VOL. XLIII No. 5 MAY 1958

MECCANO MAGAZINE

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1/3

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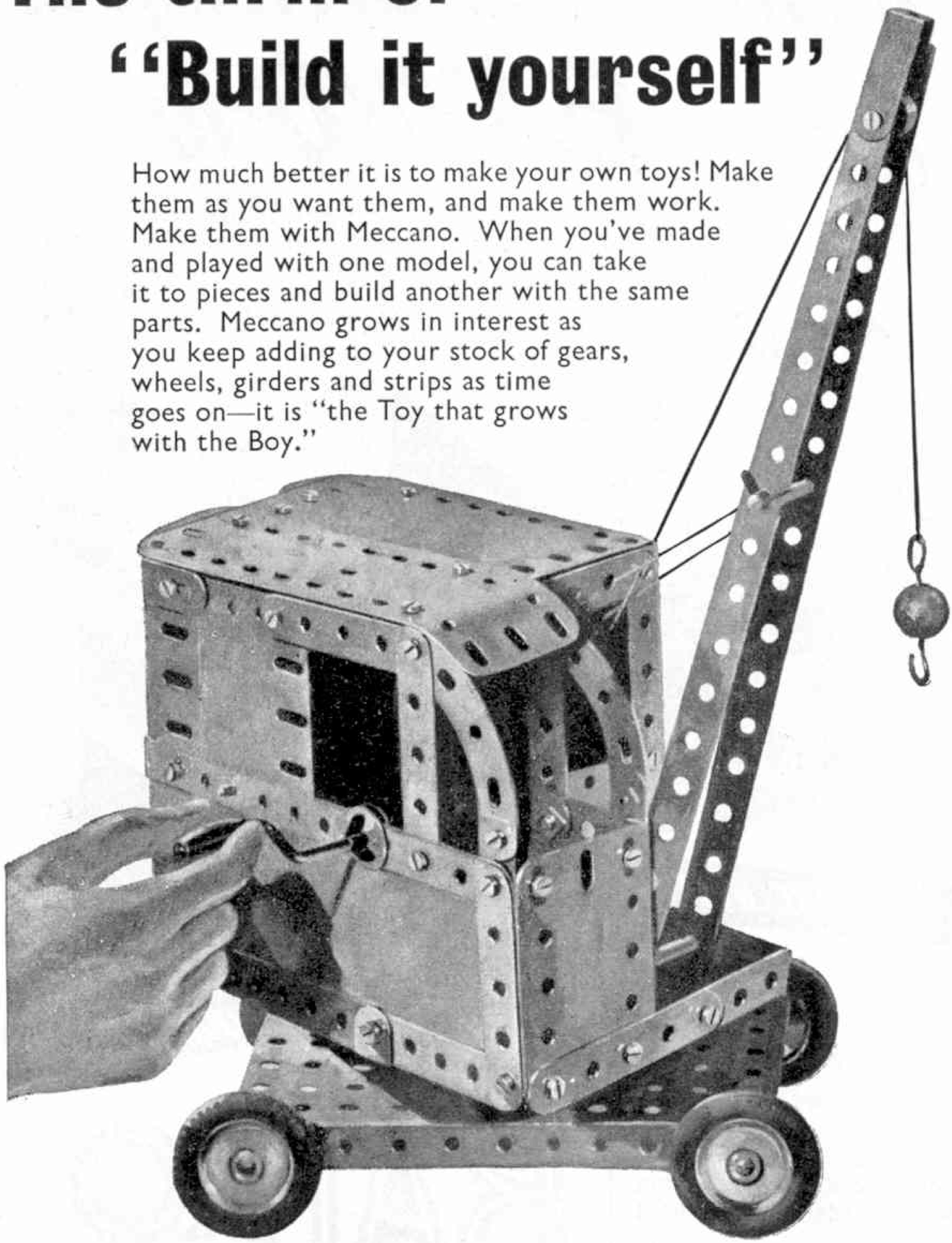

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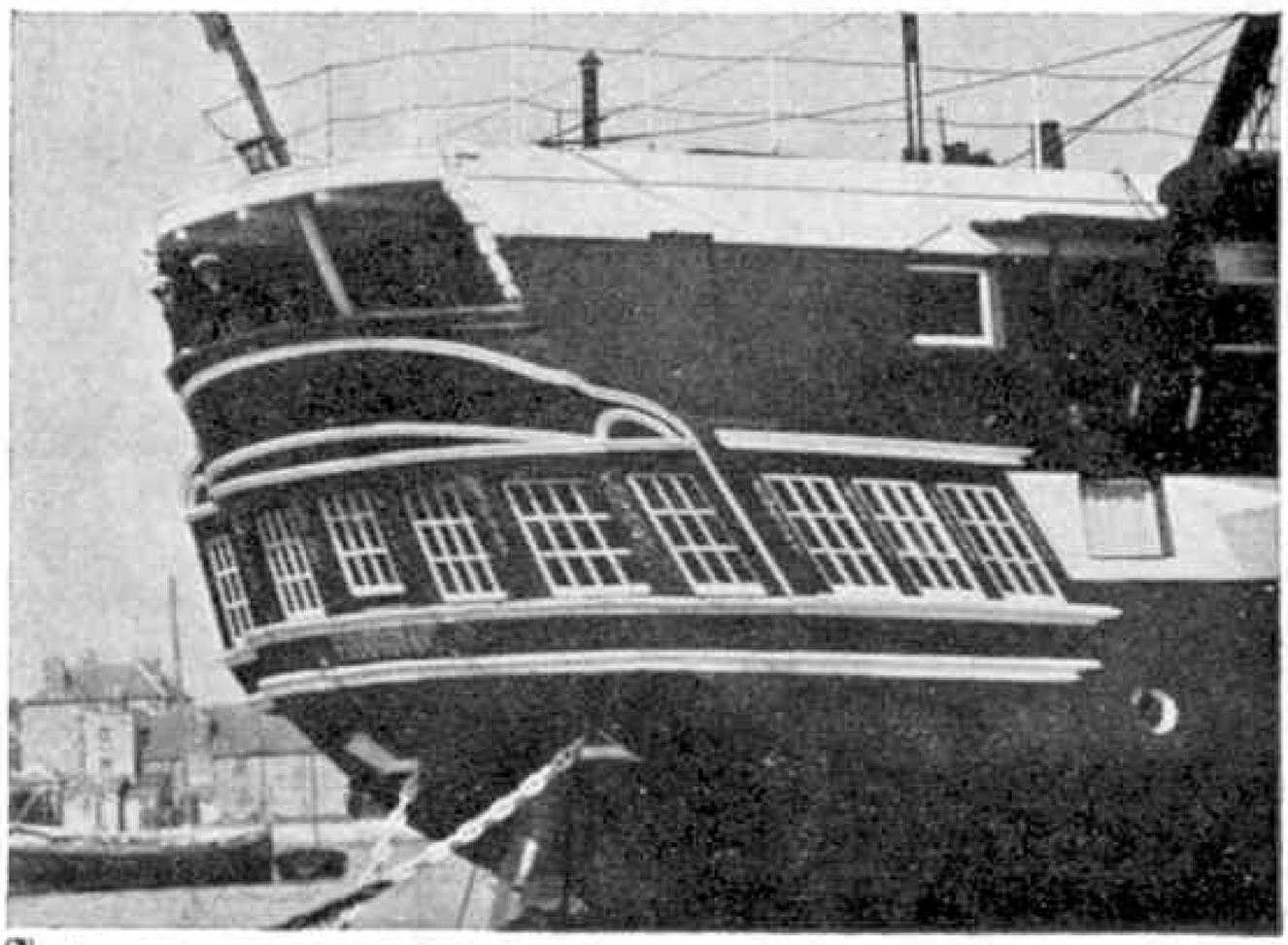

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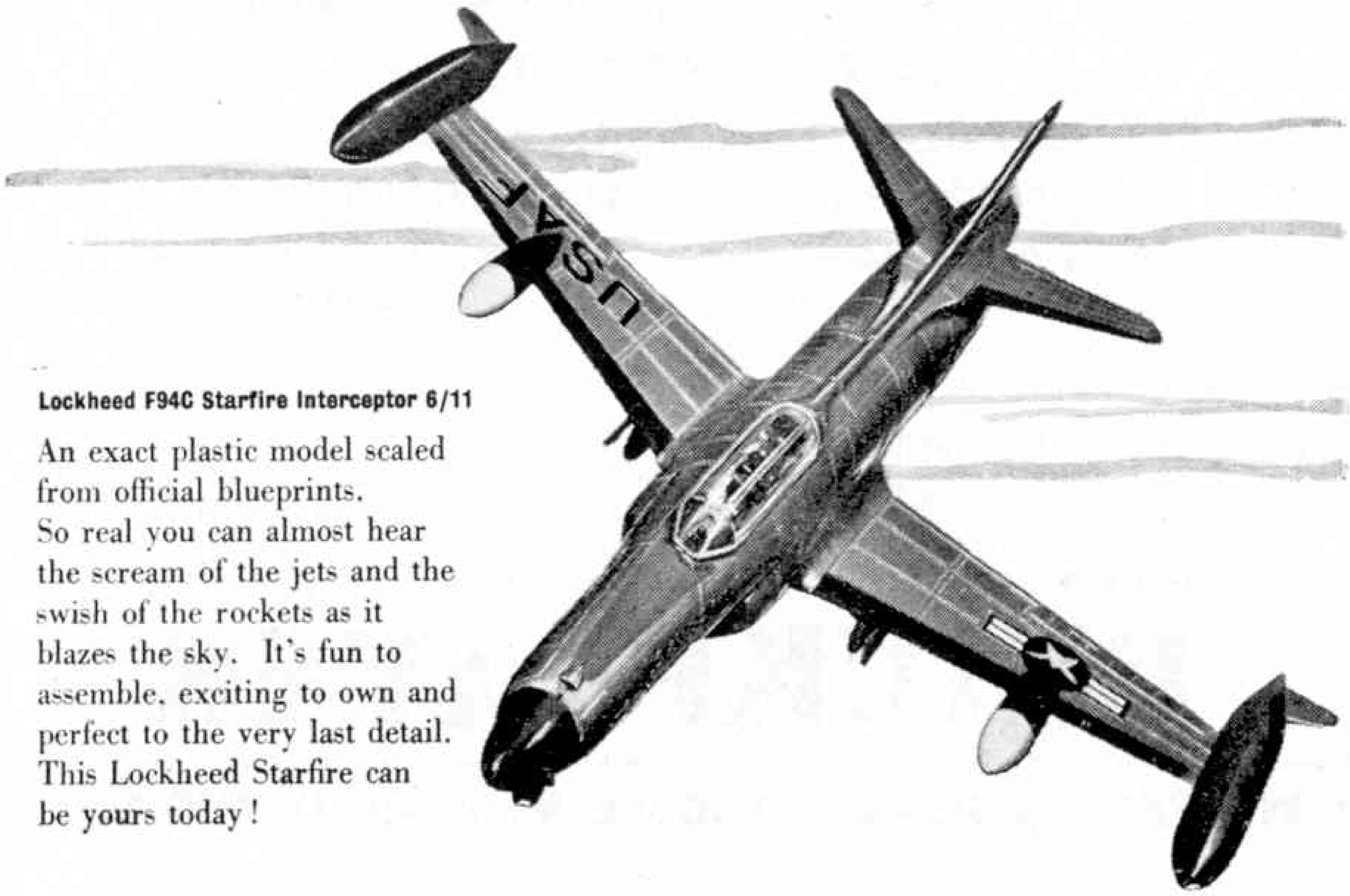

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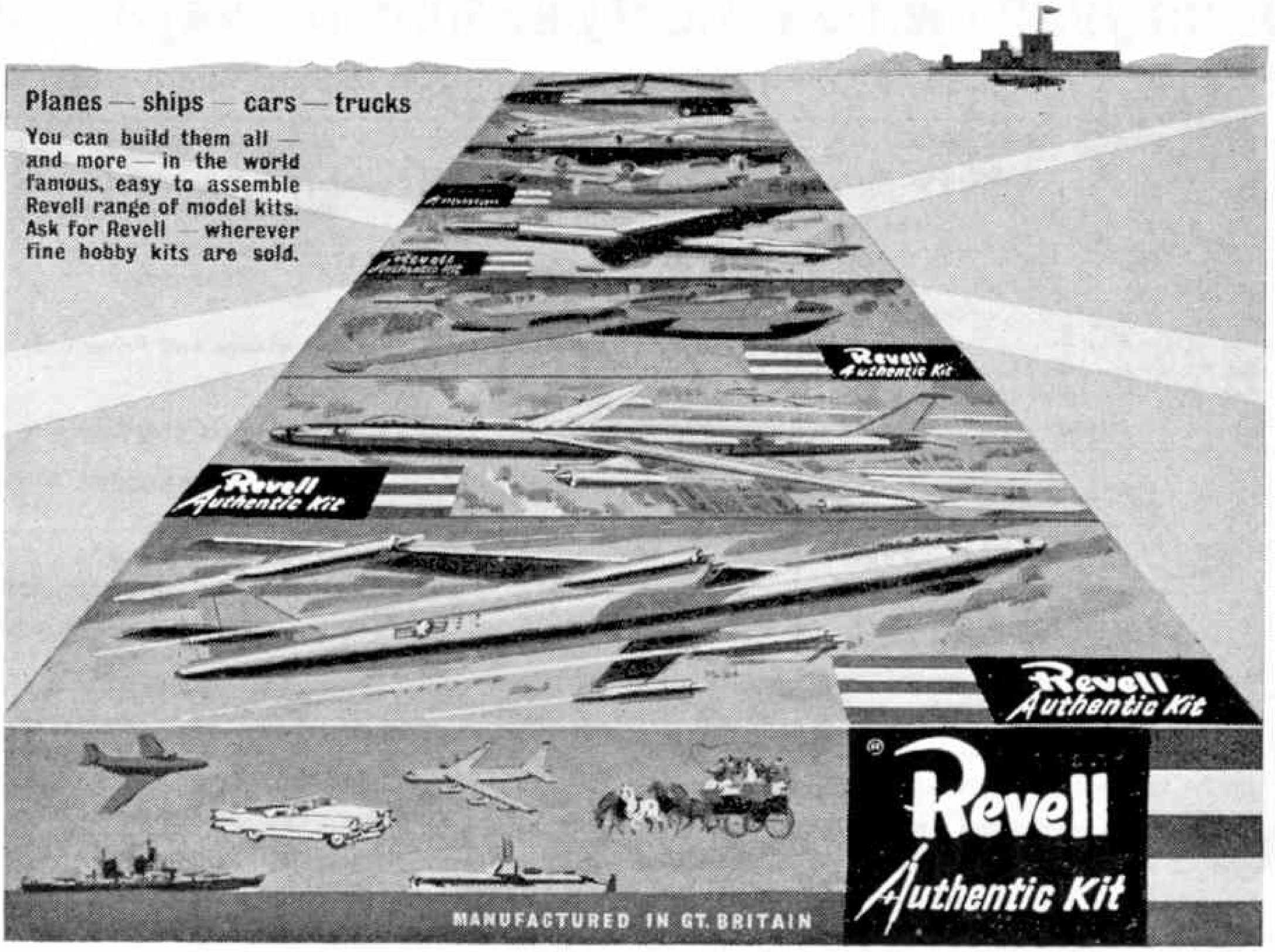

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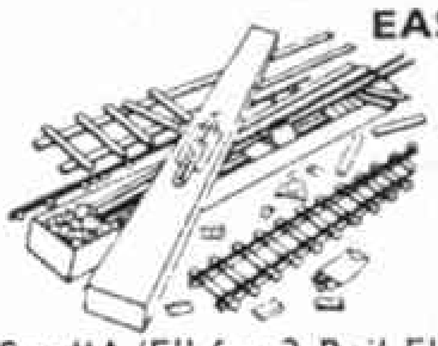

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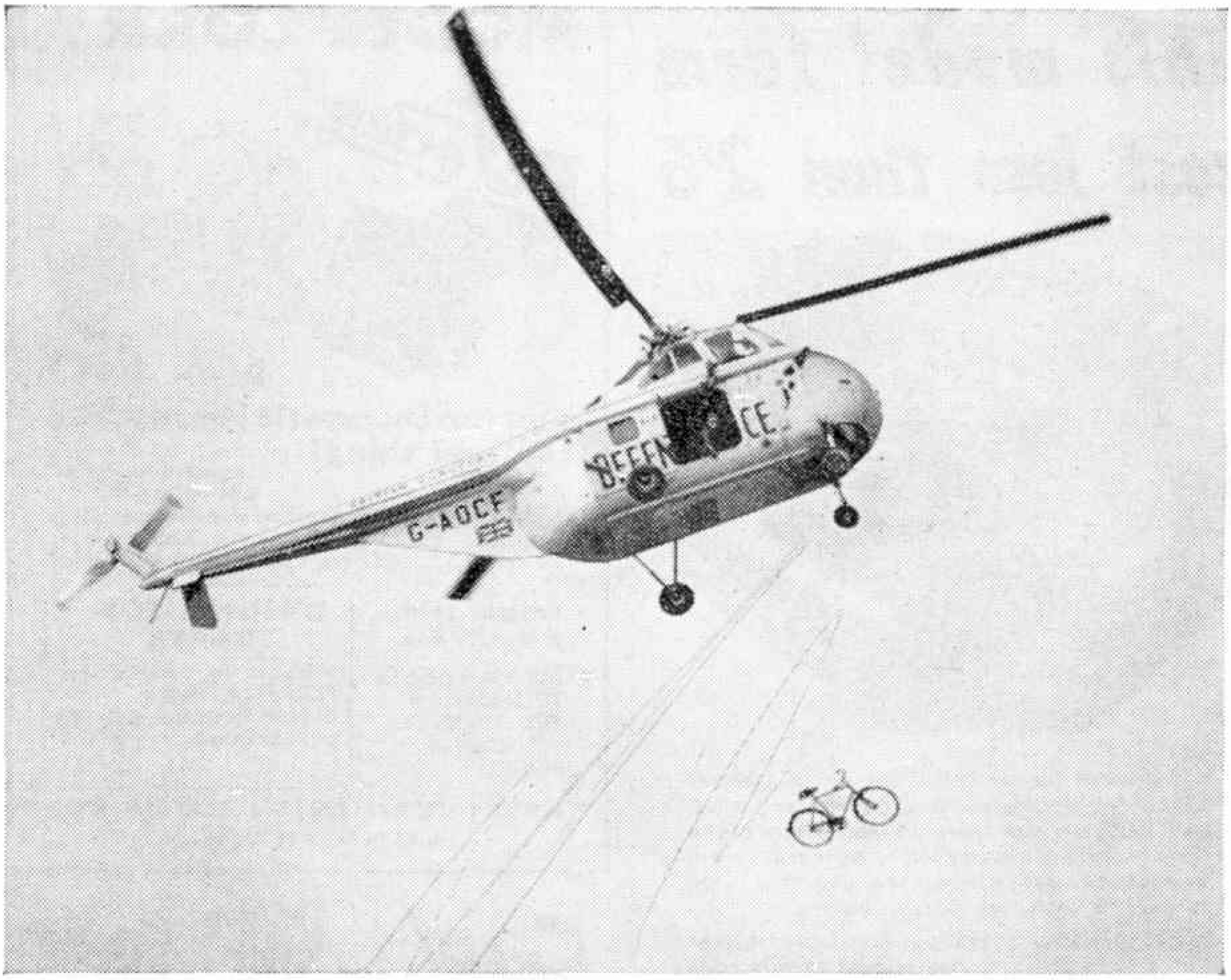

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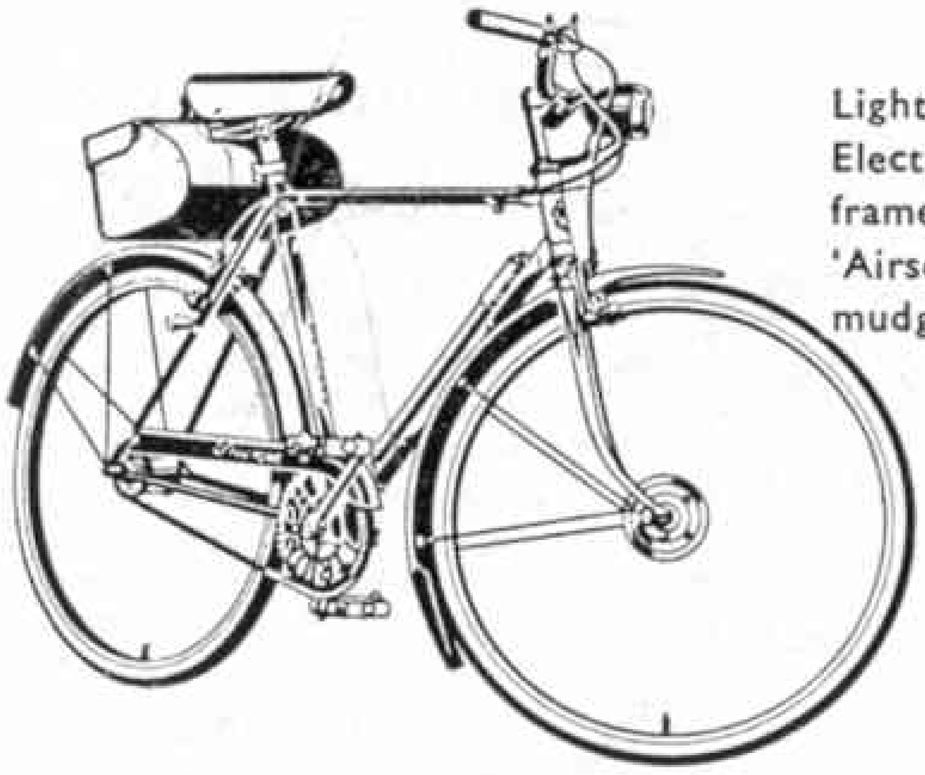

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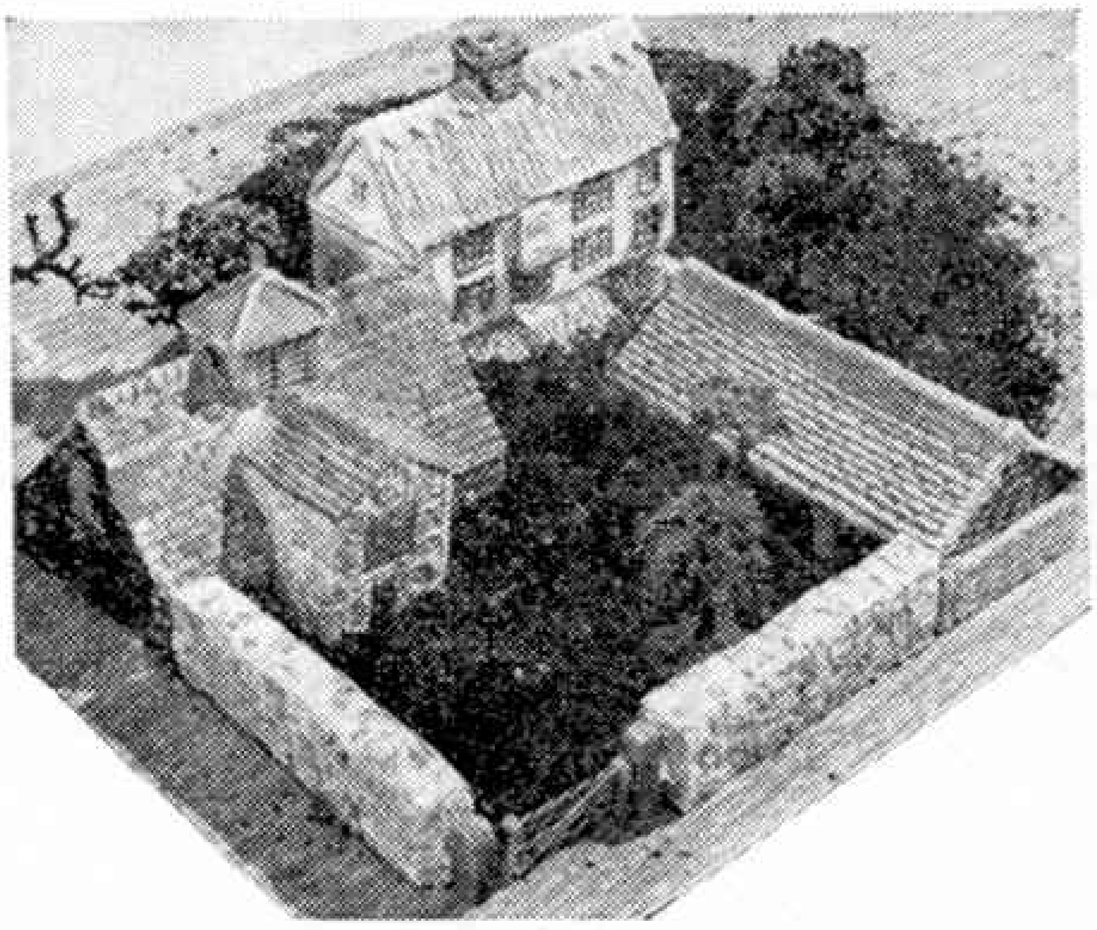

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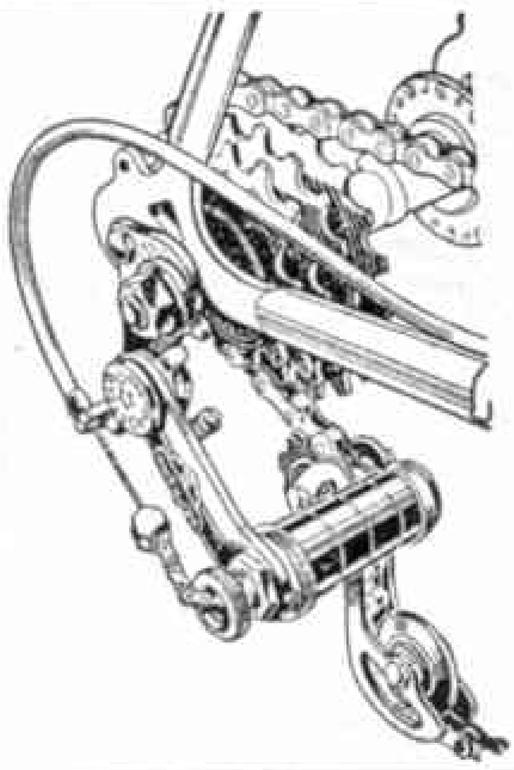

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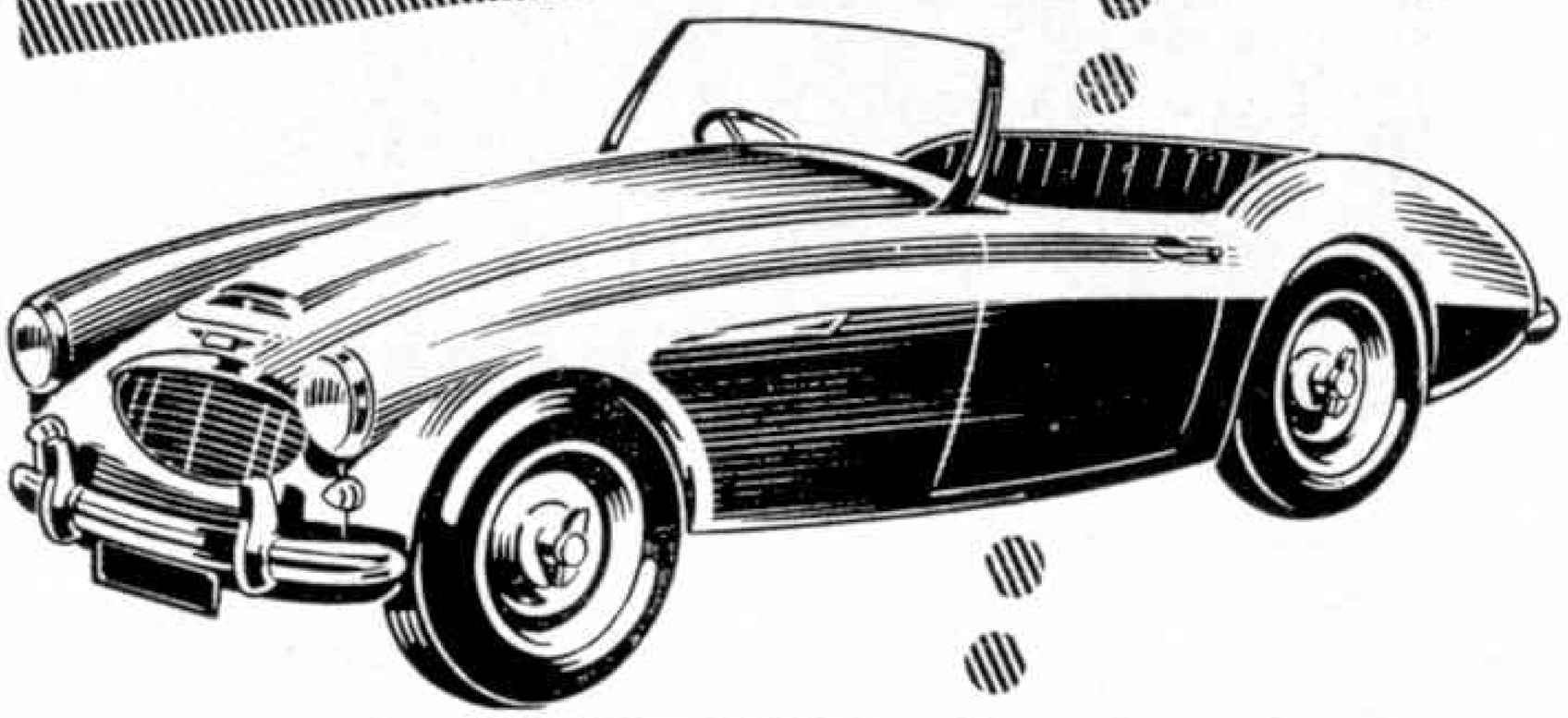

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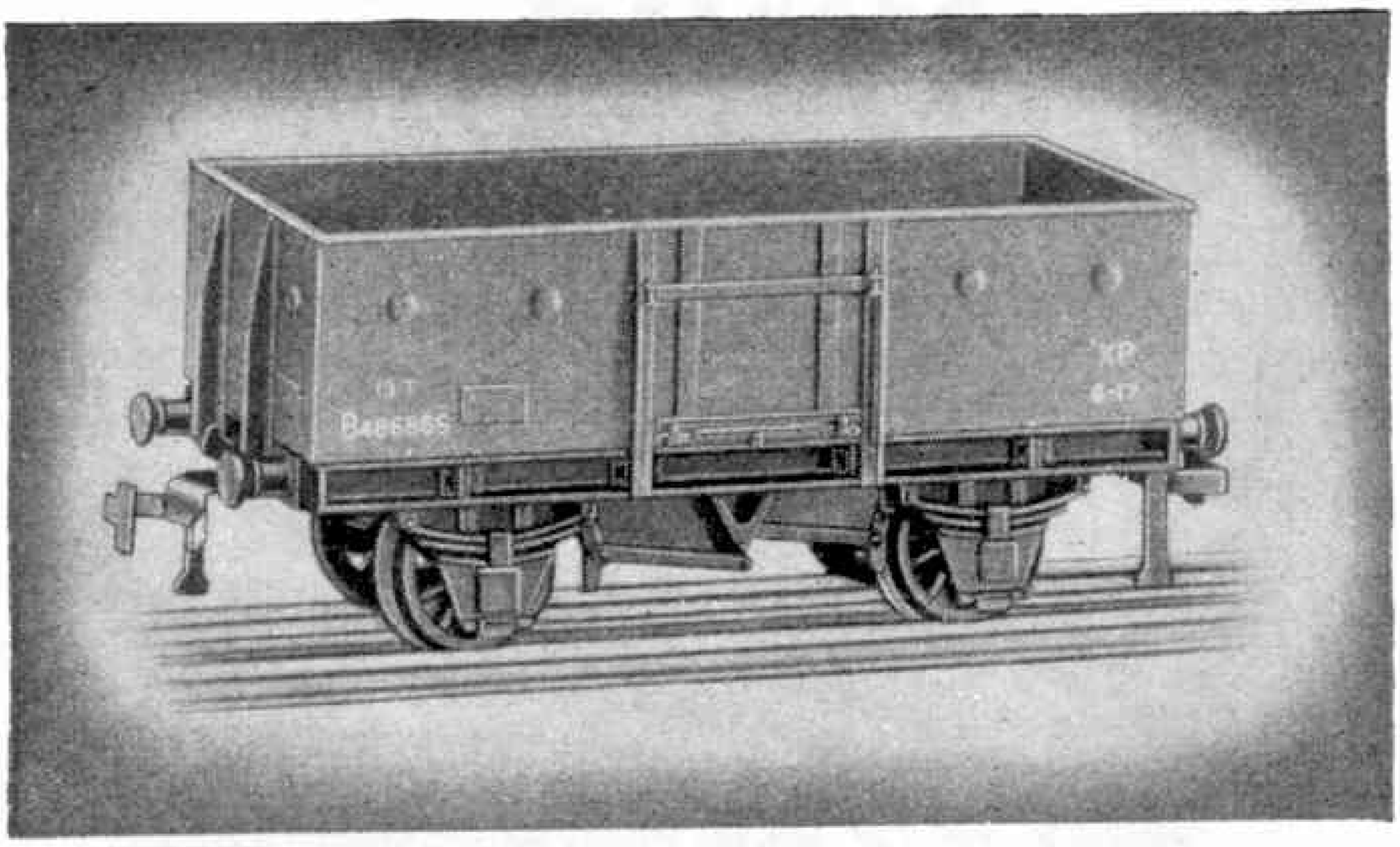

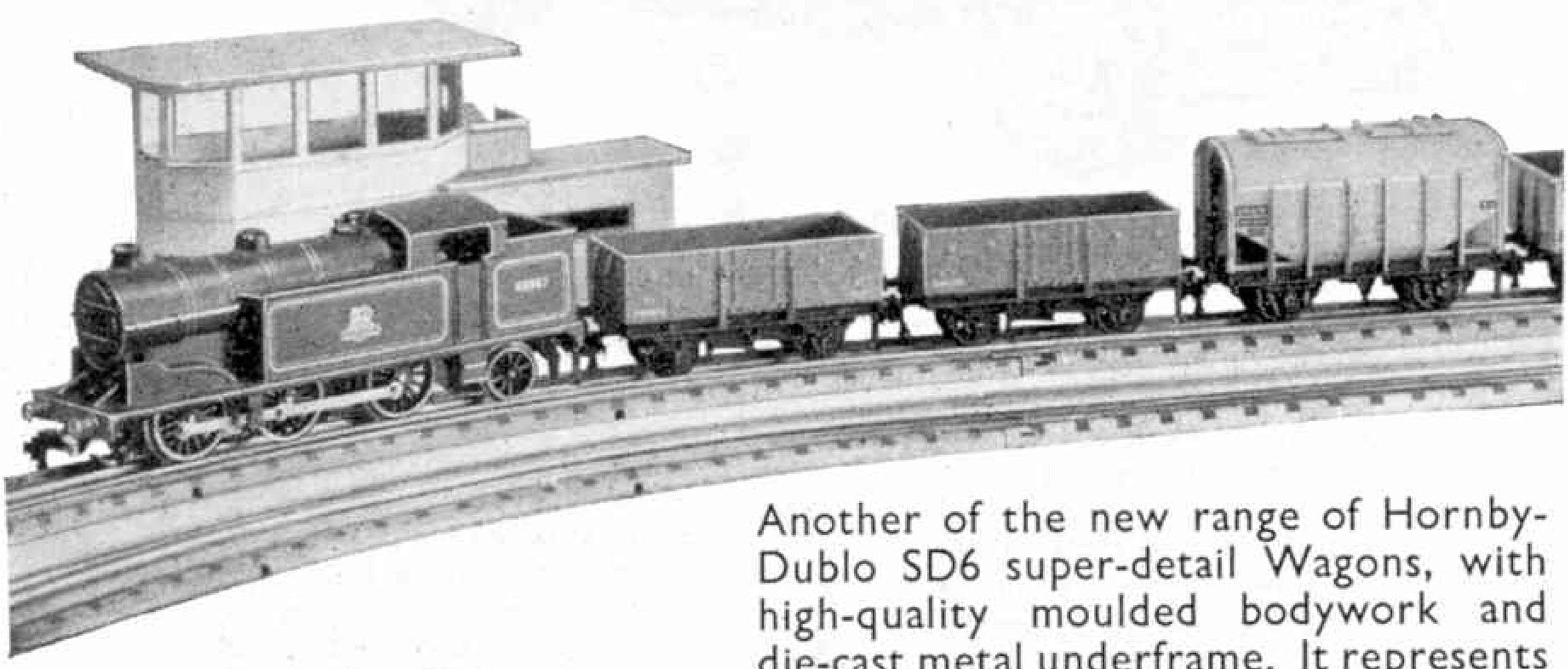

Two of the new Super Detail Open Wagons are included in the train above together with an SD6 Bulk Grain Wagon.

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MECCANO MAGAZINE

Editorial Office:
Binns Road
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England

EDITOR : FRANK RILEY, B.Sc.

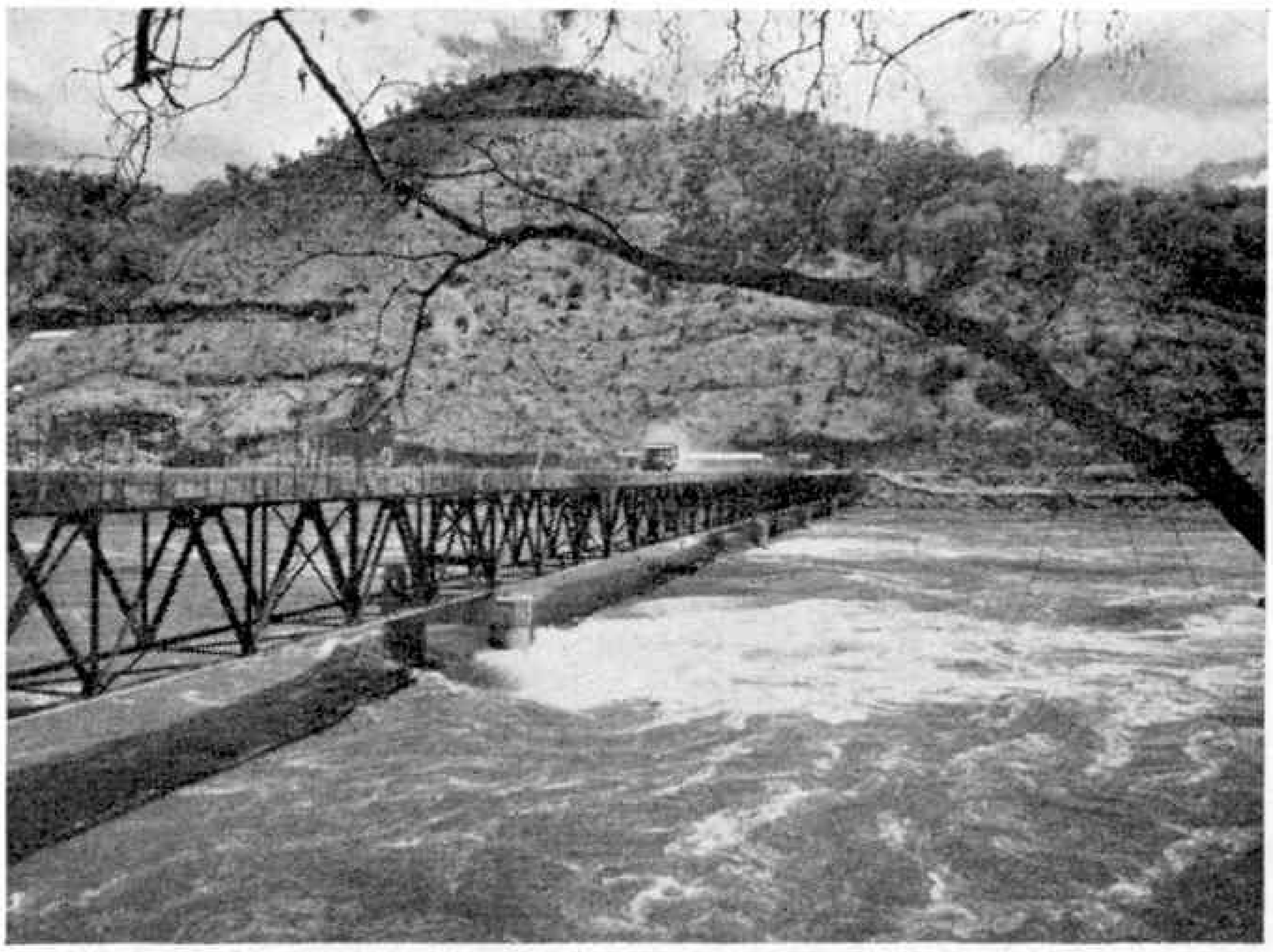
Vol. XLIII
No. 5
May 1958

Mixed Grill!

Let us start with the cover. For this you will see that I have gone to Australia. It presents a scene at Circular Quay, Sydney, on the southern shore of the wonderful harbour and in the shadow of the famous arched bridge. This cover I owe to Mr. J. Brereton, London.

Next I come to the locomotive that I showed you in my picture last month, as it provides the subject for the long article on page 222 of this issue. I told you something about it last month, and will only add that the class to which it belongs is known as the Raven Atlantics, after Sir Vincent Raven, as he afterwards became, who designed them. They were built in 1911 and the years following, and for their time they were remarkable engines well worth recalling. I have often wondered if the Raven, or Z Atlantics, to give them their N.E.R. class name, would not have been accorded greater admiration if their regular journeys had taken them to the London area.

It would be quite easy to compile a long list of railway features that have been brought to an end within recent times. The Bluebell Line is one of them. The story of how it was saved for a time was told in the November 1956 issue of the *M.M.*, and now after all it has gone. An even sadder prospect to me is the impending end of the first commercial steam railway in the world. It is the line built in 1758, to take coal from a colliery at Middleton into Leeds, on which steam locomotives began to run in 1812. The original locomotives, which were the first with two cylinders, had toothed wheels on one side that ran in a rack alongside the track to give adhesion. This historic line will almost certainly close within the next twelve months or so.



Flood tide on the Kariba Road Bridge. Near this point on the Zambesi River, in the Kariba Gorge, a gigantic hydro-electric power scheme to be described in next month's "M.M." is being carried out.

The Editor

Spotting at London Airport

By John W. R. Taylor

IN many respects this should be the best-ever summer for *M.M.* readers who like going to London Airport, or any other large aerodrome, to look at aeroplanes. There will be more air liners to spot, belonging to a larger number of airlines than ever before. They may even include Tu-104 jet-liners or turboprop Il-18's from Russia before the end of the summer.

Variety is the life-blood of any spotting hobby, and that is why aircraft spotters are so much more fortunate than their friends who study trains or buses. Seven years ago, all the passenger-carrying aircraft at London Airport were piston-engined. Today, a large proportion are powered by turboprops. Within another seven years, at least half the machines on the parking apron will probably be huge 600 m.p.h. sweptwing jets, bringing New York within six hours of London and Melbourne within 29 hours. By comparison, the rate of change and progress in other forms of transport has been very slow.

During the next year or two, while the airlines are re-equipping, aircraft of all three generations will be seen; and a quick glance through the list of regular visitors to London this summer should be sufficient to persuade thousands of youngsters—and their Dads—to set out for the Airport early one morning, armed with binoculars, camera and notebook.

Twelve months ago, in addition to B.O.A.C., B.E.A. and the British independent companies, there were 30 overseas airlines serving this country. Together they operated some 664 aircraft on scheduled services to Britain, made up of Boeing Stratocruisers, Convair-liners, the Douglas DC-3, DC-4, DC-6 and DC-7 families, Lockheed Constellations, Super Constellations and Starliners, and Vickers Vikings and Viscounts.

This year, the number of airlines is expected to increase to at least 37, the newcomers being Czech Airlines (C.S.A.), Polish Airlines (L.O.T.), East African Airways, West African Airways and, if all goes well, Austrian Airlines, Misrair of Egypt, and Aeroflot of Russia. In addition, Olympic Airways, controlled by Mr. Onassis the shipowner, have taken over from National Greek Airlines (T.A.E.); and there is a whole host of foreign independent companies whose aircraft visit Britain on charter operations. They include the U.S. Slick Airways and Flying Tiger Line, whose freighters add a splash of unfamiliar colour to the parking areas of London Airport North.

The fleets of those 37 major overseas operators total 774 aircraft, counting only machines likely to be seen regularly in this country and excluding Aeroflot. All that

The view from the roof gardens of London Airport Central. British European Airways air liners are lined up on the tarmac. Illustration by courtesy of B.E.A.

we know about the latter at the moment is that the Russians would like to operate over the Moscow-London route with Tu-104 jet-liners, which would make their services much faster than those by B.E.A.'s Viscounts. Unfortunately, the Tu-104 may be too noisy for regular take-offs and landings at British airports, unless its 14,850 lb. thrust AM-3 turbojets can be fitted with silencers. If it is banned, Aeroflot will probably use their fine new Il-18 Moscow turboprop air liners instead, which will be even more interesting as this type has not yet been seen outside Russia.

Nor is it the only new type that will visit London Airport in the near future. Already Czech and Polish Airlines are coming over regularly with versions of the Russian twin-engined Ilyushin Il-12 and Il-14, which are in much the same class as the early Convair-liner; and the Israeli airline El Al is operating Britannias on the transatlantic run. B.O.A.C. is due to get the first of its Comet 4's before the end of the year, and Pan American will almost certainly begin regular flights with the four-jet Boeing 707 at about the same time. Aer Lingus are also due to get the first of their Fokker Friendships this summer, which will add a graceful and interesting twin-turboprop type to the spotters' list. And next year we should begin seeing the splendid French Caravelle, with its rear-mounted Avon turbojets.

It is important to remember at this stage that there is no such thing as a mere Convair-liner or Viscount to the enthusiast. To him there are Convair-liner 240, Convair-liner 340 and Convair-liner 440 Metropolitan transports, each different from the other; and he notes carefully the registration of every aeroplane he sees, so that he can check that G-AOYI is one of B.E.A.'s new 365 m.p.h. Viscount V.806's and not an earlier, less powerful Viscount V.701 or V.802.

He watches too for changes in airline insignia; and can tell you that Aer Lingus now paint the roof of the flight deck of their Viscounts white instead of the former dark green, and that Pan American have completely revised their markings, so that they now have the letters "PAN AM" painted on a symbolic globe on the fin.

So much for types of aircraft and the airlines that operate them. What other changes will the keen spotter find at London Airport over the next few years?

Lockheed Starliner—the long-range development of the Super Constellation. Illustration by courtesy of Trans World Airlines Inc., U.S.A.

This time the answer is less cheery, because it seems likely that eventually there will be fewer, rather than more aeroplanes to spot. The reason is obvious when we begin to study the new air liners, because they are not only faster but larger than most comparable aircraft now in service. As a result, unless there is a tremendous increase in the number of air travellers, fewer aircraft will be needed to carry them.

Last year, some 87 million people travelled on scheduled airline services all over the World, excluding Russia and China. This represents a lot of flying, because the average air liner carried only 29 persons and cruised at only 200 m.p.h By comparison, the Viscount V.806 carries up to 70 passengers at 365 m.p.h., the Britannia up to 133 at 400 m.p.h., the Comet 76 at 500 m.p.h., the Caravelle 80 at 510 m.p.h. and the Boeing 707 up to 162 at 605 m.p.h. As a result, a single Boeing 707 could do as much work in one day as about ten of the average air liners of 1957 with their 29 passengers and cruising speed of 200 miles per hour.

To make matters worse, even if the number of passengers continues to double every five years, demanding large fleets of aircraft, these may be made up of fewer different types. Before the war the German national airline Lufthansa flew only aeroplanes built in Germany, and Air France used mainly French aircraft. Today, these airlines rely largely on machines produced in America and Britain, as do most other operators throughout the World, which is why the 30 visiting airlines in 1957 operated only 11 different basic types of aircraft into London Airport.

Advent of the new jet and turboprop types will not necessarily increase the variety, because the piston-engined machines will gradually disappear. Already B.O.A.C. have sold their last York, are disposing of their Argonauts and trying to sell their Constellations. B.E.A. are selling their Elizabethans, and we can expect other types to follow.

In the end, airlines may find that they can manage with no more than two or three different types of aircraft, provided they are not expected to fly everything from local to inter-continental services, carrying both passengers and bulky freight. B.O.A.C., for example, will probably make do with only Vickers VC.10's and Boeing 707's from about 1964 onward plus perhaps a few Britannias for second-class services. Similarly, B.E.A. may be able to standardise on Viscounts, Vanguards and their recently-ordered fleet of three-jet D.H.121's.

All this may make life a little less exciting for spotters in the future. But the years of change will offer an unprecedented range of types to log, and we can always hope that there will be a terrific expansion of helicopter "air-bus" services and private flying to make up for any reduction in the variety of air liners. This is quite possible, because a helicopter like the Fairey Rotodyne could revolutionise inter-city travel over distances of 50-400 miles, while the build-it-yourself lightplane movement is growing rapidly in this country.

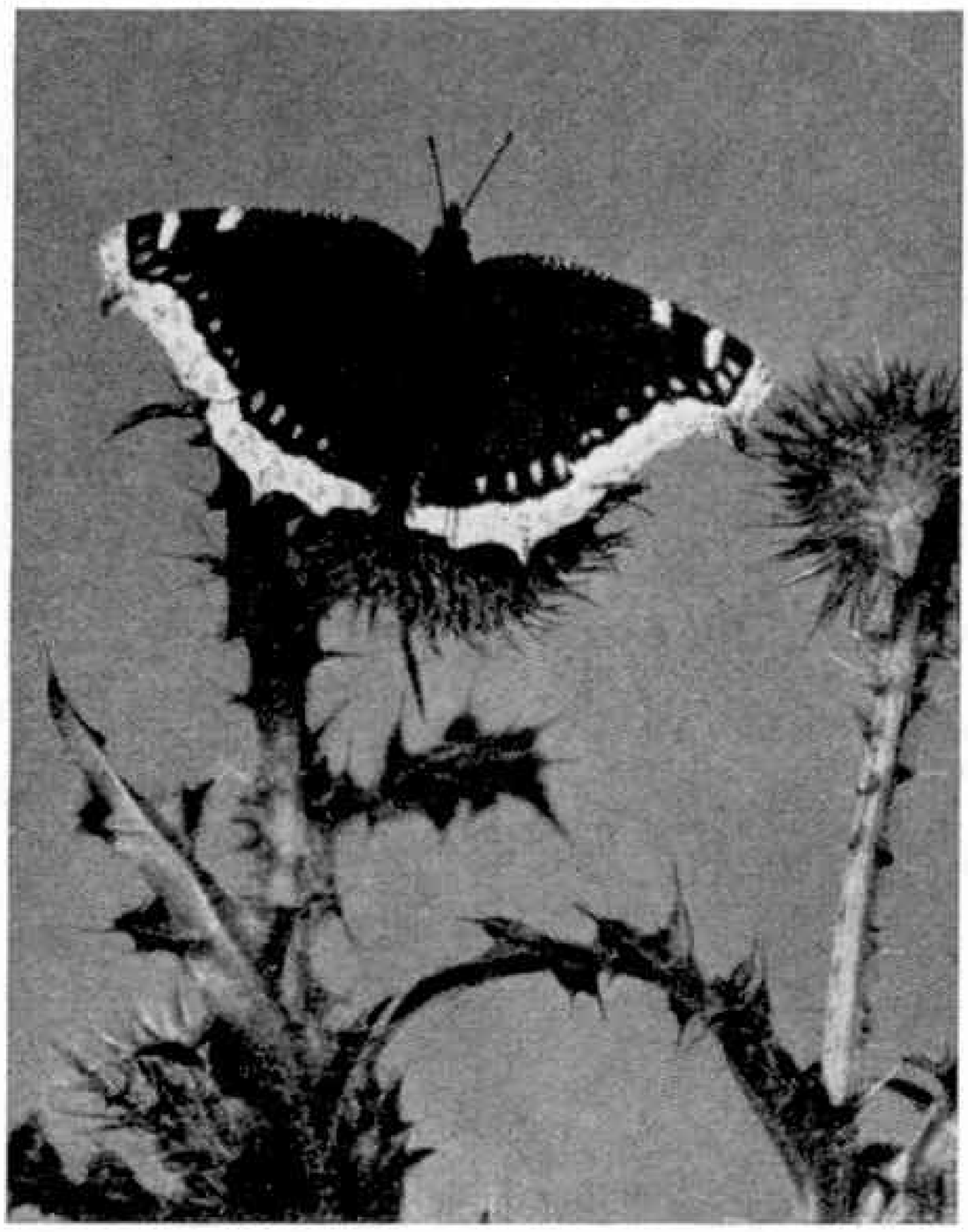
In any case, airports will always be exciting places. How could they be otherwise when one can have dinner with a person who breakfasted in New York and had lunch six miles over the Atlantic; and when we can watch people of all colours and races disembarking from gleaming silver air liners whose names stir the imagination by recalling great men, fine ships or proud cities half a World away?

When I last visited London Airport I saw the B.E.A. Elizabethan *Sir Richard Grenville*, the Pan American DC-7C *Clipper Bald Eagle*, the K.L.M. Viscount *Louis Bleriot*, the Iraqi Viscount *Sinbad* and many other aircraft with equally interesting names. In the magnificent Queen's Building was a display of mementoes of the first non-stop transatlantic flight by Alcock and Brown, including pages from their log-book, their little black cat mascot *Twinkletoes* and Alcock's flying suit, still bearing a trace of mud from the Irish bog in which they ended their flight.

On the roof of the passenger buildings was the famous Supermarine S.6B Schneider Trophy seaplane which became the first aeroplane in the World to fly at over 400 m.p.h. in 1931. And on the concrete below were air liners able to span whole continents and oceans at speeds not much lower than that record of 27 years ago. It is no coincidence that they too are British.

The second production Boeing 707 Jet Stratoliner—the first American-built jet transport to carry airline markings. Before going into service with Pan American World Airways it will, like the first production 707, undergo intensive series of tests by Boeing and the U.S. Civil Aeronautics Administration. Illustration by courtesy of the Boeing Airplane Co., U.S.A.

"Cockney Butterfly"



A British-born Camberwell Beauty butterfly, bred on the author's butterfly farm at Bexley, Kent, a few miles from London, and photographed at Chatham by J. A. Wilson, F.R.P.S. (Copyright).

By
L. Hugh Newman,
F.R.E.S.

MY earliest memory of the Camberwell Beauty is rather a painful one. But possibly it was the physical hurt I suffered at the time that caused me subsequently to take a particular interest in this large and beautiful butterfly, with its purplish-brown wings bordered by a band of blue spots and edged with pale yellow.

I was about eight years old at the time and had just been given my first bicycle. I was spinning merrily down the long hill of Hurst Road, leading into the village of Old Bexley in Kent, when I suddenly spotted a Camberwell Beauty sunning itself on a white gate-post. My knowledge of butterflies was not great, but I knew enough to realise that this was something quite out of the ordinary. Applying the brakes fiercely, I lost control of my machine and crashed. By the time I had picked myself up the butterfly had disappeared, probably frightened by the sudden commotion in the roadway, but the memory of it is still very vivid in my mind and my right knee bears a scar to this day.

I did not see a live specimen again until many years later, in 1938, when I spent a month's holiday in Finland in late summer. Walking along the beach on the south coast one afternoon, I came to a place where a ship was lying close inshore, loading pit props, which were being wheeled across a gangway from the stacks on the shore. I noticed a number of dark butterflies fluttering around and then realised with a feeling of excitement that they were Camberwell Beauties. Sitting down to watch, I soon discovered that they were coming from the log stacks and when I peered into the spaces between the props I could see several butterflies hiding there, sitting with closed wings.

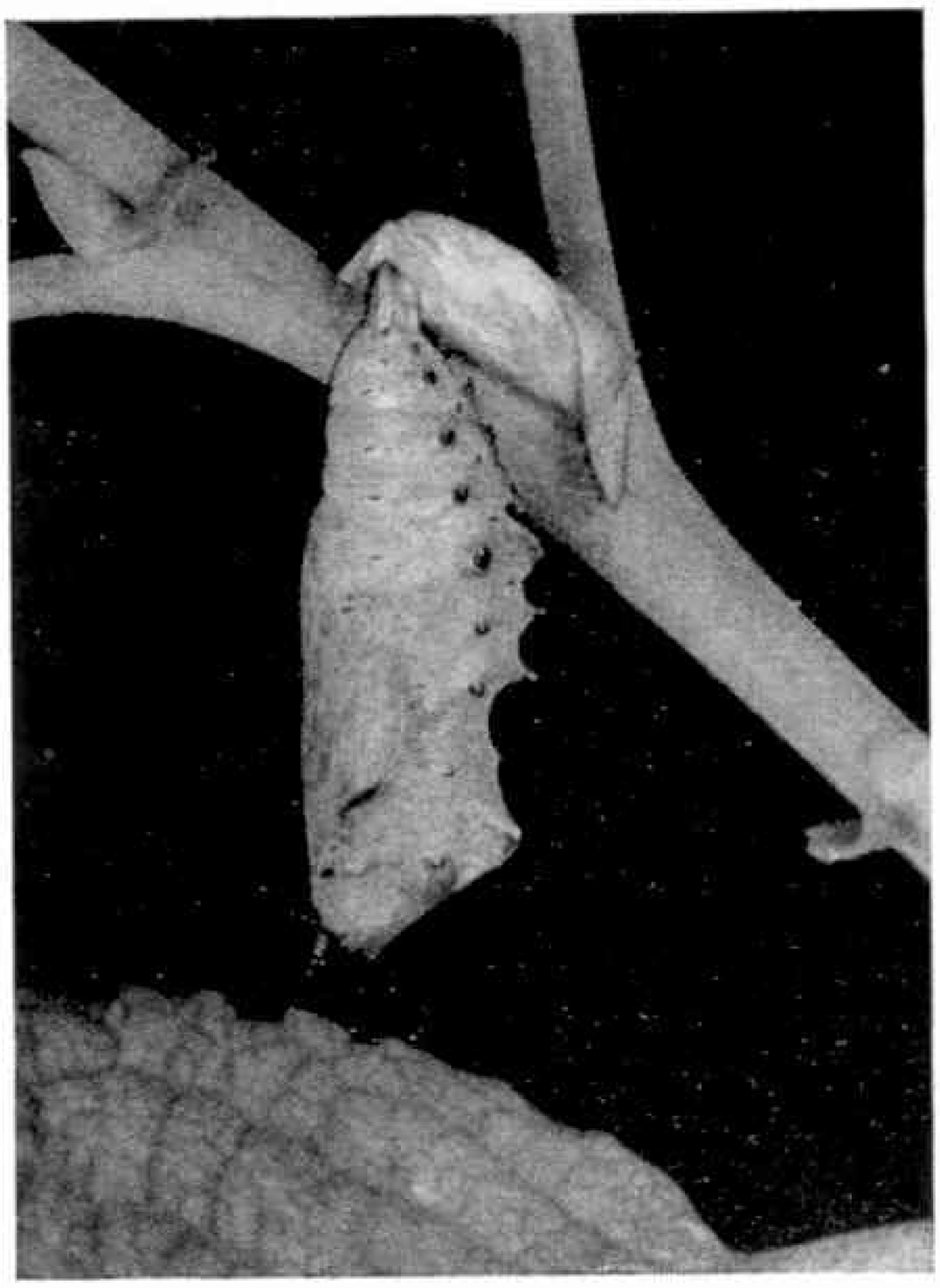
It was only when the logs around them were actually pulled away that they flew out, in a rather dazed and bewildered manner. It was obvious that they had settled there in order to hibernate, and this sudden disturbance was waking them up. All the afternoon they fluttered round the logs and I saw others flying round the ship, which lay no more than 25 yards from the shore. The smell of timber attracted them and they were reluctant to leave the spot that had offered such ideal hibernating conditions. When in the end I decided to go, they were still there.

Several years passed before I began to study the question of the Camberwell Beauty in England. It has always been a rare insect here and its earliest name, that of Grand Surprise, describes exactly the feeling of unexpected pleasure which the sight of this lovely butterfly brings. I always think it was a thousand pities that this original name was changed to the very prosaic one of Camberwell Beauty, just because one of the earliest specimens to be recorded was caught near Camberwell Green in the days when Camberwell was still a country village. Now with traffic

roaring day and night past this tiny oasis of greenery, the name seems rather incongruous.

There is no authenticated record of the Camberwell Beauty ever having bred in a wild state in England. It has done so in captivity, but only very rarely, and all the specimens that have been seen in this country from time to time have crossed the water from other parts of Europe in order to get here. It is in fact classified as a migrant butterfly, but for some time now I have been very doubtful about this, and after studying records over many years and linking them with my own observations, I have come to the conclusion that this insect should not be regarded as a true migrant, but as a transported immigrant. It comes by boat!

Most of the Camberwell Beauties recorded in this country have been seen in late August and September. That is a time when in Scandinavia the butterflies are already beginning to go into hibernation, and it seems very unlikely that they should be seized by an urge to migrate at the same time as instinct prompts them to find sheltered hiding places. The great majority of them have been noticed on our eastern coast,



A chrysalis of a Camberwell Beauty hangs suspended from a sallow twig. Copyright photo. B. Alfieri.

A big brood of British-born caterpillars of the Camberwell Beauty butterfly. Copyright photo. B. Alfieri.

especially round the ports, from London in the south right up to Newcastle upon Tyne.

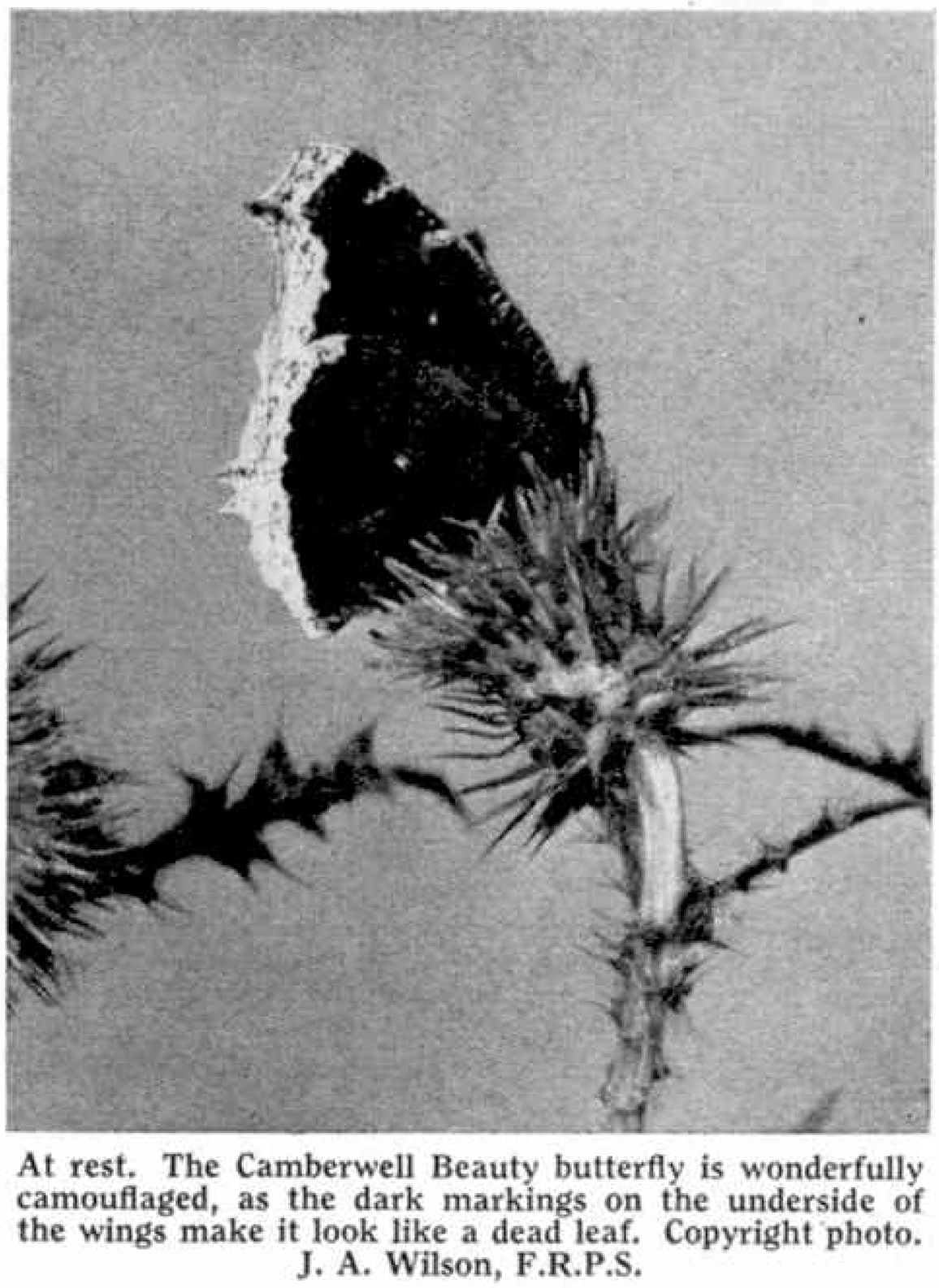
If the butterflies crossed the North Sea under their own wing power from Norway, where incidentally they are not at all common, one would not expect to find them more often near ports than at any other points along the coast. It was this curious concentration of records round port towns, coupled with what I had seen of the behaviour of the butterflies in Finland, which made me realise that they most probably arrive here as stowaways in timber ships, bringing in pit props and other timber from Sweden and Finland, and possibly from Russia, too.

Only a few years ago I had a pretty convincing confirmation of this theory of mine, when a friend, who is the headmistress of a school by the Surrey Docks, saw a Camberwell Beauty in the playground, shortly after a Finnish timber ship had started to unload her cargo, less than a hundred yards away behind the boundary wall.

If the old records can really be relied upon, it seems that the Camberwell Beauty was seen here much more often in the past than it is now. I know from information given me by entomologists in Scandinavia, that the butterfly is not as common there now as it once was. Timber felling also is no longer conducted mainly near the coast, but far inland, which means that the pit

props and the boards have to be transported to the loading point and the butterflies have less opportunity to settle in the stacks actually on the shores, and from there follow the timber into the holds of the ships. Present-day methods are making it less easy for the butterflies to get an assisted passage, and so they do not turn up here so often.

The Camberwell Beauty apparently prefers a Continental climate, with warm summers and winters of prolonged frost which assist the deep hibernation which means survival for this butterfly. The caterpillars, I find, are not easy to rear under artificial conditions. They are prone to a virus disease which, when once it appears, destroys them very quickly, but I am hoping to build up enough healthy stock to be able to release a number of the butterflies again this year. I am not over optimistic about their chances of establishing themselves successfully, but on the other hand I don't agree with the out and out pessimists who say it is impossible. There is a chance even if it is a small one, and I think it is worth the effort to try.

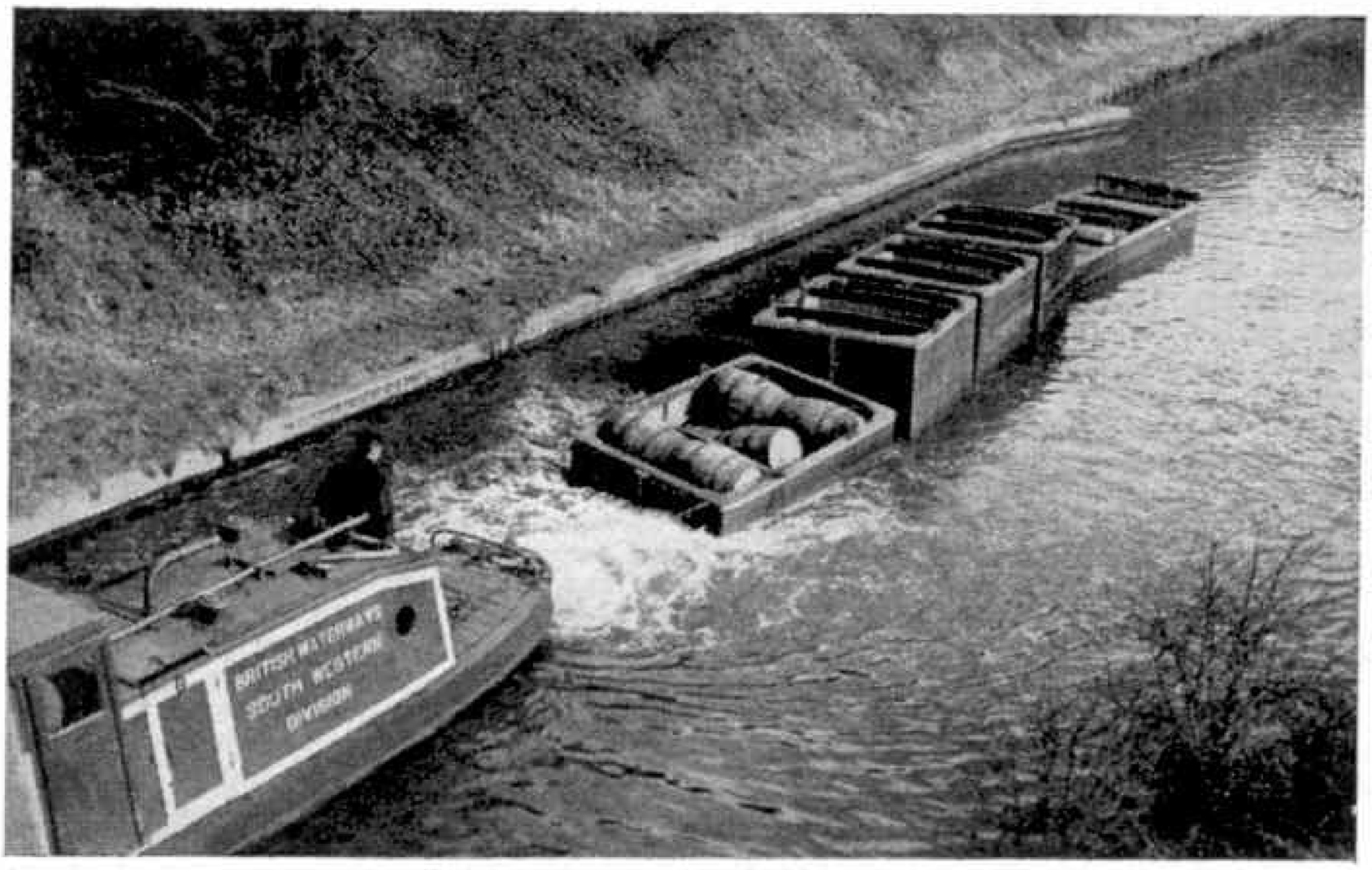


At rest. The Camberwell Beauty butterfly is wonderfully camouflaged, as the dark markings on the underside of the wings make it look like a dead leaf. Copyright photo. J. A. Wilson, F.R.P.S.

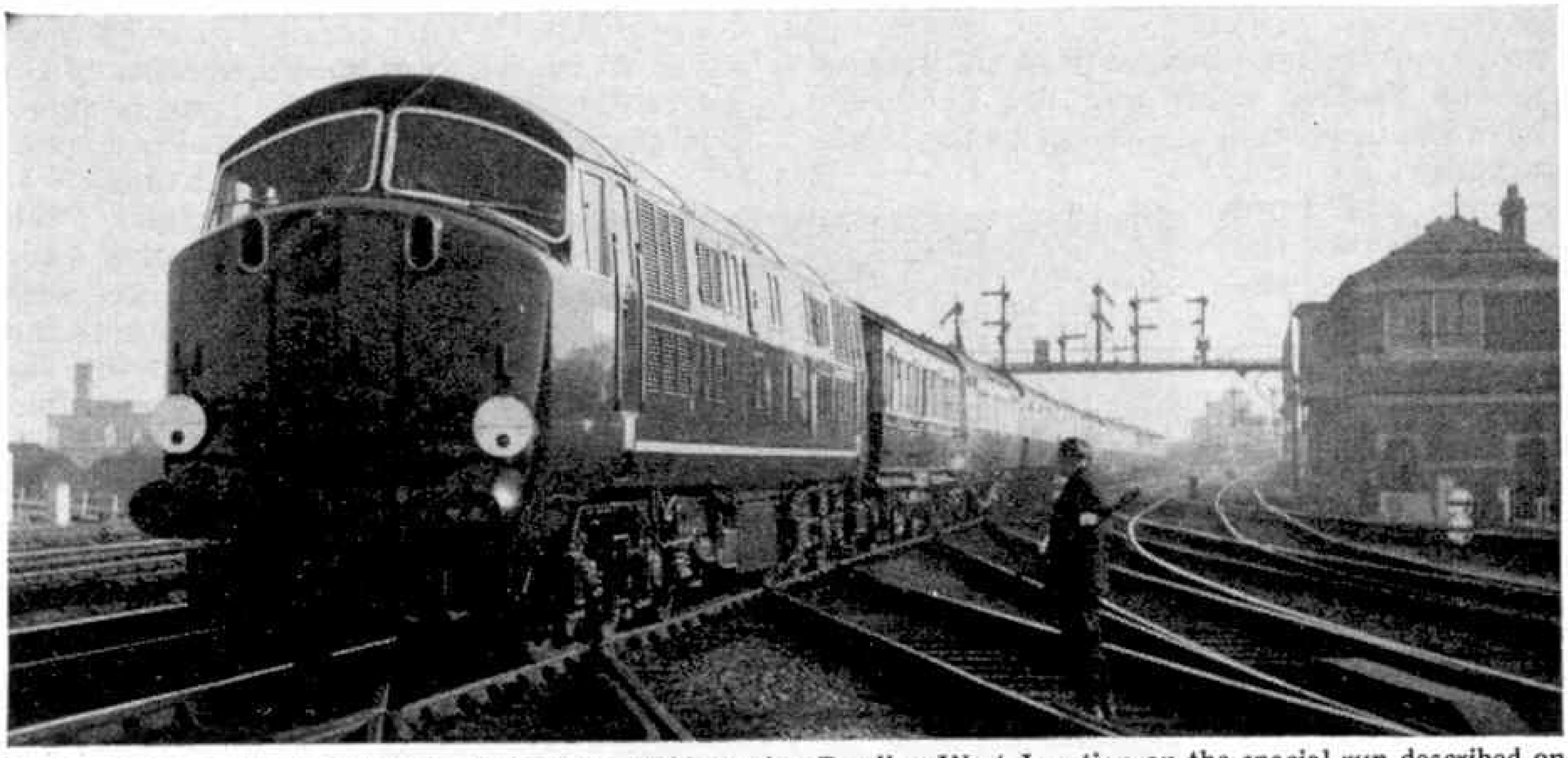
And if I should achieve something, and the Camberwell Beauty in England became a native instead of just an occasional "grand surprise," I would feel that I had at least done one small thing towards making this green and pleasant land even more pleasant, by adding a real "beauty" that was not there before.

Butterflies are becoming scarcer every year with the spread of towns, and any new butterfly in Britain will be doubly welcome.

Water Trains on British Waterways



A "water train" on a Midland waterway. It is made up of containers designed to be towed by a tug singly or in a train, and they can be lifted by crane at loading or unloading points, or on to a trailer or other road vehicle. These containers are made of plywood, but it is expected that they will be made of fibreglass or aluminium.



Western Region diesel hydraulic locomotive D600 passing Reading West Junction on the special run described on this page. Photograph by John Ashman, F.R.P.S.

Railway Notes

By R. A. H. Weight

Aboard the first Diesel-Hydraulic Express

By courtesy of British Railways, Western Region, I was invited to join the distinguished company in February travelling from Paddington to Bristol and back behind No. D600 *Active*, briefly mentioned last month, on the occasion of the first express passenger runs by this pioneer and powerful 12-wheeled diesel-hydraulic locomotive. A dynamometer car containing many recording instruments was attached in front of eight heavy coaches, including kitchen and dining cars, making a gross load of about 345 tons.

It was a fine and sunny day. The start was at 11.0 a.m. A very exacting schedule had been prepared, requiring rather short start-to-stop runs averaging just over a mile-a-minute from Paddington to Reading, and thence to the next calls at Didcot and Swindon. Acceleration was notably fast. Speeds well up into the 70's were sustained on the level or slightly rising tracks during each of those stages. There was a dead slowing at Southall, as signals were temporarily out of action, and a line repair slack near Didcot. Swindon, however, was reached only 2 min. late within 82 min. from London, 77¼ miles away, stops and delays included. Each stop was steadily made after cautious approach, speed restrictions carefully observed.

The thrill of the day was now to come! From the restart at Swindon the special was booked to pass Chippenham, 16¾ miles in 14½ min., and Bath, where there is a long, severe speed restriction, 29½ miles in 25½ min. This astonishing timing, which I should hitherto have regarded as almost impossible, was exactly achieved! Working up speed with terrific vigour on a gentle down gradient past Wootton Bassett, *Active* was quickly up into the 80's, then like a flash as we descended the 1½ miles 1 in 100 Dauntsey bank, speed reached 94 m.p.h., and just over within about 10 miles from the start and in no more minutes. Slightly uphill, Chippenham and Corsham were passed at little below 80, and the second sharp dip, largely through Box Tunnel, at around 86 before speed was reduced approaching Bath. We had dashed along from Wootton Bassett like the much lighter *Bristolian* flyer when hustling, but it must be remembered that this express passes Swindon at fairly high speed.

Just over 2 hrs. after leaving London our special avoided the main Temple Meads station in Bristol, carefully negotiating the network of junctions and, heading north again, pulled up in Stapleton Road station 3 min. early, having covered about 119 miles in 124 min., equivalent to an unchecked non-stop run in little more than 100 minutes!

To avoid reversing, the return journey was commenced after a short stay by way of the S. Wales main line through Badminton and rejoining the original route at Wootton Bassett, making it partially a circular tour. Very fast running had been anticipated on the average, and at suitable points during the eastbound trip. This doubtless would have followed, but some teething or overheating trouble developed that the experts travelling could not at the moment rectify, so that one of the two 1,000 h.p. engines had to be put out of action. There was only a comparatively small delay, however, and on half-power equivalent to one of the smaller mixed traffic diesels, a non-stop run was made from Swindon to Paddington sedately and similarly to one of the more easily-timed regular steam expresses.

Thirty-eight diesel-hydraulic locomotives exerting the same power have been ordered so far, among others.

London Midland News and Running

Euston terminus, which in part is 120 years old, has been the scene of a number of recent improvement and modernisation schemes, including the provision of latest type signalling and new waiting and refreshment rooms, with information and reservation bureau, and platform reconstruction and lengthening, etc. Soon there will be new ticket offices having more booking windows equipped with machines capable of swift printing and issuing of tickets, and of recording their details and values automatically.

I mentioned recently lively running along the Midland main line, especially south of Nottingham, Derby or Leicester, where fast timings apply to and from St. Pancras over an undulating route including a good many rather steep gradients. Two engines are used quite a lot, generally on account of loads considerably exceeding the 300-ton limit for quickest schedules.

More class 2 4-4-0s are now available as assisting locomotives at some of the sheds, Compound 4-4-0s and L.M.S. or standard type class 5 4-6-0s being

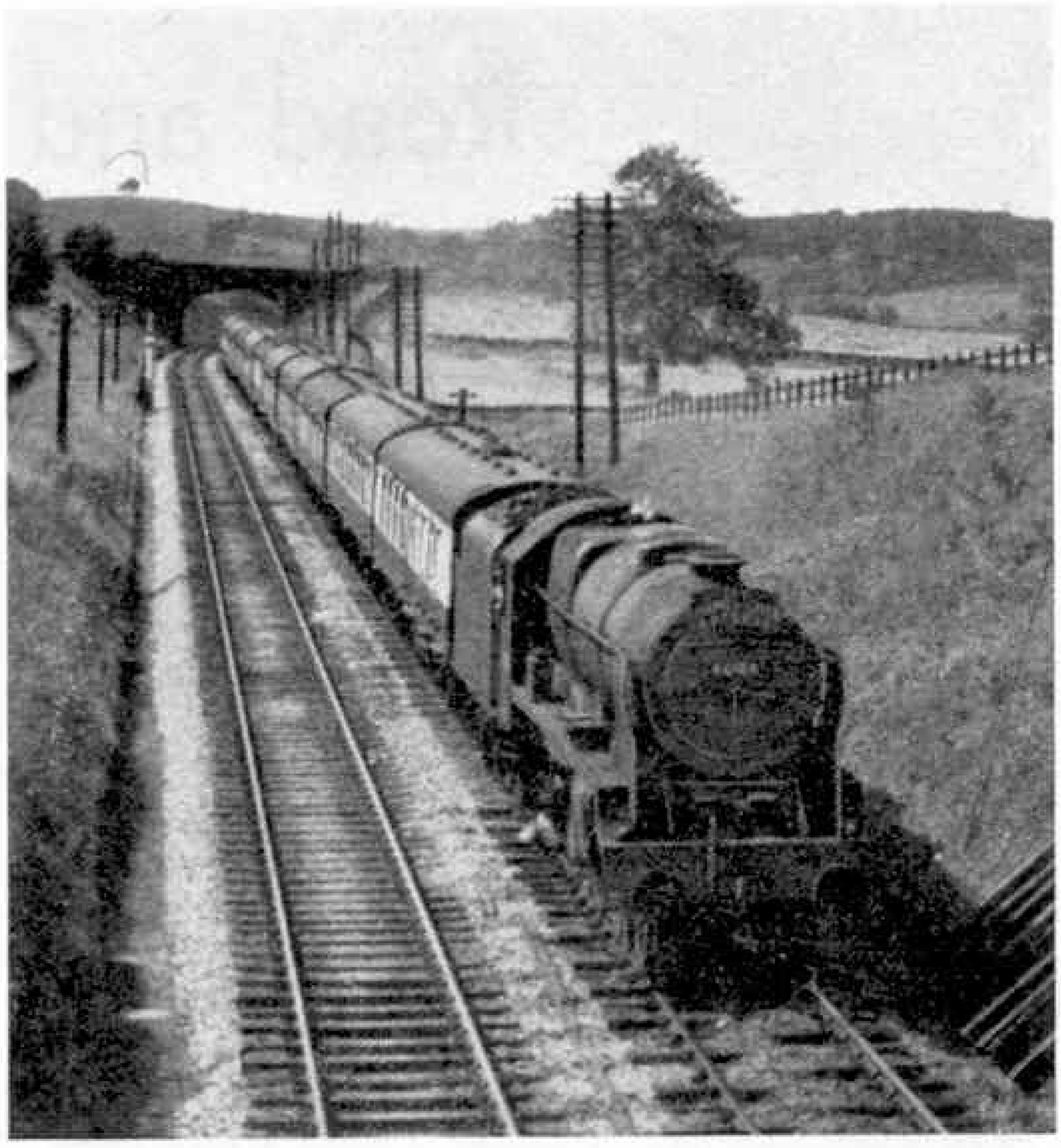
also employed in tandem, for example, with Jubilee 6P 4-6-0s.

No. 45561 *Saskatchewan*, of the latter series, assisted by class 2 4-4-0 No. 40682, on the southbound *Palatine* express, the quickest service from Manchester, Central, to London, with 11 coaches or nearly 400 tons full, started a little late from Derby, where additional vehicles were attached. Time was smartly regained by running the 29½ miles to Leicester stop in 29¾ min., the 99-mile run to St. Pancras, for which only 99 min. are allowed, being completed in 94 min. This included a slowing at St. Albans and signal checks approaching the terminus. Maximum speeds were 85 m.p.h. near East Langton and 86½ descending Sharnbrook bank towards Bedford.

Similar times have been reported on the occasion of very fine runs unaided by 3-cylinder Jubilees, and also once or twice by 2-cylinder class 5 mixed traffic 4–6–0s having smaller driving wheels, usually with 9-coach trains weighing just over 300 tons.

Heading the northbound *Palatine*, 7.55 a.m. from St. Pancras, Jubilee No. 45614 *Leeward Islands*, after a delay, improved upon the tight start-to-stop bookings respectively of 34 min. for 34¾ miles, Luton-Wellingborough and 38 min. for the 34 sharply graded miles thence to Leicester, by 2 min. in each case. Maximum speed was 87 m.p.h., with some good uphill work. These bright performances were recorded by Mr. D. S. M. Barrie, M.B.E.

I have not had an opportunity of logging any Royal Scot performances since they began sharing these services, but they continue among other duties to do well on the long Leeds-Carlisle-Glasgow (St. Enoch) runs, traversing in places truly mountainous territory. Along the main line from Rugby to Euston, where loads in many cases are heavier though grading is much easier, an up North Wales express worked by Scot 4–6–0 No. 46150 *The Life Guardsman*, from Crewe, had 12 coaches, about 430 tons all found. It was badly slowed twice on account of track renewal work, but almost kept the 84-min. timing over 82¾ miles start-to-stop with a maximum of 83 m.p.h. near Wembley.



Converted Royal Scot No. 46108 "Seaforth Highlander" comes smartly down to Gargrave with the up "Thames-Clyde" Express. Photograph by C. R. L. Coles.

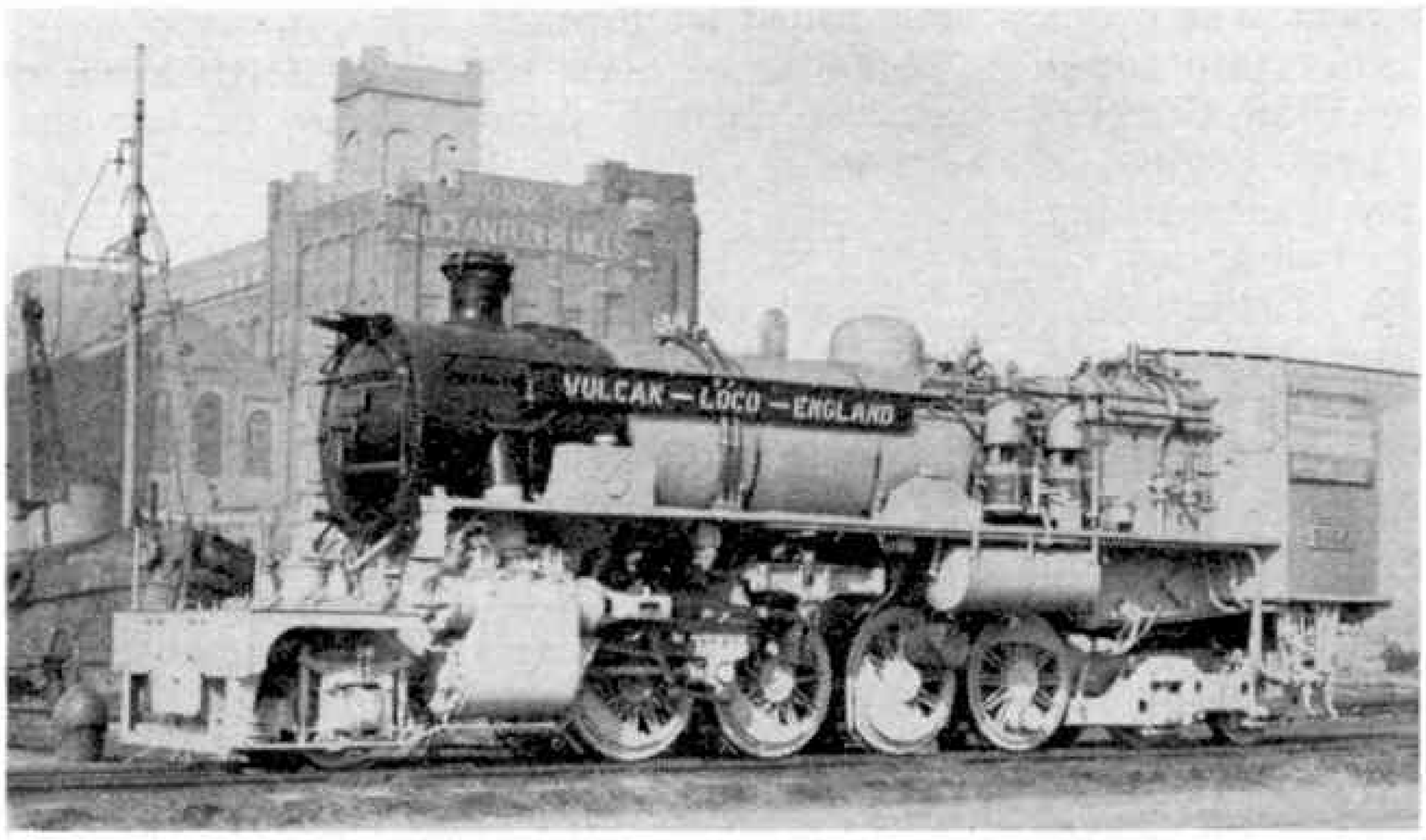
Locomotive Shed Code Revision

Further alterations to districts and code descriptions are announced as follows: Bristol and Gloucester, previously London Midland Nos. 22A-B, become respectively 82E and 85E. Also transferred to the Western Region are the ex-Southern depots at Bath (Queen Square), Templecombe, Plymouth (Friary), changed to 82F, 82G and 83H respectively. Bromsgrove is now 85F, instead of L.M. 21C, and Wrexham is 84K instead of 6E. The latter shed has seen a number of alterations in numeration and allegiance. Those at Yeovil and Weymouth hitherto coded 82E-F, W.R., are going to the Southern Region.

Transfers from London Midland to Eastern Region are Staveley depot, previously 18D, now 41E, and Grimesthorpe, Millhouses and Canklow in the Sheffield district, altered from 19A-C to 41B-D.

More Diesel Passenger Services

Main line three-car sets, with small buffet and refreshment service somewhat similar to the "Inter-City" expresses described in my March notes, are providing improved service from Cardiff to Bristol, also to a greater extent on the Cardiff-Gloucester-Birmingham route. Among further introductions of local diesels are those serving Leeds-Wakefield-Barnsley, Wakefield-Goole and Leeds-Castleford-Pontefract, all in Yorkshire.



Vulcan-built 2-8-4 No. 3146 of the East African Railways and Harbour Board was awaiting shipment at Birkenhead when caught by the camera of Geoffrey Rose.

Locomotives in the News

New 2–10–0 steam locomotives added to stock were Nos. 92173-5, allocated to 36A, Doncaster, and No. 92187 to 34E, Peterborough. Diesel shunting engines Nos. D2009-12, mechanical transmission, go to 31A, Cambridge, and with electric drive Nos. D3410-1 to 65C, Parkhead, Nos. D3412-5 to 65G, Yoker, also in the Glasgow area, and Nos. D3424-5 to 88B, Cardiff East Dock.

Road and Track

By Peter Lewis

SIG. ENZO FERRARI will be challenging the British Formula 1 cars for World Championship points in two major international events this month. These are the Monaco G.P. on 18th May and the Dutch G.P. a week later. The British *equipes* are under no illusions about the potent challenge of the new Vee 6 Ferrari in the hands of drivers of the calibre of Hawthorn, Collins and Musso. The Vee 6, with a 2,417 c.c. engine that is reputed to develop the high figure of 290 b.h.p. at 8,300 r.p.m. on a compression ratio of only 8.8 to 1, is indeed going to be a thorn in the side of Vanwall, B.R.M., Cooper and Lotus.

The 1,960 c.c. engine was actually the property of R. R. C. Walker and it was his chief mechanic, Alf Francis, who supervised the assembly of the Climax engine in a Cooper chassis. Unfortunately the car was wrecked during a practice session and the engine was transferred to the chassis of a works Formula 2 Cooper that Les Leston was to have driven, but which blew up in practice. It was therefore rather a mongrel car that astonished the crowds at Monaco last year. I wonder what two pedigree cars, with larger engines and with Brabham in one of them, will do this year.

Jack Brabham in third place with the 1,960 c.c. Cooper-Climax at the Monaco G.P. in 1957. This month, at Monaco, he drives the latest 2.2 litre F.I. Cooper-Climax for John Cooper.

It may well be that a comparative "scrap" in the Formula 1 field will upset Enzo Ferrari's apple cart on certain types of circuit. I refer to the 1958 Cooper-Climax with its new 2.2 litre engine, a direct descendant of that astonishing 1,960 c.c. Cooper-Climax belonging to R. R. C. Walker with which Stirling Moss won the Argentine G.P. and eight valuable championship points.

In the hands of Jack Brabham and Roy Salvadori, I rate as very high the chances of these Coopers on the short, twisty driver's circuit of Monaco. Exactly twelve months ago Brabham, on this same circuit, put a 1,960 c.c. Cooper-Climax through its paces for the first time and would have finished third in the Monaco G.P. if the mounting for the fuel pump had not broken.

I shall be greatly surprised if the Vanwalls are not entered for this first championship event in Europe of the 1958 season, in which case Stirling Moss will not be available to drive R. R. C. Walker's 2.2 litre Cooper-Climax, a car identical to the works entries but tuned by Francis. This, in my opinion, would have been the most formidable of all the British combinations of car and driver.

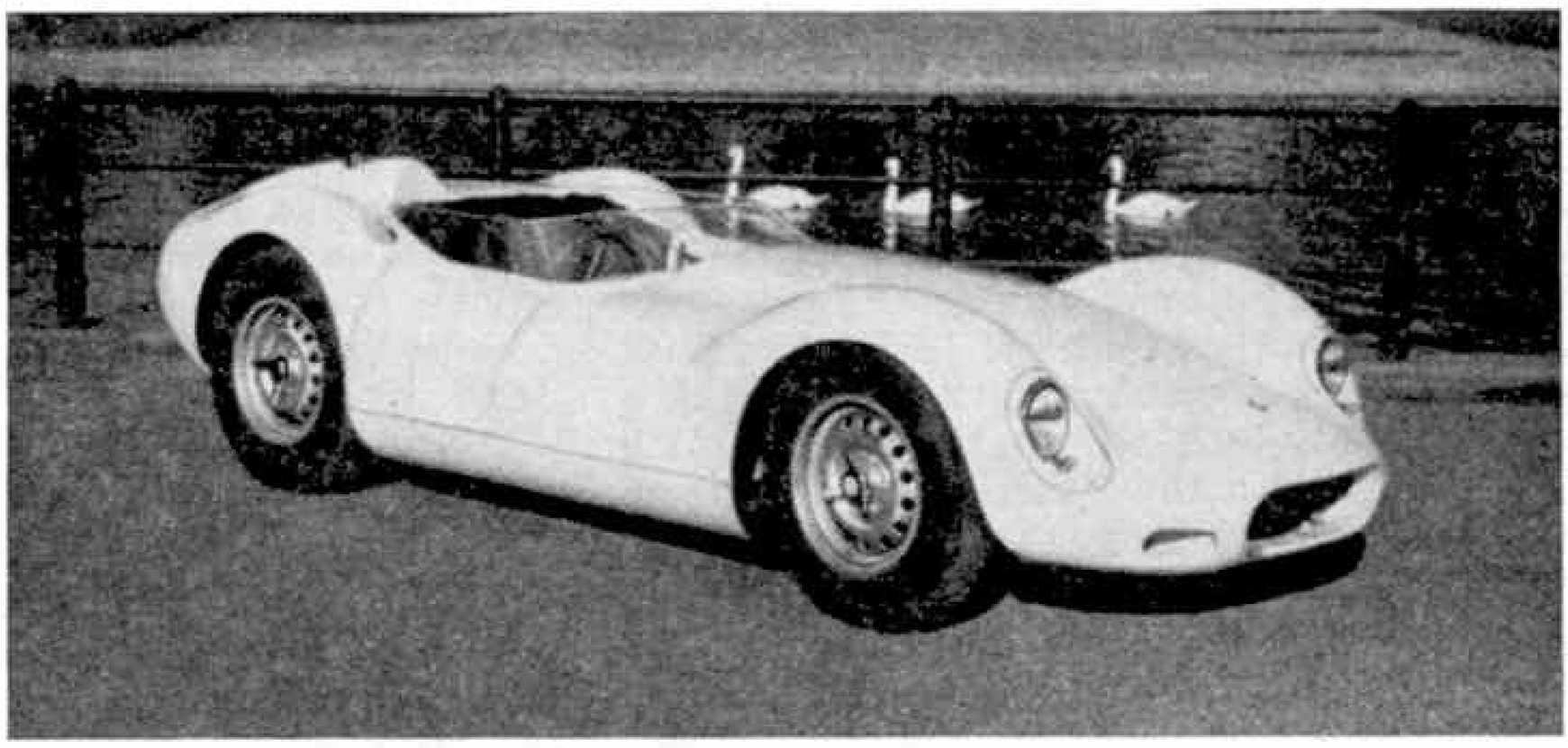
Lister-Jaguars

Lister-Jaguars, developed from the highly successful car that Archie Scott-Brown raced for Brian Lister in 1957, will be a common sight on British and overseas circuits this year. When I last called at the Cambridge engineering works of Brian Lister, the second of two cars ordered by the American millionaire enthusiast Briggs Cunningham was just leaving for America. Other chassis had already been delivered to Ecurie Ecosse, Equipe National Belge and several well-known British drivers, including Peter Whitehead.

The 1958 Lister-Jaguar remains basically the same as the 1957 version, apart from the fact that it has an entirely new body with an exceptionally low frontal area, larger Girling disc brakes all round of 12 in. diameter, a light alloy final drive unit and an enlarged fuel tank with a capacity of 38 gallons.

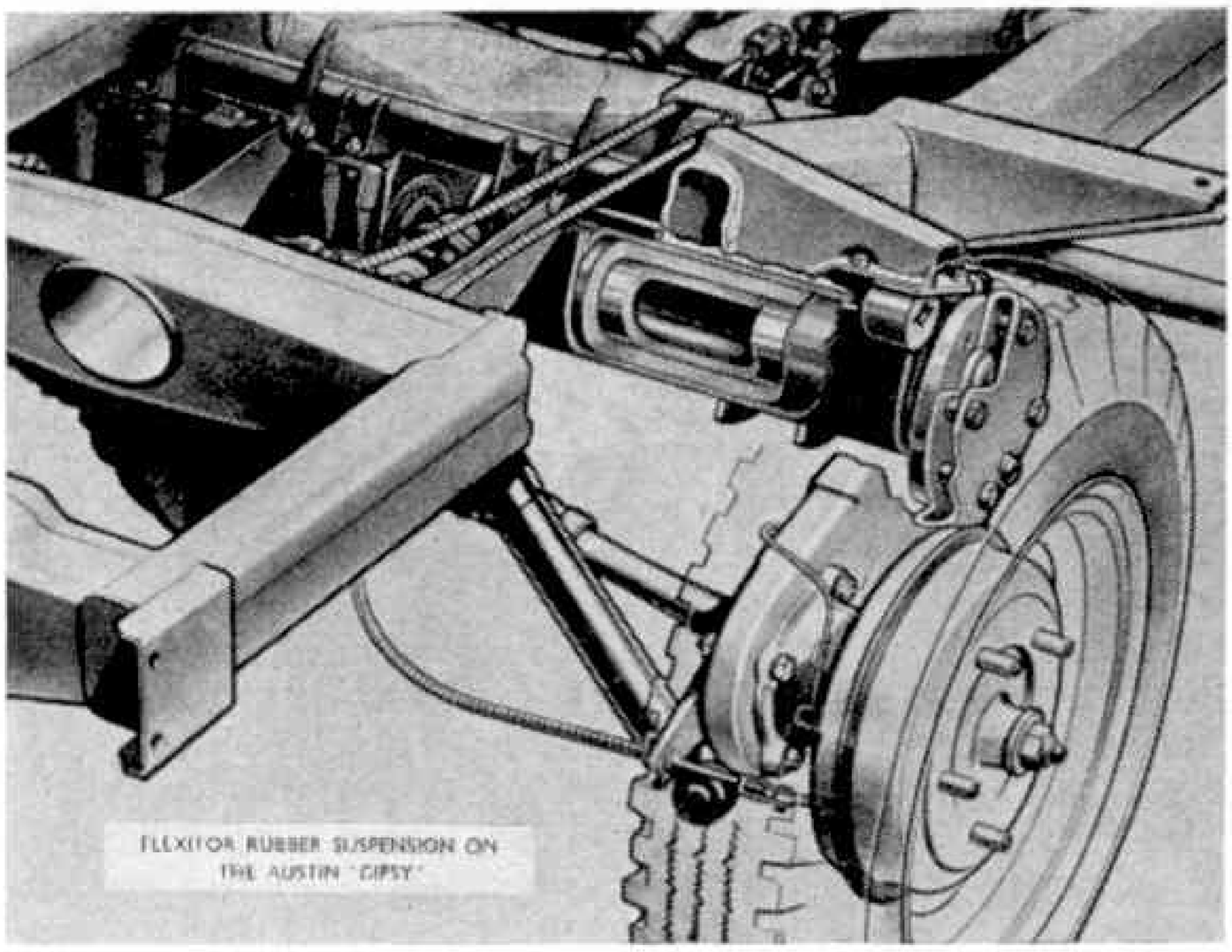
Only Lister-Jaguars with 3 litre engines will be able to compete in World Championship sports car events, as this is the new capacity limit, but in fact the Lister chassis can be used with any one of three Jaguar units or with the 4.6 litre Chevrolet unit that develops close on 300 b.h.p., an engine that several American drivers are installing.

The 3.8 litre Jaguar engine should give a similar figure to the Chevrolet, and make 200 m.p.h. possible on fast circuits, while the 3.4 litre Jaguar unit develops 250 b.h.p. at 6,000 r.p.m. on a compression ratio of 9.1. The latest engine, the 3 litre, is expected to give 254 b.h.p. at 6,300 r.p.m. on a compression ratio of 10.5 to 1 when used with the latest design of Jaguar cylinder head. These figures are most impressive, but there is no restriction on the type of fuel used for sports cars as there is for the 1958 Formula 1 and F.2 cars, which have to use aviation fuel of an octane rating between 100 and 130.



The remarkably low-built 1958 Lister-Jaguar, which can be powered by one of three Jaguar engines or a 4.6 litre Chevrolet unit.

Brian Lister himself will race two works cars, looked after as always by his tuning wizard Don Moore, and Archie Scott-Brown will drive for him in this country and abroad whenever possible. Lister is realistic enough not to try and race a team of cars, with all the attendant problems, against the established might of Ferrari, Aston-Martin and Ecurie Ecosse. So he has sportingly agreed that Scott-Brown will drive for Ecurie Ecosse in championship events, with the exception of the T.T. at Goodwood in September, where he plans an all-out challenge with a 3 litre car and Scott-Brown. Look out for this powerful combination at the Silverstone International Meeting—one of the most important of the British season—on 3rd May.



A Flexitor bar "exploded", to show the outer steel shell enclosing a hollow steel shaft bonded inside a rubber sleeve.

The Austin Gipsy

The new Austin Gipsy—a tough, four-wheel drive, petrol or diesel-driven cross-country vehicle—is the first motor vehicle in the world in series production to have independent four-wheel rubber suspension. This Jeep type vehicle can cruise at over 60 m.p.h. on main roads, and the nature of this new suspension medium enables it

(*Continued on page 256*)

The Superb Class Z Atlantics

Famous N.E.R. High Speed Locomotives

By Norman McKillop

IN my young days at Haymarket Shed I used to look at the North Eastern Atlantics with a good deal of envy, and a certain amount of puzzlement. Envy because I thought in those days I'd never have the opportunity of driving them; puzzlement because I could not fathom how they could look so dazzlingly shining beside the North British Atlantics on which we at Edinburgh expended such a terrific effort in spit and polish.

As a North British man I, of course, had nothing whatever to do with the North Eastern section of the shed, but that didn't stop me from "looking and seeing", and what I saw pleased me greatly. The Z Atlantics were painted a brilliant green, and I learned later that the high polish, which I'll swear sent back the sun's rays with an added tinge to the spectrum, was achieved because the finishing coat of "paint" wasn't paint at all, but high-class enamel.

That indicates how lavish were the N.E. in spending money on their engines, but it does not convey how very worth-while it was in spending to the point of prodigality to design and build such a super high-speed type as the Z proved to be. I learned this from practical experience in driving them, for a day came when a world war threw all the railways in Britain into a common pool, and the N.E. and N.B. enginemen along with them.

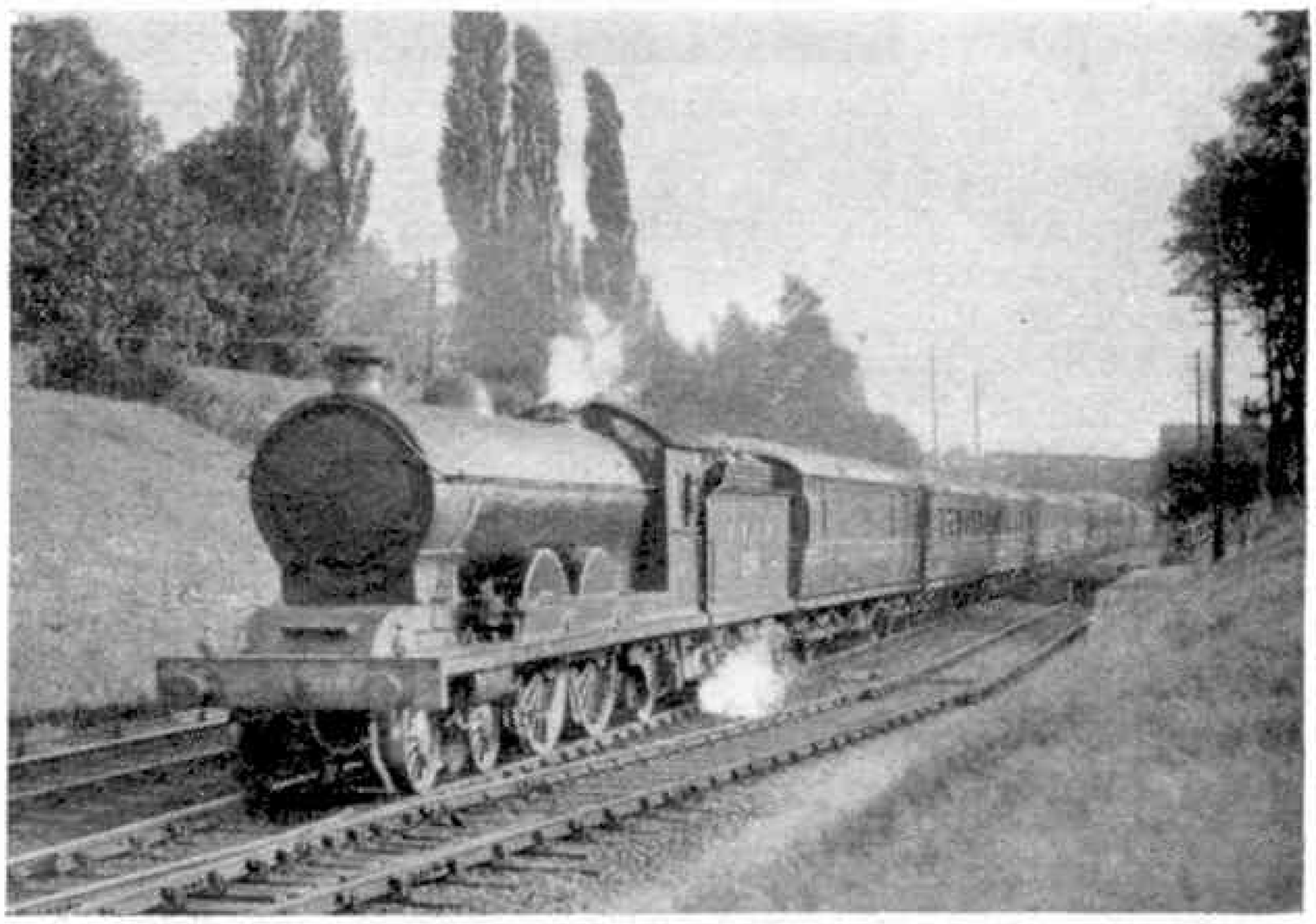
So we became acquainted, I and Nos. 714, 2193 and 2194. These were the Z engines housed at Haymarket, and used regularly on the Edinburgh–London fast trains on their first lap to Newcastle. Let me say at once that they amply fulfilled a keen desire for real speed, which before handling them I had never experienced on any passenger engine.

I knew they could do this long before I drove them on a train. The very look of the Z's told me that! Their long simple gracefulness was something that one associates with a high-bred greyhound. They had three cylinders, with the long connecting rods that are good design, and it was patent at a glance to any interested engineman that their weight was beautifully distributed over the wheels. Here was an engine built for speed.

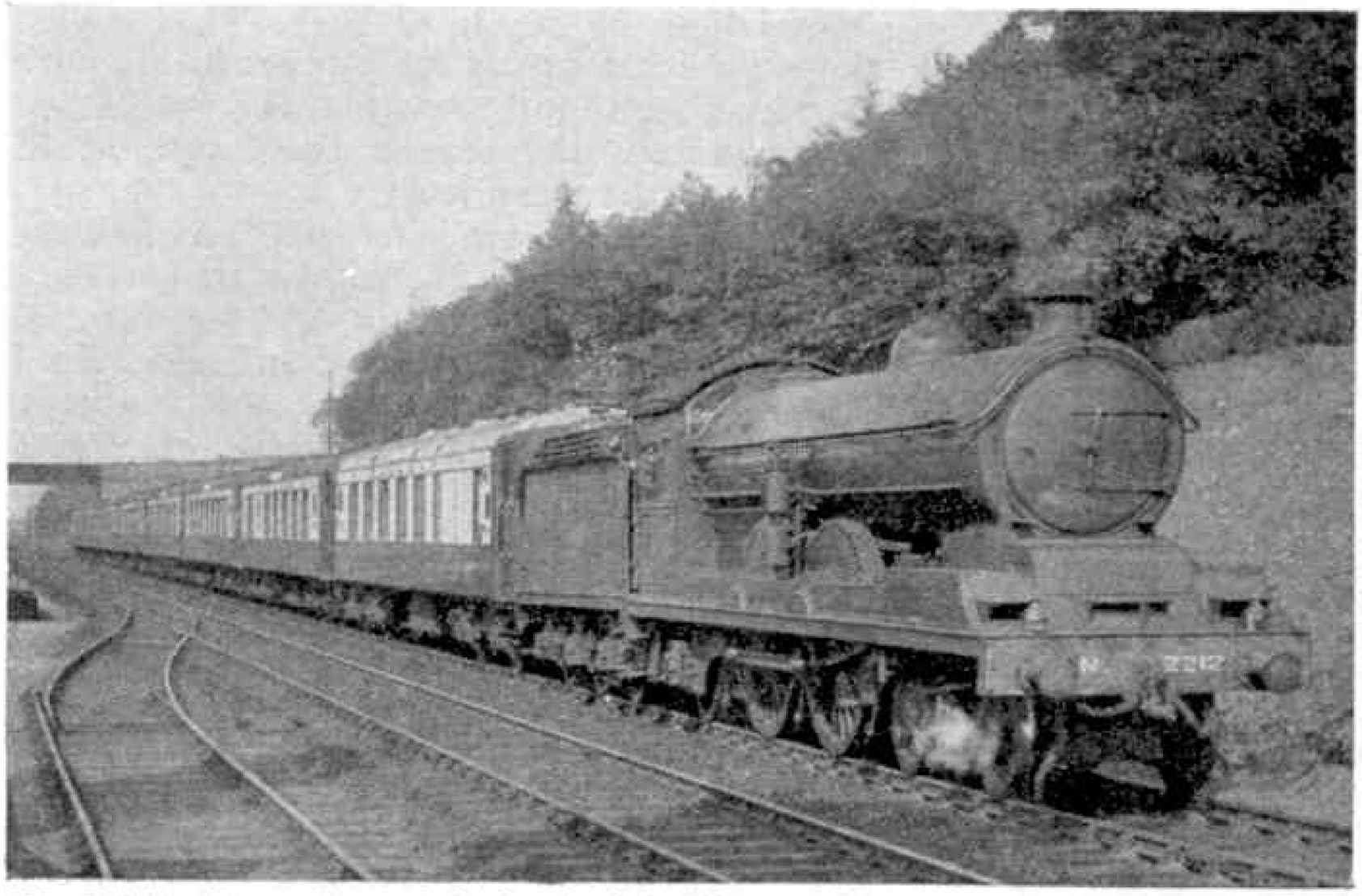
And because the Z was built primarily for speed she took ill to some of the work she was asked to do on the only N.B. road on which I drove her, that is between Edinburgh and Glasgow. She had all the sympathy in the world from me when I heard my mates condemn her for not being able to run the stopping trains between these two cities.

With fifteen stations at which to stop in 47 miles, and seven permanent way speed restrictions in between to cramp her style, how on earth could she be expected to shine? She was a greyhound, not a Scotch terrier, but when she got a chance to run on the non-stop trains on this level road—boy, did she surprise us!

There are few acute curves on the



North Eastern Z class Atlantic No. 2196 heading a north-bound Swansea-Newcastle express in a beautiful setting at Croft Spa, between York and Darlington. Photograph, F. R. Hebron.



The Z Atlantic seen here at the head of the "Queen of Scots" is one that was fitted with the uniflow system, the purpose of which was to give better flow of steam through the cylinders. Photograph, F. R. Hebron.

Edinburgh–Glasgow stretch, but even on these I sensed her wonderful road-holding qualities, so much so that I made an experiment with her that I would not dare have attempted with any other type of engine. Here was the way of it.

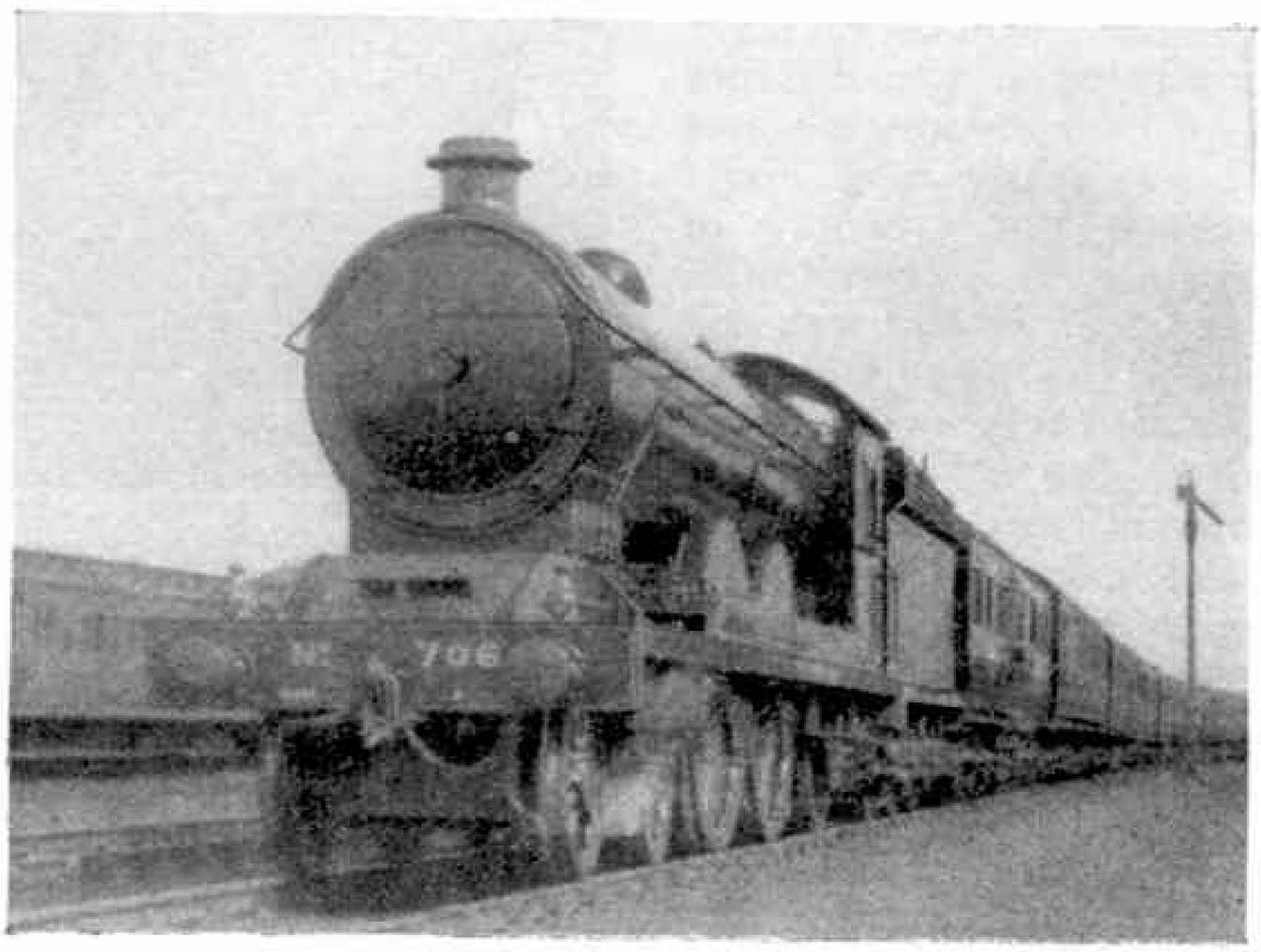
Prior to driving a Z on the Glasgow road, I worked a "hurry-up" special from Waverley one night with the instructions "Get to Glasgow 'pronto'." It was a wee train for the G.C. Director engine I had, and because this type was a lovely-riding engine, I gave my one her head a fraction more than I normally did with a N.B. Scott through Falkirk Tunnel.

Nowadays there is a speed restriction of 60 m.p.h. through this tunnel, but in those days, as far as I can remember, we were not tied down so severely, or maybe it was because the N.B. Scott very seldom exceeded this speed anyway. With this Director I must have touched well over 65 through the tunnel, which has one of the more noticeable bends on this road.

I didn't do that again with anything but a Z. That Director gave a lurch which threw my fireman on to his back in the middle of a shovelling swing, her cab roof scraped the tunnel until the sparks flew, and all-in-all it wasn't a pleasant few seconds.

That was the background against which I was to judge the road-holding and riding qualities of the North Eastern Z Atlantic. The first week I had 2193 on a fast train on the Glasgow stretch I increased the speed experimentally each day through the tunnel, and when I decided that I had attained as high as I wanted to prove how she rode, I was still uninformed as to when she would object — and show it like the Director.

I could take that Z through Falkirk tunnel at 70 m.p.h. if need be with perfect safety and confidence. The way she seemed to cuddle the road contours made you believe she was fitted with a flexible boiler instead of its being because of the perfect way the weight was carried, and the equally perfect way the weight was distributed on the springs. But the N.B. roads were unsuited to them, and if you except the sixty miles of East Coast Route between Edinburgh and Berwick, they were used as seldom as possible on our main lines. They could not run on the Edinburgh–Aberdeen stretch at all, as they were not permitted to cross the Forth Bridge, due to the gauge of the train control apparatus with which they were



A Newcastle express leaving York, headed by N.E. Class Z No. 706. Photograph, C. Ord.

fitted being unsuited to the Bridge track.

It was on their own home ground between Edinburgh and Newcastle that I really enjoyed the company of the Z Atlantics, and when I say that I'm thinking in terms of *enjoyable speed*. I have had my say elsewhere on points of detail design for which I didn't much care, but in this screed I'm concerned with performance, and on fast trains that mainly means speed, *and incidentally the ability to stop*. If I were asked to say what Atlantic type was pre-eminent in these two aspects, I would unhesitatingly say the North Eastern Z. And I've ridden on one or two Atlantics in my day.

Two instances come to my mind which point to these two factors of speed and brake power, and also show that there are always exceptions to the generally accepted character given to a type of engine. While the Zs were generally admitted to be fast, they were never given credit for being strong engines on a bank, and this was correct so far as my experience went, but on one occasion at least a Gateshead three-cylinder Atlantic climbed the banks as if they weren't there.

Don't ask me to remember her number. I got her in a big hurry at Tweedmouth Shed one night when I was working the *Aberdonian* south. The common-user Gresley Pacific I had on what for her was a light train was doing nicely when the intermediate heater bag between the engine and tender burst, as they occasionally do on common-users.

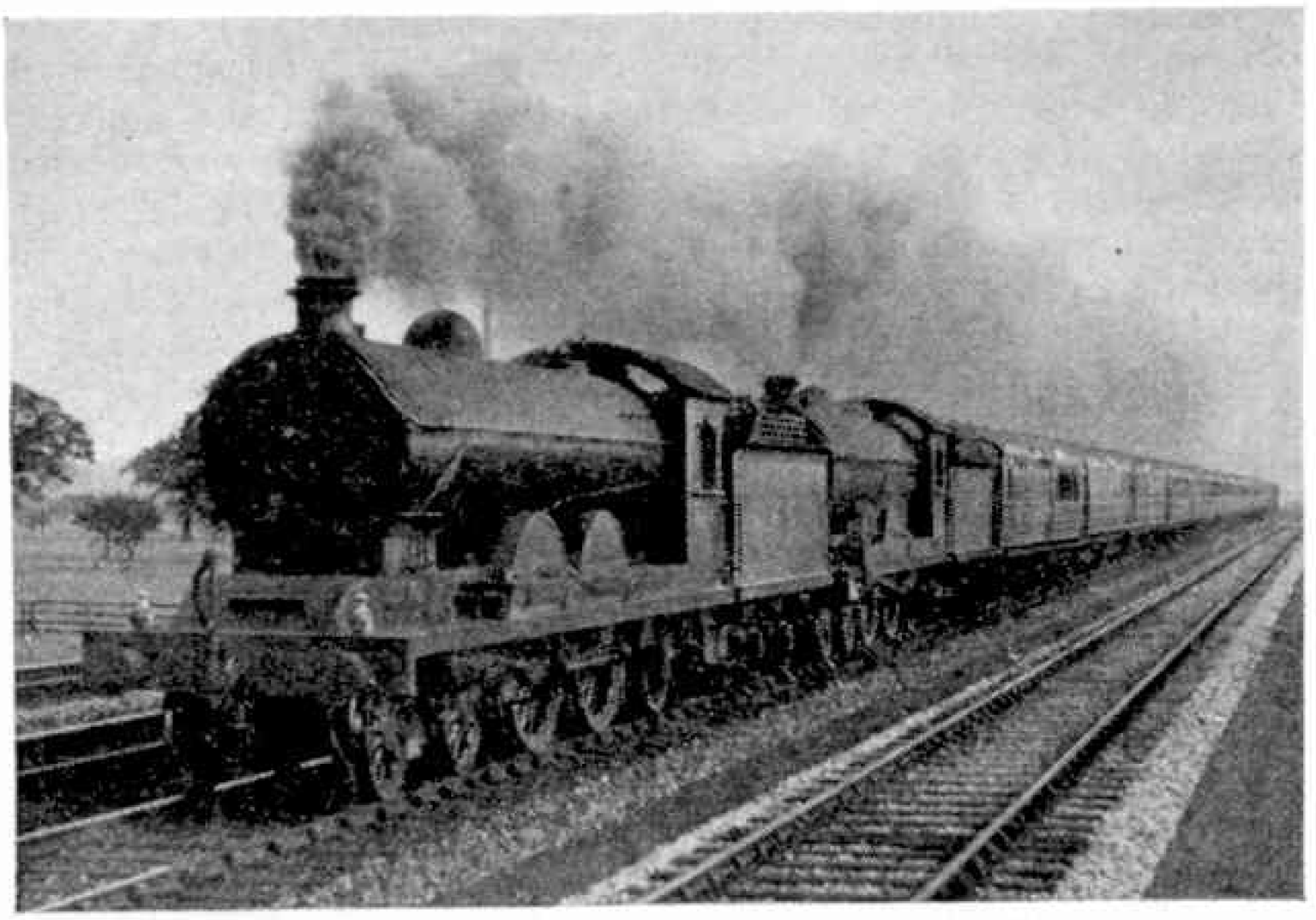
This wouldn't have mattered if the weather had been reasonable, but it was really cold. So I stopped for a change of engine at Tweedmouth. The load we had was just about the full capacity for a Z and this was the type of engine we got instead of our Gresley in a very slick exchange that only cost us a handful of minutes, minutes which were pulled back long before we reached Newcastle. This was nothing unusual, but the manner of its doing was, for a Z.

The start away from Tweedmouth is heavy, and a long bank stretches for a mile or two, up which I wouldn't have complained if my Z had reached no higher speed than 35 m.p.h. at best. That engine kept on accelerating and accelerating, with a power quite unbelievable, and we passed Scremerston, the top of the bank, at 45 m.p.h. at the very least.

For those who are interested I pulled the reverser pointer to 2½ from centre when I saw how she was reacting, and the throttle was wide open. After that introduction I was not surprised at the way she simply gobbled up the next few miles of real racing track down through the dip at Goswick, and along the straight to Beal, as if in pure enjoyment.

This N.E. section is good track, and when I used the term "gobble" it really gives a much better idea of how it feels when a Z is at high speed than if I put the prosaic facts of m.p.h. and percentage cut-offs in a table. There was a feeling of fluidity in its speed running, an effortless loping, long-legged eating up of the miles, which no amount of technical "say-so" could ever picture.

Coupled to this was their extreme quietness. The exhaust at the chimney could only be heard if I put my head outside the cab window, and even then it was a rapid-fire purr—and maybe I do wrong to say "rapid-fire", for there was nothing whatever explosive about those chimney beats.

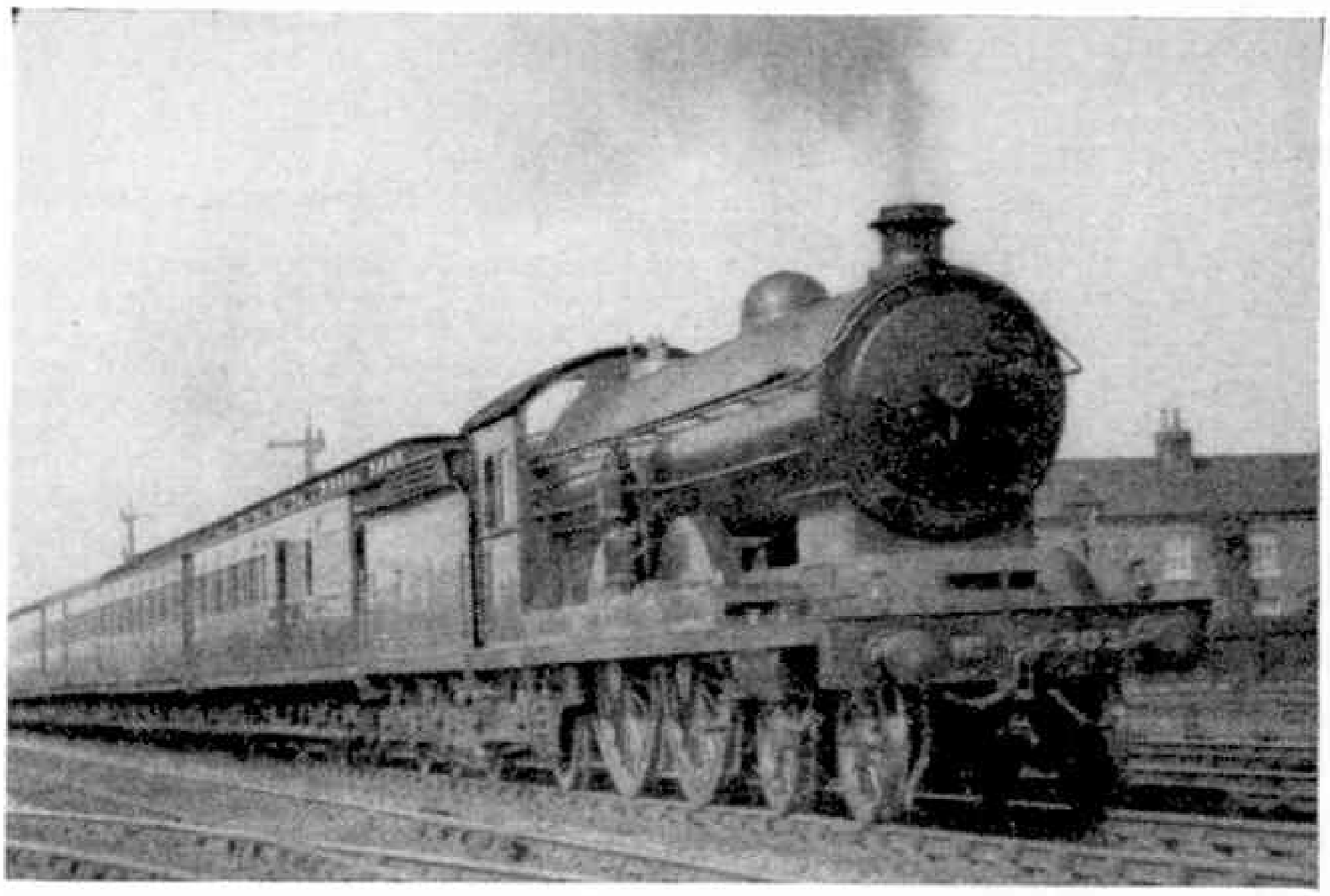


A down East Coast Route express near Beningbrough, with N.E. Class Z No. 734, piloting N.E. Class V No. 698. Photograph, C. Ord.

That was how that Z behaved all the way, and I pulled the reverser pointer back on the easy bits further than I'd done before on any of her breed, to say nothing of patting the throttle handle until it was nothing more than a shade from being

completely shut. That engine could certainly run *and* pull.

But curiously enough it wasn't on fast train work that I like to think of the Z with the kindliest of thoughts. It was that week we spent together on an unbalanced train to Newcastle and returned to Edinburgh light engine, and it was this return running which put me in debt to No. 2193. And I literally mean in her debt. Here was the way of it.



This scene near York shows an express train to Leeds hauled by N.E. Class Z No. 2203. Photograph, C. Ord.

Between Edinburgh and Newcastle the distance is 125 miles and the return trip means in all 256 miles including the running between sheds and stations at both ends. To a locomotiveman this means mileage pay, as for every 15 miles over a prescribed distance—in those days it was 140 miles—he receives one hour's pay.

Now you must know that light engine running is unprofitable to the railways and it is only in exceptional cases that it is allowable, so I had a poor chance of earning "mileage payment" when my gaffer at Haymarket said: "Do your best to bring her back, we really need all the engine power we can get and can't afford to have that engine lying at Newcastle an hour longer than she need be."

I was, of course, all for this, but those in control of things at the Newcastle end weren't so keen. In fact they had good reason not to be so, as not only were they losing the use of a good engine, but they very properly knew that normally a light engine took hours and hours to work its way home when it became mixed up with the "paths" of the *Flying Scotsman* and such like trains, as I would possibly be with 2193 at that time of day.

But I was ready for this latter argument. "Look," I said, "tell your controllers if they give me just a few minutes start of the 'Scottie' from Newcastle that train will never smell us," and to make the story brief, they *did* give 2193 and myself that chance.

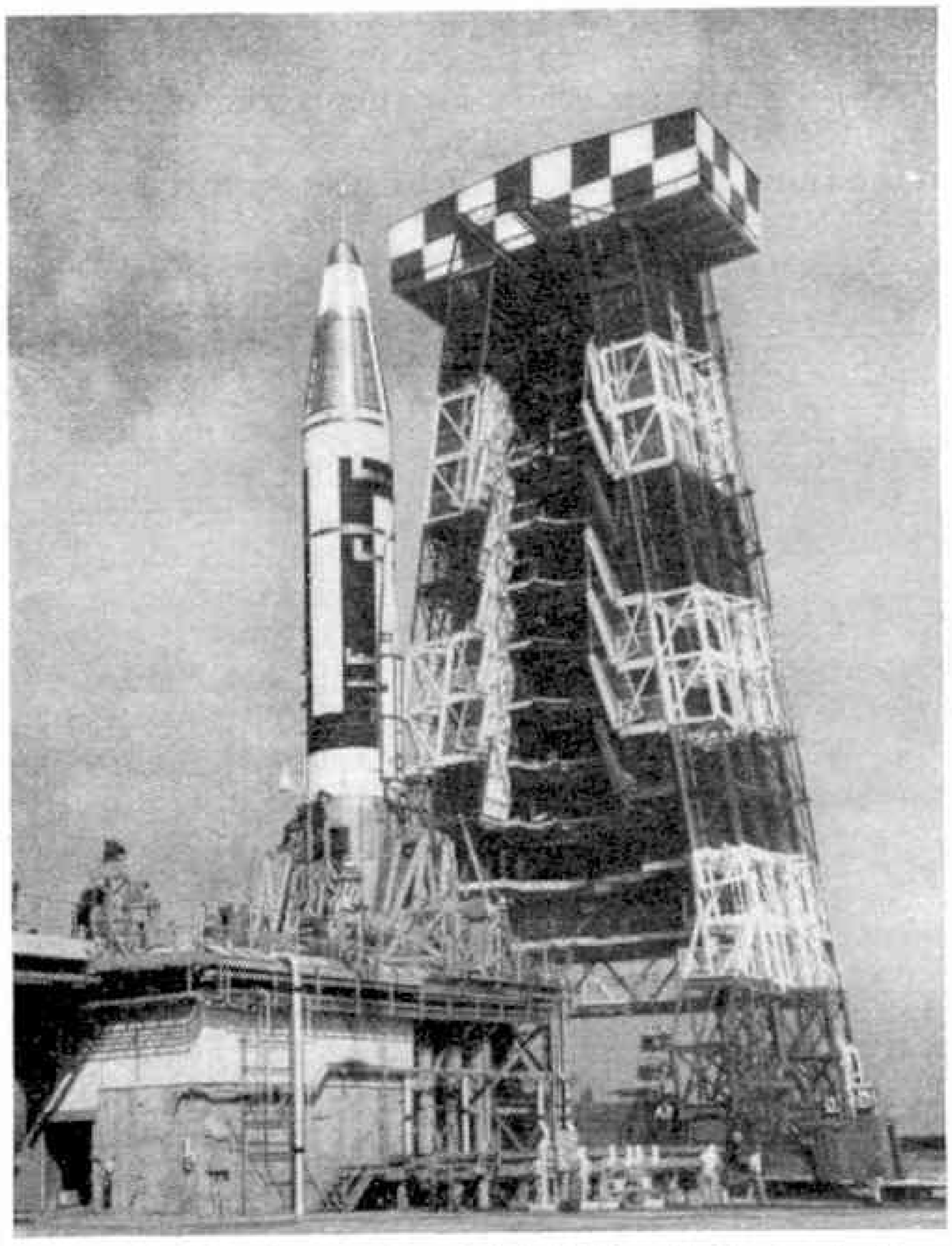
We left Newcastle three minutes ahead of the *Flying Scotsman*, Once through the short sections to Heaton I gave 2193 "the works", and with the throttle wide open she tore up the miles of bank to Forest Hall like a deer. I looked at my watch—on my calculation it would be five minutes before the "Scottie" driver would see the distant signal for Forest Hall.

The stretch to Morpeth has long sections, and I dared not allow that driver behind to even see a "distant" signal on, for if that had happened the signalman ahead might have got the wind up and shunted me. I pushed the reversing pointer another notch farther along the quadrant and 2193 responded until the speed created a whistling gale past the cab window. At Morpeth we were eight minutes ahead of the express behind us.

That wasn't enough, however, and to cut the yarn short, by the time we slipped through Berwick we were a full fifteen minutes' ahead of the *Flying Scotsman*. And we did that every day for a week, which put me in debt to 2193 to the tune of nearly two weeks' pay for one week's work on mileage.

The whole point in this story is not the super speed of the Z, but the superb braking system with which these engines were fitted. In this respect I've even yet to see a locomotive which could come anywhere near the Z when you wished to kill the speed stone dead.

The old North Eastern had many claims that entitled it to be listed in the front rank of Britain's railways, and I think one of the foremost of these was the right to say that it had in the superb Z Atlantic a locomotive that in riding, speed, and brake power was unequalled in its hey-day.



A Convair Atlas intercontinental ballistic missile stands clear on its launching stand at the U.S. Air Force Missile Test Center, Cape Canaveral, Florida. The gantry tower used in getting the huge missile ready for flight is being moved away. Illustration by courtesy of Convair.

Air News

By John W. R. Taylor

America's "Ultimate Weapon"

The picture above is the first to show clearly a Convair Atlas intercontinental ballistic missile (ICBM) on its launching stand. Behind it is the great servicing tower, with platforms at different levels, from which the missile is fuelled, armed and prepared for firing. This tower is mounted on rails, so that it can be moved clear when the work has been completed.

An Atlas, ready for launching, is about 80 ft. tall and weighs nearly 100 tons; most of this weight consists of liquid oxygen and kerosene fuel. It has a North American Rocketdyne motor of 65,000 lb. thrust in the tail, plus two Rocketdyne "boosters", each giving 165,000 lb. of thrust, mounted on each side under the fairings that house its self-contained inertial guidance equipment. Together they give it a peak speed of about 10,000 m.p.h. and a range of 5,500 miles. Only the end of the tapered nose section, containing the hydrogen-bomb warhead, re-enters the atmosphere over the target, the remainder being burned up by friction with the air.

So far, only a very small number of Atlas rockets have been fired successfully from the U.S.A.F.'s Missile Test Center at Cape Canaveral, Florida, and there have been several failures. But the weapon is in production by Convair Astronautics and is expected to be in service next year.

National Air Races

This year's National Air Races will be held at Baginton Airport, Coventry, on 10th to 12th July. The first two days will be devoted to contests for the Kemsley, Osram and Goodyear Trophies; leaving Saturday the 12th free for the King's Cup Race and the British Lockheed International Aerobatic Competition.

A welcome change is that this year the King's Cup Race will be flown over four laps of a 20-25 mile course, which will enable the whole contest to be followed closely by spectators. There will also be a first-class flying display.

Decca Successes

More and more airlines are equipping their fleet with British Decca navigation aids, which show a pilot exactly where he is by drawing the track of his aircraft on a moving roller map.

The information on which the short-range Decca and long-range Dectra systems work is supplied by radio beacons on the ground, which are arranged in groups of four and known as "chains". There are eight chains in Europe and four in Canada, and over 4,300 ships and aircraft use them for pin-point navigation. By the time you read this, a further chain will have been built in the New York area, for use by New York Airways, whose helicopters will navigate by Decca on all their scheduled services. The result will be an important step towards safe, efficient, all-weather operations.

About a fortnight after news of the American chain was released, Swissair announced that they have equipped one of their DC-7C transatlantic air liners with Dectra, which utilises signals transmitted from beacons in Newfoundland and Scotland.

Our Shrinking World

B.O.A.C.'s Managing Director, Mr. Basil Smallpiece, said in Melbourne recently that when the Comet 4 is in service next year it will cut the journey time between that city and London from the present 50 hours to 39 hours. He added that when the great Vickers VC.10 flies this route in 1963 it will do the journey in only 29 hours, carrying 150 passengers.

B.E.A.'s forthcoming London-Moscow service also opens up interesting possibilities. If it could be scheduled to link up with an Aeroflot Tu-104 jet-liner service to Japan, the present London-Tokyo time could be cut by about half.

Sidewinders for the F-104

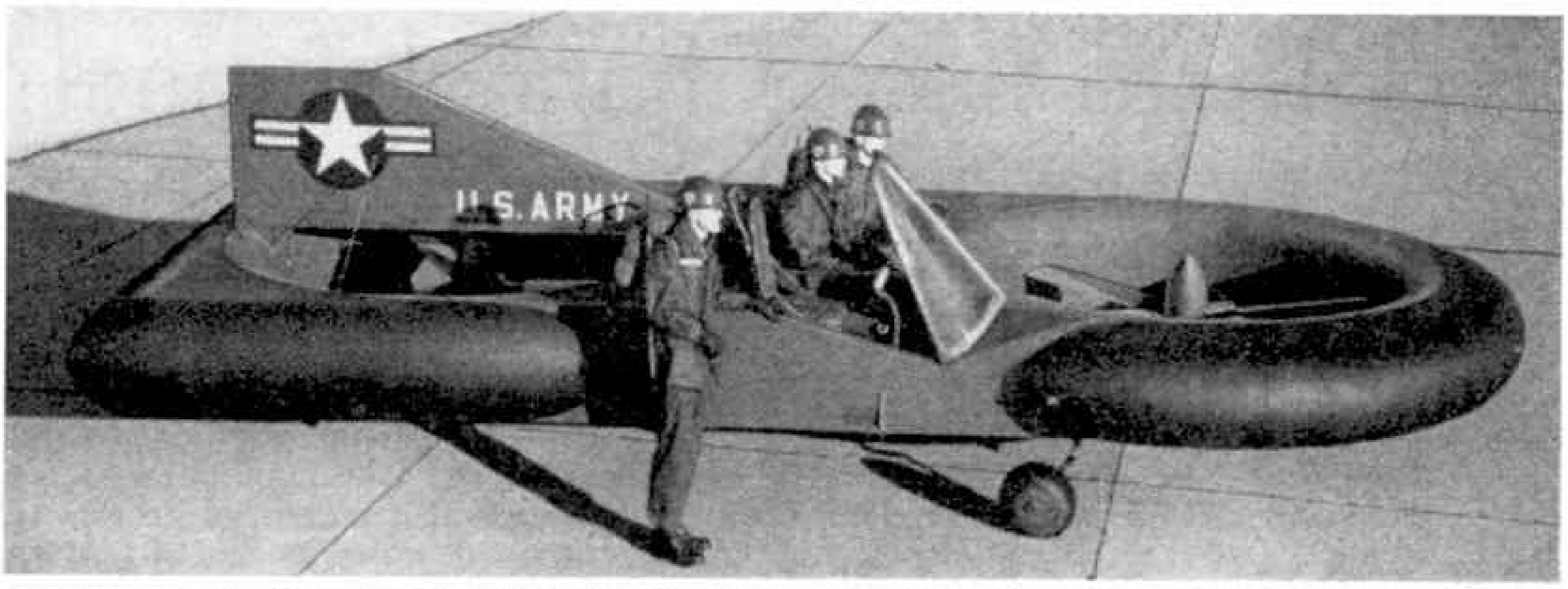
Following delivery of the first operational Lockheed F-104A Starfighters to the U.S.A.F.'s 83rd Fighter-Interceptor Squadron at Hamilton Air Force Base, California, it was announced that this little 1,400 m.p.h. aircraft can carry a Sidewinder air-to-air guided missile on each wing-tip. It has a fixed armament of one 20 mm. Vulcan six-barrel cannon, with a rate of fire of 7,000 rounds a minute, mounted in its nose.

Carrying two under-wing fuel tanks, an F-104A has flown at supersonic speed continuously for over an hour. It will be followed into service by the two-seat F-104B all-weather interceptor.

British Air Liners' Fine Record

By February of this year British jet and turboprop air liners had amassed no less than 1,059,000 flying hours, equivalent to 320 million miles, or 13,000 times around the World, in airline service.

Since 1953, Viscounts had flown a million airline hours and Britannias some 29,000 hours, to which were added 30,000 hours by Comet 1's between 1952 and



Mock-up of the Piasecki 59K VTOL (Vertical Take-off and Landing) aircraft described on this page.

1954. In addition, B.O.A.C. had flown about 2,000 hours with their experimental Comet 2E's, while R.A.F. Transport Command had logged 9,000 hours with their Comets.

This is all the more remarkable when we remember that no other jet or turboprop air liners have entered service anywhere in the World, except in Russia.

Flying Jeep

Despite its strange appearance, the vehicle shown in the illustration above is one of the most interesting and exciting aircraft yet designed. Officially it is designated the Piasecki 59K VTOL (Vertical Take-Off and Landing), but the U.S. Army call it the "Flying Jeep", which gives a much better clue to its capabilities.

The 59K VTOL has two three-bladed propellers inside doughnut-shape rings, fore and aft of its seats. These are known technically as ducted propellers, and they give as much lift as helicopter rotors of far greater diameter, enabling the craft to take off and land vertically. As a military vehicle, it could replace ordinary Jeeps for light transport, observation and other duties in any type of country, even where there were no roads or airfields.

Its ability to hug the ground, making use of all available cover, would give it many advantages in battle areas. But that does not mean it cannot fly high, and Piasecki claim that it could cross most of the mountain ranges of North America. The two centrally-mounted engines are so arranged that one can drive both propellers if the other fails, to ensure a safe landing. Top speed is expected to be about 150 m.p.h.

The illustration shows a full-size mock-up of the 59K VTOL; but Piasecki expect to have the first of two prototypes in the air soon and have already thoroughly tested the unique design in the form of a ground rig. They say that the production version should be considerably cheaper than a small helicopter and that it points the way to the family "flying car" of the future.

New Convair-Liner

Although Convair are ending production of their twin-engined Convair-liner transport this summer, to make room for the new Model 880 jet-liner, it will continue to be built north of the border, in Canada.

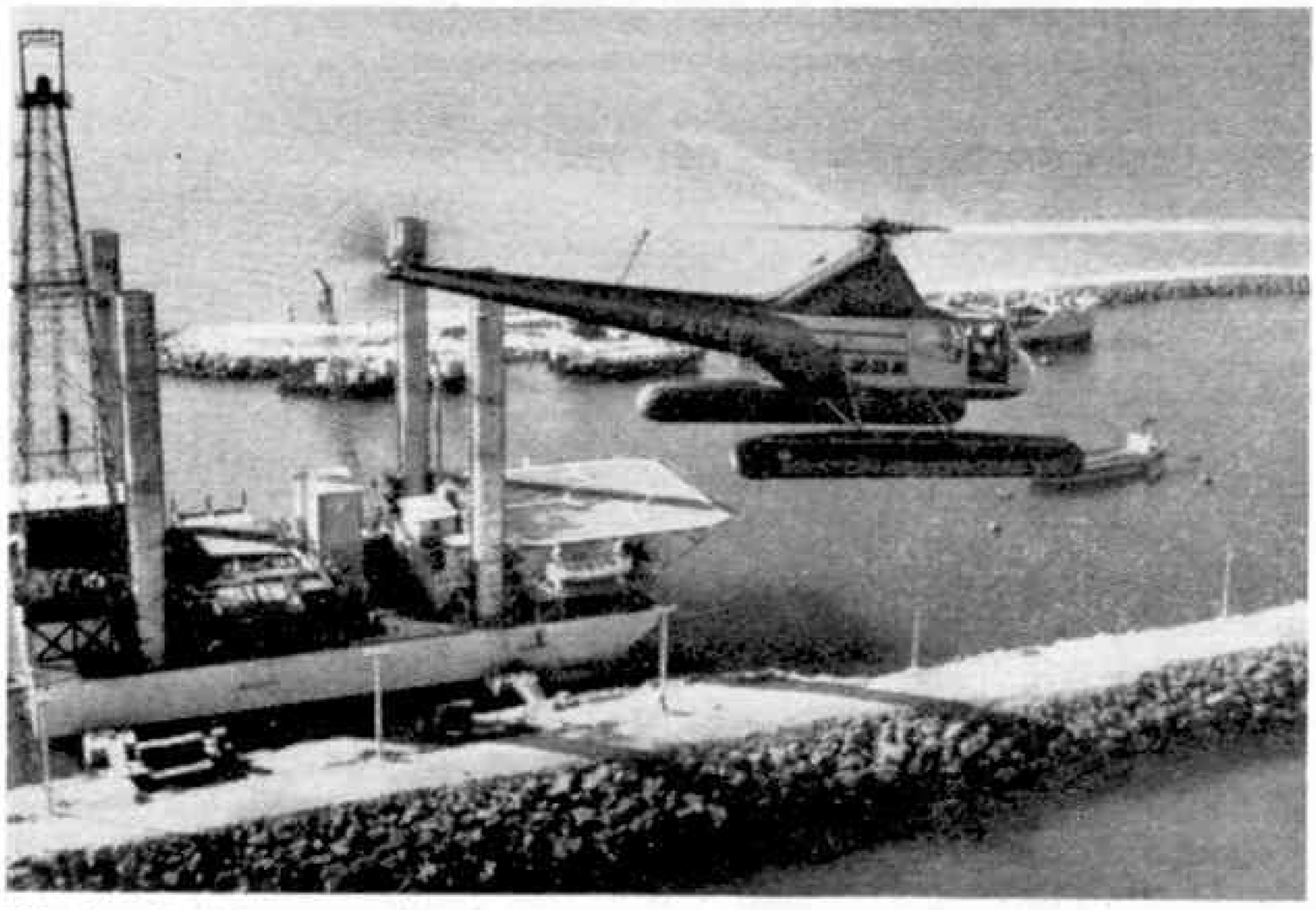
Canadair of Montreal announced on 12th February last that they have received an initial order for ten aircraft known as CL-66 Cosmopolitans for the R.C.A.F. These will be Convair-liners powered by two 3,500 h.p. Napier Eland N.El.6 turboprops, giving a performance far better than that of the present piston-engined versions. The CL-66 will carry 44-60 passengers or 10,000-15,000 lb. of freight, and will have a maximum range of 1,700 miles at 326 m.p.h.

Helicopters Speed Oil Exploration

Helicopters are used to carry men and supplies to offshore oil drilling platforms in many parts of the world. The lower picture on this page is of particular interest, however, as it is one of the first to show a Westland Widgeon in commercial service.

This particular Widgeon, operated by Bristow Helicopters Ltd., is shown flying over the drilling platform *Adma Enterprise*, while the latter was fitting out in Das Island harbour, in the Persian Gulf. Later, the platform was towed out to the site of Adma Well F-1, being drilled by Abu Dhabi Marine Areas Ltd., in which the British Petroleum Company has a two-thirds shareholding and Compagnie Française des Petroles one-third.

Based on the Sikorsky S-51 design, the Widgeon has a 500 h.p. Alvis Leonides engine and a completely new front fuselage, seating five persons in comfort. Of particular value for oil exploration is the fact that it can be adapted quickly to carry freight or two stretchers and a medical attendant for air ambulance duties.



Westland Widgeon helicopter flying over an offshore oil drilling platform being fitted out in Das Island harbour, in the Persian Gulf. Illustration by courtesy of the British Petroleum Co. Ltd.

Will There Be a Channel Tunnel?

How It Would Be Built

By Arthur Gaunt

ARE we nearing the time when trains will run under the English Channel, providing a swift, frequent and convenient railway service between England and France? Will motorists shortly be able to drive direct from Britain to the Continent by such a route?

Hopes that this might become possible were raised not so long ago, when it was announced in Parliament that plans to build a Channel Tunnel were being reviewed again. It is a scheme that has interested and challenged engineers and transport authorities for a long time.

Such a submarine tunnel would not only allow travellers to avoid the sea crossing. It would also speed up the journey to and from the Continent for both passengers and goods, and would make it unnecessary to transfer cargoes to and from ships at the Channel ports. Only bulky cargoes would have to be transported by sea. Even in these days of air travel, many travellers would probably prefer to go to and from France by rail rather than by air liner.

Proposals to link England and France by a tube large enough to take vehicles are actually more than 150 years old. As far back as 1802 a scheme of this kind was envisaged by the British statesman Charles James Fox, and was supported on both sides of the Channel.

There were no railways in those days, and the plan was to run stage coaches through the tunnel. Napoleon was enthusiastic, and instructed French engineers to draw up a detailed scheme. This came to nothing, as the Napoleonic Wars broke out, and for the next fifty years it remained shelved. The coming of railways revived it, and the first project of this kind with any claim to practicability was produced by De Gammond, a French civil engineer. He carried out a thorough geological survey of the bed of the English Channel, and the data he collected has been of great value to the planners of more recent decades. He also helped to form an Anglo-French concern called the Submarine Continental Railway Company, still in existence under the new name Channel Company Limited.

Early promoters of the Tunnel had several snags to overcome. Though De Gammond reported that the chalk bed of the Channel was excellent for boring, it was realised that steam trains would not be able to use such a long tunnel, since ventilation difficulties would be almost insurmountable if this was done.

A novel suggestion was put forward to meet this problem. It was proposed to make the tunnel dip towards the centre, so that trains could travel without an engine from either end. Momentum gathered during the first half of the run would carry the trains part way up the incline towards the exit, and from the point reached in this way they were to be hauled out by means of cables operated from power houses.

A peep into the pilot tunnel which already exists under part of the English Channel. Photograph by courtesy of the Society of Motor Manufacturers and Traders.

The entrance to the pilot tunnel that has been made under the English Channel near the Dover-Folkestone railway line.

French interest in the Channel Tunnel seems to have been keen at this time—too keen for some British politicians, for they became lukewarm about it when British military advisers declared that such a tunnel might endanger Britain's security. It could be used, they said, by enemy troops attempting to invade the United Kingdom.

The same fears have caused Channel Tunnel proposals to be shelved again several times since then. Yet 75 years ago boring was actually started on the English and French coasts. A pilot tunnel was bored for a mile under the Channel from a point near Folkestone, and a similar one was carried outwards from Cap Gris Nez on the French coast. Once again, however, military considerations prompted the withdrawal of permission for the British section before it had gone far.

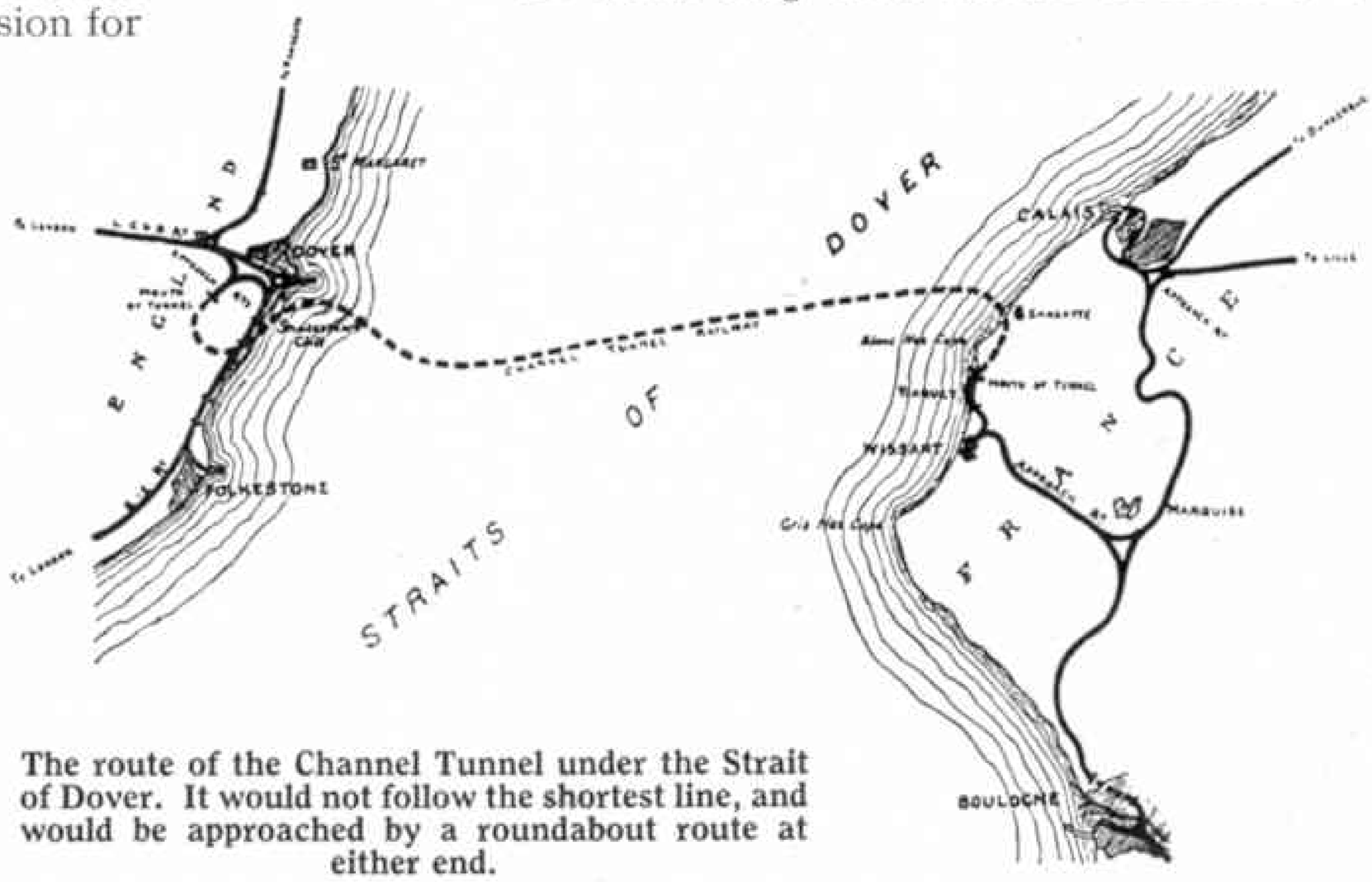
This pilot tunnel still exists and is inspected regularly. The entrance to the British section is near the Dover-Folkestone railway line, and the tunnel is kept in repair, partly in order to prevent subsidence of the railway.

Now that the chances of the bore being re-opened seem to be brightening a little, it may be asked how a modern Channel Tunnel would be built and what it would be like. Engineering techniques have advanced enormously during the last twenty years, and the scheme as it is put forward today is a considerable improvement on the early ones.

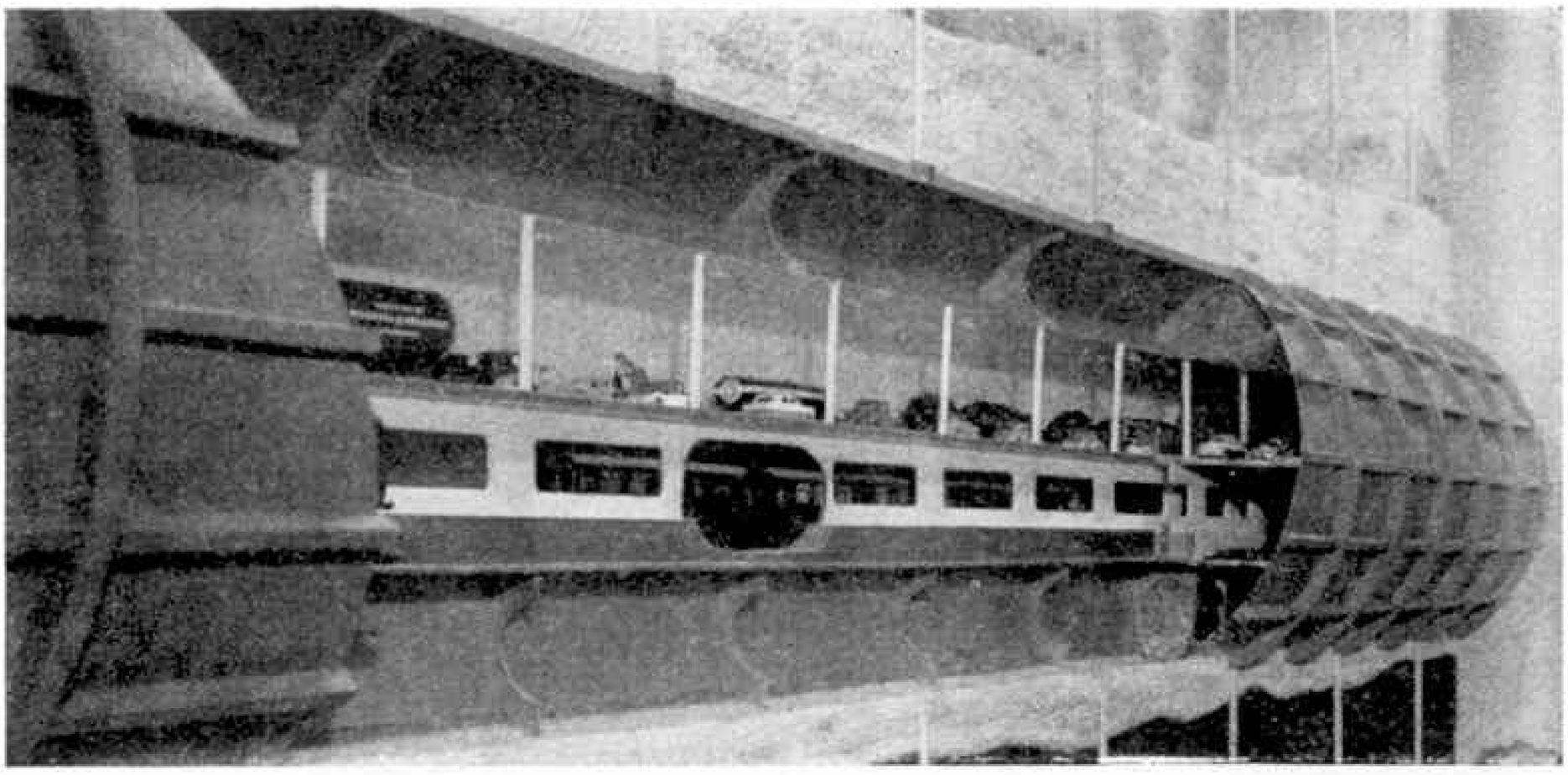
It was originally decided to build twin tunnels side by side, each to be used by one-way rail traffic. Two medium sized tunnels, it was pointed out, would be stronger than a single large one. Present-day civil engineers envisage tunnels within a tunnel, providing not only tracks for trains but roadways for cars and large air ducts for ventilation.

Such a tunnel would be egg-shaped, with overall measurements of 42 ft. by 65 ft., and would be divided horizontally into two main sections, the lower one for trains and the other for cars and lorries. Above and below these sections would be air ducts running the full length of the tunnel, to remove engine fumes. Electric traction would be used for the trains.

This new conception of a Channel Tunnel project was produced by M. Andre Basdevant, a Parisian engineer, after much research and careful consideration of the many problems. His plan is for a tunnel 30 miles long from mouth to mouth, for



The route of the Channel Tunnel under the Strait of Dover. It would not follow the shortest line, and would be approached by a roundabout route at either end.



A cut-away model of a section of the proposed improved Channel Tunnel. This was designed for Triplex Safety Glass Co. Ltd., by Peter Bell and Harding Dunnet.

although only about 22 miles would be under the sea, the entrances would be well inland.

The tunnel would not dip gradually towards the middle and then rise steadily again, but would be made rather like a long switchback. In fact, it would be only 195 ft. under the sea bed at the centre, though where it passes under the coasts of England and France it would descend to about 420 ft.

Its construction would be facilitated by the knowledge that there is a convenient hump, known as the Varne Bank, in mid-Channel. To this point would be floated a huge caisson, resembling the forts that were a wartime feature of the Thames Estuary. The caisson would be sunk on to the Varne Bank, and from its interior a vertical shaft would be bored to the pilot tunnel. Material excavated from the tunnel could be passed up the vertical shaft to be dumped over the side of the caisson.

It has also been stated that pipes inside the caisson might allow sea water to enter the pilot tunnel at a carefully controlled rate, this water then to be used as a means of washing debris towards the ends of the tunnel, thus reducing the need for long trains of wagons when the work was in progress. The water admitted in this way would be pumped out from the lowest part of the tunnel, taking the debris with it.

The pilot tunnel, continuing the short sections already existing on both sides of the Channel, is shown as an 18 ft. wide tube on M. Basdevant's plans. This small tunnel would eventually become the lower air duct of the larger tunnel built around it, and would carry fresh air right through the borings. Foul air and car fumes would be drawn out through the upper air duct by powerful fans.

Today the fears that a Channel Tunnel might weaken Britain's defences have largely subsided. For one thing military strategy has changed, and invaders are more likely to come by air than through a tunnel. For another, the plans for the Channel Tunnel include arrangements for it to be flooded at the mouths quickly if necessary. M. Basdevant's plans provide for this, his idea of making the deepest parts near the ends of the tunnel being intended to facilitate deliberate flooding in an emergency.

The biggest problem today is the question of meeting the cost of building such a tunnel. The engineering problems are a secondary consideration, for in constructing such tunnels as the one under the Mersey and the London Underground railways, it has been proved that we possess the know-how for boring under the English Channel from Britain to France.

When the Channel Tunnel was first suggested, the estimated cost was less than £10,000,000. The figure is now put at probably £100,000,000 by some authorities, and this steep rise may well decide whether the project is at last to become a reality or not.

But it is alluring to imagine trains running under the English Channel every 15 minutes and up to 600 road vehicles following this submarine route every hour. This is the amount of traffic for which the Channel Tunnel would provide.

Famous men of the past have agitated against such a project. Among those who decried it were the Duke of Wellington and Robert Browning. Today it would be such a boon that attempts to prevent the fruition of the scheme, other than for reasons of expense, seem unlikely. The cost of building the tunnel indeed would be the biggest snag in the whole scheme.

MECCANO MAGAZINE

Junior Section

THE boys seen in the picture at the foot of the page are in the Hinwick Hall Home for Crippled Boys, near Wellingborough, and their railway has brightened their lives very considerably. It came to them as the result of a kindly thought on the part of Andrew Goddard, a member of the H.R.C., whose portrait is reproduced at the side of these notes.

Andrew Goddard, of Walgrave, Northants.

One day Andrew was struck with the idea of helping some less fortunate youngsters, and decided that he could do this best by giving his train set to the boys in the Home. So he and his parents set off to Hinwick Hall and very soon it was installed there, to give the boys real happiness.

Square Bubbles

Must all bubbles be ball shaped? We have all thought so, and square bubbles have been a joke for a long time. But now it is claimed that microscopic square bubbles have been made.

Before some reader writes to correct me, let me say that the bubbles are not truly square, for a square is flat, but any bubble with right-angled corners qualifies! They appear in crystals of a chemical known as lithium floride that have been irradiated with neutrons and then heated. So here is a very curious result of what most people today would call atomic bombardment.

The boys of the Hinwick Hall Home for Crippled Boys enjoying fun with their Hornby-Dublo railway. How they got this is explained on this page.

Easy Model-Building

Swing and Hammerhead Crane

FOR those with only a No. 00 Outfit, the simple Swing shown in Fig. 1 makes a good subject, and when completed it can be set in motion by turning a Crank Handle.

For the base you will need a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate. To the centre hole in each flange of this bolt a $5\frac{1}{2}''$ Strip 1. The seat of the swing is made from two Trunnions bolted together as shown and connected by an Angle Bracket to two $2\frac{1}{2}''$ Strips 2 which are overlapped two holes and bolted together. This structure is suspended from a $3\frac{1}{2}''$ Rod 3 that is mounted in the top holes of the $5\frac{1}{2}''$ Strips 1. The $2\frac{1}{2}''$ Strips 2 are held in place on the Rod by two Spring Clips and the extent of swing is limited by an Angle Bracket 4 that is bolted beneath the $3\frac{1}{2}''$ Rod 3 to the upper Strip 2.

Fix a 1" Pulley on one end of the $3\frac{1}{2}''$ Rod 3 and pass a piece of string round the Pulley and round a 1" Pulley held in place on a Crank Handle mounted in the second holes of the $5\frac{1}{2}''$ Strips 1. The Crank Handle is held in place by a Washer and a Spring Clip.

Hammerhead Crane

The neat Hammerhead Crane shown in Figs. 2 and 3 can be built from parts in Outfit No. 1. To build this model, first bend two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates and bolt them together to form a cylinder as shown. Now fix a Bush Wheel 1 to Angle Brackets bolted to the upper end of the cylinder, and then secure a 2" Rod 2 in the boss of the Bush Wheel. The next thing to do is to bolt an Angle Bracket 3 to the cylinder and fix it to a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate, which forms the base of the Crane. Now take another Angle Bracket 4 and bolt it to the Flanged Plate so that its upright lug is inside the cylinder. This serves to steady the assembly.

To make each side of the Crane jib or boom, bolt a $5\frac{1}{2}''$ Strip and a $2\frac{1}{2}''$ Strip to a Trunnion 5 as shown. Now fix a Fishplate to the outer end of the $2\frac{1}{2}''$ Strip, and arrange a made-up strip 6 between the Fishplate and the outer end of the $5\frac{1}{2}''$ Strip. This made-up strip is formed from a $5\frac{1}{2}''$ Strip and a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip bolted together, and a Flat Trunnion 7 is attached to its rear end by the same bolt used to connect the strip to the Fishplate.

The sides of the boom are connected together by a Fishplate that is bolted to the front lugs of the Double Angle Strips, by a $2\frac{1}{2}''$ Strip attached to Angle Brackets supported by the Flat Trunnions 7, and by a $2\frac{1}{2}''$ Strip 8 attached to the Trunnions 5. One of the bolts that is used to connect Strip 8

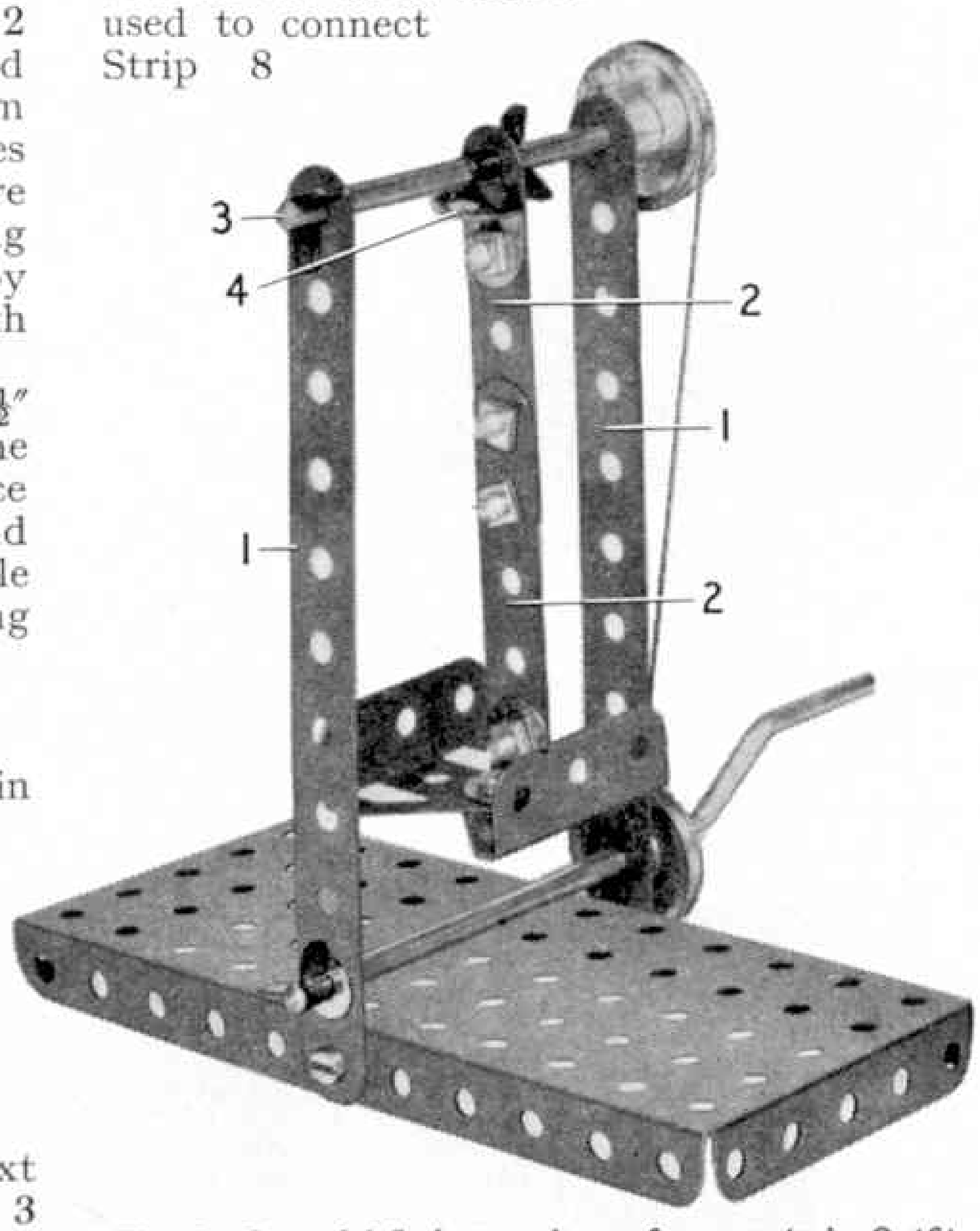


Fig. 1. A model Swing made up from parts in Outfit No. 00.

to the Trunnions must be used to support also a $\frac{1}{2}''$ Reversed Angle Bracket 9. Now pass the 2" Rod 2 through the Reversed Angle Bracket, the Strip 8 and the Trunnions 5. A 1" Pulley on the Rod is used to hold the boom in place.

A Crank Handle is mounted in the Flat Trunnions 7 and is held in place by two 1" Pulleys. Cord tied to the Crank Handle is passed over a 2" Rod 10, and a small Loaded Hook is fastened to the end of the Cord.

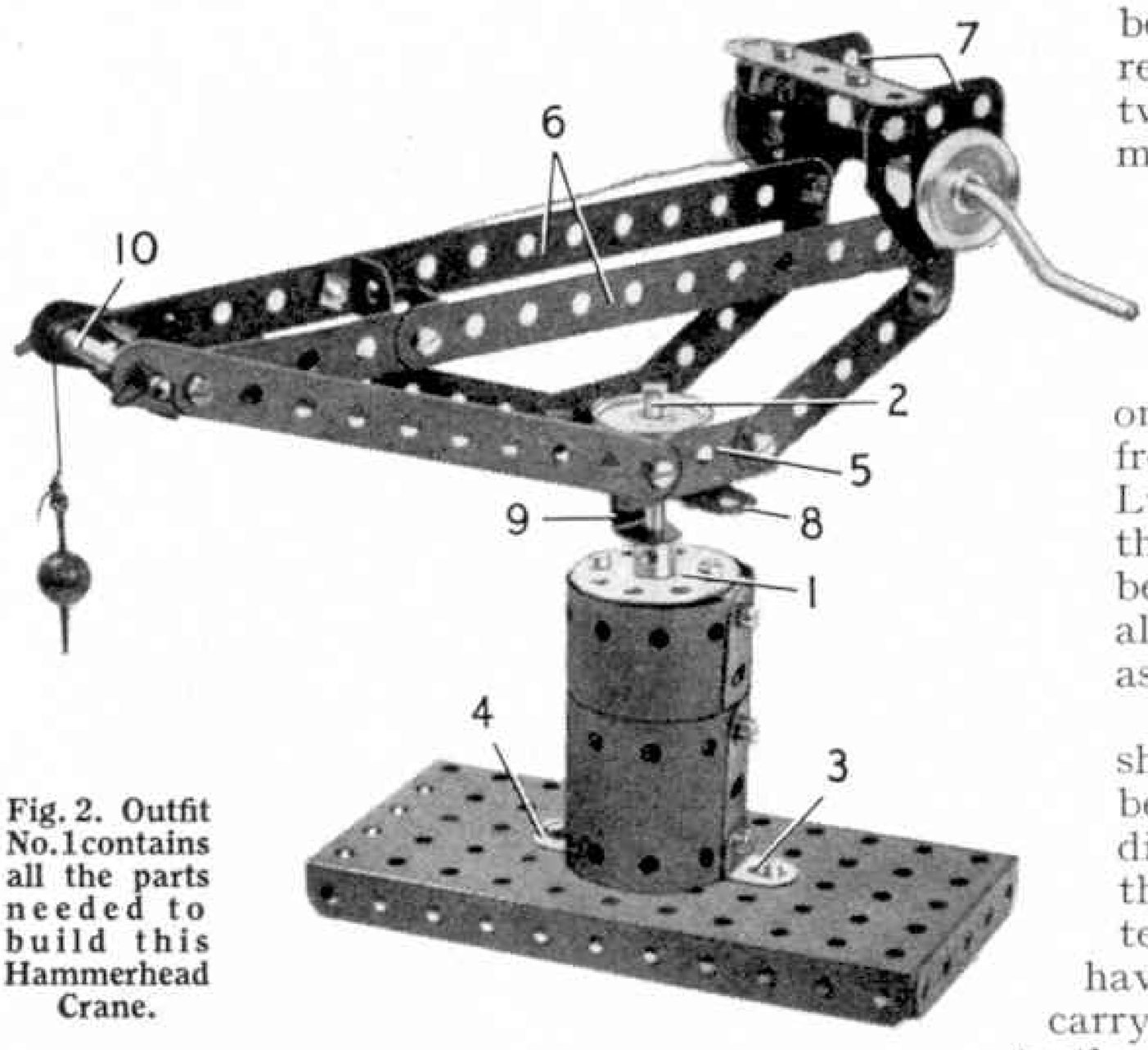


Fig. 2. Outfit No.1contains all the parts needed to build this Hammerhead Crane.

Parts required to build the Hammerhead Crane: 4 of No. 2; 4 of No. 5; 3 of No. 10; 6 of No. 12; 2 of No. 17; 1 of No. 19s; 3 of No. 22; 1 of No. 24; 2 of No. 35; 28 of No. 37a; 24 of No. 37b; 4 of No. 38; 1 of No. 40; 2 of No. 48a; 1 of No. 52; 1 of No. 57c; 4 of No. 111c; 1 of No. 125; 2 of No. 126; 2 of No. 126a; 2 of No. 189.

Parts required to build the Model Swing: 2 of No. 2; 2 of No. 5; 2 of No. 12; 1 of No. 16; 1 of No. 19s; 2 of No. 22; 4 of No. 35; 7 of No. 37a; 7 of No. 37b; 2 of No. 38; 1 of No. 52; 2 of No. 126.

Useful Gearing Notes

One very important purpose of gearing is to enable one shaft to drive a second at a different speed. Suppose, for example, we place a 19-tooth $\frac{1}{2}$" diam. Pinion (Part No. 26) on one shaft and engage it with a 57-tooth Gear on another, and turn the former. The shaft carrying the 57-tooth Gear will then revolve at one third the speed of the shaft carrying the Pinion. The process is known as "stepping down" the shaft speed. If we require a speed increase we reverse the positions of the two gears.

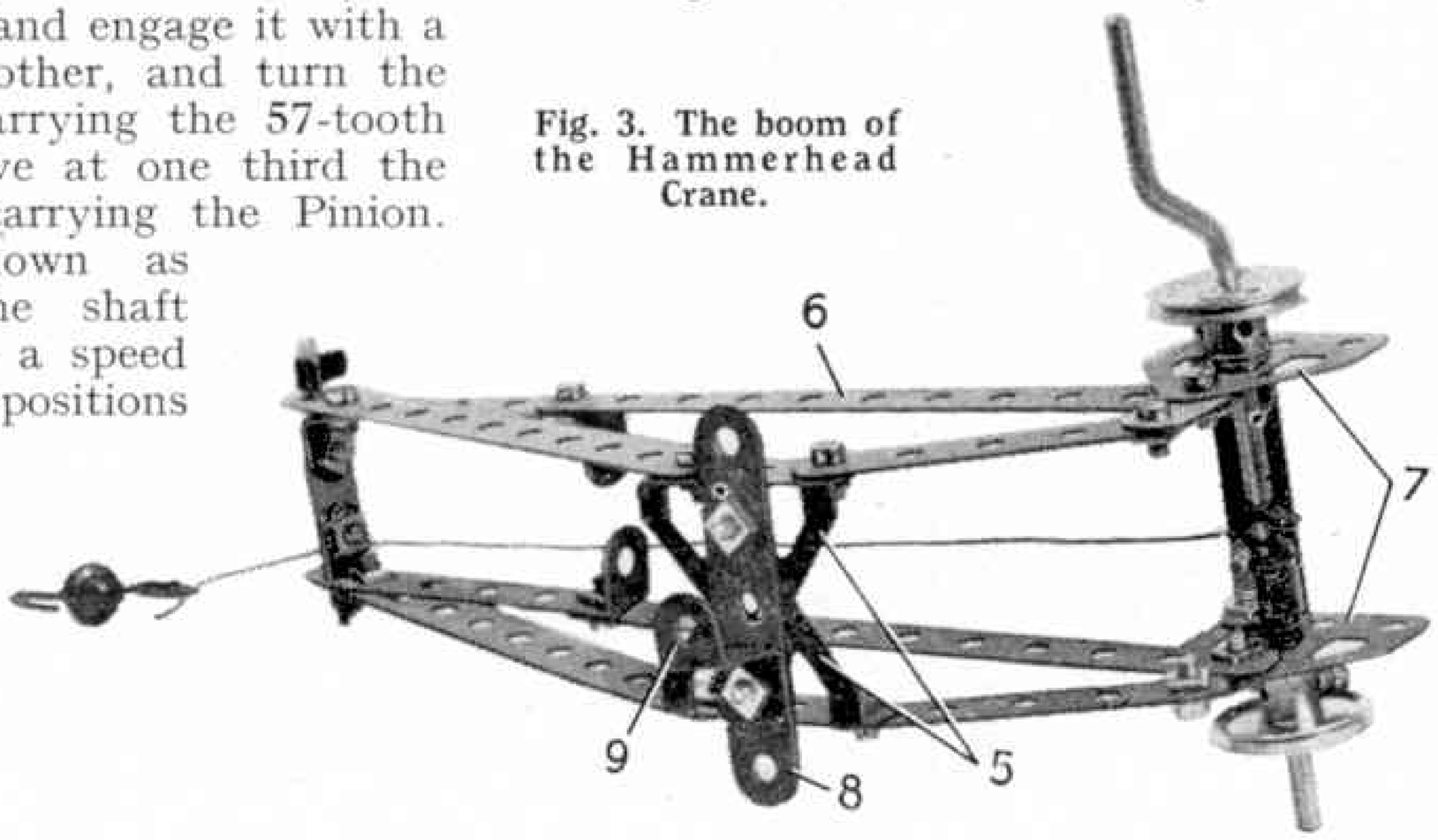
The great value of a speed reduction gearing is that a drive of greater power is obtained, the increase in power being directly proportional to the relative number of teeth in the two gears. In the case we have mentioned the driving power is increased threefold, and the gearing has a ratio of 3 to 1.

In order to make the best use of gears it is advisable to know the various ratios, or relative shaft speeds that result from any given combination. Luckily it is quite easy to find these ratios for any two spur, bevel or contrate gears, and it is always found in the same manner as follows.

The speed ratio of any two shafts carrying meshing spur, bevel or contrate gears is found by dividing the number of teeth in the larger gear by the number of teeth in the smaller one. If we have, for example, a driving shaft carrying a $\frac{3}{4}$" Pinion, which has 25 teeth, and we arrange it to drive a 50-tooth Gear on a second shaft, the ratio resulting from this arrangement is 50 divided by 25, which is 2 to 1. This means that the $\frac{3}{4}$" Pinion will have to make two revolutions to turn the 50-tooth Gear through one revolution, so that the driving shaft will rotate at twice the speed of the other. If we reverse the positions of the two gears so that the 50-tooth Gear is on the driving shaft the ratio also will be reversed and will then be 1:2.

The Meccano system includes another type of gear known as a Worm. The Worm is of the non-reversing type, and therefore must always be used as the driver when meshed with other Gears. Whenever a Worm is meshed with a Pinion, Gear or Contrate, the resulting ratio is always determined by the number of teeth in the meshing Gear, the Worm being rated as 1.

Fig. 3. The boom of the Hammerhead Crane.



DINKY TOYS NEWS

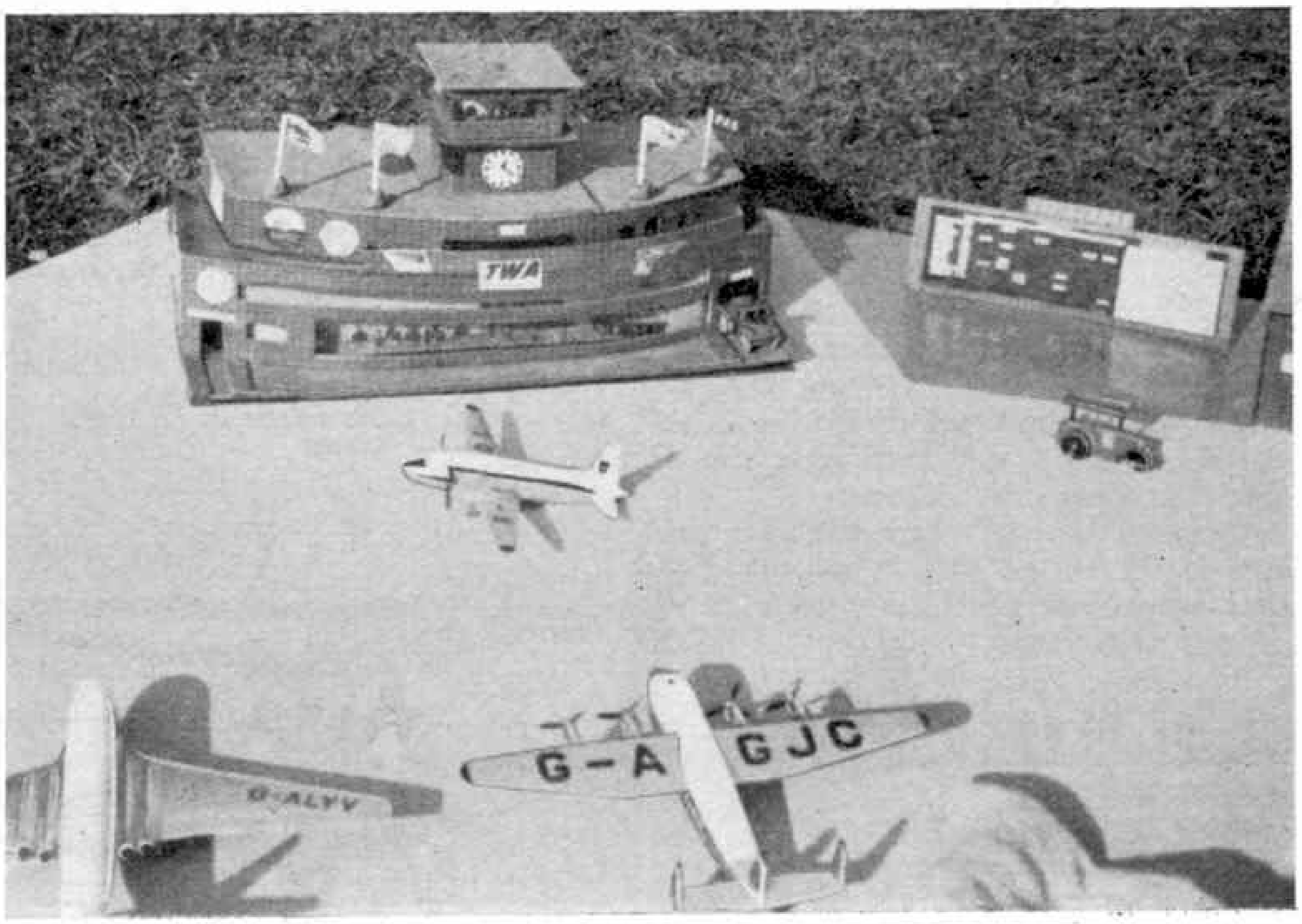
By **THE TOYMAN**

WITH the ever increasing membership of the Dinky Toys Club my daily correspondence becomes ever greater. It is very gratifying to learn from these letters how ingenious members are in devising means of playing with their Dinky Toys, a good example being the planning of the fine model airport seen in the picture at the foot of this page.

Here is the story of this airport. Some time ago a young boy went by air for an Easter trip to France with his father, and as a result of that experience he became very keen to possess a model airport himself. The outcome was that he managed to persuade his father, Major N. St. G. Gribbon, of the 1st Bn. The King's Own Royal Regt. to build up a miniature airport complete with main terminal buildings, hangars and servicing depots from which a fleet of Dinky Toys aircraft could operate. This very attractive layout is assembled on a hardwood baseboard 6 ft. × 4 ft., parts of which are painted to represent a main runway, a taxi track and a tarmac apron. The intervening spaces are painted with green enamel to represent grass.

The buildings and hangars were made from sheet strawboard cut with a sharp modelling knife and covered with model brick and tile paper to give a realistic effect. The scale of the buildings is the same as that to which the Dinky Toys aircraft are made. Some of the Dinky Toys models, such as the York and

Norman Plant, Stafford, a happy 12-year-old member of the Club.



Part of the fine model airport constructed by Major N. St. G. Gribbon for his son. Some details of it are given on this page.

Viking aircraft, were repainted with the colouring and lettering of well-known companies, so that a variety of aircraft of several different companies is available to give the airport a truly international appearance.

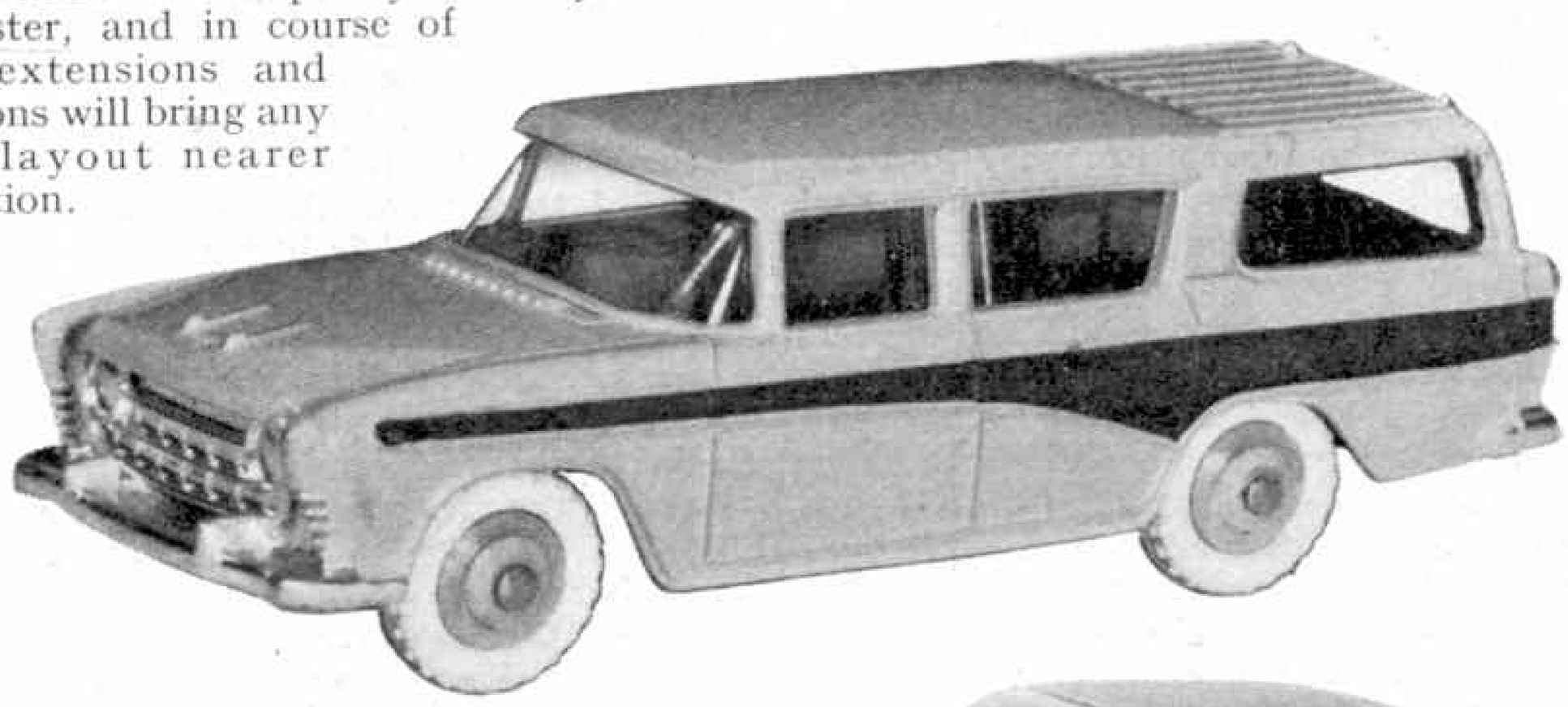
In the picture on page 234, a Swissair Viking can be seen travelling past the main terminal building, while parked on the apron is a B.O.A.C. Comet and an Airwork York. A road roller can also be seen moving out to repair part of the runway tarmac.

This cheerful gentleman is T. Meyrick of Nelson, Glam., one of the Club's most enthusiastic members.

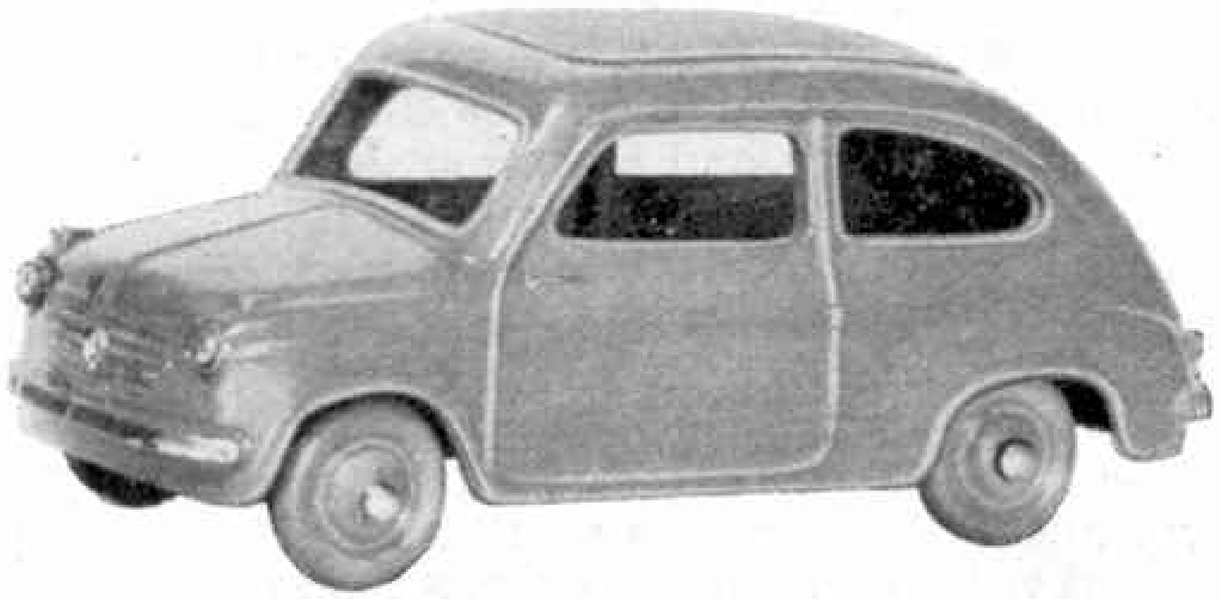
I am illustrating this layout, and giving some details of how it was made, in order to show the great possibilities for fun that the Dinky Toys aircraft models can provide when used in conjunction with an airport. Every Dinky Toys owner can follow this example, even if he cannot make up such a splendid layout as the one Major N. St. G. Gribbon has built for his son. Quite a lot of fun and interest can be obtained from much more simple and smaller constructions that lie well within the capacity of any keen youngster, and in course of time extensions and additions will bring any such layout nearer perfection.

There has been a clamour from some Dinky Toys enthusiasts recently for models of some of the outstanding American cars, and this month I am able to announce a splendid new Dinky Toys reproduction of the well-known Nash Rambler, which is one of the popular cars in the United States. It has most attractive styling and a luxurious interior, and as it has 80 cu. ft. of storage space for luggage and parcels, etc., it serves the dual purpose of private and business motoring, for which it is primarily designed, with complete success. Among the special features of this attractive and useful vehicle are independent coil suspension on all wheels, power brakes and power steering. The front seats can be folded back to form beds, so that the car is ideal for week-ending in the country or at the seaside.

A glance at the Dinky Toys model, which is shown below, will reveal its distinctive shape and outline, in moulding which every care has been taken to follow the actual



The new Nash Rambler, Dinky Toys No. 173. It has fully glazed plastic windows.



An attractive Dinky Toys model of the Fiat 600 car. It is new this month and is listed as Dinky Toys No. 183.

This town layout scene is full of errors, as mentioned on this page. See if you can spot them.

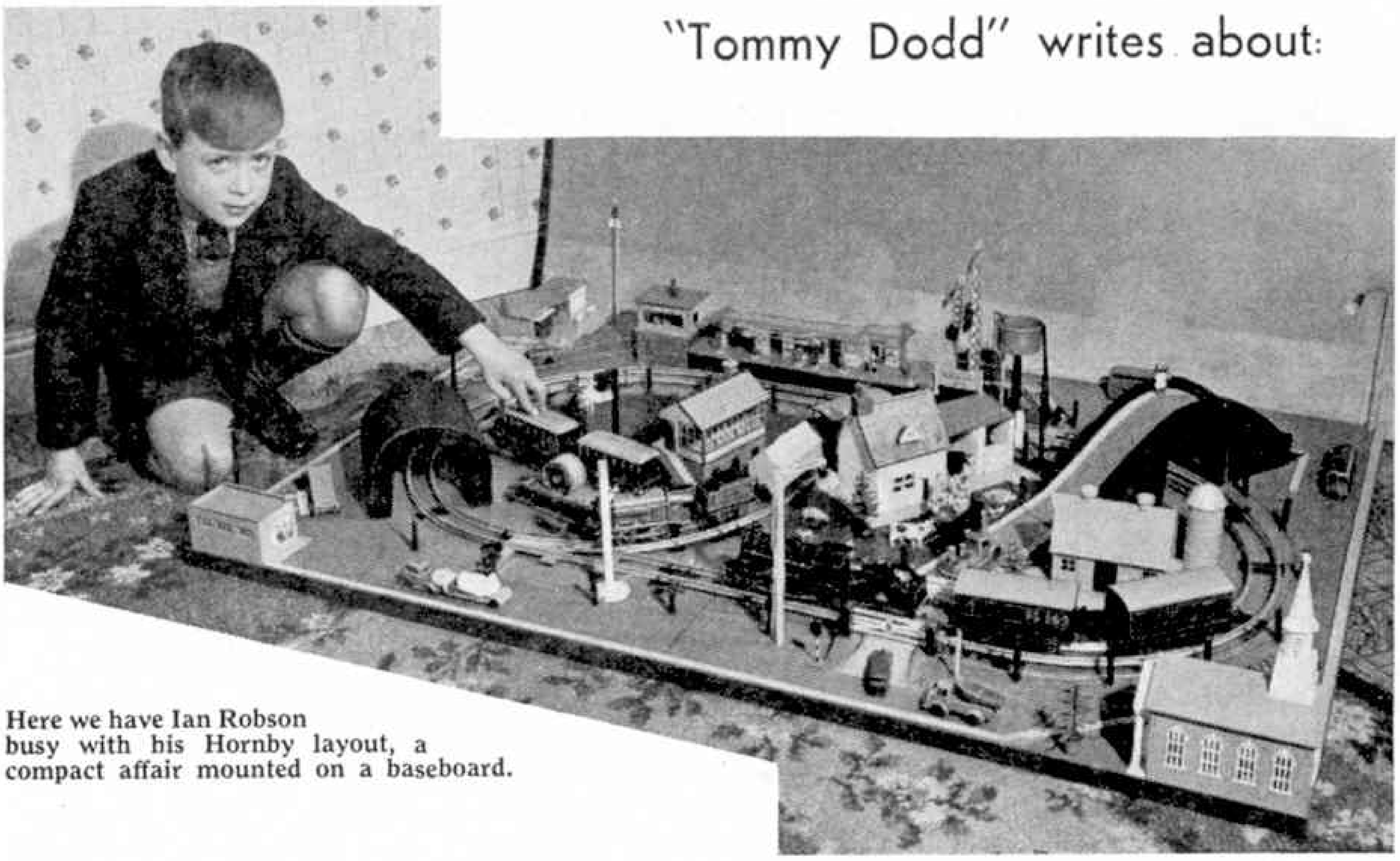
car as closely as possible. This fine new Dinky Toy is listed as Dinky Toys No. 173, and it is the second to have fully-glazed plastic windows and windscreen. It is a truly beautiful model, available in two different colour finishes. In the first the car body is finished in light blue with bright red flashes. The wheels are grey and the radiator grille and bumpers aluminium, and there are orange-coloured rearlights. In the second colour scheme the body is finished in salmon pink with blue flashes, and the wheels are stone coloured. The rear lights are red and the grille and bumpers aluminium.

The second new Dinky Toy that has made its appearance this month is a pleasing little model of the rear-engined Fiat 600 Saloon. It is listed as Dinky Toys No. 183 and can be seen in the illustration at the foot of page 235. The actual car on which our model is based is a well-established rear-engined type and is extremely nippy and economical in service. It has a 633 c.c. O.H.V. 4-cylinder engine, with a compression ratio of 7.5, and develops 22 b.h.p. at 4,600 r.p.m. It has a four-speed gear-box with well-chosen gear ratios, and these provide brisk acceleration and a good cruising speed for such a small car.

Dinky Toys No. 183, Fiat 600 Saloon, is available in two attractive colour finishes, light green with silver radiator grille and bumpers, and bright red, also with silver radiator grille and bumpers. Both models have plastic wheels.

And now I've got a novelty for you. Just take a glance at the Dinky Toys road scene shown in the illustration at the top of this page. At first sight you will probably think it is just another picture of an ordinary Dinky Toys miniature town, but look again and study it carefully. If you do this I shall be very surprised if you do not come to the conclusion that whoever was responsible for the layout must have been crazy, for the scene and the placing of the various cars, pedestrians, etc. is peculiar to say the least. Actually the scene is bristling with errors, and it is these mistakes that I want you to try to spot. You will find it great fun and you will need to have sharp eyes and to go over the picture very carefully if you are to find every error. Some of the mistakes are obvious, but others are more subtle. Anyway, I am sure you will have a lot of fun trying to pick them out, and I will give small prizes for the best lists sent in to me by the end of June. So happy hunting till I am back with you next month.

"Tommy Dodd" writes about:



Here we have Ian Robson busy with his Hornby layout, a compact affair mounted on a baseboard.

Just Playing with Trains

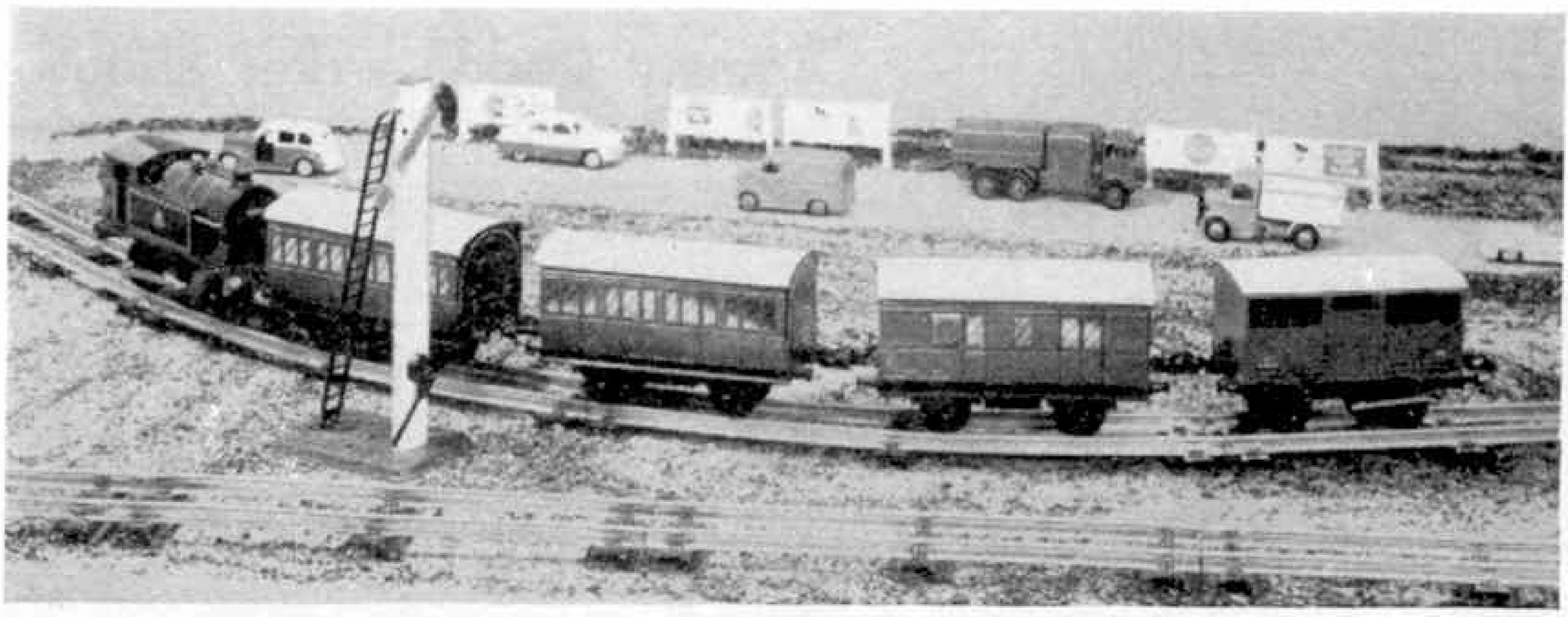
THIS month I have the ideas of two readers on layouts to pass on. The first of these gave rise to the picture above, which shows Ian Robson of Scarborough busy with his Hornby railway. The layout is not a particularly big one. In fact, it all fits on a baseboard 5 ft. × 3 ft., but it is a well planned little railway arranged with 1 ft. radius curves. The line is of the usual oval formation, but is extended from the contents of the standard Train Set that began it and, as you will see from the picture, there is a diagonal S-shaped reverse loop across the centre of the system.

In this respect the Robson layout resembles that shown in the diagram on the next page, which was developed by another reader altogether. But because of their similarity I have included both of them in our pages this month and they will no doubt prove useful and encouraging to other owners of 1 ft. radius equipment.

The baseboard of Ian Robson's railway is made to divide into two parts for storage purposes when the line is not in use. When railway working is to be carried out the two sections have to be bolted together. This work and the general construction and scenic effects have been carried out by Ian's father, Mr. A. A. Robson, who takes a keen interest in the railway and its working.

A development of a similar type of layout, again with 1 ft. radius curves, appears in the diagram on the next page. This has been evolved by Mr. H. M. Thompson, of Middlesbrough, for the benefit of his son, but I know that Mr. Thompson himself lends an interested hand in operations. This is only to be expected because there is rather more than the usual story of layout development behind this little railway. Mr. Thompson's own interest goes back to the earliest days of Hornby Clockwork trains, when he built up a layout on the attic floor at home, the rails being screwed down and ballasted. Layout conditions have changed a good deal since those days!

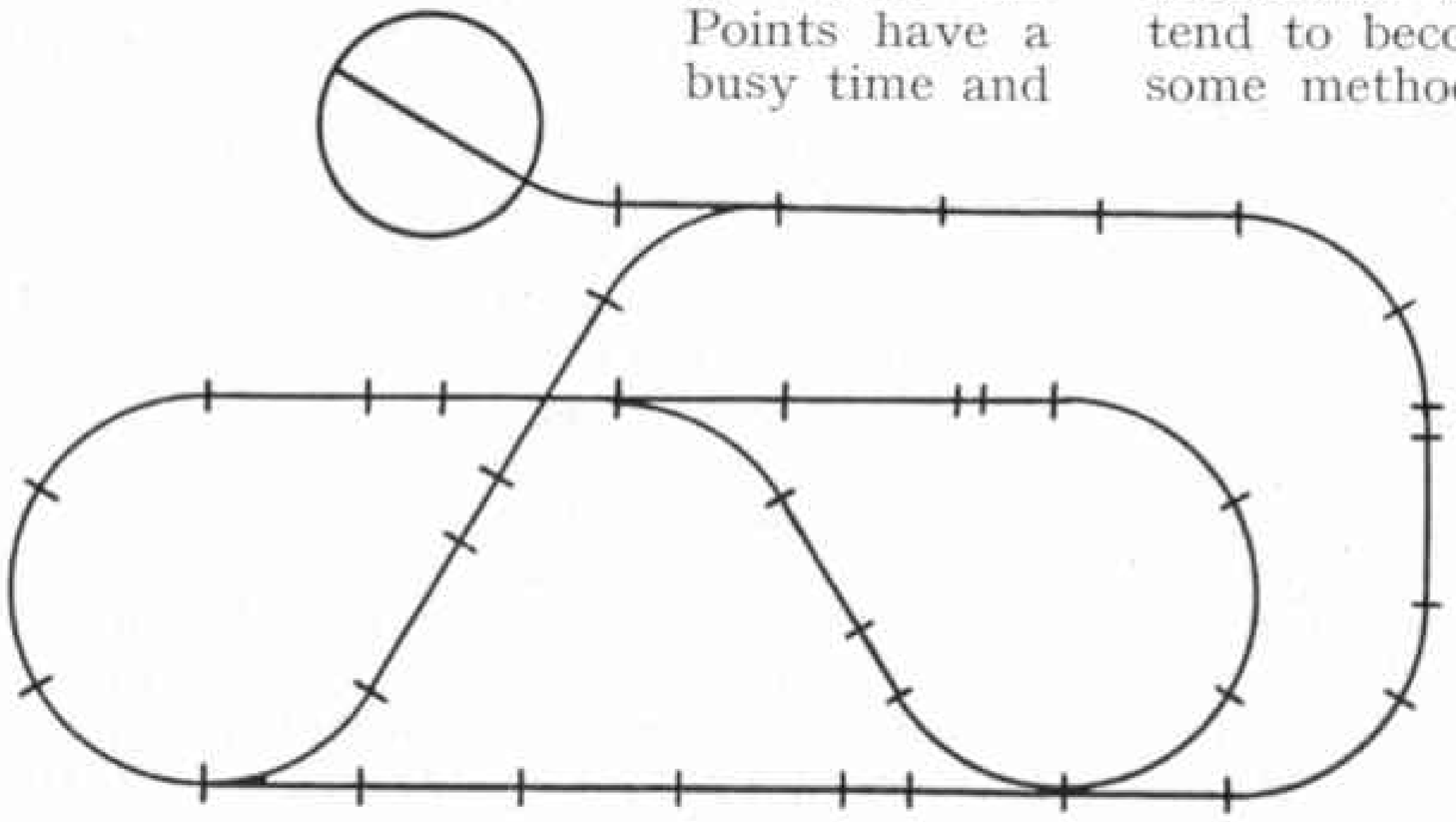
An ingenious feature of the engineering of the line was the fact that a disused bath chair was disguised as a mountain through which the railway made its way in the tunnel. Of course any derailment in the tunnel caused quite a lot of embarrassment and no doubt some disturbance of the scenic paper that formed the "mountain" surface. Later, joint operations with the aid of friends and their engines and stock became the rule and there were, as might



Part of a Hornby layout with a local train running alongside a busy road, on which there is plenty of Dinky Toys motor traffic.

be expected, some exciting moments.

So the present system follows a more or less distinguished predecessor, the equipment from which is still in use elsewhere, and the train running that is possible on it must be at times no less entertaining than that experienced in earlier days. This is apparent when it is realised that the layout is in fact a combination of the "figure 8" type of system and the continuous oval main line, including as well the popular S-shaped diagonal loop. The owner points out that the layout does not fit exactly, but the discrepancy when actually putting it down is very small and is not of practical consequence. This is because the system is fairly extensive and requires a space 9 ft. 6 in. in length. Width required over the running lines only is approximately 3 ft. 9 in. but if an additional 1 ft. in width is available then the Turntable line shown can be included. With a variety of routes available it is possible to work two trains together on the railway, but those detailed to work the Points have a busy time and must concentrate on their jobs if traffic is to work smoothly and without mishap.



A layout developed by H. M. Thompson, Middlesbrough, using 1 ft. radius equipment. Rails required: 7 A1, 3 A1½, 11 B1, 5 B½, 2 B¼, 1 CA1, 3 PL1, 2 PR1, 1 No. 2 Turntable.

The layout shown is not built up on a baseboard, but it is the practice to assemble it each time train running is to be carried out. In order to assist the "platelayers" in their operations a good clear plan has been prepared, hence the diagram that you see below. This scheme of having a favourite layout drawn up in plan form is a good one, as mistakes in putting down a system can occur, even if one has used the same railway several times over. I think that most of us have our favourite plan, or perhaps several plans, that we frequently employ, and it is wise to set them down in diagram form for reference when the railway is to be used next time.

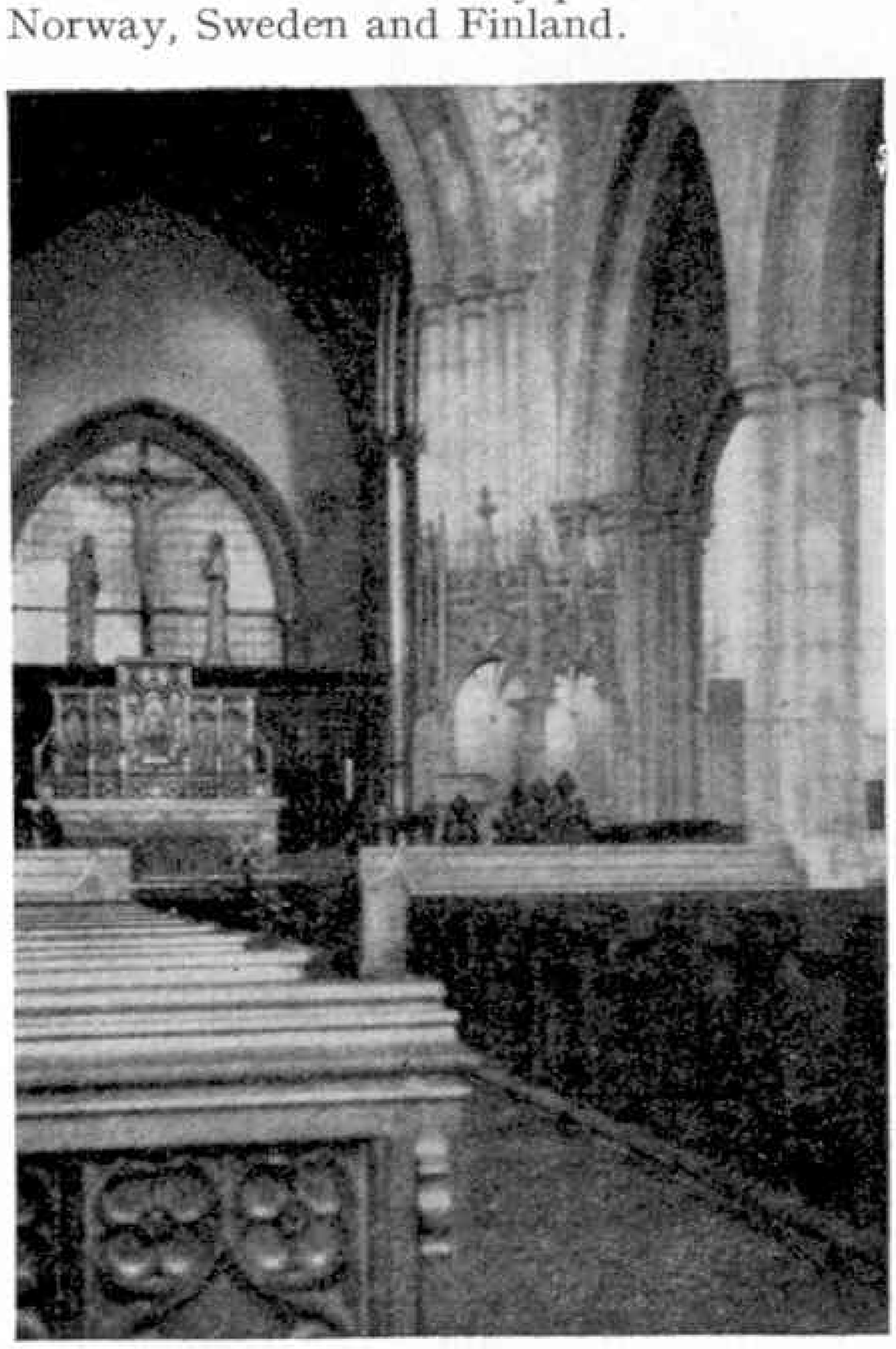
This is the type of system where the scheme mentioned last month for anchoring the Turntable to the adjacent rails would be of considerable benefit, as would be the case also with the Level Crossing if this were introduced. Where rails and track accessories are much used the joints do tend to become slack and unless there is some method of holding the rails firmly together one or two open joints may develop in the course of running and derailment will follow. It is not difficult to keep the rail ends in good condition by pinching in the web of the rail in order to restore the hollow rail head to its original shape and size. A small pair of pliers is essential for this and the time spent in such maintenance will not be wasted, but be careful not to "squash" the rail head itself.

Of General Interest

READERS will remember the account given in the January 1958 *M.M.* by Mr. F. W. Robins of the new style in folk museums, which are not stiff, dull collections of old things, but are actual reproductions of the surroundings of people of former times, showing exactly how they lived. Some of these museums are not particularly concerned with old things. A good example is the one at Skansen, in Sweden, which includes an encampment of the Lapps, the somewhat primitive people who live in the most northerly parts of Norway, Sweden and Finland.

A Lapp encampment in the folk museum at Skansen, Sweden. Photograph by F. W. Robins.

Modern conditions are forcing the Lapps to abandon some of their traditional ways of life. Nowadays there is a tendency for them to live in permanent log houses rather than in tents and turf huts. The encampment at Skansen will help to preserve our knowledge of their former homes and customs.



A pulpit in an unusual position. Its story is told in the accompanying notes by R. J. Meadway, Arundel, who sent in this photograph.

An Unusual Pulpit

Here in our second illustration too is something unusual, this time the pulpit in a church, that of St. Nicholas at Arundel, Sussex. It is remarkable in two ways. To begin with its position is odd, as it is on the altar side of the choir. The reason for this is that until about 80 years ago there was a part of the building farther to the east. This has been shut off, for special reasons, but the pulpit remains where it was although this is not in accordance with normal church practice.

The second peculiarity of this pulpit is its stone canopy. There are others with stone canopies in England, but only two that date from the times before the Reformation. The St. Nicholas church pulpit is one of them.

The pulpit has three richly carved sides and it is interesting to note, as can be seen from the lower picture on this page, that the internal vaulting is of the fan type.

Among the Model-Builders

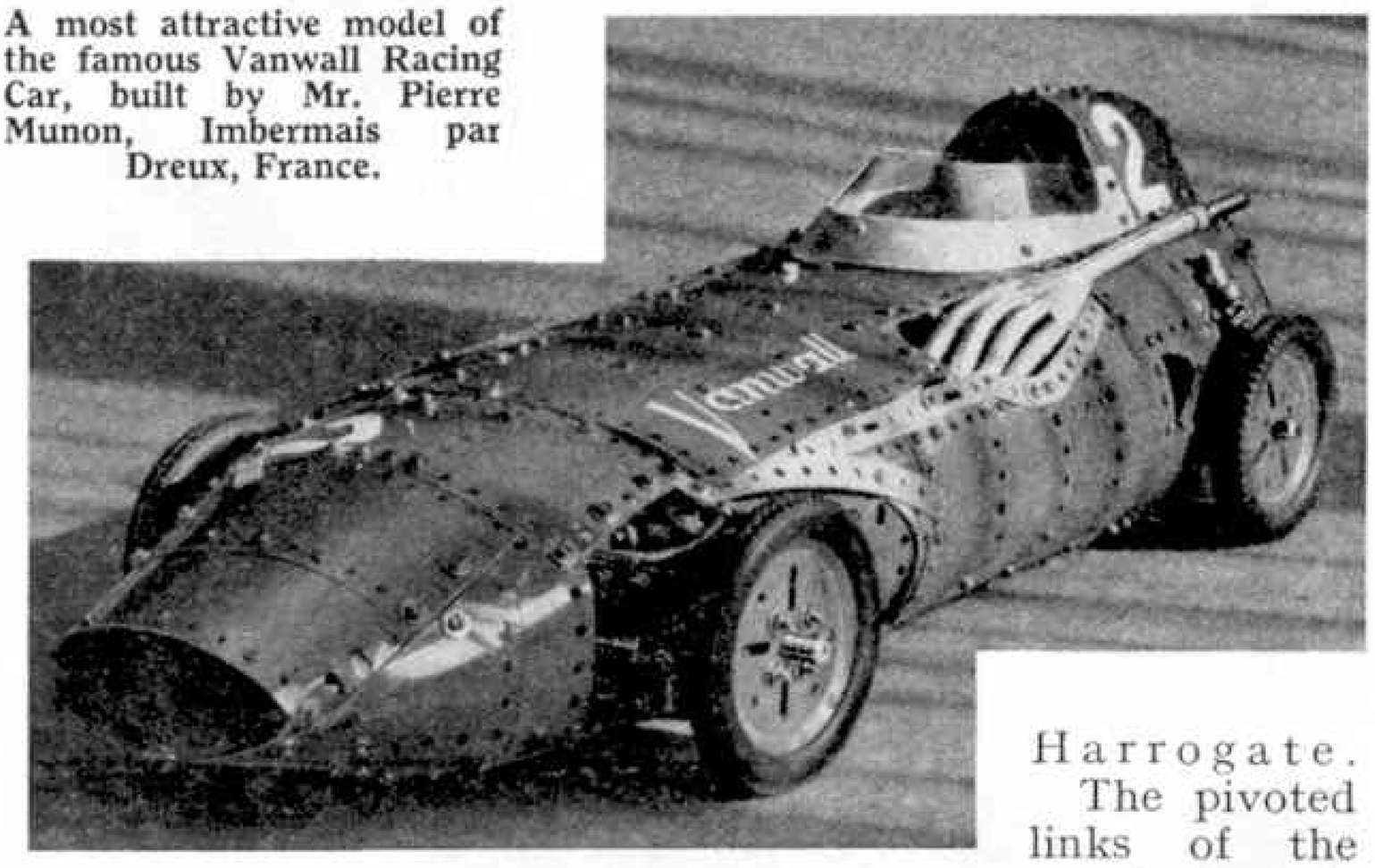
By "Spanner"

A Fine Model of the Vanwall

The famous British Vanwall racing car has provided Mr. Pierre Munon, Imbermais par Dreux, France, with a most attractive subject for a model and as will be seen from the illustration reproduced on this page, he has made a most satisfactory job of it. The model is built to scale and with a few exceptions, notably the cockpit surround and the exhaust manifold, it is built entirely from Meccano parts.

The streamlined shape of the actual car has been well-reproduced by judicious curving of the body plating and the interior mechanism of the car, which I am unable to illustrate unfortunately, comprises a mass of intricate and cleverly thought-out detail work. The addition of the name "Vanwall" to the model completes a very fine piece of work that does its builder great credit.

A most attractive model of the famous Vanwall Racing Car, built by Mr. Pierre Munon, Imbermais par Dreux, France.



Independent Suspension System

Fig. 1 illustrates a type of independent suspension mechanism designed for the front wheels of a model vehicle. The mechanism is shown fitted with a pivoted stub axle and it should be quite easy to arrange a suitable steering mechanism. The suspension makes use of a Tension Spring, and the arrangement is based on a suggestion sent to me by Mr. W. H. Coffin, Harrogate.

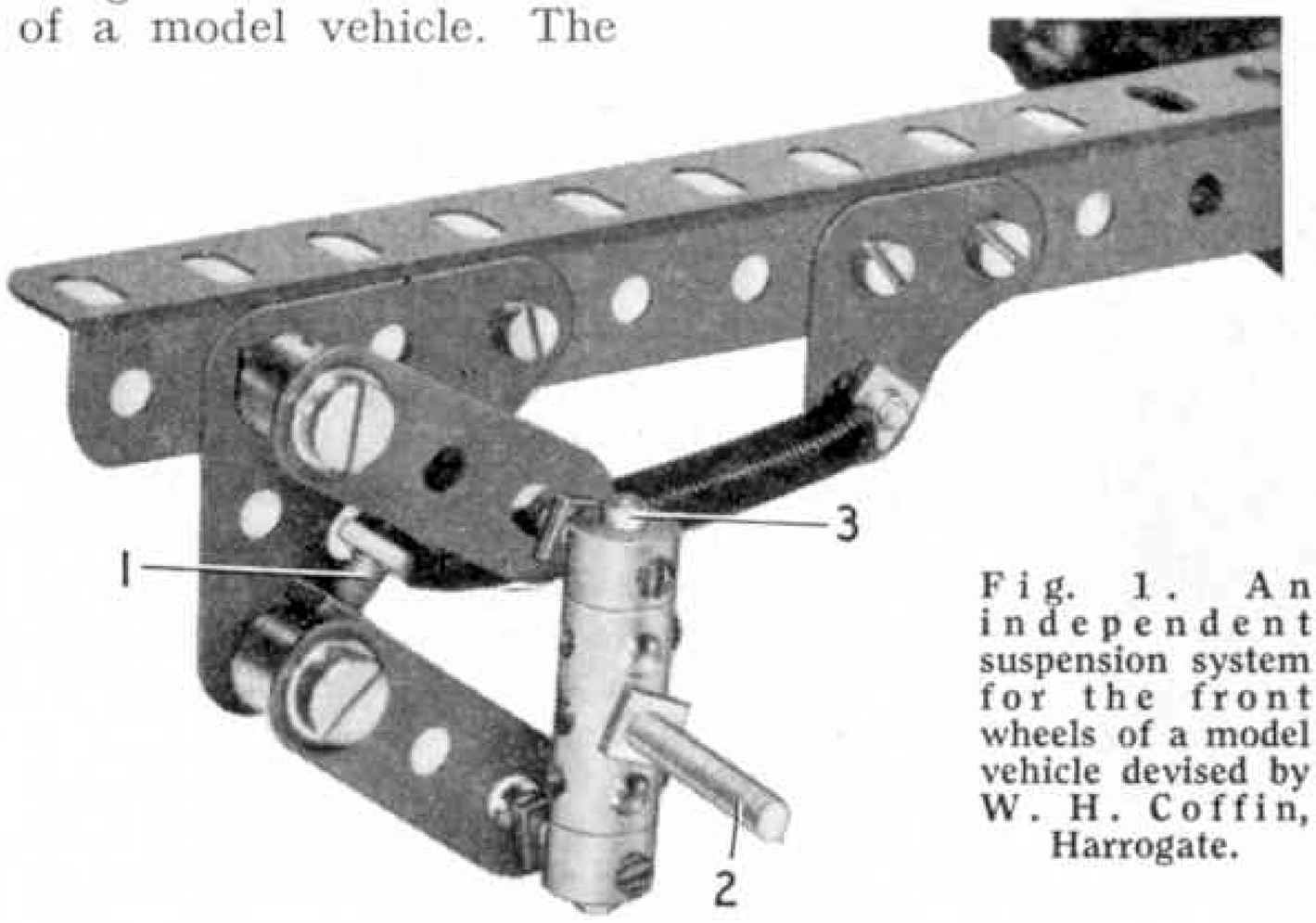


Fig. 1. An independent suspension system for the front wheels of a model vehicle devised by W. H. Coffin, Harrogate.

The pivoted links of the system are Cranks, each of which is mounted freely on the plain section of the shank of a Pivot Bolt. The Pivot Bolts are fixed by their nuts to a 1½" Corner Bracket, which is bolted firmly to the chassis of the model vehicle.

A ½" Bolt 1 is screwed into the boss of the lower Crank, and is prevented from unscrewing by a nut tightened against the boss. A second nut holds one end of a Tension Spring against the head of the ½" Bolt 1, and the other end of the Spring is bolted to a 1" Corner Bracket attached to the chassis.

The stub axle is a 1" Screwed Rod 2 fixed by a nut in a centre tapped hole of a Coupling. The Coupling must be free to turn on a 1½" Rod 3, which is held tightly in two Collars. Each Collar is screwed on to the end of a bolt fixed in one of the Cranks by a nut. The bolts in the Cranks must not grip the 1½" Rod, which should be held in

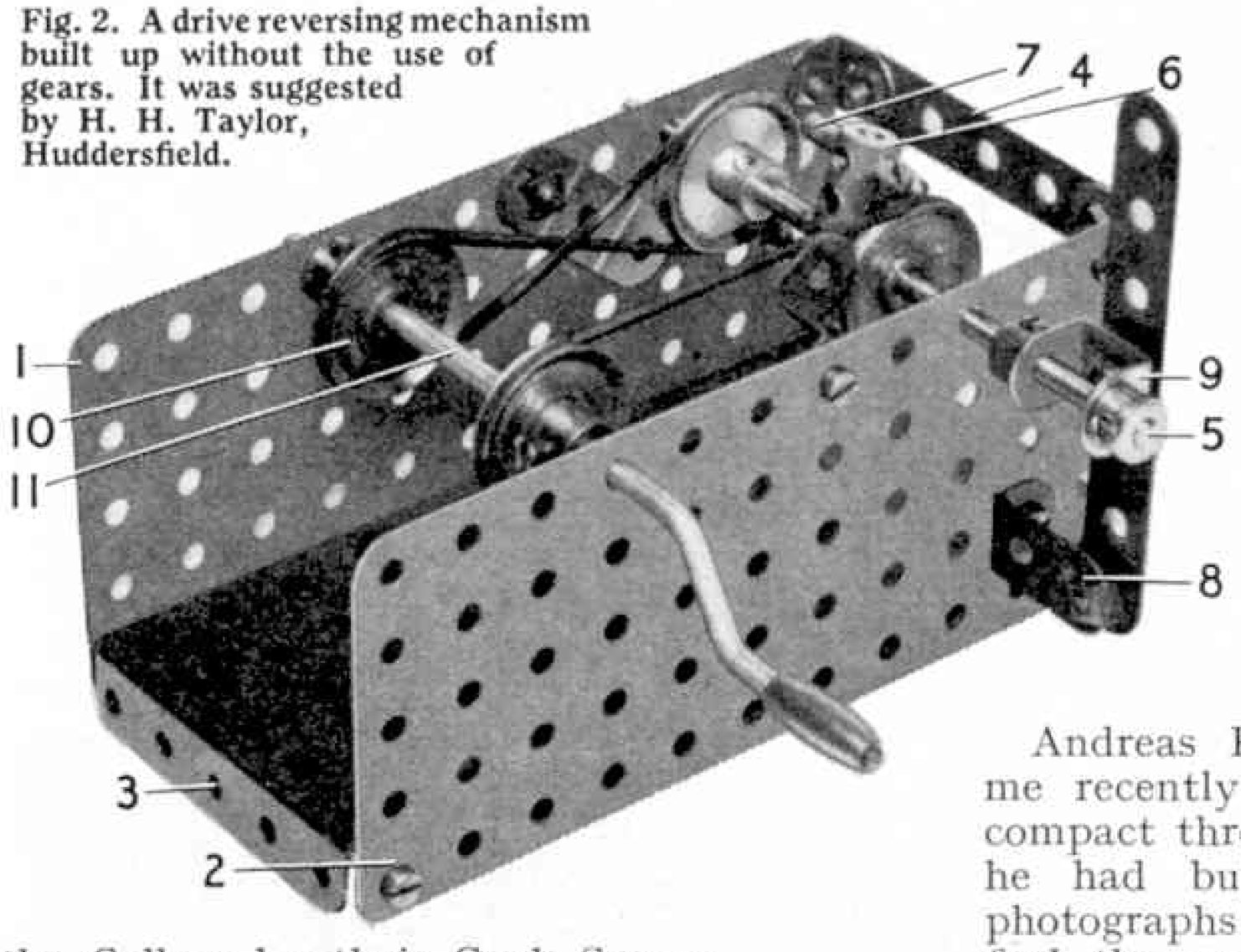


Fig. 2. A drive reversing mechanism built up without the use of gears. It was suggested by H. H. Taylor, Huddersfield.

the Collars by their Grub Screws.

A Gearless Reversing Mechanism

Fig. 2 shows a model drive reversing mechanism that can be built up without using gears of any kind. Two $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flat Plates 1 and 2 are bolted to a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate 3, and supported at the top by a $2\frac{1}{2}''$ Strip 4 attached with Angle Brackets. On a 5" Rod 5, mount two 1" Pulley Wheels loosely; between them secure a Coupling 6. A 1" Rod 7 is fixed centrally in the Coupling. A $\frac{3}{8}''$ Bolt is placed in each boss of the Pulley Wheels, and locked in place with a nut. A $\frac{1}{2}''$ Reversed Angle Bracket is bolted to each Flat Plate, their free lugs running in the grooves of the Pulleys. A $3\frac{1}{2}''$ Strip is lock-nutted to a $\frac{1}{2}'' \times 1''$ Angle Bracket 8 as shown and a Double Bracket 9 is also lock-nutted to the Strip. Two Collars are placed on each side of the Double Bracket. Two further 1" Pulley Wheels 10 are fixed to a Crank Handle 11. The two sets of Pulleys are connected to each other with Driving Bands, one open, and one crossed. By moving the $3\frac{1}{2}''$ Strip, the Rod 7 takes the drive from either of the 1" Pulley Wheels. When the Coupling is in its central position neutral is obtained.

Three Speed and Reverse Gear-box

Andreas Konkoly, Budapest, wrote to me recently enclosing photographs of a compact three-speed and reverse gear-box he had built. I am reproducing the photographs here as I think that readers will find the mechanism interesting and will probably be able to pick out a few points of construction that they might like to use in their own work.

The gear box casing is made up from two $3\frac{1}{2}''$ Flat Girders connected by Angle Brackets and four $1\frac{1}{2}''$ Flat Girders. The input shaft is supported in one end of the housing and in a $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. It carries a Fork Piece, a 1" diam. Gear, a $\frac{1}{2}''$ Pinion, a $\frac{3}{4}''$ Pinion and another $\frac{1}{2}''$ Pinion. The output shaft carries two $\frac{1}{2}''$ Pinions, a $\frac{1}{2}'' \times \frac{1}{2}''$ Pinion, a 1" diam. Gear, a $\frac{1}{2}''$ Pulley and another $\frac{1}{2}''$ Pinion.

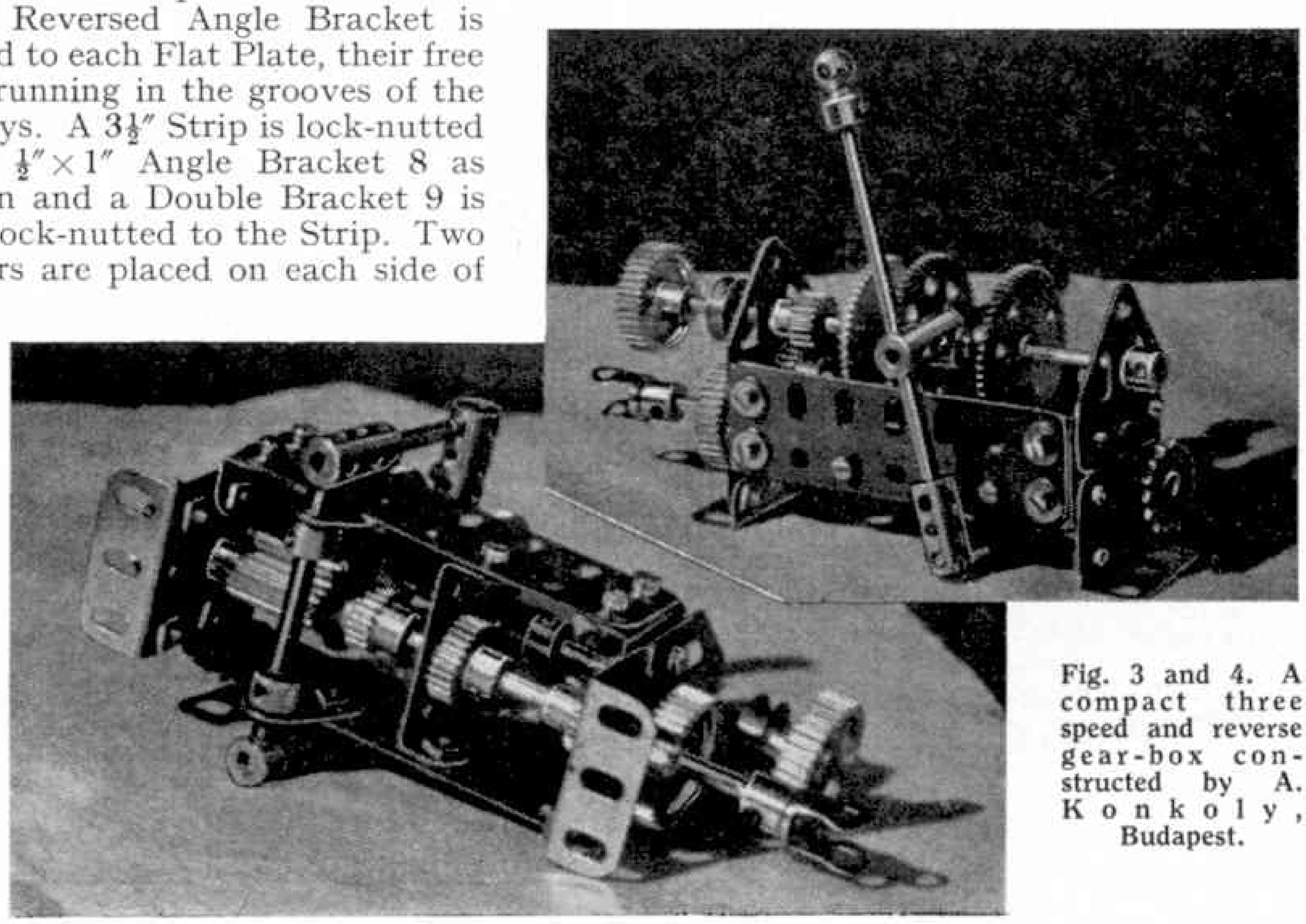


Fig. 3 and 4. A compact three speed and reverse gear-box constructed by A. Konkoly, Budapest.

An Ocean Liner

A Fine Model for Outfit No. 5

ALL the parts required to build the attractive liner shown in Fig. 1 are contained in Meccano Outfit No. 5.

The hull of the ship is made up of Flexible Plates of different shapes and sizes bolted together, the construction on both sides being the same.

The bows of the ship consist of two $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Triangular Flexible Plates bolted together with a $\frac{3}{8}''$ Bolt. Along the upper edges of the Flexible Plates a $12\frac{1}{2}''$ Strip is bolted to another $12\frac{1}{2}''$ Strip on the other side of the ship with a $\frac{1}{2}''$ Bolt.

A $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate is bolted to the Triangular Plate and to the $12\frac{1}{2}''$ Strip. Another $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate is bolted to the end of this Flexible Plate and in turn one half of a Hinged Flat Plate 1 is bolted to the $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate and to the $12\frac{1}{2}''$ Strip. The latter is bolted to another $12\frac{1}{2}''$ Strip overlapping five holes.

Two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates are bolted together parallel and are attached to the Hinged Flat Plate 1 and to the $12\frac{1}{2}''$ Strip. Next a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate is bolted to the hull and to the $12\frac{1}{2}''$ Strip. The stern is made up of two $2\frac{1}{2}'' \times 2\frac{1}{2}''$ U-section Curved Plates 2. A $5\frac{1}{2}''$ Strip is curved and attached to the hull by Fishplates as shown.

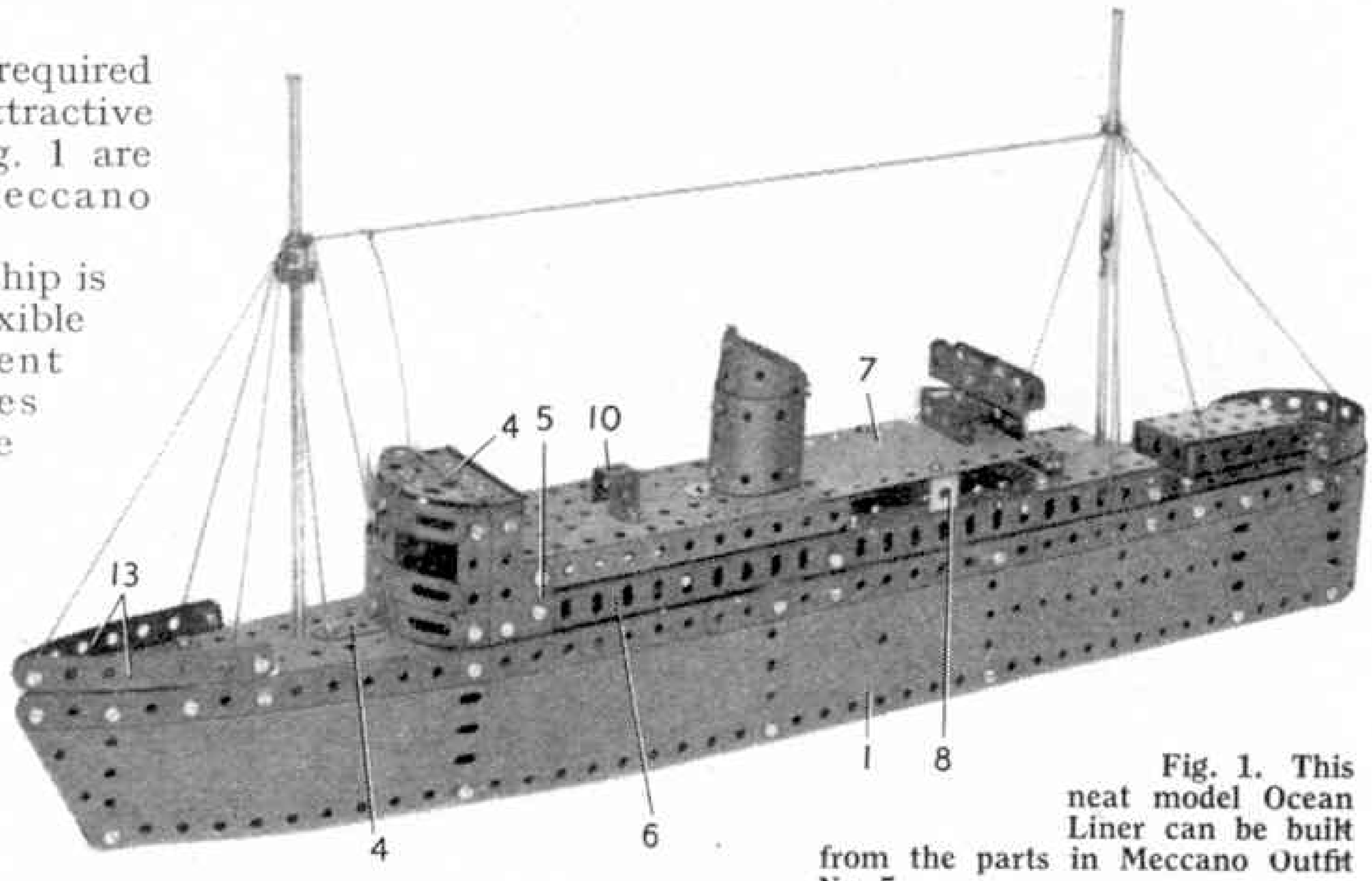


Fig. 1. This neat model Ocean Liner can be built from the parts in Meccano Outfit No. 5.

The hull is strengthened on each side by two $12\frac{1}{2}''$ Strips bolted to the bottom edges of the Flexible Plates, on the inside. In the bows of the ship a Flanged Sector Plate 3 is bolted to the $12\frac{1}{2}''$ Strips at their fifth and thirteenth holes by its flanges. Two $2\frac{1}{2}''$ Strips are bolted upright in the thirteenth and fourteenth holes of the $12\frac{1}{2}''$ Strip respectively. At the tops of these $2\frac{1}{2}''$ Strips two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips are bolted. Two $1'' \times 1''$ Angle Brackets 4 are bolted together and are attached to the Flanged Sector Plate, and to them three Formed Slotted Strips are bolted to form the curved front of the bridge. The roof is a $2\frac{1}{2}''$ Stepped Curved Strip, which is bolted to the upper $1'' \times 1''$ Angle Bracket. Another $2\frac{1}{2}''$ Strip 5 is bolted to the hull by its middle hole.

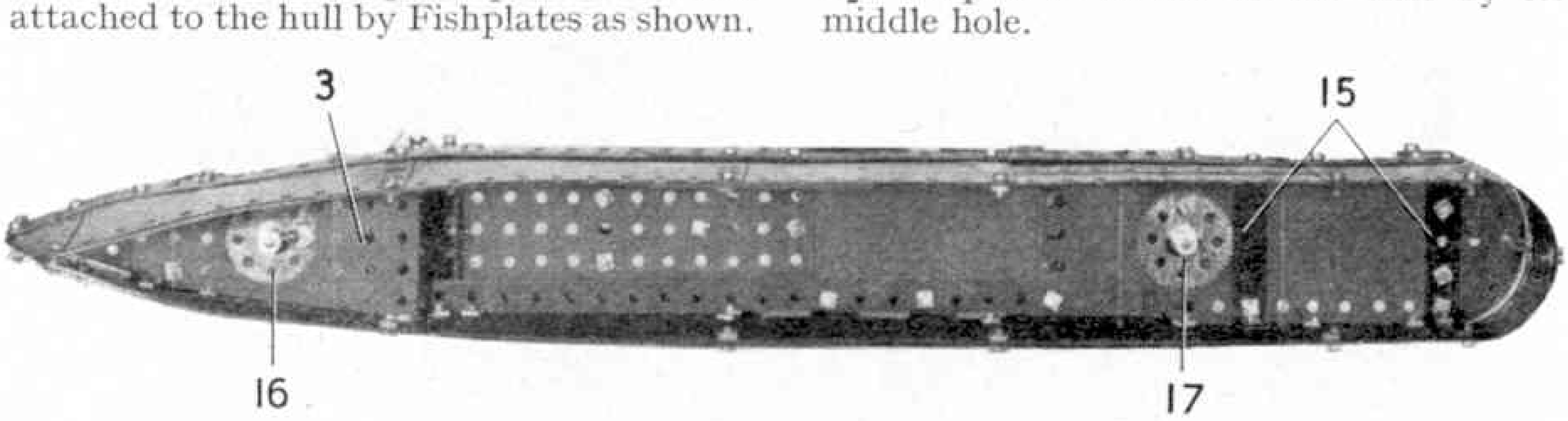


Fig. 2. The interior of the hull of the Ocean Liner.

On each side of the hull a 12½″ Angle Girder 6 is bolted in the second hole of the 2½″ Strips 5 and is fastened at its other end by a Fishplate to the hull. One of them is also fastened at its centre to the hull by a 1½″ Strip. The 12½″ Angle Girder is connected to the hull by a 2½″ Strip. The upper deck, to which the funnel is fixed, is a 5½″ × 2½″ Flanged Plate, and it is extended towards the stern by a 4½″ × 2½″ Flexible Plate 7. The latter is supported by four Double Brackets 8 and the stern end of the deck is closed in by means of a 2½″ Strip 9 bolted to two of the Double Brackets as shown.

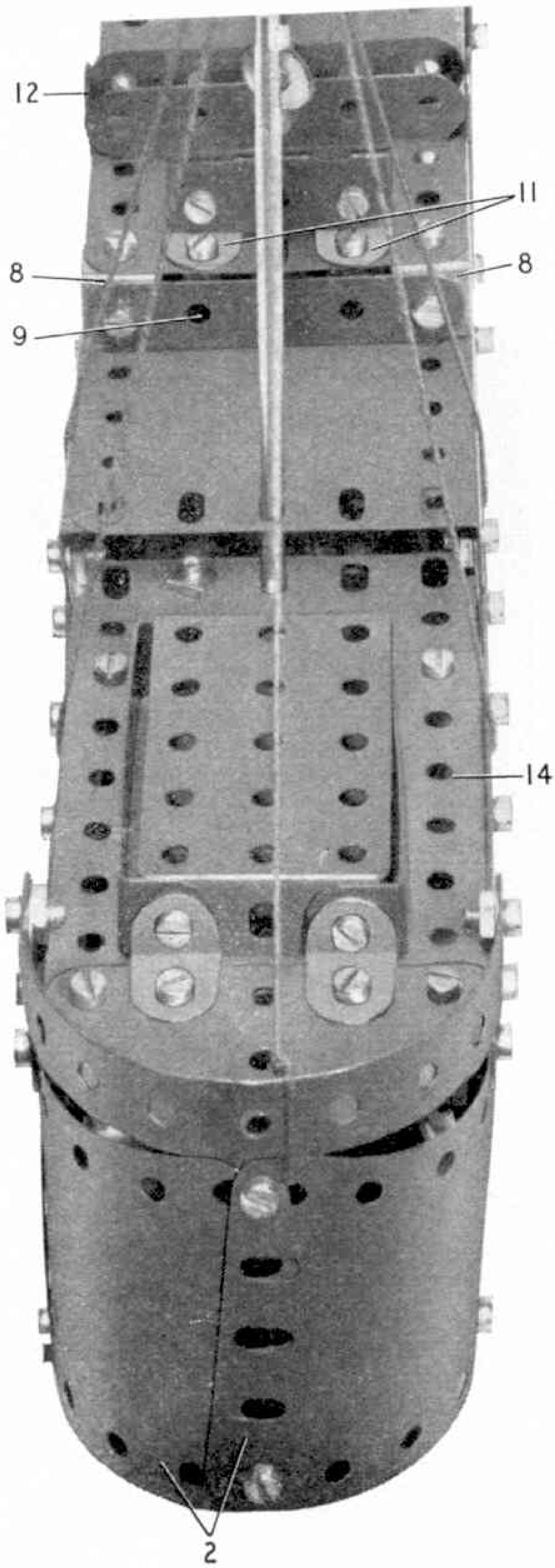
The funnel consists of two 2½″ × 1½″ Flexible Plates and two 2½″ × 1½″ Triangular Flexible Plates. It is attached to the deck by means of an Angle Bracket. The wireless cabin is represented by a Double Bent Strip 10. The superstructure at the stern end of the upper deck consists of two Trunnions bolted together. One of the Trunnions is bolted to Angle Brackets 11 which in turn are bolted to the deck. Two 2½″ Strips and a 2½″ × ½″ Double Angle Strip 12 are fixed by Angle Brackets to the Trunnions.

In the bow of the ship two 3½″ Strips 13 are bolted together and connected to the 12½″ Strips by Fishplates. Two 2½″ Strips are bolted to the Flanged Sector Plate.

At the stern the deck is filled in by a Semi-Circular Plate and a 4½″ × 2½″ Flexible Plate 14. These are bolted to two 2½″ × ½″ Double Angle Strips 15. The stern deck-house is formed by a 2½″ × 1½″ Flanged Plate and two 2½″ × ½″ Double Angle Strips, and is attached to two Angle Brackets at its rear end, and these in turn are bolted to the deck. The fore-mast consists of a 5″ Rod and a 3½″ Rod joined by a Rod Connector. The crows nest is a ½″ Pinion. The aft mast consists of a 4½″ Rod joined to a 3½″ Rod by a Rod and Strip Connector. The fore-mast is held in the boss of a Bush Wheel 16 fixed underneath the Flanged Sector Plate. The rear mast is fixed in the boss of a 57-tooth Gear 17 bolted to the underside of the 4½″ × 2½″ Flexible Plate 14. The model is completed by arranging rigging cords as shown.

Parts required to build the Ocean Liner: 8 of No. 1; 1 of No. 2; 2 of No. 3; 12 of No. 5; 2 of No. 6a; 2 of No. 8; 7 of No. 10; 4 of No. 11; 9 of No. 12; 2 of No. 12a; 1 of No. 15; 1 of No. 15a; 2 of No. 16; 1 of No. 24; 1 of No. 25a; 1 of No. 27d; 96 of No. 37a; 93 of No. 37b; 2 of No. 38; 1 of No. 40; 1 of No. 48; 7 of No. 48a; 1 of No. 51; 1 of No. 52; 1 of No. 54; 1 of No. 90a; 2 of No. 111a; 1 of No. 111c; 2 of No. 126; 1 of No. 176; 3 of No. 188; 4 of No. 189; 3 of No. 190; 2 of No. 191; 4 of No. 192; 1 of No. 198; 2 of No. 200; 1 of No. 212; 1 of No. 213; 1 of No. 214; 3 of No. 215; 4 of No. 221.

Fig. 3. A semi-plan view of the stern decks of the Ocean Liner.



September Model-Building Competition

List of Prize-winners

THE full lists of prize-winners in the September Model-Building Competition are as follows:

Section A

First Prize: W. and J. Slosse, Antwerp, Belgium. Second Prize: J. S. Goulding, Wilmslow. Third Prize: F. and M. Mahnen, Esch on the Alzette, Luxembourg.

Ten Prizes, each of 10/–: R. L. Haynes, Taunton; L. Doctors, Sydney, Australia; R. J. O'Brien, Lismore; T. Heathcote, Sheffield; S. Adams, Ipswich; N. J. Padden, New Milton; W. G. Roberts, Worcester; I. M. Blair, Whangarei, New Zealand; J. Lauder, Bath; S. Edwards, West Wickham.

Ten Prizes, each of 5/–: M. Ash, Oakhampton; A. McDonald, S. Queensferry; B. Tisdall, Kingston Hill; D. Howlett, Hull; J Campbell, St. Leonards-on-Sea; P. Bedell, Dublin; C. Masheder, Braintree; R. Gillings, Reading; F. Buxton, Huntingdon; R. Shields, London N.W.11.

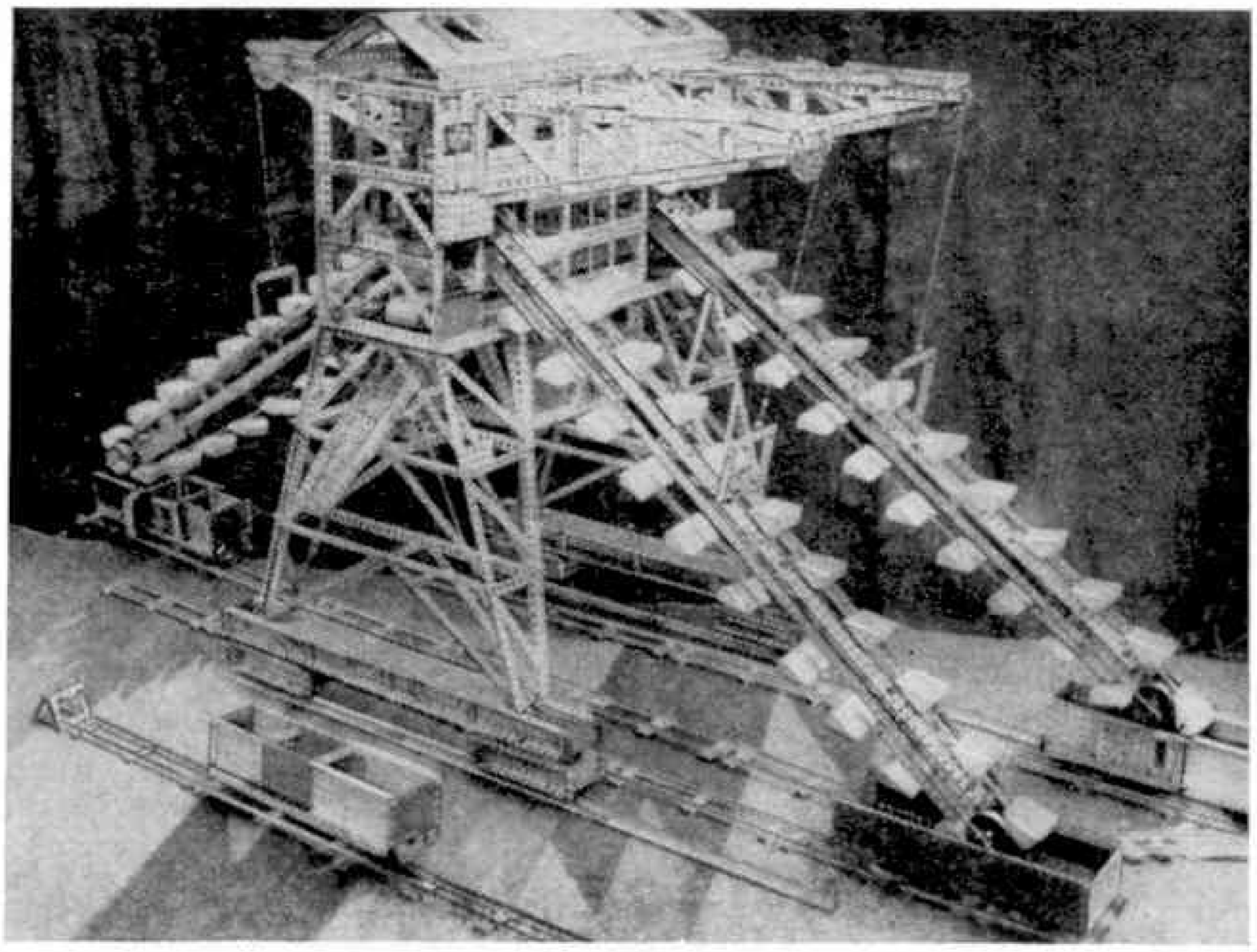
Section B

First Prize: H. W. Henry, Rochester. Second Prize: P. S. Williamson, Cowdenbeath. Third Prize: R. W C. Smith, Aberdeen.

Ten Prizes, each of 10/–: A. Zolla, Viterbo, Italy; S. Reid, Aberdeen; D. J. Morton, Walsall; J. Porter, Brighton; P. K. Sen, Calcutta, India; B. D. Baxter, Whangarei, New Zealand; M. S. Welburn, Birmingham 29; H. Van Der Meer, Bodegraven, Netherlands; G. H. Didcock, Wallingford; B W. Rowe, Newton Abbot.

Ten Prizes, each of 5/–: J. Holmes, Epsom College; B. R. Avery, Lymington; L. Holcroft, Durban, South Africa; G. F. Hamel, Montreal, Canada; H. Funcke, Zwolle, Holland; J. McNally, Nottingham; H. J. Halliday, London S.E.15; J. A. Bursey, Hong Kong; P. Lauder, Bath; I. C. Gentles, Leeds 8.

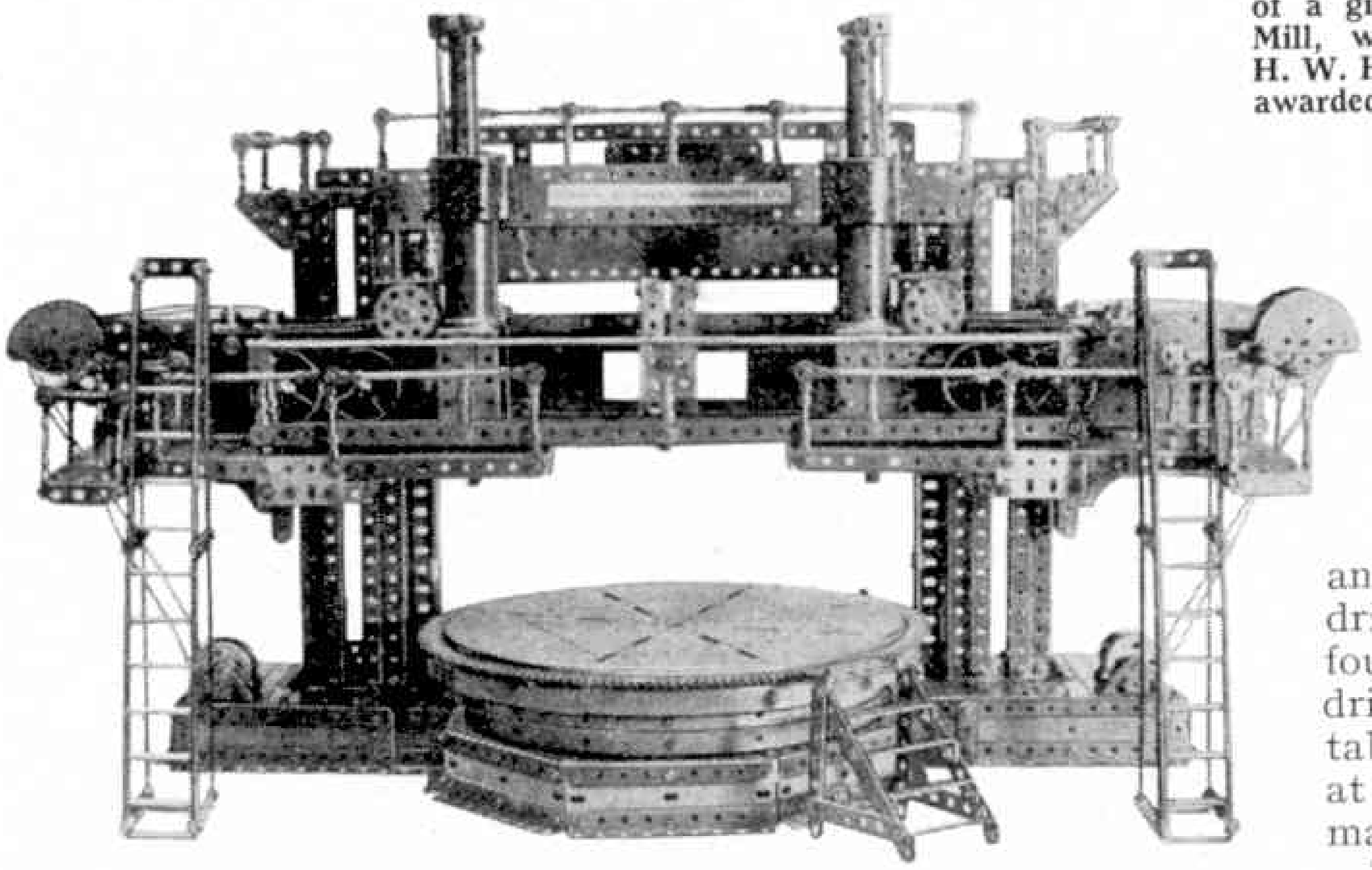
In looking through the entries I was greatly impressed by the very high standard of workmanship and degree of originality exhibited in many of the models that won the chief awards. It is a long time since I saw so many entries of such outstanding merit, and I would like to congratulate all competitors who succeeded in winning prizes. To do so in a contest such as this, in which the general level of the entries was so high, is a very creditable achievement. A few of the models are illustrated on this and the opposite page, and I am sure that they will have much interest for readers generally.



The Mechanical Coal Handling Plant that won First Prize in Section A for W. and J. Slosse, Antwerp.

Two brothers, W. and J. Slosse, Antwerp, who are aged 11 and 10 respectively, combined their Outfits and built the model of a giant coal-handling plant that is shown on this page. The model was awarded First Prize in Section A, and it follows as closely as possible the design of the real plant. It has bucket chain ladders that dig the coal out of railway wagons and carry it up to a belt conveyor installed in the upper part of the machine, and this transports the fuel to the power station boiler house. The strength and neatness of the construction are two very outstanding features and combined with the originality of the subject were largely responsible for the high success the model achieved in this Contest.

One of the entries that pleased me most of all was a really splendid model of a Giant Vertical Boring and Turning Mill that was illustrated in the April 1954 *M.M.*



A finely detailed working model of a giant Boring and Turning Mill, which was built by Mr. H. W. Henry, Rochester, and was awarded First Prize in Section B.

This very attractive model is shown at the top of this page and it is a fine achievement for its builder, Mr. H. W. Henry, Rochester, Kent. The actual machine weighs about 650 tons, and is capable of machining castings and other pieces of work up to 140 tons in weight. The worktable is 41 ft. in diameter. The machine was made in England for a Canadian Company and is used for making hydro-electric equipment.

The Meccano model includes in its construction four electric motors. One of them, that seen at the top of the machine, drives the vertical movement of the cross-slides that carry the tools through a screw gear mechanism. Each cross-slide carries a tool saddle fitted with a hexagon ram which actually carries the tool holder. These rams can be set at any angle up to 30 degrees on either side of the vertical position, and each has its own driving motor. The fourth motor is used to drive the large worktable and is situated at the rear of the machine.

The table can be driven either continuously in one direction or partially in a forward direction and then in reverse. This latter drive is operated entirely automatically. Older readers will notice that Mr. Henry has used one of the pre-war Meccano Geared Roller Races (Part No. 167a), not now available, to form the worktable.

There were not many ship models in the September Contest, but one of them, which earned the Second Prize in Section B, scored a truly well-earned success, for it is one of the best of its type that I have seen for a long time. It is a six-foot model of the fast anti-submarine frigate H.M.S. *Termagent*, and it is shown in the lower illustration on this page (Cont. on page 256)

This fascinating model of H.M.S. "Termagent" built by Mr. P. S. Williamson, Cowdenbeath, earned Second Prize in Section B.

Meccano Model-Building Competition

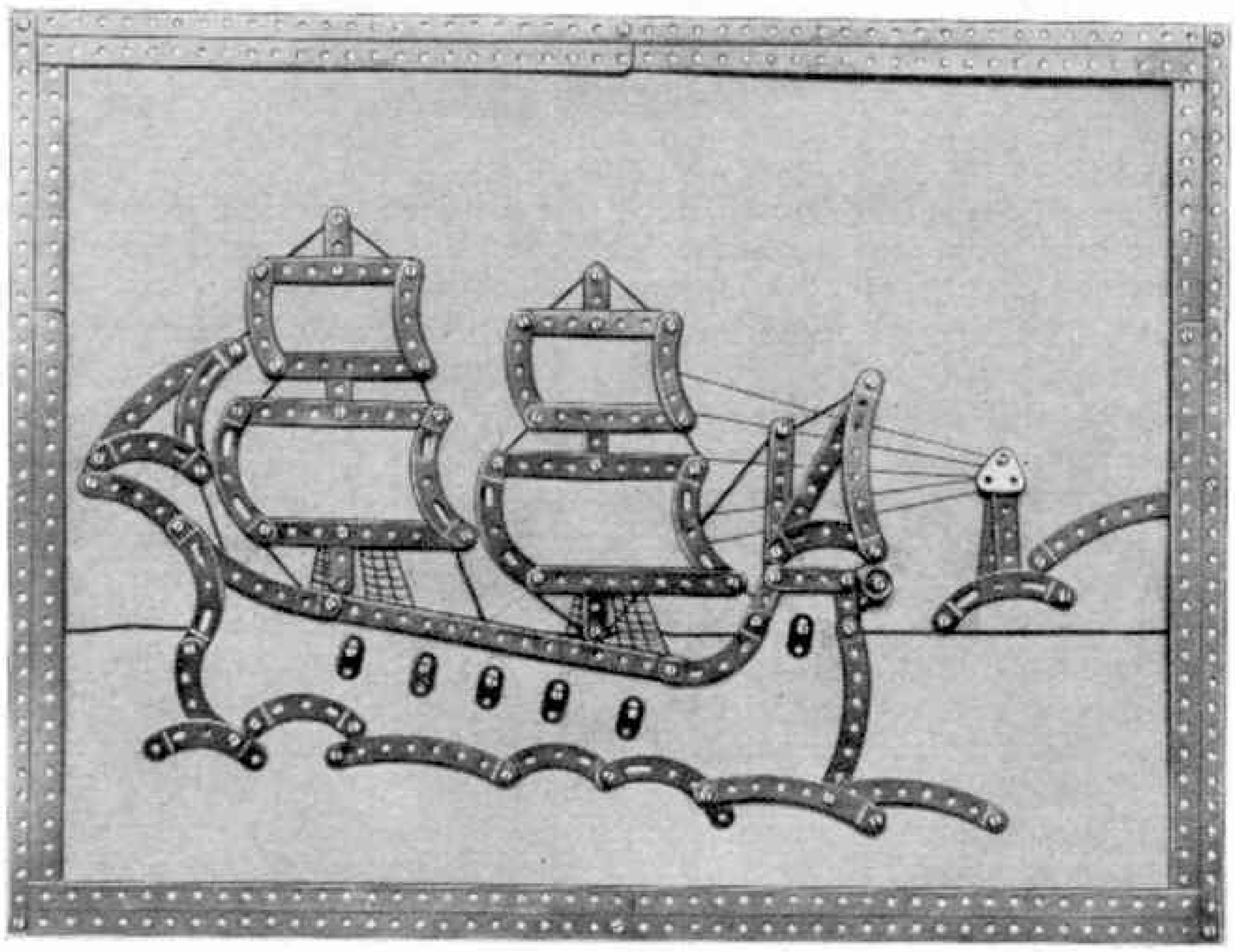
Novel "Picture" Contest

WITH the return of the longer evenings, and consequently greater opportunities for outdoor fun and games, we realise that model-builders have less time than during the winter to indulge in model construction indoors. In view of this, and to provide a suitable indoor occupation for the last hour or so before bedtime, or for a rainy day, we have arranged a special and very novel form of Meccano Competition. This offers a welcome change from ordinary model-building and is just the thing to while away a pleasant hour or so.

On this page appears a picture of a Meccano sailing ship passing a headland carrying a lighthouse. This picture including the frame, is made entirely from simple Meccano parts bolted to a piece of cardboard that serves as a background. Only a very few parts have been used, yet a most realistic effect has been obtained.

It will readily be seen that there is great scope for making other attractive pictures by this means, and in this Competition we are offering a number of Cash Prizes for the most interesting and novel Meccano pictures made by readers. The Competition is open to readers of all ages, and details of the prizes are given in the panel at the foot of this page.

Competitors may make any kind of picture they like and may use any number and type of parts in its construction. There are hundreds of subjects suitable for pictures and I can assure readers that it is great fun making them up. Those who wish to do so may increase the realism of their pictures by painting the cardboard background in suitable colours. For instance, in the picture illustrated the sea was painted blue and the sky white. But novelty and ingenuity in the Meccano picture is what will chiefly be looked for.



This framed picture of a sailing ship, made up of Meccano parts bolted to a piece of cardboard, illustrates the requirements of the novel competition announced on this page.

When the picture is complete make a good sketch of it, or have a photograph taken, and send this to *Meccano Picture Competition, Meccano Limited*, Binns Road, Old Swan, Liverpool 13. Write your name and address clearly on the back of the entry, adding your age.

Entries must be posted in time to reach Liverpool not later than 31st July next. All prize-winners will be notified by letter as soon as possible after the closing date of the Competition. Prize-winning entries become the property of Meccano Ltd., but unsuccessful entries will be returned if a stamped addressed envelope is sent.

THE PRIZES OFFERED IN THIS COMPETITION

	£	s.	d.
First Prize, Cheque for	5	5	0
Second Prize, Cheque for	3	3	0
Third Prize, Cheque for	2	2	0
Fifteen Prizes, each of		10	0
Fifteen Prizes, each of		5	0

Closing date for Entries: 31st July, 1958.

Club and Branch News

WITH THE SECRETARY

Melbourne M.C. Member Sets Out to See the World

A few days ago I received a most interesting letter from Mr. Leonard Ison, the Leader and Secretary of the Melbourne M.C., in Australia. After reviewing Club progress, he told me that their oldest member, Bruce Thompson, was about to leave Australia on a two-year working holiday trip to Europe and Great Britain, accompanied by a companion. Bruce, now 21, joined the Club in August 1949, and has contributed much to the success of the meetings by his able demonstrations of Meccano models and model railway equipment.

I am delighted to learn that while in England, Bruce intends to visit Liverpool and see the Meccano factory, and he is assured of a cordial welcome here. He will return to Australia with the distinction of being the first member of the Melbourne M.C. to visit Guild Headquarters and "report to me in person," as Mr. Ison so aptly puts it!

H.R.C. BRANCH RECENTLY INCORPORATED

No. 567. St. Albans and North Port Railway (Australia). — *Chairman:* Mr. George Edwin Skiller, 176 Grand Parade, Kogarah, New South Wales, Australia.

PROPOSED CLUB

Smethwick. — Mr. K. J. Fletcher, *Glendene*, 8 Londonderry Lane, Smethwick 41, Staffs.

LAUNCESTON M.C. ANNUAL EXHIBITION

The Launceston M.C. will hold their fourth Annual Exhibition on Thursday, 1st May, in St. Mary's Hall, Launceston, Cornwall, from 3 p.m. to 8 p.m. It will be opened by the Mayor of Launceston. Admission: Adults, 1/–; Children, 6d. There will be a working Hornby-Dublo layout and excellent displays of Meccano models; model aircraft—including round-the-pole flights; woodwork; and many other hobbies.

Roger Thorne, Secretary of the Launceston M.C. This Cornish Club, now four years old, is already noted locally for its fine exhibitions.

CLUB NOTES

Newtown School (Waterford) M.C.—A visit to the Waterford Ironfounders was most interesting, and members saw Rayburn cookers being made, enamelled and "baked." Plans are in hand for an Exhibition at Whitsuntide, and members are being given a free choice of subject for their models. Well-wishers have presented to the Club a 6v. electric motor and some Meccano. *Secretary:* J. Gillespie, Newtown School, Waterford, Eire.

Mile End (Portsmouth) M.C.—The Club party was a great success. Among those present was Brian Pilcher, an ex-member who has been made an Honorary member of the Club. The Exhibition in February last was not as well attended as previous events of this kind, but there was a good display of models. The model submarine has been dismantled, and members are now busy constructing a robot from a "blue print" prepared by members A. Firman and R. Young. *Secretary:* Mr. A. J. Nicholson, 213 Sultan Road, Buckland, Portsmouth.

St. Thomas (Exeter) M.C.—Membership has increased, and meetings are very well attended. A new Committee has been appointed, under whom Meccano model-building has regained its leading position among Club activities. Models in hand include a large dockside crane, a miniature gas works, and a windmill (for grinding flour). *Secretary:* D. Morgan, 33 Cowick Road, St. Thomas, Exeter.

AUSTRALIA

Melbourne M.C. — Keith Turton, who emigrated from Britain a few years ago and is now an active member of this Club, recently arranged a programme of train running with a British setting as far as possible. The stations on the layout were named after well-known British stations, and the expresses given the titles of certain British named trains. British pictures and posters on the walls helped to create the desired atmosphere. At one meeting a member, Bruce Thompson, brought along a Meccano clock driven by a Meccano clockwork motor, which kept time for 50 min. on one winding. *Secretary:* L. Ison, 8 Hayes Street, Northcote N.16, Victoria, Australia

BRANCH NEWS

Weston Boys' Grammar School. — At the time of writing, the Branch is concentrating on the construction of an 00 gauge layout on a baseboard 8 ft. × 4 ft. The members have been most helpful in pooling their spare rails, and it may be possible to complete the track without having to draw upon Branch funds to purchase rails. A varied programme is being drawn up. *Secretary:* D. Hough, "Overhill", Lower Down Road, Portishead, nr. Bristol.

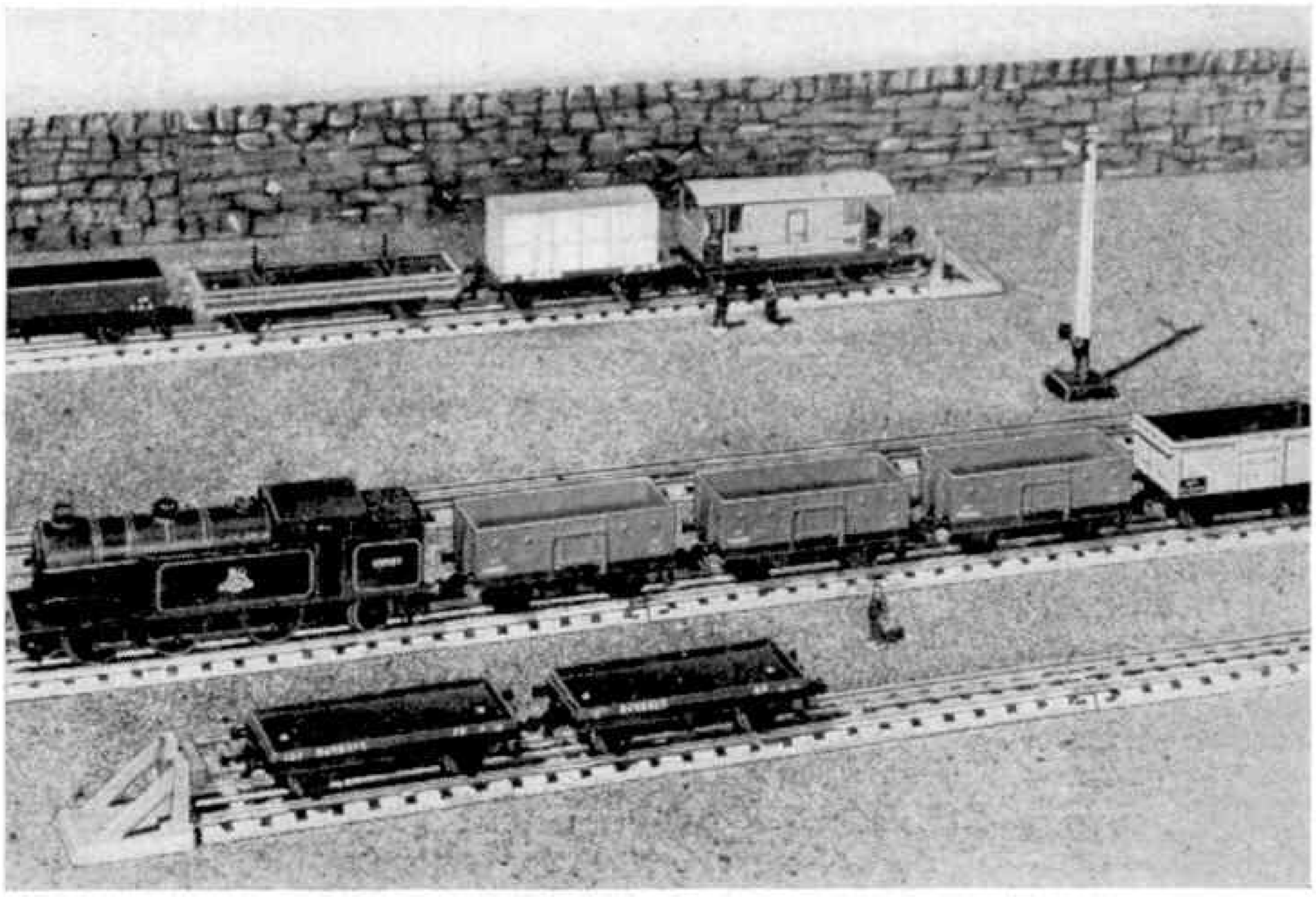
Featherstone Castle (Haltwhistle). — Good progress is being made, and funds are being raised to buy additional equipment for an enlarged Branch layout. *Secretary:* F. W. Clark-Lowes, Hillbrow School, Featherstone Castle, Haltwhistle, Northumberland.

Aviary (Leeds).—In order to relieve congestion round the layout during track operations, the experiment has been tried of dividing the members into two groups. During the first half of the meeting one group operates the Branch railway and the other group, in another room, have a railway quiz or some other entertainment. At half-time the groups change over. *Under-Secretary:* I. M. Pountney, 1 Arley Grove, Armley, Leeds 12, Yorkshire.

Potters Bar.—There was a full attendance at the Annual General Meeting. Plans for the Spring programme include visits to King's Cross, the Model Railway Exhibition, and other places of railway interest. Members are on the lookout for suitable, larger premises for the Branch. *Secretary:* R. Woods, 120 The Walk, Potters Bar, Middlesex.

HORNBY RAILWAY COMPANY

By the Secretary



Lovely to Look At!

YOU have read in previous issues of the *M.M.* about the splendid vehicles already included in the fine new range of Hornby-Dublo rolling stock with moulded bodies. These new vehicles represent a tremendous advance in really detailed modelling and the appearance of each in turn has caused many Hornby-Dublo owners immediately to enquire eagerly what is to come next.

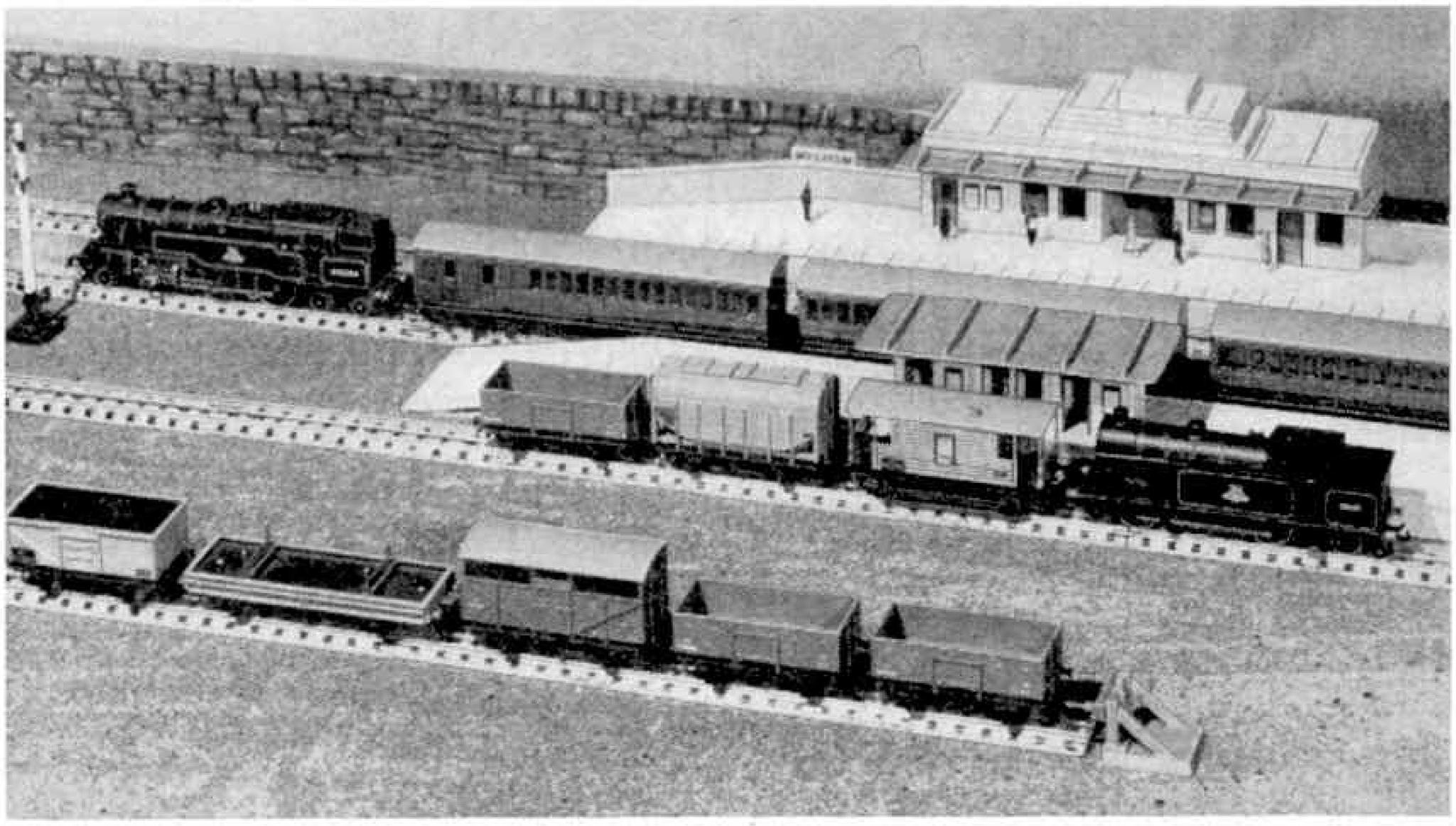
Well, to follow the 20-ton Bulk Grain Wagon and the 8-ton Cattle Wagon there is now the SD6 Goods Wagon, Steel Type. It represents a 13-ton vehicle of B.R. Standard design with a welded steel body designed for general goods work, and is just the thing for Hornby-Dublo goods trains. A goods train with several of these handsome productions in it will be a splendid sight on any Hornby-Dublo railway. The wagon is seen in trains in the upper pictures on these pages, and another view of it appears on page xii.

Needless to say, the characteristic appearance of the real vehicle is reproduced exactly in this attractive miniature, which in finish is well worthy of its predecessors in the SD6 series. Like the real wagon, it has plenty of fine detail, even to the extent of the reproduction of the planking that forms the floor of the original. The grooves suggesting the plank joints in the floor are all there!

By the way, it may perhaps surprise you to read of the presence of planking in a steel vehicle, but remember that a planked floor can be repaired more easily than a steel one. Besides, wood can stand up to an enormous amount of hard wear, which is just as well because wagon floors undoubtedly have a rough time with loads and weather.

Look at any detail on the real wagons and see how it appears on the Hornby-Dublo miniature. For instance, the former has steel tube capping round the upper edges of the sides and ends, which prevents damage to the edges of the sheet steel ends and sides. And there in the SD6 Goods Wagon this is neatly and accurately modelled. Again, strengthening on the ends is looked after by a couple of vertical T-section stanchions, and these too are reproduced in remarkable fashion on the

This article is concerned with yet another of the magnificent moulded vehicles of the new SD6 Hornby-Dublo series that model railway enthusiasts admire so much. All three of those so far issued can be seen in the goods trains shown in the pictures at the head of these pages, and the completeness and realism of the detail incorporated in them is well shown by the magnified example seen in the picture in the circle opposite.



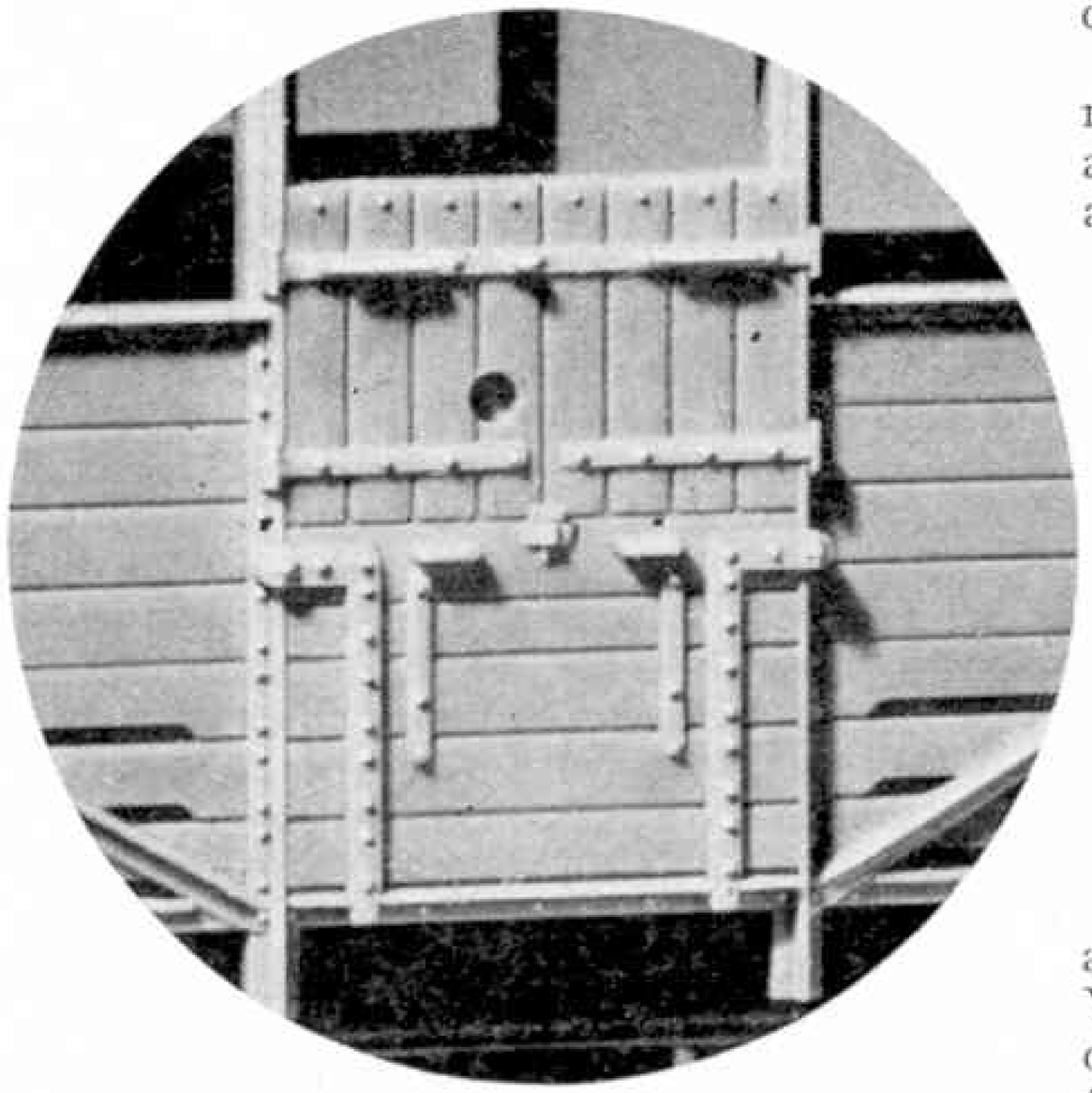
Hornby-Dublo vehicle, even to the rather long taper that reduces the depth of the centre rib of the "Tees" towards the top.

In fact, you can look anywhere on the model and you will find some detail or other reproduced perfectly. You could even be forgiven for thinking that the doors in the side of the vehicle open, although they do not, because fittings such as hinges, strengthening members and the movable bar stretching across the doorway that holds the door shut, all of which suggest this, are so accurate. The bar itself is secured by locking pins and these actually appear precisely in relief at each end of the dummy bar.

You may wonder what purpose is served by the "blisters" that appear on each side and each end of the real wagons. I did when I first saw them. Actually they represent the inner recesses that are embossed, as it were, in the body sides and ends to accommodate rings for use when loads have to be lashed in place. The housing of the rings in these recesses keeps them neatly out of the way and they are not likely to interfere with loads, or to be damaged themselves.

All features and markings are splendidly reproduced, as can be seen by just glancing at the small wooden panels on each side and end for carrying loading or return instructions, and the lettering and numbering, which is done with the neatness that we have come to associate with this new range of goods stock. The body colour is bauxite brown and the underframe, which is the standard Hornby-Dublo Wagon base, is black. Moulded spoked wheels are used and they are entirely in keeping with the appearance of those on the real wagons.

Don't be satisfied with reading about this new Wagon and its predecessors. See them for yourself and do this through a magnifying glass. You will then realise that there is the best of grounds for the claim that nothing as fine in their line has ever been made than the astonishing moulded vehicles of the Hornby SD6 series. And more of them are on the way!

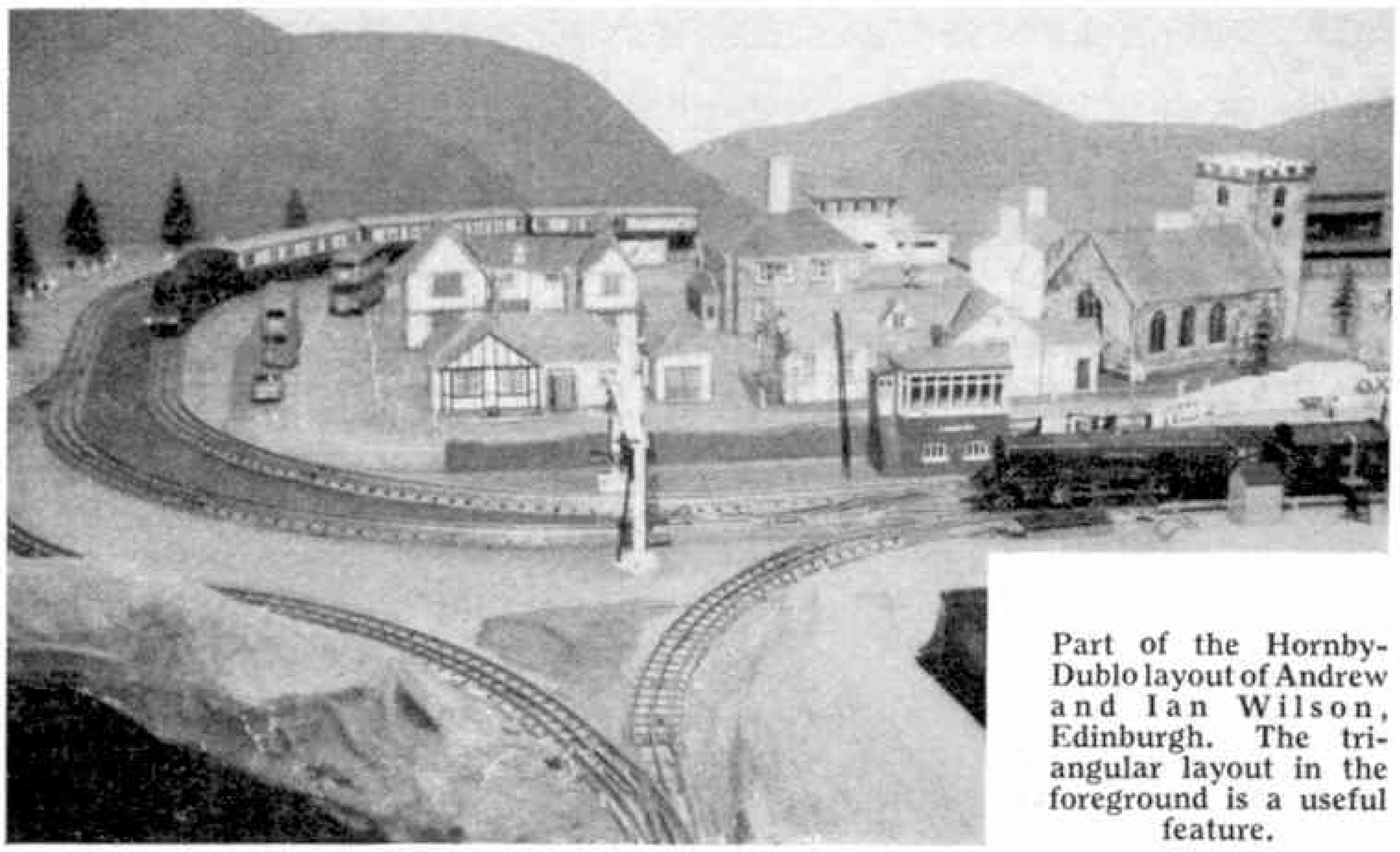


Revealed by a magnifying glass! Remarkable detail such as that of the SD6 Cattle Wagon doors seen in this photographic enlargement is characteristic of all the wagons in this series.

Busy Times on Readers' Layouts

Triangles and Turntables

HERE are pictures that show how different Hornby-Dublo owners have built up their systems, each using similar items of equipment from the standard Hornby-Dublo range, but with different aims—and results. These differences are partly due to varying conditions, but they are interesting also as showing the elasticity of the Hornby-Dublo system, which gives owners plenty of opportunity to develop their layouts on individual lines.



Part of the Hornby-Dublo layout of Andrew and Ian Wilson, Edinburgh. The triangular layout in the foreground is a useful feature.

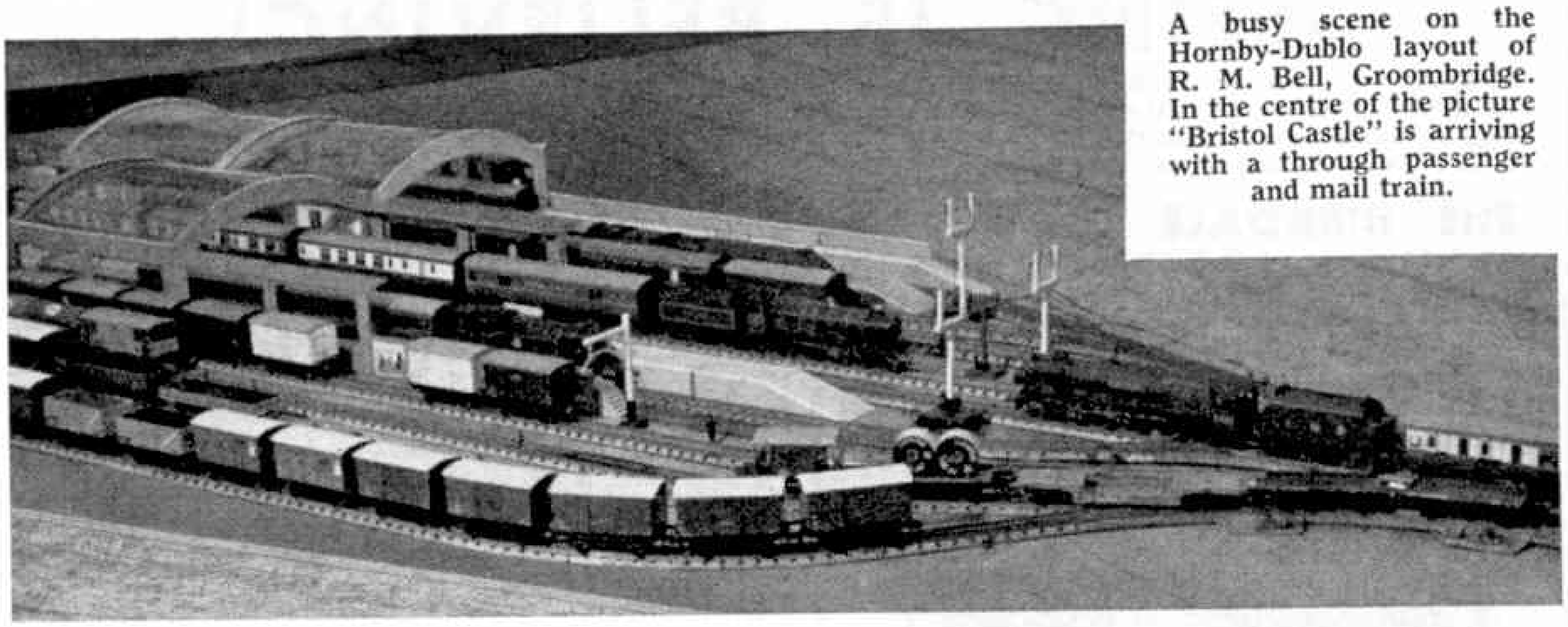
So in the first illustration, on this page, we have a view of a layout that is installed in a room that measures 10 ft. square, and otherwise is unoccupied, a very attractive kind of space to have. In a situation like this the ideal arrangement is for the railway to follow the walls of the room, with the operators working as it were in a well, or space inside the baseboard. And this is the very scheme that has been adopted by *M.M.* reader and Hornby-Dublo enthusiast Andrew Wilson and his younger brother Ian, Edinburgh, the owners of the line.

When the photograph from which the illustration has been prepared was taken the layout incorporated four stations, but changes have taken place since then and one of the station layouts has been modified to turn it into a goods yard with sidings, a Turntable and an engine depot.

The main Station on the line bears the name *Crawford*, its nameboards being labelled by means of one of the printed titles that are included with Hornby-Dublo Stations. The one selected has the appropriate blue background to the name, which represents a Scottish Region station. The other stations are *Lichfield* and *Overton*, also standard names. Of these stations *Crawford* is the important centre, where most of the passenger trains complete their journeys. Here there are uncoupling arrangements and a loop, which allow tender engines to be disposed of readily. These make their way to the engine depot for turning and preparation for their next trip. The empty stock is then disposed of by being pushed by a carriage pilot down to one of the sidings on the former station site mentioned previously.

Overton is a junction for the branch line to *Lichfield*. There is in fact a triangular layout near *Overton*, which makes it readily possible for trains to change their direction. This is a useful feature in any case, but is particularly valuable for trains conveying the T.P.O. Mail Van, which must of course be operated "right way round," according to whether it is making an up journey or a down one. The necessity for this operation has of course been mentioned previously in these pages and many Hornby-Dublo owners make use of a triangular layout for turning their T.P.Os.

A special feature of the layout is the

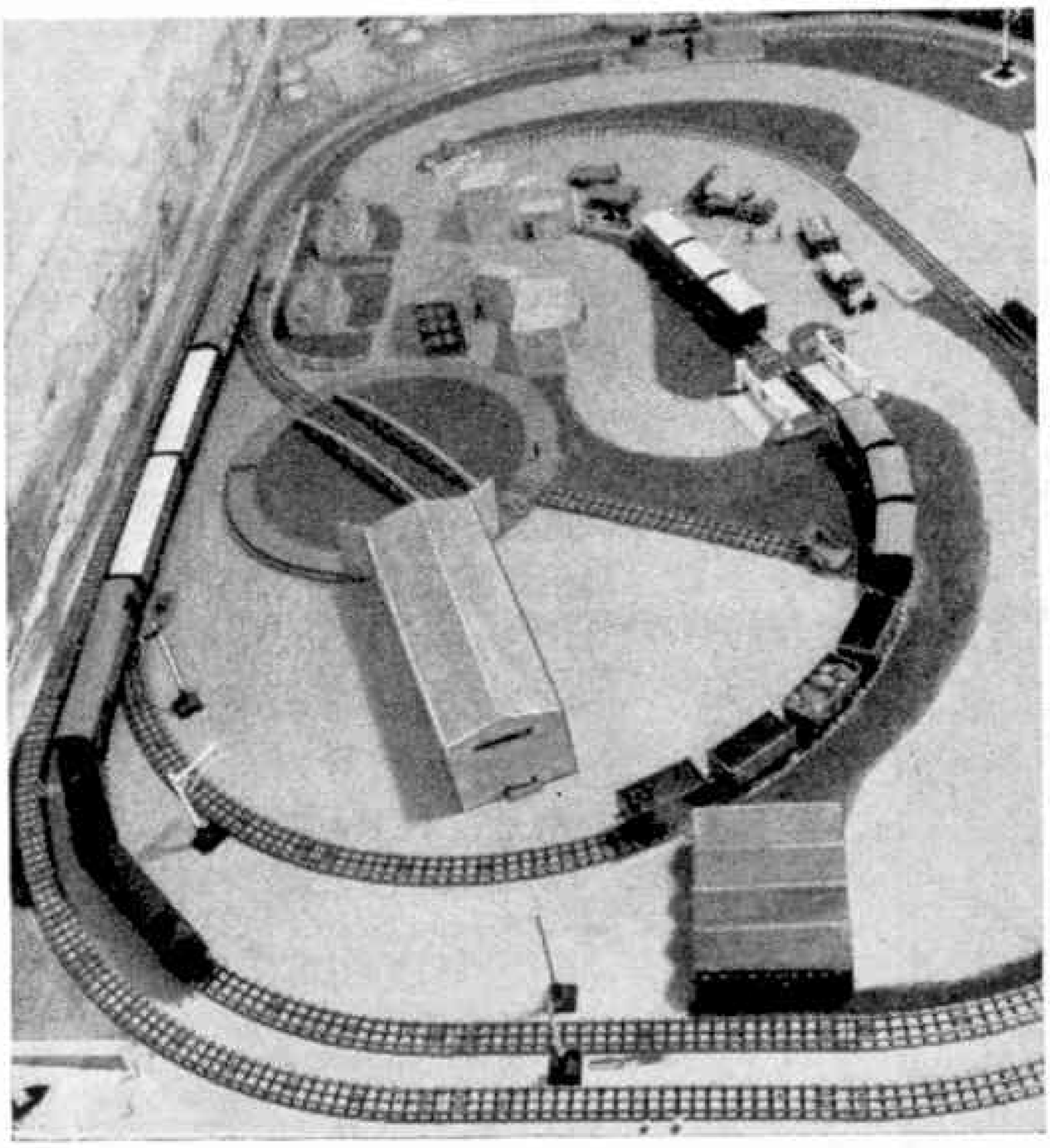


A busy scene on the Hornby-Dublo layout of R. M. Bell, Groombridge. In the centre of the picture "Bristol Castle" is arriving with a through passenger and mail train.

generous provision of Uncoupling Rails, which make it possible for stock to be left in any siding required, while engines can be detached from trains on running lines and loops when required by the working programme.

The permanent situation of the railway has made it possible to provide scenic effects and a certain amount of modelling has been carried out by laying plaster over a wire mesh framework to provide banks and hills. Distant scenery is provided by a painted background taken round the walls of the room.

Turning arrangements for locomotives also are a feature of the layout shown in the lower illustration on this page. This belongs to Brian Mackintosh, of Montreal, whose layout is on a baseboard with its control site in the convenient corner. A double track main line is provided, with internal sidings. This can be seen readily in our picture and the simple manner in which the Turntable has been incorporated is easily apparent.



Part of the line of Brian Mackintosh, Montreal, showing the simple but effective manner in which the Turntable has been incorporated.

A layout of another kind, one that is situated on the floor of an upper room, appears in the picture above. This belongs to Mr. R. M. Bell, of Groombridge, who has secured a most realistic effect with his junction station and the extensive sidings that appear in the illustration. An intensive programme of train operations is the rule, main line trains with Restaurant Car and T.P.O. Van services being available as the result of some of the recent additions to the Hornby-Dublo system. That long-distance through trains feature in the operating programme will be realised by the appearance of Hornby-Dublo *Bristol Castle*, and a Duchess at the same station. The scene in fact reproduces something of the characteristics of places like Shrewsbury, where through inter-Regional services are regularly handled and where real Duchesses and Castles are in evidence.

Freight traffic is heavy and the number of vans shown in the sidings suggests that express freight services are provided on a generous scale. This of course is in keeping with modern tendencies, for the number of fast freight trains operated in real practice is constantly increasing.

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Stamp Collectors' Corner

By F. E. Metcalfe

CARE AND INTEREST GO TOGETHER

Anyone who has seen an average old time collection knows how careless by modern standards collectors used to be about the condition of the stamps they gathered. They didn't mind much if designs of imperforate stamps had been cut into, or even if stamps were torn, or cancellations so heavy that they almost obliterated the designs. Today even young collectors will only buy stamps that are in good condition. But I am afraid that in some quarters this care for condition is only skin deep, as it were. To explain what I mean I recount an incident that I witnessed recently.

I was sitting in a stamp dealer's shop, when in came a youth of about seventeen. Opening an attache case he took out an album, and handed it to the shopkeeper, remarking that he wished to sell his stamp collection. As the dealer started to turn over the pages, he quite visibly winced. When he had gone through the book he handed it back to the owner, with the remark that he was afraid that he was not interested.

This seemed to annoy the would-be seller, who answered that he had bought most of the stamps in the shop, and all he wanted was a fair price. In the end the dealer reluctantly said that it was the state of the stamps that made the collection of no use to him. There was more cross talk, in which the collector insisted that he didn't expect much, and the dealer still refused to offer a price at all.

The collector went out in anything but a happy mood. I then suggested to the dealer that perhaps it would have been better to have offered something. But the latter said that the stamps were now so dirty and badly mounted that he could not have offered much more than a tenth of the cost, and this would have annoyed the youngster more than making no offer at all, for he would feel that he had been overcharged when he bought.

Now I don't know if the dealer had adopted the right attitude or not, but that is beside the point. What matters is that not infrequently I see collections, and not just those made by juveniles, in which the stamps when first purchased had clearly been quite all right, for care had apparently been taken to buy in good condition, but little or no care had been taken to keep them that way.

I suppose we are all prone to come in from gardening, or some other occupation, and get out one of our albums before those hands of ours have been thoroughly washed. I at least find this washing quite an effort sometimes, but when I consider how unsightly a grubby page looks, not to mention a grubby stamp, I do manage to drag myself along to the bath room. Even so, unless the greatest care is taken not to finger a stamp at all, but always to use a pair of tweezers, in no time the bloom disappears—and then, don't forget, by modern standards a stamp is no longer to be regarded as mint.

Then there is the very important question of mounting stamps. We are not quite so particular here at home about this point as they are abroad, where a stamp on which the removal of the stamp hinge has left its mark is not considered quite mint. Yet more and more collectors are refusing to buy stamps of this kind. So take the greatest pains to obtain the finest peelable mounts you can find and to affix the mount just as lightly as is necessary to prevent the stamp coming loose after mounting.

It is funny to see the change that has taken place in this respect since the early days of collecting. Initially stamps were merely pasted in books, and quite often even glue was used. Then it was quite a step forward to use mounts made of stamp edging. This was all right, where the stamps were used, but it was fatal with mint, for without drastic treatment those pieces of paper could not be removed. The usual method was to remove as much as one could and then stick on another mount. Quite a bulge developed in the end. Horrible!

The best stamp mounts today are pretty good. Applied lightly they are more or less peelable. Even so they leave a mark on the gum and finnicky modern collectors resent even that. So it shows how careful one must be to preserve the value of one's mint stamps and the care necessary in mounting them.

There is another danger that all too many collectors ignore until it is too late to avoid the damage which is caused. I refer to the practice of keeping an album with mint stamps lying flat, when not being used. At this time of the year, when many of us put our stamps away for the summer, we may stick our collection in a drawer and there it will lie for a few months. It may have other books on top, but its own weight is sufficient to press stamps so closely to the page that they will be difficult to remove if this is ever necessary.

Just watch a dealer when he picks up a collection to examine it with a view to purchase. He slips his tweezers under the stamp and gently raises it. He will do that repeatedly, if he can. If he cannot, you have had it, unless you are

(Continued on page 256)

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FLETCHER (Q61), Woodlands, Church Rd., Bristol 9

For other stamp Advertisements see also pages 252 and xxii

Stamp Gossip

REBELS

On 27th December of last year the United States issued a stamp that had a definite British connection, and an attractive item it is too. The stamp was described as commemorating the "Flushing Remonstrance," and the issue of such a fine stamp honours the U.S.A. as much as those the stamp itself honours.

Going back to 27th December, 1657, about thirty people, mostly English, met in the house of one Michael, in Flushing (in the U.S.A., not Holland) to protest against local religious oppression. A remonstrance was framed to send to Governor Stuyvesant, whose harsh laws were interfering with religious freedom. This is no place to go into the why and wherefore of such things. Suffice it to say that in the end freedom was attained. Today the U.S.A. prizes that freedom, and is saying so philatelically by this excellent stamp.

SHIP AHOY

A going concern, be it a country or a business, needs good publicity. Just think of things we could publicise by saying it with stamps. And that is what Israel is doing, and doing it well, for this tight little country is producing such beautiful stamps, dedicated to all kinds of worthy objects, that collectors cannot resist them.

Perhaps the most popular set that Israel has issued to date was the one released in January, dedicated to its merchant fleet, of which it is very proud. It consisted of four stamps, each illustrating a ship. That on the 10p value is an ancient one; the 20p shows one used for "illegal immigration before the proclamation of the State," as they themselves have put it; on the 30p, a cargo ship is seen; and on the 1000p is a fine passenger ship *Zion* of Zim Fleet.

A full set perhaps costs a bit more than some want to pay—it is sold at around six shillings—but a set of three can be bought for as many pence, and no wonder short sets have sold by the thousand.

POSTMARKS

Of all the sidelines of stamp collecting to which I have referred from time to time, the one that seems to have provided the most interest had to do with slogan postmarks. I know several who have started collections of these, and even those who come across no foreign stamps, with their slogan postmarks, can find interesting items on our own issues. Our Post Office itself thinks they are of sufficient importance to advise the stamp press when new ones are coming out.

The slogan illustrated is an interesting one. Zimbabwe, in Southern Rhodesia, is the site of extensive ruins that have provided a riddle for historians and archæologists. By some they have been associated with the Queen of Sheba, and others have thought them of great antiquity. Now it is believed that they have no particularly romantic origin and that they are only from 400 to 900 years old.

OIL

Long before we ever thought much about oil, we had acquired interests in the Persian Gulf. In those days they were mostly used as bases from which our navy operated in the suppression of the slave traffic. Later territories like Bahrain, Kuwait, etc., issued British stamps overprinted with the name of their country. That suited them all right, until oil was found, which gave them a new status and importance, and now they are demanding that they shall have their own stamps.

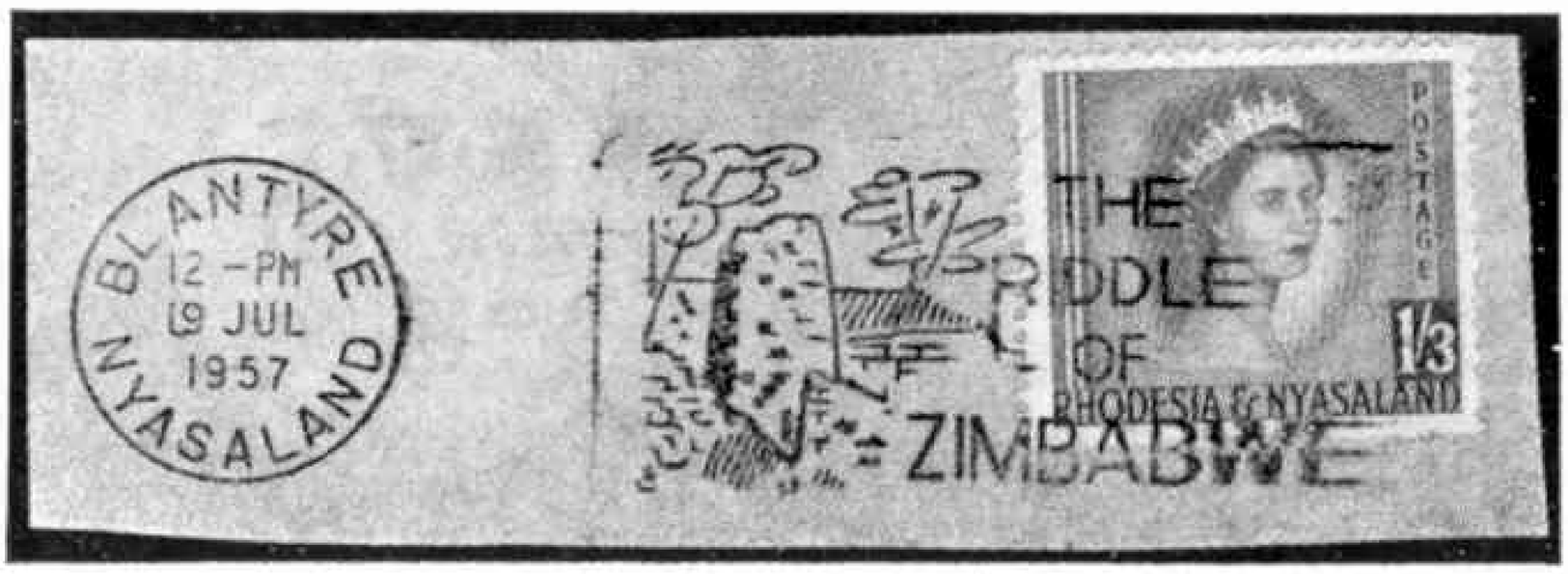
For some time Bahrain has had three values, which are used in their own territory—they have no validity outside because Bahrain is not a member of the Postal Union—and now Kuwait has followed suit. They issued three "locals" on 1st February, and a pictorial set is being printed for them as these lines are being written. It is no longer possible to buy the overprinted stamps from G.P.O. London, as was the case up to 1st February.

Oil is doing its work all right, in more than the lubrication field. It would be a good idea to fill one's Persian Gulf blanks now.

TIP OF THE MONTH

I have mentioned that Bahrain and Kuwait are out for their own stamps, and it will not be long before they get them. Now it is not so long since the watermark on our own British stamps was changed, and of course that of the stamps overprinted for these two Persian Gulf territories was changed also. These overprints do not look like having a long life, so why not buy a set of each, while they are available at current prices?

The sets go up to 10 rupees, but these will cost a bit too much for many of us, so just aim at sets up to 1 rupee. They won't play too much havoc with the average pocket money, and the stamps should pay for their keep all right. Overprinted stamps are not particularly popular, but these come into the Great Britain range.



EXHIBITION IN BELFAST

Readers in Northern Ireland will be interested to learn that The Model Engineers, Ship Model and Railway Societies of Northern Ireland are holding a three-day Hobbies Exhibition, from 29th to 31st May, 1958, in the Wellington Hall, Belfast. The Exhibition will be open from 2.30 p.m. to 10 p.m. on the first day and from 10 a.m. to 10 p.m. on the other two days. Admission: Adults, 1/–; Children, 6d. There will be fine working model railways, displays of railway equipment, ship models afloat and otherwise, aircraft, and stationary engines. A new feature will be a handicraft section for ladies.

TRACTION ENGINE RALLY

The Andover and District Model Engineering Society is again holding a Traction Engine Rally at Finkley Manor Farm, Andover, Hants. This year it will take place on Saturday, 10th May, and will open at 12 noon. As before there will be an excellent gathering of steam traction engines and it is hoped, veteran cars. The 7¼ in. gauge, passenger carrying miniature railway will be there again, and in a large marquee there will be a complete model fairground, with roundabouts, trucks, lorries, engines, side-shows, and all the varied items that go to make up a travelling fun fair. All the "rides" will be working models, and fairground organ records will provide the characteristic music of a fair.

The Rally Secretary, Mr. G. Howell, of 5 The Crescent, Andover, will be pleased to give further particulars to readers who hope to be able to visit the Rally, and who will write to him for them.

Road and Track—(*Continued from page 221*)

to traverse rough country at speeds approaching 50 m.p.h.! Each wheel is sprung by a unit known as a Flexitor, which is manufactured at the Spencer Moulton factory, a member of the Avon Rubber Group of companies, at Bradford-on-Avon.

A Flexitor unit is superficially similar to a torsion bar except that the unit—a hollow steel shaft bonded inside a rubber sleeve, the whole encased in a steel shell—is not anchored like a torsion bar. The shaft, to which is attached the 13 in. trailing arms and the wheel assemblies, turns under load and the rubber absorbs the stresses, afterwards returning to its original position when the load is removed. Thus the suspension of the Gipsy is through the medium of the torsion of the actual rubber and not of the shaft.

The dynamic stiffness of rubber increases with the rate of shock application and the Flexitor—an all-British invention—is designed to give the required torsional flexibility, combined with the necessary stiffness to resist axial, radial and tilting angles of load. There is no need for any other form of linkage or support to control the suspension movements of the wheels.

The average life of leaf springs on the M.I.R.A. *pave* track is 500 miles, whereas vehicles fitted with Flexitor have trebled this fatigue life. We may well see a much more general application of Flexitor on private cars in the not too distant future.

Stamp Collectors' Corner—(*Continued from page 253*)

prepared to take a low price. Alas, even if the greatest of care is taken to keep one's albums upright, so that there is little pressure, all too often stamps stick. As a matter of fact, as soon as stamps are mounted they often become stuck if we only knew it, for it is exceedingly difficult not to use too much moisture on the mount. So care, care, care!

Stamp collecting is absorbingly interesting if we take the trouble to study our stamps, and not just stick them in a book without a second thought. As a case in point, let us take the U.S.A. 3c. Whooping Cranes stamp. America is a big country, one with wide open spaces, with many interesting animals and birds. But there is fear that the gigantic whooping cranes may die out altogether, so a most beautiful stamp has been issued to warn the public about what will happen unless they take the greatest care to protect them.

Russia's first satellite is another example. It was only natural that this should have philatelic repercussions, and seven countries did issue stamps in connection with that notable success. One of these, from East Germany, is illustrated on page 253.

Some of the countries in Europe—France, Belgium, etc.—issued in 1956 stamps of the same design to denote their agreement. Last year they issued stamps with the same object, but each country chose its own design, and it was really interesting to see how those designs differed. That of Italy was the most original, if not the most attractive.

September Model-Building Competition—

(*Continued from page 245*)

This splendid model is the work of Mr. P. S. Williamson, Town Clerk of Cowdenbeath, and it took him the best part of three years, working only in the winter, to complete. A glance at the illustration on page 245 is sufficient to reveal the immense amount of realistically fashioned detail in the ship, and one of its features is the motor-driven radar equipment. A study of the illustration will show many other attractive constructional details, and the general proportions of the model are excellent.

There are many other fascinating models among the remaining prize-winners that I want to mention, and all being well I hope to include a further selection in next month's issue of the *M.M.*

"ABC BRITISH BUS FLEETS"

No. 3 South Central Area

(Ian Allan, 2/6)

This is a further addition to the popular series of *ABC* booklets. It deals with British bus and trolleybus fleets and covers various undertakings, both municipal and private, in the Central area of Southern England. The Isle of Wight and Channel Islands also are included.

In addition to lists of rolling stock, with fleet numbers and body details, etc., the booklet includes a short history of each undertaking. It is well illustrated and, like its companions, is a useful guide for the Bus enthusiast.

Copies of the booklet can be obtained from leading booksellers and Railway bookstalls.

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From Our Readers

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

The Old House

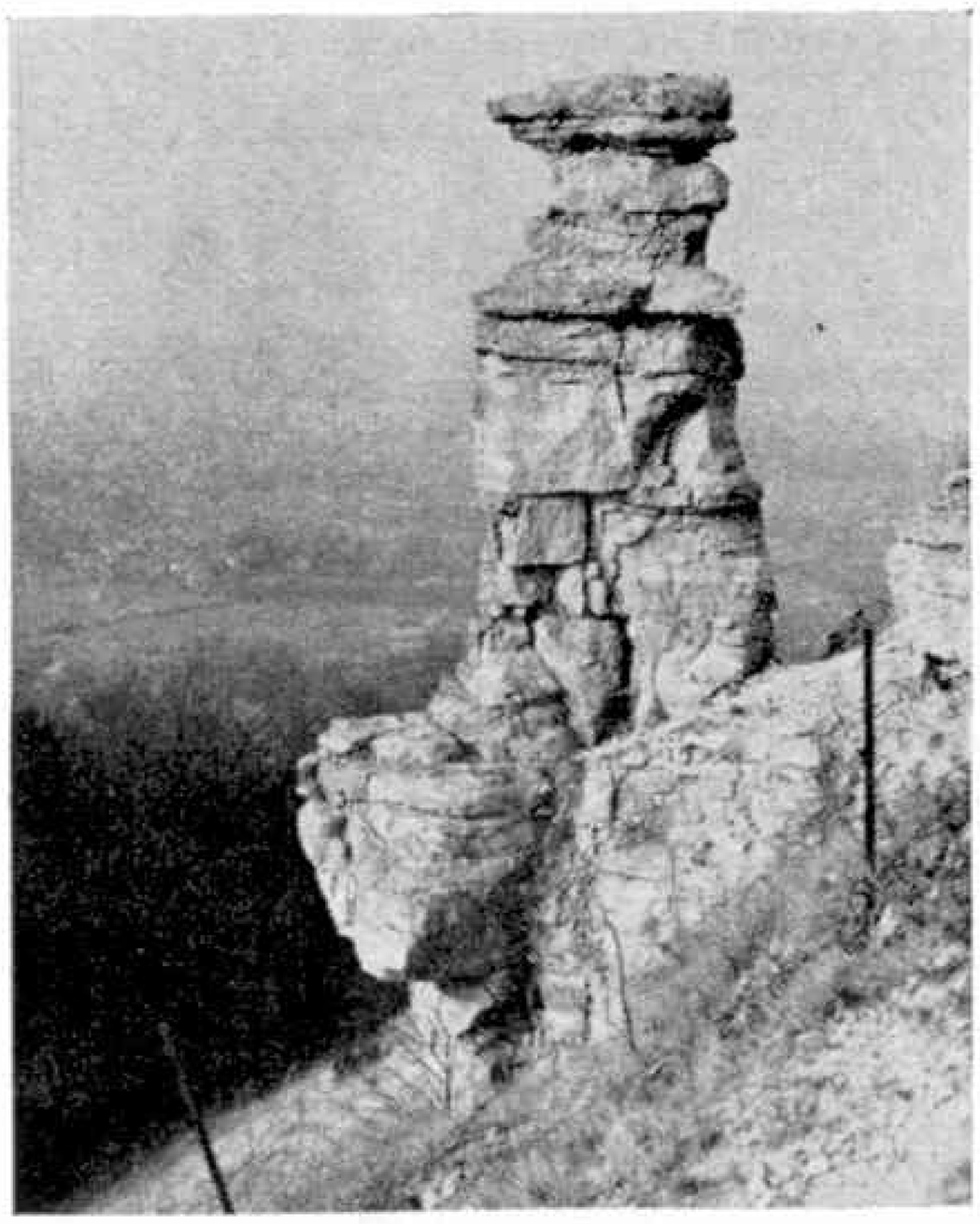
Standing rather self-consciously in the midst of a sea of traffic in Hereford's busy shopping centre is a delightful timber-framed building dating from 1621. It is known as The Old House, and is the only survivor of Butchers' Row which, together with the old town hall, formed the commercial centre of the city in Elizabethan and Stuart times.

The old town hall, a timber-framed building of considerable ingenuity, was demolished in 1862, but the Old House, now standing on its own island at the junction of High Town and St. Peter's Street, has been maintained as a museum piece.

The timber-framed village is one of the characteristics of the Herefordshire countryside. Weobley, just ten miles outside Hereford, is justly renowned for its unusual number of mediæval black and white houses still surviving, and nearby is The Ley, one of the most famous timber-framed houses in the country.

P. DONLAN (Manchester 21).

The Old House, Hereford. Photograph by P. Donlan, Manchester 21.



The Devil's Chimney, a Cotswold feature near Cheltenham. Photograph by E. W. Ilett, Maidenhead.

The Devil's Chimney

The unusual rock formation shown in the accompanying photograph is situated on a slope of the Cotswold Hills near Cheltenham, and is known by the picturesque title of The Devil's Chimney. In the past it was a local superstition that the Devil lived inside the hill, and because of its appearance, this rock was supposed to be his chimney.

The reason advanced by geologists for this strange formation is that in prehistoric times the area was covered with glaciers, and the chimney is a large fragment of hard rock borne by a glacier to this area of oolitic limestone. During thousands of years, the limestone has been eroded away by the action of wind and rain, but the much harder glacial fragment has been less affected.

The chimney is a well known local landmark, and is the subject of at least one inn sign. The actual column is about 20 ft. high, but it appears much higher because of the jutting spur of rock that forms its base, and the steepness of the hillside on which it stands.

E. W. ILETT (Maidenhead).

"I think they must be the tracks of a Great Dane, Charlie!"

Fireside Fun

Two Englishmen were discussing a mutual acquaintance.

"Have you noticed," said one, "how he drops his H's?"

"That's nothing," replied the other, "compared to the way he drops his vowels. I've got more than a dozen of his I O.U.s lying with me."

* * * *

Jim: "That's a fine looking hat, where did you get it?"

Tom: "I bought it ten years ago. Five years ago I had it cleaned, three years ago I had it blocked, and last night I exchanged it at a restaurant."

* * * *

Jake: "What made you lose your hair?"
Jos: "Worry."
Jake: "What about?"
Jos: "Losing my hair."

* * * *

"Man overboard!" shouted the young sailor on his first voyage.

Amid great confusion, the ship was stopped. The sailor stepped up to the Captain, saluted, and said: "I'm sorry, sir, I made a mistake when I said 'Man overboard'."

"Thank God!" said the Captain, signalling for full steam ahead.

"Yes," explained the sailor. "It's a lady."

* * * *

Motorist: "I just killed your hen. Would ten shillings take care of it?"

Farmer: "Better make it a pound. I have a rooster who was mighty fond of that hen and the shock might kill him too."

* * * *

A Professor of Chemistry was giving a demonstration of the properties of various acids.

"Now," he said, "I am going to drop this shilling into this glass of acid. Will it dissolve?"

"No, sir," replied one of the students.

"No?" said the demonstrator. "Then perhaps you will explain to the class why it won't dissolve."

"Because," replied the student, "if it would dissolve, you wouldn't drop it in."

* * * *

"This car will go 135 miles an hour," said the dealer.
"Yes, go on," said the buyer.
"And it will stop on a sixpence," said the dealer.
"Yes, go on," said the buyer, "what happens next?"
"Well," said the dealer, "a little putty knife comes out and wipes you off the windshield."

A lady tourist in South Africa was admiring an alligator-tooth necklace.

"I suppose they have much the same value to you as a real pearl necklace?"

"Not quite," replied the native. "Anybody can open an oyster."

* * * *

A bank cashier had been stealing the bank's money. "We will not prosecute, we'll dismiss you," said the manager.

"Why fire me?" asked the cashier. "I've got everything I want now—a nice home, refrigerator, car, the lot. Why take on a new man who has to start from scratch?"

* * * *

BRAIN TEASERS

AN ANATOMY PUZZLE

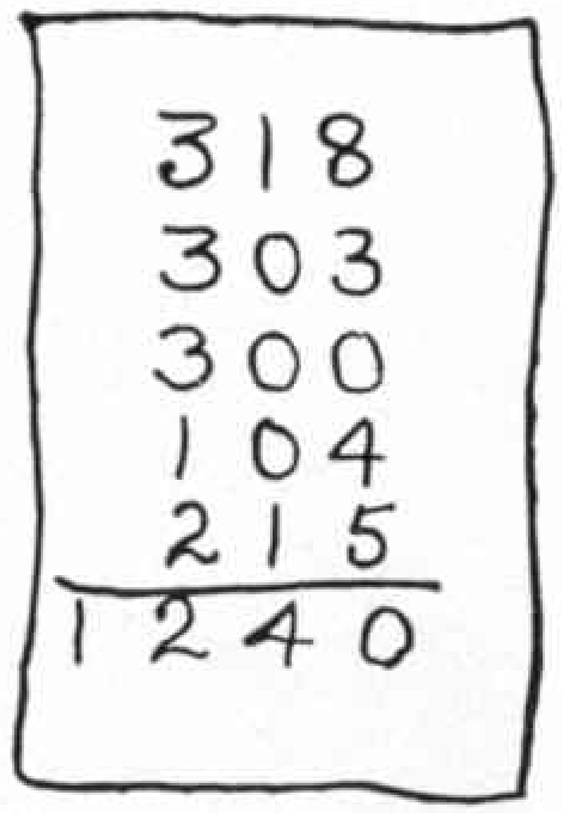
The answers to each of the following clues is the name of part of the body. Can you solve them?

1. Sharp pointed objects.
2. An orchestral instrument.
3. Also part of a garden rake.
4. Impudent back-chat.
5. This is also part of a ship.
6. These follow the wild brier flower.

* * * *

MAGIC ADDITION

Here is a fascinating puzzle that will tease you! Alongside is a simple addition sum, the result of which, as you see is 1,240. Now the problem is as follows. See if you can fold the paper so as to reduce the items from five to three and still have a total of 1,240! We must warn you that this is a trick puzzle, but it can be done.



ANSWERS TO LAST MONTH'S PUZZLES

Birds and Beasts

There were 22 birds and 14 beasts.

* * * *

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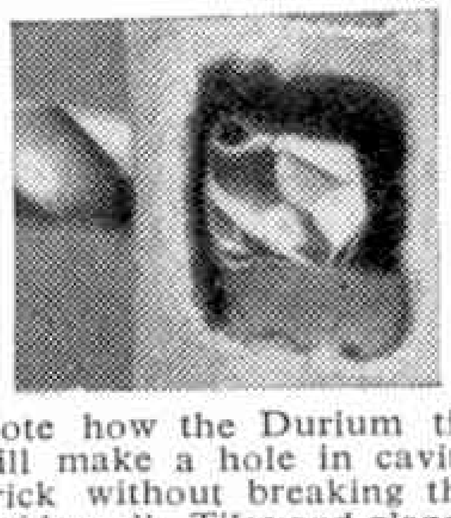

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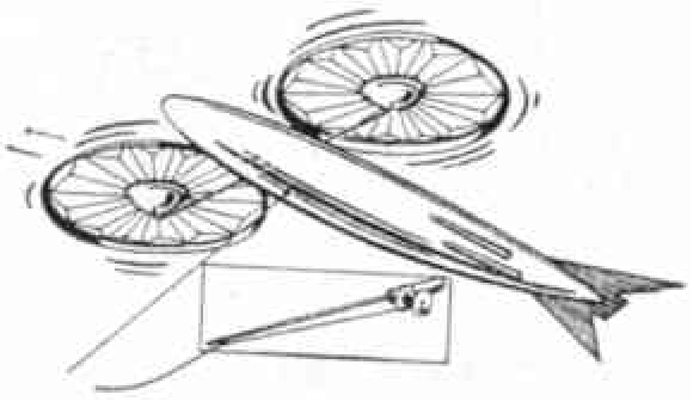

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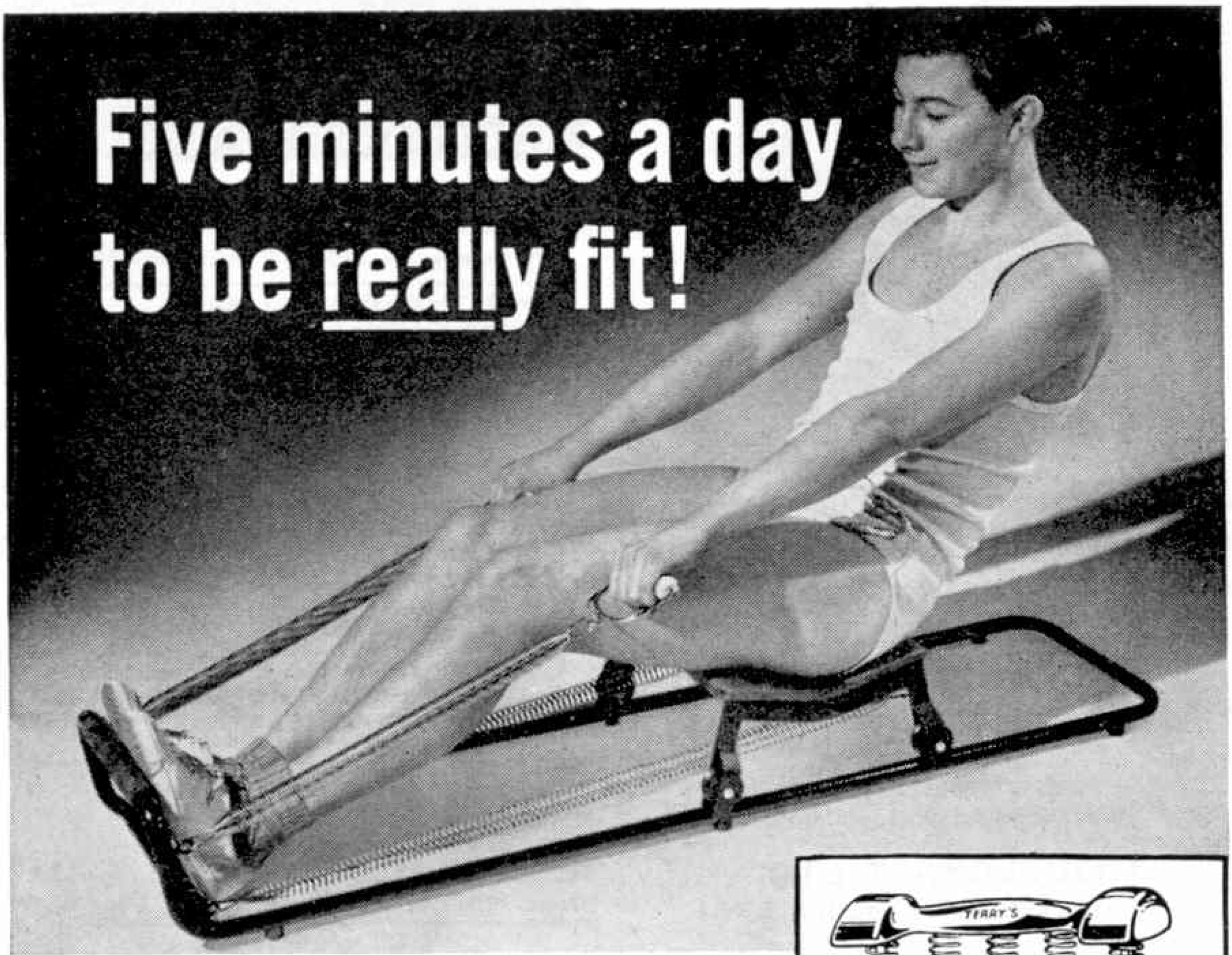

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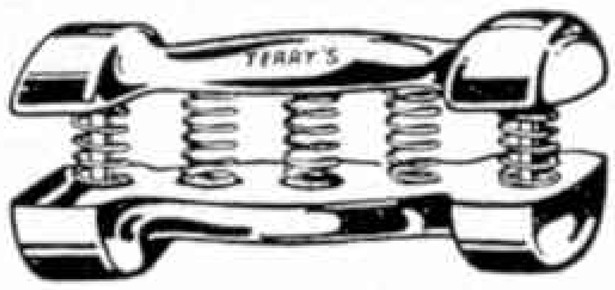

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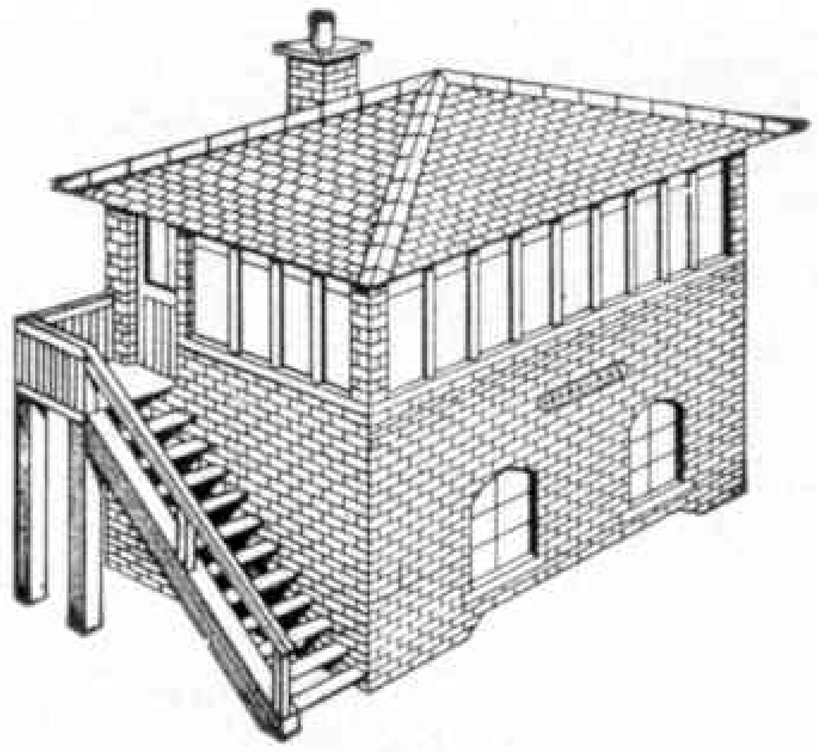

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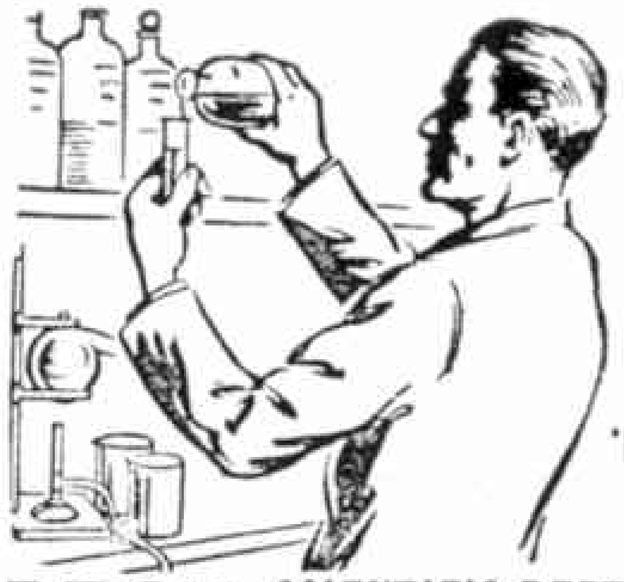

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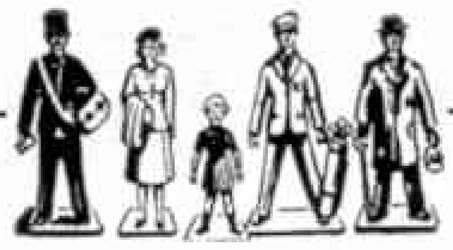

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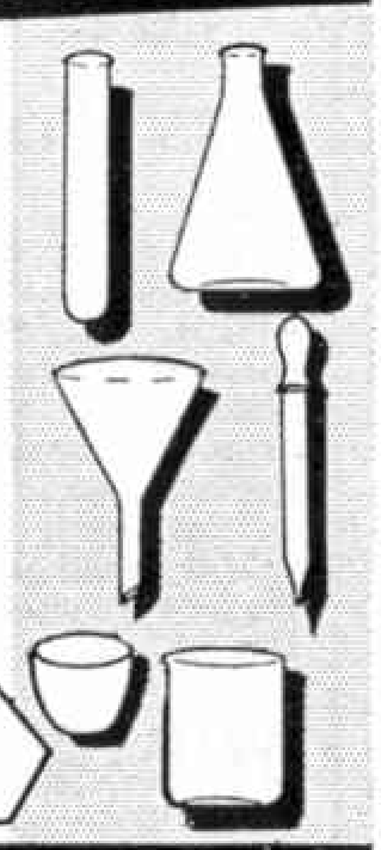

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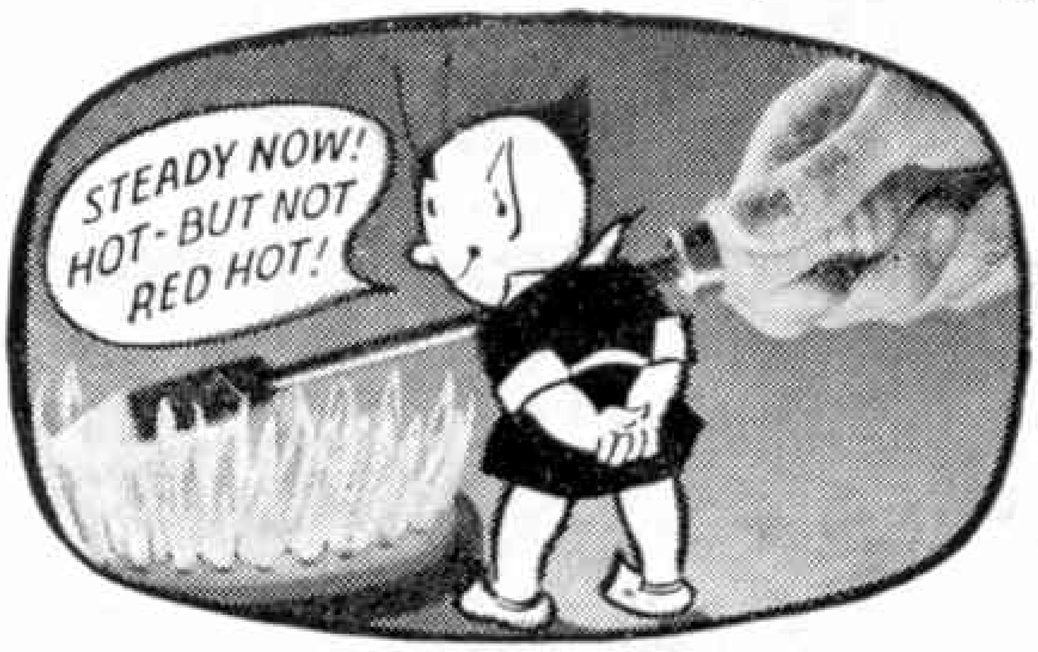

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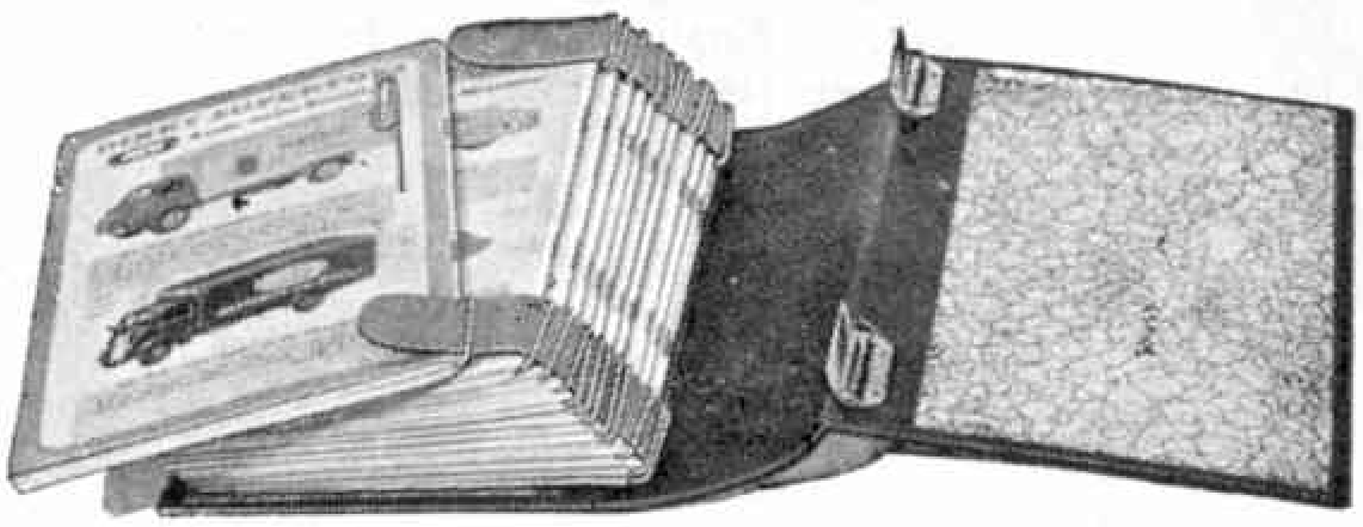

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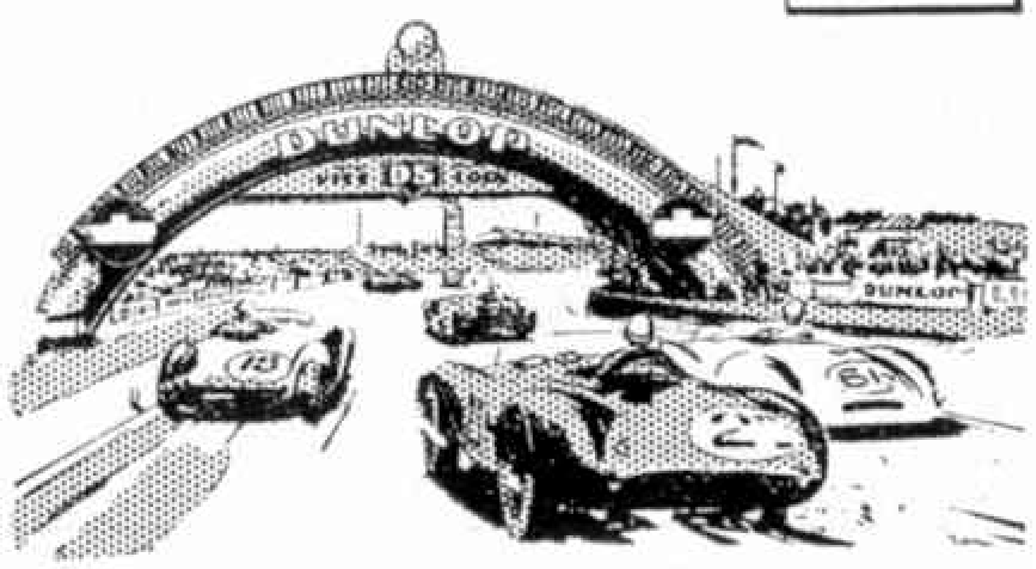

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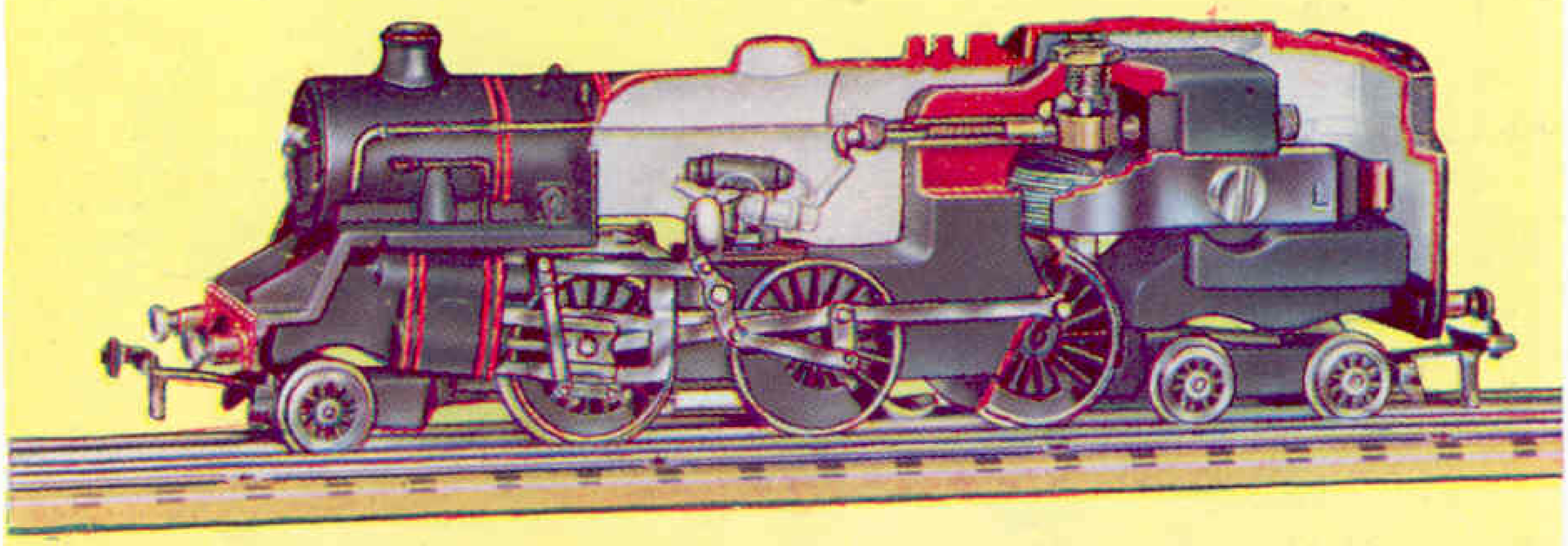

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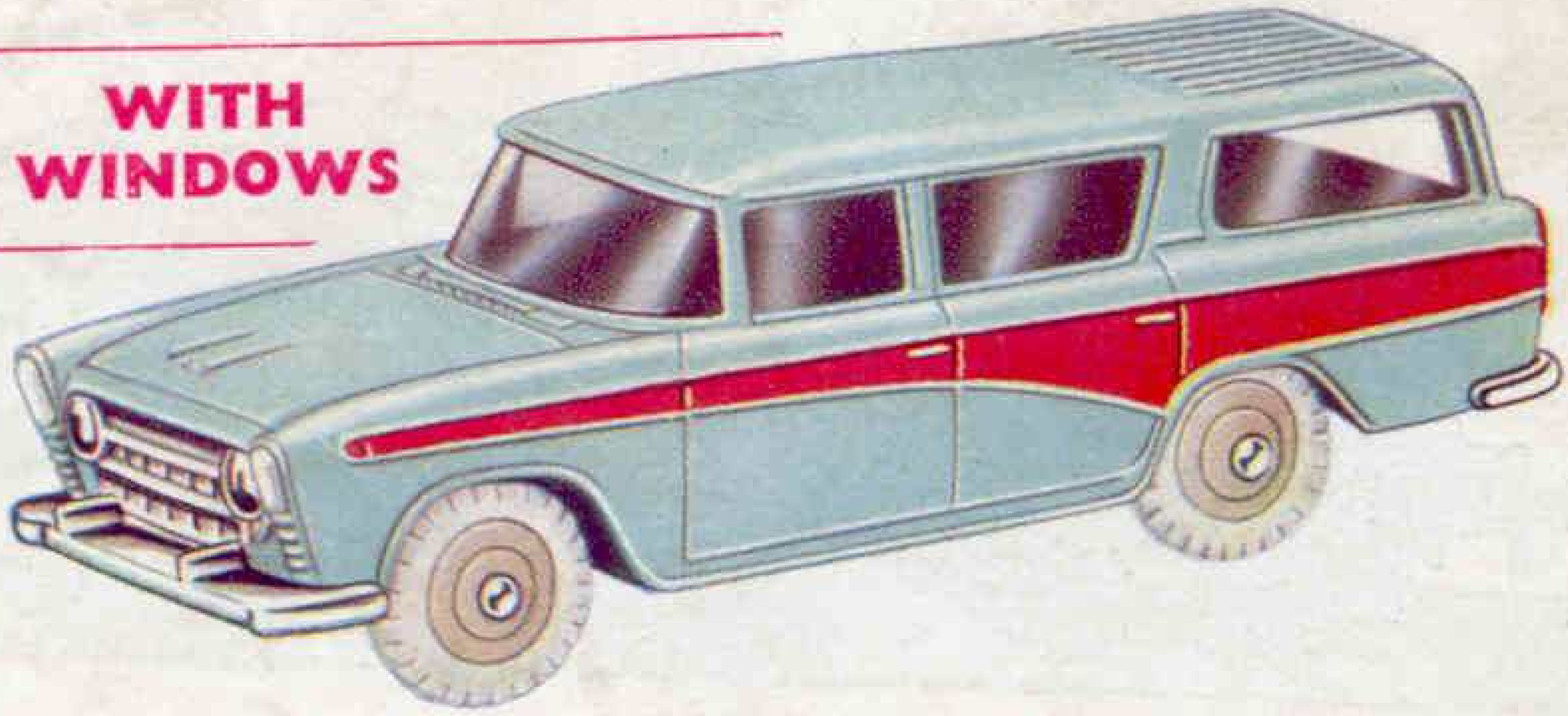

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