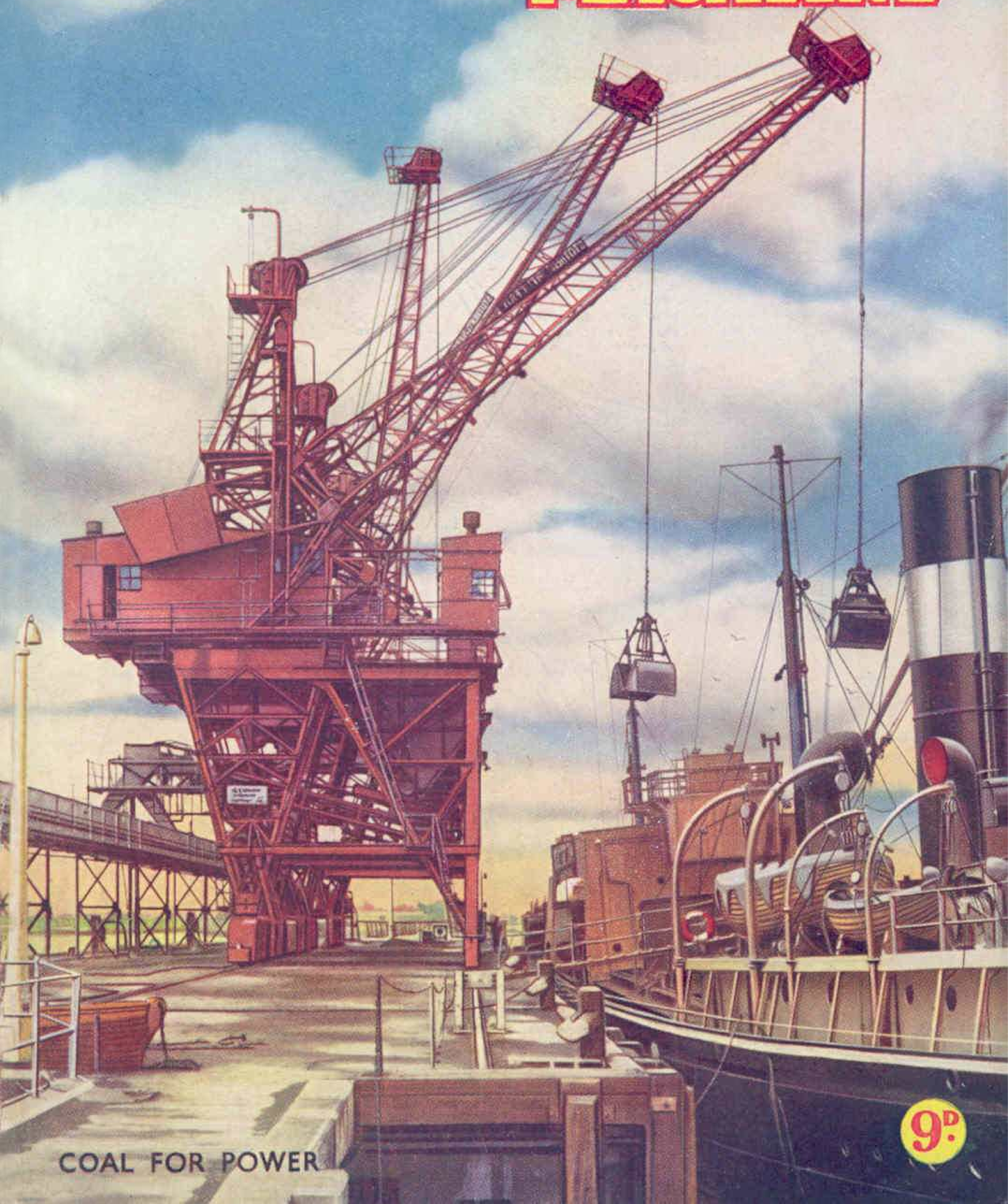


VOL. XXXVII No. 9

SEPTEMBER 1952

MECCANO

MAGAZINE



COAL FOR POWER

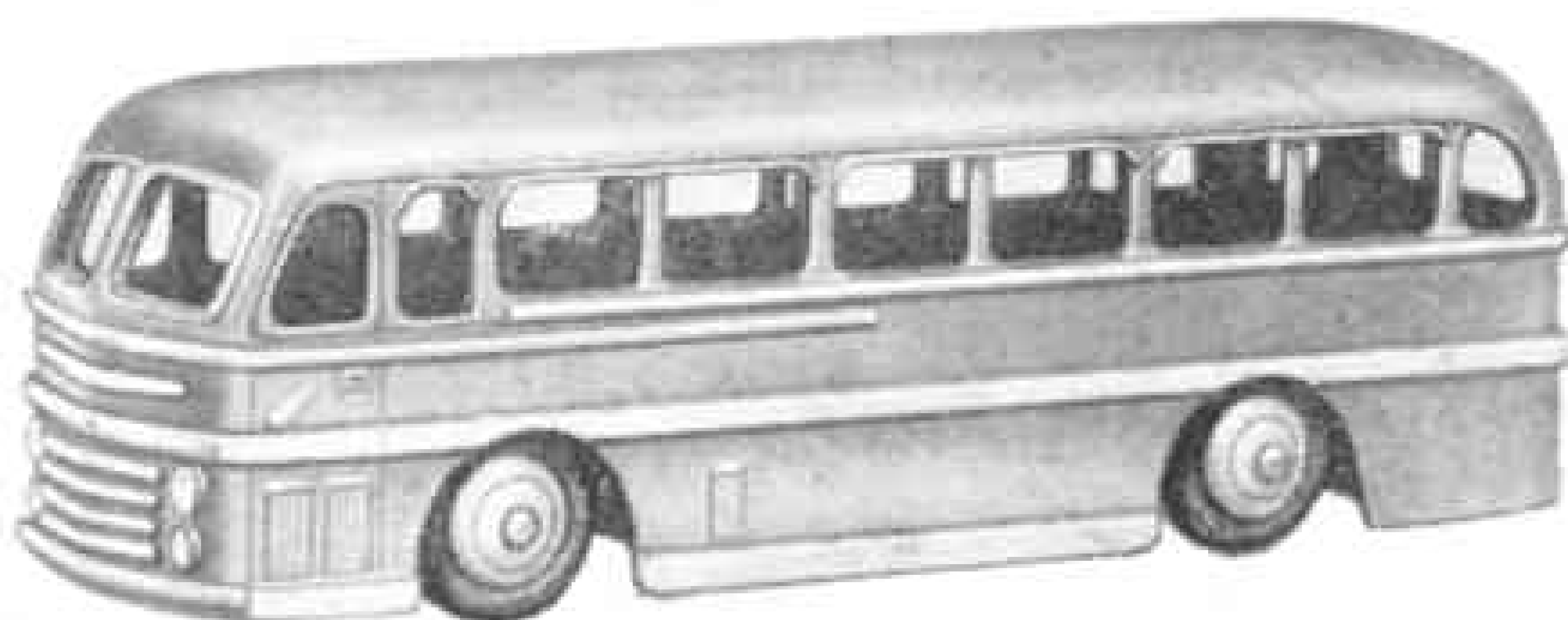
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DINKY TOYS

TRADE MARK REGD.

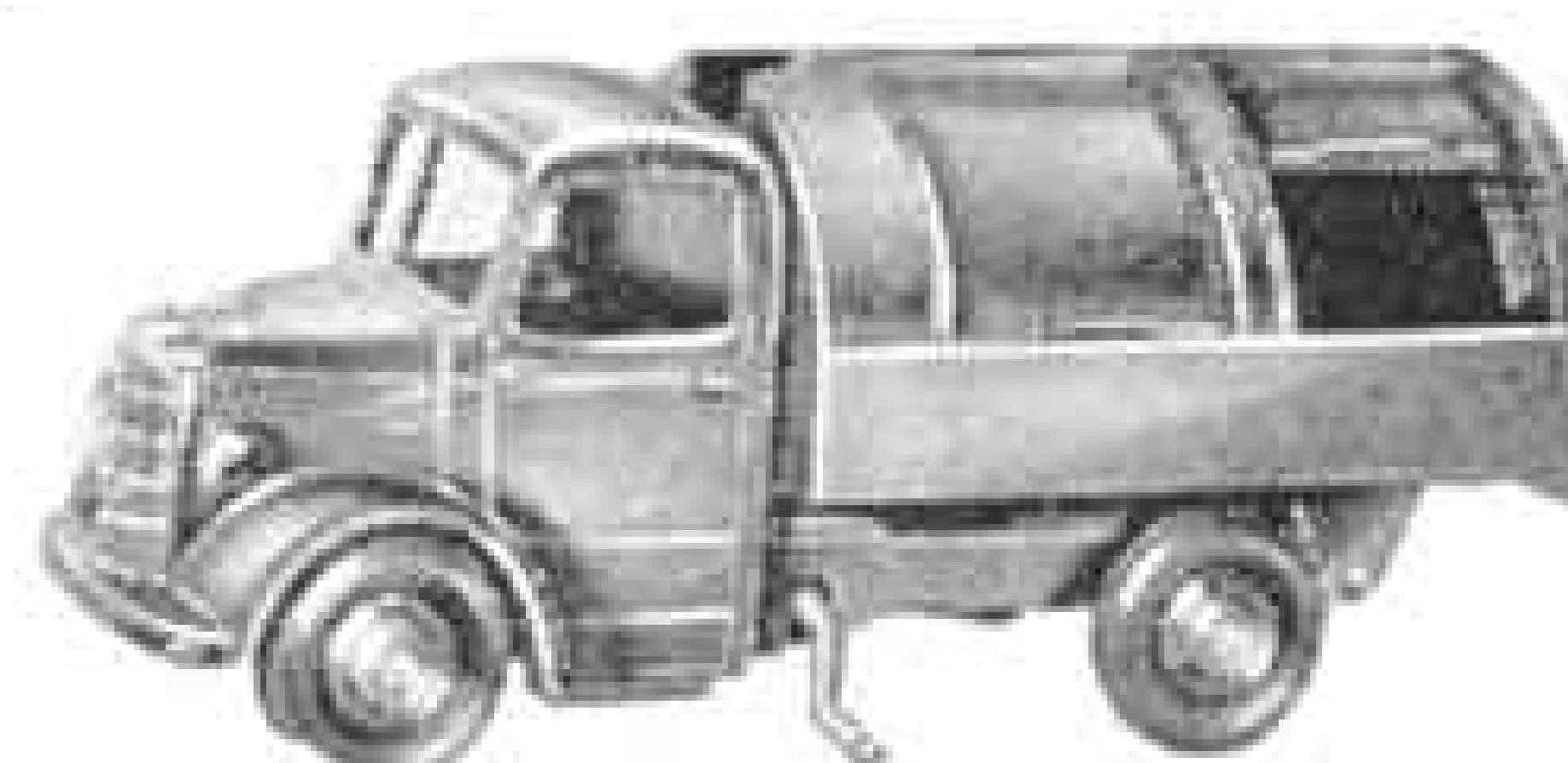
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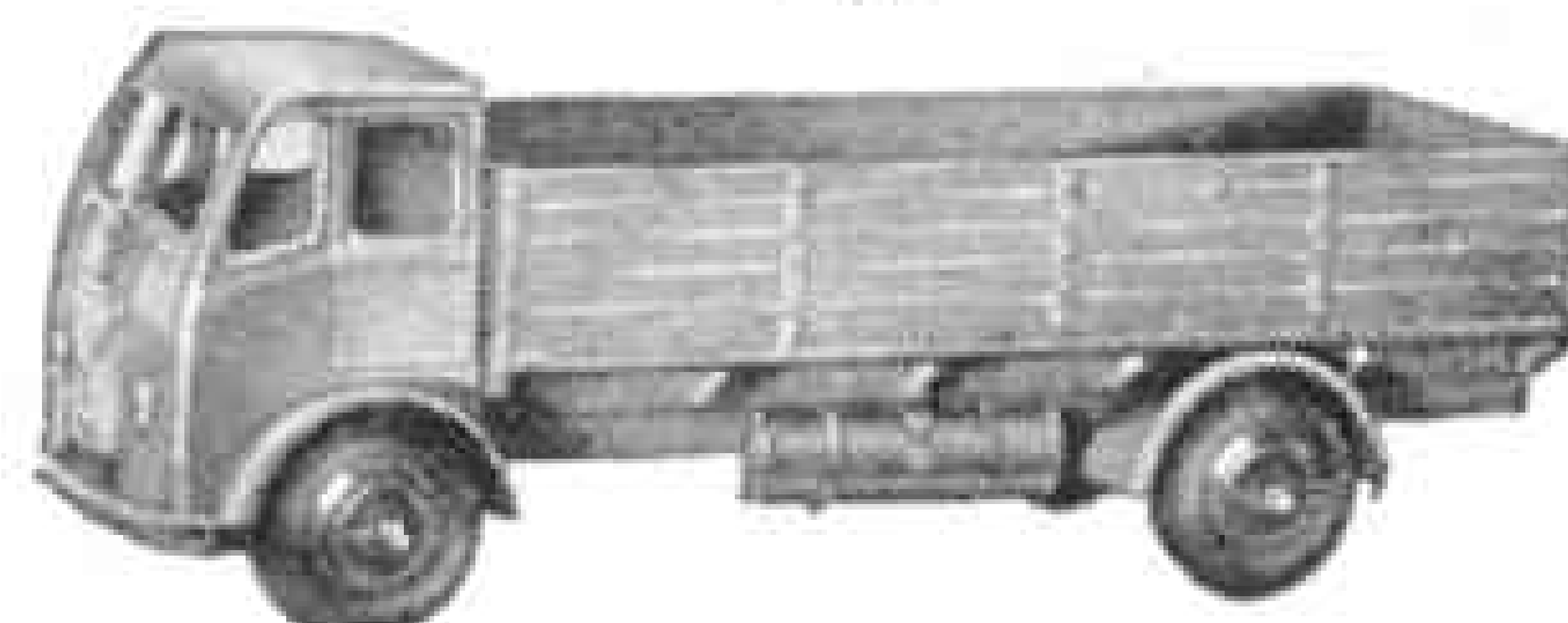


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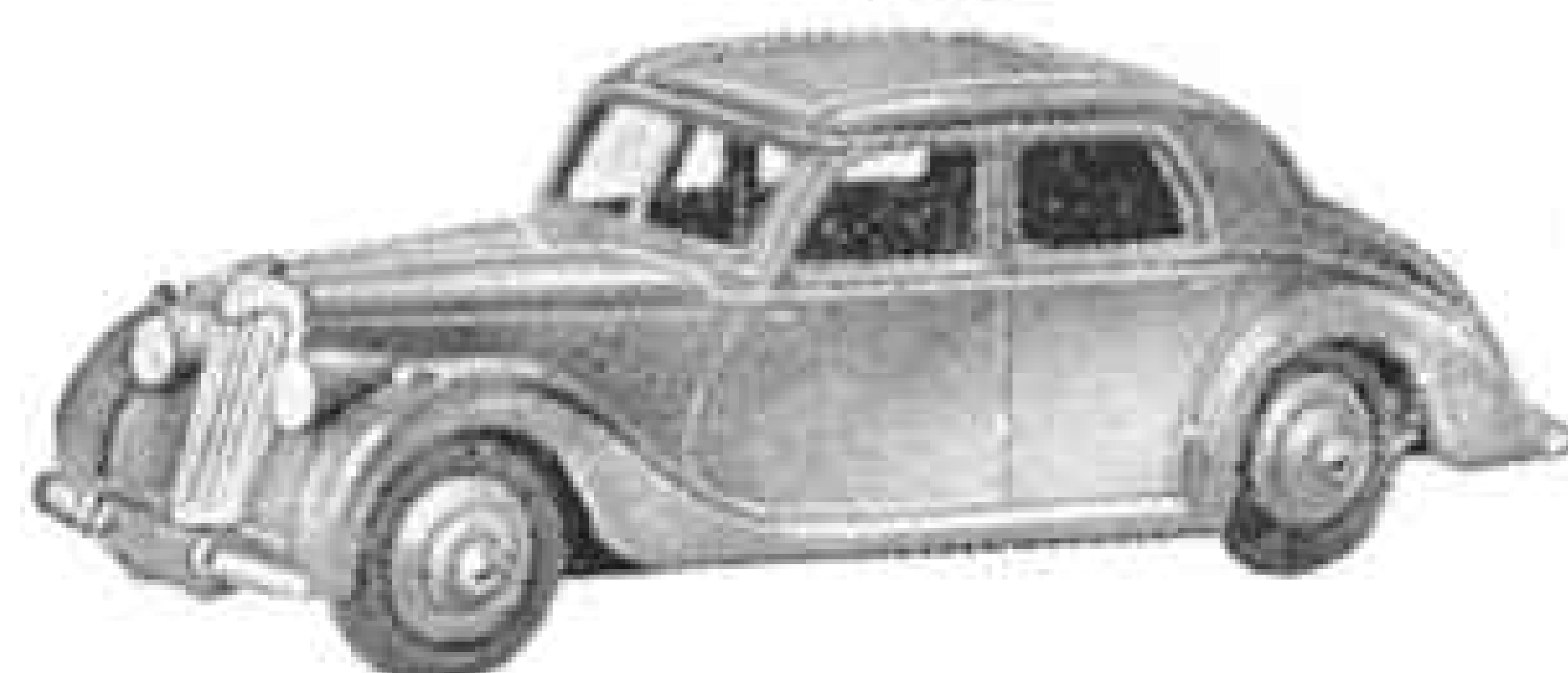
**Forward Control Lorry
No. 25r
2/11**



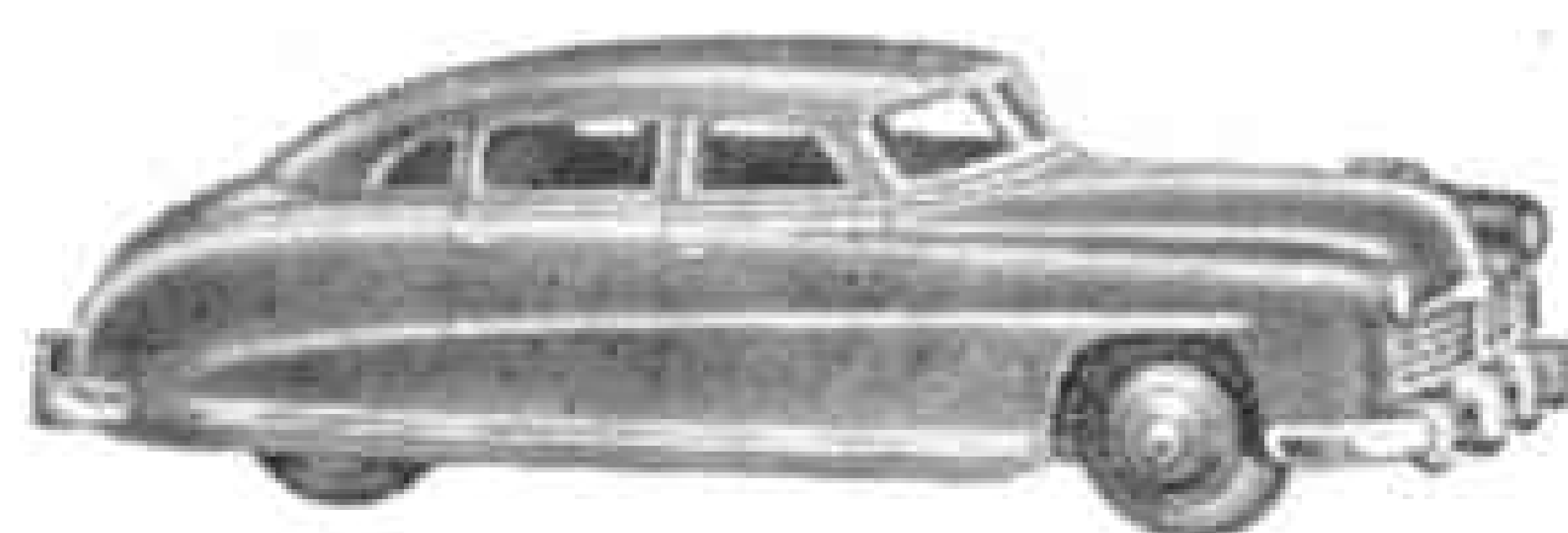
**Motocart
No. 27g
5/3**



**Universal Jeep
No. 25y
4/4**



**Riley Saloon
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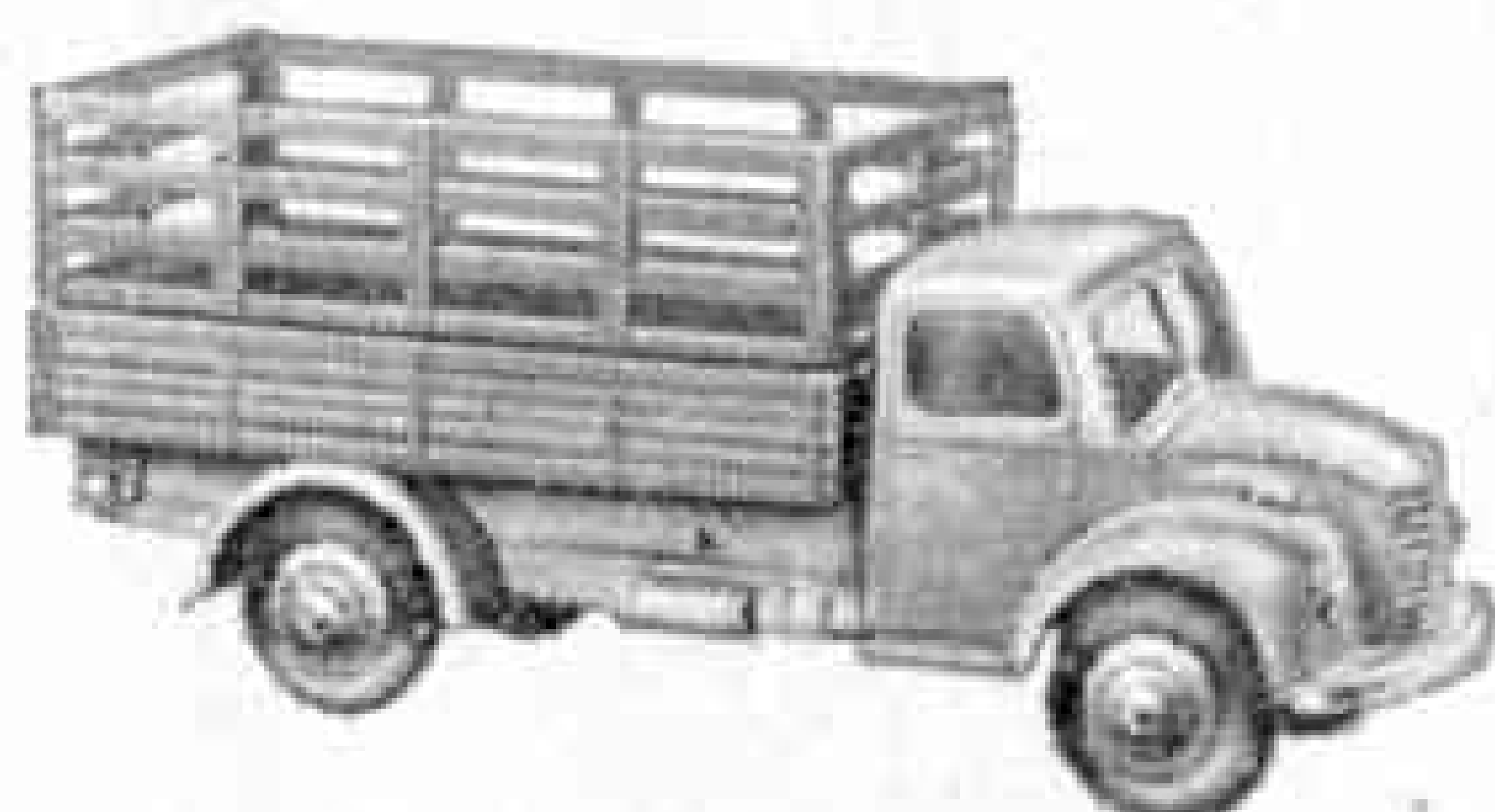
Land Rover
No. 27d
4/8



Harvest Trailer
No. 27b
3/11



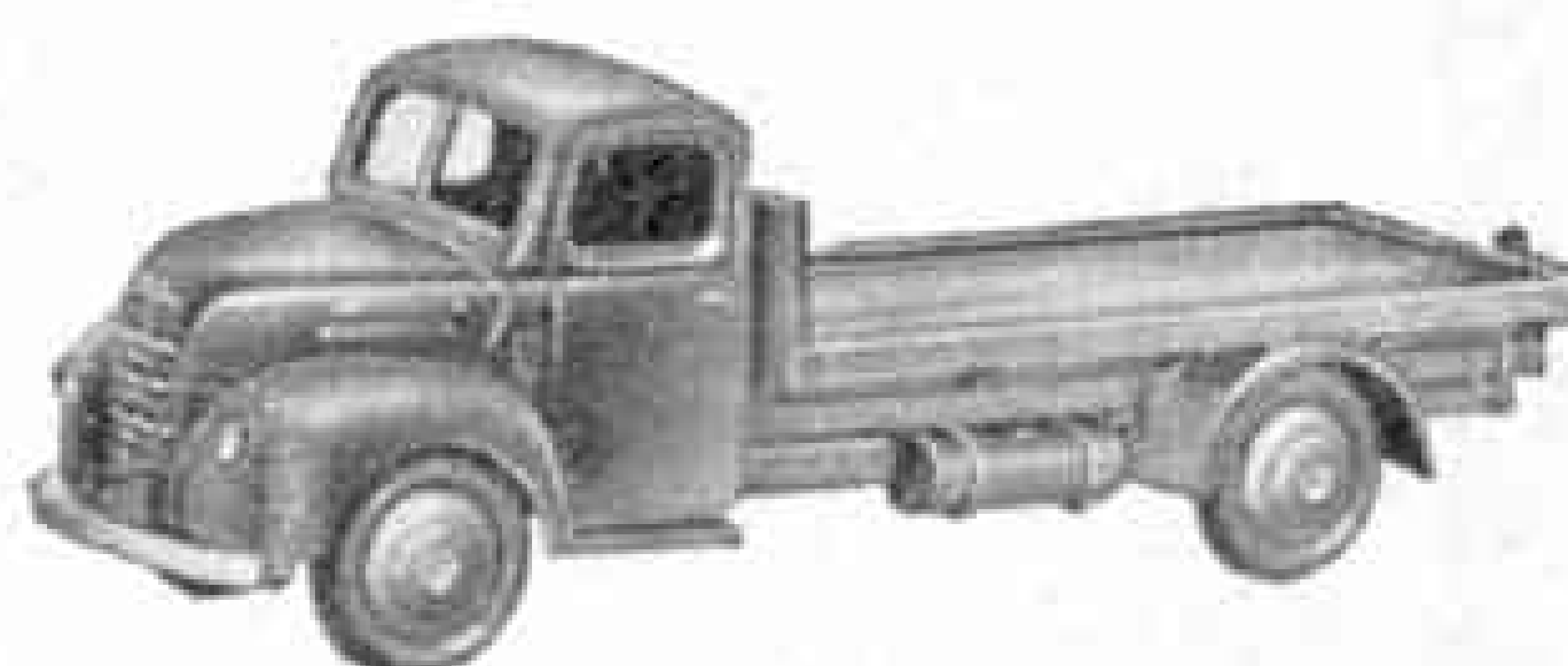
Massey-Harris Manure
Spreader No. 27c
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Farm Produce Wagon
No. 30n
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Austin Covered Wagon
No. 30s
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Fordson "Thames" Flat Truck
No. 30r
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Morris Oxford Saloon
No. 40g
2/11



Austin Taxi
No. 40h
3/10



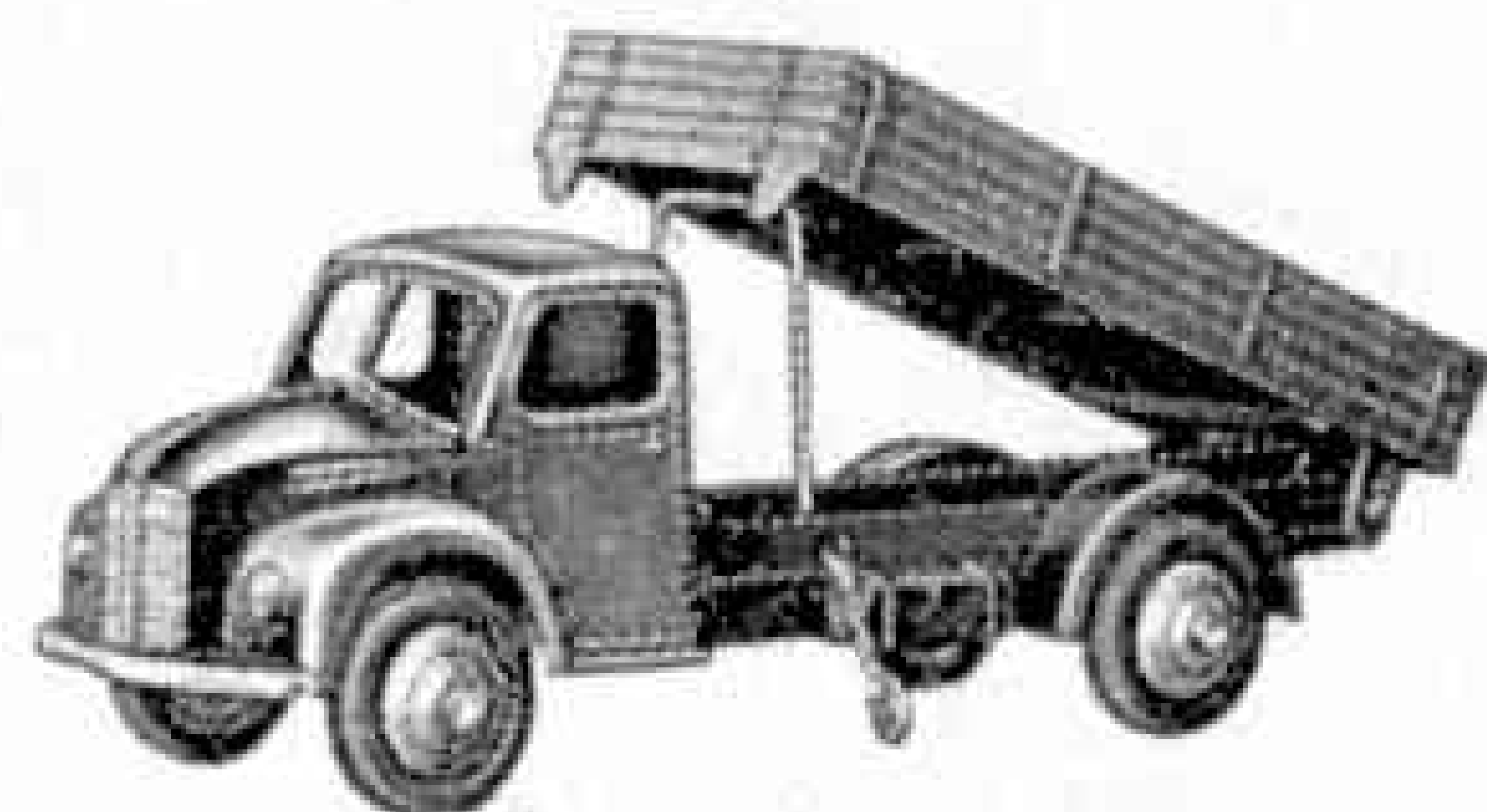
Rover 75 Saloon
No. 140b
3/9



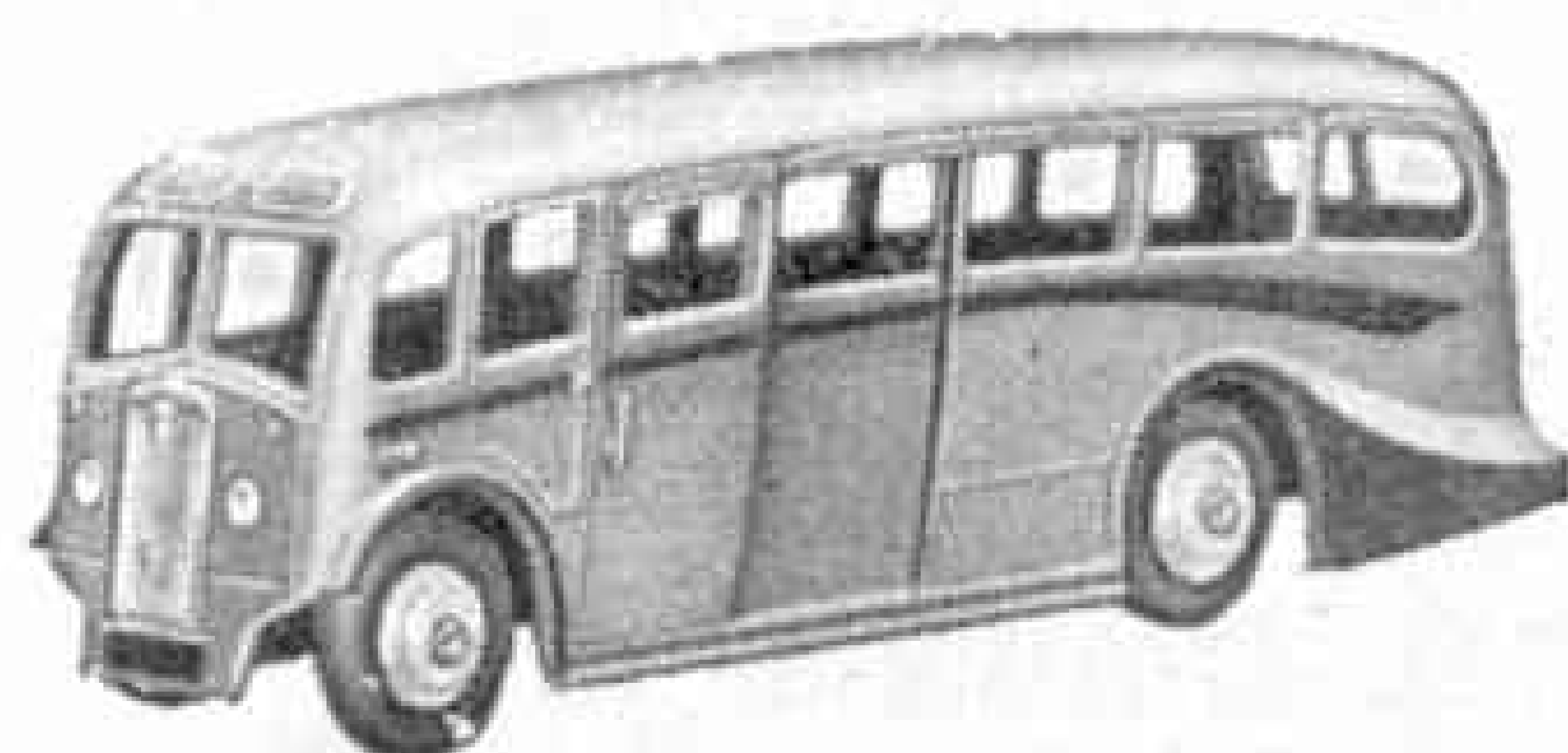
Bedford Truck
No. 25w
4/4



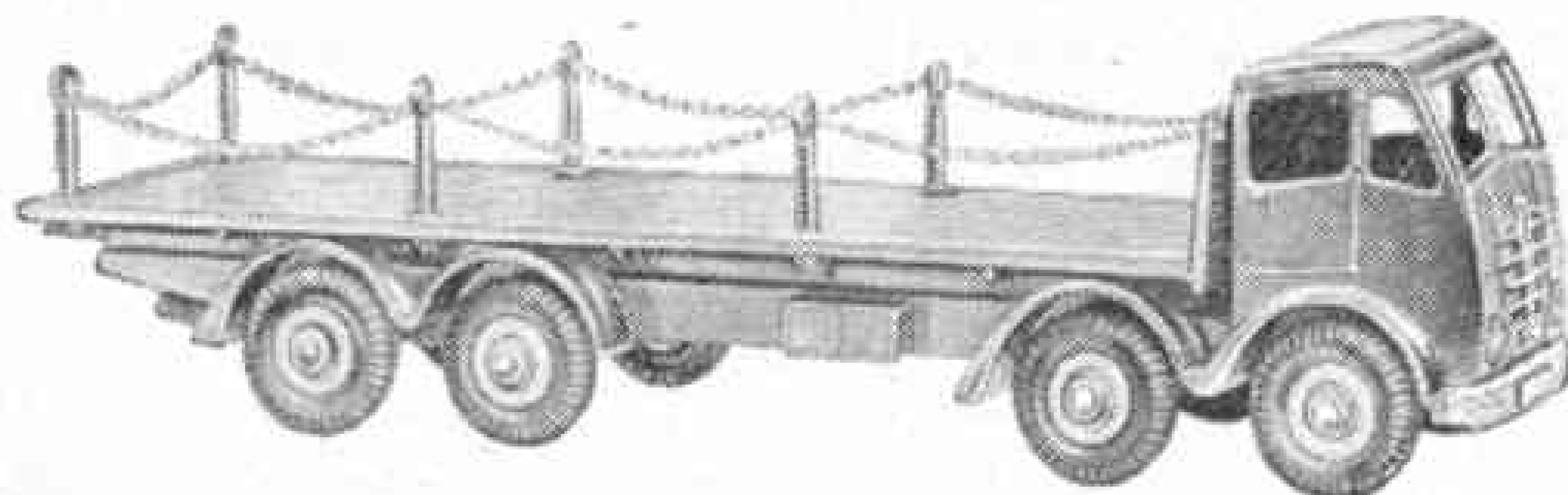
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3/11



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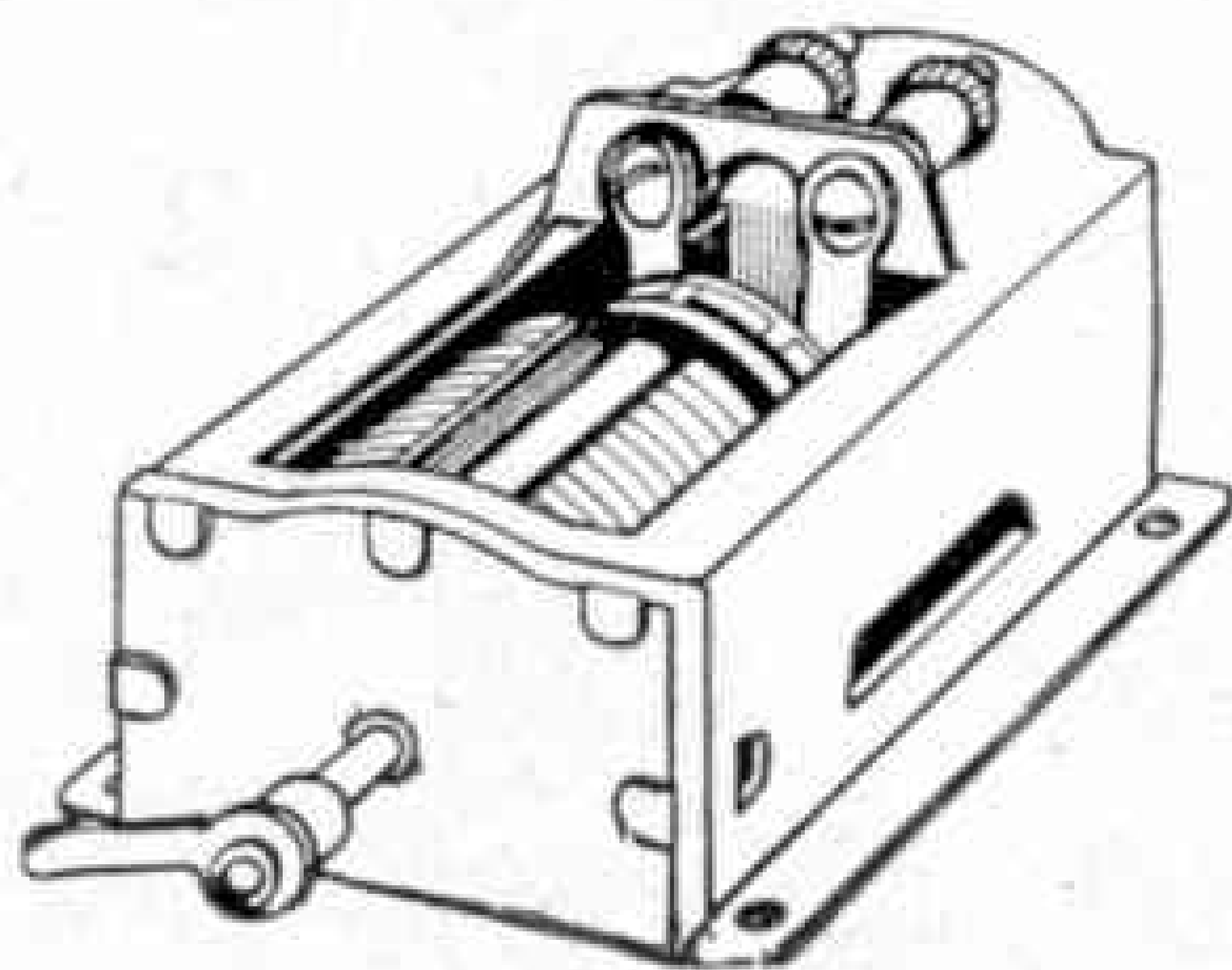
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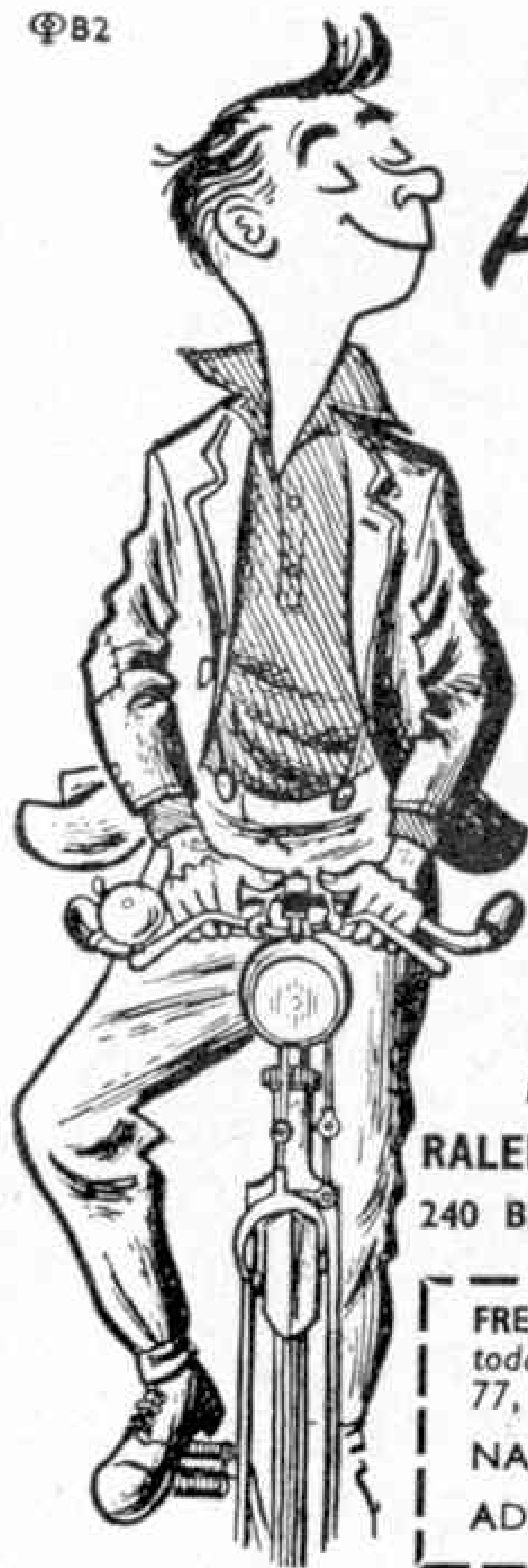
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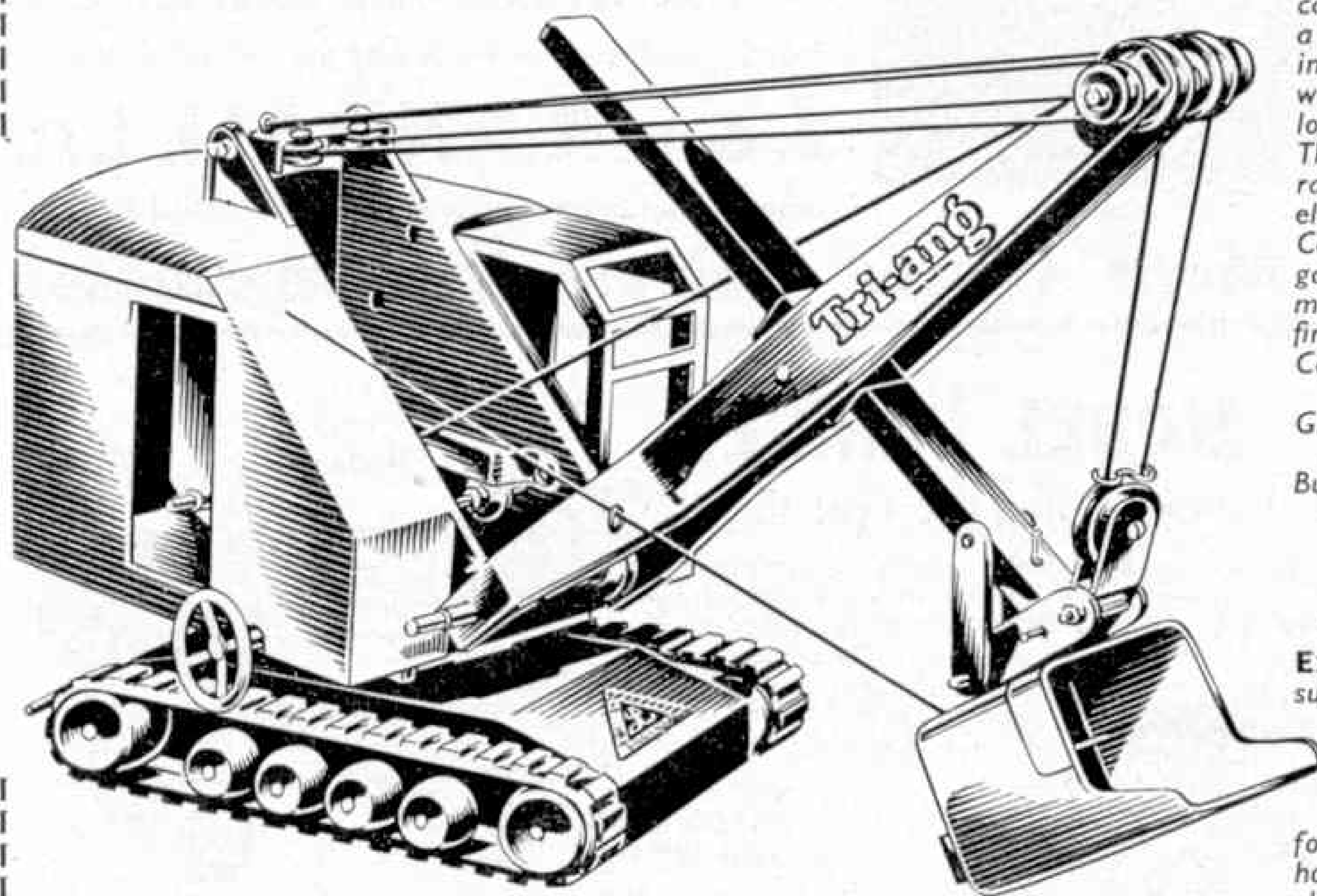
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KL Jones Crane with Grab 32/6

KL Jones Crane with Bucket 25/6

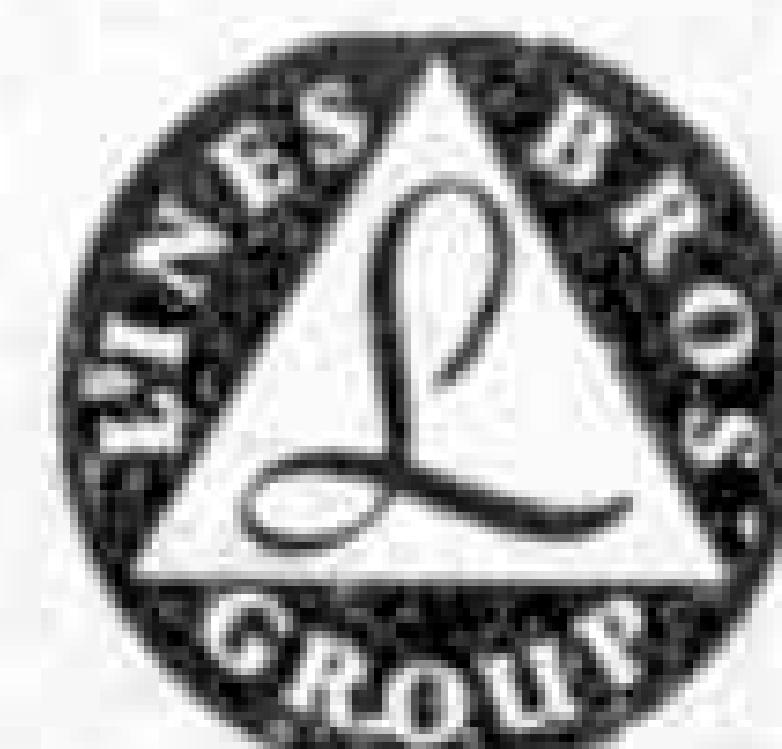
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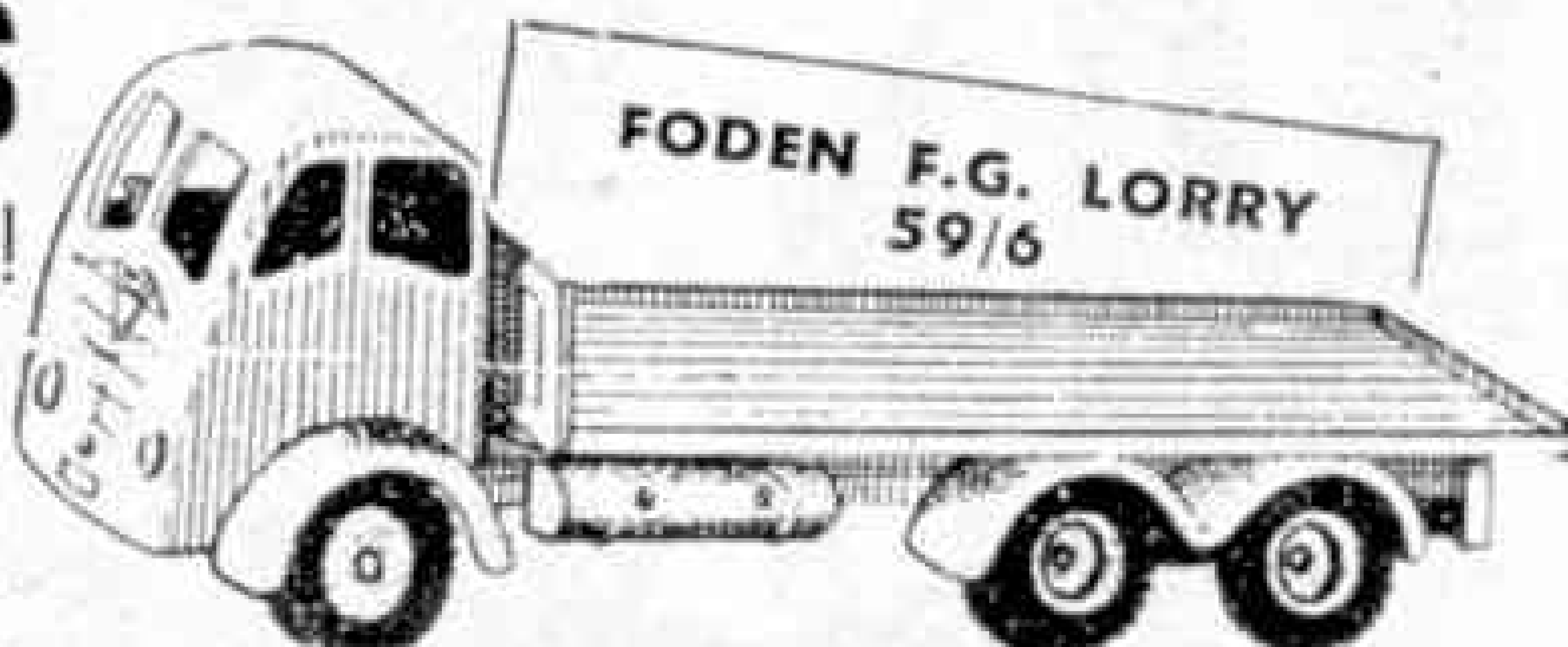
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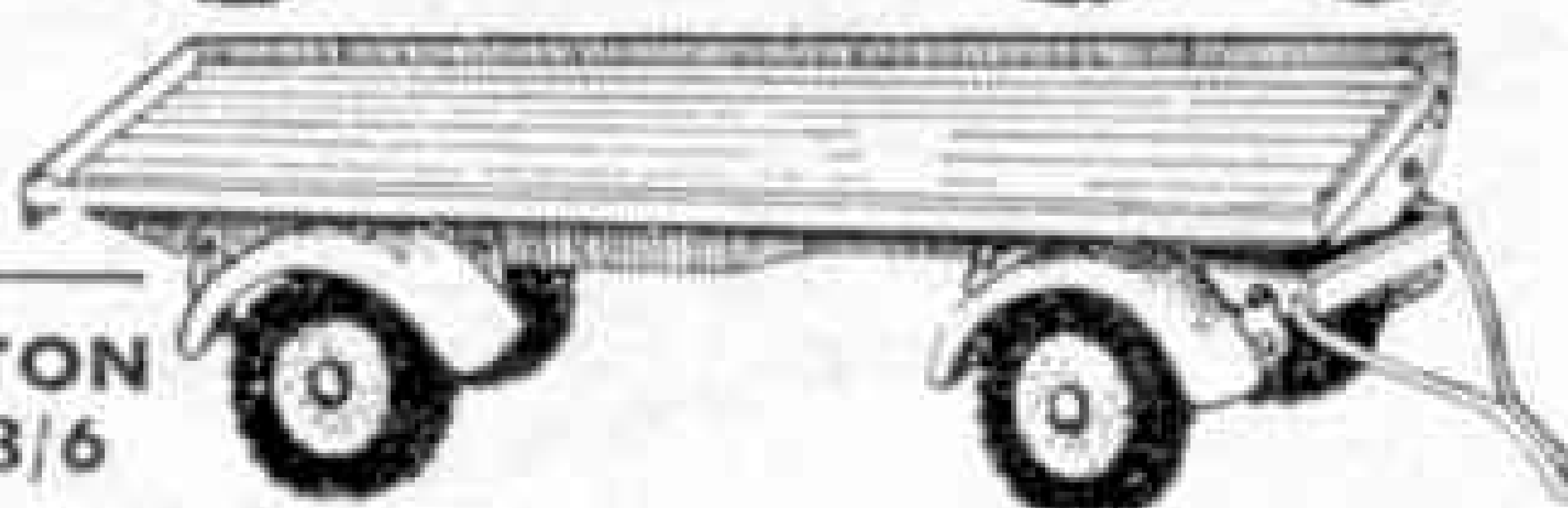


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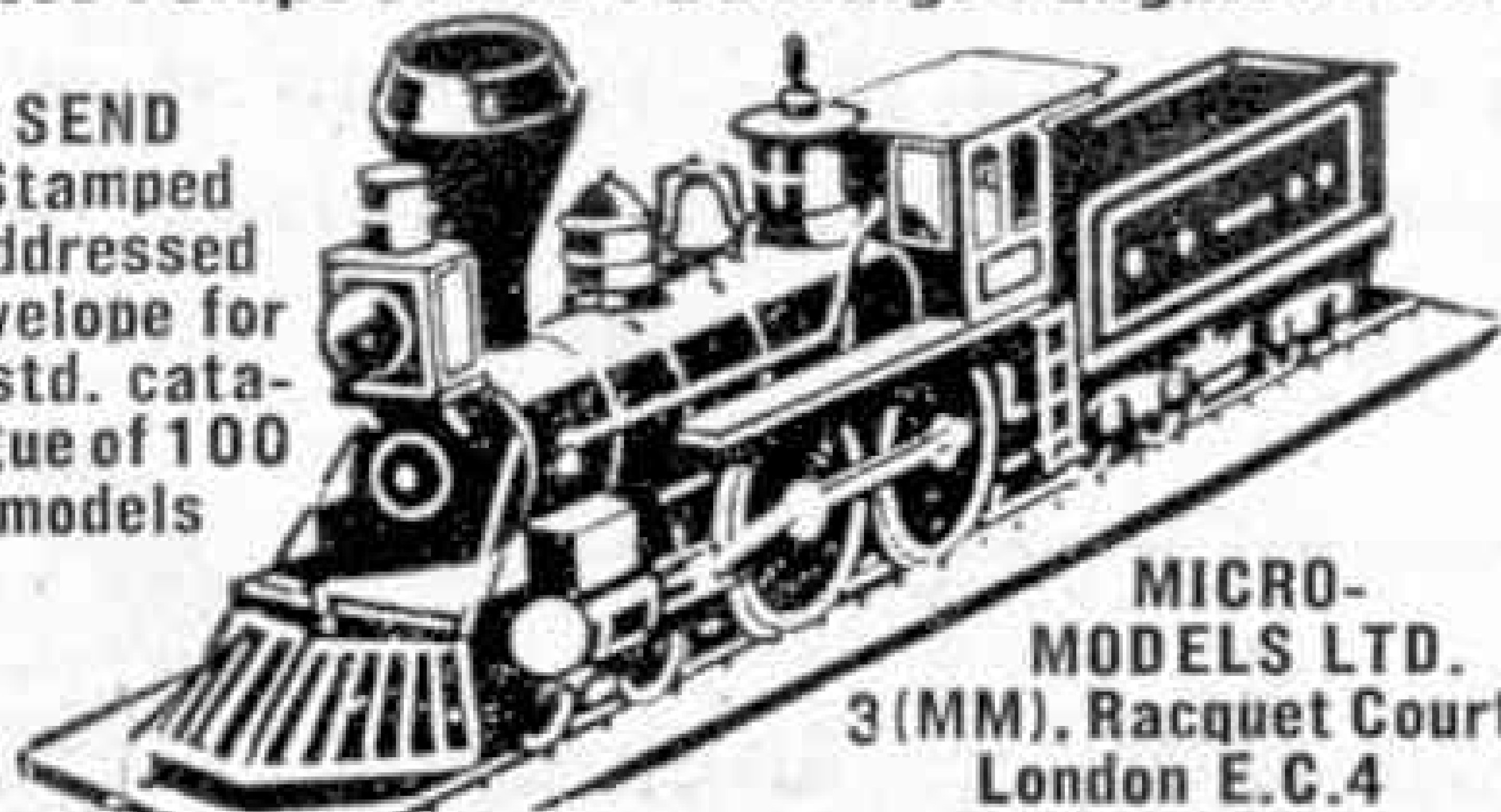
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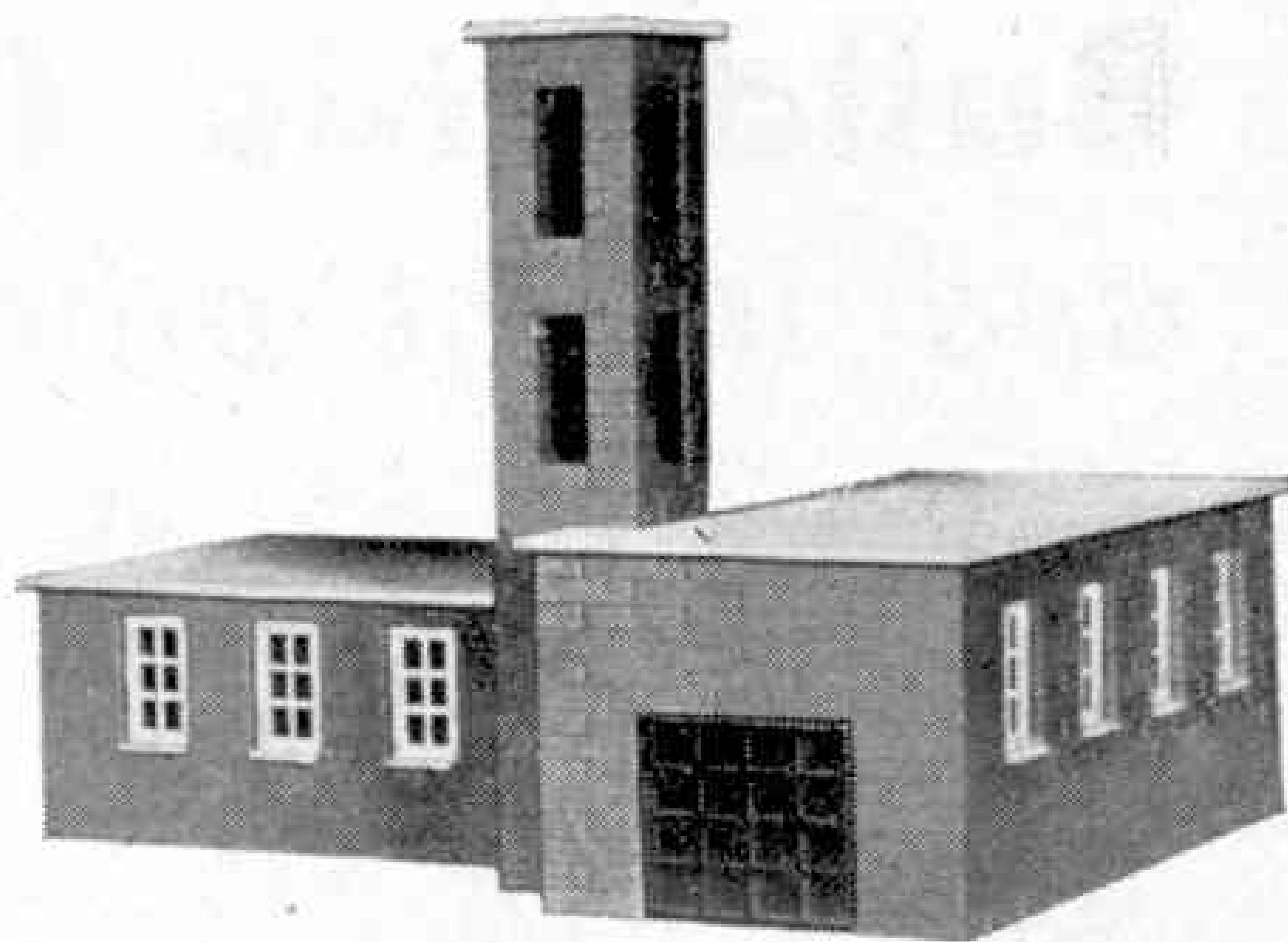


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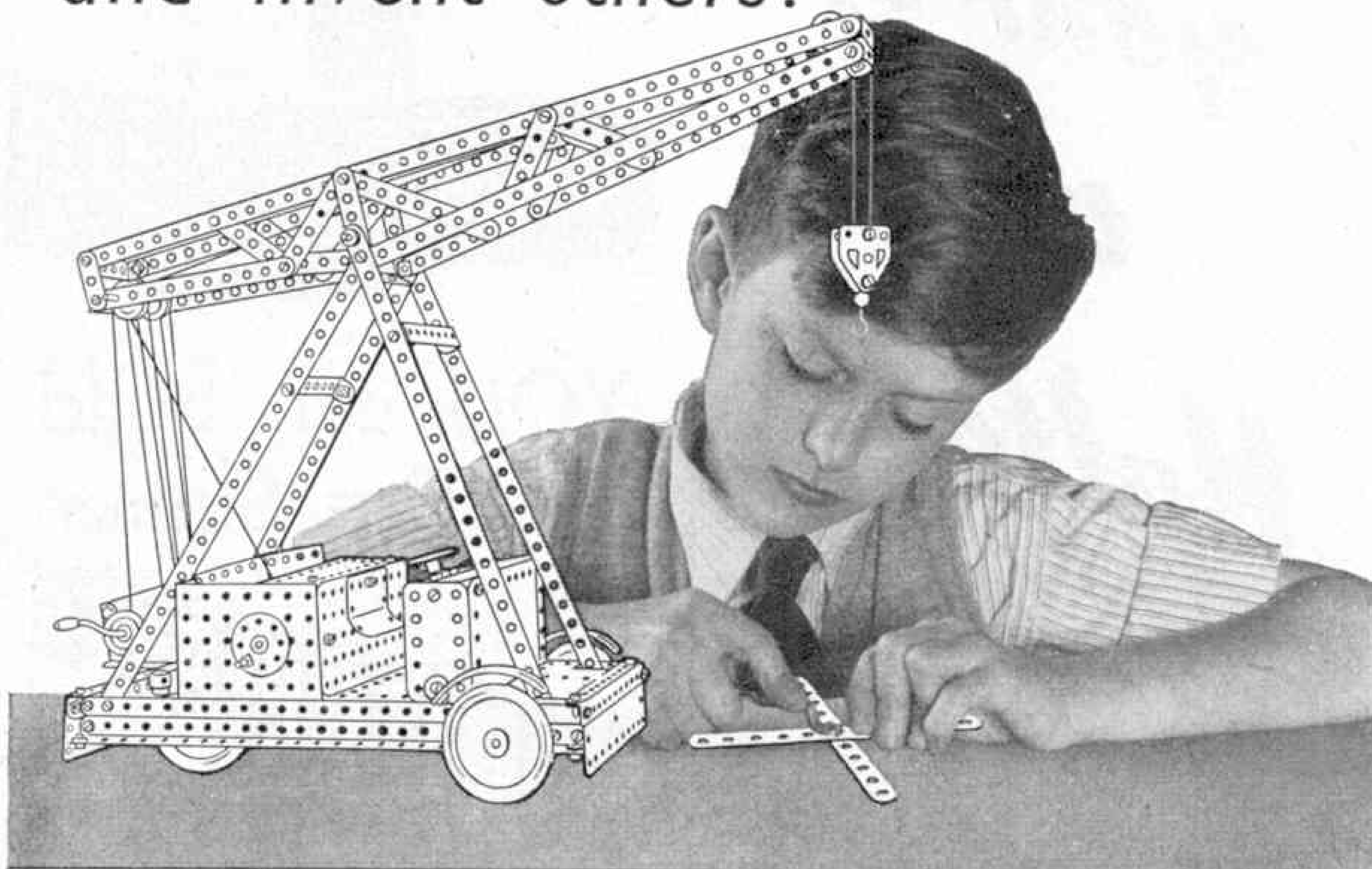
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MECCANO

Don't miss the important announcement to model-builders on pages 408 and 409.

MECCANO

MAGAZINE

Editorial Office:
Binns Road
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Vol. XXXVII

No. 9

September 1952

Have You Flown in an Anson?

I was delighted to meet "Faithful Annie" again when Mr. Taylor sent me the copy for his article on page 392 of this issue. It is many years since I was in close touch with her, but the pleasure of this encounter was tinged with a little sadness when I recalled that one reason for the appearance of the article was that she is coming to the end of her career.

The chief reason for my special interest in Mr. Taylor's contribution this month was that my first flight was made in an Anson, as his was. Mr. Taylor has a stirring story to tell of his adventure. My flight was really uneventful. The only people who got excited about it were friends when they learned that in my case the pilot had not been an experienced airman, but a learner! They need not have worried. The learner was as steady as a rock and "Faithful Annie" was on her best behaviour. These allies carried me safely through two flights, ending each with a beautiful three-point landing, and indeed the whole performance, of both pilot and machine, was so precise and competent

that I soon gave up thinking about the blood-chit that I had signed before taking off! In fact, mine was almost an armchair ride, and before I returned to Mother Earth I had almost begun to get a little bored.

So I am one of the thousands of people who will never forget "Faithful Annie," as Mr. Taylor rightly observes, and I suppose that there are many more among M.M. enthusiasts, especially among older readers who have served in the R.A.F. I wonder just how many! That I could find out if every reader who has flown in an Anson sent me a post card to claim the honour.

What a contrast there is between "Faithful Annie"

and that most fantastic of aircraft the Lockheed F-94C Starfire. Next month's issue will contain a fine article on this amazing 600 m.p.h. robot rocket fighter, which is guided to attacking bombers by radar devices. Don't miss the Oct. M.M.



A London Transport tramcar leaving the Kingsway Subway on the last day on which this was in use. "No flowers by request" was chalked on the buffer. Photograph by E. R. Wethersett.

The Editor

"Kangaroo" Cranes at Work

Feeding Power Stations with Coal

THE busy scene on this month's cover of the 'M.M.' helps us to realise to how great an extent we depend on the use of coal. The three fine cranes shown are hard at work lifting coal from the hold of a collier moored alongside the jetty on which they run, and delivering it to the conveyor on the left, which carries it into the Littlebrook Power Station of the British Electricity Authority, near Dartford in Kent.

The collier is one of a great fleet of vessels owned by the Authority or chartered by them, which steam tirelessly from the coal ports of the North of England to the Thames with their 4,000 ton cargoes, and steam back again in ballast to bring more, in all kinds of weather. Without this constant flow of coal the power stations at Littlebrook and elsewhere along the banks of the Thames would be unable to remain constantly at work, providing the vast London area and the National Grid with light and power.

The cranes shown on the cover were designed and constructed by Stothert and Pitt Ltd., Bath, and are of the special type to which the curious name of "kangaroo" has been given. Why they should be so described becomes clear at once when they are seen at work. After the collier has been moored alongside the jetty and the hatches have been removed, the jibs of the cranes move outward until their heads are over the holds from which they are to remove the coal, and the grabs are lowered to pick up their loads,

which amount to 4 tons at a single bite. As the full grabs are raised the jib is luffed inward to its minimum radius, and from this position the coal is discharged into a receiving hopper built into the front of the crane structure.

On the foremost crane shown on our cover it can be seen that this hopper is just inside the front leg of the gantry on which the crane moves along the jetty

to the point where it is wanted. In this position it has been graphically likened to the pouch of a kangaroo.

From the hopper the coal falls on an inclined conveyor which also is built into the gantry and on this it is carried to the main conveyor belts. These can be seen on the left of the cranes. They run along the length of the jetty, and as the coal falls on to them from the conveyor on the crane it is carried away into the power station itself, to be fed into the furnaces that raise steam for the giant turbo-generators,

or to be carried by further conveyors to the stock pile for storage, for every power station must keep a reserve of coal in hand.

Sometimes the coal has to be discharged, not on to the conveyor belts leading into the power station, but into barges. When this is necessary the coal is discharged from the inclined crane conveyor into a telescopic chute that delivers it into the barges, moored for the purpose on the opposite side of the jetty from the collier that brought it to Littlebrook.

An interesting feature of these fine



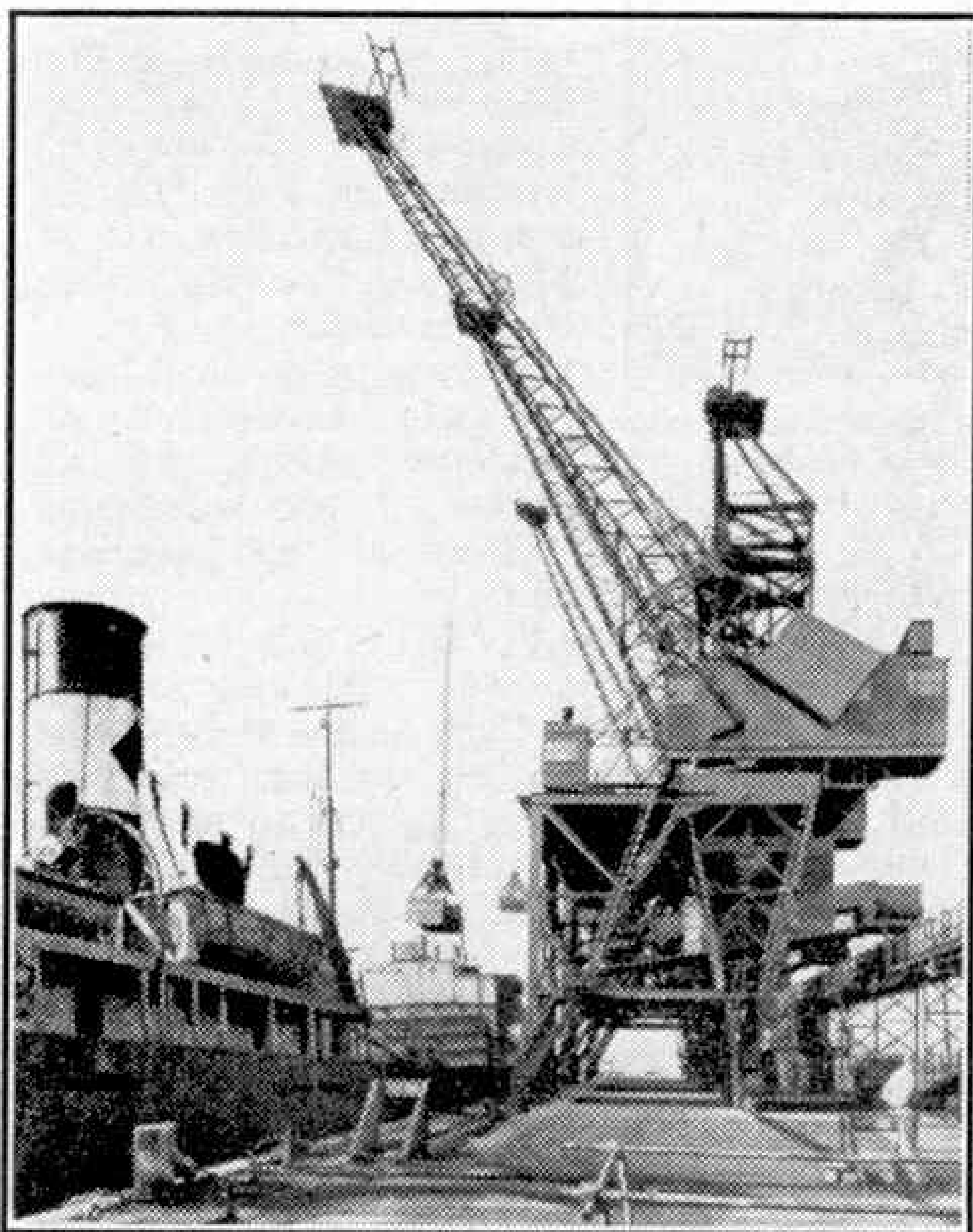
Dockside cranes at work. For the illustrations to this article and for the photograph on which our cover is based we are indebted to Stothert and Pitt Ltd., Bath.

cranes is the position of the driver's cabin. This is well forward of the gantry, and to the right-hand side of the jib. From his position therefore the driver has a complete view of what is happening. He can see down into the collier's hold to follow the downward movement of the grab, and then he can follow its course upward and inward, until it is alongside him, when it disgorges its coal into the hopper. His task is made easier owing to the fact that the cranes are designed to give level-luffing; that is to say the movement of the jibs as they luff in or out does not alter the heights of the grabs.

An entire crane, without its grab and load, weighs 205 tons. Its working load is $7\frac{1}{2}$ tons, but the weight of the grab itself is $3\frac{1}{2}$ tons, the actual weight of heaped coal in each lift being 4 tons. With its full load the grab is hoisted at the rate of 300 ft. a minute, and the luffing speed, or movement inward or outward, is 120 ft. a minute. Slewing, that is moving sideways to right or left, is so speedy that two revolutions could be made in a minute, and the crane can travel along the rails on the jetty at a speed of 12 ft. per minute. When necessary work can continue night and day, for adequate lighting is installed



An electrically-operated screw luffing crane installed at Southampton for dry-dock service. Its maximum load is 50 tons.



"Kangaroo" grabbing cranes unloading coal at the Cliffe Quay, Ipswich, power station of the British Electricity Authority.

throughout the crane. The specified rate of unloading for each crane is 200 tons per hour of small coal, but in practice rates up to 300 tons per hour, per crane, have been achieved.

The crane is electrically driven, with a current supply of 400 volts A.C. The hoisting gear for the operation of the grab comprises a twin barrel winch, which is operated by a single hoist motor of 250 brake horse power working at 730 revolutions a minute. The slewing and luffing motors are of 30 and $16\frac{1}{2}$ b.h.p. respectively; the motor that drives the crane on its rails along the jetty is of 10 brake horse power; and a further $7\frac{1}{2}$ b.h.p. motor drives the belt of the inclined conveyor.

Our cover, and the illustration of similar cranes at the Cliffe Quay station reproduced on this page, will give readers a good idea of the size of these fine structures, but it is interesting to note that the jib is balanced at all radii and is "luffed" in or out by means of a crankshaft and two connecting rods. This avoids the use of ropes for securing the jib, which is 77 ft. long and has a maximum working radius of 70 ft.

The revolving superstructure of the crane is mounted (Continued on page 430)

Nature's Speed Records

By David Gunston

THE speeds at which various wild creatures move have always attracted the interest of scientists and naturalists, and the methods of timing such speeds, from the fastest down to the slowest, have taxed man's ingenuity. What makes this business of putting the speedometer on nature so interesting is that most creatures can and do move very swiftly, if only over short distances; a vast number of them can easily outpace human beings.

It is always striking to remember that, unaided, the fastest a man can run is

forward as fast as seven-hundredths of a mile an hour—and as slow as two-fifths of an inch in a minute!

In all cases of animal speed timing it is important to remember that most creatures have a sheer maximum speed they can reach in an emergency, as when some enemy threatens, or achieve over very short stretches when hunting, and a normal running or flying speed, which is usually a good bit lower. The legends and hearsay evidence about animal speedsters of the past are now quite outdated. No speeds

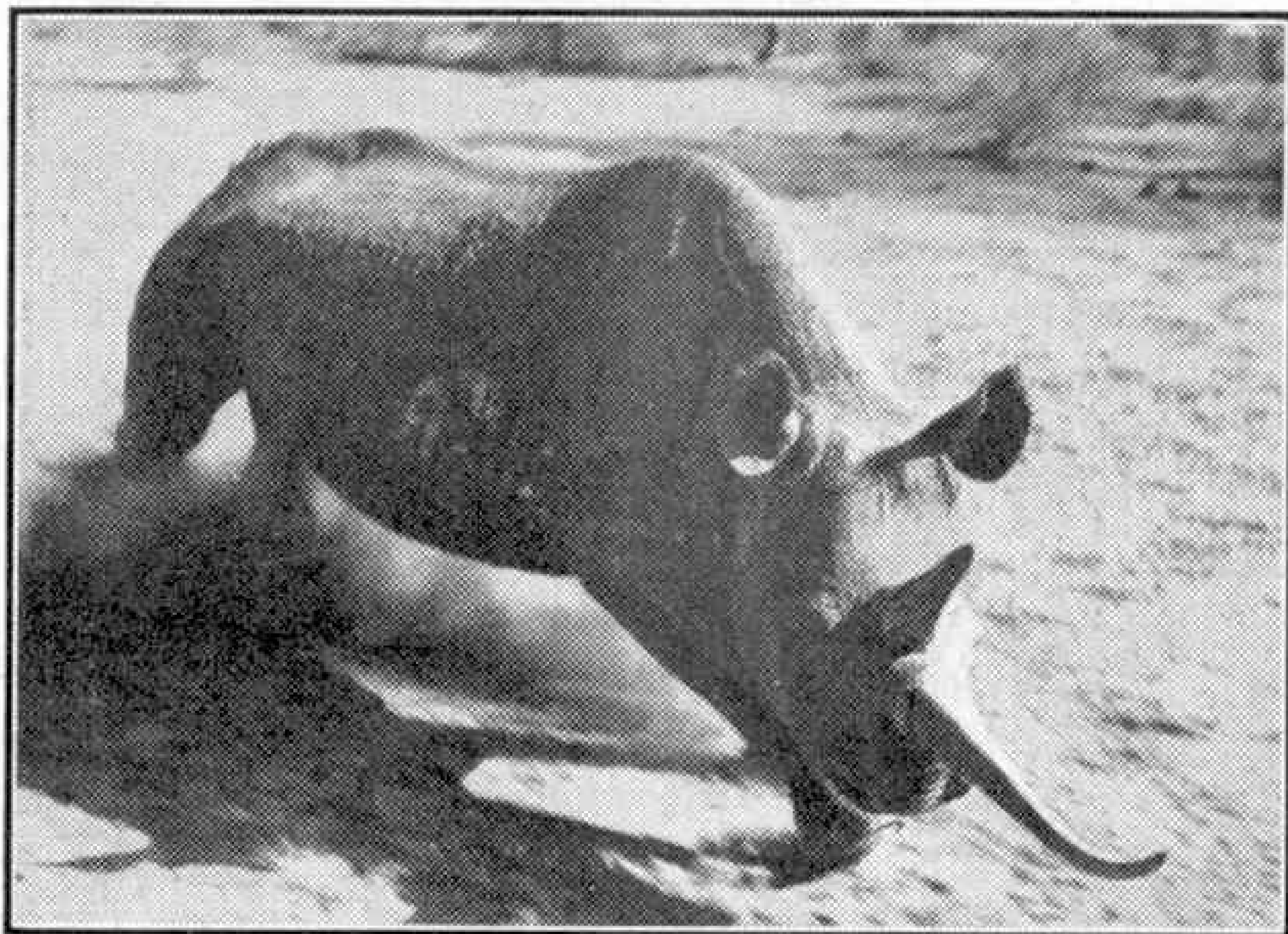
recognised and quoted in this article are based on such inadequate proof; all are firm scientific records, checked by a variety of reliable means.

As is well known, birds, with their mastery of the air, can achieve speeds unknown on the ground. Eagles and similar birds of prey are usually recognised as the fastest, but the slender hook-billed frigate-bird, mentioned earlier, can outpace even the superbly powerful lammergeier, timed by an aeroplane speedometer at 110 m.p.h. Over the warm tropical oceans, the frigate-bird swoops down on fish or baby turtles at an immense speed, far in excess of the screeching

200 m.p.h. power-dive of the peregrine falcon or duck-hawk.

The record speed of 261 m.p.h. for a flock of frigate-birds was checked by an Australian naval officer and a friend, who noted by chronometers the time taken by the flock passing over a ship to reach the nearby shore. Allowance was made for wind assistance, and the speed remains an outstanding record. Close behind, however, comes that of the needle-tailed swift, similar to the British migrant swift, which has been checked with accuracy by a stop-watch to fly easily at 219 miles an hour. Even the little sandpiper can reach a speed of 110 m.p.h. when on migration, as more than one aircraft pilot has noted.

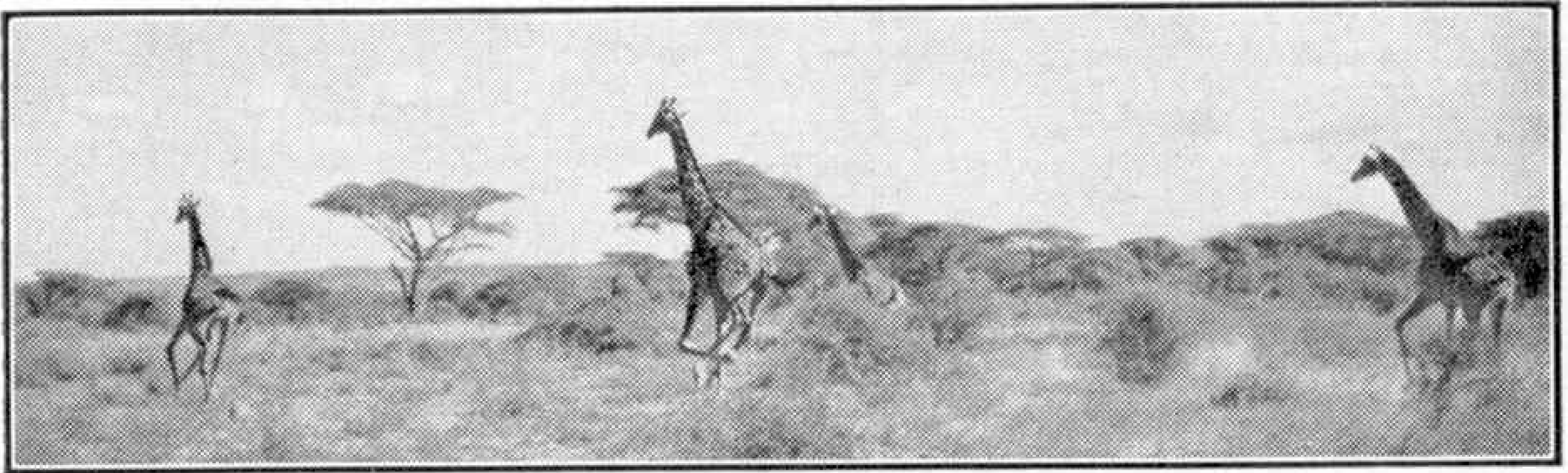
Another remarkable time-check of a bird made from a plane was in the case of a



A rhinoceros in full charge. The illustrations to this article are reproduced from the Ealing Studios film, "Where No Vultures Fly."

around 24 m.p.h., and that speed can be reached only by crack athletes in short sprints. Five miles an hour is a good walking pace for most of us, while as for swimming, the world record speed stands at 4.01 m.p.h. Set against these limits the fastest flight speed recorded by a bird, 261 m.p.h. by a flock of frigate-birds; the fastest land speed attained by a quadruped, just over 70 m.p.h. by the incredibly swift-sprinting cheetah; and the fastest swimming speed by a fish, the sailfish's 68 m.p.h. You see at once that man is a comparatively slow creature.

On the other hand, it is fair to mention that the common earthworm is known to burrow at an average speed of one five-hundredth of a mile an hour, while the proverbial snail has been timed to glide



The giraffe in its natural surroundings is a wonderful and agile creature.

peregrine falcon that dived on past and beneath an aircraft that was itself nose-diving at 170 m.p.h. The golden eagle's top speed of 120 m.p.h. is also a wonderful feat for so large and comparatively heavy a bird; compared with it the 89 m.p.h. reached on occasion by vultures is much slower. Swallows can put up very good flight performances when the need arises: one breeding bird was taken by car 79 miles from its nest, yet it returned to it immediately in $43\frac{1}{2}$ minutes, which works out at an average speed of 108 miles an hour.

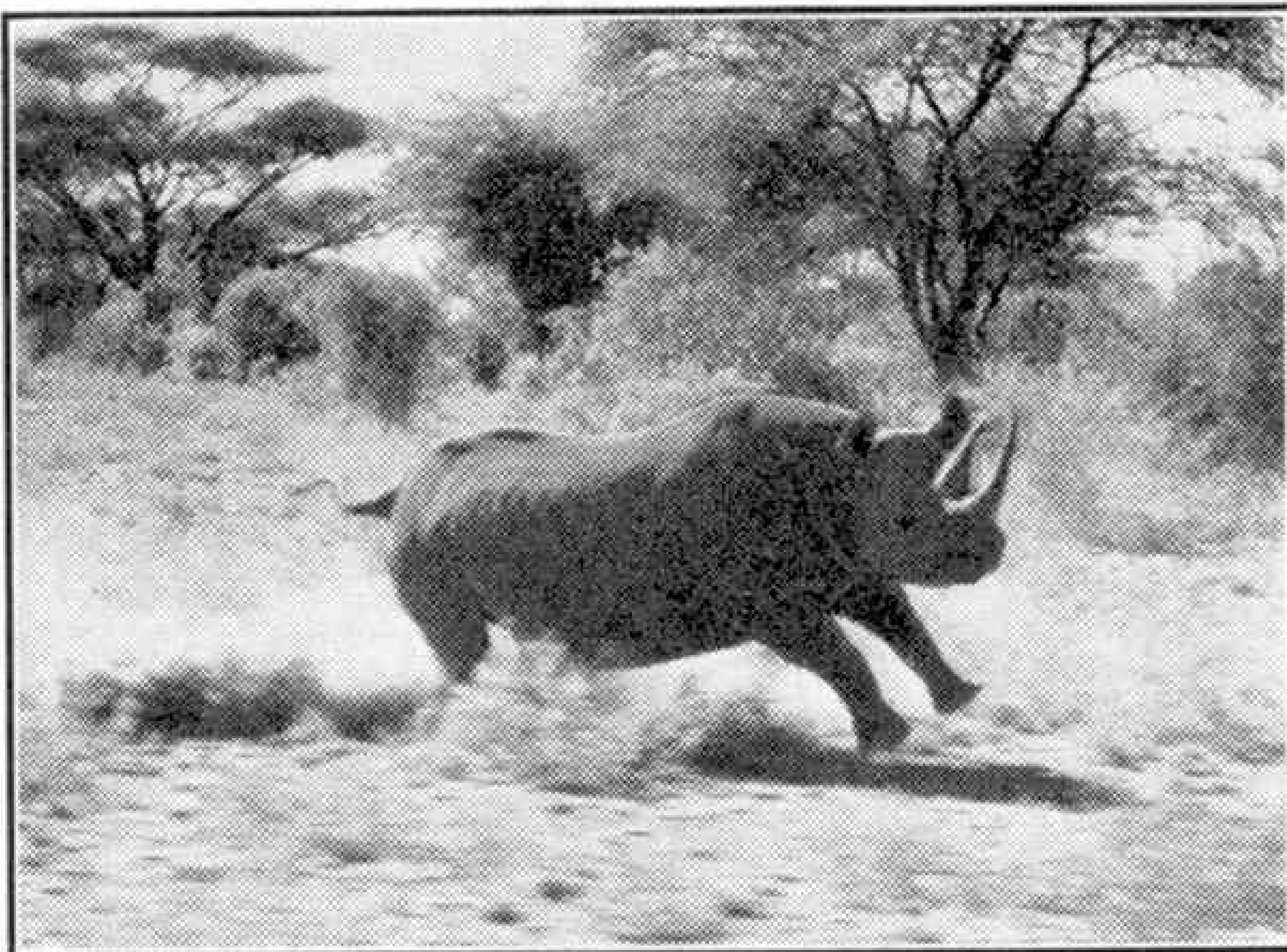
But what about some of the less swift birds? Compared with those already mentioned the sturdy racing pigeon, for instance, is a surprising slow-coach, rarely exceeding 60 m.p.h. without wind help, although one has been timed at 95 m.p.h. Ducks and geese seldom reach over 60-70 m.p.h., while the top known speed of the jay is only 20 m.p.h. The sparrow-hawk cruises at an everyday speed of around 25 m.p.h., but can reach 60 when after

quarry in a short burst. A common crow timed by a railway train just topped 60 m.p.h., but this is exceptional, and no allowance was made for a helping wind. A maximum speed of 48 miles an hour was attained by some wild duck that were extensively studied and timed by kites, theodolites and stop-watches, but this was probably the normal, rather than the maximum speed for the species.

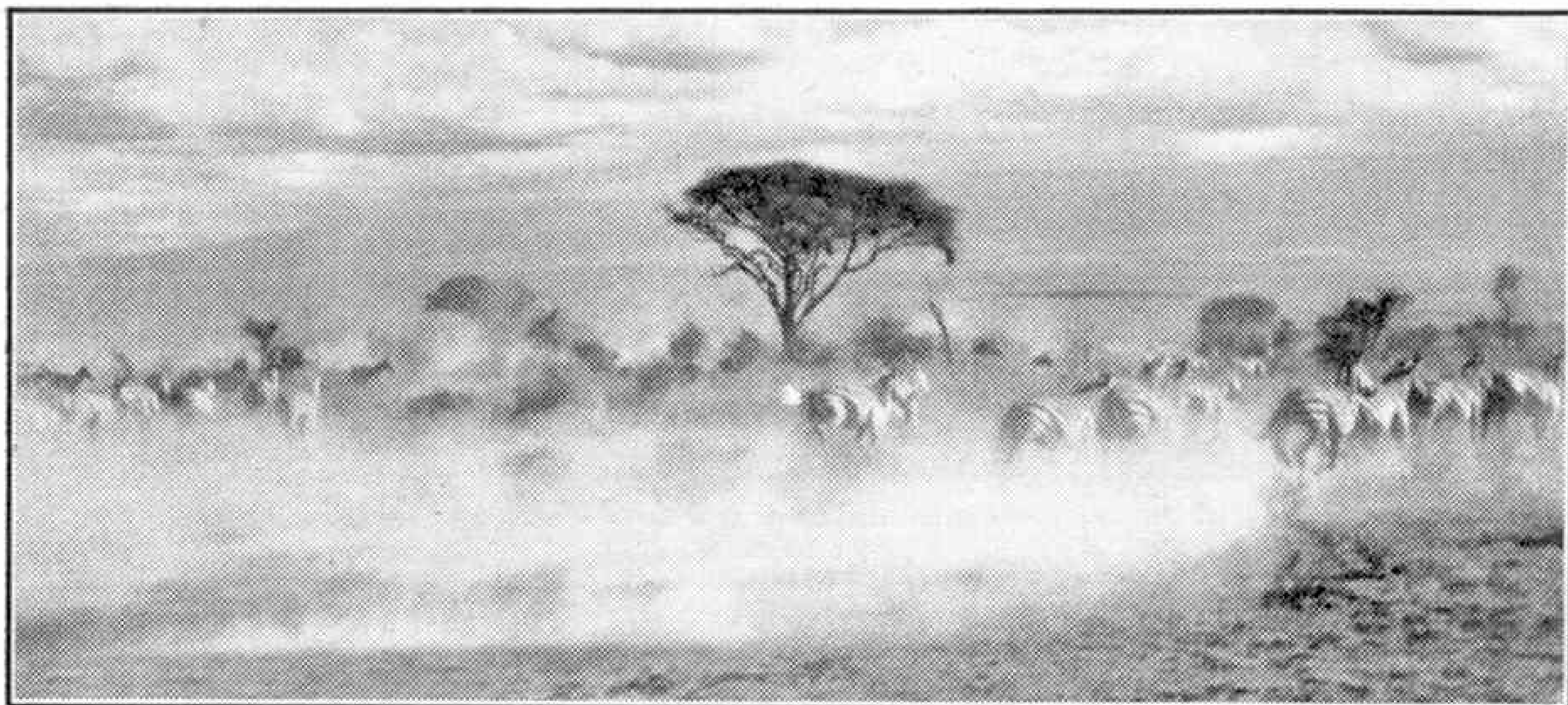
Naturally enough, the smaller the bird the slower it can fly unaided, but the sparrow's 35 m.p.h. checked by a car, and the blackbird's 30 m.p.h. timed by a motor-cycle speedometer, show what power there may be in small wings. Even the 21 m.p.h. reached by a blue tit is remarkable. Owls can reach 40-45 m.p.h., according to road timings, but the weak flight of the cuckoo seldom takes the bird faster than 23 m.p.h.

Land speeds vary even more, and few approach the cheetah's 70 m.p.h. over short, intensely agile sprints, timed by cars on many occasions. A car checked a Mongolian antelope for half a mile and found its average speed to be 60 m.p.h., which is pretty good going and is almost reached by the wonderful little black buck, so often hunted by cheetahs themselves. These lithe cats can actually accelerate to 45 m.p.h. in two seconds, but they tire quickly, like all runners.

The next fastest member of the cat tribe is the lion, which can charge at 50 m.p.h. when after gazelles, buck and various antelope, many kinds of which leap along at just over this speed with grace and ease. The prized trained race-horse, by the way, rarely touches 40 m.p.h.,



More danger ahead for somebody. Another rhinoceros in full charge.



surprising as it may sound. The highest race-horse speed ever recorded is 48 m.p.h., and the next fastest is 43 m.p.h. Big races like the Derby are run at about 35 m.p.h.

Hares can outpace horses with ease, racing over short stretches at 45 m.p.h., a pace not infrequently achieved by a hunted fox. A greyhound can dash along at up to 40 m.p.h., but the usual maximum speed of a rabbit is only 35. By comparison, a rat's top speed is only 6 m.p.h. and that of a mole $2\frac{1}{2}$ m.p.h. A grizzly bear has been known to charge a man at 28 m.p.h., and wart-hogs have several times outpaced cars going at a steady thirty.

Elephants look clumsy when in a hurry, but in spite of their weight of five tons and their limited stride of seven feet, they can reach 25 m.p.h. when really enraged. This has been timed both by car and stop-watch. In the latter case, an angry bull charged down a measured strip of clearing, covering the 120 yards in 10 seconds exactly—a speed of 24 m.p.h.

Rhinoceros also belie their powers of speed by their ungainly appearance. A speed of 28 m.p.h. is a good average rush for a charging rhino, measured by a car, and 35 m.p.h. has been recorded once for a particularly fast bull. Even giraffes, helped by their immense strides, can canter along at 32 m.p.h. A camel prefers the more leisurely speed of 8-10 m.p.h., but it can keep that up for 18 hours at a time.

Strange to say, one of the best runners is a flightless bird. This is the Australian emu, which has been checked at 40 m.p.h. a number of times. Although most snakes progress at 2 m.p.h. or less, the deadly black mamba of Africa, some 21 feet in

length, is amazingly quick off the mark for a legless creature and over a short distance can dash forward at 20 m.p.h.

Kangaroos can keep up their amazing leaping progress for quite long periods at 40-45 m.p.h., reaching up to 50 m.p.h. when hard pressed by huntsmen. In many ways the kangaroo's method of locomotion is the most fantastic of all the animals: its 20 lb. tail acts as a rudder during its vast jumps, which with big full-grown specimens may reach 40 ft. in length.

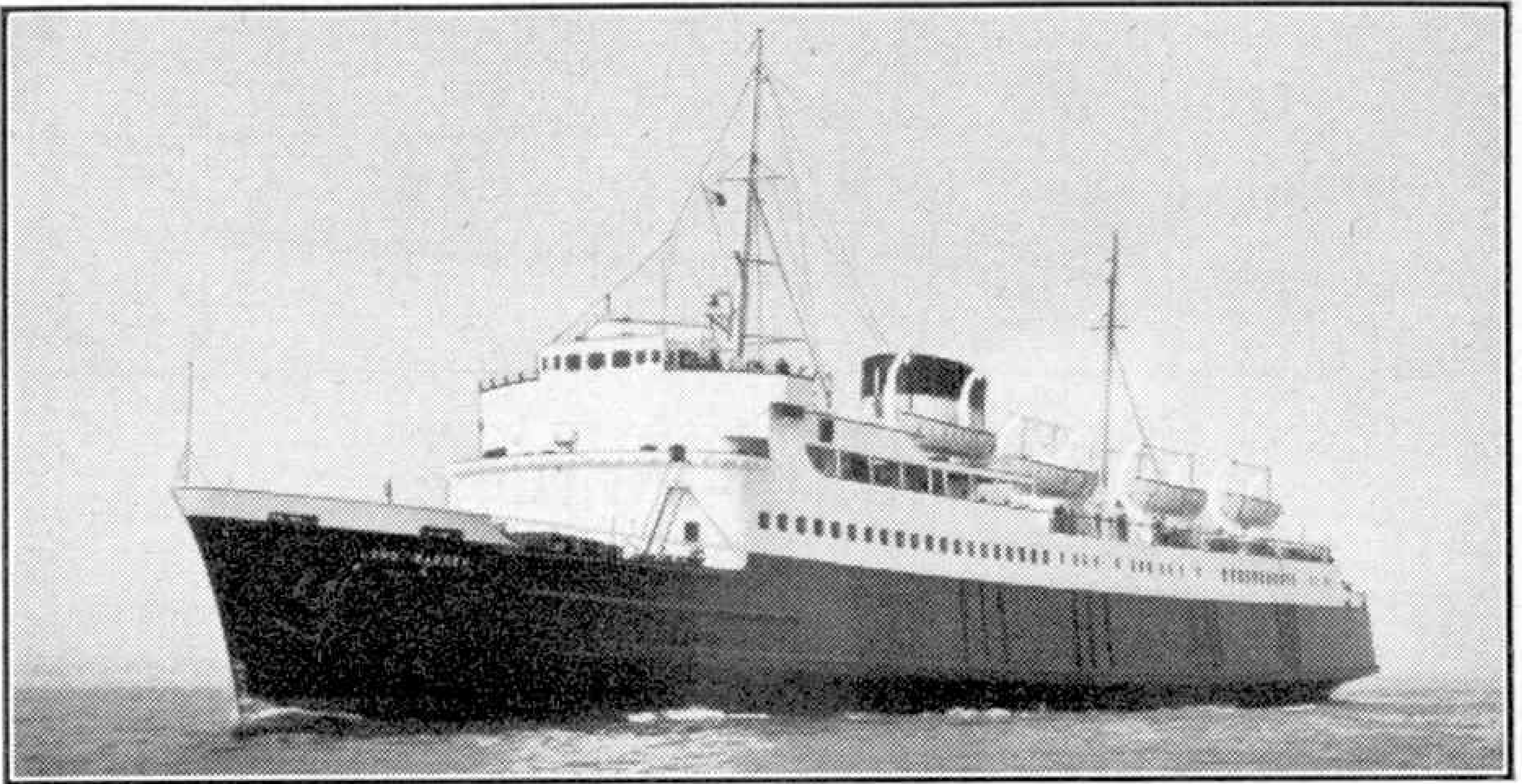
The speeds attained by fish have received much specialised attention, and the devices

used for recording the speeds of swimming fish are many and varied. They have been timed by means of such instruments as the stop-watch and the fish-o-meter, which is an indicator attached to a rod to register

the speed of the line as it runs out. Cinematograph films of tank fish and indicators fastened to fine silk harness that tank fish draw out as they swim along narrow channels also have been used, as well as timing from the known speeds of boats and ships. In some instances the speed of a river tide has been calculated and the lowest speed a fish must make to swim against it has then been worked out.

For sheer dynamic power in the water the members of the swordfish tribe beat all comers. The sailfish, already mentioned, is followed by the marlin and the common swordfish, both of which surge forward under water at 60 m.p.h. According to the much-used fish-o-meter, tunny are the next fastest fish in the sea, reaching a maximum of 44 m.p.h. Flying fish touch 35 m.p.h. in the water just before taking off, and at that speed (Continued on page 430)

The illustration at the top of this page shows a herd of zebra taking to flight, kicking up clouds of dust.



Britain's Largest Car Ferry

HERE is a fine photograph of the *Lord Warden*, British Railways' latest and largest car ferry. Last June it was brought into service on the cross-Channel route between Dover and Boulogne.

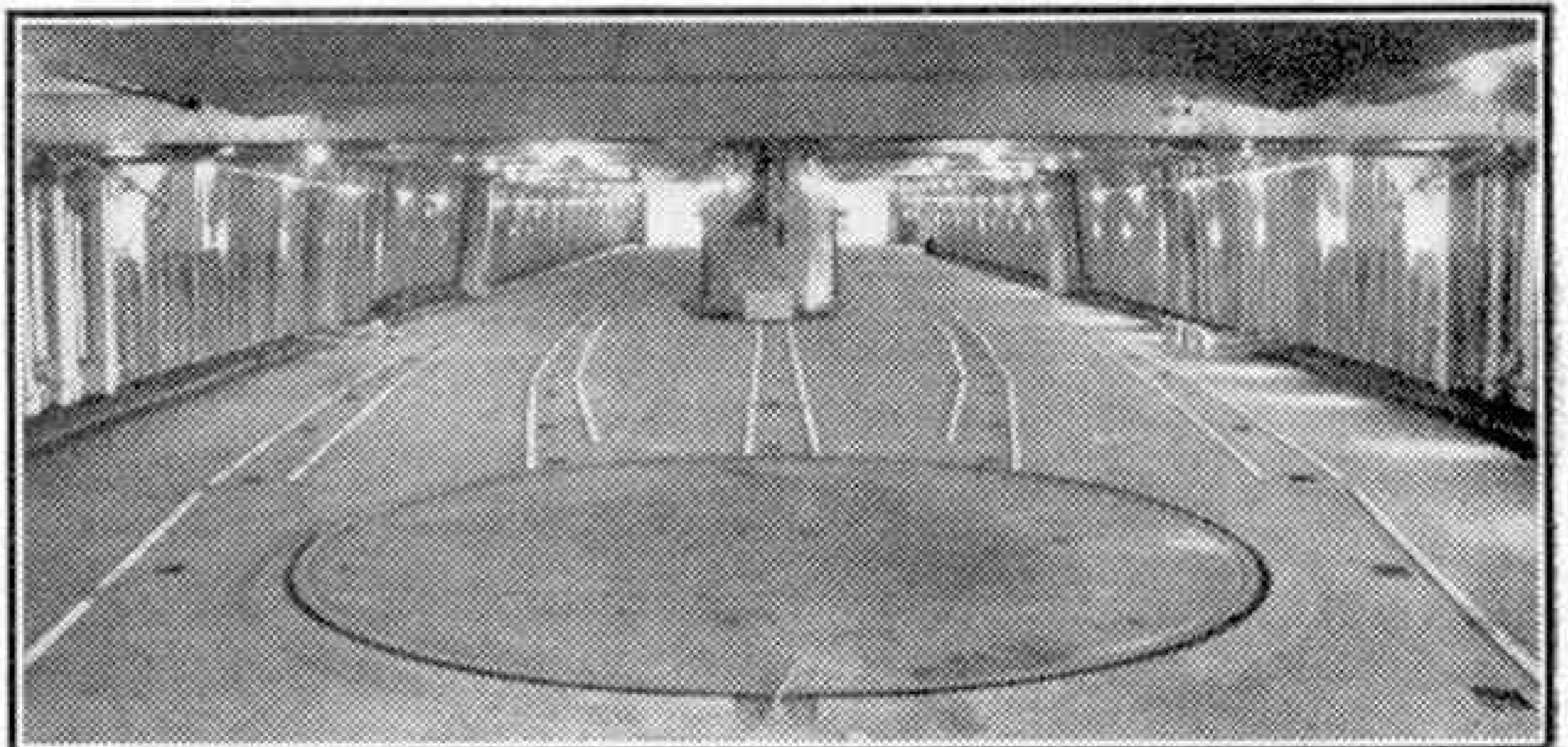
In general appearance the *Lord Warden* is similar to other modern Channel steamers of British Railways, with her large streamlined funnel, two tripod masts, raked stem and cruiser stern. She was built by William Denny and Bros., who also built and installed her engines, and she was launched at Dumbarton in December of last year. She is a twin screw turbine vessel, with a gross tonnage of 3,333 and a speed of 20 knots, and is capable of carrying across the Channel 1,000 passengers and 120 motor cars at a time.

The accommodation for motor cars is very interesting. It can be seen, empty, in the lower illustration on this page, in the foreground of which is a turntable. This turntable is the key to the rapid loading and unloading of motor cars, for its use ensures that the first motor car to run on to the vessel on one side of the Channel is also the first to leave her on arrival on the other side. As yet this system

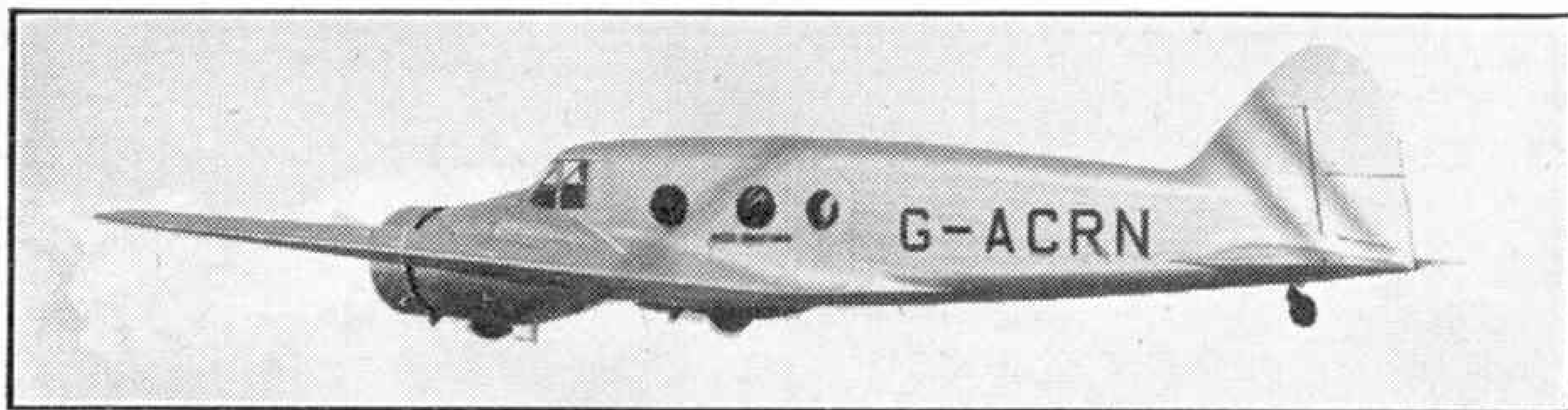
can be used fully only at Boulogne, where a specially designed ramp has been built and installed to allow cars to be driven directly aboard. There the cars run along one side of the vessel, are turned round on the turntable and return along the other side, ready to be driven off through the folding steel doors and down the ramp.

A ramp similar to that at Boulogne is to be built at Dover, and it is expected to be ready for use next year. Eventually a ramp will be installed also at Calais.

Over the greater part of this motor car space the clear deck height is 10 ft. 6 in. This allows motor coaches to be carried as well as ordinary cars, and there is room for a number of double-deck buses in the well at the end of the promenade deck.



The car deck, with turntable, of the *Lord Warden*, seen in the illustration at the head of the page. Photographs by courtesy of British Railways.



"Faithful Annie"

By John W. R. Taylor

WHEN A. V. Roe delivered to Imperial Airways two new Avro 652 twin-engined air liners named *Avalon* and *Avatar* on 11th March 1935, Imperial's standard big landplanes were the stately, supremely comfortable Hannibals, which plodded with incredible regularity between London and Paris at a steady 90 m.p.h. Today, aircraft of the same basic type as *Avalon* and *Avatar* rub wings at London Air Port with 500 m.p.h. Comet jet liners; for Imperial's two 652s were forerunners of the Avro Anson—the 11,020th and last of which was delivered to the Royal Air Force this Summer—and which is still in service with air forces and airlines all over the world.

The mere fact that the Anson remained in continuous production for 17 years—longer than any other aeroplane in history—is sufficient tribute to its greatness. Yet it is not on the score of production records that it will be best remembered, but for its sturdy reliability, versatility and gentle flying qualities, which earned it the affection of all who flew in it. Indeed, except for the occasion when the captain of one of Imperial's 652s made the horrifying discovery that its name meant something unfortunate in the language of the country in which he had just landed, necessitating its shortening to *Ava*, the number of occasions on which Ansons have embarrassed their pilots can probably be counted on the fingers of two hands, and still leave a few fingers over.

This is all the more surprising when one realises that the military Anson was designed and built in only six months; although its story can be traced back to 18th May 1933 when G. E. Woods Humphery, then Managing Director of Imperial Airways, issued his specification

for a light air liner to out-perform the best comparable German and U.S. types. It was no easy job, because he wanted an aircraft able to carry four passengers for 420 miles at a speed of not less than 130 m.p.h., with a stalling speed of 60 m.p.h. and ability to maintain height at 2,000 ft. on one engine.

Within three months Avro had their answer ready in the shape of project design 652—a 6,500 lb. low wing monoplane with retractable undercarriage, powered by two Armstrong Siddeley Cheetah V engines. Its method of construction, combining a welded steel fuselage with a one-piece wooden wing, owed much to a Fokker licence acquired by Avro some years earlier; but its estimated range of 600 miles at 150 m.p.h. on 590 h.p. reflected only the design genius of the late Roy Chadwick.

Woods Humphery placed his order for *Avalon* and *Avatar* early in April 1934. Four weeks later, Avro heard from the Director of Contracts, Air Ministry, that the R.A.F. needed a new twin-engined landplane for coastal reconnaissance duties. By a coincidence, the required performance and payload were almost identical with those of the civil Type 652. So, as the Air Ministry had emphasised that they would prefer an aircraft that could be adapted quickly and cheaply from an existing type, Avro lost no time in offering them the Avro 652A, which was almost identical with its civil counterpart, except for more powerful Cheetah VI engines and a fuselage gun position either above or behind the wing.

Out of 15 designs from different companies, the Air Ministry chose on 24th September the Type 652A and one other, and ordered a single prototype of

The photograph at the head of this page shows Imperial Airways Charter Service aircraft *Ava* of the *Avalon* class, referred to on this page. Photograph by courtesy of "The Aeroplane."

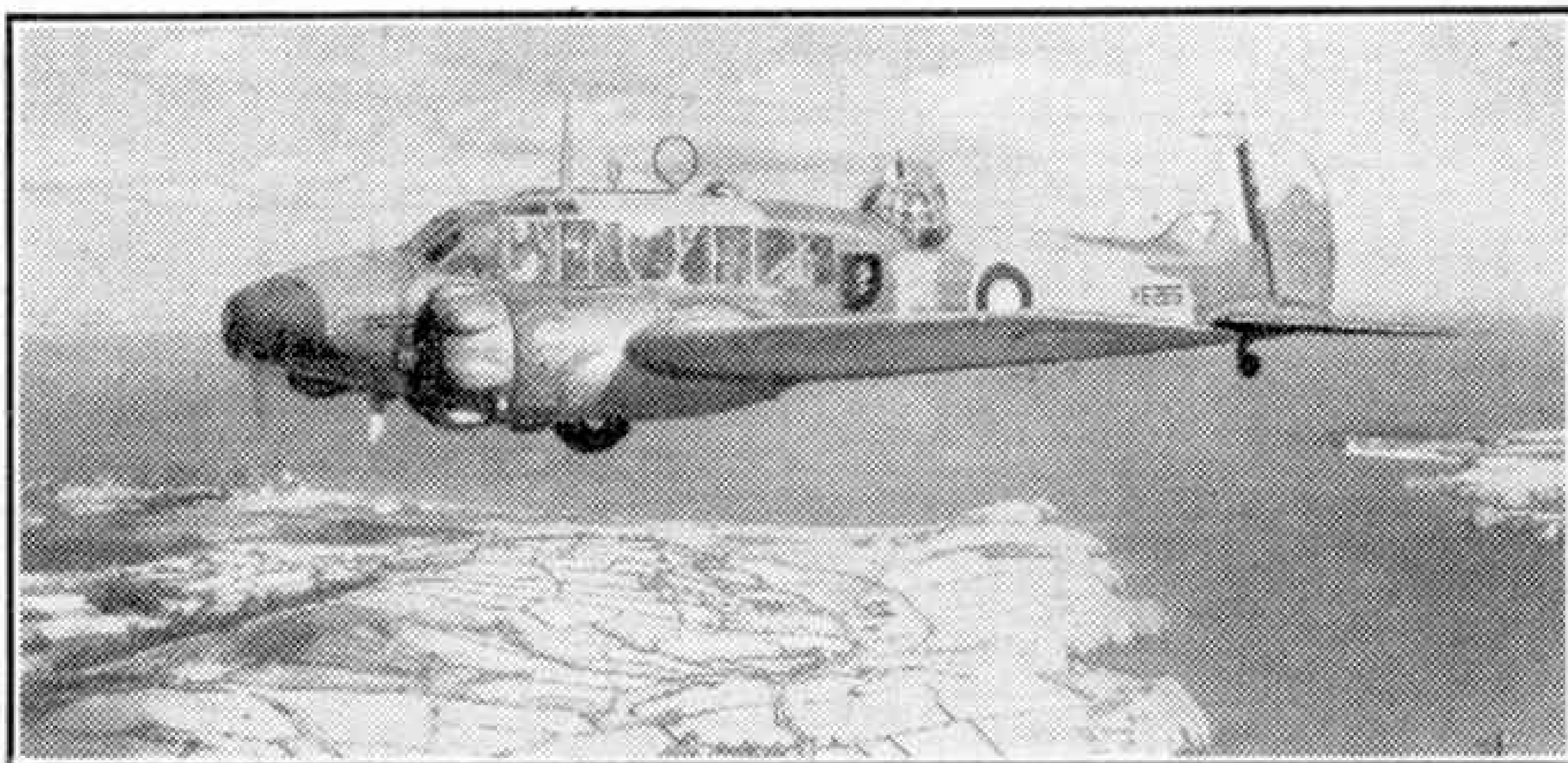
each for delivery by the end of March 1935. This left Avro just six months in which to design and build a military version of an aeroplane that had not yet flown! They were heartened on 7th January 1935, when first flight trials of *Avalon* showed it to have truly exceptional flying qualities. In fact, test pilot F. B. Tomkins reported that

"If, with feet off the rudder pedals, either engine is switched off, the machine swings about 15 deg. or so to the side of the dead engine and then swings back and carries on a straight course."

When the prototype military 652A made its first flight on 24th March, well within the time limit, it proved every bit as good as its civil counterpart. So it was only a matter of time before the Air Ministry gave Avro a big production order and, simultaneously, bestowed on the 652A the proud name of Anson, after one of our greatest Admirals. R.A.F. ground crews, with a healthy disrespect for tradition, soon corrupted this to "Annie," but its qualities later earned the even prouder name of "Faithful Annie" from pilots who came to love it.

The first contract was for only 174 machines, but it was soon followed by

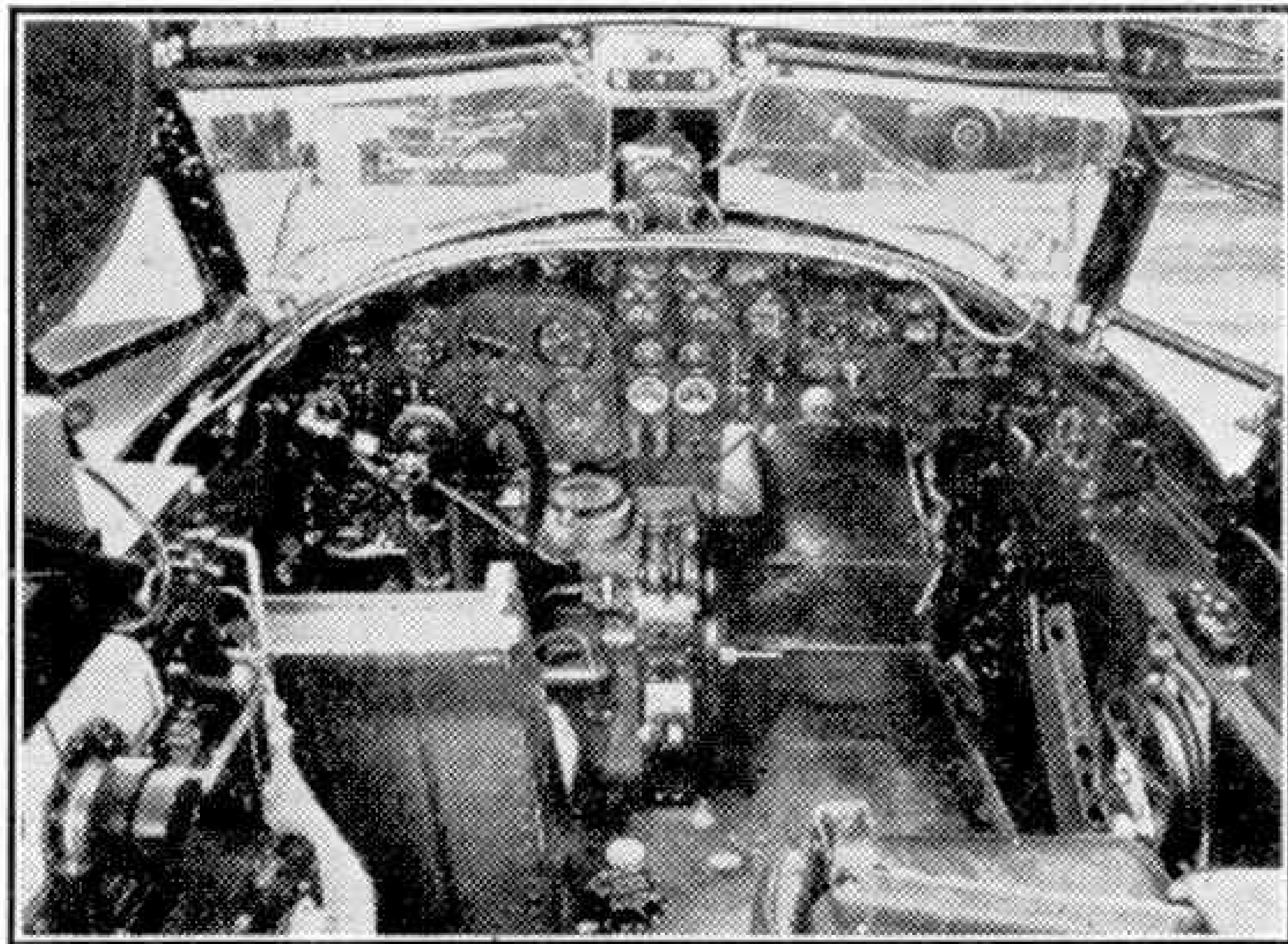
orders from Australia, Egypt, Finland, Greece and Eire, and Avro had enough confidence in the future to build up production to one aircraft a day by the end of 1936. Even they could hardly have foreseen the time in 1943-44 when their Yeaddon factory alone turned out 130 Ansons a month.



Avro Anson MK.1 aircraft in early wartime camouflage.

First R.A.F. squadron to be equipped with the new aircraft in 1936 was No. 48, stationed at Manston in Kent. Others followed quickly, and by the outbreak of war in 1939 Ansons were the mainstay of Coastal Command. Almost their last peacetime duty was to provide ceremonial escort through the English Channel for the boat which brought the French President on a goodwill visit to our Royal Family. Five months later, their silver skin was daubed with green and brown camouflage and their task the grimmer one of hunting for German U-boats in those same waters.

They were obsolete by current military standards even then, as their armament consisted of only two machine-guns, plus two 100 lb. and eight 20 lb. bombs. But little things like that did not worry Anson crews, and, on one occasion, three of them engaged nine Messerschmitt M.E.109s flying low over the Channel, destroying two of the German fighters and severely damaging another, at a cost of two aircrew wounded. Another Anson discovered four formidable Me.110 twin-engined fighters machine-gunning British trawlers off the S.E. coast and intervened to such good effect that one of the 110s promptly dived in flames into the sea.

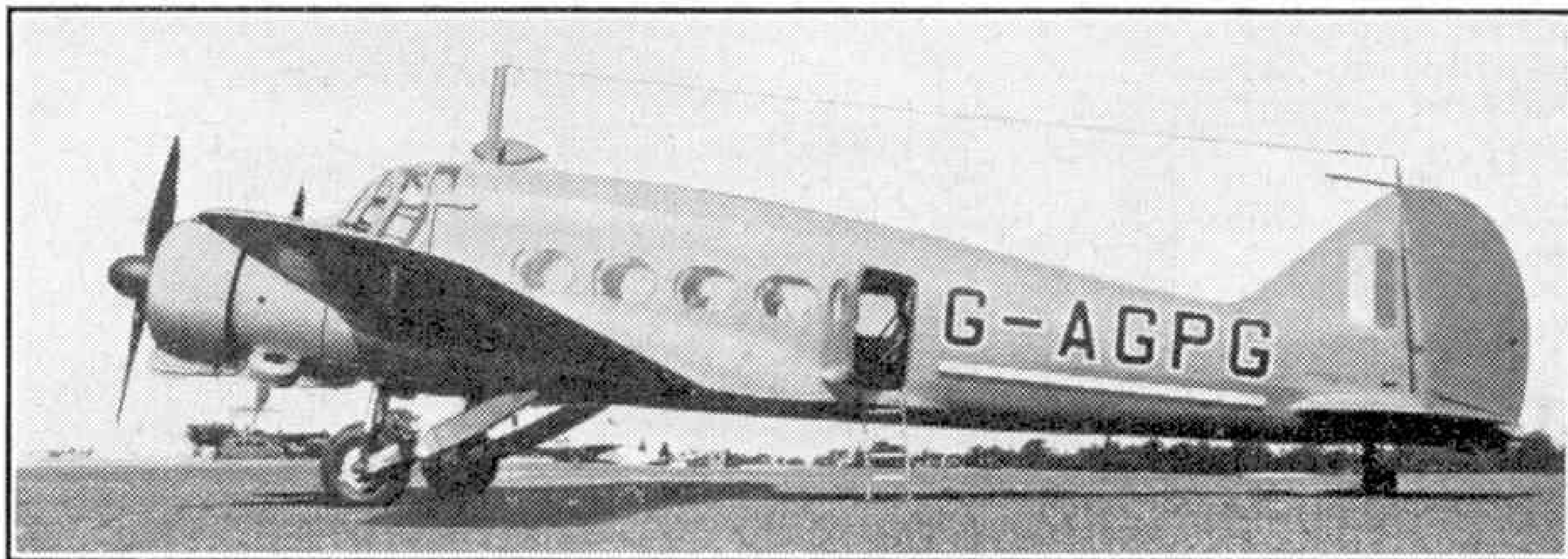


Cockpit of Avro Anson T.20 Navigational Trainer, showing the comprehensive range of instruments and controls. Photograph by courtesy of A. V. Roe and Co. Ltd.

Yet another Anson became mixed up in a dogfight and emerged with a Heinkel 115 floatplane and a Heinkel 111K bomber to its credit. "Annie" began to acquire a reputation as "an aggressive little brute!"

But by then the Anson was starting a new job of vital importance for which it was much better suited. Avro had first suggested its use as a trainer in November

The Anson has a special place in my personal affections, for it was in one of these aircraft that I made my first flight 11½ years ago, from the famous R.A.F. Station at Upwood in Huntingdonshire. It was no mere joyride, for my pilot, a sandy-haired young Flying Officer, was officially resting after a year of hazardous low-flying raids in Blenheim day bombers,



Avro Anson Nineteen, with wartime British civil markings.

1935, but their far-sighted idea produced no official enthusiasm until four years later when the Anson was chosen as one of the standard aircraft for the vast Commonwealth Air Training Plan, designed to produce 20,800 aircrew a year from 154 flying stations. Initial orders were for 1,500 Mk.1 trainers, but the need for additional machines soon became so great that a company named Federal Aircraft Ltd. was specially formed to produce Ansons in Canada. They went on to build a total of 2,882, mostly Marks 2, 5 and 6 with American Jacobs or Pratt and Whitney engines, and, in the Mk.5 and 6, with plastic-bonded plywood fuselages. In addition, Avro-built airframes were fitted with similar engines at Toronto by de Havilland Aircraft of Canada, and became Mk.3 and 4.

Between them, these various marks, and later ones up to Mk.22, were used for training navigators, bomb-aimers and airgunners, only the armament trainers retaining the top gun-turret. Other unarmed Ansons—Mk.10s—were fitted out for passenger and freight carrying; and it was this version which earned a tremendous reputation by flying nearly 10 million miles on air taxi work for the pilots of Air Transport Auxiliary who ferried 325,000 wartime aircraft from factory to squadron. They thus paved the way for the highly-successful Anson Nineteen civil transport.

and was spending his time training new crews. I did not realise what this involved, when I offered myself as "a bit of extra ballast."

All went smoothly for the first 20 minutes or so after take-off. We climbed over the little town of March, where I failed to pick out the big railway marshalling yard under its natural camouflage of smoke, and then flew on along the coast of the Wash at about 8,000 ft.

Suddenly, and without any warning, the Anson went into what seemed an almost vertical dive towards a big house by the side of a lake. All I remember of the next few seconds was looking out of the window and watching the ends of the wings flapping as we reached the incredible speed, for an Anson, of 180 m.p.h. Then we flattened out low over the house and began to climb again, while the bomb-aimer congratulated the navigator on pin-pointing his "target," the pilot congratulated the bomb-aimer on his estimated direct hit, and I congratulated myself on still being in one piece.

The same thing happened again several times, but I was ready for it, and the next excitement came when we were over the sea off Lowestoft and saw a fighter racing towards us, looking decidedly unfriendly. Once more we dived, even steeper and faster and lower, wishing that we had just one gun somewhere and wondering what the Germans would say if they shot down our aeroplane and

(Continued on page 430)

DINKY TOYS

Alfa Romeo

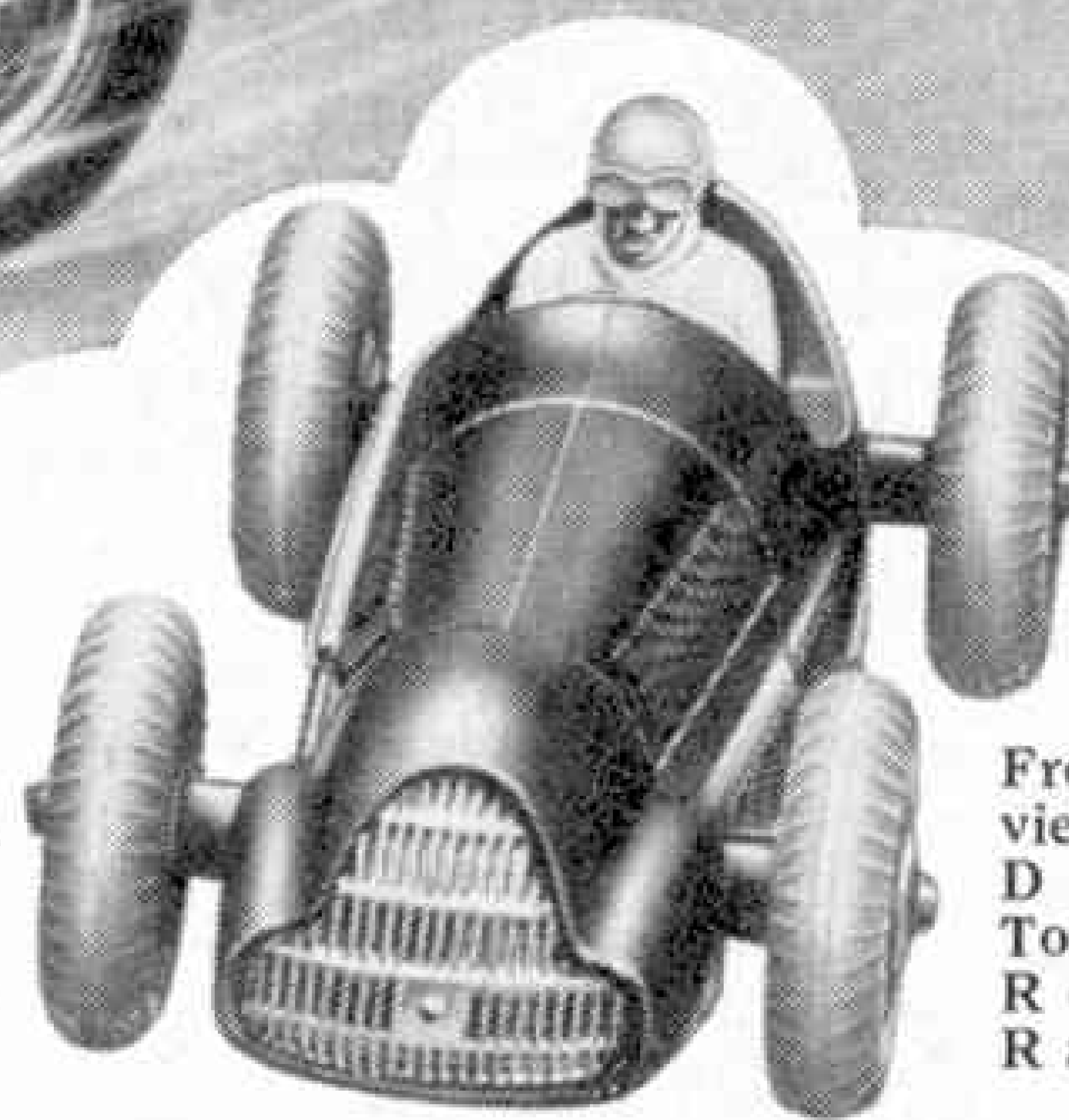
RACING CAR



DINKY Toys owners were delighted with the news, announced in last month's *M.M.*, that a miniature of the Alfa Romeo Racing Car had been introduced in the series. This is a fine reproduction of the most up-to-date Alfa Romeo model, and has all the characteristics that have made Dinky Toys famous. It is a good running model, with sturdy axles and wheels, the latter provided with adequate rubber tyres.

The racing colour of Italian cars is red, and the model therefore is finished in this colour, which with the characteristic front grille gives it a delightfully attractive appearance that immediately catches the eye.

Racing cars of course must have numbers, and the Dinky Toys Alfa Romeo carries the racing number 8. A striking feature is the reproduction of the two long exhaust pipes on the offside. There

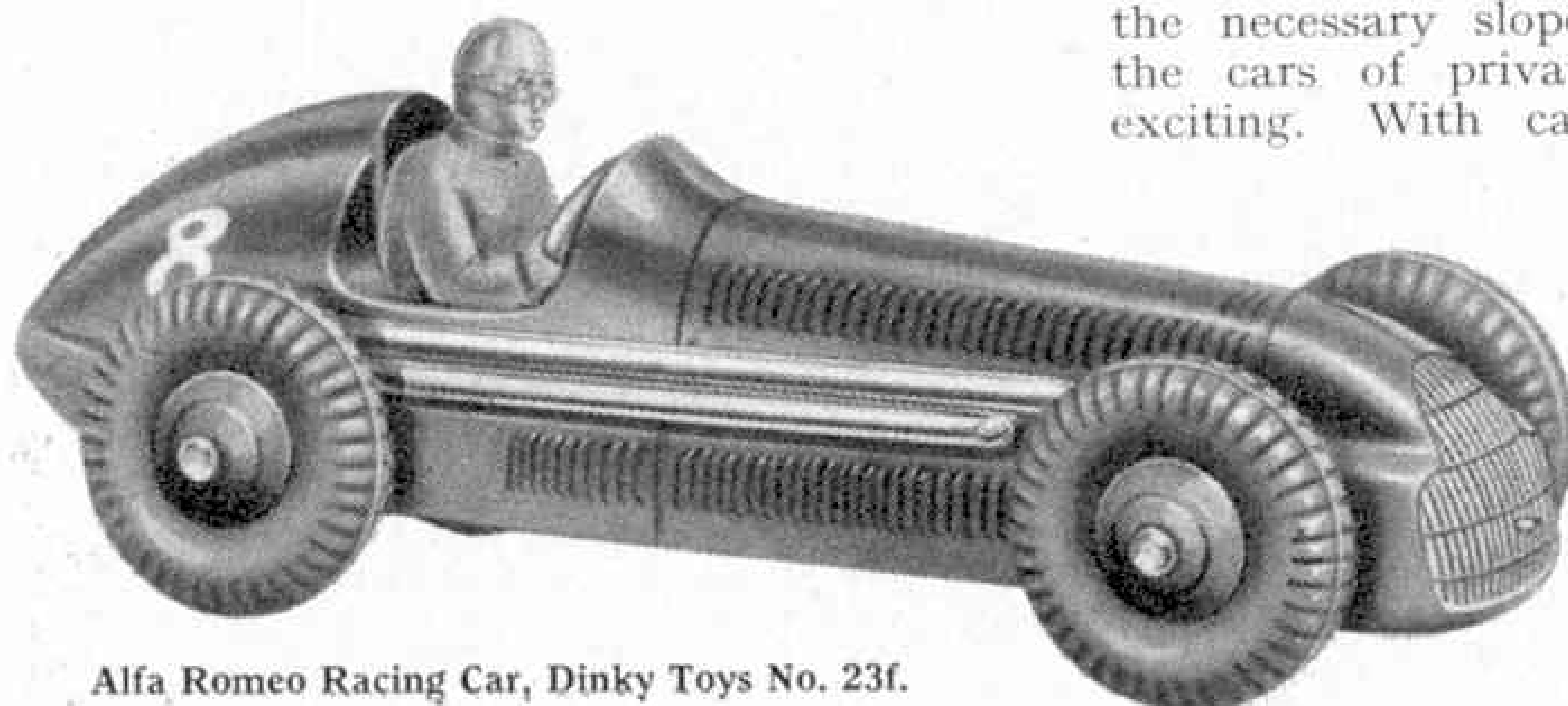


Front end view of the Dinky Toys Alfa Romeo Racing Car.

is a driver too, complete with crash helmet and dressed in white, and altogether nothing could be more realistic and satisfying than this splendid miniature.

Dinky Toys enthusiasts who become the owners of this latest addition to the Dinky Toys series will find it very interesting indeed to try its paces out along with the racing cars already in their possession. This can easily be done on a sloping board, or even on a section of garden path or pavement that provides the necessary slope, and races between the cars of private owners are really exciting. With car models already in

the series there is plenty of opportunity for fun in Dinky Toys Grand Prix and other races. How realistic the new car model is can be seen on comparison with the real Alfa Romeo, illustrated at the head of this page.



Alfa Romeo Racing Car, Dinky Toys No. 23f.



The 6.22 p.m. from Charing Cross, Hastings bound, near Tunbridge Wells behind 4-4-0 No. 30901 Winchester. Photograph by K. W. Russell, Tunbridge Wells.

Railway Notes

By R. A. H. Weight

London Midland News and Travels

New class "2" 2-6-2Ts have been completed at Crewe Nos. 41313-9 for the Southern Region, where they have been allocated as follows: 41313-5, 72A, Exmouth Junction; 41316-7, 75G, Eastbourne; and 41318-9, 75F, Tunbridge Wells. Of those built at Derby, Nos. 41325-7 have gone to 20F, Skipton; 41328 to 15A, Wellingborough; and 41329 to 15D, Bedford. Standard class "4" 2-6-4Ts constructed at Brighton, and stationed at Watford, 1C, include Nos. 80035-8; 80039-41 at Bletchley. Diesel electric 0-6-0 shunters Nos. 12100-2 are at 16A, Nottingham; class "2" 2-6-0 tender engines, Nos. 46501-2 also are stationed there. These were built at Darlington.

No. 46165 *The Ranger* (12th London Regiment) is another converted Royal Scot with tapered boiler. Some of the 4-6-2s are now painted dark green including Nos. 46201 *Princess Elizabeth* and 46234 *Duchess of Abercorn*. "Clan" 4-6-2s have been noted on the Midland Division working Carlisle-Leeds duties as well as into Bradford.

Less than 40 Fowler L.M.S. type "G3" 0-8-0s built between 1929 and 1932 now remain out of 175. Those still at work are mainly on the Central Division. Goods and tank locomotives are repaired at Bow Works, the one-time mechanical headquarters of the North London Railway. Class "2" 2-6-0s have joined the variety of engines seen on the Cambridge-Bletchley-Oxford cross-country route.

Class "5" 4-6-0s from Carlisle, Kingmoor, have been noted working a fast freight turn to Leicester, Midland. Several representatives of this ubiquitous class, numbering well over 800 engines, have recently hauled excursions through to Sussex coast towns, being observed at Brighton, Eastbourne and Hastings.

Blackpool and Fleetwood sheds are now numbered respectively 24E and 24F, having been attached to the Accrington District. When Lower Ince Motive Power Depot was closed the engines were transferred to Springs Branch, Wigan, Shed 10A.

I travelled by the 11.45 a.m. Leeds and Bradford express from St. Pancras in June last in one of the restaurant cars. It was rather a heavy 11-coach train

weighing almost 400 tons full, headed by No. 45649 *Hawkins*, shed 14B, of the 3-cyl. Jubilee class. Signals were against us right through Kentish Town and Belsize Tunnel until closely approached, and acceleration was not rapid up to Sandridge summit north of St. Albans. Between Harpenden and the outskirts of Kettering, where we arrived less than 1½ min. late, an average of over 60 m.p.h. was maintained, with speeds of 76 near Flitwick, 70-69 past Bedford, a minimum of 39 at Sharnbrook summit, 60-62 at Wellingborough and beyond.

Coming back from Kettering to Wellingborough the locomotive was expected to be the Fell diesel mechanical 4-8-4, but this was temporarily under repairs. One of the latest standard type 4-6-0s, Nos. 73008, working from Derby to St. Pancras with 8 on, about 270 tons, made a stout

effort to keep the hardly practicable 8-min. timing for 7 miles start to stop, but failed by a narrow margin, occupying 8 min. 36 sec. with a maximum speed of 70 m.p.h.

A new 2-6-2T, No. 41328, in rear of a push-and-pull unit, took me on to old L.N.W.R. territory into Northampton (Castle), where SF 2-8-0s were passing through with coal from the Midlands. Another class "2" tank, No. 41272 of Bedford, bearing plates commemorating the fact that it was the 7,000th locomotive built at Crewe, was the engine along the former Midland line through pretty country to its home town, so much in the company of the Great Ouse which the railway bridges many times.

A similar Bradford to London express, calling at principal stations, hauled by another Kentish Town Jubilee, No. 45627 *Sierra Leone*, with 11 on, ran me back to St. Pancras in exactly an hour, including two signal delays costing more than 4 min., the allowance being 59 min. From Harpenden into the terminus took only just over 24½ min. for 24½ miles with maximum speeds of 76 at Radlett and 75 near Mill Hill. It was gratifying to note the large number of Midland type Compound 4-4-0s at work on semi-fast services, and to hear of their frequent appearance on what was then the fastest train on the route—the 6.30 p.m. St. Pancras to Leicester, and on to Derby. Various accelerated timings are now in force over the Midland main line.

More Trains "On Time"

British Railways announce that during a four-week period early this summer over 95 per cent. of the 568,542 passenger trains run were punctual or not more than 5 min. late. This was the best figure recorded since the compilation of such statistics covering the whole country began in 1948. Included in these figures was the fine average of 83 per cent. of the express and long-distance services reaching destination within five minutes of due time, many being punctual and some early.

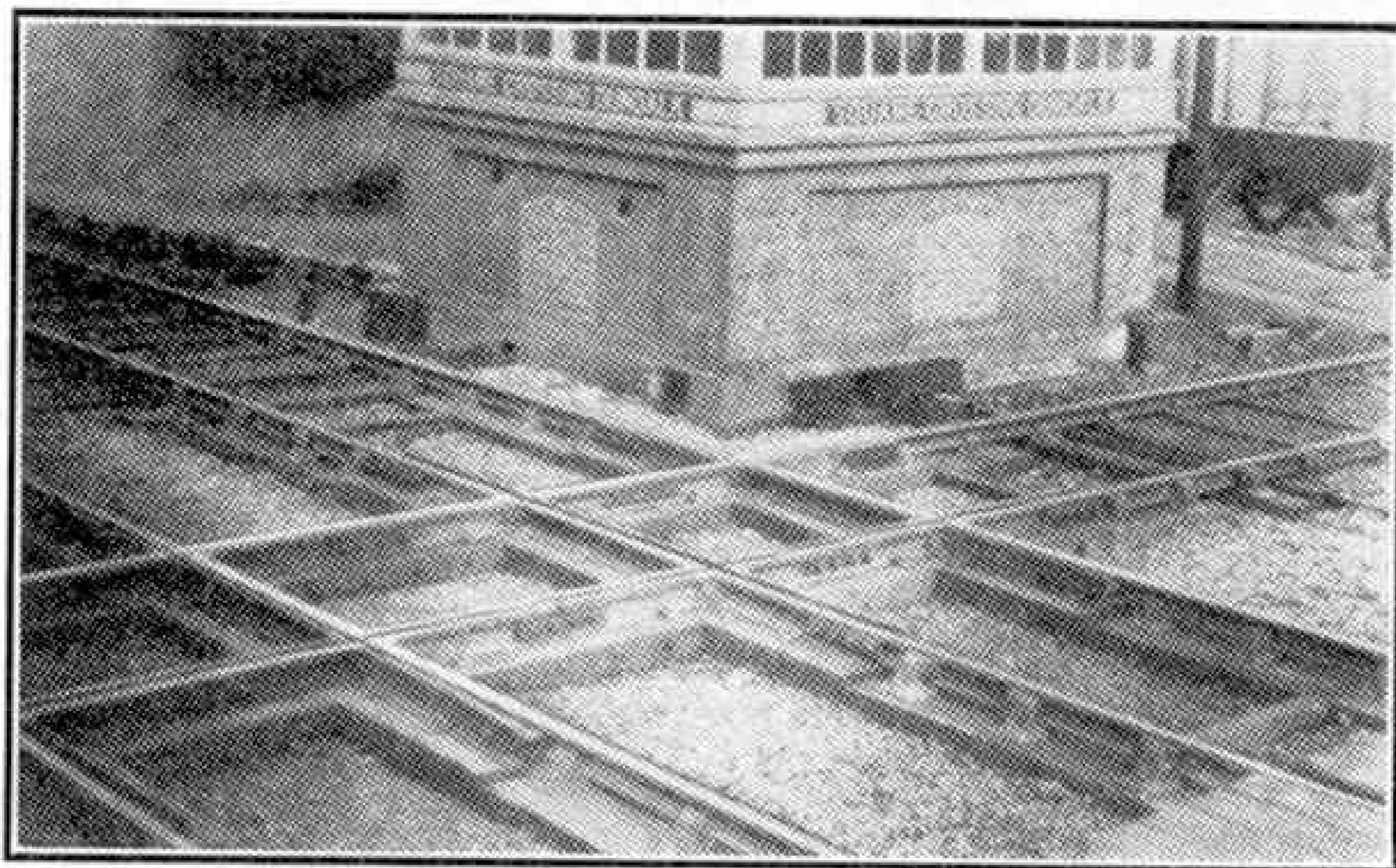
In the course of well over 3,000 miles' travel this year, up to the date of writing, on the London Midland, Western and Southern Regions, many of the trains—fast and slow, steam and electric—by which I have journeyed have been punctual and on a number of occasions some lost time has been made up. The only instance of late arrival to the extent of more than a minute or so was due to a succession of permanent way slowings, and on account of having to shunt to the opposite track where temporary single line working was in force. Thanks to some recovery efforts and a

fairly generous schedule, that particular long cross-country trip ended only 10 min. late.

I have seen express arrivals well before time at King's Cross and received details of many enterprising runs on the Eastern and other Regions, brief reports of several of which are incorporated in these notes.

Special Train Tours, Past and Future

The Railway Correspondence and Travel Society have organised, in connection with the centenary of



An unusual railway crossing at Dundalk. The G.N.R.(I) double track Dublin-Belfast main line is here intersected by the single Dundalk, Newry and Greenore line, now closed. Photograph by C. L. Fry, Dublin.

Brighton Works, an all-Pullman 60 min. special from London (Victoria) to Brighton and back hauled by an Atlantic locomotive, just like the *Southern Belle* of pre-electrification and indeed of L.B.S.C.R. days. Brighton Locomotive Works and Shed will be visited and a tour made of the Kemp Town branch, closed for many years to passengers, in a special hauled by the oldest "Terrier" 0-6-0T, class A1x, built in 1872. The inclusive charge will be 22/6 adult fare and a detailed itinerary will be supplied. The date is Sunday, 5th October. If the number of applicants exceeds accommodation for that date, it is anticipated that a second similar tour will be run on 19th October, again with a morning departure, returning in early evening.

Apply with remittance and stamped addressed envelope to Mr. R. K. McKenny, 46, Friern Barnet Lane, London, N.11, in good time.

Past tours for members and friends arranged by the Stephenson Locomotive Society have included a special train from Birmingham to Swindon Works, W.R., by way of Droitwich, Worcester and Gloucester, partly using former Midland metals. The return was made through Oxford, Banbury and Leamington. Long halts at Gloucester and Banbury enabled visits to be paid to the Motive Power Depots. The locomotive was No. 2920 *Saint David*.

Southern News and Travels

New standard 2-6-4Ts up to No. 80043 had been seen working from Brighton by the beginning of July, prior to proceeding northward. Class U 2-6-0s have been

noted working from Andover to Cheltenham, also to Oxford and Banbury on freight services, together with 0-6-0s, in addition to the passenger engine workings on to the W.R.

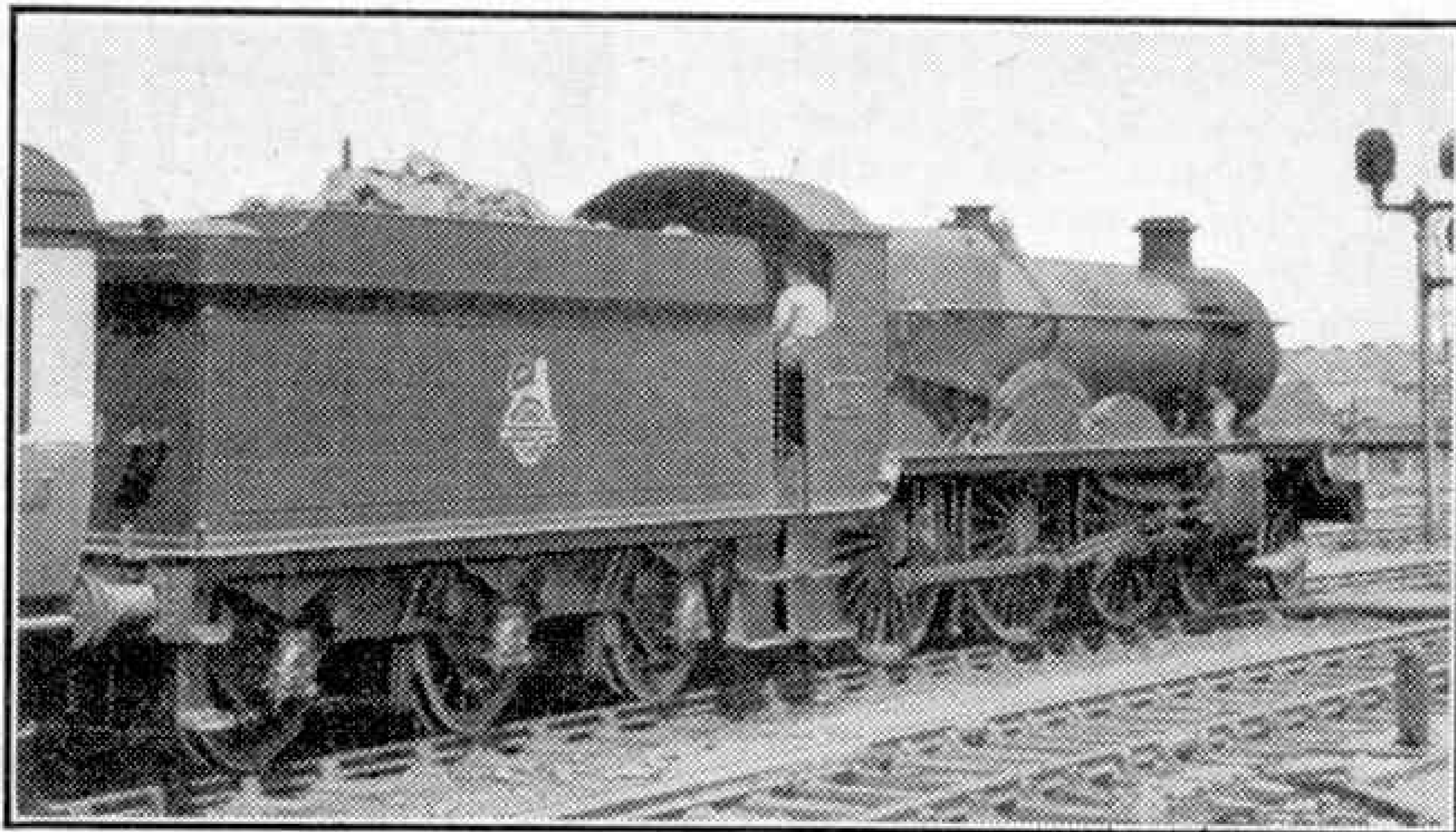
Britannia class 4-6-2s *William Shakespeare* and *Iron Duke* have been hauling the *Golden Arrow* and following boat express services fairly regularly. On a July Saturday afternoon observations on two Kent main lines out of London included *William Shakespeare*, two blue Merchant Navies, 13 light Pacifics, 8 King Arthurs, 20 Schools, 14 S.R. 2-6-0s of three classes and six 2-cylinder 4-4-0s, in the course of about four hours. Some Western and Eastern Region coaching stock was noted.

Schools No. 30922 *Marlborough*, has been stationed at Stewarts Lane and appeared a good deal on Victoria-Newhaven boat trains, on which Atlantics have also operated as well as hauling through Midlands and South Coast services.

After delays due to signal and track repair slowings when I was timing the 7.25 Charing Cross-Hastings, a fast train over a difficult route, although nearly 4 min. late at Orpington No. 30907 *Dukwich*, with 8 coaches, reached Tunbridge Wells in exactly the 46 min. allowed from London Bridge. Maximum speeds were 73½ near Dunton Green, 84 after Hildenborough, followed by a fine climb up from Tonbridge which was passed cautiously as usual.

With 9 corridors, No. 30911 *Dover*, made up time from Crowhurst to Tunbridge Wells, occupying only 30½ min. compared with 33 min. allowed, although almost stopped by signal outside; again uphill work was exceptionally good as was the case when No. 30900 *Eton* was winning back to time in the opposite direction. These were all St. Leonards engines and men.

All within 50 miles of London through delightful scenery, I travelled in three different trains over three separate single lines, the first two being stretches of some length: from Culver Junction, near Lewes, to East Grinstead, then East Grinstead to Groombridge. On these, locomotives were 2-6-4Ts of L.M.R. type. The third section was along the short connecting track in Tunbridge Wells from the West station to Grove Junction behind a Wainwright H class 0-4-4T of former S.E. and C.R. design.



A Western "small 40," No. 4060 *Princess Eugenie*, one of the diminishing number of the Star class 4-6-0s, ready to leave Bristol. Photograph by Eric J. Scholefield.

Of General Interest

Emett Takes The Air

Emett, of *Punch*, this year soars into the air at the Festival Pleasure Gardens at Battersea in his Shell ByPlane X-100—a masterpiece even more fantastic than the fabulous Far Tottering—Oyster Creek railway.

The plane is equally at home on land, on sea, or in the air, but pending official decision on the granting of a road fund licence, limited certificate of airworthiness, and registration at Lloyd's, the monster is on view to visitors at the Gardens.

High up in the nacelle, hopefully gripping the wheel, helm, and/or joystick, sits Professor Septimus Urge, a fearsome figure with vast mustachios, pince-nez, and a deerstalker cap, who, according to Emmet, inspired the invention.

"The Professor and I," says Emmet, "spent high and hazardous days observing the flight of bats, the habits of blow lamps and the bursting-points of bathroom geysers. We conducted secret, dark and midnight tests with magnetised steam and paddle wheels in derelict canal tunnels.

"We scoured South Kensington drawing rooms for bamboo curtain poles and the mud flats of Essex for cast-off shrimp boats. From attic to attic we hunted hip baths to hold heavy water. Finally, with plans and materials complete, we commissioned J. E. Slater Ltd. of Kibworth to build this revolutionary craft and convey her to Battersea.

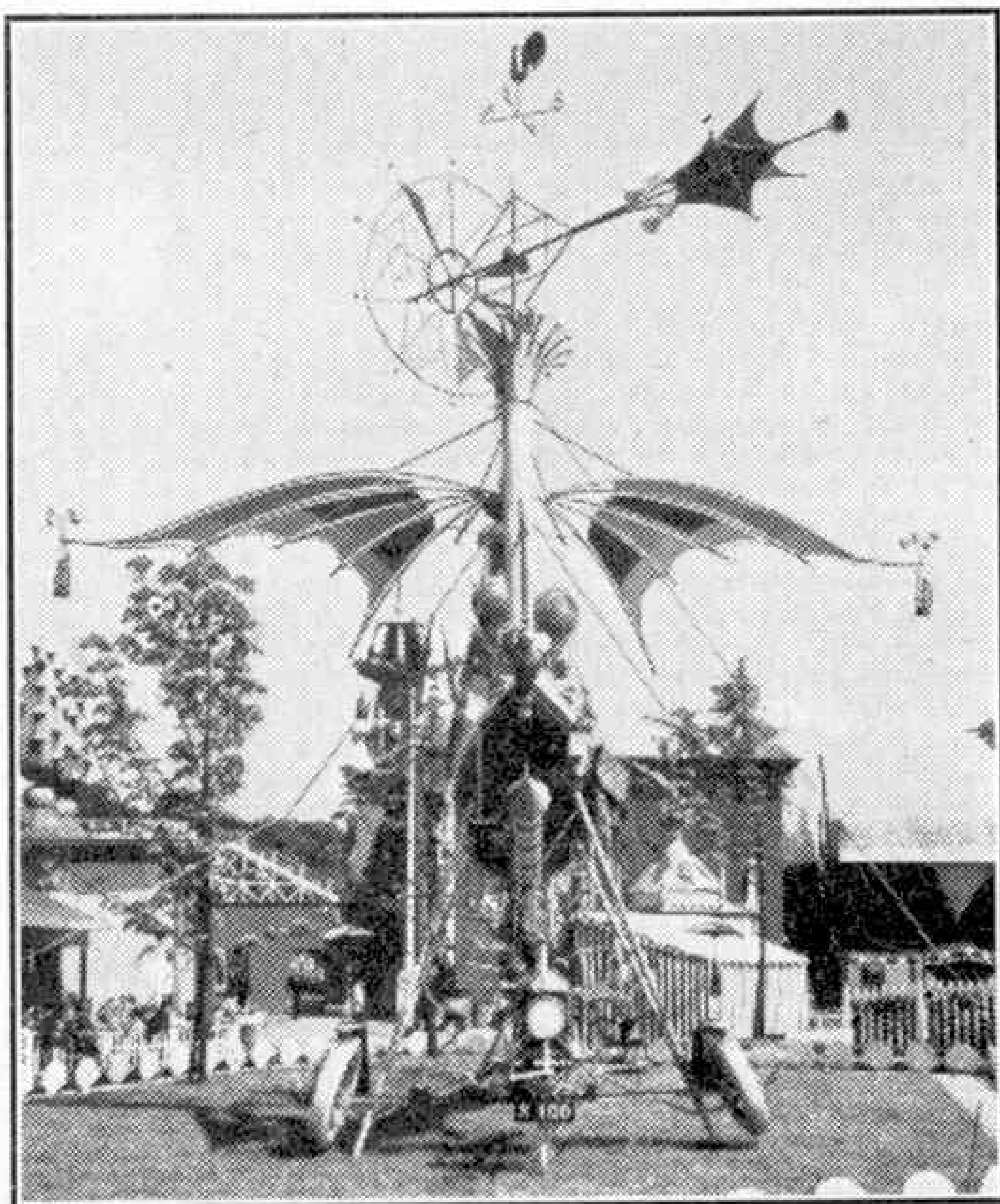
"The nacelle, ship-shape and Bristol fashion, and planked in antique teak, ends in a graceful dragon-fly tail which keeps the delicate butterfly wing-rudder the necessary 25 feet distant from the incandescent boiler.

"Behind, surrounded by an envelope of warm air, is the pilot's seat. Immediately in front provision is made for one first-class passenger, who controls the small brass carronade provided for warding off woodpeckers who might savage the bamboo struts.

"The long pinnace funnel supports the main wings and a large-diameter rotor which extracts power from the four winds and conveys it elsewhere. Amidships are

the Urge Crankless Combination Beam Engines which provide, at the turn of a tap, propulsion for sea or air. The rocking beams are surmounted by four gas-filled copper balloons, which rise and fall gracefully and alternately, under the influence of the engines, and are not only aids to flight but take the weight of the bearings.

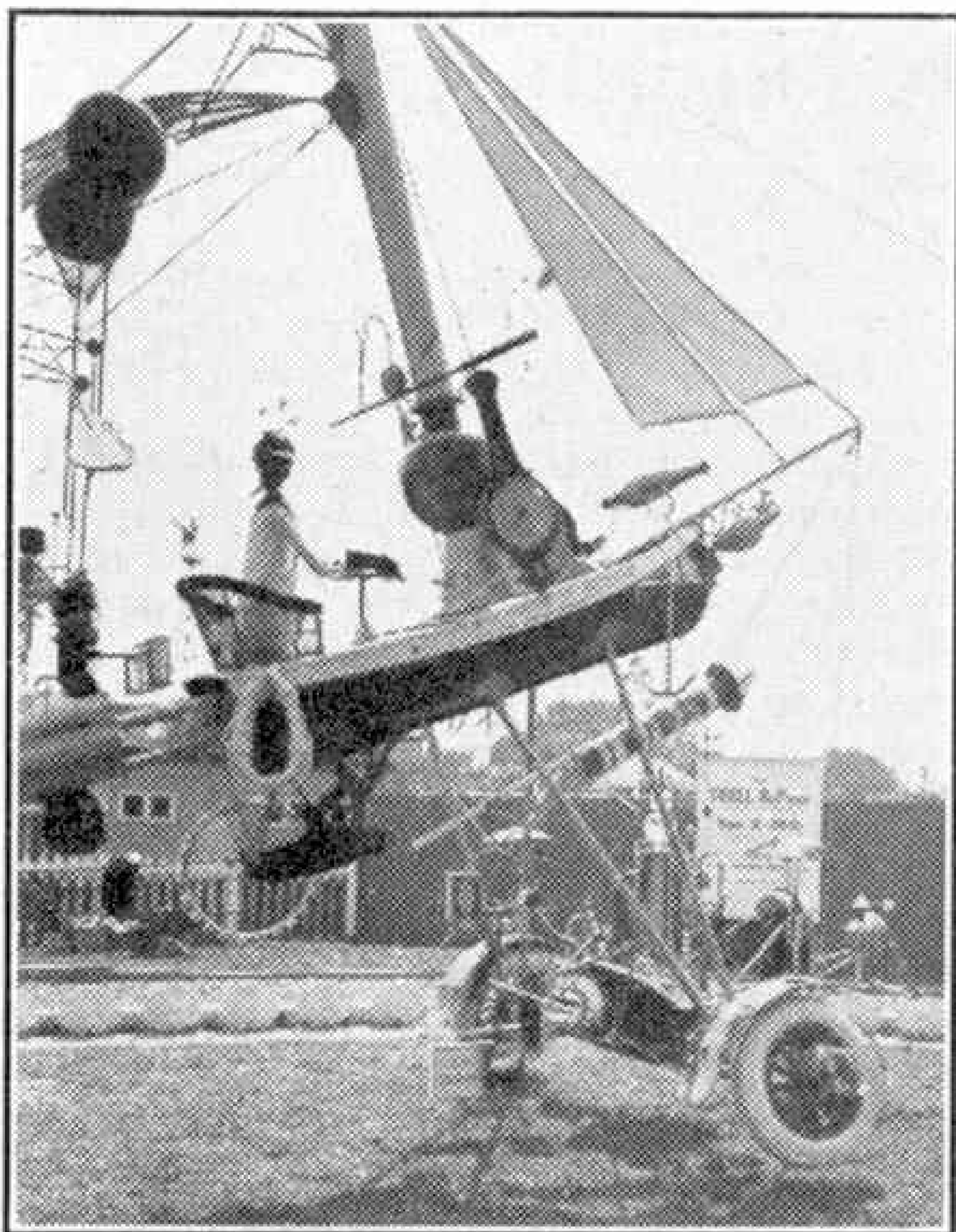
"The massive paddle wheels are made of a multiplicity of seaside spades, ideal for the sandy waters around our holiday resorts. Light pedal assistance is provided so that the pilot may cut off the engines and cleave the upper air in silence and serenity. Rocket-assisted take-off is also



The latest Emmet masterpiece when seen from the front. Our illustrations of this wonderful aircraft are reproduced by courtesy of Shell-Mex and B.P. Ltd.

fitted, with a hand-operated three start striking mechanism.

"Perhaps the most interesting feature is the Main-Flight Jet Engine on the front axle. This works on almost unknown principles. Detail work is particularly thorough, as witness shrimp traps to protect the front tyres from underwater attack."



This picture of the Emett ByPlane will perhaps help you to see how it works—but it hasn't helped us to find out!

New Bows for Old

One's first impression, on seeing the process in operation in the lower illustration on this page, is that the factory has had a rush order for bows for the Battle of Agincourt. But, though this job is as old as the industry, there is no connection with archery warfare, or with Robin Hood and His Merry Men.

Actually, the workman is gluing struts on to the soundboard of a piano in the making. The 'bows' supply the necessary pressure. He is shown tapping the curved laths into place between the solid top of the frame and the struts to be glued. By the "feel" of each lath he can adjust the pressure to a nicety at any point, and has at his command an infinite variety of adjustment, unobtainable by any other means.

This method has been in use for at least 150 years, and is likely to stay as long

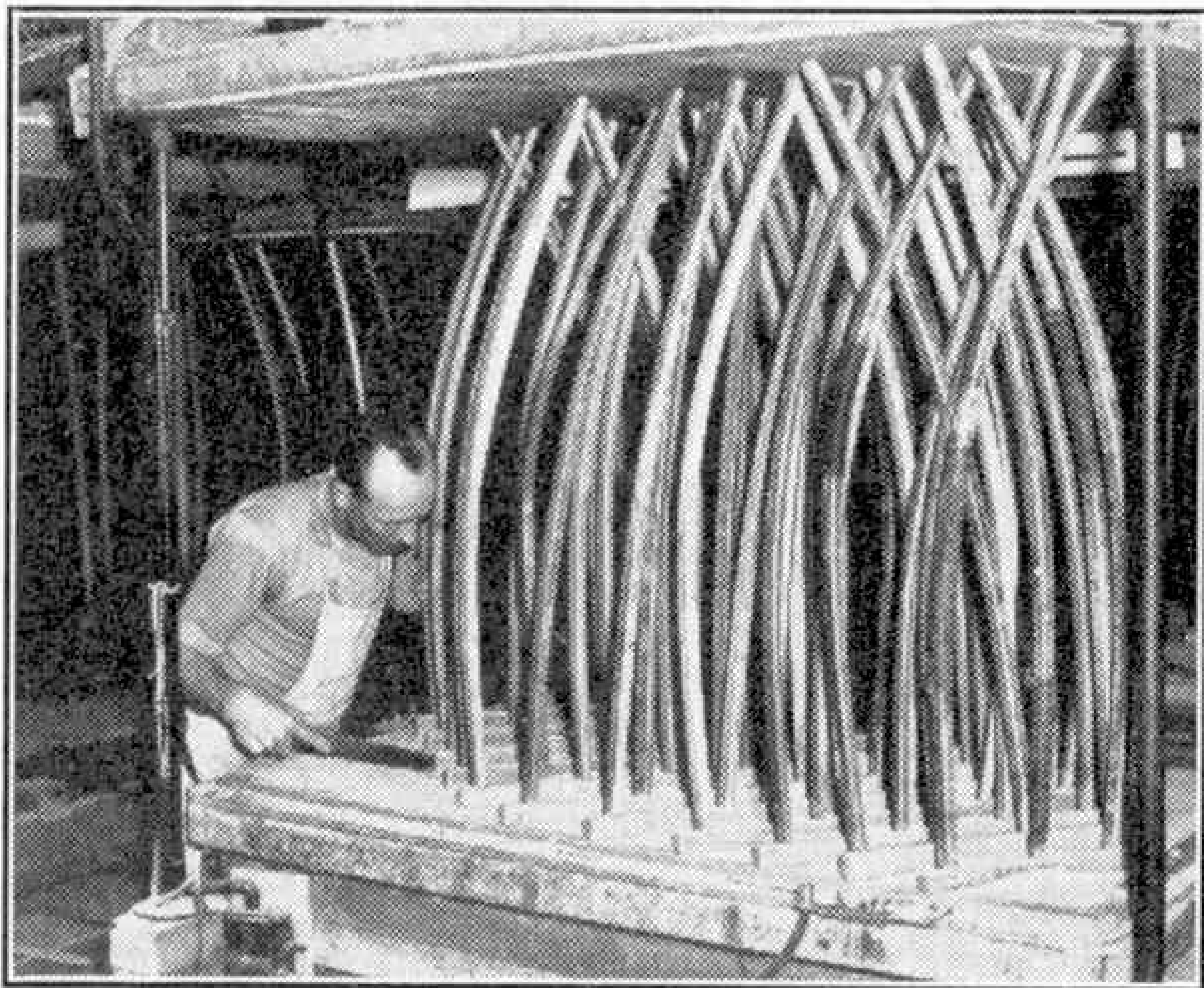
as pianos are made. The modern touch is supplied by the use of electricity for speeding up the setting of the glue. The switch box and connection can be seen at the base of the frame. H. V. TIPPER.

Lift Raises Part of Cathedral Floor

A novel lift has been installed in Liverpool Cathedral. It operates between the chair store in the basement and the main floor of the Cathedral itself, at the crossing of the western transept. As the lift car rises it pushes about 150 square feet of the floor of the building upward to a height of 15 feet, this floor section, which weighs between three and four tons, returning to its normal place as the lift travels down.

The lift was built by the Express Lift Co. Ltd., Northampton. It is hydraulically operated and electrically controlled, and is used to bring chairs from the basement into the central space of the Cathedral.

It is not easy to detect the section of the Cathedral floor that rises with the lift. For this reason the lift controls have been so made that they can be worked only from the main floor level, where the operator can see that the area of floor raised by the lift is clear of people. When the lift car has been loaded with chairs in the basement, pressing a button switches on a warning light in the control panel on the main floor; the lift operator, when the floor is clear, then presses the starting button. All cables are hidden in one of the main piers.



These are not bows in the making, but are used in gluing struts on the soundboards in the manufacture of pianos, as explained in the accompanying short article. Photograph by H. V. Tipper.

Pottery for the Multitude

By Arthur Gaunt

TO most of us the term pottery means cups, saucers and plates, but to the 70,000 workers engaged in the industry it may also mean vases, kitchenware, decorative figures, sanitary ware, tiles, earthenware pipes, plantpots and insulators.

The ages-old craft of the potter, indeed, plays an essential part in some of our most modern activities. For instance, it has facilitated the development of the electrical industries by providing porcelain insulators capable of withstanding great voltages, as well as by supplying smaller insulated components for switch gear. The expanding chemical industries, too, have required special stoneware for new processes, and research laboratories have made demands of their own on the potteries.

For domestic pottery, in particular, Britain is known throughout the world, and since the end of the War the industry has been responsible for a growing share of our vital export trade.

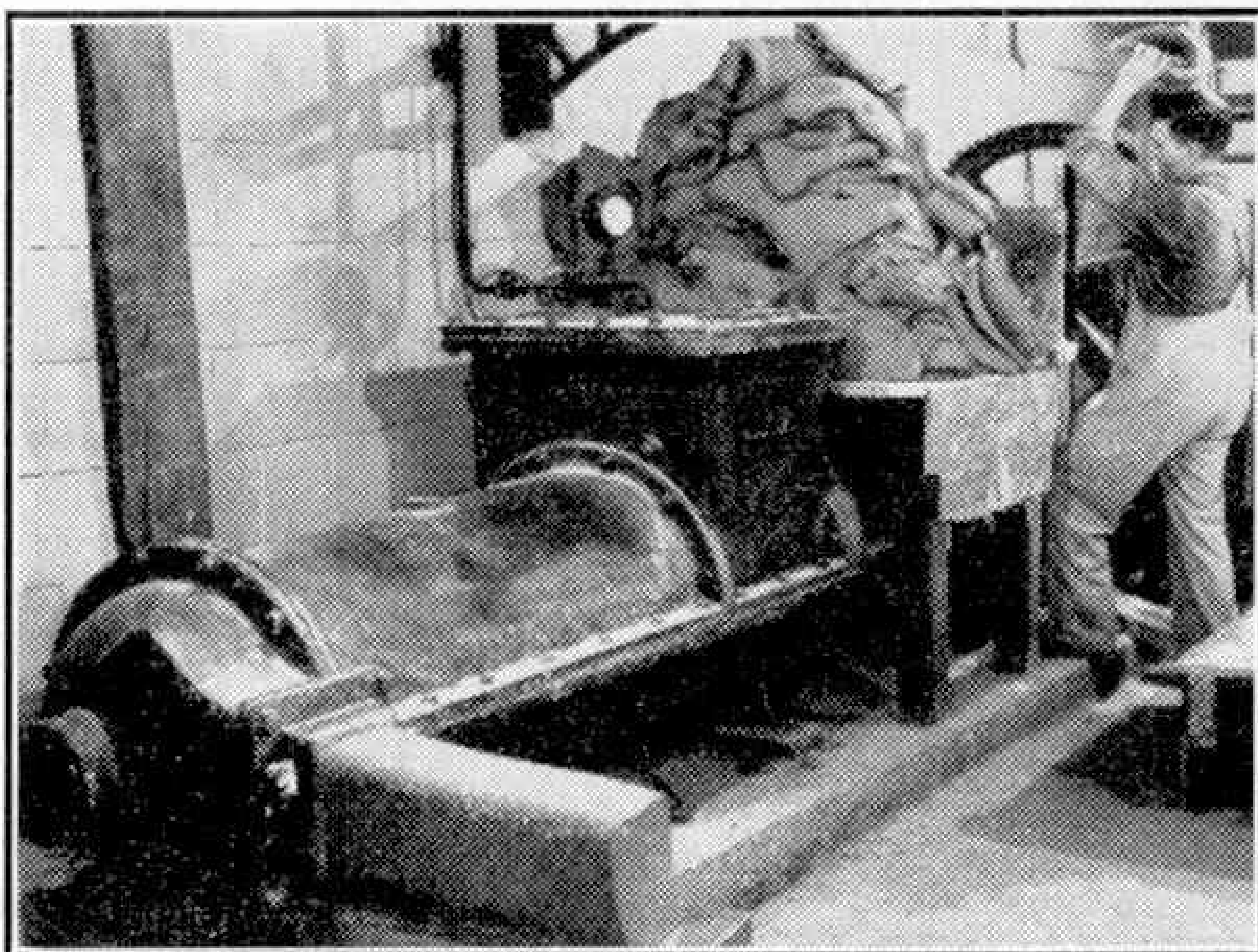
Although Staffordshire is the main centre of pottery production, important factories are also to be found in London, Bristol, and other parts of the country, and the industry has its own research association at Stoke-on-Trent, where experiments are constantly in progress to improve production methods and make better products.

Although all objects fashioned out of clay and then baked can be described as pottery, nowadays much more than this simple process is involved. Various other ingredients are mixed with the clay or "marl" to make the "slip"—the thin liquid which is the first stage in manufacture.

For some articles nearly half the mixture may consist of calcined bone, while for earthenware a quantity of ground flint or other minerals may be added to clay which has been specially weathered and matured. Revolving machinery does the mixing, and electric magnets are used to remove metallic impurities during this part of the

production operations. The excess water is then squeezed out mechanically, before the clay passes to the next operation in a pug mill.

Briefly, this machine may be likened to a sausage machine, for it minces the mixture and extrudes it in large slabs through a suitable nozzle. This is the material which goes to the potter, the craftsman who fashions the soft clay article on his wheel. Alternatively, mass production may be employed at this stage, the ware being pressed to shape in a mould.

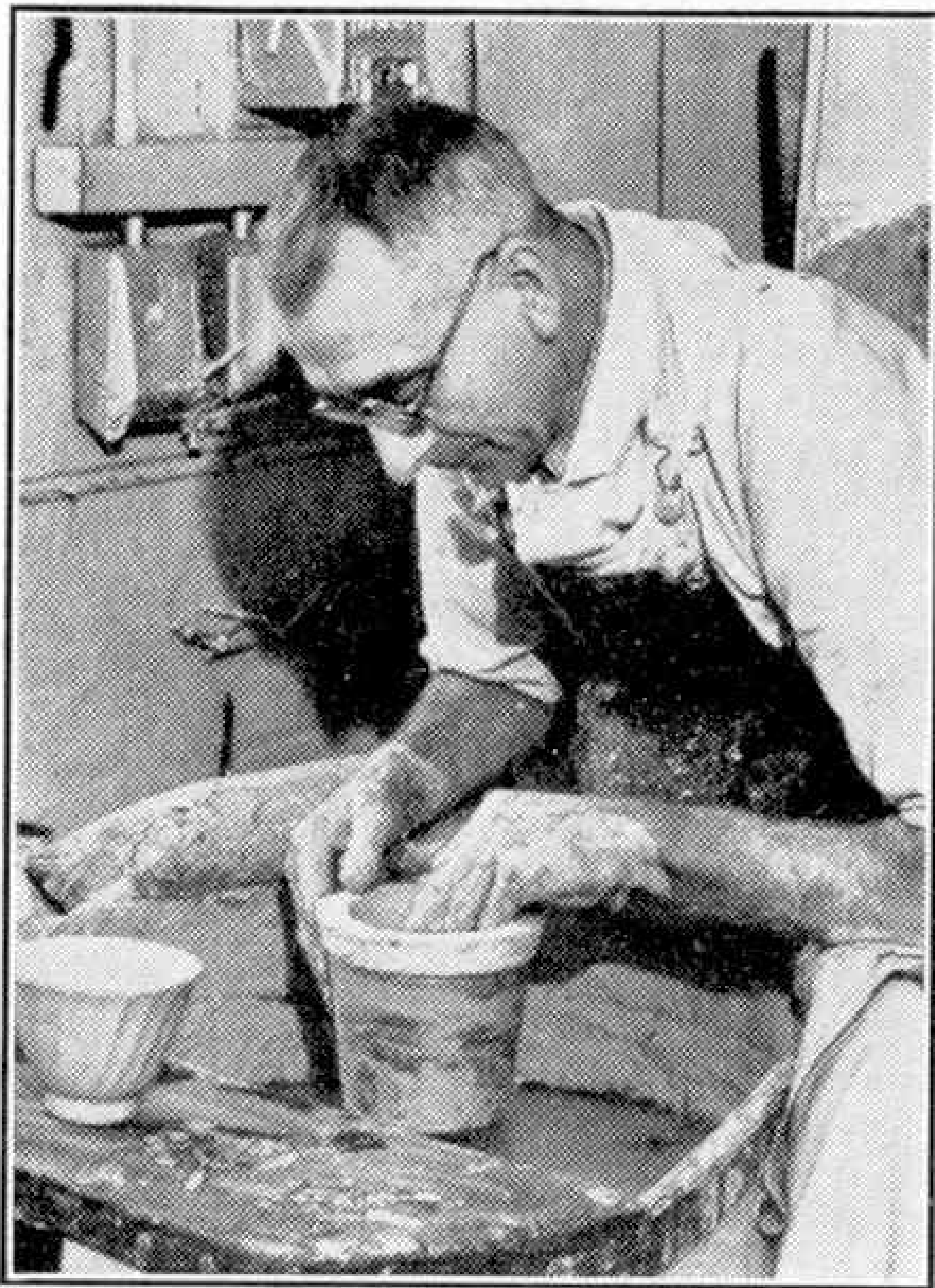


Slabs of clay being thrown into the pug mill, a huge mincing machine from which this raw material for the making of pottery is extruded, ready to be cut into suitable lengths for the potter.

The modern potter's wheel, in fact, is often driven electrically, and mechanical cup and plate formers are being increasingly used today. A device fixed to the side of the machine carries a shaped bar which presses on the disc of clay, so that the latter takes on a predetermined shape as it revolves. One advantage of using such a "jigger," as it is called, is that the finished ware is always the same in form, whereas articles thrown entirely by hand on the wheel inevitably differ slightly in shape and size.

From the potter with his wheel the plate or other object passes to the trimmer or turner, who trims it on a lathe, after it has first been allowed to dry in a gently heated chamber. Moulded articles undergo a similar drying operation, and as this

contracts them slightly, due allowance for the reduction in size has to be made in preparing the moulds. Tiles are produced



A stage in the making of a cup. The potter is pressing the lining of clay into a plaster mould.

in quantity by using mechanical hydraulic presses, using clay dust.

The greatest advance in pottery production has been the introduction of the modern mechanical oven, which has speeded up the firing operation and simultaneously reduced it to a more exact science. The electric tunnel kiln, which has superseded the old bottle-shaped coal-fired oven, has been found especially a boon in manufacturing electrical porcelain components such as super-insulators, and a system of potters' drying stoves enables them to be dried more uniformly.

In the mechanical electric kiln the ware travels on trucks which move slowly through a firing tunnel, emerging after 55-60 hours. An essential requirement is to raise the temperature of the oven gradually after the first 24 hours until it reaches $1,300^{\circ}\text{C}.$, and it is vital that at no stage should the temperature be allowed to fall back until firing is complete.

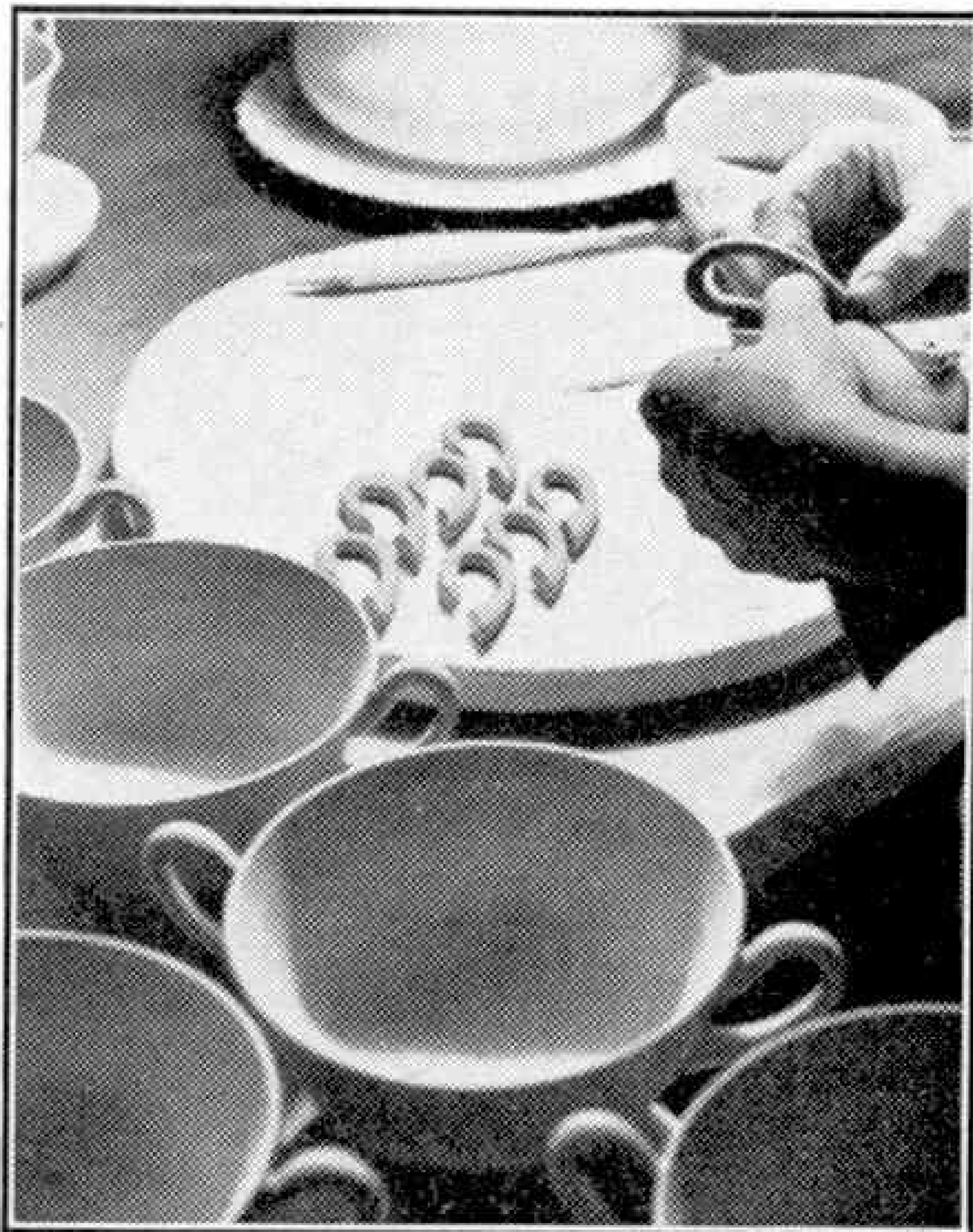
Proper packing of the articles in readiness for the firing is also essential, so that despite the adoption of scientific firing the production of perfect pottery still calls for skill and judgment. Many of the products

are placed in "saggers," or fireclay containers outwardly resembling big cheeses, before they are put into the trucks for the kilns. Ground flint is used to keep them apart, and it is important that every article be stacked perfectly level. Hollow ware, such as cups, usually goes at the top of the oven; flat articles, such as plates, are put at the bottom.

As the temperature of the oven and the time the ware is allowed to remain there are so vital, the pottery industry long ago introduced a device to ascertain the rate of progress from outside the oven. Pottery changes its shape as firing progresses, so the time-honoured idea is to put cones of clay in the oven and to observe how these are affected.

Another method is to place small horizontal bars in the kiln. These are supported at the ends, but sag at the middle when a certain temperature is reached.

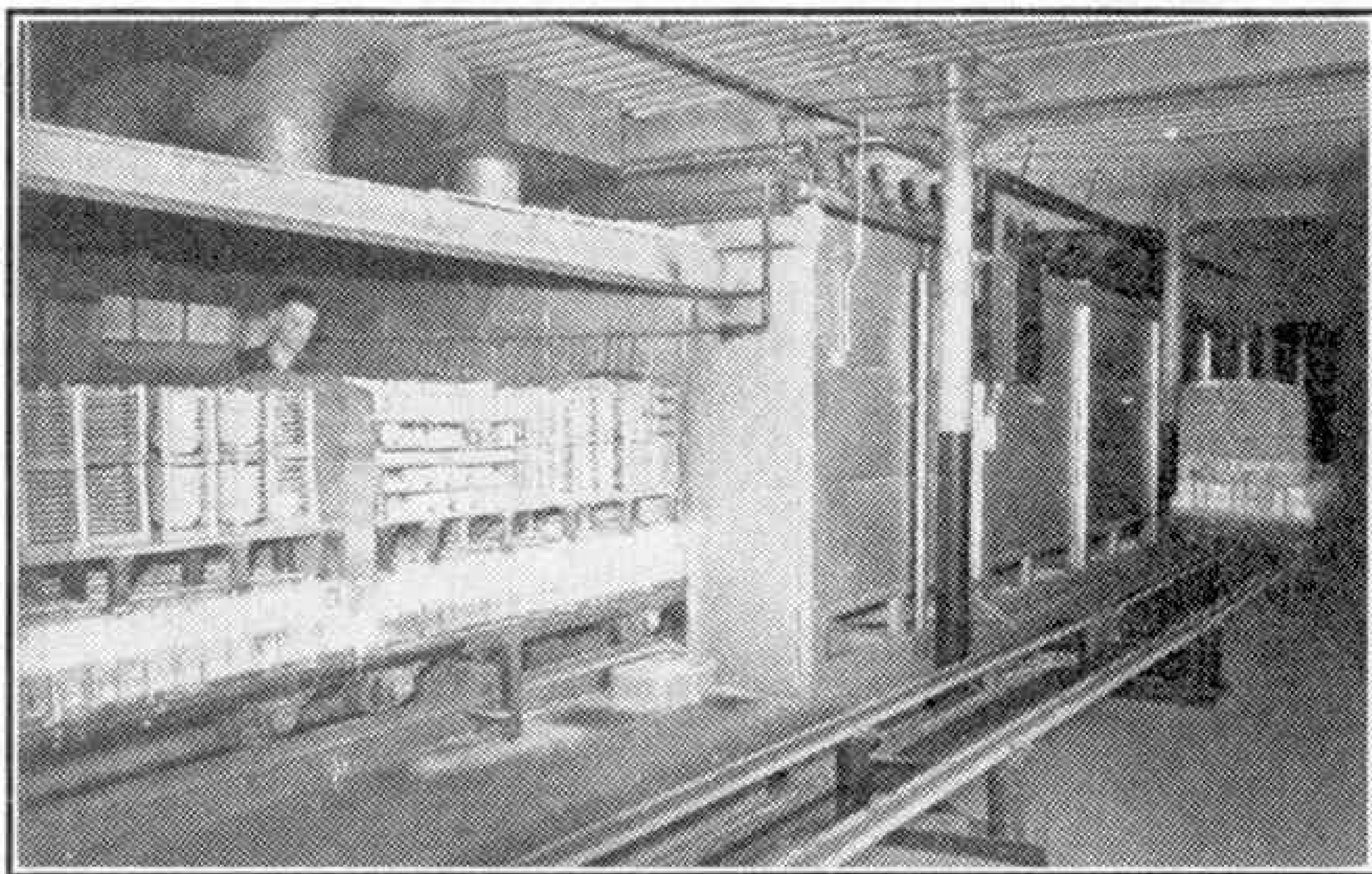
Firing is repeated two or more times, the ware being known as unglazed "biscuit ware" after the first firing. It has then to be dipped in glazing liquid and re-fired to fix the glaze, and a third firing is needed if decorations are added on top of the glaze. As in the case of the other operations, science has improved this process in recent years, the old lead glazes having been largely replaced by better ones made from borax and other chemicals.



Shaped handles are fitted to the cups after these have been formed.

Mass production has also been applied in decorating some of the cheaper types of pottery, notably tableware, though hand decorating is still the rule for better class crockery. The coloured designs may be added by applying transfer papers on which they have been printed, the operation being performed before glazing. A combination of this method and hand decorating is also used, the designs being first applied in outline from tissues and then filled in by hand. For the best quality tea and coffee sets the decorations may be painted with gold or platinum. Trained artists are employed to create the original designs.

A somewhat strange sidelight on this industry is that while science has helped to produce more and better pottery in recent years, so has the scientific development of other industries been aided by modern potteries. Many special types



The pottery is fired in an electric kiln through which it passes on slowly moving trucks.

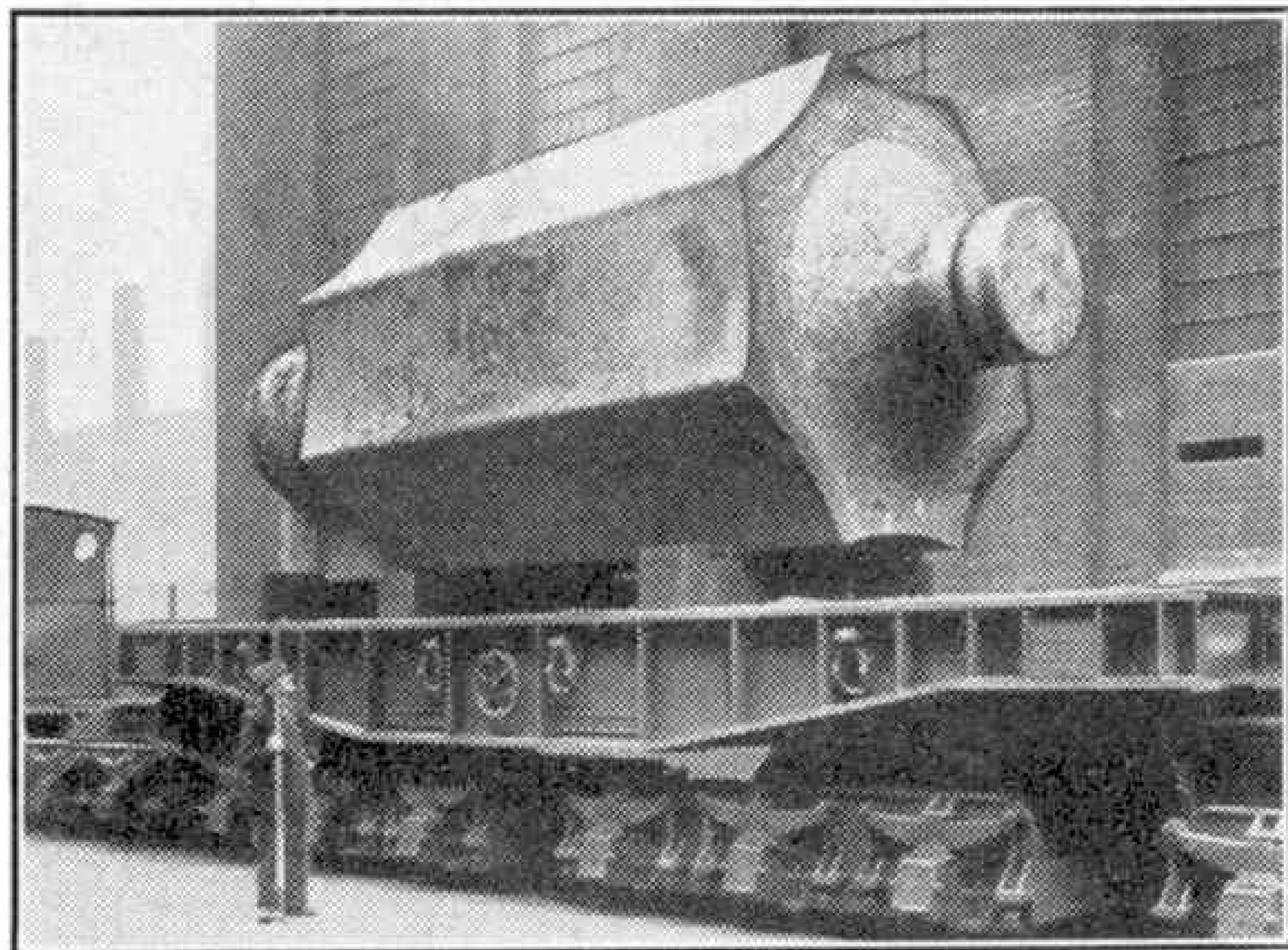
of apparatus have been made from clay for new industries and new scientific processes.

The development of penicillin required large-sized vacuum filters of a special type, and these were made of chemical stoneware. The same material has been used for tanks and other containers needed by paint manufacturers, textile firms, dyeworks, the makers of pharmaceutical products, and producers of explosives and fertilisers.

A GIANT STEEL INGOT

The immense steel ingot seen in the illustration below is the largest ever cast in Great Britain. It was recently produced

at the River Don Works of the English Steel Corporation, Sheffield, where 270 tons of special steel were melted in four acid open hearth Siemens furnaces to make it.



Britain's largest steel ingot arouses admiration. It required 270 tons of steel to cast it in the River Don Works, Sheffield, of the English Steel Corporation, to whom we are indebted for our photograph.

The highest technical skill was required in casting such an enormous mass of steel, and lifting it and transporting it also set many problems. Two cranes, coupled by a specially constructed lifting beam, were used to lift it. Perfect teamwork was necessary in this and in other operations with it, so special rehearsals with an ingot of 210 tons were arranged.

Casting this ingot was the first step in making a one-piece hollow forged boiler drum, the largest of its type ever made in this country and possibly in the world. This was ordered by Clarke Chapman and Co. Ltd. for a new power station for the British Electricity Authority.

My Return to Meccanoland

By Roland Fry

WHEN I was a boy I was a Meccano enthusiast, and I could scarcely wait for the first day of the next month, when my eagerly desired copy of the "M.M." was due. I enjoyed my model-building to the full, as I thought, but today, when I share its delights with boys of the next generation, Meccano seems to me more thrilling than ever.

When men of my age return to the surroundings of their youth they are sometimes disappointed, and when they come back to their old hobbies they often feel not only disappointment, but also a sheepish sense of the ridiculous. But the return to Meccano is like those reunions so dear to the middle-aged male heart. The old friend is seen in a new light, with new merits and beauties resulting from the knowledge and the perception that have grown in the years.

Years of deprivation, years devoted to the search for bread and butter, to growing up and putting away childish things, seem to have produced in me a pent-up desire, in which I can now indulge with no sense of guilt by putting my precious Meccano, with reservations, into the hands of my boy and his friends. I see my old pleasures again in their eyes, and my joy in their interest is blended and heightened with a sense of relief. Suppose the boy had not been interested! That of course would have been impossible, but it is grand to find that he and his friends have the same enthusiasms as I had when I was their ages.

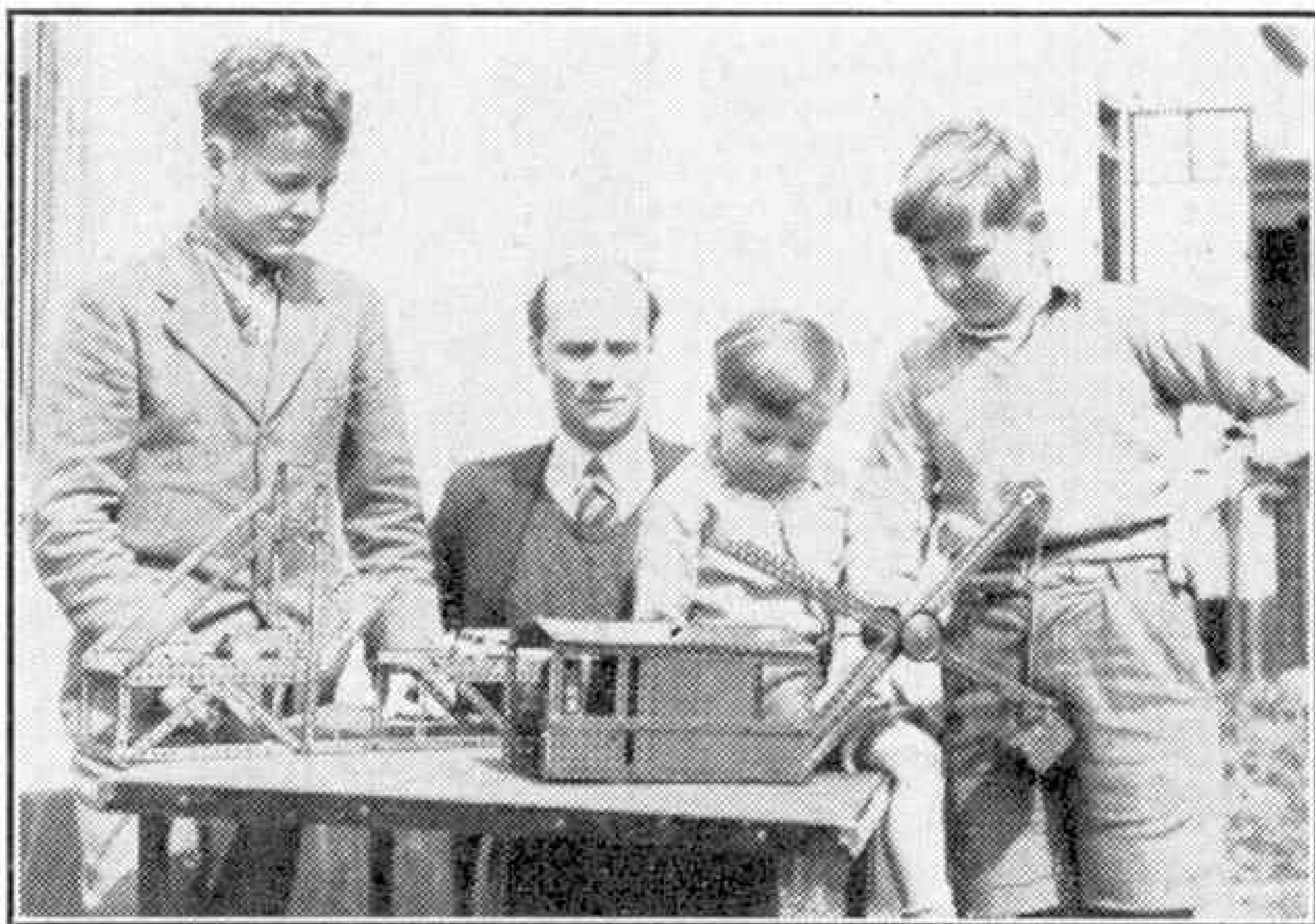
I have regained the almost lost sense of working with my hands, seeing well-known things grow in model form, and new ones following the same course. To be poetical for a moment—I have become a watcher of the skies who makes exciting excursions into the unknown. And success in this revisited sphere gives me a strange and almost disproportionate sense of triumph.

Some of my likings I

can identify. The richness of the red and green of present-day Meccano contrasts pleasingly with the silvery gleam of the nickel-plated parts of my early years, and to me the gear wheels and other parts with a brass finish are like delicate points of light, jewels in a rich setting. And there are many things I can relish far more now, such as the touch of a flexible but firm working model, with its steady bearings, and the smooth movement of meshing gears.

Those familiar parts give pleasure too when they are just there for me to look at, waiting to be built into one of the new models I have in mind. In the box they make me—and the boys—good store-keepers, tidy and attentive to detail. We all become quantity surveyors for the bigger models, counting them out and pricing them, and the boys have even forgiven me for drawing them into arithmetic and making them find they like it, at the end of the day.

For all of us the years ahead are going to be thrilling, with those parts "made to measure," yet fitted so well for being used over and over again, constantly appearing in a new form, always the same but ever-changing. One thing we have already decided—there must be more and more of them at our call, with which to work for us their ever-happy magic.



The author of this article enjoys the delights of model-building with his son and his friends. Here they are with some of the fine models they have built together.

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.

"CURIOSITIES OF ANIMAL LIFE"

By MAURICE BURTON, D.Sc. (Ward, Lock, 17/6)

When the author was invited to write a book with the above title he found it difficult to see where to start. The truth of this becomes apparent long before the reader has made his way through the wealth of detail given by him in response to the invitation, and Dr. Burton himself remarks that he has only touched the fringe of his subject.

When the question arose of making a selection of striking, unusual or extraordinary details of animal life, the author chose to proceed in the same way as those who built up our knowledge of natural history, starting with something commonplace, that can be observed by almost anybody, and looking for related things to add to it. The result is remarkable, and will delight many readers who indeed are not specially devoted to animals or particularly interested in them, because the method itself is so interesting.

Each step away from a selected commonplace beginning is in itself almost easy. A good example is found in the chapter in which the author begins with the need for water. He remarks that he himself, from experience, knows the strain and discomfort provoked by going without a drink for three days. Then he begins to look round to see how other living creatures fare in similar tests. Obviously a start is made with the camel, and before we have finished with this creature we know many strange and unexpected facts about it. This is not the end of the story, in which we meet scorpions, gemsbuck, quail and jerboas, and many strange creatures that seem capable of living practically without drinking. We wind up with a rock rat that has flexible ribs, enabling it to squeeze between rocks as it forages. This has nothing to do with the search for water, but is the end of our journey, a natural one in this connection, through the world's deserts.

And so we go on, starting from such ordinary things as curiosity in animals, the attraction of bright objects, and the need for food and for storing it. Such subjects are discussed as the use of tools by animals, the rise and fall of animal populations, migrations, and winter and nightly sleep. One strange fact after another comes to light, and readers will be continually astonished and enthralled by what they learn.

There is much food for thought in these wonderful stories as well as material for animal lovers and those who merely revel in strange happenings. Dr. Burton's story indeed is one that will provide a continual feast for his readers, who are led to realise that all his curiosities are not useless bits of information, but fit into place in the great animal kingdom. The book is illustrated by many excellent line drawings.

"THE A.B.C. of BRITISH CARS"

By JOHN DUDLEY (Ian Allan, 2/-)

This new edition covers more makes of British cars than those previously issued, and deals only with current models. New models have appeared on the roads in increasing numbers since 1945, and with many new post-war characteristics. This revised edition is therefore very timely, and will be invaluable to

the motor car spotter. There is a good half-tone photograph of each of the 50 types of cars dealt with, an excellent description of the main structural features of each vehicle and, in some instances, a note on the type and power of engine used. There is a list of British car registration letters, and one of the international identification letters used when cars are taken abroad. The booklet ends with an interesting car registration number spotting game.

"CAMPING"

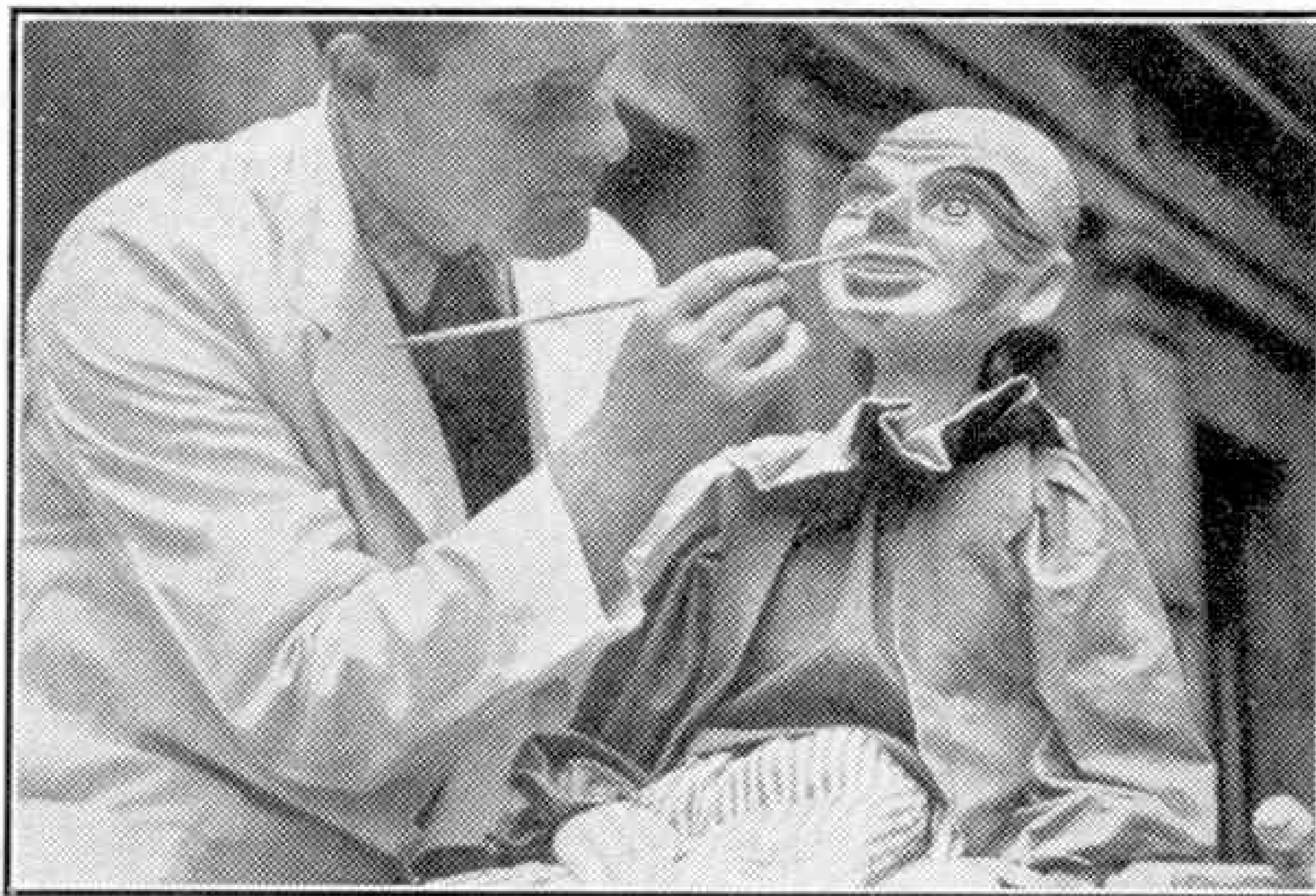
By DAVID ROBERTS

"PUPPETRY"

By JANET EVEC
(Foyle, 2/6 each)

Camping can be an ideal way of spending a week-end or a holiday if one goes the right way about it. If one is new to it, however, it is essential first to study carefully some practical book on the subject, such as Mr. Roberts' *Camping*. This excellent book is intended primarily for the camper with little or no experience, although even the seasoned camper can benefit from it, as it deals with most of the basic problems of modern camping, such as what equipment to take; the kind of places in which to camp; how to travel efficiently and comfortably; preparing meals in camp; and how to spend leisure "under canvas." There are some excellent half-tone illustrations of camp equipment and of types of camping sites.

It is good news that interest is reviving in the age-old pastime of Puppetry—the peopling of a miniature theatre stage with home-made puppet actors, the gestures and movements of which are controlled by the unseen hands of the operator, or



Touching up Scotto the clown. This illustration is from "Puppetry" by Janet Evec, reviewed on this page.

"puppet master" as he is called. In *Puppetry* Janet Evec deals with every phase of the hobby, from the fascinating tasks of making and clothing all kinds of puppets and constructing a model stage and scenery, to writing the plays and enjoying the thrill of staging one's own productions. It costs very little for the necessary materials and accessories, and with the aid of the practical instruction and helpful diagrams given in this book even the unskilled enthusiast can be sure of attaining success.

"THE RHYMNEY RAILWAY"

By D. S. BARRIE, M.B.E.
(The Oakwood Press, 6/6)

The Rhymney Railway was one of the busy and adventurous South Wales lines taken over by the former G.W.R. 30 years ago. The author is a recognised authority on the systems of that region and his book, the result of much original research, is a welcome addition to the Oakwood Library of Railway History.

The development of coal measures in the Rhymney Valley caused the first steps to be taken towards the formation of a railway between Rhymney and Cardiff. At first this was dependent on the older Taff Vale Railway for its access to Cardiff. Friction with the Taff Vale and financial difficulties clouded its early years, but matters improved later, and the Rhymney eventually built up for itself an exceedingly strong position. It gained access to Cardiff independently of the Taff Vale, and established strong partnerships with other companies, including the G.W.R. and the L.N.W.R. How this was done is here told lucidly by Mr. Barrie, who then continues the story down to the amalgamation of the line, and of others in South Wales, with the G.W.R., as a preliminary to the main grouping scheme in 1922.

A good selection of illustrations and an excellent map help the reader to follow the story, interesting and authentic, that the author has to tell. Copies of the book can be obtained from The Oakwood Press, Tanglewood, South Godstone, Surrey, price 6/9 post free.

"COME AND FISH"

By MICHAEL SHEPHARD (Museum Press, 18/-)

All youngsters enjoy an occasional fishing expedition, even though it may be only to a local pond, and some find its pleasures so satisfying that angling becomes their life-long hobby. This splendid book makes it easy to understand why, for it is far more than a textbook on the type of equipment to buy, the kind of bait to use, and the technique to adopt. Sound advice is given in good measure, not in dull, technical terms but skilfully woven into the story of the author's own innumerable angling experiences. In the very first chapter he delights us with vivid recollections of his boyhood beginnings as an ardent angler.

After a valuable general chapter on types of fishing tackle, the author deals with fishing for carp, tench, salmon, trout, pike, sea-trout, and several other species, devoting a chapter to each kind of fish. He also writes about angling competitions.

The 24 half-tone photographs with which the book is illustrated are a treat in themselves, and vividly portray varied aspects of this healthy outdoor pastime.

"SERVICE SUSPENDED"

By H. C. CASSERLEY (Ian Allan, 2/6)

The sub-title correctly describes this book as a pictorial survey of British passenger services that are no longer in operation. The growth of road motor traffic over the years has meant the elimination of many railway and light railway services that used

to be familiar, and in some instances even the railway effects have been removed.

Fortunately photographic records of many of the services were secured when they were in operation, and Mr. Casserley has here brought together an attractive selection of pictures of trains that run no more and routes where the clank of wheels is never heard today. Most of the pictures are from Mr. Casserley's own photographs, and he also contributes a useful table of suspended services, giving in each case the section of line, the owning or operating company and the date of closure. The list is up to date as far as possible to November 1951.

"THE AIRPORT VISITOR"

(Penman Enterprises Ltd., 2/-)

The 1952 edition of this useful annual publication is on the same lines as that of last year and, as then, is concerned mainly with the Ministry of Civil Aviation airports at London, Prestwick, Liverpool and Blackpool. These airports have public enclosures and special facilities to enable the general public to watch the flying and to see for themselves just how a busy airport is run; and readers able to visit any of those just mentioned will find this booklet most helpful. In each case the location of the airport and the best way to get there are described, the hours of opening, with interesting details about the runways and airport buildings, and a note on the types of aircraft likely to be seen there.

The booklet also contains lists of the other airports and aerodromes in the United Kingdom, notes on the types of air liners now to be seen at British airports, and

details of B.O.A.C., B.E.A. and other important airline companies. An aircraft logbook lists the registration letters and other details of some 800 air liners flying in and out of British airports. There are interesting articles on the types of ground approach systems in use at airports; helicopter development; and the Royal Observer Corps.

Illustrations of air liners, ground aid equipment, airport scenes, and a map of London Airport complete this excellent publication.

"LOCOMOTIVE STOCK BOOK 1952"

(R.C.T.S., 10/-)

Locomotive enthusiasts will welcome the appearance of the 1952 edition of this well-known R.C.T.S. publication. It contains the usual classified lists of the locomotive stock of British Railways and of London Transport, and there are lists of the locomotives of the railways of Ireland, and other British lines. In addition, the alterations that took place during 1950 and 1951 are dealt with, details as a whole being correct up to the end of December 1951.

Various tables and summaries of considerable interest, notes on historic and preserved locomotives, and illustrations of engines representing classes that have become obsolete during the period under review, with other details, make up a very useful booklet, of the usual high standard of accuracy of R.C.T.S. publications. Copies can be obtained from Mr. D. H. Wakely, 18, Holland Avenue, Cheam, Surrey, for 10/- each including postage.



His first trout. An illustration from "Come and Fish" by Michael Shephard, reviewed on this page.

A Life at Sea

How to Join the Shell Tanker Fleet

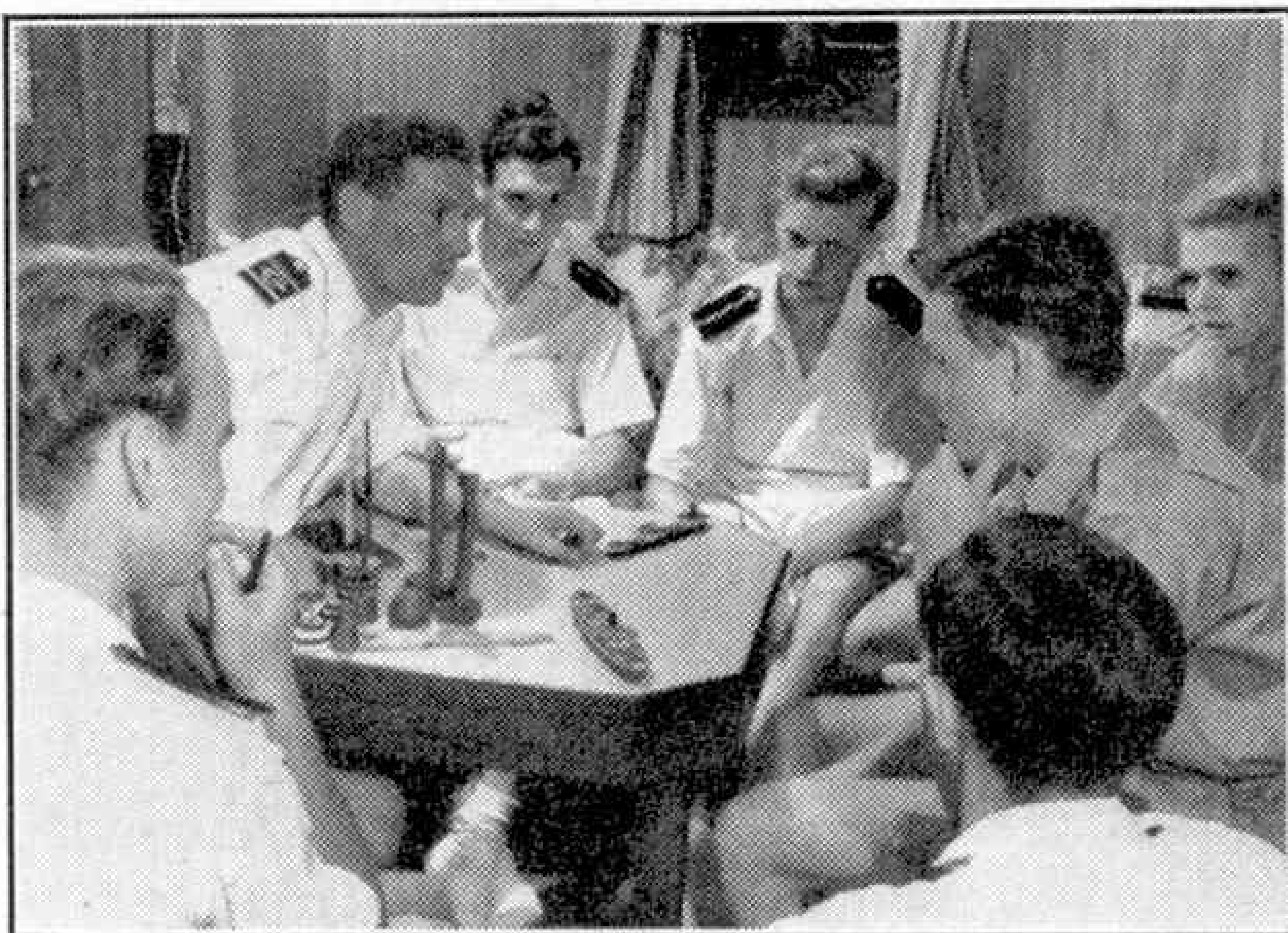
By the Editor

A REAL love of the sea was characteristic of British boys in the days of sail, when life afloat was hard and uncomfortable, and it still is today, when conditions rightly have been wonderfully improved. A career at sea, whether as a deck officer or in the engine room, is spiced with a certain amount of adventure, and those who are willing to learn to serve before they are called upon to lead will find the life satisfying in every way, while the rewards of good service are now higher than ever they were.

I have just been reading about the schemes for training deck and engineer officers that have been adopted by the Anglo-Saxon Petroleum Company Limited, the operators of the Shell fleet of oil tankers, which readers know to be one of the largest maritime enterprises in the world. The Company prizes its ships very highly indeed, and so do we, for their part in bringing to us oil and petrol for driving and lubricating engines of all kinds, from the giant diesels of great ships to the single-cylinder engines of motor cycles and the tiny engines of the powered pedal bicycles that are now so familiar, not to mention other countless uses in industry.

A very large number of officers is required to staff the many Shell tankers afloat, and in the main the Company look to their apprentices as their future Masters and Chief Engineers. With this in mind they have splendid schemes for training their apprentices and starting them on their climb of the ladder, at the top of which, in the highest ranks, are men of worth who have proved themselves in every way in an exacting career. The prospects of promotion are excellent for those who acquire their Ministry of Transport Certificates and show the desired

ability. Moreover, serving Masters and Deck and Engineer Officers of the fleet who have the necessary qualifications are given first consideration when vacancies arise on shore in all parts of the world in the Nautical and Technical Divisions of the Marine Department. The end of a career afloat brings no disappointment to Shell officers, for they can retire on



Apprentices in navigation receiving instruction from the second officer during the maiden voyage of the Shell Tanker Velutina. Our illustrations are from Shell photographs.

full pension at the early age of 55, one of the youngest retiring ages in the Merchant Navy.

Let us take apprenticeship in the Deck Department first. This is open to youths between the ages of 15½ and 18 years who have reached a General Certificate of Education standard in Mathematics, English and two other subjects. If they pass the Ministry of Transport eyesight test and are in good general health they are considered for the full apprenticeship of four years on pay. If they have had no pre-apprenticeship training they may be required to spend a month at the Outward Bound Sea School at Aberdovey, already familiar to "M.M." readers, or to undergo a training of three months at a nautical establishment selected by the Company. Possibly both courses may be



A deck apprentice has a last look at the white cliffs of Dover as the 28,000-ton tanker *Velutina* leaves England for the Persian Gulf on her maiden voyage.

required, and the tuition fee for the nautical establishment training is paid by the Company. Youths who have passed through the training given by H.M.S. *Worcester*, H.M.S. *Conway*, the Nautical College, Pangbourne, or similar training establishments may have their apprenticeship cut to three years instead of four. A remission of Sea Service is also generally given to those who have had pre-sea Training at the University College School of Navigation, Southampton, and Gordonstoun School.

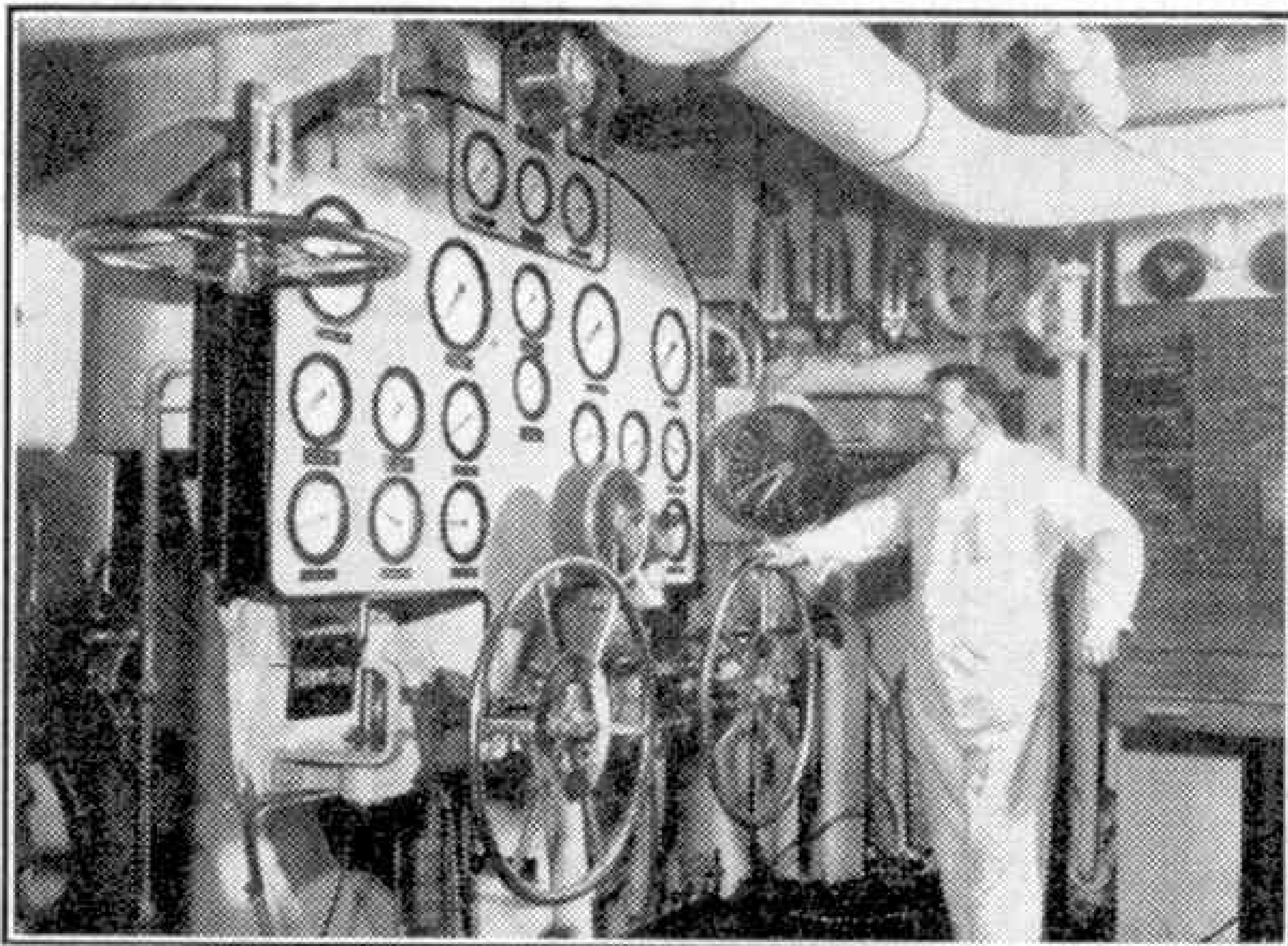
Now for the start of life at sea as an engineer. A new alternative scheme for training Engineer Officers for the Merchant Navy has been announced by the Ministry of Transport, and has been hailed as one of the most welcome measure since the war. Under it shipowners are able to train their apprentices for engine room duties on lines somewhat similar to those in force for Deck Officer Apprentices. Until it was introduced youths wishing to go to sea as engineer officers had to serve a shore apprenticeship of at least four years in an approved engineering workshop. This made

things difficult for those who did not live in large industrial centres or seaports. Now they can carry out their initial full time studies at approved technical colleges to prepare for the National Diploma in Mech.Eng. and part of their subsequent training is obtained during service as apprentice engineers afloat.

The Anglo-Saxon Petroleum Co. Ltd., which aims at recruiting and training 200 apprentice engineers a year to meet the needs of its ever expanding fleet, is one of the companies that have adopted the scheme. The normal age of entry is 16 to 18 years, and entrants should have had full time education up to that time, and have gained proficiency in mathematics and physics. Boys who leave school at 15 and have

completed a year's part-time education at an approved technical college also will be considered, as will boys from public schools, even if they are slightly over 18 years of age, provided they have obtained the required degree of proficiency.

Youths who are accepted for training spend two years at a selected technical college, a year and a half as Apprentice Engineers afloat in Shell tankers, and a final year training at a suitable engineering establishment ashore. Throughout the whole of this period wages are paid, and certain allowances (Continued on page 430)



The chief engineer at the control panel in the engine room of the *Verena* during her trials in the Clyde.

MECCANO

MO

A World-Wide Contest

With the object of encouraging owners of Meccano Outfits to try their skill in designing and building new models based on their own ideas, Meccano Ltd. are organising a great International Model-Building Competition in which Cash Prizes to a total value of £1,000 will be awarded for the best models submitted.

The Competition is open to every owner of a Meccano Outfit, and there is no Entrance Fee. All the competitor has to do is to think out a new model, and then build it in Meccano. The model may be of any subject, and there are no restrictions on the size of Meccano Outfit or the number of parts used in its construction.

Entries may be sent in at any time between 1st October 1952 and 31st March 1953.

Actual models must *not* be sent in by entrants in this great Contest. Instead good photographs or sketches should be prepared and sent in along with a brief description of the model.

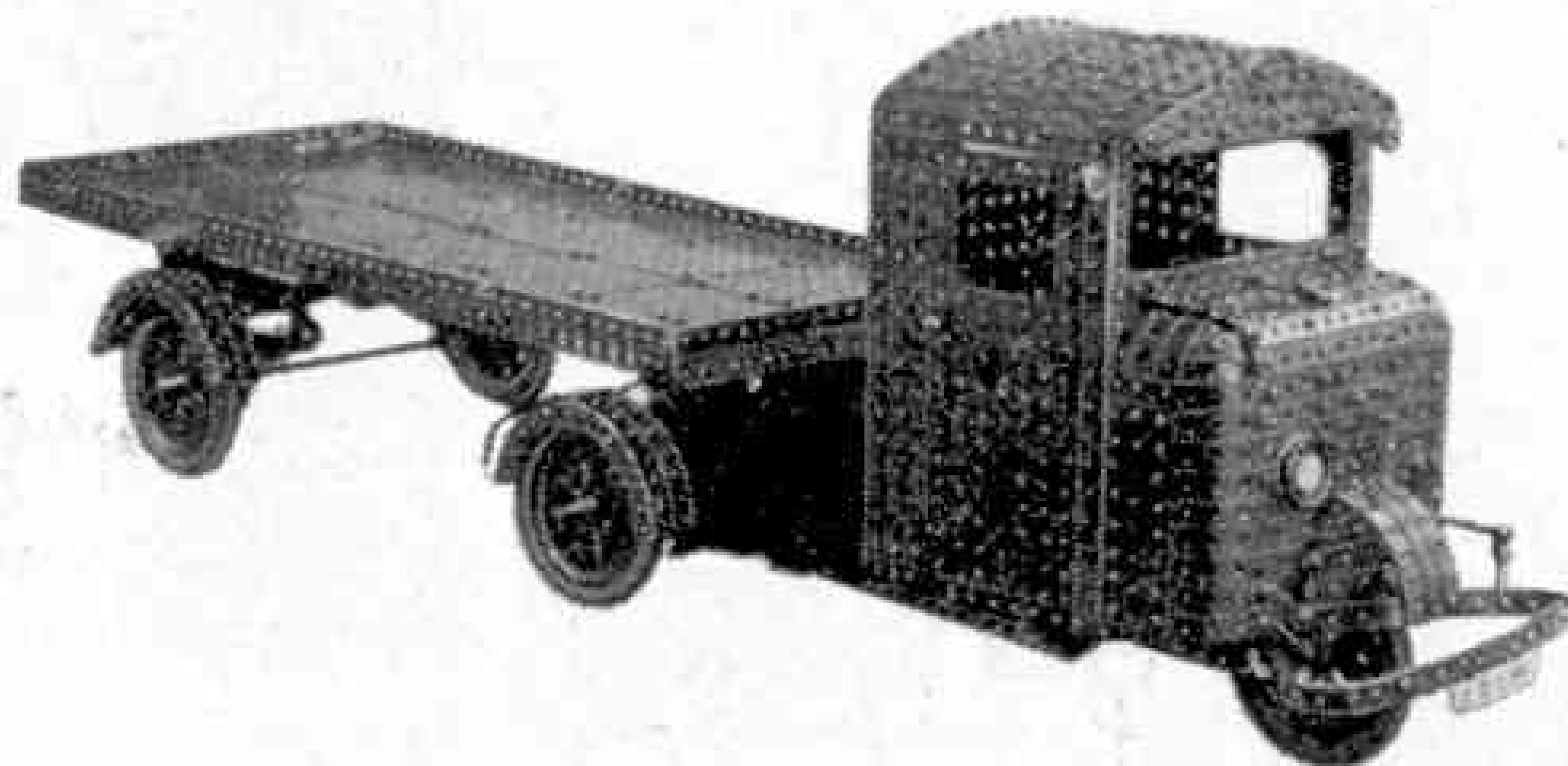
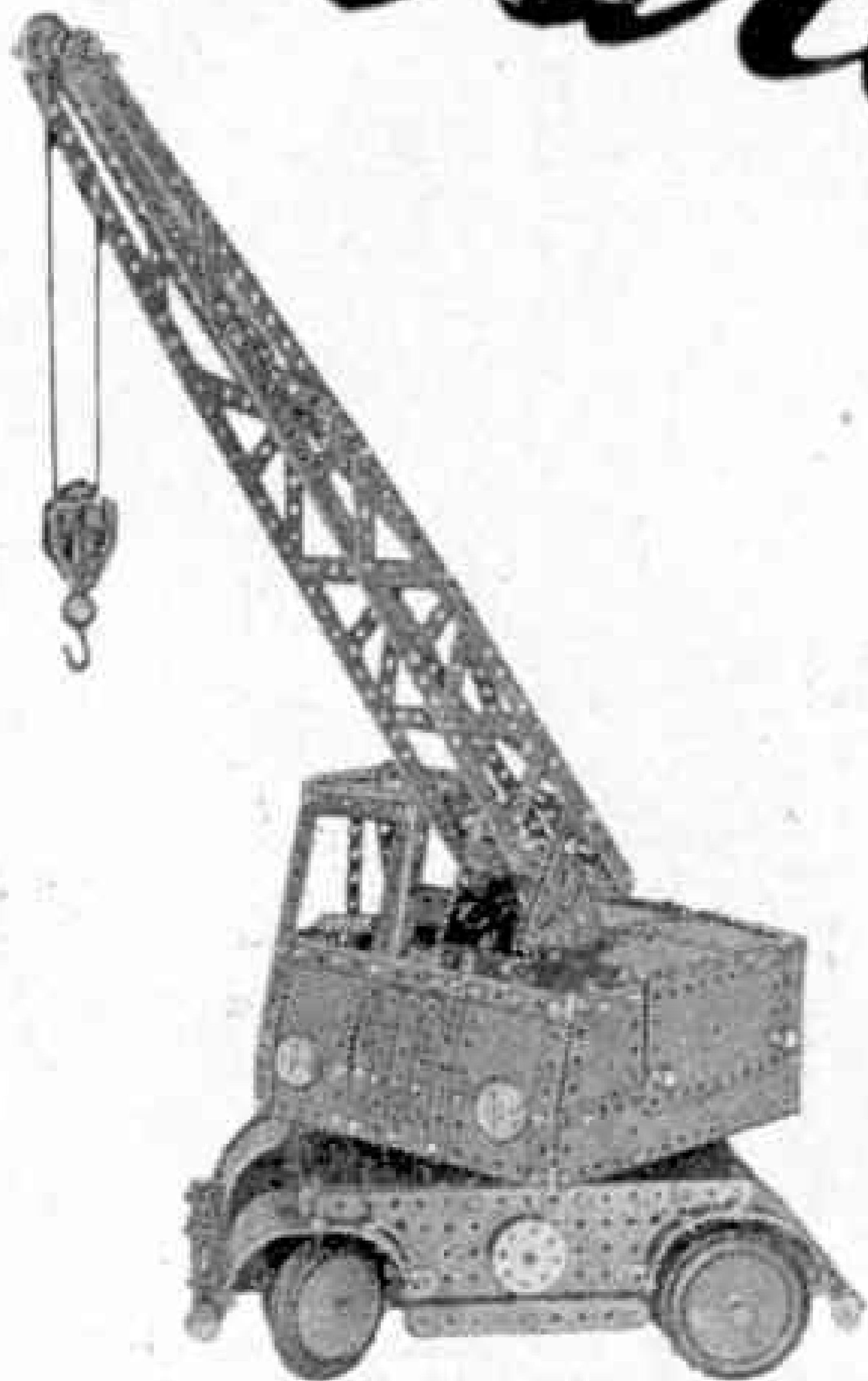
In order to give every model-builder a fair chance, the Competition is divided into three Sections as follows:

Section A—For competitors who will be not more than 10 years of age on 31st March 1953.

Section B—For competitors who will be between 10 and 16 years of age on 31st March 1953.

Section C—For competitors who will be 16 years of age or over on 31st March 1953.

Start building



MODEL-BUILDING COMPETITION

THE PRIZES

SECTION A

(competitors not more than 10 years of age on 31st March 1953)

First Prize	£30
Second Prize.. ..	£15
Third Prize	£10
Fourth Prize.. ..	£5
50 Prizes each of ..	£2
100 Prizes each of ..	£1

SECTION B

(competitors between 10 and 16 years of age on 31st March 1953)

First Prize	£50
Second Prize.. ..	£25
Third Prize	£15
Fourth Prize.. ..	£10
20 Prizes each of ..	£5
50 Prizes each of ..	£2
60 Prizes each of ..	£1

SECTION C

(competitors 16 years of age or over on 31st March 1953)

First Prize	£50
Second Prize.. ..	£25
Third Prize	£15
Fourth Prize.. ..	£10
20 Prizes each of ..	£5
50 Prizes each of ..	£2
60 Prizes each of ..	£1

A separate set of Special Prizes will be awarded for models built collectively by members of Meccano Clubs and sent in as official Club Entries. These Prizes are as follows:

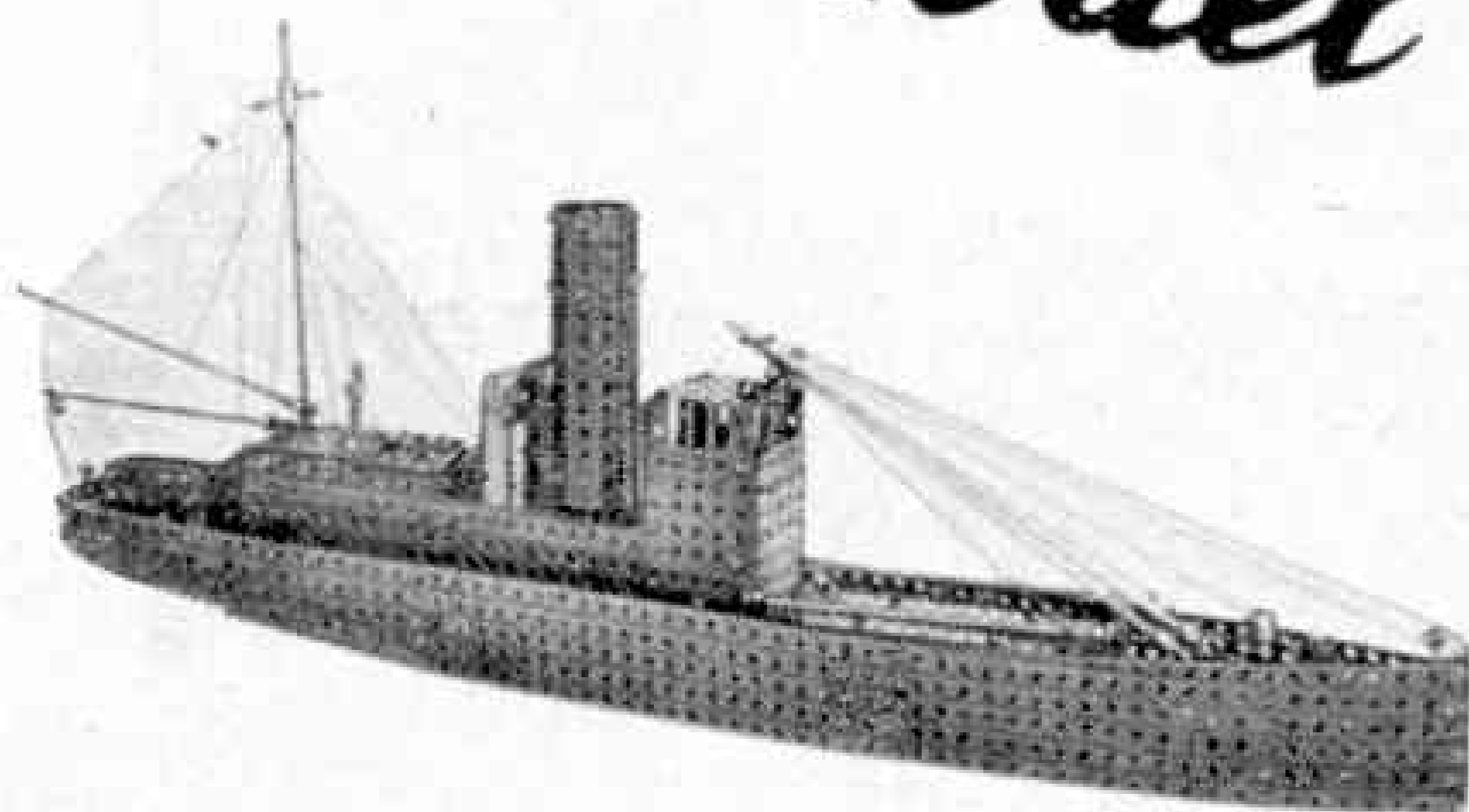
First Prize .. £10 Second Prize .. £5 Third Prize .. £3 10 Prizes each of £1

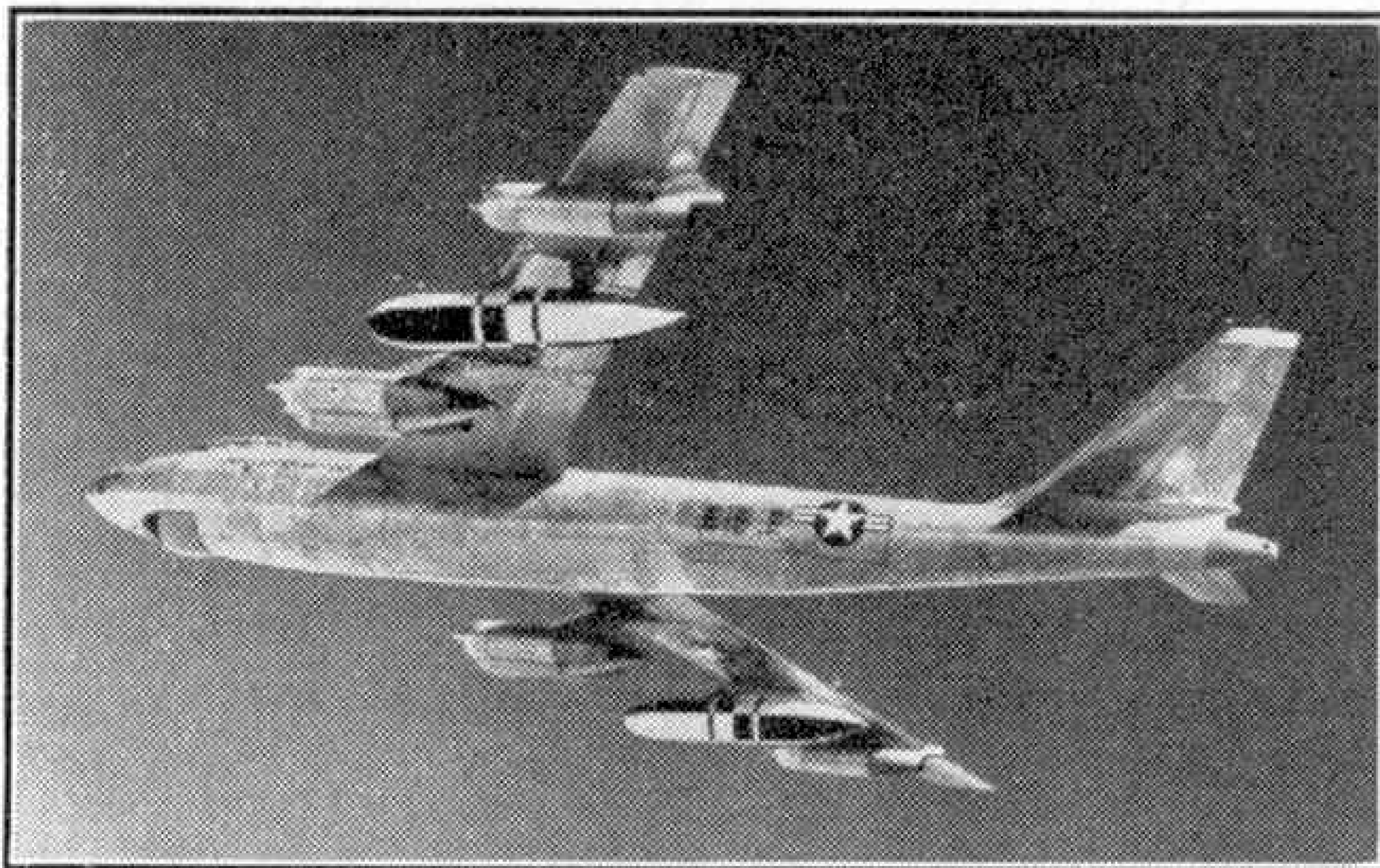
Get this special leaflet from your dealer

Full details of this Competition, with directions for preparing and sending in entries, are given in a special leaflet. Ask your dealer for a copy, or write for one to Information Service, Meccano Limited, Binns Road, Liverpool 13.

★ £1000 in Cash Prizes

your model now





The B-47B, latest version of the Boeing Stratojet bomber. Photograph by courtesy of Boeing Airplane Co., U.S.A.

Air News

By John W. R. Taylor

Fastest and Highest

Altitude reached by the rocket-powered Douglas D-558-II Skyrocket research plane last Summer has been officially determined as 79,494 ft. The original measurements, made with a pressure recorder, placed the height at 77,000 ft., but the U.S. National Advisory Committee for Aeronautics now claim that a more accurate measurement by ground radar indicates that the higher figure was reached. This is some 20,000 ft. better than the present world altitude record for aeroplanes, established in 1948 by a British modified Vampire jet fighter, but cannot be claimed as a record because the Skyrocket began its flight at 35,000 ft., after being dropped from the bomb-bay of a Superfortress "mother-plane."

The Skyrocket also reached the incredible speed of 1,238 m.p.h. during its trials. The aircraft carried 500 lb. of refrigeration equipment to counter skin friction heating and keep the pilot cool.

Backward-Facing Seats

The 68-passenger Hermes air liners used by Airwork to carry troops to the Canal Zone, under their £1½ million Government contract, are the first British civil transports to be equipped with backward-facing seats, although Valetta transports of the Royal Air Force have been fitted with them for some time. The innovation follows confirmation by aviation research scientists that passengers facing aft stand a much better chance of surviving a heavy forced landing or crash, as they are not thrown forward against the pull of their safety belts.

Australian Navy adopts British Catapult

The Royal Australian Navy has followed the lead of the U.S. Navy by adopting the powerful new British steam catapult for its aircraft carriers.

Longer Range for Stratojet

Huge jettisonable fuel tanks suspended under each wing identify the B-47B, latest version of the Boeing Stratojet, illustrated on this page. These are the largest external fuel tanks ever mounted on an aeroplane and give the 600 m.p.h. bomber considerably longer range than earlier B-47s. Those in the photograph are painted black and white so that they can be more easily seen during drop tests.

Combat efficiency of the B-47B is further improved by use of new General Electric J-47-23 turbojets, which develop more than 5,800 lb. of thrust each, compared with the 5,200 lb. of the engines used on the B-47A.

Super-Priority Delta

Following competitive trials against the twin-boomed de Havilland 110, the Gloster G.A.5 Javelin has been chosen as the R.A.F.'s new two-seat, radar-carrying all-weather fighter, and thus becomes No. 6 on the Government's list of super-priority aircraft. The others are the Valiant and Canberra bombers, Hunter and Swift single-seat fighters and Gannet anti-submarine aircraft.

The fact that the Javelin is the first delta-wing aeroplane ordered into production anywhere in the world proves that in Britain the "paper dart" layout has progressed beyond the experimental stage to where it is efficient and docile enough to be flown by ordinary Service aircrews by day and night in all weathers. Avro have, in fact, already announced that they are building a two-seat version of their little Type 707 delta to train pilots in the new technique, and are rumoured to be completing a big bomber on the same lines.

The National Broadcasting Company of America plans to bring a televised picture of next year's British Coronation ceremonies to U.S. viewers by using micro-wave links between ten circling aircraft spaced out over the Atlantic. Specially equipped aircraft have already been used in America to re-broadcast televised events in that country to many States simultaneously.



This Anson Mk. 18c is a civil aircrew training aircraft of the Indian Government. A special article on the Anson appears on page 392. Photograph by courtesy of A. V. Roe and Company Ltd.

Britain's Latest Turbojet

Some details are now available of the Olympus turbojet referred to briefly in last month's *Air News*. It is a product of the Bristol Aeroplane Company's Engine Division, and its officially rated maximum thrust of 9,750 lb. makes it the world's most powerful aero engine. The design was completed in 1947, and the engine ran for the first time on 16th May 1950.

It is of the dual-compressor type, with a front, low-pressure unit and a rear high-pressure one. The two units are mechanically independent, each having its own axial compressor connected by a concentric shaft to the driving turbine of that unit. The Olympus is 10 ft. 4 in. long between intake and exhaust flanges, and its maximum diameter, at the low pressure end, is 3 ft. 4 in. The engine weighs 3,520 lb.

Triphibious Albatross

First aircraft able to operate from land, water, snow and ice at any time without modification is the Grumman Albatross shown in the upper picture on this page. The new equipment which makes this possible was designed by technicians of the U.S.A.F.'s Air Rescue Service, and comprises a large retractable ski under the aircraft's flying boat hull, and small sprung skids mounted on its wing floats. Other special equipment shown in the photograph includes a search radar "pimple" on the aircraft's nose, aerials under its wing tip and long range fuel tanks under the wings.

The Albatross is the standard medium range aircraft of the Air Rescue Service, which uses Fairchild Packets and lifeboat-carrying Superfortresses for long-distance missions. It is powered by two 1,425 h.p. Wright R-1820 engines, and can cruise for 2,700 miles at up to 225 m.p.h. with a full load of freight or 10 passengers.

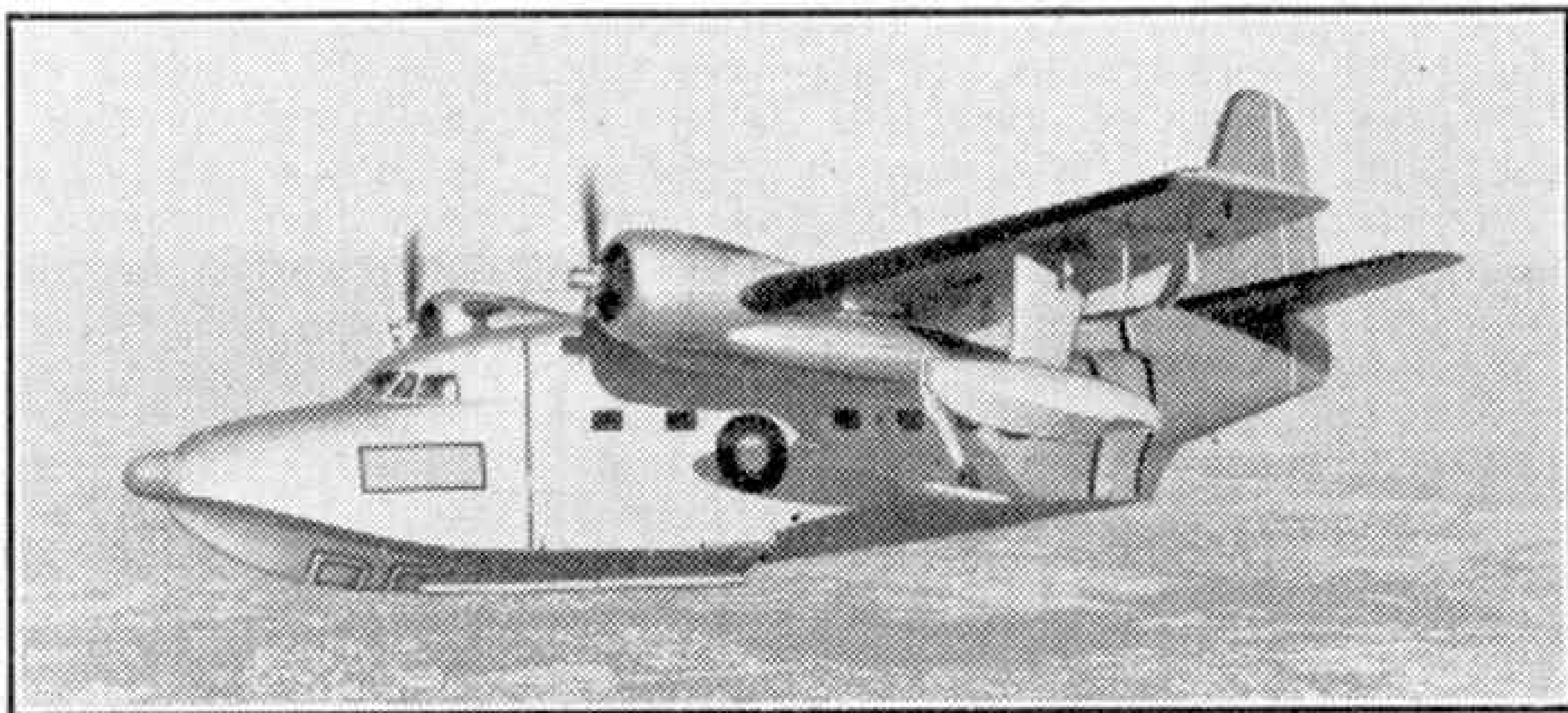
Lake Auster

During a flight over the Skinner Range of mountains in the Otago district of New Zealand in one of his

Auster light 'planes, Mr. Fred Lucas of Southern Scenic Air Services, discovered a new lake nestled among the often cloud-capped peaks. In tribute to the little aircraft on which his life often depends when flying in such hazardous places, he gave his discovery the now official name of Lake Auster.

Eight-in-One-Aircraft

The neat French all-metal Max Holste 152, illustrated at the foot of this page, is one of the most versatile



Grumman Albatross triphibian, the first aircraft able to be operated from land, water, snow and ice without modification. Photograph by courtesy of Grumman Aircraft Engineering Corp., U.S.A.

aeroplanes ever built, having been designed for air observation, ambulance duties, forest fire patrol, photography and survey, parachutist training, passenger-carrying, freight transport and air-sea rescue.

The M.H.152 is not so small as it looks, as it has a wing span of over 45 ft.; but its normal loaded weight is only 2,550 lb. Large cabin windows and special high-lift devices in the wing trailing edges, which enable it to fly very slowly without adopting the usual tail-down attitude, make it ideal as a three-seat air observation post. For ambulance work it has a special leverage system which places two loaded stretchers one above the other without any pain or discomfort to the patient.

Its 260 h.p. Salmson engine gives the M.H.152 a top speed of 144 m.p.h., and it can cruise for four hours at 115 m.p.h. Special care has been taken to make the aircraft sturdy enough for operation from unprepared areas.

New Fashion for Test Pilots

Lockheed Flight Test Division have designed a new helmet for test pilots of jet aircraft. Embodying all the latest ideas on protection and comfort for high-speed, high-altitude test flying, it has a tinted Plexiglass face-piece to filter out ultra-violet rays. This visor can be raised or lowered by a knob at the front.

Flying Fire

Scandinavian Airlines System became the first aircraft operator in the world to keep a fire alight on one of their aircraft during flight, when they carried the Olympic Games Torch from Athens to Aalborg, whence it was carried by relays of runners to Helsinki. There was no danger of the fire spreading, as the flame was transferred from the torch to a Davy lamp whilst airborne.



The French Max Holste 152 light aeroplane described on this page. Photograph by courtesy of Diffusion Informations Aeronautiques, France.

The Tale of a Tunnel

I THINK most of us enjoy railway tunnels. It is grand to plunge into them, usually with a prolonged blast from the whistle of the engine of our train, and we have a lingering feeling of disappointment when the compartment lights relieve the complete gloom we expected. Some of the thrill and mystery of tunnels certainly disappeared when electric lighting came and switching the lights on or off became so easy! But there still remains the darkness outside, awe-inspiring and eerie, and the peculiar tunnel roar, with thuds and metallic clangs echoing back from walls, roof and floor. Every tunnel indeed seems to have a tune of its own.

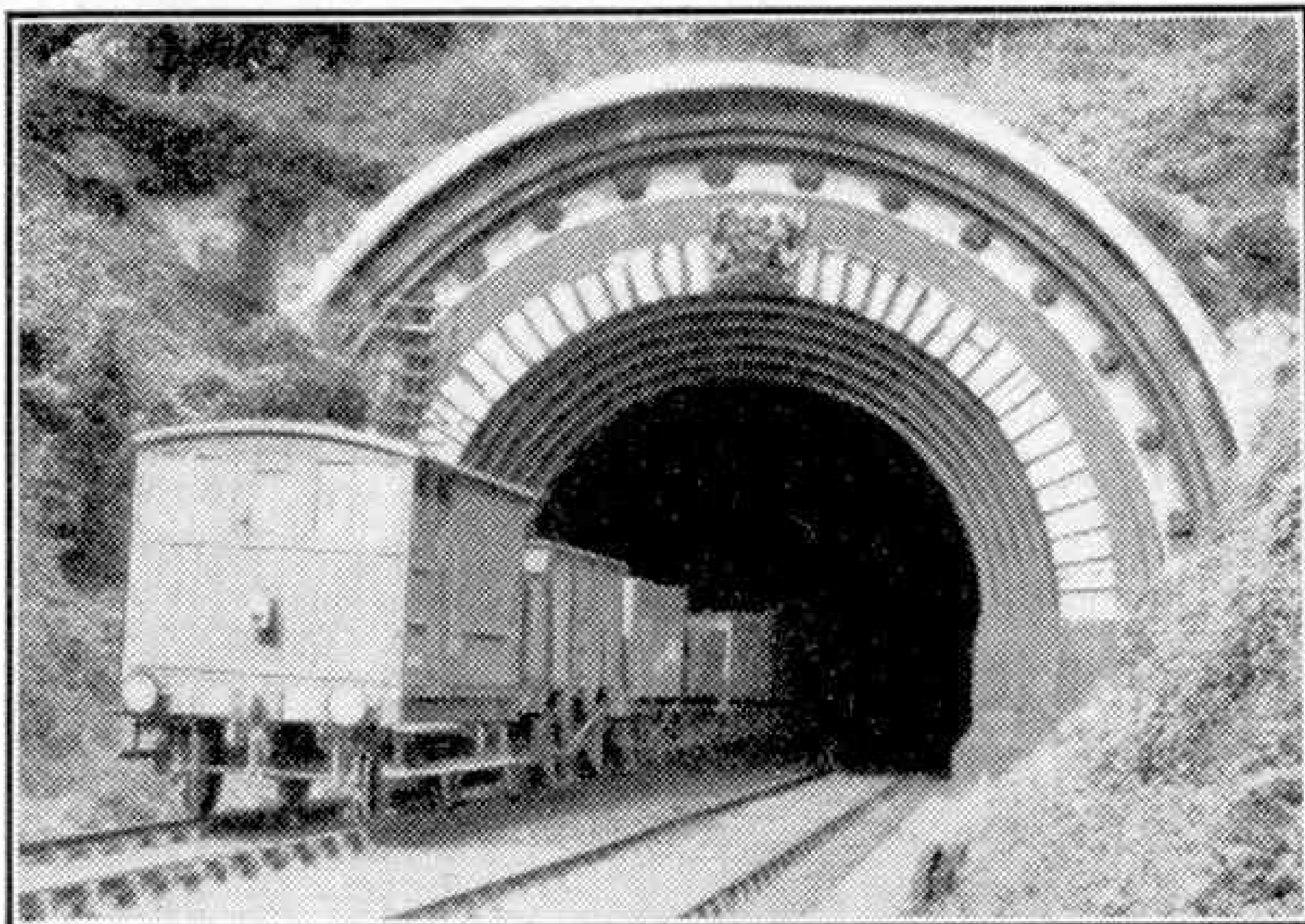
When we grow older a tunnel may become just a stretch of noisy smoky darkness, and a long one may even be a bore, which after all is what it really is! The railway engineer too has ideas about tunnels that are different from ours. He knows that these man-made caverns are expensive affairs and keeping them in good order means a lot of hard work. Still, there they are, and scarcely any bit of railway has not at least something overhead that is too long to be treated as a bridge, and may be christened a tunnel; for how could a railway exist without one?

This question was asked 120 years ago by the people of Canterbury and Whitstable, for when their first railway was planned, to connect the two places, all threw up their hands in horror when they learned that there was to be no tunnel. In fact, they were so insistent that even George Stephenson had to give way and arrange a route on which a tunnel could be provided.

Whatever tunnels may be inside they can be quite handsome from the outside. Look at the tunnel shown in the illustration on this page, for instance. Probably its face is the envy of many less fortunate tunnels. It is Audley End Tunnel, on the Cambridge main line of what was once the Great Eastern Railway, and is now a part of the Eastern Region of British Railways. It is only 456 yards long, so

that it is quite a modest affair in comparison with such tremendous bores as the Simplon Tunnel under the Alps or the Moffat Tunnel, which penetrates the Rockies. It has one great advantage over them, however; this is that it was not really necessary. It does not pierce any ridge or high ground of note, and it appears to have been insisted on by the third Lord Braybrooke, a local landowner, who perhaps just wanted to keep the railway out of his sight.

Originally there were to have been three tunnels over this stretch of line, and these had to be given mouths with substantial and ornamental facings of brickwork or masonry that would be



The southern entrance to Audley End Tunnel, in Essex, is remarkable for its special decorations, which are explained on this page. Our illustration is reproduced from a photograph by R. E. Vincent.

satisfactory to the surveyor or architect of the said Lord Braybrooke.

Later the number of tunnels was restricted to two, Audley End and Littlebury. From the picture of the first of these it is clear that the company carried out its undertaking in this instance. It will be noticed that the keystone of the decorative arch bears a coat-of-arms in relief and that there are various other markings on the curving stonework nearer the circumference of the tunnel face. Although there does not appear to have been a condition that the coat-of-arms of Lord Braybrooke should appear on the tunnel face, it seems possible that his Lordship's architect (Continued on page 430)

Photographing Pets

By E. E. Steele

THERE is scarcely a home in this animal-loving land of ours which does not contain a pet of some kind, from perhaps a goldfish, to that curious old favourite, the tortoise, who spends a large part of the year asleep.

Warm sunny days are ideal for photographing pets out of doors, and the softer lighting of September is perfect. It should be realised that patience is required and no attempt should be made to force animals to

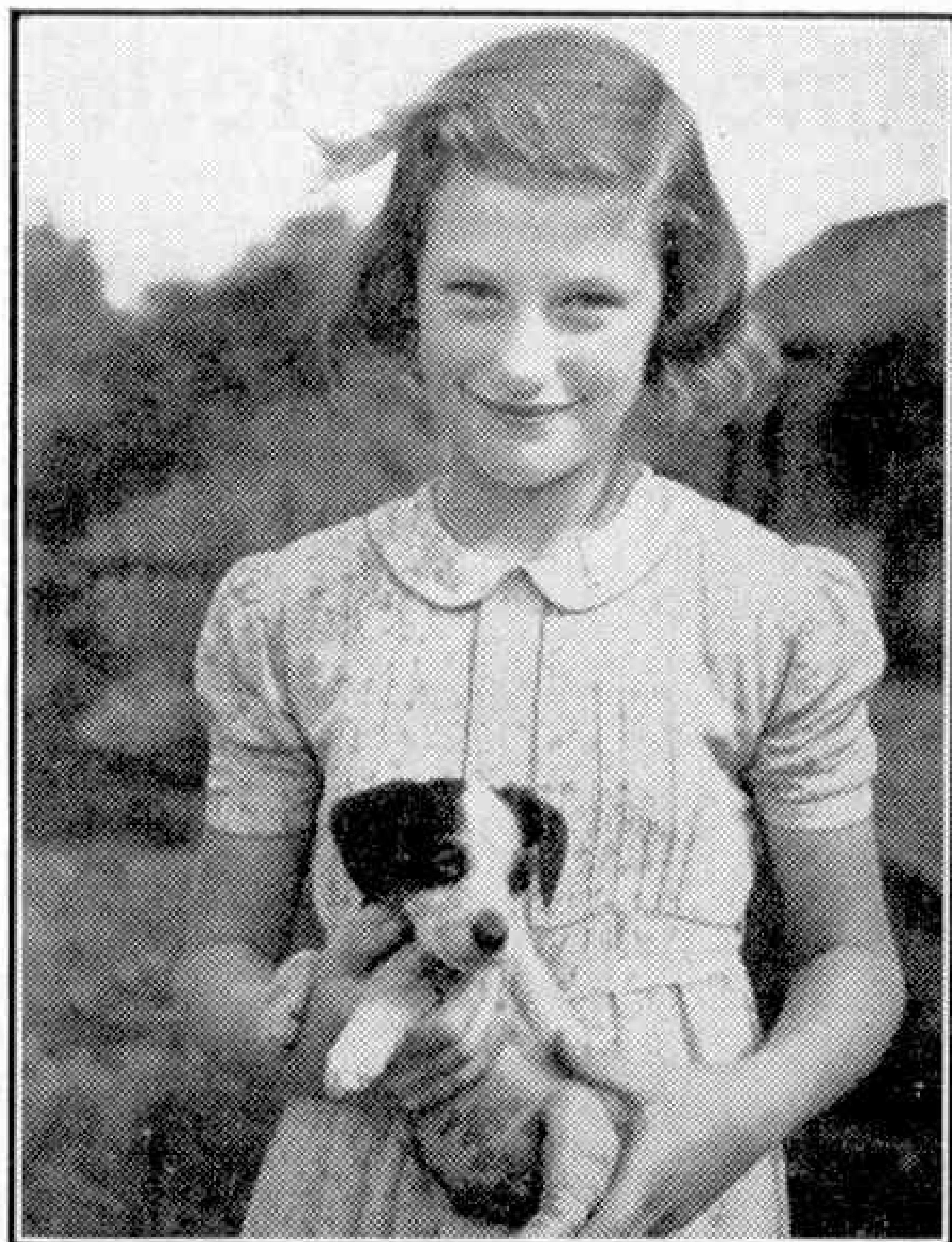


Pet's Corner.

take up suitable positions. Gentle coaxing will work wonders, with the reward of a tit-bit of food. Often an assistant is helpful in coaxing the animal and getting it to look in the right direction, while the photographer concentrates on focussing his camera, which may have to be rapidly altered as the animal's movements are followed. The interest and attention may be held for a few moments by having the assistant wave a handkerchief slowly to and fro.

Light coming from one side and falling upon the head of the animal gives a good result in which the eyes show well, and the rendering of the texture of the fur is good. Backgrounds are very important and anything of a spotty nature should be avoided. A sunny doorstep, with a dark, shadowed opening behind, works very well with light coloured animals, while a light, out-of-focus wall, would be suitable for a dark animal.

Some attention should be given to the colouring of the animal, as it is surprising how much extra exposure is needed for a dark creature, when compared with that suitable for a light one. Where there is any doubt give plenty, as under-exposure will never



Just a wee pup. The illustrations to this article are from photographs by the author.

permit a really good result. Fast pan film is recommended where movement is likely, as it will permit of a higher shutter speed, if the camera is so provided, and there will be less risk of blurring. Speed is especially needed if two or three animals are being photographed together, as it is difficult to give full attention to so much movement, but a good result makes the attempt worth while.

Close-ups of animals are best attempted when the subject can be induced to take up a restful position. This often occurs naturally after a period of intense activity, when, just as the photographer is getting fed up with animal's mad antics, it suddenly relaxes and makes his task easy. Focus on the eyes, and stop the lens down until there is sufficient depth of focus. Choose a side or three-quarter view so that the animal's nose is not brought into undue prominence.



Making friends.

Among the Model-Builders

By "Spanner"

A ROLLER BEARING SUITABLE FOR OUTFIT No. 6

It is probable that more model cranes are built than models of any other kind. This is due, I think, to the ease with which a high standard of realism can be obtained, even with small Outfits. To be really successful in operation, however, a crane needs a well-built bearing that will allow the jib to be swivelled and yet maintain complete stability of the cab and superstructure. Most real cranes use large and heavy roller bearings for this purpose, and with a large

Outfit there is no difficulty in constructing one of these. With a small Outfit it is more of a problem, however, and in answer to many enquiries I am describing a simple bearing that can be built from the parts in Outfit No. 6. It is shown in Fig. 1 and readers will see that in this example 3" Pulleys are used to form the roller rings.

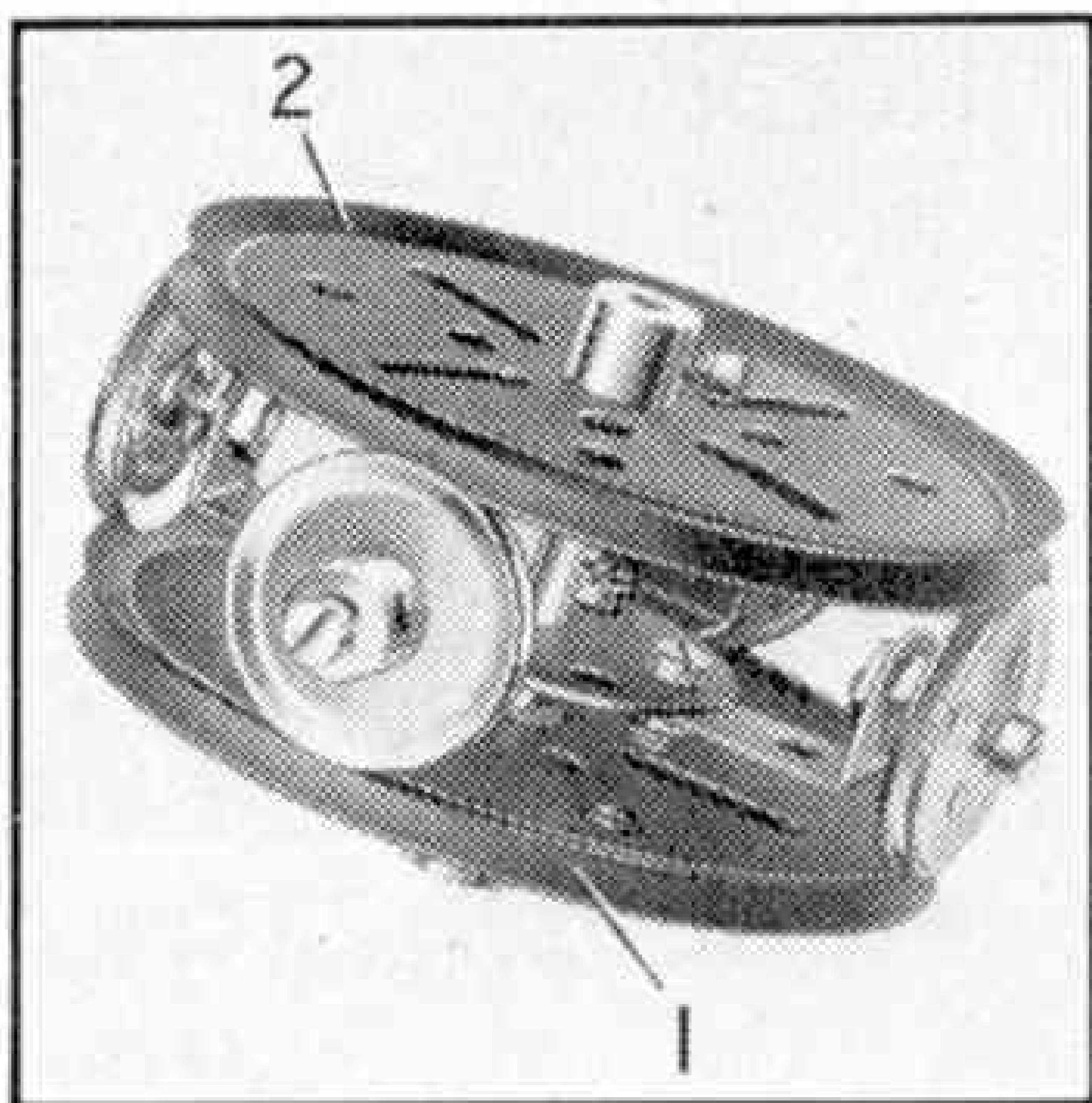


Fig. 1. This simple roller bearing can be built from parts in an Outfit No. 6, and is specially intended for use with small cranes.

The lower Pulley 1 should be firmly attached to the top of the crane tower or support. A 2" Rod is fixed in the Pulley, and on it is feely mounted a "spider" that carries the roller wheels. The spider is made by bolting two 2½" x ½" Double Angle Strips at right angles to each other across the face of a Wheel Disc. The roller wheels consist of two 1" loose and two 1" fixed Pulleys. The fixed Pulleys are free to turn on ¾" Bolts, and the loose Pulleys are mounted on ½" Bolts. Each Bolt is then fixed by two nuts to one of the lugs of the Double Angle Strips.

The 1" Pulleys rest on the edge of the rim of the Pulley 1, and a further 3" Pulley is passed over the 2" Rod and is held in place by a Collar.

The Pulley 2 is attached to the cab or superstructure of the model.

In most cranes of a simple type the slewing or swivelling movement is manually controlled, but if required the roller bearing can be adapted to enable the slewing motion to be power driven. In this arrangement a vertical Rod is passed through the floor of the cab and is fitted at its lower end with a ½" fixed Pulley. The ½" Pulley should be on the same level as the Pulley 1, and the two Pulleys are then connected by a Driving Band. The vertical Rod is driven by the operating Motor through suitable reduction gearing, so that slewing is carried out very slowly just as in a real crane.

A MINIATURE MOTOR-CYCLE IN MECCANO

A few weeks ago I had an opportunity of examining an exceptionally detailed model motor-cycle built by J. L. Smith, Crosby, Isle of Man, and I found it so interesting that I am

reproducing two photographs of it on the next page, as it should appeal to model-builders generally. With the exception of one or two small items, such as the rubber tubing fitted on the handlebars and pedals, and the saddle, the model is built from Meccano parts.

The machine is fitted with representations

of practically every feature of a real motor-cycle, and it is outstanding for the exceptional neatness with which the detail work has been carried out in such a small space. For example, the cylinder is built up from Wheel Discs spaced by Washers, and the carburettor is assembled from Collars and Threaded Bosses. A further interesting feature is the working shock-absorbing system fitted to the front fork.

This model certainly is one of the best of its kind that I have seen, and I congratulate its builder on the skill and ingenuity he has shown in assembling the parts in such a realistic way.

TWO-LEADING-SHOE BRAKE

The ever increasing speed of modern vehicles has brought about many developments in the design of brakes to ensure that they can be slowed down or brought to a standstill smoothly and



H. W. Henry, Strood, Rochester, was a successful competitor in a recent model-building competition.



Fig. 2. B. J. Pascoe, Callington, with his crane lorry. Building and operating a model of this type is great fun.

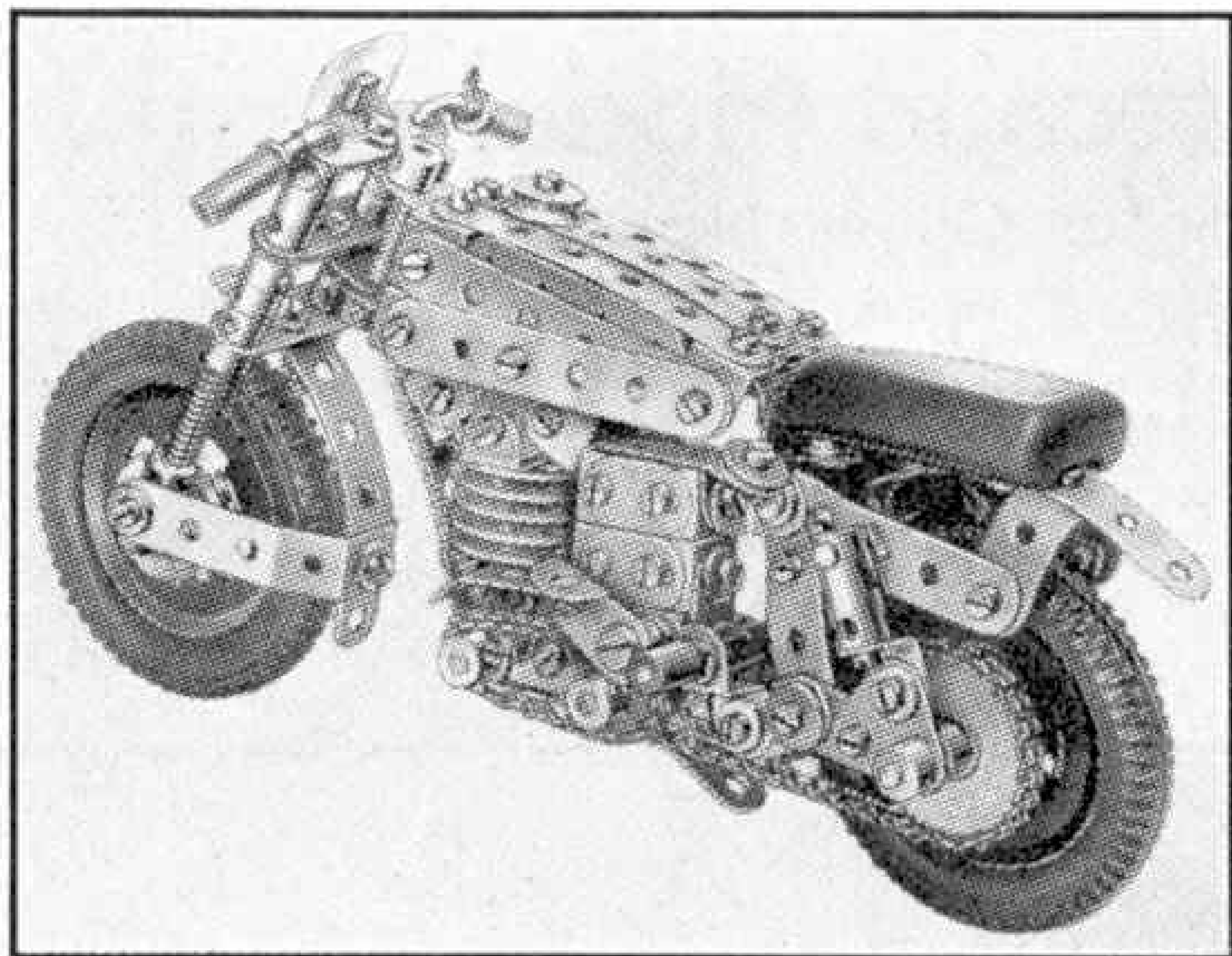


Fig. 3. An attractive motor-cycle, built by J. L. Smith, Crosby, I.O.M. Details of it are given on the facing page.

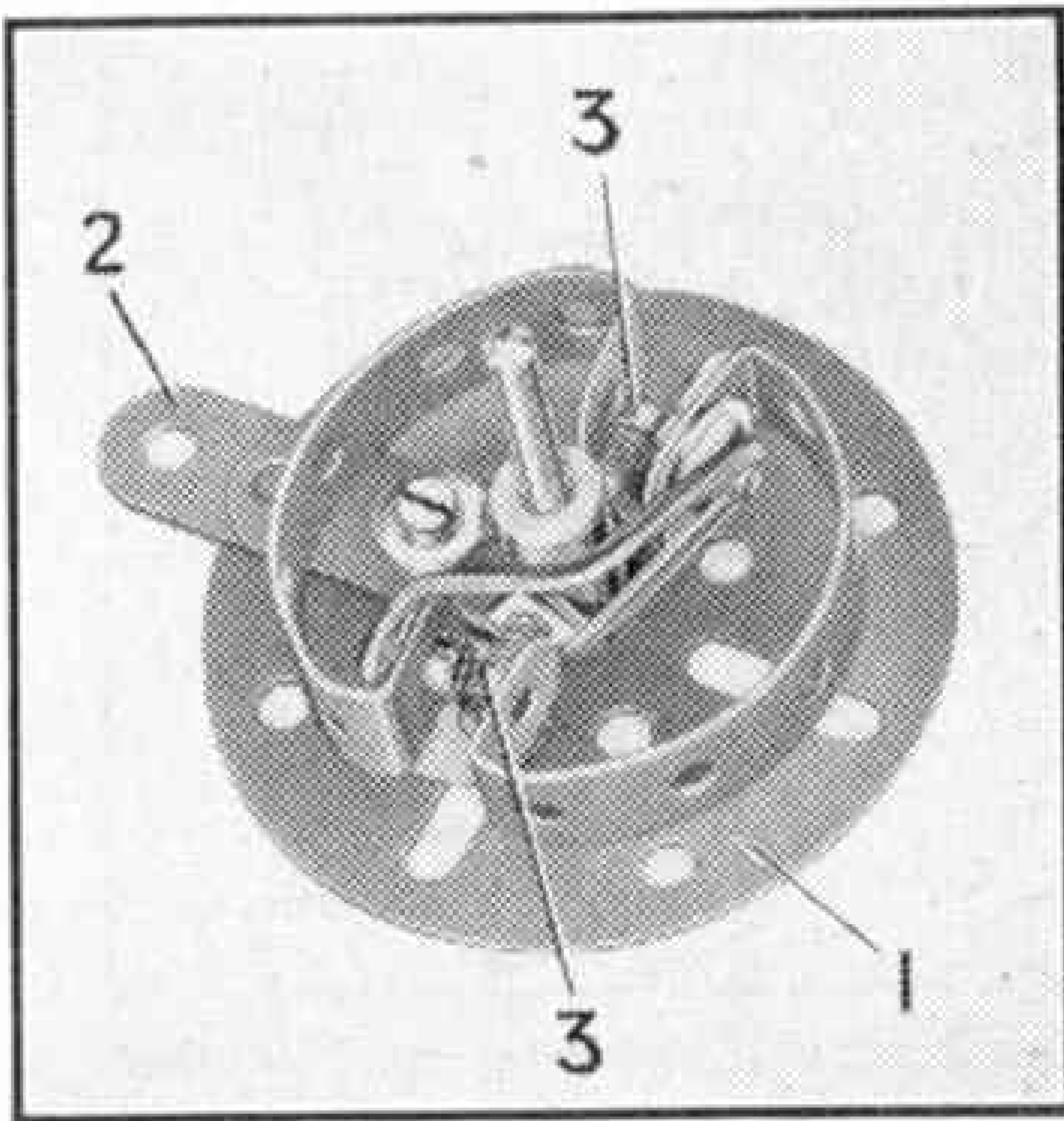
efficiently when necessary. The early machines were fitted with simple rim brakes, but these soon gave way to much more efficient external contracting or internal expanding brakes, operating on a special drum fixed on the rear wheel axle. In due course internal expanding brakes fitted to all the road wheels were adopted as practically standard practice, and brakes of this kind are still used on almost all modern vehicles.

One important development made some years ago was the introduction of what are known as two-leading-shoe brakes. Prior to this it was usual for a car to have two brake shoes, pivoted at one end on a common pin attached to a fixed back-plate. The other ends of the shoes were separated by a cam, so that by turning the cam the shoes were forced apart and pressed against the brake drum. An inherent feature of this design is that the rotation of the wheel tends to force one shoe into still closer contact with the drum, so that this shoe is responsible for the larger proportion of the braking effect. The two-leading-shoe type of brake is designed so that the wheel rotation tends to force both shoes equally against the drum, with the result that the braking effect is greatly increased. A two-leading-shoe brake built with Meccano is shown in Fig. 5.

The back-plate is a Face Plate 1, and the brake shoes are $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips curved as shown. An Angle Bracket is bolted to one end of each shoe, and these Brackets are attached by lock-nutted bolts to slotted holes of the Face Plate, so that the shoes can pivot freely.

The shoes are pivoted at points diametrically opposite, that is, the bolts are located in opposite slotted

Fig. 5. A two-leading-shoe brake designed for a car chassis.



holes, and they are spaced equally from the centre of the Face Plate. Normally the shoes are held in the "off" position by a $2\frac{1}{2}''$ Driving Band looped round bolts as shown, but they can be forced apart by operating a lever 2. This lever is a $1\frac{1}{2}''$ Strip bolted tightly to a Crank that is passed over the road wheel axle. Two $\frac{1}{4}''$ Bolts 3, each fitted with a nut, are screwed into the boss of the Crank, and the heads of the Bolts bear against the free ends of the shoes. The $\frac{1}{4}''$ Bolts do not grip the axle, and they are prevented from unscrewing by tightening the nuts against the boss of the Crank. For the brake drum either a Boiler End or a Wheel Flange can be used, and the brake shoes should be lined with adhesive tape so that they are just clear of the drum when in the "off" position.

It is important when fitting the brake to a model to make sure that the free end of the shoe nearest to the front of the machine is uppermost. This ensures that the two-leading-shoe action takes place when the vehicle is travelling forward. In the reverse direction neither shoe acts as a leading

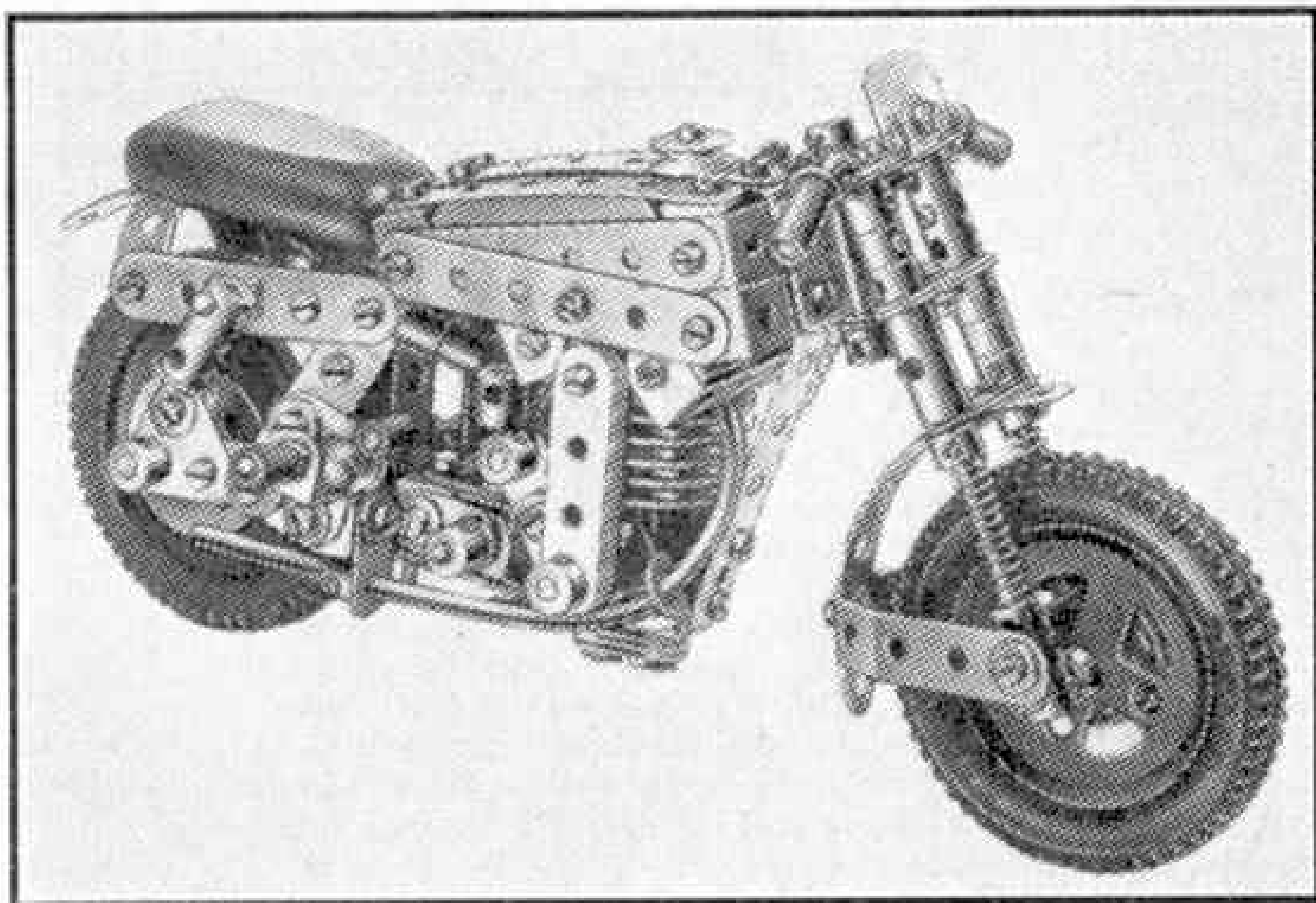


Fig. 4. Smith's motor-cycle seen from the right-hand side.

shoe, but as a vehicle usually travels only very slowly in reverse, the braking is adequate.

A MECCANO CHESS SET

A novelty chess set can be made from Meccano parts. The Pawns are $\frac{1}{2}''$ Pulleys carrying Handrail Supports. Each Queen is a Socket Coupling fixed to a $\frac{3}{4}''$ Flanged Wheel and fitted with a Handrail Coupling. For the Kings $\frac{1}{2}''$ Pulleys replace the Handrail Couplings. The Bishops are $1''$ Rods fixed in small Flanged Wheels, and fitted with $\frac{1}{2}''$ loose Pulleys and End Bearings. The Knights are $1''$ Pulleys and Couplings gripped in Socket Couplings, with Single Bent Strips attached. A $1''$ Pulley and Socket Coupling surmounted by a $\frac{3}{4}''$ Contrate are used for each Rook.

New Meccano Models

Two Fine Subjects for Outfits Nos. 3 and 4

THE realistic model of a Tractor and Trailer shown in Figs. 1 and 2 can be built from a No. 3 Outfit. The Tractor is driven by a *Magic Clockwork Motor* fixed inside the bonnet, and is fitted with a simple steering mechanism.

The chassis of the Tractor consists of a $5\frac{1}{2}$ " Strip 1 on each side connected by Angle Brackets to a Trunnion 2 at the front and to a $2\frac{1}{2}$ " Strip 3 at the rear. The *Magic Motor* is bolted to one of the $5\frac{1}{2}$ " Strips as shown in Fig. 2.

The radiator consists of two Flat Trunnions, the upper one of which is attached by an Angle Bracket on each side to two $2\frac{1}{2}$ " Strips 4, which are overlapped four holes. Strips 4 are connected by vertical $2\frac{1}{2}$ " Strips 5 to the Strips 1, and horizontal $2\frac{1}{2}$ " Strips 6 are bolted to the lower holes of the Strips 5.

The rear mudguards are made by fixing Formed Slotted Strips to Semi-Circular Plates by means of $\frac{1}{2}$ " Reversed Angle Brackets.

The rear wheels are fixed on a $3\frac{1}{2}$ " Rod mounted in the Strips 1, and a 1" Pulley 7 on the Rod is connected by a Driving Band to a $\frac{1}{2}$ " Pulley 8 on a 2" Rod journaled in Strips 6. A 1" Pulley 9 on the 2" Rod is linked by a Cord belt to the driving pulley on the *Magic Motor*.

The front axle is a $3\frac{1}{2}$ " Rod mounted in a $2\frac{1}{2}$ " x $\frac{1}{2}$ " Double Angle Strip, which is lock-nutted to the Trunnion 2. The steering column is free to turn in bearings formed by Fishplates bolted to the *Magic Motor* mounting brackets. A length of Cord is wound two or three times round the lower end of the steering column, and then each end is tied to the Double Angle Strip, as shown in Fig. 2.

The top of the bonnet consists of two $2\frac{1}{2}$ " x $1\frac{1}{2}$ "

Flexible Plates, add it is attached to the radiator and to the Strips 4 by Angle Brackets. The seat is a Trunnion bolted centrally to two Fishplates fixed between the Reversed Angle Brackets on the rear mudguards.

The platform of the Trailer is a $5\frac{1}{2}$ " x $2\frac{1}{2}$ " Flanged Plate, and the wheels are Wheel Discs free to turn on $\frac{3}{8}$ " Bolts, each of which is held in a $2\frac{1}{2}$ " stepped Curved Strip by two nuts.

The Trailer drawbar pivots on a $1\frac{1}{2}$ " Rod held by

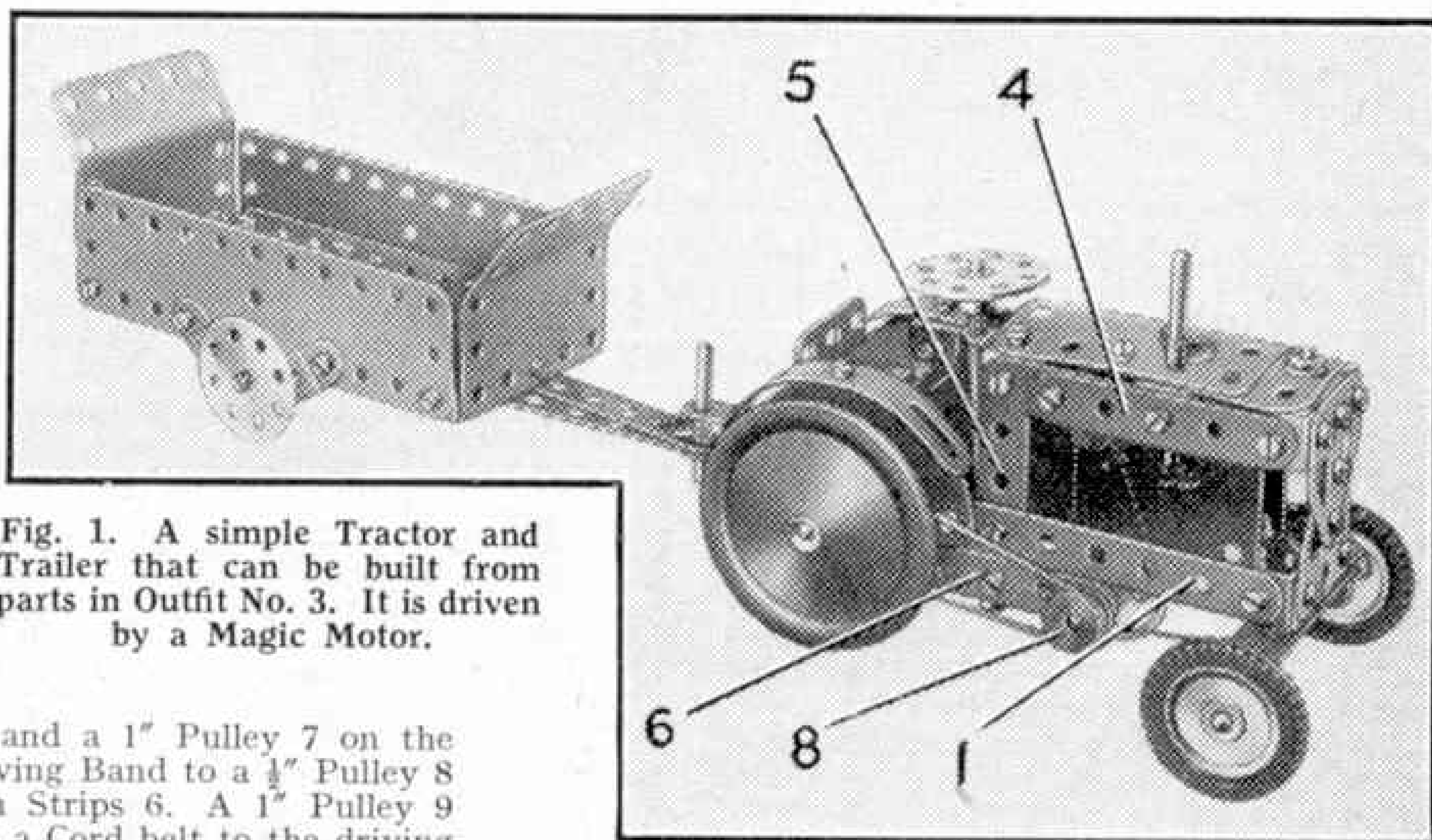


Fig. 1. A simple Tractor and Trailer that can be built from parts in Outfit No. 3. It is driven by a *Magic Motor*.

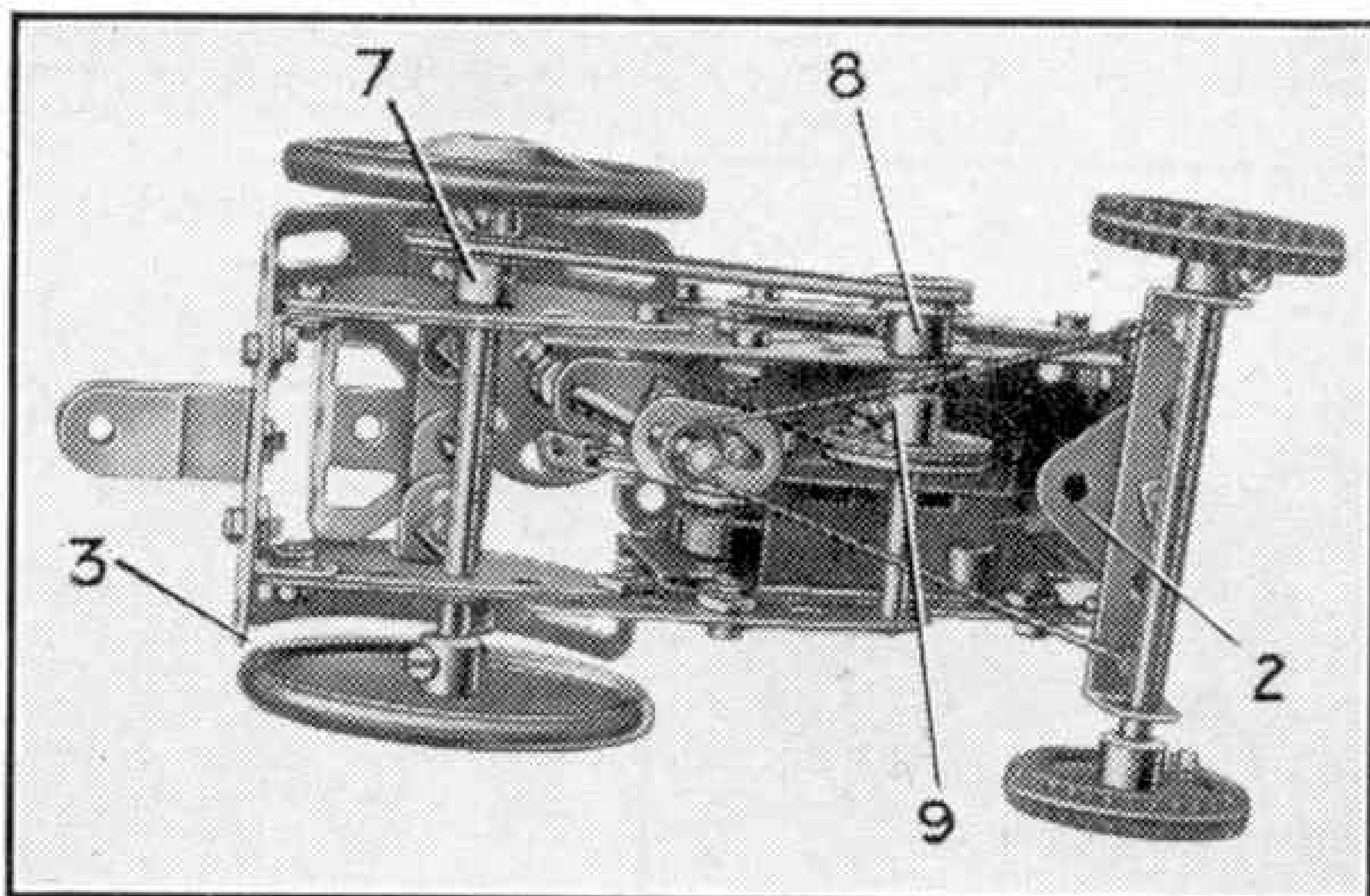


Fig. 2. This underneath view of the Tractor makes clear the operation of the steering gear.

a Spring Clip in a stepped Bent Strip that is bolted to the Strip 3.

Parts required to build Farm Tractor and Trailer: 4 of No. 2; 4 of No. 5; 4 of No. 10; 1 of No. 11; 8 of No. 12; 3 of No. 16; 2 of No. 17; 1 of No. 18a; 4 of No. 22; 1 of No. 24; 2 of No. 24a; 5 of No. 35; 50 of No. 37; 6 of No. 37a; 6 of No. 38; 1 of No. 40; 1 of No. 44; 1 of No. 48a; 1 of No. 52; 2 of No. 90a; 3 of No. 111c; 2 of No. 125; 2 of No. 126; 2 of No. 126a; 2 of No. 142c; 1 of No. 176; 2 of No. 187; 2 of No. 188; 2 of No. 189; 2 of No. 190; 1 of No. 212; 2 of No. 214; 2 of No. 215; 1 *Magic Clockwork Motor*.

The "Penny-in-the-slot" Weighing Machine shown in Figs. 3 and 4 is built from the parts in an Outfit No. 4. The corners of the main column are made from two $12\frac{1}{2}$ " Strips 1 at the rear, and two similar Strips 2 at the front. They are bolted at the top to a $5\frac{1}{2}$ " x $2\frac{1}{2}$ " Flanged Plate, and at their lower ends Strips 1 are fixed to $5\frac{1}{2}$ " Strips 3. The $12\frac{1}{2}$ " Strips 2 are attached to Angle Brackets bolted to Strips 3, and the latter Strips are connected to a $5\frac{1}{2}$ " Strip by two $\frac{1}{2}$ " Reversed Angle Brackets.

The sides of the model are each filled in by a $5\frac{1}{2}$ " x $2\frac{1}{2}$ " Flexible Plate, two $2\frac{1}{2}$ " x $2\frac{1}{2}$ " Flexible Plates and a straightened $1\frac{1}{8}$ " radius Curved Plate. One of the $2\frac{1}{2}$ " x $2\frac{1}{2}$ " Plates is bent outward slightly to give access to the coin

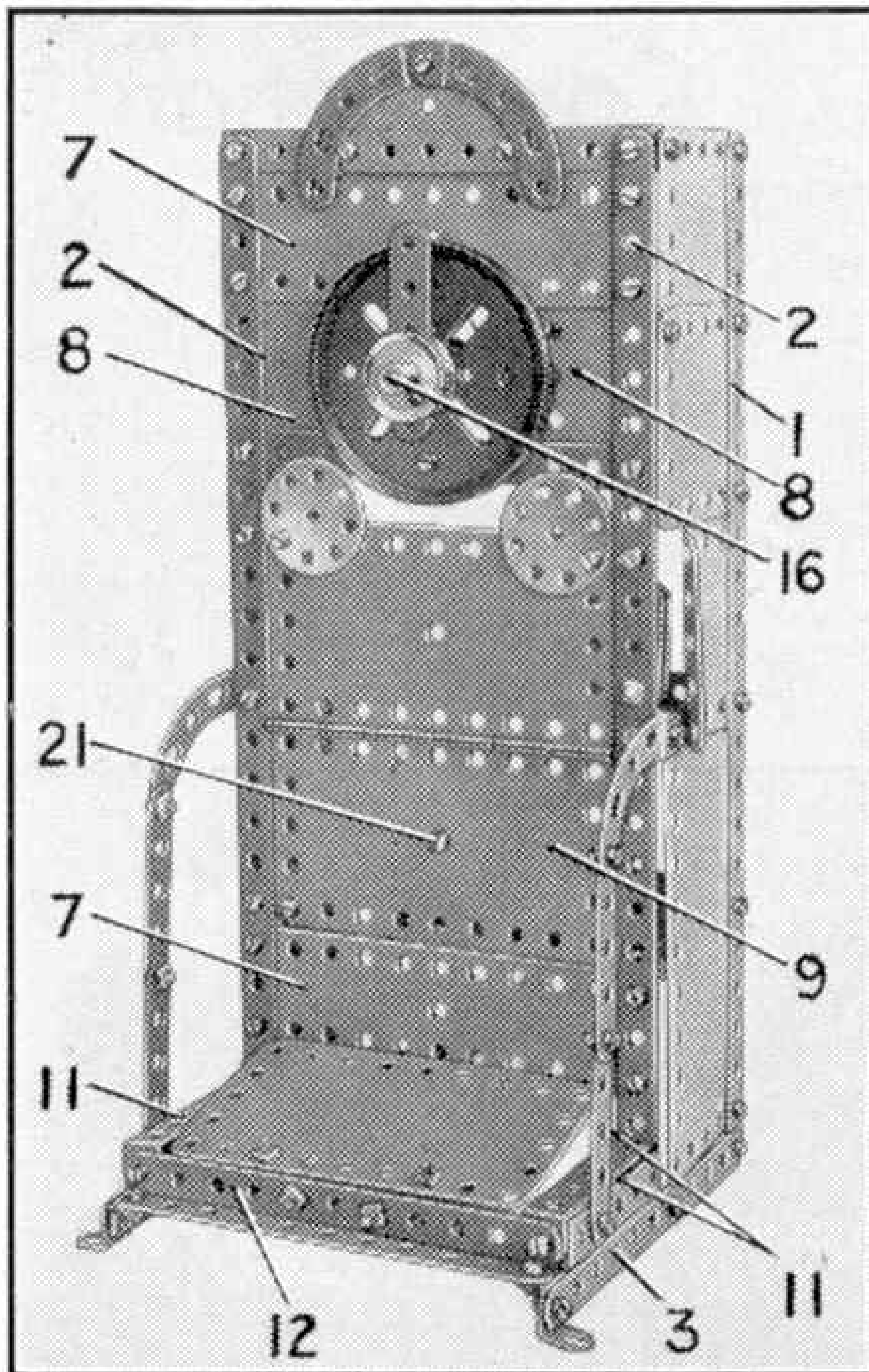


Fig. 3. Outfit No. 4 contains all the parts required to build this "Penny-in-the-slot" Weighing Machine.

slot. Strips 1 and 2 are braced by a $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip 5 on each side, and these are linked by a $5\frac{1}{2}"$ Strip 6 at the back. One end of Strip 6 is disconnected in Fig. 4 in order to show the coin slot clearly.

The front of the model is completed by two $5\frac{1}{2}" \times 1\frac{1}{2}"$ Flexible Plates 7, two $2\frac{1}{2}" \times 1\frac{1}{2}"$ Flexible Plates 8 and a Hinged Flat Plate 9, attached to Strips 2 by Fishplates. A $5\frac{1}{2}"$ Strip 10 (Fig. 4) is bolted across the front, and this serves as the lower support for the dial, which is a 3" Pulley. The Pulley is attached to Strip 10 and to the upper Flexible Plate 7 by two $\frac{3}{8}"$ Bolts.

The weighing platform is made by bolting two $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strips 11 to the main column on each side, and these Double Angle Strips are connected by a $5\frac{1}{2}"$ Strip 12. A $1\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip is bolted in the centre of Strip 12, and the platform pivots on a $3\frac{1}{2}"$ Rod 13 held in the lugs of the Double Angle Strip by Spring Clips. The platform is a $4\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plate bolted to a $2\frac{1}{2}" \times 1\frac{1}{2}"$ Flanged Plate 14, and the Flanged Plate is pivoted on the Rod 13. The platform is connected to the weighing mechanism by levers formed by $5\frac{1}{2}"$ Strips 15. These are bolted to the flanges of Plate 14 and are held together at their free ends by a $\frac{3}{8}"$ Bolt.

The dial pointer consists of a $2\frac{1}{2}"$ Strip clamped between two 1" Pulleys on a 4" Rod 16. This Rod is mounted in the boss of the 3" Pulley that represents the dial, and in a $3\frac{1}{2}"$ Strip 17, which is bolted to the $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plate and braced by a Trunnion. A length of Cord tied to a Cord Anchoring Spring on Rod 16, is passed several times round the Rod and then is attached to the Bolt that connects Strips 15. A 1" Pulley 18 is mounted on Rod 16 just inside the Strip 17, and a short length of elastic is tied to the set-screw of the Pulley. The other end of the elastic

is clamped between Washers on a Bolt 19.

When a penny is placed in the slot of the machine it operates a mechanism that releases the platform and sets it free to operate the weighing mechanism. The release mechanism is made by bolting two $2\frac{1}{2}"$ Strips 20 to an Angle Bracket that pivots on a lock-nutted bolt 21. Another Angle Bracket is fixed to one of the Strips 20, and this supports a $3\frac{1}{2}"$ Strip 22 that carries an Angle Bracket 23. Angle Bracket 23 is opened out slightly and it engages below one of the levers 15. A $\frac{1}{2}"$ Pulley is fixed as a balance weight by a $\frac{3}{8}"$ Bolt to one of the Strips 20.

The coin slot consists of two Flat Trunnions connected together by a $\frac{3}{8}"$ Bolt, but spaced apart by a nut and a Washer. The $\frac{3}{8}"$ Bolt is then fitted with a second nut, and the assembly is clamped by a further nut to the column in the position shown in Fig. 4. When a coin is inserted in the slot it falls on one end of the Strips 20, and its weight causes the assembly to pivot about the bolt 21. This action releases the Angle Bracket 23 from the platform levers, so that any weight placed on the platform depresses the levers and thus rotates the pointer.

The coin tray is a Flanged Sector Plate extended by a $2\frac{1}{2}"$ Strip, and is attached to Angle Brackets bolted to the Strips 1.

The model is completed by bolting to each side, a hand-rail made from a $2\frac{1}{2}"$ stepped Curved Strip and two $2\frac{1}{2}"$ Strips.

Parts required to build the "Penny-in-the-slot" Weighing Machine: 4 of No. 1; 8 of No. 2; 2 of No. 3; 9 of No. 5; 3 of No. 10; 7 of No. 12; 1 of No. 15b; 1 of No. 16; 1 of No. 19b; 4 of No. 22; 1 of No. 23; 2 of No. 24a; 2 of No. 35; 80 of No. 37; 7 of No. 37a; 2 of No. 38; 1 of No. 40; 1 of No. 48; 6 of No. 48a; 1 of No. 51; 1 of No. 52; 1 of No. 54; 4 of No. 90a; 5 of No. 111c; 2 of No. 125; 1 of No. 126; 2 of No. 126a; 2 of No. 188; 2 of No. 189; 4 of No. 190; 1 of No. 191; 2 of No. 192; 1 of No. 198; 2 of No. 200; 1 of No. 214.

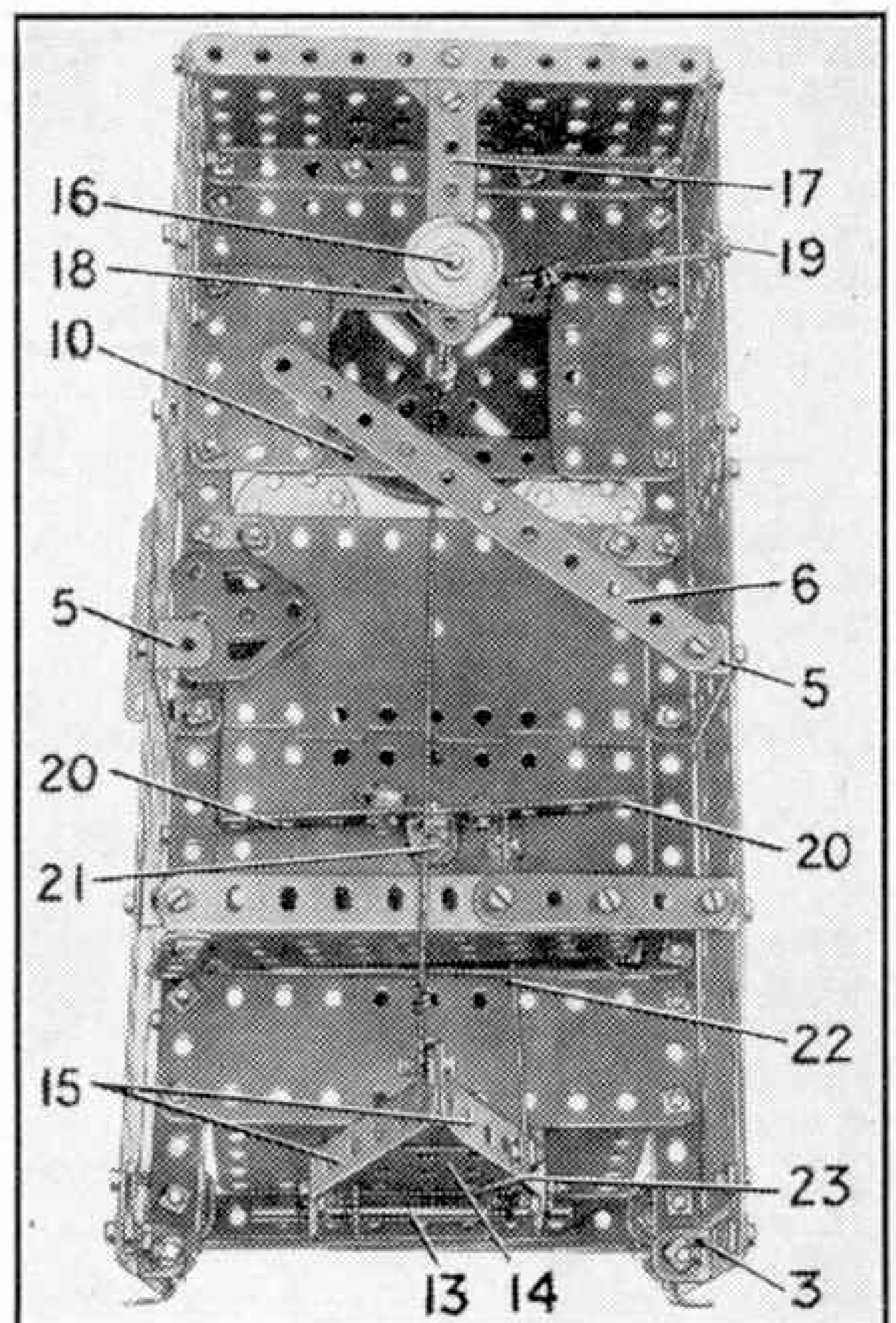


Fig. 4. A rear view of the Weighing Machine.

Meccano "Gadgets" Competition

Here is a special competition that will be of interest to all Meccano boys who are handy in making use of Meccano parts for constructing household gadgets, such as shelf brackets and tool and paper racks. There are many uses to which Meccano parts can be put in the home or the amateur's workshop, and some excellent examples have been mentioned in the *M.M.* from time to time. Now we are offering really useful cash prizes for the best suggestions of this kind submitted to us by readers.

Entries may be sent in immediately, and a good sketch or a photograph, on the back of which the competitor should write his age, name and address, is all that is required.

Entries should be addressed to *Spanner, Meccano Magazine, Binns Road, Liverpool 13*, and should be marked "Meccano Gadgets."

Entries may be sent at any time up to 31st October, 1952.

A cheque for £3/3/- will be awarded for the gadget considered the most useful and suitable for its purpose, and there will be Second and Third Prizes of £2/2/-, and £1/1/- each respectively.

There will be also five prizes each of 10/6, and five consolation awards each of 5/-.

A selection of the best entries will be illustrated in the *M.M.* after the Contest closes.

Model-Building Competition Results

No. 4 and No. 8 "OUTFITS CONTEST" (Home Sections)

Prize-winners in the Home Sections A and B of the No. 4 and No. 8 Outfits Competition, which was announced in the May issue of the *M.M.*, are as follows:

Section A (for models built from Outfit No. 4)

First Prize, Cheque for £3/3/-: R. Semeonoff, Edinburgh 10. Second Prize, Cheque for £2/2/-: M. G. Membury, Droitwich Spa. Third Prize, Cheque for £1/1/-: M. V. Hone, Winchester.

Five Prizes each of 10/6: C. E. Wrayford, Bovey Tracey; D. W. Budden, Newbold-on-Stour; D. J. Harwood, Aylesbury; P. Forshaw, Addiscombe; E. A. Stevens, Banstead.

Five Prizes each of 5/-: A. J. M. McEvoy, Larne; A. Murphy, London, N.3; E. Sargeant, Market Drayton; N. Braine, Solihull; A. George, Wendover.

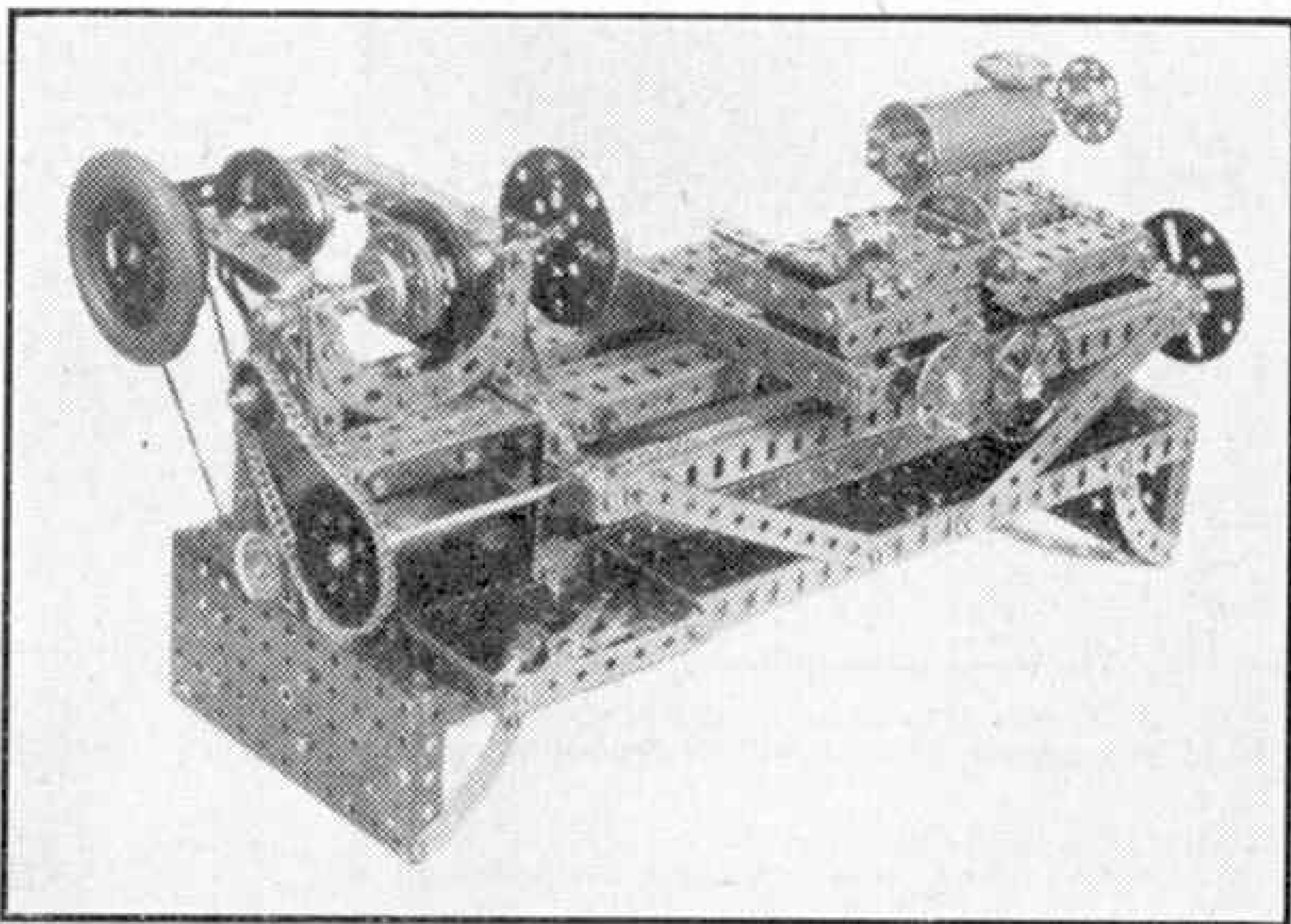
Section B (for models built from Outfit No. 8)

First Prize, Cheque for £3/3/-: D. Greenwood, Sale. Second Prize, Cheque for £2/2/-: J. E. Dolton, Folkestone. Third Prize, Cheque for £1/1/-: T. Fakes, Halifax.

Five Prizes each of 10/6: B. Walls, Widford; D. Mead, Stoke-on-Trent; R. James, Cardiff; R. W. Edwards, Rushden; V. E. Madeley, Blurton.

Five Prizes each of 5/-: R. M. S. Jamie, Stratford-on-Avon; J. C. H. Twigg, Wellington; F. G. Glass, Croydon; C. Burton, Calne; J. M. Hearne, Barton.

First Prize for models built from Outfit



This attractive lathe, which has a compound slide rest, is built from Outfit No. 8 and won Second Prize for J. E. Dolton, Folkestone, in the No. 8 Outfit Competition.

No. 4 went to R. Semeonoff, Edinburgh, for his model of a helicopter. Considering the limitations of the Outfit, the model is most realistically constructed.

Among the larger models built from Outfit No. 8 there was naturally more variety, and some of them were outstandingly attractive. One of these is the interesting lathe, built by J. E. Dolton, Folkestone, which is illustrated on this page. The model has a compound slide rest and three speed motor drive.

First Prize in this Section was awarded for a model cargo boat with an attendant tug and a barge. It was built by nine-year-old David Greenwood, Sale, and I would like to congratulate him on his success in winning a principal prize at such an early age. Each of the models that formed his entry is attractive in itself, and the three in combination produce a most realistic effect.

HORNBY RAILWAY COMPANY

By the Secretary

LIKE the great railwaymen of old, the Hornby-Dublo owner always has an urge to develop his system. There is always a siding that can become a loop, an extra siding to install or an attractive main line extension to consider. So, from the ordinary oval track with which he begins the Hornby-Dublo Manager builds a conveniently workable system to suit the space he has and to meet his own particular operating requirements.

The layout shown in the upper picture on this page is a typical example of such development in a relatively small space. This railway has been built up gradually on a baseboard by Mr. A. H. Riley, of Bradford, and his son Howard. Both of them greatly enjoyed the construction work involved and they now have hours of happy fun operating the trains.

As is usual, the main oval extends practically to the limits of the space afforded by the board so that additions, once this stage was reached, were bound to take place within the oval. This accounts for the station arrangement shown in the illustration. Here there are terminal tracks running diagonally across the space within the main circuit. This allows of the reasonable development of a station that in effect is a terminus.

Development by Degrees

The diagram shows a development of this "inside terminal" scheme. This closely resembles the readers' layout in the upper picture, but in addition to the inside terminus it includes a terminal road outside the main oval. The direction of this is arranged so that a train can run from one terminal to the other, making

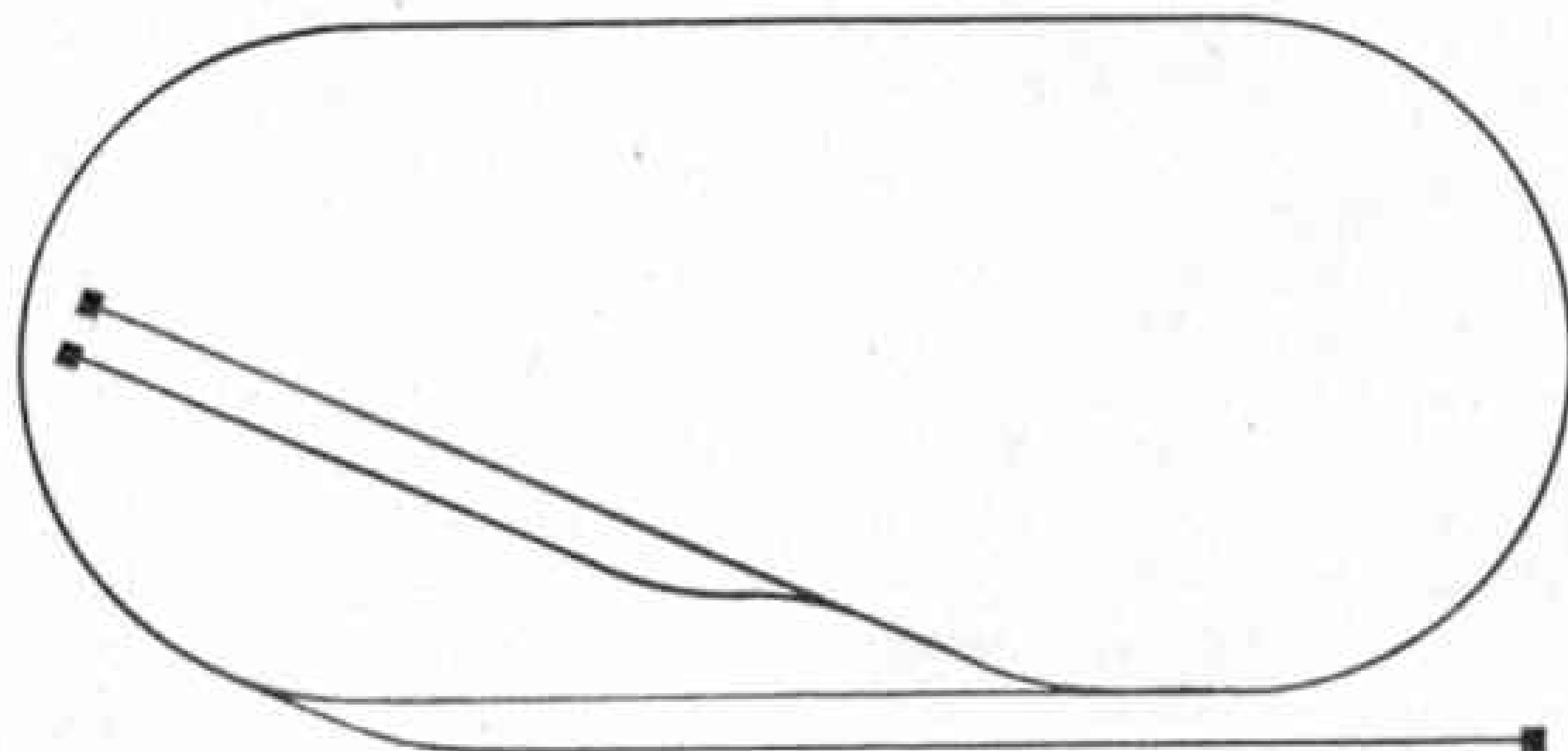


The Hornby-Dublo layout of Mr. A. H. Riley, Bradford, showing the arrangement of the principal station within the main oval.

as many circuits of the main track as required in the process.

The diagram shows the track in its simplest form. Isolating and Uncoupling Rails will be needed to take the fullest advantage of the possibilities of the scheme, particularly if there are two trains or locomotives available. As the main line is single track, two trains cannot be run at the same time and careful planning will be necessary so that the manoeuvres required to get one train out of the other's way can be carried out easily.

Planning of this kind is always fascinating and it is in carrying out the operations that result that our Hornby-Dublo working becomes real railwaying in miniature. It is a really thrilling experience to devise a scheme for extending a railway layout, and when it is tried out, to discover that it gives wider scope for interesting running of passenger and goods trains alike.



An extension of a layout of the kind described on this page.

Along the Lineside

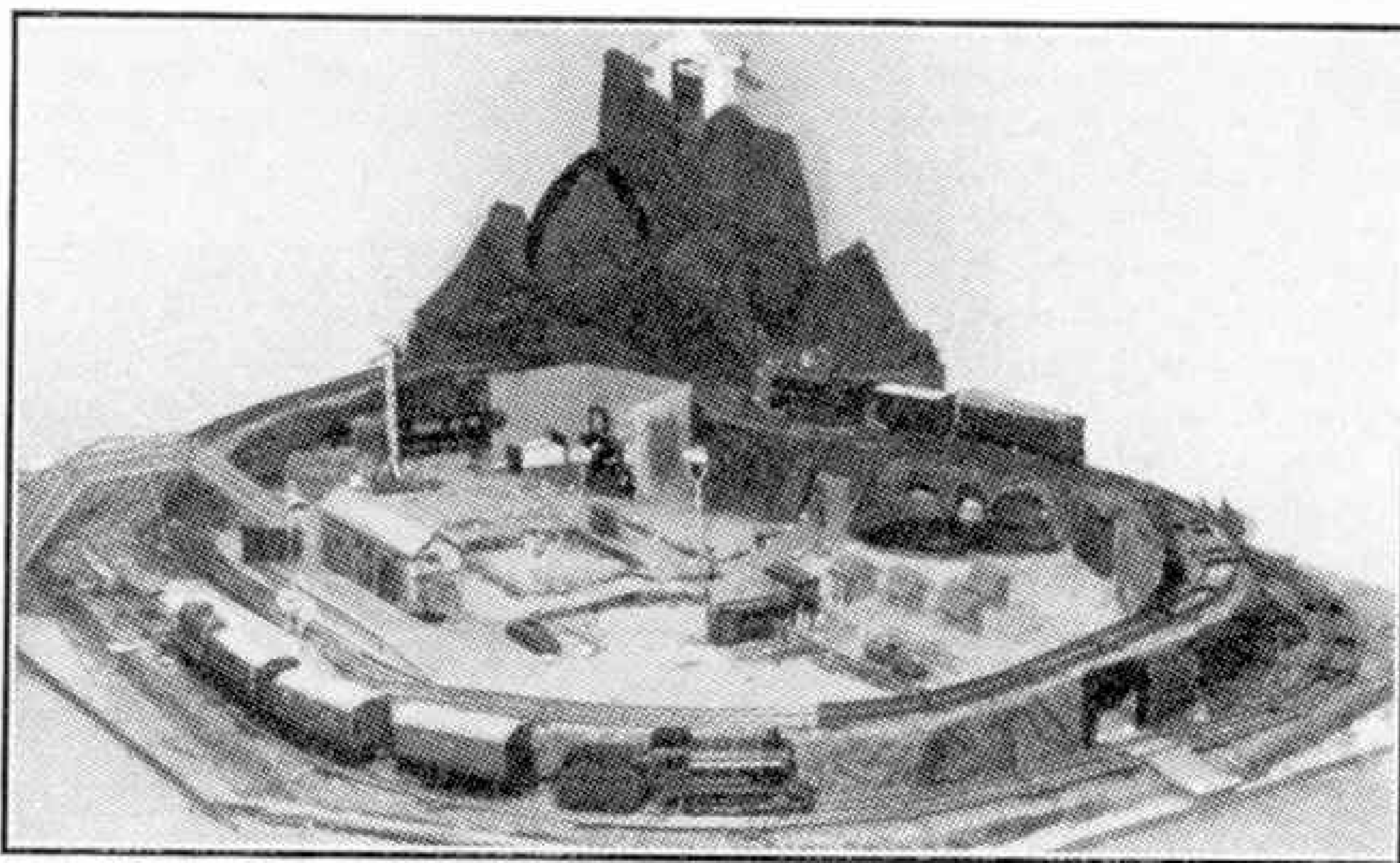
PROBABLY many readers of this page will ask at once, "*What is a Lineside?*" The answer is simple. The word is used to sum up the various items that go to make up the immediate surroundings of a railway. A layout that consists merely of track is certainly a railway, and running trains on it is good fun. But much of the pleasure of this is lost simply because there is no "lineside." How much is missing can only be realised when steps are taken to provide realistic surroundings.

Various details of railway equipment such as stations, signal-boxes and so on, must be added to the track to make it more like a real railway. These are included by most owners as the opportunity occurs, and are essential, but simple lineside accessories also should be added and it is these to which we wish to draw attention. These can easily be made at home, and their inclusion increases an owner's pride in his line.

The illustrations on this page show one or two suggestions for things of this kind. Lineside fencing, boundary walls and buildings of all kinds are not difficult to make from either card or thin wood, and the construction of such accessories is quite

good fun. Details of this kind can be applied as readily to temporary layouts as to those accommodated permanently on a baseboard.

For non-permanent railways lengths of fencing or walls will have to be fitted with

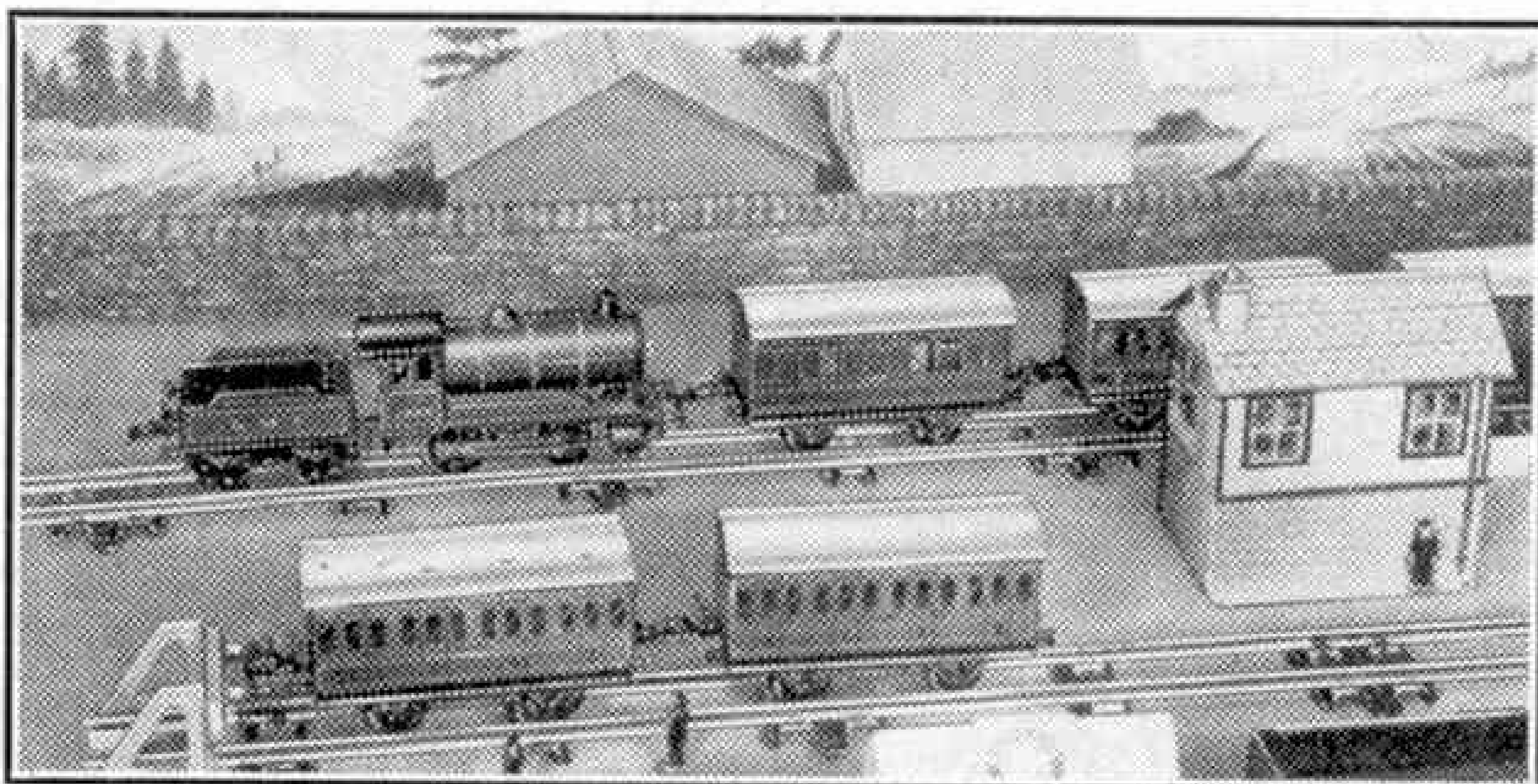


Attractive lineside effects are a feature of this Hornby layout arranged for display purposes by Miss Asha Joshi (H.R.C. No. 222466) and others, at Bombay.

bases or some other means of making them stand up on their own. Buildings for the most part will not need to be provided with bases.

A non-permanent railway has the advantage that the positions of these items can be changed each time the railway is put down for running. On the other hand a track permanently fixed on a baseboard presents better opportunities in a general way for lineside effects of a scenic nature. In particular a scenic background gives the effect of depth to the whole scheme.

Even if this is not possible a certain amount of lineside modelling can be done. The upper illustration includes some good examples of this type of work and Miss Asha Joshi, of Bombay, H.R.C. No. 222466, who with her friends was responsible for them, is to be congratulated on the effects achieved. The railway was arranged on a baseboard for special display purposes.



The lineside wall marks the edge of the railway property. Beyond it, buildings and a scenic background give a suggestion of distance.

Electrically-Operated Points Again!

A WELCOME return to the Hornby-Dublo range has been made by Hornby-Dublo Electrically-operated Points, which were first introduced in 1939. With them Hornby-Dublo owners can reproduce on their miniature railways one of the most fascinating of railway operations, that of setting the paths for trains from a

operated Points and the accompanying Switch is quite simple. Of the three terminals on the casing of the Points, the central one is connected directly to one terminal of the Transformer from which operating current is taken. The others are connected to the two terminals on one side of the Switch. The single terminal on the opposite side of the Switch is wired to the other terminal of the Transformer.

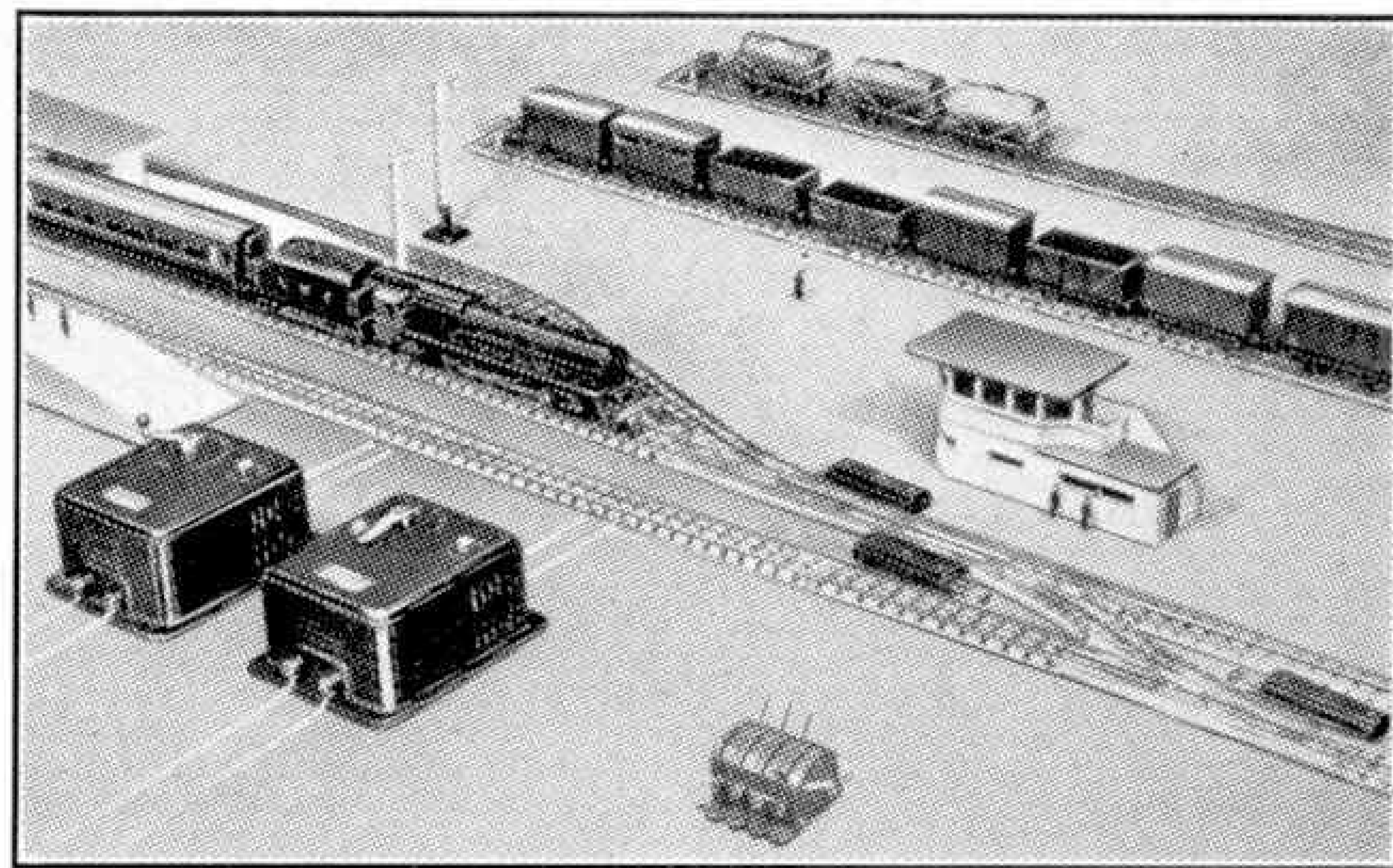
With this arrangement, moving the Switch lever from one side of the Switch to the other brings about the desired change in position of the switch rails of the Points.

It is important to realise that at each end of its travel the Switch lever is in the "off" position. This means that current is supplied only for a fraction of a second, just long enough to complete the operation. Another point to keep

in mind is that the lever should be pushed or pulled steadily from one position to the other, and not merely flicked.

It will be realised that a separate Transformer for the Electrically-operated Points is not necessary. Current can be taken from the Transformer that supplies current for the railway itself, provided that no more than four Points are being set at the same time. Otherwise there is no limit to the number of Points.

Electrically-operated Points have many other attractions, and these will be explored in further articles.



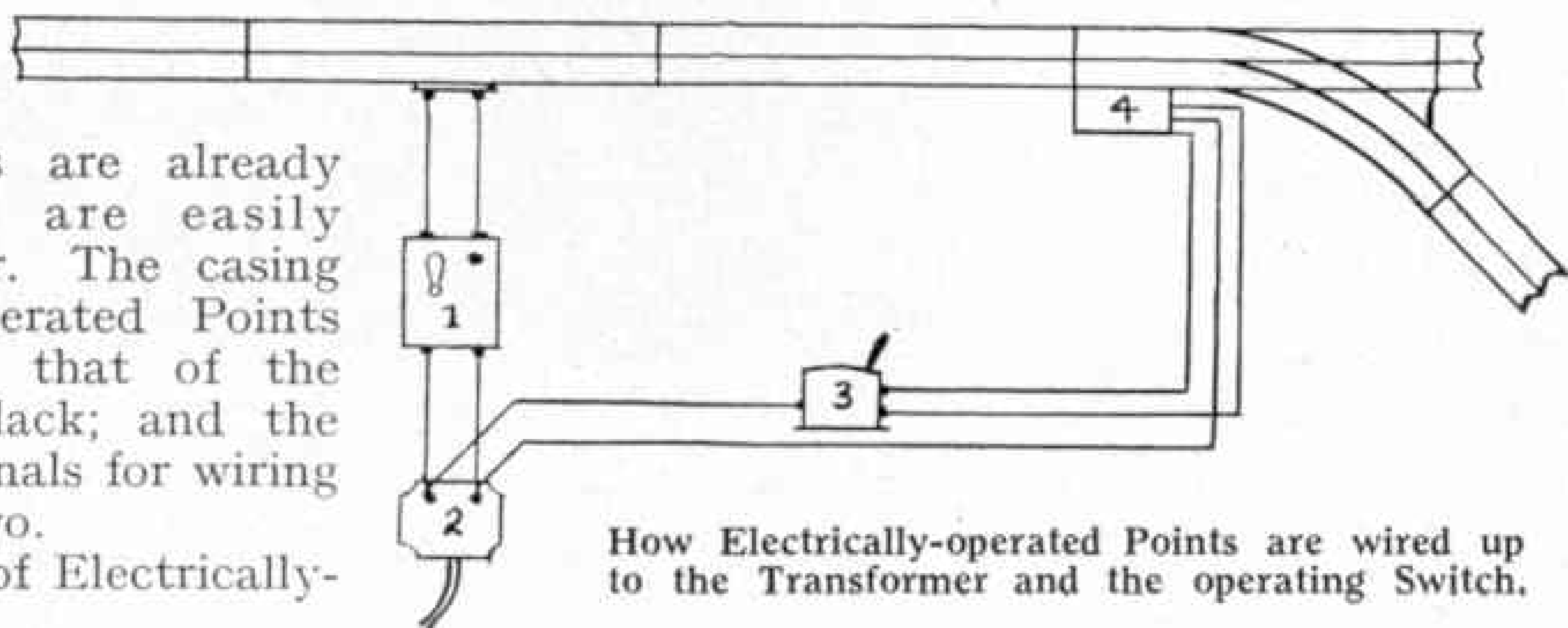
The Hornby-Dublo range now includes Electrically-operated Points and here they are seen in use. They are controlled from the "lever frame" formed by several Switches D1 banked together.

central position, just as the signalman on a real railway does at junctions or busy stations.

It is quite easy to introduce Electrically-operated Points into any Hornby-Dublo layout, for as far as track design is concerned they do not differ from the standard hand-operated Points. The only outward difference indeed is that there is no hand lever. Instead there is a neat casing, in which is the electrically-operated mechanism that moves the switch rails.

A specially designed switch D1 is used to control the Points. In size and appearance this resembles the Isolating Switch, with which most Hornby-Dublo owners are already familiar. The two are easily distinguished, however. The casing of the Electrically-operated Points Switch is red, while that of the Isolating Switch is black; and the former has three terminals for wiring purposes instead of two.

The wiring of a set of Electrically-



How Electrically-operated Points are wired up to the Transformer and the operating Switch.



Club and Branch News



WITH THE SECRETARY

NOW IS THE TIME!

Summer excursions and other outdoor events will still be the rule in Clubs and Branches, provided of course that the weather is kind, but it is none too soon for Clubs that have not yet done anything definite about their programme for the coming Autumn and Winter to "get cracking." There is a great deal for them to arrange, and the first thing should be to call a meeting at which each member can express his preferences and put forward suggestions, and from these a draft programme should be evolved that is based on the majority votes of the Club. With this backing the Leader and Secretary can go forward confidently in drawing up the programme in detail.

A GREAT CHANCE FOR CLUBS

Last month I referred briefly to the forthcoming great International Meccano Model-building Competition. Leaders will find a more detailed announcement on the centre pages of this issue, including particulars of the prizes to be awarded in the special section for models built by Club members working together as a team. I am looking forward to a really splendid response to this fine chance for Meccano Clubs to match their skill against each other in friendly rivalry.

PROPOSED CLUB

LEVEN and METHIL—Mr. J. R. Cunningham, 206, Whyterose Terrace, Methil, Fifeshire.

PROPOSED BRANCHES

LYE—G. Pearson, 16, Hilltop Hayes Lane, Lye, Nr. Stourbridge.

GOUROCK—I. Lynch, 2, McCallum Lane, Gourrock.

AUSTRALIA—J. McLachlan, 4, Trentiro Road, Turramurra, New South Wales, Australia.

CLUB NOTES

BELGRAVE UNION (LEICESTER) M.C.—A very full programme has included Cricket Matches, Treasure Hunt, Swimming lessons, and an Outing to London during which the Science Museum, Madame Tussauds and the Festival Pleasure Gardens were visited. Members recently volunteered to rebuild the Church wall outside the Club rooms, and aim to complete the job before the Club's Exhibition Day. Club roll: 42. *Leader and Secretary:* Mr. C. S. Smith, 18, Doncaster Road, Leicester.

EXETER M.C.—In spite of outdoor attractions there has been much Model-building activity, and models completed recently have included motor cars, fire escapes, dockside crane, galleon, large aeroplane, and a lumber wagon. Club roll: 15. *Leader and Secretary:* Mr. M. C. Hodder, 3, Fords Road, Exeter.

AUSTRALIA

WEST WOLLONGONG (AUSTRALIA) M.C.—Models completed by this recently-affiliated Club have included a semi-trailer, working lathe, locomotive and a combination safe. Hornby Train activities are increasing and, out-of-doors, bushwalking is becoming popular. Club roll: 6. *Leader and Secretary:* Mr. J. Pagett, Eastern Avenue, Wollongong, Australia.

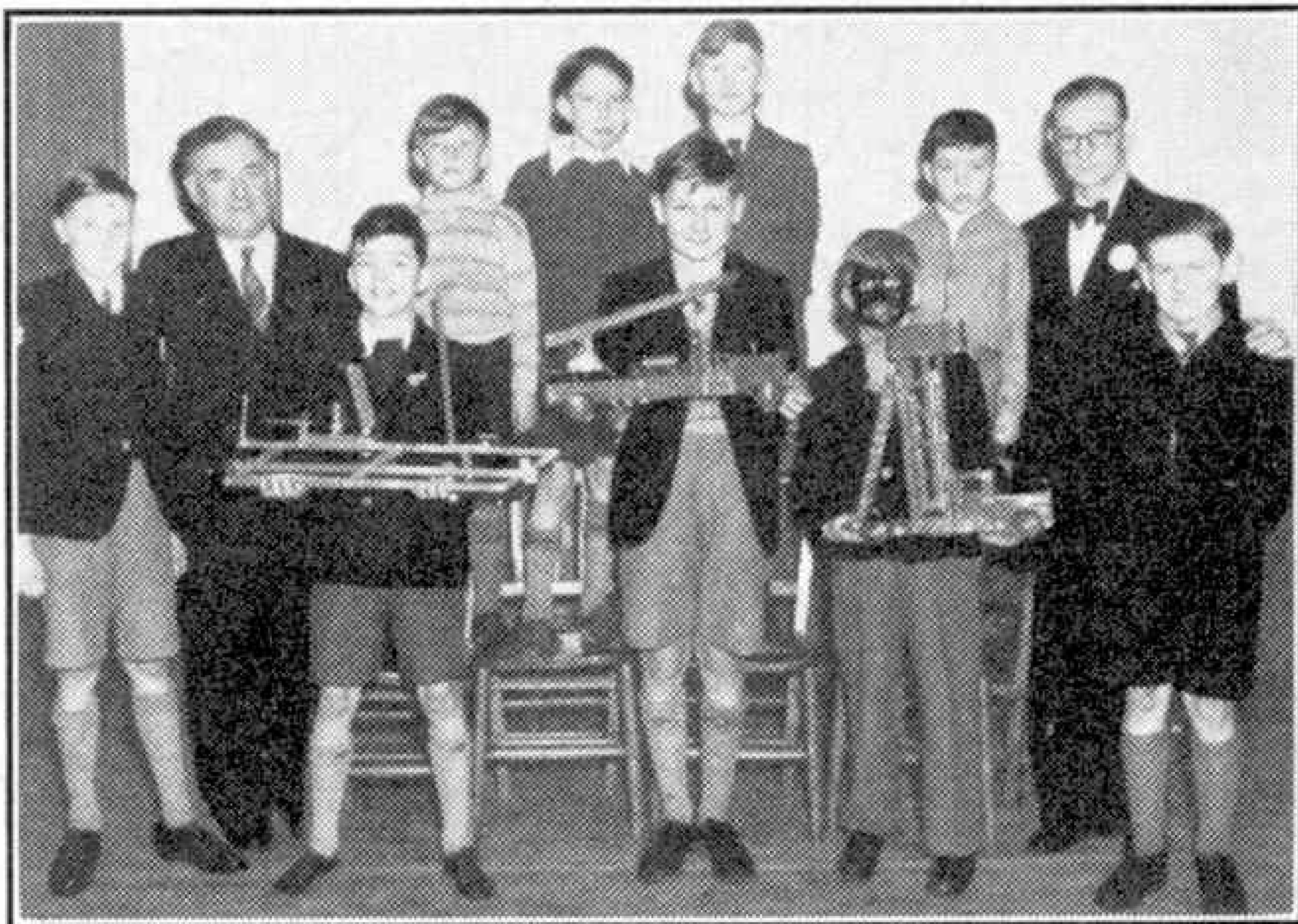
SOUTH AFRICA

CAPE PENINSULA M.C.—Model-building Competitions are very popular. At one members displayed models built at home in their spare time, and Mr. Spence, of the Model Engineering Club, was present to give constructive criticism and suggest improvements where necessary. Another ramble up Table Mountain, this time to the Wynbery Caves, was thoroughly enjoyed. A Cinema Show to raise funds was attended by nearly 130 people, and a net profit of £8/7/- was made. Club roll: 18. *Secretary:* F. Korck, P.O. Box 719, Cape Town.

BRANCH NEWS

ABBEEY (CARLISLE).—Both double and single track layouts have been worked at recent meetings. Goods traffic is the most popular, and the main terminal yard receives 14 or 15 goods trains per meeting, and of these four or five are of the local pick-up type. The yard sends out 10 or 11 trains, five or six of which are fitted freights, and members have to guess which wagons are vacuum brake fitted and which are not. *Secretary:* J. Bell, 28, Blunt Street, Carlisle.

MAGDALEN COLLEGE SCHOOL (OXFORD).—Various layouts have been constructed during the Session. Preparations for the Branch Exhibition during Commemoration week included repairing track equipment and constructing scenic effects. *Secretary:* M. J. Gibbs, 41, Ramsay Road, Headington, Oxford.



Members of the Fratton Boys' (Portsmouth) M.C., with a few of the models they have built. Mr. Roy Slade, President of the Club, is seen on the extreme right, back row, and Mr. A. A. Foster, Leader and Secretary, is second from the left. This enthusiastic Club was affiliated in June 1950, and its busy programme of model-building is supplemented by Socials and Outings.

From Our Readers

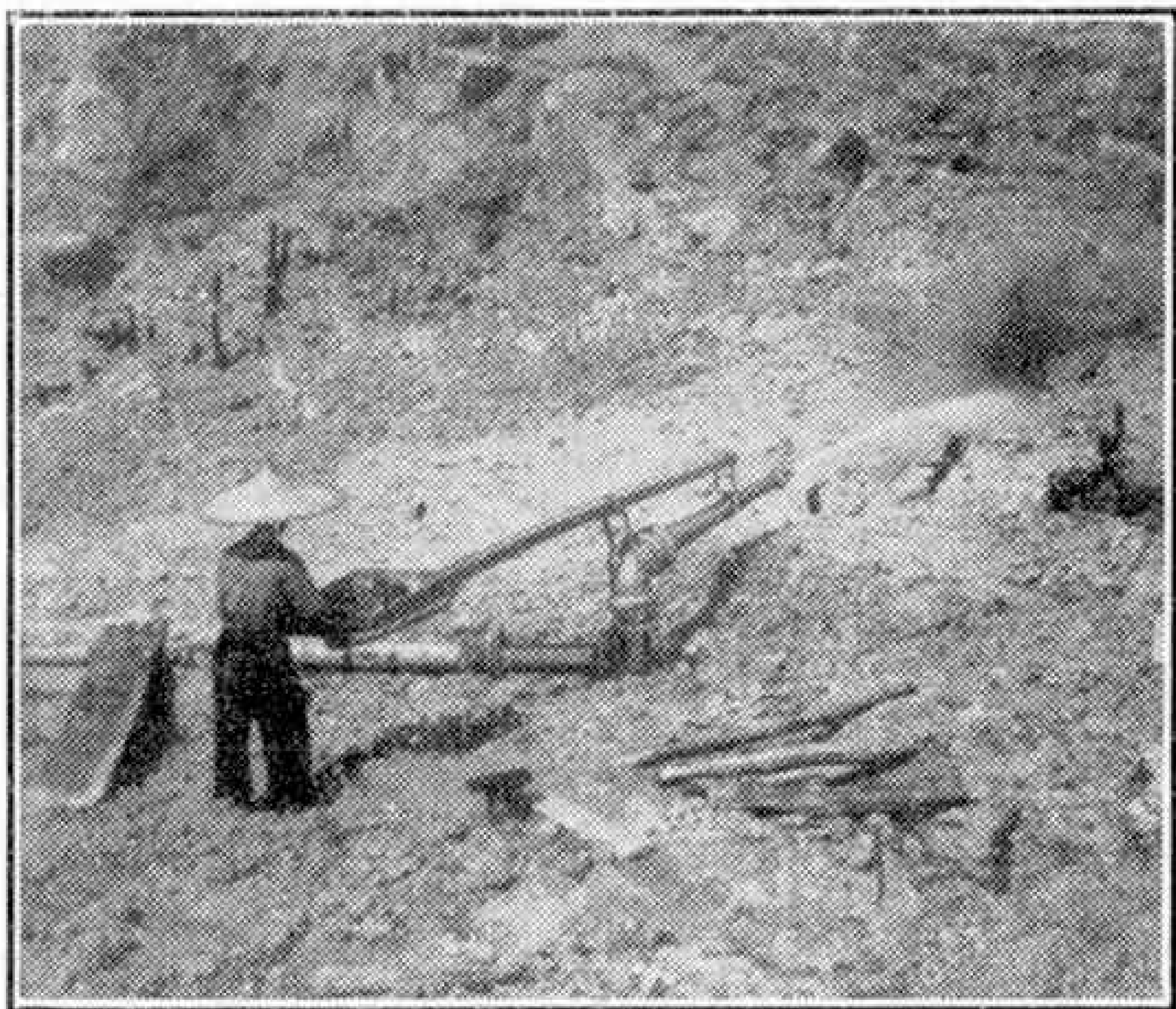
This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs 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.

A MALAYAN TIN MINE

Tin is taken very much for granted by the average person in his daily life, but how many know what a lot of hard work goes into its production. In Malaya the miner, usually Chinese or Malay, uses a hose that hurls a jet of water at high pressure at the face of the mine, and this washes the tin bearing ore and sand to the bottom of the mine. There the mixture is pumped up to the top of a large ramp and passed over a series of sieves that separate the ore from the sand. The latter is carried by a chute to be deposited in an expired part of the mine, so that the vast craters that mining produces are filled up again. The ore is graded by the sieves. Later it is taken to the mills, where it is ground and the tin is extracted, melted and made into ingots for ease of handling.

The miners work in shifts covering twenty-four hours. In the accompanying photograph a Chinese miner can be seen operating the water pump that throws the jet against the face of the mine. The large hat he is wearing is for protection against the Sun, for the temperature averages 85-100 deg. Fahrenheit all the year round.

J. H. SMITH (Wolverhampton).



A Chinese tin miner in Malaya, washing down ore mixed with sand by a high pressure water jet.

A FAMOUS LOCOMOTIVE ENGINEER

The name of James McConnell will always be associated with the Bloomer engines of the L.N.W.R., but few know that the famous engineer had any connection with the church of St. James, New Bradwell, which is near the great carriage works at Wolverton. In the early days of the Premier Line locomotives also were built at Wolverton.

In 1860 the infant son of the churchwarden of the parish was baptised in the new but incomplete church; the boy's name was Ronald Stafford McConnell, for his father was none other than the famous engineer. The church remains incomplete to this day.

In 1862 McConnell resigned his post with the L.N.W.R., and no new locomotives were built at Wolverton after that date. There seems little doubt that all hope of completing the church building also vanished in that year, and to this day the spire, which was to have risen to a height of 170 ft., has not been built.

McConnell is almost forgotten in Wolverton, and few who see his bust in the Science and Art Institute could tell you that it was the likeness of a friend of George Stephenson and a co-founder of the Institution of Mechanical Engineers. Fewer still know that this Irishman from Fermoy, Co. Cork, was once High Sheriff of Buckinghamshire.

While looking through my back numbers of the "M.M." I came across an interesting illustration, on page 310 of the issue for June 1938, of the first locomotive to run in New South Wales, and was struck by its likeness to the familiar "Bloomer" engine. I then learned that the first four engines of the Sydney Railway Company, for whom Mr. McConnell was consulting engineer, were modelled on the L.N.W.R. engines. If my conjecture is correct the engine which is still on exhibition in a Sydney Museum may be the only McConnell engine in existence.

E. F. INSTONE (Wolverton).



The bust of J. E. McConnell, a famous locomotive engineer, in the Science and Art Institute at Wolverton. Photograph by E. F. Instone, Wolverton.

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(illustrated)

Stamp Collectors' Corner

By F. E. Metcalfe

A QUEEN ELIZABETH COLLECTION

DURING the past month or two I have been asked repeatedly about forming a Queen Elizabeth collection. While some of my questioners were entirely new to the hobby of philately, others were collectors who hitherto had gone in for either foreign, or more commonly, colonial stamps of the past century. In view of the interest the subject is undoubtedly arousing I think some notes will not be out of place now, though I had intended to leave the matter for later on. At this stage I will deal only with the first portion, as it were, of a Q.E. collection,

and when the new issues start to appear, thick and heavy, no doubt I shall have to give the subject another airing. What do I mean by the first portion of a Q.E. collection? First of all, let me explain that when there was a change of monarch in earlier years, a certain number of collectors took up the new issues and thus we got K.E. VII, K.G. V and K.G. VI collections. There were not many of the first of these, for the cult of limiting one's collection to a single reign did not get really under weigh until the reign of King George VI. It was the last war, with its limitation in the importation of many foreign stamps, that really gave the start to what has since proved the greatest collection fashion that philately has ever known. So popular have K.G. VI stamps proved that most collectors are now simply carrying on, merely adding what will be Q.E. issues to their K.G. VI collections.



Now when these earlier single reign collections were formed, stamps issued during each particular reign only were included, but apparently Q.E. collectors want also stamps bearing portraits of the new Queen that have already appeared. It is with these stamps that I wish to deal on this occasion, and they form what I have designated the first portion of a Q.E. collection.

Before the accession of Queen Elizabeth II, 32 postage stamps had appeared bearing her portrait, and I think it may prove helpful if I give a handy check list of these; otherwise the purchase of a rather expensive catalogue and much



(Victory), 2d. MALTA: 1950 (Royal Visit), 1d., 3d. and 1/-. NEWFOUNDLAND: 1932, 6c.; 1938, 4c. (Perf. 13½C), 4c. (Perf. 12½L); 1947, 4c. NEW ZEALAND: 1943 (Health), 2d.+1d.; 1944 (Health), 1d.+½d. and 2d.+1d.; 1946 (Victory) 2d.; 1950 (Health) 1d.+½d. and 2d.+1d. NIUE: 1946 (Victory), 2d.; WESTERN SAMOA: ditto. SOUTH AFRICA: 1947 (Royal Visit), 3d. SOUTH WEST AFRICA: ditto. SOUTHERN RHODESIA: 1947 (Royal Visit), ½d.; (Victory) 3d.

That is I think the lot, so far as straightforward issues are concerned, but there are one or two very nice varieties, not too hard to get, for which collectors should be on the lookout. An example is the 4c. Newfoundland perf. 13½C, which exists without watermark. The best way to have this variety is in a pair, one stamp with and the other without watermark. But be sure that the one without has not got a vestige of a mark; otherwise it will not be accepted. Now is the time to look out for the stamp, for it has not been put in the catalogue yet

but a little bird has whispered to me that it will be in the next edition of the Commonwealth Catalogue, for the

Editor of that work has now seen an undoubted copy.

One more word about Newfoundland. The 1947 issue of the 4c. stamp shows a portrait of the Queen, much more grown up than she appeared on the 4c. stamp previously issued. This particular stamp was actually issued on her wedding day, so the story got round that it was a commemorative "Wedding" stamp. Actually it was nothing more than an ordinary issue, and is thus not entitled to a place in a "commemorative" collection.

The South African 3d. "Royal Visit" stamp has one or two quite interesting varieties. One of these appears in the Commonwealth Catalogue, and is known as the "Blinded Princess" stamp. In it a smudge—on the second stamp of the nineteenth row—comes right across the eyes of the portrait of the then Princess Elizabeth. A copy of this variety is worth about six shillings, the ordinary stamp about as many coppers.

Little money will be needed for this part of the collection, but later on there will be a flood. Before the real start I will go into the matter again, and will try to explain just what will be needed.



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Stamp Gossip

NEATNESS DOES IT

I MUST admit to a weakness for neat designs, so I cannot resist asking the editor to illustrate this new and lovely little stamp from Japan. It is part of what will no doubt prove to be a long set of ordinary stamps,



printed in photogravure, to replace the rather hotch potch lot brought into use after the war. Japanese stamps are easy to obtain—don't be frightened by catalogue prices, for they can be obtained much more cheaply—and to the collector who prizes beautiful and often quaint designs, modern Japanese stamps cannot be beaten.

Just examine carefully this latest stamp. Could anything be more simple and

at the same time more effective? There are many stamps from the same country of the same kind. Why not take up the collecting of these? Carefully mounted, you will have a show that will interest collectors and non-collectors alike, and at little cost. Recently the writer of these notes was shown a collection of modern Japanese stamps, and he was really amazed that one country could provide such a treat. Yet the collector told me that over two years he had only spent about 50/-.

AND JUST THE OPPOSITE

If there are readers who are not interested in quiet stamps like the one from Japan, this latest from French Equatorial Africa is sure to please them. It's a breath-taker, isn't it? Two stamps, one of ordinary postage for 10f. and the air stamp illustrated, were issued recently to commemorate the centenary of the birth of that great French explorer Count Brazza. Actually he was born in Rio de Janeiro, Brazil, in 1852, but he joined the French Navy when a mere boy of 18 and after serving in French Gaboon, he was able to explore the Ogoewe River and the territory north of the Congo. He later became governor of French Congo, and established the important station of Brazzaville, which was named after him.

The stamp is interesting, making as it does such a striking contrast to the Japanese stamp. Frankly I much prefer the latter, but no one can deny what a fine design the French have produced in honouring one of their principal explorers.

ROMANCE

Just open the catalogue at the pages showing stamps that have been issued for the New Zealand Dependencies, that is, Cook Islands, Niue and Western Samoa, and see if you can find a more romantic lot. Look at those pictures of Capt. Cook and his landing in the Islands; of the islanders' canoes and villages; of natives spearing fish; and of the wonderful caves at Makefu, Niue. In fact the stamps provide a whole picture gallery of native life and customs in the romantic South Seas. One would think that among the

younger collectors at least these particular stamps would be the most popular of all, and yet they are nothing of the kind, in spite of the fact

that a very nice collection of the stamps can be obtained for very little money.

A very fine catalogue of these stamps has been published in New Zealand by that great student of New Zealand and Dependencies stamps, R. J. Collins, of Verne, Collins and Co., Christchurch, S.I., New Zealand. The catalogue is quite small and it costs 15/-, but the toil that has gone into the book, which is full of original data, and the result of that work, make it a real bargain. Armed with this catalogue, one can form a really worth-while collection of some of the finest and most interesting stamps that have been issued. There are many varieties worth picking up, and those who own the catalogue will have no difficulty in picking them out. Collectors old and young would surely welcome a present of such a catalogue.

PORTUGUESE NAVIGATORS

Recently Portugal has hit the bell several times, with sets of stamps for various colonies. The "Fishes" and "Birds" sets are still best sellers, and not only with young collectors either, for I have to admit that I could not resist buying sets myself. The new "Navigators" set for Cape Verde may not prove quite as popular as the two mentioned, but it will be a winner nevertheless, and the

"Map" stamp illustrated is selling by the bushel.

Two of the stamps of this issue, the lowest and highest in value respectively, show maps. The other eight values bear portraits of famous navigators. The chief of these is Prince Henry the Navigator, who appears on the 2E value, along with his brother Prince Fernando, who was captured by the Saracens when he took part in an attack on Morocco in 1437. The captors offered to release him if they received the port of Ceuta in exchange, but this was refused and poor Fernando died in Morocco in 1443. This really is an interesting set. Three values, showing four navigators and a map, can be obtained for as low as 6d., so all can surely raise that price.

THEMATIC COLLECTIONS

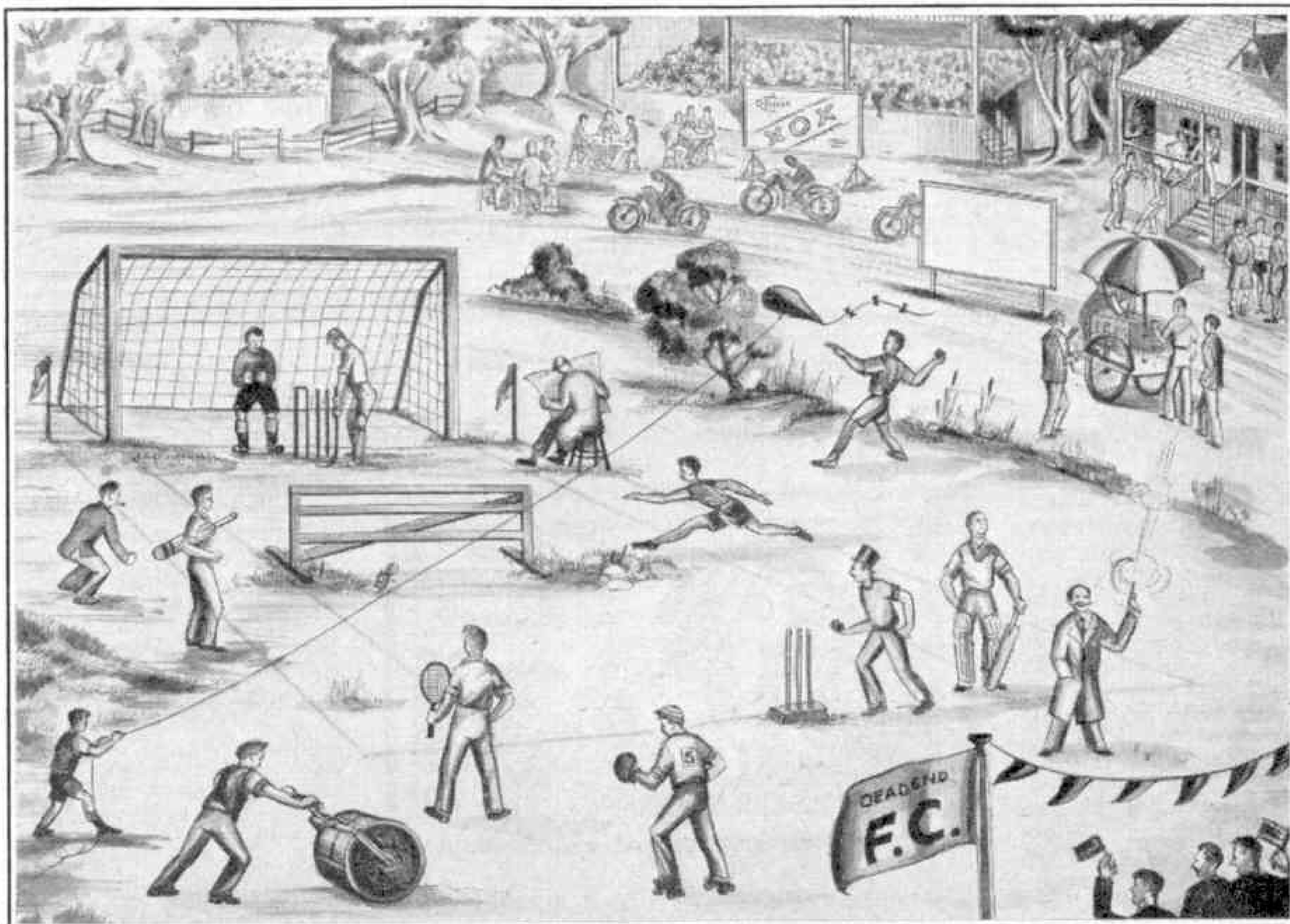
The other day I picked up what we might call a house organ, and found that the contents were entirely devoted to "thematic" stamps. You know what I mean—stamps with a theme or particular subject. This publication drove home the fact that the interest in such collections is growing fast. As I am continually being asked questions about these "topical" collections—that is the American name for them—I thought it was about time that I asked the Editor's permission to write an article or two on them, so if he agrees, look out next month for the first of these articles. There is a lot of fun to be had from such collections.



Competitions! Open To All Readers

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

What is Wrong Here?



Here is a remarkable sports picture—one of those memorable illustrations in which you discover something fresh every time that you look at it. It is a sad fact that the things you will notice are errors—lots of them! Indeed it is very doubtful if there is much that is right about the picture.

Anyway, it provides a fascinating observation test, and readers are invited to trace all the errors in the drawing and to make a list of them. When they think that their lists are complete, they should write their names, addresses and ages on the back and post them to *September Errors Contest, Meccano Magazine, Binns Road, Liverpool 13.*

The picture must not be cut out of the page to be used as part of the entry.

As usual there will be separate sections for Home and Overseas readers, and in each of these there will be prizes of 21/-, 15/- and 10/6 respectively for the best

entries in order of merit, with consolation prizes for other good efforts. If there is a tie for any prize the judges will base their decision on the neatness and novelty of the entries concerned.

Closing dates: Home Section, 31st October; Overseas Section, 31st January, 1953.

September Photographic Contest

The ninth 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 *September Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13.* The closing date in the Home Section is 30th September, and that in the Overseas Section 31st December.

Competition Results and Solutions

HOME

APRIL 1952 FOOTBALL STORY

1st Prize: R. J. Smith, Edinburgh 7. 2nd Prize: R. Labrom, London E.17. 3rd Prize: G. Williams, St. Annes-on-Sea. Consolation Prizes: A. S. Robins, London W.10; P. Shufflebottom, Stoke-on-Trent; G. Hird, Willerby.

APRIL 1952 SIGNALLING CONTEST

1st Prize: J. F. Matthews, Harrow. 2nd Prize: D. Hotchkiss, Old Hill. 3rd Prize: M. G. Ross, Leeds 5. Consolation Prizes: R. Holden, Burgess Hill; J. Allen, Wolverhampton; I. Johnston, Burnley; A. G. Badger, Wednesbury; J. Bazeley, Standish; A. J. Pendleton, Nottingham.

MAY 1952 PHOTOGRAPHIC CONTEST

1st Prize, Section A: R. R. Bushell, Hoddesdon; Section B: E. J. Wilson, Pudsey. 2nd Prize, Section A: Mrs. H. Jenkins, Wolstanton; Section B: M. Blake, Sheffield 10. 3rd Prize, Section A: R. Collins, Rainham; Section B: P. J. C. Hargreaves, Sittingbourne. Consolation Prizes, Section A: G. J. Terry, Guildford; J. L. Springett, London S.E.20; R. Whyte, London N.5; J. Bland, Edgware; P. F. Chapman, St. Leonards-on-Sea; Section B: A. W. Burges, New Malden; B. Fuggle, Helston; A. R. Marriott, Stockport; M. Symes, Wilton; J. Williamson, Stretford; C. Alexander, Oundle.

MAY 1952 SKETCHOGRAMS CONTEST

1st Prize, Section A: A. Mayor, Kendal; Section B: D. Keepax, Lapworth. 2nd Prize, Section A: I. Morrison, Dollar; Section B: S. Hall, West Wickham. 3rd Prize, Section A: G. H. Snow, Bristol 7; Section B: W. Lindsay, Dronmore, N.I. Consolation Prizes, Section A: M. Davies, Leeds; M. J. Saxton, Coalville; A. B. Smalley, Sheffield 2; Section B: D. G. Williams, Caerphilly; A. Newstead, West Hartlepool; I. G. Trainer, Liverpool 10; Miss M. Lyndon, Shirley.

MAY 1952 HORNBY LAYOUT CONTEST

1st Prize: A. W. Miller, Rutherglen. 2nd Prize: N. Morton, Morecambe. 3rd Prize: M. Dan, Plymouth. Consolation Prizes: G. Hird, Willerby; J. Chambers, Minehead; K. C. Bates, Edinburgh.

JUNE 1952 PHOTOGRAPHIC CONTEST

1st Prize, Section A: J. Futers, Willington; Section B: G. Fenton, London E.12. 2nd Prize, Section A: W. R. Prince-Smith, Driffield; Section B: I. Band, Dundee. 3rd Prize, Section A: J. Brooks, Saltcoats; Section B: H. E. Binner, Orpington. Consolation Prizes: J. H. Smith, Wolverhampton; J. E. Peacock, Hexham; J. Milner, Oswestry; J. Gunn, Harrow Weald; B. H. Tolley, Rotherham.

OVERSEAS

JANUARY 1952 COVER VOTING CONTEST

1st Prize: J. McLachlan, Turramurra, Australia. 2nd Prize: D. Rogers, St. Albans, N.Z. 3rd Prize: R. V. Lewis, Concordia, Argentina. Consolation Prizes: F. Walker, Durban, S. Africa; R. W. Wittemann, Brooklyn 2, U.S.A.; N. G. Jayaram, Bangalore 3, India.

JANUARY 1952 RAILWAY PAINTING CONTEST

1st Prize, Section A: J. W. Belderson, Maseru, Basutoland; Section B: J. Wright, Berne, Switzerland. 2nd Prize, Section A: E. Thomas, Nashville, U.S.A.; Section B: P. T. Cook, Barrie, Canada. 3rd Prize, Section A: R. G. Woodhouse, Salta, Argentina; Section B: A. E. Russouw, Pietermaritzburg, S. Africa. Consolation Prize: F. H. Jowett, Toronto, Canada.

FEBRUARY 1952 DRAWING CONTEST

1st Prize, Section A: M. J. Ring, Auckland, N.Z.; Section B: N. Black, Lisbon, Portugal. 2nd Prize, Section A: E. M. McLellan, Melbourne, Australia; Section B: A. H. Lockwood, Masterton, N.Z. 3rd Prize, Section A: R. McCoy, Dublin, Irish Republic; Section B: H. Dickson, Petone, N.Z. Consolation Prizes: M. Warr, Istanbul, Turkey; E. J. Morris, Pretoria, S. Africa; B. E. Barker, Colombo, Ceylon; W. Johnstone, Boulogne, France.

SOLUTIONS

DECEMBER 1951 CAR FACES CONTEST

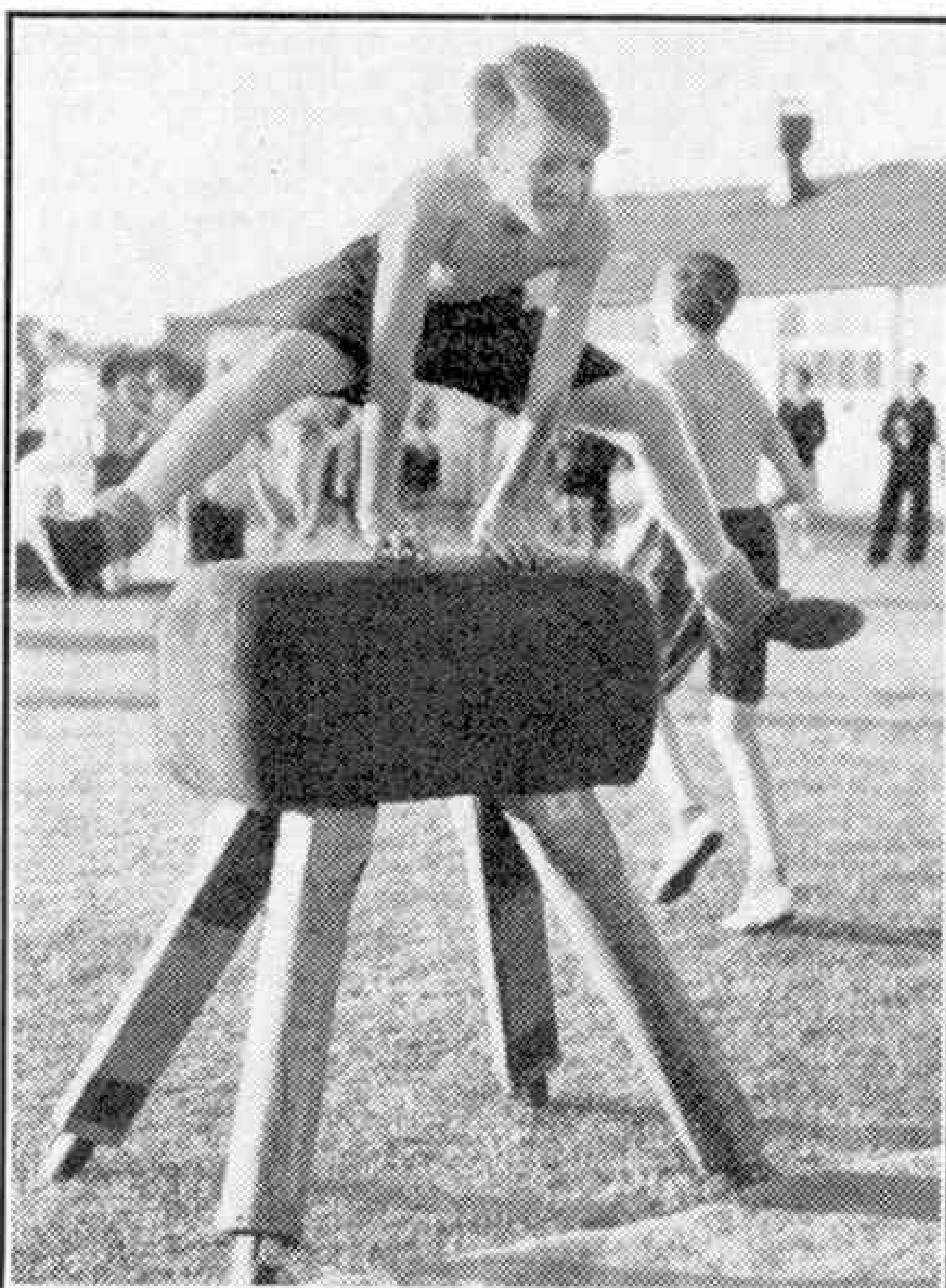
1. Wolseley "Four Fifty." 2. M.G. "T.D." Midget. 3. Sunbeam-Talbot 90. 4. Lanchester "Fourteen." 5. Rover "75." 6. Ford "Consul." 7. Triumph "Mayflower." 8. Riley 2½ litre Saloon. 9. Austin A70 "Hereford." 10. Singer 9 Roadster.

JANUARY 1952 COVER VOTING CONTEST

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

FEBRUARY 1952 LOCOMOTIVE SHADOW CONTEST

1. King Arthur class, 4-6-0, S.R. 2. Schools class, 4-4-0, S.R. 3. Gresley class, A3, 4-6-2, E.N.E.R. 4. Hughes, 2-6-0, L.M.R. 5. L.N.W.R. type 0-8-4 tank, L.M.R. 6. Class 5, 4-6-0, L.M.R. 7. Great Northern Atlantic 4-4-2, E.N.E.R. 8. 45xx class 2-6-2-tank, W.R. 9. 43xx class 2-6-0, W.R. 10. Gresley class A4 4-6-2, E.N.E.R.



A lively scene at a school sports display. Prize winning photograph entered by R. Collins, Rainham, in the May Contest, Section A.

"Kangaroo" Cranes at Work—(Cont. from page 387)

on a live ring of conical rollers, which are carried on a circular girder, to which is attached the pin rack for the slewing motion. The diameter of this live ring is 17 ft. 6 ins. The size of the receiving hopper into which the grab discharges its coal also is of interest. At the top it is square, and each side has a length of 16 ft., while the depth to the discharging point is 13 ft. 3 in. The rubber and canvas belt of the inclined conveyor leading from it has a width of 2 ft. 6 in.

Electrical and mechanical brakes are provided to allow for complete control of all movements, and an interesting detail is that the crane has a device that prevents the grab from turning as it is hoisted or lowered.

Nature's Speed Records—(Continued from page 390)

would not escape a mako shark, whose leaps into the air are probably even faster. For most smaller fish 10 m.p.h. is a fair average, but trout may reach 23 m.p.h. and salmon 25 m.p.h. under favourable swimming conditions.

In the insect world the dragonfly is by far the fastest species, touching a timed 55 m.p.h. without difficulty. Honeybees rarely work up to more than 15 m.p.h., and wasps are even slower. The house-fly is happiest at the smart walking pace of 5 m.p.h., with the cabbage butterfly only slightly faster. Only among the creeping and crawling insects is man not the slow-coach!

"Faithful Annie"—(Continued from page 394)

discovered that it contained three R.A.F. officers, a young man in Army battledress and my fellow-passenger, a blue-uniformed police sergeant! Fortunately, by the time we had finished thinking all this, the fighter proved to be a Spitfire, which took one condescending look at us and then flew away.

The rest of the flight was comparatively restful, despite 20 minutes demonstration of low-flying attack methods, during which we looked up at trees and Fen bridges as they flashed by, and one awful moment when we found ourselves landing on top of an Oxford trainer which should have been taking off from another runway!

Since then, I have flown in faster, bigger, more comfortable, better-looking and more exciting aircraft than Ansons. But I know that I could never have glimpsed for the first time the wonder of the world above the clouds, or the unbelievable beauty of the English countryside, from a better place than the big "glasshouse" of an Anson. So I am just one of the many thousands of people who will never forget "Faithful Annie."

A Life at Sea—(Continued from page 407)

are made in respect of board and lodging while ashore. When the full apprenticeship of 4½ years has been satisfactorily completed, appointments as Junior Engineer Officers in the Shell fleet follow.

Engineer Apprentices wear Merchant Navy uniform when afloat. There are good holidays, leave during service afloat being granted on the basis of 36 days a year, and the Company are prepared to consider meeting the normal fees for the National Diploma Course at the technical college. Pay during the first year is at the rate of £7 10s. 0d. a month, rising in the fifth year to £14 3s. 4d. or even more, plus a living allowance while on shore. A condition of acceptance as an Engineer Apprentice is that on completing his training the applicant will undertake to continue in the service of the Company for a period of at least four years.

The Shell fleet includes some of the largest tankers afloat today, among them the 28,000 ton *Velutina*, described and illustrated in the "M.M." for January 1951, and her sister ships. The propelling machinery in the vessels of the fleet ranges from the steam reciprocating engine and the geared steam turbine

to diesel, diesel-electric and steam turbo-electric engines, and even the gas turbine, successful trials with which have been made in the *Auris*, as explained in the article that appeared in the "M.M." for April 1952. It will be seen that excellent opportunities are afforded to Shell tanker apprentices to gain experience with all types of modern machinery.

The pay prospects too are bright, both for Deck and for Engine-room Officers. On deck there is a well-graded scale rising to the "begin at" rate of £100 a month for the Master of a vessel and £135 a month for a Senior Master. There is a similar scale for the various grades of Engineers, rising to £92 a month "begin at" for a Chief Engineer and £130 a month for a Senior Chief Engineer, all found.

The schemes of the Anglo-Saxon Petroleum Company certainly offer pleasant prospects for those who are attracted by a life at sea in a modern fleet, under first-class conditions. Any reader of the Magazine who is interested, and who thinks he can satisfy the necessary conditions, should give careful consideration to the idea. I shall always be glad to give further information that will be helpful.

The Tale of a Tunnel—(Continued from page 412)

or surveyor may have insisted on this.

To describe the coat-of-arms fully calls for the quaint and specialised language of heraldry, but it will probably be sufficient for "M.M." readers to know that two rampant lions, a griffin and three choughs are included with many other heraldic features, and the crest that fittingly surmounts the centre part of the device is a coronet. The series of ornamental carvings that are near the circumference of the tunnel face are respectively the Tudor Rose, badge of the Tudors, and the Portcullis, the badge of the Beauforts.

BACK NUMBERS OF THE "M.M."

A few copies of the following issues are still available:

- 1947 September
- 1948 April-July and December
- 1949 March-December
- 1950 August, September and November
- 1951 February-October and December
- 1952 January, April, May, June, July and August

The cost per copy inclusive of postage, etc., for issues prior to 1950 is 8d., and from January 1950 onward 11d.

Readers who require copies, should write immediately to the "Editor, Meccano Magazine, Binns Road, Liverpool 13," enclosing a Postal Order for the necessary amount.

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Fireside Fun

Magistrate: "This seems to me to be a case that should be settled out of court."

Casey: "That's just what Mick O'Brien an' me were trying to do, yer honour, when the policeman interfered."



"Officer, can I catch a No. 75 bus here?"

"Yes, mum. Right behind you in a second or two."

"Now tell me, why did you steal this bicycle?"

"Just for a lark, sir."

"Good. We have cages for larks, and you can have one of them for a month."



Visitor: "And you say he is actually trying to hit his own shadow?"

Trainer: "That's right. He's shadow boxing, as we call it."

Visitor: "Poor man. Do you think he will ever get better?"

BRAIN TEASERS PRICE CONTROL!

One of two shopkeepers sold 30 apples at 2 a 1d., and the other the same number of apples at 3 a 1d. Then they agreed that next day, again with 30 apples each, they should each charge the same price, which they fixed at 5 for 2d. Did this give them the same return?

OUT AND DOWN

A ladder reaches 30 ft. up a wall, but when the foot is pulled out 14 ft. from the wall the top also drops 14 ft. How long is the ladder?

FIND THIS SEVEN-LETTER NAME

My first is in master, but not in slave.

My second is in plaster and also in wave.

My third is in comet, but not in star.

My fourth is in merchant and also in scar.

My fifth is in peasant, but not in boor.

My sixth is in pleasant, but not in foil.

And my seventh is in worker and also in toil.



"Might I have this dance with you?"

"Yes, you mite."

BEYOND THE POINT OF BALANCE

At first sight a postal packet in a cylindrical cardboard tube seemed too heavy to be weighed on the only spring balance available, which was graduated up to 4 oz. It was known that its weight was less than half a pound, and eventually this was easily found, although the spring balance limit was only 4 oz. How was this done?

INCREASED BY SUBTRACTION

There is a country that has a name of six letters, but when two letters are taken from each end 11 is left. What country is this?

SOLUTIONS TO LAST MONTH'S PUZZLES

Ahmed, the Indian boy of our first story, was born on 29th February, and consequently had a real birthday only once in four years.

The number wanted in our second puzzle was 142857. Multiplied successively by 2, 3, 4, 5 and 6 it gives the numbers 285714, 428571, 571428, 714285 and 857142.

On the broken clock face the total on each of the six pieces was 13, made up of 12 and 1, 11 and 2, 10 and 3, 9 and 4, 8 and 5, and 7 and 6 respectively.

The solution of our fourth puzzle last month was easy and Smith was slow. Adding the length of the two shorter sides together gives the length of the longest side of the alleged triangle, which therefore does not exist. Smith was trying to find the area of a straight line!

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Carpentry & Joinery	Motor Engineering
Chemistry, Org. & Inorg.	Production Engineering
Civil Engineering	Quantity Surveying
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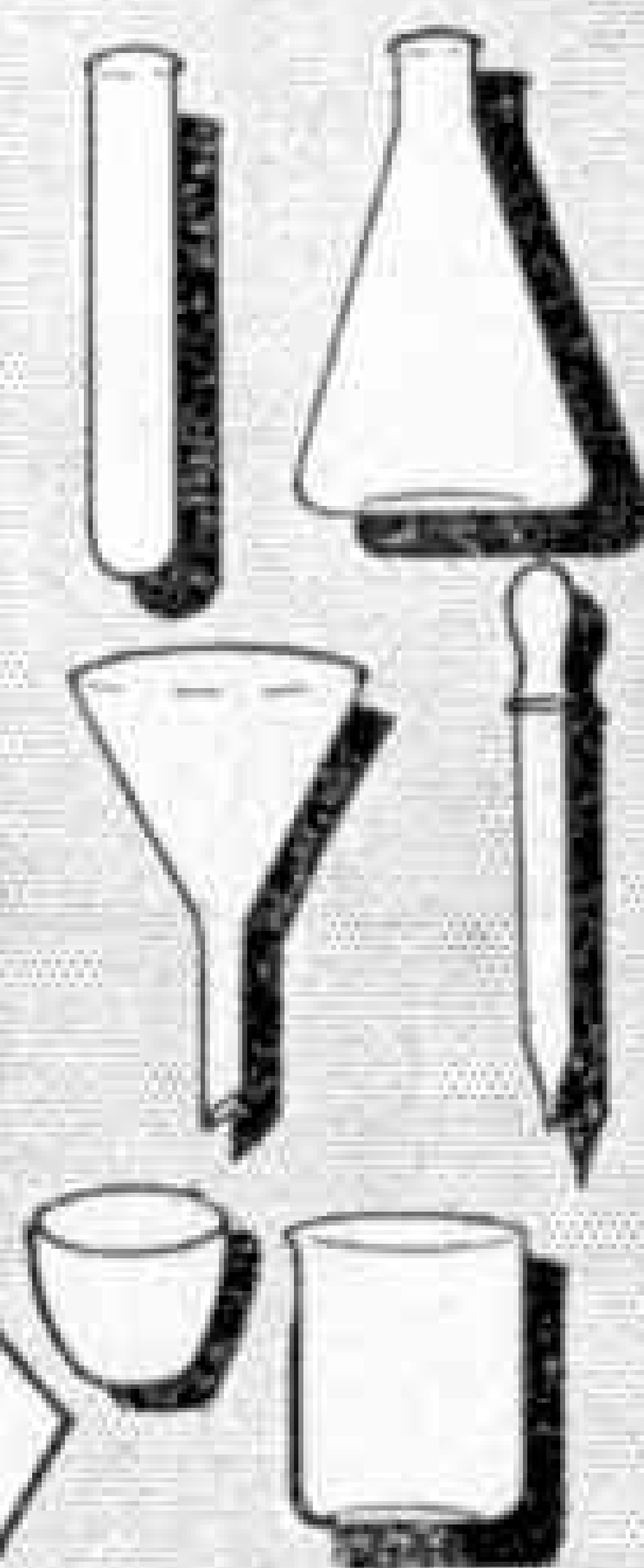
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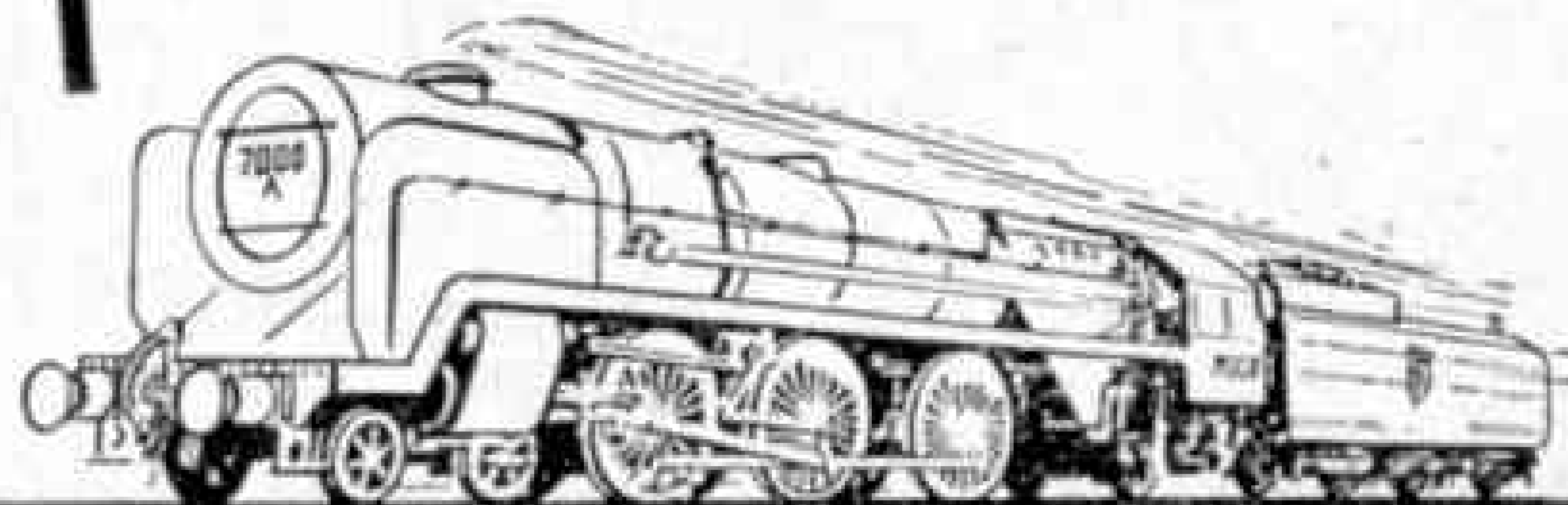


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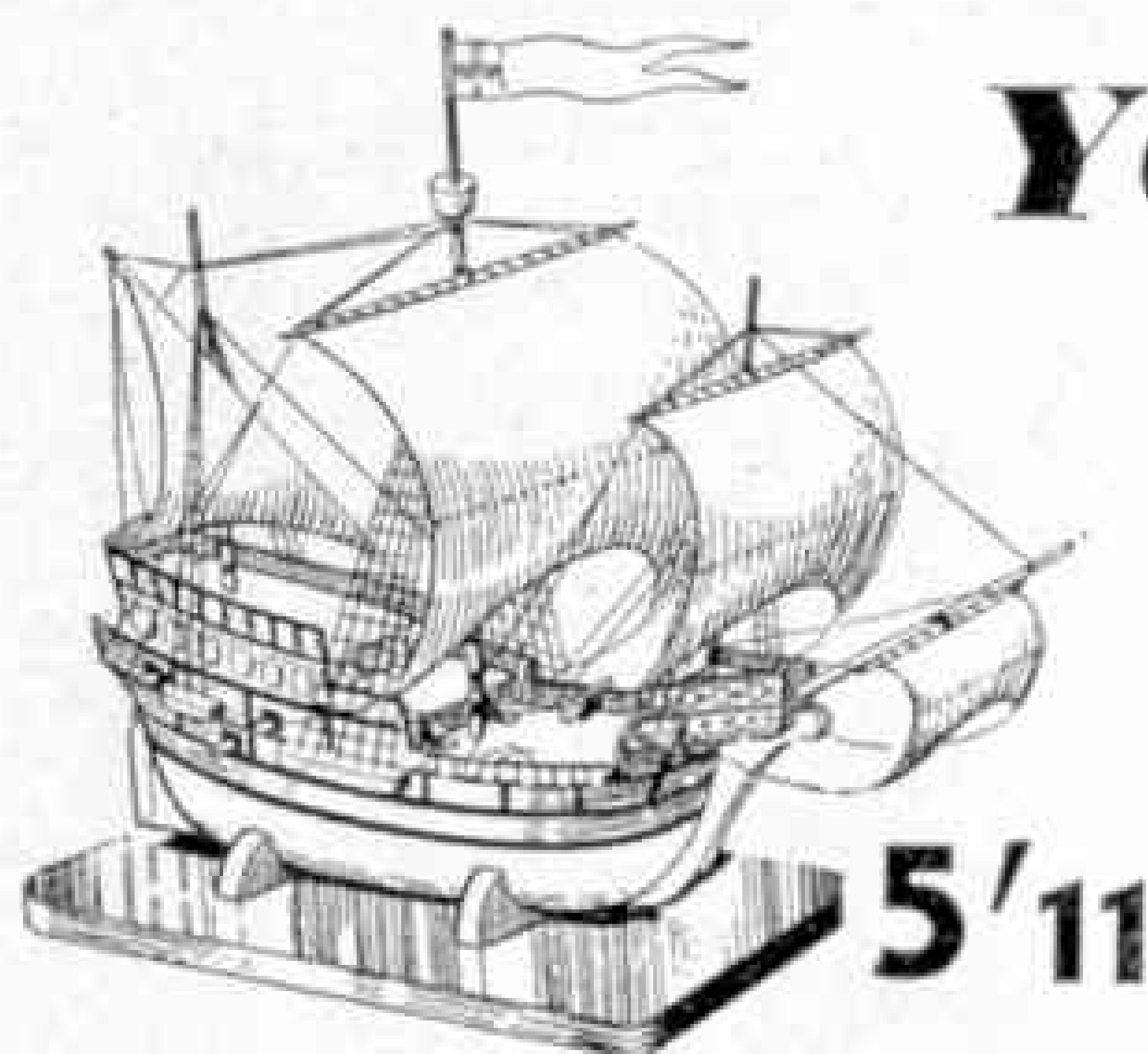


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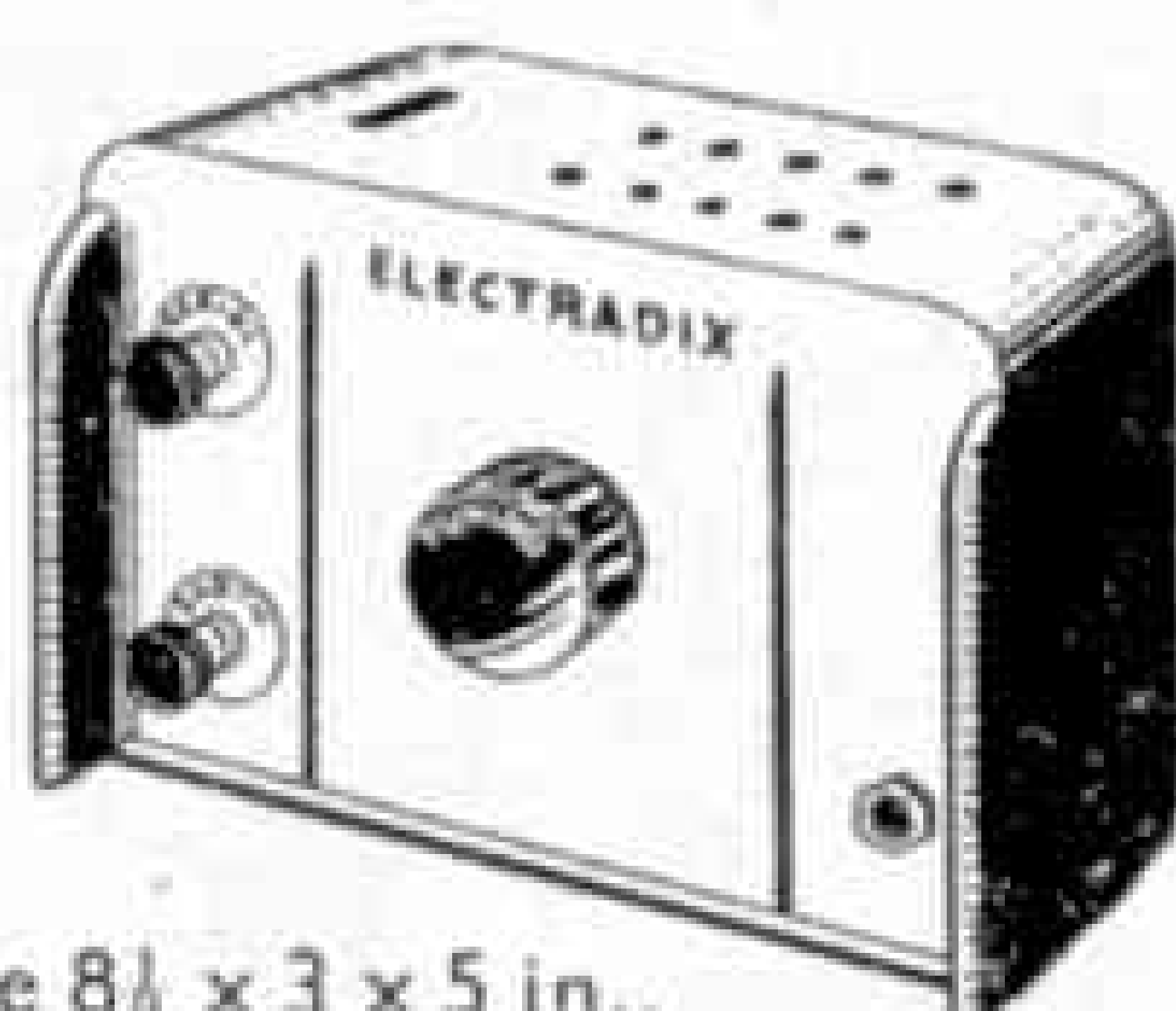
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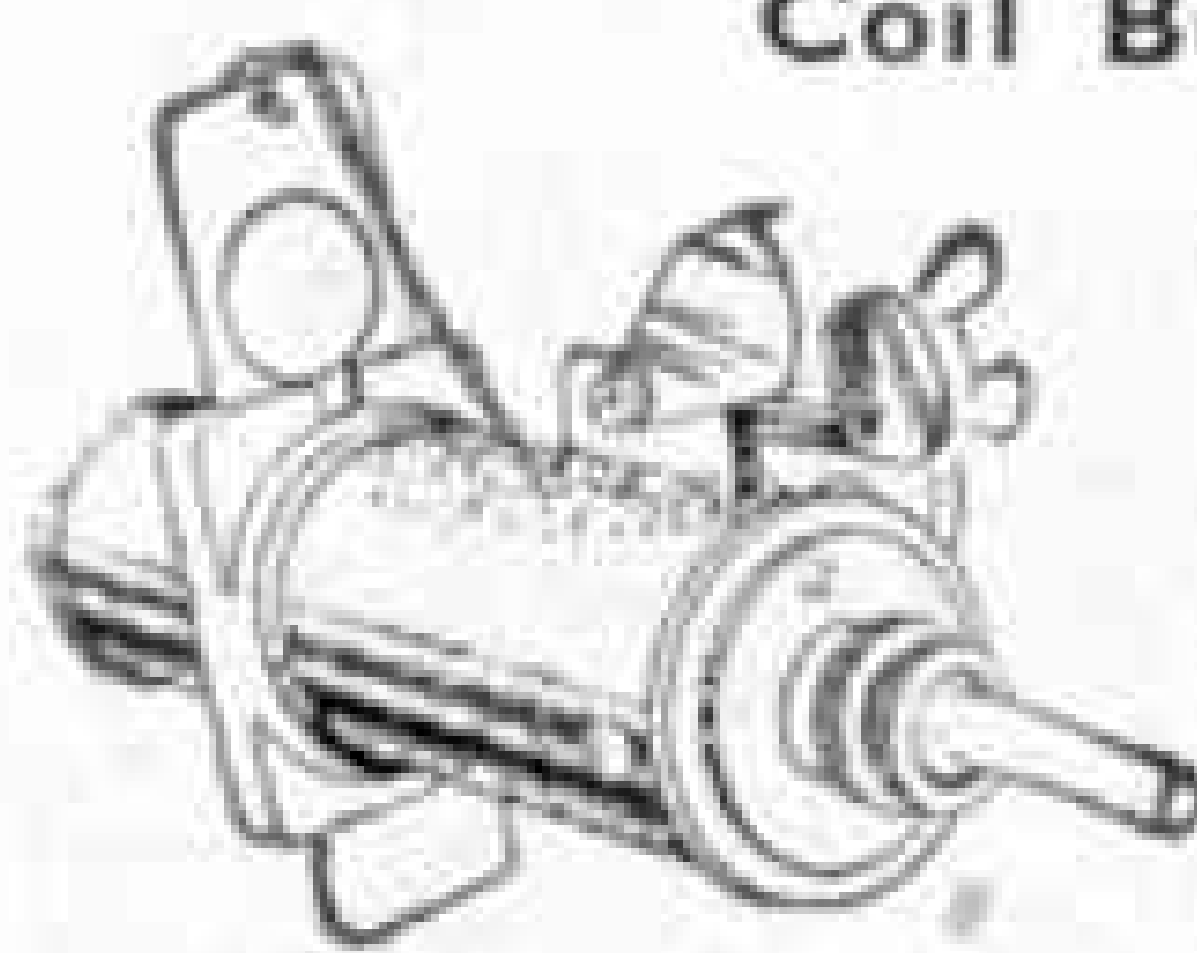
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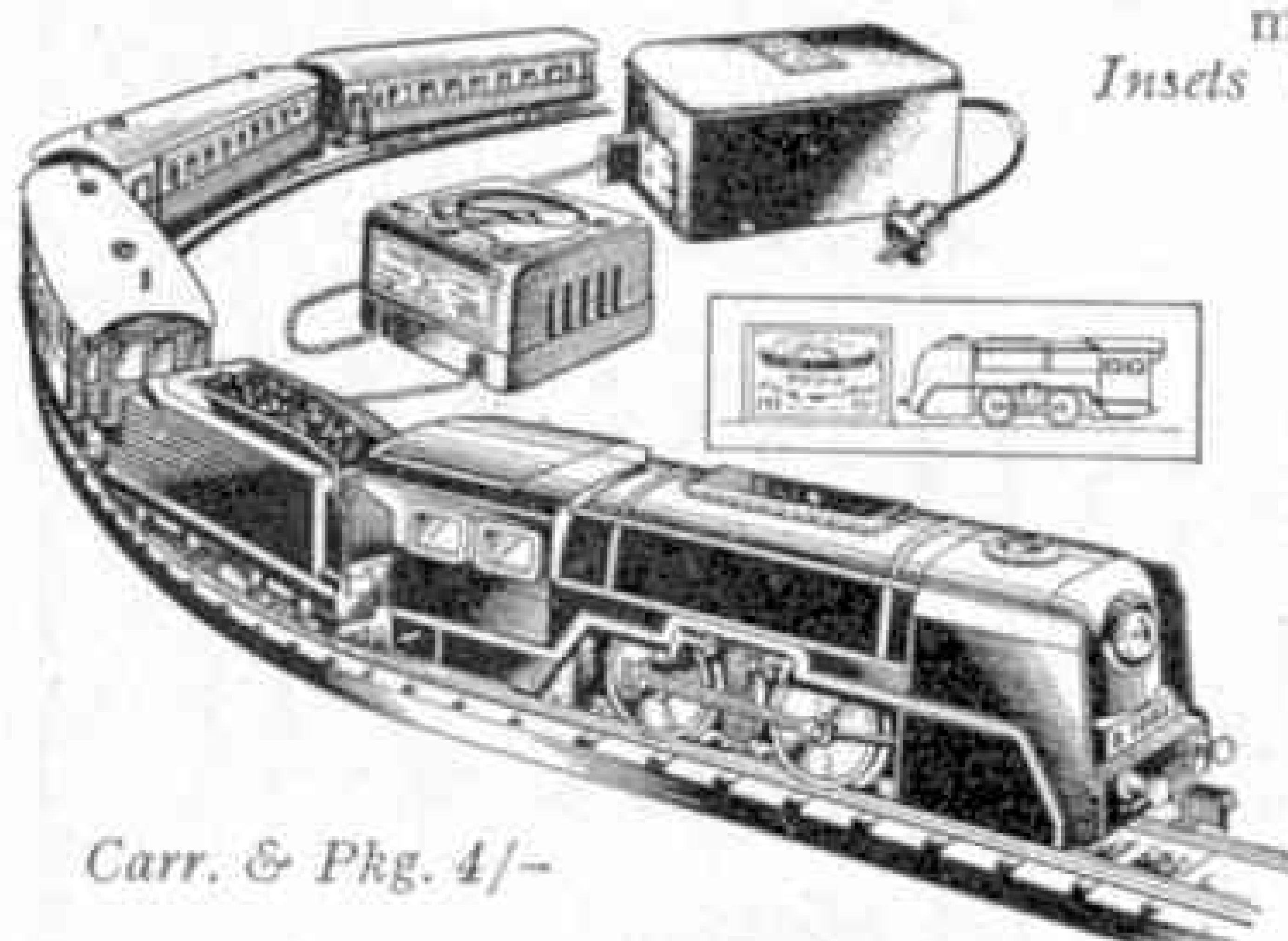
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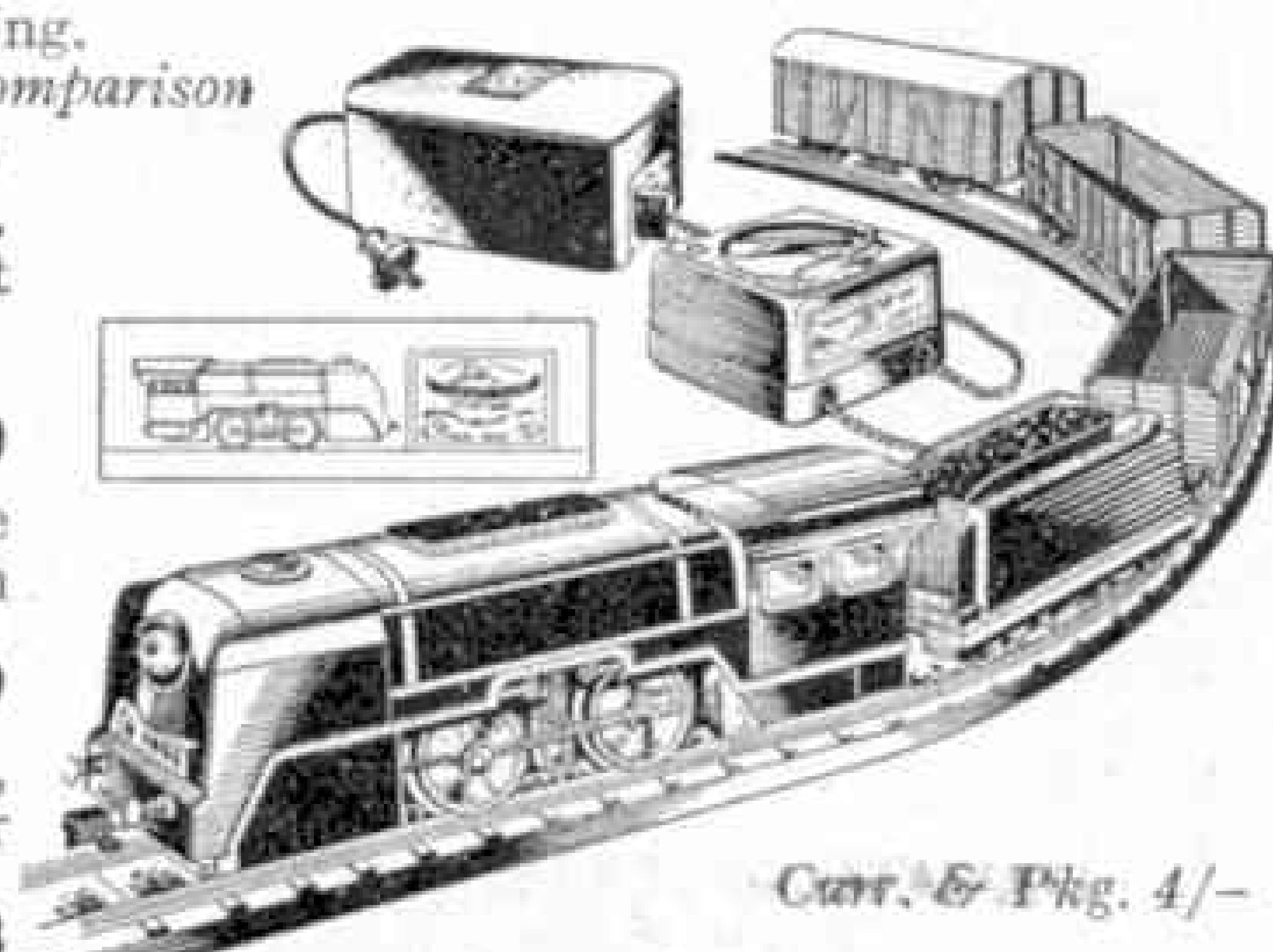
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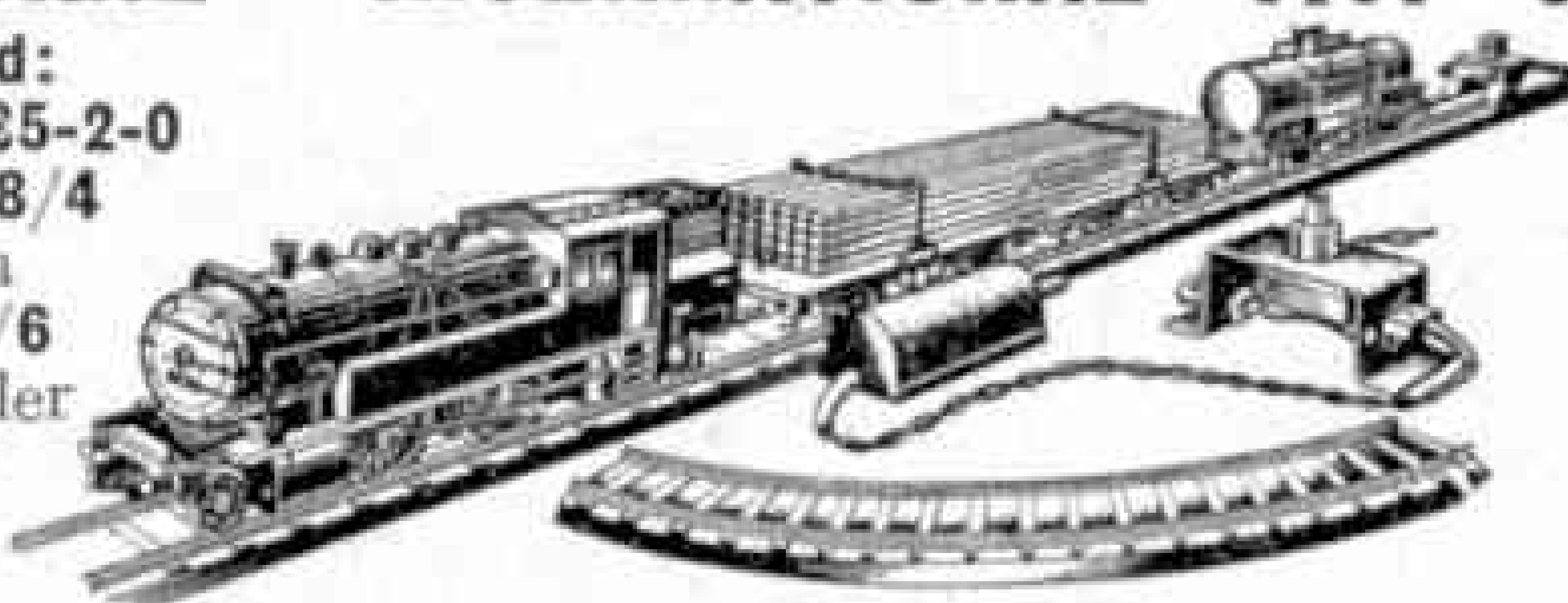
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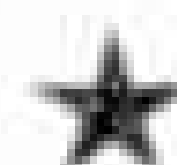
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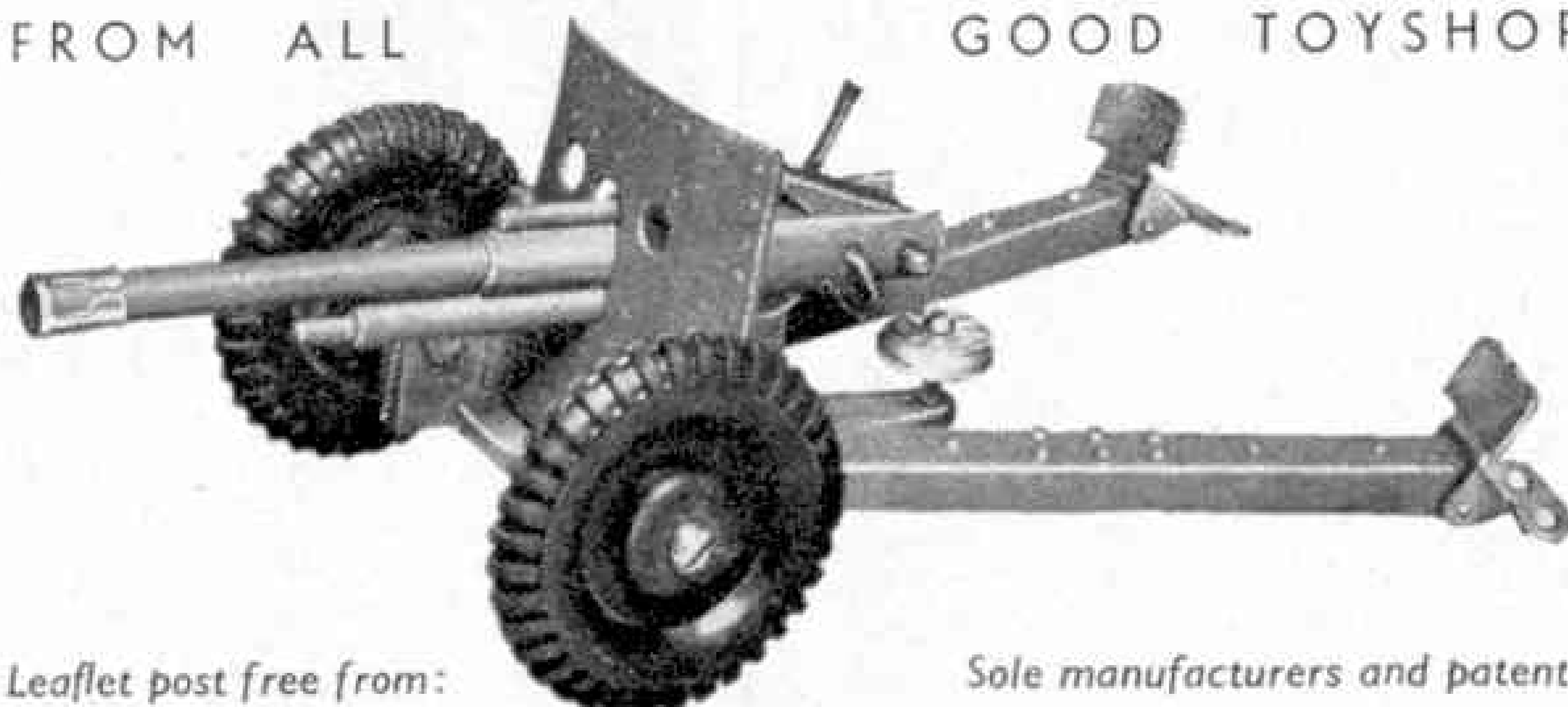
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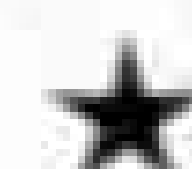
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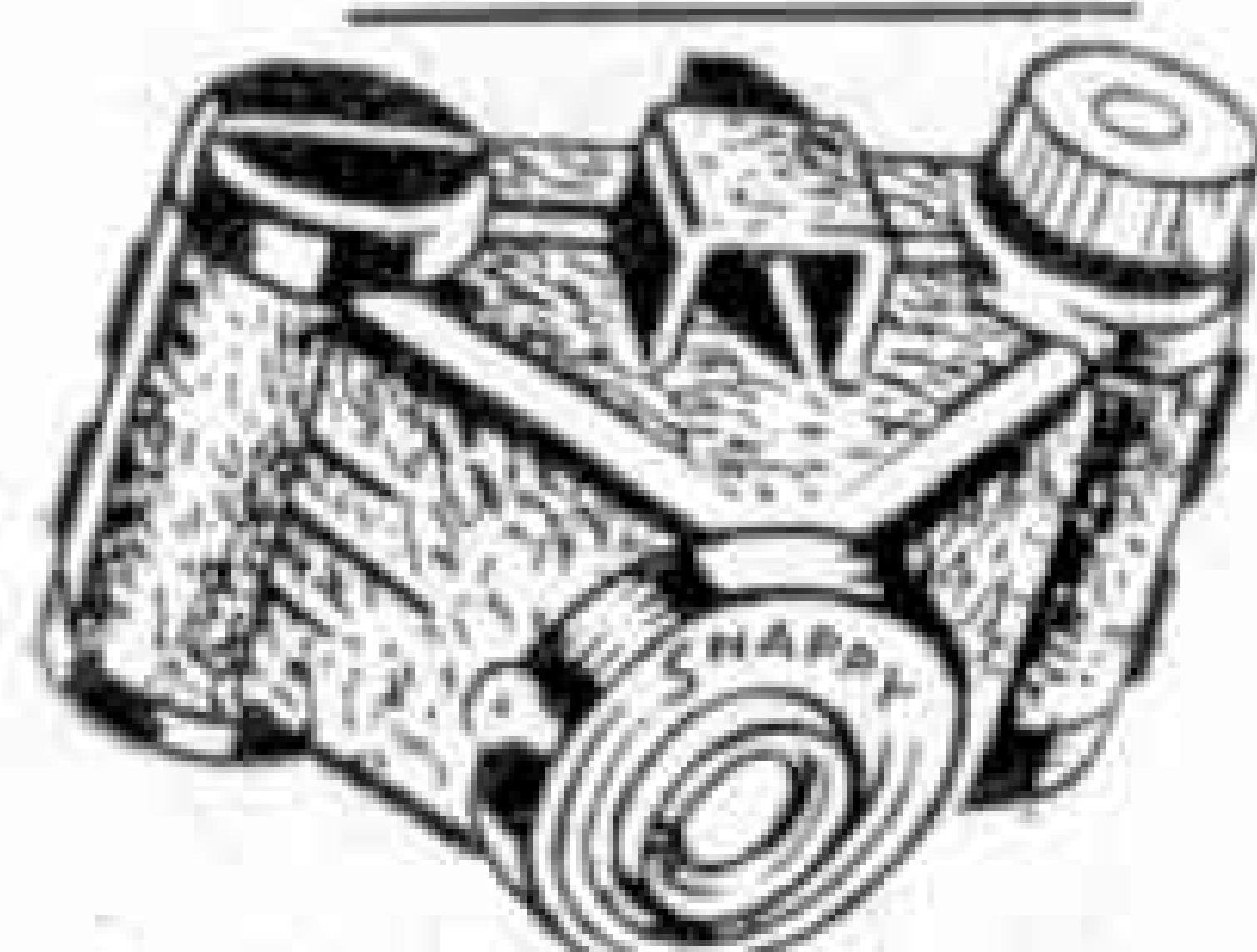
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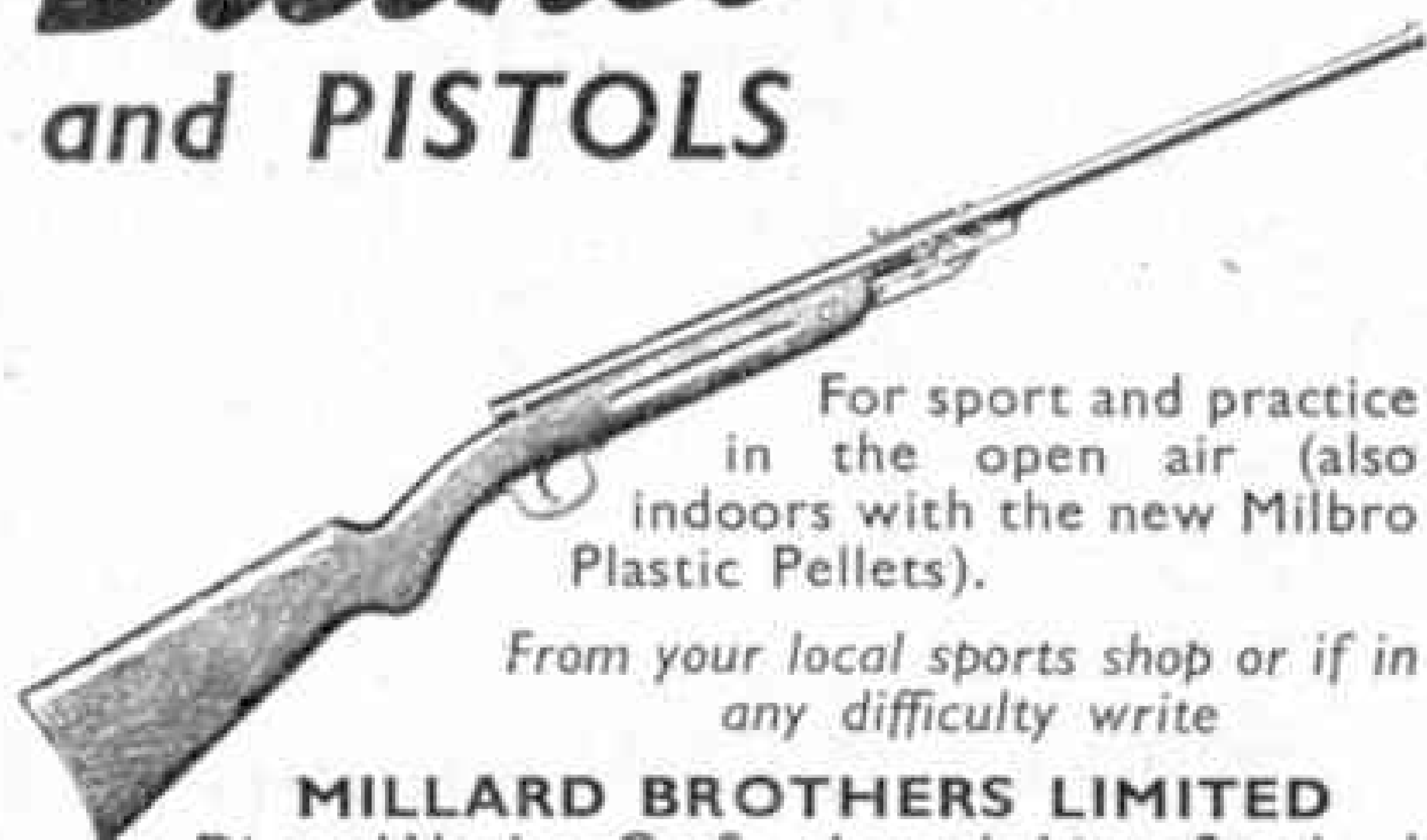
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