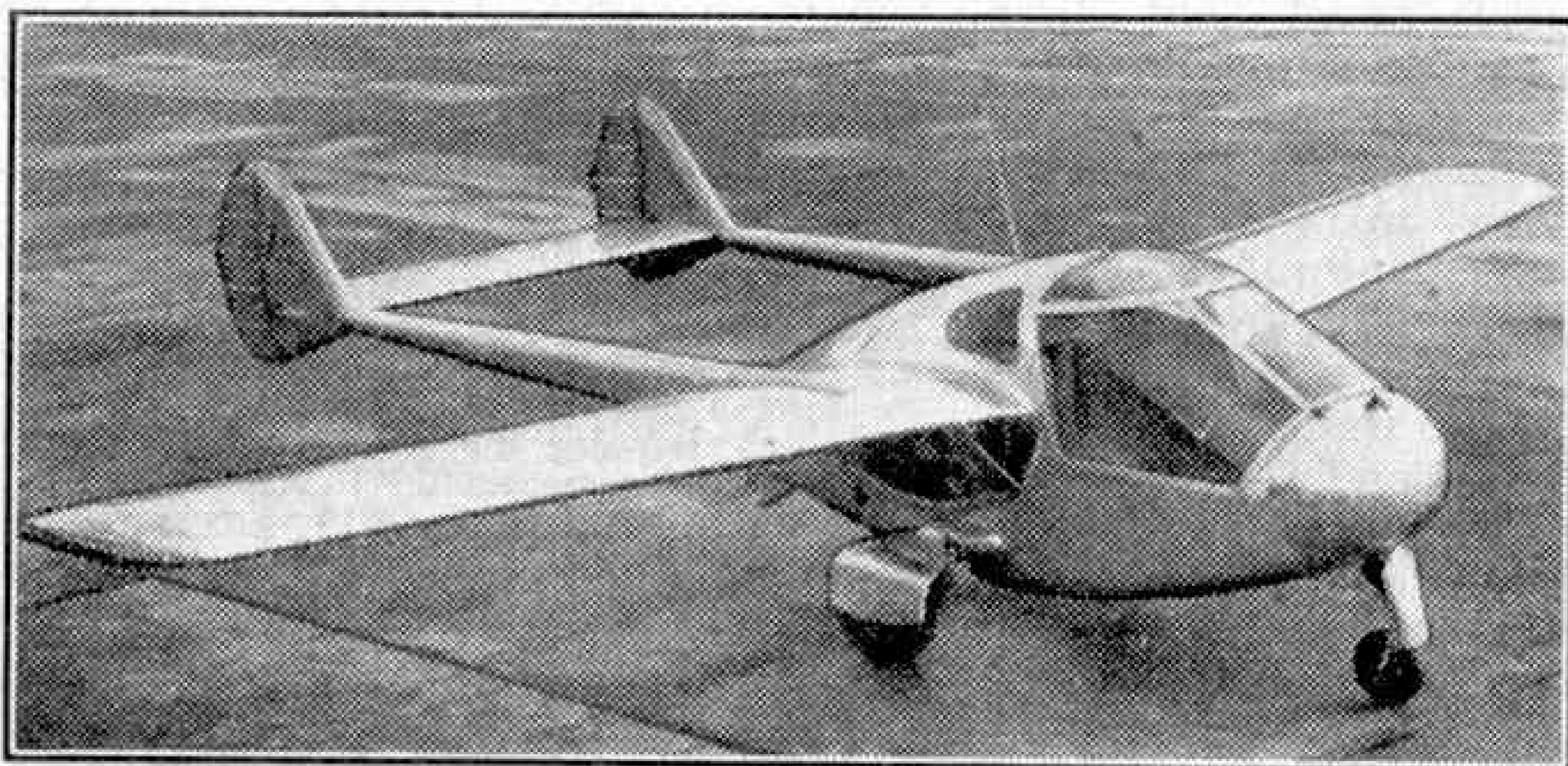
Detailed performance figures are not yet available, as development of the SIPA 200 has proceeded very carefully since its first flight on 14th January last. But it has an estimated range of 435 miles at 236 m.p.h. with full load. It has a wing span of 23 ft. 5 in. and weighs 1,609 lb. fully loaded. Top speed should be over 250 m.p.h.

Encouraging the Air Beef Scheme

To encourage development of the Air Beef scheme, by which Australian National Airways fly meat from inland farms to the coast in the Kimberley area of N.W. Australia, the Australian Federal Government have decided to subsidise the scheme by £10,000 a year. This is equivalent to 1d. per lb. of beef flown, and indicates official recognition of the part that Air Beef can play in increasing food production and, at the same time, in developing the sparsely-populated Kimberleys, where surface travel is difficult.

Six-engined "Lancaster"

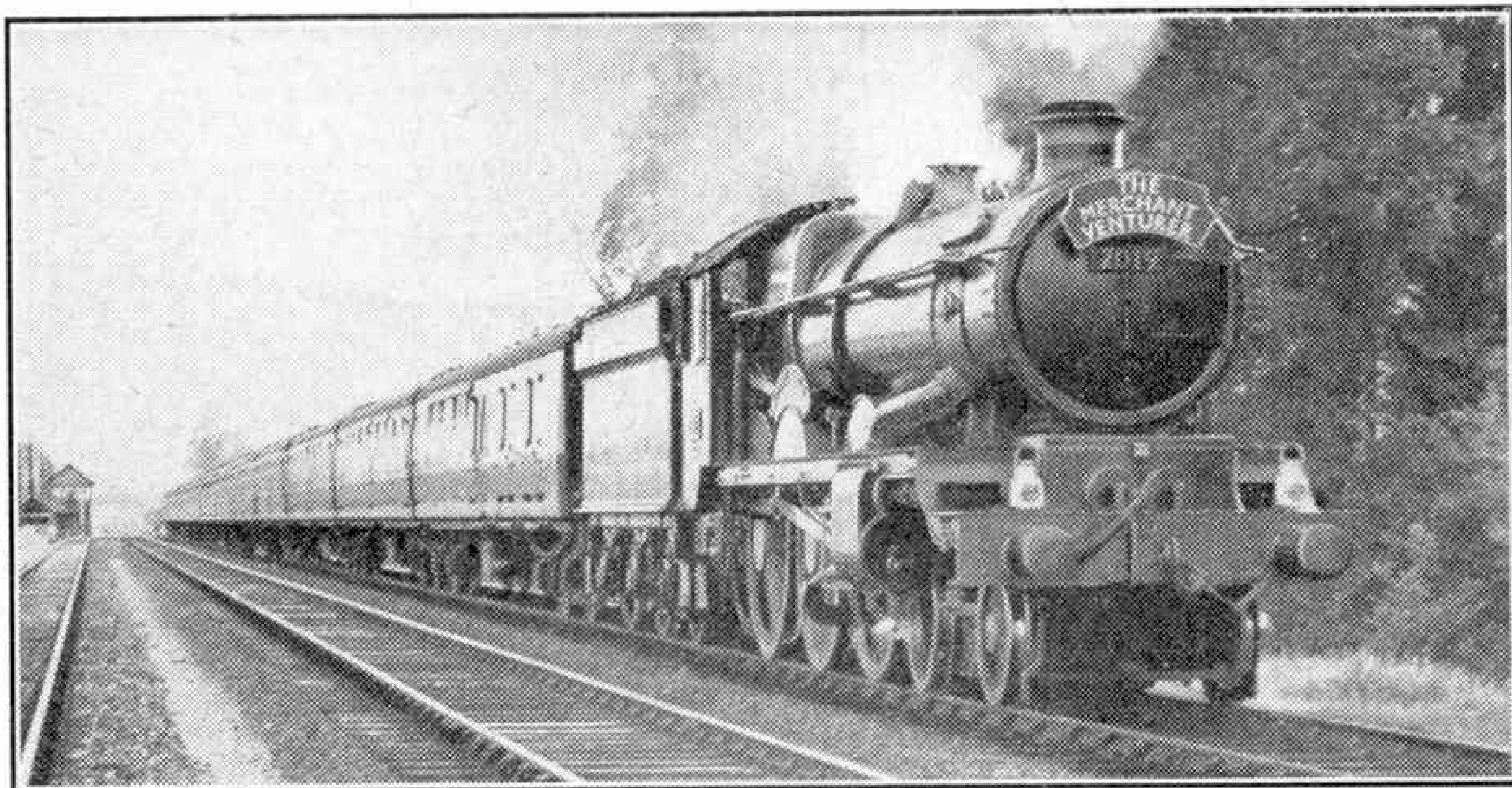
Since the war, we have grown accustomed to seeing multi-engined flying test-bed aircraft with jet engines in their nose or replacing two of their standard piston engines. But a "Lancaster" used by Armstrong Siddeley Motors of Coventry is setting something of a record by flying with six engines of three different types. In addition to the four standard "Merlins," it has a "Mamba" propeller-turbine in its nose and an "Adder" turbojet in its tail. The "Adder," Britain's



The French jet-propelled SIPA 200 aircraft. Photograph by courtesy of Reportage Airmondial, Paris.

smallest jet engine, has been designed to power pilotless 'planes now being tested on the Woomera Range in Australia, the new Swedish Saab "Draken" delta and other, still-secret aircraft. It is a pure-jet version of the "Mamba" and develops 1,100 lb. thrust at sea level.

Unable to find workers to harvest their fig crops, farmers in Fresno, California, hired several helicopters, which flew low over about 1,000 acres of fig orchards, shaking the fruit from the trees with the downwash from their rotors.



"The Merchant Venturer"

By O. S. Nock, B.Sc., M.I.C.E., M.I.Mech.E.

WHEN British Railways chose the 11.15 a.m. express from Paddington to Bath, Bristol and Weston-super-Mare as one of the Festival trains of 1951, and bestowed upon it the name of "*The Merchant Venturer*," they brought into an entirely new limelight an old and historic service of the Great Western Railway dating back to 1890. Until that year there had been only four daily trains from Paddington to Cornwall, and of these the most famous was undoubtedly the "*Flying Dutchman*," leaving at 11.45 a.m. Those were broad gauge days, and then in 1890, while the track was still broad gauge, the 10.15 a.m. "*Cornishman*" was put on, calling at Swindon, Bristol, Exeter, Plymouth and principal stations to Penzance.

The stop at Swindon was of 20 minutes, for lunch; but after the Great Western had taken over the refreshment rooms there the stop was cut out altogether, and the 20 minutes taken off the running time. Bristol then became the first stop. In 1896 the momentous step was taken of running an advance section of the "*Cornishman*" non-stop from London to Exeter, 193.7 miles, and this was followed by the

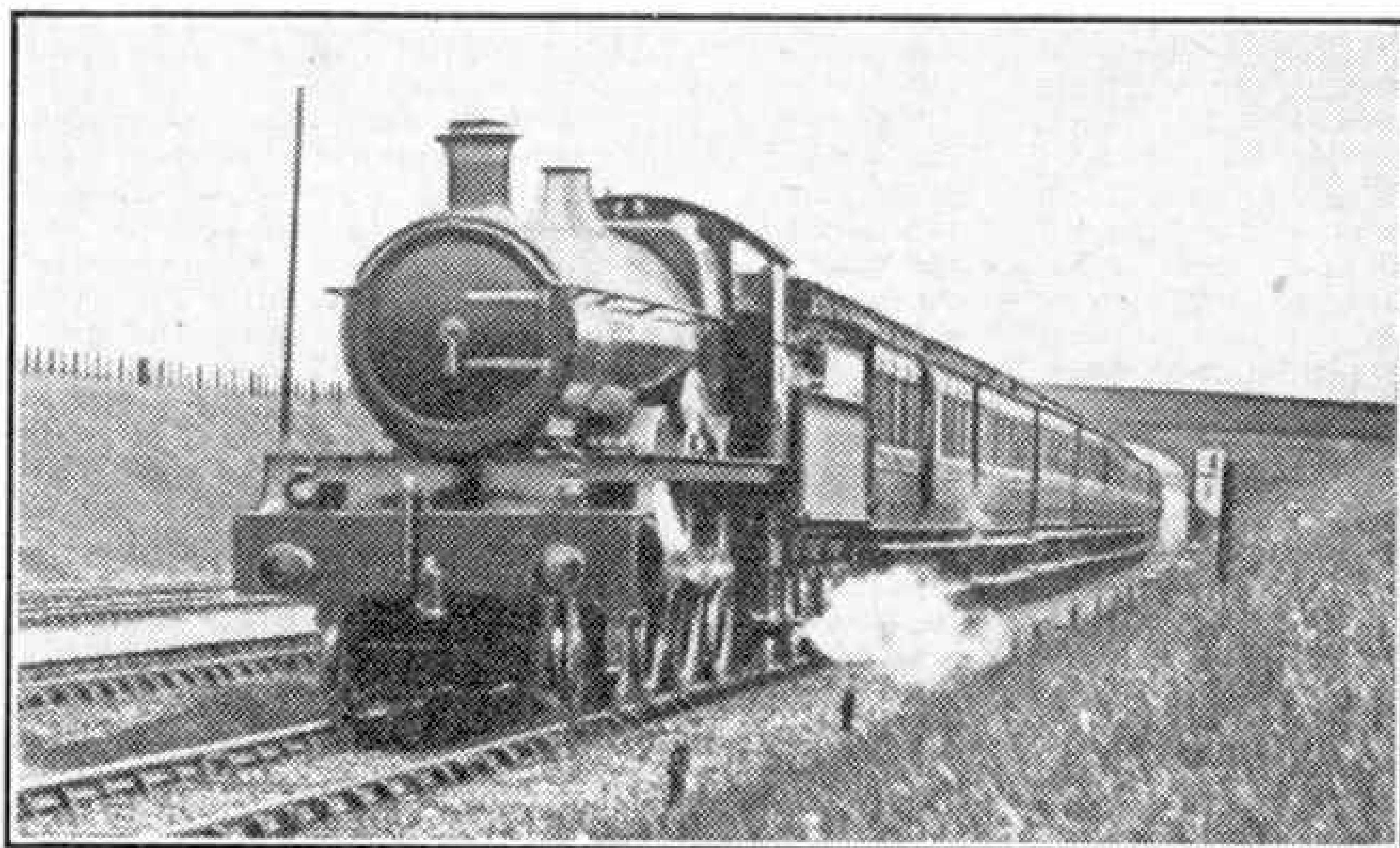
inauguration of the "*Cornish Riviera Express*" in 1904, running non-stop to Plymouth. The present route to the West of England, via Westbury and Castle Cary, was not then in existence, and these Cornish expresses ran via Bath, and by the avoiding line passing clear of Temple Meads station at Bristol.

While the "*Cornish Riviera Express*" and its immediate predecessor catered for through traffic from Paddington to the West of England, the original "*Cornishman*" service was maintained by a second train running non-stop to Bristol and afterwards calling at Exeter, and the same stops as before. In 1904 this train left Paddington at 10.50 a.m. and ran the 118.3

miles to Bristol in exactly 2 hours, an average of just over 59 m.p.h.; a slip portion was detached at Bath, covering the 106.9 miles from Paddington in 105 minutes.

For many years this was the fastest booked run on the Great Western Railway. Its timing meant good running, for the load was often about 300 tons. When the shortened route to the West of England was opened in 1906 the need for a through express at this time from London to the

Our cover this month, based on a photograph by M. W. Earley, Reading, shows the Western Region train named "*Merchant Venturer*" last year, with "*Britannia*" No. 70017 "*Arrow*" at its head. The picture at the head of the page is from a photograph by Kenneth M. Leech showing the up "*Merchant Venturer*" composed of B.R. standard stock, in charge of No. 7019 "*Fowey Castle*," near Langley Crossing, Chippenham.



An early "2-hour Bristol" express, with typical clerestory-roofed coaches, hauled by a "Saint" class 4-6-0. The train is passing mile post 14, the site of the present station at Iver. Photograph by the late C. Laundy.

West of England via Bristol vanished, and the 10.50 a.m. became an express for Bath, Bristol and Weston-super-Mare. At one time it was known as the "*Bath Spa Express*"—a curious title seeing that the train itself did not even stop at Bath!

The running times demanded a good steady pace over the gradually rising line from Paddington to Swindon, as will be seen from the following table:

Miles	Stations	Time	Average Speed
0.0	Paddington	0 min.	— m.p.h.
9.1	Southall	11 "	49.6 "
18.5	Slough	20 "	62.7 "
24.2	M Maidenhead	25½ "	62.2 "
36.0	Reading	37 "	61.6 "
53.1	Didcot	53½ "	62.2 "
77.3	Swindon	77 "	61.7 "
94.0	Chippenham	93 "	62.6 "
106.9	Bath	105 "	64.5 "
118.3	Bristol	120 "	45.6 "

The line is favourable after Swindon, though speed had to be reduced to 30 m.p.h. through Bath. The 2-hour schedule was restored in 1921, after a deceleration during the first world war, and the departure time was afterwards fixed at 11.15 a.m., in accordance with the later Great Western practice of having departures for a certain destination at regular minutes past the hour. For example, other Bristol trains left Paddington at 7.15 and

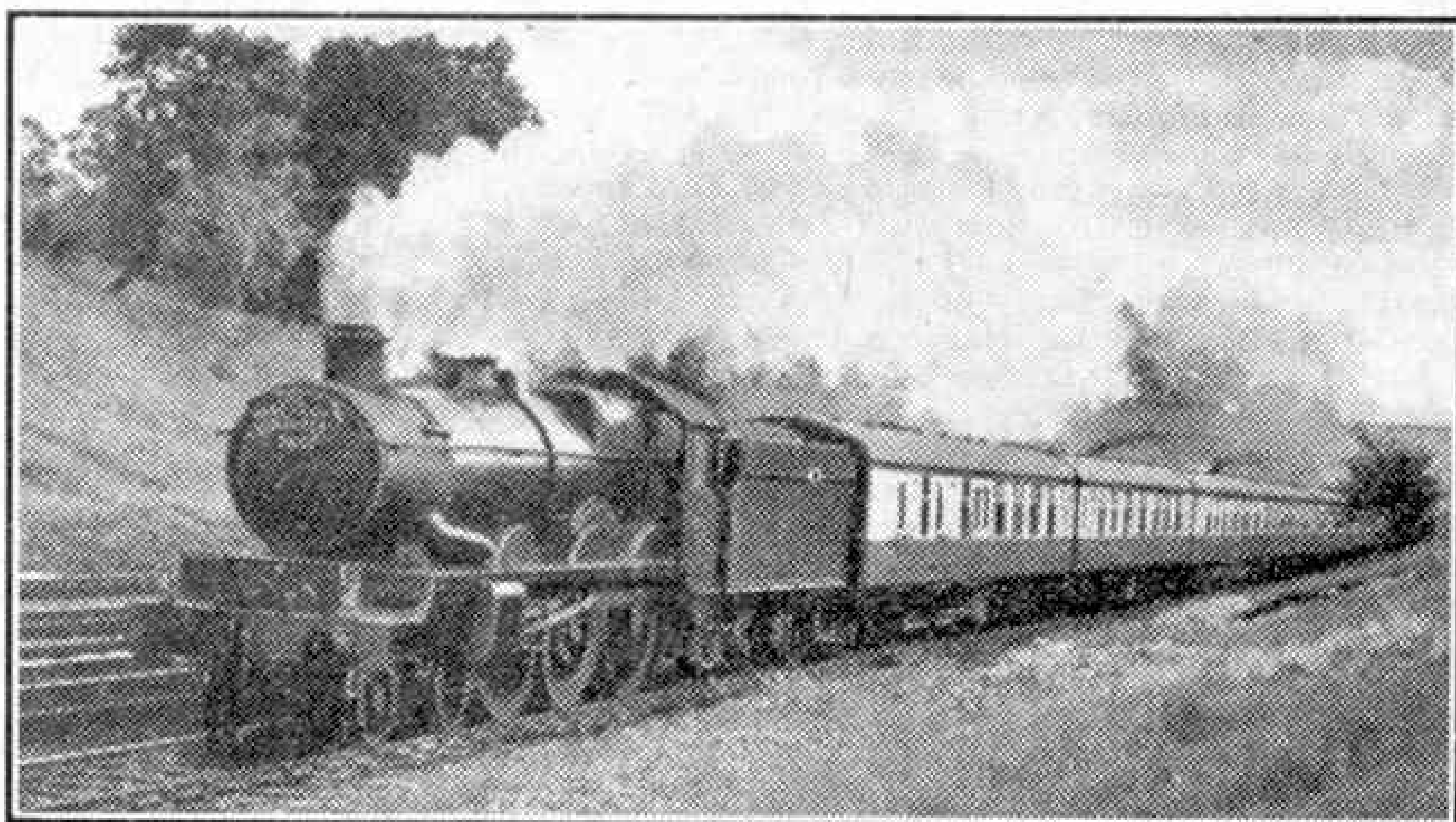
9.15 a.m. and 1.15 and 4.15 p.m.

After the second world war the 11.15 a.m. was restored in 1946, running non-stop to Bath in 115 minutes. The train was then very much heavier than the pre-war one and extra time was considered advisable, particularly as the permanent way had not been restored to pre-war standards of maintenance. It was hoped to introduce further accelerations, but the period of austerity that has been with us since the war

precluded any such hopes, and in 1951, when the train was named "*The Merchant Venturer*," after the ancient and historic Bristol Society of Merchant Venturers, the time allowance for the non-stop run to Bath was 113 minutes, an average speed of 56.7 m.p.h. from start to stop. The running times are:

Miles	Station	Time	Average Speed
0.0	Paddington	0 min.	— m.p.h.
9.1	Southall	12½ "	43.7 "
18.5	Slough	22 "	59.3 "
24.2	M Maidenhead	28 "	57.0 "
36.0	Reading	40 "	59.0 "
53.1	Didcot	58 "	57.0 "
77.3	Swindon	83 "	58.0 "
94.0	Chippenham	99 "	62.7 "
106.9	Bath	113 "	55.3 "

It will be seen that the present scheduled time over the 84.9 miles from Southall



"Castle" class 4-6-0 No. 5057 "Earl Waldegrave" carrying the effective "Merchant Venturer" nameboard, heads the down train near Twyford. Photograph by M. W. Earley, Reading.

to Chippenham is 86½ minutes, against the previous 82 minutes—an average of 58.8 m.p.h. against the previous 62.2. With the new standard stock run during the summer, and its lavish provision of dining accommodation, the train weighed 414 tons without passengers and luggage, whereas the pre-war train was nearer 314 than 414 tons. Engines of the "Castle" class were usually employed, and apart from signal and other delays they usually had no difficulty in keeping time with this heavy train.

The engine is one from Old Oak Common shed, and it returns to London on the up "Bristolian," leaving Temple Meads at 4.15 p.m. The up "Merchant Venturer" leaves Bristol at 5.25 p.m. and makes a number of additional stops on the way to Paddington. It is liable to be a very heavy train, with extra coaches added at weekends, and is allowed a longer running time in consequence. This up train is worked by Bristol engines, and men; the return duty is the 10.10 p.m. West of England postal special, which calls only at Reading and Bath, as far as Bristol.

On the down "Merchant Venturer" "King" and "County" class 4-6-0s are sometimes used, and more recently the new Class "7MT" British standard "Pacifics" have taken turns. The up train has either a "Castle" or a "County."

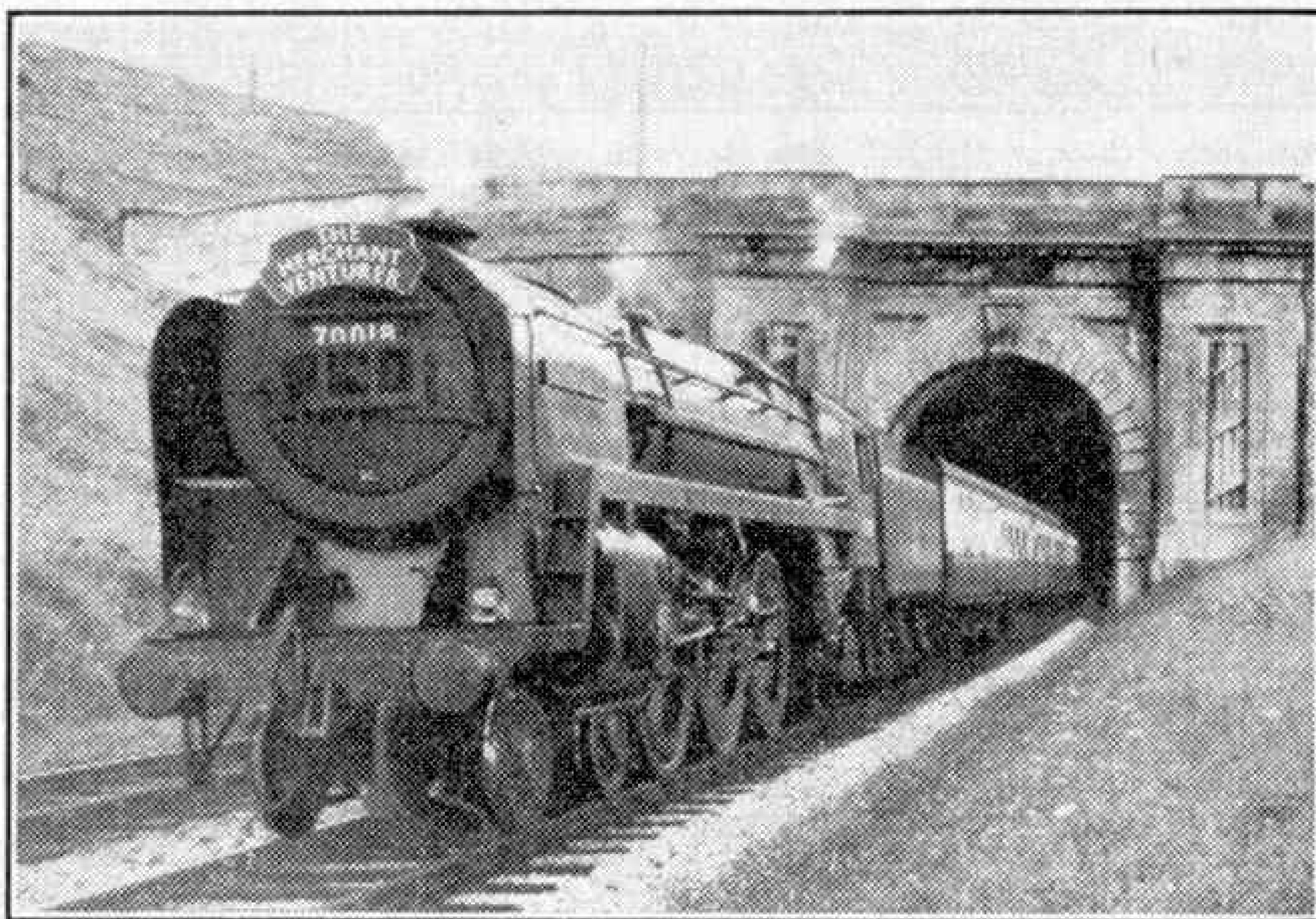
During the summer of 1951 embankments were giving trouble to the civil engineers at two points between Didcot and Swindon; 30 m.p.h. slacks were in force near Wantage Road, and near Shrivenham, and the slowing down and re-accelerating from these two restrictions cost fully four to five minutes in running the westbound train. From a comparison of the pre-war and present timings, it will be seen that if time was to be recovered, and Chippenham passed on time, it meant running practically up to pre-war "two hour Bristol" standards, with a very much heavier load.

During the summer I frequently saw the train passing through Chippenham while the two "embankment" slacks were at their worst—and a thrilling sight it always was, with a spotlessly clean "Castle," carrying the fine headboard on the smoke-box, and the train of new coaches tearing through at nearly 70 m.p.h. In August, too, the new "Pacifics" came first on to the job, and it was a pleasant link with the past that one of the first of these engines used on "The Merchant Venturer" should have been No. 70018 "Flying Dutchman" seen at the head of the train on this page.

It is interesting that two of the finest runs I had anywhere in the country during 1951 were on the "Merchant Venturer," both times while a passenger. I was travelling by the down train on a busy Saturday in June last year, when we had a very full train weighing 450 tons with passengers and luggage. The engine was a "Castle," No. 5057 "Earl Waldegrave," shown in Mr. Earley's fine photograph on page 255. With many extra trains running the line was congested in places, and we were brought to a dead stop no farther out of London than Southall East Junction. We had no sooner recovered to full express speed than we experienced a slight slack for permanent way purposes at Slough. Thus we took 30½ minutes to pass Burnham 21 miles. But the engine was in grand form, and up the very gradual rise from Maidenhead to Twyford—gradient 1 in 1320—

speed rose to 66 m.p.h. Through Reading I fully expected we should top 70, but unfortunately signals checked us again, down to 15 m.p.h.

The work that followed was now magnificent, for despite the two embankment slacks "Earl Waldegrave" covered the 58 miles from Reading (15 m.p.h.) to Chippenham in just 25 seconds over the hour. Speed recovered from the Wantage slack, 30 m.p.h., to 62 at Shrivenham; and after the second slack and the passage through Swindon the driver piled on some tremendous speed. Down the short Dauntsey bank, 1½ miles at 1 in 100, speed rose from 71 to 82 m.p.h.; then on the very gradual fall at 1 in 660 to the crossing of the river Avon, at Milepost 91, speed actually rose still further, to 83 m.p.h. Despite all checks Chippenham, 94 miles from Paddington, was passed in 106 min. 58 sec., but a final and grievous delay was experienced in Box Tunnel, where permanent way work entailed a reduction to 35 m.p.h. Even so



No. 70018 "Flying Dutchman," a B.R. standard 4-6-2, emerging from Middle Hill Tunnel between Box and Bath with the down "Merchant Venturer." British Railways (W.R.) Official Photograph.

we reached Bath in 9 seconds over the even 2 hours, an overall average of 53½ m.p.h.

We were 7 minutes late on arrival, it is true, though this was hardly surprising in view of so many delays. I calculate that the six delays, at Southall East, Slough, Reading, Wantage Road, Shrivenham and Box Tunnel, cost 15½ min. between them, leaving a net time of 104½ minutes for the 106.9 miles from Paddington to Bath. The net average speed over the 69.8 miles from Maidenhead to Chippenham was 66.3 m.p.h., compared with the scheduled average of 62 m.p.h. over this same stretch when the 11.15 a.m. ran non-stop to Bristol in two hours.

There was a time when the train had a still faster intermediate timing. The slip coach at Bath was dispensed with, and the train stopped instead, though still making an overall time of two hours to Bristol. Then the run from Paddington to Bath was made in 102 minutes start to stop. At that time a slip portion for Oxford was detached at Didcot. The usual loads were about 400 tons to Didcot and 300 beyond, though "Castles" used to keep time with as much as 450 tons from the start. Then the timing from Maidenhead to Chippenham, pass to pass, was 65 minutes. On this recent run of mine the net time made by "Earl Waldegrave" beat this by a full two minutes, with 450 tons over the entire distance.

The up "Merchant Venturer" does not have such opportunities for sustained fast running, though one evening when we left (Continued on page 286)

The Irish Curragh

Braving Atlantic Waters

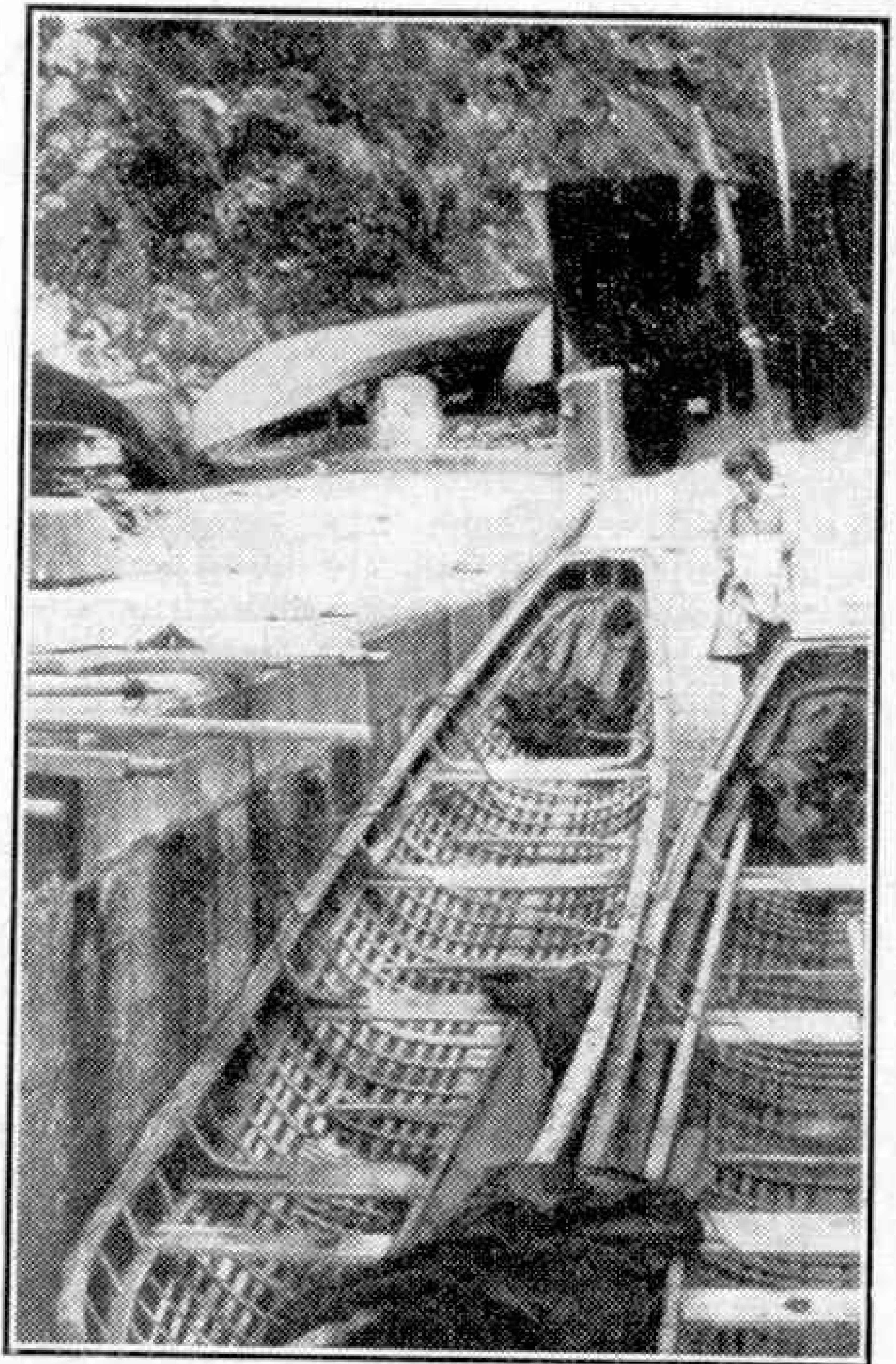
By M. B. C.

ALONG the western coast of Ireland the traveller comes upon regions where the principal boat used for fishing or for communication between the mainland and the islands is the curragh. Originally the covering of this boat was hide, but to-day tarred canvas is used.

The remarkable feature of the curragh is the seaworthiness when controlled by those who are skilled in its management. It is sometimes put into seas in which larger boats would be overwhelmed. Its motion as it dances over the waves is rapid, but its frailty is more apparent than real. This is shown by the fact that in many parts of the West of Ireland it is the sole means of communication between islands with large populations and the mainland.

Perhaps the best place to see the curragh in regular use is at Dunquin, in the south-west corner of the Dingle Peninsula. There, at the extreme edge of Europe, the boat that the folk of the Great Blasket Isle use to travel to and from the scattered mainland villages is the curragh. The Atlantic currents are rarely calm across the three-mile strip of sea that separates the island from the westernmost tip of Ireland, yet it is only in the roughest weather that the men of the curraghs do not put out.

The boat used at Dunquin is the three-man curragh, in which each man wields

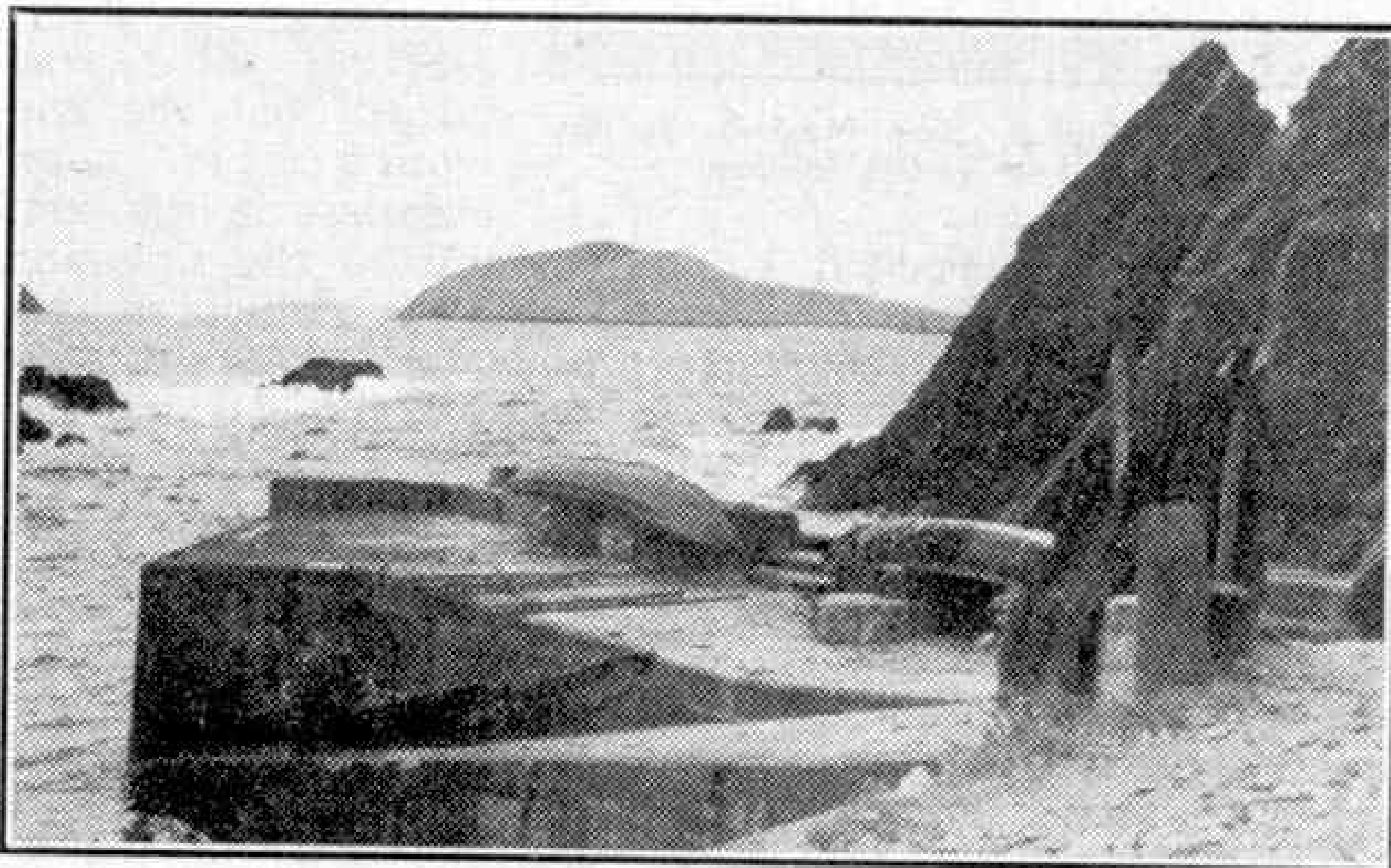


Three-man curraghs at Dunquin, in the Dingle Peninsula.

two oars. Eight slats of wood form the framework. On the gunwhale are thole-pins to which the oars, with their three-inch blades, are fixed. The bow lifts high, and this is part of the secret of the boat's seaworthiness, even in Atlantic gales.

The stone landing-place at Dunquin—it cannot be called a harbour or a haven—is approached by a steep path and steps.

Drawn up on the tiny quay are the curraghs, some of them overturned as a precaution against the rain and spray, with one or more perhaps rocking daintily on the waves. As the rowers leave the mainland for the Great Blasket, the curragh floats over the hidden reefs and past the revealed rocks, and heads out under the cliffs for the island that looms across the water.



The landing place at Dunquin, with curraghs upside down on the quay. Great Blasket Island can be seen in the background.

Across America by "Greyhound" Bus

II. From Grand Canyon to New York

By Bernard Llewellyn

THE bus stopped almost on the very edge of Colorado's Grand Canyon, by the side of a delightful timbered hotel. A moment later I was standing on the edge entranced by a view that is unique in the world. Someone has compared it to a gigantic paint pot 215 miles long by 15 miles wide; the fantastic rock structures which jutted up from the canyon floor changed colours in the sunlight. As I moved along the rim I caught glimpses of the savage Colorado River miles below, which in untold centuries had cut this huge red gash in the earth.

The story of the navigation of this turbulent river is one of the epics of exploration. In the photographic studios on the canyon rim I saw a film of a boat trip through the gorges which the Kolb Brothers made in 1911. Many explorers have perished in the rapids, though on that bright day on the southern rim it was hard to believe in the invisible terrors lurking below.

The next bus I boarded, heading for New Mexico, had a number of Indians among the passengers. Their long hair was tied in buns beneath their black sombreros. This was Navajo country, and by the roadside were numerous curio shops disguised as Indian Trading Posts and displaying a variety of Indian souvenirs.

We stopped on the edge of the Painted Desert, where there was nothing to see but a rocky bluish plateau stretching toward the horizon. Then on again through the scrub to Albuquerque and the "Santa Fe Trail" of history and song.

The ride from here to Denver was

through some of the finest country I had seen. Colorado is as famed for its scenery as California is for its sunshine. As we climbed northwards, scrub and semi-desert gave way to trees and ploughed farm lands, and in the distance to the westward was the wall of the Rockies, with snow clinging to the heights. But the landscape was darkened by rain, which began as great white hailstones bouncing off the roof of the bus and

continued, more gently but persistently, all the way into Denver.

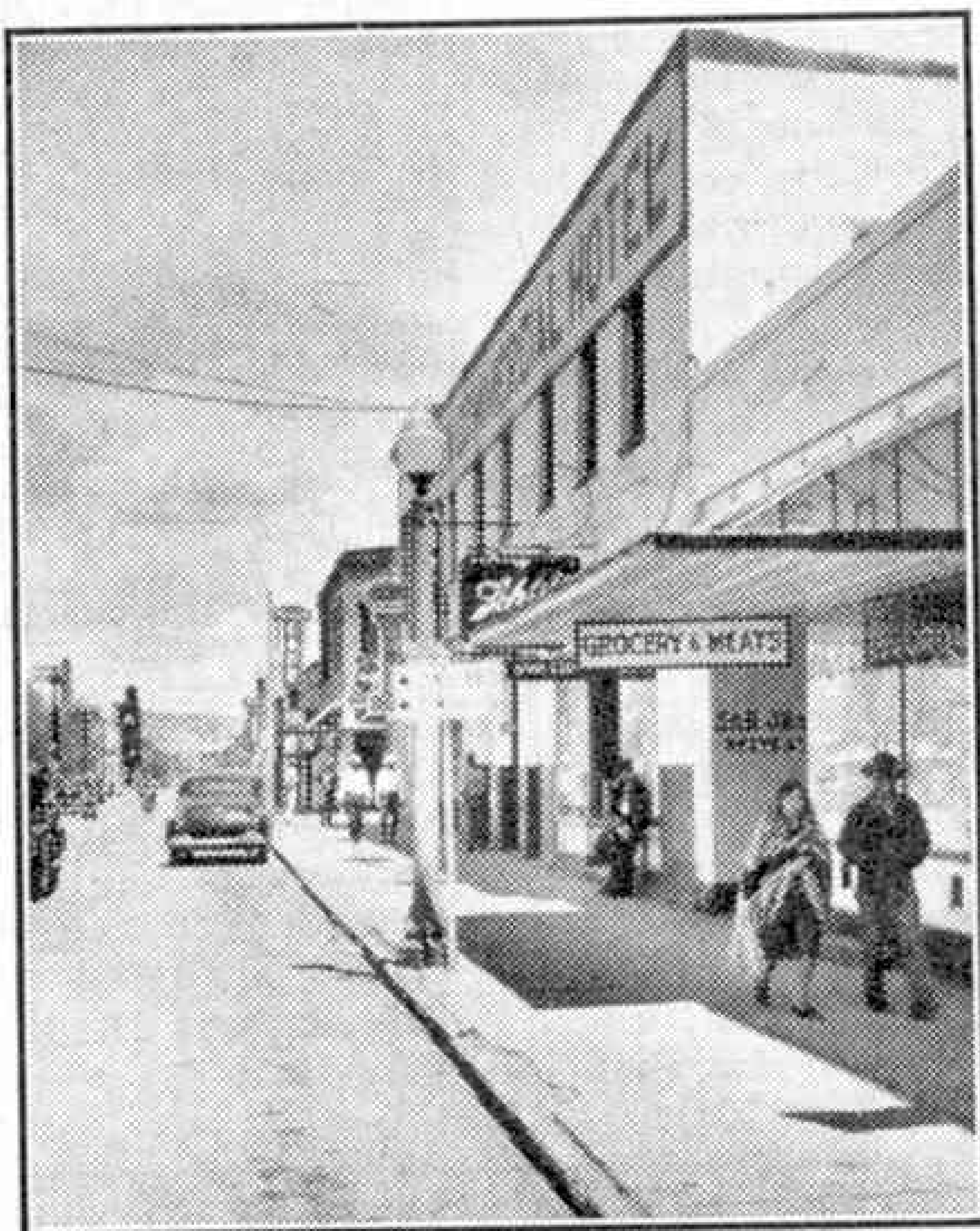
At Denver, the first big city I had seen since leaving Los Angeles, I saw great blocks of offices, spacious hotels, and all the hurlyburly that makes this one of the half dozen most prosperous cities in the United States.

During my visit rain concealed most of the beauties of this Rocky Mountain State. I wanted to go to neighbouring Pike's Peak where my boyhood hero, Buffalo Bill, was buried, but the trip would have been cheerless in the wet.

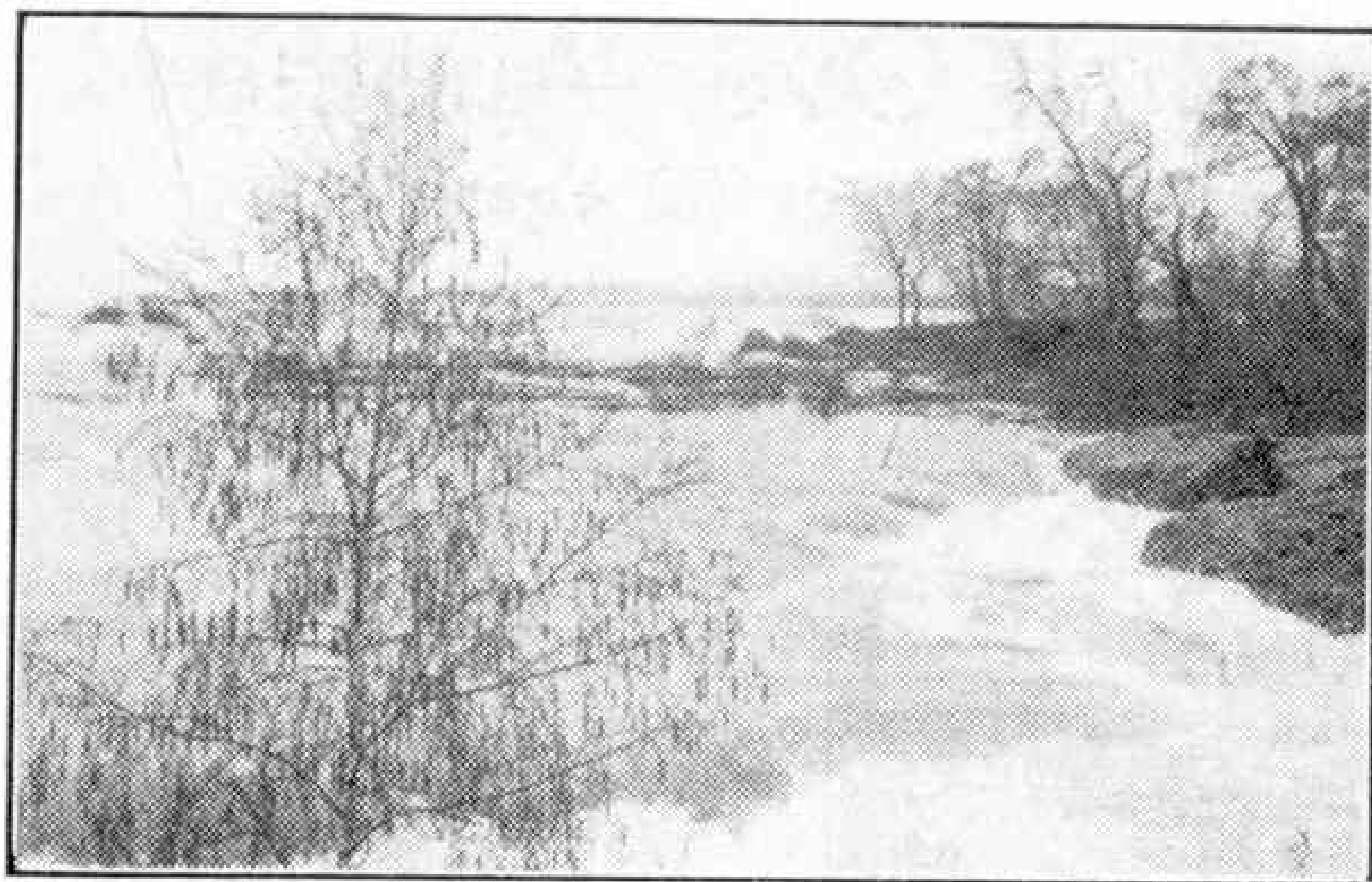
Instead I took a tram to the Colorado Natural History Museum, which is rich in skeletons of prehistoric creatures that have been dug up from the soil of these mid-western states. There were mammoths, mastodons and dinosaurs, and the frightening head of a tyrannosaurus.

Though the "Greyhound" bus service operated day and night, I had hitherto spent most nights in hotels. Now, however, I was anxious to get across the rather dull country between Colorado and the Lakes as rapidly as possible, and decided to spend two nights travelling.

I left Denver at 10.30 p.m. and reached



A street scene in Gallup, New Mexico. In the foreground are two Navajo Indians.



Goat Island in Niagara River. The turbulent waters are rushing towards the giant falls.

Kansas City in the late afternoon of the following day, stiff-jointed, unshaven, and not a little tired of coffee and hamburgers. An hour later I left for Indianapolis by way of St. Louis, where I crossed the broad flood of the Mississippi in the darkness without that mighty river leaving a clear impression on my mind.

In Indianapolis, which I reached in the early morning 36 hours after leaving Denver, I had four hours to spend, and I shared them between a public park, streets with hideous memorials, and a tiny cinema showing one of the worst cowboy films I had ever seen. It was with relief that I boarded a bus for Toledo and the Great Lakes.

Naturally enough, the visitor who is pressed for time always makes for Niagara Falls. I was no exception, and one morning a day or so later I was standing in the spray at Prospect Point, watching Niagara River spill over the 165 ft. drop, down which more than one adventurer has rolled, usually with fatal consequences, in a barrel. This impressed me as another unforgettable moment of my American trip as I looked across the river and the span of Rainbow Bridge to Canada, and down towards the whirlpool where Captain Webb, the English Channel swimmer, was drowned in 1883.

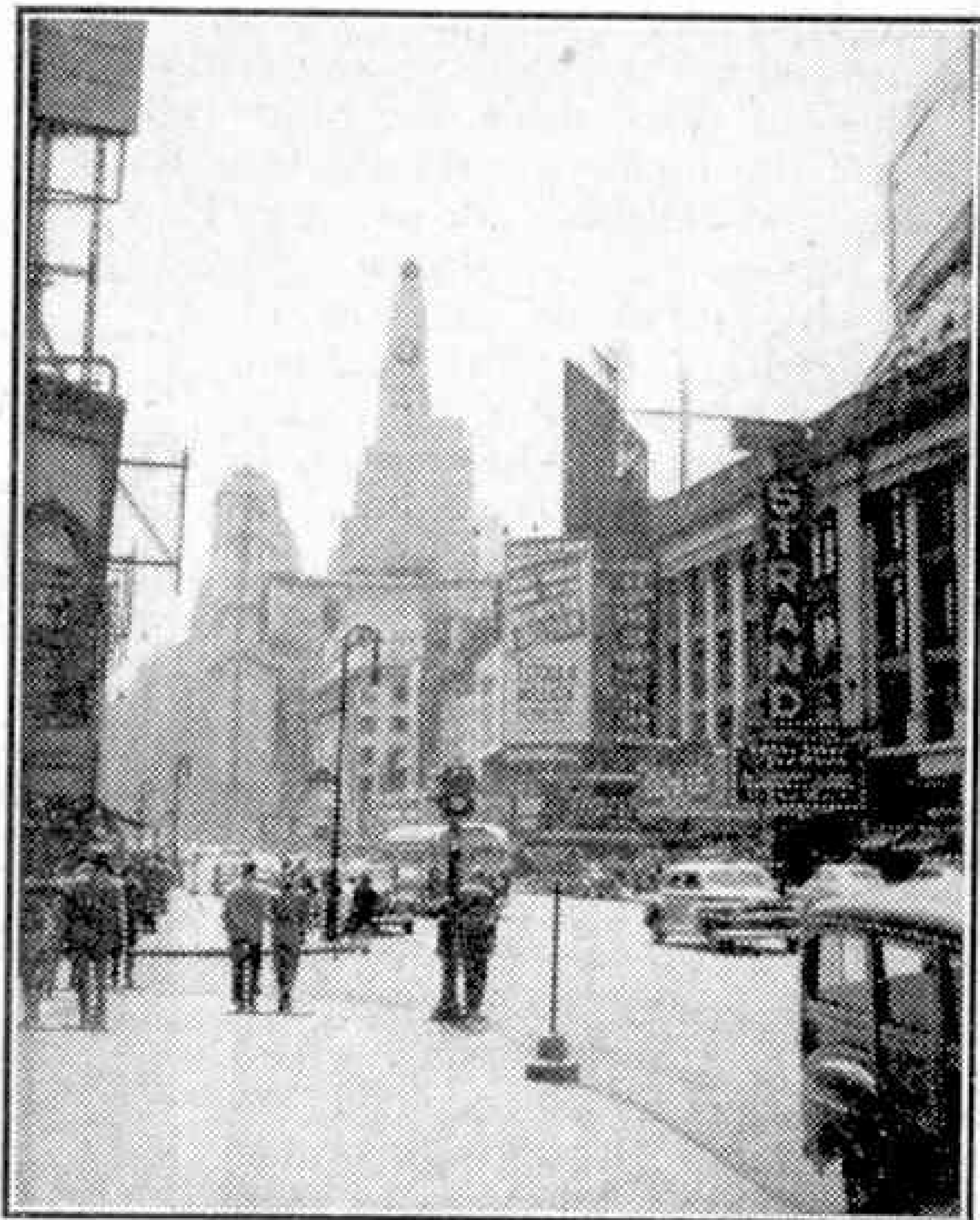
There were woods and fields and streams beyond the bus windows as we crossed the Alleghenies towards Philadelphia, the City of Brotherly Love, which was founded as a Quaker settlement. Here I stayed for a time with friends before setting off on the final stage of the journey to New York.

Most English travellers visiting America for the first time see the skyline of Manhattan as they sail into New York harbour. But my first glimpse of New York was the misty towers of the Chrysler and Empire State Buildings, seen rising from a flat landscape.

For the next week or so I lived among the skyscrapers. A lift took me to the pinnacle of the Empire State Building for a view over the forest of steel and concrete that makes up the city. The lift was a great contrast in speed to the one that

took me to and from my humble bedroom overlooking 50th Street and fabulous Broadway; but even this did not equal the express which carried me non-stop to the 50th floor of the Rockefeller Centre.

New York was a city of contrasts. I explored it from Wall Street to Central Park, and from Greenwich Village, the Bohemian quarter, to Harlem's tenements and the palatial homes of Upper Broadway. Yet when the time came to embark for home, I did not forget the silver grey buses that had brought me across the continent.



Near Times Square, New York, city of contrasts and the end of my bus journey.

One Bridge Built Over Another

Constructional Work at Hastings 50 Years Ago

By R. A. H. Weight

THE upper illustration on this page is an unusual one, showing parts of two bridges at the same place. This scene was

planned to proceed simultaneously above and below, and also in between these levels. Our upper illustration shows the steel girder bridge when it had been brought near enough to completion to allow almost the whole of the previously supporting embankment to be removed. The lower one shows the completed bridge.

Heavy baulks of timber supported the railway and the sections of the new bridge while the construction work proceeded. The steel girders, with the supporting columns, were completed by stages at weekends, a task of no small magnitude in the days when tools and lifting tackle were by no means as advanced in power or scope as they are today. The handsome supporting columns, which have

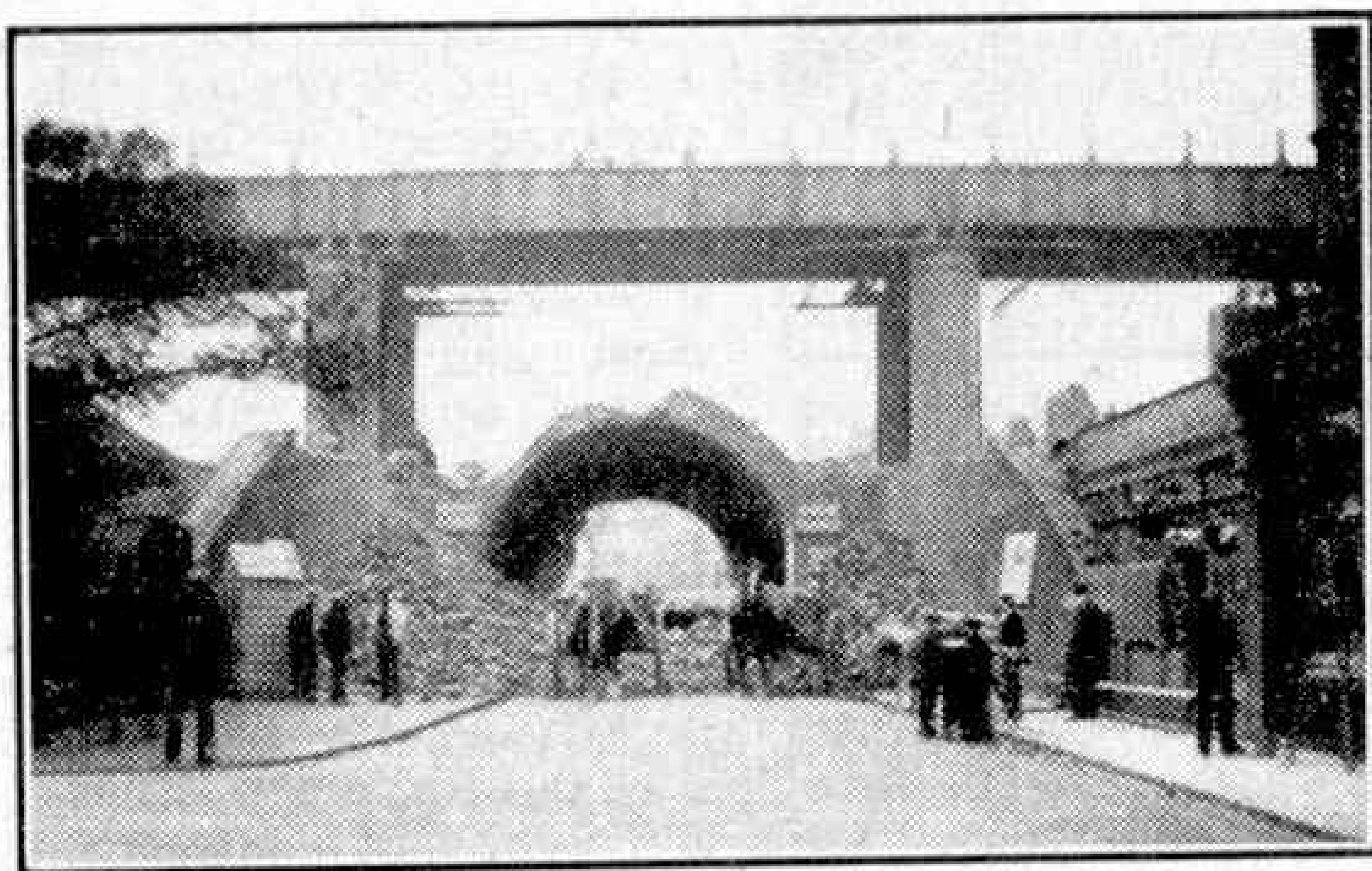
now borne their load well for more than 50 years, are encased in fluted iron on stone or concrete bases. Iron side sheeting encloses the tracks across the bridge, above which wooden palisades are mounted.

Today the bridge is under the control of the Southern Region and in addition to steam trains to and from Ashford or beyond, since 1935 Hastings electric trains have passed over it in order to reach their terminal or stabling station at Ore.

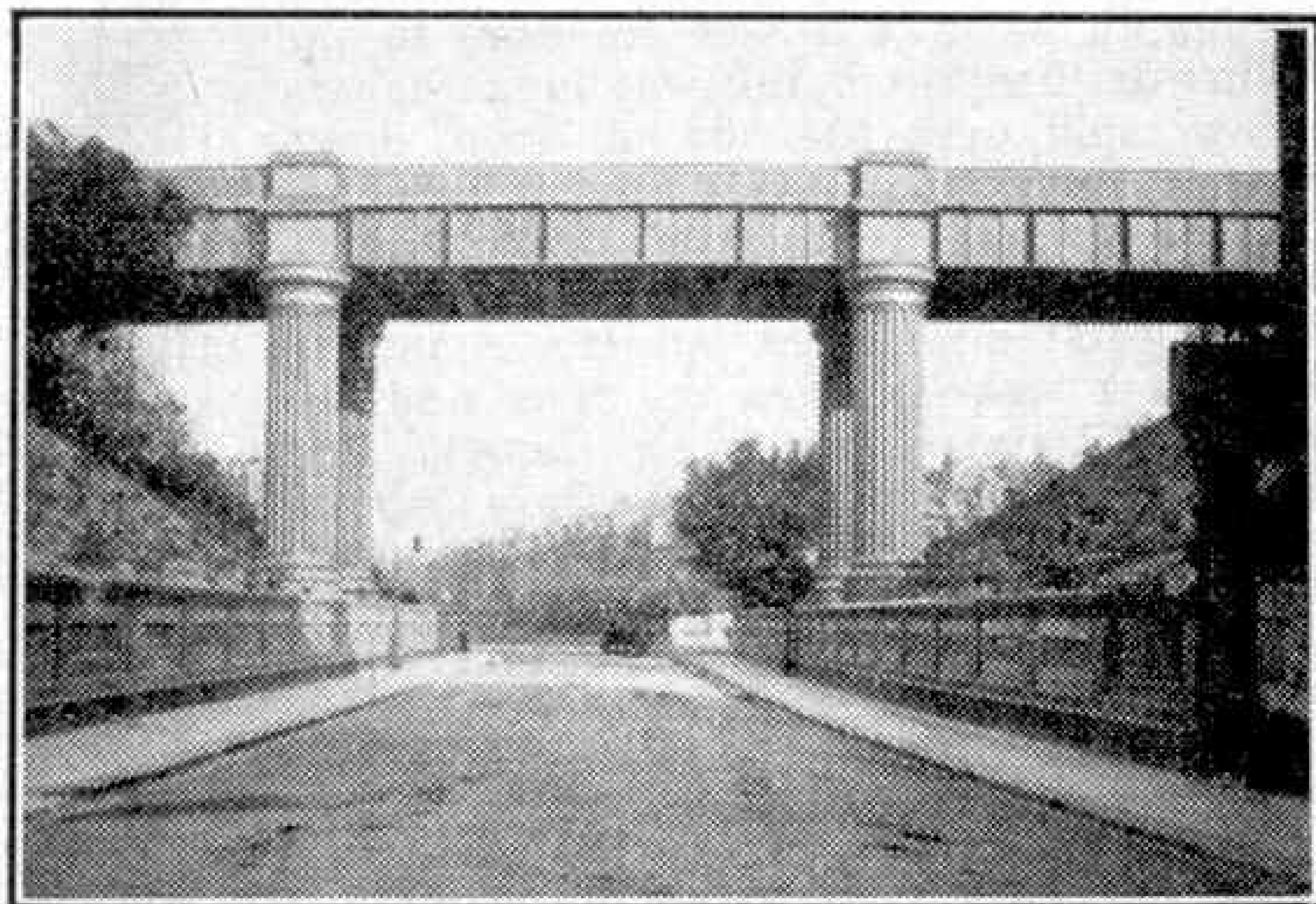
photographed 50 years ago, when the existing railway bridge at St. Helens Road, Hastings, was being demolished as the bridge replacing it took form. The railway at this point is on a high embankment with a steeply rising gradient of 1 in 60 to the right, towards Rye and Ashford.

The old brick arch was built 100 years ago by the former South Eastern Railway as the first railway link between Kent and East Sussex. The clearance for road traffic was very small on account of the depth of the embankment and the narrow bore provided. About the turn of the century it was desired to construct an electric tramway route under the bridge, while local engineers of the day probably realised that with the coming of motor traffic much more space would be required, as St. Helens Road which leads to the lovely Alexandra Park valley, was to form a main woodland route into the town. In conjunction with the railway authorities therefore it was decided to provide a high steel girder bridge for the railway, with more road space beneath.

Work on the scheme was



Demolishing the brick arch of the old St. Helens Road railway bridge, Hastings, as the present bridge was being completed.



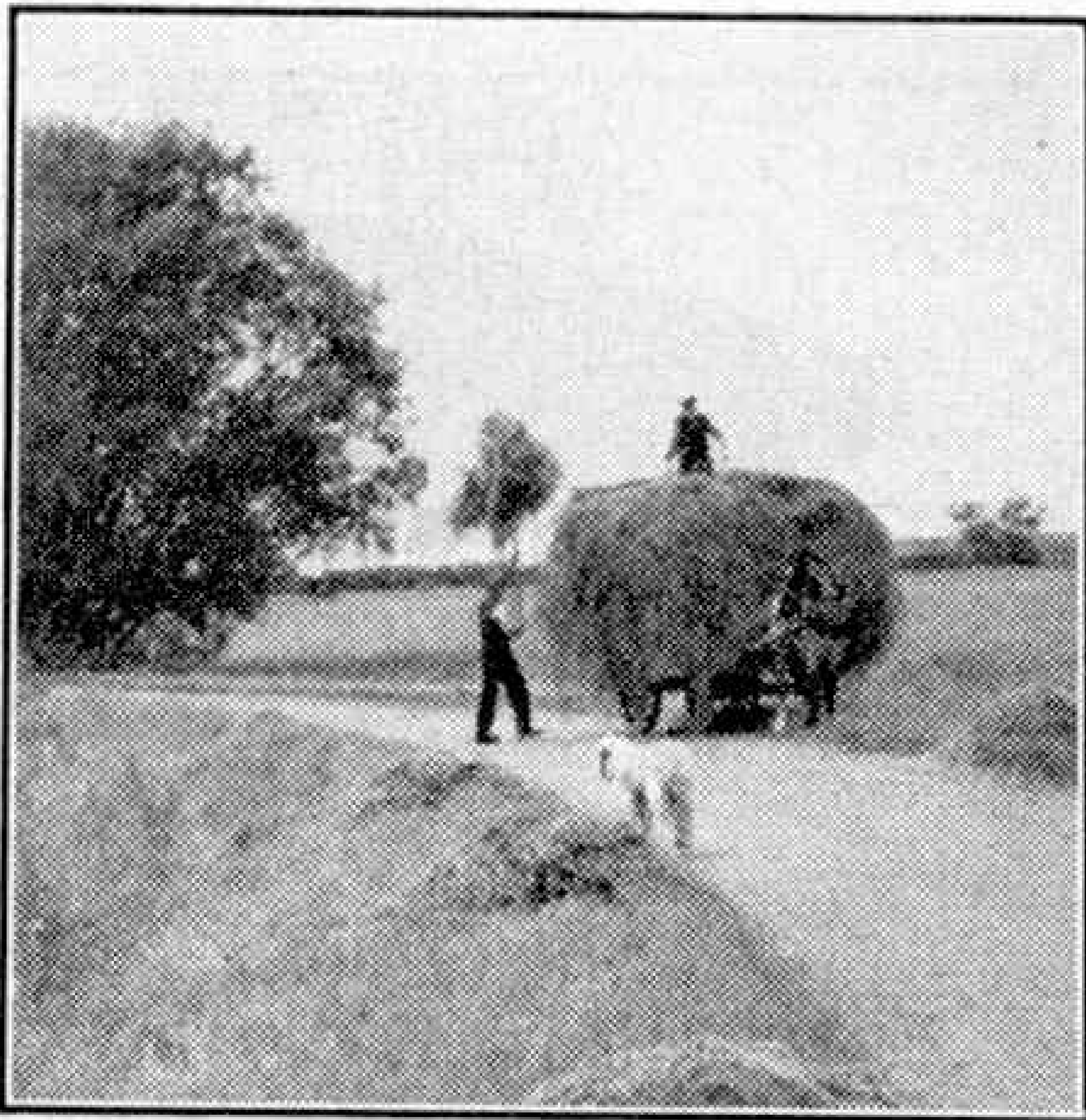
The modern St. Helens Road railway bridge, Hastings. This was built 50 years ago to replace a brick arch bridge.

Photography

Haymaking

By E. E. Steele

JUNE is traditionally the great month of haymaking, when the grasses are well ripened, and the hot Sun quickly dries the cut swathes, which are made into stacks for feeding the cattle during the Winter months. In our village the boys and girls used to have great fun in haytime, riding in the wagons, and making circular "forts" of hay, using the same material for "ammunition" to repel invaders. The latter custom, like many old village ways, seems to have disappeared, but riding in the wagons seems



Hay from the roadside.

to be as popular a pastime as ever.

The light at this time of the year is at its brightest, and the days are so long that pictures of haymaking in all its aspects may be taken after school. There is something fascinating in watching the sharp blades of the reaper laying the tall grasses in neat rows, and the sweet smell of the mown grasses is perhaps the best natural perfume in the world, and typically British.

Here and there it is still possible to see the scythe at work, an interesting reminder of the days before the invention of the mechanical reaper, when all the meadows were cut by muscle power. There is a great art in using the scythe, as any novice may quickly find if he tries his skill. In the old days the cut grasses would be turned over to dry by men with long, two-tined forks, and after drying would be forked into heaps known as "haycocks" to await the coming of the wagons for transport to the stackyard. Nowadays the hay is turned by machinery, and a tractor draws

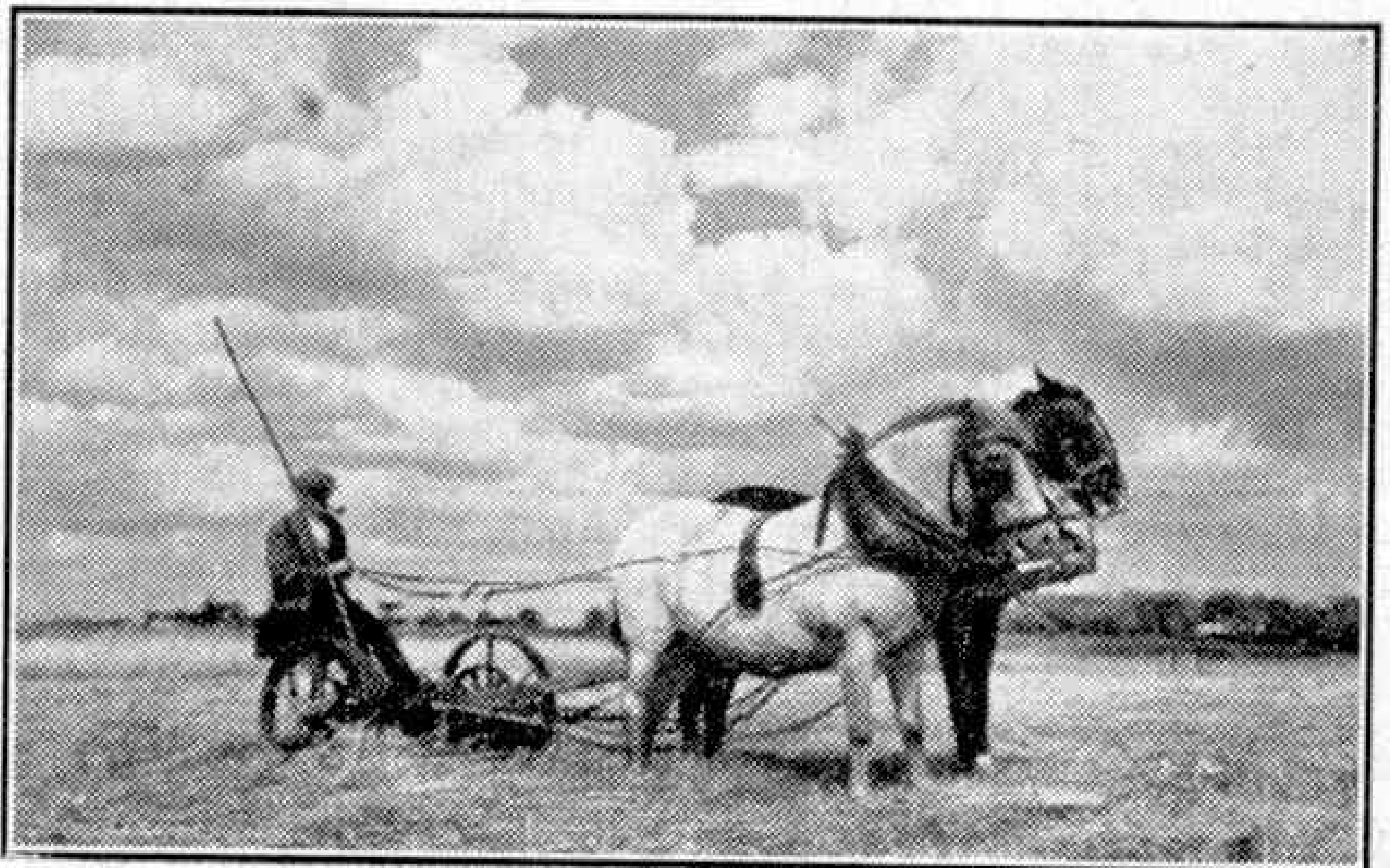


An old hand shows the old way. The illustrations to this article are from photographs by the author.

the wagon behind a kind of elevator with an endless belt containing rows of tines that swiftly carry the hay to the man loading on top of the wagon. Back at the farmyard another elevator assists in conveying the hay from the wagon to the stack. This mechanism was once driven by a horse walking round in a circle, with subsequent halts when "Dobbin" decided to rest, but a small oil engine now does this job.

All these processes may be photographed quite easily as they are usually taken at a distance in good light, but an exposure of not more than 1/100 sec. is desirable where much movement is evident, while coloured wagons and machinery call for panchromatic film for best results.

Horses fit in well with haymaking. These are still to be seen and photographed on the smaller farms.



Reaping the meadow.

Only Giraffes Don't Fly!

By John W. R. Taylor

FOR thousands of years giraffes have been able to look down—literally—on the rest of the animal kingdom; but the aeroplane has changed all that! While tigers, cows, rhinos and even elephants travel in comfort above the clouds at 250 m.p.h., the poor giraffe is forced to keep its feet on terra firma, grounded by the very thing that gave it such a flying start—its neck.

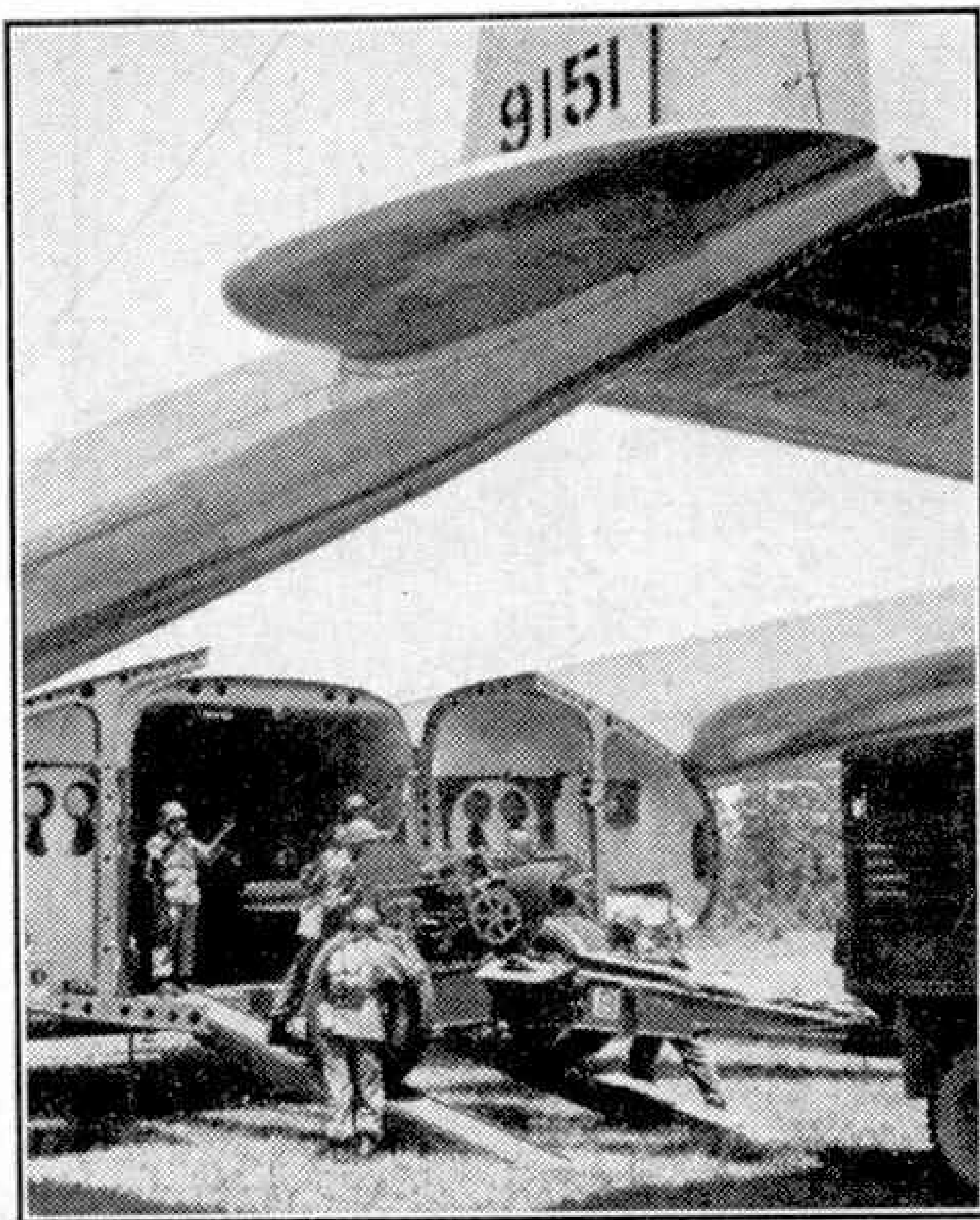
Railway engines don't fly either; but lorries, fire engines, army tanks, 'buses, cars, bulldozers, lifeboats and most other vehicles do. In fact, General Harold R. Harris, ex-Chief of Staff of the U.S.A.F. Air Transport Command, went so far as to say a year or two back that "any article which can be gotten into an aeroplane, either complete or in sections, and which is not so heavy that an aeroplane cannot lift it, not only will be, but has been carried by air under some circumstance somewhere in the world—not as a stunt, but as an economic delivery."

It is impossible to say who first thought of sending freight by air, but an ancient Vizier of Balbek, in the Middle East, probably has as good a claim to the distinction as anyone. The "*Hayat al Hayawan*," or "*Book of the Animals*," written in the 14th century, tells how this man, nearly a thousand years ago, heard that his master, the Caliph Aziz of Cairo, longed for some cherries. So the Vizier called for 600 carrier pigeons, tied small bags each containing one ripe cherry to their legs, and thus sent the fruit by air mail to Cairo.

Animals too started flying before men, because the French Montgolfier brothers sent up a sheep, a cock and a duck in one of their hot air balloons on 19th September 1783, four weeks before Pilatre de Rozier became the first human aeronaut in a similar balloon. Then, young Mr. J. T. C. Moore-Brabazon, now Lord Brabazon of Tara, took the story of air cargo a stage further in 1910 by carrying a small pig in a wastepaper basket tied to a strut of his stick-and-string Short biplane. It was not a very serious venture, however, being merely a stunt to confound the old sarcastic adage that "pigs might fly."

In February of the next year the world's

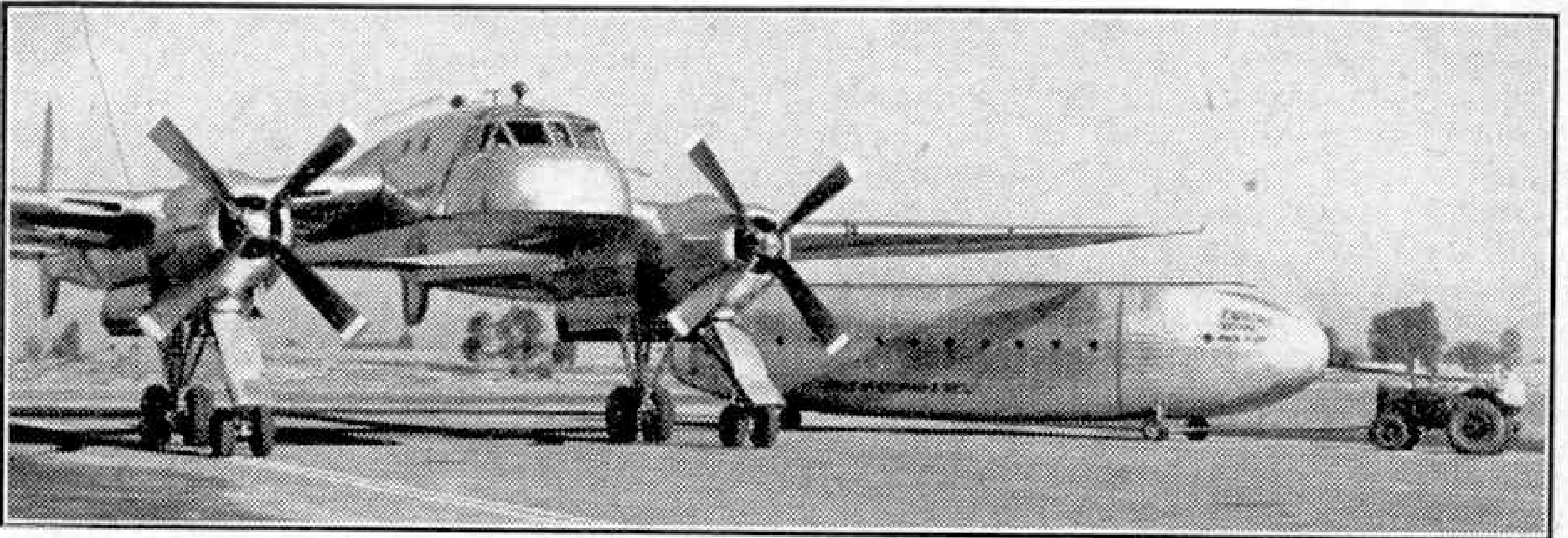
first official air mail letter service was organised at Allahabad, India, by Capt. Sir Walter Windham, R.N., who returned to England shortly afterward to inaugurate the successful Coronation Air Mail service, by which 130,000 letters were flown between Hendon and Windsor. Yet the idea of air mail was at least 40 years old even then, as more than nine tons of mail, not to mention 100 refugees and 400 carrier pigeons, were flown out of



Loading a U.S. Army 155 mm. howitzer into the cargo hold of a Fairchild "Packet." This photograph and the upper one on the next page are reproduced by courtesy of the Fairchild Aircraft Division, U.S.A.

Paris aboard 66 balloons during the siege of the French capital by the Prussians in 1870. Furthermore, many of the pigeons made the return journey under their own steam carrying 100,000 messages photographed and reduced to small size on microfilm, an idea that we thought rather clever when it was re-invented as the Airgraph letter during World War II.

Except for delivering unpleasant things such as bombs and aerial darts, the aeroplane's capabilities as a freight carrier were put to little use during the 1914-18 War. But big bombs needed big aeroplanes



Fairchild "Pack Plane," with cargo container alongside. For flight the container is attached to the flat underside of the aircraft's fuselage.

to carry them, and after the war those big aeroplanes pioneered the world's long-distance airline routes to Australia and Africa, and across the Atlantic. Converted bombers were adapted to carry passengers and mail for the first struggling airlines, and a hint of the future possibilities was given in August 1922 when the American Aeromarine flying boat "*Buckeye*" carried a Ford motor car from Detroit to Cleveland.

Most early air cargoes were much smaller and more fragile, as in the 1920s air transport was so much more expensive than surface transport that it was out of the question except for small highly valuable consignments of gold and precious stones, urgent things like air mail letters and newspapers, or perishable cargoes such as cut flowers and baby chicks. If anyone had suggested that the time

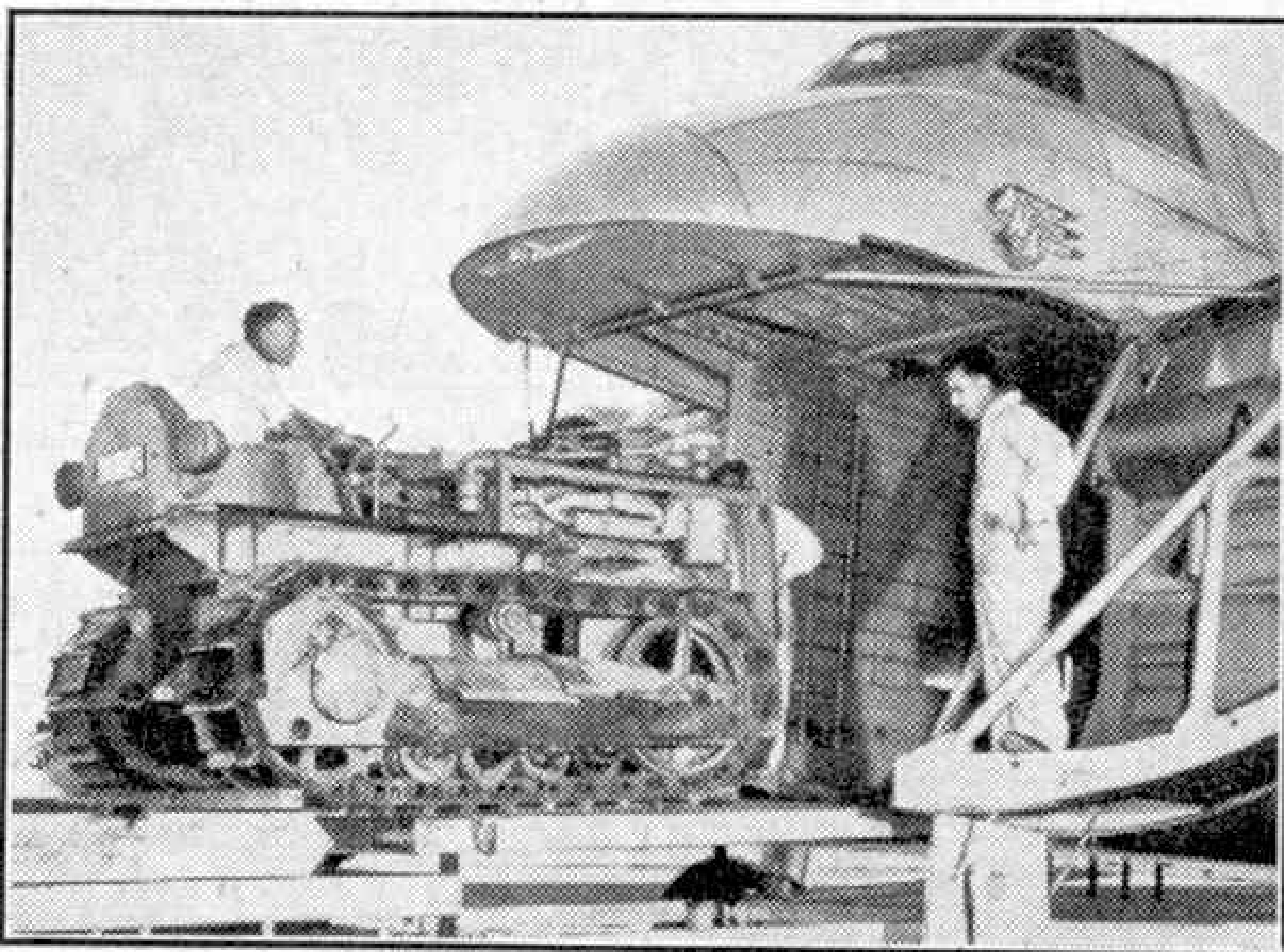
would come when coal, motor cars and elephants were regular items of air freight, he would probably have been considered a candidate for the nearest padded cell.

That such cargoes are commonplace to-day results partly from the rapid development of military air transport in World War II, and partly from the lesson taught by the Berlin Air Lift of 1948-9, that air transport can play as vital a role in preserving peace as in winning wars. Even more, it results from the courage of private operators on both sides of the Atlantic, who have devoted their money and their lives to proving that air freighting can be made to pay, and to companies like Bristol and Fairchild, who have produced the right sort of aircraft to do it.

"The right sort of aircraft" is perhaps the key to the whole business. During the

war, and even on the Air Lift, the Allies used chiefly "Dakotas," "Skymasters" and "Yorks," designed originally for carrying passengers. As a result, their fuselages were the wrong shape and their doors too small and in the wrong place for loading bulky cargoes. They were also too expensive and complex for freighting, where rugged simplicity, easy loading and big cabins are far more important than retractable undercarriages, streamlining and a few extra miles an hour.

An indication that designers were conscious of the need for highly-specialised air freighters came with the first flight of



A 10,000 lb. tractor being loaded into a Bristol "Freighter" at Essendon Airport, Melbourne, Australia. There was only 5 in. clearance on either side in the hold. Photograph by courtesy of the Bristol Aeroplane Co. Ltd.

the prototype Fairchild "Packet" on 10th September 1944. Its enormous square-section cabin, able to accommodate nine tons of freight, and the big loading doors which formed the rear end of its fuselage made possible for the first time air transport of big bulky cargoes. But it was essentially a military freighter, designed to carry big guns, lorries and even tanks quickly to where they were needed, without undue regard to either initial or operating costs. It was, and still is, the finest military transport in world service; but not quite what is needed for commercial air transport.

Fortunately, designers in Britain had also been tackling the problem of air freighting, and the result was a pair of aeroplanes which could hardly be called handsome, but which promised to supply the answer to the prayers of civil operators—the little Miles "Aerovan" and the big Bristol "Freighter." The "Aerovan's" career was cut short when Miles Aircraft went out of business, but "Freighters" have achieved miracles all over the world, carrying beef in Australia, motor cars in England, snowdozers in Canada, air survey equipment in Iran, bulls in France, bombs in Indo-China and up to 108 passengers at a time in India. They have been followed by the Blackburn "Universal Freighter," on the same general lines as the Bristol, but with a 16-ton payload and tail-loading, which is important as it permits military equipment to be dropped out of the back by parachute during flight.

Availability of these aircraft has introduced a new expression into aviation language—"air transportability." Applied to military transport, it means splitting up an army into small, fully-equipped units, such as a complete anti-aircraft gun and crew, or a reconnaissance section with jeeps and radio, each of which can be carried quickly in one aeroplane to a combat zone. The Americans, in particular, have made great progress in this respect, even designing special lightweight field guns and equipment that are more easily air transportable than standard types. The

idea is to have available a small but superbly-equipped *elite* fighting force available for instant action anywhere when trouble threatens—a force moreover that can be kept supplied by air after it is in action.

The scheme has been carried a stage further by the Fairchild "Packplane," the entire cargo-hold of which is detachable, so that it can be built up as a supply container, workshop, hospital, field headquarters or radio station and delivered to a combat zone by an aircraft that can return with an "empty" or a different type of pack. And, as "Packplanes" need aerodromes to land on, the U.S.A.F. are developing the big Piasecki XH-16 helicopter to carry the packs from there to where they are needed.

This pattern of large and small freighters, "Packplanes" and helicopters, designed to keep armies mobile, offers equally great possibilities to the commercial air cargo operator. Already a few have realised this, and British Silver City Airways, for example, expect to carry



An elephant being guided down the gangway from a Swedish Air Lines transport aircraft at Bromma airport, Sweden.

some 15,000 cars, motor cycles and bicycles across the Channel in their "Freighters" this year; while, as reported in this month's "Air News," Australian National Airways are developing vital new food-producing areas in N.W. Australia by means of their "Air Beef" scheme.

All forms of surface transport rely on freight-carrying for much of their profits, and there are many who believe that air transport can

(Continued on page 286)

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.

MY VISIT TO NIAGARA

What can be more fascinating than to pore over a map of the world and pick out some well known places and try to visualise what they are really like? It is a far greater thrill if one has the opportunity of visiting such places of note. Some time ago I had the pleasure and privilege of visiting Niagara Falls.



The American Fall, Niagara, and the Oakes Gardens. (Norwood).

What a thrill of excitement at that first sight of the famous Falls! This made me wonder what the thoughts were of Father Hennepin, the first European to see this gigantic waterfall in 1678.

Niagara is an Indian name that means "Great Thunderer of Waters." According to the United States Geological Survey, 1886, the height of the Horseshoe Fall is 160 ft., which is seven feet less than that of the American Fall. The Horseshoe Fall boasts of a contour line of 2,500 ft., while the American Fall has a lip of only 1,000 ft. The depth almost corresponds with the height of the banks and this gives a greenish hue to the water. In one hour 20 million tons of water cascade over the rocks in seething, foaming beauty. This, the scientists claim, has been going on for some 50,000 years.

It is well worth while to take a trip on the little steamer, called "Maid of the Mist," which chugs its way to the foot of the Falls, and from its deck to look up at that mighty torrent.

A. Bockock (Norwood).

A TOLL GATE IN LONDON

As a sequel to the article on toll gates that appeared in the January "M.M.," I feel that readers may like to know something of what I believe to be the only remaining toll gate within the County of London. This is at Dulwich and is no more than five miles from Charing Cross. The earliest record of its existence occurs in 1811, but this may not have been the date of its origin.

College Road, the highway on which it stands, ascends from Dulwich past the famous college there, and up through Sydenham Hill to Crystal Palace. In general, the basis for fixing the toll is anything with four legs or on four wheels, and charges can only be relaxed for a Sovereign passing through. This right was in fact exercised when the Crystal Palace Exhibition was opened.

The proceeds from the toll keep this three-quarter mile stretch of road in repair. In earlier times the charge for cattle to pass through was tenpence a score; but in more modern times the threepenny toll imposed on motor cars is the main source of income. Traffic is now eased by the opening of the Croxted Road nearby, along which buses now pass, but many motorists continue to use the toll road

as the saving on petrol is probably greater than the toll payable, which covers the return journey. In 1937 a car crashed into the gate across the road, in spite of the light which flashes on it at night.

Much debate has ensued recently on the abolition of the gate, but this would destroy what remains of the "Green Heart of London," as it is known, and the old-worldliness of the actual village of Dulwich would be lost.

MICHAEL F. T. FIFE
(Dulwich).

MASTER OF THE "MAYFLOWER"

Photograph by A. Bockock

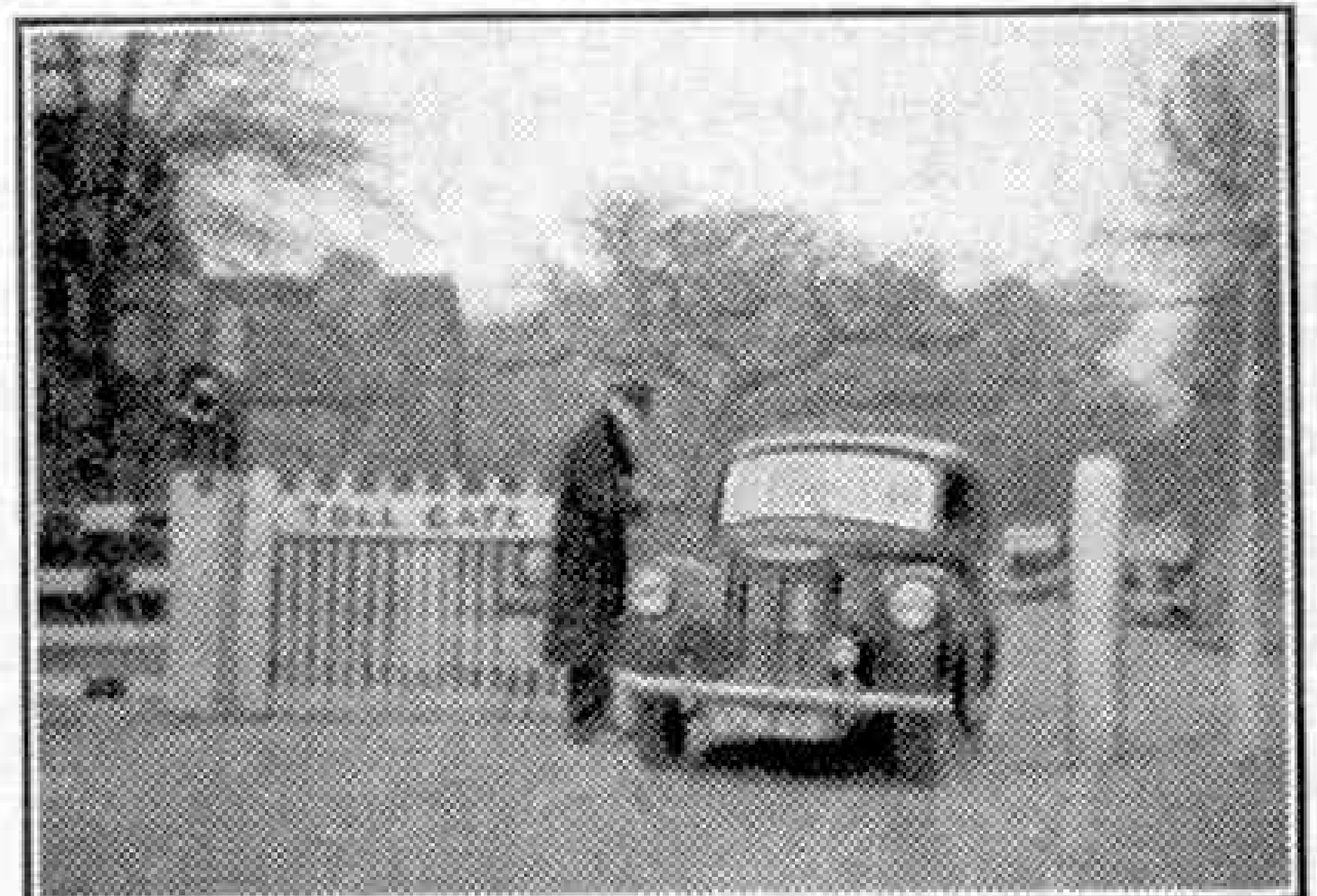
Recently the house in Harwich has been identified in which lived Christopher

Jones, who was master of the "Mayflower" when the Pilgrim Fathers sailed to America in that vessel early in the 17th Century. A plaque now on the front of the building bears the words "This is the home of Christopher Jones, master of the 'Mayflower'."

The house is a 16th Century building, largely of timber construction, with some lath and plaster work. Christopher Jones was one of the first councillors of Harwich. When King James I granted the town a new charter he appointed 24 councillors to manage town affairs and elect two Members of Parliament, and Christopher Jones was one of those appointed.

An old will of 1578 records how Christopher Jones' father left his son his ship, the "Mary Fortune," when he was only 18 years of age.

COLIN HINES (Parkeston).



Is this the only toll gate remaining in London? It is in Dulwich. Photograph by Michael F. T. Fife, Dulwich.

Railway Notes

By R. A. H. Weight

National News from Headquarters

In the course of an interesting descriptive speech delivered in London recently, Mr. John Elliot, Chairman of the Railway Executive, announced that British Railways had won the Winter freight battle. With fewer wagons and locomotives than in 1948 he said, and with a reduced staff, more traffic had been carried with less delay during the past Winter than in any similar period since unification, while the distance each ton of freight had been hauled on the average was the highest on record.

Taking into account both tonnage and distance, our railways had done more work in this field than ever before in peace time. About three million passengers had been carried per day on an average. A number of express and local passenger trains that were withdrawn during the Winter months, when there were heavy demands for crews and locomotives to operate goods and coal trains, had been restored for the Spring and Summer.

Mr. Elliot mentioned that in a year $3\frac{1}{2}$ million tons of sleepers are used, but their cost now is $6\frac{1}{2}$ times that in 1938. Vast quantities also have to be purchased of steel rails, costing $2\frac{1}{2}$ times as much; of coal, which is trebled in price; and so on.

Although shortage of steel will result in considerable cuts in the intended programme for the current year for new rolling stock construction, it is hoped to carry out most of the track renewal planned, totalling 1,750 miles. But a number of speed restrictions over certain stretches of line will be unavoidable. Every effort is being made to standardise locomotives, carriages and wagons, and their parts and fittings, in order that repair and construction may be quicker and concentrated more upon certain workshops.

Rebuilt S.R. Electric Trains

The first rebuilt all-steel, four-coach suburban unit, No. 5001, equipped with the new S.R. standard electrical equipment for multiple unit operation, entered service from Eastleigh Carriage Works early this year. Improvements or innovations include buck-eye automatic couplers, with brake hose connections placed higher, making it possible to couple or uncouple units without going between the coaches at track level; and redesigned driving cab without side doors, containing an adjustable seat for the motorman, whose controls and instruments are grouped along a neat desk. Access is through a sliding door from the guard's compartment, making for greater safety in emergency.

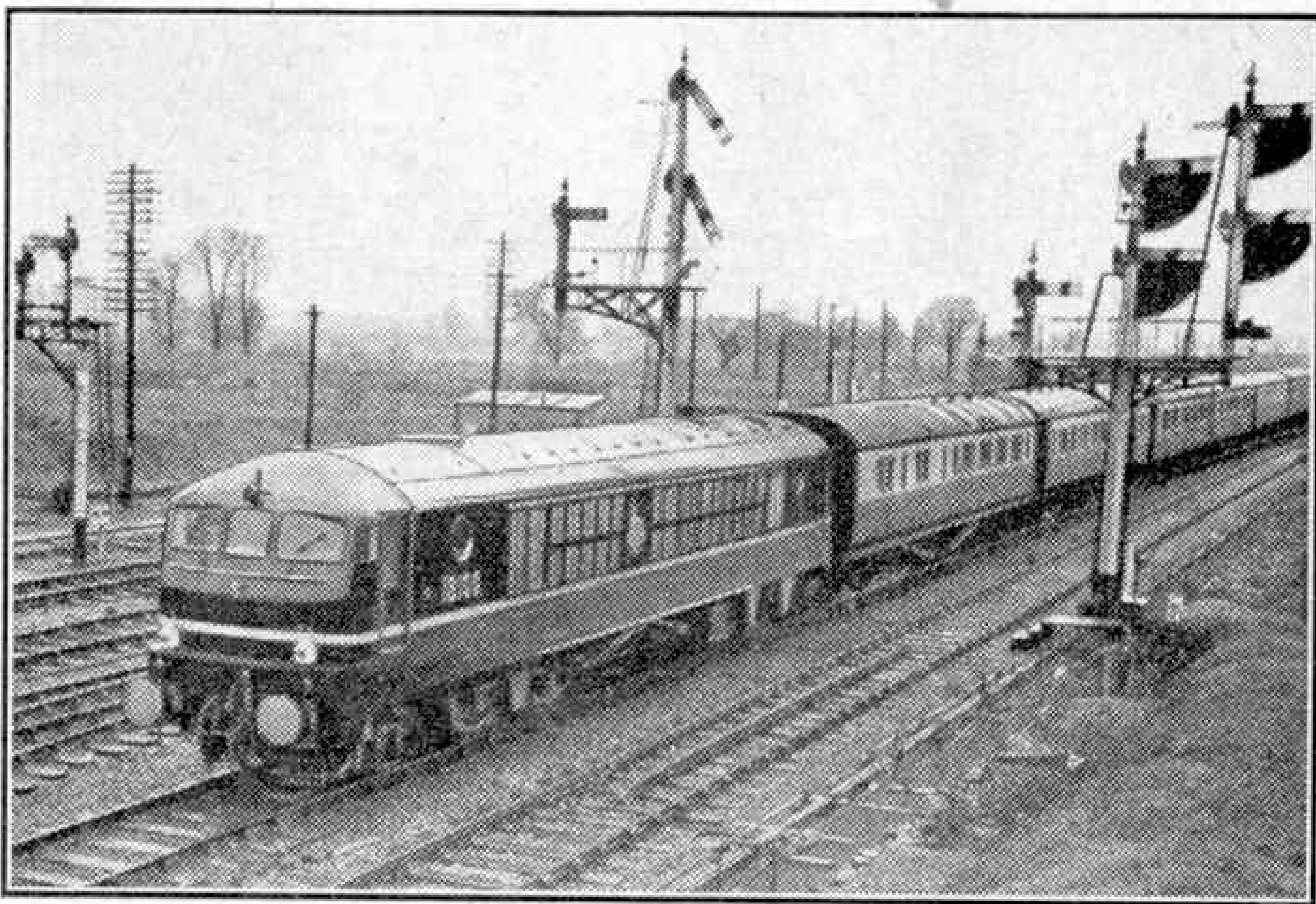
The acceleration of the traction motors at each end of the unit has been increased and the electrical control system has been improved. Motor generator sets for control and lighting are provided, as on the

electric express rolling stock, most of the equipment having been manufactured and installed by the English Electric Company. Electric heating is provided in passenger and driving compartments. A notable feature is the extreme simplicity of preparing a train for service and disposing of it afterwards. Trains can be made up as required to a usual maximum of 12 coaches by coupling 4-car or other sized sets, the whole being controllable from any one of the driving cabs.

The empty weight of a rebuilt 4-car unit providing seats for 386 passengers is 136 tons and the maximum speed is 75 m.p.h.

Heavy Load Trials with New Gas Turbine Locomotive

No. 18100, the British-built gas turbine engine, was intended to be the most powerful express or main line locomotive so far operated in this country. Reports of test runs with very heavy trains indicate that over the severe gradients between Newton Abbot and Plymouth loads of up to 17 or 18 corridor coaches were successfully hauled unaided. Indeed on the steep climb eastbound from Plymouth up to Hemerdon Siding, two miles at about 1 in 42, not



The British-built gas turbine locomotive, Western Region No. 18100, nearing Taunton. Photograph by D. B. T. Dennie, Taunton.

only was the ascent achieved with a load much in excess of any previously taken without double-heading or banking from a start at North Road, but also after special stops near the foot of that precipitous bank!

Runs with special empty trains weighing round about 500-550 tons have been arranged between London or Reading and Plymouth without a stop, and also between Paddington and Bristol and Wolverhampton with a few intermediate halts. It is understood that on the average the current or proposed ordinary schedules were improved upon.

Just before Easter No. 18100 was working the down "Merchant Venturer" to Bristol, daily, returning to London on the "Bristolian." On one of those trips with the 11.15 a.m. from Paddington I am informed that very fast travel was recorded up the gradually rising grades to Swindon, and beyond, after delays at or before Didcot.

Meanwhile the pioneer Swiss-built locomotive of the kind, No. 18000, continues to be seen frequently on the 7.30 a.m. Paddington-Bristol train, returning with the 12.0 noon from Temple Meads and then going to Swindon at the head of the 6.35 p.m. Cheltenham express, with a back working in the late evening on a fast milk train.

Scottish Region Locomotive Notes

New class "6" 4-6-2s numbered 72004-5, and named "*Clan Macdonald*" and "*Clan Macgregor*," were allocated respectively to 66A, Polmadie, and 68A, Kingmoor (Carlisle). Other locomotives of the class were expected at the latter shed as ready.

New "B1" 4-6-0s from the North British Locomotive Company's Works include No. 61395, allocated to 68E, Carlisle (Canal); and No. 61396 to 65A, Eastfield.

No. 80030, standard 2-6-4T built at Brighton, is stationed at 67C, Ayr.

Some of the recently built North Eastern Railway type "J72" 0-6-0Ts, Nos. 69012-5, have been sent from the Eastern Region and distributed to Thornton, St. Margarets and Parkhead sheds, in exchange for some of the much older "J69" G.E.R. type tanks.

Five Thompson "K1" 2-6-0s numbered 62011-2, 62031, 62034 and 62052, also have been transferred from March to Eastfield.

"A1" No. 60160 "*Auld Reekie*" was moved back to Haymarket shed, Edinburgh, from Polmadie, in February last, when it was proposed that another "Pacific" of the same class should be transferred to Scotland from Leeds, 37B.

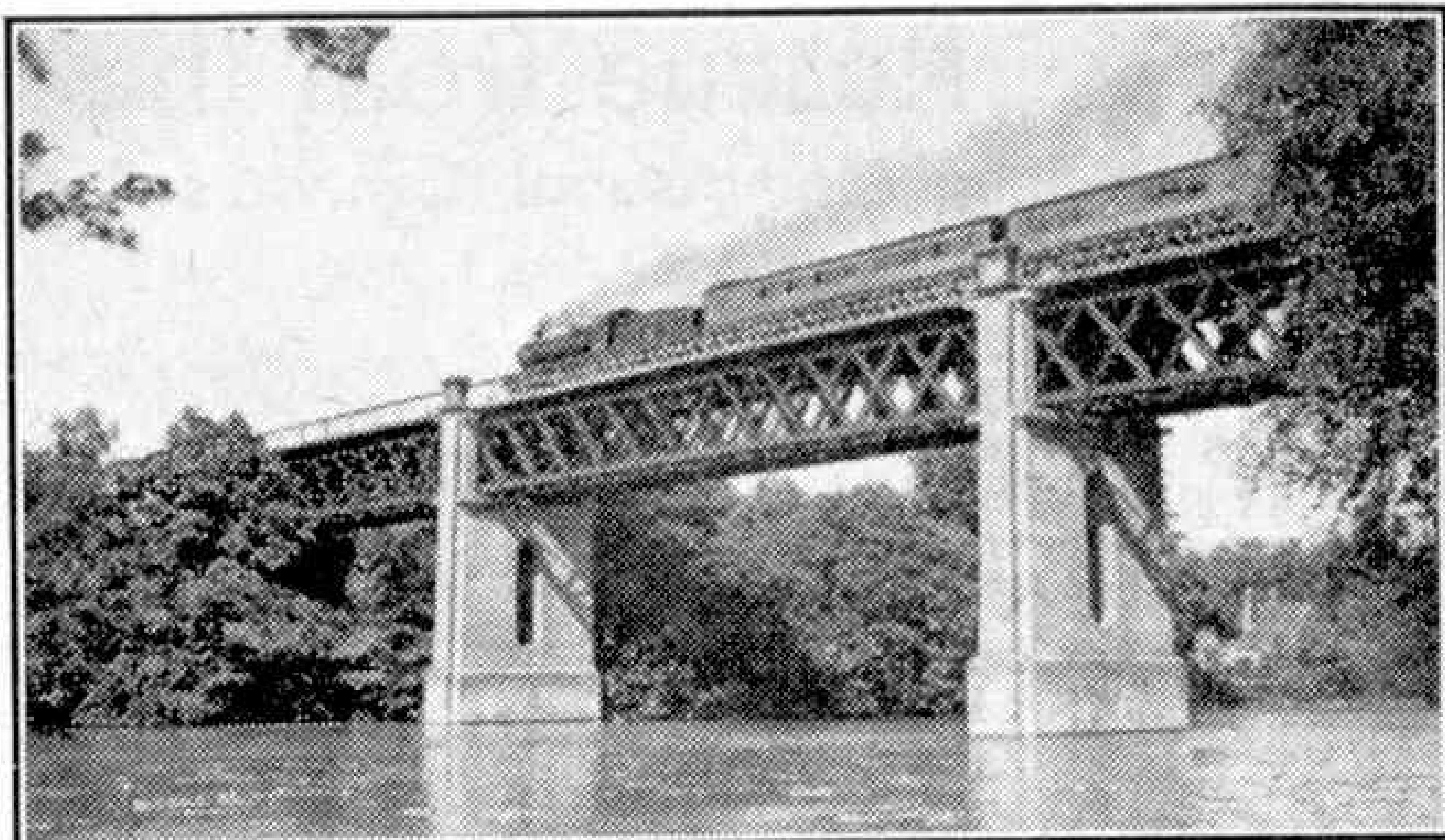
Eastern and North Eastern Regions

"Britannia" 4-6-2s returned to many of the Great Eastern Section express workings early in the year. Included in those during March and April last were Nos. 70015 "*Apollo*" and 70016 "*Ariel*." Two or three "Battle of Britain" S.R. "Pacifics" also continued to be on loan there.

"K1" 2-6-0s, mainly from March shed, are much in evidence on goods and mineral trains along the Cambridge main line; some of those stationed in the North Eastern Region are sometimes seen at Doncaster or south thereof on the former Great Northern route.

The "B2" 4-6-0 No. 61671 "*Royal Sovereign*" was seen lately in the Paint Shop at Stratford Works, where "B1" 4-6-0s and "N1" 0-6-2 and "J52" tanks from various parts of the system are repaired.

On account of engineering operations at



A picturesque Southern scene showing a London Bridge train crossing the viaduct over Cook's Pond, near Dormans, on the Oxted route. Photograph by S. C. Nash, Eastbourne.

Broxbourne, necessitating closure of the London-Cambridge line during Saturday night—Sunday, longer distance passenger and freight trains to or from Liverpool St. or Stratford were diverted by way of S. Tottenham, Palace Gates, the former G.N.R. Enfield-Hertford-Stevenage line and Hitchin. Class "7" 4-6-2 "*Alfred the Great*" hauled the northbound night mail that way; other engines were chiefly of the "B1," "B17," or "K1" classes.

The connecting link used as a rule only for transferring engines or empty coaches between Palace Gates and Bowes Park, in N. London, was traversed by a special round-London tour train for railway enthusiasts that I travelled by on 29th March last. It was in charge of an "L1" 2-6-4T which had previously travelled from Liverpool St. to Cheshunt by way of the Churchbury loop, long closed to regular passenger traffic.

The eight-coach L.N.E.R. tour train started from London Bridge, S.R., behind an ex-G.E.R. 0-6-T. After reversal at New Cross Gate, it was taken by two small locomotives of the "J69" type under the Thames through the tunnels of the East London line to Liverpool St., where we saw the "*Broadsman*" leave in charge of No. 70008 "*Black Prince*." Deep snow and severe weather caused considerable delays. Finally from Bowes Park to King's Cross (York Road suburban) and through the former Metropolitan widened lines to Cannon Street, S.R., a "J52" rebuilt Stirling saddle tank was in charge, with assistance from an "N1" 0-6-2T up the steep rise from the underground lines to the Thames bridge at Blackfriars. A second special following was similarly hauled, except that a S.R. "E1" 4-4-0, tender first, took the first short stage to New Cross Gate.

Southern Tidings

The diesel-electric No. 10202 while experimentally hauling the 11.30 a.m. Weymouth-Waterloo express, a reader writes, cut 3-4 min. off the scheduled time from Weymouth to Dorchester. This route includes a steep climb up which assistance is often required.



An interesting view of the Royal Train approaching Aberdeen behind a pair of B.R. Standard Class "5" 4-6-0 locomotives, Nos. 73005 and 73006. Photograph by C. Lawson Kerr, Glasgow.

Rescue from the Air

Training Members of Canada's Parachute Units

By V. Burton

HEAVERY demands are being made on the men and women of Canada's air search and rescue units. Barely a week passes without at least one of the para-rescue units of the Royal Canadian Air Force being called to action. Indeed, demands on them have been so heavy recently that new regulations have been introduced whereby detailed plans showing the route it is intended to follow must be filed before civil aircraft take off from Canadian airfields. In addition, aircraft in sparsely populated areas are to carry either two-way radio equipment or a portable transmitter, with such things as concentrated foods, tents, sleeping bags and matches in water proof containers. The purpose of this is to ensure that passengers and crew of crashed aircraft will be able to maintain themselves until a para-rescue unit arrives on the scene.

The R.C.A.F. has para-rescue units stationed at key points on the air routes that span Canada from Newfoundland to Vancouver and stretch 3,000 miles northward to the shores of the Arctic Ocean and to the frontier with Alaska. They are at Vancouver; Whitehorse, in sub-Arctic Yukon Territory; Edmonton; Winnipeg; Churchill, on the west shore of Hudson Bay; Trenton, in Ontario; Greenwood, Nova Scotia; and Torbay in Newfoundland. The job of their personnel is to bring succour to people in crashed aircraft, and in this they are doing work as spectacular as can be imagined.

The Canadians are aiming at a "foolproof air service." Since the war the Department for Transport in Ottawa has built up a first rate civil air service, to which the main keys are the State-owned Trans-Canadian Airlines, and the aircraft of Canadian Pacific Airlines. The Canadians stress that the key to travel in Canada is the air. "This is a big country, more than 3,000 miles from coast to coast, and air travel is the only answer to distances like that."

Passenger air services have been developed to a remarkable extent. So too has air-freighting. Industry is coming to rely more and more on the air freighter. For instance, air transports delivered some five million pounds of heavy equipment to points along the railway now being pushed towards vast iron ore deposits in central Labrador, and a vital airlift serves the uranium mines on the shores of Great Bear Lake, in sub-arctic Canada. Prospectors, Mounties,

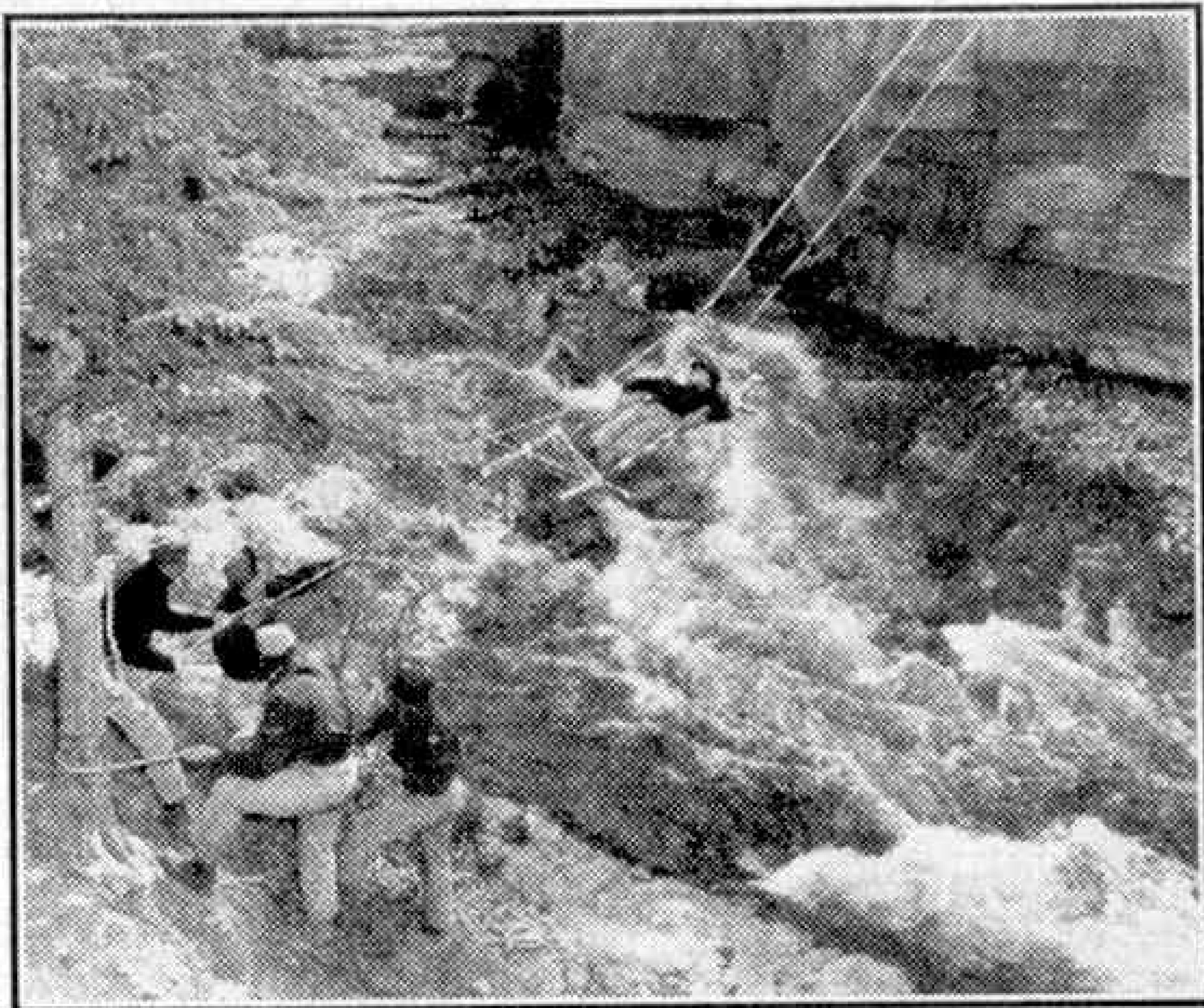
missionaries and men of the Hudson's Bay Company all take air transport for granted, the air services extending to the most remote Eskimo settlements in the islands far to the north of Canada, where the sea is frozen for eleven months in every twelve.

The size of the Dominion, its ruggedness, and the remoteness of many of its settlements, necessitate a nation-wide search-and-rescue organization second to none in effectiveness.

The parachute rescue service originated when Canadian Pacific Airlines selected



Practice landings from a swinging parachute at Henry House Field, in the Canadian Rockies, show students right and wrong way to fall. Illustrations, Polar Photos.



Hauling a stretcher case across the turbulent mountain stream at Maligne Canyon in Jasper National Park, Canada. Mountain chasms, glaciers, bushland and open country near the airfield make Henry House an ideal outdoor classroom.

four mechanics for this work on routes served by C.P.A. Trans-Canada Air co-operated, and subsequently the R.C.A.F. took over the embryo rescue organisation. "Rescue stations" were established, and the training of parachute units was instituted.

Rescue efforts following the disappearance in the Barren Lands in May of last year of Johnny Bourassa, the famous bush pilot, illustrate how the search-and-rescue organisation works.

When he failed to return on 18th May from what proved to be his last flight, air-search crews took off to try and locate his plane, and from Yellowknife, the gold-mining town in the North-West Territories, squads of Mounties, trappers, prospectors and lumbermen struck out into the bush on foot.

All told, the ground-search parties and the aircraft of the R.C.A.F. air-rescue

squadron, flying amphibian "Norsemen" for landing on lakes or ice, covered some 100,000 miles of "barrens," the "Norsemen" working from an operations base on the shores of an unmapped lake.

The search was called off after five months, when it was thought Bourassa must be dead. Had he been located the para-rescue men and women would have been despatched to bring him succour—and bring him out.

The first job of the rescue teams is to bring aid to the sick and the injured. They carry signal lamps and radio with which to direct further aid coming from the air to the location of a crash. And they are doing an exceptionally good job of work. Indeed, members of the para-rescue squads have earned the Canadian Air Force

Medal, "for extreme valour in leading a jump when an aircraft crashed on Mount Hozomeen, in the Rockies," and the B.E.M. was awarded to a sergeant who led a jump over exceptionally rugged territory in British Columbia.

The most spectacular part of the training, which takes place at a little-used airstrip in the Rockies, is the parachute jumping. Those who set out to become members of the service are required to make ten jumps, six over open country and four over forest lands. They have two parachutes and wear crash helmets, heavy wire-mesh masks and protective clothing, while they carry radio apparatus, ration kits, knives, an axe and ropes.

The training includes instruction in parachute jumping, and aspirants are shown how to lower themselves when

(Continued on page 286)



Treks up the Athabaska Glacier teach those wishing to join the R.C.A.F. para-reserve service how to travel over snow and ice, and the use of skis, snowshoes and crampons.

Among the Model-Builders

By "Spanner"

A Combine Harvester that Works

I think readers will be interested in a model of a Combine Harvester that came to my notice recently. It was built by Mr. P. K. Coupland, Murrow,

takes it up and feeds it evenly on to a beating drum. Beneath the drum is a concave, where

the corn is threshed from the straw. Some

From far-off Burma comes this portrait of Jack Lin, a Meccano enthusiast who lives at Moulmein.



of the corn is forced through the concave to a riddle below, while the remaining corn and straw is thrown up on to the straw shakers. Here the remaining corn falls through to the riddle, where the chaff is blown away by a fan. The corn is sieved and then taken by an elevator to a rotary screen, where any remaining chaff is removed before the corn passes down a discharge

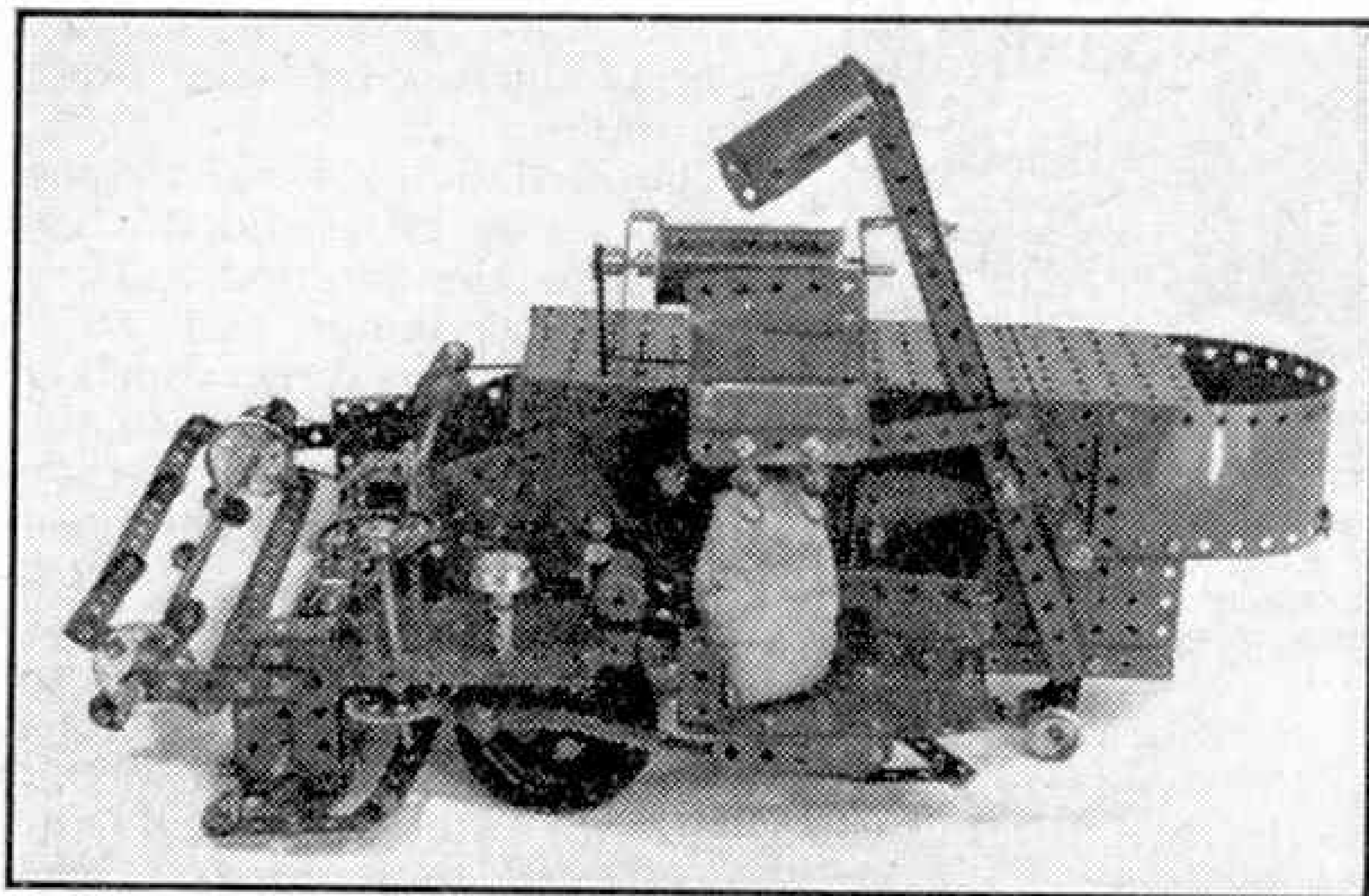


Fig. 1. A combine harvester and thresher built by Mr. P. K. Coupland and his son David, Murrow, Cambridgeshire. At the side can be seen the discharge chute down which the corn is delivered into sacks.

Cambridgeshire, and his son David, aged seven, and unlike many models of this type it is not only a close reproduction of its prototype in appearance, but it actually works!

From the two photographs reproduced here it will be seen that the model is fully detailed externally, but unfortunately it is impossible to show the corn sieves, straw walkers, beater drum and other internal mechanisms, all of which are fitted in their respective places. Usually these machines are operated by an engine that provides power for the threshing mechanisms and also for propelling the machine, but the model is designed to take its drive from the main land wheels so that everything works when it is pushed along the ground.

At the front of the model is the reel, which holds the straw steady while the knife below, which is operated by an eccentric movement, cuts it off. The knife is a piece of steel ribbon in which teeth have been cut with a file. After cutting, the corn and straw is carried to a linen conveyor, which

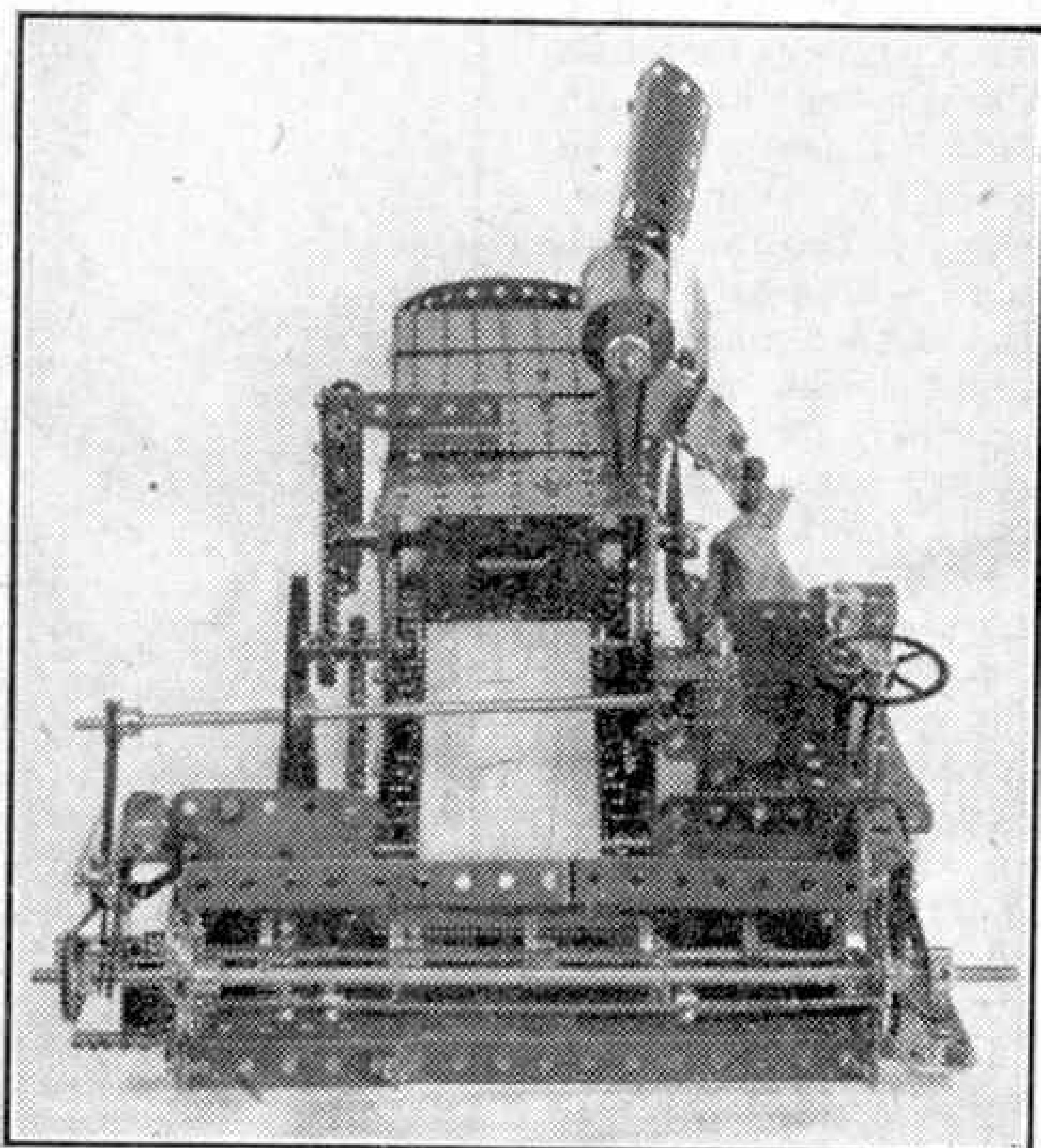


Fig. 2. A head-on view of the harvester, showing the beaters and cutters and the conveyor belt that carries the corn to the thresher.

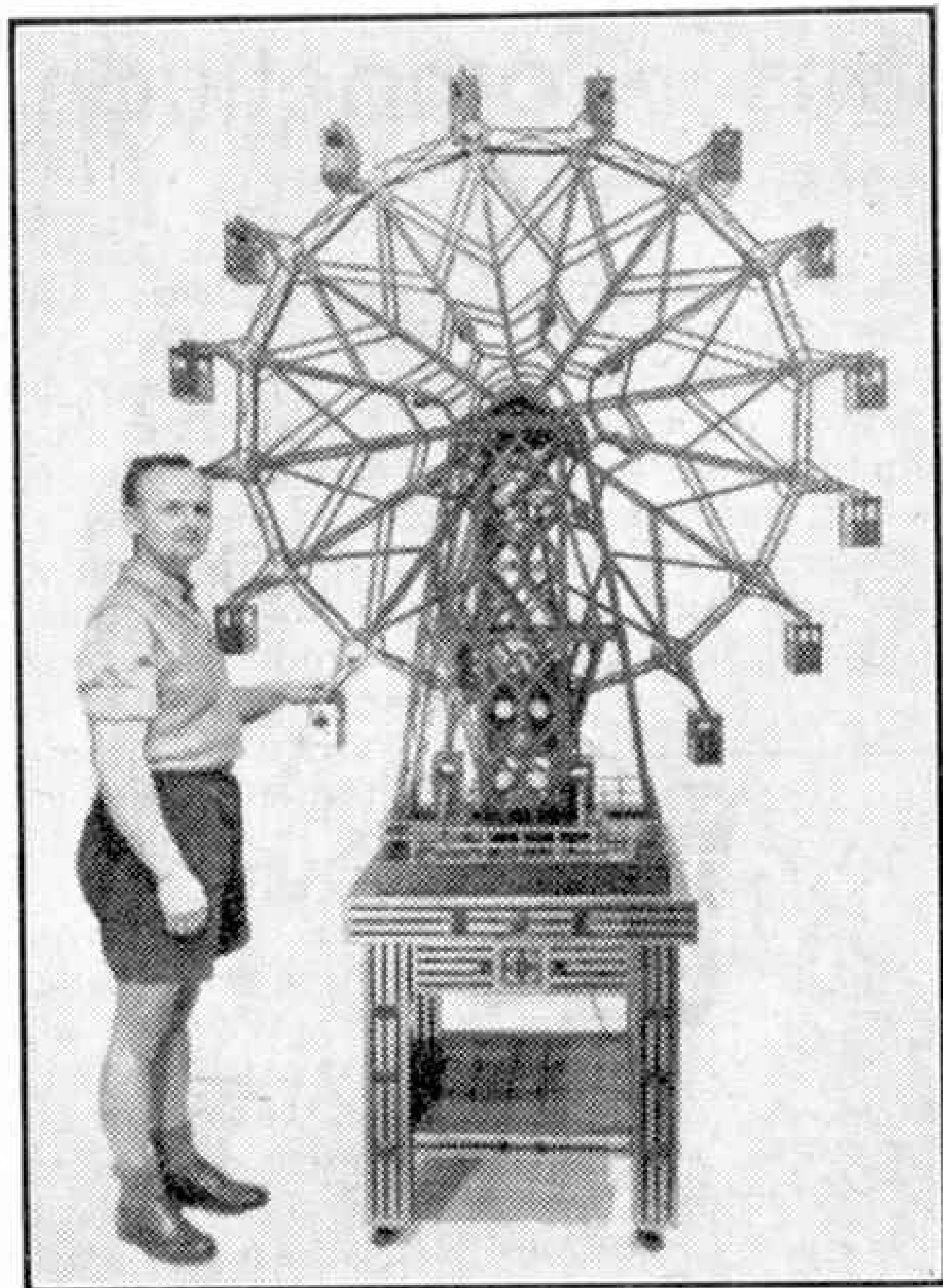


Fig. 3. Mr. B. Neely, Portrush, N. Ireland, and his model Big Wheel. The Wheel is standing on a specially constructed table built from Meccano parts.

chute into the sack. The chaff and straw are ejected from the rear of the machine.

A Really Big "Big Wheel"

Those fortunate readers of the "*M.M.*" who were able to visit the Festival of Britain Land Travelling Exhibition in Manchester, Leeds, Birmingham or Nottingham last year, will no doubt recall the giant illuminated Big Wheel that formed a central feature in the toys and pastimes section. This model was the largest and heaviest of its kind that has been built in Meccano, but a close approach to it in size, if not in weight, has been built recently by Mr. Bertie Neely, Portrush, N. Ireland.

A photograph of Mr. Neely and his model is reproduced on this page. The Wheel is operated by an Electric Motor, which is hidden in a power house built into the base of the rear supporting columns.

The Motor drives a Sprocket Chain that runs round the perimeter of the Wheel and passes over two spring-loaded idler Sprockets that serve to keep it in correct tension. Around the rim of the wheel are sixteen $3\frac{1}{2}$ -volt lamp bulbs, current for which is supplied through a Transformer.

It will be seen that the model is mounted on a stout table built entirely from Meccano parts, and this greatly enhances its appearance.

A Machine for Woodworkers

For the benefit of readers interested in woodwork I am illustrating on this page a simple fret-cutting machine built entirely from Meccano by M. E. Boll, Rowney Green, Worcestershire. The constructional details of the model can be followed from the illustration. I understand that the reduction gearing fitted to the Motor was satisfactory, but in any case it is quite an easy matter to carry out a few experiments with different gears until the best results are obtained. It will be noticed that the bed of the machine is supported from the base frame by Strips. These probably were the only parts available to Boll, but it would be better to substitute Angle Girders for these so as to obtain greater strength and rigidity, which is very important in this part of the structure. The saw frame is operated by an Eccentric mounted on the main driving shaft and connected to the front end of the saw frame by a short Strip bolted to its arm. It will be noticed that the drive from the Motor is duplicated.

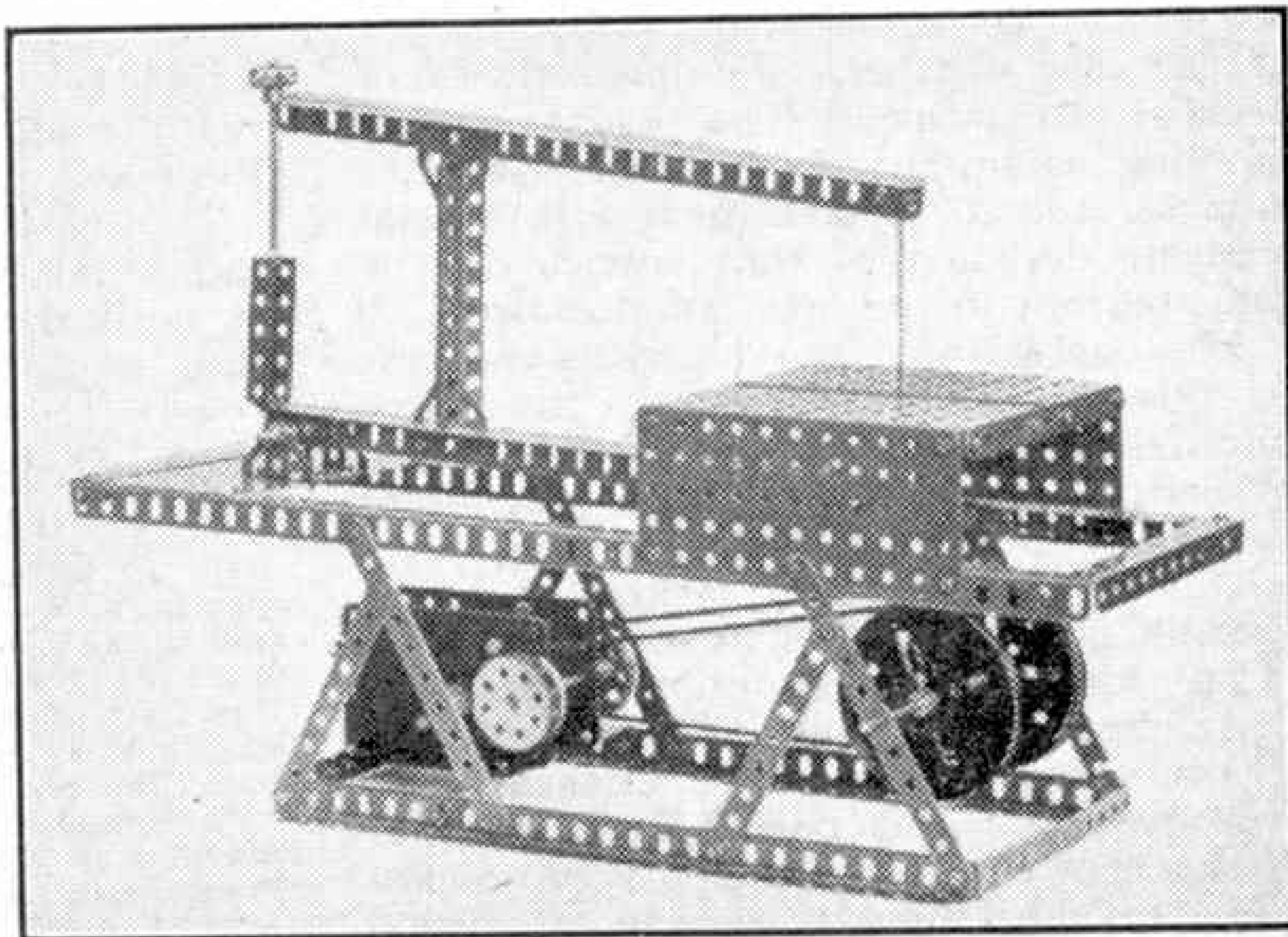


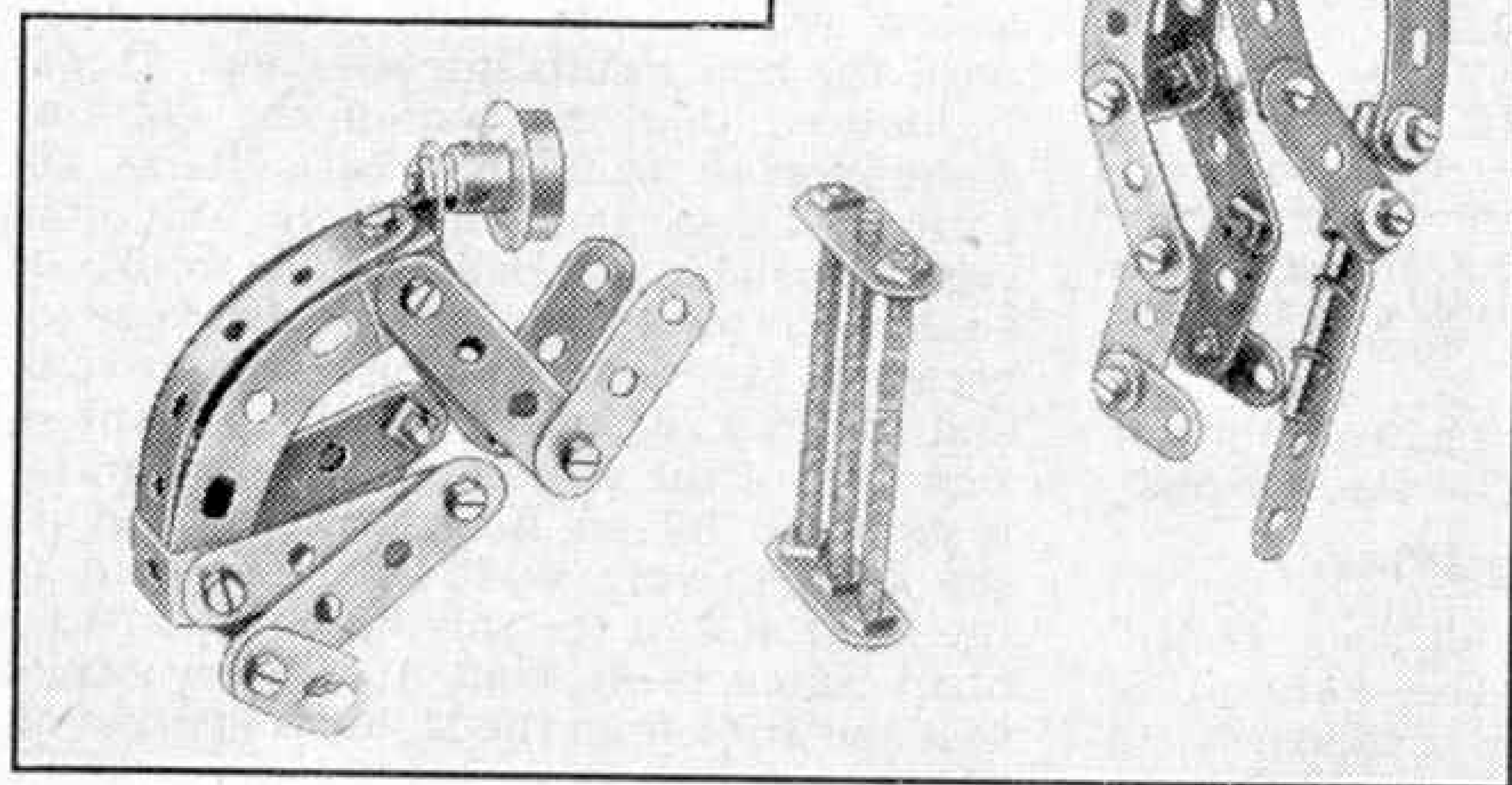
Fig. 4. A fret-work machine built by M. E. Boll, Rowney Green, Alvechurch, Worcestershire. The machine is driven by an E20R Electric Motor.

"Sporting Meccanitions" Competition

A Novel Summertime Contest

With the coming of Summer, and the counter attractions of cricket, cycling and other open-air sports and pastimes, it is only natural that Meccano model-building passes a little into the background, to be resumed with renewed enthusiasm when the dark Winter evenings come again. Many boys do not wish to suspend their Meccano activities altogether, however, provided that their model-building does not prevent them from taking advantage

"Here comes a scorcher!" Judging by the expression of the batsman, the bowling is not at all to his liking!



of the fine weather. We have therefore decided to suspend the usual model-building competitions for the Summer months, and to replace them with special contests designed so that entries can be prepared out in the open air if desired.

The contest announced here is the first in this special series, and in it a few minutes' work with a small assortment of Strips and Nuts and Bolts can bring you a fine Cash Prize. All you have to do is to assemble a few Strips, or other suitable parts, to represent people engaged in any kind of sport or outdoor game.

An excellent example of what is required is the simple but realistic cricket scene reproduced on this page. Simple figures of this type can be assembled very quickly while sitting out in the garden, or during a short spell indoors whiling away a passing shower, and skilful posing of the

figures will produce most realistic and fascinating effects. Other examples are tennis players, footballers or skiers in action, or a tug-of-war team. There are hundreds of subjects to choose from, and every outdoor sport and pastime provides scope for ingenious and realistic figures. Entries may be confined to one figure only, or may comprise a group of several figures, whichever is necessary to obtain the desired effect and depict the subject realistically.

When the entry has been completed a drawing or photograph of it should be sent in an envelope addressed to "*Sporting Meccanitions Contest, Meccano Ltd., Binns Road, Liverpool 13.*"

The Contest is open to readers of all ages living in any part of the world.

The prizes to be awarded for the most realistic entries are as follows: First, Cheque for £3/3/0; Second, Cheque for £2/2/-; Third, Cheque

for £1/1/-. There will also be ten Prizes of 10/- each and ten of 5/-. Certificates of Merit also will be awarded.

The closing date for entries is 30th August, 1952, and all prizewinners will be notified as soon as possible after that date.

A Competition Reminder

Outfits Nos. 4 and 8 Contest

We are taking this opportunity to remind readers that there is still time to send in entries for the Outfits Nos. 4 and 8 Competition that was announced in the May issue of the "*M.M.*" In this Contest Cash Prizes are offered for the best models of any kind built entirely from either an Outfit No. 4 or an Outfit No. 8.

Photographs or drawings of models should be addressed to "*May Outfits Competition, Meccano Ltd., Binns Road, Liverpool 13.*"

The Contest is open to readers of all ages living in any part of the world.

Closing dates: Home Section, 30th June; Overseas Section, 30th August.

Meccano Competition Results

By "Spanner"

October "General" Contest—Overseas Section

LAST month I announced the results in the Home Section of the October "General" Model-Building Competition, and I am now able to deal with the Overseas Section. Those competing in this Section who received Prizes are as follows:

First Prize, Cheque for £4/4/-: R. G. Jacquet, Bezons, France; Second Prize, Cheque for £2/2/-: J. Houry, Scrapt, Marne, France; Third Prize: Cheque for £1/1/-: J. C. Cavalle, Buenos Aires, Argentina.

Ten Prizes, each of 10/6: C. Fraser, Grenada, B.W.I.; D. Spalding, Arusha, Tanganyika; H. Roskaft, Ler, Norway; S. Franchi, Ascoli-Piceno, Italy; K. W. Cameron, Ary, Kentucky, U.S.A.; J. Lin, Moulmein, Burma; R. Corp, Peterborough, Ontario, Canada; A. W. Dickie, Auckland, C.3, New Zealand; P. Williams, Dargaville, New Zealand; A. Girod, Zurich 2, Switzerland.

Ten Prizes, each of 5/-: D. I. McKie, Masterton, New Zealand; D. Fergusson, Kogarah, Sydney, N.S.W.; G. Anstiss, Ashburton, New Zealand; S. P. Pimple, Akola (M.P.), India; R. Bauckham, Karari, Wellington, New Zealand; S. J. Reid, Huntingdon, Quebec; R. Lubeseder, Prairie Echo, Alberta; D. Scholtes, Waterloo, Ontario; R. Smith, Toronto; A. Baker, Melbourne.

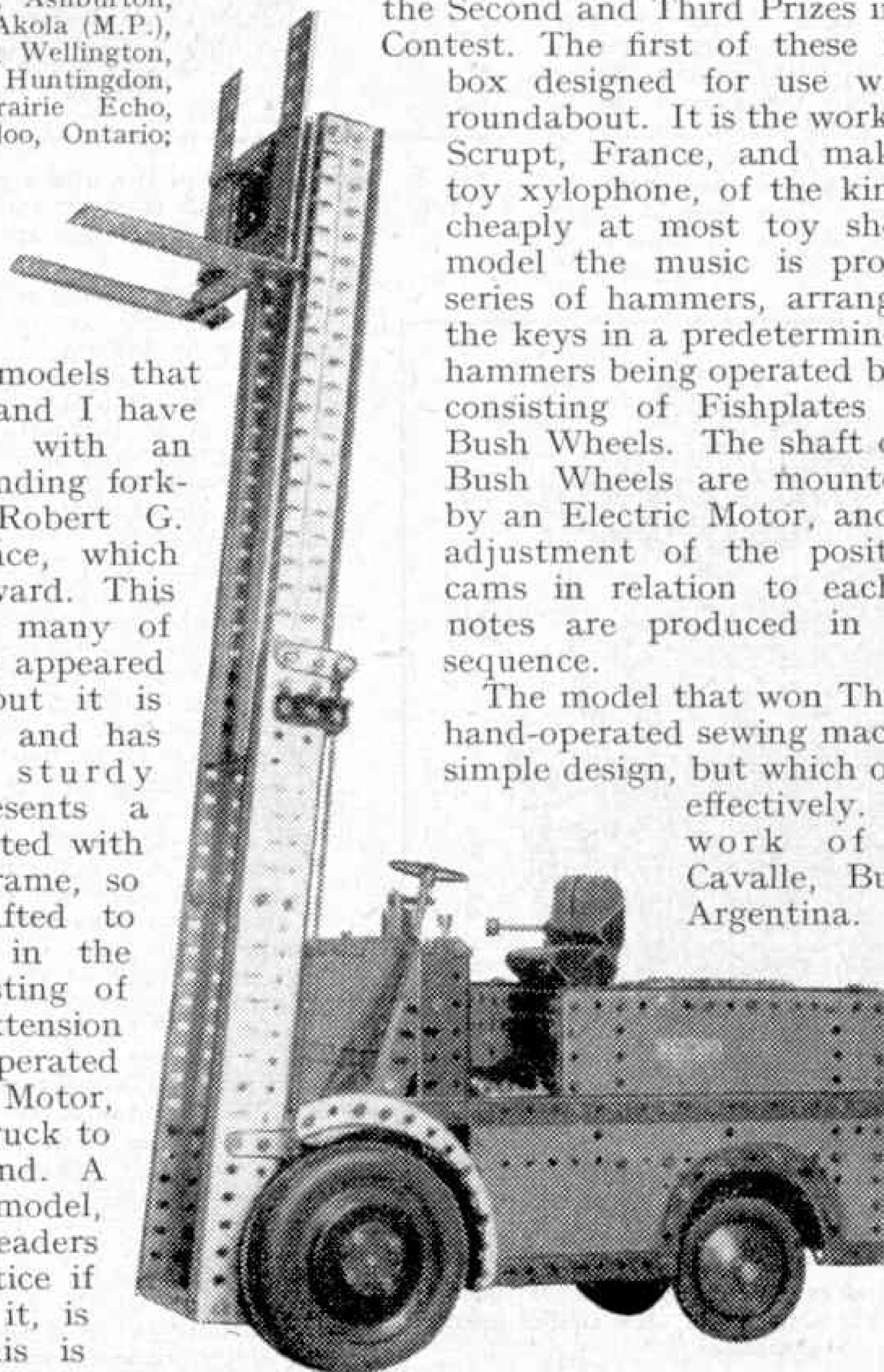
The space available to me this month prevents me from illustrating more than one of the interesting models that won the chief prizes, and I have had to be content with an illustration of the extending fork-lift truck built by Robert G. Jacquet, Bezons, France, which received the premier award. This model is only one of many of similar type that have appeared in recent contests, but it is particularly well-built, and has a very neat and sturdy appearance. It represents a heavy duty machine fitted with a telescopic hoisting frame, so that loads can be lifted to greater heights than in the normal machine. Hoisting of the load platform and extension of the guide frame are operated by an E20R type Motor, which also drives the truck to and fro along the ground. A novel feature of the model, and one which most readers might easily fail to notice if I omitted to mention it, is the driver's seat. This is

constructed from Dredger Buckets assembled in a most ingenious manner.

When I look through the entries in these monthly competitions, I am often disappointed by the lack of enterprise and originality that many really good model-builders show in their choice of subjects. Time after time I find many well-built models that have missed their chance of a prize because of the presence of other good entries of a more original and unusual type.

Everyone, a competition judge no less than others, is attracted by originality, and this feature in a model will go a long way towards bringing success. Consider, for example, the models that have won the Second and Third Prizes in the present Contest. The first of these is a musical box designed for use with a model roundabout. It is the work of J. Houry, Scrapt, France, and makes use of a toy xylophone, of the kind sold quite cheaply at most toy shops. In the model the music is produced by a series of hammers, arranged to strike the keys in a predetermined order, the hammers being operated by small cams consisting of Fishplates attached to Bush Wheels. The shaft on which the Bush Wheels are mounted is driven by an Electric Motor, and by suitable adjustment of the positions of the cams in relation to each other, the notes are produced in any desired sequence.

The model that won Third Prize is a hand-operated sewing machine of quite simple design, but which operates most effectively. It is the work of Jorge C. Cavalle, Buenos Aires, Argentina.



This sturdy telescopic fork lift truck won First Prize in the October "General" Model-Building Contest for Robert G. Jacquet, Bezons, France.

New Meccano Model

Printing Machine

OUR new model this month is a comparatively small one, and although it does not require a large quantity of parts for its construction it is a most attractive one to build and operate. It is a reproduction of a platen type printing machine, of the kind used by many jobbing printers for producing such printed items as dance tickets, handbills and small showcards. The model is shown in the accompanying illustrations.

The base of the model should be constructed first, and it is made by bolting two $3\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plates 1 and 2 to $5\frac{1}{2}"$ Strips 3 on each side. One side of the base is extended downward by a $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plate, and the other by a $2\frac{1}{2}" \times 1\frac{1}{2}"$ and a $2\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plate. The sides are strengthened by bolting to them $5\frac{1}{2}"$ and $2\frac{1}{2}"$ Strips, and one end is formed by a further $3\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plate.

The model is operated by an E20R Electric Motor concealed inside the base (see Fig. 2). The Motor is bolted by its flanges to two $3\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strips fixed between the sides. The $\frac{1}{2}"$ Pinion on the Motor shaft engages a 57-tooth Gear on a $3\frac{1}{2}"$ Rod 4, mounted in the Motor sideplates and held in position by Collars. This Rod is fitted outside the base with a $\frac{3}{4}"$ Pinion 5, which meshes with a 57-tooth Gear on

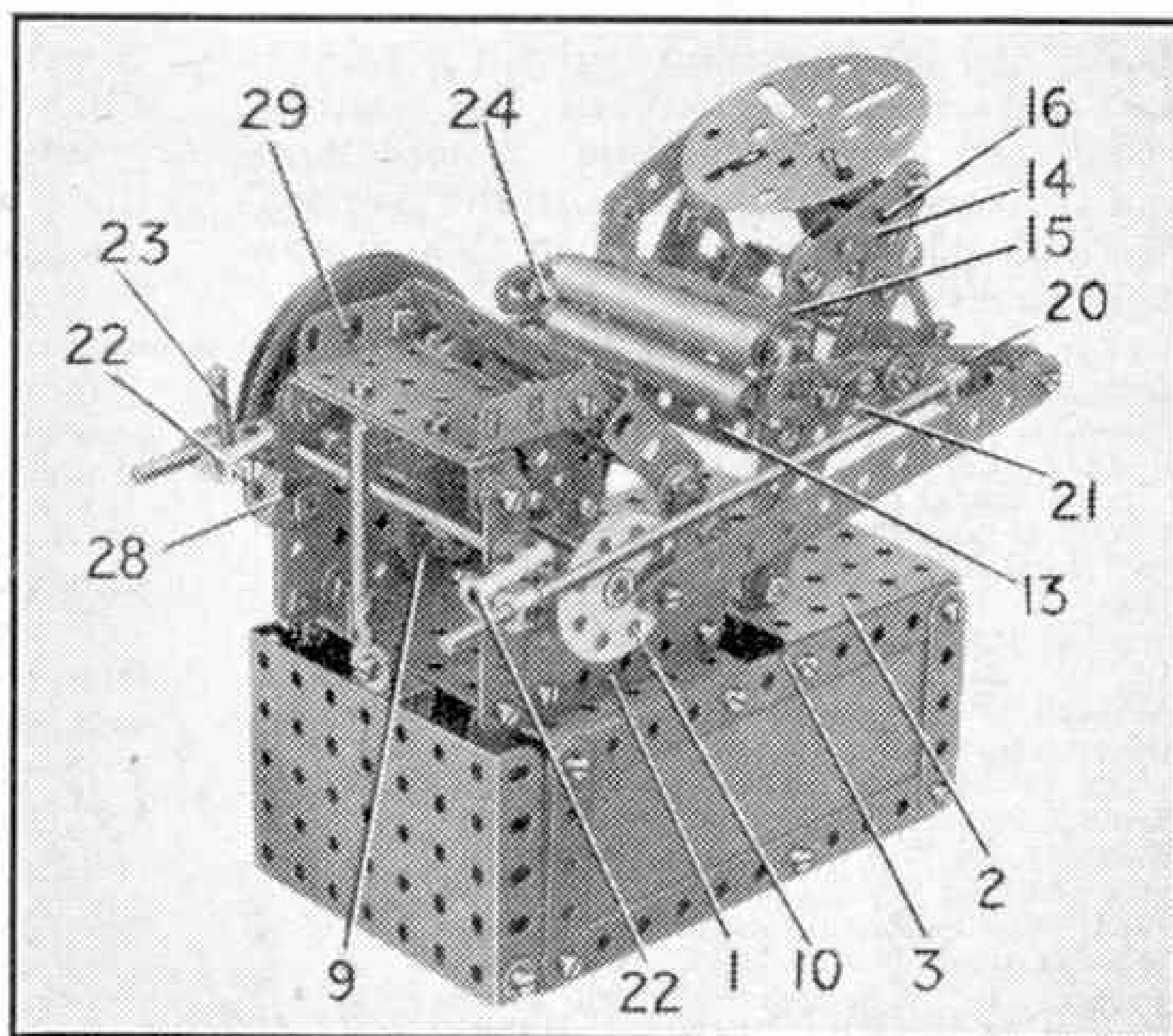


Fig. 1. General view of the model printing machine, showing the crank mechanism that operates the rollers. The platen is seen open and the rollers are over the type bed.

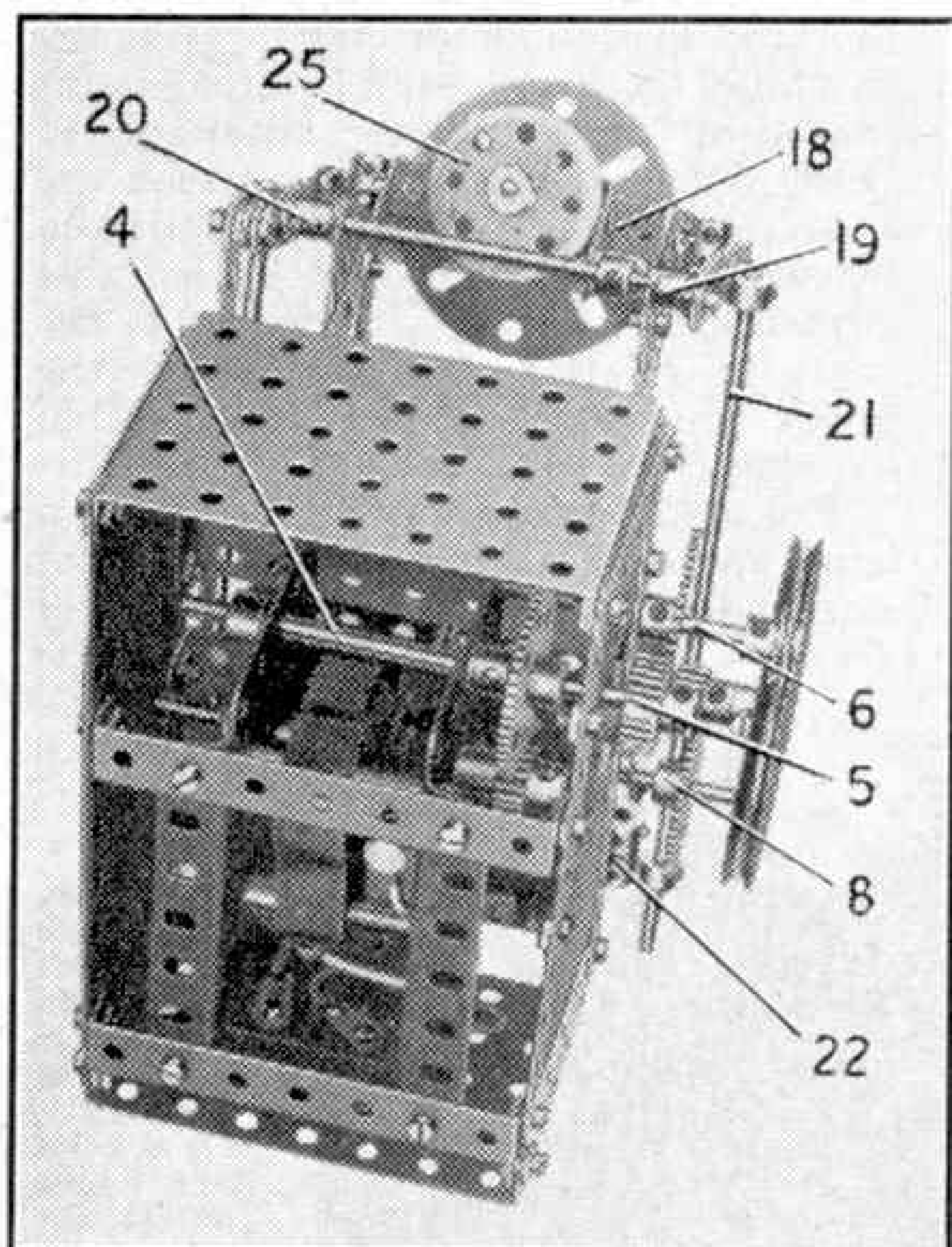


Fig. 2. The method of mounting the E20R Electric Motor is seen in this underneath view of the printing machine.

a $2\frac{1}{2}"$ Rod 6. Rod 6 passes through one of the Motor side-plates and one of the Strips 3, and it is held in place by Collars.

Two $2\frac{1}{2}"$ Angle Girders are bolted to the Flanged Plate 1, and a $3" \times 1\frac{1}{2}"$ Flat Plate 7 is fixed to each Girder. A $5"$ Rod is supported in the Flat Plates, and is fitted with a 57-tooth Gear 8, an Eccentric 9 and a Bush Wheel 10. The Eccentric is fixed so that it has a throw of $\frac{1}{4}"$, and a Collar is used to hold the Rod in position.

The platen is a $2\frac{1}{2}" \times 1\frac{1}{2}"$ Flanged Plate 11, and a Fishplate is attached to each of the lower corners of its flanges by a $3"$ Screwed Rod 12. The Screwed Rod passes through opposite holes in the flanges, and the Fishplates are held tightly in place by nuts. The strap extension of the Eccentric pivots on the Screwed Rod as shown in Fig. 3. The Fishplates are pivoted on $\frac{3}{8}"$ Bolts, each attached by two nuts to a corner hole of one of the Flat Plates 7.

The printing bed is a $2\frac{1}{2}" \times 1\frac{1}{2}"$ Flanged Plate 13, and it is supported on each side by a framework consisting of a $4\frac{1}{2}"$ Strip 14, a $3\frac{1}{2}"$ Strip 15 and a $2"$ Strip 16. The $4\frac{1}{2}"$ and the $3\frac{1}{2}"$ Strips are pivoted at their lower ends by a lock-nutted bolt to a $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip 17, bolted to the Flanged Plate 2. The upper ends of the Strips are connected by the $2"$ Strips 16, and the sides of the framework are joined by a $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip 18.

The inking rollers are carried by a pivoted arm at each side of the printing bed framework. The arm 19 is a $2\frac{1}{2}"$ Strip bolted to a Double Arm Crank and extended by a $2"$ Slotted Strip. The arm 20 is made by bolting a $3"$ Strip to a Double Arm Crank, and is also extended by a $2"$ Slotted Strip. A $4"$ Rod is mounted in Flat Trunnions bolted to the Strips 14, and each arm is fixed by the boss of its Crank to one end of the Rod.

The drive to the rollers and to the printing bed is transmitted by a single $5\frac{1}{2}"$ Strip lock-nutted to the Bush Wheel 10 and to the end hole of the arm 20.

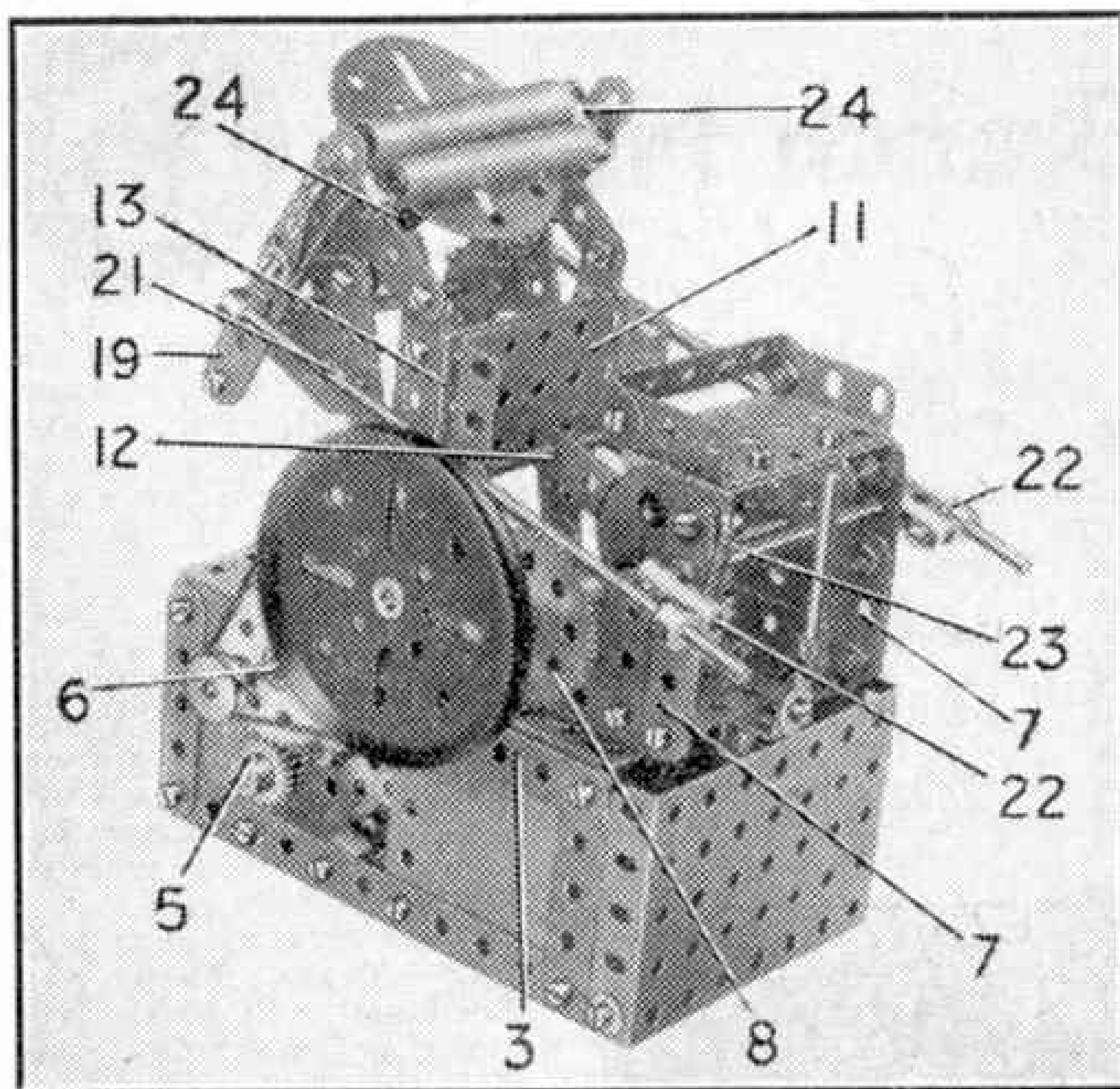


Fig. 3. A side view of the machine showing the belt drive to the flywheel. Here the platen is in the printing position and the rollers are over the inking plate.

A $6\frac{1}{2}$ " Rod 21 is fixed in a Collar pivoted on the shank of a bolt in each of the arms 19 and 20, and these Rods are fixed also in Collars pivoted on $\frac{1}{2}$ " Bolts passed through Couplings 22. The Couplings are carried on a Rod mounted in $2\frac{1}{2}$ " Strips bolted to the Flat Plates 7, and one Coupling is fitted with a $\frac{3}{4}$ " Bolt 23 that acts as an operating handle. By moving this handle forward the printing bed is carried slightly backward, so that although all the movements of the machine operate without interruption, the platen does not come in contact with the bed.

The rollers are made by slipping tubes of rolled paper over $3\frac{1}{2}$ " Rods held at each end in a Coupling 24. A $\frac{3}{8}$ " Bolt is passed through the slotted hole of each of the Slotted Strips, and is fitted with a nut. The Bolts are then screwed into the centre tapped holes of the Couplings 24 and the nuts are tightened against them. The rollers are thus free to slide in the Slotted Strips, but a short piece of elastic fastened to the $\frac{3}{8}$ " Bolts at each side and to the arms, tends to pull the rollers to the lower ends of the slots.

The inking plate is a Face Plate fixed on a 2" Rod mounted in the Double Angle Strip 18 and in a Double Bent Strip bolted to it. The Rod is supported by Collars, and it carries at its lower end a $1\frac{1}{2}$ " Contrate 25. The Contrate acts as a ratchet wheel, and it is engaged by a pawl formed by a $1" \times \frac{1}{2}"$ Angle Bracket 26. A Bolt is fixed by a nut in the slotted hole of the Angle Bracket, and its shank is screwed into a Collar. This Collar is fixed on a Threaded Pin screwed into a second Collar on the Rod carrying the roller arms. The Angle Bracket is moved backward and forward as the Rod is rocked under the action of the roller arms, and at each forward movement the inking plate is rotated about a quarter of a turn.

The drive from the Motor is completed by a Driving Band passed round a $\frac{1}{2}$ " Pulley on Rod 6, and round a 3" Pulley that represents the flywheel of the actual machine. The 3" Pulley is fixed on a 2" Rod, which carries also a $\frac{1}{2}$ " Pinion 27 and is mounted in one of the Flat Plates 7 and in a Double Bent Strip bolted to it. The Rod is held in place by a Collar placed inside the Double Bent Strip, and the Pinion 27 meshes with the 57-tooth Gear 8.

The switch arm of the Motor is extended by a $\frac{1}{2}"$ Reversed Angle Bracket, and a Rod and Strip

Connector fitted with a 2" Rod is fixed to the Bracket. A cover over the switch is provided by a $3\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plate attached to Fishplates bolted to the sides of the base.

A stop 28, the purpose of which is to prevent the printing bed from swinging too close to the platen, is provided by an Angle Bracket bolted to one of the Flat Plates 7. The head of the $\frac{1}{2}"$ Bolt in one of the Couplings 22 engages this Angle Bracket when the printing bed is in its normal position for printing.

The model is completed by adding a feed plate 29 formed by a $2\frac{1}{2}" \times 1\frac{1}{2}"$ Flanged Plate bolted to a $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip. The Double Angle Strip is fixed by $\frac{3}{8}"$ Bolts to the $2\frac{1}{2}"$ Strips attached to the Flat Plates 7, Washers being used for spacing purposes.

This small model carries out almost all the actions of a platen printing machine, but owing to its size it is not suitable for actual printing. Model-builders with more parts at their disposal should not find it difficult to enlarge the model however, using the small machine as a guide for obtaining the various movements. The Face Plate used as the inking plate can be replaced in a larger model by a 4" or a 6" Circular Plate, and $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plates in place of $2\frac{1}{2}" \times 1\frac{1}{2}"$ Flanged Plates for the platen and type bed.

Parts required to build model printing machine: 5 of No. 2; 2 of No. 2a; 2 of No. 3; 1 of No. 4; 7 of No. 5; 2 of No. 6; 2 of No. 9d; 4 of No. 10; 1 of No. 12; 1 of No. 12b; 2 of No. 14; 1 of No. 15a; 2 of No. 15b; 3 of No. 16; 1 of No. 16a; 2 of No. 17; 1 of No. 18a; 1 of No. 19b; 1 of No. 23a; 1 of No. 24; 1 of No. 25; 1 of No. 26; 3 of No. 27a; 1 of No. 28; 70 of No. 37; 17 of No. 37a; 30 of No. 38; 2 of No. 45; 4 of No. 48a; 2 of No. 48b; 3 of No. 51; 4 of No. 53; 2 of No. 55a; 13 of No. 59; 2 of No. 62b; 4 of No. 63; 2 of No. 73; 1 of No. 80c; 1 of No. 109; 1 of No. 111; 2 of No. 111a; 7 of No. 111c; 1 of No. 115; 1 of No. 125; 2 of No. 126a; 1 of No. 130; 1 of No. 186a; 1 of No. 188; 1 of No. 190; 1 of No. 192; 1 E20R Electric Motor.

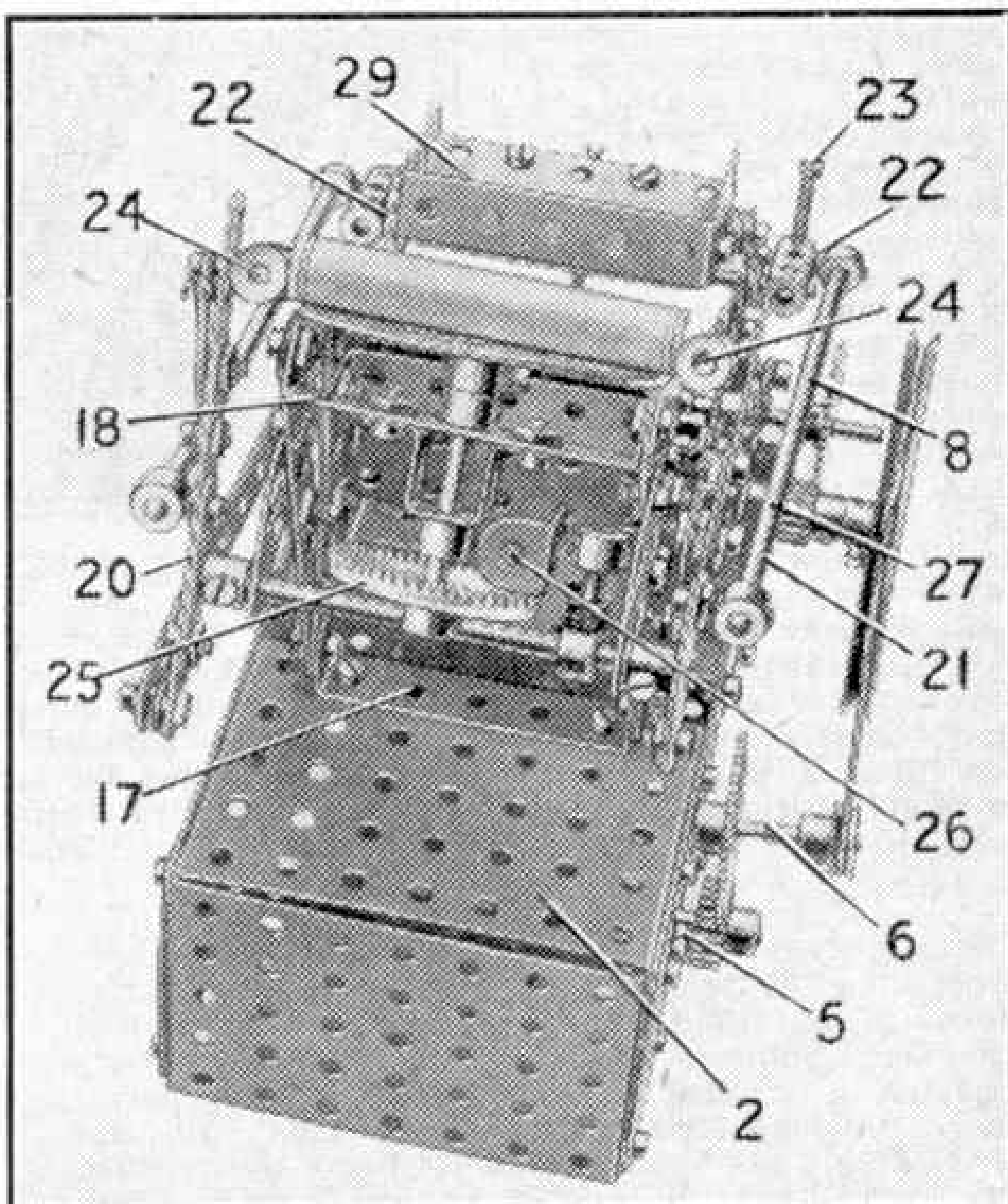


Fig. 4. In this rear view of the machine the ratchet feed mechanism to the inking plate can be seen.



Club and Branch News



WITH THE SECRETARY

THE VALUE OF AN ALTERNATIVE PROGRAMME

The Summer programmes of Meccano Clubs and H.R.C. Branches are now well under way, and provided that the weather is being kind they will be having a grand time. Our climate is notoriously fickle, however, and provision must be made for wet days.

There is no difficulty about this. All that is wanted is an emergency programme of indoor activities that can be put into operation at very short notice when bad weather makes a ramble or some other outdoor fixture impossible. It must not be a half-hearted affair, but attractive enough for members to accept it readily when the occasion arises to adopt it. A good deal of the enjoyment of the Summer outdoor programme comes from its complete contrast to Winter indoor activities, and Leaders should try to retain the element of contrast in their alternative Summer programme. There can be occasional Meccano model-building or Hornby Train afternoons or evenings, but these should be of the "snap" variety. Contests in which humorous models are to be built in a limited time, or with a fixed number of parts are good examples. Impromptu debates also are useful, and a list of suitable subjects should be prepared in advance. Indoor games can be played, and a quick tournament will provide real fun and excitement. If all else fails, try a Club or Branch visit to the cinema!

Whatever is planned should be as different from ordinary Club or Branch pursuits as possible, so that members will return with full zest to indoor activities when Summer ends. There is no reason, however, why an occasional wet day should not be devoted to overhaul of stock or rearrangement of the Club or Branch room to make future meetings more enjoyable.

CLUB NOTES

BURY GRAMMAR SCHOOL M.C.—The indoor programme has consisted mainly of Model-building Evenings and Film Shows, and all have been well attended. Subjects chosen for model-building have included a tractor, railway bridge suitable for a gauge 0 layout, fire engine, and a milk van; and resulted in some excellent models being constructed. The Film Shows, always very popular, have included two railway subjects "Main Line Diesel" and "General Repair," and a film on Sports. Club roll: 36. *Secretary:* Mr. John A. Strafford, 13, Maple Grove, Prestwich.

SIR THOMAS RICH'S SCHOOL (GLOUCESTER) M.C.—A lighter side to Model-building was introduced when members were asked to bring 20 Meccano parts to the next meeting and at this were told to build a model lorry with them, a problem that provided much amusement. Club roll: 11. *Secretary:* Mr. B. R. Wiggall, 14, Sapperton Road, Gloucester.

BELGRAVE UNION (LEICESTER) M.C.—A Social Evening during which games and darts were played was a great success. Model-building has been continued and arrangements made for a special model to be built for display at the Leicester Model Engineers Exhibition. The construction of Club model aircraft is in hand. Club roll: 43. *Leader and Secretary:* Mr. C. S. Smith, 18, Doncaster Road, Leicester.

JAMES STREET (EXETER) M.C.—Membership has increased, and Model-building meetings are enthusiastically attended. Output has averaged six good models a month, and these have included excellent models of Blackpool Tower, a lift, and an unusual bridge. Club roll: 12. *Leader and Secretary:* Mr. M. C. Hodder, 3, Fords Road, Exeter.

MILE END (PORTSMOUTH) M.C.—At one meeting the *Leader*, Mr. P. Leggatt, made and demonstrated an electrically driven Gantry Crane. A Dinky Toys Layout Night was very successful. Hornby-Dublo Meetings are greatly enjoyed. Club roll: 40. *Secretary:* Mr. A. J. Nicholson, 213, Sultan Road, Buckland, Portsmouth.

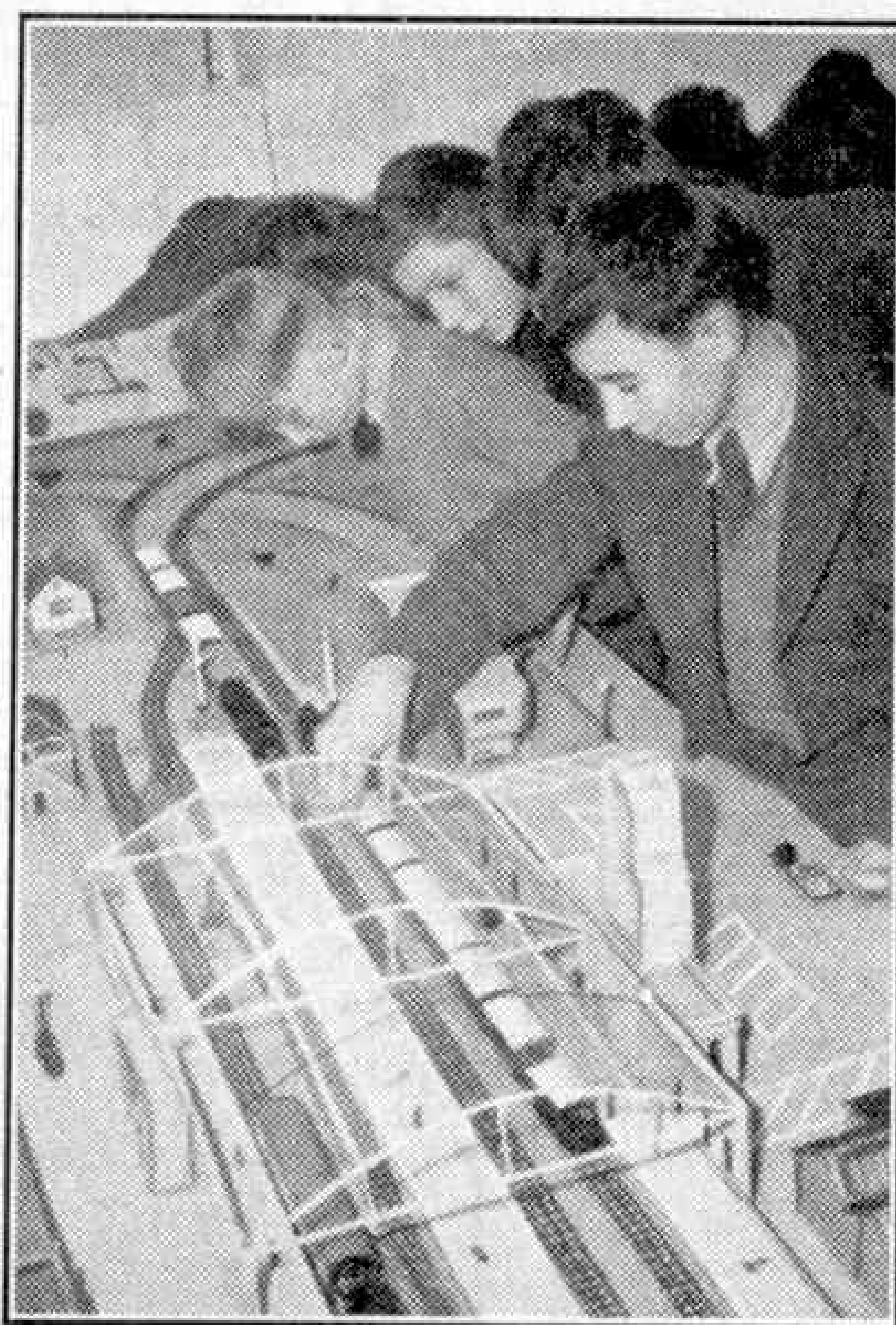
SOUTH AFRICA

CAPE PENINSULA M.C.—Excellent results have been achieved at Model-building meetings of this recently affiliated Club. Visits to the Cape Town Automatic Telephone Exchange and Overseas Control room and to the Klipheuveld Radio Transmitting Station were much enjoyed. Club roll: 19. *Secretary:* Mr. F. Korck, P.O. Box 719, Claremont, Cape Town, South Africa.

BRANCH NEWS

NEW ROAD (SOUTH CHINGFORD)—Meetings continue to be well attended. On one occasion expresses with from 6 to 10 coaches were operated with locomotives ranging from a "Royal Scot" to a pre-war Hornby "Nord." *Secretary:* Mr. K. R. White, 136, Westward Road, South Chingford, London E.4.

REDLAND (BRISTOL)—A conducted tour of Avonmouth docks was greatly enjoyed. Much time has been spent on improving the Branch layout. Preparations for another Exhibition have included painting fields, erecting fences, constructing balsa wood buildings and making control panels. *Secretary:* Mr. P. B. Harper-Bill, 34, Chandos Road, Bristol 6.



A fine Exhibition photograph from the Redland (Bristol) Branch, No. 533. This Branch was incorporated in November 1951. An extensive layout on which six locomotives could be run was planned at the outset and construction was pushed rapidly forward, with excellent results. Special features of the layout are a 6 ft. tunnel and an impressive control system. Photograph by courtesy of "Bristol Evening World."

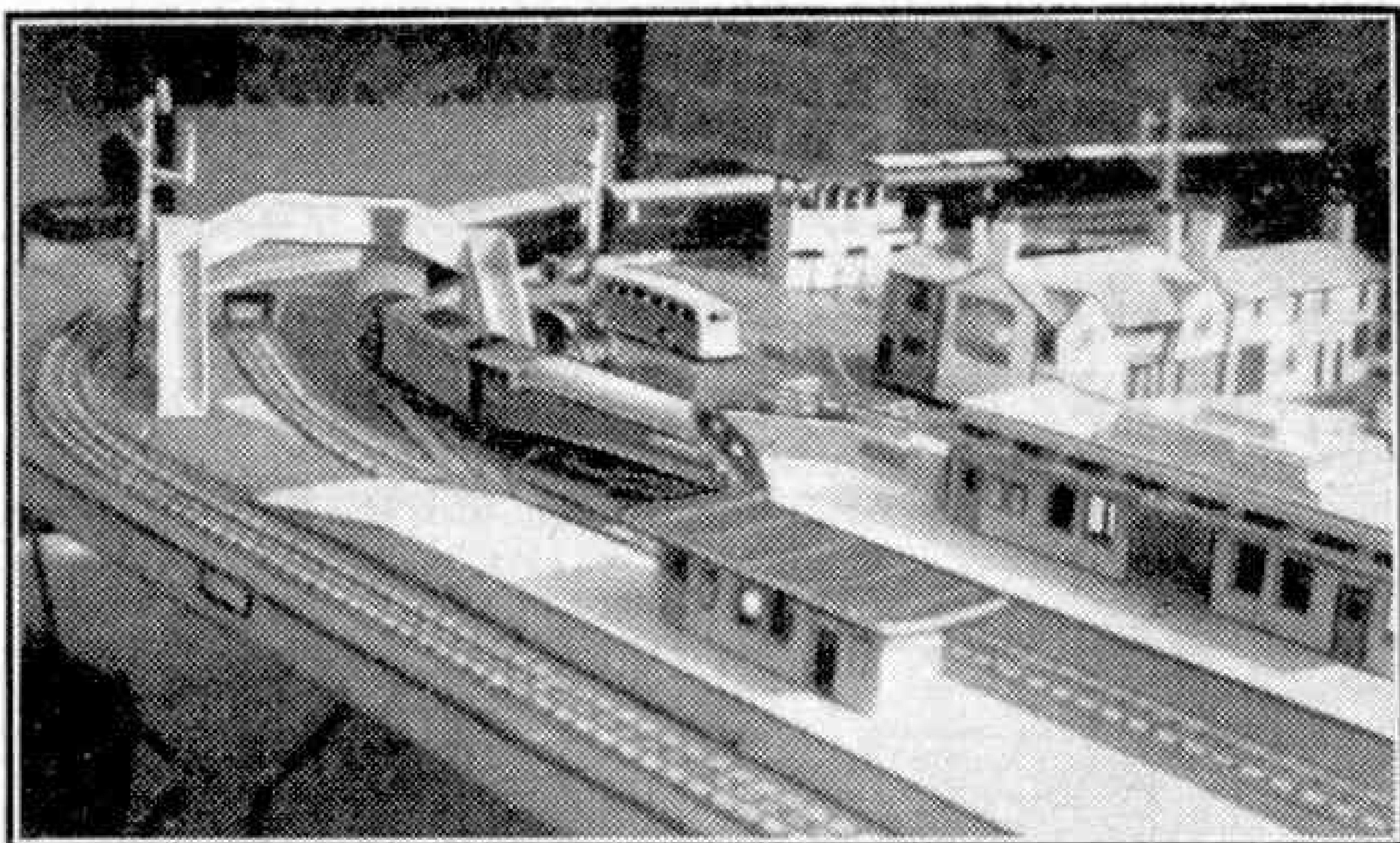
HORNBY RAILWAY COMPANY

By the Secretary

Outdoor Layouts

I SUPPOSE that many miniature railwaymen at this time of the year turn their thoughts to outdoor railways. We tend to envy the owners of outdoor systems, during the Summer months at any rate, but we are apt to overlook how much preparation, development and maintenance work has to be put in by an enthusiast who has a permanent outdoor line.

As has often been pointed out in the "M.M.," Hornby or Hornby-Dublo railway equipment is not suitable for permanent use out-of-doors. But the Hornby-Dublo or Hornby railway owner need not give up the outdoor idea entirely. It is possible



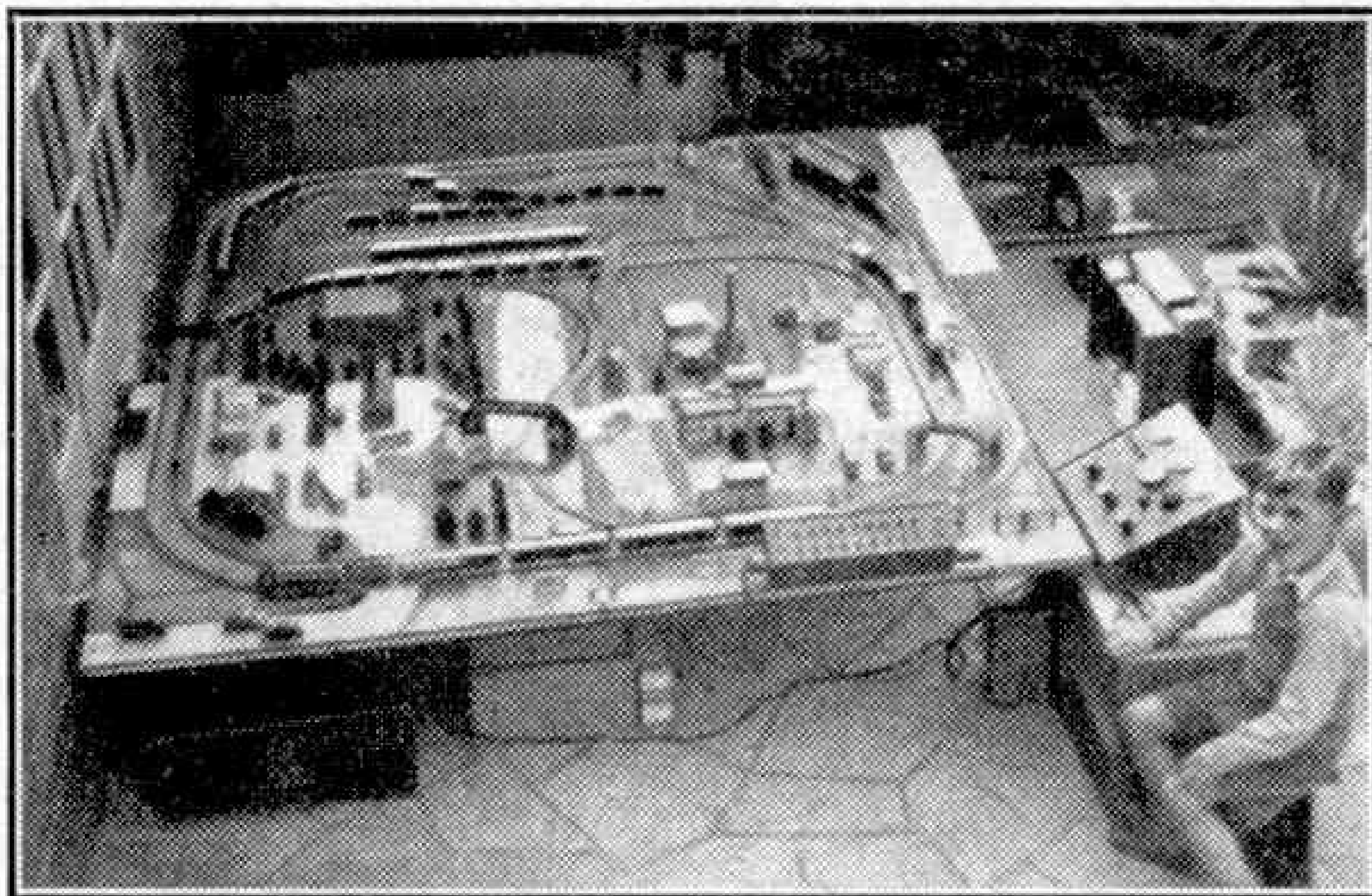
A realistic view across one end of the Hornby-Dublo layout of Mr. L. R. Whitworth, described on this page. An express headed by "Sir Nigel Gresley" is entering the far platform.

be seen in the lower illustration, to bring it up to a convenient height, this baseboard is supported on a typical selection of oddments such as cases, blocks and so on. The use of such a variety of supports may be necessary in many situations because of varying ground levels outside. In the absence of a baseboard a suitable ground site would be afforded by a level concrete path or tiled walk.

Apart from its outdoor location, for the time being, the system illustrated has many features of interest. There is an outer continuous main line and accompanying it for a good part of its distance is an inner track. This inner track also provides two reverse loops and part of it almost encircles a fairly extensive marshalling yard. There are two principal stations, one named "Ashby" and the other known as "Trent."

A full programme of train running is provided in the timetable and a specially interesting feature of the working sheet is that it includes complete details of subsidiary train movements,

apart from actual times, and the composition of each train is specified as well. A Hornby-Dublo "Duchess" and a "Gresley" 4-6-2 are kept busy with the more important duties, while a standard 0-6-2 Tank manages the stopping passenger trains and the many mixed traffic duties necessary on every railway.



Jeffrey Whitworth with his brother's layout in the garden. The railway board is raised on various supports to a convenient height for operation.

for him to take part in outdoor operations by taking what is normally his indoor railway bodily into the garden. This is what has been done by "M.M." reader L. R. Whitworth (H.R.C. No. 168302), of Castle Bromwich, whose railway is shown on this page. The line is laid down on a baseboard 8 ft. by 7 ft. and, as can

Controlling Trains from the Track

IN every Hornby Train Set except the MO there is a piece of straight track differing from the others in having a special part, mounted between the running rails, that has a vertical tongue projecting upwards and can be slid forward and backward across the track. This rail is a very useful piece of equipment, for it

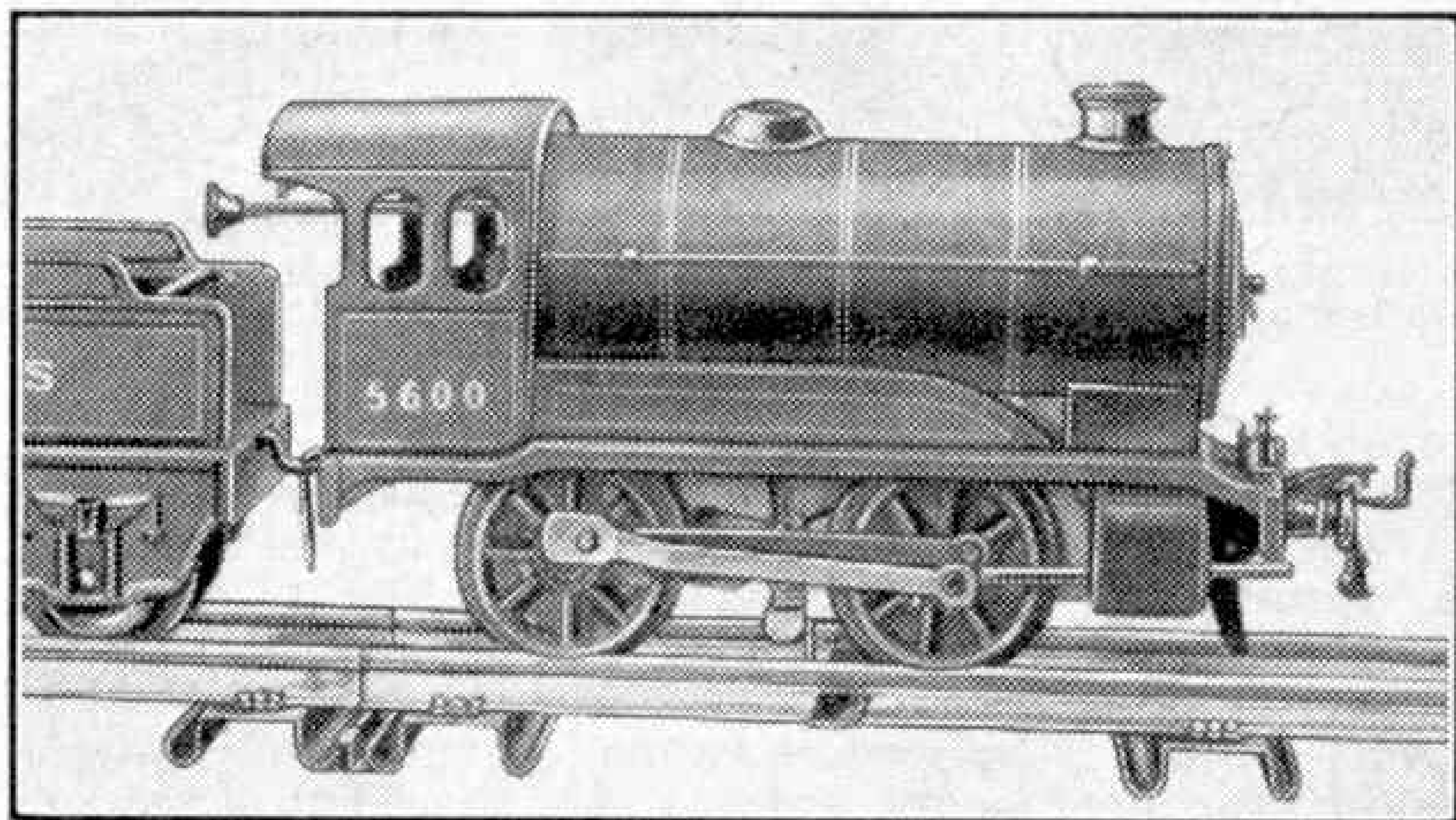
rails, and this is the normal position for running. In fact it is what may be called neutral. Now let us see what happens when the tongue is pulled to one side or pushed to the other, as illustrated in the two pictures at the bottom of this page. In each position the vertical tongue comes into contact with a trip that hangs

downward from the locomotive mechanism, in one case to apply the brakes, and in the other to reverse the engine, provided of course it is the 501 Locomotive.

When the Brake and Reverse Rail is in use to reverse the 501 Locomotive, this travels a short distance past the trip of the Rail, halts and starts to move backward. This of course brings it again under the spell of the Brake and Reverse Rail. The trip must therefore be put into neutral as soon as the engine that is

being reversed has passed it. If this is not done, the train will just shuttle forward and backward alternately until the mechanism has insufficient "wind" to drive it past the rail trip!

A word of warning. It is not good practice to put the brake and reverse device into action when a train is running at its highest speed. The sudden check would probably de-rail the train. In order to make the best use of their controlling possibilities several of these BBR Rails may be needed on a single layout, and they will greatly increase the fun of operations.



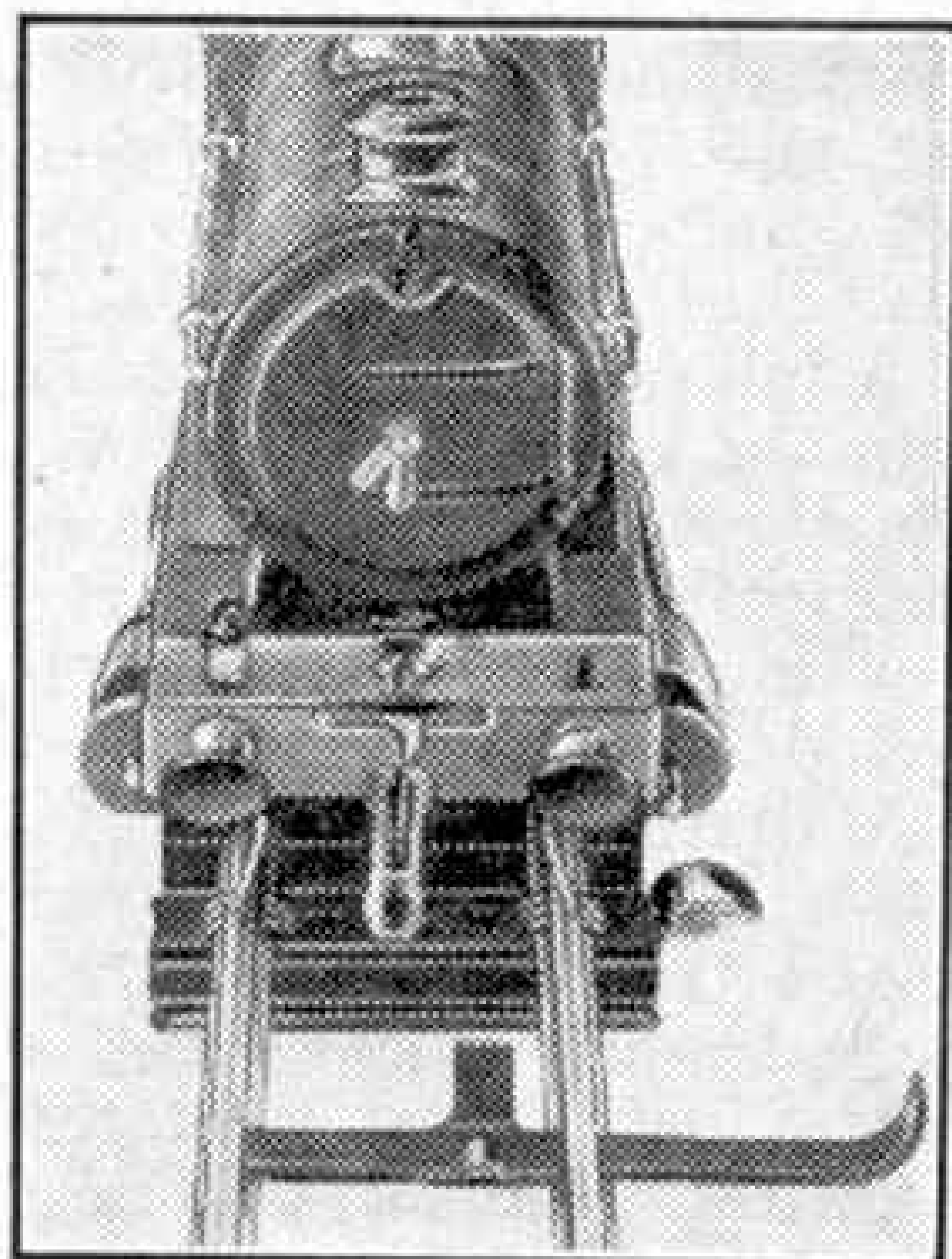
The trip of the BBR Brake and Reverse Rail is just beginning to take effect on the reversing lever of the 501 Locomotive. The engine will continue to move forward until reversing is completed.

allows the owner of a Hornby Train Set to stop his trains, for example in a station, by applying the brakes, and in the case of the 501 Clockwork Locomotive even to reverse their direction, without touching them or their cab controls.

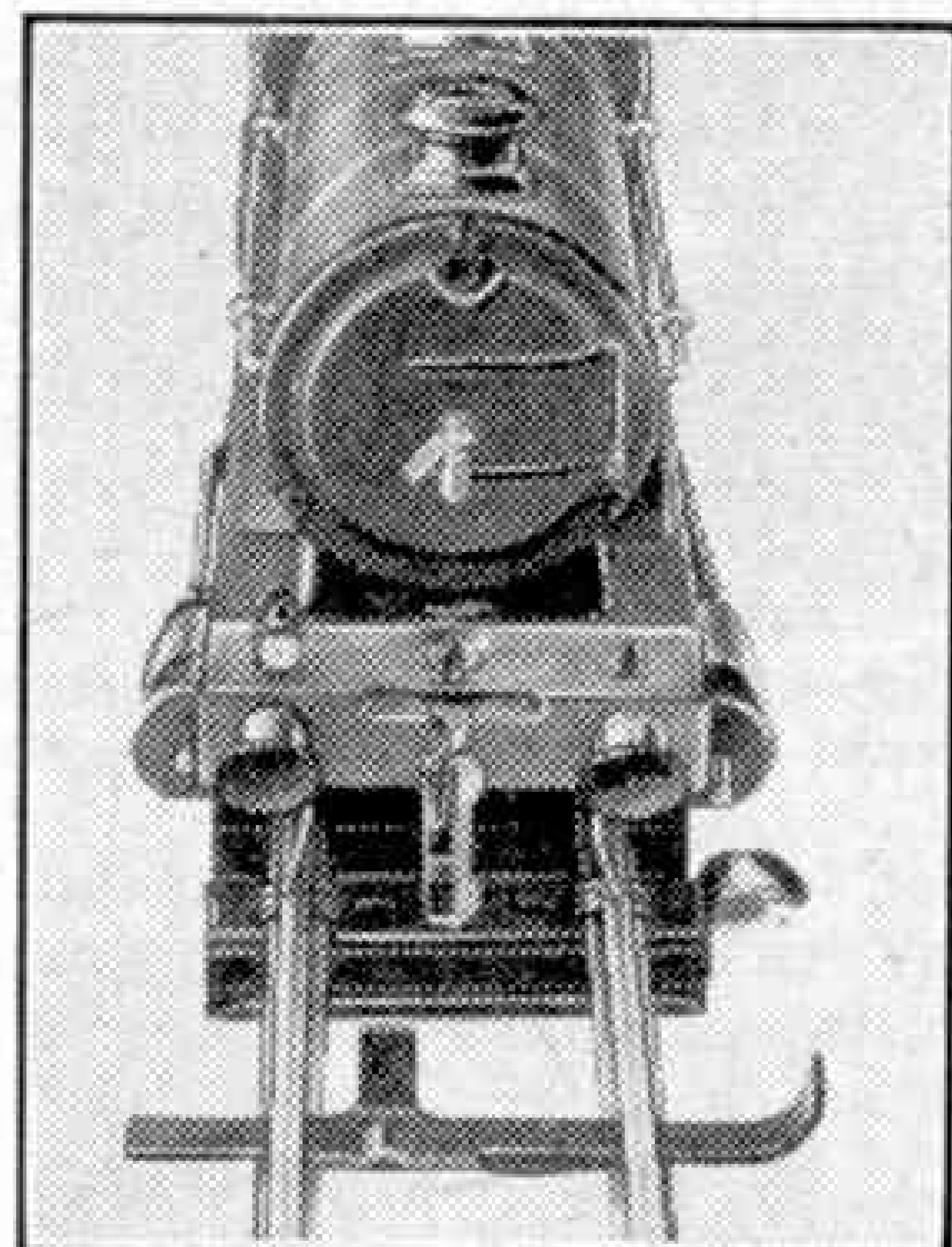
The BBR Brake and Reverse Rail, as this is called, is very simple to work. It is moved by just pushing or pulling its

handle, which projects outside the rails, and it is held in any one of the three positions available for it by a spring mounted below it.

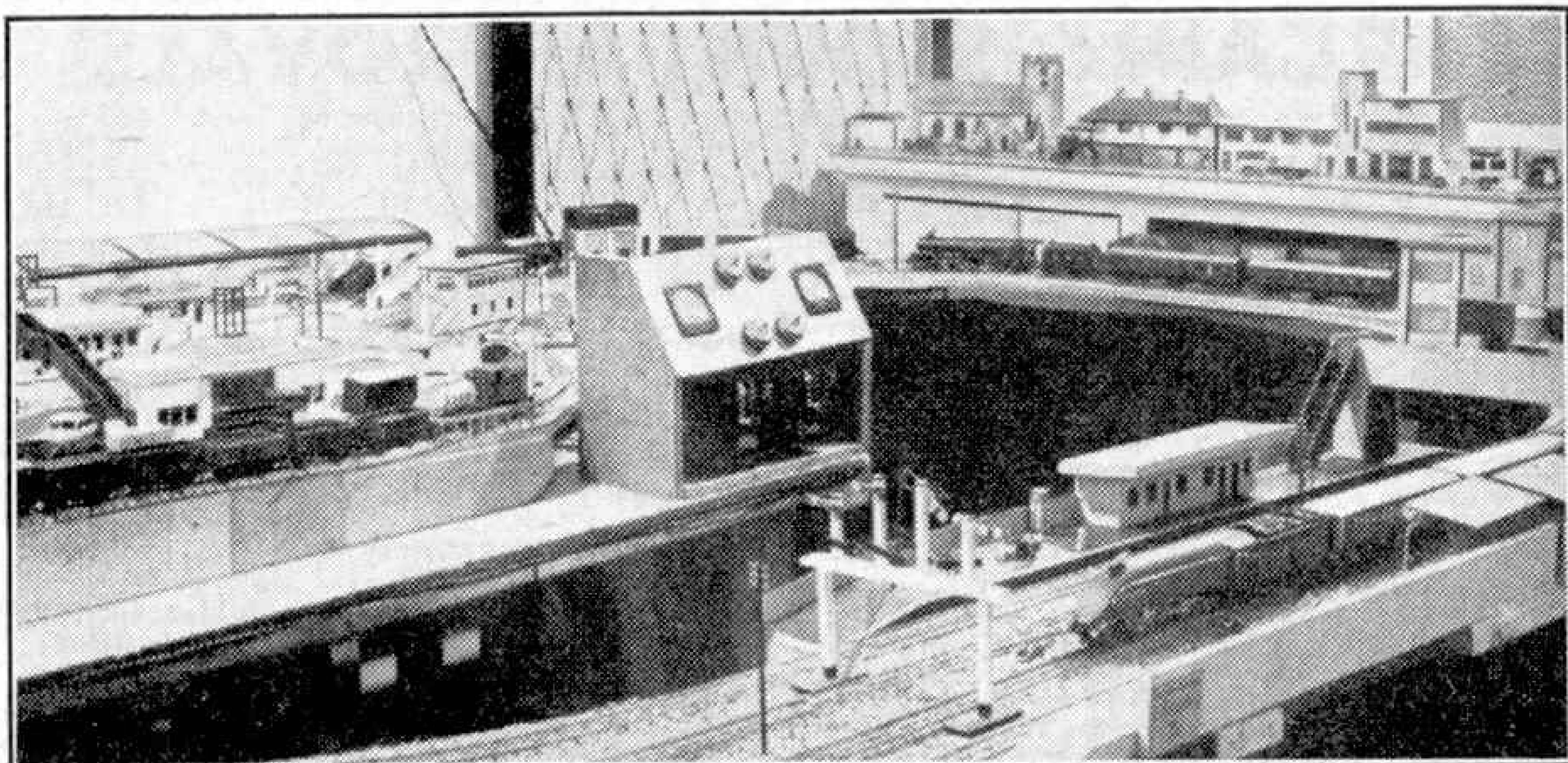
In one of these positions the vertical tongue is midway between the



The trip of the BBR Rail set to braking position.



The trip of the BBR Rail set to reversing position.



A Fine Hornby-Dublo Train Service

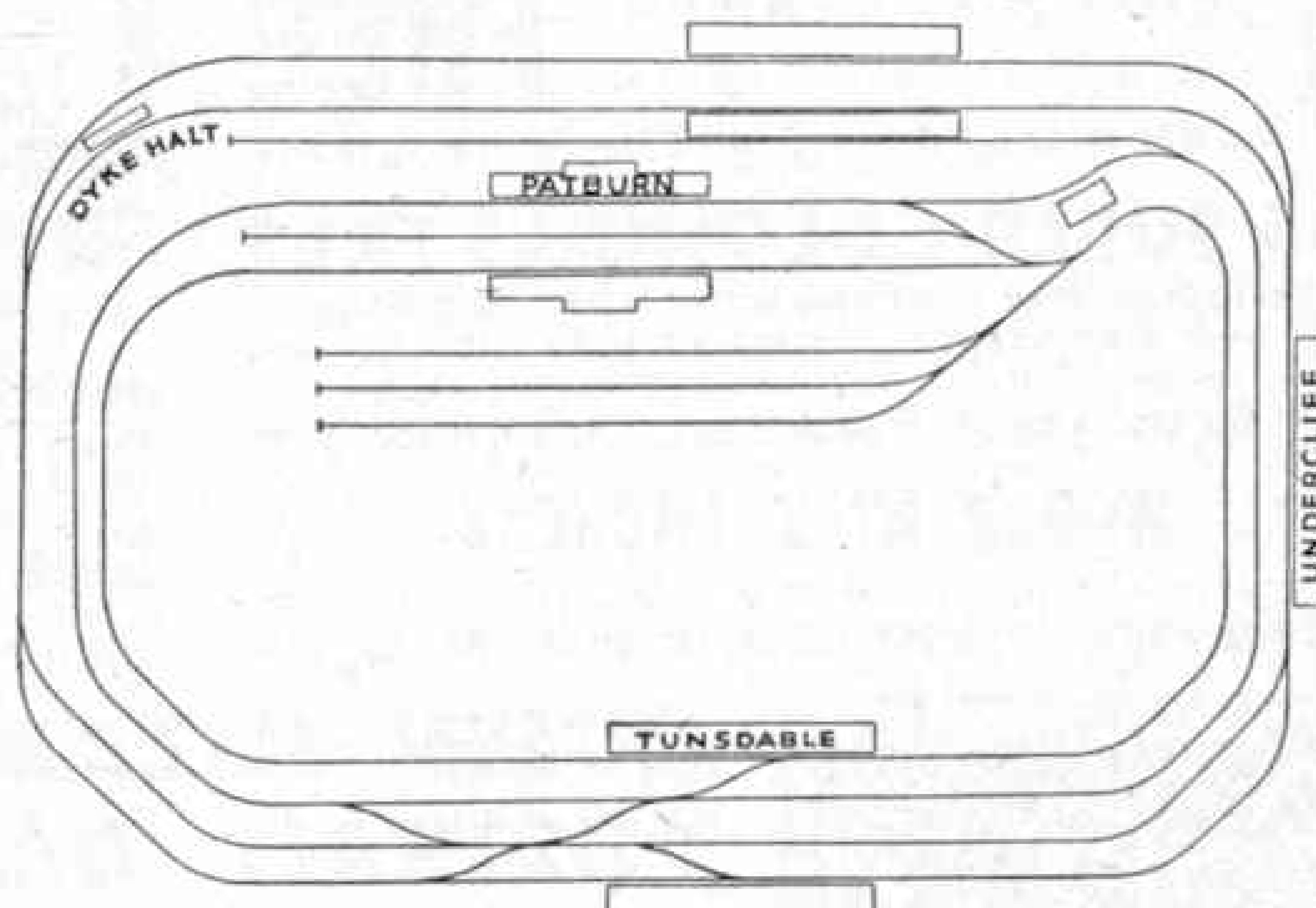
ALTHOUGH the Hornby-Dublo layout shown on this page is practically a four track system throughout, it is not really complicated. In fact, in planning the system the whole idea with the owner Mr. B. Burns, of Luton, was to avoid as far as possible any complex arrangement of isolating sections and switches, as operation of the railway is shared with his young son Patrick. He has been successful in this aim, for the siding arrangements are simple, the points are conveniently grouped, and the railway is well laid out for through main line running.

There are four stations on the line, each with a name that has quite a good railway sound. One of the principal features of operation, an admirable one, is that the railway provides a definite train service, with an exact timetable, so that each engine and piece of rolling stock has a definite job to do in the running programme. This is undoubtedly the best way of working a miniature railway system, as aimless, or haphazard running soon becomes tiring. Even train loads are laid down, so that the trains can be accommodated, along with their engines, in any of the sidings. In this way delays are avoided. This is of importance when a properly organised train service is being run.

The working arrangements provide for an occasional "Royal Train" and its special character entitles it

to a clear road throughout. A fair amount of shunting work is entailed to ensure this and when all is clear the train makes its unchecked journey. After this is completed further shunting is carried out in order to restore the normal working conditions.

Another important train, this time on the freight side, is a perishables train made up of eight Vans and a Brake Van. This is always taken by a "*Sir Nigel Gresley*" or a "*Duchess of Atholl*." While its working is in progress local passenger trains of two or three vehicles are sometimes held on sections that can be switched out in order to provide a clear road.



A diagram of the Hornby-Dublo layout of Mr. B. Burns, Luton. The illustration at the top of the page shows "Tunsdable" Station in the foreground, with the operating space and the control panel immediately behind it. Photograph by L. N. Britton.

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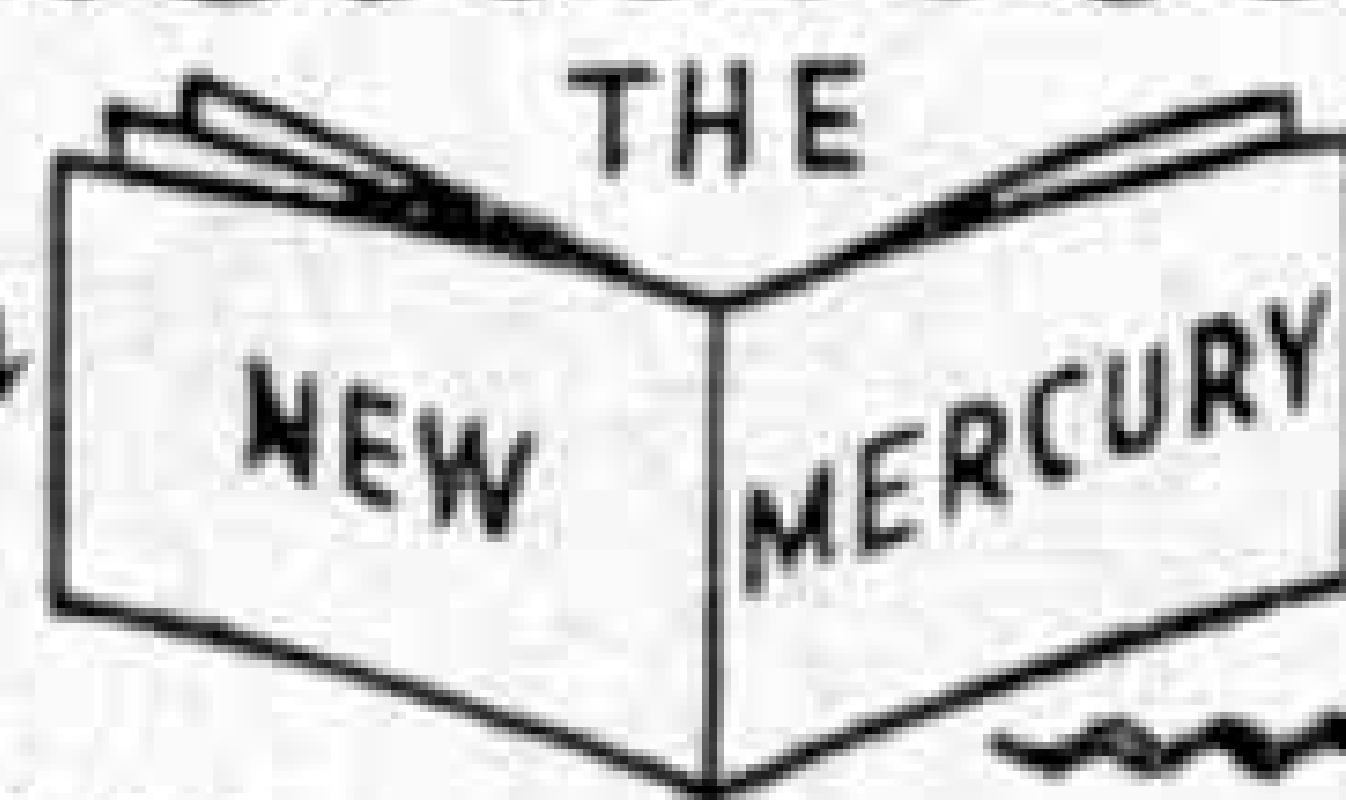
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For other Stamp Advertisements see also pages 282 and xvi.

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Stamp Collectors' Corner

By F. E. Metcalfe

COMMEMORATIVE STAMPS

IT is a long time since the first commemorative stamp appeared, and just in case there are any readers who want an official description of such a stamp, it might be worth quoting the "Glossary of Philatelic Terms" on the subject. In it commemoratives are described as "stamps issued to celebrate some event, or in honour of some person."

There has always been a good deal of criticism against these issues, on the grounds that it is the poor stamp collector who has to pay for them, but it is overlooked that it is precisely for stamp collectors

that they are prepared, and that no one is even asked to buy them. Moreover, the art and beauty displayed makes their production very much worth



while, although of course there are exceptions.

The United States of America produces many of them, but the decision whether U.S. commemoratives should be issued or not now lies with the Postal Office itself, and there has been a reduction latterly in the number emitted. I have mentioned the art and beauty displayed in the production of some commemorative stamps. Let me say at once that the U.S.A. no more qualifies for such praise than does our own country. Both do a pretty poor job generally, and it is just a question which does the worst.

Anyhow the Americans have some hard things to say about their stamps. One of their stamp papers, "Linn's Weekly Stamp News," holds a competition each year in which readers are asked to vote under four very interesting heads. Here they are. Which is the best commemorative design of the year? Which is the worst? Which is the least necessary? Which is the most appropriate? We now have the results of the votes held on the 1951 issues, and in view of the popularity of these stamps among British collectors, it will interest many to know the results.

The winning design was the Nevada First Settlement commemorative issued on the 14th July 1951 and reproduced on this page. Let us assume that this really is the best. How do readers think it compares with the one the writer has selected from the stamps issued during the same year by Pakistan? Every one to his taste, of course.

The winning design for the most appropriate subject was the one issued to mark the 75th



Anniversary of the American Chemical Society. The object may have been well selected, but the less one says about the design itself, perhaps the better.

Next we get the stamp said to be the least necessary. This was the one issued to "commemorate the defeat at Long Island." Apparently the wrong country was

doing the commemorating. The fact that the stamp shows Washington directing the retreat in broad daylight, while that operation seemingly



occurred on a dark night in a heavy fog does not improve matters. This stamp was illustrated in the March "M.M."

Finally we come to the stamp with the worst design. It may surprise readers that one can be produced to beat the "Chemical" effort in this respect, but the winner was the "Colorado 75th Anniversary" commemorative. If anyone can beat this, it is Great Britain.

What about our own commemorative stamps? Has the Commonwealth produced any better stamps than the U.S.A.? Fortunately the latest Jamaica "Jamboree" pair referred to in this month's "Stamp Gossip" do not come in the designs for 1951, otherwise the only difficulty we would have had would have been which to select as the worst of these two. Then, alas, the winner—or perhaps we had better say the loser—would have ranked below even America's Colorado effort.

I think we can produce a better stamp than the Nevada effort, voted the best issued in the U.S.A. My own personal selection of the best Commonwealth commemorative design would be the one used for the 3a and 12a of the

"Pakistan 4th Anniversary of Independence" Issue. The British firm Thomas De La Rue and Co. Ltd. engraved and printed the stamps beautifully, and the designer was Mr. K. B. Abdur Rahman. As for our poorest design for 1951, I find it hard to find anything more moderate than the G.B. 2½d. "Festival" stamp.

If the U.S.A. and the British Commonwealth are not producing masterpieces, more than a few magnificent stamps have come from the Continent during 1951, and I wish that I had room to illustrate some of these.

Hungary has produced the largest number, figures showing that this country emitted over 100 stamps during the year. Among these were some beauties, and even though Hungary is behind the Iron Curtain, its stamps are readily obtainable. Most are very cheap, and a collection of its modern commemoratives makes a wonderful show. The same can be said of Austria's stamps.

Another favourite of mine, and indeed of everybody who likes beautiful stamps, is France. Switzerland also is very popular, but most French and Austrian stamps are line engraved, and the process is much more difficult than that employed by Switzerland.





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For other Stamp Advertisements see also pages 280 and xvi.

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Stamp Gossip

OVERPRINTS

IT has often been remarked that stamp collectors do not as a rule like overprinted stamps, and this must be the reason why the stamps of Great Britain overprinted for use in Eritrea, Somalia, etc., are not popular. It can also account for the fact that, when the British Post Office recently gave out the news that their stocks of Tripolitania stamps had been destroyed, there was no rush to buy an issue that is very scarce.



As most collectors will know, this set only went on sale as recently as May of last year, and it became redundant when Tripolitania was taken over to form part of the new Kingdom of Libya. It was never the subject of much buying, and it would not surprise me if, when figures are published, it is found that not many more than 10,000 complete sets exist. Buy a

set if you can afford one, and just wait for it to rise in price, as it is almost certain to do, but don't pay more than face and a half.

Better still, why not form a little collection of the Great Britain overprinted stamps of the K.G.VI reign? Several countries are concerned and they will all be found arranged after Great Britain in the Commonwealth Catalogue.

Many of these stamps can be picked up cheaply used, for they are valid for postage at home, providing that they have not been overprinted as well in another currency. Dealers had big stocks of stamps overprinted E.A.F., M.E.F., Morocco Agencies etc. bought during the war, when cash was plentiful and stamps scarce, and they have been getting rid of their stocks by using them up on their correspondence. So even these particular issues in an unused state must be pretty scarce now, and a mint collection looks like something very much worth having. Buying now you will get in almost on the ground floor, and the possibilities are great indeed!

ERRORS

If collectors don't like overprints, they certainly like errors, and what sharp eyes they have to detect them! Stamp printers know this to their cost. They are very discreet people and they keep their thoughts to themselves, but it would be very interesting to know what they think sometimes when stamp collectors catch them out, as they did when a new set came out in January 1950 for Sarawak.

It will be remembered that some bright person noticed that the drawing of the Scaly Ant Eater on the 10c. value of this issue was all wrong. Forthwith it was decided to change the design altogether, and now we have the 10c. stamp with almost the same design as the 2 dollar value of the same set. It would be funny if some lynx-eyed collector found another error, on the map. This could be, for when



Mauritius brought out its set in July 1950 an error was found on the map design used for the 12c. stamp. We'll have to wait and see what turns up.

JAMBOREES

The importance of the Scout movement is indicated by the fact that whenever they hold one of their Jamborees, the Government acting as host honours them with a special issue of stamps. Jamaica was no exception, but while

the stamp we are illustrating may look all right in black and white, I am afraid that the lurid colours in which the stamps have been printed, on top of the overloaded designs, will be a big disappointment to the many young, and also to the not so young collectors who were looking forward to them.

In 1945 Jamaica brought out another commemorative set that also was a disappointment—it still sells at about face value—and one of the reasons for this was that the colours employed were so dull. This may account for the swing in the other direction. Even though the new set may be a poor one, it will only cost a few coppers, and even the youngest wolf cub will be able to buy one. If what dealers say is correct, most of them are doing this.

Quite an interesting lot of "Jamboree" stamps exist, and I think all will agree that the finest was that issued by Austria in August of last year. This really was a beauty, and a copy went into my little private collection of stamps that have what I think an outstanding design. I am afraid that this latest Commonwealth effort looks very moderate if compared with the Austrian stamp.

FORESTRY PRODUCTS

That is how Canada describes the motif of its new



20c. stamp, which was issued on 1st April. This great Dominion takes its stamps very seriously. Before new ones are issued, publicity notes are released

explaining the why and wherefore of the designs, and here is what the Canadian Post Office has to say about the latest.

"The main element of the design will display a broad strip of wood which, at the extreme left, is cut to form a simple coniferous tree shape and at the extreme right is bleached and curved into a curl of paper. In the centre of this main element is the simplified form of the type of mill which produces newsprint." To that we may add regret that so much of the newsprint gets used up for those gigantic American Sunday papers. No wonder that in comparison ours are scarcely larger than a pocket handkerchief.

To return to Canadian stamps, I have mentioned before that a nice collection of them can be formed for very little cash, providing that only used modern issues are sought, but may I also repeat the advice to be satisfied only with clean, lightly-cancelled, well-centred copies. This may not give you a collection of much monetary value, but you will have an interesting lot of stamps, as can be seen by the details given in connection with the new 20c. stamp.

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.

It's The Goods!

Goods trains are not flyers, although many of them, such as fish trains, are often hauled by engines usually thought of as those of express passenger trains. Their lack of high speed does not make them uninteresting, however. In fact, their comparative slowness has the great advantage that they remain in sight longer and give us better opportunities of seeing just how they are made up.

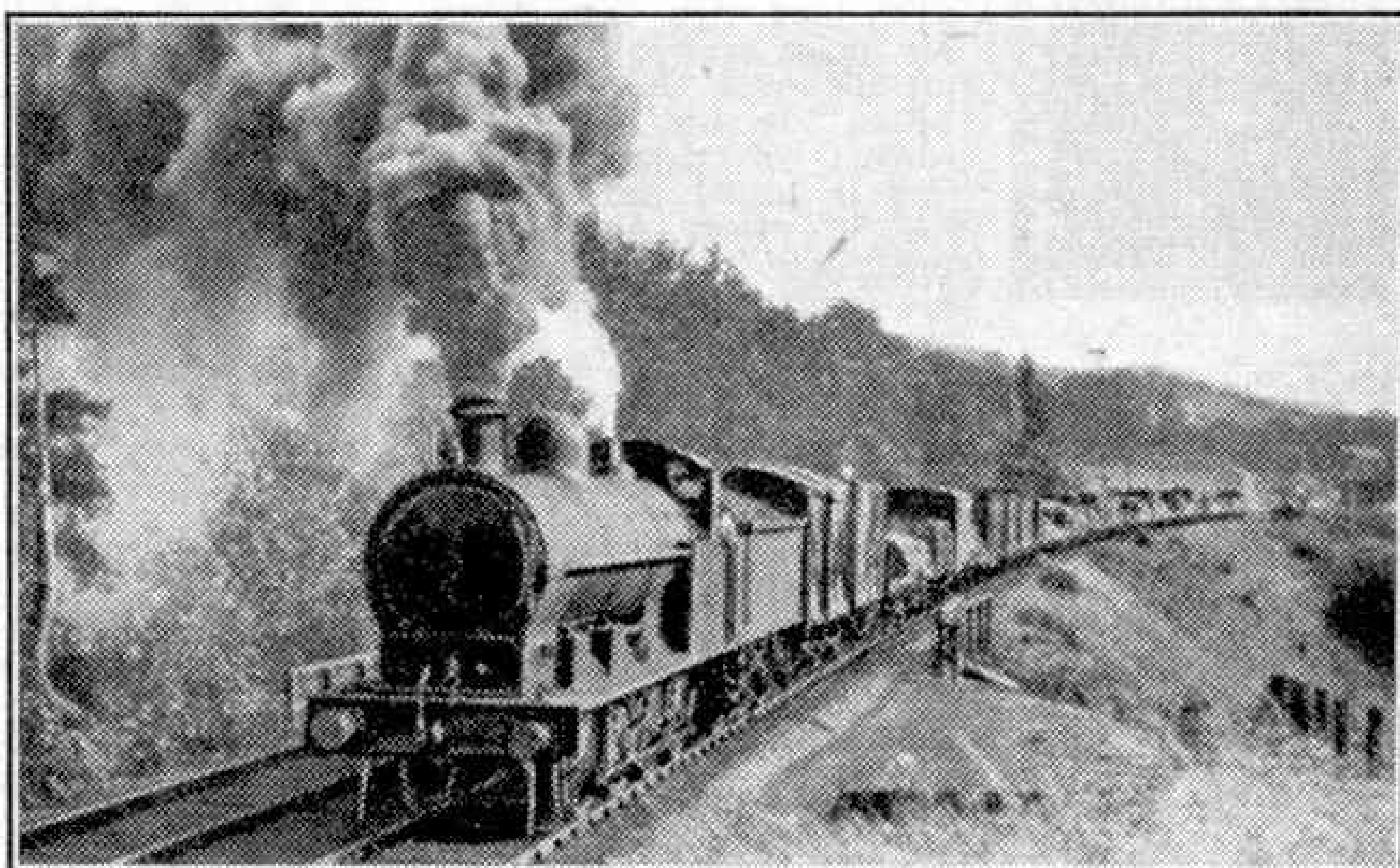
They have other attractions too. Usually they include different types of wagons, many of which have some special interest of their own, and even the noises change as they pass by, varying from the dull roar of full coal wagons and the thunder of empty steel hoppers to the cheerful rattle of slates or tiles. At intervals also there is that heartening noise of buffers and couplings, a welcome sound for the railway enthusiast.

Our chief competition this month is concerned with goods trains, and will give real railway enthusiasts a good time. If they do not know all the answers to the quiz below they can always go out and look for them!

1. What is your favourite type of heavy goods engine? Why?
2. What does a pick-up goods train pick up and how?
3. One sometimes hears of crippled wagons. What are they?
4. We have all heard of the shunter's pole, but what is it exactly?
5. What kind of wagon is a "Hybar"?
6. Where on British Railways are Beyer-Garratt articulated engines used on coal trains?
7. How is a long loose-coupled goods train controlled when on the run?

8. What is meant by a fully-fitted freight train?
9. Where in a train would you place loaded oil tank wagons?
10. What are the special features of a hopper wagon?

Entries should be made as concise as possible, and of course must have on them the full names, ages and addresses of the competitors. They should be



L.M.R. 0-8-0 tackling the climb to Grayrigg. Photograph, H. Gordon Tidey.

addressed "June Goods Train Contest, Meccano Magazine, Binns Road, Liverpool 13."

As usual there will be two sections, for Home and Overseas readers respectively, and in each prizes of 21/-, 15/- and 10/6 will be awarded for the best entries, with consolation prizes for other good efforts. If there is a tie for any prize the judges will take neatness and novelty into account.

Closing Dates: Home Section, 31st July; Overseas Section, 31st October.

Favourite Summer Pursuits

Today there is an endless variety of outdoor pursuits that we can all enjoy. Among the most familiar are cricket, tennis, swimming, cycling and athletics, and some readers may pursue other less known but equally interesting activities.

With this in mind every reader is invited this month to tell us which is his favourite summer pursuit and why. Long essays are not required. All that is wanted is a brief account of the pleasures and advantages of the game or activity that is the favourite of the competitor, and efforts should be limited to 250 words at the most.

Entries should be addressed "June Games Contest, Meccano Magazine, Binns Road, Liverpool 13." There are two sections, one for Home readers and the other for those living Overseas, and in each prizes of 21/-, 15/- and 10/6 will be awarded for the best efforts.

Closing dates: Home Section, 31st July; Overseas Section, 31st October.

June Photographic Contest

The sixth of our 1952 series of photographic contests is a general one in which we invite readers to submit prints of any subject. Each competitor may submit only one photograph, which must have been taken by him, and on the back of his print must be stated exactly what the photograph represents also his age must be given.

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 overseas sections, and in each section prizes of 21/-, 15/- and 10/6 will be awarded. Entries should be addressed "June Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13." The closing date in the Home Section is 30th June, and in the Overseas Section, 30th September.

Competitors who desire their entries to be returned should note the paragraph at the top of this page.

Competition Results

HOME

JANUARY 1952 COVER VOTING CONTEST

1st Prize: C. D. Hawkins, London N.11. 2nd Prize: P. Filby, Canterbury. 3rd Prize: T. Spalding, Ipswich. Consolation Prizes: D. Rider, Leeds; B. Price, St. Helens; F. G. Glass, Croydon; D. Brain, Bristol; R. G. Emery, Birmingham 28; N. Goldstraw, Newark.

JANUARY 1952 RAILWAY PAINTING CONTEST

1st Prize, Section A: K. R. Pargeter, Stourbridge; Section B: P. Morath, Greasby. 2nd Prize, Section A: A. Mayor, Kendal; Section B: I. G. Trainer, Liverpool 10. 3rd Prize, Section A: R. E. Yates, Hounslow; Section B: C. Roberts, Worsley. Consolation Prizes: Section A: J. C. Coates, Birmingham 24; M. Skidmore, Chilwell; P. Norton, North Harrow; B. Chapman, London E.11; B. Thomson, Sherwood; Section B: E. G. Hulse, Flixton; L. A. W. Bowman, Chester; B. Nevens, Stockton-on-Tees; R. F. Clark, Newport; J. N. C. Blair, Frinley; A. Reeves, London E.2.

JANUARY 1952 PHOTOGRAPHIC CONTEST

1st Prize, Section A: C. R. Riding, Hull; Section B: N. Storrs, Bletchley. 2nd Prize, Section A: A. J. Noon, Sutton; Section B: A. M. Donald, Teignmouth. 3rd Prize, Section A: G. Young, Selkirk; Section B: J. A. Bennett, Bristol. Consolation Prizes, Section A: E. M. Young, Wembley; D. Pratt, New Malden; K. J. Cureton, Edinburgh 9; Section B: I. Band, Dundee; R. A. L. Waller, Bridge of Weir; A. S. McLaren, Darlington; I. Macfarquher, Kintore; C. R. Mason, Truro.

FEBRUARY 1952 DRAWING CONTEST

1st Prize, Section A: A. Sunderland, Whitehaven; Section B: G. Bessford, Alnmouth. 2nd Prize, Section A: R. Martin, Ewhurst; Section B: I. Burnett, Portsmouth. 3rd Prize, Section A: K. S. Willett, Canterbury; Section B: J. Ackroyd, Bradford. Consolation Prizes, Section A: B. Lockey, Luton; J. Stones, Wolverhampton; R. J. Sowersby, Urmston; M. Barnett, Middlesbrough; Section B: M. N. G. Polin, Dunstable; D. W. Evans, Kingskerswell; D. Broughton, London N.15; D. Storer, Mansfield; B. Jones, Swinton; A. Odell, Cambridge.

FEBRUARY 1952 LOCOMOTIVE SHADOW CONTEST

1st Prize: G. Bingham, Maghull. 2nd Prize: I. T. Craig, Cambridge. 3rd Prize: K. E. Davies, Birmingham 22a. Consolation Prizes: J. Hodds, Birmingham 14; D. J. Maidment, East Molesey; D. Christie, Barnet.

FEBRUARY 1952 PHOTOGRAPHIC CONTEST

1st Prize, Section A: J. W. Prior, Nottingham; Section B: D. R. Forsyth, Cheadle Hulme. 2nd Prize, Section A: C. Saul, Liverpool 11; Section B: R. Wilkinson, Todmorden. 3rd Prize, Section A: A. G. Pitman, Winchester; Section B: H. B. Smith, Sherbourne. Consolation Prizes, Section A: J. E. Turley, Tunbridge Wells; T. D. Harrison, Shoreham-by-Sea; J. W. Deverell, Thornton Heath; R. E. Becker, Leominster; Section B: K. W. Gibson, Cheadle; J. Flegg, Gillingham; D. Jowett, Leeds 11; J. Byford, Rayleigh; I. Mitchell, Selkirk.

MARCH 1952 PHOTOGRAPHIC CONTEST

1st Prize, Section A: J. G. Crawford, Darlington; Section B: G. H. Pursell, Wallasey. 2nd Prize, Section A: G. Ogilvie, Edinburgh 4; Section B: P. B. Browning, Edinburgh 11. 3rd Prize, Section A: G. D. Temperley, Cudworth; Section B: R. S. Lewis, Wolverhampton. Consolation Prizes, Section A: J. A. Senior, Eccles;

G. R. Surfleet, Croydon; T. McCleary, Belfast; Section B: A. Kevin, St. Annes; J. Macey, Wealdstone; R. H. Morling, Lowestoft.

OVERSEAS

OCTOBER 1951 FESTIVAL DRAWING CONTEST

1st Prize, Section A: B. Nelson, Bombay, India; Section B: C. W. Phelps, Dusseldorf, Germany. 2nd Prize, Section A: W. D. Kirby, Victoria, Canada; Section B: P. C. R. Danvers, Melbourne, Australia. 3rd Prize, Section A: O. Norris, Lisbon, Portugal; Section B: R. A. Green, Paris, France. Consolation Prizes: G. E. Boyle, Salisbury, S. Rhodesia; J. J. Taylor, Dublin, Irish Republic; N. W. Banks, Little Rock, U.S.A.; D. J. Large, Greymouth, N.Z.; B. C. Walker, Copenhagen, Denmark.

OCTOBER 1951 TUNNELS CONTEST

1st Prize: R. A. Hopkins, Riverton, N.Z. 2nd Prize: J. D'Arcy, Colombo, Ceylon. 3rd Prize: R. J. Turner, Alexandria, Egypt. Consolation Prizes: W. E. Tynan, Pretoria, S. Africa; L. Fraser, Jinja, B.E.A.; K. Jones, Dublin, Irish Republic.

OCTOBER 1951 PHOTOGRAPHIC CONTEST

1st Prize, Section A: D. H. Tomkinson, Vancouver, Canada; Section B: B. Lunt, Oslo, Norway. 2nd Prize, Section A: V. Noguera, E. Palomar, Argentina; Section B: N. G. Keshav, Bangalore, India. 3rd Prize, Section A: H. O. Ekwensi, Minna, Nigeria; Section B: I. K. Roberts, Bahia, Brazil. Consolation Prizes, Section A: T. P. Mansergh, Tirav, N.Z.; J. J. Taylor, Bombay, India; N. T. Ashley, Lisbon, Portugal; Section B: I. Moreland, Greymouth, N.Z.; N. Murray, Gibraltar; T. P. Miles, Kandy, Ceylon.



"Learning to Ride." An amusing study of two small boys apparently discussing just how a bicycle should be ridden. Submitted by John Skelton, Yarram, Australia, who won 1st Prize in the Section B, December 1951 (Overseas) Photographic Contest.

My Cricket Story—(Continued from page 243)

best combination, if available of course, is a left and a right handed batsman. It does tend to upset the bowling of the opposition. The bowlers' direction is not allowed to settle down quickly and the constant changing over of the field can be most tiresome for the opposition.

I have been most fortunate in my partners in County and International games. My greatest partnership of course was with Len Hutton in South Africa in 1948, when a total of over 359 was amassed before we were separated. This constitutes a world record for all Test Cricket.

Records of course are of secondary consideration to cricketers themselves. We must always remember that cricket is a team game as much as any other game is, and that it is not played for the personal glory of any one particular member of the team, either batsman or bowler.

"The Merchant Venturer"—(Cont. from page 256)

Chippenham seven minutes late the performance was really startling until the time had been recovered. The load this time was 445 tons, with engine No. 7019 "*Fowey Castle*." A little time had been regained on the short run from Chippenham to Swindon, and we got away from Swindon about four minutes late, with 46 minutes allowed for the 41.4 miles to Reading. The embankment slacks did not affect the up road, though there was a slight restriction to 60 m.p.h. at Challow. We started well, passing Uffington, 10.8 miles, in a shade under 13 minutes at 71 m.p.h. Then came the Challow easing, but after Wantage Road "*Fowey Castle*" really got going, and over the 18 miles of practically dead level track from Steventon to Tilehurst the speed hardly varied from 75 m.p.h.—*seventy-five miles an hour* on the level with 445 tons, from what must nowadays be considered as a moderate powered 4-6-0 engine of 80 tons weight. As a result we ran the 41.3 miles from Swindon to Reading in 39 minutes 40 seconds start to stop, and arrived in Reading nearly 2½ minutes early.

Such was some of the magnificent running one could note on "*The Merchant Venturer*" during the Festival summer of 1951. At the present time the train is frequently worked by the first British-built gas-turbine-electric locomotive No. 18100 in the down direction.

Only Giraffes Don't Fly—(Continued from page 264)

never pay big dividends until it does the same. Unfortunately, many types of common freight could only be carried economically in great bulk, so the future seems to lie with big cargo-planes, probably big flying boats, as these would not need miles of concrete runway from which to operate, and could use existing dock facilities. Such aircraft, easily adaptable into "air coaches" for vitally-needed cheap mass emigration to the Empire, would cost a lot of money, perhaps more than private operators could afford. If so, some form of state subsidy should be available to start the ball rolling, for it is becoming increasingly obvious that, given the chance, air transport can do more than anything else to weld our vast, immensely rich Empire into one compact unit, for the welfare and security of all its members.

Walking Across the Forth Bridge—(Cont. from p. 247)

reached the middle cantilever the passing of passenger trains, goods trains and the occasional light engine, and the sight of 12 ft. tubular girders plunging seaward and soaring skyward, had become a commonplace. I began to feel at home and there was time to notice the tapered overlap of rails at the cantilever ends and the glass-fronted boxes carrying the tell-tale indicators that move as the Bridge warps under train loads, shrinks in the cold of a Winter night and stretches lazily out over its rollers in high Summer.

The painters were working then on the north

cantilever, some high above the twin tracks, others out of sight underneath. A staging was being manhandled into position for slinging, the flagman with his whistle accompanying the team. Cans of red oxide-of-iron paste, to be thinned down into paint, stood ready beside the pathway.

In a corrugated shelter-cum-office, perched high over the water on the east side I was privileged to meet Mr. John Paton, foreman painter, almost due for his retirement after 40 years' work on the Bridge. His crew of 24 men had long ago ceased to be conscious of heights as they went aloft on ladders and cat walks. We walked back together to the connecting girder between the north and middle cantilevers, and Mr. Paton leant out seaward to show me the last rivet and its commemorative notice. On the great middle cantilever we climbed beneath the longitudinal troughs that carry the rails and from a balcony looked down on the tiny brick remnant of Bouch's effort, crowned with its navigation light. Then remembering Inspector Bell's words and keeping to the west pathway, I walked alone the half-mile back to Dalmeny station.

Rescue from the Air—(Continued from page 269)

landed in the upper branches of the giant trees of British Columbia, some of which are as much as 150 ft. high. "Pull yourself up by your shroud-lines, run your let-down rope—a nylon cord—through the ring in your 'chute and lower yourself," is the general instruction given. They are also taught how to cross chasms on a rope, to shoot rapids in a canoe and to make a raft without the aid of nails or rope. The course includes instruction in mountaineering, and bush-lore.

The last batch of 14 trainees included four women—the first in the Para-Rescue Service. Instructed by Flying-Officer Roy Clark, of Oxford, lent to the R.C.A.F. because of his wartime experience in training women parachutists, they proved themselves fully equal to the men in the fulfilment of their arduous and hazardous duties.

There can be few rescue organizations that require a greater degree of skill and toughness than these Canadian para-rescue units.

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Fireside Fun

"Yes I do want a smart boy. Have you any special talents?"

"Yes, sir. I'm good at crosswords and puzzles and have won prizes for them."

"But I want a boy who will be smart in office hours."

"Yes, sir. This was in office hours."

"That steak you sold me was so tough, I could almost use it for boot leather."

"Well, why didn't you?"

"I couldn't get the nails through it."

"There, uncle has given you another sixpence because you lost the one I gave you. Aren't you a lucky boy?"

"No, I'm not. If I hadn't lost the first one I should have had a shilling now."

"Why won't you have another cake?"

"Full."

"Well, put one or two in your pockets to eat on the way home."

"They're full."

"I should like a heavier pay packet this week, sir."

"Good. I've already arranged that for you"

"Thank you very much, sir."

"Yes, we are now using thicker paper for the pay envelopes."

"I won't go to school any more, mum."

"Why not, Billy?"

"Teacher told me to sit down for the present and she never gave me one."

"What's happened now?" asked the lady when the car stopped.

"We've got a puncture," replied her husband as he got out.

"Well, you are careless. The A.A. man warned you there was a fork in the road, didn't he?"

Tramp: "The lady next door gave me a piece of home made cake. Won't you give me something to go with it?"

Lady: "Certainly. I'll get you an indigestion tablet."

"I hear your little brother is in hospital. Is he very ill?"

"Oh, no. Only a broken arm."

"How did that happen?"

"We were playing who could lean farthest out of the window and he won."

"You're late home. Have you been kept in?"

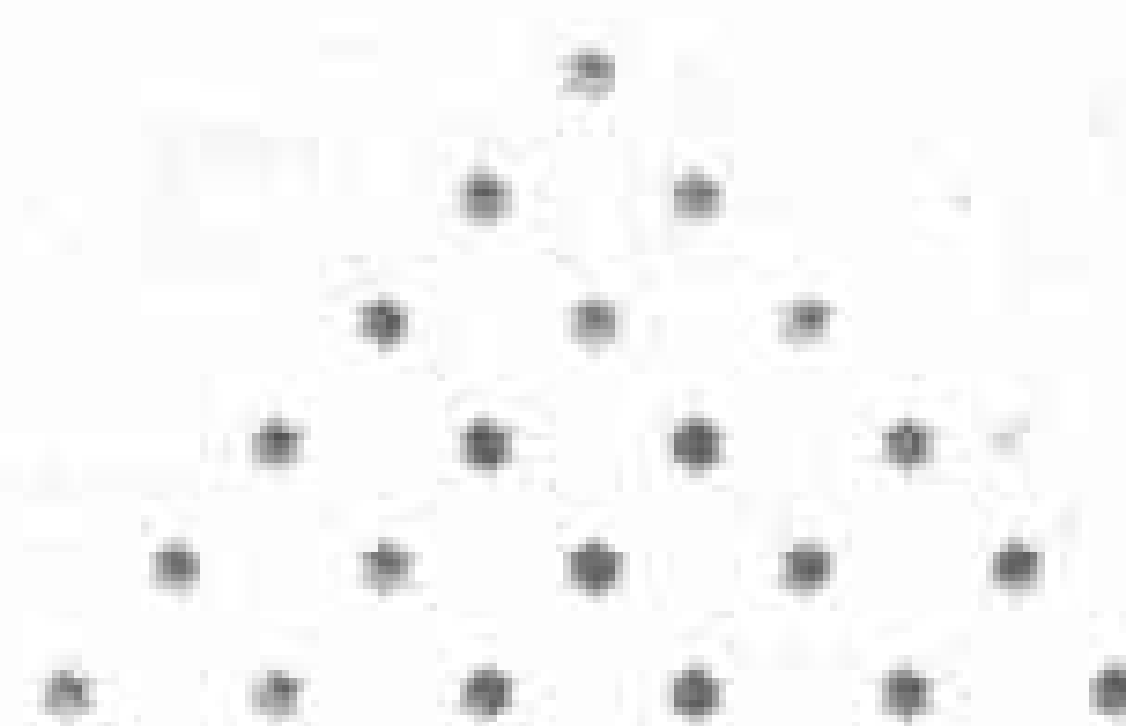
"Yes, just because I didn't know where the Lizard was."

"Quite right too. If you keep such nasty things you must take care in future not to lose them."



"Here's your new engineering apprentice, Chief! —A wizard with a Meccano, I understand . . ." (Reproduced by courtesy of "Shipbuilding and Shipping Record.")

BRAIN TEASERS BUILT ON A RICH FOUNDATION



This time a little light amusement, in the form of another word pyramid, with six lines. The clues are as follows: 1, An exclamation. 2, A famous giant. 3, The friend of man. 4, A ruler. 5, A plug. 6, Really rich. A.R.S.D.

SPOT THE CARS

Can you make out what the strange looking words below should be? Really they represent the names of modern motor cars, but the letters have got badly mixed.

MERSETOS; VILEJAN;
COSOLN; PRUSE PEINS;
FRODOX; VERSIL
WHARIT; WREVYN;
and FROLWAMEY.

TRY THIS WITH A CRICKET BALL

Suppose that you could fit a steel girdle around the Earth. Then imagine that the girdle is cut and an extra length of 22 ft. is welded into it. How far above the Earth's surface will the longer girdle be, if this distance is made the same all round? S.W.C.

YOU SHOULD GET THIS ONE

A reader's appreciation of this page, and of the "M.M." in general, takes the form of a code puzzle that he wishes to bring to the attention of other enthusiasts. Here it is: ABCDEBFD AGH, I CDJGKIC ADILGCD BH NDMMIHTNIJIOBHD, LUD QTOGKIC NTHLUKR STGCHIK. Can you read the message that is conveyed in this cryptic form? L.A.C.

SOLUTIONS TO LAST MONTH'S PUZZLES

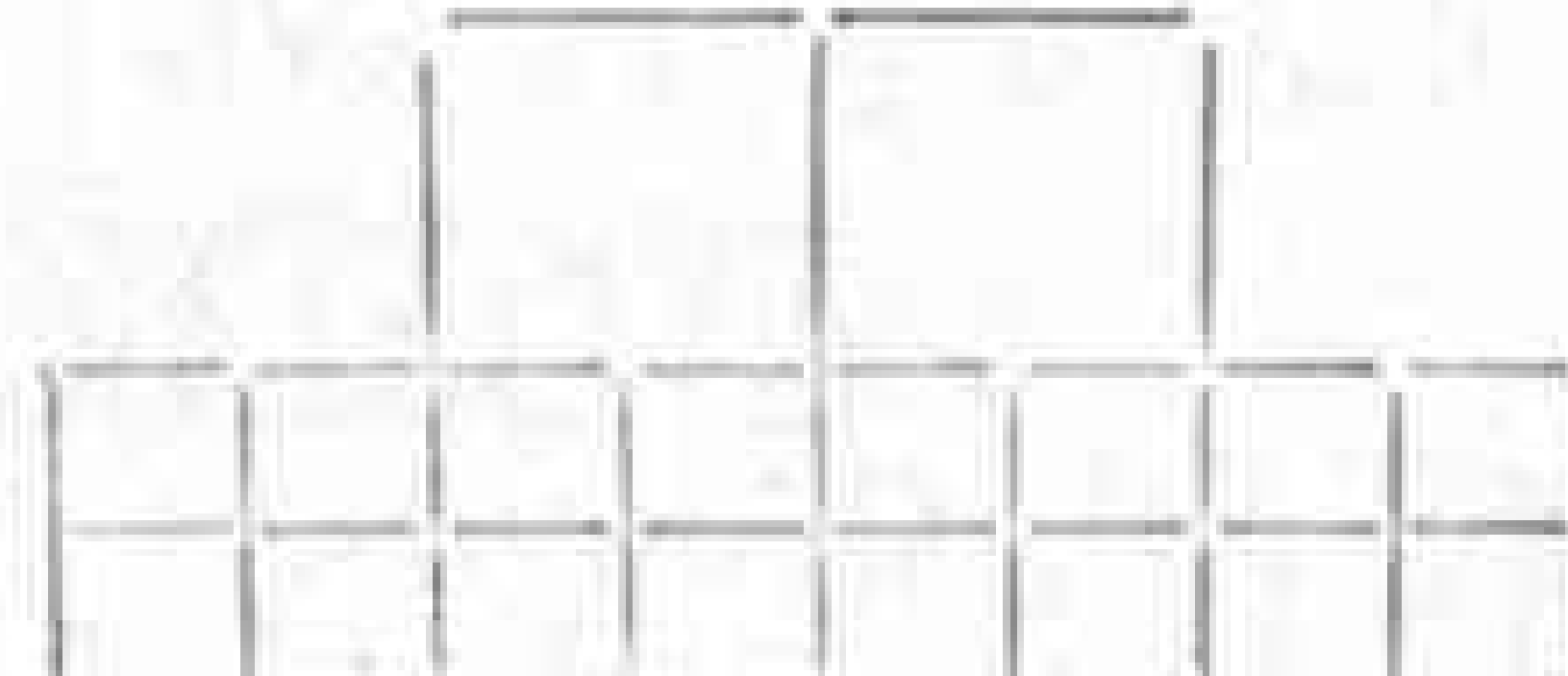
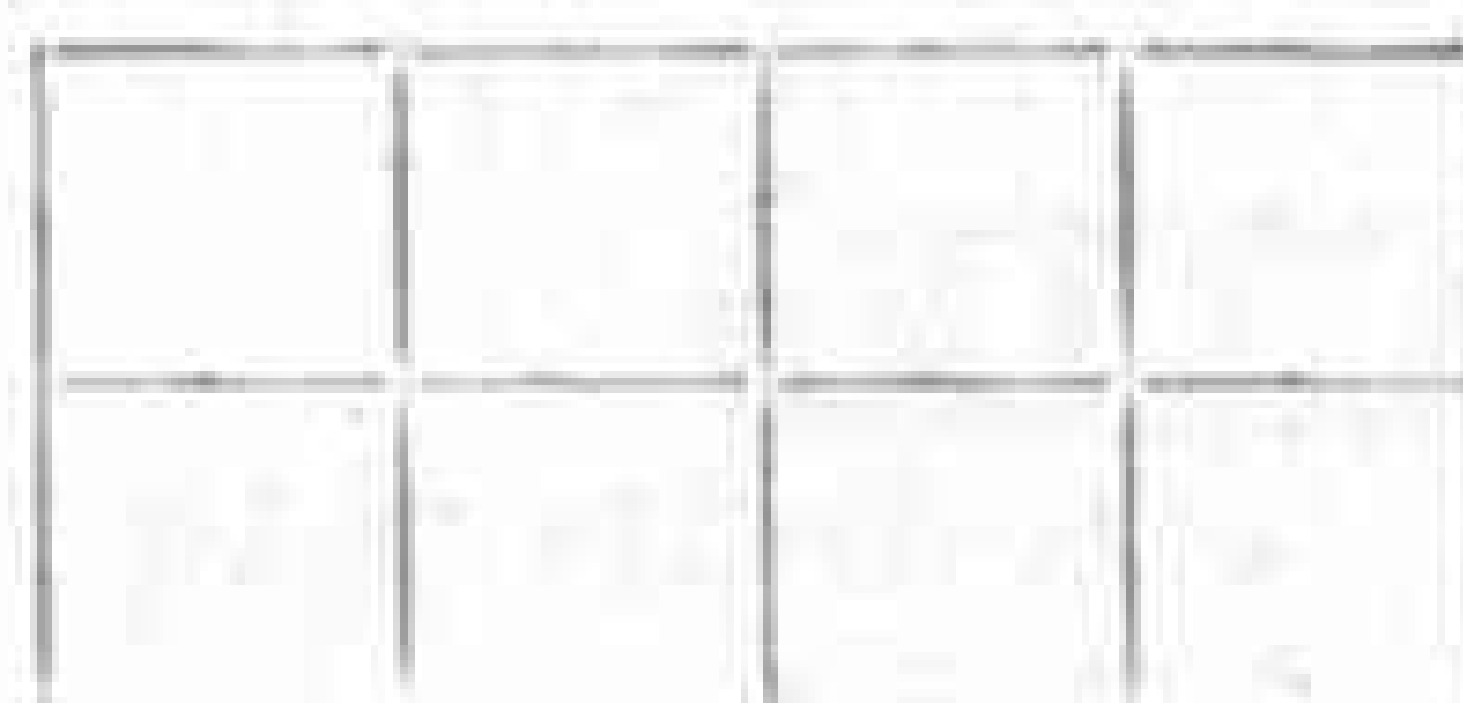
Seven words that satisfy the conditions of our first puzzle last month are BOLSTER, OBSCENE, ASSERTS, SCEPTRE,

TERTIAN, ENTRANT and RESENTS. There may be other solutions, and readers who have found them should send them in.

The diagrams at the foot of the page give the "solution" of our second puzzle. But how many squares are there in the second diagram?

The two numbers of our names addition sum were 526,485 and 197,485.

I have just tried to work out our fourth puzzle last month without looking at the answer. I make this out to be 8. I shall be interested to hear if anybody gets a different total.



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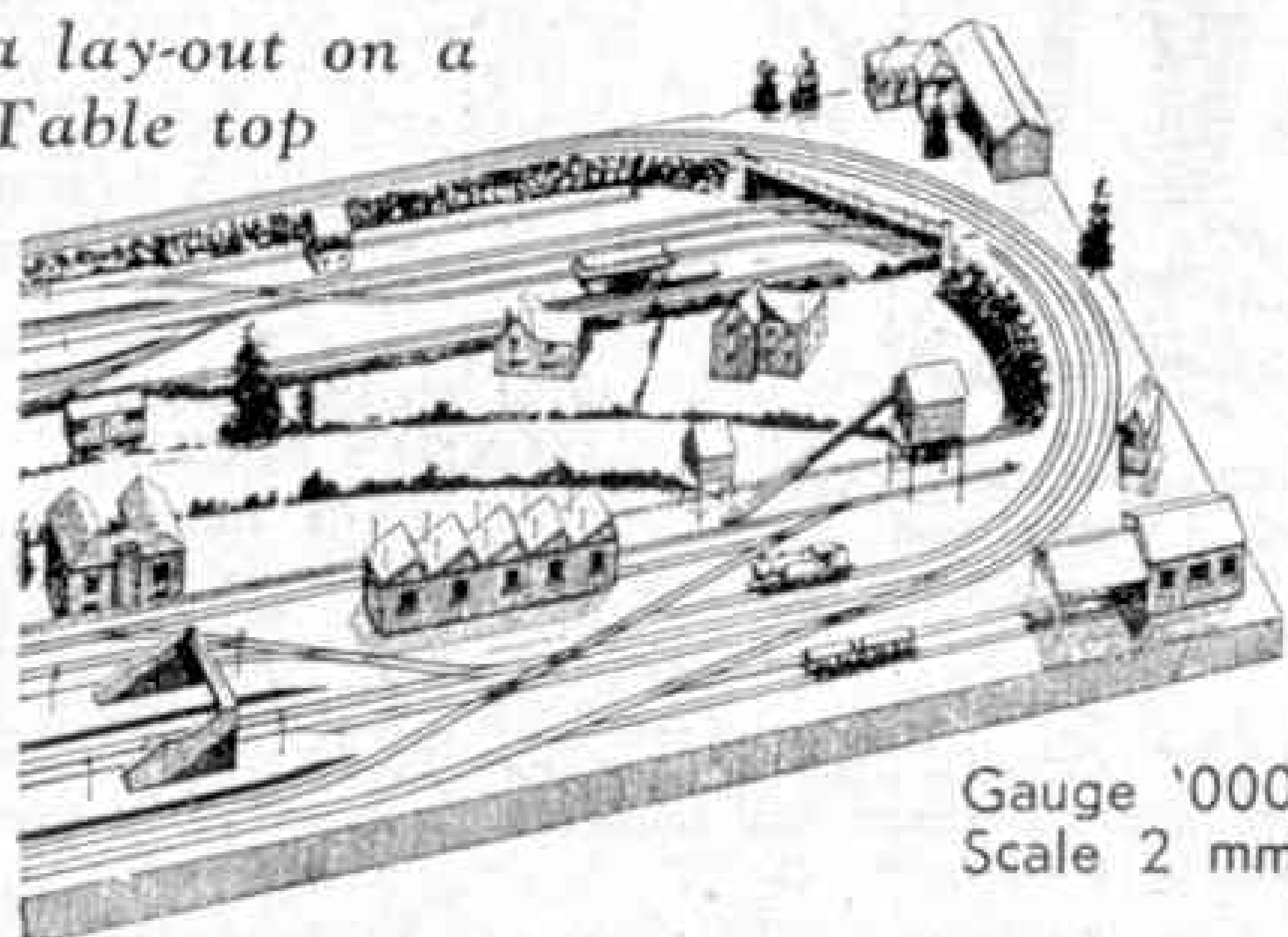


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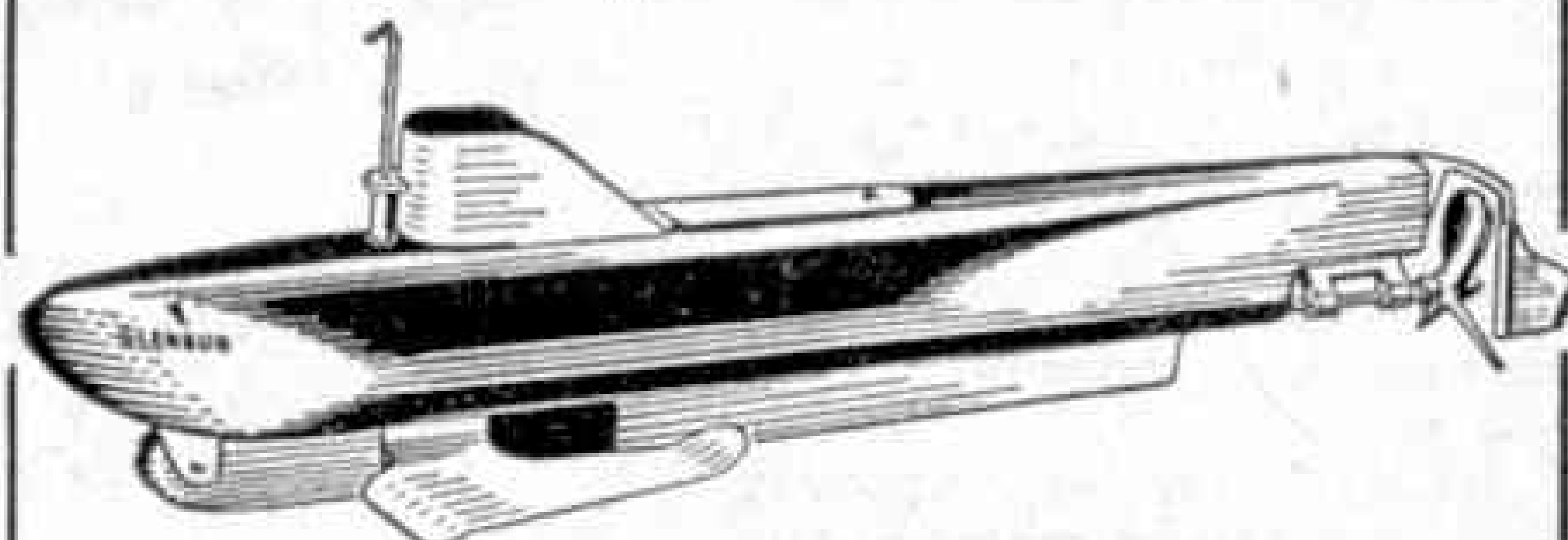
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Civil Engineering	Radio Service Eng.
Clerk of Works	Refrigeration
Coal Mining	Salesmanship
Commercial Art	Sales Management
Concrete Engineering	Sanitary Engineering
Diesel Engineering	Sheet-Metal Work
Draughtsmanship	Short-Story Writing
Drawing Office Practice	Steam Engineering
Electrical Engineering	Structural Steelwork
Eng. Shop Practice	Surveying
Farming (Arable and Livestock)	Telegraph Engineering
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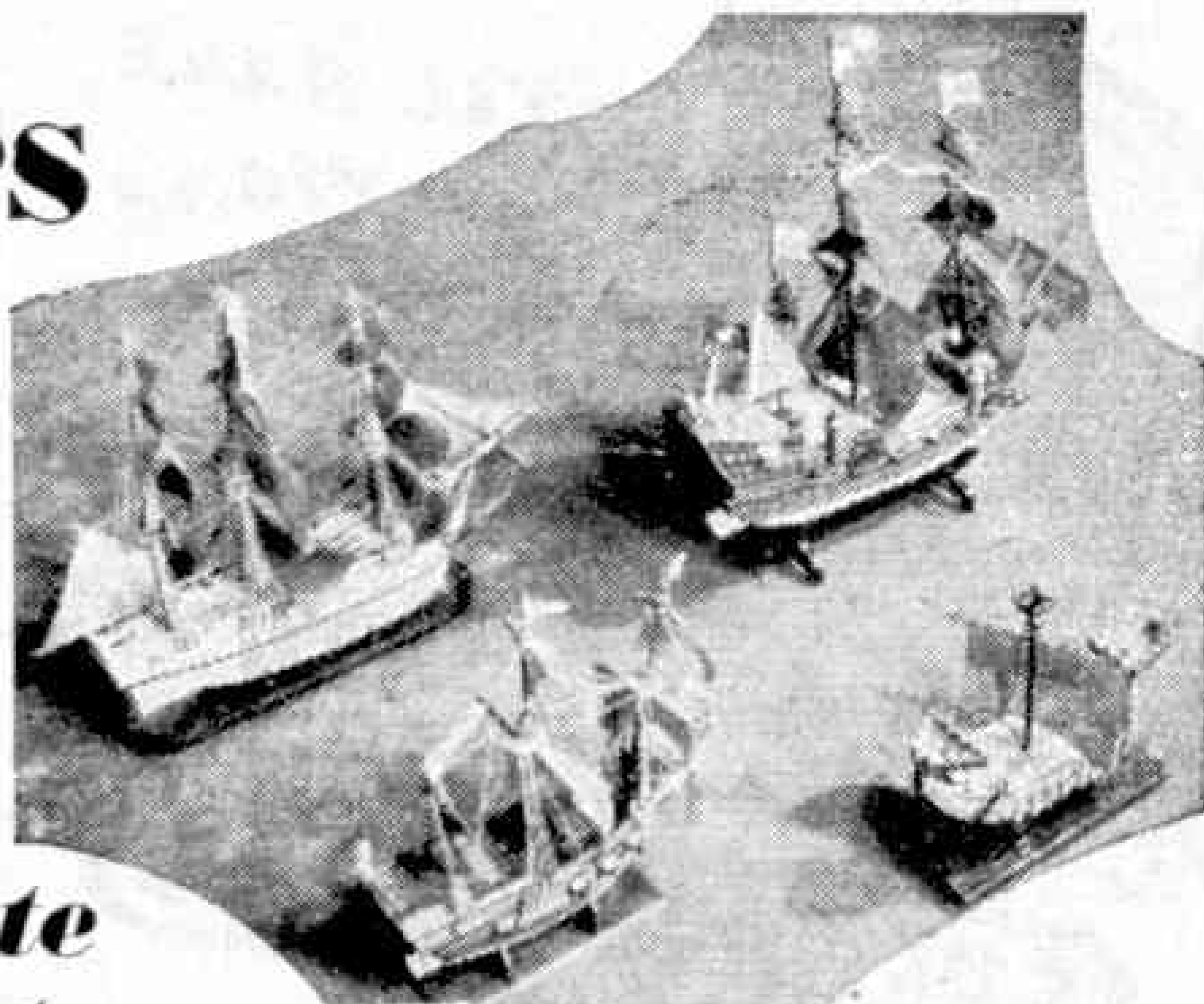
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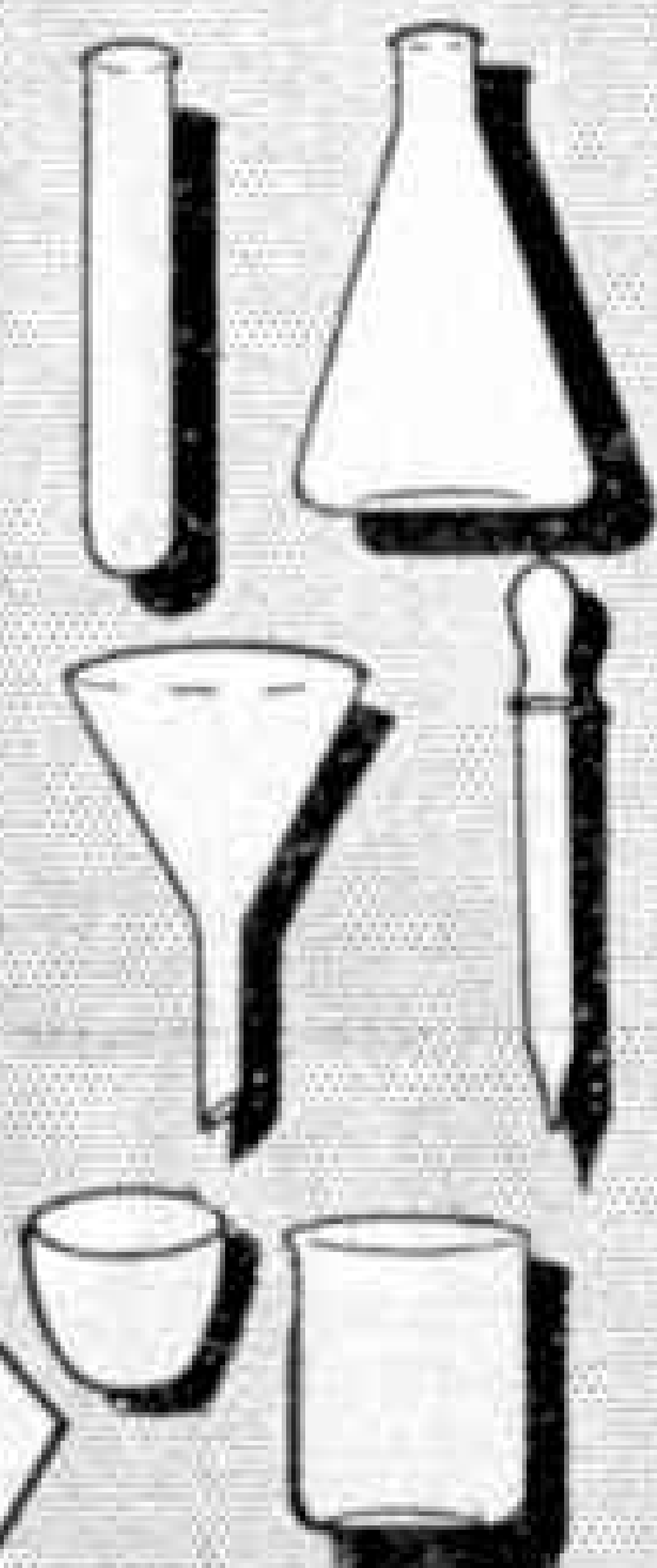
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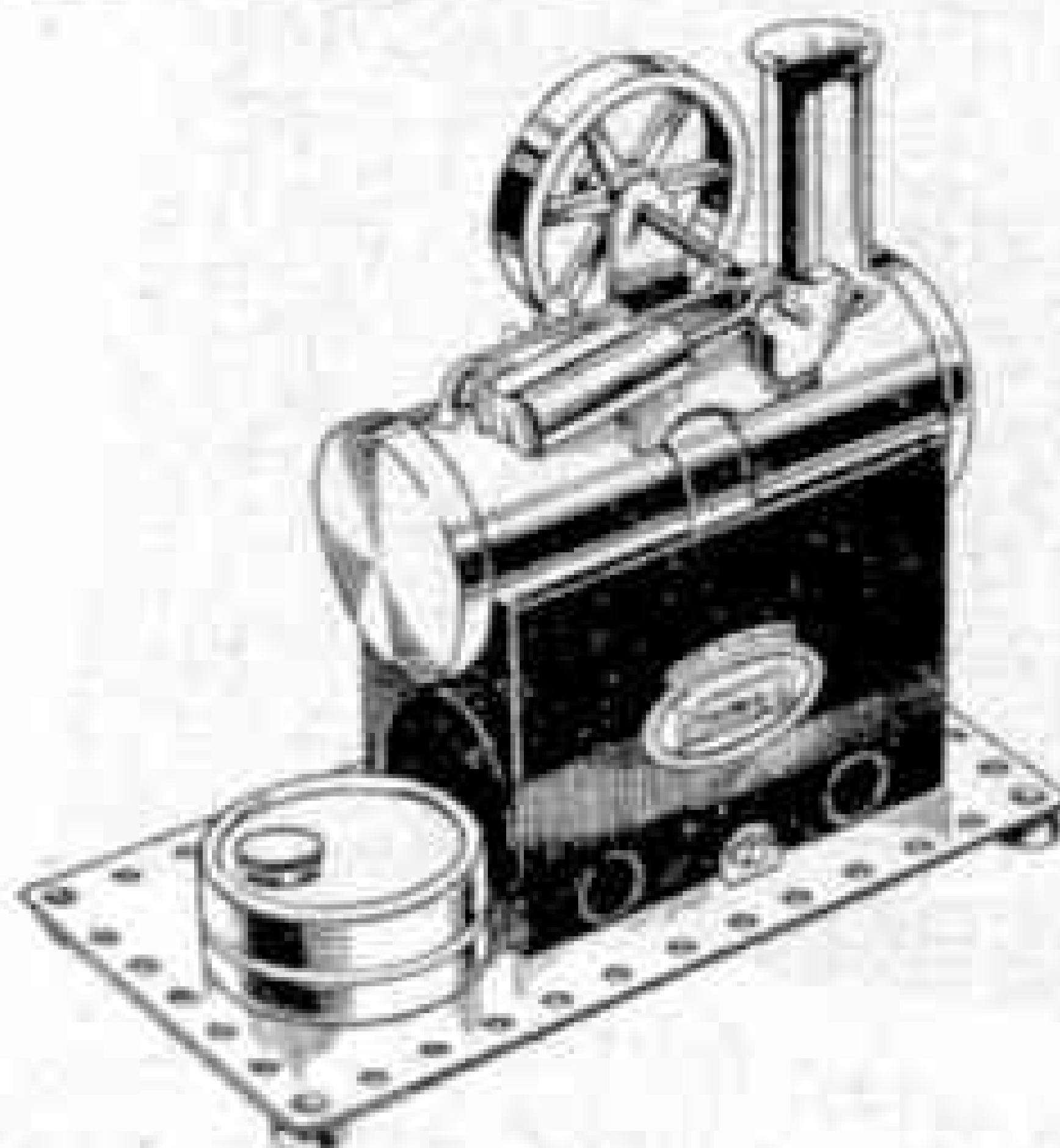
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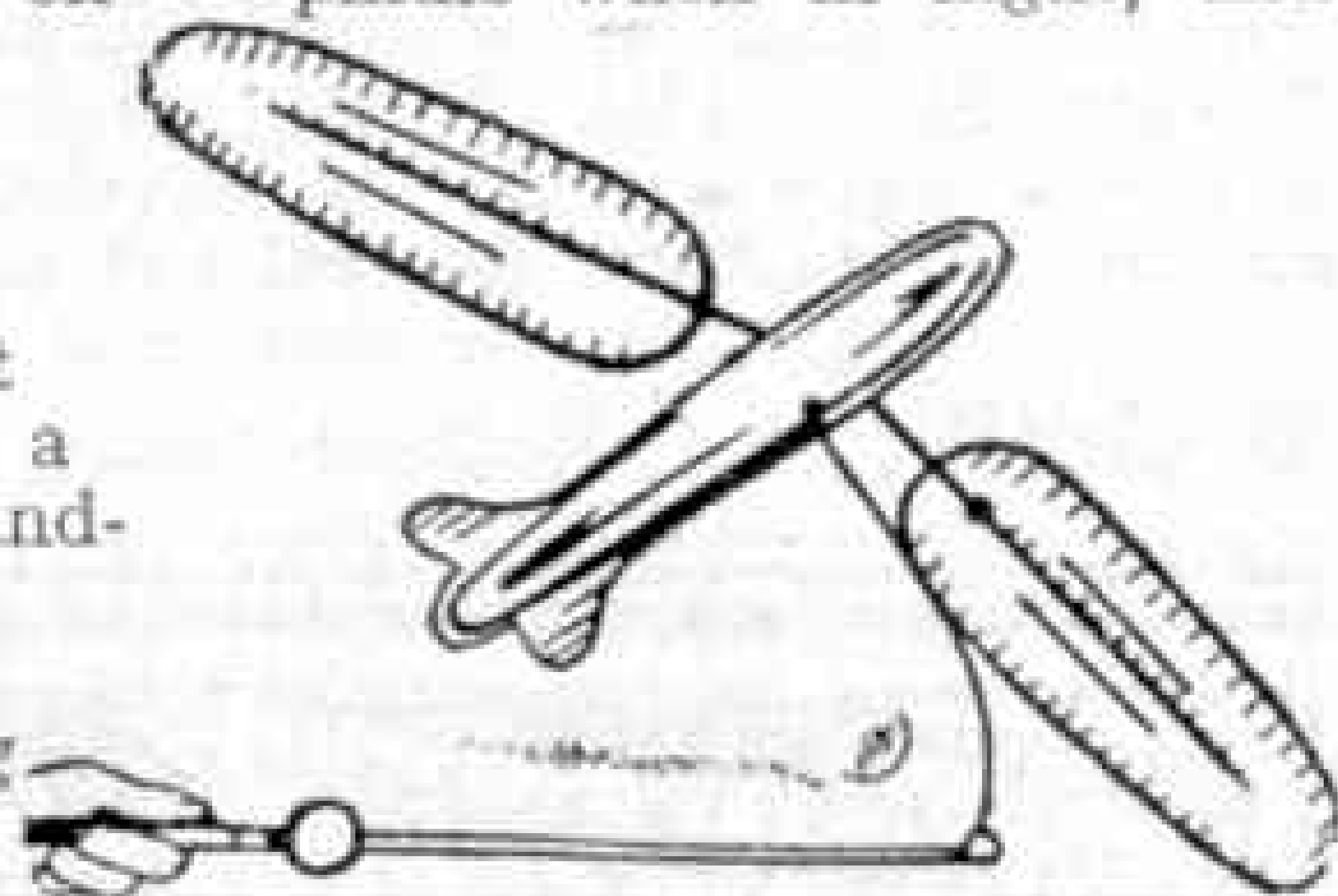
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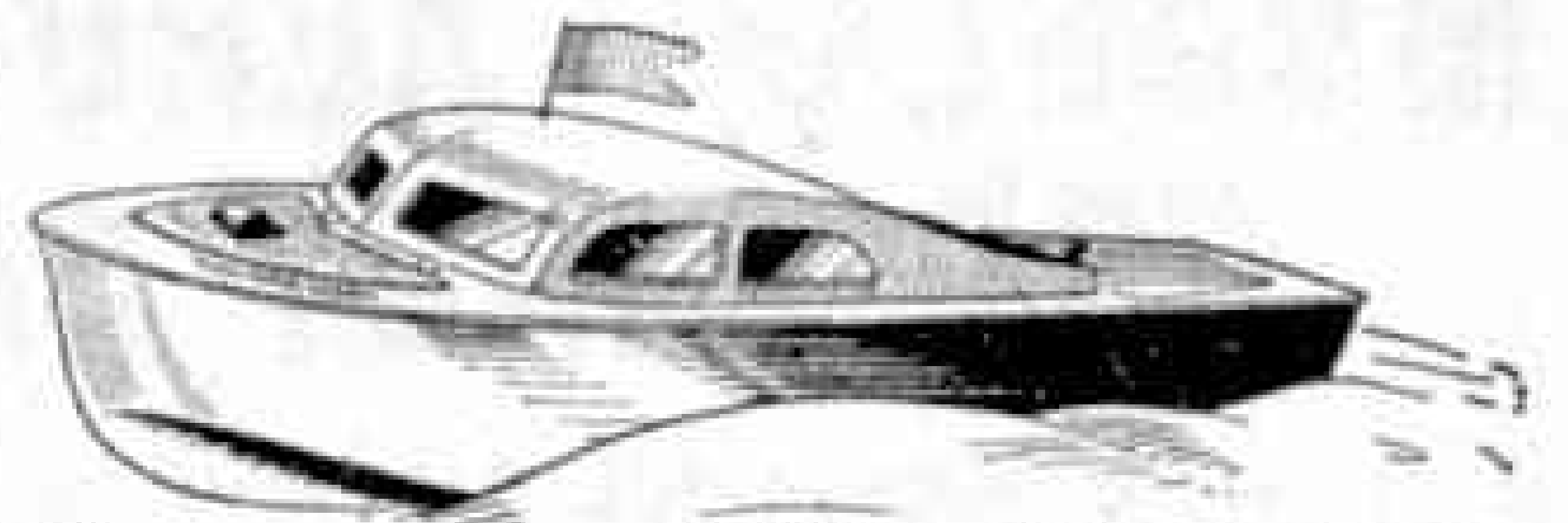
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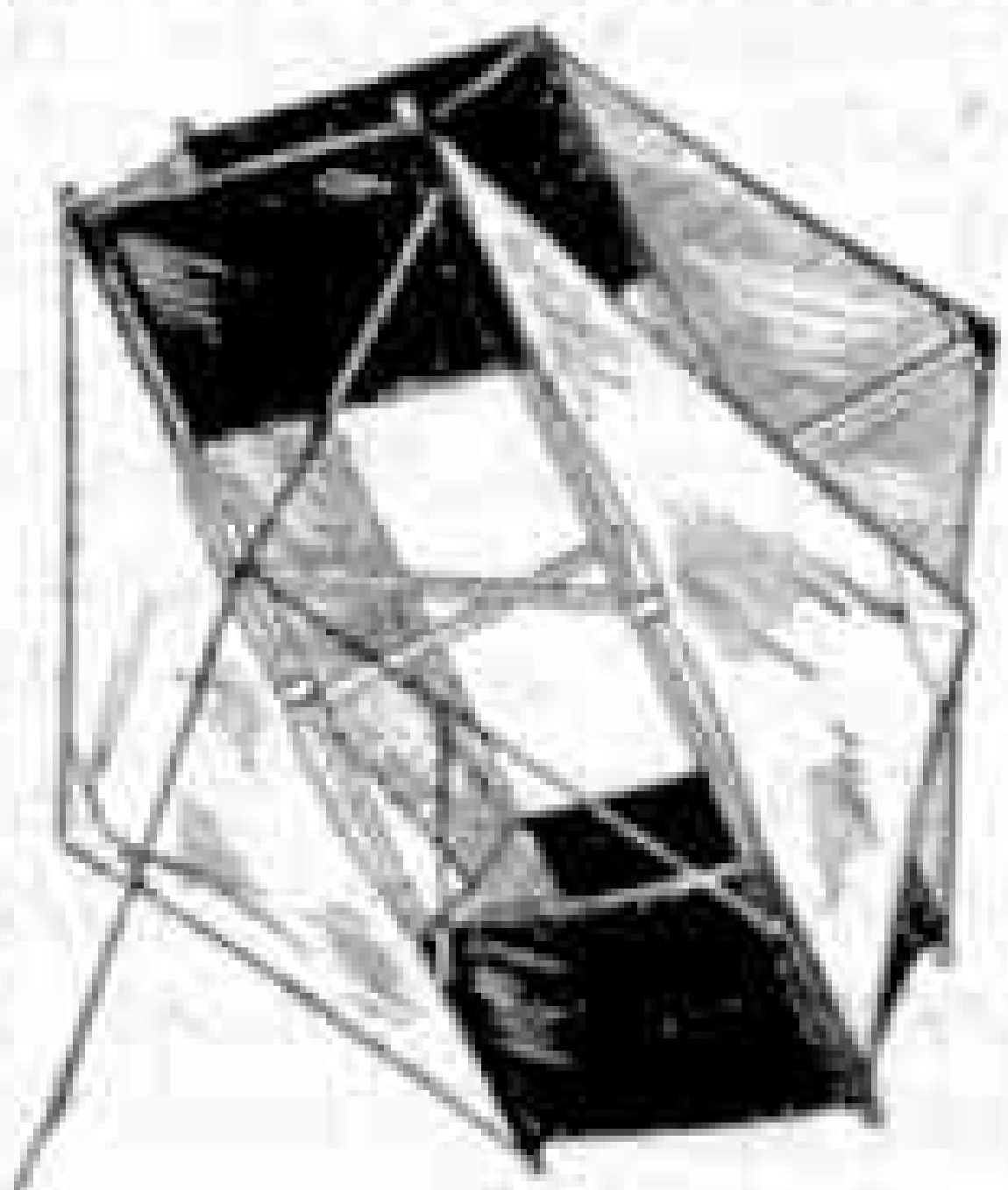
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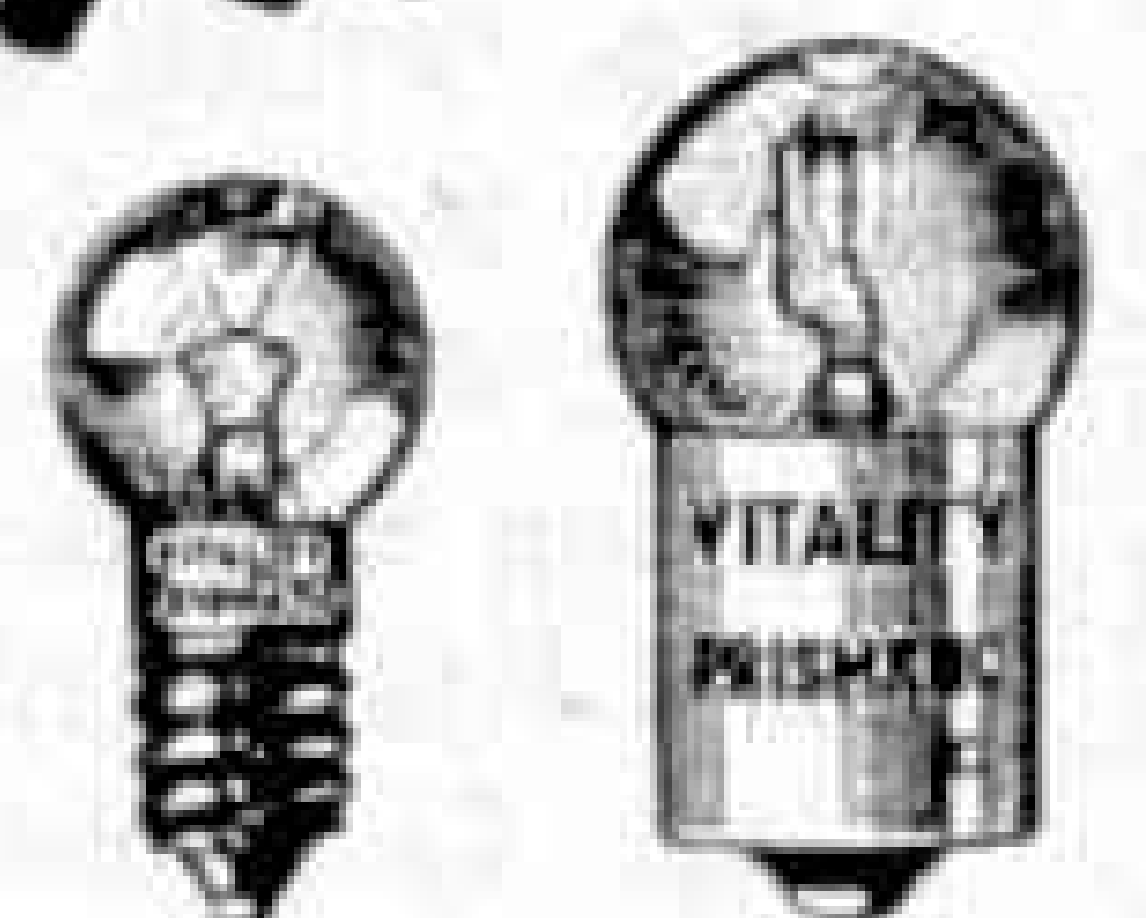
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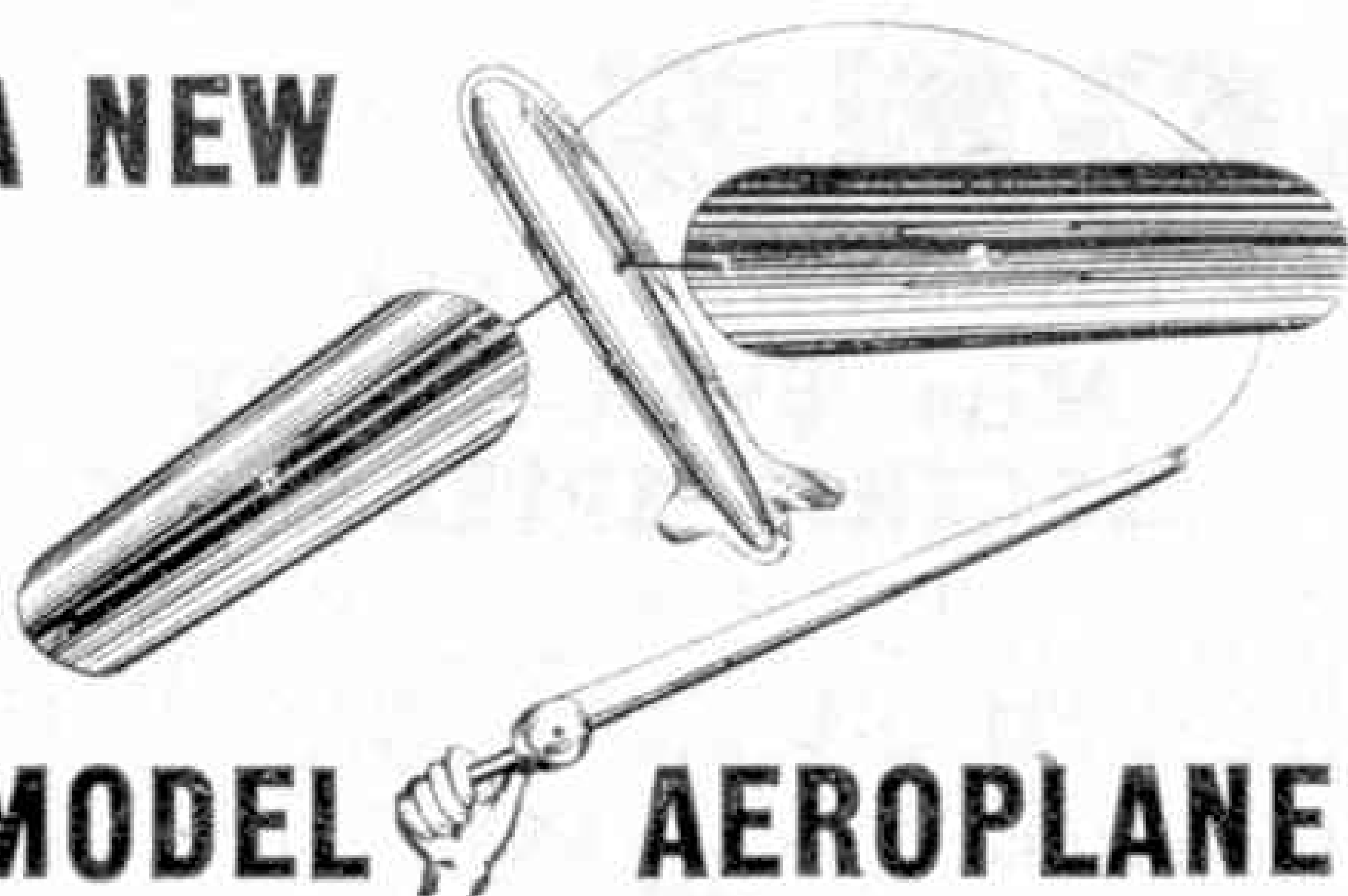
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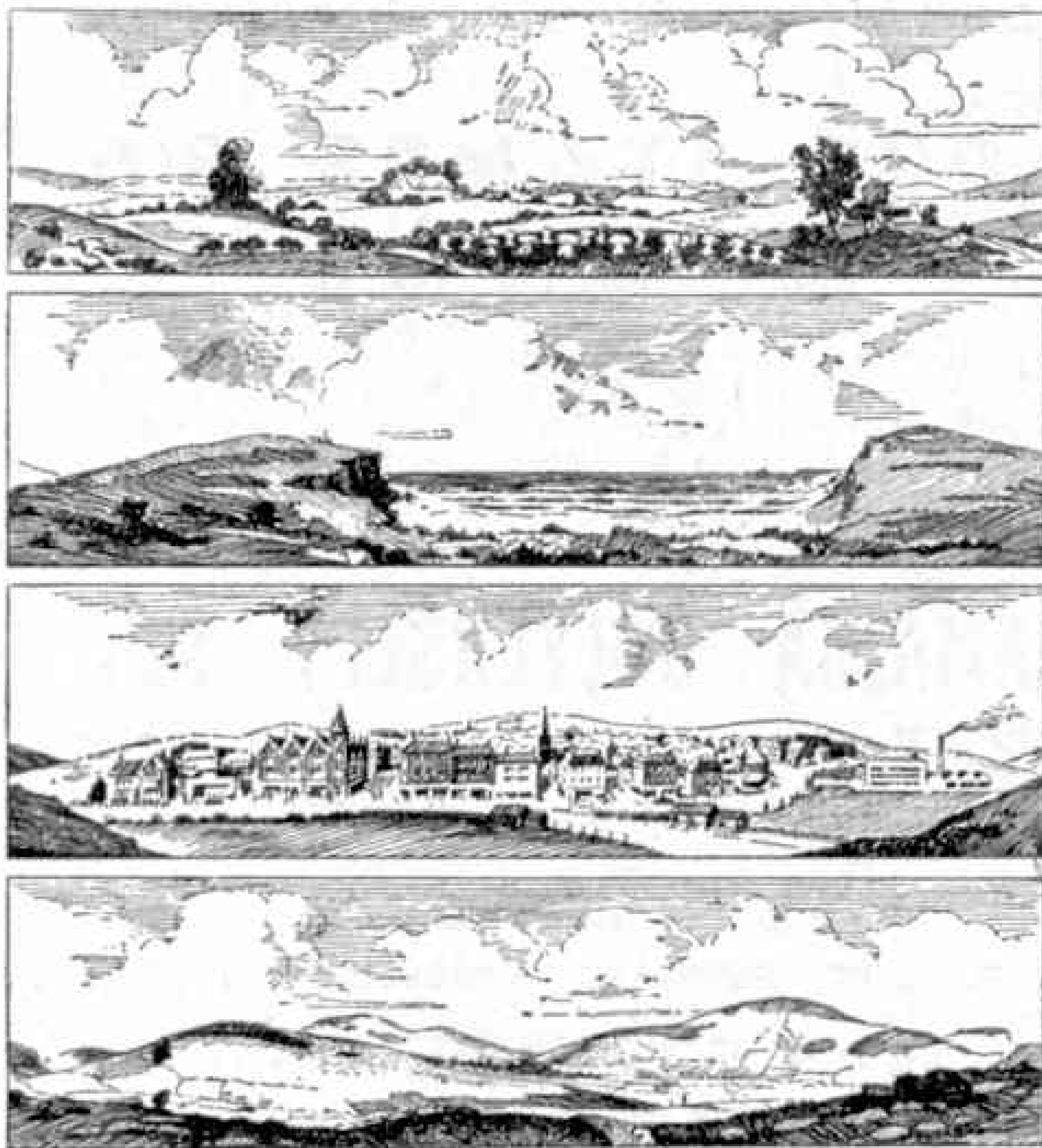
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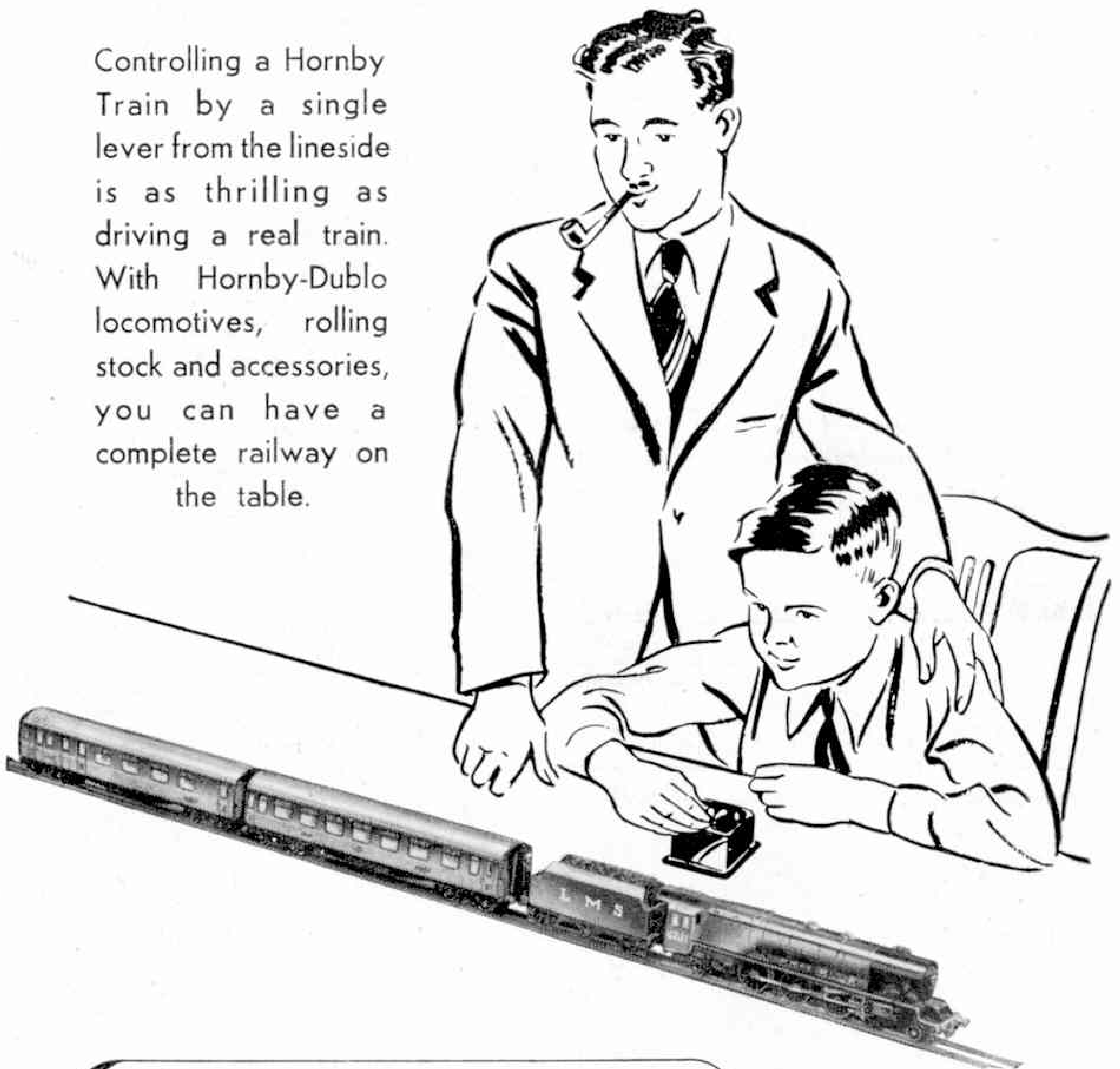
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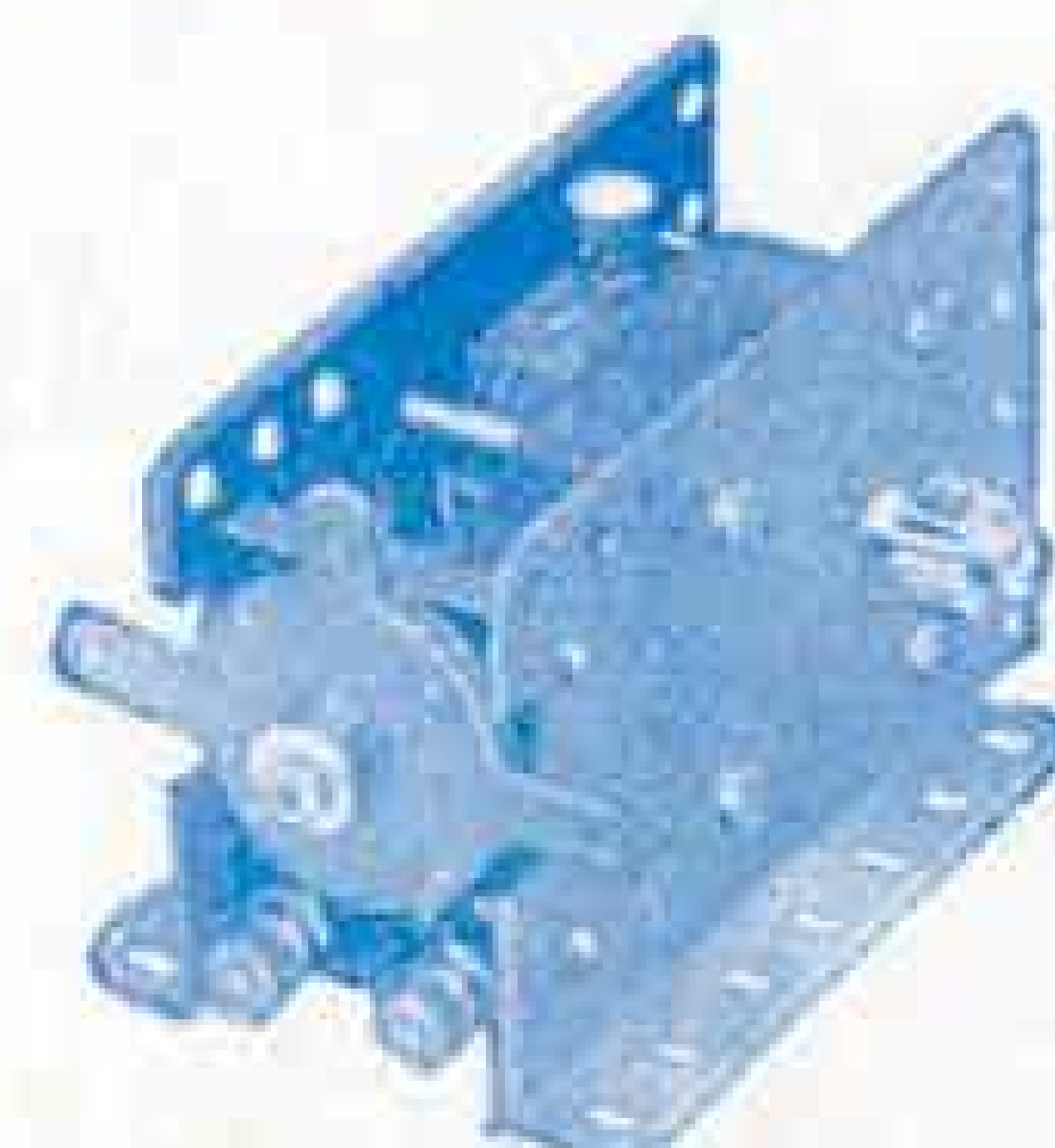
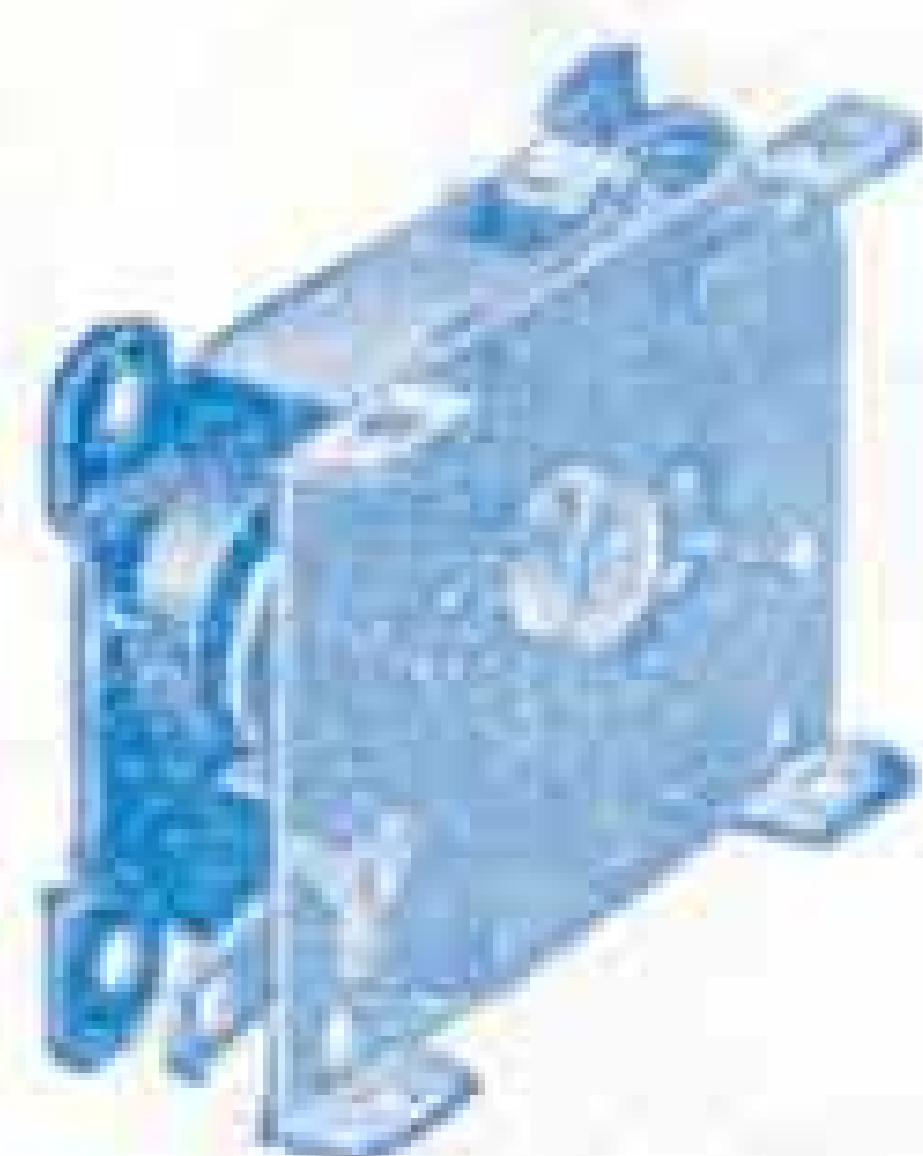
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